APPENDIX A

DWR STANDARDIZED TABLES

Submittal Table 2-1 Retail Only: Public Water Systems			
Public Water System Number	Public Water System Name	Number of Municipal Connections 2020	Volume of Water Supplied 2020 *
Add additional rows as needed			
3610034	Ontario Municipal Utilities Company	36,514	39,921
	TOTAL	36,514	39,921
**** Units of measure (AF, CCF, MG)*** *must remain consistent throughout the UWMP as reported in Table 2-3.*			
NOTES: The "Volume of Water Supplied 2020" includes recycled water supplies of 7,812 AF. Source for "Number of Municipal Connections 2020": https://sdwis.waterboards.ca.gov/PDWW/			

Submittal Table 2-2: Plan Identification			
Select Only One	**Type of Plan**		**Name of RUWMP or Regional Alliance** *if applicable* (select from drop down list)
☑	**Individual UWMP**		
	☐	Water Supplier is also a member of a RUWMP	
	☐	Water Supplier is also a member of a Regional Alliance	
☐	**Regional Urban Water Management Plan (RUWMP)**		
NOTES:			

Submittal Table 2-3: Supplier Identification	
Type of Supplier (select one or both)	
☐	Supplier is a wholesaler
☑	Supplier is a retailer
Fiscal or Calendar Year (select one)	
☐	UWMP Tables are in calendar years
☑	UWMP Tables are in fiscal years
If using fiscal years provide month and date that the fiscal year begins (mm/dd)	
07/01	
Units of measure used in UWMP * (select from drop down)	
Unit	AF
**** Units of measure (AF, CCF, MG)*** *must remain consistent throughout the UWMP as reported in Table 2-3.*	
NOTES:	

Submittal Table 2-4 Retail: Water Supplier Information Exchange
The retail Supplier has informed the following wholesale supplier(s) of projected water use in accordance with Water Code Section 10631.
Wholesale Water Supplier Name
Add additional rows as needed
Chino Basin Desalter Authority
Inland Empire Utilities Agency
San Antonio Water Company
Water Facilities Authority
NOTES:

Submittal Table 3-1 Retail: Population - Current and Projected						
Population Served	2020	2025	2030	2035	2040	2045*(opt)*
	178,409	232,583	266,339	300,095	362,903	362,903
NOTES: The 2020 population and the populations projected through 2045 were obtained the City of Ontario's 2020 Water Master Plan (See Section 3.4.1 and Section 5.4.1). Population is equal for years 2040 and 2045 because the City anticipates buildout to occur in 2040.						

Submittal Table 4-1 Retail: Demands for Potable and Non-Potable[1] Water - Actual			
Use Type	2020 Actual		
Drop down list May select each use multiple times These are the only Use Types that will be recognized by the WUEdata online submittal tool	Additional Description (as needed)	Level of Treatment When Delivered Drop down list	Volume[2]
Add additional rows as needed			
Single Family		Drinking Water	12,502
Multi-Family		Drinking Water	5,068
Commercial		Drinking Water	5,359
Industrial		Drinking Water	2,078
Institutional/Governmental		Drinking Water	538
Landscape		Drinking Water	4,631
Losses		Drinking Water	1,565
Other	Hydrant	Drinking Water	368
		TOTAL	32,109

[1] *Recycled water demands are NOT reported in this table. Recycled water demands are reported in Table 6-4.*

[2] *Units of measure (AF, CCF, MG) must remain consistent throughout the UWMP as reported in Table 2-3.*

NOTES: Recycled water demands are provided in Table 4-3 and Table 6-4.

Submittal Table 4-2 Retail: Use for Potable and Non-Potable[1] Water - Projected						
Use Type	Additional Description (as needed)	Projected Water Use[2] *Report To the Extent that Records are Available*				
Drop down list May select each use multiple times These are the only Use Types that will be recognized by the WUEdata online submittal tool		2025	2030	2035	2040	2045 (opt)
Add additional rows as needed						
Single Family		15,723	17,540	19,109	22,431	22,431
Multi-Family		6,374	7,110	7,746	9,093	9,093
Commercial		6,740	7,519	8,191	9,615	9,615
Industrial		2,613	2,915	3,176	3,728	3,728
Institutional/Governmental		677	755	822	965	965
Landscape		5,824	6,497	7,078	8,309	8,309
Losses		1,968	2,196	2,392	2,808	2,808
Other		463	516	562	660	660
	TOTAL	40,382	45,048	49,076	57,609	57,609

[1] *Recycled water demands are NOT reported in this table. Recycled water demands are reported in Table 6-4.* [2] *Units of measure (AF, CCF, MG) must remain consistent throughout the UWMP as reported in Table 2-3.*

NOTES: Projected water use are equal for years 2040 and 2045 because the City anticipates buildout to occur in 2040.

Submittal Table 4-3 Retail: Total Water Use (Potable and Non-Potable)						
	2020	2025	2030	2035	2040	2045 (opt)
Potable Water, Raw, Other Non-potable *From Tables 4-1R and 4-2 R*	32,109	40,382	45,048	49,076	57,609	57,609
Recycled Water Demand[1] *From Table 6-4*	7,812	12,168	13,465	14,762	16,059	16,059
Optional Deduction of Recycled Water Put Into Long-Term Storage[2]						
TOTAL WATER USE	39,921	52,550	58,513	63,838	73,668	73,668

[1] Recycled water demand fields will be blank until Table 6-4 is complete

*[2] Long term storage means water placed into groundwater or surface storage that is not removed from storage in the same year. Supplier **may** deduct recycled water placed in long-term storage from their reported demand. This value is manually entered into Table 4-3.*

NOTES: Projected total water use are equal for years 2040 and 2045 because the City anticipates buildout to occur in 2040.

Submittal Table 4-4 Retail: Last Five Years of Water Loss Audit Reporting	
Reporting Period Start Date (mm/yyyy)	Volume of Water Loss [1,2]
07/2015	618
07/2016	1,325
07/2017	1,282
07/2018	1,031
07/2019	1,565

[1] *Taken from the field "Water Losses" (a combination of apparent losses and real losses) from the AWWA worksheet.*

[2] ***Units of measure (AF, CCF, MG)*** *must remain consistent throughout the UWMP as reported in Table 2-3.*

NOTES: The "Volume of Water Losses" from FY 2016-17 through FY 2018-19 are based on the field "Water Losses" (a combination of apparent losses and real losses) from the AWWA worksheets. Because the water loss audits are reported in calendar years, the volume of water losses were calculated to be an average of the two calendar years as part of that fiscal year. The volume of water losses for FY 2015-16 and FY 2019-20 (calendar years 2016 and 2020) were estimated based on water system metered production and sales data.

Submittal Table 4-5 Retail Only: Inclusion in Water Use Projections	
Are Future Water Savings Included in Projections? (Refer to Appendix K of UWMP Guidebook) *Drop down list (y/n)*	Yes
If "Yes" to above, state the section or page number, in the cell to the right, where citations of the codes, ordinances, or otherwise are utilized in demand projections are found.	Section 4.2.6 and Chapter 8
Are Lower Income Residential Demands Included In Projections? *Drop down list (y/n)*	Yes
NOTES:	

Submittal Table 5-1 Baselines and Targets Summary
From SB X7-7 Verification Form
Retail Supplier or Regional Alliance Only

Baseline Period	Start Year *	End Year *	Average Baseline GPCD*	Confirmed 2020 Target*
10-15 year	*1995*	*2004*	*245*	*196*
5 Year	*2003*	*2007*	*237*	

**All cells in this table should be populated manually from the supplier's SBX7-7 Verification Form and reported in Gallons per Capita per Day (GPCD)*

NOTES:

Submittal Table 5-2: 2020 Compliance
From SB X7-7 2020 Compliance Form
Retail Supplier or Regional Alliance Only

2020 GPCD			2020 Confirmed Target GPCD*	Did Supplier Achieve Targeted Reduction for 2020? Y/N
Actual 2020 GPCD*	2020 TOTAL Adjustments*	Adjusted 2020 GPCD* *(Adjusted if applicable)*		
161	*0*	*161*	*196*	*Y*

**All cells in this table should be populated manually from the supplier's SBX7-7 2020 Compliance Form and reported in Gallons per Capita per Day (GPCD)*

NOTES:

Submittal Table 6-1 Retail: Groundwater Volume Pumped						
☐	Supplier does not pump groundwater. The supplier will not complete the table below.					
☐	All or part of the groundwater described below is desalinated.					
Groundwater Type ***Drop Down List*** *May use each category multiple times*	Location or Basin Name	2016*	2017*	2018*	2019*	2020*
Add additional rows as needed						
Alluvial Basin	Chino Basin	22,751	24,672	26,109	19,604	18,395
	TOTAL	22,751	24,672	26,109	19,604	18,395
**** Units of measure (AF, CCF, MG)*** *must remain consistent throughout the UWMP as reported in Table 2-3.*						
NOTES:						

Submittal Table 6-2 Retail: Wastewater Collected Within Service Area in 2020

☐	There is no wastewater collection system. The supplier will not complete the table below.
100	Percentage of 2020 service area covered by wastewater collection system *(optional)*
100	Percentage of 2020 service area population covered by wastewater collection system *(optional)*

Wastewater Collection			Recipient of Collected Wastewater			
Name of Wastewater Collection Agency	Wastewater Volume Metered or Estimated? *Drop Down List*	Volume of Wastewater Collected from UWMP Service Area 2020 *	Name of Wastewater Treatment Agency Receiving Collected Wastewater	Treatment Plant Name	Is WWTP Located Within UWMP Area? *Drop Down List*	Is WWTP Operation Contracted to a Third Party? *(optional)* *Drop Down List*
IEUA	Estimated	12,645	IEUA	RP-1 and RP-5	Yes	No
Total Wastewater Collected from Service Area in 2020:		12,645				

**** Units of measure (AF, CCF, MG)*** *must remain consistent throughout the UWMP as reported in Table 2-3* **.**

NOTES:

Submittal Table 6-3 Retail: Wastewater Treatment and Discharge Within Service Area in 2020

☐ **No wastewater is treated or disposed of within the UWMP service area.** The supplier will not complete the table below.

Wastewater Treatment Plant Name	Discharge Location Name or Identifier	Discharge Location Description	Wastewater Discharge ID Number *(optional)* [2]	Method of Disposal *Drop down list*	Does This Plant Treat Wastewater Generated Outside the Service Area? *Drop down list*	Treatment Level *Drop down list*	2020 volumes [1]				
							Wastewater Treated	Discharged Treated Wastewater	Recycled Within Service Area	Recycled Outside of Service Area	Instream Flow Permit Requirement
RP-1	Santa Ana River	San Ana River		River or creek outfall	Yes	Tertiary	31,000	14,200	7,812	8,988	
						Total	31,000	14,200	7,812	8,988	0

[1] **Units of measure (AF, CCF, MG)** must remain consistent throughout the UWMP as reported in Table 2-3.
[2] If the **Wastewater Discharge ID Number** is not available to the UWMP preparer, access the SWRCB CIWQS regulated facility website at https://ciwqs.waterboards.ca.gov/ciwqs/readOnly/CiwqsReportServlet?inCommand=reset&reportName=RegulatedFacility

NOTES: RP-1 are located within the City's service area; however; the water reclamation plant is wholly owned and operated by IEUA. Information regarding "2020 volumes" is estimated based IEUA's Recycled Water Annual Report FY 2019-20. Recycled water volume (within the serviced area) is for fiscal year 2019-20. Because the City does not own the water reclamation plant, information regarding "Instream Flow Permit Requirement" is not available and is not applicable.

Submittal Table 6-4 Retail: Recycled Water Direct Beneficial Uses Within Service Area

☐ Recycled water is not used and is not planned for use within the service area of the supplier.
The supplier will not complete the table below.

Name of Supplier Producing (Treating) the Recycled Water:	Inland Empire Utilities Agency
Name of Supplier Operating the Recycled Water Distribution System:	Ontario Municipal Utilities Company
Supplemental Water Added in 2020 (volume) *Include units*	0
Source of 2020 Supplemental Water	N/A

Beneficial Use Type *Insert additional rows if needed.*	**Potential** Beneficial Uses of Recycled Water (Describe)	Amount of **Potential** Uses of Recycled Water (Quantity) *Include volume units* [1]	General Description of 2020 Uses	Level of Treatment *Drop down list*	2020 [1]	2025 [1]	2030 [1]	2035 [1]	2040 [1]	2045 [1] (opt)
Agricultural irrigation		5,971		Tertiary	2,905	1,704	1,136	568	0	0
Landscape irrigation (exc golf courses)	Schools, Parks, City Landscape	6,764	Schools, Parks, City Landscape	Tertiary	3,290	7,088	8,612	10,136	11,659	11,659
Golf course irrigation		1,297		Tertiary	631	660	680	700	720	720
Commercial use										
Industrial use		2,027		Tertiary	986	2,716	3,037	3,358	3,680	3,680
Geothermal and other energy production										
Seawater intrusion barrier										
Recreational impoundment										
Wetlands or wildlife habitat										
Groundwater recharge (IPR)										
Reservoir water augmentation (IPR)										
Direct potable reuse										
Other (Description Required)										
				Total:	7,812	12,168	13,465	14,762	16,059	16,059
				2020 Internal Reuse						

[1] ***Units of measure (AF, CCF, MG)*** *must remain consistent throughout the UWMP as reported in Table 2-3.*

NOTES: Projected recycled water use is equal for years 2040 and 2045 because the City anticipates buildout to occur in 2040. Pursuant to the City's 2020 Recycled Water Master Plan, the City anticipates agricultural recycled water use will decrease to 0 AFY at buildout.

Submittal Table 6-5 Retail: 2015 UWMP Recycled Water Use Projection Compared to 2020 Actual

☐	Recycled water was not used in 2015 nor projected for use in 2020. The supplier will not complete the table below. If recycled water was not used in 2020, and was not predicted to be in 2015, then check the box and do not complete the table.

Beneficial Use Type	2015 Projection for 2020 [1]	2020 Actual Use[1]
Insert additional rows as needed.		
Agricultural irrigation	2,177	2,905
Landscape irrigation (exc golf courses)	4,195	3,290
Golf course irrigation	600	631
Commercial use		
Industrial use	957	986
Geothermal and other energy production		
Seawater intrusion barrier		
Recreational impoundment		
Wetlands or wildlife habitat		
Groundwater recharge (IPR)		
Reservoir water augmentation (IPR)		
Direct potable reuse		
Other (Description Required)		
Total	7,929	7,812

[1] **Units of measure (AF, CCF, MG)** must remain consistent throughout the UWMP as reported in Table 2-3.

NOTE:

Submittal Table 6-6 Retail: Methods to Expand Future Recycled Water Use			
☐	Supplier does not plan to expand recycled water use in the future. Supplier will not complete the table below but will provide narrative explanation.		
Section 6.2.5	Provide page location of narrative in UWMP		
Name of Action	Description	Planned Implementation Year	Expected Increase in Recycled Water Use *
Add additional rows as needed			
Recycled Water Expansion	Expand recycled water distribution system pursuant to City's "2020 Recycled Water Master Plan" (Near Phase)	2025	4,356
Recycled Water Expansion	Expand recycled water distribution system pursuant to City's "2020 Recycled Water Master Plan" (Future Phase)	2045	3,891
		Total	8,247
Units of measure (AF, CCF, MG) *must remain consistent throughout the UWMP as reported in Table 2-3.*			
NOTES:			

Submittal Table 6-7 Retail: Expected Future Water Supply Projects or Programs						
☑	No expected future water supply projects or programs that provide a quantifiable increase to the agency's water supply. Supplier will not complete the table below.					
☐	Some or all of the supplier's future water supply projects or programs are not compatible with this table and are described in a narrative format.					
	Provide page location of narrative in the UWMP					
Name of Future Projects or Programs	Joint Project with other suppliers?		Description (if needed)	Planned Implementation Year	Planned for Use in Year Type *Drop Down List*	Expected Increase in Water Supply to Supplier* *This may be a range*
	Drop Down List (y/n)	*If Yes, Supplier Name*				
Add additional rows as needed						
***Units of measure (AF, CCF, MG)** must remain consistent throughout the UWMP as reported in Table 2-3.*						
NOTES:						

Submittal Table 6-8 Retail: Water Supplies — Actual				
Water Supply	Additional Detail on Water Supply	2020		
Drop down list May use each category multiple times.These are the only water supply categories that will be recognized by the WUEdata online submittal tool		Actual Volume*	Water Quality Drop Down List	Total Right or Safe Yield* (optional)
Add additional rows as needed				
Groundwater (not desalinated)	Chino Basin	18,395	Drinking Water	
Purchased or Imported Water	Chino Basin Desalter Authority	6,636	Drinking Water	
Purchased or Imported Water	Water Facilities Authority	6,513	Drinking Water	
Purchased or Imported Water	San Antonio Water Company	565	Drinking Water	
Recycled Water	Inland Empire Utilities Agency	7,812	Recycled Water	
	Total	39,921		0
Units of measure (AF, CCF, MG) *must remain consistent throughout the UWMP as reported in Table 2-3.*				
NOTES:				

Submittal Table 6-9 Retail: Water Supplies — Projected

Water Supply	Additional Detail on Water Supply	Projected Water Supply * Report To the Extent Practicable									
Drop down list May use each category multiple times. These are the only water supply categories that will be recognized by the WUEdata online submittal tool		**2025**		**2030**		**2035**		**2040**		**2045** (opt)	
		Reasonably Available Volume	Total Right or Safe Yield (optional)	Reasonably Available Volume	Total Right or Safe Yield (optional)	Reasonably Available Volume	Total Right or Safe Yield (optional)	Reasonably Available Volume	Total Right or Safe Yield (optional)	Reasonably Available Volume	Total Right or Safe Yield (optional)
Add additional rows as needed											
Groundwater (not desalinated)	Chino Basin	20,249		22,915		24,943		31,476		31,476	
Purchased or Imported Water	Water Facilities Authority	11,000		13,000		15,000		17,000		17,000	
Purchased or Imported Water	Chino Basin Desalter Authority	8,533		8,533		8,533		8,533		8,533	
Purchased or Imported Water	San Antonio Water Company	600		600		600		600		600	
Recycled Water	Inland Empire Utilities Agency	12,168		13,465		14,762		16,059		16,059	
	Total	52,550	0	58,513	0	63,838	0	73,668	0	73,668	0

Units of measure (AF, CCF, MG) *must remain consistent throughout the UWMP as reported in Table 2-3.*

NOTES:

Submittal Table 7-1 Retail: Basis of Water Year Data (Reliability Assessment)			
Year Type	**Base Year** If not using a calendar year, type in the last year of the fiscal, water year, or range of years, for example, water year 2019-2020, use 2020	**Available Supplies if Year Type Repeats**	
		☐	Quantification of available supplies is not compatible with this table and is provided elsewhere in the UWMP. Location _____
		☑	Quantification of available supplies is provided in this table as either volume only, percent only, or both.
		Volume Available *	**% of Average Supply**
Average Year	2020	39,921	100%
Single-Dry Year	2018	43,346	108.6%
Consecutive Dry Years 1st Year	2012	42,603	106.7%
Consecutive Dry Years 2nd Year	2013	42,730	107.0%
Consecutive Dry Years 3rd Year	2014	45,196	113.2%
Consecutive Dry Years 4th Year	2015	41,226	103.3%
Consecutive Dry Years 5th Year	2016	36,036	90.3%

Supplier may use multiple versions of Table 7-1 if different water sources have different base years and the supplier chooses to report the base years for each water source separately. If a Supplier uses multiple versions of Table 7-1, in the "Note" section of each table, state that multiple versions of Table 7-1 are being used and identify the particular water source that is being reported in each table.

***Units of measure (AF, CCF, MG)** must remain consistent throughout the UWMP as reported in Table 2-3.*

NOTES:

Submittal Table 7-2 Retail: Normal Year Supply and Demand Comparison					
	2025	2030	2035	2040	2045 *(Opt)*
Supply totals (*autofill from Table 6-9)*	52,550	58,513	63,838	73,668	73,668
Demand totals *(autofill from Table 4-3)*	52,550	58,513	63,838	73,668	73,668
Difference	0	0	0	0	0
NOTES: Supply and demand are equal for years 2040 and 2045 because the City anticipates buildout to occur in 2040.					

Submittal Table 7-3 Retail: Single Dry Year Supply and Demand Comparison					
	2025	2030	2035	2040	2045 (Opt)
Supply totals*	57,058	63,534	68,847	79,989	79,989
Demand totals*	57,058	63,534	68,847	79,989	79,989
Difference	0	0	0	0	0
***Units of measure (AF, CCF, MG)** must remain consistent throughout the UWMP as reported in Table 2-3.*					
NOTES: Supply and demand are equal for years 2040 and 2045 because the City anticipates buildout to occur in 2040.					

Submittal Table 7-4 Retail: Multiple Dry Years Supply and Demand Comparison						
		2025*	2030*	2035*	2040*	2045* (Opt)
First year	Supply totals	56,080	62,445	67,667	78,618	78,618
	Demand totals	56,080	62,445	67,667	78,618	78,618
	Difference	0	0	0	0	0
Second year	Supply totals	56,248	62,632	67,870	78,853	78,853
	Demand totals	56,248	62,632	67,870	78,853	78,853
	Difference	0	0	0	0	0
Third year	Supply totals	59,493	66,246	71,786	83,403	83,403
	Demand totals	59,493	66,246	71,786	83,403	83,403
	Difference	0	0	0	0	0
Fourth year	Supply totals	54,268	60,428	65,481	76,078	76,078
	Demand totals	54,268	60,428	65,481	76,078	76,078
	Difference	0	0	0	0	0
Fifth year	Supply totals	47,436	52,820	57,237	66,500	66,500
	Demand totals	47,436	52,820	57,237	66,500	66,500
	Difference	0	0	0	0	0
Sixth year *(optional)*	Supply totals					
	Demand totals					
	Difference	0	0	0	0	0
***Units of measure (AF, CCF, MG)** must remain consistent throughout the UWMP as reported in Table 2-3.*						
NOTES: Supply and demand are equal for years 2040 and 2045 because the City anticipates buildout to occur in 2040.						

Submittal Table 7-5: Five-Year Drought Risk Assessment Tables to address Water Code Section 10635(b)	
2021	**Total**
Total Water Use	45,299
Total Supplies	42,603
Surplus/Shortfall w/o WSCP Action	(2,696)
Planned WSCP Actions (use reduction and supply augmentation)	
WSCP - supply augmentation benefit	0
WSCP - use reduction savings benefit	2,696
Revised Surplus/(shortfall)	0
Resulting % Use Reduction from WSCP action	6%

2022	Total
Total Water Use	48,138
Total Supplies	42,730
Surplus/Shortfall w/o WSCP Action	(5,408)
Planned WSCP Actions (use reduction and supply augmentation)	
WSCP - supply augmentation benefit	0
WSCP - use reduction savings benefit	5,408
Revised Surplus/(shortfall)	0
Resulting % Use Reduction from WSCP action	11%

2023	Total
Total Water Use	53,774
Total Supplies	45,196
Surplus/Shortfall w/o WSCP Action	(8,578)
Planned WSCP Actions (use reduction and supply augmentation)	
WSCP - supply augmentation benefit	0
WSCP - use reduction savings benefit	8,578
Revised Surplus/(shortfall)	0
Resulting % Use Reduction from WSCP action	16%

2024	Total
Total Water Use	51,660
Total Supplies	41,226
Surplus/Shortfall w/o WSCP Action	(10,434)
Planned WSCP Actions (use reduction and supply augmentation)	
WSCP - supply augmentation benefit	0
WSCP - use reduction savings benefit	10,434
Revised Surplus/(shortfall)	0
Resulting % Use Reduction from WSCP action	20%

2025	Total
Total Water Use	47,436
Total Supplies	36,036
Surplus/Shortfall w/o WSCP Action	(11,400)
Planned WSCP Actions (use reduction and supply augmentation)	
WSCP - supply augmentation benefit	0
WSCP - use reduction savings benefit	11,400
Revised Surplus/(shortfall)	0
Resulting % Use Reduction from WSCP action	24%

Submittal Table 8-1
Water Shortage Contingency Plan Levels

Shortage Level	Percent Shortage Range	Shortage Response Actions (*Narrative description*)
1	Up to 10%	Washing of motor vehicles, trailers, boats or other types of mobile equipment shall be done only with a hand-held bucket or a hose equipped with a positive shutoff nozzle for quick rinses, except that washing may be done at the immediate premises of a commercial car wash or with reclaimed wastewater. No person shall sprinkle, water, or irrigate any landscaped or vegetated areas between the hours of 9:00 a.m. and 4:00 p.m.
2	Up to 20%	In addition to Shortage Level 1, operators of hotels and motels must provide the option of choosing not to have towels and linens laundered daily. Irrigation is prohibited during and within 48 hours of rainfall.
3	Up to 30%	In addition to Shortage Level 2, the use of fire hydrants shall be limited to fire fighting and related activities and other uses of water for municipal purposes shall be limited to activities necessary to maintain the public health, safety, and welfare. Unless written permission has been granted by the City Manager or his/her designee, the use of potable water for construction activities and grading shall be prohibited.
4	Up to 40%	In addition to Shortage Level 3, residents and CII customers will be prohibited from irrigating turf or other landscaping more than two days a week. No person shall irrigate any turf or landscaped area more than fifteen minutes (15) on watering days. No vehicles shall be washed unless it is taken to a carwash.
5	Up to 50%	In addition to Shortage Level 4, residents and CII customers will be prohibited from irrigating turf or other landscaping more than one day a week.
6	>50%	In addition to Shortage Level 5, unless otherwise permitted by a resolution of the City Council, there shall be no use of potable water for irrigation of outdoor landscape or turf. Commercial nurseries shall be prohibited from the use of potable water for irrigation of outdoor, landscape and turf except by use of a hand-held hose equipped with a positive shutoff nozzle. The following nonessential use of water shall be prohibited: the filling, cycling, filtering, or refilling of swimming pools, spas, Jacuzzis, fountains or other like devices.

NOTES:

Submittal Table 8-2: Demand Reduction Actions

Shortage Level	Demand Reduction Actions ***Drop down list*** *These are the only categories that will be accepted by the WUEdata online submittal tool. Select those that apply.*	How much is this going to reduce the shortage gap? *Include units used (volume type or percentage)*	Additional Explanation or Reference *(optional)*	Penalty, Charge, or Other Enforcement? ***For Retail Suppliers Only*** *Drop Down List*
Add additional rows as needed				
1	Other - Prohibit use of potable water for washing hard surfaces	Collective reduction from all Shortage Level 1 actions is up to 4,712 AF		Yes
1	Other - Require automatic shut of hoses	Collective reduction from all Shortage Level 1 actions is up to 4,712 AF		Yes
1	Water Features - Restrict water use for decorative water features, such as fountains	Collective reduction from all Shortage Level 1 actions is up to 4,712 AF		Yes
1	CII - Restaurants may only serve water upon request	Collective reduction from all Shortage Level 1 actions is up to 4,712 AF		Yes
1	Other - Customers must repair leaks, breaks, and malfunctions in a timely manner	Collective reduction from all Shortage Level 1 actions is up to 4,712 AF		Yes
1	Landscape - Limit landscape irrigation to specific times	Collective reduction from all Shortage Level 1 actions is up to 4,712 AF		Yes
1	Landscape - Restrict or prohibit runoff from landscape irrigation	Collective reduction from all Shortage Level 1 actions is up to 4,712 AF		Yes
1	Other	Collective reduction from all Shortage Level 1 actions is up to 4,712 AF	The use of water for fire hydrants shall be limited to fire fighting and related activities necessary to maintain the public health, safety, and welfare. An exception may be made for construction use through proper city-designated meter. The use of poable water for construction activities shall be restricted in areas where recycled water is available for such use.	Yes
2	Other	Collective reduction from all Shortage Level 2 actions is up to 9,424 AF	Includes all Stage 1 actions	Yes
2	Other water feature or swimming pool restriction	Collective reduction from all Shortage Level 2 actions is up to 9,424 AF	Filling or refilling of empty swimming pools shall not occur without the written permission of the City Manager or his/her designee.	Yes
2	Landscape - Other landscape restriction or prohibition	Collective reduction from all Shortage Level 2 actions is up to 9,424 AF	All customers are prohibited from irrigating turf or ornamental landscapes during and within 48 hours following measurable rainfall.	Yes
2	CII - Lodging establishment must offer opt out of linen service	Collective reduction from all Shortage Level 2 actions is up to 9,424 AF		Yes
2	Landscape - Prohibit all landscape irrigation	Collective reduction from all Shortage Level 2 actions is up to 9,424 AF	All persons, including the City, are prohibited from irrigating with potable water any ornamental turf on public street medians.	Yes
2	Landscape - Other landscape restriction or prohibition	Collective reduction from all Shortage Level 2 actions is up to 9,424 AF	The use of potable water for irrigation outside of newly constructed homes and buildings shall be consistent with California Building Standards Commission and Department of Housing & Community Development.	Yes
3	Other	Collective reduction from all Shortage Level 3 actions is up to 14,137 AF	includes all Stage 2 actions	Yes
3	Landscape - Limit landscape irrigation to specific days	Collective reduction from all Shortage Level 3 actions is up to 14,137 AF	Residents and CII customers will be prohibited from irrigating any turf or landscape area more than four days a week.	Yes
3	Other - Prohibit use of potable water for construction and dust control	Collective reduction from all Shortage Level 3 actions is up to 14,137 AF	The use of water from fire hydrants shall be limited to fire fighting and related activities and other uses of water for municipal purposes shall be limited to activities necessary to maintain the public health, safety and welfare. Unless written permission has been granted by the CityManager or his/her designee, the use of potable water for construction activities and grading shall be prohibited.	Yes
4	Other	Collective reduction from all Shortage Level 4 actions is up to 18,849 AF	Includes all Stage 3 actions	Yes
4	Landscape - Limit landscape irrigation to specific days	Collective reduction from all Shortage Level 4 actions is up to 18,849 AF	Residents and CII customers will be prohibited from irrigating any turf or landscape area more than two days a week.	Yes
4	Landscape - Other landscape restriction or prohibition	Collective reduction from all Shortage Level 4 actions is up to 18,849 AF	No person shall irrigate any turf or landscaped area more than fifteen minutes (15) on watering days.	Yes
4	Other - Prohibit vehicle washing except at facilities using recycled or recirculating water	Collective reduction from all Shortage Level 4 actions is up to 18,849 AF		Yes
5	Other	Collective reduction from all Shortage Level 5 actions is up to 23,561 AF	Includes all Stage 4 actions	Yes
5	Landscape - Limit landscape irrigation to specific days	Collective reduction from all Shortage Level 5 actions is up to 23,561 AF	Residents and CII customers will be prohibited from irrigating any turf or landscape area more than one day a week.	Yes
6	Other	Collective reduction from all Shortage Level 6 actions is greater than 23,561 AF	Includes all Stage 5 actions	Yes
6	Landscape - Prohibit all landscape irrigation	Collective reduction from all Shortage Level 6 actions is greater than 23,561 AF	Commercial nurseries shall be prohibited from the use of potable water for irrigation of outdoor, landscape and turf except by use of a hand-held hose equipped with a positive shutoff nozzle.	Yes
6	Landscape - Other landscape restriction or prohibition	Collective reduction from all Shortage Level 6 actions is greater than 23,561 AF		Yes
6	Other water feature or swimming pool restriction	Collective reduction from all Shortage Level 6 actions is greater than 23,561 AF	The following nonessential uses of water shall be prohibited: the filling, cycling, filtering, or refilling swimming pools, spas, Jacuzzis, fountains or other like devices.	Yes

NOTES:

Submittal Table 8-3: Supply Augmentation and Other Actions			
Shortage Level	Supply Augmentation Methods and Other Actions by Water Supplier ***Drop down list*** *These are the only categories that will be accepted by the WUEdata online submittal tool*	How much is this going to reduce the shortage gap? *Include units used (volume type or percentage)*	Additional Explanation or Reference *(optional)*
Add additional rows as needed			
1	Transfers	Not applicable (see Notes)	
2	Transfers	Not applicable (see Notes)	
3	Transfers	Not applicable (see Notes)	
4	Transfers	Not applicable (see Notes)	
5	Transfers	Not applicable (see Notes)	
6	Transfers	Not applicable (see Notes)	
NOTES: The City will consider increased production from the Chino Basin using existing facilities to address increased demands. As noted on Table 8-2, the City plans to implement demand reduction measures in the event water supplies from existing sources are not sufficient to meet anticipated demands.			

Submittal Table 10-1 Retail: Notification to Cities and Counties		
City Name	60 Day Notice	Notice of Public Hearing
Add additional rows as needed		
Chino	Yes	Yes
Chino Hills	Yes	Yes
Fontana	Yes	Yes
Montclair	Yes	Yes
Pomona	Yes	Yes
Rancho Cucamonga	Yes	Yes
Upland	Yes	Yes
County Name *Drop Down List*	60 Day Notice	Notice of Public Hearing
Add additional rows as needed		
San Bernardino County	Yes	Yes
NOTES:		

APPENDIX B

DEMONSTRATION OF REDUCED IMPORTED WATER RELIANCE

DEMONSTRATION OF CONSISTENCY WITH THE DELTA PLAN FOR PARTICIPANTS IN COVERED ACTIONS (FY 2014-2015 THROUGH FY 2044-45) CITY OF ONTARIO

Introduction

Pursuant to the California Department of Water Resources (DWR), an urban water supplier that anticipates participating in or receiving water from a proposed project (or "covered action") such as a multi-year water transfer, conveyance facility, or new diversion that involves transferring water through, exporting water from, or using water in the Sacramento-San Joaquin Delta (Delta) should provide information in their 2015 and 2020 Urban Water Management Plans (UWMPs) for use in demonstrating consistency with Delta Plan Policy WR P1, "*Reduce Reliance on the Delta Through Improved Regional Water Self-Reliance"*. In addition, pursuant to California Code of Regulations, Title 23, § 5003:

> *(c)(1) Water suppliers that have done all of the following are contributing to reduced reliance on the Delta and improved regional self-reliance and are therefore consistent with this policy:*
>
> > *(A) Completed a current Urban or Agricultural Water Management Plan (Plan) which has been reviewed by the California Department of Water Resources for compliance with the applicable requirements of Water Code Division 6, Parts 2.55, 2.6, and 2.8;*
> >
> > *(B) Identified, evaluated, and commenced implementation, consistent with the implementation schedule set forth in the Plan, of all programs and projects included in the Plan that are locally cost effective and technically feasible which reduce reliance on the Delta; and*
> >
> > *(C) Included in the Plan, commencing in 2015, the expected outcome for measurable reduction in Delta reliance and improvement in regional self-reliance. The expected outcome for measurable reduction in Delta reliance and improvement in regional self-reliance shall be reported in the Plan as the reduction in the amount of water used, or in the percentage of water used, from the Delta watershed. For the purposes of reporting, water efficiency is considered a new source of water supply, consistent with Water Code section 1011(a).*

The City is member agency of the Inland Empire Utilities Agency, which in turn is a member agency of the Metropolitan Water District of Southern California (MWD).

IEUA is an urban water supplier and a member agency of MWD. MWD provides IEUA with imported water supplies, which IEUA in turn distributes on a wholesale basis to its retail water purveyors. MWD is a contractor on the State Water Project (SWP) and, due to water quality considerations, all imported water supplies IEUA receives from MWD originate from the SWP system. The SWP system runs from Lake Oroville in Northern California to Southern California, crossing the Sacramento-San Joaquin Delta (Delta) along the way. MWD and its member agencies have made investments into water supply and demand management to regionally reduce impacts on the Delta. These investments bring regional reliability and reduced Delta reliance that make it infeasible for individual MWD member agencies to determine their individual Delta reliance. As a recipient of imported water from the SWP delivered via MWD, IEUA may indirectly receive water through a proposed covered action, such as a multi-year water transfer, conveyance facility, or new diversion that involves transferring water through, exporting water from, or using water in the Delta. Through this appendix, IEUA is providing information in its 2015 and 2020 UWMPs that may be used in the covered action process, to demonstrate consistency with Delta Plan Policy WR P1, Reduce Reliance on the Delta Through Improved Regional Water Self-Reliance (WR P1) [California Code of Regulations (CCR), Title 23, § 5003].

As noted in MWD's document entitled "*Infeasibility of Accounting Supplies from the Delta Watershed for Metropolitan's Member Agencies and their Customers*" (which is included in MWD's Regional 2020 UWMP and is provided as Attachment 1 below), "... Metropolitan's service area, as a whole, reduces reliance on the Delta through investments in non-Delta water supplies, local water supplies, and regional and local demand management measures. Metropolitan's member agencies coordinate reliance on the Delta through their membership in Metropolitan, a regional cooperative providing wholesale water service to its 26 member agencies. Accordingly, regional reliance on the

Delta can only be measured regionally—not by individual Metropolitan member agencies and not by the customers of those member agencies....”

In addition, MWD’s 2020 Regional UWMP indicates “...in accordance with UMWP requirements, Metropolitan’s member agencies and their customers (many of them, retail agencies) also report demands and supplies for their service areas in their respective UWMPs. The data reported by those agencies are not additive to the regional totals shown in Metropolitan’s UWMP; rather, their reporting represents subtotals of the regional total and should be considered as such for the purposes of determining reduced reliance on the Delta…While the demands that Metropolitan’s member agencies and their customers report in their UWMPs are a good reflection of the demands in their respective service areas, they do not adequately represent each water supplier’s contributions to reduced reliance on the Delta. In order to calculate and report their reliance on water supplies from the Delta watershed, water suppliers that receive water from the Delta through other regional or wholesale water suppliers would need to determine the amount of Delta water that they receive from the regional or wholesale supplier. Two specific pieces of information are needed to accomplish this: first is the quantity of demands on the regional or wholesale water supplier that accurately reflect a supplier’s contributions to reduced reliance on the Delta, and second is the quantity of a supplier’s demands on the regional or wholesale water supplier that are met by supplies from the Delta watershed…For water suppliers that make investments in regional projects or programs it may be infeasible to quantify their demands on the regional or wholesale water supplier in a way that accurately reflects their individual contributions to reduced reliance on the Delta.” Nonetheless, the City has taken proactive measures to help reduce regional reliance on imported water supplies and is discussed in the following sections.

Reduced Reliance Calculation Tables

Pursuant to DWR guidance, Tables C-1 through C-4 were prepared to show the potential reduction of reliance on imported water supplies for the City. The City has used these tables to demonstrate its reduced regional reliance on imported water supplies, but not

specifically Delta Watershed supplies. For each of the tables, a “Baseline year” was selected. Water demands during subsequent years (from 2015 through 2045 in five-year increments) were compared to water demands during the Baseline year. Table C-1 considers the population and service area water demands, and a demand per capita per day (GPCD) water use rate was calculated for each of the years following the Baseline year. The calculated reduction in GPCD from the Baseline year was then translated to an estimated amount of water saved as a result of water conservation measures. Table C-2 references the estimated amount of water saved from Table C-1 and shows the City’s water demand without water use efficiency in effect.

A method of showing a reduced regional reliance on imported water supplies is to show increased regional self-reliance. Table C-3 lists water supply sources that contribute to regional self-reliance, including water use efficiency (from Table C-1 and C-2), recycled water use, and groundwater recharge activities. Regional self-reliance is expressed both in terms of acre feet (AF) and as a percentage.

The calculation of reduced regional reliance on imported water supplies is shown on Table C-4. Table C-4 also shows the percent change in imported water supplies relative to the City’s total supply. A negative percent change of imported water supplies indicates the City has reduced regional reliance on imported water supplies.

Since the Baseline year, the City has decreased its reduced regional reliance on imported water supplies in 2015, 2020, and anticipates doing so through 2045.

The City has reduced regional reliance on imported water supplies in three separate categories, as follows:

- The demand in GPCD for the "Baseline” year was compared to the GPCDs in subsequent years (from 2015 through 2045, in five-year increments). The reduced GPCD multiplied by the population in these subsequent years is indicative of the potential reduced regional reliance on imported water supplies and is included in Table C-1

- The recycled water use from 2015 through 2045, in five-year increments, also demonstrates reduced regional reliance on imported water supplies and is included in Table C-1
- To the extent the Chino Basin Watermaster has, or plans to, use recycled water to replenish the Chino Basin, the City's proportional share (up to the total replenishment water obligation) will be included on Table C-1.

These categories of reduced regional reliance on imported water supplies are discussed below. The sum of the increased regional self-reliance and the sum of the reduced regional reliance on imported water supplies demand resulting from these categories is reflected on Table C-3 and Table C-4, respectively, and is reflective of the City's overall reduced reliance.

Reduced GPCD

Section 6.2.2 of the City's 2020 UWMP describes the management of the Chino Basin. The City relies on groundwater produced from the Chino Basin, which is adjudicated and managed by the Chino Basin Watermaster. To the extent the City historically (baseline during FY 2010-11) has produced groundwater in excess of its water rights, it has paid assessments to the Chino Basin Watermaster which are then used to purchase untreated imported water from the Inland Empire Utilities Agency, which is in turn purchased water from the Metropolitan Water District of Southern California. The untreated imported water subsequently is delivered to replenish the Chino Basin and to supplement local storm water replenishment. In addition, the City can purchase treated imported water from Water Facilities Authority which is ultimately provided by the Metropolitan Water District of Southern California.

Chapter 9 of the 2020 UWMP describes the Demand Management Measures which the City has implemented to reduce the amount water used by its customers. In addition, Chapter 6 of the 2020 UWMP describes the groundwater basin management measures

implemented by the Chino Basin Watermaster. Collectively these actions translate to a reduction in the GPCD usage rate which is described further in Chapter 5 of the 2020 UWMP. These actions directly impact total water demands, and consequently, the quantity of water which may be required from imported water supplies. Absent the proactive measures taken by the City, it is anticipated there may have been a greater demand on imported water.

Pursuant to DWR guidance, reduced regional reliance on imported water supplies can be demonstrated by first selecting a “Baseline” water demand, represented by total potable water demands during FY 2010-11. Table C-1 summarizes the “Baseline” water usage by the City in FY 2011-12 (assuming demand reduction efforts had not been implemented); actual water usage in 2015 and 2020; and projected water usage through 2045 in five-year increments. Furthermore, it is assumed that as of FY 2010-11 the City was already exceeding its water rights and was required to fund the purchase of untreated imported water supplies. Table C-2 demonstrates that if water conservation measures had not been implemented by the City, there may have been a greater reliance on untreated imported water supplies during subsequent years as compared to the Baseline year. However, as discussed below and shown in Table C-1, the reduced water demands have resulted in reduced regional reliance on imported water supplies as compared to the Baseline year.

The City’s potable water demand of 33,938 AF during FY 2010-11, along with the corresponding service area population of approximately 159,946, were used to determine the Baseline GPCD. Subsequently, the actual demands for FY 2014-15 and FY 2019-20 were compared to the calculated population to obtain the recent GPCD which includes the water conservations measures which have been implemented (those demand management measures are described in Chapter 9 of the 2020 UWMP). The “Water Supplies Contributing to Regional Self-Reliance" are also provided in Table C-3. The differences between the Baseline GPCD and the 2015 and 2020 GPCDs are effectively considered a demonstration of the reduced regional reliance on imported water supplies with the understanding that any potential increased demand by the City resulting from

increased population could have been required from imported water supplies, absent the City's new water supplies which contribute to self-reliance. A similar methodology is used for the projected potable water demands (2020 UWMP Table 4-3) and populations (2020 UWMP Table 3-1).

Recycled Water Use

The City has also constructed infrastructure to deliver recycled water to its customers instead of continuing to use its potable water supplies. The historical recycled water demands for FY 2014-15 and FY 2019-20, along with the projected recycled water demands (from 2020 UWMP Table 4-3) are incorporated in Table C-1 and Table C-3. These quantities are in addition to the reduced demand resulting from decreased GPCD.

Recycled Water for Groundwater Replenishment

In 2000, the Chino Basin Watermaster developed the Chino Basin Optimum Basin Management Program (OBMP). As an integral part of the OBMP, Inland Empire Utilities Agency, Chino Basin Watermaster, Chino Basin Water Conservation District, and San Bernardino County Flood Control District implemented the Chino Basin Recycled Water Groundwater Recharge Program. This program was implemented to serve as a comprehensive water supply program to enhance local groundwater quality and to provide a source of reliable water for the Chino Basin through increased recharge of stormwater, imported water, and recycled water. Inland Empire Utilities Agency anticipates recharging as much as 16,000 AFY of recycled water. The recharged water hypothetically assigned to the City is based on the City's share (20.742%) of the Chino Basin's current Operating Safe Yield (131,000 AFY) multiplied by the amount of recycled water replenished and is shown on Table C-3. Therefore, the benefit to each producer in the Chino Basin is based on the proportional share of its anticipated production to the total Chino Basin production.

The decrease in GPCD and increase in recycled water use compared to the Baseline year has resulted in an overall decrease in regional reliance on imported water supplies. As shown in Table C-4, the percentage of imported water supplies relative to the City's total supply has decreased, and is projected to decrease, from the percentage in the Baseline year.

Metropolitan Water District of Southern California

In addition, as the wholesale provider, the Metropolitan Water District of Southern California has included a detailed discussion regarding measurable reduction in Delta reliance in Appendix 11 for 2015 and 2020 as part of its 2015 Regional Urban Water Management Plan and 2020 Regional Urban Water Management Plan, respectively, and are also included in Attachment 1 below.

Inland Empire Utilities Agency

As the wholesale provider, IEUA has included a detailed discussion regarding measurable reduction in Delta reliance in Appendix G for 2015 and 2020 as part of its 2020 Regional Urban Water Management Plan, respectively, and is also included in Attachment 2 below.

2015 UWMP Appendix C

The information contained in this Appendix B is also intended to be a new Appendix C attached to the City of Ontario's 2015 UWMP consistent with WR P1 subsection (c)(1)(C) (Cal. Code Regs. tit. 23, § 5003). The City provided notice of the availability of the draft 2020 UWMP (including this Appendix B which will also be a new Appendix C to its 2015 UWMP) and WSCP and the public hearing to consider adoption of both plans and Appendix C to the 2015 UWMP in accordance with CWC Sections 10621(b) and 10642, and Government Code Section 6066, and Chapter 17.5 (starting with Section 7290) of Division 7 of Title 1 of the Government Code. The notice of availability of the documents

was sent to the agencies, cities, and counties described in Chapter 10 of the 2020 UWMP. In addition, a public notice advertising the public hearing was published in the newspapers during the weeks of June 1, 2021 and June 8, 2021. Copies of: (1) the notification letter sent to the agencies, cities, and counties, and (2) the notice published in the newspapers are included in the 2020 UWMP Appendix D.

Thus, this Appendix B to the City's 2020 UWMP, which was adopted with the City's 2020 UWMP, will also be recognized and treated as Appendix C to the City's 2015 UWMP. The City held the public hearing for the draft 2020 UWMP, draft WSCP, and draft Addendum (Appendix C) to the 2015 UWMP on June 15, 2021, at the City Council meeting. On June 15, 2021, the City Council determined that the 2020 UWMP and the WSCP accurately represent the water resources plan for the City's service area. The City Council determined that Appendix B to the 2020 UWMP and Addendum (Appendix C) to the 2015 UWMP includes all the elements described in Delta Plan Policy WR P1, Reduce Reliance on the Delta Through Improved Regional Water Self-Reliance (Cal. Code Regs. tit. 23, § 5003), which need to be included in a water supplier's UWMP to support a certification of consistency for a future covered action. As stated in Resolutions 2021-59, 2021-60, and 2021-61 the City Council adopted the 2020 UWMP, the WSCP, and Addendum (Appendix C) to the 2015 UWMP, respectively and authorized their submittal to the State of California. Copies of Resolution 2021-59, 2021-60, and 2021-61 are included in the 2020 UWMP Appendix R.

Reduced Reliance Calculation - Ontario Municipal Utilities Company

Table C-1: Optional Calculation of Water Use Efficiency -To be completed if Water Supplier does not specifically estimate Water Use Efficiency as a supply

Service Area Water Use Efficiency Demands (Acre-Feet)	Baseline (2010)	2015	2020	2025	2030	2035	2040	2045 (Optional)
Service Area Water Demands with Water Use Efficiency Accounted For	39,681	41,226	39,921	52,550	58,513	63,838	73,668	73,668
Non-Potable Water Demands	5,743	8,098	7,812	12,168	13,465	14,762	16,059	16,059
Potable Service Area Demands with Water Use Efficiency Accounted For	33,938	33,128	32,109	40,382	45,048	49,076	57,609	57,609

Total Service Area Population	Baseline (2010)	2015	2020	2025	2030	2035	2040	2045 (Optional)
Service Area Population	159,946	168,777	178,409	232,583	266,339	300,095	362,903	362,903

Water Use Efficiency Since Baseline (Acre-Feet)	Baseline (2010)	2015	2020	2025	2030	2035	2040	2045 (Optional)
Per Capita Water Use (GPCD)	189	175	161	155	151	146	142	142
Change in Per Capita Water Use from Baseline (GPCD)		(14)	(29)	(34)	(38)	(43)	(48)	(48)
Estimated Water Use Efficiency Since Baseline		2,684	5,746	8,969	11,465	14,599	19,393	19,393

Table C-2: Calculation of Service Area Water Demands Without Water Use Efficiency

Total Service Area Water Demands (Acre-Feet)	Baseline (2010)	2015	2020	2025	2030	2035	2040	2045 (Optional)
Service Area Water Demands with Water Use Efficiency Accounted For	39,681	41,226	39,921	52,550	58,513	63,838	73,668	73,668
Reported Water Use Efficiency or Estimated Water Use Efficiency Since Baseline	-	2,684	5,746	8,969	11,465	14,599	19,393	19,393
Service Area Water Demands without Water Use Efficiency Accounted For	39,681	43,910	45,667	61,518	69,978	78,437	93,061	93,061

Table C-3: Calculation of Supplies Contributing to Regional Self-Reliance

Water Supplies Contributing to Regional Self-Reliance (Acre-Feet)	Baseline (2010)	2015	2020	2025	2030	2035	2040	2045 (Optional)
Water Use Efficiency	-	2,684	5,746	8,969	11,465	14,599	19,393	19,393
Water Recycling	5,743	8,098	7,812	12,168	13,465	14,762	16,059	16,059
Stormwater Capture and Use								
Advanced Water Technologies								
Conjunctive Use Projects								
Local and Regional Water Supply and Storage Projects								
Other Programs and Projects the Contribute to Regional Self-Reliance[1]	1,306	2,248	2,775	2,702	2,843	3,085	3,371	3,371
Water Supplies Contributing to Regional Self-Reliance	7,049	13,030	16,334	23,839	27,773	32,446	38,823	38,823

Service Area Water Demands without Water Use Efficiency (Acre-Feet)	Baseline (2010)	2015	2020	2025	2030	2035	2040	2045 (Optional)
Service Area Water Demands without Water Use Efficiency Accounted For	39,681	43,910	45,667	61,518	69,978	78,437	93,061	93,061

Change in Regional Self Reliance (Acre-Feet)	Baseline (2010)	2015	2020	2025	2030	2035	2040	2045 (Optional)
Water Supplies Contributing to Regional Self-Reliance	7,049	13,030	16,334	23,839	27,773	32,446	38,823	38,823
Change in Water Supplies Contributing to Regional Self-Reliance		5,982	9,285	16,790	20,724	25,397	31,775	31,775

Percent Change in Regional Self Reliance (As Percent of Demand w/out WUE)	Baseline (2010)	2015	2020	2025	2030	2035	2040	2045 (Optional)
Percent of Water Supplies Contributing to Regional Self-Reliance	17.8%	29.7%	35.8%	38.8%	39.7%	41.4%	41.7%	41.7%
Change in Percent of Water Supplies Contributing to Regional Self-Reliance		11.9%	18.0%	21.0%	21.9%	23.6%	24.0%	24.0%

Table C-4: Calculation of Reliance on Water Supplies from the Delta Watershed

Water Supplies from the Delta Watershed (Acre-Feet)	Baseline (2010)	2015	2020	2025	2030	2035	2040	2045 (Optional)
CVP/SWP Contract Supplies								
Delta/Delta Tributary Diversions								
Transfers and Exchanges								
Other Water Supplies from the Delta Watershed[2]	9,824	10,703	6,513	11,000	13,000	15,000	17,000	17,000
Total Water Supplies from the Delta Watershed	9,824	10,703	6,513	11,000	13,000	15,000	17,000	17,000

Service Area Water Demands without Water Use Efficiency (Acre-Feet)	Baseline (2010)	2015	2020	2025	2030	2035	2040	2045 (Optional)
Service Area Water Demands without Water Use Efficiency Accounted For	39,681	43,910	45,667	61,518	69,978	78,437	93,061	93,061

Change in Supplies from the Delta Watershed (Acre-Feet)	Baseline (2010)	2015	2020	2025	2030	2035	2040	2045 (Optional)
Water Supplies from the Delta Watershed	9,824	10,703	6,513	11,000	13,000	15,000	17,000	17,000
Change in Water Supplies from the Delta Watershed		879	(3,311)	1,176	3,176	5,176	7,176	7,176

Percent Change in Supplies from the Delta Watershed (As a Percent of Demand w/out WUE)	Baseline (2010)	2015	2020	2025	2030	2035	2040	2045 (Optional)
Percent of Water Supplies from the Delta Watershed	24.8%	24.4%	14.3%	17.9%	18.6%	19.1%	18.3%	18.3%
Change in Percent of Water Supplies from the Delta Watershed		-0.4%	-10.5%	-6.9%	-6.2%	-5.6%	-6.5%	-6.5%

Baseline Year is FY 2010-11

[1] Represents groundwater recharge of recycled water made by IEUA within the Chino Basin. Groundwater recharge by IEUA is projected to range from 13,000 AFY to 16,000 AFY through 2045. Water supply available to OMUC is based on OMUC's share of the Safe Yield (20.742%).

[2] Represents imported untreated water from Water Facilities Authority/Inland Empire Utilities Agency

APPENDIX B
ATTACHMENT 1

- **Infeasibility of Accounting Supplies from the Delta Watershed for Metropolitan's Member Agencies and their Customers**

- **Appendix 11 Addendum to the Metropolitan Water District of Southern California's 2015 Urban Water Management Plan**

- **Appendix 11 "Quantifying Regional Self-Reliance and Reliance on Water Supplies from the Delta Watershed", Metropolitan Water District of Southern California's 2020 Urban Water Management Plan**

Infeasibility of Accounting Supplies from the Delta Watershed for Metropolitan's Member Agencies and their Customers

Metropolitan's service area, as a whole, reduces reliance on the Delta through investments in non-Delta water supplies, local water supplies, and regional and local demand management measures. Metropolitan's member agencies coordinate reliance on the Delta through their membership in Metropolitan, a regional cooperative providing wholesale water service to its 26 member agencies. Accordingly, regional reliance on the Delta can only be measured regionally—not by individual Metropolitan member agencies and not by the customers of those member agencies.

Metropolitan's member agencies, and those agencies' customers, indirectly reduce reliance on the Delta through their collective efforts as a cooperative. Metropolitan's member agencies do not control the amount of Delta water they receive from Metropolitan. Metropolitan manages a statewide integrated conveyance system consisting of its participation in the State Water Project (SWP), its Colorado River Aqueduct (CRA) including Colorado River water resources, programs and water exchanges, and its regional storage portfolio. Along with the SWP, CRA, storage programs, and Metropolitan's conveyance and distribution facilities, demand management programs increase the future reliability of water resources for the region. In addition, demand management programs provide system-wide benefits by decreasing the demand for imported water, which helps to decrease the burden on the district's infrastructure and reduce system costs, and free up conveyance capacity to the benefit of all member agencies.

Metropolitan's costs are funded almost entirely from its service area, with the exception of grants and other assistance from government programs. Most of Metropolitan's revenues are collected directly from its member agencies. Properties within Metropolitan's service area pay a property tax that currently provides approximately 8 percent of the fiscal year 2021 annual budgeted revenues. The rest of Metropolitan's costs are funded through rates and charges paid by Metropolitan's member agencies for the wholesale services it provides to them.[1] Thus, Metropolitan's member agencies fund nearly all operations Metropolitan undertakes to reduce reliance on the Delta, including Colorado River Programs, storage facilities, Local Resources Programs and Conservation Programs within Metropolitan's service area.

Because of the integrated nature of Metropolitan's systems and operations, and the collective nature of Metropolitan's regional efforts, it is infeasible to quantify each of Metropolitan member agencies' individual reliance on the Delta. It is infeasible to attempt to segregate an entity and a system that were designed to work as an integrated regional cooperative.

In addition to the member agencies funding Metropolitan's regional efforts, they also invest in their own local programs to reduce their reliance on any imported water. Moreover, the customers of those member agencies may also invest in their own local programs to reduce water demand. However, to the extent those efforts result in reduction of demands on Metropolitan, that reduction does not equate to a like reduction of reliance on the Delta. Demands on Metropolitan are not commensurate with demands on the Delta because most of Metropolitan member agencies receive blended resources from

[1] A standby charge is collected from properties within the service areas of 21 of Metropolitan's 26 member agencies, ranging from $5 to $14.20 per acre annually, or per parcel if smaller than an acre. Standby charges go towards those member agencies' obligations to Metropolitan for the Readiness-to-Serve Charge. The total amount collected annually is approximately $43.8 million, approximately 2 percent of Metropolitan's fiscal year 2021 annual budgeted revenues.

Metropolitan as determined by Metropolitan—not the individual member agency—and for most member agencies, the blend varies from month-to-month and year-to-year due to hydrology, operational constraints, use of storage and other factors.

Colorado River Programs

As a regional cooperative of member agencies, Metropolitan invests in programs to ensure the continued reliability and sustainability of Colorado River supplies. Metropolitan was established to obtain an allotment of Colorado River water, and its first mission was to construct and operate the CRA. The CRA consists of five pumping plants, 450 miles of high voltage power lines, one electric substation, four regulating reservoirs, and 242 miles of aqueducts, siphons, canals, conduits and pipelines terminating at Lake Mathews in Riverside County. Metropolitan owns, operates, and manages the CRA. Metropolitan is responsible for operating, maintaining, rehabilitating, and repairing the CRA, and is responsible for obtaining and scheduling energy resources adequate to power pumps at the CRA's five pumping stations.

Colorado River supplies include Metropolitan's basic Colorado River apportionment, along with supplies that result from existing and committed programs, including supplies from the Imperial Irrigation District (IID)-Metropolitan Conservation Program, the implementation of the Quantification Settlement Agreement (QSA) and related agreements, and the exchange agreement with San Diego County Water Authority (SDCWA). The QSA established the baseline water use for each of the agreement parties and facilitates the transfer of water from agricultural agencies to urban uses. Since the QSA, additional programs have been implemented to increase Metropolitan's CRA supplies. These include the PVID Land Management, Crop Rotation, and Water Supply Program, as well as the Lower Colorado River Water Supply Project. The 2007 Interim Guidelines provided for the coordinated operation of Lake Powell and Lake Mead, as well as the Intentionally Created Surplus (ICS) program that allows Metropolitan to store water in Lake Mead.

Storage Investments/Facilities

Surface and groundwater storage are critical elements of Southern California's water resources strategy and help Metropolitan reduce its reliance on the Delta. Because California experiences dramatic swings in weather and hydrology, storage is important to regulate those swings and mitigate possible supply shortages. Surface and groundwater storage provide a means of storing water during normal and wet years for later use during dry years, when imported supplies are limited. The Metropolitan system, for purposes of meeting demands during times of shortage, regulating system flows, and ensuring system reliability in the event of a system outage, provides over 1,000,000 acre-feet of system storage capacity. Diamond Valley Lake provides 810,000 acre-feet of that storage capacity, effectively doubling Southern California's previous surface water storage capacity. Other existing imported water storage available to the region consists of Metropolitan's raw water reservoirs, a share of the SWP's raw water reservoirs in and near the service area, and the portion of the groundwater basins used for conjunctive-use storage.

Since the early twentieth century, DWR and Metropolitan have constructed surface water reservoirs to meet emergency, drought/seasonal, and regulatory water needs for Southern California. These reservoirs include Pyramid Lake, Castaic Lake, Elderberry Forebay, Silverwood Lake, Lake Perris, Lake Skinner, Lake Mathews, Live Oak Reservoir, Garvey Reservoir, Palos Verdes Reservoir, Orange County Reservoir, and Metropolitan's Diamond Valley Lake (DVL). Some reservoirs such as Live Oak Reservoir, Garvey Reservoir, Palos Verdes Reservoir, and Orange County Reservoir, which have a total combined capacity of about 3,500 AF, are used solely for regulating purposes. The total gross storage capacity for

the larger remaining reservoirs is 1,757,600 AF. However, not all of the gross storage capacity is available to Metropolitan; dead storage and storage allocated to others reduce the amount of storage that is available to Metropolitan to 1,665,200 AF.

Conjunctive use of the aquifers offers another important source of dry year supplies. Unused storage in Southern California groundwater basins can be used to optimize imported water supplies, and the development of groundwater storage projects allows effective management and regulation of the region's major imported supplies from the Colorado River and SWP. Over the years, Metropolitan has implemented conjunctive use through various programs in the service area; the following table lists the groundwater conjunctive use programs that have been developed in the region.

Program	Metropolitan Agreement Partners	Program Term	Max Storage AF	Dry-Year Yield AF/Yr
Long Beach Conjunctive Use Storage Project (Central Basin)	Long Beach	June 2002-2027	13,000	4,300
Foothill Area Groundwater Storage Program (Monkhill/ Raymond Basin)	Foothill MWD	February 2003-2028	9,000	3,000
Orange County Groundwater Conjunctive Use Program	MWDOC OCWD	June 2003-2028	66,000+	22,000
Chino Basin Conjunctive Use Programs	IEUA TVMWD Watermaster	June 2003-2028	100,000	33,000
Live Oak Basin Conjunctive Use Project (Six Basins)	TVMWD City of La Verne	October 2002-2027	3,000	1,000
City of Compton Conjunctive Use Project (Central Basin)	Compton	February 2005-2030	2,289	763
Long Beach Conjunctive Use Program Expansion in Lakewood (Central Basin)	Long Beach	July 2005-2030	3,600	1,200
Upper Claremont Basin Groundwater Storage Program (Six Basins)	TVMWD	Sept. 2005- 2030	3,000	1,000
Elsinore Basin Conjunctive Use Storage Program	Western MWD Elsinore Valley MWD	May 2008- 2033	12,000	4,000
TOTAL			**211,889**	**70,263**

Metropolitan Demand Management Programs

Demand management costs are Metropolitan's expenditures for funding local water resource development programs and water conservation programs. These Demand Management Programs incentivize the development of local water supplies and the conservation of water to reduce the need to import water to deliver to Metropolitan's member agencies. These programs are implemented below the delivery points between Metropolitan's and its member agencies' distribution systems and, as such, do not add any water to Metropolitan's supplies. Rather, the effect of these downstream programs is to

produce a local supply of water for the local agencies and to reduce demands by member agencies for water imported through Metropolitan's system. The following discussions outline how Metropolitan funds local resources and conservation programs for the benefit of all of its member agencies and the entire Metropolitan service area. Notably, the history of demand management by Metropolitan's member agencies and the local agencies that purchase water from Metropolitan's members has spanned more than four decades. The significant history of the programs is another reason it would be difficult to attempt to assign a portion of such funding to any one individual member agency.

Local Resources Programs

In 1982, Metropolitan began providing financial incentives to its member agencies to develop new local supplies to assist in meeting the region's water needs. Because of Metropolitan's regional distribution system, these programs benefit all member agencies regardless of project location because they help to increase regional water supply reliability, reduce demands for imported water supplies, decrease the burden on Metropolitan's infrastructure, reduce system costs and free up conveyance capacity to the benefit of all the agencies that rely on water from Metropolitan.

For example, the Groundwater Replenishment System (GWRS) operated by the Orange County Water District is the world's largest water purification system for indirect potable reuse. It was funded, in part, by Metropolitan's member agencies through the Local Resources Program. Annually, the GWRS produces approximately 103,000 acre-feet of reliable, locally controlled, drought-proof supply of high-quality water to recharge the Orange County Groundwater Basin and protect it from seawater intrusion. The GWRS is a premier example of a regional project that significantly reduced the need to utilize imported water for groundwater replenishment in Metropolitan's service area, increasing regional and local supply reliability and reducing the region's reliance on imported supplies, including supplies from the State Water Project.

Metropolitan's local resource programs have evolved through the years to better assist Metropolitan's member agencies in increasing local supply production. The following is a description and history of the local supply incentive programs.

Local Projects Program

In 1982, Metropolitan initiated the Local Projects Program (LPP), which provided funding to member agencies to facilitate the development of recycled water projects. Under this approach, Metropolitan contributed a negotiated up-front funding amount to help finance project capital costs. Participating member agencies were obligated to reimburse Metropolitan over time. In 1986, the LPP was revised, changing the up-front funding approach to an incentive-based approach. Metropolitan contributed an amount equal to the avoided State Water Project pumping costs for each acre-foot of recycled water delivered to end-use consumers. This funding incentive was based on the premise that local projects resulted in the reduction of water imported from the Delta and the associated pumping cost. The incentive amount varied from year to year depending on the actual variable power cost paid for State Water Project imports. In 1990, Metropolitan's Board increased the LPP contribution to a fixed rate of $154 per acre-foot, which was calculated based on Metropolitan's avoided capital and operational costs to convey, treat, and distribute water, and included considerations of reliability and service area demands.

Groundwater Recovery Program

The drought of the early 1990s sparked the need to develop additional local water resources, aside from recycled water, to meet regional demand and increase regional water supply reliability. In 1991, Metropolitan conducted the Brackish Groundwater Reclamation Study which determined that large

amounts of degraded groundwater in the region were not being utilized. Subsequently, the Groundwater Recovery Program (GRP) was established to assist the recovery of otherwise unusable groundwater degraded by minerals and other contaminants, provide access to the storage assets of the degraded groundwater, and maintain the quality of groundwater resources by reducing the spread of degraded plumes.

Local Resources Program

In 1995, Metropolitan's Board adopted the Local Resources Program (LRP), which combined the LPP and GRP into one program. The Board allowed for existing LPP agreements with a fixed incentive rate to convert to the sliding scale up to $250 per acre-foot, similar to GRP incentive terms. Those agreements that were converted to LRP are known as "LRP Conversions."

Competitive Local Projects Program

In 1998, the Competitive Local Resources Program (Competitive Program) was established. The Competitive Program encouraged the development of recycled water and recovered groundwater through a process that emphasized cost-efficiency to Metropolitan, timing new production according to regional need while minimizing program administration cost. Under the Competitive Program, agencies requested an incentive rate up to $250 per acre-foot of production over 25 years under a Request for Proposals (RFP) for the development of up to 53,000 acre-feet per year of new water recycling and groundwater recovery projects. In 2003, a second RFP was issued for the development of an additional 65,000 acre-feet of new recycled water and recovered groundwater projects through the LRP.

Seawater Desalination Program

Metropolitan established the Seawater Desalination Program (SDP) in 2001 to provide financial incentives to member agencies for the development of seawater desalination projects. In 2014, seawater desalination projects became eligible for funding under the LRP, and the SDP was ended.

2007 Local Resources Program

In 2006, a task force comprised of member agency representatives was formed to identify and recommend program improvements to the LRP. As a result of the task force process, the 2007 LRP was established with a goal of 174,000 acre-feet per year of additional local water resource development. The new program allowed for an open application process and eliminated the previous competitive process. This program offered sliding scale incentives of up to $250 per acre-foot, calculated annually based on a member agency's actual local resource project costs exceeding Metropolitan's prevailing water rate.

2014 Local Resources Program

A series of workgroup meetings with member agencies was held to identify the reasons why there was a lack of new LRP applications coming into the program. The main constraint identified by the member agencies was that the $250 per acre-foot was not providing enough of an incentive for developing new projects due to higher construction costs to meet water quality requirements and to develop the infrastructure to reach end-use consumers located further from treatment plants. As a result, in 2014, the Board authorized an increase in the maximum incentive amount, provided alternative payment structures, included onsite retrofit costs and reimbursable services as part of the LRP, and added eligibility for seawater desalination projects. The current LRP incentive payment options are structured as follows:

- Option 1 – Sliding scale incentive up to $340/AF for a 25-year agreement term
- Option 2 – Sliding scale incentive up to $475/AF for a 15-year agreement term
- Option 3 – Fixed incentive up to $305/AF for a 25-year agreement term

On-site Retrofit Programs

In 2014, Metropolitan's Board also approved the On-site Retrofit Pilot Program which provided financial incentives to public or private entities toward the cost of small-scale improvements to their existing irrigation and industrial systems to allow connection to existing recycled water pipelines. The On-site Retrofit Pilot Program helped reduce recycled water retrofit costs to the end-use consumer which is a key constraint that limited recycled water LRP projects from reaching full production capacity. The program incentive was equal to the actual eligible costs of the on-site retrofit, or $975 per acre-foot of up-front cost, which equates to $195 per acre-foot for an estimated five years of water savings ($195/AF x 5 years) multiplied by the average annual water use in previous three years, whichever is less. The Pilot Program lasted two years and was successful in meeting its goal of accelerating the use of recycled water.

In 2016, Metropolitan's Board authorized the On-site Retrofit Program (ORP), with an additional budget of $10 million. This program encompassed lessons learned from the Pilot Program and feedback from member agencies to make the program more streamlined and improve its efficiency. As of fiscal year 2019/20, the ORP has successfully converted 440 sites, increasing the use of recycled water by 12,691 acre-feet per year.

Stormwater Pilot Programs

In 2019, Metropolitan's Board authorized both the Stormwater for Direct Use Pilot Program and a Stormwater for Recharge Pilot Program to study the feasibility of reusing stormwater to help meet regional demands in Southern California. These pilot programs are intended to encourage the development, monitoring, and study of new and existing stormwater projects by providing financial incentives for their construction/retrofit and monitoring/reporting costs. These pilot programs will help evaluate the potential benefits delivered by stormwater capture projects and provide a basis for potential future funding approaches. Metropolitan's Board authorized a total of $12.5 million for the stormwater pilot programs ($5 million for the District Use Pilot and $7.5 million for the Recharge Pilot).

Current Status and Results of Metropolitan's Local Resource Programs

Today, nearly one-half of the total recycled water and groundwater recovery production in the region has been developed with an incentive from one or more of Metropolitan's local resource programs. During fiscal year 2020, Metropolitan provided about $13 million for production of 71,000 acre-feet of recycled water for non-potable and indirect potable uses. Metropolitan provided about $4 million to support projects that produced about 50,000 acre-feet of recovered groundwater for municipal use. Since 1982, Metropolitan has invested $680 million to fund 85 recycled water projects and 27 groundwater recovery projects that have produced a cumulative total of about 4 million acre-feet.

Conservation Programs

Metropolitan's regional conservation programs and approaches have a long history. Decades ago, Metropolitan recognized that demand management at the consumer level would be an important part of balancing regional supplies and demands. Water conservation efforts were seen as a way to reduce the need for imported supplies and offset the need to transport or store additional water into or within the Metropolitan service area. The actual conservation of water takes place at the retail consumer level. Regional conservation approaches have proven to be effective at reaching retail consumers throughout Metropolitan's service area and successfully implementing water saving devices, programs and practices. Through the pooling of funding by Metropolitan's member agencies, Metropolitan is able to engage in regional campaigns with wide-reaching impact. Regional investments in demand management programs, of which conservation is a key part along with local supply programs, benefit all member agencies regardless of project location. These programs help to increase regional water supply

reliability, reduce demands for imported water supplies, decrease the burden on Metropolitan's infrastructure, reduce system costs, and free up conveyance capacity to the benefit of all member agencies.

Incentive-Based Conservation Programs

Conservation Credits Program

In 1988, Metropolitan's Board approved the Water Conservation Credits Program (Credits Program). The Credits Program is similar in concept to the Local Projects Program (LPP). The purpose of the Credits Program is to encourage local water agencies to implement effective water conservation projects through the use of financial incentives. The Credits Program provides financial assistance for water conservation projects that reduce demands on Metropolitan's imported water supplies and require Metropolitan's assistance to be financially feasible.

Initially, the Credits Program provided 50 percent of a member agency's program cost, up to a maximum of $75 per acre-foot of estimated water savings. The $75 Base Conservation Rate was established based Metropolitan's avoided cost of pumping SWP supplies. The Base Conservation Rate has been revisited by Metropolitan's Board and revised twice since 1988, from $75 to $154 per acre-foot in 1990 and from $154 to $195 per acre-foot in 2005.

In fiscal year 2020 Metropolitan processed more than 30,400 rebate applications totaling $18.9 million.

Member Agency Administered Program

Some member agencies also have unique programs within their service areas that provide local rebates that may differ from Metropolitan's regional program. Metropolitan continues to support these local efforts through a member agency administered funding program that adheres to the same funding guidelines as the Credits Program. The Member Agency Administered Program allows member agencies to receive funding for local conservation efforts that supplement, but do not duplicate, the rebates offered through Metropolitan's regional rebate program.

Water Savings Incentive Program

There are numerous commercial entities and industries within Metropolitan's service area that pursue unique savings opportunities that do not fall within the general rebate programs that Metropolitan provides. In 2012, Metropolitan designed the Water Savings Incentive Program (WSIP) to target these unique commercial and industrial projects. In addition to rebates for devices, under this program, Metropolitan provides financial incentives to businesses and industries that created their own custom water efficiency projects. Qualifying custom projects can receive funding for permanent water efficiency changes that result in reduced potable demand.

Non-Incentive Conservation Programs

In addition to its incentive-based conservation programs, Metropolitan also undertakes additional efforts throughout its service area that help achieve water savings without the use of rebates. Metropolitan's non-incentive conservation efforts include:

- residential and professional water efficient landscape training classes
- water audits for large landscapes
- research, development and studies of new water saving technologies
- advertising and outreach campaigns
- community outreach and education programs
- advocacy for legislation, codes, and standards that lead to increased water savings

Current Status and Results of Metropolitan's Conservation Programs

Since 1990, Metropolitan has invested $824 million in conservation rebates that have resulted in a cumulative savings of 3.27 million acre-feet of water. These investments include $450 million in turf removal and other rebates during the last drought which resulted in 175 million square feet of lawn turf removed. During fiscal year 2020, 1.06 million acre-feet of water is estimated to have been conserved. This annual total includes Metropolitan's Conservation Credits Program; code-based conservation achieved through Metropolitan-sponsored legislation; building plumbing codes and ordinances; reduced consumption resulting from changes in water pricing; and pre-1990 device retrofits.

Infeasibility of Accounting Regional Investments in Reduced Reliance Below the Regional Level

The accounting of regional investments that contribute to reduced reliance on supplies from the Delta watershed is straightforward to calculate and report at the regional aggregate level. However, any similar accounting is infeasible for the individual member agencies or their customers. As described above, the region (through Metropolitan) makes significant investments in projects, programs and other resources that reduce reliance on the Delta. In fact, all of Metropolitan's investments in Colorado River supplies, groundwater and surface storage, local resources development and demand management measures that reduce reliance on the Delta are collectively funded by revenues generated from the member agencies through rates and charges.

Metropolitan's revenues cannot be matched to the demands or supply production history of an individual agency, or consistently across the agencies within the service area. Each project or program funded by the region has a different online date, useful life, incentive rate and structure, and production schedule. It is infeasible to account for all these things over the life of each project or program and provide a nexus to each member agency's contributions to Metropolitan's revenue stream over time. Accounting at the regional level allows for the incorporation of the local supplies and water use efficiency programs done by member agencies and their customers through both the regional programs and through their own specific local programs. As shown above, despite the infeasibility of accounting reduced Delta reliance below the regional level, Metropolitan's member agencies and their customers have together made substantial contributions to the region's reduced reliance.

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Link to Metropolitan's 2020 UWMP once final

Appendix 11

Addendum to
The Metropolitan Water District of Southern California's
2015 Urban Water Management Plan

Quantifying Regional Self-Reliance and Reduced Reliance on Water Supplies from the Delta Watershed

June 2021

Appendix 11
METROPOLITAN'S REDUCED DELTA RELIANCE REPORTING
Addendum to Metropolitan's 2015 Urban Water Management Plan

A.11.1 Background

Under the Sacramento-San Joaquin Delta Reform Act of 2009, state and local public agencies proposing a covered action in the Delta,[1] prior to initiating the implementation of that action, must prepare a written certification of consistency with detailed findings as to whether the covered action is consistent with applicable Delta Plan policies and submit that certification to the Delta Stewardship Council.[2] Anyone may appeal a certification of consistency, and if the Delta Stewardship Council grants the appeal, the covered action may not be implemented until the agency proposing the covered action submits a revised certification of consistency, and either no appeal is filed, or the Delta Stewardship Council denies the subsequent appeal.[3]

An urban water supplier that anticipates participating in or receiving water from a proposed covered action such as a multi-year water transfer, conveyance facility, or new diversion that involves transferring water through, exporting water from, or using water in the Delta should provide information in their 2015 and 2020 Urban Water Management Plans (UWMPs) that can then be used in the covered action process to demonstrate consistency with Delta Plan Policy WR P1, Reduce Reliance on the Delta Through Improved Regional Water Self-Reliance (WR P1).[4]

WR P1 details what is needed for a covered action to demonstrate consistency with reduced reliance on the Delta and improved regional self-reliance. WR P1 subsection (a) states that:

(a) Water shall not be exported from, transferred through, or used in the Delta if all of the following apply:

> *(1) One or more water suppliers that would receive water as a result of the export, transfer, or use have failed to adequately contribute to reduced reliance on the Delta and improved regional self-reliance consistent with all of the requirements listed in paragraph (1) of subsection (c);*
>
> *(2) That failure has significantly caused the need for the export, transfer, or use; and*
>
> *(3) The export, transfer, or use would have a significant adverse environmental impact in the Delta.*

WR P1 subsection (c)(1) further defines what adequately contributing to reduced reliance on the Delta means in terms of (a)(1) above.

(c)(1) Water suppliers that have done all the following are contributing to reduced reliance on the Delta and improved regional self-reliance and are therefore consistent with this policy:

> *(A) Completed a current Urban or Agricultural Water Management Plan (Plan) which has been reviewed by the California Department of Water Resources for compliance with the applicable requirements of Water Code Division 6, Parts 2.55, 2.6, and 2.8;*

[1] Water Code, § 85057.5; Cal. Code Regs. tit. 23, § 5001.
[2] Water Code, § 85225; Delta Plan, App. D.
[3] Water Code, §§ 85225.10-85225.25; Delta Plan, App. D.
[4] Cal. Code Regs., tit. 23, § 5003.

(B) Identified, evaluated, and commenced implementation, consistent with the implementation schedule set forth in the Plan, of all programs and projects included in the Plan that are locally cost effective and technically feasible which reduce reliance on the Delta; and

(C) Included in the Plan, commencing in 2015, the expected outcome for measurable reduction in Delta reliance and improvement in regional self-reliance. The expected outcome for measurable reduction in Delta reliance and improvement in regional self-reliance shall be reported in the Plan as the reduction in the amount of water used, or in the percentage of water used, from the Delta watershed. For the purposes of reporting, water efficiency is considered a new source of water supply, consistent with Water Code section 1011(a).

The analysis and documentation provided below include all of the elements described in WR P1(c)(1) that need to be included in a water supplier's UWMP to support a certification of consistency for a future covered action.

A.11.2 Summary of Expected Outcomes for Reduced Reliance on the Delta

As stated in WR P1(c)(1)(C), the policy requires that, commencing in 2015, UWMPs include expected outcomes for measurable reduction in Delta reliance and improved regional self-reliance. WR P1 further states that those outcomes shall be reported in the UWMP as the reduction in the amount of water used, or in the percentage of water used, from the Delta.

The expected outcomes for Metropolitan's Delta reliance and regional self-reliance were developed using the approach and guidance described in Appendix C of DWR's Urban Water Management Plan Guidebook 2020 (Guidebook Appendix C) issued in March 2021.

The data used in this analysis represent the total regional efforts of Metropolitan and its member agencies and their customers (many of them, retail agencies) and were developed in conjunction with Metropolitan's member agencies as part of the UWMP coordination process as described in Section 5 of Metropolitan's UWMP. In accordance with UMWP requirements, Metropolitan's member agencies and their customers (many of them, retail agencies) also report demands and supplies for their service areas in their respective UWMPs. The data reported by those agencies are not additive to the regional totals shown in Metropolitan's UWMP; rather, their reporting represents subtotals of the regional total and should be considered as such for the purposes of determining reduced reliance on the Delta.

While the demands that Metropolitan's member agencies and their customers report in their UWMPs are a good reflection of the demands in their respective service areas, they do not adequately represent each water supplier's contributions to reduced reliance on the Delta. In order to calculate and report their reliance on water supplies from the Delta watershed, water suppliers that receive water from the Delta through other regional or wholesale water suppliers would need to determine the amount of Delta water that they receive from the regional or wholesale supplier. Two specific pieces of information are needed to accomplish this: first is the quantity of demands on the regional or wholesale water supplier that accurately reflect a supplier's contributions to reduced reliance on the Delta, and second is the quantity of a supplier's demands on the regional or wholesale water supplier that are met by supplies from the Delta watershed.

For water suppliers that make investments in regional projects or programs it may be infeasible to quantify their demands on the regional or wholesale water supplier in a way that accurately reflects their individual contributions to reduced reliance on the Delta. Due to the extensive, long-standing and successful implementation of regional demand management and local resource

incentive programs in Metropolitan's service area, this infeasibility holds true for Metropolitan's members as well their customers. For Metropolitan's service area, reduced reliance on supplies from the Delta watershed can only be accurately accounted at the regional level, as is demonstrated in this analysis.

The following provides a summary of the near-term (2025) and long-term (2045) expected outcomes for Metropolitan's Delta reliance and regional self-reliance. The results show that as a region, Metropolitan and its members as well as their customers are measurably reducing reliance on the Delta and improving regional self-reliance, both as an amount of water used and as a percentage of water used.

Expected Outcomes for Regional Self-Reliance

- Near-term (2025) – Normal water year regional self-reliance is expected to increase by 813 TAF from the 2010 baseline; this represents an increase of almost 25 percent of 2025 normal water year retail demands (Table A.11-2).
- Long-term (2045) – Normal water year regional self-reliance is expected to increase by more than 1.28 MAF from the 2010 baseline, this represents an increase of more than 25 percent of 2045 normal water year retail demands (Table A.11-2).

Expected Outcomes for Reduced Reliance on Supplies from the Delta Watershed

- Near-term (2025) – Normal water year reliance on supplies from the Delta watershed decreased by 301 TAF from the 2010 baseline, this represents a decrease of 3 percent of 2025 normal water year retail demands (Table A.11-3).
- Long-term (2045) – Normal water year reliance on supplies from the Delta watershed decreased by 314 TAF from the 2010 baseline, this represents a decrease of just over 5 percent of 2045 normal water year retail demands (Table A.11-3).

A11.3 Demonstration of Reduced Reliance on the Delta

The methodology used to determine Metropolitan's reduced Delta reliance and improved regional self-reliance is consistent with the approach detailed in DWR's UWMP Guidebook Appendix C, including the use of narrative justifications for the accounting of supplies and the documentation of specific data sources. Some of the key assumptions underlying Metropolitan's demonstration of reduced reliance include:

- All data were obtained from the current 2020 UWMP or previously adopted UWMPs and represent average or normal water year conditions.
- All analyses were conducted at the service area level, and all data reflect the total contributions of Metropolitan and its members as well as their customers.
- No projects or programs that are described in the UWMPs as "Projects Under Development" were included in the accounting of supplies.

Baseline and Expected Outcomes

In order to calculate the expected outcomes for measurable reduction in Delta reliance and improved regional self-reliance, a baseline is needed to compare against. This analysis uses a normal water year representation of 2010 as the baseline, which is consistent with the approach described in the Guidebook Appendix C. Data for the 2010 baseline were taken from Metropolitan's 2005 UWMP as the UWMPs generally do not provide normal water year data for the year that they are adopted (i.e., 2005 UWMP forecasts begin in 2010, 2010 UWMP forecasts begin in 2015, and so on).

Consistent with the 2010 baseline data approach, the expected outcomes for reduced Delta reliance and improved regional self-reliance for 2015 and 2020 were taken from Metropolitan's 2010 and 2015 UWMPs respectively. Expected outcomes for 2025-2045 are from the current 2020 UWMP. Documentation of the specific data sources and assumptions are included in the discussions below.

Service Area Demands without Water Use Efficiency

In alignment with the Guidebook Appendix C, this analysis uses normal water year demands, rather than normal water year supplies to calculate expected outcomes in terms of the percentage of water used. Using normal water year demands serves as a proxy for the amount of supplies that would be used in a normal water year, which helps alleviate issues associated with how supply capability is presented to fulfill requirements of the Act versus how supplies might be accounted for to demonstrate consistency with WR P1.

Because WR P1 considers water use efficiency savings a source of water supply, water suppliers such as Metropolitan that explicitly calculate and report water use efficiency savings in their UWMP will need to make an adjustment to properly reflect normal water year demands in the calculation of reduced reliance. As explained in the Guidebook Appendix C, water use efficiency savings must be added back to the normal year demands to represent demands without water use efficiency savings accounted for; otherwise the effect of water use efficiency savings on regional self-reliance would be overestimated. Table A.11-1 shows the results of this adjustment for Metropolitan. Supporting narratives and documentation for all of the data shown in Table A.11-1 are provided below.

Table A.11-1
Demands without Water Use Efficiency Accounted For

Total Service Area Water Demands (Acre-Feet)	Baseline (2010)	2015	2020	2025	2030	2035	2040	2045
Service Area Demands with Water Use Efficiency Accounted For	4,628,000	4,563,000	4,163,000	3,763,000	3,821,000	3,893,000	3,936,000	3,985,000
Reported Water Use Efficiency	865,000	936,000	1,056,000	1,162,000	1,211,000	1,263,000	1,325,000	1,389,000
Service Area Demands without Water Use Efficiency Accounted For	**5,493,000**	**5,499,000**	**5,219,000**	**4,925,000**	**5,032,000**	**5,156,000**	**5,261,000**	**5,374,000**

Service Area Demands without Water Use Efficiency

The service area demands shown in Table A.11-1 represent the total retail water demands for Metropolitan's service area and include municipal and industrial demands, agricultural demands, seawater barrier demands, and storage replenishment demands. These demand types and the modeling methodologies used to calculate them are described in Section 2.2 and Appendix 1 of Metropolitan's UWMP.

Water Use Efficiency

The water use efficiency numbers shown in Table A.11-1 represent the total water use efficiency savings (conservation) for Metropolitan's region, including savings from active, code-based, price-effect and pre-1990 sources. These sources of water use efficiency and the methodologies used to calculate them are described in Section 2.2, Section 3.4, Section 3.7 and Appendix 1 of Metropolitan's UWMP.

The demand and water use efficiency data shown in Table A.11-1 were collected from the following sources:

- Baseline (2010) values – Metropolitan's 2005 UWMP, Table 2-6: Metropolitan Regional Water Demand Average Year
- 2015 values – Metropolitan's 2010 UWMP, Table 2-8: Metropolitan Regional Water Demands Average Year
- 2020 values – Metropolitan's 2015 UWMP, Table 2-3: Metropolitan Regional Water Demands Average Year
- 2025-2045 values – Metropolitan's 2020 UWMP, Table 2-3: Metropolitan Regional Water Demands Normal Water Year

Supplies Contributing to Regional Self-Reliance

For a covered action to demonstrate consistency with the Delta Plan, WR P1 subsection (c)(1)(C) states that water suppliers must report the expected outcomes for measurable improvement in regional self-reliance. Table A.11-2 shows expected outcomes for supplies contributing to regional self-reliance both in amount and as a percentage. The numbers shown in Table A.11-2 represent efforts to improve regional self-reliance for Metropolitan's entire service area and include the total contributions of Metropolitan and its members as well as their customers. Supporting narratives and documentation for the all of the data shown in Table A.11-2 are provided below.

The results shown in Table A.11-2 demonstrate that Metropolitan's service area is measurably improving its regional self-reliance. In the near-term (2025), the expected outcome for normal water year regional self-reliance increases by 747 TAF from the 2010 baseline; this represents an increase of about 23 percent of 2025 normal water year retail demands. In the long-term (2045), normal water year regional self-reliance is expected to increase by more than 1.2 MAF from the 2010 baseline; this represents an increase of 25 percent of 2045 normal water year retail demands.

Table A.11-2
Supplies Contributing to Regional Self-Reliance

Water Supplies Contributing to Regional Self-Reliance (Acre-Feet)	Baseline (2010)	2015	2020	2025	2030	2035	2040	2045
Water Use Efficiency	865,000	936,000	1,056,000	1,162,000	1,211,000	1,263,000	1,325,000	1,389,000
Water Recycling	316,000	348,000	436,000	550,000	613,000	687,000	698,000	706,000
Stormwater Capture and Use	100,000	103,000	110,000	80,000	82,000	82,000	82,000	82,000
Advanced Water Technologies	111,000	101,000	194,000	194,000	208,000	209,000	209,000	210,000
Conjunctive Use Projects	1,416,000	1,429,000	1,303,000	1,255,000	1,273,000	1,296,000	1,311,000	1,326,000
Local and Regional Water Supply and Storage Projects	252,000	224,000	261,000	257,000	257,000	258,000	258,000	258,000
Other Programs and Projects that Contribute to Regional Self-Reliance	875,000	1,250,000	1,200,000	1,250,000	1,250,000	1,250,000	1,250,000	1,250,000
Water Supplies Contributing to Regional Self-Reliance	**3,935,000**	**4,391,000**	**4,560,000**	**4,748,000**	**4,894,000**	**5,045,000**	**5,133,000**	**5,221,000**

Service Area Demands without Water Use Efficiency (Acre-Feet)	Baseline (2010)	2015	2020	2025	2030	2035	2040	2045
Service Area Demands without Water Use Efficiency Accounted For	5,493,000	5,499,000	5,219,000	4,925,000	5,032,000	5,156,000	5,261,000	5,374,000

Change in Regional Self Reliance (Acre-Feet)	Baseline (2010)	2015	2020	2025	2030	2035	2040	2045
Water Supplies Contributing to Regional Self-Reliance	3,935,000	4,391,000	4,560,000	4,748,000	4,894,000	5,045,000	5,133,000	5,221,000
Change in Supplies Contributing to Regional Self-Reliance	**NA**	**456,000**	**625,000**	**813,000**	**959,000**	**1,110,000**	**1,198,000**	**1,286,000**

Percent Change in Regional Self Reliance (As Percent of Demand w/out WUE)	Baseline (2010)	2015	2020	2025	2030	2035	2040	2045
Percent of Supplies Contributing to Regional Self-Reliance	71.6%	79.9%	87.4%	96.4%	97.3%	97.8%	97.6%	97.2%
Change in Percent of Supplies Contributing to Regional Self-Reliance	**NA**	**8.2%**	**15.7%**	**24.8%**	**25.6%**	**26.2%**	**25.9%**	**25.5%**

Water Use Efficiency

The water use efficiency information shown in Table A.11-2 is taken directly from Table A.11-1 above.

Water Recycling

The water recycling values shown in Table A.11-2 reflect the total recycled water production in Metropolitan's service area as described in Section 3.5 and Appendix 2 of Metropolitan's UWMP.

Stormwater Capture and Use

The stormwater capture and use data shown in Table A.11-2 include supplies from local surface water production as described in Section 1.4 and Appendix 2 of Metropolitan's UWMP.

These values do not include production from regional storage reservoirs; storage in these reservoirs is comprised of previously stored water from sources already reflected in Tables A.11-2 and A.11-3. These regional storage resources are generally used to provide additional regional self-reliance in dry years, which is not reflected in this normal water year analysis. The regional storage reservoirs and their yields are described in Section 3.6, Appendix 2 and Appendix 3 of Metropolitan's UWMP.

The stormwater capture and use values shown in Table A.11-2 also do not include stormwater capture that is used to recharge local groundwater basins. Stormwater capture for groundwater recharge supports production of groundwater in the region, and for the purposes of this analysis that production is already captured in Table A.11-2 under conjunctive use projects.

Advanced Water Technologies

The advanced water technologies data shown in Table A.11-2 include total groundwater recovery and seawater desalination production in Metropolitan's service area as described in Section 3.5 and Appendix 2 of Metropolitan's UWMP.

Conjunctive Use Projects

The values for conjunctive use projects shown in Table A.11-2 represent total groundwater production in the region as described in Section 1.4 and Appendix 2 of Metropolitan's UWMP.

The conjunctive use projects numbers shown in Table A.11-2 do not include production from regional groundwater conjunctive use programs. As described in the stormwater capture and use discussion above, these regional storage programs rely on previously stored water from sources already reflected in Tables A.11-2 and A.11-3 and are generally used to provide additional regional self-reliance in dry-years. The regional groundwater conjunctive use programs and their yields are described in Section 3.6 and Appendix 3.

Local and Regional Water Supply and Storage Programs

The data for local and regional water supply and storage programs shown in Table A.11-2 include supplies from the Los Angeles Aqueduct. This supply is described in Section 1.4 and Appendix 2 of Metropolitan's UWMP.

The local and regional supply numbers shown in Table A.11-2, except for "Other Programs and Projects that Contribute to Regional Self-Reliance" which is discussed below, were obtained from the following sources:

- Baseline (2010) values – Metropolitan's 2005 UWMP, Table 2-6: Metropolitan Regional Water Demand Average Year

- 2015 values – Metropolitan's 2010 UWMP, Table 2-8: Metropolitan Regional Water Demands Average Year
- 2020 values – Metropolitan's 2015 UWMP, Table 2-3: Metropolitan Regional Water Demands Average Year
- 2025-2045 values – Metropolitan's 2020 UWMP, Table 2-3: Metropolitan Regional Water Demands Normal Water Year

Other Programs and Projects that Contribute to Regional Self-Reliance

Other programs and projects that contribute to regional self-reliance shown in Table A.11-2 include current programs from the Colorado River Aqueduct. Colorado River supplies include Metropolitan's basic Colorado River apportionment, as well as supplies that result from existing and committed programs, including those from the IID-MWD Conservation Program, the implementation of the Quantification Settlement Agreement (QSA), related agreements, and the exchange agreement with SDCWA. Colorado River Aqueduct supplies and programs are described in Section 3.1 and Appendix 3 of Metropolitan's UWMP.

The values shown in Table A.11-2 for other programs and projects that contribute to regional self-reliance come from the following sources:

- Baseline (2010) values – Metropolitan's 2005 UWMP, Table A.3-7: Maximum Expected Colorado River Aqueduct Deliveries Year 2010 (Average Year)
- 2015 values – Metropolitan's 2010 UWMP, Table A.3-7: Maximum Expected Colorado River Aqueduct Deliveries Year 2015 (Average Year)
- 2020 values – Metropolitan's 2015 UWMP, Table A.3-7: Maximum Expected Colorado River Aqueduct Deliveries Year 2020 (Average Year)
- 2025-2045 values – Metropolitan's 2020 UWMP, Table A.3-7: Maximum Expected Colorado River Aqueduct Deliveries Years 2025, 2030, 2035, 2040, 2045 (Normal Water Year)

Reliance on Water Supplies from the Delta Watershed

In order for a covered action to demonstrate consistency with the Delta Plan, WR P1 subsection (c)(1)(C) requires that water suppliers report the expected outcomes for measurable reductions in supplies from the Delta watershed either as an amount or as a percentage. This analysis provides both calculations. Based on the methodology described in Guidebook Appendix C, and consistent with the approach of this analysis in not including projects under development, this accounting does not include any supplies from potential future covered actions. Table A.11-3 shows the expected outcomes for reliance on supplies from the Delta watershed for Metropolitan's service area. Supporting narratives and documentation for the all of the data shown in Table A.11-3 are provided below.

The results shown in Table A.11-3 demonstrate that Metropolitan's service area is measurably reducing its Delta reliance. In the near-term (2025), the expected outcome for normal water year reliance on supplies from the Delta watershed decreased by 301 TAF from the 2010 baseline; this represents a decrease of 3 percent of 2025 normal water year retail demands. In the long-term (2045), normal water year reliance on supplies from the Delta watershed decreased by 314 TAF from the 2010 baseline; this represents a decrease of just over 5 percent of 2045 normal water year retail demands.

Table A.11-3
Reliance on Water Supplies from the Delta Watershed

Water Supplies from the Delta Watershed (Acre-Feet)	Baseline (2010)	2015	2020	2025	2030	2035	2040	2045
CVP/SWP Contract Supplies	1,472,000	1,029,000	984,000	1,133,000	1,130,000	1,128,000	1,126,000	1,126,000
Delta/Delta Tributary Diversions	-	-	-	-	-	-	-	-
Transfers and Exchanges of Supplies from the Delta Watershed	20,000	44,000	91,000	58,000	52,000	52,000	52,000	52,000
Other Water Supplies from the Delta Watershed	-	-	-	-	-	-	-	-
Total Water Supplies from the Delta Watershed	**1,492,000**	**1,073,000**	**1,075,000**	**1,191,000**	**1,182,000**	**1,180,000**	**1,178,000**	**1,178,000**

Service Area Demands without Water Use Efficiency (Acre-Feet)	Baseline (2010)	2015	2020	2025	2030	2035	2040	2045
Service Area Demands without Water Use Efficiency Accounted For	5,493,000	5,499,000	5,219,000	4,925,000	5,032,000	5,156,000	5,261,000	5,374,000

Change in Supplies from the Delta Watershed (Acre-Feet)	Baseline (2010)	2015	2020	2025	2030	2035	2040	2045
Water Supplies from the Delta Watershed	1,492,000	1,073,000	1,075,000	1,191,000	1,182,000	1,180,000	1,178,000	1,178,000
Change in Supplies from the Delta Watershed	**NA**	**(419,000)**	**(417,000)**	**(301,000)**	**(310,000)**	**(312,000)**	**(314,000)**	**(314,000)**

Percent Change in Supplies from the Delta Watershed (As a Percent of Demand w/out WUE)	Baseline (2010)	2015	2020	2025	2030	2035	2040	2045
Percent of Supplies from the Delta Watershed	27.2%	19.5%	20.6%	24.2%	23.5%	22.9%	22.4%	21.9%
Change in Percent of Supplies from the Delta Watershed	**NA**	**-7.6%**	**-6.6%**	**-3.0%**	**-3.7%**	**-4.3%**	**-4.8%**	**-5.2%**

CVP/SWP Contract Supplies

The CVP/SWP contract supplies shown in Table A.11-3 include Metropolitan's SWP Table A and Article 21 supplies. These supplies are described in Section 3.2 and Appendix 3 of Metropolitan's UWMP.

The values shown in Table A.11-3 do not include Desert Water Agency/Coachella Valley Water District SWP contract supplies. These supplies are exchanged with Desert Water Agency and Coachella Valley Water District for an equal amount of Colorado River water, which is reflected in the Colorado River Aqueduct supplies shown in Table A.11-2. In addition, Desert Water Agency and Coachella Valley Water District should include their SWP contract supplies in their own accountings of reduced reliance. Additional information on these exchange agreements can be found in Section 3.2 and Appendix 3 of Metropolitan's UWMP.

These values also do not include supplies from San Luis Carryover storage or Central Valley storage programs because storage in these programs comprises previously stored water from sources already reflected in Table A.11-3. These storage programs are generally used to provide additional regional self-reliance in dry years, which is not reflected in this normal water year analysis. The Central Valley storage projects and their yields are described in Section 3.3, and Appendix 3. San Luis Carryover storage is described in Section 3.2 and Appendix 3.

Transfers and Exchanges of Supplies from the Delta Watershed

The transfers and exchanges of supplies from the Delta watershed shown in Table A.11-3 include supplies from the San Bernardino Valley MWD Program, Yuba River Accord Purchase Program, the San Gabriel Valley MWD Program, Irvine Ranch Water District Storage and Exchange Program, and other generic SWP and Central Valley transfers and exchanges. These programs are described in Section 3.2 and Appendix 3 of Metropolitan's UWMP.

Supplies from the Delta Watershed shown in Table A.11-3 are from the following sources:

- Baseline (2010) values – Metropolitan's 2005 UWMP, Table A.3-7: California Aqueduct Program Capabilities Year 2010 (Average Year)

- 2015 values – Metropolitan's 2010 UWMP, Table A.3-7: California Aqueduct Program Capabilities Year 2015 (Average Year)
- 2020 values – Metropolitan's 2015 UWMP, Table A.3-7: California Aqueduct Program Capabilities Year 2020 (Average Year)
- 2025-2045 values – Metropolitan's 2020 UWMP, Table A.3-7: California Aqueduct Program Capabilities Years 2025, 2030, 2035, 2040, 2045 (Normal Water Year)

A.11.4 UWMP Implementation

In addition to the analysis and documentation described above, WR P1 subsection (c)(1)(B) requires that all programs and projects included in the UWMP that are locally cost-effective and technically feasible, which reduce reliance on the Delta, are identified, evaluated, and implemented consistent with the implementation schedule. WR P1 (c)(1)(B) states that:

> *(B) Identified, evaluated, and commenced implementation, consistent with the implementation schedule set forth in the Plan, of all programs and projects included in the Plan that are locally cost effective and technically feasible which reduce reliance on the Delta*[.]

In accordance with Water Code Section 10631(f), water suppliers must already include in their UWMP a detailed description of expected future projects and programs that they may implement to increase the amount of water supply available to them in normal and single-dry water years and for a period of drought lasting five consecutive years. The UWMP description must also identify specific projects, include a description of the increase in water supply that is expected to be available from each project, and include an estimate regarding the implementation timeline for each project or program.

Section 3 of Metropolitan's UWMP summarizes the implementation plan and continued progress in developing a diversified water portfolio to meet the region's water needs.

Water Use Efficiency

The water use efficiency numbers used in this analysis include the total water use efficiency savings (conservation) for the service area, including savings from active, code-based, price-effect and pre-1990 savings. The specific water use efficiency programs and their implementation are described in Section 3.4 of Metropolitan's UWMP.

Water Recycling

The water recycling values used in this analysis reflect the total recycled water production in Metropolitan's service area. Water recycling programs and implementation are discussed in Section 3.5 of Metropolitan's UWMP. In addition, individual project-level details are provided in Appendix 5.

Stormwater Capture and Use

The stormwater capture and use data used in this analysis include supplies from local surface water production. Local surface water production and its implementation are discussed in Appendix 2 of Metropolitan's UWMP.

Advanced Water Technologies

The advanced water technologies data used in this analysis include total groundwater recovery and seawater desalination production in Metropolitan's service. Groundwater recovery and seawater desalination programs and implementation are described in Section 3.5 of Metropolitan's UWMP. In addition, individual project-level details are provided in Appendix 5.

Conjunctive Use Projects

The values for conjunctive use projects used in this analysis represent total groundwater production in the region. Groundwater production and its implementation are discussed in Appendix 2 of Metropolitan's UWMP.

Local and Regional Water Supply and Storage Programs

The data for local and regional water supply and storage programs shown this analysis include supplies from the Los Angeles Aqueduct. This program and its implementation are described in Appendix 2 of Metropolitan's UWMP.

Other Programs and Projects that Contribute to Regional Self-Reliance

Other programs and projects that contribute to regional self-reliance used in this analysis include current programs from the Colorado River Aqueduct. Colorado River supplies include Metropolitan's basic Colorado River apportionment, as well as supplies that result from existing and committed programs, including those from the IID-MWD Conservation Program, the implementation of the Quantification Settlement Agreement (QSA), related agreements, and the exchange agreement with SDCWA. Colorado River Aqueduct programs and their implementation are described in Section 3.1 and Appendix 3 of Metropolitan's UWMP.

CVP/SWP Contract Supplies

The CVP/SWP contract supplies shown in this analysis include Metropolitan's SWP Table A and Article 21 supplies. These supplies and their implementation are described in Section 3.2 and Appendix 3 of Metropolitan's UWMP.

Transfers and Exchanges of Supplies from the Delta Watershed

The transfers and exchanges of supplies from the Delta watershed shown in this analysis include supplies from the San Bernardino Valley MWD Program, Yuba River Accord Purchase Program, the San Gabriel Valley MWD Program, Irvine Ranch Water District Storage and Exchange Program, and other generic SWP and Central Valley transfers and exchanges. These programs and their implementation are described in Section 3.2 and Appendix 3 of Metropolitan's UWMP.

A.11.5 2015 UWMP Appendix 11

The information contained in this Appendix 11 is also intended to be a new Appendix 11 attached to Metropolitan's 2015 UWMP consistent with WR P1 subsection (c)(1)(C) (Cal. Code Regs. tit. 23, § 5003). Metropolitan provided notice of the availability of the draft 2020 UWMP (including this Appendix 11 which will also be a new Appendix 11 to its 2015 UWMP) and WSCP and the public hearing to consider adoption of both plans and Appendix 11 to the 2015 UWMP in accordance with CWC Sections 10621(b) and 10642, and Government Code Section 6066, and Chapter 17.5 (starting with Section 7290) of Division 7 of Title 1 of the Government Code. The public review drafts of the 2020 UWMP, Appendix 11 to the 2015 UWMP, and the WSCP were posted prominently on Metropolitan's website, mwdh2o.com, starting February 1, 2021, more than 60 days in advance of the public hearing on April 12, 2021. The notice of availability of the documents was sent to Metropolitan's member agencies, as well as cities and counties in Metropolitan's service area. In addition, a public notice advertising the public hearing in English and Spanish was published in 12 Southern California newspapers. The notification in English language newspapers was published on February 1 and 8, 2021. The notification was published on January 28-30, 2021 and February 1, 4-6, and 8, 2021 in Spanish language newspapers, satisfying the requirement for non-English language notification. Copies of: (1) the notification letter sent to the member agencies, cities and counties in Metropolitan's service area, and (2) the notice published in the newspapers are included in the 2020 UWMP Section 5. Thus, this Appendix 11 to Metropolitan's 2020 UWMP, which was adopted with Metropolitan's 2020 UWMP, will also be recognized and treated as Appendix 11 to Metropolitan's 2015 UWMP.

Metropolitan held the public hearing for the draft 2020 UWMP, draft Appendix 11 to the 2015 UWMP, and draft WSCP on April 12, 2021, at the Board's Water Planning and Stewardship Committee meeting, held online due to COVID-19 concerns. On May 11, 2021, Metropolitan's Board determined that the 2020 UWMP and the WSCP are consistent with the MWD Act and accurately represent the water resources plan for Metropolitan's service area. In addition, Metropolitan's Board determined that Appendix 11 to both the 2015 UWMP and the 2020 UWMP includes all of the elements described in Delta Plan Policy WR P1, Reduce Reliance on the Delta Through Improved Regional Water Self-Reliance (Cal. Code Regs. tit. 23, § 5003), which need to be included in a water supplier's UWMP to support a certification of consistency for a future covered action. As stated in Resolutions 9279, 9280, and 9281, the Board adopted the 2020 UWMP, Appendix 11 to the 2015 UWMP, and the WSCP and authorized their submittal to the State of California. Copies of Resolutions 9279, 9280, and 9281 are included in the 2020 UWMP Section 5, and Resolution 9281 for the WSCP is attached to the WSCP as Attachment C.

Appendix 11

QUANTIFYING REGIONAL SELF-RELIANCE AND REDUCED RELIANCE ON WATER SUPPLIES FROM THE DELTA WATERSHED

Appendix 11
METROPOLITAN'S
REDUCED DELTA RELIANCE REPORTING

A.11.1 Background

Under the Sacramento-San Joaquin Delta Reform Act of 2009, state and local public agencies proposing a covered action in the Delta,[1] prior to initiating the implementation of that action, must prepare a written certification of consistency with detailed findings as to whether the covered action is consistent with applicable Delta Plan policies and submit that certification to the Delta Stewardship Council.[2] Anyone may appeal a certification of consistency, and if the Delta Stewardship Council grants the appeal, the covered action may not be implemented until the agency proposing the covered action submits a revised certification of consistency, and either no appeal is filed, or the Delta Stewardship Council denies the subsequent appeal.[3]

An urban water supplier that anticipates participating in or receiving water from a proposed covered action such as a multi-year water transfer, conveyance facility, or new diversion that involves transferring water through, exporting water from, or using water in the Delta should provide information in their 2015 and 2020 Urban Water Management Plans (UWMPs) that can then be used in the covered action process to demonstrate consistency with Delta Plan Policy WR P1, Reduce Reliance on the Delta Through Improved Regional Water Self-Reliance (WR P1).[4]

WR P1 details what is needed for a covered action to demonstrate consistency with reduced reliance on the Delta and improved regional self-reliance. WR P1 subsection (a) states that:

(a) Water shall not be exported from, transferred through, or used in the Delta if all of the following apply:

> *(1) One or more water suppliers that would receive water as a result of the export, transfer, or use have failed to adequately contribute to reduced reliance on the Delta and improved regional self-reliance consistent with all of the requirements listed in paragraph (1) of subsection (c);*
>
> *(2) That failure has significantly caused the need for the export, transfer, or use; and*
>
> *(3) The export, transfer, or use would have a significant adverse environmental impact in the Delta.*

WR P1 subsection (c)(1) further defines what adequately contributing to reduced reliance on the Delta means in terms of (a)(1) above.

(c)(1) Water suppliers that have done all the following are contributing to reduced reliance on the Delta and improved regional self-reliance and are therefore consistent with this policy:

> *(A) Completed a current Urban or Agricultural Water Management Plan (Plan) which has been reviewed by the California Department of Water Resources for compliance with the applicable requirements of Water Code Division 6, Parts 2.55, 2.6, and 2.8;*

[1] Water Code, § 85057.5; Cal. Code Regs. tit. 23, § 5001.
[2] Water Code, § 85225; Delta Plan, App. D.
[3] Water Code, §§ 85225.10-85225.25; Delta Plan, App. D.
[4] Cal. Code Regs., tit. 23, § 5003.

(B) Identified, evaluated, and commenced implementation, consistent with the implementation schedule set forth in the Plan, of all programs and projects included in the Plan that are locally cost effective and technically feasible which reduce reliance on the Delta; and

(C) Included in the Plan, commencing in 2015, the expected outcome for measurable reduction in Delta reliance and improvement in regional self-reliance. The expected outcome for measurable reduction in Delta reliance and improvement in regional self-reliance shall be reported in the Plan as the reduction in the amount of water used, or in the percentage of water used, from the Delta watershed. For the purposes of reporting, water efficiency is considered a new source of water supply, consistent with Water Code Section 1011(a).

The analysis and documentation provided below include all of the elements described in WR P1(c)(1) that need to be included in a water supplier's UWMP to support a certification of consistency for a future covered action.

A.11.2 Summary of Expected Outcomes for Reduced Reliance on the Delta

As stated in WR P1(c)(1)(C), the policy requires that, commencing in 2015, UWMPs include expected outcomes for measurable reduction in Delta reliance and improved regional self-reliance. WR P1 further states that those outcomes shall be reported in the UWMP as the reduction in the amount of water used, or in the percentage of water used, from the Delta.

The expected outcomes for Metropolitan's Delta reliance and regional self-reliance were developed using the approach and guidance described in Appendix C of DWR's Urban Water Management Plan Guidebook 2020 (Guidebook Appendix C) issued in March 2021.

The data used in this analysis represent the total regional efforts of Metropolitan and its member agencies and their customers (many of them, retail agencies) and were developed in conjunction with Metropolitan's member agencies as part of the UWMP coordination process as described in Section 5 of Metropolitan's UWMP. In accordance with UMWP requirements, Metropolitan's member agencies and their customers (many of them, retail agencies) also report demands and supplies for their service areas in their respective UWMPs. The data reported by those agencies are not additive to the regional totals shown in Metropolitan's UWMP; rather, their reporting represents subtotals of the regional total and should be considered as such for the purposes of determining reduced reliance on the Delta.

While the demands that Metropolitan's member agencies and their customers report in their UWMPs are a good reflection of the demands in their respective service areas, they do not adequately represent each water supplier's contributions to reduced reliance on the Delta. In order to calculate and report their reliance on water supplies from the Delta watershed, water suppliers that receive water from the Delta through other regional or wholesale water suppliers would need to determine the amount of Delta water that they receive from the regional or wholesale supplier. Two specific pieces of information are needed to accomplish this: first is the quantity of demands on the regional or wholesale water supplier that accurately reflect a supplier's contributions to reduced reliance on the Delta, and second is the quantity of a supplier's demands on the regional or wholesale water supplier that are met by supplies from the Delta watershed.

For water suppliers that make investments in regional projects or programs it may be infeasible to quantify their demands on the regional or wholesale water supplier in a way that accurately reflects their individual contributions to reduced reliance on the Delta. Due to the extensive, long-

standing and successful implementation of regional demand management and local resource incentive programs in Metropolitan's service area, this infeasibility holds true for Metropolitan's members as well their customers. For Metropolitan's service area, reduced reliance on supplies from the Delta watershed can only be accurately accounted at the regional level, as is demonstrated in this analysis.

The following provides a summary of the near-term (2025) and long-term (2045) expected outcomes for Metropolitan's Delta reliance and regional self-reliance. The results show that as a region, Metropolitan and its members as well as their customers are measurably reducing reliance on the Delta and improving regional self-reliance, both as an amount of water used and as a percentage of water used.

Expected Outcomes for Regional Self-Reliance

- Near-term (2025) – Normal water year regional self-reliance is expected to increase by 813 TAF from the 2010 baseline; this represents an increase of almost 25 percent of 2025 normal water year retail demands (Table A.11-2).
- Long-term (2045) – Normal water year regional self-reliance is expected to increase by more than 1.28 MAF from the 2010 baseline, this represents an increase of more than 25 percent of 2045 normal water year retail demands (Table A.11-2).

Expected Outcomes for Reduced Reliance on Supplies from the Delta Watershed

- Near-term (2025) – Normal water year reliance on supplies from the Delta watershed decreased by 301 TAF from the 2010 baseline, this represents a decrease of 3 percent of 2025 normal water year retail demands (Table A.11-3).
- Long-term (2045) – Normal water year reliance on supplies from the Delta watershed decreased by 314 TAF from the 2010 baseline, this represents a decrease of just over 5 percent of 2045 normal water year retail demands (Table A.11-3).

A11.3 Demonstration of Reduced Reliance on the Delta

The methodology used to determine Metropolitan's reduced Delta reliance and improved regional self-reliance is consistent with the approach detailed in DWR's UWMP Guidebook Appendix C, including the use of narrative justifications for the accounting of supplies and the documentation of specific data sources. Some of the key assumptions underlying Metropolitan's demonstration of reduced reliance include:

- All data were obtained from the current 2020 UWMP or previously adopted UWMPs and represent average or normal water year conditions.
- All analyses were conducted at the service area level, and all data reflect the total contributions of Metropolitan and its members as well as their customers.
- No projects or programs that are described in the UWMPs as "Projects Under Development" were included in the accounting of supplies.

Baseline and Expected Outcomes

In order to calculate the expected outcomes for measurable reduction in Delta reliance and improved regional self-reliance, a baseline is needed to compare against. This analysis uses a normal water year representation of 2010 as the baseline, which is consistent with the approach described in the Guidebook Appendix C. Data for the 2010 baseline were taken from Metropolitan's 2005 UWMP as the UWMPs generally do not provide normal water year data for

the year that they are adopted (i.e., 2005 UWMP forecasts begin in 2010, 2010 UWMP forecasts begin in 2015, and so on).

Consistent with the 2010 baseline data approach, the expected outcomes for reduced Delta reliance and improved regional self-reliance for 2015 and 2020 were taken from Metropolitan's 2010 and 2015 UWMPs respectively. Expected outcomes for 2025-2045 are from the current 2020 UWMP. Documentation of the specific data sources and assumptions are included in the discussions below.

Service Area Demands without Water Use Efficiency

In alignment with the Guidebook Appendix C, this analysis uses normal water year demands, rather than normal water year supplies to calculate expected outcomes in terms of the percentage of water used. Using normal water year demands serves as a proxy for the amount of supplies that would be used in a normal water year, which helps alleviate issues associated with how supply capability is presented to fulfill requirements of the Act versus how supplies might be accounted for to demonstrate consistency with WR P1.

Because WR P1 considers water use efficiency savings a source of water supply, water suppliers such as Metropolitan that explicitly calculate and report water use efficiency savings in their UWMP will need to make an adjustment to properly reflect normal water year demands in the calculation of reduced reliance. As explained in the Guidebook Appendix C, water use efficiency savings must be added back to the normal year demands to represent demands without water use efficiency savings accounted for; otherwise the effect of water use efficiency savings on regional self-reliance would be overestimated. Table A.11-1 shows the results of this adjustment for Metropolitan. Supporting narratives and documentation for all of the data shown in Table A.11-1 are provided below.

Table A.11-1
Demands without Water Use Efficiency Accounted For

Total Service Area Water Demands (Acre-Feet)	Baseline (2010)	2015	2020	2025	2030	2035	2040	2045
Service Area Demands with Water Use Efficiency Accounted For	4,628,000	4,563,000	4,163,000	3,763,000	3,821,000	3,893,000	3,936,000	3,985,000
Reported Water Use Efficiency	865,000	936,000	1,056,000	1,162,000	1,211,000	1,263,000	1,325,000	1,389,000
Service Area Demands without Water Use Efficiency Accounted For	**5,493,000**	**5,499,000**	**5,219,000**	**4,925,000**	**5,032,000**	**5,156,000**	**5,261,000**	**5,374,000**

Service Area Demands without Water Use Efficiency

The service area demands shown in Table A.11-1 represent the total retail water demands for Metropolitan's service area and include municipal and industrial demands, agricultural demands, seawater barrier demands, and storage replenishment demands. These demand types and the modeling methodologies used to calculate them are described in Section 2.2 and Appendix 1 of Metropolitan's UWMP.

Water Use Efficiency

The water use efficiency numbers shown in Table A.11-1 represent the total water use efficiency savings (conservation) for Metropolitan's region, including savings from active, code-based, price-effect and pre-1990 sources. These sources of water use efficiency and the methodologies used to calculate them are described in Section 2.2, Section 3.4, Section 3.7 and Appendix 1 of Metropolitan's UWMP.

The demand and water use efficiency data shown in Table A.11-1 were collected from the following sources:

- Baseline (2010) values – Metropolitan's 2005 UWMP, Table 2-6: Metropolitan Regional Water Demand Average Year
- 2015 values – Metropolitan's 2010 UWMP, Table 2-8: Metropolitan Regional Water Demands Average Year
- 2020 values – Metropolitan's 2015 UWMP, Table 2-3: Metropolitan Regional Water Demands Average Year
- 2025-2045 values – Metropolitan's 2020 UWMP, Table 2-3: Metropolitan Regional Water Demands Normal Water Year

Supplies Contributing to Regional Self-Reliance

For a covered action to demonstrate consistency with the Delta Plan, WR P1 subsection (c)(1)(C) states that water suppliers must report the expected outcomes for measurable improvement in regional self-reliance. Table A.11-2 shows expected outcomes for supplies contributing to regional self-reliance both in amount and as a percentage. The numbers shown in Table A.11-2 represent efforts to improve regional self-reliance for Metropolitan's entire service area and include the total contributions of Metropolitan and its members as well as their customers. Supporting narratives and documentation for the all of the data shown in Table A.11-2 are provided below.

The results shown in Table A.11-2 demonstrate that Metropolitan's service area is measurably improving its regional self-reliance. In the near-term (2025), the expected outcome for normal water year regional self-reliance increases by 747 TAF from the 2010 baseline; this represents an increase of about 23 percent of 2025 normal water year retail demands. In the long-term (2045), normal water year regional self-reliance is expected to increase by more than 1.2 MAF from the 2010 baseline; this represents an increase of 25 percent of 2045 normal water year retail demands.

Table A.11-2
Supplies Contributing to Regional Self-Reliance

Water Supplies Contributing to Regional Self-Reliance (Acre-Feet)	Baseline (2010)	2015	2020	2025	2030	2035	2040	2045
Water Use Efficiency	865,000	936,000	1,056,000	1,162,000	1,211,000	1,263,000	1,325,000	1,389,000
Water Recycling	316,000	348,000	436,000	550,000	613,000	687,000	698,000	706,000
Stormwater Capture and Use	100,000	103,000	110,000	80,000	82,000	82,000	82,000	82,000
Advanced Water Technologies	111,000	101,000	194,000	194,000	208,000	209,000	209,000	210,000
Conjunctive Use Projects	1,416,000	1,429,000	1,303,000	1,255,000	1,273,000	1,296,000	1,311,000	1,326,000
Local and Regional Water Supply and Storage Projects	252,000	224,000	261,000	257,000	257,000	258,000	258,000	258,000
Other Programs and Projects that Contribute to Regional Self-Reliance	875,000	1,250,000	1,200,000	1,250,000	1,250,000	1,250,000	1,250,000	1,250,000
Water Supplies Contributing to Regional Self-Reliance	**3,935,000**	**4,391,000**	**4,560,000**	**4,748,000**	**4,894,000**	**5,045,000**	**5,133,000**	**5,221,000**

Service Area Demands without Water Use Efficiency (Acre-Feet)	Baseline (2010)	2015	2020	2025	2030	2035	2040	2045
Service Area Demands without Water Use Efficiency Accounted For	5,493,000	5,499,000	5,219,000	4,925,000	5,032,000	5,156,000	5,261,000	5,374,000

Change in Regional Self Reliance (Acre-Feet)	Baseline (2010)	2015	2020	2025	2030	2035	2040	2045
Water Supplies Contributing to Regional Self-Reliance	3,935,000	4,391,000	4,560,000	4,748,000	4,894,000	5,045,000	5,133,000	5,221,000
Change in Supplies Contributing to Regional Self-Reliance	**NA**	**456,000**	**625,000**	**813,000**	**959,000**	**1,110,000**	**1,198,000**	**1,286,000**

Percent Change in Regional Self Reliance (As Percent of Demand w/out WUE)	Baseline (2010)	2015	2020	2025	2030	2035	2040	2045
Percent of Supplies Contributing to Regional Self-Reliance	71.6%	79.9%	87.4%	96.4%	97.3%	97.8%	97.6%	97.2%
Change in Percent of Supplies Contributing to Regional Self-Reliance	**NA**	**8.2%**	**15.7%**	**24.8%**	**25.6%**	**26.2%**	**25.9%**	**25.5%**

Water Use Efficiency

The water use efficiency information shown in Table A.11-2 is taken directly from Table A.11-1 above.

Water Recycling

The water recycling values shown in Table A.11-2 reflect the total recycled water production in Metropolitan's service area as described in Section 3.5 and Appendix 2 of Metropolitan's UWMP.

Stormwater Capture and Use

The stormwater capture and use data shown in Table A.11-2 include supplies from local surface water production as described in Section 1.4 and Appendix 2 of Metropolitan's UWMP.

These values do not include production from regional storage reservoirs; storage in these reservoirs is comprised of previously stored water from sources already reflected in Tables A.11-2 and A.11-3. These regional storage resources are generally used to provide additional regional self-reliance in dry years, which is not reflected in this normal water year analysis. The regional storage reservoirs and their yields are described in Section 3.6, Appendix 2 and Appendix 3 of Metropolitan's UWMP.

The stormwater capture and use values shown in Table A.11-2 also do not include stormwater capture that is used to recharge local groundwater basins. Stormwater capture for groundwater recharge supports production of groundwater in the region, and for the purposes of this analysis that production is already captured in Table A.11-2 under conjunctive use projects.

Advanced Water Technologies

The advanced water technologies data shown in Table A.11-2 include total groundwater recovery and seawater desalination production in Metropolitan's service area as described in Section 3.5 and Appendix 2 of Metropolitan's UWMP.

Conjunctive Use Projects

The values for conjunctive use projects shown in Table A.11-2 represent total groundwater production in the region as described in Section 1.4 and Appendix 2 of Metropolitan's UWMP.

The conjunctive use projects numbers shown in Table A.11-2 do not include production from regional groundwater conjunctive use programs. As described in the stormwater capture and use discussion above, these regional storage programs rely on previously stored water from sources already reflected in Tables A.11-2 and A.11-3 and are generally used to provide additional regional self-reliance in dry-years. The regional groundwater conjunctive use programs and their yields are described in Section 3.6 and Appendix 3.

Local and Regional Water Supply and Storage Programs

The data for local and regional water supply and storage programs shown in Table A.11-2 include supplies from the Los Angeles Aqueduct. This supply is described in Section 1.4 and Appendix 2 of Metropolitan's UWMP.

The local and regional supply numbers shown in Table A.11-2, except for "Other Programs and Projects that Contribute to Regional Self-Reliance" which is discussed below, were obtained from the following sources:

- Baseline (2010) values – Metropolitan's 2005 UWMP, Table 2-6: Metropolitan Regional Water Demand Average Year

- 2015 values – Metropolitan's 2010 UWMP, Table 2-8: Metropolitan Regional Water Demands Average Year
- 2020 values – Metropolitan's 2015 UWMP, Table 2-3: Metropolitan Regional Water Demands Average Year
- 2025-2045 values – Metropolitan's 2020 UWMP, Table 2-3: Metropolitan Regional Water Demands Normal Water Year

Other Programs and Projects that Contribute to Regional Self-Reliance

Other programs and projects that contribute to regional self-reliance shown in Table A.11-2 include current programs from the Colorado River Aqueduct. Colorado River supplies include Metropolitan's basic Colorado River apportionment, as well as supplies that result from existing and committed programs, including those from the IID-MWD Conservation Program, the implementation of the Quantification Settlement Agreement (QSA), related agreements, and the exchange agreement with SDCWA. Colorado River Aqueduct supplies and programs are described in Section 3.1 and Appendix 3 of Metropolitan's UWMP.

The values shown in Table A.11-2 for other programs and projects that contribute to regional self-reliance come from the following sources:

- Baseline (2010) values – Metropolitan's 2005 UWMP, Table A.3-7: Maximum Expected Colorado River Aqueduct Deliveries Year 2010 (Average Year)
- 2015 values – Metropolitan's 2010 UWMP, Table A.3-7: Maximum Expected Colorado River Aqueduct Deliveries Year 2015 (Average Year)
- 2020 values – Metropolitan's 2015 UWMP, Table A.3-7: Maximum Expected Colorado River Aqueduct Deliveries Year 2020 (Average Year)
- 2025-2045 values – Metropolitan's 2020 UWMP, Table A.3-7: Maximum Expected Colorado River Aqueduct Deliveries Years 2025, 2030, 2035, 2040, 2045 (Normal Water Year)

Reliance on Water Supplies from the Delta Watershed

In order for a covered action to demonstrate consistency with the Delta Plan, WR P1 subsection (c)(1)(C) requires that water suppliers report the expected outcomes for measurable reductions in supplies from the Delta watershed either as an amount or as a percentage. This analysis provides both calculations. Based on the methodology described in Guidebook Appendix C, and consistent with the approach of this analysis in not including projects under development, this accounting does not include any supplies from potential future covered actions. Table A.11-3 shows the expected outcomes for reliance on supplies from the Delta watershed for Metropolitan's service area. Supporting narratives and documentation for the all of the data shown in Table A.11-3 are provided below.

The results shown in Table A.11-3 demonstrate that Metropolitan's service area is measurably reducing its Delta reliance. In the near-term (2025), the expected outcome for normal water year reliance on supplies from the Delta watershed decreased by 301 TAF from the 2010 baseline; this represents a decrease of 3 percent of 2025 normal water year retail demands. In the long-term (2045), normal water year reliance on supplies from the Delta watershed decreased by 314 TAF from the 2010 baseline; this represents a decrease of just over 5 percent of 2045 normal water year retail demands.

Table A.11-3
Reliance on Water Supplies from the Delta Watershed

Water Supplies from the Delta Watershed (Acre-Feet)	Baseline (2010)	2015	2020	2025	2030	2035	2040	2045
CVP/SWP Contract Supplies	1,472,000	1,029,000	984,000	1,133,000	1,130,000	1,128,000	1,126,000	1,126,000
Delta/Delta Tributary Diversions	-	-	-	-	-	-	-	-
Transfers and Exchanges of Supplies from the Delta Watershed	20,000	44,000	91,000	58,000	52,000	52,000	52,000	52,000
Other Water Supplies from the Delta Watershed	-	-	-	-	-	-	-	-
Total Water Supplies from the Delta Watershed	**1,492,000**	**1,073,000**	**1,075,000**	**1,191,000**	**1,182,000**	**1,180,000**	**1,178,000**	**1,178,000**

Service Area Demands without Water Use Efficiency (Acre-Feet)	Baseline (2010)	2015	2020	2025	2030	2035	2040	2045
Service Area Demands without Water Use Efficiency Accounted For	5,493,000	5,499,000	5,219,000	4,925,000	5,032,000	5,156,000	5,261,000	5,374,000

Change in Supplies from the Delta Watershed (Acre-Feet)	Baseline (2010)	2015	2020	2025	2030	2035	2040	2045
Water Supplies from the Delta Watershed	1,492,000	1,073,000	1,075,000	1,191,000	1,182,000	1,180,000	1,178,000	1,178,000
Change in Supplies from the Delta Watershed	**NA**	**(419,000)**	**(417,000)**	**(301,000)**	**(310,000)**	**(312,000)**	**(314,000)**	**(314,000)**

Percent Change in Supplies from the Delta Watershed (As a Percent of Demand w/out WUE)	Baseline (2010)	2015	2020	2025	2030	2035	2040	2045
Percent of Supplies from the Delta Watershed	27.2%	19.5%	20.6%	24.2%	23.5%	22.9%	22.4%	21.9%
Change in Percent of Supplies from the Delta Watershed	**NA**	**-7.6%**	**-6.6%**	**-3.0%**	**-3.7%**	**-4.3%**	**-4.8%**	**-5.2%**

CVP/SWP Contract Supplies

The CVP/SWP contract supplies shown in Table A.11-3 include Metropolitan's SWP Table A and Article 21 supplies. These supplies are described in Section 3.2 and Appendix 3 of Metropolitan's UWMP.

The values shown in Table A.11-3 do not include Desert Water Agency/Coachella Valley Water District SWP contract supplies. These supplies are exchanged with Desert Water Agency and Coachella Valley Water District for an equal amount of Colorado River water, which is reflected in the Colorado River Aqueduct supplies shown in Table A.11-2. In addition, Desert Water Agency and Coachella Valley Water District should include their SWP contract supplies in their own accountings of reduced reliance. Additional information on these exchange agreements can be found in Section 3.2 and Appendix 3 of Metropolitan's UWMP.

These values also do not include supplies from San Luis Carryover storage or Central Valley storage programs because storage in these programs comprises previously stored water from sources already reflected in Table A.11-3. These storage programs are generally used to provide additional regional self-reliance in dry years, which is not reflected in this normal water year analysis. The Central Valley storage projects and their yields are described in Section 3.3, and Appendix 3. San Luis Carryover storage is described in Section 3.2 and Appendix 3.

Transfers and Exchanges of Supplies from the Delta Watershed

The transfers and exchanges of supplies from the Delta watershed shown in Table A.11-3 include supplies from the San Bernardino Valley MWD Program, Yuba River Accord Purchase Program, the San Gabriel Valley MWD Program, Irvine Ranch Water District Storage and Exchange Program, and other generic SWP and Central Valley transfers and exchanges. These programs are described in Section 3.2 and Appendix 3 of Metropolitan's UWMP.

Supplies from the Delta Watershed shown in Table A.11-3 are from the following sources:

- Baseline (2010) values – Metropolitan's 2005 UWMP, Table A.3-7: California Aqueduct Program Capabilities Year 2010 (Average Year)

- 2015 values – Metropolitan's 2010 UWMP, Table A.3-7: California Aqueduct Program Capabilities Year 2015 (Average Year)
- 2020 values – Metropolitan's 2015 UWMP, Table A.3-7: California Aqueduct Program Capabilities Year 2020 (Average Year)
- 2025-2045 values – Metropolitan's 2020 UWMP, Table A.3-7: California Aqueduct Program Capabilities Years 2025, 2030, 2035, 2040, 2045 (Normal Water Year)

A.11.4 UWMP Implementation

In addition to the analysis and documentation described above, WR P1 subsection (c)(1)(B) requires that all programs and projects included in the UWMP that are locally cost-effective and technically feasible, which reduce reliance on the Delta, are identified, evaluated, and implemented consistent with the implementation schedule. WR P1 (c)(1)(B) states that:

> *(B) Identified, evaluated, and commenced implementation, consistent with the implementation schedule set forth in the Plan, of all programs and projects included in the Plan that are locally cost effective and technically feasible which reduce reliance on the Delta*[.]

In accordance with Water Code Section 10631(f), water suppliers must already include in their UWMP a detailed description of expected future projects and programs that they may implement to increase the amount of water supply available to them in normal and single-dry water years and for a period of drought lasting five consecutive years. The UWMP description must also identify specific projects, include a description of the increase in water supply that is expected to be available from each project, and include an estimate regarding the implementation timeline for each project or program.

Section 3 of Metropolitan's UWMP summarizes the implementation plan and continued progress in developing a diversified water portfolio to meet the region's water needs.

Water Use Efficiency

The water use efficiency numbers used in this analysis include the total water use efficiency savings (conservation) for the service area, including savings from active, code-based, price-effect and pre-1990 savings. The specific water use efficiency programs and their implementation are described in Section 3.4 of Metropolitan's UWMP.

Water Recycling

The water recycling values used in this analysis reflect the total recycled water production in Metropolitan's service area. Water recycling programs and implementation are discussed in Section 3.5 of Metropolitan's UWMP. In addition, individual project-level details are provided in Appendix 5.

Stormwater Capture and Use

The stormwater capture and use data used in this analysis include supplies from local surface water production. Local surface water production and its implementation are discussed in Appendix 2 of Metropolitan's UWMP.

Advanced Water Technologies

The advanced water technologies data used in this analysis include total groundwater recovery and seawater desalination production in Metropolitan's service. Groundwater recovery and seawater desalination programs and implementation are described in Section 3.5 of Metropolitan's UWMP. In addition, individual project-level details are provided in Appendix 5.

Conjunctive Use Projects

The values for conjunctive use projects used in this analysis represent total groundwater production in the region. Groundwater production and its implementation are discussed in Appendix 2 of Metropolitan's UWMP.

Local and Regional Water Supply and Storage Programs

The data for local and regional water supply and storage programs shown this analysis include supplies from the Los Angeles Aqueduct. This program and its implementation are described in Appendix 2 of Metropolitan's UWMP.

Other Programs and Projects that Contribute to Regional Self-Reliance

Other programs and projects that contribute to regional self-reliance used in this analysis include current programs from the Colorado River Aqueduct. Colorado River supplies include Metropolitan's basic Colorado River apportionment, as well as supplies that result from existing and committed programs, including those from the IID-MWD Conservation Program, the implementation of the Quantification Settlement Agreement (QSA), related agreements, and the exchange agreement with SDCWA. Colorado River Aqueduct programs and their implementation are described in Section 3.1 and Appendix 3 of Metropolitan's UWMP.

CVP/SWP Contract Supplies

The CVP/SWP contract supplies shown in this analysis include Metropolitan's SWP Table A and Article 21 supplies. These supplies and their implementation are described in Section 3.2 and Appendix 3 of Metropolitan's UWMP.

Transfers and Exchanges of Supplies from the Delta Watershed

The transfers and exchanges of supplies from the Delta watershed shown in this analysis include supplies from the San Bernardino Valley MWD Program, Yuba River Accord Purchase Program, the San Gabriel Valley MWD Program, Irvine Ranch Water District Storage and Exchange Program, and other generic SWP and Central Valley transfers and exchanges. These programs and their implementation are described in Section 3.2 and Appendix 3 of Metropolitan's UWMP.

A.11.5 2015 UWMP Appendix 11

The information contained in this Appendix 11 is also intended to be a new Appendix 11 attached to Metropolitan's 2015 UWMP consistent with WR P1 subsection (c)(1)(C) (Cal. Code Regs. tit. 23, § 5003). Metropolitan provided notice of the availability of the draft 2020 UWMP (including this Appendix 11 which will also be a new Appendix 11 to its 2015 UWMP) and WSCP and the public hearing to consider adoption of both plans and Appendix 11 to the 2015 UWMP in accordance with CWC Sections 10621(b) and 10642, and Government Code Section 6066, and Chapter 17.5 (starting with Section 7290) of Division 7 of Title 1 of the Government Code. The public review drafts of the 2020 UWMP, Appendix 11 to the 2015 UWMP, and the WSCP were posted prominently on Metropolitan's website, mwdh2o.com, starting February 1, 2021, more than 60 days in advance of the public hearing on April 12, 2021. The notice of availability of the documents was sent to Metropolitan's member agencies, as well as cities and counties in Metropolitan's service area. In addition, a public notice advertising the public hearing in English and Spanish was published in 12 Southern California newspapers. The notification in English language newspapers was published on February 1 and 8, 2021. The notification was published on January 28-30, 2021 and February 1, 4-6, and 8, 2021 in Spanish language newspapers, satisfying the requirement for non-English language notification. Copies of: (1) the notification letter sent to the member agencies, cities and counties in Metropolitan's service area, and (2) the notice published in the newspapers are included in the 2020 UWMP Section 5. Thus, this Appendix 11 to Metropolitan's 2020 UWMP, which was adopted with Metropolitan's 2020 UWMP, will also be recognized and treated as Appendix 11 to Metropolitan's 2015 UWMP.

Metropolitan held the public hearing for the draft 2020 UWMP, draft Appendix 11 to the 2015 UWMP, and draft WSCP on April 12, 2021, at the Board's Water Planning and Stewardship Committee meeting, held online due to COVID-19 concerns. On May 11, 2021, Metropolitan's Board determined that the 2020 UWMP and the WSCP are consistent with the MWD Act and accurately represent the water resources plan for Metropolitan's service area. In addition, Metropolitan's Board determined that Appendix 11 to both the 2015 UWMP and the 2020 UWMP includes all of the elements described in Delta Plan Policy WR P1, Reduce Reliance on the Delta Through Improved Regional Water Self-Reliance (Cal. Code Regs. tit. 23, § 5003), which need to be included in a water supplier's UWMP to support a certification of consistency for a future covered action. As stated in Resolutions 9279, 9280, and 9281, the Board adopted the 2020 UWMP, Appendix 11 to the 2015 UWMP, and the WSCP and authorized their submittal to the State of California. Copies of Resolutions 9279, 9280, and 9281 are included in the 2020 UWMP Section 5, and Resolution 9281 for the WSCP is attached to the WSCP as Attachment C.

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APPENDIX B
ATTACHMENT 2

- **Appendix G "Inland Empire Utilities Agency Reduced Delta Reliance Reporting", Inland Empire Utilities Agency's 2020 Urban Water Management Plan**

Kennedy Jenks

ARCADIS Design & Consultancy for natural and built assets

Inland Empire Utilities Agency
A MUNICIPAL WATER DISTRICT

ADDENDUM TO THE 2015 URBAN WATER MANAGEMENT PLAN

Addendum prepared by Kennedy Jenks Consultants

June 2021

2020 UWMP Appendix G
& 2015 UWMP Appendix P

Reduced Delta Reliance Reporting

6/29/2021

Inland Empire Utilities Agency Reduced Delta Reliance Reporting

G.1 Background

IEUA is an urban water supplier and a member agency of MWD. MWD provides IEUA with imported water supplies, which IEUA in turn distributes on a wholesale basis to its retail water purveyors. MWD is a contractor on the State Water Project (SWP) and, due to water quality considerations, all imported water supplies IEUA receives from MWD originate from the SWP system. The SWP system runs from Lake Oroville in Northern California to Southern California, crossing the Sacramento-San Joaquin Delta (Delta) along the way. MWD and its member agencies have made investments into water supply and demand management to regionally reduce impacts on the Delta. These investments bring regional reliability and reduced Delta reliance that make it infeasible for individual MWD member agencies to determine their individual Delta reliance.

As a recipient of imported water from the SWP delivered via MWD, IEUA may indirectly receive water through a proposed covered action, such as a multi-year water transfer, conveyance facility, or new diversion that involves transferring water through, exporting water from, or using water in the Delta. Through this appendix, IEUA is providing information in its 2015 and 2020 UWMPs that may be used in the covered action process, to demonstrate consistency with Delta Plan Policy WR P1, *Reduce Reliance on the Delta Through Improved Regional Water Self-Reliance* (WR P1) [California Code of Regulations (CCR), Title 23, § 5003].

The Delta Plan is a comprehensive, long-term resource management plan for the Sacramento-San Joaquin Delta (Delta) that was developed as part of the Delta Reform Act of 2009 (Water code section 85000 et seq) and includes both regulatory policies and recommendations, aimed at promoting a healthy Delta ecosystem. Delta Plan Policy WR P1 is one of 14 regulatory policies in the Delta Plan. WR P1 identifies UWMPs as the tool to demonstrate consistency with state policy to reduce reliance on the Delta for any Supplier that is participating in or carrying out a proposed covered action or receiving Delta water from a proposed covered action.

Within the supplier's UWMP, information should be provided that can be used to demonstrate consistency with this policy. Section (c)(1) of WR P1 states that suppliers that have (A) completed an urban water management plan, (B) implemented the efficiency measures in that plan, and (C) shown a measurable reduction in Delta reliance and improvement in regional self-reliance in the plan, are contributing to reduced reliance on the Delta and are therefore consistent with WR P1 [CCR, Title 23, § 5003(c)(1)].

The analysis and documentation provided below include all elements described in WR P1(c)(1) and are included in IEUA's 2015 and 2020 UWMP to support a certification of consistency in the case of a future covered action.

G.2 Demonstration of Reduced Reliance

The methodology used to determine IEUA's reduced Delta reliance and improved regional self-reliance is consistent with the approach detailed in DWR's UWMP Guidebook Appendix C, including the use of narrative justifications for the accounting of supplies and the documentation of specific data sources. Some of the key assumptions underlying IEUA's demonstration of reduced reliance includes:

- All data were obtained from the current 2020 UWMP or previously adopted UWMPs and represent average or normal water year conditions.

- All analyses were conducted at the IEUA service area level. Demands on IEUA are the total demands from all its retail agencies. Supplies are the total supplies IEUA manages, which are imported water from MWD and recycled water from its regional water recycling plants.

- No projects or programs that are described in the UWMPs as "Projects Under Development" were included in the accounting of supplies.

G.3 Summary of Expected Outcomes for Reduced Reliance on the Delta

As stated in WR P1(c)(1), the policy requires that, commencing in 2015, UWMPs include expected outcomes for measurable reduction in Delta reliance and improved regional self-reliance. WR P1 further states that those outcomes shall be reported in the UWMP as the reduction in the amount of water used, or in the percentage of water used, from the Delta.

It is important to note that MWD has prepared a detailed analysis that demonstrates the consistency with the Delta Plan Policy in its 2020 UWMP on a region-wide scale that includes its Member Agencies (MWD 2020 UWMP, Appendix 11). From its 2010 baseline, both long-term Regional Self-Reliance and Reduced Reliance on Supplies from the Delta are expected to increase over time. IEUA has adopted MWD's calculation of Reduced Reliance on Supplies from the Delta due to the infeasibility of separating out the delta supplies that IEUA receives from MWD (see Section G.6 and G.7 for details).

IEUA will report its own expected outcomes for Regional Self-Reliance in the following sections (G.4 and G.5). These expected outcomes use the approach and guidance described in Appendix C of DWR's Urban Water Management Plan Guidebook 2020 (Guidebook Appendix C), finalized on March 29, 2021.

The following provides a summary of the near-term (2025) and long-term (2045) expected outcomes for IEUA's regional self-reliance and MWD's regional reduction in reliance on Delta water supplies. The results show that IEUA is measurably improving regional self-reliance and MWD and its member agencies are reducing reliance on Delta supplies, both as an amount of water used and as a percentage of water used.

- Near-term (2025) – IEUA's normal water regional self-reliance is expected to increase by 25 thousand acre-feet (TAF) from the 2010 baseline; this represents an increase of about 10 percent of 2025 normal water year demands (Table G-2).

- Long-term (2045) – IEUA's normal water regional self-reliance is expected to increase by 50 TAF from the 2010 baseline; this represents an increase of about 17 percent of 2045 normal water year demands (Table G-2).

- Near-term (2025) – MWD's normal reliance on water supplies from the Delta Watershed is expected to decrease by 300 thousand acre-feet (TAF) from the 2010 baseline; this represents a decrease of about 3 percent of 2025 normal water year demands (Table G-3).

- Long-term (2045) – MWD's normal reliance on water supplies from the Delta Watershed is expected to decrease by 314 thousand acre-feet (TAF) from the 2010 baseline; this represents a decrease of about 5 percent of 2045 normal water year demands (Table G-3).

G.4 Baseline and Calculation of Service Area Water Demands

In order to calculate the expected outcomes for measurable reduction in Delta reliance and improved regional self-reliance, a baseline is needed to compare against. This analysis uses a normal water year representation of 2010 as the baseline, which is consistent with the approach described in the Guidebook Appendix C.

Table G-1 shows the total service area water demands for IEUA for 2010 through 2045. These water demands include recycled water and imported water demand on IEUA from its retail agencies. The table also shows reported water use efficiency and calculates the total service area water demands without water use efficiency.

The data sources for the values in this table and calculations are explained below.

Service Area Demands with Water Use Efficiency Accounted For:

- Baseline (2010) value: The sum of the imported water and recycled water demands, as reported in IEUA's 2010 UWMP, Tables 3-10 and 3-15.

- 2015 value: The sum of the imported water and recycled water demands on IEUA, as reported in IEUA's 2015 UWMP, Table 2-8: IEUA Total Water Demands.

- 2020-2045 values: The sum of imported water and recycled water demands, from IEUA's 2020 UWMP, Table 2-4: Total Water Use (Potable and Non-Potable).

Reported Water Use Efficiency:

- Baseline (2010) value: No water use efficiency value is estimated to establish a conservative baseline.

- 2015 value: From IEUA's 2015 UWMP, Table 3-1. Only the 2015 value for WUE was selected.

- 2020 value: The volume of savings over the lifetime of water use efficiency measures implemented during FY 19/20, as reported in IEUA's Annual UWE FY19/20 report and detailed in Section 8.8 of IEUA's 2020 UWMP.

- 2025-2045 values: Projected water use efficiency savings, from IEUA's 2020 UWMP, Table 7-2.

The Service Area Water Demands without Water Use Efficiency Accounted For is the sum of the two volumes above for each year.

G.5 Calculation of Supplies Contributing to Regional Self-Reliance

For a covered action to demonstrate consistency with the Delta Plan, WR P1(c)(1) states that water suppliers must report the expected outcomes for measurable improvement in regional self-reliance. Table G-2 shows expected outcomes for supplies contributing to regional self-reliance both in amount and as a percentage. The numbers shown in Table G-2 represent efforts to improve regional self-reliance for the IEUA service area, focused only on the supplies IEUA manages, which are water use efficiency and water recycling. Supporting narratives and documentation for the all the data shown in the table are provided below:

Water Use Efficiency

The water use efficiency information shown in Table G-2 is taken directly from Table G-1. It is now reflected as a supply contributing to regional self-reliance.

Water Recycling

The water recycling values shown in Table G-2 are the recycled water supplies to meet the recycled water portion of the projected "service area water demands with water use efficiency accounted for" shown in Table G-1. These values come from IEUA's 2010 UWMP Table 3-15, IEUA's 2015 UWMP Table 2-8, and IEUA's 2020 UWMP Table 2-4. A description on these water supplies can be found in Section 5.4 – Current Recycled Water Uses in IEUA's 2020 UWMP.

The results shown in Table G-2 demonstrate that IEUA is improving its regional self-reliance, since the volume of water supplies contributing to regional self-reliance are projected to increase over time. In the near term (2025), the expected outcome for normal water year regional self-reliance increases by over 25,000 AF from the 2010 baseline; this represents an increase of about 10 percent of 2025 normal water year demands. In the long term (2045), normal water year regional self-reliance is expected to increase by more than 50,000 AF from the 2010 baseline.

G.6 Calculation of Reliance on Water Supplies from the Delta Watershed

WR P1(c)(1) requires that water suppliers report the expected outcomes for measurable reductions in supplies from the Delta watershed either as an amount or as a percentage. This analysis provides both calculations.

Although IEUA is currently a SWP-exclusive MWD member agency, it is infeasible to individually account for the independent impact on the Delta. IEUA participates, through MWD, in various water supply investment and demand management programs that reduce reliance on the Delta. Reliance on water supplies from the Delta are taken from MWD's Reduced Delta Reliance assessment (MWD 2020 UWMP, Appendix 11).

Regional reliance on supplies from the Delta watershed are expected to decrease by 314 TAF over the 2010 baseline, a decrease of about 5.2% of 2045 demands. Increased regional self-reliance primarily comes from water use efficiency, conjunctive use projects, water recycling, and local/regional water supply and storage projects. The water supply accounting completed by MWD does not include any supplies from potential future covered actions.

G.7 Infeasibility of Accounting Supplies from the Delta Watershed for Metropolitan's Member Agencies and their Customers

Metropolitan's service area, as a whole, reduces reliance on the Delta through investments in non-Delta water supplies, local water supplies, and regional and local demand management measures. Metropolitan's member agencies coordinate reliance on the Delta through their membership in Metropolitan, a regional cooperative providing wholesale water service to its 26 member agencies. Accordingly, regional reliance on the Delta can only be measured regionally—not by individual Metropolitan member agencies and not by the customers of those member agencies.

Metropolitan's member agencies, and those agencies' customers, indirectly reduce reliance on the Delta through their collective efforts as a cooperative. Metropolitan's member agencies do not control the amount of Delta water they receive from Metropolitan. Metropolitan manages a statewide integrated conveyance system consisting of its participation in the State Water Project (SWP), its Colorado River Aqueduct (CRA) including Colorado River water resources, programs and water exchanges, and its regional storage portfolio. Along with the SWP, CRA, storage programs, and Metropolitan's conveyance and distribution facilities, demand management programs increase the future reliability of water resources for the region. In addition, demand management programs provide system-wide benefits by decreasing the demand for imported water, which helps to decrease the burden on Metropolitan's infrastructure and reduce system costs, and free up conveyance capacity to the benefit of all member agencies.

Metropolitan's costs are funded almost entirely from its service area, with the exception of grants and other assistance from government programs. Most of Metropolitan's revenues are collected directly from its member agencies. Properties within Metropolitan's service area pay a property tax that currently provides approximately 8 percent of the fiscal year 2021 annual budgeted revenues. The rest of Metropolitan's costs are funded through rates and charges paid by Metropolitan's member agencies for the wholesale services it provides to them. Thus, Metropolitan's member agencies fund nearly all operations Metropolitan undertakes to reduce reliance on the Delta, including Colorado River Programs, storage facilities, Local Resources Programs and Conservation Programs within Metropolitan's service area.

Because of the integrated nature of Metropolitan's systems and operations, and the collective nature of Metropolitan's regional efforts, it is infeasible to quantify each of Metropolitan member agencies' individual reliance on the Delta. It is infeasible to attempt to segregate an entity and a system that were designed to work as an integrated regional cooperative.

In addition to the member agencies funding Metropolitan's regional efforts, they also invest in their own local programs to reduce their reliance on any imported water. Moreover, the customers of those member agencies may also invest in their own local programs to reduce water demand. However, to the extent those efforts result in reduction of demands on Metropolitan, that reduction may not equate to a like reduction of reliance on the Delta. Demands on Metropolitan are not commensurate with demands on the Delta because most of Metropolitan member agencies receive blended resources from Metropolitan as determined by Metropolitan—not the individual member agency—and for most member agencies, the blend varies from month-to-month and year-to-year due to hydrology, operational constraints, use of storage and other factors.

The accounting of regional investments that contribute to reduced reliance on supplies from the Delta watershed is straightforward to calculate and report at the regional aggregate level. However, any similar accounting is infeasible for the individual member agencies or their customers. As described above, the region (through Metropolitan) makes significant investments in projects, programs and other resources that reduce reliance on the Delta. In fact, all of Metropolitan's investments in Colorado River supplies, groundwater and surface storage, local resources development and demand management measures that reduce reliance on the Delta are collectively funded by revenues generated from the member agencies through rates and charges.

Metropolitan's revenues cannot be matched to the demands or supply production history of an individual agency, or consistently across the agencies within the service area. Each project or program funded by the region has a different online date, useful life, incentive rate and structure, and production schedule. It is infeasible to account for all these things over the life of each project or program and provide a nexus to each member agency's contributions to Metropolitan's revenue stream over time. Accounting at the regional level allows for the incorporation of the local supplies and water use efficiency programs done by member agencies and their customers through both the regional programs and through their own specific local programs. As shown above, despite the infeasibility of accounting reduced Delta reliance below the regional level, Metropolitan's member agencies and their customers have together made substantial contributions to the region's reduced reliance.

Colorado River Programs

As a regional cooperative of member agencies, Metropolitan invests in programs to ensure the continued reliability and sustainability of Colorado River supplies. Metropolitan was established to obtain an allotment of Colorado River water, and its first mission was to construct and operate the CRA. The CRA consists of five pumping plants, 450 miles of high voltage power lines, one electric substation, four regulating reservoirs, and 242 miles of aqueducts, siphons, canals, conduits and pipelines terminating at Lake Mathews in Riverside County. Metropolitan owns, operates, and manages the CRA. Metropolitan is responsible for operating, maintaining, rehabilitating, and repairing the CRA, and is responsible for obtaining and scheduling energy resources adequate to power pumps at the CRA's five pumping stations.

Colorado River supplies include Metropolitan's basic Colorado River apportionment, along with supplies that result from existing and committed programs, including supplies from the Imperial Irrigation District (IID)-Metropolitan Conservation Program, the implementation of the Quantification Settlement Agreement (QSA) and related agreements, and the exchange agreement with San Diego County Water Authority (SDCWA). The QSA established the baseline water use for each of the agreement parties and facilitates the transfer of water from agricultural agencies to urban uses. Since the QSA, additional programs have been implemented to increase Metropolitan's CRA supplies. These include the PVID Land Management, Crop Rotation, and Water Supply Program, as well as the Lower Colorado River Water Supply Project. The 2007 Interim Guidelines provided for the coordinated operation of Lake Powell and Lake Mead, as well as the Intentionally Created Surplus (ICS) program that allows Metropolitan to store water in Lake Mead.

IEUA has emergency service connections to the MWD's Upper Feeder, which includes CRA supplies. However, these connections are not currently utilized due to water quality concerns.

Storage Investments/Facilities

Surface and groundwater storage are critical elements of Southern California's water resources strategy and help Metropolitan reduce its reliance on the Delta. Because California experiences dramatic swings in weather and hydrology, storage is important to regulate those swings and mitigate possible supply shortages. Surface and groundwater storage provide a means of storing water during normal and wet years for later use during dry years, when imported supplies are limited. The Metropolitan system, for purposes of meeting demands during times of shortage, regulating system flows, and ensuring system reliability in the event of a system outage, provides over 1,000,000 acre-feet of system storage capacity. Diamond Valley Lake provides 810,000 acre-feet of that storage capacity, effectively doubling Southern California's previous surface water storage capacity. Other existing imported water storage available to the region consists of Metropolitan's raw water reservoirs, a share of the SWP's raw water reservoirs in and near the service area, and the portion of the groundwater basins used for conjunctive-use storage.

Since the early twentieth century, DWR and Metropolitan have constructed surface water reservoirs to meet emergency, drought/seasonal, and regulatory water needs for Southern California. These reservoirs include Pyramid Lake, Castaic Lake, Elderberry Forebay, Silverwood Lake, Lake Perris, Lake Skinner, Lake Mathews, Live Oak Reservoir, Garvey Reservoir, Palos Verdes Reservoir, Orange County Reservoir, and Metropolitan's Diamond Valley Lake (DVL). Some reservoirs such as Live Oak Reservoir, Garvey Reservoir, Palos Verdes Reservoir, and Orange County Reservoir, which have a total combined capacity of about 3,500 AF, are used solely for regulating purposes. The total gross storage capacity for the larger remaining reservoirs is 1,757,600 AF. However, not all of the gross storage capacity is available to Metropolitan; dead storage and storage allocated to others reduce the amount of storage that is available to Metropolitan to 1,665,200 AF.

Conjunctive use of the aquifers offers another important source of dry year supplies. Unused storage in Southern California groundwater basins can be used to optimize imported water supplies, and the development of groundwater storage projects allows effective management and regulation of the region's major imported supplies from the Colorado River and SWP. Over the years, Metropolitan has implemented conjunctive use through various programs in the service area; the following table lists the groundwater conjunctive use programs that have been developed in the region.

MWD Table 1: Metropolitan Groundwater Conjunctive Use Programs

Program	Metropolitan Agreement Partners	Program Term	Max Storage AF	Dry-Year Yield AF/Yr
Long Beach Conjunctive Use Storage Project (Central Basin)	Long Beach	June 2002-2027	13,000	4,300
Foothill Area Groundwater Storage Program (Monkhill/ Raymond Basin)	Foothill MWD	February 2003-2028	9,000	3,000
Orange County Groundwater Conjunctive Use Program	MWDOC OCWD	June 2003-2028	66,000+	22,000
Chino Basin Conjunctive Use Programs	IEUA TVMWD Watermaster	June 2003-2028	100,000	33,000
Live Oak Basin Conjunctive Use Project (Six Basins)	TVMWD City of La Verne	October 2002-2027	3,000	1,000
City of Compton Conjunctive Use Project (Central Basin)	Compton	February 2005-2030	2,289	763
Long Beach Conjunctive Use Program Expansion in Lakewood (Central Basin)	Long Beach	July 2005-2030	3,600	1,200
Upper Claremont Basin Groundwater Storage Program (Six Basins)	TVMWD	Sept. 2005- 2030	3,000	1,000
Elsinore Basin Conjunctive Use Storage Program	Western MWD Elsinore Valley MWD	May 2008- 2033	12,000	4,000
TOTAL			**211,889**	**70,263**

Metropolitan Demand Management Programs

Demand management costs are Metropolitan's expenditures for funding local water resource development programs and water conservation programs. These Demand Management Programs incentivize the development of local water supplies and the conservation of water to reduce the need to import water to deliver to Metropolitan's member agencies. These programs are implemented below the delivery points between Metropolitan's and its member agencies' distribution systems and, as such, do not add any water to Metropolitan's supplies. Rather, the effect of these downstream programs is to produce a local supply of water for the local agencies and to reduce demands by member agencies for water imported through Metropolitan's system. The following discussions outline how Metropolitan funds local resources and conservation programs for the benefit of all of its member agencies and the entire Metropolitan service area. Notably, the history of demand management by Metropolitan's member agencies and the local agencies that purchase water from Metropolitan's members has spanned more than four decades. The significant history of the programs is another reason it would be difficult to attempt to assign a portion of such funding to any one individual member agency.

Section 1: Local Resources Programs

In 1982, Metropolitan began providing financial incentives to its member agencies to develop new local supplies to assist in meeting the region's water needs. Because of Metropolitan's regional distribution system, these programs benefit all member agencies regardless of project location because they help to increase regional water supply reliability, reduce demands for imported water supplies, decrease the burden on Metropolitan's infrastructure, reduce system costs and free up conveyance capacity to the benefit of all the agencies that rely on water from Metropolitan.

For example, the Groundwater Replenishment System (GWRS) operated by the Orange County Water District is the world's largest water purification system for indirect potable reuse. It was funded, in part, by Metropolitan's member agencies through the Local Resources Program. Annually, the GWRS produces approximately 103,000 acre-feet of reliable, locally controlled, drought-proof supply of high-quality water to recharge the Orange County Groundwater Basin and protect it from seawater intrusion. The GWRS is a premier example of a regional project that significantly reduced the need to utilize imported water for groundwater replenishment in Metropolitan's service area, increasing regional and local supply reliability and reducing the region's reliance on imported supplies, including supplies from the State Water Project.

Metropolitan's local resource programs have evolved through the years to better assist Metropolitan's member agencies in increasing local supply production. The following is a description and history of the local supply incentive programs.

Local Projects Program

In 1982, Metropolitan initiated the Local Projects Program (LPP), which provided funding to member agencies to facilitate the development of recycled water projects. Under this approach, Metropolitan contributed a negotiated up-front funding amount to help finance project capital costs. Participating member agencies were obligated to reimburse Metropolitan over time. In 1986, the LPP was revised, changing the up-front funding approach to an incentive-based approach. Metropolitan contributed an amount equal to the avoided State Water Project pumping costs for each acre-foot of recycled water delivered to end-use consumers. This funding incentive was based on the premise that local projects resulted in the reduction of water imported from the Delta and the associated pumping cost. The incentive amount varied from year to year depending on the actual variable power cost paid for State Water Project imports. In 1990, Metropolitan's Board increased the LPP contribution to a fixed rate of $154 per acre-foot, which was calculated based on Metropolitan's avoided capital and operational costs to convey, treat, and distribute water, and included considerations of reliability and service area demands.

Groundwater Recovery Program

The drought of the early 1990s sparked the need to develop additional local water resources, aside from recycled water, to meet regional demand and increase regional water supply reliability. In 1991, Metropolitan conducted the Brackish Groundwater Reclamation Study which determined that large amounts of degraded groundwater in the region were not being utilized. Subsequently, the Groundwater Recovery Program (GRP) was established to assist the recovery of otherwise unusable groundwater degraded by minerals and other contaminants,

provide access to the storage assets of the degraded groundwater, and maintain the quality of groundwater resources by reducing the spread of degraded plumes.

Local Resources Program

In 1995, Metropolitan's Board adopted the Local Resources Program (LRP), which combined the LPP and GRP into one program. The Board allowed for existing LPP agreements with a fixed incentive rate to convert to the sliding scale up to $250 per acre-foot, similar to GRP incentive terms. Those agreements that were converted to LRP are known as "LRP Conversions."

Competitive Local Projects Program

In 1998, the Competitive Local Resources Program (Competitive Program) was established. The Competitive Program encouraged the development of recycled water and recovered groundwater through a process that emphasized cost-efficiency to Metropolitan, timing new production according to regional need while minimizing program administration cost. Under the Competitive Program, agencies requested an incentive rate up to $250 per acre-foot of production over 25 years under a Request for Proposals (RFP) for the development of up to 53,000 acre-feet per year of new water recycling and groundwater recovery projects. In 2003, a second RFP was issued for the development of an additional 65,000 acre-feet of new recycled water and recovered groundwater projects through the LRP.

Seawater Desalination Program

Metropolitan established the Seawater Desalination Program (SDP) in 2001 to provide financial incentives to member agencies for the development of seawater desalination projects. In 2014, seawater desalination projects became eligible for funding under the LRP, and the SDP was ended.

2007 Local Resources Program

In 2006, a task force comprised of member agency representatives was formed to identify and recommend program improvements to the LRP. As a result of the task force process, the 2007 LRP was established with a goal of 174,000 acre-feet per year of additional local water resource development. The new program allowed for an open application process and eliminated the previous competitive process. This program offered sliding scale incentives of up to $250 per acre-foot, calculated annually based on a member agency's actual local resource project costs exceeding Metropolitan's prevailing water rate.

2014 Local Resources Program

A series of workgroup meetings with member agencies was held to identify the reasons why there was a lack of new LRP applications coming into the program. The main constraint identified by the member agencies was that the $250 per acre-foot was not providing enough of an incentive for developing new projects due to higher construction costs to meet water quality requirements and to develop the infrastructure to reach end-use consumers located further from treatment plants. As a result, in 2014, the Board authorized an increase in the maximum incentive amount, provided alternative payment structures, included onsite retrofit costs and reimbursable services as part of the LRP, and added eligibility for seawater desalination projects. The current LRP incentive payment options are structured as follows:

- Option 1 – Sliding scale incentive up to $340/AF for a 25-year agreement term
- Option 2 – Sliding scale incentive up to $475/AF for a 15-year agreement term
- Option 3 – Fixed incentive up to $305/AF for a 25-year agreement term

On-site Retrofit Programs

In 2014, Metropolitan's Board also approved the On-site Retrofit Pilot Program which provided financial incentives to public or private entities toward the cost of small-scale improvements to their existing irrigation and industrial systems to allow connection to existing recycled water pipelines. The On-site Retrofit Pilot Program helped reduce recycled water retrofit costs to the end-use consumer which is a key constraint that limited recycled water LRP projects from reaching full production capacity. The program incentive was equal to the actual eligible costs of the on-site retrofit, or $975 per acre-foot of up-front cost, which equates to $195 per acre-foot for an estimated five years of water savings ($195/AF x 5 years) multiplied by the average annual water use in previous three years, whichever is less. The Pilot Program lasted two years and was successful in meeting its goal of accelerating the use of recycled water.

In 2016, Metropolitan's Board authorized the On-site Retrofit Program (ORP), with an additional budget of $10 million. This program encompassed lessons learned from the Pilot Program and feedback from member agencies to make the program more streamlined and improve its efficiency. As of fiscal year 2019/20, the ORP has successfully converted 440 sites, increasing the use of recycled water by 12,691 acre-feet per year.

Stormwater Pilot Programs

In 2019, Metropolitan's Board authorized both the Stormwater for Direct Use Pilot Program and a Stormwater for Recharge Pilot Program to study the feasibility of reusing stormwater to help meet regional demands in Southern California. These pilot programs are intended to encourage the development, monitoring, and study of new and existing stormwater projects by providing financial incentives for their construction/retrofit and monitoring/reporting costs. These pilot programs will help evaluate the potential benefits delivered by stormwater capture projects and provide a basis for potential future funding approaches. Metropolitan's Board authorized a total of $12.5 million for the stormwater pilot programs ($5 million for the District Use Pilot and $7.5 million for the Recharge Pilot).

Current Status and Results of Metropolitan's Local Resource Programs

Today, nearly one-half of the total recycled water and groundwater recovery production in the region has been developed with an incentive from one or more of Metropolitan's local resource programs. During fiscal year 2020, Metropolitan provided about $13 million for production of 71,000 acre-feet of recycled water for non-potable and indirect potable uses. Metropolitan provided about $4 million to support projects that produced about 50,000 acre-feet of recovered groundwater for municipal use. Since 1982, Metropolitan has invested $680 million to fund 85 recycled water projects and 27 groundwater recovery projects that have produced a cumulative total of about 4 million acre-feet.

Conservation Programs

Metropolitan's regional conservation programs and approaches have a long history. Decades ago, Metropolitan recognized that demand management at the consumer level would be an

important part of balancing regional supplies and demands. Water conservation efforts were seen as a way to reduce the need for imported supplies and offset the need to transport or store additional water into or within the Metropolitan service area. The actual conservation of water takes place at the retail consumer level. Regional conservation approaches have proven to be effective at reaching retail consumers throughout Metropolitan's service area and successfully implementing water saving devices, programs and practices. Through the pooling of funding by Metropolitan's member agencies, Metropolitan is able to engage in regional campaigns with wide-reaching impact. Regional investments in demand management programs, of which conservation is a key part along with local supply programs, benefit all member agencies regardless of project location. These programs help to increase regional water supply reliability, reduce demands for imported water supplies, decrease the burden on Metropolitan's infrastructure, reduce system costs, and free up conveyance capacity to the benefit of all member agencies.

Incentive-Based Conservation Programs

Conservation Credits Program

In 1988, Metropolitan's Board approved the Water Conservation Credits Program (Credits Program). The Credits Program is similar in concept to the Local Projects Program (LPP). The purpose of the Credits Program is to encourage local water agencies to implement effective water conservation projects through the use of financial incentives. The Credits Program provides financial assistance for water conservation projects that reduce demands on Metropolitan's imported water supplies and require Metropolitan's assistance to be financially feasible.

Initially, the Credits Program provided 50 percent of a member agency's program cost, up to a maximum of $75 per acre-foot of estimated water savings. The $75 Base Conservation Rate was established based Metropolitan's avoided cost of pumping SWP supplies. The Base Conservation Rate has been revisited by Metropolitan's Board and revised twice since 1988, from $75 to $154 per acre-foot in 1990 and from $154 to $195 per acre-foot in 2005.

In fiscal year 2020 Metropolitan processed more than 30,400 rebate applications totaling $18.9 million.

Member Agency Administered Program

Some member agencies also have unique programs within their service areas that provide local rebates that may differ from Metropolitan's regional program. Metropolitan continues to support these local efforts through a member agency administered funding program that adheres to the same funding guidelines as the Credits Program. The Member Agency Administered Program allows member agencies to receive funding for local conservation efforts that supplement, but do not duplicate, the rebates offered through Metropolitan's regional rebate program.

Water Savings Incentive Program

There are numerous commercial entities and industries within Metropolitan's service area that pursue unique savings opportunities that do not fall within the general rebate programs that Metropolitan provides. In 2012, Metropolitan designed the Water Savings Incentive Program (WSIP) to target these unique commercial and industrial projects. In addition to rebates for devices, under this program, Metropolitan provides financial incentives to businesses and

industries that created their own custom water efficiency projects. Qualifying custom projects can receive funding for permanent water efficiency changes that result in reduced potable demand.

Non-Incentive Conservation Programs

In addition to its incentive-based conservation programs, Metropolitan also undertakes additional efforts throughout its service area that help achieve water savings without the use of rebates. Metropolitan's non-incentive conservation efforts include:

- residential and professional water efficient landscape training classes
- water audits for large landscapes
- research, development and studies of new water saving technologies
- advertising and outreach campaigns
- community outreach and education programs
- advocacy for legislation, codes, and standards that lead to increased water savings

Current Status and Results of Metropolitan's Conservation Programs

Since 1990, Metropolitan has invested $824 million in conservation rebates that have resulted in a cumulative savings of 3.27 million acre-feet of water. These investments include $450 million in turf removal and other rebates during the last drought which resulted in 175 million square feet of lawn turf removed. During fiscal year 2020, 1.06 million acre-feet of water is estimated to have been conserved. This annual total includes Metropolitan's Conservation Credits Program; code-based conservation achieved through Metropolitan-sponsored legislation; building plumbing codes and ordinances; reduced consumption resulting from changes in water pricing; and pre-1990 device retrofits.

Infeasibility of Accounting Regional Investments in Reduced Reliance Below the Regional Level

The accounting of regional investments that contribute to reduced reliance on supplies from the Delta watershed is straightforward to calculate and report at the regional aggregate level. However, any similar accounting is infeasible for the individual member agencies or their customers. As described above, the region (through Metropolitan) makes significant investments in projects, programs and other resources that reduce reliance on the Delta. In fact, all of Metropolitan's investments in Colorado River supplies, groundwater and surface storage, local resources development and demand management measures that reduce reliance on the Delta are collectively funded by revenues generated from the member agencies through rates and charges.

Metropolitan's revenues cannot be matched to the demands or supply production history of an individual agency, or consistently across the agencies within the service area. Each project or program funded by the region has a different online date, useful life, incentive rate and structure, and production schedule. It is infeasible to account for all these things over the life of each project or program and provide a nexus to each member agency's contributions to Metropolitan's revenue stream over time. Accounting at the regional level allows for the incorporation of the local supplies and water use efficiency programs done by member agencies

and their customers through both the regional programs and through their own specific local programs. As shown above, despite the infeasibility of accounting reduced Delta reliance below the regional level, Metropolitan's member agencies and their customers have together made substantial contributions to the region's reduced reliance.

G.8 2015 UWMP Appendix P

The information contained in this Appendix G is also intended to be a new Appendix P attached to IEUA's 2015 UWMP consistent with WR P1 subsection (c)(1)(C) (Cal. Code Regs. tit. 23, § 5003). IEUA provided notice of the availability of the draft 2020 UWMP (including this Appendix G which will also be a new Appendix P to its 2015 UWMP) and WSCP and the public hearing to consider adoption of both plans and the addendum to the 2015 UWMP in accordance with CWC Sections 10621(b) and 10642, and Government Code Section 6066, and Chapter 17.5 (starting with Section 7290) of Division 7 of Title 1 of the Government Code. The notice of availability of the documents was sent to IEUA's member agencies, as well as cities and counties in IEUA service area. In addition, a public notice advertising the public hearing in English was published in the Inland Valley Daily Bulletin. The notification in English language newspapers was published on 17 May and 24 May 2021. Copies of: (1) the notification letter sent to the member agencies, cities and counties in IEUA service area, and (2) the notice published in the newspapers are included in the 2020 UWMP Appendix E.

Thus, this Appendix G to IEUA's 2020 UWMP, which was adopted with IEUA's 2020 UWMP, will also be recognized and treated as Appendix P to IEUA's 2015 UWMP. IEUA held the public hearing for the draft 2020 UWMP, draft Appendix G as an addendum to the 2015 UWMP, and draft WSCP on June 16, 2021, at the Board of Directors meeting, held online due to COVID-19 concerns. On June 16, IEUA's Board determined that the 2020 UWMP and the WSCP accurately represent the water resources plan for IEUA's service area. IEUA's Board determined that Appendix G to the 2020 UWMP and Appendix P to the 2015 UWMP includes all of the elements described in Delta Plan Policy WR P1, Reduce Reliance on the Delta Through Improved Regional Water Self-Reliance (Cal. Code Regs. tit. 23, § 5003), which need to be included in a water supplier's UWMP to support a certification of consistency for a future covered action. As stated in Resolution No. 2021-06-10, the Board adopted the 2020 UWMP, Appendix G as an addendum to the 2015 UWMP, and the WSCP and authorized their submittal to the State of California. Copies of Resolution No. 2021-06-10 is included in the 2020 UWMP Appendix D.

Table G-1: Calculation of IEUA Service Area Water Demands Without Water Use Efficiency

Total Service Area Water Demands (Acre-Feet)	Baseline (2010)	2015	2020	2025	2030	2035	2040	2045 (Optional)
Service Area Water Demands with Water Use Efficiency Accounted For*	79,440	92,325	96,934	113,280	117,752	121,438	126,072	126,664
Reported Water Use Efficiency or Estimated Water Use Efficiency Since Baseline	-	1,975	3,292	9,788	11,984	17,257	22,570	27,802
Service Area Water Demands without Water Use Efficiency Accounted For	79,440	94,300	100,226	123,068	129,736	138,695	148,642	154,466

*Demands include imported and recycled water, as found in 2020 UWMP Table 4-3W

Table G-2: Calculation of IEUA Supplies Contributing to Regional Self-Reliance

Water Supplies Contributing to Regional Self-Reliance (Acre-Feet)	Baseline (2010)	2015	2020	2025	2030	2035	2040	2045 (Optional)
Water Use Efficiency	-	1,975	3,292	9,788	11,984	17,257	22,570	27,802
Water Recycling	24,506	33,419	30,495	40,495	42,697	44,122	46,504	46,844
Stormwater Capture and Use	-	-	-	-	-	-	-	-
Advanced Water Technologies	-	-	-	-	-	-	-	-
Conjunctive Use Projects	-	-	-	-	-	-	-	-
Local and Regional Water Supply and Storage Projects	-	-	-	-	-	-	-	-
Other Programs and Projects the Contribute to Regional Self-Reliance	-	-	-	-	-	-	-	-
Water Supplies Contributing to Regional Self-Reliance	24,506	35,394	33,787	50,283	54,681	61,379	69,074	74,646

Service Area Water Demands without Water Use Efficiency (Acre-Feet)	Baseline (2010)	2015	2020	2025	2030	2035	2040	2045 (Optional)
Service Area Water Demands without Water Use Efficiency Accounted For	79,440	94,300	100,226	123,068	129,736	138,695	148,642	154,466

Change in Regional Self Reliance (Acre-Feet)	Baseline (2010)	2015	2020	2025	2030	2035	2040	2045 (Optional)
Water Supplies Contributing to Regional Self-Reliance	24,506	35,394	33,787	50,283	54,681	61,379	69,074	74,646
Change in Water Supplies Contributing to Regional Self-Reliance		10,888	9,281	25,777	30,175	36,873	44,568	50,140

Percent Change in Regional Self Reliance (As Percent of Demand w/out WUE)	Baseline (2010)	2015	2020	2025	2030	2035	2040	2045 (Optional)
Percent of Water Supplies Contributing to Regional Self-Reliance	30.8%	37.5%	33.7%	40.9%	42.1%	44.3%	46.5%	48.3%
Change in Percent of Water Supplies Contributing to Regional Self-Reliance		6.7%	2.9%	10.0%	11.3%	13.4%	15.6%	17.5%

Table G-3: Calculation of MWD Reliance on Water Supplies from the Delta Watershed

Water Supplies from the Delta Watershed (Acre-Feet)	Baseline (2010)	2015	2020	2025	2030	2035	2040	2045 (Optional)
CVP/SWP Contract Supplies	1,472,000	1,029,000	984,000	1,133,000	1,130,000	1,128,000	1,126,000	1,126,000
Delta/Delta Tributary Diversions								
Transfers and Exchanges	20,000	44,000	91,000	58,000	52,000	52,000	52,000	52,000
Other Water Supplies from the Delta Watershed								
Total Water Supplies from the Delta Watershed	1,492,000	1,073,000	1,075,000	1,191,000	1,182,000	1,180,000	1,178,000	1,178,000

Service Area Water Demands without Water Use Efficiency (Acre-Feet)	Baseline (2010)	2015	2020	2025	2030	2035	2040	2045 (Optional)
Service Area Water Demands without Water Use Efficiency Accounted For	5,493,000	5,499,000	5,219,000	4,925,000	5,032,000	5,156,000	5,261,000	5,374,000

Change in Supplies from the Delta Watershed (Acre-Feet)	Baseline (2010)	2015	2020	2025	2030	2035	2040	2045 (Optional)
Water Supplies from the Delta Watershed	1,492,000	1,073,000	1,075,000	1,191,000	1,182,000	1,180,000	1,178,000	1,178,000
Change in Water Supplies from the Delta Watershed		(419,000)	(417,000)	(301,000)	(310,000)	(312,000)	(314,000)	(314,000)

Percent Change in Supplies from the Delta Watershed (As a Percent of Demand w/out WUE)	Baseline (2010)	2015	2020	2025	2030	2035	2040	2045 (Optional)
Percent of Water Supplies from the Delta Watershed	27.2%	19.5%	20.6%	24.2%	23.5%	22.9%	22.4%	21.9%
Change in Percent of Water Supplies from the Delta Watershed		-7.6%	-6.6%	-3.0%	-3.7%	-4.3%	-4.8%	-5.2%

APPENDIX C

COMPLETED PLAN CHECKLIST

Retail	Wholesale	2020 Guidebook Location	Summary as Applies to UWMP	Subject	2020 UWMP Location (Optional Column for Agency Review Use)
x	x	Chapter 1	A plan shall describe and evaluate sources of supply, reasonable and practical efficient uses, reclamation and demand management activities.	Introduction and Overview	Chapter 1 Lay Description
x	x	Chapter 1	Each plan shall include a simple description of the supplier's plan including water availability, future requirements, a strategy for meeting needs, and other pertinent information. Additionally, a supplier may also choose to include a simple description at the beginning of each chapter.	Summary	Beginning of each Chapter
x	x	Section 2.2	Every person that becomes an urban water supplier shall adopt an urban water management plan within one year after it has become an urban water supplier.	Plan Preparation	Section 2.2
x	x	Section 2.6	Coordinate the preparation of its plan with other appropriate agencies in the area, including other water suppliers that share a common source, water management agencies, and relevant public agencies, to the extent practicable.	Plan Preparation	Section 2.6
x	x	Section 2.6.2	Provide supporting documentation that the water supplier has encouraged active involvement of diverse social, cultural, and economic elements of the population within the service area prior to and during the preparation of the plan and contingency plan.	Plan Preparation	Section 2.6.2
x		Section 2.6, Section 6.1	Retail suppliers will include documentation that they have provided their wholesale supplier(s) - if any - with water use projections from that source.	System Supplies	Sections 2.6 and 6.1
	x	Section 2.6	Wholesale suppliers will include documentation that they have provided their urban water suppliers with identification and quantification of the existing and planned sources of water available from the wholesale to the urban supplier during various water year types.	System Supplies	Not applicable
x	x	Section 3.1	Describe the water supplier service area.	System Description	Section 3.1
x	x	Section 3.3	Describe the climate of the service area of the supplier.	System Description	Section 3.3
x	x	Section 3.4	Provide population projections for 2025, 2030, 2035, 2040 and optionally 2045.	System Description	Section 3.4
x	x	Section 3.4.2	Describe other social, economic, and demographic factors affecting the supplier's water management planning.	System Description	Section 3.4.2
x	x	Sections 3.4 and 5.4	Indicate the current population of the service area.	System Description and Baselines and Targets	Sections 3.4 and 5.4
x	x	Section 3.5	Describe the land uses within the service area.	System Description	Section 3.5
x	x	Section 4.2	Quantify past, current, and projected water use, identifying the uses among water use sectors.	System Water Use	Section 4.2
x	x	Section 4.2.4	Retail suppliers shall provide data to show the distribution loss standards were met.	System Water Use	Section 4.2.4
x	x	Section 4.2.6	In projected water use, include estimates of water savings from adopted codes, plans and other policies or laws.	System Water Use	Section 4.2.6
x	x	Section 4.2.6	Provide citations of codes, standards, ordinances, or plans used to make water use projections.	System Water Use	Section 4.2.6
x	optional	Section 4.3.2.4	Report the distribution system water loss for each of the 5 years preceding the plan update.	System Water Use	Section 4.3.2
x	optional	Section 4.4	Include projected water use needed for lower income housing projected in the service area of the supplier.	System Water Use	Section 4.4
x	x	Section 4.5	Demands under climate change considerations must be included as part of the drought risk assessment.	System Water Use	Section 4.5
x		Chapter 5	Retail suppliers shall provide baseline daily per capita water use, urban water use target, interim urban water use target, and compliance daily per capita water use, along with the bases for determining those estimates, including references to supporting data.	Baselines and Targets	Chapter 5
x		Chapter 5	Retail suppliers shall meet their water use target by December 31, 2020.	Baselines and Targets	Chapter 5
	x	Section 5.1	Wholesale suppliers shall include an assessment of present and proposed future measures, programs, and policies to help their retail water suppliers achieve targeted water use reductions.	Baselines and Targets	Not applicable

Retail	Wholesale	2020 Guidebook Location	Summary as Applies to UWMP	Subject	2020 UWMP Location (Optional Column for Agency Review Use)
x		Section 5.2	If the retail supplier adjusts its compliance GPCD using weather normalization, economic adjustment, or extraordinary events, it shall provide the basis for, and data supporting the adjustment.	Baselines and Targets	Not applicable
x		Section 5.5	Retail suppliers' per capita daily water use reduction shall be no less than 5 percent of base daily per capita water use of the 5 year baseline. This does not apply if the suppliers base GPCD is at or below 100.	Baselines and Targets	Sections 5.2, 5.3, and 5.5
x		Section 5.5 and Appendix E	Retail suppliers shall report on their compliance in meeting their water use targets. The data shall be reported using a standardized form in the SBX7-7 2020 Compliance Form.	Baselines and Targets	Section 5.5
x	x	Sections 6.1 and 6.2	Provide a discussion of anticipated supply availability under a normal, single dry year, and a drought lasting five years, as well as more frequent and severe periods of drought.	System Supplies	Sections 6.1, 6.2, 7.1, and 7.2
x	x	Sections 6.1	Provide a discussion of anticipated supply availability under a normal, single dry year, and a drought lasting five years, as well as more frequent and severe periods of drought, *including changes in supply due to climate change.*	System Supplies	Section 6.1
x	x	Section 6.1	When multiple sources of water supply are identified, describe the management of each supply in relationship to other identified supplies.	System Supplies	Section 6.1
x	x	Section 6.1.1	Describe measures taken to acquire and develop planned sources of water.	System Supplies	Section 6.1.1
x	x	Section 6.2.8	Identify and quantify the existing and planned sources of water available for 2020, 2025, 2030, 2035, 2040 and optionally 2045.	System Supplies	Section 6.2.8
x	x	Section 6.2	Indicate whether groundwater is an existing or planned source of water available to the supplier.	System Supplies	Section 6.2
x	x	Section 6.2.2	Indicate whether a groundwater sustainability plan or groundwater management plan has been adopted by the water supplier or if there is any other specific authorization for groundwater management. Include a copy of the plan or authorization.	System Supplies	Section 6.2.2
x	x	Section 6.2.2	Describe the groundwater basin.	System Supplies	Section 6.2.2
x	x	Section 6.2.2	Indicate if the basin has been adjudicated and include a copy of the court order or decree and a description of the amount of water the supplier has the legal right to pump.	System Supplies	Section 6.2.2
x	x	Section 6.2.2.1	For unadjudicated basins, indicate whether or not the department has identified the basin as a high or medium priority. Describe efforts by the supplier to coordinate with sustainability or groundwater agencies to achieve sustainable groundwater conditions.	System Supplies	Not applicable
x	x	Section 6.2.2.4	Provide a detailed description and analysis of the location, amount, and sufficiency of groundwater pumped by the urban water supplier for the past five years	System Supplies	Section 6.2.2
x	x	Section 6.2.2	Provide a detailed description and analysis of the amount and location of groundwater that is projected to be pumped.	System Supplies	Section 6.2.2
x	x	Section 6.2.7	Describe the opportunities for exchanges or transfers of water on a short-term or long- term basis.	System Supplies	Section 6.2.7
x	x	Section 6.2.5	Describe the quantity of treated wastewater that meets recycled water standards, is being discharged, and is otherwise available for use in a recycled water project.	System Supplies (Recycled Water)	Section 6.2.5
x	x	Section 6.2.5	Describe the recycled water currently being used in the supplier's service area.	System Supplies (Recycled Water)	Section 6.2.5
x	x	Section 6.2.5	Describe and quantify the potential uses of recycled water and provide a determination of the technical and economic feasibility of those uses.	System Supplies (Recycled Water)	Section 6.2.5
x	x	Section 6.2.5	Describe the projected use of recycled water within the supplier's service area at the end of 5, 10, 15, and 20 years, and a description of the actual use of recycled water in comparison to uses previously projected.	System Supplies (Recycled Water)	Section 6.2.5
x	x	Section 6.2.5	Describe the actions which may be taken to encourage the use of recycled water and the projected results of these actions in terms of acre-feet of recycled water used per year.	System Supplies (Recycled Water)	Section 6.2.5
x	x	Section 6.2.5	Provide a plan for optimizing the use of recycled water in the supplier's service area.	System Supplies (Recycled Water)	Section 6.2.5
x	x	Section 6.2.6	Describe desalinated water project opportunities for long-term supply.	System Supplies	Section 6.2.6
x	x	Section 6.2.5	Describe the wastewater collection and treatment systems in the supplier's service area with quantified amount of collection and treatment and the disposal methods.	System Supplies (Recycled Water)	Section 6.2.5
x	x	Section 6.2.8, Section 6.3.7	Describe the expected future water supply projects and programs that may be undertaken by the water supplier to address water supply reliability in average, single-dry, and for a period of drought lasting 5 consecutive water years.	System Supplies	Sections 6.2.8 and 6.2.9

Retail	Wholesale	2020 Guidebook Location	Summary as Applies to UWMP	Subject	2020 UWMP Location (Optional Column for Agency Review Use)
x	x	Section 6.4 and Appendix O	The UWMP must include energy information, as stated in the code, that a supplier can readily obtain.	System Suppliers, Energy Intensity	Section 6.4
x	x	Section 7.2	Provide information on the quality of existing sources of water available to the supplier and the manner in which water quality affects water management strategies and supply reliability	Water Supply Reliability Assessment	Section 7.2
x	x	Section 7.2.4	Describe water management tools and options to maximize resources and minimize the need to import water from other regions.	Water Supply Reliability Assessment	Section 7.2.4
x	x	Section 7.3	Service Reliability Assessment: Assess the water supply reliability during normal, dry, and a drought lasting five consecutive water years by comparing the total water supply sources available to the water supplier with the total projected water use over the next 20 years.	Water Supply Reliability Assessment	Section 7.3
x	x	Section 7.3	Provide a drought risk assessment as part of information considered in developing the demand management measures and water supply projects.	Water Supply Reliability Assessment	Section 7.3
x	x	Section 7.3	Include a description of the data, methodology, and basis for one or more supply shortage conditions that are necessary to conduct a drought risk assessment for a drought period that lasts 5 consecutive years.	Water Supply Reliability Assessment	Section 7.3
x	x	Section 7.3	Include a determination of the reliability of each source of supply under a variety of water shortage conditions.	Water Supply Reliability Assessment	Section 7.3
x	x	Section 7.3	Include a comparison of the total water supply sources available to the water supplier with the total projected water use for the drought period.	Water Supply Reliability Assessment	Section 7.3
x	x	Section 7.3	Include considerations of the historical drought hydrology, plausible changes on projected supplies and demands under climate change conditions, anticipated regulatory changes, and other locally applicable criteria.	Water Supply Reliability Assessment	Section 7.3
x	x	Chapter 8	Provide a water shortage contingency plan (WSCP) with specified elements below.	Water Shortage Contingency Planning	Chapter 8
x	x	Chapter 8	Provide the analysis of water supply reliability (from Chapter 7 of Guidebook) in the WSCP	Water Shortage Contingency Planning	Chapter 8
x	x	Section 8.10	Describe reevaluation and improvement procedures for monitoring and evaluation the water shortage contingency plan to ensure risk tolerance is adequate and appropriate water shortage mitigation strategies are implemented.	Water Shortage Contingency Planning	Section 8.10
x	x	Section 8.2	Provide the written decision-making process and other methods that the supplier will use each year to determine its water reliability.	Water Shortage Contingency Planning	Section 8.2
x	x	Section 8.2	Provide data and methodology to evaluate the supplier's water reliability for the current year and one dry year pursuant to factors in the code.	Water Shortage Contingency Planning	Section 8.2
x	x	Section 8.3	Define six standard water shortage levels of 10, 20, 30, 40, 50 percent shortage and greater than 50 percent shortage. These levels shall be based on supply conditions, including percent reductions in supply, changes in groundwater levels, changes in surface elevation, or other conditions. The shortage levels shall also apply to a catastrophic interruption of supply.	Water Shortage Contingency Planning	Section 8.3
x	x	Section 8.3	Suppliers with an existing water shortage contingency plan that uses different water shortage levels must cross reference their categories with the six standard categories.	Water Shortage Contingency Planning	Section 8.3
x	x	Section 8.4	Suppliers with water shortage contingency plans that align with the defined shortage levels must specify locally appropriate supply augmentation actions.	Water Shortage Contingency Planning	Section 8.4.2
x	x	Section 8.4	Specify locally appropriate demand reduction actions to adequately respond to shortages.	Water Shortage Contingency Planning	Section 8.4.1
x	x	Section 8.4	Specify locally appropriate operational changes.	Water Shortage Contingency Planning	Section 8.4.3
x	x	Section 8.4	Specify additional mandatory prohibitions against specific water use practices that are in addition to state-mandated prohibitions are appropriate to local conditions.	Water Shortage Contingency Planning	Section 8.4.4
x	x	Section 8.4	Estimate the extent to which the gap between supplies and demand will be reduced by implementation of the action.	Water Shortage Contingency Planning	Section 8.4.7
x	x	Section 8.4.6	The plan shall include a seismic risk assessment and mitigation plan.	Water Shortage Contingency Plan	Section 8.4.6
x	x	Section 8.5	Suppliers must describe that they will inform customers, the public and others regarding any current or predicted water shortages.	Water Shortage Contingency Planning	Section 8.5

Retail	Wholesale	2020 Guidebook Location	Summary as Applies to UWMP	Subject	2020 UWMP Location (Optional Column for Agency Review Use)
x	x	Section 8.5 and 8.6	Suppliers must describe that they will inform customers, the public and others regarding any shortage response actions triggered or anticipated to be triggered and other relevant communications.	Water Shortage Contingency Planning	Sections 8.5 and 8.6
x		Section 8.6	Retail supplier must describe how it will ensure compliance with and enforce provisions of the WSCP.	Water Shortage Contingency Planning	Section 8.6
x		Section 8.7	Describe the legal authority that empowers the supplier to enforce shortage response actions.	Water Shortage Contingency Planning	Section 8.7
x	x	Section 8.7	Provide a statement that the supplier will declare a water shortage emergency Water Code Chapter 3.	Water Shortage Contingency Planning	Section 8.7
x	x	Section 8.7	Provide a statement that the supplier will coordinate with any city or county within which it provides water for the possible proclamation of a local emergency.	Water Shortage Contingency Planning	Section 8.7
x	x	Section 8.8	Describe the potential revenue reductions and expense increases associated with activated shortage response actions.	Water Shortage Contingency Planning	Section 8.8
x	x	Section 8.8	Provide a description of mitigation actions needed to address revenue reductions and expense increases associated with activated shortage response actions.	Water Shortage Contingency Planning	Section 8.8
x		Section 8.8	Retail suppliers must describe the cost of compliance with Water Code Chapter 3.3: Excessive Residential Water Use During Drought	Water Shortage Contingency Planning	Section 8.8
x		Section 8.9	Retail suppliers must describe the monitoring and reporting requirements and procedures that ensure appropriate data is collected, tracked, and analyzed for purposes of monitoring customer compliance.	Water Shortage Contingency Planning	Section 8.9
x		Section 8.11	Analyze and define water features that are artificially supplied with water, including ponds, lakes, waterfalls, and fountains, separately from swimming pools and spas.	Water Shortage Contingency Planning	Section 8.11
x	x	Sections 8.12 and 10.4	Provide supporting documentation that Water Shortage Contingency Plan has been, or will be, provided to any city or county within which it provides water, no later than 30 days after the submission of the plan to DWR.	Plan Adoption, Submittal, and Implementation	Sections 8.12 and 10.4
x	x	Section 8.12	Make available the Water Shortage Contingency Plan to customers and any city or county where it provides water within 30 after adopted the plan.	Water Shortage Contingency Planning	Section 8.12
	x	Sections 9.1 and 9.3	Wholesale suppliers shall describe specific demand management measures listed in code, their distribution system asset management program, and supplier assistance program.	Demand Management Measures	Not applicable
x		Sections 9.2 and 9.3	Retail suppliers shall provide a description of the nature and extent of each demand management measure implemented over the past five years. The description will address specific measures listed in code.	Demand Management Measures	Sections 9.2 and 9.3
x		Chapter 10	Retail suppliers shall conduct a public hearing to discuss adoption, implementation, and economic impact of water use targets (recommended to discuss compliance).	Plan Adoption, Submittal, and Implementation	Chapter 10
x	x	Section 10.2.1	Notify, at least 60 days prior to the public hearing, any city or county within which the supplier provides water that the urban water supplier will be reviewing the plan and considering amendments or changes to the plan. Reported in Table 10-1.	Plan Adoption, Submittal, and Implementation	Section 10.2.1
x	x	Section 10.4	Each urban water supplier shall update and submit its 2020 plan to the department by July 1, 2021.	Plan Adoption, Submittal, and Implementation	Section 10.4
x	x	Sections 10.2.2, 10.3, and 10.5	Provide supporting documentation that the urban water supplier made the plan and contingency plan available for public inspection, published notice of the public hearing, and held a public hearing about the plan and contingency plan.	Plan Adoption, Submittal, and Implementation	Sections 10.2, 10.3, and 10.5
x	x	Section 10.2.2	The water supplier is to provide the time and place of the hearing to any city or county within which the supplier provides water.	Plan Adoption, Submittal, and Implementation	Section 10.2.2
x	x	Section 10.3.2	Provide supporting documentation that the plan and contingency plan has been adopted as prepared or modified.	Plan Adoption, Submittal, and Implementation	Section 10.3.2
x	x	Section 10.4	Provide supporting documentation that the urban water supplier has submitted this UWMP to the California State Library.	Plan Adoption, Submittal, and Implementation	Section 10.4.3
x	x	Section 10.4	Provide supporting documentation that the urban water supplier has submitted this UWMP to any city or county within which the supplier provides water no later than 30 days after adoption.	Plan Adoption, Submittal, and Implementation	Section 10.4
x	x	Sections 10.4.1 and 10.4.2	The plan, or amendments to the plan, submitted to the department shall be submitted electronically.	Plan Adoption, Submittal, and Implementation	Sections 10.4.1 and 10.4.2
x	x	Section 10.5	Provide supporting documentation that, not later than 30 days after filing a copy of its plan with the department, the supplier has or will make the plan available for public review during normal business hours.	Plan Adoption, Submittal, and Implementation	Section 10.5

Retail	Wholesale	2020 Guidebook Location	Summary as Applies to UWMP	Subject	2020 UWMP Location (Optional Column for Agency Review Use)
x	x	Section 10.5	Provide supporting documentation that, not later than 30 days after filing a copy of its water shortage contingency plan with the department, the supplier has or will make the plan available for public review during normal business hours.	Plan Adoption, Submittal, and Implementation	Section 10.5
x	x	Section 10.6	If supplier is regulated by the Public Utilities Commission, include its plan and contingency plan as part of its general rate case filings.	Plan Adoption, Submittal, and Implementation	Section 10.6
x	x	Section 10.7.2	If revised, submit a copy of the water shortage contingency plan to DWR within 30 days of adoption.	Plan Adoption, Submittal, and Implementation	Section 10.7.2

APPENDIX D

60 – DAY NOTIFICATION LETTERS AND PUBLIC HEARING NOTIFICATIONS

CITY OF ONTARIO

ONTARIO MUNICIPAL UTILITIES COMPANY

November 17, 2020

Mr. Terry Catlin
General Manager
Water Facilities Authority
1775 N Benson Avenue
Upland, CA 91784

SUBJECT: 2020 Urban Water Management Plan Update

Dear Mr. Catlin:

The City of Ontario is currently in the process of reviewing its Urban Water Management Plan (UWMP) for the upcoming 2020 Update. The Urban Water Management Planning Act requires every urban water supplier, which provides water directly or indirectly to more than 3,000 customers or supplying more than 3,000 acre-feet of water annually, to prepare and adopt an UWMP and periodically update that plan at least once every five years. The UWMP is a planning document and a source document to direct urban water suppliers to evaluate and compare their water supply and reliability to their existing water conservation efforts. The City is currently in the process of preparing the 2020 UWMP Update.

As an urban water supplier, the City is required pursuant to Section 10620(d)(3) of the California Water Code to coordinate with water management agencies, relevant public agencies, and other water suppliers regarding the preparation of the UWMP. Pursuant to Section 10621(b) of the California Water Code, the City will be reviewing the UWMP and will make amendments or changes, as appropriate. The City invites you to submit comments in anticipation of the development of our 2020 UWMP Update. Please provide written comments within the next 30 days to the City of Ontario.

For more information, please feel free to contact Courtney Jones at (909) 395-2640 (cjjones@ontarioca.gov) or Christopher Quach (909) 395-2695 (cquach@ontarioca.gov).

Sincerely,

Scott Burton, P.E.
Utilities General Manager

CITY OF ONTARIO

ONTARIO MUNICIPAL UTILITIES COMPANY

PAUL S. LEON
MAYOR

DEBRA DORST-PORADA
MAYOR PRO TEM

ALAN D. WAPNER
JIM W. BOWMAN
RUBEN VALENCIA
COUNCIL MEMBERS

SCOTT OCHOA
CITY MANAGER

SHEILA MAUTZ
CITY CLERK

JAMES R. MILHISER
TREASURER

SCOTT BURTON
UTILITIES GENERAL MANAGER

November 17, 2020

Mr. Thomas O'Neill
General Manager/CEO
Chino Basin Desalter Authority
3550 E. Philadelphia Street, Suite 170
Ontario, CA 91761

SUBJECT: 2020 Urban Water Management Plan Update

Dear Mr. O'Neill:

The City of Ontario is currently in the process of reviewing its Urban Water Management Plan (UWMP) for the upcoming 2020 Update. The Urban Water Management Planning Act requires every urban water supplier, which provides water directly or indirectly to more than 3,000 customers or supplying more than 3,000 acre-feet of water annually, to prepare and adopt an UWMP and periodically update that plan at least once every five years. The UWMP is a planning document and a source document to direct urban water suppliers to evaluate and compare their water supply and reliability to their existing water conservation efforts. The City is currently in the process of preparing the 2020 UWMP Update.

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Sincerely,

Scott Burton, P.E.
Utilities General Manager

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TREASURER

SCOTT BURTON
UTILITIES GENERAL MANAGER

November 17, 2020

Mr. Shivaji Deshmukh
General Manager
Inland Empire Utilities Agency
6075 Kimball Avenue
Chino, CA 91708

SUBJECT: 2020 Urban Water Management Plan Update

Dear Mr. Deshmukh:

The City of Ontario is currently in the process of reviewing its Urban Water Management Plan (UWMP) for the upcoming 2020 Update. The Urban Water Management Planning Act requires every urban water supplier, which provides water directly or indirectly to more than 3,000 customers or supplying more than 3,000 acre-feet of water annually, to prepare and adopt an UWMP and periodically update that plan at least once every five years. The UWMP is a planning document and a source document to direct urban water suppliers to evaluate and compare their water supply and reliability to their existing water conservation efforts. The City is currently in the process of preparing the 2020 UWMP Update.

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For more information, please feel free to contact Courtney Jones at (909) 395-2640 (cjjones@ontarioca.gov) or Christopher Quach (909) 395-2695 (cquach@ontarioca.gov).

Sincerely,

Scott Burton, P.E.
Utilities General Manager

CITY OF ONTARIO

ONTARIO MUNICIPAL UTILITIES COMPANY

November 17, 2020

Mr. Jeffrey Kightlinger
General Manager
Metropolitan Water District
P.O. Box 54153
Los Angeles, CA 90054

SUBJECT: 2020 Urban Water Management Plan Update

Dear Mr. Kightlinger:

The City of Ontario is currently in the process of reviewing its Urban Water Management Plan (UWMP) for the upcoming 2020 Update. The Urban Water Management Planning Act requires every urban water supplier, which provides water directly or indirectly to more than 3,000 customers or supplying more than 3,000 acre-feet of water annually, to prepare and adopt an UWMP and periodically update that plan at least once every five years. The UWMP is a planning document and a source document to direct urban water suppliers to evaluate and compare their water supply and reliability to their existing water conservation efforts. The City is currently in the process of preparing the 2020 UWMP Update.

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For more information, please feel free to contact Courtney Jones at (909) 395-2640 (cjjones@ontarioca.gov) or Christopher Quach (909) 395-2695 (cquach@ontarioca.gov).

Sincerely,

Scott Burton, P.E.
Utilities General Manager

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ONTARIO MUNICIPAL UTILITIES COMPANY

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CITY MANAGER

SHEILA MAUTZ
CITY CLERK

JAMES R. MILHISER
TREASURER

SCOTT BURTON
UTILITIES GENERAL MANAGER

November 17, 2020

Mr. Peter Kavounas
General Manager
Chino Basin Watermaster
9461 San Bernardino Road
Rancho Cucamonga, CA 91730

SUBJECT: 2020 Urban Water Management Plan Update

Dear Mr. Kavounas:

The City of Ontario is currently in the process of reviewing its Urban Water Management Plan (UWMP) for the upcoming 2020 Update. The Urban Water Management Planning Act requires every urban water supplier, which provides water directly or indirectly to more than 3,000 customers or supplying more than 3,000 acre-feet of water annually, to prepare and adopt an UWMP and periodically update that plan at least once every five years. The UWMP is a planning document and a source document to direct urban water suppliers to evaluate and compare their water supply and reliability to their existing water conservation efforts. The City is currently in the process of preparing the 2020 UWMP Update.

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For more information, please feel free to contact Courtney Jones at (909) 395-2640 (cjjones@ontarioca.gov) or Christopher Quach (909) 395-2695 (cquach@ontarioca.gov).

Sincerely,

Scott Burton, P.E.
Utilities General Manager

CITY OF ONTARIO

ONTARIO MUNICIPAL UTILITIES COMPANY

November 17, 2020

Mr. Matthew Ballantyne
City Manager
City of Chino
13220 Central Avenue
Chino, CA 91710

SUBJECT: 2020 Urban Water Management Plan Update

Dear Mr. Ballantyne:

The City of Ontario is currently in the process of reviewing its Urban Water Management Plan (UWMP) for the upcoming 2020 Update. The Urban Water Management Planning Act requires every urban water supplier, which provides water directly or indirectly to more than 3,000 customers or supplying more than 3,000 acre-feet of water annually, to prepare and adopt an UWMP and periodically update that plan at least once every five years. The UWMP is a planning document and a source document to direct urban water suppliers to evaluate and compare their water supply and reliability to their existing water conservation efforts. The City is currently in the process of preparing the 2020 UWMP Update.

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Sincerely,

Scott Burton, P.E.
Utilities General Manager

1425 SOUTH BON VIEW AVENUE • ONTARIO, CALIFORNIA 91761-4406 • (909) 395-2605 • FAX: (909) 395-2601
www.ontarioca.gov/omuc

November 17, 2020

Mr. Benjamin Montgomery
City Manager
City of Chino Hills
14000 City Center Drive
Chino Hills, CA 91709

SUBJECT: 2020 Urban Water Management Plan Update

Dear Mr. Montgomery:

The City of Ontario is currently in the process of reviewing its Urban Water Management Plan (UWMP) for the upcoming 2020 Update. The Urban Water Management Planning Act requires every urban water supplier, which provides water directly or indirectly to more than 3,000 customers or supplying more than 3,000 acre-feet of water annually, to prepare and adopt an UWMP and periodically update that plan at least once every five years. The UWMP is a planning document and a source document to direct urban water suppliers to evaluate and compare their water supply and reliability to their existing water conservation efforts. The City is currently in the process of preparing the 2020 UWMP Update.

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Sincerely,

Scott Burton, P.E.
Utilities General Manager

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ONTARIO MUNICIPAL UTILITIES COMPANY

PAUL S. LEON
MAYOR

DEBRA DORST-PORADA
MAYOR PRO TEM

ALAN D. WAPNER
JIM W. BOWMAN
RUBEN VALENCIA
COUNCIL MEMBERS

SCOTT OCHOA
CITY MANAGER

SHEILA MAUTZ
CITY CLERK

JAMES R. MILHISER
TREASURER

SCOTT BURTON
UTILITIES GENERAL MANAGER

November 17, 2020

Mr. Mark Denny
City Manager
City of Fontana
8353 Sierra Avenue
Fontana, CA 92335

SUBJECT: 2020 Urban Water Management Plan Update

Dear Mr. Denny:

The City of Ontario is currently in the process of reviewing its Urban Water Management Plan (UWMP) for the upcoming 2020 Update. The Urban Water Management Planning Act requires every urban water supplier, which provides water directly or indirectly to more than 3,000 customers or supplying more than 3,000 acre-feet of water annually, to prepare and adopt an UWMP and periodically update that plan at least once every five years. The UWMP is a planning document and a source document to direct urban water suppliers to evaluate and compare their water supply and reliability to their existing water conservation efforts. The City is currently in the process of preparing the 2020 UWMP Update.

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Scott Burton, P.E.
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CITY OF ONTARIO

ONTARIO MUNICIPAL UTILITIES COMPANY

November 17, 2020

Mr. Edward C. Starr
City Manager
City of Montclair
5111 Benito Street
Montclair, CA 91763

SUBJECT: 2020 Urban Water Management Plan Update

Dear Mr. Starr:

The City of Ontario is currently in the process of reviewing its Urban Water Management Plan (UWMP) for the upcoming 2020 Update. The Urban Water Management Planning Act requires every urban water supplier, which provides water directly or indirectly to more than 3,000 customers or supplying more than 3,000 acre-feet of water annually, to prepare and adopt an UWMP and periodically update that plan at least once every five years. The UWMP is a planning document and a source document to direct urban water suppliers to evaluate and compare their water supply and reliability to their existing water conservation efforts. The City is currently in the process of preparing the 2020 UWMP Update.

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CITY MANAGER

SHEILA MAUTZ
CITY CLERK

JAMES R. MILHISER
TREASURER

SCOTT BURTON
UTILITIES GENERAL MANAGER

November 17, 2020

Mr. James Makshanoff
City Manager
City of Pomona
505 South Garey Avenue
Pomona, CA 91766

SUBJECT: 2020 Urban Water Management Plan Update

Dear Mr. Makshanoff:

The City of Ontario is currently in the process of reviewing its Urban Water Management Plan (UWMP) for the upcoming 2020 Update. The Urban Water Management Planning Act requires every urban water supplier, which provides water directly or indirectly to more than 3,000 customers or supplying more than 3,000 acre-feet of water annually, to prepare and adopt an UWMP and periodically update that plan at least once every five years. The UWMP is a planning document and a source document to direct urban water suppliers to evaluate and compare their water supply and reliability to their existing water conservation efforts. The City is currently in the process of preparing the 2020 UWMP Update.

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www.ontarioca.gov/omuc

November 17, 2020

Mr. John Gillison
City Manager
City of Rancho Cucamonga
10500 Civic Center Drive
Rancho Cucamonga, CA 91730

SUBJECT: 2020 Urban Water Management Plan Update

Dear Mr. Gillison:

The City of Ontario is currently in the process of reviewing its Urban Water Management Plan (UWMP) for the upcoming 2020 Update. The Urban Water Management Planning Act requires every urban water supplier, which provides water directly or indirectly to more than 3,000 customers or supplying more than 3,000 acre-feet of water annually, to prepare and adopt an UWMP and periodically update that plan at least once every five years. The UWMP is a planning document and a source document to direct urban water suppliers to evaluate and compare their water supply and reliability to their existing water conservation efforts. The City is currently in the process of preparing the 2020 UWMP Update.

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Utilities General Manager

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CITY OF ONTARIO

ONTARIO MUNICIPAL UTILITIES COMPANY

November 17, 2020

Ms. Rosemary Hoerning
City Manager
City of Upland
460 North Euclid Avenue
Upland, CA 91786

SUBJECT: 2020 Urban Water Management Plan Update

Dear Ms. Hoerning:

The City of Ontario is currently in the process of reviewing its Urban Water Management Plan (UWMP) for the upcoming 2020 Update. The Urban Water Management Planning Act requires every urban water supplier, which provides water directly or indirectly to more than 3,000 customers or supplying more than 3,000 acre-feet of water annually, to prepare and adopt an UWMP and periodically update that plan at least once every five years. The UWMP is a planning document and a source document to direct urban water suppliers to evaluate and compare their water supply and reliability to their existing water conservation efforts. The City is currently in the process of preparing the 2020 UWMP Update.

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CITY OF ONTARIO

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TREASURER

SCOTT BURTON
UTILITIES GENERAL MANAGER

November 17, 2020

Mr. Justin Scott-Coe
General Manager
Monte Vista Water District
10575 Central Avenue
Montclair, CA 91763

SUBJECT: 2020 Urban Water Management Plan Update

Dear Mr. Scott-Coe:

The City of Ontario is currently in the process of reviewing its Urban Water Management Plan (UWMP) for the upcoming 2020 Update. The Urban Water Management Planning Act requires every urban water supplier, which provides water directly or indirectly to more than 3,000 customers or supplying more than 3,000 acre-feet of water annually, to prepare and adopt an UWMP and periodically update that plan at least once every five years. The UWMP is a planning document and a source document to direct urban water suppliers to evaluate and compare their water supply and reliability to their existing water conservation efforts. The City is currently in the process of preparing the 2020 UWMP Update.

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Sincerely,

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Utilities General Manager

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JAMES R. MILHISER
TREASURER

SCOTT BURTON
UTILITIES GENERAL MANAGER

November 17, 2020

Mr. Josh Swift
General Manager
Fontana Water Company
15966 Arrow Route
Fontana, CA 92335

SUBJECT: 2020 Urban Water Management Plan Update

Dear Mr. Swift:

The City of Ontario is currently in the process of reviewing its Urban Water Management Plan (UWMP) for the upcoming 2020 Update. The Urban Water Management Planning Act requires every urban water supplier, which provides water directly or indirectly to more than 3,000 customers or supplying more than 3,000 acre-feet of water annually, to prepare and adopt an UWMP and periodically update that plan at least once every five years. The UWMP is a planning document and a source document to direct urban water suppliers to evaluate and compare their water supply and reliability to their existing water conservation efforts. The City is currently in the process of preparing the 2020 UWMP Update.

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TREASURER

SCOTT BURTON
UTILITIES GENERAL MANAGER

November 17, 2020

Mr. Chris Berch
General Manager
Jurupa Community Services District
11201 Harrel Street
Jurupa Valley, CA 91752

SUBJECT: 2020 Urban Water Management Plan Update

Dear Mr. Berch:

The City of Ontario is currently in the process of reviewing its Urban Water Management Plan (UWMP) for the upcoming 2020 Update. The Urban Water Management Planning Act requires every urban water supplier, which provides water directly or indirectly to more than 3,000 customers or supplying more than 3,000 acre-feet of water annually, to prepare and adopt an UWMP and periodically update that plan at least once every five years. The UWMP is a planning document and a source document to direct urban water suppliers to evaluate and compare their water supply and reliability to their existing water conservation efforts. The City is currently in the process of preparing the 2020 UWMP Update.

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Sincerely,

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Utilities General Manager

CITY OF ONTARIO

ONTARIO MUNICIPAL UTILITIES COMPANY

November 17, 2020

Mr. Brian Lee
General Manager
San Antonio Water Company
139 North Euclid Avenue
Upland, CA 91786

SUBJECT: 2020 Urban Water Management Plan Update

Dear Mr. Lee:

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TREASURER

SCOTT BURTON
UTILITIES GENERAL MANAGER

November 17, 2020

Mr. Rich Haller
General Manager
Santa Ana Watershed Project Authority
11615 Sterling Avenue
Riverside, CA 92503

SUBJECT: 2020 Urban Water Management Plan Update

Dear Mr. Haller:

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SCOTT BURTON
UTILITIES GENERAL MANAGER

November 17, 2020

Mr. Leonard Hernandez
Chief Executive Officer
County of San Bernardino
385 N. Arrowhead Avenue
San Bernardino, CA 92415

SUBJECT: 2020 Urban Water Management Plan Update

Dear Mr. Hernandez:

The City of Ontario is currently in the process of reviewing its Urban Water Management Plan (UWMP) for the upcoming 2020 Update. The Urban Water Management Planning Act requires every urban water supplier, which provides water directly or indirectly to more than 3,000 customers or supplying more than 3,000 acre-feet of water annually, to prepare and adopt an UWMP and periodically update that plan at least once every five years. The UWMP is a planning document and a source document to direct urban water suppliers to evaluate and compare their water supply and reliability to their existing water conservation efforts. The City is currently in the process of preparing the 2020 UWMP Update.

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JAMES R. MILHISER
TREASURER

SCOTT BURTON
UTILITIES GENERAL MANAGER

November 17, 2020

Mr. John Bosler
General Manager
Cucamonga Valley Water District
10440 Ashford Street
Rancho Cucamonga, CA 91730

SUBJECT: 2020 Urban Water Management Plan Update

Dear Mr. Bosler:

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Scott Burton, P.E.
Utilities General Manager

NOTICE OF PUBLIC HEARING BY THE CITY COUNCIL OF THE CITY OF ONTARIO REGARDING THE DRAFT 2020 URBAN WATER MANAGEMENT PLAN, DRAFT WATER SHORTAGE CONTINGENCY PLAN, AND DRAFT ADDENDUM TO THE 2015 URBAN WATER MANAGEMENT PLAN

NOTICE is hereby given that on **Tuesday, June 15, 2021**, at 6:30 P.M., in the City Hall Council Chambers located at 303 East B Street, Ontario, CA 91764, the City of Ontario (City) City Council will conduct a public hearing to receive public comments and consider adoption of a Draft 2020 Urban Water Management Plan (UWMP), Draft Water Shortage Contingency Plan (WSCP), and Draft Addendum to the City's 2015 UWMP. Following the public hearing, the City Council may adopt the 2020 UWMP, WSCP, and 2015 UWMP Addendum with recommended modifications as a result of public input.

The Draft 2020 UWMP documents the City's plans to ensure adequate water supplies to meet existing and future demands under a range of water supply conditions, including water shortages. The Draft WSCP documents the City's plans to manage and mitigate an actual water shortage condition, should one occur because of drought or other impacts on water supplies. The Draft 2015 UWMP Addendum is a requirement of the Delta Plan for water suppliers to demonstrate consistency with the Delta Plan policy to reduce reliance on the Delta through improved regional water self-reliance.

A copy of the Draft 2020 UWMP, Draft WSCP, and Draft 2015 Addendum can be accessed at https://www.ontarioca.gov/OMUC/Utilities.

If you have any questions regarding City's 2020 UWMP, WSCP, 2015 UWMP Addendum, or the public hearing, please contact Christopher Quach at (909) 395-2695 (cquach@ontarioca.gov) or Courtney Jones at (909) 395-2640 (cjjones@ontarioca.gov). Written comments may be submitted to cquach@ontarioca.gov by 12:00 P.M. on Tuesday, June 15, 2021.

For Publication on: June 1, 8, 2021

AVISO DE AUDIENCIA PUBLICA DE LA CONSEJERIA MUNICIPAL DE LA CIUDAD DE ONTARIO ASERCA DEL PROYECTO DE PLAN DE GESTIÓN DE AGUAS URBANAS 2020, PLAN DE CONTINGENCIA EN CASO DE ESCASEZ DE AGUA Y ADENDA.

Esto es un **AVISO** que **el martes, 15 de junio 2021**, a las 6:30 PM en el auditorio de consejería del Ayuntamiento Municipal localizado en el 303 East B, Ontario, CA 91764, la Consejería de la ciudad de Ontario (ciudad) llevara a cabo una audiencia pública para recibir comentarios del público y considerar la adopción del proyecto de plan de gestión de aguas urbanas 2020 (UWMP), plan de contingencia en caso de escasez de agua y adenda (WSCP). Después de la audiencia pública, la consejería municipal podrá adoptar el plan con modificaciones que resulten de los comentarios públicos.

Estos documentos contienen los planes de la Ciudad para asegurar que haiga la suficiente cantidad de agua y planes en anticipación de demandas futuras bajo varias condiciones de suministro de agua, incluyendo escasez. Los documentos WCSP contienen los planes de la ciudad para manejar y mitigar condiciones de escasez de agua en caso de que ocurra a causa de sequia o otros impactos al suministro de agua. El documento UWMP es un requisito del Plan Delta para que los proveedores de agua puedan demostrar consistencia con la póliza del Plan Delta para reducir dependencia en Delta y mejorar la de autodependencia del agua regional.

Copias de los documentos están disponibles en https://www.ontarioca.gov/OMUC/Utilities. Si usted tiene preguntas acerca del proyecto de plan de gestión de aguas urbanas 2020 (UWMP), plan de contingencia en caso de escasez de agua y adenda (WSCP), por favor contacte a Christopher Quach al (909) 395-2695 (cquach@ontarioca.gov) o a Courtney Jones al (909) 395-2640 (cjjones@ontarioca.gov). Comentarios escritos pueden ser enviados a cquach@ontarioca.gov antes de las 12:00 P.M. el martes, 15 de junio 2021.

Para publicación el 1, 8 de junio 2021

Inland Valley Daily Bulletin **Ad#11466100**

NOTICE OF PUBLIC HEARING BY THE CITY COUNCIL OF THE CITY OF ONTARIO REGARDING THE DRAFT 2020 URBAN WATER MANAGEMENT PLAN, DRAFT WATER SHORTAGE CONTINGENCY PLAN, AND DRAFT ADDENDUM TO THE 2015 URBAN WATER MANAGEMENT PLAN

NOTICE is hereby given that on **Tuesday, June 15, 2021**, at 6:30 P.M., in the City Hall Council Chambers located at 303 East B Street, Ontario, CA 91764, the City of Ontario (City) City Council will conduct a public hearing to receive public comments and consider adoption of a Draft 2020 Urban Water Management Plan (UWMP), Draft Water Shortage Contingency Plan (WSCP), and Draft Addendum to the City's 2015 UWMP. Following the public hearing, the City Council may adopt the 2020 UWMP, WSCP, and 2015 UWMP Addendum with recommended modifications as a result of public input.

The Draft 2020 UWMP documents the City's plans to ensure adequate water supplies to meet existing and future demands under a range of water supply conditions, including water shortages. The Draft WSCP documents the City's plans to manage and mitigate an actual water shortage condition, should one occur because of drought or other impacts on water supplies. The Draft 2015 UWMP Addendum is a requirement of the Delta Plan for water suppliers to demonstrate consistency with the Delta Plan policy to reduce reliance on the Delta through improved regional water self-reliance.

A copy of the Draft 2020 UWMP, Draft WSCP, and Draft 2015 Addendum can be accessed at https://www.ontarioca.gov/OMUC/Utilities.

If you have any questions regarding City's 2020 UWMP, WSCP, 2015 UWMP Addendum, or the public hearing, please contact Christopher Quach at (909) 395-2695 (cquach@ontarioca.gov) or Courtney Jones at (909) 395-2640 (cjjones@ontarioca.gov). Written comments may be submitted to cquach@ontarioca.gov by 12:00 P.M. on Tuesday, June 15, 2021.

For Publication on: June 1, 8, 2021

AVISO DE AUDIENCIA PUBLICA DE LA CONSEJERIA MUNICIPAL DE LA CIUDAD DE ONTARIO ASERCA DEL PROYECTO DE PLAN DE GESTIÓN DE AGUAS URBANAS 2020, PLAN DE CONTINGENCIA EN CASO DE ESCASEZ DE AGUA Y ADENDA.

Esto es un **AVISO** que **el martes, 15 de junio 2021**, a las 6:30 PM en el auditorio de consejería del Ayuntamiento Municipal localizado en el 303 East B, Ontario, CA 91764, la Consejería de la ciudad de Ontario (ciudad) llevara a cabo una audiencia pública para recibir comentarios del público y considerar la adopción del proyecto de plan de gestión de aguas urbanas 2020 (UWMP), plan de contingencia en caso de escasez de agua y adenda (WSCP). Después de la audiencia pública, la consejería municipal podrá adoptar el plan con modificaciones que resulten de los comentarios públicos.

Estos documentos contienen los planes de la Ciudad para asegurar que haiga la suficiente cantidad de agua y planes en anticipación de demandas futuras bajo varias condiciones de suministro de agua, incluyendo escasez. Los documentos WCSP contienen los planes de la ciudad para manejar y mitigar condiciones de escasez de agua en caso de que ocurra a causa de sequia o otros impactos al suministro de agua. El documento UWMP es un requisito del Plan Delta para que los proveedores de agua puedan demostrar consistencia con la póliza del Plan Delta para reducir dependencia en Delta y mejorar la de autodependencia del agua regional.

Copias de los documentos están disponibles en https://www.ontarioca.gov/OMUC/Utilities. Si usted tiene preguntas acerca del proyecto de plan de gestión de aguas urbanas 2020 (UWMP), plan de contingencia en caso de escasez de agua y adenda (WSCP), por favor contacte a Christopher Quach al (909) 395-2695 (cquach@ontarioca.gov) o a Courtney Jones al (909) 395-2640 (cjjones@ontarioca.gov). Comentarios escritos pueden ser enviados a cquach@ontarioca.gov antes de las 12:00 P.M. el martes, 15 de junio 2021.

Para publicación el 1, 8 de junio 2021
Inland Valley Daily Bulletin **Ad#11466100**

NOTICE OF PUBLIC HEARING

CITY OF ONTARIO
303 EAST B STREET | ONTARIO, CALIFORNIA 91764
(909) 395-2000 FAX (909) 395-2070 OntarioCA.gov

May 18, 2021

Mr. Terry Catlin
General Manager
Water Facilities Authority
1775 N Benson Avenue
Upland, CA 91784

SUBJECT: Notice of Public Hearing for the 2020 Urban Water Management Plan, Water Shortage Contingency Plan, Addendum to 2015 Urban Water Management Plan

Dear Mr. Catlin:

The City of Ontario (City) will hold a public hearing on June 15, 2021 to receive public comments and consider adoption of its Draft 2020 Urban Water Management Plan (UWMP), Draft Water Shortage Contingency Plan (WSCP), and Draft Addendum to the City's 2015 UWMP. The City's 2020 UWMP incorporates the City's WSCP and Addendum of Appendix C to the 2015 UWMP.

The 2020 UWMP and WSCP were prepared pursuant to the "Urban Water Management Planning Act" and the California Water Code. The California Department of Water Resources requires every urban water supplier to prepare and adopt an UWMP, including the WSCP, and periodically update the UWMP at least once every five years, in years ending in six and one.

Information regarding the City's public hearing follows:

Date: Tuesday, June 15, 2021
Time: 6:30 P.M.
Location: Ontario City Hall – Council Chambers, 303 East B Street, Ontario, CA 91764

The City invites all interested entities to attend and present their comments. A copy of the draft documents will be available at https://www.ontarioca.gov/OMUC/Utilities. If you have any questions, please contact Christopher Quach at (909) 395-2695 (cquach@ontarioca.gov) or Courtney Jones at (909) 395-2640 (cjjones@ontarioca.gov). Written comments may be submitted to cquach@ontarioca.gov by 5:30 P.M. on June 8, 2021.

Sincerely,

Scott Burton

Scott Burton, P.E.
Utilities General Manager

CITY OF ONTARIO

303 EAST B STREET | ONTARIO, CALIFORNIA 91764

(909) 395-2000 FAX (909) 395-2070 OntarioCA.gov

May 18, 2021

Mr. Thomas O'Neill
General Manager/CEO
Chino Basin Desalter Authority
3550 E. Philadelphia Street, Suite 170
Ontario, CA 91761

SUBJECT: Notice of Public Hearing for the 2020 Urban Water Management Plan, Water Shortage Contingency Plan, Addendum to 2015 Urban Water Management Plan

Dear Mr. O'Neill:

The City of Ontario (City) will hold a public hearing on June 15, 2021 to receive public comments and consider adoption of its Draft 2020 Urban Water Management Plan (UWMP), Draft Water Shortage Contingency Plan (WSCP), and Draft Addendum to the City's 2015 UWMP. The City's 2020 UWMP incorporates the City's WSCP and Addendum of Appendix C to the 2015 UWMP.

The 2020 UWMP and WSCP were prepared pursuant to the "Urban Water Management Planning Act" and the California Water Code. The California Department of Water Resources requires every urban water supplier to prepare and adopt an UWMP, including the WSCP, and periodically update the UWMP at least once every five years, in years ending in six and one.

Information regarding the City's public hearing follows:

Date: Tuesday, June 15, 2021
Time: 6:30 P.M.
Location: Ontario City Hall – Council Chambers, 303 East B Street, Ontario, CA 91764

The City invites all interested entities to attend and present their comments. A copy of the draft documents will be available at https://www.ontarioca.gov/OMUC/Utilities. If you have any questions, please contact Christopher Quach at (909) 395-2695 (cquach@ontarioca.gov) or Courtney Jones at (909) 395-2640 (cjjones@ontarioca.gov). Written comments may be submitted to cquach@ontarioca.gov by 5:30 P.M. on June 8, 2021.

Sincerely,

Scott Burton

Scott Burton, P.E.
Utilities General Manager

CITY OF ONTARIO
303 EAST B STREET | ONTARIO, CALIFORNIA 91764
(909) 395-2000 FAX (909) 395-2070 OntarioCA.gov

May 18, 2021

Mr. Shivaji Deshmukh
General Manager
Inland Empire Utilities Agency
6075 Kimball Avenue
Chino, CA 91708

SUBJECT: Notice of Public Hearing for the 2020 Urban Water Management Plan, Water Shortage Contingency Plan, Addendum to 2015 Urban Water Management Plan

Dear Mr. Deshmukh:

The City of Ontario (City) will hold a public hearing on June 15, 2021 to receive public comments and consider adoption of its Draft 2020 Urban Water Management Plan (UWMP), Draft Water Shortage Contingency Plan (WSCP), and Draft Addendum to the City's 2015 UWMP. The City's 2020 UWMP incorporates the City's WSCP and Addendum of Appendix C to the 2015 UWMP.

The 2020 UWMP and WSCP were prepared pursuant to the "Urban Water Management Planning Act" and the California Water Code. The California Department of Water Resources requires every urban water supplier to prepare and adopt an UWMP, including the WSCP, and periodically update the UWMP at least once every five years, in years ending in six and one.

Information regarding the City's public hearing follows:

Date: Tuesday, June 15, 2021
Time: 6:30 P.M.
Location: Ontario City Hall – Council Chambers, 303 East B Street, Ontario, CA 91764

The City invites all interested entities to attend and present their comments. A copy of the draft documents will be available at https://www.ontarioca.gov/OMUC/Utilities. If you have any questions, please contact Christopher Quach at (909) 395-2695 (cquach@ontarioca.gov) or Courtney Jones at (909) 395-2640 (cjjones@ontarioca.gov). Written comments may be submitted to cquach@ontarioca.gov by 5:30 P.M. on June 8, 2021.

Sincerely,

Scott Burton

Scott Burton, P.E.
Utilities General Manager

CITY OF ONTARIO

303 EAST B STREET | ONTARIO, CALIFORNIA 91764

(909) 395-2000 FAX (909) 395-2070 OntarioCA.gov

May 18, 2021

Mr. Jeffrey Kightlinger
General Manager
Metropolitan Water District
P.O. Box 54153
Los Angeles, CA 90054

SUBJECT: Notice of Public Hearing for the 2020 Urban Water Management Plan, Water Shortage Contingency Plan, Addendum to 2015 Urban Water Management Plan

Dear Mr. Kightlinger:

The City of Ontario (City) will hold a public hearing on June 15, 2021 to receive public comments and consider adoption of its Draft 2020 Urban Water Management Plan (UWMP), Draft Water Shortage Contingency Plan (WSCP), and Draft Addendum to the City's 2015 UWMP. The City's 2020 UWMP incorporates the City's WSCP and Addendum of Appendix C to the 2015 UWMP.

The 2020 UWMP and WSCP were prepared pursuant to the "Urban Water Management Planning Act" and the California Water Code. The California Department of Water Resources requires every urban water supplier to prepare and adopt an UWMP, including the WSCP, and periodically update the UWMP at least once every five years, in years ending in six and one.

Information regarding the City's public hearing follows:

Date: Tuesday, June 15, 2021
Time: 6:30 P.M.
Location: Ontario City Hall – Council Chambers, 303 East B Street, Ontario, CA 91764

The City invites all interested entities to attend and present their comments. A copy of the draft documents will be available at https://www.ontarioca.gov/OMUC/Utilities. If you have any questions, please contact Christopher Quach at (909) 395-2695 (cquach@ontarioca.gov) or Courtney Jones at (909) 395-2640 (cjjones@ontarioca.gov). Written comments may be submitted to cquach@ontarioca.gov by 5:30 P.M. on June 8, 2021.

Sincerely,

Scott Burton

Scott Burton, P.E.
Utilities General Manager

CITY OF ONTARIO
303 EAST B STREET | ONTARIO, CALIFORNIA 91764
(909) 395-2000 FAX (909) 395-2070 OntarioCA.gov

May 18, 2021

Mr. Peter Kavounas
General Manager
Chino Basin Watermaster
9461 San Bernardino Road
Rancho Cucamonga, CA 91730

SUBJECT: Notice of Public Hearing for the 2020 Urban Water Management Plan, Water Shortage Contingency Plan, Addendum to 2015 Urban Water Management Plan

Dear Mr. Kavounas:

The City of Ontario (City) will hold a public hearing on June 15, 2021 to receive public comments and consider adoption of its Draft 2020 Urban Water Management Plan (UWMP), Draft Water Shortage Contingency Plan (WSCP), and Draft Addendum to the City's 2015 UWMP. The City's 2020 UWMP incorporates the City's WSCP and Addendum of Appendix C to the 2015 UWMP.

The 2020 UWMP and WSCP were prepared pursuant to the "Urban Water Management Planning Act" and the California Water Code. The California Department of Water Resources requires every urban water supplier to prepare and adopt an UWMP, including the WSCP, and periodically update the UWMP at least once every five years, in years ending in six and one.

Information regarding the City's public hearing follows:

Date: Tuesday, June 15, 2021
Time: 6:30 P.M.
Location: Ontario City Hall – Council Chambers, 303 East B Street, Ontario, CA 91764

The City invites all interested entities to attend and present their comments. A copy of the draft documents will be available at https://www.ontarioca.gov/OMUC/Utilities. If you have any questions, please contact Christopher Quach at (909) 395-2695 (cquach@ontarioca.gov) or Courtney Jones at (909) 395-2640 (cjjones@ontarioca.gov). Written comments may be submitted to cquach@ontarioca.gov by 5:30 P.M. on June 8, 2021.

Sincerely,

Scott Burton

Scott Burton, P.E.
Utilities General Manager

CITY OF ONTARIO
303 EAST B STREET | ONTARIO, CALIFORNIA 91764
(909) 395-2000 FAX (909) 395-2070 OntarioCA.gov

May 18, 2021

Mr. Matthew Ballantyne
City Manager
City of Chino
13220 Central Avenue
Chino, CA 91710

SUBJECT: Notice of Public Hearing for the 2020 Urban Water Management Plan, Water Shortage Contingency Plan, Addendum to 2015 Urban Water Management Plan

Dear Mr. Ballantyne:

The City of Ontario (City) will hold a public hearing on June 15, 2021 to receive public comments and consider adoption of its Draft 2020 Urban Water Management Plan (UWMP), Draft Water Shortage Contingency Plan (WSCP), and Draft Addendum to the City's 2015 UWMP. The City's 2020 UWMP incorporates the City's WSCP and Addendum of Appendix C to the 2015 UWMP.

The 2020 UWMP and WSCP were prepared pursuant to the "Urban Water Management Planning Act" and the California Water Code. The California Department of Water Resources requires every urban water supplier to prepare and adopt an UWMP, including the WSCP, and periodically update the UWMP at least once every five years, in years ending in six and one.

Information regarding the City's public hearing follows:

Date: Tuesday, June 15, 2021
Time: 6:30 P.M.
Location: Ontario City Hall – Council Chambers, 303 East B Street, Ontario, CA 91764

The City invites all interested entities to attend and present their comments. A copy of the draft documents will be available at https://www.ontarioca.gov/OMUC/Utilities. If you have any questions, please contact Christopher Quach at (909) 395-2695 (cquach@ontarioca.gov) or Courtney Jones at (909) 395-2640 (cjjones@ontarioca.gov). Written comments may be submitted to cquach@ontarioca.gov by 5:30 P.M. on June 8, 2021.

Sincerely,

Scott Burton

Scott Burton, P.E.
Utilities General Manager

CITY OF ONTARIO
303 EAST B STREET | ONTARIO, CALIFORNIA 91764
(909) 395-2000 FAX (909) 395-2070 OntarioCA.gov

May 18, 2021

Mr. Benjamin Montgomery
City Manager
City of Chino Hills
14000 City Center Drive
Chino Hills, CA 91709

SUBJECT: Notice of Public Hearing for the 2020 Urban Water Management Plan, Water Shortage Contingency Plan, Addendum to 2015 Urban Water Management Plan

Dear Mr. Montgomery:

The City of Ontario (City) will hold a public hearing on June 15, 2021 to receive public comments and consider adoption of its Draft 2020 Urban Water Management Plan (UWMP), Draft Water Shortage Contingency Plan (WSCP), and Draft Addendum to the City's 2015 UWMP. The City's 2020 UWMP incorporates the City's WSCP and Addendum of Appendix C to the 2015 UWMP.

The 2020 UWMP and WSCP were prepared pursuant to the "Urban Water Management Planning Act" and the California Water Code. The California Department of Water Resources requires every urban water supplier to prepare and adopt an UWMP, including the WSCP, and periodically update the UWMP at least once every five years, in years ending in six and one.

Information regarding the City's public hearing follows:

Date: Tuesday, June 15, 2021
Time: 6:30 P.M.
Location: Ontario City Hall – Council Chambers, 303 East B Street, Ontario, CA 91764

The City invites all interested entities to attend and present their comments. A copy of the draft documents will be available at https://www.ontarioca.gov/OMUC/Utilities. If you have any questions, please contact Christopher Quach at (909) 395-2695 (cquach@ontarioca.gov) or Courtney Jones at (909) 395-2640 (cjjones@ontarioca.gov). Written comments may be submitted to cquach@ontarioca.gov by 5:30 P.M. on June 8, 2021.

Sincerely,

Scott Burton

Scott Burton, P.E.
Utilities General Manager

CITY OF ONTARIO

303 EAST B STREET | ONTARIO, CALIFORNIA 91764

(909) 395-2000 FAX (909) 395-2070 OntarioCA.gov

May 18, 2021

Mr. Mark Denny
City Manager
City of Fontana
8353 Sierra Avenue
Fontana, CA 92335

SUBJECT: Notice of Public Hearing for the 2020 Urban Water Management Plan, Water Shortage Contingency Plan, Addendum to 2015 Urban Water Management Plan

Dear Mr. Denny:

The City of Ontario (City) will hold a public hearing on June 15, 2021 to receive public comments and consider adoption of its Draft 2020 Urban Water Management Plan (UWMP), Draft Water Shortage Contingency Plan (WSCP), and Draft Addendum to the City's 2015 UWMP. The City's 2020 UWMP incorporates the City's WSCP and Addendum of Appendix C to the 2015 UWMP.

The 2020 UWMP and WSCP were prepared pursuant to the "Urban Water Management Planning Act" and the California Water Code. The California Department of Water Resources requires every urban water supplier to prepare and adopt an UWMP, including the WSCP, and periodically update the UWMP at least once every five years, in years ending in six and one.

Information regarding the City's public hearing follows:

Date: Tuesday, June 15, 2021
Time: 6:30 P.M.
Location: Ontario City Hall – Council Chambers, 303 East B Street, Ontario, CA 91764

The City invites all interested entities to attend and present their comments. A copy of the draft documents will be available at https://www.ontarioca.gov/OMUC/Utilities. If you have any questions, please contact Christopher Quach at (909) 395-2695 (cquach@ontarioca.gov) or Courtney Jones at (909) 395-2640 (cjjones@ontarioca.gov). Written comments may be submitted to cquach@ontarioca.gov by 5:30 P.M. on June 8, 2021.

Sincerely,

Scott Burton

Scott Burton, P.E.
Utilities General Manager

CITY OF ONTARIO
303 EAST B STREET | ONTARIO, CALIFORNIA 91764
(909) 395-2000 FAX (909) 395-2070 OntarioCA.gov

May 18, 2021

Mr. Edward C. Starr
City Manager
City of Montclair
5111 Benito Street
Montclair, CA 91763

SUBJECT: Notice of Public Hearing for the 2020 Urban Water Management Plan, Water Shortage Contingency Plan, Addendum to 2015 Urban Water Management Plan

Dear Mr. Starr:

The City of Ontario (City) will hold a public hearing on June 15, 2021 to receive public comments and consider adoption of its Draft 2020 Urban Water Management Plan (UWMP), Draft Water Shortage Contingency Plan (WSCP), and Draft Addendum to the City's 2015 UWMP. The City's 2020 UWMP incorporates the City's WSCP and Addendum of Appendix C to the 2015 UWMP.

The 2020 UWMP and WSCP were prepared pursuant to the "Urban Water Management Planning Act" and the California Water Code. The California Department of Water Resources requires every urban water supplier to prepare and adopt an UWMP, including the WSCP, and periodically update the UWMP at least once every five years, in years ending in six and one.

Information regarding the City's public hearing follows:

Date: Tuesday, June 15, 2021
Time: 6:30 P.M.
Location: Ontario City Hall – Council Chambers, 303 East B Street, Ontario, CA 91764

The City invites all interested entities to attend and present their comments. A copy of the draft documents will be available at https://www.ontarioca.gov/OMUC/Utilities. If you have any questions, please contact Christopher Quach at (909) 395-2695 (cquach@ontarioca.gov) or Courtney Jones at (909) 395-2640 (cjjones@ontarioca.gov). Written comments may be submitted to cquach@ontarioca.gov by 5:30 P.M. on June 8, 2021.

Sincerely,

Scott Burton

Scott Burton, P.E.
Utilities General Manager

CITY OF ONTARIO
303 EAST B STREET | ONTARIO, CALIFORNIA 91764
(909) 395-2000 FAX (909) 395-2070 OntarioCA.gov

May 18, 2021

Mr. James Makshanoff
City Manager
City of Pomona
505 South Garey Avenue
Pomona, CA 91766

SUBJECT: Notice of Public Hearing for the 2020 Urban Water Management Plan, Water Shortage Contingency Plan, Addendum to 2015 Urban Water Management Plan

Dear Mr. Makshanoff:

The City of Ontario (City) will hold a public hearing on June 15, 2021 to receive public comments and consider adoption of its Draft 2020 Urban Water Management Plan (UWMP), Draft Water Shortage Contingency Plan (WSCP), and Draft Addendum to the City's 2015 UWMP. The City's 2020 UWMP incorporates the City's WSCP and Addendum of Appendix C to the 2015 UWMP.

The 2020 UWMP and WSCP were prepared pursuant to the "Urban Water Management Planning Act" and the California Water Code. The California Department of Water Resources requires every urban water supplier to prepare and adopt an UWMP, including the WSCP, and periodically update the UWMP at least once every five years, in years ending in six and one.

Information regarding the City's public hearing follows:

Date: Tuesday, June 15, 2021
Time: 6:30 P.M.
Location: Ontario City Hall – Council Chambers, 303 East B Street, Ontario, CA 91764

The City invites all interested entities to attend and present their comments. A copy of the draft documents will be available at https://www.ontarioca.gov/OMUC/Utilities. If you have any questions, please contact Christopher Quach at (909) 395-2695 (cquach@ontarioca.gov) or Courtney Jones at (909) 395-2640 (cjjones@ontarioca.gov). Written comments may be submitted to cquach@ontarioca.gov by 5:30 P.M. on June 8, 2021.

Sincerely,

Scott Burton

Scott Burton, P.E.
Utilities General Manager

CITY OF ONTARIO
303 EAST B STREET | ONTARIO, CALIFORNIA 91764
(909) 395-2000 FAX (909) 395-2070 OntarioCA.gov

May 18, 2021

Mr. John Gillison
City Manager
City of Rancho Cucamonga
10500 Civic Center Drive
Rancho Cucamonga, CA 91730

SUBJECT: Notice of Public Hearing for the 2020 Urban Water Management Plan, Water Shortage Contingency Plan, Addendum to 2015 Urban Water Management Plan

Dear Mr. Gillison:

The City of Ontario (City) will hold a public hearing on June 15, 2021 to receive public comments and consider adoption of its Draft 2020 Urban Water Management Plan (UWMP), Draft Water Shortage Contingency Plan (WSCP), and Draft Addendum to the City's 2015 UWMP. The City's 2020 UWMP incorporates the City's WSCP and Addendum of Appendix C to the 2015 UWMP.

The 2020 UWMP and WSCP were prepared pursuant to the "Urban Water Management Planning Act" and the California Water Code. The California Department of Water Resources requires every urban water supplier to prepare and adopt an UWMP, including the WSCP, and periodically update the UWMP at least once every five years, in years ending in six and one.

Information regarding the City's public hearing follows:

Date: Tuesday, June 15, 2021
Time: 6:30 P.M.
Location: Ontario City Hall – Council Chambers, 303 East B Street, Ontario, CA 91764

The City invites all interested entities to attend and present their comments. A copy of the draft documents will be available at https://www.ontarioca.gov/OMUC/Utilities. If you have any questions, please contact Christopher Quach at (909) 395-2695 (cquach@ontarioca.gov) or Courtney Jones at (909) 395-2640 (cjjones@ontarioca.gov). Written comments may be submitted to cquach@ontarioca.gov by 5:30 P.M. on June 8, 2021.

Sincerely,

Scott Burton

Scott Burton, P.E.
Utilities General Manager

CITY OF ONTARIO
303 EAST B STREET | ONTARIO, CALIFORNIA 91764
(909) 395-2000 FAX (909) 395-2070 OntarioCA.gov

May 18, 2021

Ms. Rosemary Hoerning
City Manager
City of Upland
460 North Euclid Avenue
Upland, CA 91786

SUBJECT: Notice of Public Hearing for the 2020 Urban Water Management Plan, Water Shortage Contingency Plan, Addendum to 2015 Urban Water Management Plan

Dear Ms. Hoerning:

The City of Ontario (City) will hold a public hearing on June 15, 2021 to receive public comments and consider adoption of its Draft 2020 Urban Water Management Plan (UWMP), Draft Water Shortage Contingency Plan (WSCP), and Draft Addendum to the City's 2015 UWMP. The City's 2020 UWMP incorporates the City's WSCP and Addendum of Appendix C to the 2015 UWMP.

The 2020 UWMP and WSCP were prepared pursuant to the "Urban Water Management Planning Act" and the California Water Code. The California Department of Water Resources requires every urban water supplier to prepare and adopt an UWMP, including the WSCP, and periodically update the UWMP at least once every five years, in years ending in six and one.

Information regarding the City's public hearing follows:

Date: Tuesday, June 15, 2021
Time: 6:30 P.M.
Location: Ontario City Hall – Council Chambers, 303 East B Street, Ontario, CA 91764

The City invites all interested entities to attend and present their comments. A copy of the draft documents will be available at https://www.ontarioca.gov/OMUC/Utilities. If you have any questions, please contact Christopher Quach at (909) 395-2695 (cquach@ontarioca.gov) or Courtney Jones at (909) 395-2640 (cjjones@ontarioca.gov). Written comments may be submitted to cquach@ontarioca.gov by 5:30 P.M. on June 8, 2021.

Sincerely,

Scott Burton

Scott Burton, P.E.
Utilities General Manager

CITY OF ONTARIO

303 EAST B STREET | ONTARIO, CALIFORNIA 91764

(909) 395-2000 FAX (909) 395-2070 OntarioCA.gov

May 18, 2021

Mr. Justin Scott-Coe
General Manager
Monte Vista Water District
10575 Central Avenue
Montclair, CA 91763

SUBJECT: Notice of Public Hearing for the 2020 Urban Water Management Plan, Water Shortage Contingency Plan, Addendum to 2015 Urban Water Management Plan

Dear Mr. Scott-Coe:

The City of Ontario (City) will hold a public hearing on June 15, 2021 to receive public comments and consider adoption of its Draft 2020 Urban Water Management Plan (UWMP), Draft Water Shortage Contingency Plan (WSCP), and Draft Addendum to the City's 2015 UWMP. The City's 2020 UWMP incorporates the City's WSCP and Addendum of Appendix C to the 2015 UWMP.

The 2020 UWMP and WSCP were prepared pursuant to the "Urban Water Management Planning Act" and the California Water Code. The California Department of Water Resources requires every urban water supplier to prepare and adopt an UWMP, including the WSCP, and periodically update the UWMP at least once every five years, in years ending in six and one.

Information regarding the City's public hearing follows:

Date: Tuesday, June 15, 2021
Time: 6:30 P.M.
Location: Ontario City Hall – Council Chambers, 303 East B Street, Ontario, CA 91764

The City invites all interested entities to attend and present their comments. A copy of the draft documents will be available at https://www.ontarioca.gov/OMUC/Utilities. If you have any questions, please contact Christopher Quach at (909) 395-2695 (cquach@ontarioca.gov) or Courtney Jones at (909) 395-2640 (cjjones@ontarioca.gov). Written comments may be submitted to cquach@ontarioca.gov by 5:30 P.M. on June 8, 2021.

Sincerely,

Scott Burton

Scott Burton, P.E.
Utilities General Manager

CITY OF ONTARIO
303 EAST B STREET | ONTARIO, CALIFORNIA 91764
(909) 395-2000 FAX (909) 395-2070 OntarioCA.gov

May 18, 2021

Mr. Josh Swift
General Manager
Fontana Water Company
15966 Arrow Route
Fontana, CA 92335

SUBJECT: Notice of Public Hearing for the 2020 Urban Water Management Plan, Water Shortage Contingency Plan, Addendum to 2015 Urban Water Management Plan

Dear Mr. Swift:

The City of Ontario (City) will hold a public hearing on June 15, 2021 to receive public comments and consider adoption of its Draft 2020 Urban Water Management Plan (UWMP), Draft Water Shortage Contingency Plan (WSCP), and Draft Addendum to the City's 2015 UWMP. The City's 2020 UWMP incorporates the City's WSCP and Addendum of Appendix C to the 2015 UWMP.

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Sincerely,

Scott Burton

Scott Burton, P.E.
Utilities General Manager

CITY OF ONTARIO
303 EAST B STREET | ONTARIO, CALIFORNIA 91764
(909) 395-2000 FAX (909) 395-2070 OntarioCA.gov

May 18, 2021

Mr. Chris Berch
General Manager
Jurupa Community Services District
11201 Harrel Street
Jurupa Valley, CA 91752

SUBJECT: Notice of Public Hearing for the 2020 Urban Water Management Plan, Water Shortage Contingency Plan, Addendum to 2015 Urban Water Management Plan

Dear Mr. Berch:

The City of Ontario (City) will hold a public hearing on June 15, 2021 to receive public comments and consider adoption of its Draft 2020 Urban Water Management Plan (UWMP), Draft Water Shortage Contingency Plan (WSCP), and Draft Addendum to the City's 2015 UWMP. The City's 2020 UWMP incorporates the City's WSCP and Addendum of Appendix C to the 2015 UWMP.

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Sincerely,

Scott Burton

Scott Burton, P.E.
Utilities General Manager

CITY OF ONTARIO
303 EAST B STREET | ONTARIO, CALIFORNIA 91764
(909) 395-2000 FAX (909) 395-2070 OntarioCA.gov

May 18, 2021

Mr. Brian Lee
General Manager
San Antonio Water Company
139 North Euclid Avenue
Upland, CA 91786

SUBJECT: Notice of Public Hearing for the 2020 Urban Water Management Plan, Water Shortage Contingency Plan, Addendum to 2015 Urban Water Management Plan

Dear Mr. Lee:

The City of Ontario (City) will hold a public hearing on June 15, 2021 to receive public comments and consider adoption of its Draft 2020 Urban Water Management Plan (UWMP), Draft Water Shortage Contingency Plan (WSCP), and Draft Addendum to the City's 2015 UWMP. The City's 2020 UWMP incorporates the City's WSCP and Addendum of Appendix C to the 2015 UWMP.

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Time: 6:30 P.M.
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Sincerely,

Scott Burton

Scott Burton, P.E.
Utilities General Manager

CITY OF ONTARIO

303 EAST B STREET | ONTARIO, CALIFORNIA 91764

(909) 395-2000 FAX (909) 395-2070 OntarioCA.gov

May 18, 2021

Mr. Rich Haller
General Manager
Santa Ana Watershed Project Authority
11615 Sterling Avenue
Riverside, CA 92503

SUBJECT: Notice of Public Hearing for the 2020 Urban Water Management Plan, Water Shortage Contingency Plan, Addendum to 2015 Urban Water Management Plan

Dear Mr. Haller:

The City of Ontario (City) will hold a public hearing on June 15, 2021 to receive public comments and consider adoption of its Draft 2020 Urban Water Management Plan (UWMP), Draft Water Shortage Contingency Plan (WSCP), and Draft Addendum to the City's 2015 UWMP. The City's 2020 UWMP incorporates the City's WSCP and Addendum of Appendix C to the 2015 UWMP.

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Time: 6:30 P.M.
Location: Ontario City Hall – Council Chambers, 303 East B Street, Ontario, CA 91764

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Sincerely,

Scott Burton

Scott Burton, P.E.
Utilities General Manager

CITY OF ONTARIO

303 EAST B STREET | ONTARIO, CALIFORNIA 91764

(909) 395-2000 FAX (909) 395-2070 OntarioCA.gov

May 18, 2021

Mr. Leonard Hernandez
Chief Executive Officer
County of San Bernardino
385 N. Arrowhead Avenue
San Bernardino, CA 92415

SUBJECT: Notice of Public Hearing for the 2020 Urban Water Management Plan, Water Shortage Contingency Plan, Addendum to 2015 Urban Water Management Plan

Dear Mr. Hernandez:

The City of Ontario (City) will hold a public hearing on June 15, 2021 to receive public comments and consider adoption of its Draft 2020 Urban Water Management Plan (UWMP), Draft Water Shortage Contingency Plan (WSCP), and Draft Addendum to the City's 2015 UWMP. The City's 2020 UWMP incorporates the City's WSCP and Addendum of Appendix C to the 2015 UWMP.

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Sincerely,

Scott Burton

Scott Burton, P.E.
Utilities General Manager

CITY OF ONTARIO

303 EAST B STREET | ONTARIO, CALIFORNIA 91764

(909) 395-2000 FAX (909) 395-2070 OntarioCA.gov

May 18, 2021

Mr. John Bosler
General Manager
Cucamonga Valley Water District
10440 Ashford Street
Rancho Cucamonga, CA 91730

SUBJECT: Notice of Public Hearing for the 2020 Urban Water Management Plan, Water Shortage Contingency Plan, Addendum to 2015 Urban Water Management Plan

Dear Mr. Bosler:

The City of Ontario (City) will hold a public hearing on June 15, 2021 to receive public comments and consider adoption of its Draft 2020 Urban Water Management Plan (UWMP), Draft Water Shortage Contingency Plan (WSCP), and Draft Addendum to the City's 2015 UWMP. The City's 2020 UWMP incorporates the City's WSCP and Addendum of Appendix C to the 2015 UWMP.

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Sincerely,

Scott Burton

Scott Burton, P.E.
Utilities General Manager

APPENDIX E

CITY OF ONTARIO'S 2020 WATER MASTER PLAN

2-5.1 Existing Land Use

The City is a well planned urban community with a balance of residential, commercial, and industrial land uses. The City's land use GIS shapefile from May 2017 was considered current and has been used for reporting purposes. Within the service area, the residential land uses are 5,973 acres or 19 percent of the total. Industrial uses are 5,235 acres or 17 percent of the total. Approximately 6,741 acres or 22 percent of the total service area is Agricultural Multi-Use which primarily resides in the Ontario Ranch area. Table 2-1 provides a summary of the existing land uses. Figure 2-4 shows the locations of the land uses.

The total number of housing units in the City is estimated at 51,283. With a population of 182,871 and a 3.7 percent vacancy rate, the average number of persons per household is estimated at 3.69 (Ref: *California Department of Finance, Demographic Research Unit, Table E-5, 2020*).

Table 2-1

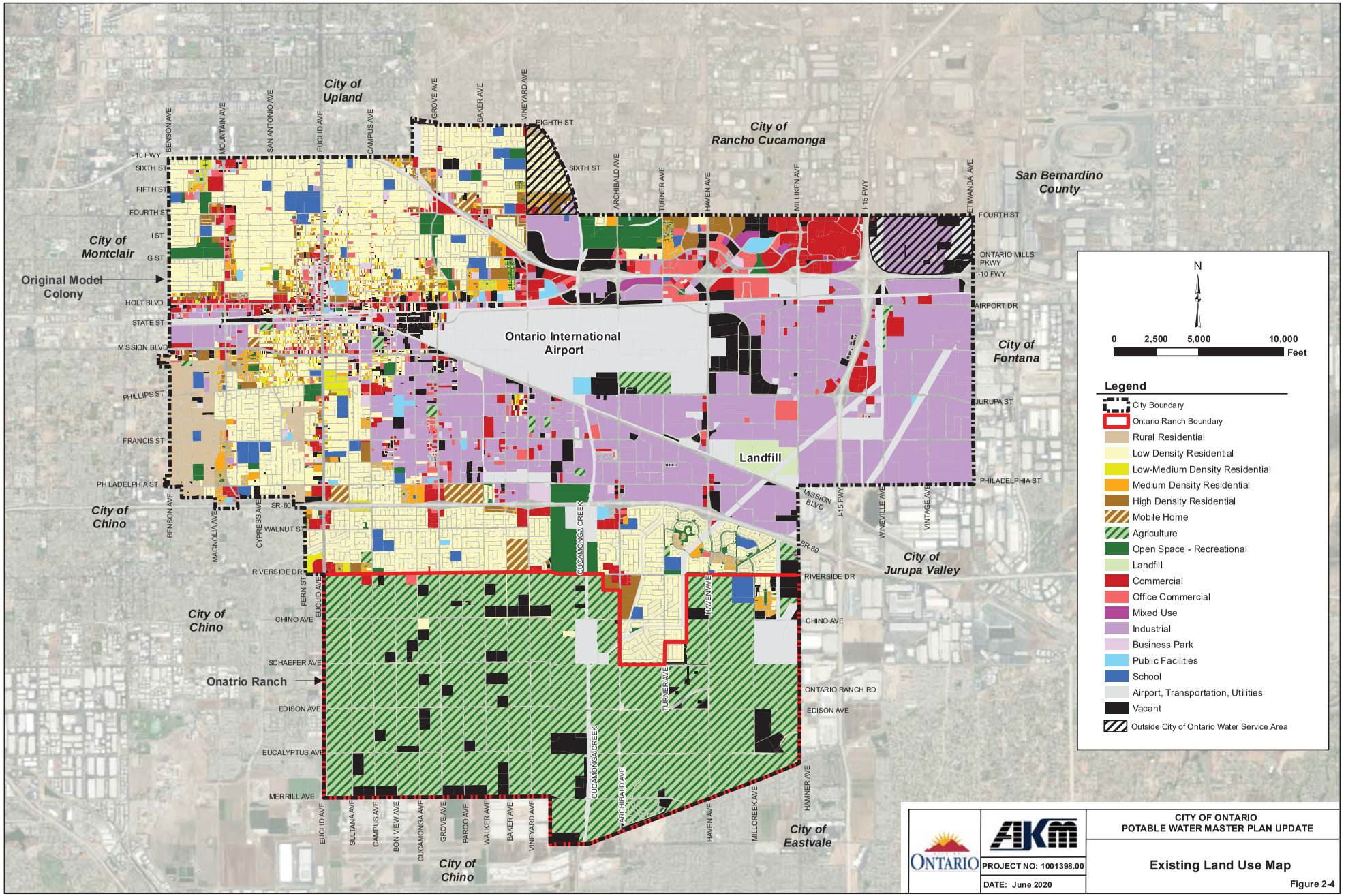
Existing Study Area Land Uses

	Service Area				Outside Service Area		Total City	
Landuse Description	OMC[1] (Ac)	OR[2] (Ac)	Total (Ac)	% of Total	Total (Ac)	% of Total	Total (Ac)	% of Total
Low Density Residential	4,300	54.6	4,355	14.0%	114.2	14.7%	4,469	14.1%
Low-Medium Density Residential	180	0.0	180	0.6%	0.0	0.0%	180	0.6%
Medium Density Residential	364	0.0	364	1.2%	9.7	1.3%	374	1.2%
High Density Residential	446	0.0	446	1.4%	0.0	0.0%	446	1.4%
Rural Residential	449	0.0	449	1.4%	0.0	0.0%	449	1.4%
Mobile Home	174	0.0	174	0.6%	27.3	3.5%	202	0.6%
Group Quarters	1	0.0	1	0.0%	0.0	0.0%	1	0.0%
Other Residential	3	0.0	3	0.0%	0.0	0.0%	3	0.0%
Total Residential	**5,919**	**54.6**	**5,973**	**19.3%**	**151.2**	**19.5%**	**6,124**	**19.3%**
Commercial	1,185	8.7	1,194	3.9%	118.8	15.3%	1,313	3.8%
Business Park	33	0.0	33	0.1%	4.5	0.6%	38	0.1%
Office	436	0.0	436	1.4%	0.9	0.1%	437	1.4%
Admin./Prof.	140	0.0	140	0.5%	2.5	0.3%	143	0.4%
Misc. Service Org.	71	8.8	80	0.3%	0.0	0.0%	80	0.3%
Total Commercial	**1,866**	**17.5**	**1,883**	**6.1%**	**126.7**	**16.3%**	**2,010**	**6.0%**
Industrial	1,795	0.0	1,795	5.8%	46.4	6.0%	1,842	5.8%
Industrial_Meredith	135	0.0	135	0.4%	0.0	0.0%	135	0.4%
Manufacturing	1,646	0.0	1,646	5.3%	67.2	8.7%	1,714	5.4%
Warehousing	1,658	0.0	1,658	5.3%	149.4	19.3%	1,807	5.7%
Total Industrial	**5,235**	**0.0**	**5,235**	**16.9%**	**263.0**	**33.9%**	**5,498**	**17.3%**
Mixed Use	75	0.0	75	0.2%	0.0	0.0%	75	0.2%
School	497	0.0	497	1.6%	0.0	0.0%	497	1.6%
Public Facilities	165	0.0	165	0.5%	0.0	0.0%	165	0.5%
Transp/Utilities	1,164	335.4	1,499	4.8%	118.8	15.3%	1,618	5.1%
Transp/Utilities/Airport	1,483	0.0	1,483	4.8%	0.0	0.0%	1,483	4.7%
Parks/Rec/Cultural	754	0.0	754	2.4%	0.9	0.1%	754	2.4%
Street/Parking	241	0.0	241	0.8%	23.5	3.0%	264	0.8%
Ag. Multi-Use	184	6,556.4	6,741	21.7%	0.8	0.1%	6,742	21.2%
Landfill	137	0.0	137	0.4%	0.0	0.0%	137	0.4%
Vacant	1,031	661.3	1,692	5.5%	0.0	0.0%	1,692	5.5%
Right-of-Way[3]	4,310	324.2	4,634	14.9%	90.0	11.6%	4,724	15.0%
Total Other	**10,040**	**7,877**	**17,918**	**57.8%**	**234.0**	**30.2%**	**18,152**	**57.4%**
Grand Total	**23,059**	**7,949**	**31,009**	**100%**	**775**	**100%**	**31,784**	**100%**

[1] *OMC refers to Original Model Colony*

[2] *OR refers to Ontario Ranch*

[3] *Right-of-Way acreage estimated by subtracting totalparcel areas from the City and Service Area Boundaries*



ONTARIO

AKM

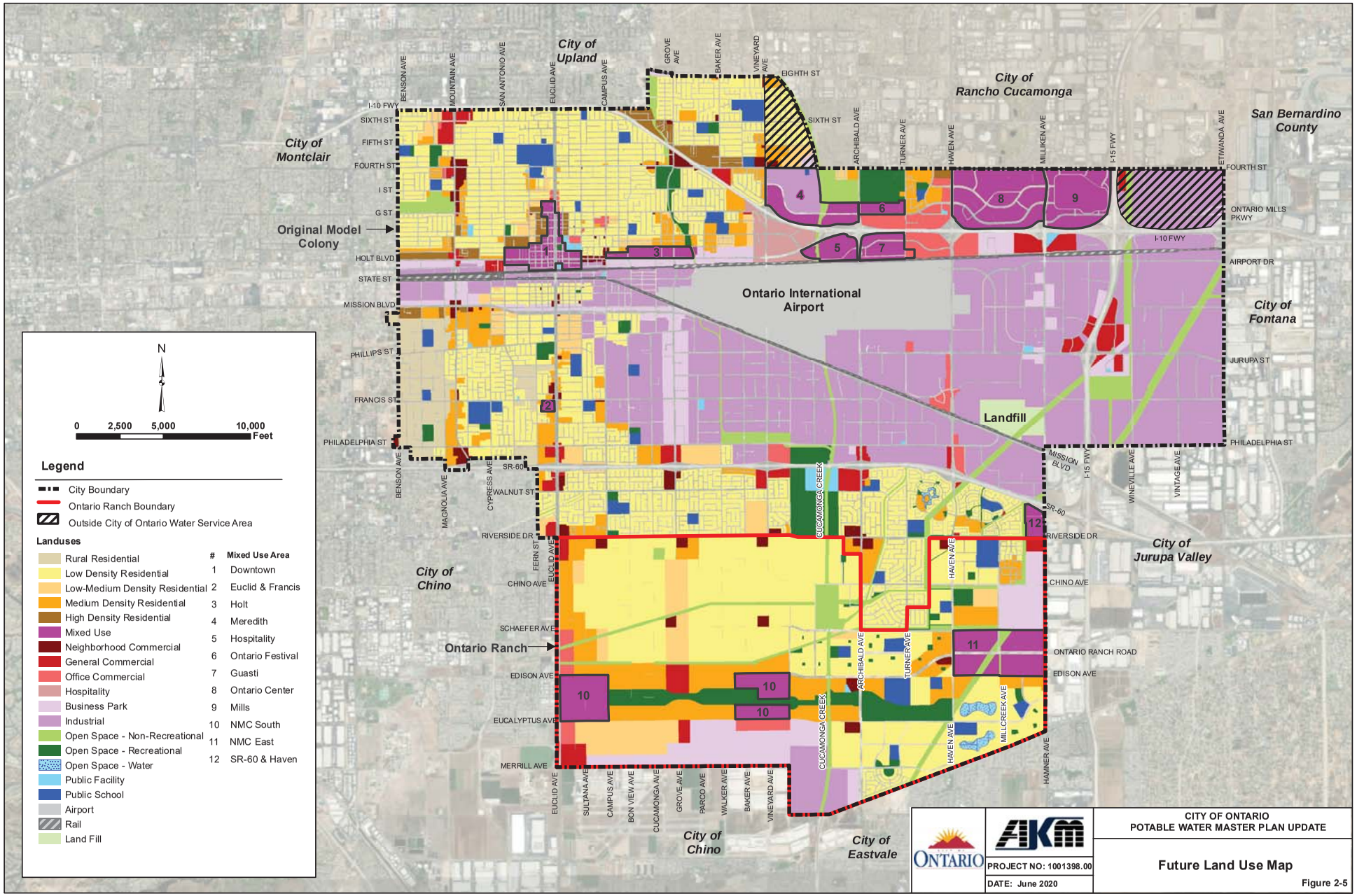
CITY OF ONTARIO
POTABLE WATER MASTER PLAN UPDATE

PROJECT NO: 1001398.00

DATE: June 2020

Existing Land Use Map

Figure 2-4



CITY OF ONTARIO
POTABLE WATER MASTER PLAN UPDATE

Future Land Use Map

PROJECT NO: 1001398.00

DATE: June 2020

Figure 2-5

Table 2-2

Future Study Area Land Uses[1]

Land Use Category	Acres	% of Total Area	Density (du/ac)	Intensity (FAR)	Units	Population	Square Feet (Office)	Square Feet (Non-Office)	Total Square Feet	Jobs (Office)	Jobs (Non-Office)	Total Jobs
Residential												
Rural Res	458.3	1.4	2.0		917	3,663						
LDR (OMC)[2]	4,243.3	13.4	4.0		16,973	67,842						
LDR (OR)[3]	3,126.6	9.8	5.0		15,633	62,486						
LMDR (OMC)[2]	336.7	1.1	8.5		2,862	11,438						
LMDR (OR)[3]	573.8	1.8	11.0		6,311	25,227						
MDR (OMC)[2]	882.3	2.8	18.0		15,881	60,621						
MDR (OR)[3]	1,014.0	3.2	25.0		25,350	83,096						
HDR (OMC)[2]	233.7	0.7	35.0		8,178	27,373						
Subtotal	***10,868.6***	***34.2***			***92,105***	***341,746***						
Mixed Use												
Downtown	112.0	0.4	35.0		2,352	4,704	780,665	780,665	1,561,330	2,233	561	2,793
East Holt	57.1	0.2	30.0		428	856	1,243,202	497,281	1,740,483	3,556	357	3,913
Euclid & Francis	10.4	0.0	30.0		156	312	0	181,210	181,210	0	419	419
Guasti	77.4	0.2	30.0		465	929	1,180,650	1,011,986	2,192,636	3,377	727	4,103
Inland Empire	36.8	0.1	20.0		368	736	240,451	112,211	352,662	688	81	768
Meredith	93.0	0.3	37.4		800	1,600	340,291	832,497	1,172,788	973	489	1,462
Multi-Modal	76.1	0.2	60.0		457	913	1,491,712	1,491,712	2,983,424	4,266	1,071	5,337
NMC east	263.7	0.8	25.0		1,978	3,956	1,206,111	1,378,413	2,584,524	3,449	990	4,439
NMC west/south	315.3	1.0	35.0		3,311	6,621	5,768,477	961,413	6,729,889	16,498	690	17,188
Ontario Center (E. of Haven)	344.9	1.1	40.0		4,139	8,278	7,511,922	1,502,384	9,014,306	21,484	1,079	22,563
Ontario Mills	239.5	0.8	40.0		479	958	1,564,893	3,912,233	5,477,126	4,476	2,809	7,285
SR60 & Hamner	41.0	0.1	25.0		185	369	669,735	254,499	924,234	1,915	183	2,098
Subtotal	***1,667.2***	***5.2***			***15,116***	***30,232***	***21,998,109***	***12,916,503***	***34,914,612***	***62,915***	***9,454***	***72,368***
Retail/Service												
Neighborhood Commercial	244.5	0.8		0.30			639,104	2,556,414	3,195,518	1,546	6,186	7,732
General Commercial	614.9	1.9		0.30			803,564	7,232,080	8,035,644	747	6,719	7,465
Office Commercial	527.3	1.7		0.75			12,059,052	5,168,166	17,227,218	26,743	11,461	38,204
Hospitality	144.9	0.5		1.00			1,262,543	5,050,172	6,312,715	1,447	5,790	7,237
Subtotal	***1,531.7***	***4.8***					***14,764,263***	***20,006,832***	***34,771,095***	***30,483***	***30,155***	***60,638***
Employment												
Business Park	1,594.9	5.0		0.40			13,894,333	13,894,333	27,788,666	24,377	24,377	48,755
Industrial	6,223.4	19.6		0.55			14,909,926	134,189,333	149,099,259	13,100	117,902	131,002
Subtotal	***7,818.2***	***24.6***					***28,804,259***	***148,083,666***	***176,887,925***	***37,477***	***142,279***	***179,756***
Other												
Open Space - Non Recreational	1,221.0	3.8										
Open Space - Parkland	950.1	3.0										
Open Space - Water	59.2	0.2										
Public Facility	96.6	0.3										
Public School	631.9	2.0										
Airport	1,671.9	5.3										
Landfill	136.9	0.4										
Rail	250.7	0.8										
Right-of-Way	4,880.0	15.4										
Subtotal	***9,898.2***	***31.1***										
Total	***31,783.9***	***100.0***			***107,221***	***371,979***	***65,566,631***	***181,007,001***	***246,573,632***	***130,875***	***181,888***	***312,763***

[1] *Landuses from City Buildout Table (April 2015)*

[2] *OMC refers to Original Model Colony. Density (du/ac) per the City Buildout Table (April 2015)*

[3] *OR refers to Ontario Ranch. Density (du/ac) is considered maximum per City Planning Department (January 2016)*

Table 4-8

Potable Water Unit Demand Factors

Landuse		Max Density (du/ac)[1]	Density (people/ du)[2]	Domestic Water Unit Demand Factors[3]			
				gpd	unit	gpd/ac	gpd/du
Residential							
Rural Residential	RR	2	3.997	172	gpd/person	1,375	687
Low Density Residential (w/o RW)	LDR	4	3.997	123	gpd/person	1,970	492
Low Density Residential (w/ RW)	LDR	5	3.997	95	gpd/person	1,900	380
Low Medium Density Residential (w/o RW)	LMDR	8.5	3.997	105	gpd/person	3,570	420
Low Medium Density Residential (w/ RW)	LMDR	11	3.997	90	gpd/person	3,960	360
Medium Density Residential (w/o RW)	MDR	18	3.347	90	gpd/person	5,420	301
Medium Density Residential (w/ RW)	MDR	25	3.347	80	gpd/person	6,690	268
High Density Residential (w/o RW)	HDR	35	3.347	70	gpd/person	8,200	234
High Density Residential (w/ RW)	HDR	40	3.347	60	gpd/person	8,030	201
Commercial							
Business Park (w/o RW)	BP			103	gpd/job	3,140	
Business Park (w/ RW)	BP	-	-	59	gpd/job	1,800	-
General Commercial (w/o RW)	GC			258	gpd/job	3,140	
General Commercial (w/ RW)	GC	-	-	148	gpd/job	1,800	-
Hospitality[4] (w/o RW)	HOS			155	gpd/room	5,980	
Hospitality[4] (w/ RW)	HOS	-	-	130	gpd/room	5,000	-
Neighborhood Commercial (w/o RW)	NC			99	gpd/job	3,140	
Neighborhood Commercial (w/ RW)	NC	-	-	57	gpd/job	1,800	-
Office Commercial (w/o RW)	OC			53	gpd/job	3,840	
Office Commercial (w/ RW)	OC	-	-	35	gpd/job	2,500	-
Industrial							
Industrial (w/o RW)	IND	-	-	110	gpd/job	2,290	-
Industrial (w/ RW)	IND	-	-	67	gpd/job	1,400	-
Mixed Use[5]							
High Density Residential (w/o RW)	MU-HDR	35	2.000	70	gpd/person	4,900	140
High Density Residential (w/ RW)	MU-HDR	40	2.000	60	gpd/person	4,800	120
Office (w/o RW)	MU-O			53	gpd/job	3,840	
Office (w/ RW)	MU-O	-	-	35	gpd/job	2,500	-
Non-Office (w/o RW)	MU-NO			179	gpd/job	2,690	
Non-Office (w/ RW)	MU-NO	-	-	102	gpd/job	1,800	-
Open Space							
Open Space Non-Recreational (w/o RW)	OS-NR					2,340	
Open Space Non-Recreational (w/ RW)	OS-NR	-	-		-	1,000	-
Open Space Recreational (w/o RW)	OS-R					2,340	
Open Space Recreational (w/ RW)	OS-R	-	-		-	1,000	-

Table 4-8 (Continued)

Potable Water Unit Demand Factors

Landuse		Max Density (du/ac)[1]	Density (people/ du)[2]	Domestic Water Unit Demand Factors[3]			
				gpd	unit	gpd/ac	gpd/du
Public							
Public Facility (w/o RW)	PF					3,040	
Public Facility (w/ RW)	PF	-	-		-	1,700	-
Public Middle or High School (w/o RW)	PS	-	-	50	gpd/student	3,500	-
Public Middle or High School (w/RW)	PS	-	-	10	gpd/student	1,800	-
Public Elementary School (w/o RW)	PS	-	-	30	gpd/student	3,500	-
Public Elementary School (w/RW)	PS	-	-	10	gpd/student	1,800	-

[1] *Max Density per the City's 2010 General Plan (The Ontario Plan) for OMC without recycled water. Density for LDR, LMDR, MDR, and HDR with recycled water (Ontario Ranch) were increased per the City Planning Department recommendation (March 2016).*

[2] *Density per the City's 2010 General Plan (The Ontario Plan)*

[3] *Unit Flow Factor Abbreviations:*

ac = acre *du = dwelling unit* *gpd = gallons per day*

room = hotel/motel room *stu = student* *tsf = thousand square feet*

[4] *If possible it is recommended to use 130 - 155 gpd/room on a case by case basis. It is difficult to estimate the number of rooms or square footage per acre.*

[5] *Mixed Use demands should be based on the types of landuse that make up the specific area and the unit demand factors provided above. The City's 2010 General Plan (The Ontario Plan) provides detailed information on the landuses that make up each mixed use area.*

4-7.3 Future Demands

The City of Ontario's Future water system demands utilized in this study are detailed in Table 4-9 by zone. Generally, the ADD were increased with the factors included in Table 4-6 to develop the Maximum Day Demands (MDD), which are summarized by zone in Table 4-7. It should be noted that the MDD model demands for the high water users are based on actual field data collected during the calibration period, and they are not estimated with the MDD peaking factor included in Table 4-6. The MDD total 48,051 AFY (42.9 mgd; 29,790 gpm).

Table 4-9

Future Water demands by Zone

Zone	Average Day Demand				Maximum Day Demand[1]			
	gpm	mgd	AFY	% of Total	gpm	mgd	AFY	% of Total
1348	2,137	3.08	3,446	6.0%	3,398	4.89	5,481	6.2%
1212	11,298	16.27	18,224	31.6%	17,481	25.17	28,196	31.9%
1074	4,103	5.91	6,618	11.5%	6,361	9.16	10,261	11.6%
1010	6,292	9.06	10,149	17.6%	9,706	13.98	15,657	17.7%
925	11,886	17.12	19,172	33.3%	17,831	25.68	28,762	32.6%
Total	**35,716**	**51.43**	**57,610**	**100.0%**	**54,778**	**78.88**	**88,357**	**100.0%**

[1] *MDD for high water users model demands are based on actual field data collected, not MDD peaking factors included in Table 4-6*

APPENDIX F

AWWA WATER LOSS AUDIT REPORTS

AWWA Free Water Audit Software:
Reporting Worksheet

? Click to access definition
\+ Click to add a comment

Water Audit Report for: City of Ontario (3610034)
Reporting Year: 2016 1/2016 - 12/2016

Please enter data in the white cells below. Where available, metered values should be used; if metered values are unavailable please estimate a value. Indicate your confidence in the accuracy of the input data by grading each component (n/a or 1-10) using the drop-down list to the left of the input cell. Hover the mouse over the cell to obtain a description of the grades

All volumes to be entered as: ACRE-FEET PER YEAR

To select the correct data grading for each input, determine the highest grade where the utility meets or exceeds all criteria for that grade and all grades below it.

<---------- Enter grading in column 'E' and 'J' ---------->

Master Meter and Supply Error Adjustments

WATER SUPPLIED

			Pcnt:	Value:	
Volume from own sources:	9	24,262.290 acre-ft/yr		-32.604	acre-ft/yr
Water imported:	5	5,533.790 acre-ft/yr		-5.530	acre-ft/yr
Water exported:	3	41.240 acre-ft/yr			acre-ft/yr

Enter negative % or value for under-registration
Enter positive % or value for over-registration

WATER SUPPLIED: 29,792.974 acre-ft/yr

AUTHORIZED CONSUMPTION

Click here: ? for help using option buttons below

			Pcnt:	Value:	
Billed metered:	8	28,707.000 acre-ft/yr			
Billed unmetered:	n/a	acre-ft/yr			
Unbilled metered:	n/a	acre-ft/yr			
Unbilled unmetered:	9	40.000 acre-ft/yr		40.000	acre-ft/yr

Use buttons to select percentage of water supplied **OR** value

AUTHORIZED CONSUMPTION: 28,747.000 acre-ft/yr

WATER LOSSES (Water Supplied - Authorized Consumption) 1,045.974 acre-ft/yr

Apparent Losses

			Pcnt:	Value:	
Unauthorized consumption:		74.482 acre-ft/yr	0.25%		acre-ft/yr

Default option selected for unauthorized consumption - a grading of 5 is applied but not displayed

Customer metering inaccuracies:	6	48.885 acre-ft/yr	0.17%		acre-ft/yr
Systematic data handling errors:		71.768 acre-ft/yr	0.25%		acre-ft/yr

Default option selected for Systematic data handling errors - a grading of 5 is applied but not displayed

Apparent Losses: 195.135 acre-ft/yr

Real Losses (Current Annual Real Losses or CARL)

Real Losses = Water Losses - Apparent Losses: 850.839 acre-ft/yr

WATER LOSSES: 1,045.974 acre-ft/yr

NON-REVENUE WATER

NON-REVENUE WATER: 1,085.974 acre-ft/yr

= Water Losses + Unbilled Metered + Unbilled Unmetered

SYSTEM DATA

Length of mains:	10	587.1	miles
Number of active AND inactive service connections:	9	34,692	
Service connection density:		59	conn./mile main

Are customer meters typically located at the curbstop or property line? Yes

Average length of customer service line: (length of service line, beyond the property boundary, that is the responsibility of the utility)

Average length of customer service line has been set to zero and a data grading score of 10 has been applied

Average operating pressure:	8	85.0	psi

COST DATA

Total annual cost of operating water system:	10	$62,249,951	$/Year	
Customer retail unit cost (applied to Apparent Losses):	9	$2.72	$/100 cubic feet (ccf)	
Variable production cost (applied to Real Losses):	6	$350.00	$/acre-ft	☐ Use Customer Retail Unit Cost to value real losses

WATER AUDIT DATA VALIDITY SCORE:

***** YOUR SCORE IS: 77 out of 100 *****

A weighted scale for the components of consumption and water loss is included in the calculation of the Water Audit Data Validity Score

PRIORITY AREAS FOR ATTENTION:

Based on the information provided, audit accuracy can be improved by addressing the following components:

1: Customer metering inaccuracies
2: Variable production cost (applied to Real Losses)
3: Water imported

AWWA Free Water Audit Software:
Reporting Worksheet

? Click to access definition
+ Click to add a comment

Water Audit Report for: City of Ontario (3610034)
Reporting Year: 2017 1/2017 - 12/2017

Please enter data in the white cells below. Where available, metered values should be used; if metered values are unavailable please estimate a value. Indicate your confidence in the accuracy of the input data by grading each component (n/a or 1-10) using the drop-down list to the left of the input cell. Hover the mouse over the cell to obtain a description of the grades

All volumes to be entered as: ACRE-FEET PER YEAR

To select the correct data grading for each input, determine the highest grade where the utility meets or exceeds all criteria for that grade and all grades below it.

<---------- Enter grading in column 'E' and 'J' ---------->

Master Meter and Supply Error Adjustments

WATER SUPPLIED				Pcnt:	Value:	
Volume from own sources:	5	25,774.270	acre-ft/yr	8	-14.645	acre-ft/yr
Water imported:	5	6,157.620	acre-ft/yr	8	-10.610	acre-ft/yr
Water exported:	n/a		acre-ft/yr			acre-ft/yr
WATER SUPPLIED:		**31,957.145**	acre-ft/yr			

Enter negative % or value for under-registration
Enter positive % or value for over-registration

AUTHORIZED CONSUMPTION				Pcnt:	Value:	
Billed metered:	9	30,312.790	acre-ft/yr			
Billed unmetered:	n/a		acre-ft/yr			
Unbilled metered:	n/a		acre-ft/yr			
Unbilled unmetered:	9	40.000	acre-ft/yr		40.000	acre-ft/yr
AUTHORIZED CONSUMPTION:		**30,352.790**	acre-ft/yr			

Click here: ? for help using option buttons below

Use buttons to select percentage of water supplied **OR** value

WATER LOSSES (Water Supplied - Authorized Consumption)				Pcnt:	Value:	
		1,604.355	acre-ft/yr			
Apparent Losses						
Unauthorized consumption:		79.893	acre-ft/yr	0.25%		acre-ft/yr

Default option selected for unauthorized consumption - a grading of 5 is applied but not displayed

Customer metering inaccuracies:	7	241.378	acre-ft/yr	0.79%	acre-ft/yr
Systematic data handling errors:		75.782	acre-ft/yr	0.25%	acre-ft/yr

Default option selected for Systematic data handling errors - a grading of 5 is applied but not displayed

Apparent Losses:		**397.053**	acre-ft/yr
Real Losses (Current Annual Real Losses or CARL)			
Real Losses = Water Losses - Apparent Losses:		**1,207.302**	acre-ft/yr
WATER LOSSES:		**1,604.355**	acre-ft/yr

NON-REVENUE WATER

NON-REVENUE WATER:		**1,644.355**	acre-ft/yr

= Water Losses + Unbilled Metered + Unbilled Unmetered

SYSTEM DATA

Length of mains:	10	591.5	miles
Number of active AND inactive service connections:	10	35,306	
Service connection density:		60	conn./mile main
Are customer meters typically located at the curbstop or property line?		Yes	
Average length of customer service line:			

(length of service line, beyond the property boundary, that is the responsibility of the utility)

Average length of customer service line has been set to zero and a data grading score of 10 has been applied

Average operating pressure:	6	85.0	psi

COST DATA

Total annual cost of operating water system:	10	$64,338,052	$/Year	
Customer retail unit cost (applied to Apparent Losses):	9	$2.84	$/100 cubic feet (ccf)	
Variable production cost (applied to Real Losses):	6	$350.00	$/acre-ft	☐ Use Customer Retail Unit Cost to value real losses

WATER AUDIT DATA VALIDITY SCORE:

***** YOUR SCORE IS: 68 out of 100 *****

A weighted scale for the components of consumption and water loss is included in the calculation of the Water Audit Data Validity Score

PRIORITY AREAS FOR ATTENTION:

Based on the information provided, audit accuracy can be improved by addressing the following components:

1: Volume from own sources
2: Variable production cost (applied to Real Losses)
3: Water imported

AWWA Free Water Audit Software:
Reporting Worksheet

WAS v5.0

? Click to access definition
+ Click to add a comment

Water Audit Report for: City of Ontario (3610034)
Reporting Year: 2018 | 1/2018 - 12/2018

Please enter data in the white cells below. Where available, metered values should be used; if metered values are unavailable please estimate a value. Indicate your confidence in the accuracy of the input data by grading each component (n/a or 1-10) using the drop-down list to the left of the input cell. Hover the mouse over the cell to obtain a description of the grades

All volumes to be entered as: ACRE-FEET PER YEAR

To select the correct data grading for each input, determine the highest grade where the utility meets or exceeds all criteria for that grade and all grades below it.

<---------- Enter grading in column 'E' and 'J' ---------->

Master Meter and Supply Error Adjustments

WATER SUPPLIED

					Pcnt:	Value:	
Volume from own sources:	5	22,859.870	acre-ft/yr	8		-27.629	acre-ft/yr
Water imported:	5	10,361.030	acre-ft/yr	8		-2.769	acre-ft/yr
Water exported:	3	69.660	acre-ft/yr	3			acre-ft/yr

Enter negative % or value for under-registration
Enter positive % or value for over-registration

WATER SUPPLIED: 33,181.638 acre-ft/yr

AUTHORIZED CONSUMPTION

Click here: ? for help using option buttons below

				Pcnt:	Value:	
Billed metered:	9	32,182.390	acre-ft/yr			
Billed unmetered:	n/a		acre-ft/yr			
Unbilled metered:	n/a		acre-ft/yr			
Unbilled unmetered:	9	40.000	acre-ft/yr		40.000	acre-ft/yr

Use buttons to select percentage of water supplied **OR** value

AUTHORIZED CONSUMPTION: 32,222.390 acre-ft/yr

WATER LOSSES (Water Supplied - Authorized Consumption) 959.248 acre-ft/yr

Apparent Losses

				Pcnt:	Value:	
Unauthorized consumption:		82.954	acre-ft/yr	0.25%		acre-ft/yr

Default option selected for unauthorized consumption - a grading of 5 is applied but not displayed

Customer metering inaccuracies:	7	116.275	acre-ft/yr	0.36%		acre-ft/yr
Systematic data handling errors:	5	80.456	acre-ft/yr	0.25%		acre-ft/yr

Default option selected for Systematic data handling errors - a grading of 5 is applied but not displayed

Apparent Losses: 279.685 acre-ft/yr

Real Losses (Current Annual Real Losses or CARL)

Real Losses = Water Losses - Apparent Losses: 679.563 acre-ft/yr

WATER LOSSES: 959.248 acre-ft/yr

NON-REVENUE WATER

NON-REVENUE WATER: 999.248 acre-ft/yr

= Water Losses + Unbilled Metered + Unbilled Unmetered

SYSTEM DATA

Length of mains:	10	607.4	miles
Number of active AND inactive service connections:	10	36,444	
Service connection density:		60	conn./mile main

Are customer meters typically located at the curbstop or property line? Yes

Average length of customer service line: (length of service line, beyond the property boundary, that is the responsibility of the utility)

Average length of customer service line has been set to zero and a data grading score of 10 has been applied

Average operating pressure:	6	85.0	psi

COST DATA

Total annual cost of operating water system:	10	$73,953,686	$/Year	
Customer retail unit cost (applied to Apparent Losses):	5	$2.84	$/100 cubic feet (ccf)	
Variable production cost (applied to Real Losses):	5	$339.04	$/acre-ft	☐ Use Customer Retail Unit Cost to value real losses

WATER AUDIT DATA VALIDITY SCORE:

***** YOUR SCORE IS: 64 out of 100 *****

A weighted scale for the components of consumption and water loss is included in the calculation of the Water Audit Data Validity Score

PRIORITY AREAS FOR ATTENTION:

Based on the information provided, audit accuracy can be improved by addressing the following components:

1: Volume from own sources
2: Water imported
3: Customer retail unit cost (applied to Apparent Losses)

AWWA Free Water Audit Software:
Reporting Worksheet

WAS v5.0

? Click to access definition
+ Click to add a comment

Water Audit Report for: City of Ontario (CA3610034)
Reporting Year: 2019 | 1/2019 - 12/2019

Please enter data in the white cells below. Where available, metered values should be used; if metered values are unavailable please estimate a value. Indicate your confidence in the accuracy of the input data by grading each component (n/a or 1-10) using the drop-down list to the left of the input cell. Hover the mouse over the cell to obtain a description of the grades

All volumes to be entered as: ACRE-FEET PER YEAR

To select the correct data grading for each input, determine the highest grade where the utility meets or exceeds all criteria for that grade and all grades below it.

<---------- Enter grading in column 'E' and 'J' ---------->

Master Meter and Supply Error Adjustments

WATER SUPPLIED

					Pcnt:	Value:	
Volume from own sources:	5	18,059.920	acre-ft/yr	8		-45.655	acre-ft/yr
Water imported:	5	13,149.090	acre-ft/yr	8		9.098	acre-ft/yr
Water exported:	n/a	0.000	acre-ft/yr				acre-ft/yr
WATER SUPPLIED:		**31,245.567**	acre-ft/yr				

Enter negative % or value for under-registration
Enter positive % or value for over-registration

AUTHORIZED CONSUMPTION

Click here: ? for help using option buttons below

				Pcnt:	Value:	
Billed metered:	9	30,103.680	acre-ft/yr			
Billed unmetered:	n/a		acre-ft/yr			
Unbilled metered:	n/a		acre-ft/yr			
Unbilled unmetered:	9	40.000	acre-ft/yr		40.000	acre-ft/yr
AUTHORIZED CONSUMPTION:		**30,143.680**	acre-ft/yr			

Use buttons to select percentage of water supplied **OR** value

WATER LOSSES (Water Supplied - Authorized Consumption) **1,101.887** acre-ft/yr

Apparent Losses

				Pcnt:	Value:	
Unauthorized consumption:		78.114	acre-ft/yr	0.25%		acre-ft/yr

Default option selected for unauthorized consumption - a grading of 5 is applied but not displayed

Customer metering inaccuracies:	7	57.453	acre-ft/yr		57.453	acre-ft/yr
Systematic data handling errors:	5	75.259	acre-ft/yr	0.25%		acre-ft/yr

Default option selected for Systematic data handling errors - a grading of 5 is applied but not displayed

Apparent Losses: **210.826** acre-ft/yr

Real Losses (Current Annual Real Losses or CARL)

Real Losses = Water Losses - Apparent Losses: **891.061** acre-ft/yr

WATER LOSSES: **1,101.887** acre-ft/yr

NON-REVENUE WATER

NON-REVENUE WATER: **1,141.887** acre-ft/yr

= Water Losses + Unbilled Metered + Unbilled Unmetered

SYSTEM DATA

Length of mains:	10	616.3	miles
Number of active AND inactive service connections:	10	36,937	
Service connection density:		60	conn./mile main

Are customer meters typically located at the curbstop or property line? Yes

Average length of customer service line: (length of service line, beyond the property boundary, that is the responsibility of the utility)

Average length of customer service line has been set to zero and a data grading score of 10 has been applied

Average operating pressure:	6	85.0	psi

COST DATA

Total annual cost of operating water system:	10	$65,371,950	$/Year	
Customer retail unit cost (applied to Apparent Losses):	5	$2.89	$/100 cubic feet (ccf)	
Variable production cost (applied to Real Losses):	5	$350.03	$/acre-ft	☐ Use Customer Retail Unit Cost to value real losses

WATER AUDIT DATA VALIDITY SCORE:

***** YOUR SCORE IS: 64 out of 100 *****

A weighted scale for the components of consumption and water loss is included in the calculation of the Water Audit Data Validity Score

PRIORITY AREAS FOR ATTENTION:

Based on the information provided, audit accuracy can be improved by addressing the following components:

1: Volume from own sources
2: Water imported
3: Customer retail unit cost (applied to Apparent Losses)

APPENDIX G

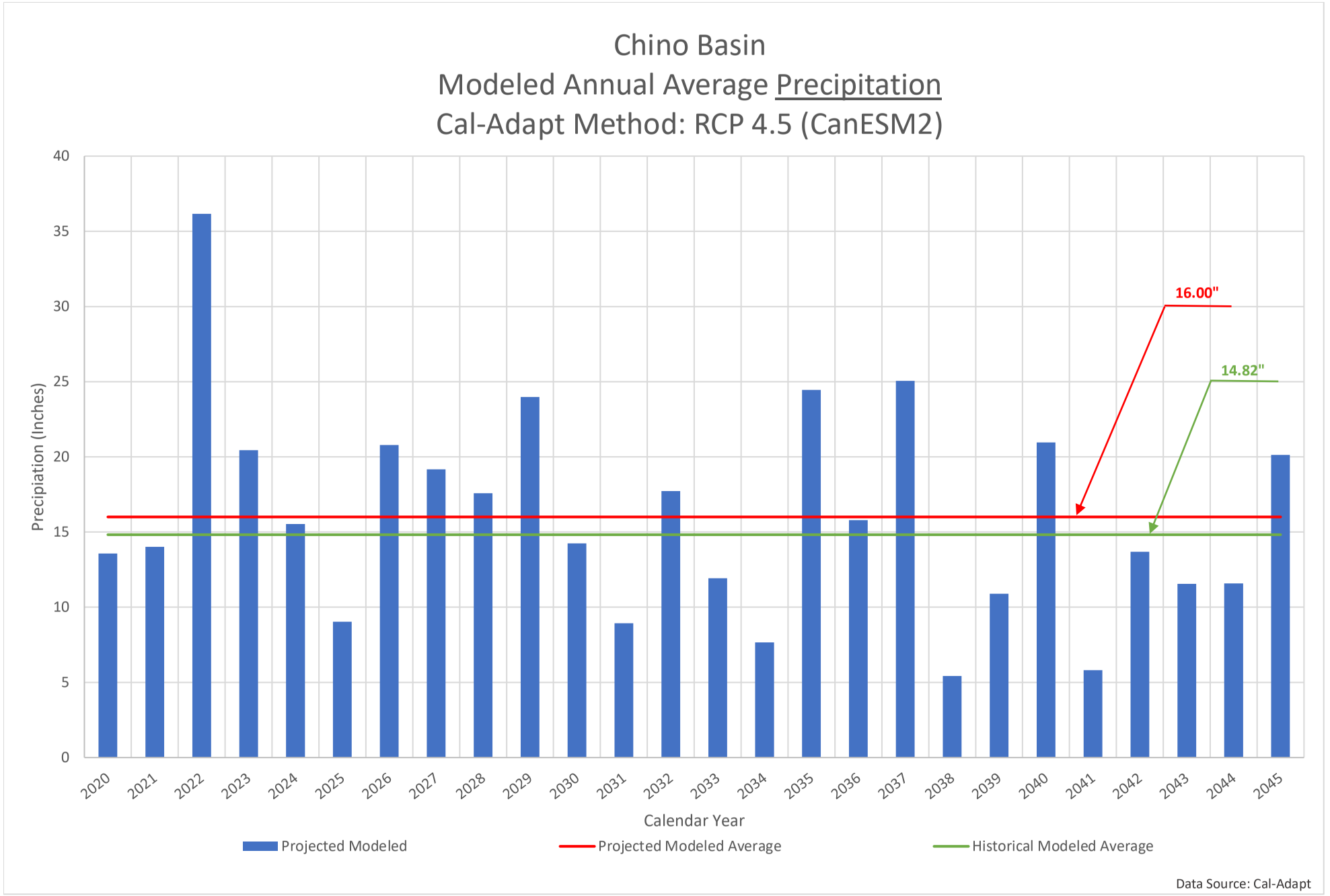
CLIMATE CHANGE CONSIDERATIONS (CAL-ADAPT DATA)

CHINO BASIN

MODELED ANNUAL AVERAGE PRECIPITATION

CAL-ADAPT METHOD: RCP 4.5 (CANESM2)

CAL-ADAPT DATA



Notes:

Projected Modeled Average includes modeled years 2020 through 2045

Historical Modeled Average includes modeled years 1950 through 2019

Cal-Adapt defines the general circulation model (GCM) CanESM2 as an "average simulation"

Cal-Adapt defines RCP 4.5 as a scenario in which emissions peak around 2040, then decline

Cal-Adapt
Annual Averages Tool - Precipitation
Chino Basin

location	User Defined Boundary - Chino Basin
climate variable	Precipitation
units	inches
scenario	rcp45

Projected Modeled Average: **16.00382 [inches]**
Historical Modeled Average: **14.82172 [inches]**

name	date	Year	Historical Average	Modeled Average	value
CanESM2	Sun Jan 01 1950 00:00:00 GMT-0800 (Pacific Standard Time)	1950			3.700919
CanESM2	Mon Jan 01 1951 00:00:00 GMT-0800 (Pacific Standard Time)	1951			17.30468
CanESM2	Tue Jan 01 1952 00:00:00 GMT-0800 (Pacific Standard Time)	1952			16.11378
CanESM2	Thu Jan 01 1953 00:00:00 GMT-0800 (Pacific Standard Time)	1953			10.44193
CanESM2	Fri Jan 01 1954 00:00:00 GMT-0800 (Pacific Standard Time)	1954			16.90721
CanESM2	Sat Jan 01 1955 00:00:00 GMT-0800 (Pacific Standard Time)	1955			27.84166
CanESM2	Sun Jan 01 1956 00:00:00 GMT-0800 (Pacific Standard Time)	1956			6.855331
CanESM2	Tue Jan 01 1957 00:00:00 GMT-0800 (Pacific Standard Time)	1957			13.16045
CanESM2	Wed Jan 01 1958 00:00:00 GMT-0800 (Pacific Standard Time)	1958			6.55614
CanESM2	Thu Jan 01 1959 00:00:00 GMT-0800 (Pacific Standard Time)	1959			10.76282
CanESM2	Fri Jan 01 1960 00:00:00 GMT-0800 (Pacific Standard Time)	1960			12.93886
CanESM2	Sun Jan 01 1961 00:00:00 GMT-0800 (Pacific Standard Time)	1961			13.40765
CanESM2	Mon Jan 01 1962 00:00:00 GMT-0800 (Pacific Standard Time)	1962			22.24209
CanESM2	Tue Jan 01 1963 00:00:00 GMT-0800 (Pacific Standard Time)	1963			4.005351
CanESM2	Wed Jan 01 1964 00:00:00 GMT-0800 (Pacific Standard Time)	1964			28.86021
CanESM2	Fri Jan 01 1965 00:00:00 GMT-0800 (Pacific Standard Time)	1965			31.07789
CanESM2	Sat Jan 01 1966 00:00:00 GMT-0800 (Pacific Standard Time)	1966			12.44217
CanESM2	Sun Jan 01 1967 00:00:00 GMT-0800 (Pacific Standard Time)	1967			18.94751
CanESM2	Mon Jan 01 1968 00:00:00 GMT-0800 (Pacific Standard Time)	1968			14.70134
CanESM2	Wed Jan 01 1969 00:00:00 GMT-0800 (Pacific Standard Time)	1969			28.35504
CanESM2	Thu Jan 01 1970 00:00:00 GMT-0800 (Pacific Standard Time)	1970			12.84907
CanESM2	Fri Jan 01 1971 00:00:00 GMT-0800 (Pacific Standard Time)	1971			5.034394
CanESM2	Sat Jan 01 1972 00:00:00 GMT-0800 (Pacific Standard Time)	1972			15.57366
CanESM2	Mon Jan 01 1973 00:00:00 GMT-0800 (Pacific Standard Time)	1973			11.2481
CanESM2	Tue Jan 01 1974 00:00:00 GMT-0800 (Pacific Standard Time)	1974			33.87335
CanESM2	Wed Jan 01 1975 00:00:00 GMT-0800 (Pacific Standard Time)	1975			7.778772
CanESM2	Thu Jan 01 1976 00:00:00 GMT-0800 (Pacific Standard Time)	1976			14.5049
CanESM2	Sat Jan 01 1977 00:00:00 GMT-0800 (Pacific Standard Time)	1977			17.09041
CanESM2	Sun Jan 01 1978 00:00:00 GMT-0800 (Pacific Standard Time)	1978			12.02995
CanESM2	Mon Jan 01 1979 00:00:00 GMT-0800 (Pacific Standard Time)	1979			9.315764
CanESM2	Tue Jan 01 1980 00:00:00 GMT-0800 (Pacific Standard Time)	1980			6.179051
CanESM2	Thu Jan 01 1981 00:00:00 GMT-0800 (Pacific Standard Time)	1981			14.84229
CanESM2	Fri Jan 01 1982 00:00:00 GMT-0800 (Pacific Standard Time)	1982			22.44051
CanESM2	Sat Jan 01 1983 00:00:00 GMT-0800 (Pacific Standard Time)	1983			13.11271
CanESM2	Sun Jan 01 1984 00:00:00 GMT-0800 (Pacific Standard Time)	1984			14.20105
CanESM2	Tue Jan 01 1985 00:00:00 GMT-0800 (Pacific Standard Time)	1985			38.64678
CanESM2	Wed Jan 01 1986 00:00:00 GMT-0800 (Pacific Standard Time)	1986			8.24916
CanESM2	Thu Jan 01 1987 00:00:00 GMT-0800 (Pacific Standard Time)	1987			15.51612
CanESM2	Fri Jan 01 1988 00:00:00 GMT-0800 (Pacific Standard Time)	1988			10.61193
CanESM2	Sun Jan 01 1989 00:00:00 GMT-0800 (Pacific Standard Time)	1989			16.53263
CanESM2	Mon Jan 01 1990 00:00:00 GMT-0800 (Pacific Standard Time)	1990			18.66699
CanESM2	Tue Jan 01 1991 00:00:00 GMT-0800 (Pacific Standard Time)	1991			15.20903
CanESM2	Wed Jan 01 1992 00:00:00 GMT-0800 (Pacific Standard Time)	1992			16.66478
CanESM2	Fri Jan 01 1993 00:00:00 GMT-0800 (Pacific Standard Time)	1993			14.48983
CanESM2	Sat Jan 01 1994 00:00:00 GMT-0800 (Pacific Standard Time)	1994			14.7208
CanESM2	Sun Jan 01 1995 00:00:00 GMT-0800 (Pacific Standard Time)	1995			12.91328
CanESM2	Mon Jan 01 1996 00:00:00 GMT-0800 (Pacific Standard Time)	1996			10.69114
CanESM2	Wed Jan 01 1997 00:00:00 GMT-0800 (Pacific Standard Time)	1997			38.9727
CanESM2	Thu Jan 01 1998 00:00:00 GMT-0800 (Pacific Standard Time)	1998			9.558335
CanESM2	Fri Jan 01 1999 00:00:00 GMT-0800 (Pacific Standard Time)	1999			8.267488

Cal-Adapt
Annual Averages Tool - Precipitation
Chino Basin

location	User Defined Boundary - Chino Basin
climate variable	Precipitation
units	inches
scenario	rcp45

Projected Modeled Average: **16.00382 [inches]**
Historical Modeled Average: **14.82172 [inches]**

name	date	Year	Historical Average	Modeled Average	value
CanESM2	Sat Jan 01 2000 00:00:00 GMT-0800 (Pacific Standard Time)	2000			7.5434
CanESM2	Mon Jan 01 2001 00:00:00 GMT-0800 (Pacific Standard Time)	2001			10.20602
CanESM2	Tue Jan 01 2002 00:00:00 GMT-0800 (Pacific Standard Time)	2002			10.39491
CanESM2	Wed Jan 01 2003 00:00:00 GMT-0800 (Pacific Standard Time)	2003			13.12482
CanESM2	Thu Jan 01 2004 00:00:00 GMT-0800 (Pacific Standard Time)	2004			15.43004
CanESM2	Sat Jan 01 2005 00:00:00 GMT-0800 (Pacific Standard Time)	2005			22.94388
CanESM2	Sun Jan 01 2006 00:00:00 GMT-0800 (Pacific Standard Time)	2006			13.6766
CanESM2	Mon Jan 01 2007 00:00:00 GMT-0800 (Pacific Standard Time)	2007			4.089872
CanESM2	Tue Jan 01 2008 00:00:00 GMT-0800 (Pacific Standard Time)	2008			12.94551
CanESM2	Thu Jan 01 2009 00:00:00 GMT-0800 (Pacific Standard Time)	2009			11.81959
CanESM2	Fri Jan 01 2010 00:00:00 GMT-0800 (Pacific Standard Time)	2010			12.88253
CanESM2	Sat Jan 01 2011 00:00:00 GMT-0800 (Pacific Standard Time)	2011			19.71187
CanESM2	Sun Jan 01 2012 00:00:00 GMT-0800 (Pacific Standard Time)	2012			6.488277
CanESM2	Tue Jan 01 2013 00:00:00 GMT-0800 (Pacific Standard Time)	2013			8.959759
CanESM2	Wed Jan 01 2014 00:00:00 GMT-0800 (Pacific Standard Time)	2014			8.655361
CanESM2	Thu Jan 01 2015 00:00:00 GMT-0800 (Pacific Standard Time)	2015			22.86486
CanESM2	Fri Jan 01 2016 00:00:00 GMT-0800 (Pacific Standard Time)	2016			32.64576
CanESM2	Sun Jan 01 2017 00:00:00 GMT-0800 (Pacific Standard Time)	2017			11.00626
CanESM2	Mon Jan 01 2018 00:00:00 GMT-0800 (Pacific Standard Time)	2018			5.236335
CanESM2	Tue Jan 01 2019 00:00:00 GMT-0800 (Pacific Standard Time)	2019	14.82171851		10.48662
CanESM2	Wed Jan 01 2020 00:00:00 GMT-0800 (Pacific Standard Time)	2020	14.82171851	16.00381971	13.56974
CanESM2	Fri Jan 01 2021 00:00:00 GMT-0800 (Pacific Standard Time)	2021	14.82171851	16.00381971	14.0193
CanESM2	Sat Jan 01 2022 00:00:00 GMT-0800 (Pacific Standard Time)	2022	14.82171851	16.00381971	36.16642
CanESM2	Sun Jan 01 2023 00:00:00 GMT-0800 (Pacific Standard Time)	2023	14.82171851	16.00381971	20.44454
CanESM2	Mon Jan 01 2024 00:00:00 GMT-0800 (Pacific Standard Time)	2024	14.82171851	16.00381971	15.54037
CanESM2	Wed Jan 01 2025 00:00:00 GMT-0800 (Pacific Standard Time)	2025	14.82171851	16.00381971	9.026577
CanESM2	Thu Jan 01 2026 00:00:00 GMT-0800 (Pacific Standard Time)	2026	14.82171851	16.00381971	20.78657
CanESM2	Fri Jan 01 2027 00:00:00 GMT-0800 (Pacific Standard Time)	2027	14.82171851	16.00381971	19.1704
CanESM2	Sat Jan 01 2028 00:00:00 GMT-0800 (Pacific Standard Time)	2028	14.82171851	16.00381971	17.57344
CanESM2	Mon Jan 01 2029 00:00:00 GMT-0800 (Pacific Standard Time)	2029	14.82171851	16.00381971	23.98247
CanESM2	Tue Jan 01 2030 00:00:00 GMT-0800 (Pacific Standard Time)	2030	14.82171851	16.00381971	14.24796
CanESM2	Wed Jan 01 2031 00:00:00 GMT-0800 (Pacific Standard Time)	2031	14.82171851	16.00381971	8.938649
CanESM2	Thu Jan 01 2032 00:00:00 GMT-0800 (Pacific Standard Time)	2032	14.82171851	16.00381971	17.72878
CanESM2	Sat Jan 01 2033 00:00:00 GMT-0800 (Pacific Standard Time)	2033	14.82171851	16.00381971	11.93111
CanESM2	Sun Jan 01 2034 00:00:00 GMT-0800 (Pacific Standard Time)	2034	14.82171851	16.00381971	7.658487
CanESM2	Mon Jan 01 2035 00:00:00 GMT-0800 (Pacific Standard Time)	2035	14.82171851	16.00381971	24.44704
CanESM2	Tue Jan 01 2036 00:00:00 GMT-0800 (Pacific Standard Time)	2036	14.82171851	16.00381971	15.78679
CanESM2	Thu Jan 01 2037 00:00:00 GMT-0800 (Pacific Standard Time)	2037	14.82171851	16.00381971	25.06106
CanESM2	Fri Jan 01 2038 00:00:00 GMT-0800 (Pacific Standard Time)	2038	14.82171851	16.00381971	5.425917
CanESM2	Sat Jan 01 2039 00:00:00 GMT-0800 (Pacific Standard Time)	2039	14.82171851	16.00381971	10.89829
CanESM2	Sun Jan 01 2040 00:00:00 GMT-0800 (Pacific Standard Time)	2040	14.82171851	16.00381971	20.95617
CanESM2	Tue Jan 01 2041 00:00:00 GMT-0800 (Pacific Standard Time)	2041	14.82171851	16.00381971	5.807901
CanESM2	Wed Jan 01 2042 00:00:00 GMT-0800 (Pacific Standard Time)	2042	14.82171851	16.00381971	13.67965
CanESM2	Thu Jan 01 2043 00:00:00 GMT-0800 (Pacific Standard Time)	2043	14.82171851	16.00381971	11.55361
CanESM2	Fri Jan 01 2044 00:00:00 GMT-0800 (Pacific Standard Time)	2044	14.82171851	16.00381971	11.57526
CanESM2	Sun Jan 01 2045 00:00:00 GMT-0800 (Pacific Standard Time)	2045	14.82171851	16.00381971	20.12281
CanESM2	Mon Jan 01 2046 00:00:00 GMT-0800 (Pacific Standard Time)	2046	14.82171851		24.22683
CanESM2	Tue Jan 01 2047 00:00:00 GMT-0800 (Pacific Standard Time)	2047	14.82171851		21.37718
CanESM2	Wed Jan 01 2048 00:00:00 GMT-0800 (Pacific Standard Time)	2048	14.82171851		21.08418
CanESM2	Fri Jan 01 2049 00:00:00 GMT-0800 (Pacific Standard Time)	2049	14.82171851		9.34067

Cal-Adapt
Annual Averages Tool - Precipitation
Chino Basin

location	User Defined Boundary - Chino Basin
climate variable	Precipitation
units	inches
scenario	rcp45

Projected Modeled Average: **16.00382 [inches]**
Historical Modeled Average: **14.82172 [inches]**

name	date	Year	Historical Average	Modeled Average	value
CanESM2	Sat Jan 01 2050 00:00:00 GMT-0800 (Pacific Standard Time)	2050	14.82171851		10.41989
CanESM2	Sun Jan 01 2051 00:00:00 GMT-0800 (Pacific Standard Time)	2051	14.82171851		7.530774
CanESM2	Mon Jan 01 2052 00:00:00 GMT-0800 (Pacific Standard Time)	2052	14.82171851		25.96643
CanESM2	Wed Jan 01 2053 00:00:00 GMT-0800 (Pacific Standard Time)	2053	14.82171851		10.15468
CanESM2	Thu Jan 01 2054 00:00:00 GMT-0800 (Pacific Standard Time)	2054	14.82171851		13.14192
CanESM2	Fri Jan 01 2055 00:00:00 GMT-0800 (Pacific Standard Time)	2055	14.82171851		9.733803
CanESM2	Sat Jan 01 2056 00:00:00 GMT-0800 (Pacific Standard Time)	2056	14.82171851		17.25331
CanESM2	Mon Jan 01 2057 00:00:00 GMT-0800 (Pacific Standard Time)	2057	14.82171851		15.37966
CanESM2	Tue Jan 01 2058 00:00:00 GMT-0800 (Pacific Standard Time)	2058	14.82171851		7.574648
CanESM2	Wed Jan 01 2059 00:00:00 GMT-0800 (Pacific Standard Time)	2059	14.82171851		26.23963
CanESM2	Thu Jan 01 2060 00:00:00 GMT-0800 (Pacific Standard Time)	2060	14.82171851		28.2625
CanESM2	Sat Jan 01 2061 00:00:00 GMT-0800 (Pacific Standard Time)	2061	14.82171851		6.729702
CanESM2	Sun Jan 01 2062 00:00:00 GMT-0800 (Pacific Standard Time)	2062	14.82171851		11.89579
CanESM2	Mon Jan 01 2063 00:00:00 GMT-0800 (Pacific Standard Time)	2063	14.82171851		4.432257
CanESM2	Tue Jan 01 2064 00:00:00 GMT-0800 (Pacific Standard Time)	2064	14.82171851		9.655321
CanESM2	Thu Jan 01 2065 00:00:00 GMT-0800 (Pacific Standard Time)	2065	14.82171851		13.74902
CanESM2	Fri Jan 01 2066 00:00:00 GMT-0800 (Pacific Standard Time)	2066	14.82171851		14.30761
CanESM2	Sat Jan 01 2067 00:00:00 GMT-0800 (Pacific Standard Time)	2067	14.82171851		20.97347
CanESM2	Sun Jan 01 2068 00:00:00 GMT-0800 (Pacific Standard Time)	2068	14.82171851		16.44066
CanESM2	Tue Jan 01 2069 00:00:00 GMT-0800 (Pacific Standard Time)	2069	14.82171851		24.30653
CanESM2	Wed Jan 01 2070 00:00:00 GMT-0800 (Pacific Standard Time)	2070	14.82171851		22.69732
CanESM2	Thu Jan 01 2071 00:00:00 GMT-0800 (Pacific Standard Time)	2071	14.82171851		23.40727
CanESM2	Fri Jan 01 2072 00:00:00 GMT-0800 (Pacific Standard Time)	2072	14.82171851		6.820724
CanESM2	Sun Jan 01 2073 00:00:00 GMT-0800 (Pacific Standard Time)	2073	14.82171851		22.87705
CanESM2	Mon Jan 01 2074 00:00:00 GMT-0800 (Pacific Standard Time)	2074	14.82171851		17.81223
CanESM2	Tue Jan 01 2075 00:00:00 GMT-0800 (Pacific Standard Time)	2075	14.82171851		20.5584
CanESM2	Wed Jan 01 2076 00:00:00 GMT-0800 (Pacific Standard Time)	2076	14.82171851		11.00267
CanESM2	Fri Jan 01 2077 00:00:00 GMT-0800 (Pacific Standard Time)	2077	14.82171851		22.60738
CanESM2	Sat Jan 01 2078 00:00:00 GMT-0800 (Pacific Standard Time)	2078	14.82171851		19.72153
CanESM2	Sun Jan 01 2079 00:00:00 GMT-0800 (Pacific Standard Time)	2079	14.82171851		19.46532
CanESM2	Mon Jan 01 2080 00:00:00 GMT-0800 (Pacific Standard Time)	2080	14.82171851		44.25279
CanESM2	Wed Jan 01 2081 00:00:00 GMT-0800 (Pacific Standard Time)	2081	14.82171851		17.91737
CanESM2	Thu Jan 01 2082 00:00:00 GMT-0800 (Pacific Standard Time)	2082	14.82171851		14.49597
CanESM2	Fri Jan 01 2083 00:00:00 GMT-0800 (Pacific Standard Time)	2083	14.82171851		16.34221
CanESM2	Sat Jan 01 2084 00:00:00 GMT-0800 (Pacific Standard Time)	2084	14.82171851		22.17847
CanESM2	Mon Jan 01 2085 00:00:00 GMT-0800 (Pacific Standard Time)	2085	14.82171851		8.313108
CanESM2	Tue Jan 01 2086 00:00:00 GMT-0800 (Pacific Standard Time)	2086	14.82171851		23.80699
CanESM2	Wed Jan 01 2087 00:00:00 GMT-0800 (Pacific Standard Time)	2087	14.82171851		8.932599
CanESM2	Thu Jan 01 2088 00:00:00 GMT-0800 (Pacific Standard Time)	2088	14.82171851		36.03347
CanESM2	Sat Jan 01 2089 00:00:00 GMT-0800 (Pacific Standard Time)	2089	14.82171851		17.28937
CanESM2	Sun Jan 01 2090 00:00:00 GMT-0800 (Pacific Standard Time)	2090	14.82171851		11.13247
CanESM2	Mon Jan 01 2091 00:00:00 GMT-0800 (Pacific Standard Time)	2091	14.82171851		6.832503
CanESM2	Tue Jan 01 2092 00:00:00 GMT-0800 (Pacific Standard Time)	2092	14.82171851		4.958314
CanESM2	Thu Jan 01 2093 00:00:00 GMT-0800 (Pacific Standard Time)	2093	14.82171851		27.74233
CanESM2	Fri Jan 01 2094 00:00:00 GMT-0800 (Pacific Standard Time)	2094	14.82171851		16.80191
CanESM2	Sat Jan 01 2095 00:00:00 GMT-0800 (Pacific Standard Time)	2095	14.82171851		6.707868
CanESM2	Sun Jan 01 2096 00:00:00 GMT-0800 (Pacific Standard Time)	2096	14.82171851		11.27541
CanESM2	Tue Jan 01 2097 00:00:00 GMT-0800 (Pacific Standard Time)	2097	14.82171851		15.7764
CanESM2	Wed Jan 01 2098 00:00:00 GMT-0800 (Pacific Standard Time)	2098	14.82171851		23.27202
CanESM2	Thu Jan 01 2099 00:00:00 GMT-0800 (Pacific Standard Time)	2099	14.82171851		12.29473

Cal-Adapt
Annual Averages Tool - Precipitation
Chino Basin

location	User Defined Boundary - Chino Basin
climate variable	Precipitation
units	inches
scenario	rcp45

Projected Modeled Average: **16.00382 [inches]**
Historical Modeled Average: **14.82172 [inches]**

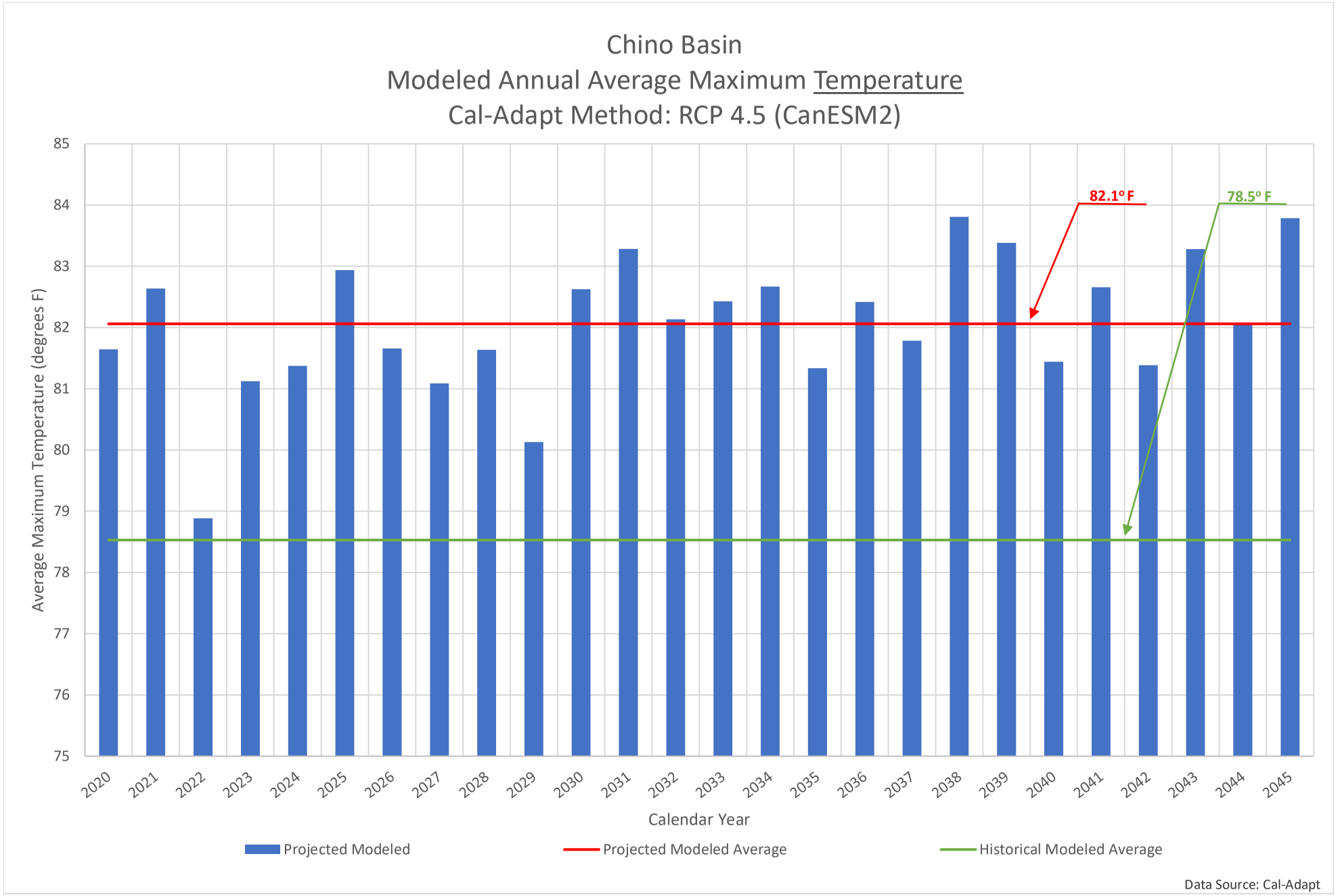
name	date	Year	Historical Average	Modeled Average	value
CanESM2	Fri Jan 01 2100 00:00:00 GMT-0800 (Pacific Standard Time)	2100	14.82171851		16.21604

CHINO BASIN

MODELED ANNUAL AVERAGE TEMPERATURE

CAL-ADAPT METHOD: RCP 4.5 (CANESM2)

CAL-ADAPT DATA



Notes:

Projected Modeled Average includes modeled years 2020 through 2045

Historical Modeled Average includes modeled years 1950 through 2019

Cal-Adapt defines the general circulation model (GCM) CanESM2 as an "average simulation"

Cal-Adapt defines RCP 4.5 as a scenario in which emissions peak around 2040, then decline

Cal-Adapt
Annual Averages Tool - Maximum Temperature
Chino Basin

location	User Defined Boundary - Chino Basin
climate variable	Maximum Temperature
units	°F
scenario	rcp45

Projected Modeled Average: **82.06097456 °F**
Historical Modeled Average: **78.5297940 °F**

name	date	Year	Historical Average	Modeled Average	value
CanESM2	Sun Jan 01 1950 00:00:00 GMT-0800 (Pacific Standard Time)	1950			80.05461
CanESM2	Mon Jan 01 1951 00:00:00 GMT-0800 (Pacific Standard Time)	1951			77.93241
CanESM2	Tue Jan 01 1952 00:00:00 GMT-0800 (Pacific Standard Time)	1952			77.30686
CanESM2	Thu Jan 01 1953 00:00:00 GMT-0800 (Pacific Standard Time)	1953			78.03202
CanESM2	Fri Jan 01 1954 00:00:00 GMT-0800 (Pacific Standard Time)	1954			76.88544
CanESM2	Sat Jan 01 1955 00:00:00 GMT-0800 (Pacific Standard Time)	1955			76.20399
CanESM2	Sun Jan 01 1956 00:00:00 GMT-0800 (Pacific Standard Time)	1956			78.04634
CanESM2	Tue Jan 01 1957 00:00:00 GMT-0800 (Pacific Standard Time)	1957			78.04172
CanESM2	Wed Jan 01 1958 00:00:00 GMT-0800 (Pacific Standard Time)	1958			78.18192
CanESM2	Thu Jan 01 1959 00:00:00 GMT-0800 (Pacific Standard Time)	1959			79.1522
CanESM2	Fri Jan 01 1960 00:00:00 GMT-0800 (Pacific Standard Time)	1960			78.62896
CanESM2	Sun Jan 01 1961 00:00:00 GMT-0800 (Pacific Standard Time)	1961			76.66275
CanESM2	Mon Jan 01 1962 00:00:00 GMT-0800 (Pacific Standard Time)	1962			77.90819
CanESM2	Tue Jan 01 1963 00:00:00 GMT-0800 (Pacific Standard Time)	1963			80.69396
CanESM2	Wed Jan 01 1964 00:00:00 GMT-0800 (Pacific Standard Time)	1964			76.14631
CanESM2	Fri Jan 01 1965 00:00:00 GMT-0800 (Pacific Standard Time)	1965			74.79641
CanESM2	Sat Jan 01 1966 00:00:00 GMT-0800 (Pacific Standard Time)	1966			76.64748
CanESM2	Sun Jan 01 1967 00:00:00 GMT-0800 (Pacific Standard Time)	1967			77.79322
CanESM2	Mon Jan 01 1968 00:00:00 GMT-0800 (Pacific Standard Time)	1968			77.26835
CanESM2	Wed Jan 01 1969 00:00:00 GMT-0800 (Pacific Standard Time)	1969			76.59481
CanESM2	Thu Jan 01 1970 00:00:00 GMT-0800 (Pacific Standard Time)	1970			76.29012
CanESM2	Fri Jan 01 1971 00:00:00 GMT-0800 (Pacific Standard Time)	1971			77.91441
CanESM2	Sat Jan 01 1972 00:00:00 GMT-0800 (Pacific Standard Time)	1972			78.34221
CanESM2	Mon Jan 01 1973 00:00:00 GMT-0800 (Pacific Standard Time)	1973			77.06548
CanESM2	Tue Jan 01 1974 00:00:00 GMT-0800 (Pacific Standard Time)	1974			77.75588
CanESM2	Wed Jan 01 1975 00:00:00 GMT-0800 (Pacific Standard Time)	1975			79.54019
CanESM2	Thu Jan 01 1976 00:00:00 GMT-0800 (Pacific Standard Time)	1976			77.93902
CanESM2	Sat Jan 01 1977 00:00:00 GMT-0800 (Pacific Standard Time)	1977			76.87495
CanESM2	Sun Jan 01 1978 00:00:00 GMT-0800 (Pacific Standard Time)	1978			78.93915
CanESM2	Mon Jan 01 1979 00:00:00 GMT-0800 (Pacific Standard Time)	1979			79.16809
CanESM2	Tue Jan 01 1980 00:00:00 GMT-0800 (Pacific Standard Time)	1980			80.35038
CanESM2	Thu Jan 01 1981 00:00:00 GMT-0800 (Pacific Standard Time)	1981			79.92046
CanESM2	Fri Jan 01 1982 00:00:00 GMT-0800 (Pacific Standard Time)	1982			76.60721
CanESM2	Sat Jan 01 1983 00:00:00 GMT-0800 (Pacific Standard Time)	1983			77.65839
CanESM2	Sun Jan 01 1984 00:00:00 GMT-0800 (Pacific Standard Time)	1984			77.04406
CanESM2	Tue Jan 01 1985 00:00:00 GMT-0800 (Pacific Standard Time)	1985			76.18762
CanESM2	Wed Jan 01 1986 00:00:00 GMT-0800 (Pacific Standard Time)	1986			78.27004
CanESM2	Thu Jan 01 1987 00:00:00 GMT-0800 (Pacific Standard Time)	1987			76.91398
CanESM2	Fri Jan 01 1988 00:00:00 GMT-0800 (Pacific Standard Time)	1988			77.78293
CanESM2	Sun Jan 01 1989 00:00:00 GMT-0800 (Pacific Standard Time)	1989			76.77671
CanESM2	Mon Jan 01 1990 00:00:00 GMT-0800 (Pacific Standard Time)	1990			77.84982
CanESM2	Tue Jan 01 1991 00:00:00 GMT-0800 (Pacific Standard Time)	1991			78.66314
CanESM2	Wed Jan 01 1992 00:00:00 GMT-0800 (Pacific Standard Time)	1992			75.49348
CanESM2	Fri Jan 01 1993 00:00:00 GMT-0800 (Pacific Standard Time)	1993			79.26678
CanESM2	Sat Jan 01 1994 00:00:00 GMT-0800 (Pacific Standard Time)	1994			76.06939
CanESM2	Sun Jan 01 1995 00:00:00 GMT-0800 (Pacific Standard Time)	1995			79.28238
CanESM2	Mon Jan 01 1996 00:00:00 GMT-0800 (Pacific Standard Time)	1996			79.93127
CanESM2	Wed Jan 01 1997 00:00:00 GMT-0800 (Pacific Standard Time)	1997			77.33039
CanESM2	Thu Jan 01 1998 00:00:00 GMT-0800 (Pacific Standard Time)	1998			79.19292
CanESM2	Fri Jan 01 1999 00:00:00 GMT-0800 (Pacific Standard Time)	1999			79.82528
CanESM2	Sat Jan 01 2000 00:00:00 GMT-0800 (Pacific Standard Time)	2000			80.01809
CanESM2	Mon Jan 01 2001 00:00:00 GMT-0800 (Pacific Standard Time)	2001			80.0008
CanESM2	Tue Jan 01 2002 00:00:00 GMT-0800 (Pacific Standard Time)	2002			80.01955

Cal-Adapt
Annual Averages Tool - Maximum Temperature
Chino Basin

location	User Defined Boundary - Chino Basin
climate variable	Maximum Temperature
units	°F
scenario	rcp45

Projected Modeled Average: **82.06097456 °F**
Historical Modeled Average: **78.5297940 °F**

name	date	Year	Historical Average	Modeled Average	value
CanESM2	Wed Jan 01 2003 00:00:00 GMT-0800 (Pacific Standard Time)	2003			77.9787
CanESM2	Thu Jan 01 2004 00:00:00 GMT-0800 (Pacific Standard Time)	2004			79.48439
CanESM2	Sat Jan 01 2005 00:00:00 GMT-0800 (Pacific Standard Time)	2005			79.10891
CanESM2	Sun Jan 01 2006 00:00:00 GMT-0800 (Pacific Standard Time)	2006			79.14263
CanESM2	Mon Jan 01 2007 00:00:00 GMT-0800 (Pacific Standard Time)	2007			80.50184
CanESM2	Tue Jan 01 2008 00:00:00 GMT-0800 (Pacific Standard Time)	2008			80.24543
CanESM2	Thu Jan 01 2009 00:00:00 GMT-0800 (Pacific Standard Time)	2009			81.01307
CanESM2	Fri Jan 01 2010 00:00:00 GMT-0800 (Pacific Standard Time)	2010			80.00386
CanESM2	Sat Jan 01 2011 00:00:00 GMT-0800 (Pacific Standard Time)	2011			80.69299
CanESM2	Sun Jan 01 2012 00:00:00 GMT-0800 (Pacific Standard Time)	2012			81.46379
CanESM2	Tue Jan 01 2013 00:00:00 GMT-0800 (Pacific Standard Time)	2013			82.42551
CanESM2	Wed Jan 01 2014 00:00:00 GMT-0800 (Pacific Standard Time)	2014			79.39292
CanESM2	Thu Jan 01 2015 00:00:00 GMT-0800 (Pacific Standard Time)	2015			79.47762
CanESM2	Fri Jan 01 2016 00:00:00 GMT-0800 (Pacific Standard Time)	2016			78.58365
CanESM2	Sun Jan 01 2017 00:00:00 GMT-0800 (Pacific Standard Time)	2017			80.4537
CanESM2	Mon Jan 01 2018 00:00:00 GMT-0800 (Pacific Standard Time)	2018			82.82297
CanESM2	Tue Jan 01 2019 00:00:00 GMT-0800 (Pacific Standard Time)	2019	78.52979399		81.03111
CanESM2	Wed Jan 01 2020 00:00:00 GMT-0800 (Pacific Standard Time)	2020	78.52979399	82.06097456	81.64416
CanESM2	Fri Jan 01 2021 00:00:00 GMT-0800 (Pacific Standard Time)	2021	78.52979399	82.06097456	82.63645
CanESM2	Sat Jan 01 2022 00:00:00 GMT-0800 (Pacific Standard Time)	2022	78.52979399	82.06097456	78.88335
CanESM2	Sun Jan 01 2023 00:00:00 GMT-0800 (Pacific Standard Time)	2023	78.52979399	82.06097456	81.12281
CanESM2	Mon Jan 01 2024 00:00:00 GMT-0800 (Pacific Standard Time)	2024	78.52979399	82.06097456	81.37574
CanESM2	Wed Jan 01 2025 00:00:00 GMT-0800 (Pacific Standard Time)	2025	78.52979399	82.06097456	82.93872
CanESM2	Thu Jan 01 2026 00:00:00 GMT-0800 (Pacific Standard Time)	2026	78.52979399	82.06097456	81.65604
CanESM2	Fri Jan 01 2027 00:00:00 GMT-0800 (Pacific Standard Time)	2027	78.52979399	82.06097456	81.08742
CanESM2	Sat Jan 01 2028 00:00:00 GMT-0800 (Pacific Standard Time)	2028	78.52979399	82.06097456	81.63703
CanESM2	Mon Jan 01 2029 00:00:00 GMT-0800 (Pacific Standard Time)	2029	78.52979399	82.06097456	80.12987
CanESM2	Tue Jan 01 2030 00:00:00 GMT-0800 (Pacific Standard Time)	2030	78.52979399	82.06097456	82.62788
CanESM2	Wed Jan 01 2031 00:00:00 GMT-0800 (Pacific Standard Time)	2031	78.52979399	82.06097456	83.28283
CanESM2	Thu Jan 01 2032 00:00:00 GMT-0800 (Pacific Standard Time)	2032	78.52979399	82.06097456	82.13521
CanESM2	Sat Jan 01 2033 00:00:00 GMT-0800 (Pacific Standard Time)	2033	78.52979399	82.06097456	82.42798
CanESM2	Sun Jan 01 2034 00:00:00 GMT-0800 (Pacific Standard Time)	2034	78.52979399	82.06097456	82.66978
CanESM2	Mon Jan 01 2035 00:00:00 GMT-0800 (Pacific Standard Time)	2035	78.52979399	82.06097456	81.33618
CanESM2	Tue Jan 01 2036 00:00:00 GMT-0800 (Pacific Standard Time)	2036	78.52979399	82.06097456	82.41939
CanESM2	Thu Jan 01 2037 00:00:00 GMT-0800 (Pacific Standard Time)	2037	78.52979399	82.06097456	81.78423
CanESM2	Fri Jan 01 2038 00:00:00 GMT-0800 (Pacific Standard Time)	2038	78.52979399	82.06097456	83.80884
CanESM2	Sat Jan 01 2039 00:00:00 GMT-0800 (Pacific Standard Time)	2039	78.52979399	82.06097456	83.38306
CanESM2	Sun Jan 01 2040 00:00:00 GMT-0800 (Pacific Standard Time)	2040	78.52979399	82.06097456	81.4425
CanESM2	Tue Jan 01 2041 00:00:00 GMT-0800 (Pacific Standard Time)	2041	78.52979399	82.06097456	82.65962
CanESM2	Wed Jan 01 2042 00:00:00 GMT-0800 (Pacific Standard Time)	2042	78.52979399	82.06097456	81.38404
CanESM2	Thu Jan 01 2043 00:00:00 GMT-0800 (Pacific Standard Time)	2043	78.52979399	82.06097456	83.28065
CanESM2	Fri Jan 01 2044 00:00:00 GMT-0800 (Pacific Standard Time)	2044	78.52979399	82.06097456	82.04582
CanESM2	Sun Jan 01 2045 00:00:00 GMT-0800 (Pacific Standard Time)	2045	78.52979399	82.06097456	83.78573
CanESM2	Mon Jan 01 2046 00:00:00 GMT-0800 (Pacific Standard Time)	2046			82.28475
CanESM2	Tue Jan 01 2047 00:00:00 GMT-0800 (Pacific Standard Time)	2047			81.89009
CanESM2	Wed Jan 01 2048 00:00:00 GMT-0800 (Pacific Standard Time)	2048			82.47261
CanESM2	Fri Jan 01 2049 00:00:00 GMT-0800 (Pacific Standard Time)	2049			82.634
CanESM2	Sat Jan 01 2050 00:00:00 GMT-0800 (Pacific Standard Time)	2050			83.09914
CanESM2	Sun Jan 01 2051 00:00:00 GMT-0800 (Pacific Standard Time)	2051			83.23967
CanESM2	Mon Jan 01 2052 00:00:00 GMT-0800 (Pacific Standard Time)	2052			82.04439
CanESM2	Wed Jan 01 2053 00:00:00 GMT-0800 (Pacific Standard Time)	2053			83.51766
CanESM2	Thu Jan 01 2054 00:00:00 GMT-0800 (Pacific Standard Time)	2054			84.49722
CanESM2	Fri Jan 01 2055 00:00:00 GMT-0800 (Pacific Standard Time)	2055			85.2758

Cal-Adapt
Annual Averages Tool - Maximum Temperature
Chino Basin

location	User Defined Boundary - Chino Basin
climate variable	Maximum Temperature
units	°F
scenario	rcp45

Projected Modeled Average: **82.06097456 °F**
Historical Modeled Average: **78.5297940 °F**

name	date	Year	Historical Average	Modeled Average	value
CanESM2	Sat Jan 01 2056 00:00:00 GMT-0800 (Pacific Standard Time)	2056			83.05529
CanESM2	Mon Jan 01 2057 00:00:00 GMT-0800 (Pacific Standard Time)	2057			82.81477
CanESM2	Tue Jan 01 2058 00:00:00 GMT-0800 (Pacific Standard Time)	2058			85.55165
CanESM2	Wed Jan 01 2059 00:00:00 GMT-0800 (Pacific Standard Time)	2059			83.02395
CanESM2	Thu Jan 01 2060 00:00:00 GMT-0800 (Pacific Standard Time)	2060			82.02668
CanESM2	Sat Jan 01 2061 00:00:00 GMT-0800 (Pacific Standard Time)	2061			84.82128
CanESM2	Sun Jan 01 2062 00:00:00 GMT-0800 (Pacific Standard Time)	2062			84.89628
CanESM2	Mon Jan 01 2063 00:00:00 GMT-0800 (Pacific Standard Time)	2063			85.28423
CanESM2	Tue Jan 01 2064 00:00:00 GMT-0800 (Pacific Standard Time)	2064			85.41835
CanESM2	Thu Jan 01 2065 00:00:00 GMT-0800 (Pacific Standard Time)	2065			83.466
CanESM2	Fri Jan 01 2066 00:00:00 GMT-0800 (Pacific Standard Time)	2066			82.81083
CanESM2	Sat Jan 01 2067 00:00:00 GMT-0800 (Pacific Standard Time)	2067			81.14315
CanESM2	Sun Jan 01 2068 00:00:00 GMT-0800 (Pacific Standard Time)	2068			82.51757
CanESM2	Tue Jan 01 2069 00:00:00 GMT-0800 (Pacific Standard Time)	2069			83.73537
CanESM2	Wed Jan 01 2070 00:00:00 GMT-0800 (Pacific Standard Time)	2070			82.69908
CanESM2	Thu Jan 01 2071 00:00:00 GMT-0800 (Pacific Standard Time)	2071			83.20507
CanESM2	Fri Jan 01 2072 00:00:00 GMT-0800 (Pacific Standard Time)	2072			85.57098
CanESM2	Sun Jan 01 2073 00:00:00 GMT-0800 (Pacific Standard Time)	2073			82.70067
CanESM2	Mon Jan 01 2074 00:00:00 GMT-0800 (Pacific Standard Time)	2074			85.73146
CanESM2	Tue Jan 01 2075 00:00:00 GMT-0800 (Pacific Standard Time)	2075			84.02912
CanESM2	Wed Jan 01 2076 00:00:00 GMT-0800 (Pacific Standard Time)	2076			84.31841
CanESM2	Fri Jan 01 2077 00:00:00 GMT-0800 (Pacific Standard Time)	2077			84.5246
CanESM2	Sat Jan 01 2078 00:00:00 GMT-0800 (Pacific Standard Time)	2078			83.46555
CanESM2	Sun Jan 01 2079 00:00:00 GMT-0800 (Pacific Standard Time)	2079			84.65419
CanESM2	Mon Jan 01 2080 00:00:00 GMT-0800 (Pacific Standard Time)	2080			82.99439
CanESM2	Wed Jan 01 2081 00:00:00 GMT-0800 (Pacific Standard Time)	2081			83.27694
CanESM2	Thu Jan 01 2082 00:00:00 GMT-0800 (Pacific Standard Time)	2082			85.14016
CanESM2	Fri Jan 01 2083 00:00:00 GMT-0800 (Pacific Standard Time)	2083			83.1606
CanESM2	Sat Jan 01 2084 00:00:00 GMT-0800 (Pacific Standard Time)	2084			83.2149
CanESM2	Mon Jan 01 2085 00:00:00 GMT-0800 (Pacific Standard Time)	2085			83.98228
CanESM2	Tue Jan 01 2086 00:00:00 GMT-0800 (Pacific Standard Time)	2086			83.41109
CanESM2	Wed Jan 01 2087 00:00:00 GMT-0800 (Pacific Standard Time)	2087			85.36587
CanESM2	Thu Jan 01 2088 00:00:00 GMT-0800 (Pacific Standard Time)	2088			83.77036
CanESM2	Sat Jan 01 2089 00:00:00 GMT-0800 (Pacific Standard Time)	2089			83.7258
CanESM2	Sun Jan 01 2090 00:00:00 GMT-0800 (Pacific Standard Time)	2090			83.86174
CanESM2	Mon Jan 01 2091 00:00:00 GMT-0800 (Pacific Standard Time)	2091			83.38391
CanESM2	Tue Jan 01 2092 00:00:00 GMT-0800 (Pacific Standard Time)	2092			84.93088
CanESM2	Thu Jan 01 2093 00:00:00 GMT-0800 (Pacific Standard Time)	2093			83.54354
CanESM2	Fri Jan 01 2094 00:00:00 GMT-0800 (Pacific Standard Time)	2094			82.21828
CanESM2	Sat Jan 01 2095 00:00:00 GMT-0800 (Pacific Standard Time)	2095			84.57479
CanESM2	Sun Jan 01 2096 00:00:00 GMT-0800 (Pacific Standard Time)	2096			84.05474
CanESM2	Tue Jan 01 2097 00:00:00 GMT-0800 (Pacific Standard Time)	2097			84.28218
CanESM2	Wed Jan 01 2098 00:00:00 GMT-0800 (Pacific Standard Time)	2098			83.03013
CanESM2	Thu Jan 01 2099 00:00:00 GMT-0800 (Pacific Standard Time)	2099			84.71685
CanESM2	Fri Jan 01 2100 00:00:00 GMT-0800 (Pacific Standard Time)	2100			85.26877

APPENDIX H

SB X7-7 VERIFICATION FORM

SB X7-7 Table 0: Units of Measure Used in UWMP* *(select one from the drop down list)*
Acre Feet
**The unit of measure must be consistent with Table 2-3*
NOTES:

SB X7-7 Table-1: Baseline Period Ranges			
Baseline	**Parameter**	**Value**	**Units**
10- to 15-year baseline period	2008 total water deliveries	42,072	Acre Feet
	2008 total volume of delivered recycled water	2,637	Acre Feet
	2008 recycled water as a percent of total deliveries	6.27%	Percent
	Number of years in baseline period[1, 2]	10	Years
	Year beginning baseline period range	1995	
	Year ending baseline period range[3]	2004	
5-year baseline period	Number of years in baseline period	5	Years
	Year beginning baseline period range	2003	
	Year ending baseline period range[4]	2007	

[1] *If the 2008 recycled water percent is less than 10 percent, then the first baseline period is a continuous 10-year period. If the amount of recycled water delivered in 2008 is 10 percent or greater, the first baseline period is a continuous 10- to 15-year period.*

[2] *The Water Code requires that the baseline period is between 10 and 15 years. However, DWR recognizes that some water suppliers may not have the minimum 10 years of baseline data.*

[3] *The ending year must be between December 31, 2004 and December 31, 2010.*

[4] *The ending year must be between December 31, 2007 and December 31, 2010.*

NOTES:

SB X7-7 Table 2: Method for Population Estimates	
Method Used to Determine Population (may check more than one)	
☑	**1. Department of Finance** (DOF) DOF Table E-8 (1990 - 2000) and (2000-2010) and DOF Table E-5 (2010 - 2020) when available
☐	**2. Persons-per-Connection Method**
☐	**3. DWR Population Tool**
☐	**4. Other** DWR recommends pre-review
NOTES:	

SB X7-7 Table 3: Service Area Population		
Year		Population
10 to 15 Year Baseline Population		
Year 1	1995	144,087
Year 2	1996	145,459
Year 3	1997	147,322
Year 4	1998	150,021
Year 5	1999	152,413
Year 6	2000	158,007
Year 7	2001	158,428
Year 8	2002	161,051
Year 9	2003	162,828
Year 10	2004	163,956
Year 11		
Year 12		
Year 13		
Year 14		
Year 15		
5 Year Baseline Population		
Year 1	2003	162,828
Year 2	2004	163,956
Year 3	2005	164,504
Year 4	2006	163,757
Year 5	2007	164,175
2015 Compliance Year Population		
2015		168,777
NOTES:		

SB X7-7 Table 4: Annual Gross Water Use *								
Baseline Year *Fm SB X7-7 Table 3*		**Volume Into Distribution System** *This column will remain blank until SB X7-7 Table 4-A is completed.*	**Deductions**					**Annual Gross Water Use**
			Exported Water	**Change in Dist. System Storage (+/-)**	**Indirect Recycled Water** *This column will remain blank until SB X7-7 Table 4-B is completed.*	**Water Delivered for Agricultural Use**	**Process Water** *This column will remain blank until SB X7-7 Table 4-D is completed.*	
10 to 15 Year Baseline - Gross Water Use								
Year 1	1995	36,076			-		-	36,076
Year 2	1996	40,765			-		-	40,765
Year 3	1997	40,116			-		-	40,116
Year 4	1998	40,066			-		-	40,066
Year 5	1999	45,145			-		-	45,145
Year 6	2000	46,100			-		-	46,100
Year 7	2001	43,952			-		-	43,952
Year 8	2002	44,709			-		-	44,709
Year 9	2003	43,447			-		-	43,447
Year 10	2004	42,967			-		-	42,967
Year 11	0	-			-		-	-
Year 12	0	-			-		-	-
Year 13	0	-			-		-	-
Year 14	0	-			-		-	-
Year 15	0	-			-		-	-
10 - 15 year baseline average gross water use								**42,334**
5 Year Baseline - Gross Water Use								
Year 1	2003	43,447			-		-	43,447
Year 2	2004	42,967			-		-	42,967
Year 3	2005	42,205			-		-	42,205
Year 4	2006	43,901			-		-	43,901
Year 5	2007	44,805			-		-	44,805
5 year baseline average gross water use								**43,465**
2015 Compliance Year - Gross Water Use								
2015		29,943	-		-		-	**29,943**

* NOTE that the units of measure must remain consistent throughout the UWMP, as reported in Table 2-3

NOTES:

SB X7-7 Table 4-A: Volume Entering the Distribution System(s)

Complete one table for each source.

Name of Source	Groundwater
This water source is:	
☑	The supplier's own water source
☐	A purchased or imported source

Baseline Year *Fm SB X7-7 Table 3*		Volume Entering Distribution System	Meter Error Adjustment * *Optional (+/-)*	Corrected Volume Entering Distribution System
10 to 15 Year Baseline - Water into Distribution System				
Year 1	1995	29,266		29,266
Year 2	1996	32,006		32,006
Year 3	1997	32,526		32,526
Year 4	1998	35,484		35,484
Year 5	1999	37,029		37,029
Year 6	2000	36,842		36,842
Year 7	2001	35,105		35,105
Year 8	2002	35,384		35,384
Year 9	2003	30,240		30,240
Year 10	2004	27,824		27,824
Year 11	0			-
Year 12	0			-
Year 13	0			-
Year 14	0			-
Year 15	0			-
5 Year Baseline - Water into Distribution System				
Year 1	2003	30,240		30,240
Year 2	2004	27,824		27,824
Year 3	2005	28,799		28,799
Year 4	2006	28,793		28,793
Year 5	2007	26,946		26,946
2015 Compliance Year - Water into Distribution System				
2015		19,544		19,544

** Meter Error Adjustment - See guidance in Methodology 1, Step 3 of Methodologies Document*

NOTES:

SB X7-7 Table 4-A: Volume Entering the Distribution				
Name of Source	Purchased/ Imported			
This water source is:				
☐	The supplier's own water source			
☑	A purchased or imported source			
Baseline Year *Fm SB X7-7 Table 3*		Volume Entering Distribution System	Meter Error Adjustment * *Optional (+/-)*	Corrected Volume Entering Distribution System
10 to 15 Year Baseline - Water into Distribution System				
Year 1	1995	6,810		6,810
Year 2	1996	8,759		8,759
Year 3	1997	7,590		7,590
Year 4	1998	4,582		4,582
Year 5	1999	8,116		8,116
Year 6	2000	9,258		9,258
Year 7	2001	8,847		8,847
Year 8	2002	9,325		9,325
Year 9	2003	13,207		13,207
Year 10	2004	15,143		15,143
Year 11	-			0
Year 12	-			0
Year 13	-			0
Year 14	-			0
Year 15	-			0
5 Year Baseline - Water into Distribution System				
Year 1	2003	13,207		13,207
Year 2	2004	15,143		15,143
Year 3	2005	13,406		13,406
Year 4	2006	15,108		15,108
Year 5	2007	17,859		17,859
2015 Compliance Year - Water into Distribution System				
2015		10,399		10,399
** Meter Error Adjustment - See guidance in Methodology 1, Step 3 of Methodologies Document*				
NOTES:				

SB X7-7 Table 5: Gallons Per Capita Per Day (GPCD)				
Baseline Year *Fm SB X7-7 Table 3*		Service Area Population *Fm SB X7-7 Table 3*	Annual Gross Water Use *Fm SB X7-7 Table 4*	Daily Per Capita Water Use (GPCD)
10 to 15 Year Baseline GPCD				
Year 1	1995	144,087	36,076	224
Year 2	1996	145,459	40,765	250
Year 3	1997	147,322	40,116	243
Year 4	1998	150,021	40,066	238
Year 5	1999	152,413	45,145	264
Year 6	2000	158,007	46,100	260
Year 7	2001	158,428	43,952	248
Year 8	2002	161,051	44,709	248
Year 9	2003	162,828	43,447	238
Year 10	2004	163,956	42,967	234
Year 11	0	-	-	
Year 12	0	-	-	
Year 13	0	-	-	
Year 14	0	-	-	
Year 15	0	-	-	
10-15 Year Average Baseline GPCD				**245**
5 Year Baseline GPCD				
Baseline Year *Fm SB X7-7 Table 3*		Service Area Population *Fm SB X7-7 Table 3*	Gross Water Use *Fm SB X7-7 Table 4*	Daily Per Capita Water Use
Year 1	2003	162,828	43,447	238
Year 2	2004	163,956	42,967	234
Year 3	2005	164,504	42,205	229
Year 4	2006	163,757	43,901	239
Year 5	2007	164,175	44,805	244
5 Year Average Baseline GPCD				**237**
2015 Compliance Year GPCD				
2015		168,777	29,943	**158**
NOTES:				

SB X7-7 Table 6: Gallons per Capita per Day *Summary From Table SB X7-7 Table 5*	
10-15 Year Baseline GPCD	245
5 Year Baseline GPCD	237
2015 Compliance Year GPCD	158
NOTES:	

SB X7-7 Table 7: 2020 Target Method *Select Only One*		
Target Method		Supporting Documentation
☑	Method 1	SB X7-7 Table 7A
☐	Method 2	SB X7-7 Tables 7B, 7C, and 7D *See UWMP DWR webpage or contact staff for these tables*
☐	Method 3	SB X7-7 Table 7-E
☐	Method 4	Method 4 Calculator
NOTES:		

SB X7-7 Table 7-A: Target Method 1 20% Reduction	
10-15 Year Baseline GPCD	**2020 Target GPCD**
245	**196**
NOTES:	

SB X7-7 Table 7-F: Confirm Minimum Reduction for 2020 Target			
5 Year Baseline GPCD *From SB X7-7 Table 5*	Maximum 2020 Target[1]	Calculated 2020 Target[2]	**Confirmed 2020 Target**
237	225	196	**196**

[1] Maximum 2020 Target is 95% of the 5 Year Baseline GPCD except for suppliers at or below 100 GPCD.

[2] 2020 Target is calculated based on the selected Target Method, see SB X7-7 Table 7 and corresponding tables for agency's calculated target.

NOTES:

SB X7-7 Table 8: 2015 Interim Target GPCD		
Confirmed 2020 Target *Fm SB X7-7 Table 7-F*	10-15 year Baseline GPCD *Fm SB X7-7 Table 5*	**2015 Interim Target GPCD**
196	245	**220**
NOTES:		

SB X7-7 Table 8: 2015 Compliance								
		Optional Adjustments *(in GPCD)*						
		Enter "0" if Adjustment Not Used						
Actual 2015 GPCD	2015 Interim Target GPCD	Extraordinary Events	Weather Normalization	Economic Adjustment	TOTAL Adjustments	Adjusted 2015 GPCD	2015 GPCD *(Adjusted if applicable)*	**Did Supplier Achieve Targeted Reduction for 2015?**
158	220	-	-	-	-	158	158	**YES**
NOTES:								

SB X7-7 Table 4-B: Indirect Recycled Water Use Deduction *(For use only by agencies that are deducting indirect recycled water)*

Baseline Year *Fm SB X7-7 Table 3*		**Surface Reservoir Augmentation**					**Groundwater Recharge**			**Total Deductible Volume of Indirect Recycled Water Entering the Distribution System**
		Volume Discharged from Reservoir for Distribution System Delivery	Percent Recycled Water	Recycled Water Delivered to Treatment Plant	Transmission/ Treatment Loss	Recycled Volume Entering Distribution System from Surface Reservoir Augmentation	Recycled Water Pumped by Utility*	Transmission/ Treatment Losses	Recycled Volume Entering Distribution System from Groundwater Recharge	
10-15 Year Baseline - Indirect Recycled Water Use										
Year 1	1995			-		-			-	-
Year 2	1996			-		-			-	-
Year 3	1997			-		-			-	-
Year 4	1998			-		-			-	-
Year 5	1999			-		-			-	-
Year 6	2000			-		-			-	-
Year 7	2001			-		-			-	-
Year 8	2002			-		-			-	-
Year 9	2003			-		-			-	-
Year 10	2004			-		-			-	-
Year 11	0			-		-			-	-
Year 12	0			-		-			-	-
Year 13	0			-		-			-	-
Year 14	0			-		-			-	-
Year 15	0			-		-			-	-
5 Year Baseline - Indirect Recycled Water Use										
Year 1	2003			-		-			-	-
Year 2	2004			-		-			-	-
Year 3	2005			-		-			-	-
Year 4	2006			-		-			-	-
Year 5	2007			-		-			-	-
2020 Compliance - Indirect Recycled Water Use										
2020				-		-			-	-

**Suppliers will provide supplemental sheets to document the calculation for their input into "Recycled Water Pumped by Utility". The volume reported in this cell must be less than total groundwater pumped - See Methodology 1, Step 8, section 2.c.*

NOTES:

APPENDIX I

SB X7-7 2020 COMPLIANCE FORM

SB X7-7 2020 Compliance Form

The SB X7-7 2020 Compliance Form is for the calculation of 2020 compliance only. All retail suppliers must complete the SB X7-7 Compliance Form. Baseline and target calculations are done in the SB X 7-7 Verification Form.

The SB X7-7 Verification Form is for the calculation of baselines and targets and is a separate workbook from the SB X7-7 2020 Compliance Form.

Most Suppliers will have completed the SB X7-7 Verification Form with their 2015 UWMP and do not need to complete this form again in 2020. See Chapter 5 Section 5.3 of the UWMP Guidebook for more information regarding which Suppliers must, or may, complete the SB X7-7 Verification Form for their 2020 UWMP. 2020 compliance calculations are done in the SB X7-7 2020 Compliance Form.

WUE Data Portal Entry Exceptions

The data from the tables below will not be entered into WUE Data Portal tables. These tables will be submitted as separate uploads, in Excel, to WUE Data Portal.

Process Water Deduction

SB X7-7 tables 4-C, 4-C.1, 4-C.2, 4-C.3, 4-C.4 and 4-D

A supplier that will use the process water deduction will complete the appropriate tables in Excel, submit them as a separate upload to the WUE Data Portal, and include them in its UWMP.

SB X7-7 Table 0: Units of Measure Used in 2020 UWMP* *(select one from the drop down list)*
Acre Feet
**The unit of measure must be consistent throughout the UWMP, as reported in Submittal Table 2-3.*
NOTES:

SB X7-7 Table 2: Method for 2020 Population Estimate	
Method Used to Determine 2020 Population (may check more than one)	
☑	**1. Department of Finance** (DOF) or **American Community Survey** (ACS)
☐	**2. Persons-per-Connection Method**
☐	**3. DWR Population Tool**
☐	**4. Other** DWR recommends pre-review
NOTES: Used service area boundary to approximate population determined by the Department of Finance for the City of Ontario.	

SB X7-7 Table 3: 2020 Service Area Population	
2020 Compliance Year Population	
2020	178,409
NOTES:	

SB X7-7 Table 4: 2020 Gross Water Use							
Compliance Year 2020	**2020 Volume Into Distribution System** *This column will remain blank until SB X7-7 Table 4-A is completed.*	**2020 Deductions**					**2020 Gross Water Use**
		Exported Water *	**Change in Dist. System Storage*** (+/-)	**Indirect Recycled Water** *This column will remain blank until SB X7-7 Table 4-B is completed.*	**Water Delivered for Agricultural Use***	**Process Water** *This column will remain blank until SB X7-7 Table 4-D is completed.*	
	32,109			-		-	**32,109**

*** Units of measure (AF, MG , or CCF)** must remain consistent throughout the UWMP, as reported in SB X7-7 Table 0 and Submittal Table 2-3.

NOTES:

SB X7-7 Table 4-A: 2020 Volume Entering the Distribution System(s), Meter Error Adjustment

Complete one table for each source.

Name of Source	Chino Basin Groundwater
This water source is *(check one)* **:**	
☑	The supplier's own water source
☐	A purchased or imported source

Compliance Year 2020	Volume Entering Distribution System [1]	Meter Error Adjustment [2] *Optional (+/-)*	Corrected Volume Entering Distribution System
	18,395	-	18,395

[1] ***Units of measure (AF, MG , or CCF)*** *must remain consistent throughout the UWMP, as reported in SB X7-7 Table 0 and Submittal Table 2-3.*

[2] ***Meter Error Adjustment*** *- See guidance in Methodology 1, Step 3 of Methodologies Document*

NOTES

SB X7-7 Table 4-A: 2020 Volume Entering the Distribution System(s) Meter Error Adjustment

Complete one table for each source.

Name of Source	Water Facilities Authority
This water source is *(check one)* **:**	
☐	The supplier's own water source
☑	A purchased or imported source

Compliance Year 2020	Volume Entering Distribution System [1]	Meter Error Adjustment [2] *Optional (+/-)*	Corrected Volume Entering Distribution System
	6,513		6,513

[1] ***Units of measure (AF, MG , or CCF)*** *must remain consistent throughout the UWMP, as reported in SB X7-7 Table 0 and Submittal Table 2-3.*

[2] ***Meter Error Adjustment*** *- See guidance in Methodology 1, Step 3 of Methodologies Document*

NOTES:

SB X7-7 Table 4-A: 2020 Volume Entering the Distribution System(s), Meter Error Adjustment

Complete one table for each source.

Name of Source	Chino Basin Desalter Authority
This water source is *(check one)* **:**	
☐	The supplier's own water source
☑	A purchased or imported source

Compliance Year 2020	Volume Entering Distribution System [1]	Meter Error Adjustment [2] *Optional (+/-)*	Corrected Volume Entering Distribution System
	6,636		6,636

[1] ***Units of measure (AF, MG , or CCF)*** *must remain consistent throughout the UWMP, as reported in SB X7-7 Table 0 and Submittal Table 2-3.*

[2] ***Meter Error Adjustment*** *- See guidance in Methodology 1, Step 3 of Methodologies Document*

NOTES:

SB X7-7 Table 4-A: 2020 Volume Entering the Distribution System(s), Meter Error Adjustment

Complete one table for each source.

Name of Source	San Antonio Water Company
This water source is *(check one)* **:**	
☐	The supplier's own water source
☑	A purchased or imported source

Compliance Year 2020	Volume Entering Distribution System [1]	Meter Error Adjustment [2] *Optional (+/-)*	Corrected Volume Entering Distribution System
	565		565

[1] ***Units of measure (AF, MG , or CCF)*** *must remain consistent throughout the UWMP, as reported in SB X7-7 Table 0 and Submittal Table 2-3.*

[2] ***Meter Error Adjustment*** *- See guidance in Methodology 1, Step 3 of Methodologies Document*

NOTES:

SB X7-7 Table 4-B: 2020 Indirect Recycled Water Use Deduction *(For use only by agencies that are deducting indirect recycled water)*

2020 Compliance Year	2020 Surface Reservoir Augmentation					2020 Groundwater Recharge			Total Deductible Volume of Indirect Recycled Water Entering the Distribution System
	Volume Discharged from Reservoir for Distribution System Delivery[1]	Percent Recycled Water	Recycled Water Delivered to Treatment Plant	Transmission/ Treatment Loss[1]	Recycled Volume Entering Distribution System from Surface Reservoir Augmentation	Recycled Water Pumped by Utility[1,2]	Transmission/ Treatment Losses[1]	Recycled Volume Entering Distribution System from Groundwater Recharge	
			-		-			-	-

[1] ***Units of measure (AF, MG , or CCF)*** *must remain consistent throughout the UWMP, as reported in SB X7-7 Table 0 and Submittal Table 2-3.*

[2] *Suppliers will provide supplemental sheets to document the calculation for their input into "Recycled Water Pumped by Utility". The volume reported in this cell must be less than total groundwater pumped - See Methodology 1, Step 8, section 2.c.*

SB X7-7 Table 4-C: 2020 Process Water Deduction Eligibility (For use only by agencies that are deducting process water) Choose Only One	
☐	**Criteria 1**- Industrial water use is equal to or greater than 12% of gross water use. Complete SB X7-7 Table 4-C.1
☐	**Criteria 2** - Industrial water use is equal to or greater than 15 GPCD. Complete SB X7-7 Table 4-C.2
☐	**Criteria 3** - Non-industrial use is equal to or less than 120 GPCD. Complete SB X7-7 Table 4-C.3
☐	**Criteria 4** - Disadvantaged Community. Complete SB x7-7 Table 4-C.4
NOTES:	

SB X7-7 Table 4-C.1: 2020 Process Water Deduction Eligibility

(For use only by agencies that are deducting process water using Criteria 1)

Criteria 1

Industrial water use is equal to or greater than 12% of gross water use

2020 Compliance Year	2020 Gross Water Use Without Process Water Deduction	2020 Industrial Water Use	Percent Industrial Water	**Eligible for Exclusion Y/N**
	32,109		0%	NO

NOTES:

SB X7-7 Table 4-C.2: 2020 Process Water Deduction Eligibility

(For use only by agencies that are deducting process water using Criteria 2)

Criteria 2

Industrial water use is equal to or greater than 15 GPCD

2020 Compliance Year	2020 Industrial Water Use	2020 Population	2020 Industrial GPCD	**Eligible for Exclusion Y/N**
		178,409	-	NO

NOTES:

SB X7-7 Table 4-C.3: 2020 Process Water Deduction Eligibility

(For use only by agencies that are deducting process water using Criteria 3)

Criteria 3

Non-industrial use is equal to or less than 120 GPCD

2020 Compliance Year	2020 Gross Water Use Without Process Water Deduction *Fm SB X7-7 Table 4*	2020 Industrial Water Use	2020 Non-industrial Water Use	2020 Population *Fm SB X7-7 Table 3*	Non-Industrial GPCD	**Eligible for Exclusion Y/N**
	32,109		32,109	178,409	161	NO

NOTES:

SB X7-7 Table 4-C.4: 2020 Process Water Deduction Eligibility ***(For use only by agencies that are deducting process water using Criteria 4)***

Criteria 4

Disadvantaged Community. A "Disadvantaged Community" (DAC) is a community with a median household income less than 80 percent of the statewide average.

SELECT ONE

"Disadvantaged Community" status was determined using one of the methods listed below:

1. IRWM DAC Mapping tool https://gis.water.ca.gov/app/dacs/

☐	If using the IRWM DAC Mapping Tool, include a screen shot from the tool showing that the service area is considered a DAC.

2. 2020 Median Income

	California Median Household Income*		Service Area Median Household Income	Percentage of Statewide Average	**Eligible for Exclusion? Y/N**
☐	**2020**	**$75,235**		0%	YES

*California median household income 2015 -2019 as reported in US Census Bureau QuickFacts.

NOTES

SB X7-7 Table 4-D: 2020 Process Water Deduction - Volume

Complete a separate table for each industrial customer with a process water exclusion

Name of Industrial Customer	*Enter Name of Industrial Customer 1*				
Compliance Year 2020	Industrial Customer's Total Water Use *	Total Volume Provided by Supplier*	% of Water Provided by Supplier	Customer's Total Process Water Use*	Volume of Process Water Eligible for Exclusion for this Customer
					-

*** Units of measure (AF, MG , or CCF)** must remain consistent throughout the UWMP, as reported in SB X7-7 Table 0 and Submittal Table 2-3.

NOTES:

SB X7-7 Table 5: 2020 Gallons Per Capita Per Day (GPCD)		
2020 Gross Water *Fm SB X7-7 Table 4*	**2020 Population** *Fm SB X7-7 Table 3*	**2020 GPCD**
32,109	178,409	**161**
NOTES:		

SB X7-7 Table 9: 2020 Compliance

Actual 2020 GPCD[1]	Optional Adjustments to 2020 GPCD (Enter "0" if Adjustment Not Used)			TOTAL Adjustments[1]	Adjusted 2020 GPCD [1] *(Adjusted if applicable)*	2020 Confirmed Target GPCD [1, 2]	**Did Supplier Achieve Targeted Reduction for 2020?**
	Extraordinary Events[1]	Weather Normalization[1]	Economic Adjustment[1]				
161	-	-	-	-	161	196	**YES**

[1] *All values are reported in GPCD*

[2] ***2020 Confirmed Target GPCD*** *is taken from the Supplier's SB X7-7 Verification Form Table SB X7-7, 7-F.*

NOTES:

APPENDIX J

CHINO BASIN JUDGMENT

Rec'd J. Stam Jan 27, 1978 tcl

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FILED '78 JAN 30 AM 11 41

FILED - West District
San Bernardino County Clerk
OCT 12 1989

MICROFILMED

SUPERIOR COURT OF THE STATE OF CALIFORNIA

FOR THE COUNTY OF SAN BERNARDINO

CHINO BASIN MUNICIPAL WATER DISTRICT, Plaintiff, v. CITY OF CHINO, et al. Defendants.	No. 164327 RCV 51010

JUDGMENT

Routing ... Date ... Appeals ... Exhibits ... Supervisor ... Asst. Co. Clerk ... Secretary ... Other ... Index

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JUDGMENT
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SUPERIOR COURT OF THE STATE OF CALIFORNIA

FOR THE COUNTY OF SAN BERNARDINO

CHINO BASIN MUNICIPAL WATER DISTRICT, Plaintiff, v. CITY OF CHINO, et al. Defendants.	No. 164327 JUDGMENT

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I. INTRODUCTION

1. Pleadings, Parties and Jurisdiction. The complaint herein was filed on January 2, 1975, seeking an adjudication of water rights, injunctive relief and the imposition of a physical solution. A first amended complaint was filed on July 16, 1976. The defaults of certain defendants have been entered, and certain other defendants dismissed. Other than defendants who have been dismissed or whose defaults have been entered, all defendants have appeared herein. By answers and order of this Court, the issues have been made those of a full inter se adjudication between the

parties. This Court has jurisdiction of the subject matter of this action and of the parties herein.

2. Stipulation For Judgment. Stipulation for entry of judgment has been filed by and on behalf of a majority of the parties, representing a majority of the quantitative rights herein adjudicated.

3. Trial; Findings and Conclusions. Trial was commenced on December 16, 1977, as to the non-stipulating parties, and findings of fact and conclusions of law have been entered disposing of the issues in the case.

4. Definitions. As used in this Judgment, the following terms shall have the meanings herein set forth:

(a) Active Parties. All parties other than those who have filed with Watermaster a written waiver of service of notices, pursuant to Paragraph 58.

(b) Annual or Year -- A fiscal year, July 1 through June 30, following, unless the context shall clearly indicate a contrary meaning.

(c) Appropriative Right -- The annual production right of a producer from the Chino Basin other than pursuant to an overlying right.

(d) Basin Water -- Ground water within Chino Basin which is part of the Safe Yield, Operating Safe Yield, or replenishment water in the Basin as a result of operations under the Physical Solution decreed herein. Said term does not include Stored Water.

(e) CBMWD -- Plaintiff Chino Basin Municipal Water District.

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(f) Chino Basin or Basin -- The ground water basin underlying the area shown as such on Exhibit "B" and within the boundaries described in Exhibit "K".

(g) Chino Basin Watershed -- The surface drainage area tributary to and overlying Chino Basin.

(h) Ground Water -- Water beneath the surface of the ground and within the zone of saturation, i.e., below the existing water table.

(i) Ground Water Basin -- An area underlain by one or more permeable formations capable of furnishing substantial water storage.

(j) Minimal Producer -- Any producer whose production does not exceed five acre-feet per year.

(k) MWD -- The Metropolitan Water District of Southern California.

(l) Operating Safe Yield -- The annual amount of ground water which Watermaster shall determine, pursuant to criteria specified in Exhibit "I", can be produced from Chino Basin by the Appropriative Pool parties free of replenishment obligation under the Physical Solution herein.

(m) Overdraft -- A condition wherein the total annual production from the Basin exceeds the Safe Yield thereof.

(n) Overlying Right -- The appurtenant right of an owner of lands overlying Chino Basin to produce water from the Basin for overlying beneficial use on such lands.

(o) Person. Any individual, partnership, association, corporation, governmental entity or agency, or other organization.

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(p) PVMWD -- Defendant Pomona Valley Municipal Water District.

(q) Produce or Produced -- To pump or extract ground water from Chino Basin.

(r) Producer -- Any person who produces water from Chino Basin.

(s) Production -- Annual quantity, stated in acre feet, of water produced.

(t) Public Hearing -- A hearing after notice to all parties and to any other person legally entitled to notice.

(u) Reclaimed Water -- Water which, as a result of processing of waste water, is suitable for a controlled use.

(v) Replenishment Water -- Supplemental water used to recharge the Basin pursuant to the Physical Solution, either directly by percolating the water into the Basin or indirectly by delivering the water for use in lieu of production and use of safe yield or Operating Safe Yield.

(w) Responsible Party -- The owner, co-owner, lessee or other person designated by multiple parties interested in a well as the person responsible for purposes of filing reports hereunder.

(x) Safe Yield -- The long-term average annual quantity of ground water (excluding replenishment or stored water but including return flow to the Basin from use of replenishment or stored water) which can be produced from the Basin under cultural conditions of a particular year without causing an undesirable result.

(y) SBVMWD -- San Bernardino Valley Municipal Water

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District.

(z) State Water -- Supplemental Water imported through the State Water Resources Development System, pursuant to Chapter 8, Division 6, Part 6 of the Water Code.

(aa) Stored Water -- Supplemental water held in storage, as a result of direct spreading, in lieu delivery, or otherwise, for subsequent withdrawal and use pursuant to agreement with Watermaster.

(bb) Supplemental Water -- Includes both water imported to Chino Basin from outside Chino Basin Watershed, and reclaimed water.

(cc) WMWD -- Defendant Western Municipal Water District of Riverside County.

5. List of Exhibits. The following exhibits are attached to this Judgment and made a part hereof:

"A" -- "Location Map of Chino Basin" showing boundaries of Chino Basin Municipal Water District, and other geographic and political features.

"B" -- "Hydrologic Map of Chino Basin" showing hydrologic features of Chino Basin.

"C" -- Table Showing Parties in Overlying (Agricultural) Pool.

"D" -- Table Showing Parties in Overlying (Non-agricultural Pool and Their Rights.

"E" -- Table Showing Appropriators and Their Rights.

"F" -- Overlying (Agricultural) Pool Pooling Plan.

"G" -- Overlying (Non-agricultural) Pool Pooling Plan.

"H" -- Appropriative Pool Pooling Plan.

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"I" -- Engineering Appendix.

"J" -- Map of In Lieu Area No. 1.

"K" -- Legal Description of Chino Basin.

II. DECLARATION OF RIGHTS

A. HYDROLOGY

6. Safe Yield. The Safe Yield of Chino Basin is 140,000 acre feet per year.

7. Overdraft and Prescriptive Circumstances. In each year for a period in excess of five years prior to filing of the First Amended Complaint herein, the Safe Yield of the Basin has been exceeded by the annual production therefrom, and Chino Basin is and has been for more than five years in a continuous state of overdraft. The production constituting said overdraft has been open, notorious, continuous, adverse, hostile and under claim of right. The circumstances of said overdraft have given notice to all parties of the adverse nature of such aggregate over-production.

B. WATER RIGHTS IN SAFE YIELD

8. Overlying Rights. The parties listed in Exhibits "C" and "D" are the owners or in possession of lands which overlie Chino Basin. As such, said parties have exercised overlying water rights in Chino Basin. All overlying rights owned or exercised by parties listed in Exhibits "C" and "D" have, in the aggregate, been limited by prescription except to the extent such rights have been preserved by self-help by said parties. Aggregate preserved overlying rights in the Safe Yield for agricultural pool use, including the rights of the State of California, total 82,800 acre feet per year. Overlying rights for non-agricultural pool use

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total 7,366 acre feet per year and are individually decreed for each affected party in Exhibit "D". No portion of the Safe Yield of Chino Basin exists to satisfy unexercised overlying rights, and such rights have all been lost by prescription. However, uses may be made of Basin Water on overlying lands which have no preserved overlying rights pursuant to the Physical Solution herein. All overlying rights are appurtenant to the land and cannot be assigned or conveyed separate or apart therefrom.

9. Appropriative Rights. The parties listed in Exhibit "E" are the owners of appropriative rights, including rights by prescription, in the unadjusted amounts therein set forth, and by reason thereof are entitled under the Physical Solution to share in the remaining Safe Yield, after satisfaction of overlying rights and rights of the State of California, and in the Operating Safe Yield in Chino Basin, in the annual shares set forth in Exhibit "E".

(a) Loss of Priorities. By reason of the long continued overdraft in Chino Basin, and in light of the complexity of determining appropriative priorities and the need for conserving and making maximum beneficial use of the water resources of the State, each and all of the parties listed in Exhibit "E" are estopped and barred from asserting special priorities or preferences, inter se. All of said appropriative rights are accordingly deemed and considered of equal priority.

(b) Nature and Quantity. All rights listed in Exhibit "E" are appropriative and prescriptive in nature. By reason of the status of the parties, and the provisions of Section

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1007 of the Civil Code, said rights are immune from reduction or limitation by prescription.

10. Rights of the State of California. The State of California, by and through its Department of Corrections, Youth Authority and Department of Fish and Game, is a significant producer of ground water from and the State is the largest owner of land overlying Chino Basin. The precise nature and scope of the claims and rights of the State need not be, and are not, defined herein. The State, through said departments, has accepted the Physical Solution herein decreed, in the interests of implementing the mandate of Section 2 of Article X of the California Constitution. For all purposes of this Judgment, all future production by the State or its departments or agencies for overlying use on State-owned lands shall be considered as agricultural pool use.

C. RIGHTS TO AVAILABLE GROUND WATER STORAGE CAPACITY

11. Available Ground Water Storage Capacity. There exists in Chino Basin a substantial amount of available ground water storage capacity which is not utilized for storage or regulation of Basin Waters. Said reservoir capacity can appropriately be utilized for storage and conjunctive use of supplemental water with Basin Waters. It is essential that said reservoir capacity utilization for storage and conjunctive use of supplemental water be undertaken only under Watermaster control and regulation, in order to protect the integrity of both such Stored Water and Basin Water in storage and the Safe Yield of Chino Basin.

12. Utilization of Available Ground Water Capacity. Any person or public entity, whether a party to this action or not, may make reasonable beneficial use of the available ground water

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storage capacity of Chino Basin for storage of supplemental water; provided that no such use shall be made except pursuant to written agreement with Watermaster, as authorized by Paragraph 28. In the allocation of such storage capacity, the needs and requirements of lands overlying Chino Basin and the owners of rights in the Safe Yield or Operating Safe Yield of the Basin shall have priority and preference over storage for export.

III. INJUNCTION

13. Injunction Against Unauthorized Production of Basin Water. Each party in each of the respective pools is enjoined, as follows:

(a) Overlying (Agricultural) Pool. Each party in the Overlying (Agricultural) Pool, its officers, agents, employees, successors and assigns, is and they each are ENJOINED AND RESTRAINED from producing ground water from Chino Basin in any year hereafter in excess of such party's correlative share of the aggregate of 82,800 acre feet allocated to said Pool, except pursuant to the Physical Solution or a storage water agreement.

(b) Overlying (Non-Agricultural) Pool. Each party in the Overlying (Non-agricultural) Pool, its officers, agents, employees, successors and assigns, is and they each are ENJOINED AND RESTRAINED from producing ground water of Chino Basin in any year hereafter in excess of such party's decreed rights in the Safe Yield, except pursuant to the provisions of the Physical Solution or a storage water agreement.

(c) Appropriative Pool. Each party in the

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Appropriative Pool, its officers, agents, employees, successors and assigns, is and they are each ENJOINED AND RESTRAINED from producing ground water of Chino Basin in any year hereafter in excess of such party's decreed share of Operating Safe Yield, except pursuant to the provisions of the Physical Solution or a storage water agreement.

14. Injunction Against Unauthorized Storage or Withdrawal of Stored Water. Each party, its officers, agents, employees, successors and assigns is and they each are ENJOINED AND RESTRAINED from storing supplemental water in Chino Basin for withdrawal, or causing withdrawal of, water stored by that party, except pursuant to the terms of a written agreement with Watermaster and in accordance with Watermaster regulations. Any supplemental water stored or recharged in the Basin, except pursuant to such a Water-master agreement, shall be deemed abandoned and not classified as Stored Water. This paragraph has no application, as such, to supplemental water spread or provided in lieu by Watermaster pursuant to the Physical Solution.

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IV. CONTINUING JURISDICTION

15. Continuing Jurisdiction. Full jurisdiction, power and authority are retained and reserved to the Court as to all matters contained in this judgment, except:

(a) The redetermination of Safe Yield, as set forth in Paragraph 6, during the first ten (10) years of operation of the Physical Solution;

(b) The allocation of Safe Yield as between the several pools as set forth in Paragraph 44 of the Physical Solution;

(c) The determination of specific quantitative rights and shares in the declared Safe Yield or Operating Safe Yield herein declared in Exhibits "D" and "E"; and

(d) The amendment or modification of Paragraphs 7(a) and (b) of Exhibit "H", during the first ten (10) years of operation of the Physical Solution, and thereafter only upon affirmative recommendation of at least 67% of the voting power (determined pursuant to the formula described in Paragraph 3 of Exhibit "H"), but not less than one-third of the members of the Appropriative Pool Committee representatives of parties who produce water within CBMWD or WMWD; after said tenth year the formula set forth in said Paragraph 7(a) and 7(b) of Exhibit "H" for payment of the costs of replenishment water may be changed to 100% gross or net, or any percentage split thereof, but only in response to recommendation to the Court by affirmative vote of at least 67% of said voting power of the Appropriative Pool representatives of parties who produce ground water within CBMWD or WMWD, but not less than one-third of their number. In such event, the Court shall act in conformance with such recommendation unless there are compelling reasons to the contrary; and provided, further, that the fact that the allocation of Safe Yield or Operating Safe Yield shares may be rendered moot by a recommended change in the formula for replenishment assessments shall not be deemed to be such a "compelling reason."

Said continuing jurisdiction is provided for the purpose of enabling the Court, upon application of any party, the Watermaster, the Advisory Committee or any Pool Committee, by motion and, upon

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at least 30 days' notice thereof, and after hearing thereon, to make such further or supplemental orders or directions as may be necessary or appropriate for interpretation, enforcement or carrying out of this Judgment, and to modify, amend or amplify any of the provisions of this Judgment.

V. WATERMASTER

A. APPOINTMENT

16. Watermaster Appointment. CBMWD, acting by and through a majority of its board of directors, is hereby appointed Watermaster, to administer and enforce the provisions of this Judgment and any subsequent instructions or orders of the Court hereunder. The term of appointment of Watermaster shall be for five (5) years. The Court will by subsequent orders provide for successive terms or for a successor Watermaster. Watermaster may be changed at any time by subsequent order of the Court, on its own motion, or on the motion of any party after notice and hearing. Unless there are compelling reasons to the contrary, the Court shall act in conformance with a motion requesting the Watermaster be changed if such motion is supported by a majority of the voting power of the Advisory Committee.

B. POWERS AND DUTIES

17. Powers and Duties. Subject to the continuing supervision and control of the Court, Watermaster shall have and may exercise the express powers, and shall perform the duties, as provided in this Judgment or hereafter ordered or authorized by the Court in the exercise of the Court's continuing jurisdiction.

18. Rules and Regulations. Upon recommendation by the

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Advisory Committee, Watermaster shall make and adopt, after public hearing, appropriate rules and regulations for conduct of Watermaster affairs, including meeting schedules and procedures, and compensation of members of Watermaster at not to exceed $25 per member per meeting, or $300 per member per year, whichever is less, plus reasonable expenses related to activities within the Basin. Thereafter, Watermaster may amend said rules from time to time upon recommendation, or with approval of the Advisory Committee after hearing noticed to all active parties. A copy of said rules and regulations, and of any amendments thereof, shall be mailed to each active party.

19. Acquisition of Facilities. Watermaster may purchase, lease, acquire and hold all necessary facilities and equipment; provided, that it is not the intent of the Court that Watermaster acquire any interest in real property or substantial capital assets.

20. Employment of Experts and Agents. Watermaster may employ or retain such administrative, engineering, geologic, accounting, legal or other specialized personnel and consultants as may be deemed appropriate in the carrying out of its powers and shall require appropriate bonds from all officers and employees handling Watermaster funds. Watermaster shall maintain records for purposes of allocation of costs of such services as well as of all other expenses of Watermaster administration as between the several pools established by the Physical Solution.

21. Measuring Devices. Watermaster shall cause parties, pursuant to uniform rules, to install and maintain in good operating condition, at the cost of each party, such necessary measuring

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devices or meters as Watermaster may deem appropriate. Such measuring devices shall be inspected and tested as deemed necessary by Watermaster, and the cost thereof shall constitute an expense of Watermaster.

22. Assessments. Watermaster is empowered to levy and collect all assessments provided for in the pooling plans and Physical Solution.

23. Investment of Funds. Watermaster may hold and invest any and all Watermaster funds in investments authorized from time to time for public agencies of the State of California.

24. Borrowing. Watermaster may borrow from time to time amounts not exceeding the annual anticipated receipts of Watermaster during such year.

25. Contracts. Watermaster may enter into contracts for the performance of any powers herein granted; provided, however, that Watermaster may not contract with or purchase materials, supplies or services from CBMWD, except upon the prior recommendation and approval of the Advisory Committee and pursuant to written order of the Court.

26. Cooperation With Other Agencies. Subject to prior recommendation or approval of the Advisory Committee, Watermaster may act jointly or cooperate with agencies of the United States and the State of California or any political subdivisions, municipalities or districts or any person to the end that the purpose of the Physical Solution may be fully and economically carried out.

27. Studies. Watermaster may, with concurrence of the Advisory Committee or affected Pool Committee and in accordance with Paragraph 54(b), undertake relevant studies of hydrologic

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conditions, both quantitative and qualitative, and operating aspects of implementation of the management program for Chino Basin.

28. Ground Water Storage Agreements. Watermaster shall adopt, with the approval of the Advisory Committee, uniformly applicable rules and a standard form of agreement for storage of supplemental water, pursuant to criteria therefor set forth in Exhibit "I". Upon appropriate application by any person, Watermaster shall enter into such a storage agreement; provided that all such storage agreements shall first be approved by written order of the Court, and shall by their terms preclude operations which will have a substantial adverse impact on other producers.

29. Accounting for Stored Water. Watermaster shall calculate additions, extractions and losses and maintain an annual account of all Stored Water in Chino Basin, and any losses of water supplies or Safe Yield of Chino Basin resulting from such Stored Water.

30. Annual Administrative Budget. Watermaster shall submit to Advisory Committee an administrative budget and recommendation for each fiscal year on or before March 1. The Advisory Committee shall review and submit said budget and their recommendations to Watermaster on or before April 1, following. Watermaster shall hold a public hearing on said budget at its April quarterly meeting and adopt the annual administrative budget which shall include the administrative items for each pool committee. The administrative budget shall set forth budgeted items in sufficient detail as necessary to make a proper allocation of the expense among the several pools, together with Watermaster's proposed allocation. The budget shall contain such additional comparative information

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or explanation as the Advisory Committee may recommend from time to time. Expenditures within budgeted items may thereafter be made by Watermaster in the exercise of powers herein granted, as a matter of course. Any budget transfer in excess of 20% of a budget category during any budget year or modification of such administrative budget during any year shall be first submitted to the Advisory Committee for review and recommendation.

31. Review Procedures. All actions, decisions or rules of Watermaster shall be subject to review by the Court on its own motion or on timely motion by any party, the Watermaster (in the case of a mandated action), the Advisory Committee, or any Pool Committee, as follows:

(a) Effective Date of Watermaster Action. Any action, decision or rule of Watermaster shall be deemed to have occurred or been enacted on the date on which written notice thereof is mailed. Mailing of copies of approved Watermaster minutes to the active parties shall constitute such notice to all parties.

(b) Noticed Motion. Any party, the Watermaster (as to any mandated action), the Advisory Committee, or any Pool Committee may, by a regularly noticed motion, apply to the Court for review of any Watermaster's action, decision or rule. Notice of such motion shall be served personally or mailed to Watermaster and to all active parties. Unless otherwise ordered by the Court, such motion shall not operate to stay the effect of such Watermaster action, decision or rule.

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(c) Time for Motion. Notice of motion to review any Watermaster action, decision or rule shall be served and filed within ninety (90) days after such Watermaster action, decision or rule, except for budget actions, in which event said notice period shall be sixty (60) days.

(d) De Novo Nature of Proceedings. Upon the filing of any such motion, the Court shall require the moving party to notify the active parties, the Watermaster, the Advisory Committee and each Pool Committee, of a date for taking evidence and argument, and on the date so designated shall review de novo the question at issue. Watermaster's findings or decision, if any, may be received in evidence at said hearing, but shall not constitute presumptive or prima facie proof of any fact in issue.

(e) Decision. The decision of the Court in such proceeding shall be an appealable supplemental order in this case. When the same is final, it shall be binding upon the Watermaster and all parties.

C. ADVISORY AND POOL COMMITTEES

32. Authorization. Watermaster is authorized and directed to cause committees of producer representatives to be organized to act as Pool Committees for each of the several pools created under the Physical Solution. Said Pool Committees shall, in turn, jointly form an Advisory Committee to assist Watermaster in performance of its functions under this judgment. Pool Committees shall be composed as specified in the respective pooling plans, and the Advisory Committee shall be composed of not to exceed ten (10) voting representatives from each pool, as designated by the

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respective Pool Committee. WMWD, PVMWD and SBVMWD shall each be entitled to one non-voting representative on said Advisory Committee.

33. Term and Vacancies. Members of any Pool Committee, shall serve for the term, and vacancies shall be filled, as specified in the respective pooling plan. Members of the Advisory Committee shall serve at the will of their respective Pool Committee.

34. Voting Power. The voting power on each Pool Committee shall be allocated as provided in the respective pooling plan. The voting power on the Advisory Committee shall be one hundred (100) votes allocated among the three pools in proportion to the total assessments paid to Watermaster during the preceding year; provided, that the minimum voting power of each pool shall be

(a) Overlying (Agricultural) Pool 20,

(b) Overlying (Non-agricultural) Pool 5, and

(c) Appropriative Pool 20.

In the event any pool is reduced to its said minimum vote, the remaining votes shall be allocated between the remaining pools on said basis of assessments paid to Watermaster by each such remaining pool during the preceding year. The method of exercise of each pool's voting power on the Advisory Committee shall be as determined by the respective pool committees.

35. Quorum. A majority of the voting power of the Advisory Committee or any Pool Committee shall constitute a quorum for the transaction of affairs of such Advisory or Pool Committee; provided, that at least one representative of each Pool Committee shall be required to constitute a quorum of the Advisory Committee. No Pool Committee representative may purposely absent himself or

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herself, without good cause, from an Advisory Committee meeting to deprive it of a quorum. Action by affirmative vote of a majority of the entire voting power of any Pool Committee or the Advisory Committee shall constitute action by such committee. Any action or recommendation of a Pool Committee or the Advisory Committee shall be transmitted to Watermaster in writing, together with a report of any dissenting vote or opinion.

36. Compensation. Pool or Advisory Committee members may receive compensation, to be established by the respective pooling plan, but not to exceed twenty-five dollars ($25.00) for each meeting of such Pool or Advisory Committee attended, and provided that no member of a Pool or Advisory Committee shall receive compensation of more than three hundred ($300.00) dollars for service on any such committee during any one year. All such compensation shall be a part of Watermaster administrative expense. No member of any Pool or Advisory Committee shall be employed by Watermaster or compensated by Watermaster for professional or other services rendered to such Pool or Advisory Committee or to Watermaster, other than the fee for attendance at meetings herein provided, plus reimbursement of reasonable expenses related to activities within the Basin.

37. Organization.

(a) Organizational Meeting. At its first meeting in each year, each Pool Committee and the Advisory Committee shall elect a chairperson and a vice chairperson from its membership. It shall also select a secretary, a treasurer and such assistant secretaries and treasurers as may be appropriate, any of whom may, but need not, be members of

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such Pool or Advisory Committee.

(b) Regular Meetings. All Pool Committees and the Advisory Committee shall hold regular meetings at a place and time to be specified in the rules to be adopted by each Pool and Advisory Committee. Notice of regular meetings of any Pool or Advisory Committee, and of any change in time or place thereof, shall be mailed to all active parties in said pool or pools.

(c) Special Meetings. Special meetings of any Pool or Advisory Committee may be called at any time by the Chairperson or by any three (3) members of such Pool or Advisory Committee by delivering notice personally or by mail to each member of such Pool or Advisory Committee and to each active party at least 24 hours before the time of each such meeting in the case of personal delivery, and 96 hours in the case of mail. The calling notice shall specify the time and place of the special meeting and the business to be transacted. No other business shall be considered at such meeting.

(d) Minutes. Minutes of all Pool Committee, Advisory Committee and Watermaster meetings shall be kept at Watermaster's offices. Copies thereof shall be mailed or otherwise furnished to all active parties in the pool or pools concerned. Said copies of minutes shall constitute notice of any Pool or Advisory Committee action therein reported, and shall be available for inspection by any party.

(e) Adjournments. Any meeting of any Pool or Advisory Committee may be adjourned to a time and place specified in the order of adjournment. Less than a quorum may so adjourn

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from time to time. A copy of the order or notice of adjournment shall be conspicuously posted forthwith on or near the door of the place where the meeting was held.

38. Powers and Functions. The powers and functions of the respective Pool Committees and the Advisory Committee shall be as follows:

(a) Pool Committees. Each Pool Committee shall have the power and responsibility for developing policy recommendations for administration of its particular pool, as created under the Physical Solution. All actions and recommendations of any Pool Committee which require Watermaster implementation shall first be noticed to the other two pools. If no objection is received in writing within thirty (30) days, such action or recommendation shall be transmitted directly to Watermaster for action. If any such objection is received, such action or recommendation shall be reported to the Advisory Committee before being transmitted to Watermaster.

(b) Advisory Committee. The Advisory Committee shall have the duty to study, and the power to recommend, review and act upon all discretionary determinations made or to be made hereunder by Watermaster.

[1] Committee Initiative. When any recommendation or advice of the Advisory Committee is received by Watermaster, action consistent therewith may be taken by Watermaster; provided, that any recommendation approved by 80 votes or more in the Advisory Committee shall constitute a mandate for action by Watermaster consistent therewith. If Watermaster is unwilling or unable to act

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pursuant to recommendation or advice from the Advisory Committee (other than such mandatory recommendations), Watermaster shall hold a public hearing, which shall be followed by written findings and decision. Thereafter, Watermaster may act in accordance with said decision, whether consistent with or contrary to said Advisory Committee recommendation. Such action shall be subject to review by the Court, as in the case of all other Watermaster determinations.

[2] Committee Review. In the event Watermaster proposes to take any discretionary action, other than approval or disapproval of a Pool Committee action or recommendation properly transmitted, or execute any agreement not theretofore within the scope of an Advisory Committee recommendation, notice of such intended action shall be served on the Advisory Committee and its members at least thirty (30) days before the Watermaster meeting at which such action is finally authorized.

(c) Review of Watermaster Actions. Watermaster (as to mandated action), the Advisory Committee or any Pool Committee shall be entitled to employ counsel and expert assistance in the event Watermaster or such Pool or Advisory Committee seeks Court review of any Watermaster action or failure to act. The cost of such counsel and expert assistance shall be Watermaster expense to be allocated to the affected pool or pools.

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VI. PHYSICAL SOLUTION

A. GENERAL

39. Purpose and Objective. Pursuant to the mandate of Section 2 of Article X of the California Constitution, the Court hereby adopts and orders the parties to comply with a Physical Solution. The purpose of these provisions is to establish a legal and practical means for making the maximum reasonable beneficial use of the waters of Chino Basin by providing the optimum economic, long-term, conjunctive utilization of surface waters, ground waters and supplemental water, to meet the requirements of water users having rights in or dependent upon Chino Basin.

40. Need for Flexibility. It is essential that this Physical Solution provide maximum flexibility and adaptability in order that Watermaster and the Court may be free to use existing and future technological, social, institutional and economic options, in order to maximize beneficial use of the waters of Chino Basin. To that end, the Court's retained jurisdiction will be utilized, where appropriate, to supplement the discretion herein granted to the Wastermaster.

41. Watermaster Control. Watermaster, with the advice of the Advisory and Pool Committees, is granted discretionary powers in order to develop an optimum basin management program for Chino Basin, including both water quantity and quality considerations. Withdrawals and supplemental water replenishment of Basin Water, and the full utilization of the water resources of Chino Basin, must be subject to procedures established by and administered through Watermaster with the advice and assistance of the Advisory and Pool Committees composed of the affected producers. Both the

quantity and quality of said water resources may thereby be preserved and the beneficial utilization of the Basin maximized.

42. General Pattern of Operations. It is contemplated that the rights herein decreed will be divided into three (3) operating pools for purposes of Watermaster administration. A fundamental premise of the Physical Solution is that all water users dependent upon Chino Basin will be allowed to pump sufficient waters from the Basin to meet their requirements. To the extent that pumping exceeds the share of the Safe Yield assigned to the Overlying Pools, or the Operating Safe Yield in the case of the Appropriative Pool, each pool will provide funds to enable Watermaster to replace such overproduction. The method of assessment in each pool shall be as set forth in the applicable pooling plan.

B. POOLING

43. Multiple Pools Established. There are hereby established three (3) pools for Watermaster administration of, and for the allocation of responsibility for, and payment of, costs of replenishment water and other aspects of this Physical Solution.

(a) Overlying (Agricultural) Pool. The first pool shall consist of the State of California and all overlying producers who produce water for other than industrial or commercial purposes. The initial members of the pool are listed in Exhibit "C".

(b) Overlying (Non-agricultural) Pool. The second pool shall consist of overlying producers who produce water for industrial or commercial purposes. The initial members of this pool are listed in Exhibit "D".

(c) Appropriative Pool. A third and separate pool shall

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consist of owners of appropriative rights. The initial members of the pool are listed in Exhibit "E".

Any party who changes the character of his use may, by subsequent order of the Court, be reassigned to the proper pool; but the allocation of Safe Yield under Paragraph 44 hereof shall not be changed. Any non-party producer or any person who may hereafter commence production of water from Chino Basin, and who may become a party to this physical solution by intervention, shall be assigned to the proper pool by the order of the Court authorizing such intervention.

44. Determination and Allocation of Rights to Safe Yield of Chino Basin. The declared Safe Yield of Chino Basin is hereby allocated as follows:

Pool	Allocation
Overlying (Agricultural) Pool	414,000 acre feet in any five (5) consecutive years.
Overlying (Non-agricultural) Pool.	7,366 acre feet per year.
Appropriative Pool	49,834 acre feet per year.

The foregoing acre foot allocations to the overlying pools are fixed. Any subsequent change in the Safe Yield shall be debited or credited to the Appropriative Pool. Basin Water available to the Appropriative Pool without replenishment obligation may vary from year to year as the Operating Safe Yield is determined by Watermaster pursuant to the criteria set forth in Exhibit "I".

45. Annual Replenishment. Watermaster shall levy and collect assessments in each year, pursuant to the respective pooling plans, in amounts sufficient to purchase replenishment water to replace production by any pool during the preceding year which exceeds that

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pool's allocated share of Safe Yield in the case of the overlying pools, or Operating Safe Yield in the case of the Appropriative Pool. It is anticipated that supplemental water for replenishment of Chino Basin may be available at different rates to the various pools to meet their replenishment obligations. If such is the case, each pool will be assessed only that amount necessary for the cost of replenishment water to that pool, at the rate available to the pool, to meet its replenishment obligation.

46. Initial Pooling Plans. The initial pooling plans, which are hereby adopted, are set forth in Exhibits "F", "G" and "H", respectively. Unless and until modified by amendment of the judgment pursuant to the Court's continuing jurisdiction, each such plan shall control operation of the subject pool.

C. REPORTS AND ACCOUNTING

47. Production Reports. Each party or responsible party shall file periodically with Watermaster, pursuant to Watermaster rules, a report on a form to be prescribed by Watermaster showing the total production of such party during the preceding reportage period, and such additional information as Watermaster may require, including any information specified by the affected Pool Committee.

48. Watermaster Reports and Accounting. Watermaster's annual report, which shall be filed on or before November 15 of each year and shall apply to the preceding year's operation, shall contain details as to operation of each of the pools and a certified audit of all assessments and expenditures pursuant to this Physical Solution and a review of Watermaster activities.

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D. REPLENISHMENT

49. Sources of Supplemental Water. Supplemental water may be obtained by Watermaster from any available source. Watermaster shall seek to obtain the best available quality of supplemental water at the most reasonable cost for recharge in the Basin. To the extent that costs of replenishment water may vary between pools, each pool shall be liable only for the costs attributable to its required replenishment. Available sources may include, but are not limited to:

(a) Reclaimed Water. There exist a series of agreements generally denominated the Regional Waste Water Agreements between CBMWD and owners of the major municipal sewer systems within the basin. Under those agreements, which are recognized hereby but shall be unaffected and unimpaired by this judgment, substantial quantities of reclaimed water may be made available for replenishment purposes. There are additional sources of reclaimed water which are, or may become, available to Watermaster for said purposes. Maximum beneficial use of reclaimed water shall be given high priority by Watermaster.

(b) State Water. State water constitutes a major available supply of supplemental water. In the case of State Water, Watermaster purchases shall comply with the water service provisions of the State's water service contracts. More specifically, Watermaster shall purchase State Water from MWD for replenishment of excess production within CBMWD, WMWD and PVMWD, and from SBVMWD to replenish excess production within SBVMWD's boundaries in Chino Basin, except to the

extent that MWD and SBVMWD give their consent as required by such State water service contracts.

(c) Local Import. There exist facilities and methods for importation of surface and ground water supplies from adjacent basins and watersheds.

(d) Colorado River Supplies. MWD has water supplies available from its Colorado River Aqueduct.

50. Methods of Replenishment. Watermaster may accomplish replenishment of overproduction from the Basin by any reasonable method, including:

(a) Spreading and percolation or Injection of water in existing or new facilities, subject to the provisions of Paragraphs 19, 25 and 26 hereof.

(b) In Lieu Procedures. Watermaster may make, or cause to be made, deliveries of water for direct surface use, in lieu of ground water production.

E. REVENUES

51. Production Assessment. Production assessments, on whatever basis, may be levied by Watermaster pursuant to the pooling plan adopted for the applicable pool.

52. Minimal Producers. Minimal Producers shall be exempted from payment of production assessments, upon filing of production reports as provided in Paragraph 47 of this Judgment, and payment of an annual five dollar ($5.00) administrative fee as specified by Watermaster rules.

53. Assessment Proceeds -- Purposes. Watermaster shall have the power to levy assessments against the parties (other than minimal pumpers) based upon production during the preceding period

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of assessable production, whether quarterly, semi-annually or annually, as may be determined most practical by Watermaster or the affected Pool Committee.

54. Administrative Expenses. The expenses of administration of this Physical Solution shall be categorized as either (a) general Watermaster administrative expense, or (b) special project expense.

(a) General Watermaster Administrative Expense shall include office rental, general personnel expense, supplies and office equipment, and related incidental expense and general overhead.

(b) Special Project Expense shall consist of special engineering, economic or other studies, litigation expense, meter testing or other major operating expenses. Each such project shall be assigned a Task Order number and shall be separately budgeted and accounted for.

General Watermaster administrative expense shall be allocated and assessed against the respective pools based upon allocations made by the Watermaster, who shall make such allocations based upon generally accepted cost accounting methods. Special Project Expense shall be allocated to a specific pool, or any portion thereof, only upon the basis of prior express assent and finding of benefit by the Pool Committee, or pursuant to written order of the Court.

55. Assessments -- Procedure. Assessments herein provided for shall be levied and collected as follows:

(a) Notice of Assessment. Watermaster shall give written notice of all applicable assessments to each party on

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or before ninety (90) days after the end of the production period to which such assessment is applicable.

(b) Payment. Each assessment shall be payable on or before thirty (30) days after notice, and shall be the obligation of the party or successor owning the water production facility at the time written notice of assessment is given, unless prior arrangement for payment by others has been made in writing and filed with Watermaster.

(c) Delinquency. Any delinquent assessment shall bear interest at 10% per annum (or such greater rate as shall equal the average current cost of borrowed funds to the Watermaster) from the due date thereof. Such delinquent assessment and interest may be collected in a show-cause proceeding herein instituted by the Watermaster, in which case the Court may allow Watermaster its reasonable costs of collection, including attorney's fees.

56. Accumulation of Replenishment Water Assessment Proceeds. In order to minimize fluctuation in assessment and to give Watermaster flexibility in purchase and spreading of replenishment water, Watermaster may make reasonable accumulations of replenishment water assessment proceeds. Interest earned on such retained funds shall be added to the account of the pool from which the funds were collected and shall be applied only to the purchase of replenishment water.

57. Effective Date. The effective date for accounting and operation under this Physical Solution shall be July 1, 1977, and the first production assessments hereunder shall be due after July 1, 1978. Watermaster shall, however, require installation of

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meters or measuring devices and establish operating procedures immediately, and the costs of such Watermaster activity (not including the cost of such meters and measuring devices) may be recovered in the first administrative assessment in 1978.

VII. MISCELLANEOUS PROVISIONS

58. Designation of Address for Notice and Service. Each party shall designate the name and address to be used for purposes of all subsequent notices and service herein, either by its endorsement on the Stipulation for Judgment or by a separate designation to be filed within thirty (30) days after Judgment has been served. Said designation may be changed from time to time by filing a written notice of such change with the Watermaster. Any party desiring to be relieved of receiving notices of Watermaster or committee activity may file a waiver of notice on a form to be provided by Watermaster. Thereafter such party shall be removed from the Active Party list. Watermaster shall maintain at all times a current list of active parties and their addresses for purposes of service. Watermaster shall also maintain a full current list of names and addresses of all parties or their successors, as filed herein. Copies of such lists shall be available, without cost, to any party, the Advisory Committee or any Pool Committee upon written request therefor.

59. Service of Documents. Delivery to or service upon any party or active party by the Watermaster, by any other party, or by the Court, of any item required to be served upon or delivered to such party or active party under or pursuant to the Judgment shall be made personally or by deposit in the United States mail, first

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class, postage prepaid, addressed to the designee and at the address in the latest designation filed by such party or active party.

60. Intervention After Judgment. Any non-party assignee of the adjudicated appropriative rights of any appropriator, or any other person newly proposing to produce water from Chino Basin, may become a party to this judgment upon filing a petition in intervention. Said intervention must be confirmed by order of this Court. Such intervenor shall thereafter be a party bound by this judgment and entitled to the rights and privileges accorded under the Physical Solution herein, through the pool to which the Court shall assign such intervenor.

61. Loss of Rights. Loss, whether by abandonment, forfeiture or otherwise, of any right herein adjudicated shall be accomplished only (1) by a written election by the owner of the right filed with Watermaster, or (2) by order of the Court upon noticed motion and after hearing.

62. Scope of Judgment. Nothing in this Judgment shall be deemed to preclude or limit any party in the assertion against a neighboring party of any cause of action now existing or hereafter arising based upon injury, damage or depletion of water supply available to such party, proximately caused by nearby pumping which constitutes an unreasonable interference with such complaining party's ability to extract ground water.

63. Judgment Binding on Successors. This Judgment and all provisions thereof are applicable to and binding upon not only the parties to this action, but also upon their respective heirs, executors, administrators, successors, assigns, lessees and

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licensees and upon the agents, employees and attorneys in fact of all such persons.

64. Costs. No party shall recover any costs in this proceeding from any other party.

Dated: JAN 27 1978.

Judge

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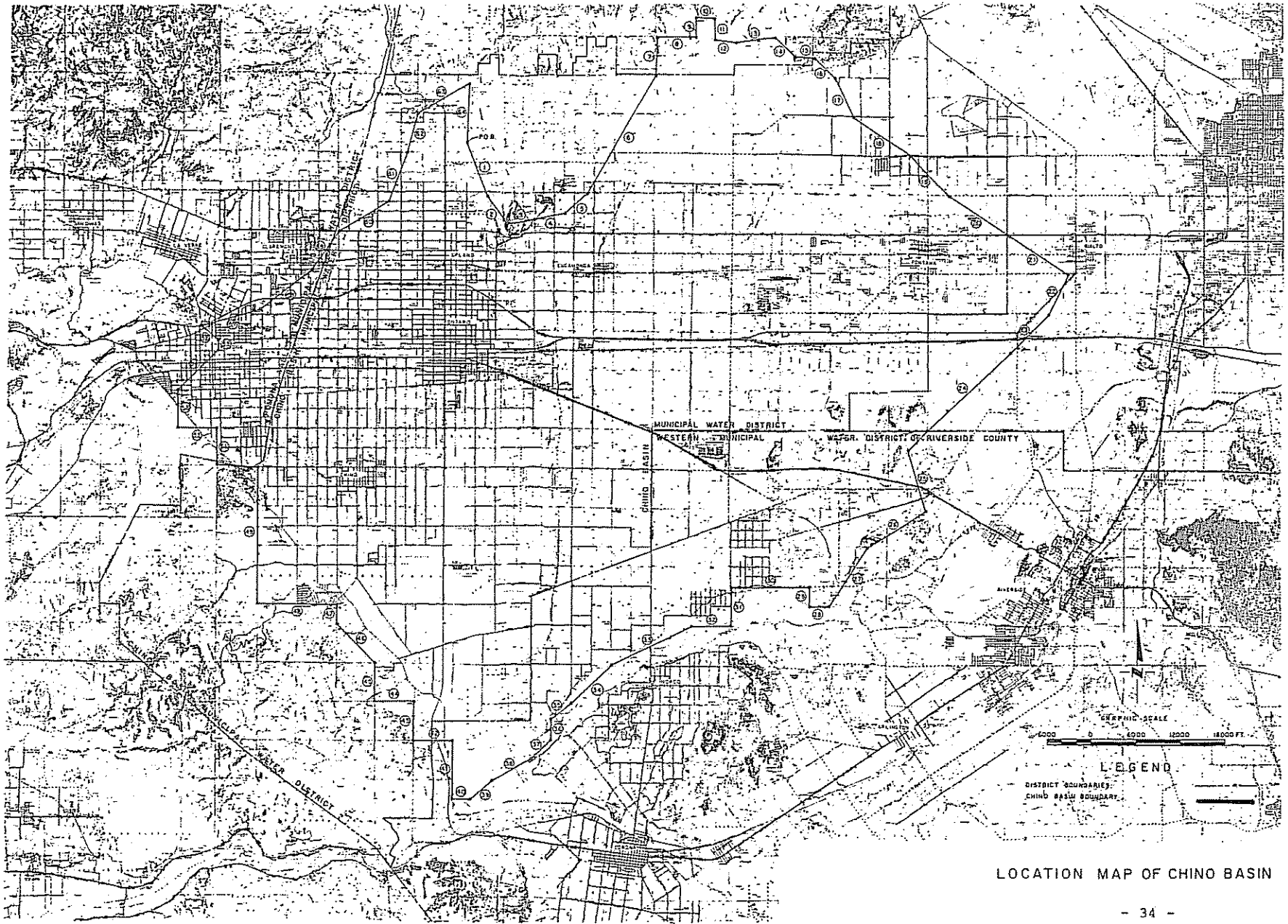
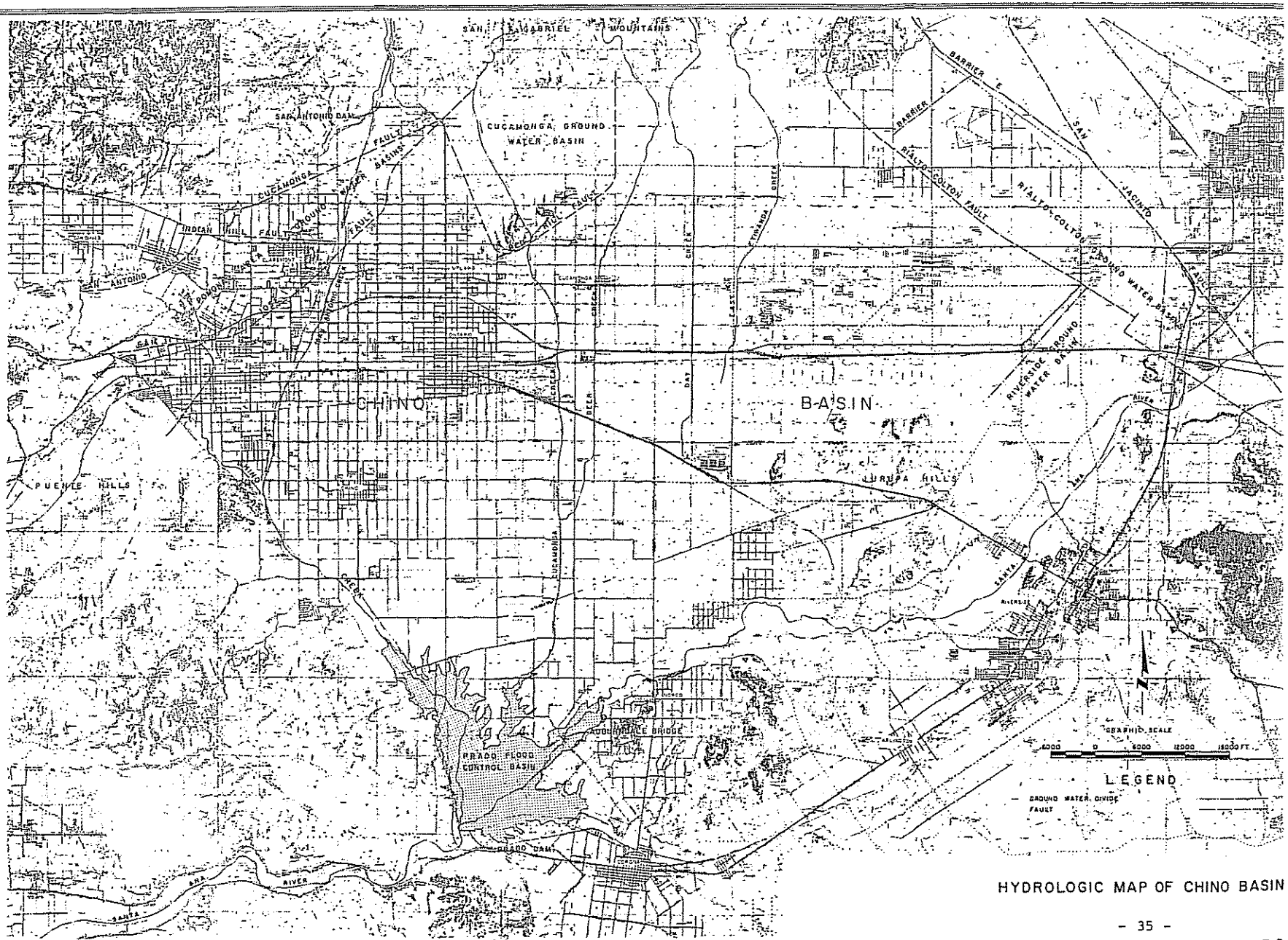


LOCATION MAP OF CHINO BASIN

EXHIBIT A



HYDROLOGIC MAP OF CHINO BASIN

EXHIBIT B

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STIPULATING OVERLYING AGRICULTURAL PRODUCERS

STATE OF CALIFORNIA
COUNTY OF SAN BERNARDINO

Abacherli Dairy, Inc.
Abacherli, Frank
Abacherli, Shirley
Abbona, Anna
Abbona, James
Abbona, Jim
Abbona, Mary
Agliani, Amelia H.
Agman, Inc.
Aguerre, Louis B.
Ahmanson Trust Co.
Akiyama, Shizuye
Akiyama, Tomoo
Akkerman, Dave
Albers, J. N.
Albers, Nellie
Alewyn, Jake J.
Alewyn, Normalee
Alger, Mary D.
Alger, Raymond
Allen, Ben F.
Allen, Jane F.
Alta-Dena Dairy
Anderson Farms
Anguiano, Sarah L. S.
Anker, Gus
Aphessetche, Xavier
Arena Mutual Water Assn.
Armstrong Nurseries, Inc.
Arretche, Frank
Arretche, Jean Pierre
Arvidson, Clarence F.
Arvidson, Florence
Ashley, George W.
Ashley, Pearl E.
Atlas Farms
Atlas Ornamental Iron Works, Inc.
Aukeman, Carol
Aukeman, Lewis
Ayers, Kenneth C., aka
Kelley Ayers
Bachoc, Raymond
Baldwin, Edgar A.
Baldwin, Lester
Banbury, Carolyn
Bangma Dairy
Bangma, Arthur
Bangma, Ida
Bangma, Martin
Bangma, Sam
Barba, Anthony B.
Barba, Frank
Barcellos, Joseph
Barnhill, Maurine W.

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Barnhill, Paul	Boersma, Angie
Bartel, Dale	Boersma, Berdina
Bartel, Ursula	Boersma, Frank
Bartel, Willard	Boersma, Harry
Barthelemy, Henry	Boersma, Paul
Barthelemy, Roland	Boersma, Sam
Bassler, Donald V., M.D.	Boersma, William L.
Bates, Lowell R.	Bohlander & Holmes, Inc.
Bates, Mildred L.	Bokma, Peter
Beahm, James W.	Bollema, Jacob
Beahm, Joan M.	Boonstoo, Edward
Bekendam, Hank	Bootsma, Jim
Bekendam, Pete	Borba, Dolene
Bello, Eugene	Borba, Dolores
Bello, Olga	Borba, Emily
Beltman, Evelyn	Borba, George
Beltman, Tony	Borba, John
Bergquist Properties, Inc.	Borba, John & Sons
Bevacqua, Joel A.	Borba, John Jr.
Bevacqua, Marie B.	Borba, Joseph A.
Bidart, Bernard	Borba, Karen E.
Bidart, Michael J.	Borba, Karen M.
Binnell, Wesley	Borba, Pete, Estate of
Black, Patricia E.	Borba, Ricci
Black, Victor	Borba, Steve
Bodger, John & Sons Co.	Borba, Tom
Boer, Adrian	Bordisso, Alleck
Boersma and Wind Dairy	Borges, Angelica M.

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Borges, Bernadette
Borges, John O.
Borges, Linda L.
Borges, Manual Jr.
Borges, Tony
Bos, Aleid
Bos, Gerrit
Bos, John
Bos, John
Bos, Margaret
Bos, Mary
Bos, Mary Beth
Bos, Tony
Bosch, Henrietta
Bosch, Peter T.
Boschma, Betty
Boschma, Frank
Boschma, Greta
Boschma, Henry
Bosma, Dick
Bosma, Florence G.
Bosma, Gerrit
Bosma, Jacob J.
Bosma, Jeanette Thea
Bosman, Frank
Bosman, Nellie
Bosnyak, Goldie M.
Bosnyak, Martin
Bothof, Roger W.
Bouma, Cornie
Bouma, Emma
Bouma, Henry P.
Bouma, Martin
Bouma, Peter G. & Sons Dairy
Bouma, Ted
Bouman, Helen
Bouman, Sam
Bower, Mabel E.
Boys Republic
Breedyk, Arie
Breedyk, Jessie
Briano Brothers
Briano, Albert
Briano, Albert Trustee for
Briano, Albert Frank
Briano, Lena
Brink, Russell N.
Brinkerhoff, Margaret
Brinkerhoff, Robert L.
Britschgi, Florence
Britschgi, Magdalena Garetto
Britschgi, Walter P.
Brommer, Marvin
Brookside Enterprizes, dba
Brookside Vineyard Co.
Brothers Three Dairy

Brown, Eugene
Brun, Martha M.
Brun, Peter Robert
Buma, Duke
Buma, Martha
Bunse, Nancy
Bunse, Ronnie L.
Caballero, Bonnie L.
Caballero, Richard F.
Cable Airport Inc.
Cadlini, Donald
Cadlini, Jesse R.
Cadlini, Marie Edna
Cambio, Anna
Cambio, Charles, Estate of
Cambio, William V.
Cardoza, Florence
Cardoza, Olivi
Cardoza, Tony
Carnesi, Tom
Carver, Robt M., Trustee
Cauffman, John R.
Chacon Bros.
Chacon, Elvera P.
Chacon, Joe M.
Chacon, Robert M.
Chacon, Virginia L.
Chez, Joseph C.
Chino Corona Investment
Chino Water Co.
Christensen, Leslie
Christensen, Richard G.
Christian, Ada R.
Christian, Harold F.
Christy, Ella J.
Christy, Ronald S.
Cihigoyenetche, Jean
Cihigoyenetche, Leona
Cihigoyenetche, Martin
Clarke, Arthur B.
Clarke, Nancy L.
Clarke, Phyllis J.
Coelho, Isabel
Coelho, Joe A. Jr.
Collins, Howard E.
Collins, Judith F.
Collinsworth, Ester L.
Collinsworth, John E.
Collinsworth, Shelby
Cone Estate (05-2-00648/649)
Consolidated Freightways Corp.
of Delaware
Corona Farms Co.
Corra, Rose
Costa, Dimas S.
Costa, Laura

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Costa, Myrtle	De Boer, L. H.
Costamagna, Antonio	De Boer, Sidney
Costamagna, Joseph	De Bos, Andrew
Cousyn, Claus B.	De Graaf, Anna Mae
Cramer, Carole F.	De Graaf, Gerrit
Cramer, William R.	De Groot, Dick
Crossroads Auto Dismantlers, Inc.	De Groot, Dorothy
Crouse, Beatrice I.	De Groot, Ernest
Crouse, Roger	De Groot, Henrietta
Crowley, Juanita C.	De Groot, Jake
Crowley, Ralph	De Groot, Pete Jr.
Cucamonga Vintners	De Haan, Bernadena
D'Astici, Teresa	De Haan, Henry
Da Costa, Cecilia B.	De Hoog, Adriana
Da Costa, Joaquim F.	De Hoog, Joe
Daloisio, Norman	De Hoog, Martin
De Berard Bros.	De Hoog, Martin L.
De Berard, Arthur, Trustee	De Hoog, Mitch
De Berard, Charles	De Hoog, Tryntje
De Berard, Chas., Trustee	De Jager, Cobi
De Berard, Helan J.	De Jager, Edward D.
De Berard, Robert	De Jong Brothers Dairy
De Berard, Robert, Trustee	De Jong, Cornelis
De Bie, Adrian	De Jong, Cornelius
De Bie, Henry	De Jong, Grace
De Bie, Margaret M.	De Jong, Jake
De Bie, Marvin	De Jong, Lena
De Boer, Fred	De Leeuw, Alice

De Leeuw, Sam	Dirkse, Catherine
De Soete, Agnes	Dirkse, Charles C.
De Soete, Andre	Dixon, Charles E.
De Vries, Abraham	Dixon, Geraldine A.
De Vries, Case	Doesberg, Hendrica
De Vries, Dick	Doesburg, Theodorus P.
De Vries, Evelyn	Dolan, Marion
De Vries, Henry, Estate of	Dolan, Michael H.
De Vries, Hermina	Dominguez, Helen
De Vries, Jack H.	Dominguez, Manual
De Vries, Jane	Donkers, Henry A.
De Vries, Janice	Donkers, Nellie G.
De Vries, John	Dotta Bros.
De Vries, John J.	Douma Brothers Dairy
De Vries, Neil	Douma, Betty A.
De Vries, Ruth	Douma, Fred A.
De Vries, Theresa	Douma, Hendrika
De Wit, Gladys	Douma, Herman G.
De Wit, Peter S.	Douma, Narleen J.
De Wyn, Evert	Douma, Phillip M.
De Zoete, Hattie V.	Dow Chemical Co.
De Zoete, Leo A.	Dragt, Rheta
Decker, Hallie	Dragt, William
Decker, Henry A.	Driftwood Dairy Farm
Demmer, Ernest	Droogh, Case
Di Carlo, Marie	Duhalde, Marian
Di Carlo, Victor	Duhalde, Lauren
Di Tommaso, Frank	Duits, Henrietta

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Duits, John	Excelsior Farms
	F.D.I.C.
Dunlap, Edna Kraemer,	Fagundes, Frank M.
Estate of	Fagundes, Mary
Durrington, Glen	Fernandes, Joseph Jr.
Durrington, William F.	Fernandes, Velma C.
Dusi, John, Sr.	Ferraro, Ann
Dykstra, Dick	Ferreira, Frank J.
Dykstra, John	Ferreira, Joe C. Jr.
Dykstra, John & Sons	Ferreira, Narcie
Dykstra, Wilma	Filippi, J. Vintage Co.
Dyt, Cor	Filippi, Joseph
Dyt, Johanna	Filippi, Joseph A.
E and S Grape Growers	Filippi, Mary E.
Eaton, Thomas, Estate of	Fitzgerald, John R.
Echeverria, Juan	Flameling Dairy Inc.
Echeverria, Carlos	Flamingo Dairy
Echeverria, Pablo	Foss, Douglas E.
Eilers, E. Myrle	Foss, Gerald R.
Eilers, Henry W.	Foss, Russel
El Prado Golf Course	Fred & John Troost No. 1 Inc.
Ellsworth, Rex C.	Fred & Maynard Troost No. 2 Inc.
Engelsma, Jake	Freitas, Beatriz
Engelsma, Susan	Freitas, Tony T.
Escojeda, Henry	Gakle, Louis L.
Etiwanda Grape Products Co.	Galleano Winery, Inc.
Euclid Ave. Investment One	Galleano, Bernard D.
Euclid Ave. Investment Four	Galleano, D.
Euclid Ave. Three Investment	Galleano, Mary M.

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Garcia, Pete
Gardner, Leland V.
Gardner, Lola M.
Garrett, Leonard E.
Garrett, Patricia T.
Gastelluberry, Catherine
Gastelluberry, Jean
Gilstrap, Glen E.
Gilstrap, Marjorie J.
Godinho, John
Godinho, June
Gonsalves, Evelyn
Gonsalves, John
Gorzeman, Geraldine
Gorzeman, Henry A.
Gorzeman, Joe
Govea, Julia
Goyenetche, Albert
Grace, Caroline E.
Grace, David J.
Gravatt, Glenn W.
Gravatt, Sally Mae
Greydanus Dairy, Inc.
Greydanus, Rena
Griffin Development Co.
Haagsma, Dave
Haagsma, John
Hansen, Mary D.
Hansen, Raymond F.
Hanson, Ardeth W.
Harada, James T.
Harada, Violet A.
Haringa, Earl and Sons
Haringa, Herman
Haringa, Rudy
Haringa, William
Harper, Cecilia de Mille
Harrington, Winona
Harrison, Jacqueline A.
Hatanaka, Kenichi
Heida, Annie
Heida, Don
Heida, Jim
Heida, Sam
Helms, Addison D.
Helms, Irma A.
Hermans, Alma I.
Hermans, Harry
Hettinga, Arthur
Hettinga, Ida
Hettinga, Judy
Hettinga, Mary
Hettinga, Wilbur
Heublein, Inc., Grocery Products Group
Hibma, Catherine M.

Hibma, Sidney
Hicks, Kenneth I.
Hicks, Minnie M.
Higgins Brick Co.
Highstreet, Alfred V.
Highstreet, Evada V.
Hilarides, Bertha as Trustee
Hilarides, Frank
Hilarides, John as Trustee
Hindelang, Tillie
Hindelang, William
Hobbs, Bonnie C.
Hobbs, Charles W.
Hobbs, Hazel I.
Hobbs, Orlo M.
Hoekstra, Edward
Hoekstra, George
Hoekstra, Grace
Hoekstra, Louie
Hofer, Paul B.
Hofer, Phillip F.
Hofstra, Marie
Hogeboom, Jo Ann M.
Hogeboom, Maurice D.
Hogg, David V.
Hogg, Gene P.
Hogg, Warren G.
Hohberg, Edith J.
Hohberg, Harold C.
Hohberg, Harold W.
Holder, Arthur B.
Holder, Dorothy F.
Holmes, A. Lee
Holmes, Frances P.
Hoogeboom, Gertrude
Hoogeboom, Pete
Hoogendam, John
Hoogendam, Tena
Houssels, J. K. Thoroughbred Farm
Hunt Industries
Idsinga, Ann
Idsinga, William W.
Imbach Ranch, Inc.
Imbach, Kenneth E.
Imbach, Leonard K.
Imbach, Oscar K.
Imbach, Ruth M.
Indaburu, Jean
Indaburu, Marceline
Iseli, Kurt H.
Ito, Kow
J & B Dairy Inc.
Jaques, Johnny C. Jr.
Jaques, Mary
Jaques, Mary Lou

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Jay Em Bee Farms
Johnson Bro's Egg Ranches, Inc.
Johnston, Ellwood W.
Johnston, George F. Co.
Johnston, Judith H.
Jones, Leonard P.
Jongsma & Sons Dairy
Jongsma, Diana A.
Jongsma, Dorothy
Jongsma, George
Jongsma, Harold
Jongsma, Henry
Jongsma, John
Jongsma, Nadine
Jongsma, Tillie
Jordan, Marjorie G.
Jordan, Troy O.
Jorritsma, Dorothy
Juliano, Albert
Kamper, Cornelis
Kamstra, Wilbert
Kaplan, Lawrence J.
Kasbergen, Martha
Kasbergen, Neil
Kazian, Angelen Estate of
Kingsway Const. Corp.
Klapps Market
Kline, James K.
Knevelbaard, John
Knudsen, Ejnar
Knudsen, Karen M.
Knudsen, Kenneth
Knudson, Robert
Knudson, Darlene
Koel, Helen S.
Koetsier, Gerard
Koetsier, Gerrit J.
Koetsier, Jake
Koning, Fred W.
Koning, Gloria
Koning, J. W. Estate
Koning, James A.
Koning, Jane
Koning, Jane C.
Koning, Jennie
Koning, John
Koning, Victor A.
Kooi Holstein Corporation
Koolhaas, Kenneth E.
Koolhaas, Simon
Koolhaas, Sophie Grace
Koopal, Grace
Koopal, Silas
Koopman, Eka
Koopman, Gene T.
Koopman, Henry G.

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Koopman, Ted
Koopman, Tena
Koot, Nick
Koster, Aart
Koster, Frances
Koster, Henry B.
Koster, Nellie
Kroes, Jake R.
Kroeze, Bros
Kroeze, Calvin E.
Kroeze, John
Kroeze, Wesley
Kruckenberg, Naomi
Kruckenberg, Perry
L. D. S. Welfare Ranch
Labrucherie, Mary Jane
Labrucherie, Raymond F.
Lako, Samuel
Landman Corp.
Lanting, Broer
Lanting, Myer
Lass, Jack
Lass, Sandra L.
Lawrence, Cecelia, Estate of
Lawrence, Joe H., Estate of
Leal, Bradley W.
Leal, John C.
Leal, John Craig
Leck, Arthur A.
Leck, Evelyn M.
Lee, Harold E.
Lee, Helen J.
Lee, Henrietta C.
Lee, R. T. Construction Co.
Lekkerkerk, Adriana
Lekkerkerk, L. M.
Lekkerkerker, Nellie
Lekkerkerker, Walt
Lewis Homes of California
Livingston, Dorothy M.
Livingston, Rex E.
Lokey, Rosemary Kraemer
Lopes, Candida A.
Lopes, Antonio S.
Lopez, Joe D.
Lourenco, Carlos, Jr.
Lourenco, Carmelina P.
Lourenco, Jack C.
Lourenco, Manual H.
Lourenco, Mary
Lourenco, Mary
Luiten, Jack
Luiz, John M.
Luna, Christine I.
Luna, Ruben T.
Lusk, John D. and Son
a California corporation

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Lyon, Gregory E.
Lyon, Paula E.
M & W Co. #2
Madole, Betty M.
Madole, Larry B.
Marquez, Arthur
Marquine, Jean
Martin, Lelon O.
Martin, Leon O.
Martin, Maria D.
Martin, Tony J.
Martins, Frank
Mathias, Antonio
Mc Cune, Robert M.
Mc Masters, Gertrude
Mc Neill, J. A.
Mc Neill, May F.
Mees, Leon
Mello and Silva Dairy
Mello and Sousa Dairy
Mello, Emilia
Mello, Enos C.
Mello, Mercedes
Mendiondo, Catherine
Mendiondo, Dominique
Meth. Hosp. - Sacramento
Metzger, R. S.
Metzger, Winifred
Mickel, Louise
Miersma, Dorothy
Meirsma, Harry C.
Minaberry, Arnaud
Minaberry, Marie
Mistretta, Frank J.
Mocho and Plaa Inc.
Mocho, Jean
Mocho, Noeline
Modica, Josephine
Montes, Elizabeth
Montes, Joe
Moons, Beatrice
Moons, Jack
Moramarco, John A. Enterprises
Moreno, Louis W.
Moss, John R.
Motion Pictures Associates, Inc.
Moynier, Joe
Murphy, Frances V.
Murphy, Myrl L.
Murphy, Naomi
Nanne, Martin Estate of
Nederend, Betty
Nederend, Hans
Norfolk, James
Norfolk, Martha
Notrica, Louis

Nyberg, Lillian N.
Nyenhuis, Annie
Nyenhuis, Jim
Occidental Land Research
Okumura, Marion
Okumura, Yuiche
Oldengarm, Effie
Oldengarm, Egbert
Oldengarm, Henry
Oliviera, Manuel L.
Oliviera, Mary M.
Olson, Albert
Oltmans Construction Co.
Omlin, Anton
Omlin, Elsie L.
Ontario Christian School Assn.
Oord, John
Oostdam, Jacoba
Oostdam, Pete
Oosten, Agnes
Oosten, Anthonia
Oosten, Caroline
Oosten, John
Oosten, Marinus
Oosten, Ralph
Orange County Water District
Ormonde, Manuel
Ormonde, Pete, Jr.
Ormonde, Viva
Ortega, Adeline B.
Ortega, Bernard Dino
Osterkamp, Joseph S.
Osterkamp, Margaret A.
P I E Water Co.
Palmer, Eva E.
Palmer, Walter E.
Parente, Luis S.
Parente, Mary Borba
Parks, Jack B.
Parks, Laura M.
Patterson, Lawrence E. Estate of
Payne, Clyde H.
Payne, Margo
Pearson, Athelia K.
Pearson, William C.
Pearson, William G.
Pene, Robert
Perian, Miller
Perian, Ona E.
Petrissans, Deanna
Petrissans, George
Petrissans, Jean P.
Petrissans, Marie T.
Pickering, Dora M.
(Mrs. A. L. Pickering)
Pierce, John

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Pierce, Sadie
Pietszak, Sally
Pine, Joe
Pine, Virginia
Pires, Frank
Pires, Marie
Plaa, Jeanne
Plaa, Michel
Plantenga, Agnes
Plantenga, George
Poe, Arlo D.
Pomona Cemetery Assn.
Porte, Cecelia, Estate of
Porte, Garritt, Estate of
Portsmouth, Vera McCarty
Ramella, Mary M.
Ramirez, Concha
Rearick, Hildegard H.
Rearick, Richard R.
Reinalda, Clarence
Reitsma, Greta
Reitsma, Louis
Rice, Bernice
Rice, Charlie E.
Richards, Karin
(Mrs. Ronnie Richards)
Richards, Ronald L.
Ridder, Jennie Wassenaar
Righetti, A. T.
Riley, George A.
Riley, Helen C.
Robbins, Jack K.
Rocha, John M.
Rocha, Jose C.
Rodrigues, John
Rodrigues, Manuel
Rodrigues, Manuel, Jr.
Rodrigues, Mary L.
Rodriquez, Daniel
Rogers, Jack D.
Rohrer, John A.
Rohrer, Theresa D.
Rohrs, Elizabeth H.
Rossetti, M. S.
Roukema, Angeline
Roukema, Ed.
Roukema, Nancy
Roukema, Siebren
Ruderian, Max J.
Russell, Fred J.
Rusticus, Ann
Rusticus, Charles
Rynsburger, Arie
Rynsburger, Berdena, Trust
Rynsburger, Joan Adele
Rynsburger, Thomas

S. P. Annex, Inc.
Salisbury, Elinor J.
Sanchez, Edmundo
Sanchez, Margarita O.
Santana, Joe Sr.
Santana, Palmira
Satragni, John B. Jr.
Scaramella, George P.
Schaafsma Bros.
Schaafsma, Jennie
Schaafsma, Peter
Schaafsma, Tom
Schaap, Andy
Schaap, Ids
Schaap, Maria
Schacht, Sharon C.
Schakel, Audrey
Schakel, Fred
Schmid, Olga
Schmidt, Madeleine
Schoneveld, Evert
Schoneveld, Henrietta
Schoneveld, John
Schoneveld, John Allen
Schug, Donald E.
Schug, Shirley A.
Schuh, Bernatta M.
Schuh, Harold H.

Scott, Frances M.
Scott, Linda F.
Scott, Stanley A.
Scritsmier, Lester J.
Serl, Charles A.
Serl, Rosalie P.
Shady Grove Dairy, Inc.
Shamel, Burt A.
Shelby, Harold E.
Shelby, John A.
Shelby, Velma M.
Shelton, Alice A.
Sherwood, Robert W.
Sherwood, Sheila J.
Shue, Eva
Shue, Gilbert
Sieperda, Anne
Sieperda, James
Sigrist, Hans
Sigrist, Rita
Silveira, Arline L.
Silveira, Frank
Silveira, Jack
Silveira, Jack P. Jr.
Simas, Dolores
Simas, Joe
Singleton, Dean
Singleton, Elsie R.

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Sinnott, Jim	Staal, John
Sinnott, Mildred B.	Stahl, Zippora P.
Slegers, Dorothy	Stampfl, Berta
Slegers, Hubert J.	Stampfl, William
Slegers, Jake	Stanley, Robert E.
Slegers, Jim	Stark, Everett
Slegers, Lenwood M.	Stellingwerf, Andrew
Slegers, Martha	Stellingwerf, Henry
Slegers, Tesse J.	Stellingwerf, Jenette
Smith, Edward S.	Stellingwerf, Shana
Smith, Helen D.	Stellingwerf, Stan
Smith, James E.	Stelzer, Mike C.
Smith, Keith J.	Sterk, Henry
Smith, Lester W.	Stiefel, Winifred
Smith, Lois Maxine	Stiefel, Jack D.
Smith, Marjorie W.	Stigall, Richard L.
Soares, Eva	Stigall, Vita
Sogioka, Mitsuyoshi	Stockman's Inn
Sogioka, Yoshimato	Stouder, Charlotte A.
Sousa, Sam	Stouder, William C.
Southern Pacific Land Co.	Struikmans, Barbara
Southfield, Eddie	Struikmans, Gertie
Souza, Frank M.	Struikmans, Henry Jr.
Souza, Mary T.	Struikmans, Henry Sr.
Spickerman, Alberta	Struikmans, Nellie
Spickerman, Florence	Swager, Edward
Spickerman, Rudolph	Swager, Gerben
Spyksma, John	Swager, Johanna

Swager, Marion
Swierstra, Donald
Swierstra, Fanny
Sybrandy, Ida
Sybrandy, Simon
Sytsma, Albert
Sytsma, Edith
Sytsma, Jennie
Sytsma, Louie
Te Velde, Agnes
Te Velde, Bay
Te Velde, Bernard A.
Te Velde, Bonnie
Te Velde, Bonnie G.
Te Velde, George
Te Velde, George, Jr.
Te Velde, Harm
Te Velde, Harriet
Te Velde, Henry J.
Te Velde, Jay
Te Velde, Johanna
Te Velde, John H.
Te Velde, Ralph A.
Te Velde, Zwaantina, Trustee
Ter Maaten, Case
Ter Maaten, Cleone
Ter Maaten, Steve
Terpstra, Carol
Terpstra, Theodore G.
Teune, Tony
Teunissen, Bernard
Teunissen, Jane
Thomas, Ethel M.
Thommen, Alice
Thommen, Fritz
Tillema, Allie
Tillema, Harold
Tillema, Klaas D.
Timmons, William R.
Tollerup, Barbara
Tollerup, Harold
Trapani, Louis A.
Trimlett, Arlene R.
Trimlett, George E.
Tristant, Pierre
Tuinhout, Ale
Tuinhout, Harry
Tuinhout, Hilda
Tuls, Elizabeth
Tuls, Jack S.
Tuls, Jake
Union Oil Company of California
United Dairyman's Co-op.
Urquhart, James G.
Usle, Cathryn
Usle, Faustino

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V & Y Properties
Vaile, Beryl M.
Valley Hay Co.
Van Beek Dairy Inc.
Van Canneyt Dairy
Van Canneyt, Maurice
Van Canneyt, Wilmer
Van Dam, Bas
Van Dam, Isabelle
Van Dam, Nellie
Van Den Berg, Gertrude
Van Den Berg, Joyce
Van Den Berg, Marinus
Van Den Berg, Marvin
Van Der Linden, Ardith
Van Der Linden, John
Van Der Linden, Stanley
Van Der Veen, Kenneth
Van Diest, Anna T.
Van Diest, Cornelius
Van Diest, Ernest
Van Diest, Rena
Van Dyk, Bart
Van Dyk, Jeanette
Van Foeken, Martha
Van Foeken, William
Van Hofwegan, Steve
Van Hofwegen, Adrian A.
Van Hofwegen, Clara
Van Hofwegen, Jessie
Van Klaveren, A.
Van Klaveren, Arie
Van Klaveren, Wilhelmina
Van Klaveren, William
Van Leeuwen, Arie C.
Van Leeuwen, Arie C.
Van Leeuwen, Arlan
Van Leeuwen, Clara G.
Van Leeuwen, Cornelia L.
Van Leeuwen, Harriet
Van Leeuwen, Jack
Van Leeuwen, John
Van Leeuwen, Letie
Van Leeuwen, Margie
Van Leeuwen, Paul
Van Leeuwen, William A.
Van Ravenswaay, Donald
Van Ryn Dairy
Van Ryn, Dick
Van Surksum, Anthonetta
Van Surksum, John
Van Veen, John
Van Vliet, Effie
Van Vliet, Hendrika
Van Vliet, Hugo
Van Vliet, Klaas

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Vande Witte, George	Vander Laan, Katie
Vanden Berge, Gertie	Vander Laan, Martin Jr.
Vanden Berge, Gertie	Vander Laan, Tillie
Vanden Berge, Jack	Vander Leest, Anna
Vanden Berge, Jake	Vander Leest, Ann
Vanden Brink, Stanley	Vander Meer, Alice
Vander Dussen, Agnes	Vander Meer, Dick
Vander Dussen, Cor	Vander Poel, Hank
Vander Dussen, Cornelius	Vander Poel, Pete
Vander Dussen, Edward	Vander Pol, Irene
Vander Dussen, Geraldine Marie	Vander Pol, Margie
Vander Dussen, James	Vander Pol, Marines
Vander Dussen, John	Vander Pol, William P.
Vander Dussen, Nelvina	Vander Schaaf, Earl
Vander Dussen, Rene	Vander Schaaf, Elizabeth
Vander Dussen, Sybrand Jr.	Vander Schaaf, Henrietta
Vander Dussen, Sybrand Sr.	Vander Schaaf, John
Vander Dussen Trustees	Vander Schaaf, Ted
Vander Eyk, Case Jr.	Vander Stelt, Catherine
Vander Eyk, Case Sr.	Vander Stelt, Clarence
Vander Feer, Peter	Vander Tuig, Arlene
Vander Feer, Rieka	Vander Tuig, Sylvester
Vander Laan, Ann	Vander Veen, Joe A.
Vander Laan, Ben	Vandervlag, Robert
Vander Laan, Bill	Vander Zwan, Peter
Vander Laan, Corrie	Vanderford, Betty W.
Vander Laan, Henry	Vanderford, Claud R.
Vander Laan, James	Vanderham, Adrian

Vanderham, Cornelius	Vestal, J. Howard
Vanderham, Cornelius P.	Visser, Gerrit
Vanderham, Cory	Visser, Grace
Vanderham, E. Jane	Visser, Henry
Vanderham, Marian	Visser, Jess
Vanderham, Martin	Visser, Louie
Vanderham, Pete C.	Visser, Neil
Vanderham, Wilma	Visser, Sam
Vasquez, Eleanor	Visser, Stanley
Veenendaal, Evert	Visser, Tony D.
Veenendaal, John H.	Visser, Walter G.
Veiga, Dominick Sr.	Von Der Ahe, Fredric T.
Verbree, Jack	Von Euw, George
Verbree, Tillie	Von Euw, Marjorie
Verger, Bert	Von Lusk, a limited partnership
Verger, Betty	Voortman, Anna Marie
Verhoeven, Leona	Voortman, Edward
Verhoeven, Martin	Voortman, Edwin J.
Verhoeven, Wesley	Voortman, Gertrude Dena
Vermeer, Dick	Wagner, Richard H.
Vermeer, Jantina	Walker, Carole R.
Vernola Ranch	Walker, Donald E.
Vernola, Anthonietta	Walker, Wallace W.
Vernola, Anthony	Wardle, Donald M.
Vernola, Frank	Warner, Dillon B.
Vernola, Mary Ann	Warner, Minnie
Vernola, Pat F.	Wassenaar, Peter W.
Vestal, Frances Lorraine	Waters, Michael

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Weeda, Adriana
Weeda, Daniel
Weeks, O. L.
Weeks, Verona E.
Weidman, Maurice
Weidman, Virginia
Weiland, Adaline I.
Weiland, Peter J.
Wesselink, Jules
West, Katharine R.
West, Russel
West, Sharon Ann
Western Horse Property
Westra, Alice
Westra, Henry
Westra, Hilda
Westra, Jake J.
Weststeyn, Freida
Weststeyn, Pete
Whitehurst, Louis G.
Whitehurst, Pearl L.
Whitmore, David L.
Whitmore, Mary A.
Whitney, Adolph M.
Wiersema, Harm
Wiersema, Harry
Wiersma, Ellen H.
Wiersma, Gladys J.
Wiersma, Jake
Wiersma, Otto
Wiersma, Pete
Winchell, Verne H., Trustee
Wind, Frank
Wind, Fred
Wind, Hilda
Wind, Johanna
Woo, Frank
Woo, Sem Gee
Wybenga, Clarence
Wybenga, Gus
Wybenga, Gus K.
Wybenga, Sylvia
Wynja, Andy
Wynja, Iona F.
Yellis, Mildred
Yellis, Thomas E.
Ykema-Harmsen Dairy
Ykema, Floris
Ykema, Harriet
Yokley, Betty Jo
Yokley, Darrell A.
Zak, Zan
Zivelonghi, George
Zivelonghi, Margaret
Zwaagstra, Jake
Zwaagstra, Jessie M.
Zwart, Case

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NON-PRODUCER WATER DISTRICTS

Chino Basin Municipal Water District

Chino Basin Water Conservation District

Pomona Valley Municipal Water District

Western Municipal Water District of Riverside County

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DEFAULTING OVERLYING AGRICULTURAL PRODUCERS

Cheryl L. Bain	Roy W. Lantis
Warren Bain	Sharon I. Lantis
John M. Barcelona	Frank Lorenz
Letty Bassler	Dagney H. MacDonald
John Brazil	Frank E. Martin
John S. Briano	Ruth C. Martin
Lupe Briano	Connie S. Mello
Paul A. Briano	Naldiro J. Mello
Tillie Briano	Felice Miller
Arnie B. Carlson	Ted Miller
John Henry Fikse	Masao Nerio
Phyllis S. Fikse	Tom K. Nerio
Lewellyn Flory	Toyo Nerio
Mary I. Flory	Yuriko Nerio
L. H. Glazer	Harold L. Rees
Dorothy Goodman	Alden G. Rose
Sidney D. Goodman	Claude Rouleau, Jr.
Frank Grossi	Patricia M. Rouleau
Harada Brothers	Schultz Enterprises
Ellen Hettinga	Albert Shaw
Hein Hettinga	Lila Shaw
Dick Hofstra, Jr.	Cathy M. Stewart
Benjamin M. Hughey	Marvin C. Stewart
Frieda L. Hughey	Betty Ann Stone
Guillaume Indart	John B. Stone
Ellwood B. Johnston, Trustee	Vantoll Cattle Co., Inc.
Perry Kruckenberg, Jr.	Catherene Verburg

Martin Verburg

Donna Vincent

Larry Vincent

Cliff Wolfe & Associates

Ada M. Woll

Zarubica Co.

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EXHIBIT "D"

OVERLYING NON-AGRICULTURAL RIGHTS

Party	Total Overlying Non-Agricultural Rights (Acre Feet)	Share of Safe Yield (Acre Feet)
Ameron Steel Producers, Inc.	125	97.858
County of San Bernardino	171	133.870
Conrock Company	406	317.844
Kaiser Steel Corporation	3,743	2,930.274
Red Star Fertilizer	20	15.657
Southern California Edison Co.	1,255	982.499
Space Center, Mira Loma	133	104.121
Southern Service Co., dba Blue Seal Linen	24	18.789
Sunkist, Orange Products Division	2,393	1,873.402
Carlsberg Mobile Home Properties, Ltd. '73	593	464.240
Union Carbide Corporation	546	427.446
Quaker Chemical Co.	0	0
Totals	9,409	7,366.000

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EXHIBIT "E"
APPROPRIATIVE RIGHTS

Party	Appropriative Right (Acre Feet)	Share of Initial Operating Safe Yield (Acre Feet)	Share of Operating Safe Yield (Percent)
City of Chino	5,271.7	3,670.067	6.693
City of Norco	289.5	201.545	0.368
City of Ontario	16,337.4	11,373.816	20.742
City of Pomona	16,110.5	11,215.852	20.454
City of Upland	4,097.2	2,852.401	5.202
Cucamonga County Water District	4,431.0	3,084.786	5.626
Jurupa Community Services District	1,104.1	768.655	1.402
Monte Vista County Water District	5,958.7	4,148.344	7.565
West San Bernardino County Water District	925.5	644.317	1.175
Etiwanda Water Company	768.0	534.668	0.975
Felspar Gardens Mutual Water Company	68.3	47.549	0.087
Fontana Union Water Co.	9,188.3	6,396.736	11.666
Marygold Mutual Water Co.	941.3	655.317	1.195
Mira Loma Water Co.	1,116.0	776.940	1.417
Monta Vista Irr. Co.	972.1	676.759	1.234
Mutual Water Company of Glen Avon Heights	672.2	467.974	0.853
Park Water Company	236.1	164.369	0.300
Pomona Valley Water Co.	3,106.3	2,162.553	3.944
San Antonio Water Co.	2,164.5	1,506.888	2.748
Santa Ana River Water Company	1,869.3	1,301.374	2.373
Southern California Water Company	1,774.5	1,235.376	2.253
West End Consolidated Water Company	1,361.3	947.714	1.728
TOTAL	78,763.8	54,834.000	100.000

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EXHIBIT "F"
OVERLYING (AGRICULTURAL) POOL
POOLING PLAN

1. Membership in Pool. The State of California and all producers listed in Exhibit "C" shall be the initial members of this pool, which shall include all producers of water for overlying uses other than industrial or commercial purposes.

2. Pool Meetings. The members of the pool shall meet annually, in person or by proxy, at a place and time to be designated by Watermaster for purposes of electing members of the Pool Committee and conducting any other business of the pool. Special meetings of the membership of the pool may be called and held as provided in the rules of the pool.

3. Voting. All voting at meetings of pool members shall be on the basis of one vote for each 100 acre feet or any portion thereof of production from Chino Basin during the preceding year, as shown by the records of Watermaster.

4. Pool Committee. The Pool Committee for this pool shall consist of not less than nine (9) representatives selected at large by members of the pool. The exact number of members of the Pool Committee in any year shall be as determined by majority vote of the voting power of members of the pool in attendance at the annual pool meeting. Each member of the Pool Committee shall have one vote and shall serve for a two-year term. The members first elected shall classify themselves by lot so that approximately one-half serve an initial one-year term. Vacancies during any term shall be filled by a majority of the remaining members of the Pool Committee.

5. Advisory Committee Representatives. The number of

representatives of the Pool Committee on the Advisory Committee shall be as provided in the rules of the pool from time to time but not exceeding ten (10). The voting power of the pool on the Advisory Committee shall be apportioned and exercised as determined from time to time by the Pool Committee.

6. Replenishment Obligation. The pool shall provide funds for replenishment of any production by persons other than members of the Overlying (Non-agricultural) Pool or Appropriator Pool, in excess of the pool's share of Safe Yield. During the first five (5) years of operations of the Physical Solution, reasonable efforts shall be made by the Pool Committee to equalize annual assessments.

7. Assessments. All assessments in this pool (whether for replenishment water cost or for pool administration or the allocated share of Watermaster administration) shall be in an amount uniformly applicable to all production in the pool during the preceding year or calendar quarter. Provided, however, that the Agricultural Pool Committee, may recommend to the Court modification of the method of assessing pool members, inter se, if the same is necessary to attain legitimate basin management objectives, including water conservation and avoidance of undesirable socio-economic consequences. Any such modification shall be initiated and ratified by one of the following methods:

(a) Excess Production. In the event total pool production exceeds 100,000 acre feet in any year, the Pool Committee shall call and hold a meeting, after notice to all pool members, to consider remedial modification of the assessment formula.

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(b) Producer Petition. At any time after the fifth full year of operation under the Physical Solution, a petition by ten percent (10%) of the voting power or membership of the Pool shall compel the holding of a noticed meeting to consider revision of said formula of assessment for replenishment water.

In either event, a majority action of the voting power in attendance at such pool members' meeting shall be binding on the Pool Committee.

8. Rules. The Pool Committee shall adopt rules for conducting meetings and affairs of the committee and for administering its program and in amplification of the provisions, but not inconsistent with, this pooling plan.

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EXHIBIT "G"
OVERLYING (NON-AGRICULTURAL) POOL
POOLING PLAN

1. Membership in Pool. The initial members of the pool, together with the decreed share of the Safe Yield of each, are listed in Exhibit "D". Said pool includes producers of water for overlying industrial or commercial (non-agricultural) purposes, or such producers within the Pool who may hereafter take water pursuant to Paragraph 8 hereof.

2. Pool Committee. The Pool Committee for this pool shall consist of one representative designated by each member of the pool. Voting on the committee shall be on the basis of one vote for each member, unless a volume vote is demanded, in which case votes shall be allocated as follows:

The volume voting power on the Pool Committee shall be 1,484 votes. Of these, 742 votes shall be allocated on the basis of one vote for each ten (10) acre feet or fraction thereof of decreed shares in Safe Yield. (See Exhibit "D".) The remaining 742 votes shall be allocated proportionally on the basis of assessments paid to Watermaster during the preceding year.*

3. Advisory Committee Representatives. At least three (3) members of the Pool Committee shall be designated by said committee to serve on the Advisory Committee. The exact number of such representatives at any time shall be as determined by the Pool Committee. The voting power of the pool shall be exercised in the

*Or production assessments paid under Water Code Section 72140 et seq., as to years prior to the second year of operation under the Physical Solution hereunder.

Advisory Committee as a unit, based upon the vote of a majority of said representatives.

4. Replenishment Obligation. The pool shall provide funds for replenishment of any production in excess of the pool's share of Safe Yield in the preceding year.

5. Assessment. Each member of this pool shall pay an assessment equal to the cost of replenishment water times the number of acre feet of production by such producer during the preceding year in excess of (a) his decreed share of the Safe Yield, plus (b) any carry-over credit under Paragraph 7 hereof. In addition, the cost of the allocated share of Watermaster administration expense shall be recovered on an equal assessment against each acre foot of production in the pool during such preceding fiscal year or calendar quarter; and in the case of Pool members who take substitute ground water as set forth in Paragraph 8 hereof, such producer shall be liable for its share of administration assessment, as if the water so taken were produced, up to the limit of its decreed share of Safe Yield.

6. Assignment. Rights herein decreed are appurtenant to the land and are only assignable with the land for overlying use thereon; provided, however, that any appropriator who may, directly or indirectly, undertake to provide water service to such overlying lands may, by an appropriate agency agreement on a form approved by Watermaster, exercise said overlying right to the extent, but only to the extent necessary to provide water service to said overlying lands.

7. Carry-over. Any member of the pool who produces less than its assigned water share of Safe Yield may carry such unexercised

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right forward for exercise in subsequent years. The first water produced during any such subsequent year shall be deemed to be an exercise of such carry-over right. In the event the aggregate carry-over by any pool member exceeds its share of Safe Yield, such member shall, as a condition of preserving such surplus carry-over, execute a storage agreement with Watermaster.

8. Substitute Supplies. To the extent that any Pool member, at the request of Watermaster and with the consent of the Advisory Committee, takes substitute surface water in lieu of producing ground water otherwise subject to production as an allocated share of Safe Yield, said party shall nonetheless remain a member of this Pool.

9. Rules. The Pool Committee shall adopt rules for administering its program and in amplification of the provisions, but not inconsistent with, this pooling plan.

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EXHIBIT "H"
APPROPRIATIVE POOL
POOLING PLAN

1. Qualification for Pool. Any city, district or other public entity and public utility -- either regulated under Public Utilities Commission jurisdiction, or exempt therefrom as a non-profit mutual water company (other than those assigned to the Overlying [Agricultural] Pool) -- shall be a member of this pool. All initial members of the pool are listed in Exhibit "E", together with their respective appropriative rights and acre foot allocation and percentage shares of the initial and subsequent Operating Safe Yield.

2. Pool Committee. The Pool Committee shall consist of one (1) representative appointed by each member of the Pool.

3. Voting. The total voting power on the Pool Committee shall be 1,000 votes. Of these, 500 votes shall be allocated in proportion to decreed percentage shares in Operating Safe Yield. The remaining 500 votes shall be allocated proportionally on the basis of assessments paid to Watermaster during the preceding year.* Routine business of the Pool Committee may be conducted on the basis of one vote per member, but upon demand of any member a weighted vote shall be taken. Affirmative action of the Committee shall require a majority of the voting power of members in attendance, provided that it includes concurrence by at least one-third of its total members.

4. Advisory Committee Representatives. Ten (10) members of

*Or production assessments paid under Water Code Section 72140 et seq., as to years prior to the second year of operation under the Physical Solution hereunder.

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the Pool Committee shall be designated to represent this pool on the Advisory Committee. Each major appropriator, i.e., the owner of an adjudicated appropriative right in excess of 3,000 acre feet, shall be entitled to one representative. The remaining members representing the Appropriative Pool on the Advisory Committee shall be elected at large by the remaining members of the pool. The voting power of the Appropriative Pool on the Advisory Committee shall be apportioned between the major appropriator representatives in proportion to their respective voting power in the Pool Committee. The remaining two representatives shall exercise equally the voting power proportional to the Pool Committee voting power of all remaining appropriators; provided, however, that if any representative fails to attend an Advisory Committee meeting, the voting power of that representative shall be allocated among the representatives of the Appropriator Pool in attendance in the same proportion as their own respective voting powers.

5. Replenishment Obligation. The pool shall provide funds for purchase of replenishment water to replace any production by the pool in excess of Operating Safe Yield during the preceding year.

6. Administrative Assessment. Costs of administration of this pool and its share of general Watermaster expense shall be recovered by a uniform assessment applicable to all production during the preceding year.

7. Replenishment Assessment. The cost of replenishment water required to replace production from Chino Basin in excess of Operating Safe Yield in the preceding year shall be allocated and recovered as follows:

(a) For production, other than for increased export, within CBMWD or WMWD:

(1) Gross Assessment. 15% of such replenishment water costs shall be recovered by a uniform assessment against all production of each appropriator producing in said area during the preceding year.

(2) Net Assessment. The remaining 85% of said costs shall be recovered by a uniform assessment on each acre foot of production from said area by each such appropriator in excess of his allocated share of Operating Safe Yield during said preceding year.

(b) For production which is exported for use outside Chino Basin in excess of maximum export in any year through 1976, such increased export production shall be assessed against the exporting appropriator in an amount sufficient to purchase replenishment water from CBMWD or WMWD in the amount of such excess.

(c) For production within SBVMWD or PVMWD:

By an assessment on all production in excess of an appropriator's share of Operating Safe Yield in an amount sufficient to purchase replenishment water through SBVMWD or MWD in the amount of such excess.

8. Socio-Economic Impact Review. The parties have conducted certain preliminary socio-economic impact studies. Further and more detailed socio-economic impact studies of the assessment formula and its possible modification shall be undertaken for the Appropriator Pool by Watermaster no later than ten (10) years from the effective date of this Physical Solution, or whenever total

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production by this pool has increased by 30% or more over the decreed appropriative rights, whichever is first.

9. Facilities Equity Assessment. Watermaster may, upon recommendation of the Pool Committee, institute proceedings for levy and collection of a Facilities Equity Assessment for the purposes and in accordance with the procedures which follow:

(a) Implementing Circumstances. There exist several sources of supplemental water available to Chino Basin, each of which has a differential cost and quantity available. The optimum management of the entire Chino Basin water resource favors the maximum use of the lowest cost supplemental water to balance the supplies of the Basin, in accordance with the Physical Solution. The varying sources of supplemental water include importations from MWD and SBVMWD, importation of surface and ground water supplies from other basins in the immediate vicinity of Chino Basin, and utilization of reclaimed water. In order to fully utilize any of such alternate sources of supply, it will be essential for particular appropriators having access to one or more of such supplies to have invested, or in the future to invest, directly or indirectly, substantial funds in facilities to obtain and deliver such water to an appropriate point of use. To the extent that the use of less expensive alternate sources of supplemental water can be maximized by the inducement of a Facilities Equity Assessment, as herein provided, it is to the long-term benefit of the entire basin that such assessment be authorized and levied by Watermaster.

(b) Study and Report. At the request of the Pool

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Committee, Watermaster shall undertake a survey study of the utilization of alternate supplemental supplies by members of the Appropriative Pool which would not otherwise be utilized and shall prepare a report setting forth the amount of such alternative supplies being currently utilized, the amount of such supplies which could be generated by activity within the pool, and the level of cost required to increase such uses and to optimize the total supplies available to the basin. Said report shall contain an analysis and recommendation for the levy of a necessary Facilities Equity Assessment to accomplish said purpose.

(c) Hearing. If the said report by Watermaster contains a recommendation for imposition of a Facilities Equity Assessment, and the Pool Committee so requests, Watermaster shall notice and hold a hearing not less than 60 days after distribution of a copy of said report to each member of the pool, together with a notice of the hearing date. At such hearing, evidence shall be taken with regard to the necessity and propriety of the levy of a Facilities Equity Assessment and full findings and decision shall be issued by Watermaster.

(d) Operation of Assessment. If Watermaster determines that it is appropriate that a Facilities Equity Assessment be levied in a particular year, the amount of additional supplemental supplies which should be generated by such assessment shall be estimated. The cost of obtaining such supplies, taking into consideration the investment in necessary facilities shall then be determined and spread equitably among the producers within the pool in a manner so that those

producers not providing such additional lower cost supplemental water, and to whom a financial benefit will result, may bear a proportionate share of said costs, not exceeding said benefit; provided that any producer furnishing such supplemental water shall not thereby have its average cost of water in such year reduced below such producer's average cost of pumping from the Basin. In so doing, Watermaster shall establish a percentage of the total production by each party which may be produced without imposition of a Facilities Equity Assessment. Any member of the pool producing more water than said percentage shall pay such Facilities Equity Assessment on any such excess production. Watermaster is authorized to transmit and pay the proceeds of such Facilities Equity Assessment to those producers who take less than their share of Basin water by reason of furnishing a higher percentage of their requirements through use of supplemental water.

10. Unallocated Safe Yield Water. To the extent that, in any five years, any portion of the share of Safe Yield allocated to the Overlying (Agricultural) Pool is not produced, such water shall be available for reallocation to members of the Appropriative Pool, as follows:

(a) Priorities. Such allocation shall be made in the following sequence:

(1) to supplement, in the particular year, water available from Operating Safe Yield to compensate for any reduction in the Safe Yield by reason of recalculation thereof after the tenth year of operation hereunder.

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(2) pursuant to conversion claims as defined in Subparagraph (b) hereof.

(3) as a supplement to Operating Safe Yield, without regard to reductions in Safe Yield.

(b) Conversion Claims. The following procedures may be utilized by any appropriator:

(1) Record of Land Use Conversion. Any appropriator who undertakes, directly or indirectly, during any year, to permanently provide water service to lands which during the immediate preceding five (5) consecutive years was devoted to irrigated agriculture may report such change in land use or water service to Watermaster. Watermaster shall thereupon verify such change in water service and shall maintain a record and account for each appropriator of the total acreage involved and the average annual water use during said five-year period.

(2) Establishment of Allocation Percentage. In any year in which unallocated Safe Yield water from the Overlying (Agricultural) Pool is available for such conversion claims, Watermaster shall establish allocable percentages for each appropriator based upon the total of such converted acreage recorded to each such appropriator's account.

(3) Allocation and Notice. Watermaster shall thereafter apply the allocated percentage to the total unallocated Safe Yield water available for special allocation to derive the amount thereof allocable to

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each appropriator; provided that in no event shall the allocation to any appropriator as a result of such conversion claim exceed 50% of the average annual amount of water actually applied to the areas converted by such appropriator prior to such conversion. Any excess water by reason of such limitation on any appropriator's right shall be added to Operating Safe Yield. Notice of such special allocation shall be given to each appropriator and shall be treated for purposes of this Physical Solution as an addition to such appropriator's share of the Operating Safe Yield for the particular year only.

(4) Administrative Costs. Any costs of Watermaster attributable to administration of such special allocations and conversion claims shall be assessed against appropriators participating in such reporting.

11. In Lieu Procedures. There are, or may develop, certain areas within Chino Basin where good management practices dictate that recharge of the basin be accomplished, to the extent practical, by taking surface supplies of supplemental water in lieu of ground water otherwise subject to production as an allocated share of Operating Safe Yield.

(a) Method of Operation. Any appropriator producing water within such designated in lieu area who is willing to abstain for any reason from producing any portion of such producer's share of Operating Safe Yield in any year may offer such unpumped water to Watermaster. In such event, Watermaster shall purchase said water in place, in lieu of spreading replenishment water, which is otherwise required to

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make up for over production. The purchase price for in lieu water shall be the lesser of:

(1) Watermaster's current cost of replenishment water, whether or not replenishment water is currently then obtainable, plus the cost of spreading; or

(2) The cost of supplemental surface supplies to the appropriator, less

a. said appropriator's average cost of ground water production, and

b. the applicable production assessment were the water produced.

Where supplemental surface supplies consist of MWD or SBVMWD supplies, the cost of treated, filtered State water from such source shall be deemed the cost of supplemental surface supplies to the appropriator for purposes of such calculation.

In any given year in which payments may be made pursuant to a Facilities Equity Assessment, as to any given quantity of water the party will be entitled to payment under this section or pursuant to the Facilities Equity Assessment, as the party elects, but not under both.

(b) Designation of In Lieu Areas. The first in lieu area is designated as the "In Lieu Area No. 1" and consists of an area wherein nitrate levels in the ground water generally exceed 45 mg/l, and is shown on Exhibit "J" hereto. Other in lieu areas may be designated by subsequent order of Watermaster upon recommendation or approval by Advisory Committee. Said in lieu areas may be enlarged, reduced or

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eliminated by subsequent orders; provided, however, that designation of In Lieu Areas shall be for a minimum fixed term sufficient to justify necessary capital investment. In Lieu Area No. 1 may be enlarged, reduced or eliminated in the same manner, except that any reduction of its original size or elimination thereof shall require the prior order of Court.

12. Carry-over. Any appropriator who produces less than his assigned share of Operating Safe Yield may carry such unexercised right forward for exercise in subsequent years. The first water produced during any such subsequent year shall be deemed to be an exercise of such carry-over right. In the event the aggregate carry-over by any appropriator exceeds its share of Operating Safe Yield, such appropriator shall, as a condition of preserving such surplus carry-over, execute a storage agreement with Watermaster. Such appropriator shall have the option to pay the gross assessment applicable to such carry-over in the year in which it accrued.

13. Assignment, Transfer and Lease. Appropriative rights, and corresponding shares of Operating Safe Yield, may be assigned or may be leased or licensed to another appropriator for exercise in a given year. Any transfer, lease or license shall be ineffective until written notice thereof is furnished to and approved as to form by Watermaster, in compliance with applicable Watermaster rules. Watermaster shall not approve transfer, lease or license of a right for exercise in an area or under conditions where such production would be contrary to sound basin management or detrimental to the rights or operations of other producers.

14. Rules. The Pool Committee shall adopt rules for

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administering its program and in amplification of the provisions, but not inconsistent with, this pooling plan.

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EXHIBIT "I"

ENGINEERING APPENDIX

1. Basin Management Parameters. In the process of implementing the physical solution for Chino Basin, Watermaster shall consider the following parameters:

(a) Pumping Patterns. Chino Basin is a common supply for all persons and agencies utilizing its waters. It is an objective in management of the Basin's waters that no producer be deprived of access to said waters by reason of unreasonable pumping patterns, nor by regional or localized recharge of replenishment water, insofar as such result may be practically avoided.

(b) Water Quality. Maintenance and improvement of water quality is a prime consideration and function of management decisions by Watermaster.

(c) Economic Considerations. Financial feasibility, ecnomic impact and the cost and optimum utilization of the Basin's resources and the physical facilities of the parties are objectives and concerns equal in importance to water quantity and quality parameters.

2. Operating Safe Yield. Operating Safe Yield in any year shall consist of the Appropriative Pool's share of Safe Yield of the Basin, plus any controlled overdraft of the Basin which Watermaster may authorize. In adopting the Operating Safe Yield for any year, Watermaster shall be limited as follows:

(a) Accumulated Overdraft. During the operation of this Judgment and Physical Solution, the overdraft accumulated from and after the effective date of the Physical

Solution and resulting from an excess of Operating Safe Yield over Safe Yield shall not exceed 200,000 acre feet.

(b) Quantitative Limits. In no event shall Operating Safe Yield in any year be less than the Appropriative Pool's share of Safe Yield, nor shall it exceed such share of Safe Yield by more than 10,000 acre feet. The initial Operating Safe Yield is hereby set at 54,834 acre feet per year. Operating Safe Yield shall not be changed upon less than five (5) years' notice by Watermaster.

Nothing contained in this paragraph shall be deemed to authorize, directly or indirectly, any modification of the allocation of shares in Safe Yield to the overlying pools, as set forth in Paragraph 44 of the Judgment.

3. Ground Water Storage Agreements. Any agreements authorized by Watermaster for storage of supplemental water in the available ground water storage capacity of Chino Basin shall include, but not be limited to:

(a) The quantities and term of the storage right.

(b) A statement of the priority or relation of said right, as against overlying or Safe Yield uses, and other storage rights.

(c) The procedure for establishing delivery rates, schedules and procedures which may include

[1] spreading or injection, or

[2] in lieu deliveries of supplemental water for direct use.

(d) The procedures for calculation of losses and annual accounting for water in storage by Watermaster.

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(e) The procedures for establishment and administration of withdrawal schedules, locations and methods.

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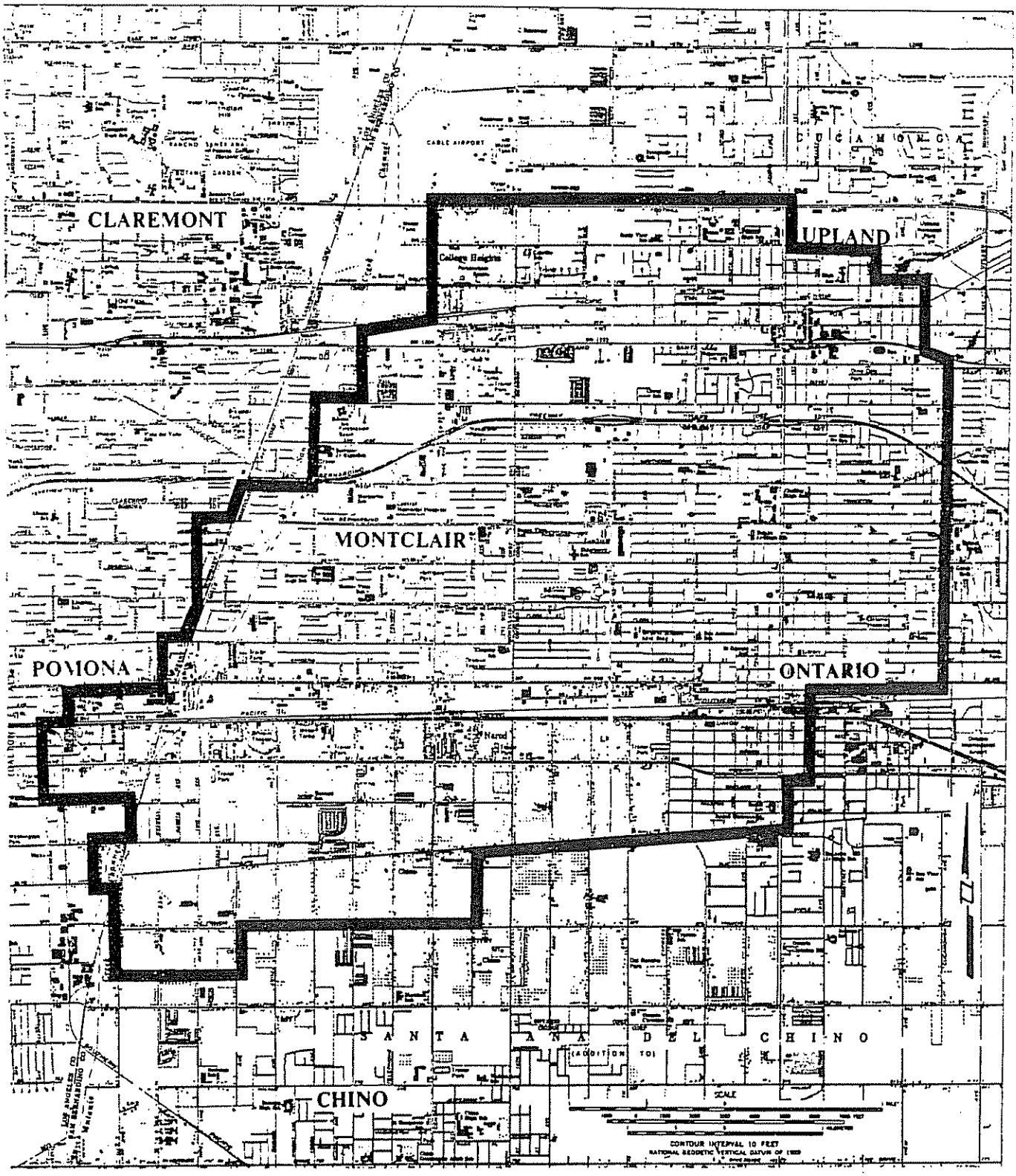


CHINO BASIN

IN LIEU AREA NO. 1

EXHIBIT "J"

LEGAL DESCRIPTION

OF CHINO BASIN

Preamble

All of the townships and ranges referred to in the following legal description are the San Bernardino Base and Meridian. Certain designated sections are implied as the System of Government Surveys may be extended where not established. Said sections are identified as follows:

Section 20, T1N, R8W is extended across Rancho Cucamonga;

Section 36, T1N, R8W is extended across the City of Upland;

Sections 2, 3, and 4, T1S, R7W are extended across Rancho Cucamonga;

Section 10, T1S, R8W is extended across the City of Claremont;

Sections 19, 20, 21, 30, 31 and 32, T1S, R8W are extended across the City of Pomona;

Sections 4, 5, and 28, T2S, R8W are extended across Rancho Santa Ana Del Chino;

Sections 15 and 16, T3S, R7W are extended across Rancho La Sierra; and

Sections 17 and 20, T3S, R7W are extended across Rancho El Rincon.

Description

Chino Basin is included within portions of the Counties of San Bernardino, Riverside and Los Angeles, State of California, bounded by a continuous line described as follows:

BEGINNING at the Southwest corner of Lot 241 as shown on Map of Ontario Colony Lands, recorded in Map Book 11, page 6, Office of the County Recorder of San Bernardino County, said corner being the Point of Beginning;

1. Thence Southeasterly to the Southeast corner

of Lot 419 of said Ontario Colony Lands;

2. Thence Southeasterly to a point 1300 feet North of the South line and 1300 feet East of the West line of Section 4, T1S, R7W;

3. Thence Easterly to a point on the East line of Section 4, 1800 feet North of the Southeast corner of said Section 4;

4. Thence Easterly to the Southeast corner of the Southwest quarter of the Northeast quarter of Section 3, T1S, R7W;

5. Thence Northeasterly to a point on the North line of Section 2, T1S, R7W, 1400 feet East of the West line of said Section 2;

6. Thence Northeasterly to the Southwest corner of Section 18, T1N, R6W;

7. Thence Northerly to the Northwest corner of said Section 18;

8. Thence Easterly to the Northeast corner of said Section 18;

9. Thence Northerly to the Northwest corner of the Southwest quarter of Section 8, T1N, R6W;

10. Thence Easterly to the Northeast corner of said Southwest quarter of said Section 8;

11. Thence Southerly to the Southeast corner of said Southwest quarter of said Section 8;

12. Thence Easterly to the Northeast corner of Section 17, T1N, R6W;

13. Thence Easterly to the Northeast corner of Section 16, T1N, R6W;

14. Thence Southeasterly to the Northwest corner of the Southeast quarter of Section 15, T1N, R6W;

15. Thence Easterly to the Northeast corner of said Southeast quarter of said Section 15;

16. Thence Southeasterly to the Northwest corner of the Northeast quarter of Section 23, T1N, R6W;

17. Thence Southeasterly to the Northwest corner

of Section 25, T1N, R6W;

18. Thence Southeasterly to the Northwest corner of the Northeast quarter of Section 31, T1N, R5W;

19. Thence Southeasterly to the Northeast corner of the Northwest quarter of Section 5, T1S, R5W;

20. Thence Southeasterly to the Southeast corner of Section 4, T1S, R5W;

21. Thence Southeasterly to the Southeast corner of the Southwest quarter of Section 11, T1S, R5W;

22. Thence Southwesterly to the Southwest corner of Section 14, T1S, R5W;

23. Thence Southwest to the Southwest corner of Section 22, T1S, R5W;

24. Thence Southwesterly to the Southwest corner of the Northeast quarter of Section 6, T2S, R5W;

25. Thence Southeasterly to the Northeast corner of Section 18 T2S, R5W;

26. Thence Southwesterly to the Southwest corner of the Southeast quarter of Section 13, T2S, R6W;

27. Thence Southwesterly to the Southwest corner of the Northeast quarter of Section 26, T2S, R6W;

28. Thence Westerly to the Southwest corner of the Northwest quarter of said Section 26;

29. Thence Northerly to the Northwest corner of said Section 26;

30. Thence Westerly to the Southwest corner of Section 21, T2S, R6w:

31. Thence Southerly to the Southeast corner of Section 29, T2S, R6W;

32. Thence Westerly to the Southeast corner of Section 30, T2S, R6W;

33. Thence Southwesterly to the Southwest corner of Section 36, T 2 S, R 7 W;

34. Thence Southwesterly to the Southeast corner

of Section 3, T3S, R7W;

35. Thence Southwesterly to the Southwest corner of the Northeast quarter of Section 10, T3S, R7W;

36. Thence Southerly to the Northeast corner of the Northwest quarter of Section 15, T3S, R7W;

37. Thence Southwesterly to the Southeast corner of the Northeast quarter of Section 16, T3S, R7W;

38. Thence Southwesterly to the Southwest corner of said Section 16;

39. Thence Southwesterly to the Southwest corner of the Northeast quarter of Section 20, T3S, R7W;

40. Thence Westerly to the Southwest corner of the Northwest quarter of said Section 20;

41. Thence Northerly to the Northwest corner of Section 17, T3S, R7W;

42. Thence Westerly to the Southwest corner of Section 7, T3S, R7W;

43. Thence Northerly to the Southwest corner of Section 6, T3S, R7W;

44. Thence Westerly to the Southwest corner of Section 1, T3S, R8W;

45. Thence Northerly to the Southeast corner of Section 35, T2S, R8W;

46. Thence Northwesterly to the Northwest corner of said Section 35;

47. Thence Northerly to the Southeast corner of Lot 33, as shown on Map of Tract 3193, recorded in Map Book 43, pages 46 and 47, Office of the County Recorder of San Bernardino County;

48. Thence Westerly to the Northwest corner of the Southwest quarter of Section 28, T2S, R8W;

49. Thence Northerly to the Southwest corner of Section 4, T2S, R8W;

50. Thence Westerly to the Southwest corner of Section 5, T2S, R8W;

51. Thence Northerly to the Southwest corner of Section 32, T1S, R8W;

52. Thence Westerly to the Southwest corner of Section 31, T1S, R8W;

53. Thence Northerly to the Southwest corner of Section 30, T1S, R8W;

54. Thence Northeasterly to the Southwest corner of Section 20, T1S, R8W;

55. Thence Northerly to the Northwest corner of the Southwest quarter of the Southwest quarter of said Section 20;

56. Thence Northwesterly to the Northeast corner of the Southeast quarter of the Southeast quarter of the Northwest quarter of Section 19, T1S, R8W;

57. Thence Easterly to the Northwest corner of Section 21, T1S, R8W;

58. Thence Northeasterly to the Southeast corner of the Southwest quarter of the Southwest quarter of Section 10, T1S, R8W;

59. Thence Northeasterly to the Southwest corner of Section 2, T1S, R8W;

60. Thence Northeasterly to the Southeast corner of the Northwest quarter of the Northwest quarter of Section 1, T1S, R8W;

61. Thence Northerly to the Northeast corner of the Northwest quarter of the Northeast quarter of Section 36, T1N, R8W;

62. Thence Northerly to the Southeast corner of Section 24, T1N, R8W;

63. Thence Northeasterly to the Southeast corner of the Northwest quarter of the Northwest quarter of Section 20, T1N, R7W; and

64. Thence Southerly to the Point of Beginning.

Sections Included

Said perimeter description includes all or portions of the following Townships, Ranges and Sections of San Bernardino Base and Meridian:

T1N, R5W - Sections: 30, 31 and 32

T1N, R6W - Sections: 8, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35 and 36

T1N, R7W - Sections: 19, 20, 24, 25, 26, 29, 30, 31, 32, 35 and 36

T1N, R8W - Sections: 25 and 36

T1S, R5W - Sections: 4, 5, 6, 7, 8, 9, 10, 11, 14, 15, 16, 17, 18, 19, 20, 21, 22, 28, 29, 30, 31 and 32.

T1S, R6W - Sections: 1 through 36, inclusive

T1S, R7W - Sections: 1 through 36, inclusive

T1S, R8W - Sections: 1, 2, 10, 11, 12, 13, 14, 15, 16, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35 and 36

T2S, R5W - Sections: 6, 7 and 18

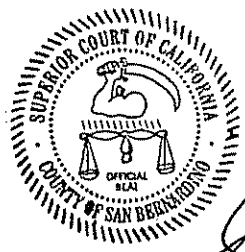
T2S, R6W - Sections: 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 26, 29, 30 and 31

T2S, R7W - Sections: 1 through 36, inclusive

T2S, R8W - Sections: 1, 2, 3, 4, 5, 9, 10, 11, 12, 13, 14, 15, 16, 21, 22, 23, 24, 25, 26, 27, 28, 35 and 36

T3S, R7W - Sections: 2, 3, 4, 5, 6, 7, 8, 9, 10, 15, 16, 17 and 20

T3S, R8W - Section: 1.



THE DOCUMENT TO WHICH THIS CERTIFICATION IS ATTACHED IS A FULL, TRUE AND CORRECT COPY OF THE ORIGINAL ON FILE AND OF RECORD IN MY OFFICE.

ATTEST OCT 2 9 2002

Clerk of the Superior Court of the State of California, in and for the County of San Bernardino

By _____ Deputy

Terry Wittenborn

92 pages

APPENDIX K

CITY OF ONTARIO'S 2020 RECYCLED WATER MASTER PLAN

RECYCLED WATER MASTER PLAN UPDATE

City of Ontario Municipal Water Utilities Company

FINAL

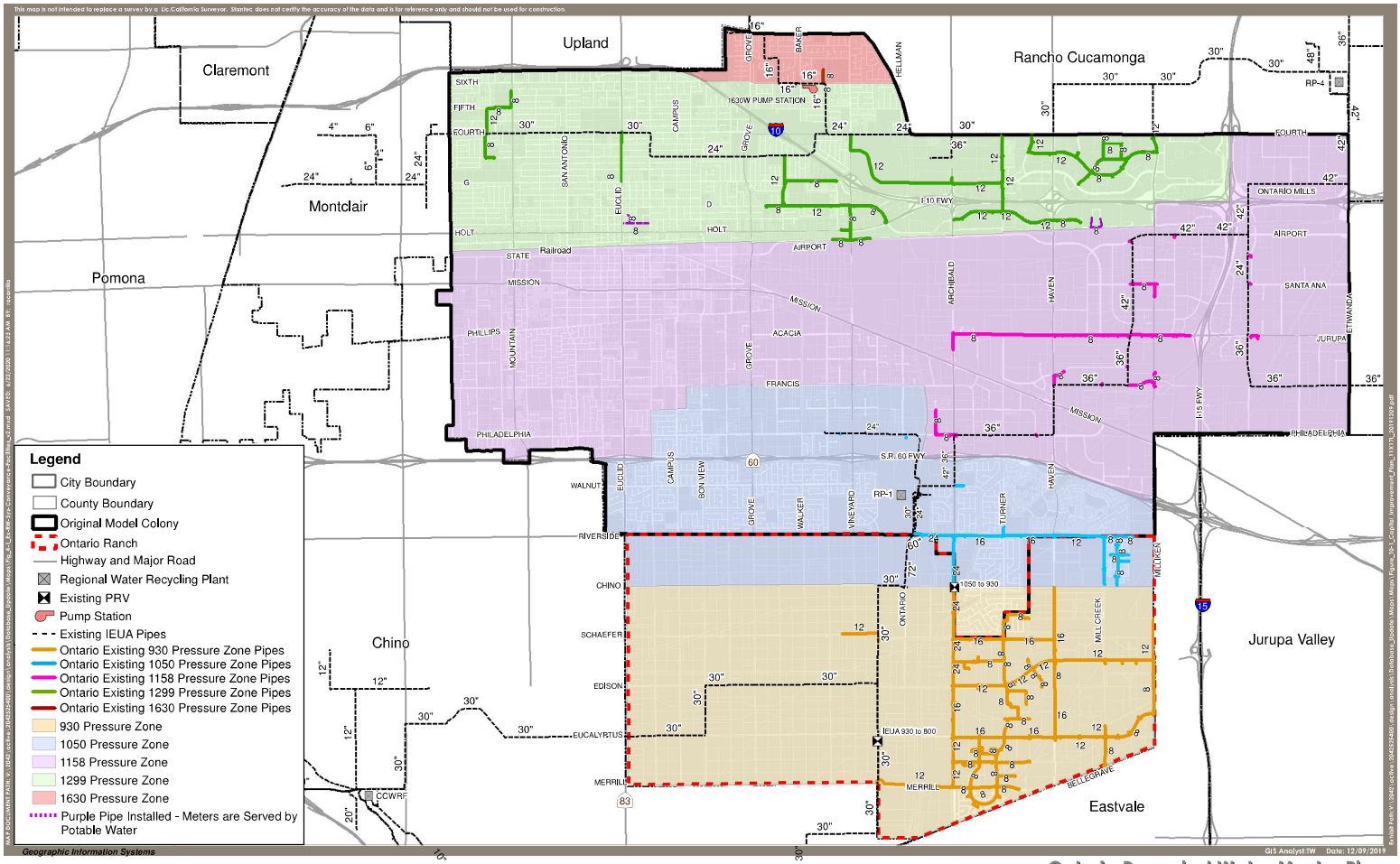
June 22, 2020

Prepared for:

City of Ontario, Municipal Utilities Company
1425 S. Bon View Avenue
Ontario, CA 91761

Prepared by:

Stantec Consulting Services Inc.
38 Technology Drive
Irvine, CA 92618



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38 Technology Drive, Irvine, CA 92618
Phone 949.923.6000 www.stantec.com

N

Ontario Recycled Water Master Plan

Figure 4-1 Existing Recycled Water System Conveyance Facilities

Table 8-4 Near-Term Phase Recycled Water Demands

Service Area	Near-Term Land Use for the Existing Vacant Parcels	General Plan Land Use Designation	Total Gross Acreage (Acres)	Near-Term Recycled Water Use (AFY)
Original Model Colony	Residential	RR	-	-
		LDR	245	164
		LMDR	-	-
		MDR	89	75
		HDR	11	10
	Commercial	NC	9	11
		GC	34	41
		OC	120	200
		BP	85	114
		HOS	36	40
	Industrial	IND	957	1,822
	Open Space	OS-NR	285	-
		OS-R	551	1,450
		OS-W	8	22
	Public	PF	8	19
		PS	288	725
		ARPT	141	16
		Rail	25	7
		ROW	5	3
		LF	-	-
	Mixed Use	MU	417	709
	SubTotal Original Model Colony		**3,314**	**5,428**
Ontario Ranch	Residential	RR	-	
		LDR	1,655	1,112
		LMDR	56	44
		MDR	344	288
		HDR	-	-
	Commercial	NC	32	39
		GC	111	136
		OC	48	82
		BP	537	721
		HOS	-	-
	Industrial	IND	469	894
	Open Space	OS-NR	52	-
		OS-R	153	403
		OS-W	29	76
	Public	PF	2	6
		PS	315	794
		ARPT	-	-
		Rail	-	-
		ROW	91	61
		LF	-	-
	Mixed Use	MU	287	380
	Temporary Agricultural		1,258	1,704
	SubTotal Ontario Ranch		**5,439**	**6,740**
Total City of Ontario			**8,753**	**12,168**

Table 8-5 Future Phase Recycled Water Demands

Service Area	Future Land Use for the Existing Vacant Parcels	General Plan Land Use Designation	Total Gross Acreage (Acres)	Future Recycled Water Use (AFY)
Original Model Colony	Residential	RR	11	-
		LDR	290	195
		LMDR	24	19
		MDR	181	152
		HDR	11	10
	Commercial	NC	17	21
		GC	65	80
		OC	175	295
		BP	148	198
		HOS	48	54
	Industrial	IND	1,645	3,132
	Open Space	OS-NR	213	-
		OS-R	546	1,437
		OS-W	8	22
	Public	PF	18	43
		PS	469	1,181
		ARPT	185	21
		Rail	25	7
		ROW	6	4
		LF	1	-
	Mixed Use	MU	613	1,030
	Total Original Model Colony		**4,699**	**7,901**
Ontario Ranch	Residential	RR	-	-
		LDR	3,233	2,173
		LMDR	505	396
		MDR	1,064	894
		HDR	-	-
	Commercial	NC	88	108
		GC	146	180
		OC	113	190
		BP	525	706
		HOS	-	-
	Industrial	IND	288	548
	Open Space	OS-NR	434	-
		OS-R	461	1,214
		OS-W	51	134
	Public	PF	2	6
		PS	198	499
		ARPT	-	-
		Rail	-	-
		ROW	202	136
		LF	-	-
	Mixed Use	MU	579	974
	Total Ontario Ranch		**7,889**	**8,158**
Total City of Ontario			**12,590**	**16,059**

5.2 RECYCLED WATER DEMAND FACTORS

The recycled water demand factors are based on the recycled water meter billing data. In GIS the meters were assigned a parcel(s) based on the address and location information provided by the City. The meter data for each land use was then grouped and divided by the total area for each land use. This process also consisted of verifying that each land use and the service area of the meter (based on the land use from the GIS parcel base) is consistent with the actual land use (using aerial imagery).

The recycled water irrigation demand factors are shown in the following table.

Table 5-3 Recycled Water Irrigation Unit Demand Factors

General Land Use Category	Land Use	Abbr.	Demand Factors (Gal/AC/Day)
Residential	Rural Density Residential	RR	-
	Low Density Residential	LDR	600
	Low Medium Density Residential	LMDR	700
	Medium Density Residential	MDR	750
	High Density	HDR	800
Commercial	Neighborhood Commercial	NC	1,100
	General Commercial	GC	1,100
	Office Commercial	OC	1,500
	Business Park	BP	1,200
	Hospitality	HOS	1,000
Industrial	Industrial	IND	1,700
Open Space	Open Space- Non-Recreation	OS-NR	-
	Open Space – Recreational	OS-R	2,350
	Open Space – Water	OS-W	2,350
Public	Public Facilities	PF	2,100
	Public School	PS	2,250
	Airport	ARPT	100
	Railroad	Rail	250
	Right of Way	ROW	600
	Landfill	LF	-
Mixed Use	Mixed Use	MU	1,500

[1] Demand for LMDR is average of LDR and MDR.

APPENDIX L

MWD IMPORTED WATER RELIABILITY

SWP Reliability

This discussion provides details of the major actions Metropolitan is undertaking to improve SWP reliability.

Delta Conveyance Project – Planning for a Delta conveyance project to address declining populations of sensitive fish species and the increasingly restrictive permit conditions began decades ago. In the mid-1990s, a consortium of federal, state, and local agencies including Metropolitan entered the Bay-Delta Accord, which included hundreds of millions of dollars for ecosystem restoration in the Delta and its salmon-bearing tributaries. In 2000, a similar consortium completed the CALFED analysis of a program of ecosystem restoration and improvements to Delta conveyance and issued a Record of Decision that included dual conveyance as an alternative. In April 2006, the CALFED Program issued a 10-year Action Plan to refocus the program based on new scientific and policy information. The scientific information indicated that the current physical configuration of the Delta did not lead to a sustainable condition due to increasing risk of seismic events and sea level rise; and that population levels for Delta pelagic (open water) organisms were at record low levels and were appearing to continue to decline.

The 10-year Action Plan also indicated that several water users were considering the development of a habitat conservation plan for the Delta. This effort was the initiation of the Bay Delta Conservation Plan (BDCP), which began with the support and participation of water suppliers, including Metropolitan. One of the conservation measures included new points of diversion on the Sacramento River in the north Delta connected by a canal or two tunnels to Clifton Court Forebay (part of the SWP) in the south Delta.

In September 2006, Governor Schwarzenegger signed Executive Order S-17-06, which launched the Delta Vision process by establishing a Blue-Ribbon Task Force, a cabinet-level Delta Vision Committee, Delta Science Advisors, and a Stakeholder Coordination Group. The executive order charged the Blue-Ribbon Task Force with developing both a long-term vision for a sustainable Delta and a plan to implement that vision. The Delta Vision Committee recommended, among other things, creation of a state plan for the Delta and Suisun Marsh aimed at landscape-scale ecosystem restoration and a new Delta conveyance infrastructure to create a dual system of conveyance. On February 28, 2008, Governor Schwarzenegger, in a letter to state Senators Perata, Machado, and Steinberg, stated his intention to direct DWR to proceed with preparation of environmental review and permitting activities for the BDCP.

In 2009, in light of the Delta Vision reports and recommendations, the Legislature enacted the Sacramento-San Joaquin Delta Reform Act of 2009, which established the coequal goals for the Delta of ecosystem restoration and restoration of reliable SWP and CVP supplies, created the Delta Stewardship Council, and charged the new agency with development of a Delta Plan to further the coequal goals in a manner that protects and enhances the Delta as an evolving place. The Delta Reform Act and the first Delta Plan, adopted in 2013, called for incorporation of the BDCP into the Delta Plan if it met state and federal requirements for a habitat conservation plan and natural communities' conservation plan.

The BDCP planning process continued under Governor Brown, but in light of comments on the BDCP, DWR began analyzing three new sub-alternatives to the BDCP that involved new conveyance independent of any landscape-scale habitat restoration called the California WaterFix. At the same time, Governor Brown initiated California EcoRestore, which was aimed at restoration of 30,000 acres of fish habitat in the Delta. In July 2017, DWR approved California WaterFix. Metropolitan's Board authorized participation in California WaterFix in October 2017, and again in April and July of 2018.

In his State of the State address delivered February 12, 2019, Governor Newsom announced that he did not "support WaterFix as currently configured," but does "support a single tunnel." On April 29, 2019, Governor Newsom issued Executive Order N-10-19, directing several agencies to (among other things) "inventory and assess… [c]urrent planning to modernize conveyance through the Bay Delta with a new single tunnel project." The Governor's announcement and Executive Order led to DWR's withdrawal of all approvals and environmental compliance documentation associated with California WaterFix. The CEQA process identified in this notice for the proposed Delta Conveyance Project will, as appropriate, utilize relevant information from the past environmental planning process for California WaterFix, but the proposed project will undergo a new stand-alone environmental analysis leading to issuance of a new EIR.

On January 15, 2020, DWR issued a Notice of Preparation of an Environmental Impact Report for the DCP, stating:

> *DWR's underlying, or fundamental, purpose in proposing the project is to develop new diversion and conveyance facilities in the Delta necessary to restore and protect the reliability of State Water Project (SWP) water deliveries and, potentially, Central Valley Project (CVP) water deliveries south of the Delta, consistent with the State's Water Resilience Portfolio.*
>
> *The above stated purpose, in turn, gives rise to several project objectives. In proposing to make physical improvements to the SWP Delta conveyance system, the project objectives are:*
>
> - *To address anticipated rising sea levels and other reasonably foreseeable consequences of climate change and extreme weather events.*
> - *To minimize the potential for public health and safety impacts from reduced quantity and quality of SWP water deliveries, and potentially CVP water deliveries, south of the Delta resulting from a major earthquake that causes breaching of Delta levees and the inundation of brackish water into the areas in which the existing SWP and CVP pumping plants operate in the southern Delta.*
> - *To protect the ability of the SWP, and potentially the CVP, to deliver water when hydrologic conditions result in the availability of sufficient amounts, consistent with the requirements of state and federal law, including the California and federal Endangered Species Acts and Delta Reform Act, as well as the terms and conditions of water delivery contracts and other existing applicable agreements.*
> - *To provide operational flexibility to improve aquatic conditions in the Delta and better manage risks of further regulatory constraints on project operations*

The proposed project would construct and operate new conveyance facilities in the Delta that would add to the existing SWP infrastructure. New intake facilities as points of diversion would be located in the north Delta along the Sacramento River between Freeport and the confluence with Sutter Slough. The new conveyance facilities would include a single main tunnel to convey water from the new intakes to the existing Banks Pumping Plant and potentially the federal Jones Pumping Plant in the south Delta. The new facilities would provide an alternate location for diversion of water from the Delta and would be operated in coordination with the existing south Delta pumping facilities. The new north Delta facilities would be sized to convey up to 6,000 cfs of water from the Sacramento River to the SWP facilities in the south Delta. DWR would operate the dual conveyance system in compliance with all state and federal regulatory requirements and would not reduce DWR's current ability to meet standards in the Delta to protect biological resources and water quality for beneficial uses.

Contract Amendments – Metropolitan and other State Water Contractors have undertaken negotiations with DWR to extend their State Water Contracts. In June 2014, DWR and the State Water Contractors reached an Agreement in Principle (the "Agreement in Principle") on an amendment to the State Water Contracts to extend the contracts and to make certain changes related to financial management of the SWP in the future. DWR and 25 of the State Water Contractors, including Metropolitan, have signed the Agreement in Principle. Under the Agreement in Principle, the term of the State Water Contract for each Contractor that signs an amendment would be extended until December 31, 2085. The Agreement in Principle served as the "proposed project" for purposes of environmental review under CEQA. DWR issued a Notice of Availability of the Draft Environmental Impact Report ("EIR") for the proposed project on August 17, 2016. DWR released the Final EIR on November 16, 2018 and certified the final EIR and issued a Notice of Determination on December 11, 2018. Concurrently, Metropolitan considered the certified final EIR and approved the water supply contract extension amendment at its December 11, 2018 Board meeting. That same day, DWR filed a lawsuit seeking to validate the contract extension. In January of 2019, two groups of plaintiffs filed lawsuits challenging DWR's Final EIR and approval of the Contract Extension under CEQA, the Delta Reform Act, and public trust doctrine. Those cases have been related to the validation action and are pending before the same judge. To date, 21 of the 29 State Water Contractors have executed the amendment, achieving the DWR established threshold needed for it to be fully executed. DWR is awaiting a decision from the trial court on the validation litigation described above before moving forward with execution of the amendments with individual State Water Contractors.

In a process separate from the State Water Contract extension amendment described above, Metropolitan and other State Water Contractors undertook public negotiations with DWR to amend their State Water Contracts to clarify how costs would be allocated for the California WaterFix, as well as to clarify the criteria applicable to certain water management tools including single and multi-year water transfers and exchanges between State Water Contractors. DWR and the State Water Contractors reached an Agreement in Principle in 2018 (the "2018 AIP"), and DWR issued a Draft EIR. On April 29, 2019, Governor Newsom issued the executive order directing State agencies to develop a comprehensive statewide strategy to build a climate-resilient water system that included consideration of a single-tunnel Delta conveyance facility instead of the approved California WaterFix project. DWR removed the WaterFix cost provisions from the 2018 AIP and, on February 28, 2020, recirculated the Draft EIR for only the 2018 AIP's water management provisions. DWR certified a Final EIR for the water management tools AIP in August 2020 and finalized contract language in October 2020. Since then, all but three of the SWP contractors have approved and signed the amendments, including Metropolitan, which approved the amendments on February 9, 2021. As a result, the amendments became effective on February 28, 2021. The water management provisions allow for greater flexibility for transfers and exchanges among those public agencies with State Water Contracts. Specifically, it would confirm existing practices for exchanges, allow more flexibility for non-permanent water transfers, and allow for the transfer and exchange of certain portions of Article 56 carry over water.

In light of the shift from California WaterFix to the Delta Conveyance Project, Metropolitan and other State Water Contractors embarked on a third public process to further negotiate proposed amendments related to cost allocation for a potential new Delta Conveyance Project. In March of 2020, DWR and the State Water Contractors reached an Agreement in Principle ("Delta Conveyance AIP") for the allocation of costs and benefits for a Delta Conveyance project based on an allocation of proportionate shares. The Delta Conveyance AIP provides a mechanism that would allow for the costs related to any Delta Conveyance project to be allocated for and collected by DWR. The Delta Conveyance AIP also provides for the allocation of benefits for any Delta Conveyance project. Additionally, the Delta Conveyance AIP includes a white paper that

describes how DWR would account for and administer any Delta Conveyance project benefits and costs if a project were implemented today. Contract language is under development, and any contract approval would follow DWR completing the Delta Conveyance Project environmental review.

COA Addendum – DWR operates the SWP in coordination with the federal CVP, which is operated by USBR. Since 1986, the coordinated operations have been undertaken pursuant to a Coordinated Operations Agreement for the Central Valley Project and State Water Project (the "COA"). The COA defines how the State and federal water projects share water quality and environmental flow obligations imposed by regulatory agencies. The agreement calls for periodic review to determine whether updates are needed in light of changed conditions. After completing a joint review process, DWR and USBR agreed to amend the COA to reflect water quality regulations, Biological Opinions, and hydrology updated since the 1986 agreement was signed. On December 13, 2018, DWR and USBR executed an Addendum to the COA (the "COA Addendum"). Through the COA Addendum, DWR will adjust current SWP operations to modify pumping operations, as well as project storage withdrawals to meet in-basin uses, pursuant to revised calculations based on water year types. The COA Addendum will shift responsibilities for meeting obligations between the CVP and the SWP, resulting in a shift of approximately 120 TAF in long-term average annual exports from the SWP to the CVP. In executing the COA Addendum, DWR found the agreement to be exempt from environmental review under the California Environmental Quality Act ("CEQA") as an ongoing project and that the adjustments in operations are within the original scope of the project. On January 16, 2019, commercial fishing groups and a tribe ("petitioners") filed a lawsuit against DWR alleging that entering into the COA Addendum violated CEQA, the Delta Reform Act, and the public trust doctrine. The parties are in the process of completing the administrative record, which will form the evidentiary basis at trial, which has not been set at this time.

Ecosystem Restoration – The main objective under the EcoRestore Program is the restoration of at least 30,000 acres of Delta habitat, with the near-term goal of making significant strides toward that objective by 2020. These restoration programs include projects and actions that comply with pre-existing regulatory requirements designed to improve the overall health of the Delta. Other priority restoration projects would also be identified by the Sacramento-San Joaquin Delta Conservancy and other agencies and local governments. Funding is provided through multiple sources, including various local and federal partners, state bonds, and other state-mandated funds. SWP/CVP contractors have provided funds as part of existing regulatory obligations imposed on the SWP and CVP.

Delta Science Initiatives – Metropolitan's Bay-Delta science program supports water supply reliability and ecosystem restoration by protecting the Bay-Delta environment, driving better management decisions, and fostering effective regulations. Metropolitan is conducting a science program to ensure that regulations effectively protect aquatic species while ensuring a reliable water supply. The key elements of the science program include: (1) staff with scientific expertise to design, manage and participate in scientific investigations addressing Metropolitan's priorities; (2) funding science studies through direct funding, collaborations, staff in-kind contributions, and by pursuing external grant funding sources to leverage Metropolitan's science investments; (3) collaborations with external organizations to conduct science studies, including the State Water Contractors, Collaborative Science and Adaptive Management Program (CSAMP), Interagency Ecological Program agencies, Delta Stewardship Council Delta Science Program, and university scientists; and (4) participation in the Bay-Delta science community through communication of science study findings, participation in science conferences and publishing results of scientific studies in peer reviewed journals.

Metropolitan's Bay-Delta science efforts focus on three priority areas of water operations to protect Delta fish, Delta stressors and habitat needs of listed fish species.

- Water Operations to Protect Delta Fish. A priority focus for the science program is to develop a better understanding of the effect of water project operations on the health, abundance, and distribution of listed fish species, including Delta smelt, longfin smelt and Chinook salmon. The science program includes investigation of the mechanisms behind flow-abundance relationships observed in analysis of fish survey data for Delta smelt and longfin smelt, factors that affect adult Delta smelt, salmon and steelhead entrainment risk at the CVP and SWP export facilities, potential bias in fish survey data, and development of effective methods to study Delta smelt without collecting or harming the fish.
- Delta Stressors. Multiple stressors in the Bay-Delta ecosystem affect the health, abundance, and distribution of listed fish species; however, we have limited understanding of the impacts of various stressors and their specific role in the decline of listed species. The science program includes investigation into key stressors to develop information that can support development of effective management actions. These studies include investigation into predation impacts on salmon, toxic contaminant effects on Delta smelt and juvenile salmon, and the effects of nutrients on the food web.
- Habitat Needs for Delta Fish. Compared to the historical Delta, the modern Delta is highly altered and has a small fraction of tidal marsh habitat remaining and greatly reduced levels of primary production. Food and habitat limitation have been identified as important stressors for listed species. The science program includes investigation of salmon habitat needs, pilot studies to enhance the food web, longfin smelt habitat studies, pilot projects to benefit Delta smelt, monitoring the effectiveness of habitat improvement actions, and evaluation of land use and habitat opportunities on Metropolitan's Delta Island properties.

SWP Terminal Storage

Metropolitan has contractual rights to 65 TAF of flexible storage at Lake Perris (East Branch terminal reservoir) and 154 TAF of flexible storage at Castaic Lake (West Branch terminal reservoir). This storage provides Metropolitan with additional options for managing SWP deliveries to maximize yield from the project. Over multiple dry years, it can provide Metropolitan with 44 TAF of additional supply. In a single dry year like 1977, it can provide up to 219 TAF of additional supply to Southern California.

Yuba Dry Year Water Purchase Program

In December 2007, Metropolitan entered into an agreement with DWR providing for Metropolitan's participation in the Yuba Dry Year Water Purchase Program between Yuba Water Agency and DWR. This program provides for transfers of water from the Yuba Water Agency during dry years through 2025.

Desert Water Agency/Coachella Valley WD SWP Table A Transfer

Under the transfer agreement, Metropolitan transferred 100 TAF of its SWP Table A contractual amount to Desert Water Agency/CVWD (DWCV). Under the terms of the agreement, DWCV pays all SWP charges for this water, including capital costs associated with capacity in the California Aqueduct to transport this water to Perris Reservoir, as well as the associated variable costs. The amount of water actually delivered in any given year depends on that year's SWP allocation. Water is delivered through the existing exchange agreements between Metropolitan and DWCV, under which Metropolitan delivers Colorado River supplies to DWVC equal to the SWP supplies delivered to Metropolitan. While Metropolitan transferred 100 TAF of its Table A amount, it retained other rights, including interruptible water service; its full carryover amounts in

San Luis Reservoir; its full use of flexible storage in Castaic and Perris Reservoirs; and any rate management credits associated with the 100 TAF.

Desert Water Agency/Coachella Valley WD Exchange and Advance Delivery Program

Under this program, Metropolitan delivers Colorado River water to the Desert Water Agency and CVWD in advance of the exchange for their SWP Contract Table A allocations. In addition to their Table A supplies, Desert Water Agency and CVWD may take delivery of other SWP supplies available to SWP Contractors. By delivering enough water in advance to cover Metropolitan's future exchange obligations, Metropolitan is able to receive Desert Water Agency and CVWD's available SWP supplies without having to deliver an equivalent amount of Colorado River water. This program allows Metropolitan to maximize delivery of SWP water in wet years by enabling delivery of Colorado River supplies to storage in the Advance Delivery Program instead of to the service area. These Table A deliveries are incorporated into the estimate of SWP Deliveries under Current Programs shown in Table 3-2.

Desert Water Agency/Coachella Valley WD Other SWP Deliveries

Since 2008, Metropolitan has provided Desert Water Agency and CVWD written consent to take delivery of non-SWP supplies separately acquired by each agency from the SWP facilities. These deliveries include water acquired from the Yuba Dry Year Water Purchase Program, the Multi-Year Water Pool, the 2009 Drought Water Bank, and long-term water supplies purchased by CVWD from Rosedale Rio-Bravo Water Storage District. Metropolitan has also consented to:

- 10 TAF of exchange deliveries to CVWD for non-SWP water acquired from the San Joaquin Valley from 2008 through 2010,
- 36 TAF of exchange deliveries to Desert Water Agency for non-SWP water acquired from the San Joaquin Valley from 2008 through 2015, and
- 16.5 TAF of exchange deliveries to CVWD from groundwater storage of Kern River flood flows or SWP water delivered from Kern County Water Agency provided by Rosedale Rio Bravo Water Storage District from 2012 through 2035.

Effective in 2020, Metropolitan, Desert Water Agency and CVWD executed an amendment to the Advance Delivery Program and exchange of water. Among its provisions is the termination of Metropolitan's right to an annual option to call-back the 100,000 acre-feet Table A transfer. It also provides that Metropolitan will deliver Article 21 and non-SWP water supplies for Desert and CVWD to the extent that Metropolitan has available capacity. This agreement also includes an additional exchange of 15 TAF per year from 2020 to 2026. However, as the source of the exchange is water CVWD can call from the ID/MWD Conservation Program, which is Colorado River water, this exchange is discussed in more detail in the IID/MWD Conservation Program section.

Table 3-2 summarizes Metropolitan's SWP supply range for 2035. Appendix 3 provides a detailed discussion of the current SWP programs and programs that are under development.

Table 3-2
California Aqueduct
Program Capabilities
Year 2035
(acre-feet per year)

Hydrology	Five Year Drought (1988-1992)	Single Dry Year (1977)	Normal Year (1922-2017)
Current Programs			
MWD Table A [1]	499,000	122,000	1,108,000
DWCV Table A	51,000	12,000	113,000
San Luis Carryover [2]	57,000	283,000	283,000
Article 21 Supplies	0	0	20,000
Yuba River Accord Purchase	0	0	0
Subtotal of Current Programs	***607,000***	***417,000***	***1,524,000***
Programs Under Development			
Subtotal of Proposed Programs	***0***	***0***	***0***
Maximum Supply Capability	**607,000**	**417,000**	**1,524,000**

[1] Includes Port Hueneme lease.
[2] Includes DWCV carryover.

SWP Water Quality

Metropolitan requires a safe drinking water supply from the Bay-Delta to meet current and future regulatory requirements for public health protection. Finding cost-effective ways to reduce total organic carbon (TOC), bromide concentrations, pathogenic microbes, and other unknown contaminants from the Bay-Delta water supply is one of Metropolitan's top priorities. Metropolitan also requires a SWP supply that is consistently low in salinity - Total Dissolved Solids (TDS) - so it can blend SWP water with higher-salinity Colorado River water to achieve salinity goals for its member agencies. In addition, Metropolitan needs consistently low-salinity SWP water to increase in-basin water recycling and groundwater management programs. These programs require that blended water supplied to the member agencies meets the TDS goal adopted by Metropolitan's Board, which specifies a salinity objective of 500 mg/L for blended imported water.

Metropolitan is actively involved in DWR's Municipal Water Quality Investigations (MWQI) Program. The highly variable quality of SWP water influences the operation of Metropolitan's system and its water treatment process. Increasingly restrictive State and Federal drinking water standards, concerns over emerging contaminants such as personal care products and pharmaceuticals, algal taste and odors, and Delta ecosystem fisheries issues are critical variables. DWR's MWQI Program strives to monitor, protect, and improve drinking water quality of Delta water deliveries to the urban State Water Contractors and other users of Delta water. The program focuses on issues related to drinking water quality through regular water quality monitoring, special field and laboratory studies, the use of forecasting tools such as computer models and data management systems, and reporting. While the program has developed extensive monitoring in the Delta including real-time monitoring, increased monitoring along the California Aqueduct is the next major step.

Levee modifications at Franks Tract and other source control actions may significantly reduce ocean salinity concentrations in Delta water, which would benefit Delta water users and export interests alike. Franks Tract is an island located in the central Delta that was actively farmed until levee breaches in 1936 and 1938. Since 1938, the tract has remained a flooded island, and its levees remain in disrepair. Tidal flows in the Delta entrap saline ocean water in the flooded tract, resulting in degraded water quality for both in-Delta and export users. Computer modeling analyses by Metropolitan, DWR, and the US Geological Survey indicate that reducing this salinity intrusion by partially closing existing levee breach openings and/or building radial gate flow control structures will significantly reduce TDS and bromide [2] concentrations in water from the Delta during the summer and fall months and in drought years.

In 2016, the California Department of Fish and Wildlife (CDFW), as part of the 2016 Delta Smelt Resiliency Strategy, began a process of working with the local community, local agencies, and interested stakeholders in developing a habitat enhancement plan for Franks Tract called the Franks Tract Restoration Feasibility Study. The objective was to assess the feasibility of restoring components of the historic tidal marsh form and function to create habitat suitable for Delta Smelt, reduce the extent of aquatic weeds, decrease predation on Delta Smelt and other native fishes by lowering habitat suitability for non-native species, modify hydrology to something more similar to historical conditions, improve food webs, and improve water quality in the interior Delta, which would benefit both in-Delta diverters and SWP and CVP supplies. In its current state of shallow open water, Franks Tract facilitates salinity intrusion into the mid-Delta as a result of tidal pumping through False River. Restoration designs focus on minimizing tidal pumping from False River. In 2018, CDFW determined that it is feasible to achieve the project objectives. In response to community concerns, in July 2019, CDFW, in cooperation with the Department of Parks and Recreation, launched a second round of planning that lasted from August 2019 through September 2020. Stakeholders, advisors, and the public chose the Central Landmass as the preferred design concept as documented in the Franks Tract Futures 2020 Reimagined report published in September 2020.

The state has adopted an "equivalent level of public health protection" (ELPH) program that targets water quality actions outside the Delta. The Bay-Delta Program is coordinating a feasibility study on water quality improvement in the California Aqueduct.

Metropolitan and the Friant Water Users Authority (FWUA) have entered into a partnership to investigate the potential of enhancing the quantity and affordability of the eastern San Joaquin Valley's water supply while improving Southern California's water quality. The FWUA and Metropolitan studied projects that benefited both regions. Using Proposition 13 funds, an existing canal belonging to the Arvin-Edison Water Storage District was enlarged, enabling greater volumes of water to be exchanged between their groundwater and the California Aqueduct.

SWP System Outage and Capacity Constraints

The California Aqueduct is experiencing reduction in flow capacity in certain areas due to ongoing land subsidence. Subsidence has been observed in the San Joaquin Valley since the 1920s, and subsidence was included in the planning and design of the California Aqueduct. The DWR published a detailed study in 2017 describing the impacts of subsidence in the reduction of concrete liner freeboard and the ability to store water in certain pools, reducing operational flexibility and increasing power costs. Through 2016, no contracted deliveries had been curtailed due to subsidence, but DWR has a subsidence program aimed to proposed improvements to the California Aqueduct and restore capacity, as well as work with the Groundwater

[2] The importance of managing bromides is discussed in the Water Quality chapter.

Sustainability Agencies that cover the extension of the California Aqueduct to minimize future subsidence.

In 2015, Metropolitan, DWR, and the Los Angeles Department of Water and Power formed the Seismic Resilience Water Supply Task Force (SRWSTF). The goal of the SRWSTF is to collaborate on studies and mitigation measures aimed at improving the reliability of imported water supplies to Southern California. The SRWSTF aims to identify options to accelerate initial repairs acting as one agency and establish consensus on regional priorities for aqueduct repairs.

Because of the risk of a prolonged shutdown of the SWP caused by seismic or hydrologic events either within the Delta or along the California Aqueduct, Metropolitan has acted to ensure that Southern California has adequate emergency storage. Diamond Valley Lake (DVL) and SWP terminal reservoir storage, combined with member-agency emergency storage, are jointly capable of providing the region with a six-month supply of water if combined with a temporary 25 percent reduction in demand. Metropolitan engineering studies indicate this would provide sufficient time to repair the SWP and resume delivery.

Following the February 2017 Oroville spillways incident, DWR initiated a Comprehensive Needs Assessment (CNA). The CNA is led by DWR and technically reviewed by an Independent Review Board (IRB) composed of dam safety experts. The CNA is not investigating the causes of the February 2017 incident, but rather aims to identify actions to be taken by DWR to improve the resilience of the Oroville Dam complex. The report was released in November 2020 with a determination that Oroville is safe to operate, and no urgent repairs are needed. Several risk-reduction projects are currently being implemented and more projects are anticipated into the near future.

DWR is also investing to reduce seismic and hydrologic risk of aging SWP infrastructure critical in Southern California. A major retrofit to Perris Dam (Riverside County) was completed in April 2018, and other two major projects to improve seismic stability are currently under development with planned construction to start in a few years. Pyramid Dam and Castaic Dam (Los Angeles County) are also being studied with the planned assessment work estimated to be completed by 2022 and complete modernization work to take about 10 years to complete.

Achievements to Date

SWP Reliability

Metropolitan's Long-Term Action Plan

Besides the short- and mid-term actions described earlier in Section 1.4, Metropolitan's adopted Delta action plan in June 2007 includes a long-term Delta Plan. The long-term action plan recognizes the need for a global, comprehensive approach to the fundamental issues and conflicts in the Delta to result in a truly sustainable Delta. A piecemeal approach cannot satisfy the many stakeholders that have an interest in the Delta and will fail; there must be a holistic approach that deals with all issues simultaneously. In dealing with the basic issues of the Delta, solutions must address the physical changes required, as well as the financing and governance. There are three basic elements that must be addressed: Delta ecosystem restoration, water supply conveyance, and flood control protection and storage development. In addition, the state needs to establish governance structures and financing approaches to implement and manage the three identified elements.

Governor's Delta Vision Process

Through this enduring Delta crisis, the Legislature and the Governor initiated in 2006 a process to develop a new long-term vision for the Delta. SB 1574 (Kuehl/2006) required a cabinet

committee to present recommendations for a Delta strategic vision. The governor created a Delta Vision Blue-Ribbon Task Force to advise the Cabinet Committee. The Task Force produced an October 2008 Strategic Plan, which the Cabinet Committee largely adopted and submitted, with its recommendations, to the Legislature on January 3, 2009. Metropolitan, as a stakeholder in the process, provided input to the Task Force.

The 2009 Delta Legislation

After delivery of the Delta Vision recommendations, the Legislature held informational hearings from Delta experts, Task Force members, and the Schwarzenegger Administration, as well as the public at large, and engaged in vigorous water policy discussions. Following the informational hearings, several legislators began developing detailed legislation which culminated in pre-print proposals being issued in early August of 2009 for public review and discussion over the summer recess. The Assembly Water, Parks and Wildlife Committee and the Senate Natural Resources and Water Committee then held joint informational hearings on the pre-print proposals and received extensive public comment. Thereafter, legislative leadership appointed a conference committee, which convened and held additional public hearings, with further legislator discussions on key issues. That work continued into the 7th Extraordinary Session, which was called by the governor specifically to address the pending Delta and water issues, and culminated in the signing of a historic package of bills. One of the keystones of that package was SB X7-1, which reformed Delta policy and governance. Specifically, SB X7-1:

- Established a new legal framework for Delta management, emphasizing the coequal goals of "providing a more reliable water supply for California and protecting, restoring, and enhancing the Delta ecosystem" as foundation for state decisions as to Delta management.
- Reconstituted and redefined the role of the Delta Protection Commission (DPC) to narrow membership to focus on local representation and to expand the DPC's role in economic sustainability.
- Created a new Sacramento-San Joaquin Delta Conservancy (Conservancy) to support efforts that advance environmental protection and the economic well-being of Delta residents.
- Created the Delta Stewardship Council (Council) as an independent state agency to guide actions in the Delta which furthers the coequal goals of Delta restoration and water supply reliability.
- Repealed the CALFED Bay-Delta Authority Act and transfers existing staff, contracts, etc. to the Council.
- Created the Delta Independent Science Board (Science Board) and Delta Science Program.
- Required the State Water Resources Control Board (SWRCB) to develop by August 12, 2010, new flow criteria for the Delta ecosystem necessary to protect public trust resources.
- Required the Department of Fish and Game (DFG), now the Department of Fish and Wildlife (DFW), by December 31, 2010, to develop and recommend to the SWRCB flow criteria and quantifiable biological objectives for aquatic and terrestrial species.
- Created a Delta Watermaster as the enforcement officer for the SWRCB Division of Water Rights in the Delta.
- Required the Council to develop, adopt, and commence implementation of the "Delta Plan" by January 1, 2012, with a report to the Legislature by March 31, 2012.

- Required the DPC to develop a proposal to protect, enhance, and sustain the unique cultural, historical, recreational, agricultural, and economic values of the Delta as an evolving place.
- Required the Delta Plan to further the coequal goals of Delta ecosystem restoration and a reliable water supply.
- Required the Delta Plan to promote statewide water conservation, water use efficiency, and sustainable use of water, as well as improvements to water conveyance/storage and operation of both to achieve the coequal goals.
- Required the Delta Plan to attempt to reduce risks to people, property, and state interests in the Delta by promoting effective emergency preparedness, appropriate land uses, and strategic levee investments.
- Announced a statewide policy to reduce reliance on the Delta in meeting California's future water supply needs through a statewide strategy of investing in improved regional supplies, conservation, and water use efficiency. Each region that depends on water from the Delta watershed shall improve its regional self-reliance for water through investment in water use efficiency, water recycling, advanced water technologies, local and regional water supply projects, and improved regional coordination of local and regional water supply efforts.
- Required the Council to include the Bay Delta Conservation Plan (BDCP) in the Delta Plan and made the BDCP eligible for state funding if:
    - The BDCP complies with Natural Community Conservation Planning Act (NCCPA) and is approved as a Habitat Conservation Plan under the Federal ESA.
    - The BDCP complies with the California Environmental Quality Act and includes a full range of alternatives, including a reasonable range of flow criteria, rates of diversion, and other operational criteria.
    - DWR consults with the Council and Science Board during development of the BDCP.
    - DFW approves the BDCP as a Natural Community Conservation Plan and determines that it meets the requirements for incorporation into the Delta Plan.

SWP Water Quality

The most significant achievement for SWP water quality has been continued definition and advancement of the Delta Improvement Package. Most notably, the Franks Tract studies identified cost-effective ways to achieve significant improvements in the quality of Delta export water.

SWP System Reliability

The completion and filling of DVL marked the most important achievement with respect to protecting Southern California against an SWP system outage. Water deliveries to the reservoir commenced in November 1999, and the lake was filled by early 2003. The lake can hold up to 810 TAF which provides Southern California with emergency water supply, as well as carryover and regulatory storage. As of December 2020, the DVL storage is at 704 TAF.

Inland Feeder

The Inland Feeder is a 44-mile-long conveyance system that connects the SWP to DVL and the CRA. The Inland Feeder provides greater flexibility in managing Metropolitan's major water supplies and allows greater amounts of SWP water to be accepted during wet seasons for storage

in DVL. In addition, the Inland Feeder increases the conveyance capacity from the East Branch of the SWP by up to 1,000 cubic feet per second, allowing the East Branch to operate up to its full capacity. The project also improves the quality of the Southland's drinking water by allowing more uniform blending of lower salinity water from the SWP with Colorado River supplies, which have a higher mineral content. Construction of the Inland Feeder was completed in September 2009.

Inland Feeder-Lakeview Pipeline Intertie

The Inland Feeder-Lakeview Pipeline Intertie connects the two conveyance pipelines at the PC-1 control structure on the Inland Feeder. The project allows for delivery of water from Diamond Valley Lake to the Mills Water Treatment Plant. Completed in 2016, the project was a direct response to the extreme drought period in 2014, which saw a 5 percent allocation of Metropolitan's SWP supplies. The intertie enables the Mills Plant to withstand an extended interruption of supplies from the California Aqueduct East Branch. The intertie also provides delivery flexibility to handle any required repairs by DWR to the Santa Ana Valley Pipeline north segment.

APPENDIX M

ORDINANCE NO. 3027

CHAPTER 8A: WATER CONSERVATION PLAN

Sec. 6-8.20. Scope and title.

This chapter shall be known as “The Water Conservation Plan of the City of Ontario.”

(§ 2, Ord. 2907, eff. June 16, 2009, amended by § 2, Ord. 3027, eff. October 1, 2015)

Sec. 6-8.21. Statement of policy and declaration of purpose.

(a) Because of the water supply conditions prevailing in the City and/or the area from which the City obtains a portion of its supply, the general welfare requires that the water resources available to the City of Ontario be put to the maximum beneficial use to the extent to which they are capable, and that the waste or unreasonable use, or unreasonable method of use of water be prevented and that the conservation of such water be practiced with a view to that reasonable and beneficial use thereof in the interest of the people of the City.

(b) The purpose of this chapter is to minimize the potential for a water shortage through the practice of water conservation, and to minimize the effect of a shortage of water supplies on the water customers of the City. It is furthermore the intent of this chapter to adopt provisions that will significantly reduce the inefficient consumption of water, thereby extending the available water resources necessary for domestic, sanitation, and fire protection of the community to the greatest extent possible.

(c) This chapter shall be applicable to all persons within the City. For the purposes of this chapter, “person” means any natural person, property owner, renter, or lessee, as well as any corporation, partnership, government entity or subdivision, trust, estate, cooperative association, homeowners’ association, joint venture, business entity, or other similar entity, or the property management company, property manager, agent, employee or representative of any of the above.

(§ 2, Ord. 2907, eff. June 16, 2009, amended by § 2, Ord. 3027, eff. October 1, 2015)

Sec. 6-8.22. Authorization.

(a) The City Council may declare a water shortage based on a determination by the Metropolitan Water District of Southern California, the Inland Empire Utilities Agency of a water shortage, the declaration of an executive order of the Governor or the adoption of voluntary or mandatory water use restrictions by any State agency governing the use of water, or based upon any interruption in water supply or delivery that the City Council determines in its sole discretion necessitates water conservation pursuant to this chapter.

(b) In the event of an immediate emergency that causes an unplanned interruption of water supply, the City Manager or his/her designee is authorized to restrict water use and apportion the available supply of water among its customers in the most equitable manner possible to continue service fairly and without discrimination, except that preference shall be given to such service as is essential to the public interest and to the preservation of life and health.

(c) A water shortage, including a water shortage emergency but excluding an immediate emergency, shall be declared by the adoption of a resolution of the City Council.

(1) A notice of a water shortage, other than a water shortage emergency, shall be published in a daily newspaper of general circulation within the City. Any restrictions on the use of water during a declared water shortage shall become effective immediately upon such publication.

(2) Notice of hearing to declare a water shortage emergency, other than an immediate emergency, shall be made in accordance with Water Code Section 351. Any restrictions on the use of water during a declared water shortage shall become effective immediately upon adoption unless otherwise be determined by the City Council.(§ 2, Ord. 2907, eff. June 16, 2009, amended by § 2, Ord. 3027, eff. October 1, 2015)

Sec. 6-8.23. General prohibitions.

(a) The following are prohibited in any new water connections:

(1) Non-recycling decorative fountains;

(2) Single-pass cooling systems; and

(3) Conveyor and in-bay vehicle wash and commercial laundry systems that do not reuse water.

(b) No water customer of the City shall make, cause, use, or permit the use of water from the City in a manner contrary to any provision of this chapter or in an amount in excess of the use permitted by any restriction provisions then in effect pursuant to the provisions of this chapter.

(§ 2, Ord. 2907, eff. June 16, 2009, amended by § 2, Ord. 3027, eff. October 1, 2015)

Sec. 6-8.24. Exceptions.

(a) The prohibited uses of water and water use restrictions provided within this chapter are not applicable for the use of recycled water or the use of potable water necessary for public health and safety or for essential government services such as police, fire and other similar services.

(b) Nothing contained within this chapter shall be construed to require the City to curtail the supply of water necessary for the health, safety, and welfare of any person.

(§ 2, Ord. 2907, eff. June 16, 2009, amended by § 2, Ord. 3027, eff. October 1, 2015)

Sec. 6-8.25. Voluntary conservation.

All persons are encouraged to voluntarily limit the amount of water used to the amount absolutely necessary for health and safety, business operations, and irrigation. Except as otherwise provided in this chapter where a declared water shortage stage or water shortage emergency requires mandatory or other more stringent requirements, the following elements of conservation apply at all times on a voluntary basis by all persons within the City:

(a) Avoid hose washing of sidewalks, walkways, driveways, parking areas or other paved surfaces, except as required for sanitary purposes. If a person uses a hand-held hose to wash any sidewalk, walkway, driveway, parking area or other paved surface, the hose shall be equipped with a positive shutoff nozzle.

(b) Wash motor vehicles, trailers, boats and other types of mobile equipment using a hand held bucket or a hose equipped with a positive shutoff nozzle for quick rinses, or at the immediate premises of a commercial car wash or with recycled wastewater for approved uses.

(c) Avoid using water to clean, fill or maintain levels in decorative fountains, ponds, lakes or other similar aesthetic structures unless such water is part of a recycling system.

(d) Encourage restaurants, hotels, cafés, cafeterias or other public places where food is sold, served or offered for sale, to serve drinking water only to those customers expressly requesting water.

(e) Promptly repair all leaks from indoor and outdoor plumbing fixtures.

(f) Avoid watering lawn, landscape or other turf areas more often than every other day and during the hours between 6:00 a.m. and 6:00 p.m.

(g) Avoid causing or allowing the water to run off landscape areas into adjoining streets, sidewalks or other paved areas due to incorrectly directed or maintained sprinklers or excessive watering.

(§ 2, Ord. 2907, eff. June 16, 2009, amended by § 2, Ord. 3027, eff. October 1, 2015)

Sec. 6-8.26. Stage 1 water shortage-water supply reduced by up to ten percent (10%).

(a) During a Stage 1, the following mandatory restrictions on the use of potable water shall be applicable when the City Council determines that the City's water conservation goals are not being met by voluntary water conservation measures, or that the City's water supplies are likely to be reduced by up to ten percent (10%) or it has otherwise been requested or directed by executive order or regulation of a State agency to reduce its potable water consumption or production by a specified amount.

(1) Except as required for health and sanitary purposes, washing of sidewalks, walkways, driveways, parking areas or other paved surfaces is prohibited. Any held-hose used for such purposes shall be equipped with a positive shutoff nozzle.

(2) Washing of motor vehicles, trailers, boats and other types of mobile equipment shall be done only with a hand-held bucket or a hose equipped with a positive shutoff nozzle for quick rinses, except that washing may be done at the immediate

premises of a commercial car wash or with reclaimed wastewater.

(3) No water shall be used to clean, fill or maintain levels in decorative fountains, ponds, lakes or other similar aesthetic structures unless such water is part of a recycling system.

(4) No restaurant, hotel, café, cafeteria or other public place where food is sold, served or offered for sale, shall serve drinking water to any customer unless expressly requested.

(5) All water customers of the City shall promptly repair all leaks from indoor and outdoor plumbing fixtures. Such leak shall be repaired in a timely manner after notification by the city, but in no case after notification in excess of seventy-two (72) hours for the first violation and then every seventy-two (72) hours thereafter for the second and third violations.

(6) No person shall sprinkle, water, or irrigate any shrubbery, trees, lawns, grass, groundcovers, plants, vines, gardens, vegetables, flowers, or any other landscaped or vegetated areas between the hours of 9:00 a.m. and 4:00 p.m. In any event, such watering shall not be in excess of needs nor be of a manner that allows water to flow onto streets or other paved areas. The above mentioned plants may be watered by a hand-held hose equipped with a positive shutoff nozzle at any time of the day. This provision shall not apply to commercial nurseries, golf courses and other water-dependent industries.

(7) No water customer of the City shall cause or allow the water to run off landscape areas into adjoining streets, sidewalks or other paved areas due to incorrectly directed or maintained sprinkler or excessive watering.

(8) The use of water from fire hydrants shall be limited to fire fighting and related activities necessary to maintain the public health, safety, and welfare. An exception may be made for construction use through a proper city-designated meter. The use of potable water for construction activities shall be restricted in areas where recycled water is available for such use.

(b) At any time during a Stage 1, if the City Council determines that additional reductions in the amount the potable water being used by water customers are necessary, it may adopt a resolution establishing water use limitations and enforce those water use limitations by the adoption and imposition of a volumetric penalty established therein.

(§ 2, Ord. 2907, eff. June 16, 2009, amended by § 2, Ord. 3027, eff. October 1, 2015)

Sec. 6-8.27. Stage 2 water shortage-water supply reduced by ten percent (10%) to twenty percent (20%).

(a) During a Stage 2, the following mandatory restrictions on the use of potable water shall be applicable when the City Council determines that it is likely that the City will suffer a reduction of more than ten percent (10%) but less than twenty percent (20%) in its water supplies or it has otherwise been requested or directed by an executive order or regulation of a State agency to reduce its potable water consumption or production by a specified amount.

(1) All prohibitions and restrictions in §6-8.26 shall be in effect provided that more restrictive measures noted in this section shall take precedence.

(2) Filling or refilling of empty swimming pools shall not occur without the written permission of the City Manager or his/her designee.

(3) All customers are prohibited from irrigating turf or ornamental landscapes during and within 48 hours following measurable rainfall.

(4) Operators of hotels and motels must provide guests with the option of choosing not to have towels and linens laundered daily and prominently display notice of this option.

(5) All persons, including the City, are prohibited from irrigating with potable water any ornamental turf on public street medians.

(6) The use of potable water for irrigation outside of newly constructed homes and buildings shall be consistent with California Building Standards Commission and Department of Housing & Community Development.

(b) At any time during a Stage 2, if the City Council determines that additional reductions in the amount the potable water being used by water customers are necessary, it may adopt a resolution establishing water use limitations and enforce those water use limitations by the adoption and imposition of a volumetric penalty established therein.

(§ 2, Ord. 2907, eff. June 16, 2009, amended by § 2, Ord. 3027, eff. October 1, 2015)

Sec. 6-8.28. Stage 3 water shortage-water supply reduced by more than twenty percent (20%).

(a) During a Stage 3, the following mandatory restrictions on the use of potable water shall be applicable when the City Council determines that it is likely that the City will suffer a reduction of more than twenty percent (20%) in its water supplies or it has otherwise been requested or directed by executive order or regulation of a State agency to reduce its potable water consumption or production by a specified amount.

(b) All the prohibitions and restrictions in §6-8.27 shall be in effect provided that the more restrictive measures noted in this section shall take precedence.

(c) The use of water from fire hydrants shall be limited to fire fighting and related activities and other uses of water for municipal purposes shall be limited to activities necessary to maintain the public health, safety and welfare. Unless written

permission has been granted by the City Manager or his/her designee, the use of potable water for construction activities and grading shall be prohibited.

(d) At any time during a Stage 3, if the City Council determines that additional reductions in the amount the potable water being used by water customers are necessary, it may adopt a resolution establishing water use limitations and enforce those water use limitations by the adoption and imposition of a volumetric penalty established therein.

(§ 2, Ord. 2907, eff. June 16, 2009, amended by § 2, Ord. 3027, eff. October 1, 2015)

Sec. 6-8.29. Stage 4 water shortage-emergency.

(a) The following restrictions on the use of potable water shall be applicable during a Stage 4 water shortage emergency. A water shortage emergency may be declared whenever the City Council finds and determines that the ordinary demands and requirements of water consumers cannot be satisfied without depleting the water supply of the City to the extent that there would be insufficient water for human consumption, sanitation, and fire protection. A water shortage emergency may include an immediate emergency. An immediate emergency may occur as a result of a breakage or failure of a dam, pump, pipe line or conduit, a major earthquake, large-scale fire, or other so called “Act of God” which may have serious impacts on the City's available water supply.

(1) All the prohibitions and restrictions in §6-8.28 shall be in effect provided that the more restrictive measures noted in this section shall take precedence.

(2) Unless otherwise permitted by a resolution of the City Council, there shall be no use of potable water for irrigation of outdoor landscape or turf.

(3) Commercial nurseries shall be prohibited from the use of potable water for irrigation of outdoor, landscape and turf except by use of a hand-held hose equipped with a positive shutoff nozzle.

(4) The following nonessential uses of water shall be prohibited: the filling, cycling, filtering, or refilling swimming pools, spas, Jacuzzis, fountains or other like devices.

(b) At any time during a Stage 4, if the City Council determines that additional reductions in the amount the potable water being used by water customers are necessary, it may adopt a resolution establishing water use limitations and enforce those water use limitations by the imposition of a volumetric penalty established therein.

(§ 2, Ord. 2907, eff. June 16, 2009, amended by § 2, Ord. 3027, eff. October 1, 2015)

Sec. 6-8.30. Relief from compliance.

(a) A water customer of the City may file a written application for relief in whole or in part, from the water use restriction provisions of this chapter. The City Manager or his/her designee shall review the request for a variance and take such steps as he or she deems reasonable to resolve the application for relief. The decision of the City Manager shall be final.

(b) A relief may be granted if the water customer shows that he or she has achieved the maximum practical reduction in water consumption other than in the specific areas in which relief is being sought. No relief shall be granted to any water customer who, when requested by the City Manager, fails to provide any information necessary for resolution of the customer’s application for relief.

(§ 2, Ord. 2907, eff. June 16, 2009, amended by § 2, Ord. 3027, eff. October 1, 2015)

Sec. 6-8.31. Failure to comply.

(a) Each and every day that a violation of this chapter occurs or continues to occur shall be considered a new and separate offense. Except for any violation of water use limitations for which a volumetric penalty may be imposed, for each violation of this chapter the following civil penalties may be imposed by issuance of a citation and complaint:

(1) First violation. For a first violation, the City shall issue a written warning to the water customer.

(2) Second violation. For a second violation, the City shall impose a civil penalty in the amount of One Hundred Dollars ($100.00).

(3) Third violation. For a third violation, the City shall impose a civil penalty in the amount of Two Hundred Dollars ($200.00).

(4) Subsequent Violations. For the fourth and any subsequent violation within one year, the City shall impose a penalty in the amount of Five Hundred Dollars ($500.00). In addition to the civil penalty, the City may also install a flow restricting device on the service of at the premises at which the violation occurred for a period of not less than forty-eight (48) hours. The City shall charge the responsible party the reasonable costs incurred for installing and removing the flow-restricting devices and for restoration of normal service. The charge shall be paid before normal service may be restored.

(b) Except for any violation of water use limitations for which a volumetric penalty may be imposed, the City shall give notice of a violation to the person committing the violation as follows:

(1) For a first violation, if the person committing the violation is a water customer of the City, then notice shall be given in writing by regular mail or personal delivery to the address at which the water customer is normally billed or at the address where the violation occurred. If the person committing the violation is not a water customer of the City, or if the event is not

related to a specific property, the notice may be sent to the last known address of the responsible party or personally delivered.

(2) Notice of second or subsequent violations shall be given by the issuance of a citation and complaint in accordance with §§ 6-8.31(c) and (d).

(3) Unless an appeal and/or hearing is requested pursuant to the provisions of §6-8.32, any civil penalty(ies) imposed by the City shall be due and payable within thirty (30) days of the issuance of the citation and complaint.

(c) Except for any violation of water use limitations for which a volumetric penalty may be imposed, any notice of violation of this chapter shall be issued as a citation and complaint and shall:

(1) Identify the provision(s) of this chapter and any State law, if applicable, alleged to have been violated; and

(2) State that continued noncompliance may result in civil, criminal, or administrative enforcement actions against the person who committed the violation, or the customer or the property owner and/or occupant of the property where the violation occurred; and

(3) State a compliance date that must be met by the person who committed the violation, or the customer, or the property owner and/or occupant of the property where the violation occurred; and

(4) Order remediation work, where applicable, that must be taken; and

(5) State that the recipient has a right to request a hearing and appeal the matter as set forth in §6-8.32; and

(6) Include the address of the affected property and be addressed to the water customer or the property owner as shown on the most recently issued equalized assessment roll or as may otherwise appear in the current records of the City. If the notice of violation applies to a responsible party who is not the property owner or a water customer, or if the event is not related to a specific property, the notice may be sent to the last known address of the responsible party or personally delivered; and

(7) Be deemed served within ten (10) business days after posting on the property, if the property owner or occupant of the affected property cannot be located after the reasonable efforts of the City Manager or his/her authorized designee.

(d) Any citation and complaint may be sent by regular mail or personal delivery. Service by regular mail is effective on the date of mailing. Service by personal delivery is effective on the date delivered. The citation and complaint, may include, where deemed applicable by the City Manager or his/her authorized designee, the following terms and conditions.

(1) Specific steps or actions and time schedules for compliance as reasonably necessary to prevent future violations of this chapter; and

(2) Any other terms, conditions, or requirements reasonably calculated to prevent continued or threatened future violations of this chapter, including, but not limited to, discontinuing or limiting water service with the installation of a flow restricting device.

(e) Any volumetric penalty imposed shall be:

(1) Applicable to all potable water used in excess of the water use limitations as established by separate resolution of the City Council;

(2) Collected on the customer’s water bill;

(3) Due and payable as part of the customer’s water bill;

(4) The responsibility of the customer of record for the property where the violation occurred; and

(5) Paid in addition to the water service fees the City imposes for the potable water delivered to the property where the violation occurred.

(f) The receipt of a water bill with any applicable volumetric penalty shall serve as notice of violation of the adopted water use limitations as established by resolution of the City Council.

(g) Any person who wishes to appeal the imposition of a volumetric penalty may do so pursuant to §6-8.32. Notice of the right to a hearing and to appeal the imposition of a volumetric penalty shall be included in the customer’s water bill.

(§ 2, Ord. 2907, eff. June 16, 2009, amended by § 2, Ord. 3027, eff. October 1, 2015)

Sec. 6-8.32. Appeal and hearing regarding violations.

(a) Any person receiving notice of a violation of this chapter and the imposition of a civil penalty or volumetric penalty, shall have a right to a hearing by the City Manager or his/her authorized designee to appeal the imposition of any civil penalty. Any request for a hearing must be submitted to the City within fifteen (15) days of mailing or other delivery of the citation and complaint or water bill, as applicable. Additional documentation may be requested at the discretion of the City Manager or his/her authorized designee.

(b) The timely written request for a hearing shall automatically stay installation of flow-restricting device on the premises where the violation occurred and imposition of the civil penalty or volumetric penalty until after the City Manager or his/her

designee renders his or her decision. The hearing shall be held no sooner than thirty (30) days after the issuance of the citation and complaint or water bill, as applicable.

(c) The decision of the City Manager or his/her designee shall be final and shall be memorialized in a final order. If the appeal is denied, then within ten (10) days after issuance of the final order, the person shall pay any civil penalty(ies) imposed by the City.

(d) The provisions of Section 1094.5 of the Code of Civil Procedure of the State of California shall be applicable to judicial review of the final order.

(e) Non-payment of any civil penalty or volumetric imposed pursuant to this chapter shall be subject to the same remedies available to the City as for non-payment of basic water service fees.

(§ 2, Ord. 2907, eff. June 16, 2009, amended by § 2, Ord. 3027, eff. October 1, 2015)

Sec. 6-8.33. Remedies are not exclusive.

In addition to any other remedies provided in this chapter or available under applicable law, the City may alternatively seek injunctive relief in the Superior Court or take enforcement action, including discontinuing or appropriately limiting water service to any customer, or installing a flow restricting device. All remedies provided herein shall be cumulative and not exclusive.

(§ 2, Ord. 3027, eff. October 1, 2015)

APPENDIX N

CITY OF ONTARIO'S DRAFT WATER CONSERVATION PLAN

CHAPTER 8A: WATER CONSERVATION PLAN

Sec. 6-8.20. Scope and title.

This chapter shall be known as "The Water Conservation Plan of the City of Ontario." (§ 2, Ord. 2907, eff. June 16, 2009, amended by § 2, Ord. 3027, eff. October 1, 2015)

Sec. 6-8.21. Statement of policy and declaration of purpose.

(a) Because of the water supply conditions prevailing in the City and/or the area from which the City obtains a portion of its supply, the general welfare requires that the water resources available to the City of Ontario be put to the maximum beneficial use to the extent to which they are capable, and that the waste or unreasonable use, or unreasonable method of use of water be prevented and that the conservation of such water be practiced with a view to that reasonable and beneficial use thereof in the interest of the people of the City.

(b) The purpose of this chapter is to minimize the potential for a water shortage through the practice of water conservation, and to minimize the effect of a shortage of water supplies on the water customers of the City. It is furthermore the intent of this chapter to adopt provisions that will significantly reduce the inefficient consumption of water, thereby extending the available water resources necessary for domestic, sanitation, and fire protection of the community to the greatest extent possible.

(c) This chapter shall be applicable to all persons within the City. For the purposes of this chapter, "person" means any natural person, property owner, renter, or lessee, as well as any corporation, partnership, government entity or subdivision, trust, estate, cooperative association, homeowners' association, joint venture, business entity, or other similar entity, or the property management company, property manager, agent, employee or representative of any of the above.

(§ 2, Ord. 2907, eff. June 16, 2009, amended by § 2, Ord. 3027, eff. October 1, 2015)

Sec. 6-8.22. Authorization.

(a) The City Council may declare a water shortage based on a determination by the Metropolitan Water District of Southern California, the Inland Empire Utilities Agency of a water shortage, the declaration of an executive order of the Governor or the adoption of voluntary or mandatory water use restrictions by any State agency governing the use of water, or based upon any interruption in water supply or delivery that the City Council determines in its sole discretion necessitates water conservation pursuant to this chapter.

(b) In the event of an immediate emergency that causes an unplanned interruption of water supply, the City Manager or his/her designee is authorized to restrict water use and apportion the available supply of water among its customers in the most equitable manner possible to continue service fairly and without discrimination, except that preference shall be given to such service as is essential to the public interest and to the preservation of life and health.

(c) A water shortage, including a water shortage emergency but excluding an immediate emergency, shall be declared by the adoption of a resolution of the City Council.

(1) A notice of a water shortage, other than a water shortage emergency, shall be published in a daily newspaper of general circulation within the City. Any restrictions on the use of water during a declared water shortage shall become effective immediately upon such publication.

(2) Notice of hearing to declare a water shortage emergency, other than an immediate emergency, shall be made in accordance with Water Code Section 351. Any restrictions on the use of water during a declared water shortage shall become effective immediately upon adoption unless otherwise be determined by the City Council.(§ 2, Ord. 2907, eff. June 16, 2009, amended by § 2, Ord. 3027, eff. October 1, 2015)

Sec. 6-8.23. General prohibitions.

(a) The following are prohibited in any new water connections:

(1) Non-recycling decorative fountains;

(2) Single-pass cooling systems; and

(3) Conveyor and in-bay vehicle wash and commercial laundry systems that do not reuse water.

(b) No water customer of the City shall make, cause, use, or permit the use of water from the City in a manner contrary to any provision of this chapter or in an amount in excess of the use permitted by any restriction provisions then in effect pursuant to the provisions of this chapter.

(§ 2, Ord. 2907, eff. June 16, 2009, amended by § 2, Ord. 3027, eff. October 1, 2015)

Sec. 6-8.24. Exceptions.

(a) The prohibited uses of water and water use restrictions provided within this chapter are not applicable for the use of recycled water or the use of potable water necessary for

public health and safety or for essential government services such as police, fire and other similar services.

(b) Nothing contained within this chapter shall be construed to require the City to curtail the supply of water necessary for the health, safety, and welfare of any person.

(§ 2, Ord. 2907, eff. June 16, 2009, amended by § 2, Ord. 3027, eff. October 1, 2015)

Sec. 6-8.25. Voluntary conservation.

All persons are encouraged to voluntarily limit the amount of water used to the amount absolutely necessary for health and safety, business operations, and irrigation. Except as otherwise provided in this chapter where a declared water shortage stage or water shortage emergency requires mandatory or other more stringent requirements, the following elements of conservation apply at all times on a voluntary basis by all persons within the City:

(a) Avoid hose washing of sidewalks, walkways, driveways, parking areas or other paved surfaces, except as required for sanitary purposes. If a person uses a hand-held hose to wash any sidewalk, walkway, driveway, parking area or other paved surface, the hose shall be equipped with a positive shutoff nozzle.

(b) Wash motor vehicles, trailers, boats and other types of mobile equipment using a hand held bucket or a hose equipped with a positive shutoff nozzle for quick rinses, or at the immediate premises of a commercial car wash or with recycled wastewater for approved uses.

(c) Avoid using water to clean, fill or maintain levels in decorative fountains, ponds, lakes or other similar aesthetic structures unless such water is part of a recycling system.

(d) Encourage restaurants, hotels, cafés, cafeterias or other public places where food is sold, served or offered for sale, to serve drinking water only to those customers expressly requesting water.

(e) Promptly repair all leaks from indoor and outdoor plumbing fixtures.

(f) Avoid watering lawn, landscape or other turf areas between the hours of 9:00 a.m. and 4:00 p.m.

(g) Avoid causing or allowing the water to run off landscape areas into adjoining streets, sidewalks or other paved areas due to incorrectly directed or maintained sprinklers or excessive watering.

(§ 2, Ord. 2907, eff. June 16, 2009, amended by § 2, Ord. 3027, eff. October 1, 2015)

Sec. 6-8.26. Stage 1 water shortage-water supply reduced by up to ten percent (10%).

(a) During a Stage 1, the following mandatory restrictions on the use of potable water shall be applicable when the City Council determines that the City's water conservation goals are not being met by voluntary water conservation measures, or that the City's water supplies are likely to be reduced by up to ten percent (10%) or it has otherwise been requested or directed by executive order or regulation of a State agency to reduce its potable water consumption or production by a specified amount.

(1) Except as required for health and sanitary purposes, washing of sidewalks, walkways, driveways, parking areas or other paved surfaces is prohibited. Any held-hose used for such purposes shall be equipped with a positive shutoff nozzle.

(2) Washing of motor vehicles, trailers, boats and other types of mobile equipment shall be done only with a hand-held bucket or a hose equipped with a positive shutoff nozzle for quick rinses, except that washing may be done at the immediate premises of a commercial car wash or with reclaimed wastewater.

(3) No water shall be used to clean, fill or maintain levels in decorative fountains, ponds, lakes or other similar aesthetic structures unless such water is part of a recycling system.

(4) No restaurant, hotel, café, cafeteria or other public place where food is sold, served or offered for sale, shall serve drinking water to any customer unless expressly requested.

(5) All water customers of the City shall promptly repair all leaks from indoor and outdoor plumbing fixtures. Such leak shall be repaired in a timely manner after notification by the city, but in no case after notification in excess of seventy-two (72) hours for the first violation and then every seventy-two (72) hours thereafter for the second and third violations.

(6) No person shall sprinkle, water, or irrigate any shrubbery, trees, lawns, grass, groundcovers, plants, vines, gardens, vegetables, flowers, or any other landscaped or vegetated areas between the hours of 9:00 a.m. and 4:00 p.m. In any event, such watering shall not be in excess of needs nor be of a manner that allows water to flow onto streets or other paved areas. The above mentioned plants may be watered by a hand-held hose equipped with a positive shutoff nozzle at any time of the day. This provision shall not apply to commercial nurseries, golf courses and other water-dependent industries.

(7) No water customer of the City shall cause or allow the water to run off landscape areas into adjoining streets, sidewalks or other paved areas due to incorrectly directed or maintained sprinkler or excessive watering.

(8) The use of water from fire hydrants shall be limited to fire fighting and related activities necessary to maintain the public health, safety, and welfare. An exception may be made for construction use through a proper city-designated meter. The use of potable water for construction activities shall be restricted in areas where recycled water is available for such use.

(b) At any time during a Stage 1, if the City Council determines that additional reductions in the amount the potable water being used by water customers are necessary, it may adopt a resolution establishing water use limitations and enforce those water use limitations by the adoption and imposition of a volumetric penalty established therein.
(§ 2, Ord. 2907, eff. June 16, 2009, amended by § 2, Ord. 3027, eff. October 1, 2015)

Sec. 6-8.27. Stage 2 water shortage-water supply reduced by ten percent (10%) to twenty percent (20%).

(a) During a Stage 2, the following mandatory restrictions on the use of potable water shall be applicable when the City Council determines that it is likely that the City will suffer a reduction of more than ten percent (10%) and up to (20%) in its water supplies or it has

otherwise been requested or directed by an executive order or regulation of a State agency to reduce its potable water consumption or production by a specified amount.

(1) All prohibitions and restrictions in § 6-8.26 shall be in effect provided that more restrictive measures noted in this section shall take precedence.

(2) Filling or refilling of empty swimming pools shall not occur without the written permission of the City Manager or his/her designee.

(3) All customers are prohibited from irrigating turf or ornamental landscapes during and within 48 hours following measurable rainfall.

(4) Operators of hotels and motels must provide guests with the option of choosing not to have towels and linens laundered daily and prominently display notice of this option.

(5) All persons, including the City, are prohibited from irrigating with potable water any ornamental turf on public street medians.

(6) The use of potable water for irrigation outside of newly constructed homes and buildings shall be consistent with California Building Standards Commission and Department of Housing & Community Development.

(b) At any time during a Stage 2, if the City Council determines that additional reductions in the amount the potable water being used by water customers are necessary, it may adopt a resolution establishing water use limitations and enforce those water use limitations by the adoption and imposition of a volumetric penalty established therein.

(§ 2, Ord. 2907, eff. June 16, 2009, amended by § 2, Ord. 3027, eff. October 1, 2015)

Sec. 6-8.28. Stage 3 water shortage-water supply reduced by more than twenty percent (20%).

(a) During a Stage 3, the following mandatory restrictions on the use of potable water shall be applicable when the City Council determines that it is likely that the City will suffer a reduction of more than twenty percent (20%) and up to thirty percent (30%) in its water supplies or it has otherwise been requested or directed by executive order or regulation of a State agency to reduce its potable water consumption or production by a specified amount.

(1) All the prohibitions and restrictions in § 6-8.27 shall be in effect provided that the more restrictive measures noted in this section shall take precedence.

(2) Residents and CII customers will be prohibited from irrigating any turf or landscape area more than four (4) days a week.

(3) The use of water from fire hydrants shall be limited to fire fighting and related activities and other uses of water for municipal purposes shall be limited to activities necessary to maintain the public health, safety and welfare. Unless written permission has been granted by the City Manager or his/her designee, the use of potable water for construction activities and grading shall be prohibited.

(b) At any time during a Stage 3, if the City Council determines that additional reductions in the amount the potable water being used by water customers are necessary, it may adopt a resolution establishing water use limitations and enforce those water use limitations by the adoption and imposition of a volumetric penalty established therein.

(§ 2, Ord. 2907, eff. June 16, 2009, amended by § 2, Ord. 3027, eff. October 1, 2015)

Sec. 6-8.29. Stage 4 water shortage-emergency.

(a) During Stage 4, the following mandatory restrictions on the use of potable water shall be applicable when the City Council determines that it is likely that the City will suffer a reduction of more than thirty percent (30%) and up to forty percent (40%) in its water supplies or it has otherwise been requested or directed by executive order or regulation of a State agency to reduce its potable water consumption or production by a specified amount.All the prohibitions and restrictions in § 6-8.28 shall be in effect provided that the more restrictive measures noted in this section shall take precedence.

(1) Residents and CII customers will be prohibited from irrigating turf or other landscaping more than two days a week.

(2) No person shall irrigate any turf or landscaped area more than fifteen minutes (15) on watering days.

(3) No vehicles shall be washed unless it is taken to a carwash.

(b) At any time during a Stage 4, if the City Council determines that additional reductions in the amount the potable water being used by water customers are necessary, it may adopt a resolution establishing water use limitations and enforce those water use limitations by the imposition of a volumetric penalty established therein.

(§ 2, Ord. 2907, eff. June 16, 2009, amended by § 2, Ord. 3027, eff. October 1, 2015)

Sec. 6-8.30. Stage 5 water shortage-emergency.

(a) During Stage 5, the following mandatory restrictions on the use of potable water shall be applicable when the City Council determines that it is likely that the City will suffer a reduction of more than forty percent (40%) and up to fifty percent (50%) in its water supplies or it has otherwise been requested or directed by executive order or regulation of a State agency to reduce its potable water consumption or production by a specified amount.

(1) All the prohibitions and restrictions in § 6-8.28 shall be in effect provided that the more restrictive measures noted in this section shall take precedence.

(2) Residents and CII customers will be prohibited from irrigating turf or other landscaping more than one day a week.

(b) At any time during a Stage 5, if the City Council determines that additional reductions in the amount the potable water being used by water customers are necessary, it may adopt a resolution establishing water use limitations and enforce those water use limitations by the imposition of a volumetric penalty established therein.

(§ 2, Ord. 2907, eff. June 16, 2009, amended by § 2, Ord. 3027, eff. October 1, 2015)

Sec. 6-8.31. Stage 6 water shortage-emergency.

(a) During Stage 6, the following mandatory restrictions on the use of potable water shall be applicable when the City Council determines that it is likely that the City will suffer a reduction of more than fifty percent (50%) in its water supplies or it has otherwise been requested or directed by executive order or regulation of a State agency to reduce its

potable water consumption or production by a specified amount. A water shortage emergency may be declared whenever the City Council finds and determines that the ordinary demands and requirements of water consumers cannot be satisfied without depleting the water supply of the City to the extent that there would be insufficient water for human consumption, sanitation, and fire protection. A water shortage emergency may include an immediate emergency. An immediate emergency may occur as a result of a breakage or failure of a dam, pump, pipe line or conduit, a major earthquake, large-scale fire, or other so called "Act of God" which may have serious impacts on the City's available water supply.

(4) All the prohibitions and restrictions in § 6-8.28 shall be in effect provided that the more restrictive measures noted in this section shall take precedence.

(2) Unless otherwise permitted by a resolution of the City Council, there shall be no use of potable water for irrigation of outdoor landscape or turf.

(3) Commercial nurseries shall be prohibited from the use of potable water for irrigation of outdoor, landscape and turf except by use of a hand-held hose equipped with a positive shutoff nozzle.

(4) The following nonessential uses of water shall be prohibited: the filling, cycling, filtering, or refilling swimming pools, spas, Jacuzzis, fountains or other like devices.

(b) At any time during a Stage 6, if the City Council determines that additional reductions in the amount the potable water being used by water customers are necessary, it may adopt a resolution establishing water use limitations and enforce those water use limitations by the imposition of a volumetric penalty established therein.

(§ 2, Ord. 2907, eff. June 16, 2009, amended by § 2, Ord. 3027, eff. October 1, 2015)

Sec. 6-8.30. Relief from compliance.

(a) A water customer of the City may file a written application for relief in whole or in part, from the water use restriction provisions of this chapter. The City Manager or his/her designee shall review the request for a variance and take such steps as he or she deems reasonable to resolve the application for relief. The decision of the City Manager shall be final.

(b) A relief may be granted if the water customer shows that he or she has achieved the maximum practical reduction in water consumption other than in the specific areas in which relief is being sought. No relief shall be granted to any water customer who, when requested by the City Manager, fails to provide any information necessary for resolution of the customer's application for relief.

(§ 2, Ord. 2907, eff. June 16, 2009, amended by § 2, Ord. 3027, eff. October 1, 2015)

Sec. 6-8.31. Failure to comply.

(a) Each and every day that a violation of this chapter occurs or continues to occur shall be considered a new and separate offense. Except for any violation of water use limitations for which a volumetric penalty may be imposed, for each violation of this chapter the following civil penalties may be imposed by issuance of a citation and complaint:

(1) First violation. For a first violation, the City shall issue a written warning to the water customer.

(2) Second violation. For a second violation, the City shall impose a civil penalty in the amount of One Hundred Dollars ($100.00).

(3) Third violation. For a third violation, the City shall impose a civil penalty in the amount of Two Hundred Dollars ($200.00).

(4) Subsequent Violations. For the fourth and any subsequent violation within one year, the City shall impose a penalty in the amount of Five Hundred Dollars ($500.00). In addition to the civil penalty, the City may also install a flow restricting device on the service of at the premises at which the violation occurred for a period of not less than forty-eight (48) hours. The City shall charge the responsible party the reasonable costs incurred for installing and removing the flow-restricting devices and for restoration of normal service. The charge shall be paid before normal service may be restored.

(b) Except for any violation of water use limitations for which a volumetric penalty may be imposed, the City shall give notice of a violation to the person committing the violation as follows:

(1) For a first violation, if the person committing the violation is a water customer of the City, then notice shall be given in writing by regular mail or personal delivery to the address at which the water customer is normally billed or at the address where the violation occurred. If the person committing the violation is not a water customer of the City, or if the event is not related to a specific property, the notice may be sent to the last known address of the responsible party or personally delivered.

(2) Notice of second or subsequent violations shall be given by the issuance of a citation and complaint in accordance with §§ 6-8.31(c) and (d).

(3) Unless an appeal and/or hearing is requested pursuant to the provisions of § 6-8.32, any civil penalty(ies) imposed by the City shall be due and payable within thirty (30) days of the issuance of the citation and complaint.

(c) Except for any violation of water use limitations for which a volumetric penalty may be imposed, any notice of violation of this chapter shall be issued as a citation and complaint and shall:

(1) Identify the provision(s) of this chapter and any State law, if applicable, alleged to have been violated; and

(2) State that continued noncompliance may result in civil, criminal, or administrative enforcement actions against the person who committed the violation, or the customer or the property owner and/or occupant of the property where the violation occurred; and

(3) State a compliance date that must be met by the person who committed the violation, or the customer, or the property owner and/or occupant of the property where the violation occurred; and

(4) Order remediation work, where applicable, that must be taken; and

(5) State that the recipient has a right to request a hearing and appeal the matter as set forth in § 6-8.32; and

(6) Include the address of the affected property and be addressed to the water customer or the property owner as shown on the most recently issued equalized assessment roll or as may otherwise appear in the current records of the City. If the notice of violation applies to a responsible party who is not the property owner or a water

customer, or if the event is not related to a specific property, the notice may be sent to the last known address of the responsible party or personally delivered; and

(7) Be deemed served within ten (10) business days after posting on the property, if the property owner or occupant of the affected property cannot be located after the reasonable efforts of the City Manager or his/her authorized designee.

(d) Any citation and complaint may be sent by regular mail or personal delivery. Service by regular mail is effective on the date of mailing. Service by personal delivery is effective on the date delivered. The citation and complaint, may include, where deemed applicable by the City Manager or his/her authorized designee, the following terms and conditions.

(1) Specific steps or actions and time schedules for compliance as reasonably necessary to prevent future violations of this chapter; and

(2) Any other terms, conditions, or requirements reasonably calculated to prevent continued or threatened future violations of this chapter, including, but not limited to, discontinuing or limiting water service with the installation of a flow restricting device.

(e) Any volumetric penalty imposed shall be:

(1) Applicable to all potable water used in excess of the water use limitations as established by separate resolution of the City Council;

(2) Collected on the customer's water bill;

(3) Due and payable as part of the customer's water bill;

(4) The responsibility of the customer of record for the property where the violation occurred; and

(5) Paid in addition to the water service fees the City imposes for the potable water delivered to the property where the violation occurred.

(f) The receipt of a water bill with any applicable volumetric penalty shall serve as notice of violation of the adopted water use limitations as established by resolution of the City Council.

(g) Any person who wishes to appeal the imposition of a volumetric penalty may do so pursuant to § 6-8.32. Notice of the right to a hearing and to appeal the imposition of a volumetric penalty shall be included in the customer's water bill.

(§ 2, Ord. 2907, eff. June 16, 2009, amended by § 2, Ord. 3027, eff. October 1, 2015)

Sec. 6-8.32. Appeal and hearing regarding violations.

(a) Any person receiving notice of a violation of this chapter and the imposition of a civil penalty or volumetric penalty, shall have a right to a hearing by the City Manager or his/her authorized designee to appeal the imposition of any civil penalty. Any request for a hearing must be submitted to the City within fifteen (15) days of mailing or other delivery of the citation and complaint or water bill, as applicable. Additional documentation may be requested at the discretion of the City Manager or his/her authorized designee.

(b) The timely written request for a hearing shall automatically stay installation of flow-restricting device on the premises where the violation occurred and imposition of the civil penalty or volumetric penalty until after the City Manager or his/her designee renders his or her decision. The hearing shall be held no sooner than thirty (30) days after the issuance of the citation and complaint or water bill, as applicable.

(c) The decision of the City Manager or his/her designee shall be final and shall be memorialized in a final order. If the appeal is denied, then within ten (10) days after issuance of the final order, the person shall pay any civil penalty(ies) imposed by the City.

(d) The provisions of Section 1094.5 of the Code of Civil Procedure of the State of California shall be applicable to judicial review of the final order.

(e) Non-payment of any civil penalty or volumetric imposed pursuant to this chapter shall be subject to the same remedies available to the City as for non-payment of basic water service fees.

(§ 2, Ord. 2907, eff. June 16, 2009, amended by § 2, Ord. 3027, eff. October 1, 2015)

Sec. 6-8.33. Remedies are not exclusive.

In addition to any other remedies provided in this chapter or available under applicable law, the City may alternatively seek injunctive relief in the Superior Court or take enforcement action, including discontinuing or appropriately limiting water service to any customer, or installing a flow restricting device. All remedies provided herein shall be cumulative and not exclusive.

(§ 2, Ord. 3027, eff. October 1, 2015)

APPENDIX O

CITY OF ONTARIO'S HAZARD MITIGATION PLAN

City of Ontario, California

2018 Hazard Mitigation Plan

This document was supported by HSGP Grant No. 2015-0078 awarded by the U.S. Department of Homeland Security (DHS) Federal Emergency Management Agency (FEMA). Points of view, opinions, findings, and conclusions expressed in this document are those of the authors and do not necessarily represent the official position of policies of FEMA or DHS. DHS/ FEMA reserves a royalty-free, non-exclusive, and irrevocable license to reproduce, publish, and use these materials and to authorize others to do so.

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Appendix A

Section 1. Introduction

The HMP update is a "living document" that should be reviewed, monitored, and updated to reflect changing conditions and new information. As required, the HMP must be updated every five (5) years to remain in compliance with regulations and Federal mitigation grant conditions. In that spirit, this Hazard Mitigation Plan (HMP) is an update of the City of Ontario Hazard Mitigation Plan approved by FEMA on July 23, 2011.

1.1 City of Ontario, California

The City of Ontario is located in the Inland Empire in Western San Bernardino County, approximately 35 miles east of Los Angeles and 20 miles west of San Bernardino on a flat alluvial plain at the base of the San Gabriel Mountains. The City is bordered by the neighboring cities of Upland, Montclair, Chino, Rancho Cucamonga, and Fontana.

City of Ontario
303 East "B" Street
Ontario, California 91764
Telephone: 909.395.2010
Fax: 909.395.2000
www.ontarioca.gov

Latitude: 34° 03' N, Longitude:117° 37' W
Elevation: 925 ft./288.257 m above sea level Land area: 49.8 square miles City Incorporated: 1891
Government Type: City Council/City Manager
County: San Bernardino
State: California
Time Zone: Pacific Standard Time
Area Code: (909)
Zip Codes: 91758, 91761, 91762, 91764
Population (2010): 173,690
Nearest cities:

- Upland, CA – 4.7 miles
- Chino, CA – 4.9 miles
- Montclair, CA – 4.9 miles
- Rancho Cucamonga, CA – 5.9 miles
- Claremont, CA – 7.4 miles
- Chino Hills, CA – 8.5 miles
- Pomona, CA – 8.8 miles
- Fontana, CA – 14.2 miles

Nearest city with population 200,000+: Riverside, CA (17.5 miles, pop. 255,166)
Nearest city with population 1,000,000+: Los Angeles, CA (51.5 miles, pop. 3,694,820)

The City of Ontario is 50.1 square miles in size and has the 10, 60 and 15 freeways traversing the community.

1.2 Planning Process

1.2.1 Preparing for the Plan

References

- 2011 City of Ontario Hazard Mitigation Plan
- 2014 City of Ontario Community Climate Change Action Plan
- 2013 San Bernardino County Regional Greenhouse Gas Emissions Inventories and Reduction Plan
- 2005 City of Ontario Hazard Mitigation Plan
- 2011 San Bernardino County Hazard Mitigation Plan
- 2010 State of California Hazard Mitigation Plan
- 2010 Ontario Plan (General Plan)
- DMA 2000 State & Local Plan Criteria: Mitigation Planning Workshop for Local Governments
- Getting Started: Building Support for Mitigation Planning (FEMA 386-1)
- Understanding Your Risks: Identifying Hazards and Estimating Losses (FEMA 386-2)
- Developing the Mitigation Plan: Identifying Mitigation Actions and Implementing Strategies (FEMA 386-3)
- Bringing the Plan to Life: Implementing the Hazard Mitigation Plan (FEMA 386-4)
- Using Benefit-Cost Review in Mitigation Planning (FEMA 386-5)
- Integrating Historic Property and Cultural Resource Considerations into Hazard Mitigation Planning (FEMA 386-6)
- Integrating Manmade Hazards into Mitigation Planning (FEMA 386-7)
- Multi-Jurisdictional Mitigation Planning (FEMA 386-8)
- Using the Hazard Mitigation Plan to Prepare Successful Mitigation Projects (FEMA 386-9)
- Planning for A Sustainable Future: The Link Between Hazard Mitigation and Livability (FEMA 364)
- Rebuilding for A More Sustainable Future: An Operational Framework (FEMA 365)
- FEMA 322 Public Assistance Guide
- HMP Update Guidance
- HMP Plan Review Tool
- Hazus Local Database
- Stafford Act
- National Flood Insurance Act
- NOAA History of Significant Weather Events in Southern California
- City of Ontario Emergency Management Strategic Plan

Hazard mitigation planning is the process State, Tribal, and local governments use to identify risks and vulnerabilities associated with natural disasters, and to develop long-term strategies for protecting people and property from future hazard events.

1.2.2 Planning Team

The City of Ontario Emergency Management Working Committee (EMWC) served as the Hazard Mitigation Planning Team for the 2018 Update. Involving stakeholders is essential to building community-wide support for the plan. In addition to emergency managers, the planning process involves other government agencies (e.g., zoning, floodplain management, public works, community, and economic development), businesses, civic groups, environmental groups, and schools. The Planning Team was established to define and identify the strategies, goals, activities, and development of the HMP. The Planning Team represents a comprehensive team of subject matter experts from a variety of areas that could be affected by the planning effort or could provide great benefit to the team. Each Planning Team member is responsible for communicating the direction and status of the planning effort to their outside members and in return they are expected to bring to the team outside perspectives. The Planning Team will be led by the City Emergency Manager. The Emergency Manager, as the Chair of the EMWC and the Planning Team, will take on the responsibilities of a Project Manager and will facilitate and coordinate activities with other jurisdictions, and agencies.

1.2.3 Coordination with Other Jurisdictions, Agencies and Organizations

There are many jurisdictions, agencies, and organizations that are affected by or have influence on the City. As part of the planning process, the Planning Team took great efforts to engage and include as many members as possible. The City of Ontario Emergency Management Working Committee (EMWC), as an established group with a diverse membership, was an ideal platform for coordination efforts. The EMWC membership includes both internal and external emergency planning partners. In addition, the Emergency Manager works in coordination with many other groups. The EMWC networked with our businesses, faith-based agencies, school districts and the various utilities companies to gather input and information to produce this document.

1.2.4 Public Involvement/Outreach

Public involvement is critical to the success of the emergency management program for the City of Ontario. Representatives for the public are involved in the HMP, as well as other key facets of the emergency management program. Public involvement was solicited throughout the process. The City uses the "Whole Community" approach, which says that emergency management and emergency preparedness must involve the entire community, including residents, businesses and government, to be successful.

Since the 2005 HMP approval, the City has continued to educate the public on the hazards facing the city. At events, public opinion and comments are solicited. Public involvement for this update was primarily through the EMWC with the varied community representatives, and also included community events (such as Community Emergency Preparedness Fair and Fire Open House) and community presentations (such as Neighborhood Watch).

The City Council will review, approve and adopt the 2016 HMP. The City Council will issue a Resolution denoting approval of the HMP. Prior to the City Council approval, the HMP will be posted on the City website as part of the Agenda for the meeting. Any resident of the City may make comments or request information on the HMP during the regularly scheduled meeting. Only after the public has an opportunity to review and comment on the HMP will the Council take action on the agenda item.

1.2.5 Assess the Hazard

The EMWC facilitated discussions to identify hazards in the community. The EMWC started with the 2005 HMP. The first step was to validate the accuracy of the contents. The next step was to determine if any additional information or hazards should be included or removed. The EMWC used multiple sources for this information, using the subject matter expertise of the EMWC membership. This also assisted in determining hazard priorities in the community. In the 2005 HMP, a scoring system was used. This was now replaced in the 2011 HMP by a non-numerical system of high, medium and low rankings for probability and impact and is also used in the 2016 update. The hazards are placed in a matrix, which is used to determine planning and project priorities.

Probability	**Impact**
High: Highly Likely/Likely	**High:** Catastrophic/Critical
Medium: Possible	**Medium:** Limited
Low: Unlikely	**Low:** Negligible

The EMWC identified goals for the HMP update. The EMWC reviewed the hazard probability and impacts, evaluated the 2005 and 2011 Hazard Mitigation Plan Goals, then updated the goals for 2016. The EMWC also considered additions and deletions from the list of goals. The goals were reviewed to ensure consistency with various planning documents such as *The Ontario Plan*, State of California 2010 HMP, the SB County Operational Area HMP and other area jurisdictional HMP for consistency, compatibility and conflicts. The goals were then finalized.

1.2.6 Review and Propose Mitigation Measures

After the goals are set, mitigation measures are updated and developed. This includes a review of projects from the 2005and 2011 HMP. The mitigation measures also include goals and objectives from the City of Ontario *Emergency Management Strategic Plan,* After Action Reports, Corrective Action Plans and other operational documents. Once the mitigation measures are developed, they are then prioritized.

1.2.7 Draft the Hazard Mitigation Plan

The Hazard Mitigation Plan Update will be drafted by the Emergency Manager/OEM with input and comments from the EMWC and other participants. While the 2005 and 2011 HMP is used as a starting point, many revisions and changes were incorporated to improve the usability of the HMP while still maintaining consistency with the OA guidance.

Once the HMP update has been drafted and reviewed by the EMWC, it will be forwarded to Cal EMA and FEMA for approval. If Cal EMA or FEMA have any review comments, they will be incorporated as needed and the revised HMP will be again forwarded for approval.

1.2.8 Adopt the Plan

After CalOES and FEMA have approved the plan, the HMP update will be adopted by the City of Ontario City Council. The item will be part of the consent calendar subject to a public hearing if necessary. The HMP will be listed on the agenda with the plan being made available electronically to the general public prior to the meeting date. Any member of the public can make comments on the HMP during the meeting.

1.3 Purpose of the Plan

The intent of hazard mitigation is to reduce and/or eliminate loss of life and property. Hazard mitigation is defined by FEMA as "*any action taken to reduce or eliminate the long-term risk to human life and property from natural hazards*." A "hazard" is defined by FEMA as "*any event or condition with the potential to cause fatalities, injuries, property damage, infrastructure damage, agricultural loss, environmental damage, business interruption, or other loss*."

The purpose of the Hazard Mitigation Plan (HMP) is to demonstrate the plan for reducing and/or eliminating risk in the City of Ontario, California. The HMP process encourages communities to develop goals and projects that will reduce risk and build a more disaster resilient community by analyzing potential hazards.

After disasters, repairs and reconstruction are often completed in such a way as to simply restore to pre- disaster conditions. Such efforts expedite a return to normalcy; however, the restoring of things to pre- disaster conditions sometimes result in feeding the disaster cycle; damage, reconstruction, and repeated damage. Mitigation is one of the primary phases of emergency management specifically dedicated to breaking the cycle of damage. Hazard mitigation is distinguished from other disaster management functions by measures that make City of Ontario development and the natural environment safer and more disaster resilient. Mitigation generally involves alteration of physical environments, significantly reducing risks and vulnerability to hazards by altering the built environment so that life and property losses can be avoided or reduced.

Mitigation also makes it easier and less expensive to respond to and recover from disasters.

Also with an approved (and adopted) HMP, the City of Ontario can be eligible for federal disaster mitigation funds/grants (Hazard Mitigation Grant Program, Pre-Disaster Mitigation, and Flood Management Assistance) aimed to reduce and/or eliminate risk. There are many jurisdictions, agencies, and organizations that are affected by or have influence on the City. As part of the planning process, the Planning Team took great efforts to engage and include as many members as possible. The City of Ontario Emergency Management Working Committee (EMWC), as an established group with a diverse membership, was an ideal platform for coordination efforts. The EMWC membership includes both internal and external emergency planning partners. In addition, the Emergency Manager works in coordination with many other groups.

1.4 Authority

In 2000, FEMA adopted revisions to the Code of Federal Regulations. This revision is known as "Disaster Mitigation Act (DMA)." DMA 2000, Section 322 (a-d) requires that local governments, as a condition of receiving federal disaster mitigation funds, have a Hazard Mitigation Plan (HMP) that describes the process for assessing hazards, risks and vulnerabilities, identifying and prioritizing mitigation actions, and engaging/soliciting input from the community (public), key stakeholders, and adjacent jurisdictions/agencies.

Senate Bill No. 379 will, upon the next revision of a local hazard mitigation plan on or after January 1, 2017, or, if the local jurisdiction has not adopted a local hazard mitigation plan, beginning on or before January 1, 2022, require the safety element to be reviewed and updated as necessary to address climate adaptation and resiliency strategies applicable to that city or county.

1.5 What's New

1.5.1 Plan Update and Progress:

Since the adoption of the HMP in 2011 the City of Ontario has been very busy in working on the various mitigation projects that it could put in to place. Still recovering from the Great Recession the City focused on projects that could be funded and completed.

Table 1-1 is a list of specific projects that were listed in the 2011 HMP in section 6.5. The status of these projects are identified in the far right column in red.

Table 1-1: Status of 2011 HMP Projects

Action	Lead	Funding Source	Timeframe	Priority	2016 Status
Ensure all new development and redevelopment is sited and constructed in accordance with the Ontario Plan and zoning.	Development	Local	Long	C	**Ongoing**
Implement specific projects	Redevelopment Development, OMUC, OEM, IT, other	Local, grant	Long	C	**Deferred due to budget reductions**
Conduct a risk assessment of the City's water treatment plant and City reservoirs	OMUC	Local	Short	C	**Completed**
Conduct a city wide assessment of City employee earthquake preparedness	OEM	Local	Short	C	**Ongoing**
Establish a nonstructural hazard evaluation and risk reduction program for city buildings and departments housing critical functions	OMUC	Local	Short	C	**Ongoing**
Improve damage assessment process and procedures	OEM, OMUC, CPS	Local	Short	C	**Ongoing**
Improve the building and infrastructure inventory for HAZUS	OMUC	Local, Grant	Short	C	**Ongoing**
Develop the primary Emergency Operations Center	Development	Local, Grant	Short	C	**Completed**
Conduct an assessment of City facility seismic hardening	OMUC	Local	Long	H	**Ongoing**
Perform assessment of city parks for mass care locations	OMUC, OEM	Local	Short	H	**Project taken over by the American Red Cross**
Update Disaster Council	OEM	Local	Short	H	**Completed**
Continue comprehensive emergency training for all city personnel	OEM	Local	Long	H	**Ongoing**

Action	Lead	Funding Source	Timeframe	Priority	2016 Status
Continue comprehensive emergency exercises for all city personnel	OEM	Local	Long	H	**Ongoing**
Evaluate City facility warning systems to determine efficacy in reaching all people within the building	IT	Local	Short	H	**Completed**
Assess City facility evacuation/shelter in place procedures	OEM	Local	Short	H	**Ongoing**
Update the mass notification system	IT	Local, Grant	Long	H	**Complete**
Create emergency management website	IT	Local	Short	H	**Complete**
Continue to sponsor annual Community Emergency Preparedness Fair	OEM	Local, Grant	Long	H	**Ongoing**
Enhance Emergency Management Working Committee membership	OEM	Local	Long	M	**Complete**
Improve emergency management public education material distribution	OEM	Local	Long	M	**Ongoing**

1.5.2 Lead agency listing

Development: Development Agency
OMUC: Ontario Municipal Utilities Company
OEM: Office of Emergency Management
IT: Information Technology Department

Only two projects were not worked on by the City of Ontario. The Implementation of Specific Projects was dropped because the lead agency was the Redevelopment Department which was eliminated by the State of California and the funding was put on hold while the State determined where the funds were going to be dispersed and the Assessment of Parks for Mass Care was taken by the Red Cross as a part of their upgraded disaster response capabilities.

1.5.3 Analysis and Methodology

An implementation strategy is the key to any successful planning effort. The implementation strategy identifies who has lead responsibility for the action, the estimated timeframe for completion, and potential funding source(s) to support implementation, and the priority ranking, defined as follows:

Lead Agency: City Agency/Department/Unit assigned lead responsibility
Timeframe: Short-term (less than 2 years); long-term (more than 2 years)
Funding source: Potential internal and external funding source(s)
Priority Ranking: Critical, High, Moderate or Low

NOTE: the order of listing in the following table is not necessarily the order of priority.

Looking toward the future the City of Ontario in this updated HMP will continue on the path toward mitigation reduction by taking on the new projects listed in Table 1-2.

Table 1-2: New Projects

Action	Lead Agency	Funding Source	Timeframe	Priority
Drought Mitigation	OMUC	local\grant	Short	High
Develop Alternate EOC Sites	OES	local	Long	High
Develop and implement projects to strengthen the city water system and reservoirs	OMUC	local	Long	High
Implement tools to evaluate the efficiency of warning systems to reach people in city facilities and the use of social media to get the message out to the public.	OEM, IT	local	Long	High

OEM: Office of Emergency Management
IT: Information Technology Department
OMUC: Ontario Municipal Utilities Company

1.5.4 New policies and regulations:

The City also implemented the 2014 Community Climate Action plan to combat Climate Change and the City took part in the regional plan to combat greenhouse gases.

What's new in the 2016 HMP update:

In this update you will see the following improvements to the HMP over past plans

- Better maps
- More detailed information on maps
- Better Charts\Graphs
- More detail and updates on specific plan areas
- Easier for the public to understand the plan and methodology
- Climate Change information

1.6 Community Profile

1.6.1 Physical Setting

The City of Ontario is located in the Inland Empire in Western San Bernardino County, approximately 35 miles east of Los Angeles and 20 miles west of San Bernardino on a flat alluvial plain at the base of the San Gabriel Mountains. The City is bordered by the neighboring cities of Upland, Montclair, Chino, Rancho Cucamonga, and Fontana.

Figure 1-1: City of Ontario Location

1.6.2 Climate

- Mediterranean-like climate: moderate temperatures & low humidity year-round
- Average annual days of shine: 312
- Average median temperature: 83°F/24°C
- Average annual rainfall: 16.1 inches
- A few rainy days generally followed by many days of sunshine & clear skies

1.6.3 Major River/Watersheds

The City of Ontario is part of the Santa Ana River Watershed. A watershed is a region drained by a stream, lake, or other body of water. In other words, it is a bowl or basin-shaped area in which all water within the area (rain, snow, etc.) will flow to the same outlet point.

The Santa Ana River Watershed is located in southern California, south and east of the city of Los Angeles. The watershed includes much of Orange County, the northwestern corner of Riverside County, the southwestern corner of San Bernardino County, and a small portion of Los Angeles County. The EPA identifies the San Jacinto watershed as a separate watershed. For SAWPA (Santa Ana Watershed Project Authority) purposes, the San Jacinto watershed is considered to be part of the Santa Ana River watershed. The watershed is bounded on the south by the Santa Margarita watershed, on the east by the Salton Sea and Southern Mojave watersheds, and on the north/west by the Mojave and San Gabriel watersheds. The watershed is approximately 2,800 square miles in area.

1.6.4 Physiography

The watershed is located in the Peninsular Ranges and Transverse Ranges Geomorphic Provinces of Southern California (California Geological Survey Note 36). The highest elevations (upper reaches) of the watershed occur in the San Bernardino (San Gorgonio Peak -- 11,485 feet in elevation) and eastern San Gabriel Mountains (Transverse Ranges Province; Mt. Baldy -- 10,080 feet in elevation) and in the San Jacinto Mountains (Peninsular Ranges Province, Mt. San Jacinto – 10,804 ft). Further downstream, the Santa Ana Mountains and the Chino Hills form a topographic high before the river flows into the Coastal Plain (in Orange County) and into the Pacific Ocean. Primary slope direction is northeast to southwest, with secondary slopes controlled by local topography.

1.6.5 Geology

As is true for much of California, the geology of the Santa Ana River watershed is defined and created by seismic activity. The dominant structural feature is the San Andreas Fault zone, which trends in a southeast-northwest direction at the base of the San Bernardino Mountains; motion along this fault has caused the uplift of the San Bernardino and San Gabriel mountain ranges. Additional major fault structures include the San Jacinto fault zone and the Elsinore Fault Zone; the San Jacinto Mountains are caused by motion from both the San Andreas and San Jacinto zones. Fault zones/lines are shown in red on the figure below. The area between the San Jacinto zone and the Elsinore Zones is a down-dropped block, which is partly in-filled with sediments from the surrounding mountains.

There are too many geologic units in the watershed to describe separately, but the predominant features are intrusive rocks of the southern California batholiths (granitic and andesitic rocks) which have been uplifted/eroded to form the mountain ranges (shown in green shades in Figure 1-2), alluvial/fluvial sediments (materials eroded from the mountains and deposited in the basins, shown in tan/light tones), and semi-consolidated sedimentary units (maroon/brown color)

1.6.6 History

It was in the first week of August, 1881 when George Chaffey, a Canadian engineer, viewed the wastes known as the Cucamonga Desert and decided that this patch of land, if properly watered, could become productive and profitable. George and his brother William bought the "San Antonio lands," 6,218 acres with water rights for $60,000. This was the nucleus of their new model colony. They subsequently expanded to the Southern Pacific Railroad tracks on the south. On the north, they took in the Kincaid Ranch at San Antonio Canyon, an all-important source of water.

The Ontario Colony lands were quickly surveyed and went on sale in November, 1882. The centerpiece was Euclid Avenue, eight miles long and two hundred feet wide, the twin "driveways" separated by a parkway which was seeded in grass and lined with pepper trees. George named Euclid Avenue after the great Greek mathematician whose book Elements of Geometry had been a favorite subject for George in school. The primary requirement, which had to be met before the land could be utilized, was that water had to be found and brought to the town. Chaffey laid miles of cement pipe for this purpose and later the San Antonio Water Co. drove a tunnel into the head of the canyon to tap the underground flow—then an innovation in the field. The need for electric power to lift water from deep wells led to the establishment of the Ontario Power Co.

Figure 1-2: Geologic Units in the areas surrounding the City of Ontario

Another innovation in the settlement of Ontario was the provision, whereby, purchasers of land automatically received shares in the water company. This would ensure purchasers that a share of water proportional to their acreage would be piped to their land. This eliminated many problems that faced settlers elsewhere, where land rights and water rights were kept separate.

Charles Frankish became the guiding force during Ontario's early years. No matter what the activity he undertook, Frankish always threw himself into his work and was determined to do the best possible job.

In 1887, Ontario's unique "gravity mule car" made its first run on Euclid Avenue. Charles Frankish and Godfrey Stamm established the Ontario and San Antonio Heights R.R. Co. Engineer John Tays of Upland added the pull-out trailer that allowed the mules to coast downhill after each laborious pull from Holt to Twenty–Fourth Street. The mule car served until 1895, when it was replaced by an electric streetcar and returned temporarily when a flood damaged the electrical generator in the powerhouse.

Figure 1-3: City of Ontario

On Dec 10th, 1891, Ontario was incorporated as a city of the sixth class under the California Constitution. It adopted a City Council-City Manager form of government. The mayor was at first called the "President of the chosen by the Council, or the Board of Trustees as it was then called, from among their number. Subsequently, the law was changed to allow the people to elect the mayor directly.

Ontario first developed as an agricultural community, largely but not exclusively devoted to citrus. A few of the lovely Victorian "grove houses" still survive, relics of the days when growers could pretend that they were living the graceful lives of the old Spanish dons—until it came time for harvest.

Chaffey College, which was located where the Chaffey brothers put it until 1960, originally emphasized agricultural subjects to give the growers a hand. It was there that Prof. George Weldon developed the Babcock peach, an adaptation to California's mild winters. The college has moved to Rancho Cucamonga now, but Chaffey High School is still on what was originally a joint campus.

A reminder of the heyday of the orange groves, the Sunkist plant remains to this day. Even though the groves have gone from the West End, Ontario is still close to the "ton-mile center" of the industry. In addition to oranges, the production of peaches, walnuts, lemons and grapes was also important to the growth of Ontario and the adjoining city of Upland.

In 1923, Judge Archie Mitchell, Waldo Waterman, and some other airplane enthusiasts established Latimer Field. From that time on, the town became increasingly aviation conscious. Urban growth pushed the fliers progressively east, until they took up their present location, the Ontario International Airport. During World War II, this was a busy training center for pilots of the hot Lockheed P-38 "Lightning" twin-boom fighter.

Since World War II, Ontario has become a much more diversified community with an approximate population of 170,373. The city has expanded from the 0.38 square mile area incorporated back in 1891, up to almost 51 square miles. The economy now reflects an industrial and manufacturing base. Ten thousand acres are zoned for industrial use. With three major railroads, the San Bernardino, Pomona, and Devore Freeways (I-10, SR 60, and I-15), and the Ontario International Airport, Ontario is well provided with major transportation resources. Its proximity to Los Angeles ensures that Ontario will continue to grow in the years ahead. (City of Ontario web site)

1.6.7 Climate

The mean temperature of 70-83 degrees and the average rainfall of 16.1" continues to attract more residents to the City.

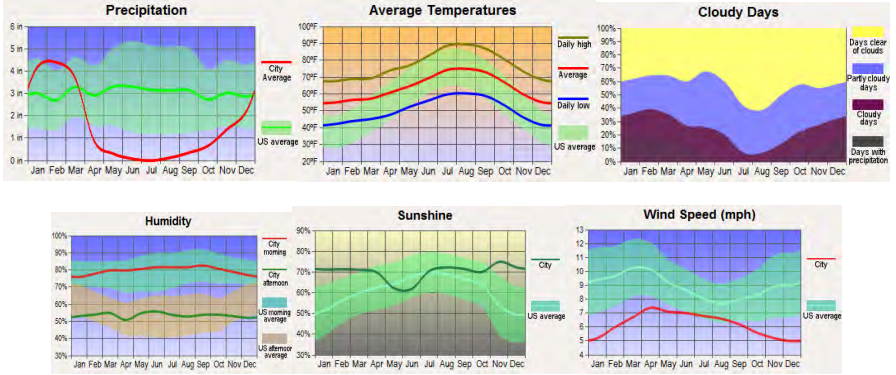

Figure 1-4: Climate Data for the City of Ontario
Source: www.city-data.com

1.6.8 Census

Table 1-3 displays the demographics of Ontario California. The data comes from the U.S. Census Department

Table 1-3: Demographics of the City of Ontario

Description	Measure	Source
Population		
Census 2010 Total Population	163,924	2010 Demographic Profile
2015 Population Estimate (as of July 1, 2015)	171,214	2015 Population Estimates
2014 ACS 5-Year Population Estimate	166,892	2010-2014 American Community Survey 5-Year Estimates
Median Age	31.2	2010-2014 American Community Survey 5-Year Estimates
Number of Companies	14,177	2012 Survey of Business Owners
Educational Attainment: Percent high school graduate or higher	69.7%	2010-2014 American Community Survey 5-Year Estimates
Count of Governments	N/A	2012 Census of Governments
Total housing units	49,093	2010-2014 American Community Survey 5-Year Estimates
Median Household Income	54,156	2010-2014 American Community Survey 5-Year Estimates
Foreign Born Population	50,367	2010-2014 American Community Survey 5-Year Estimates
Individuals below poverty level	18.3%	2010-2014 American Community Survey 5-Year Estimates
Race and Hispanic Origin		
White alone	95,020	2010-2014 American Community Survey 5-Year Estimates
Black or African American alone	10,386	2010-2014 American Community Survey 5-Year Estimates
American Indian and Alaska Native alone	1,353	2010-2014 American Community Survey 5-Year Estimates
Asian alone	8,455	2010-2014 American Community Survey 5-Year Estimates
Native Hawaiian and Other Pacific Islander alone	323	2010-2014 American Community Survey 5-Year Estimates
Some Other Race alone	44,975	2010-2014 American Community Survey 5-Year Estimates
Two or More Races	6,380	2010-2014 American Community Survey 5-Year Estimates
Hispanic or Latino (of any race)	117,151	2010-2014 American Community Survey 5-Year Estimates

Description	Measure	Source
White alone, Not Hispanic or Latino	28,646	2010-2014 American Community Survey 5-Year Estimates
Veterans	4,777	Community Survey 5-Year Estimates

1.6.9 Existing Land Use

The City of Ontario uses the Ontario Plan (a hybrid General Plan) which was adopted by City Council in 2010 as the road map for present and future development. Existing and future land use is highlighted in Figure 1-5. Zones and Specific Plans can be seen on the maps with details of those projects listed in 1.5.6 Development Trends.

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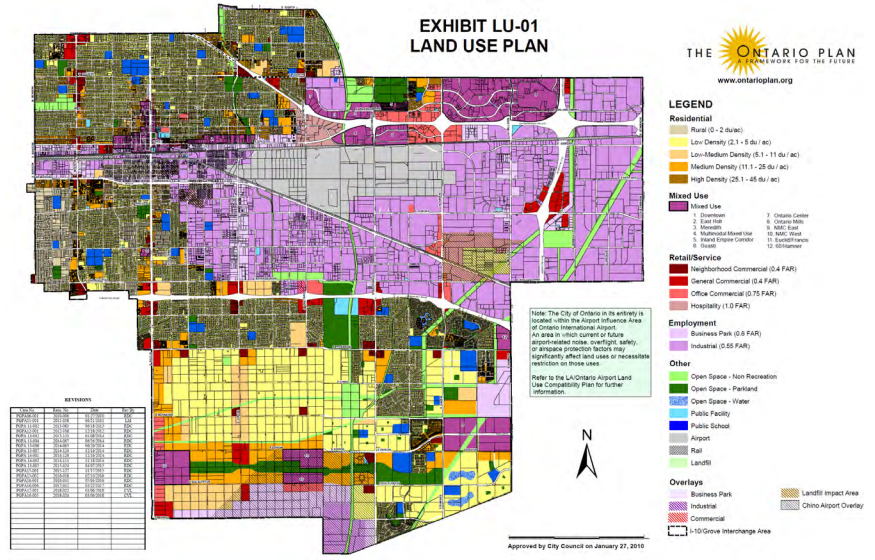

Figure 1-5: City of Ontario Land Use Map

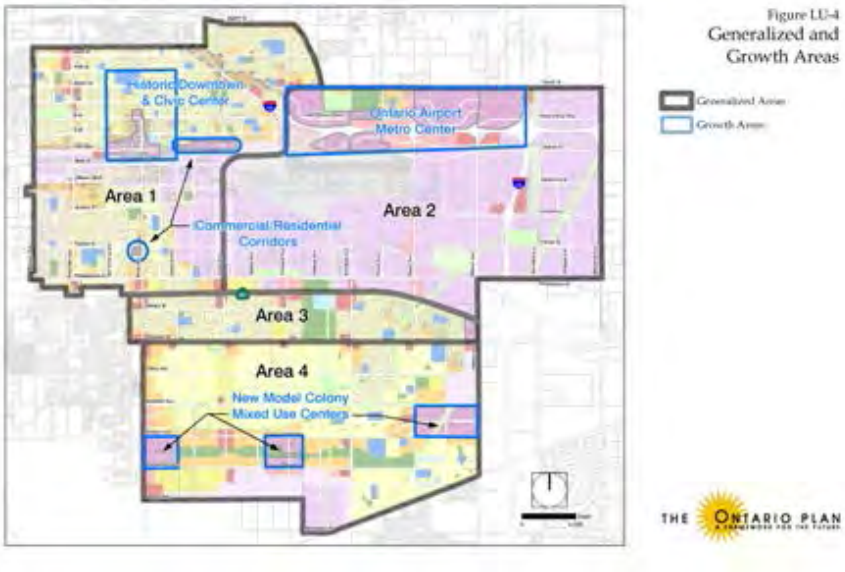

Figure 1-6: City of Ontario Generalized and Growth Areas

1.6.9.1 Generalized Areas

The Generalized Areas describe the fundamental pattern of land use in a generalized form. The purpose of Figure 1-6 is to provide an understanding of the basic land use structure and not to determine the specific land use on individual properties. The Generalized Land Plan consists of broad land use groupings, including residential, mixed-use, retail/service, employment, open space, public, and airport. Each of these generalized categories is subdivided into more detailed land use designations on the General Plan Land Use Map.

1.6.9.1.1 Area 1 – West of Grove Avenue

The area generally west of Grove Avenue. This area is the older residential area of the City and includes the historic downtown and civic center area. It is characterized by smaller lots and a relatively large number of homes and other historic structures that are approaching or older than 30 years.

1.6.9.1.2 Area 2 – Airport and East of Grove Avenue

The Airport and areas generally east of Grove Avenue and north of SR-60. The defining land use feature in the City is the Ontario International Airport. The physical location of the airport determines the circulation patterns and optimum land uses in its immediate vicinity. The hospitality area along Vineyard Avenue; the Convention Center; and industrial, warehousing and distribution areas can be tied directly to the presence of the Airport. The land uses in this area are generally retail, office, industrial, warehousing, and service-related and were developed primarily during the last three decades. Wide streets, landscaped corridors, screened/ bermed parking areas, large lots, and large master-planned commercial and industrial developments characterize this area.

1.6.9.1.3 Area 3 – South of SR-60 and North of Riverside Drive

The area south of SR-60 and north of Riverside Drive. This area is separated from the City by SR-60 and is characterized by large, traditional single-family and master-planned residential communities with corner service-commercial uses.

1.6.9.1.4 Area 4 – South of Riverside Drive

The area generally south of Riverside Drive. This area comprises the New Model Colony area and is largely agricultural with scattered residences and agriculture-related businesses.

1.6.9.2 Growth Areas

The Policy Areas delineate districts of the City where detailed policy guidance is tailored to address unique issues within each area. The corresponding strategies that have been tailored to address the specific needs and issues of each area are contained in the Land Use Designation Summary Table. The following are the defined Policy Areas: Historic Downtown and Civic Center: This is the historic heart of Ontario and is a unique blend of historic, social and cultural uses set in a compact street grid. It includes our Civic Center, Library, diverse residential neighborhoods, and retail opportunities along Euclid Avenue, Holt Boulevard and B Street.

1.6.9.2.1 Commercial and Residential Corridors

East Holt Blvd.: These older commercial corridors are envisioned as areas that transition to new residential uses. They are intended to provide new housing opportunities that will also provide increased demand for retail in more concentrated, strategic locations (e.g., at major intersections)

SEC Euclid and Francis: The Euclid-Francis Mixed Use Area is envisioned as a low-rise (3-5 stories), mixture of retail and residential uses that will create identity and place along the Euclid corridor and serve the surrounding residents.

Ontario Airport Metro Center: This area is envisioned as the most intensive concentration of development in the Inland Empire and includes the Convention Center and hospitality area along Vineyard Avenue; Ontario Mills; Guasti Village, the Events Center, and major office and urban residential centers. The area benefits from major transportation facilities including the I-10 and I-15 freeways, ONT, and a variety of transit options.

1.6.9.2.2 New Model Colony

NMC West: These are the mixed use centers of the New Model Colony and are characterized by a combination of retail, office, and residential uses in a walkable environment.

NMC East: These are the mixed use centers of the New Model Colony and are characterized by a combination of retail, office, and residential uses in a walkable environment.

Table 1-4: Land Use Designations Summary Table

Land use Designations	Residential Density & Non-Residential Intensity	Intention
Residential - A wide range of housing densities and products to meet the demand of current and future residents with varying lifestyles. In addition to the residential uses described below, other uses such as schools, parks, childcare facilities, utilities, live-work units, and other public/institutional uses that are determined to be compatible with, oriented towards the needs of residential neighborhoods they serve, and those that help enhance community may also be allowed. For developments that encompass multiple properties and contain more than one land use designation, the maximum number of units permitted for the development may be spread over the entire site thereby allowing the blending of the residential densities. When calculating the number of units permitted, the existing parcel size, before required dedication, shall be used.		
Rural	>0–2.0 dwelling units per acre	Single-family detached residences, typically in an estate setting.
Low Density	>2.0–5.0 dwelling units per acre	Single-family detached residences.
Low-Medium Density	>5.0-11.0 dwelling units per acre	Single/multi-family attached and detached residences, including small lot subdivisions, townhouses, and courtyard homes
Medium Density	>11.0-25.0 dwelling units per acre	Single/multi-family attached and detached residences including townhouses, stacked flats, courtyard homes, stacked flats, and small lot single-family subdivisions
High Density	>25.0-45.0 dwelling units per acre	Multi-family dwellings including stacked flats and mid-rise and high-rise residential complexes.

Land use Designations	Residential Density & Non-Residential Intensity	Intention
Retail/Service - A full spectrum of retail, service, professional, office, medical, tourist-related, and entertainment uses at a range of intensities to respond to market demand and the character of the surrounding environment. In addition to the retail/service uses described below, other uses such as parks, childcare facilities, live-work units, utilities, and other public/institutional uses that are determined to be compatible with, oriented towards the needs of the surrounding neighborhood, and those that help enhance community may also be allowed.		
Neighborhood Commercial	0.40 FAR	Local serving retail, personal service, office, and dining uses, typically located within a predominantly residential neighborhood.
General Commercial	0.40 FAR	Local and regional serving retail, personal service, entertainment, dining, office, tourist-serving, and related commercial uses
Office/ Commercial	0.75 FAR	An intense mixture of regional serving retail, service, tourist-serving, professional office, entertainment, dining, and supporting services uses that capitalize on strategic locations in Ontario. This designation also includes professional offices including financial, legal, insurance, medical, and other similar uses in a neighborhood setting and/or as adaptive reuse
Hospitality	1.00 FAR	Regional serving tourist-serving, retail, entertainment, and service uses such as convention centers, hotels/motels, and restaurants
Employment – An array of employment uses, such as manufacturing, distribution, research and development, and office, at a range of intensities to meet the demand of current and future market conditions. In addition to the employment uses described below, other uses such as parks, live-work units, utilities, and other public/institutional uses that are determined to be compatible with and oriented towards the surrounding community uses may also be allowed.		
Business Park	0.60 FAR	Employee-intensive office uses including corporate offices, technology centers, research and development, "clean" industry, light manufacturing, and supporting retail.
Industrial	0.55 FAR	Variety of light industrial uses, including warehousing/distribution, assembly, light manufacturing, research and development, storage, repair facilities, and supporting retail and professional office uses. This designation also accommodates activities that could potentially generate impacts, such as noise, dust, and other nuisances. If office uses and/or multiple tenant uses are developed on parcels fronting on the Milliken, Haven, and Archibald corridors, an FAR of 0.60 may be used.

Land use Designations	Residential Density & Non-Residential Intensity	Intention
Other		
Open Space– Non-Recreation	Not applicable	Open space that includes utility easements, and drainage channels. We desire to realize multiple uses from these open spaces, such as trails, greenways, joint-use recreational amenities, landscaped parkways/medians, parking lots, and nurseries.

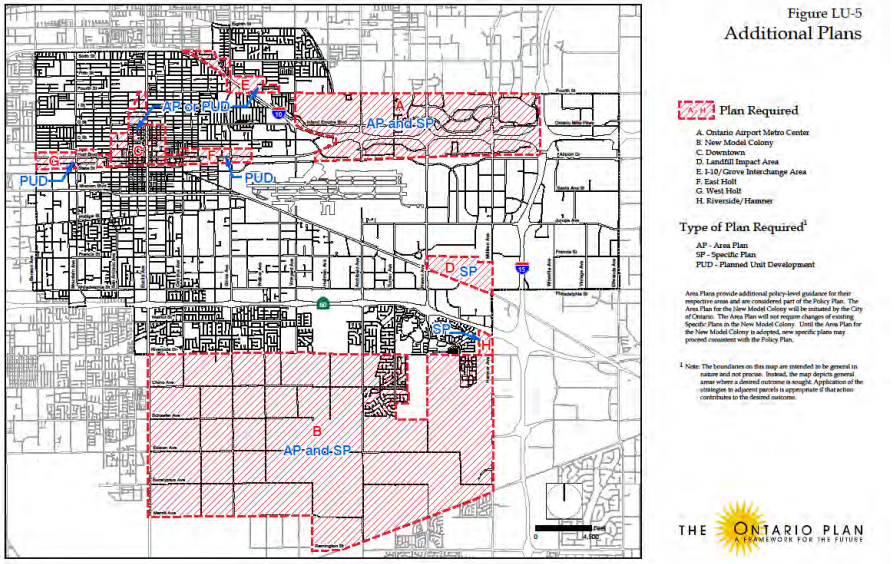

Figure LU-5
Additional Plans

Plan Required

A. Ontario Airport Metro Center
B. New Model Colony
C. Downtown
D. Landfill Impact Area
E. I-10/Grove Interchange Area
F. East Holt
G. West Holt
H. Riverside/Hamner

Type of Plan Required[1]

AP - Area Plan
SP - Specific Plan
PUD - Planned Unit Development

Area Plans provide additional policy-level guidance for their respective areas and are considered part of the Policy Plan. The Area Plan for the New Model Colony will be initiated by the City of Ontario. The Area Plan will not require changes of existing Specific Plans in the New Model Colony. Until the Area Plan for the New Model Colony is adopted, new specific plans may proceed consistent with the Policy Plan.

[1] Note: The boundaries on this map are intended to be general in nature and not precise. Instead, the map depicts general areas where a desired outcome is sought. Application of the strategies to adjacent parcels is appropriate if that action contributes to the desired outcome.

THE ONTARIO PLAN
A FRAMEWORK FOR THE FUTURE

Figure 1-7: Additional Plans

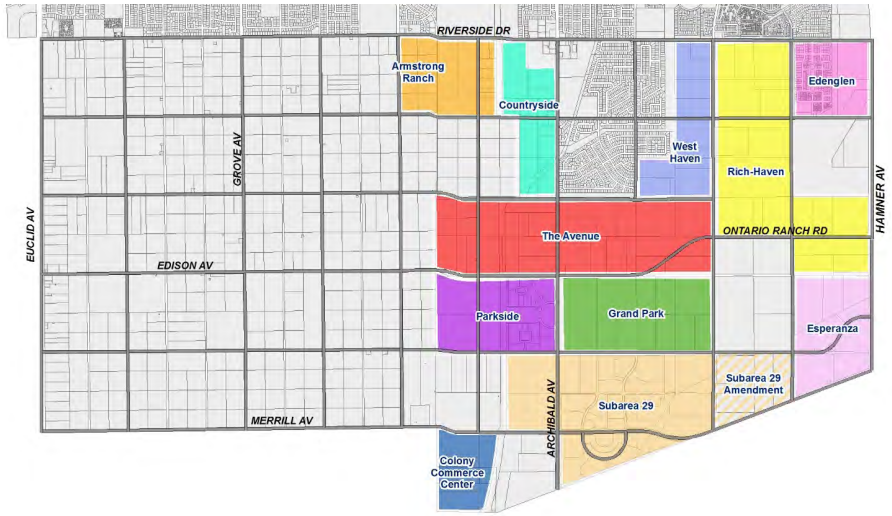

Figure 1-8: City of Ontario Subareas

1.6.9.2.3 Ontario Airport Expansion and Development

In 2016 the airport changed ownership from the City of Los Angeles to the City of Ontario. The Ontario International Airport Authority (OIAA) is in the process of developing a new master plan for the Ontario International Airport. This master plan will help guide the development of the airport through the year 2030.

ONT is well situated to serve the future aviation needs of the Inland Empire and the southern California region for both cargo and passengers. Demand for air transportation will be created by the Inland Empire's rapid population growth as well as its growth as a manufacturing and distribution center. Furthermore, with limited potential for future expansion of LAX and other regional airports beyond their current capacities, ONT can be expected to play a vital role in fulfilling the future aviation needs of the Southern California region. The master plan study will determine how much of that growth ONT can accommodate while still minimizing the impacts to the local community.

1.6.9.3 Retail Development

Resident customer base within a 10 mile radius: more than 1 million people 2013 total taxable sales: $6.7 billion **Per capita taxable sales:** $42,539 (largest of the region's cities of over 100,000 residents) Office Properties Proposed/Under Development

Ontario has approximately 5 million square feet of Class A Office space proposed, under development or under construction. Ontario expects to realize 5 to 10 million square feet of new office space in the next 20 years to meet the growing demand for professional and technical firms in the Inland Empire.

1.6.9.4 Residential Development

The City of Ontario currently has approved plans for over 80 residential developments, more than 35 commercial developments and greater than 600 industrial development projects. These projects are approved by the city Planning Department and detailed information is available at City Hall in the form of "Building Activity Reports". These reports are updated quarterly and outline the progress of each project.

1.6.9.4.1 Ontario Ranch Residential Development

The 8,200 acre/13-square mile, Ontario Ranch (formerly New Model Colony) is planned as an upscale residential development where homes are in close proximity to parks, pathways, retail centers, health facilities and schools. It is bounded by Riverside Drive to the north, Milliken Avenue/Hamner Avenue to the east, the Riverside County line and Merrill Avenue to the south, and Euclid Avenue to the west. With forethought in providing broadband communications, a "common fiber optic telecommunications network" is planned to be included as part of the supporting infrastructure. This fiber optic network will create an electronic "community" within Ontario Ranch and provide homes with advanced video, data and phone services. Ontario Ranch is expected to add, at buildout, roughly 165,000 residents, 47,000 homes and several thousand businesses to Ontario. Ultimately, Ontario Ranch provides Ontario the opportunity to define its future with new, upscale neighborhoods, possibly making Ontario the county's largest city.

1.6.10 Development Trends

The following is a list of present and future developments since the last Hazard Mitigation Plan was approved in 2011. These are taken directly from the Ontario Plan approved by City Council in May 2012. The Ontario Plan (a hybrid General Plan) is the road map for development in the city since 2010 and revised in 2012. The Ontario Plan uses the HMP as part of the process to review projects in the city.

1.6.10.1 Residential

A wide range of housing densities and products to meet the demand of current and future residents with varying lifestyles. In addition to the residential uses described below, other uses such as schools, parks, childcare facilities, utilities, live-work units, and other public/institutional uses that are determined to be compatible with, oriented towards the needs of residential neighborhoods they serve, and those that help enhance community may also be allowed. For developments that encompass multiple properties and contain more than one land use designation, the maximum number of units permitted for the development may be spread over the entire site thereby allowing the blending of the residential densities. When calculating the number of units permitted, the existing parcel size, before required dedication, shall be used.

1.6.10.2 Rural

- >0–2.0 dwelling units per acre
- Single-family detached residences, typically in an estate setting.

1.6.10.2.1 Low Density

- >2.0–5.0 dwelling units per acre
- Single-family detached residences.

1.6.10.2.2 Low-Medium Density

- >5.0-11.0 dwelling units per acre
- Single/multi-family attached and detached residences, including small lot subdivisions, townhouses, and courtyard homes.

1.6.10.2.3 Medium Density

- >11.0-25.0 dwelling units per acre
- Single/multi-family attached and detached residences including townhouses, stacked flats, courtyard homes, stacked flats, and small lot single-family subdivisions.

1.6.10.2.4 High Density

- >25.0-45.0 dwelling units per acre
- Multi-family dwellings including stacked flats and mid-rise and high-rise residential complexes.

1.6.10.3 Retail/Service

A full spectrum of retail, service, professional, office, medical, tourist-related, and entertainment uses at a range of intensities to respond to market demand and the character of the surrounding environment. In addition to the retail/service uses described below, other uses such as parks, childcare facilities, live-work units, utilities, and other public/institutional uses that are determined to be compatible with, oriented towards the needs of the surrounding neighborhood, and those that help enhance community may also be allowed.

1.6.10.3.1 Neighborhood Commercial

- 0.40 FAR
- Local serving retail, personal service, office, and dining uses, typically located within a predominantly residential neighborhood.

1.6.10.3.2 General Commercial

- 0.40 FAR
- Local and regional serving retail, personal service, entertainment, dining, office, tourist-serving, and related commercial uses.

1.6.10.3.3 Office/Commercial

- 0.75 FAR
- An intense mixture of regional serving retail, service, tourist-serving, professional office, entertainment, dining, and supporting services uses that capitalize on strategic locations in Ontario. This designation also includes professional offices including financial, legal, insurance, medical, and other similar uses in a neighborhood setting and/or as adaptive reuse

1.6.10.3.4 Hospitality

- FAR
- Regional serving tourist-serving, retail, entertainment, and service uses such as convention centers, hotels/motels, and restaurants.

1.6.10.4 Employment

An array of employment uses, such as manufacturing, distribution, research and development, and office, at a range of intensities to meet the demand of current and future market conditions. In addition to the employment uses described below, other uses such as parks, live-work units, utilities, and other public/institutional uses that are determined to be compatible with and oriented towards the surrounding community uses may also be allowed.

1.6.10.4.1 Business Park

- 0.60 FAR
- Employee-intensive office uses including corporate offices, technology centers, research and development, "clean" industry, light manufacturing, and supporting retail.

1.6.10.4.2 Industrial

- 0.55 FAR
- Variety of light industrial uses, including warehousing/distribution, assembly, light manufacturing, research and development, storage, repair facilities, and supporting retail and professional office uses. This designation also accommodates activities that could potentially generate impacts, such as noise, dust, and other nuisances.
- If office uses and/or multiple tenant uses are developed on parcels fronting on the Milliken, Haven, and Archibald corridors, an FAR of 0.60 may be used.

1.6.10.5 Other

1.6.10.5.1 Open Space–Non-Recreation

- Not applicable
- Open space that includes utility easements, and drainage channels. We desire to realize multiple uses from these open spaces, such as trails, greenways, joint-use recreational amenities, landscaped parkways/medians, parking lots, and nurseries.

1.6.10.5.2 Open Space–Parkland

- Not applicable
- Recreational facilities, such as tot-lots, parks, golf courses, and sports complexes and joint-use facilities with schools, utilities, and drainage facilities.

1.6.10.5.3 Open Space–Water

- Not applicable
- Existing or planned water amenities that can accommodate recreational uses such as boating and fishing.

1.6.10.5.4 Public Facility

- Not applicable
- Public facilities including civic centers, governmental institutions, police and fire stations, transportation facilities, museums, and public libraries.

1.6.10.5.5 Public School

- Not applicable
- Public schools (K-12) and universities.

1.6.10.5.6 Airport

- Not applicable
- Airport, including terminals, parking, service commercial, distribution, hangers, repair, and warehousing.

1.6.10.5.7 Landfill

- Not applicable
- Restricts use to the use, operation, and reclamation of the Milliken Landfill. If the site is reclaimed, the City will consider a host of uses including a transit station and multi-modal transfer station.

1.6.10.5.8 Railroad

- Not applicable
- Railroad rights-of-way, stations, and facilities.

1.6.10.6 Mixed Use

An intense mixture of uses that, when concentrated, create focal points for community activity and identity and facilitate the use of transit. The Mixed Use land use category accommodates a horizontal and/or vertical mixture of retail, service, office, restaurant, entertainment, cultural, and residential uses.

- Development in the Mixed Use land use designation requires approval of a master plan, such as an area plan, specific plan, or planned unit development, which focuses on the character, relationship of uses, public/private access, parking, pedestrian facilities, building form, integration with the roadways and pedestrian ways, public spaces, landscaping, and public amenities.
- Density, intensity and intended character varies by area, as generally described below.
- The densities and intensities of the mixed use designation represent the intended level of anticipated development; however, individual projects may vary depending upon an approved master plan, such as an area plan, specific plan, or planned unit development.
- The maximum amount of development in each Mixed Use area shall be limited by the Future Build out Projections. Further direction regarding land use distributions, densities and intensities within each area are provided by Area Plans and/or specific plans as noted below.

1.6.10.6.1 Downtown Mixed Use Area

- >25.0 to 75.0 dwelling units per acre
- 2.0 FAR for retail and office uses

Envisioned as an intensive vertical and horizontal mixture of retail, office, and residential uses in a pedestrian friendly atmosphere. The historic character is enhanced. The most intensive uses are envisioned along Euclid and Holt Avenues. See the Downtown Area Plan for more detail.

1.6.10.6.2 East Holt Mixed Use Area

- >14.0 to 40.0 dwelling units per acre
- 2.0 FAR for office uses
- 1.0 FAR for retail uses

This area is envisioned as a low-rise (3-5 stories) intensification of the Holt Corridor. The intent is to create identity and place along the Holt Corridor and connect the Downtown and the Ontario Airport Metro Center. See the East Holt Boulevard Area Plan for more detail.

1.6.10.6.3 Meredith Mixed Use Area

- >14.0 to 125.0 dwelling units per acre
- 3.0 FAR for office and retail uses
- Subject to Area Plan for Ontario Airport Metro Center

Meredith is envisioned as one of the most intensive developments in Ontario and is intended to accommodate an intensive, horizontal and vertical mixture of commercial, office, and residential uses based around a transit station. The portion fronting I-10 will be the most intensive mixture of mid-rise buildings, regional-serving retail and office centers, while the northern area is generally a residential village comprised of single and multi-family residential districts surrounding a vertically mixed-use village core. There is an approved Specific Plan on this site that may require amendment to reflect the Ontario Airport Metro Center Area Plan. See Ontario Airport Metro Center Area Plan for more detail.

1.6.10.6.4 Multimodal Mixed Use Area

- >20.0 to 80.0 dwelling units per acre
- 1.0 FAR for office and retail uses
- Subject to Area Plan for Ontario Airport Metro Center

The Multimodal Mixed Use Area is the ideal location of our future multi-modal transit station that links rail, regional, local, and Airport transit. Intensive office, retail, and residential uses are envisioned to be integrated with the transit station, which should be an iconic structure befitting a key entry into the US and Ontario. See the Ontario Airport Metro Center Area Plan for more detail.

1.6.10.6.5 Inland Empire Corridor Mixed Use Area

- >14.0 to 30.0 dwelling units per acre
- 2.0 FAR for office uses
- 1.0 FAR for retail uses
- Subject to Area Plan for Ontario Airport Metro Center

Located along Inland Empire Boulevard, this area is intended to provide a connection between Meredith and the Ontario Center and relate to the park immediately to the north. This area is envisioned as a lower-rise mixture of office, retail, and residential uses. There is an approved Specific Plan on this site that may require amendment to reflect the Ontario Airport Metro Center Area Plan. See the Ontario Airport Metro Center Area Plan for more detail.

1.6.10.6.6 Guasti Mixed Use Area

- >25.0 to 65.0 dwelling units per acre
- 1.0 FAR for office and retail uses
- Subject to Area Plan for Ontario Airport Metro Center

This site includes the Guasti Winery, which is on the National Register of Historic Places. This area is envisioned as a mixture of high quality office, lodging, retail and residential uses that incorporate the Guasti Winery. More intensive office and commercial uses are envisioned along I-10 while office, commercial, and lodging uses are envisioned in and around the historic structures. There is an approved Specific Plan on this site that may require amendment to reflect the Ontario Airport Metro Center Area Plan. See the Ontario Airport Metro Center Area Plan for more detail.

1.6.10.6.7 Ontario Center Mixed Use Area

- >20.0 to 125.0 dwelling units per acre
- 2.0 FAR for office uses
- 1.0 FAR for retail uses
- Subject to Area Plan for Ontario Airport Metro Center

This area is one of the most intensive developments in Ontario and is characterized by low-rise (3-5 stories) and mid-rise (5-10 stories), mixed-use buildings, iconic architecture, and regionally significant uses, such as the Events Center, and other cultural and entertainment uses. This area accommodates a vertical and horizontal mixture of entertainment, retail, office, and residential uses in an active, pedestrian oriented atmosphere. In this area, The Haven Corridor is envisioned as an elegant, landscaped boulevard lined multi-story office uses near the I-10 and mixed and residential uses closer to Rancho Cucamonga. There is an approved Specific Plan on this site that may require amendment to reflect the Ontario Airport Metro Center Area Plan. See the Ontario Airport Metro Center Area Plan for more detail.

1.6.10.6.8 Ontario Mills Mixed Use Area

- >25.0 to 85.0 dwelling units per acre
- 1.5 FAR for office uses
- 1.0 FAR for retail uses
- Subject to Area Plan for Ontario Airport Metro Center

This area will continue to be our regional retail center. We envision intensification of the area to include additional retail and entertainment, office, lodging, and potentially residential uses. New development is envisioned to occur along the interior loop road and the perimeter of the area. There is an approved Specific Plan on this site that may require amendment to reflect the Ontario Airport Metro Center Area Plan. See the Ontario Airport Metro Center Area Plan for more detail.

1.6.10.6.9 NMC East Mixed Use Area

- >14.0 to 50.0 dwelling units per acre
- 0.7 FAR for office and retail uses
- Subject to approved Specific Plans

The New Model Colony East Mixed Use Area is within the Rich-Haven and Ontario Esperanza Specific Plans. This area is envisioned as a low-rise (3-5 stories), primarily horizontal mixture of retail, office, medical, and residential uses. The greatest level of intensity is envisioned along Edison and Milliken Avenues. See the New Model Colony Area Plan for more detail.

1.6.10.6.10 NMC West Mixed Use Area

- >14.0 to 65.0 dwelling units per acre
- 1.5 FAR for office uses
- 1.0 FAR for retail uses
- Subject to Specific Plan

The New Model Colony West Mixed Use Areas are envisioned as the southern activity centers of Ontario and the focus of the New Model Colony. These areas accommodate a vertical and horizontal mixture of commercial, office, entertainment, and residential uses in a pedestrian oriented atmosphere. It is envisioned that the major roads through these Mixed Use areas are couplets, which are a series of one-way streets that disperse traffic and allow reduced street widths, maximize the sense of community, and emphasize pedestrian accessibility. These Mixed Use areas are envisioned as low-rise (3-5 stories) with some mid-rise (5-10 stories) near the intersection of Euclid and Edison. See the New Model Colony Area Plan for more detail.

1.6.10.6.11 Hamner/SR-60 Mixed Use Area

- 20.0 – 30.0 dwelling units per acre
- 1.0 FAR for retail and office uses
- Subject to Specific Plan

The Hamner/SR-60 Mixed Use Area is envisioned as a mixture of residential, retail and office uses that will create identity and place along the SR-60 corridor.

1.6.10.6.12 Euclid/Francis Mixed Use Area

- >14.0 to 25.0 dwelling units per acre
- 1.0 FAR for retail uses
- Subject to Specific Plan or other implementing mechanism

The Euclid-Francis Mixed Use Area is envisioned as a low-rise (3-5 stories), mixture of retail and residential uses that will create identity and place along the Euclid corridor and serve the surrounding residents.

Overlays - An overlay is intended to reflect a particular characteristic of an area and is applied "over" an underlying land use designation to provide guidance above and beyond the underlying land use designation.

1.6.10.7 Business Park Transitional Areas

Per the underlying designation unless a non-residential use is developed in which case the density and use requirements of the Business Park land use designations shall apply.

This area is within existing and future noise and safety impact zones of LA/Ontario International Airport. This overlay allows residential uses to transition to a Business Park land use if an entire block can be recycled to a Business Park use and the block is contiguous to another non-residential block. In these cases, the City shall be responsible for the necessary amendments to the Policy Plan Map and Development Code.

1.6.10.8 Industrial Transitional Areas

Per the underlying designation unless a non-residential use is developed in which case the density and use requirements of the Industrial land use designations shall apply.

This area is within existing and future noise and safety impact zones of LA/Ontario International Airport. This overlay allows residential uses to transition to an industrial land use if an entire block can be recycled to an Industrial use and the block is contiguous to another non-residential block. In these cases, the City shall be responsible for the necessary amendments to the Policy Plan Map and Development Code.

1.6.10.9 Commercial Transitional Areas

Per the underlying designation unless a commercial use is developed in which case the density and use requirements of the General Commercial land use designations shall apply.

The City seeks viable commercial sites. This overlay allows residential uses to transition to a commercial land use if the project abuts an existing/approved commercial use and if the transition does not result in "remnant" parcels of residential uses. In these cases, the City shall be responsible for the necessary amendments to the Policy Plan Map and Development Code.

1.6.10.10 ONT Airport Influence Area

- Varies

An area in which current or future airport-related noise, overflight, safety, or airspace protection factors may significantly affect land uses or necessitate restriction on those uses. Refer to the Airport Land Use Compatibility Plan for LA/Ontario International Airport Adopted April 2011.

1.6.10.11 Chino Airport Overlay

- Varies

An area within which area plans and specific plans, which are required prior to development in the New Model Colony, will be required to be coordinated with the airport authority for the Chino Airport to determine appropriate land uses, maximum population density, maximum site coverage, height restrictions, and required notification/disclosure areas based upon the noise contours and runway protection, approach, and Part 77 zones of the adopted Chino Airport Master Plan.

This overlay is intended as an interim solution and upon adoption of a Chino Airport Land Use Compatibility Plan (ALUCP) that is based on the adopted Airport Master Plan and accepted by Ontario, we will evaluate the continued need for this overlay.

1.6.10.12 Lake/Amenity

- NA

Denotes an area where a lake and/or amenity acceptable to the City are required as the focal point of future development. For build out purposes, the area of the lake/amenity is not assumed to generate any units.

1.6.10.13 SoCalf Preserve

- Per underlying designation

Denotes areas where SoCalf owns and operates agricultural preserves within the New Model Colony. Development to the underlying designations is desired if the preserves can be relocated

1.6.10.14 I-10–Grove Interchange Area

- Per underlying designation

This area will be impacted by the future I-10–Grove Avenue interchange, which may require future revisions to the Land Use Plan and Zoning Map. It is anticipated that the new interchange will result in new multi-family residential and commercial development opportunities that are created through lot consolidation and City and private reinvestment. These opportunities will result in safer, functional and aesthetically pleasing developments that provide needed housing and viable commercial choices while addressing the changes in property access anticipated with the I-10/Grove Avenue interchange redesign.

1.6.10.15 Plan Required Overlay

Denotes areas where master plans are required prior to development. The master plan can include an area plan, specific plan, or planned unit development. In some instances, the Plan Required Overlay includes adopted specific plans. See adopted specific plans in the City on the City's website. The adopted specific plans shall be reviewed for conformance with the master plan and, in some cases, it may be desirable to amend the approved specific plans to reflect the vision of this Policy Plan. See Additional Plan Map to determine where additional plans (Specific Plan or Area Plan are required).

1.6.10.15.1 Ontario Airport Metro Center

- Per approved area plan and individual specific plans

Envisioned as the most intensive area outside of downtown Los Angeles with a vertical and horizontal mixture of regional-serving retail, office, restaurant, entertainment, cultural, and residential uses in low to mid-rise buildings (3-10 stories). See the Ontario Airport Metro Center Area Plan or adopted specific plans for more detail.

1.6.10.15.2 New Model Colony

- Per approved area plan and individual specific plans

Envisioned as a mixture of residential neighborhoods focused around town centers, which feature low to mid rise buildings (3-10 stories) with a mixture of employment, retail, service, entertainment, cultural, and residential uses and local-serving village centers united through a network of greenways/trails, open spaces, amenities, and infrastructure and the "Great Park," a linear open space amenity containing active and passive recreational features, gardens, water features, and cultural facilities. See the New Model Colony Area Plan or adopted specific plans for more detail.

1.6.10.15.3 Downtown

- Per approved planned unit development and/or area plan

Envisioned as an intensive vertical and horizontal mixture of retail, office, and residential uses in a pedestrian friendly atmosphere. The historic character is enhanced. The most intensive uses are envisioned along Euclid and Holt Avenues. See the Downtown Area Plan for more detail.

1.6.10.15.4 I-10–Grove Interchange Area

- Per approved planned unit development and/or area plan

This area is will be impacted by the future I-10–Grove Avenue interchange, which may require future revisions to the Land Use Plan and Zoning Map. It is anticipated that the new interchange will result in new multi-family residential and commercial development opportunities that are created through lot consolidation and City and private reinvestment. These opportunities will result in safer, functional and aesthetically pleasing developments that provide needed housing and viable commercial choices while addressing the changes in property access anticipated with the I-10/Grove Avenue interchange redesign.

1.6.10.15.5 Landfill Impact Area

- Per approved area plan

Lands immediately surrounding the Milliken Landfill may be contaminated or have other landfill-related hazards that may limit allowable uses, as well as site design. Development in this area requires the submission of a detailed environmental analysis.

While all of these development trends may not be recognized over the next 5 years, all future development that will take place is planned to occur in accordance with the General Plan Land Use Zones and will consider all potential hazards identified within this plan. Additionally, all development will be in compliance with all Fire, Flood, and Seismic codes of the County and State at the time of development.

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Section 2. Plan Adoption

In December of 2014 the City of Ontario adopted the Community Climate Action Plan to combat Climate Change. The City also took part in the 2013 SANBAG EIR to inventory and reduce greenhouse gases and emissions. Both are attached to this document along with the Ontario Plan (General Plan)

2.1 Adoption by Local Governing Body

This Hazard Mitigation Plan was developed by the Emergency Management Working Committee and approved by the City of Ontario City Council.

2.2 Promulgation Authority

The Promulgator Authority for the adoption of the Hazard Mitigation Plan City of Ontario, California and for the Mayor and City Council and incorporation of the HMP into the City of Ontario California General Plan is:

Paul S. Leon	Mayor
Debra Dorst- Porada	Mayor pro Tem
Alan D. Wapner	Council Member
Jim Bowman	Council Member
Ruben Valencia	Council Member

2.3 Primary Point of Contact

The Point of Contact for information regarding this HMP is:

Raymond Cheung, *Emergency manager*
City of Ontario
415 East "B" St
Ontario, California 91764
909-395-2557

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Section 3. Planning Process

3.1 Preparing for the Plan

Multi-Jurisdictional Hazard Mitigation Planning is a process local governments use to identify risks and vulnerabilities associated with natural disasters, and to develop long-term strategies for protecting people and property from future hazard events.

Planning creates a way to solicit and consider input from diverse interests. Involving stakeholders is essential to building community-wide support for the plan. In addition to emergency managers, the planning process involves other government agencies (e.g., zoning, floodplain management, public works, community, and economic development), businesses, civic groups, environmental groups, and schools.

3.1.1 Planning Team

The City of Ontario Emergency Management Working Committee (EMWC) served as the Hazard Mitigation Planning Team for the 2018 update.

Table 3-1: Team Members

Department	First Name	Last Name
Administrative Services	Desiree	Gonzales
Administrative Services	Grant	Yee
Building	Kevin	Shear
Building	Pedro	Rico
Building	Eric	Carreon
Records Mgmt	Marilyn	Bonus
Records Mgmt	Anna	Fierro
Records Mgmt	Vicki	Kasad
City Manager	David	Sheasby
City Manager	Al	Boling
Code Enforcement	Joe	De Sousa
Code Enforcement	Robin	Lucero
Code Enforcement	Anthony	Vega
Code Enforcement	Dave	Bucholtz
Code Enforcement	Robert	Gluck
Community & Public Services	David	Coote
Community & Public Services	Mike	Mergener
Community & Public Services	Phillip	Marino
Community & Public Services	Mark	Chase
Economic Development	Charity	Hernandez
Economic Development	Nick	Gonzalez
Economic Development	Tanya	Spiegel
Economic Development	John	Andrews
Engineering	Mauricio	Diaz
Engineering	Jaime	Maciel-Carrera

Department	First Name	Last Name
Engineering	Antonio	Alejos
Engineering	Louis	Abi-younes
Fire Dept	Mike	Pelletier
Fire Dept	Tony	Coletta
Fire Dept	Brian	Acosta
Fire Dept	Rob	Elwell
Fiscal Services	Giancarlo	Mezza
Fiscal Services	Doreen	Nunes
Housing & Municipal Services	Craig	Grabow
Housing & Municipal Services	Michael	Johnson
Human Resources	Reed	Sigler
Human Resources	Angela	Lopez
Information Technology	Peter	Witherow
Information Technology	Pascal	Pangestu
Information Technology	Niloufar	Kaivan-Mehr
Information Technology	Robert	De Casas
Information Technology	Michael	Stanley
Information Technology	Anna	Vaca
Information Technology	Elliot	Ellsworth
Library	Nancy	Morales
Library	Kelly	Zackmann
Library	Alan	Saeger
Library	Helen	McAlary
Mgmt Services	Shanita	Simmons
Mgmt Services	Annie	Wu
Mgmt Services	Janny	Phan
Mgmt Services	Lilyan	Villarreal
Mgmt Services	Bob	Chandler
Museum	Michelle	Sifuentes
Museum	Leslie	Matamoros
Museum	Loretha	Nwosu
Museum	John	Worden
OMUC	Don	Meyer
OMUC	Joe	Minasso
OMUC	Andy	Marquez
OMUC	Scott	Burton
Planning	Scott	Murphy
Planning	Rudy	Zeledon
Planning	Lorena	Mejia
Police Dept	William	Russell
Police Dept	David	McBride
Police Dept	Michael	Lorenz
Police Dept	Lizceth	Zazueta
Police Dept	Elizabeth	Morris
Police Dept	Brad	Kaylor
Recreation	Julie	Dorey
Revenue	Delilah	Patterson

Department	First Name	Last Name
Revenue	Anita	Argueta
Revenue	Lucia	Cooney
Risk Management	Kathy	Garozzo

3.1.2 Meeting dates and agenda

April 13, 2017
City of Ontario Emergency Management Working Committee (EMWC)

March 08, 2017
Business Partners

March 01, 2017
Faith Based Partners

February 15, 2017
Community CERT meeting

February 16, 2017
City of Ontario Emergency Management Working Committee (EMWC)

January 21, 2017
City of Ontario Emergency Management Working Committee (EMWC)

December 08, 2016
City of Ontario Emergency Management Working Committee (EMWC)

November 10, 2016
City of Ontario Emergency Management Working Committee (EMWC)

Meeting Material may be found in Appendix A.

3.1.3 Coordination with Other External Jurisdictions, Agencies, and Organization

Involving stakeholders is essential to building community-wide support for the plan. In addition to emergency managers, the planning process involves other government agencies (e.g., zoning, floodplain management, public works, community, and economic development), businesses, civic groups, environmental groups, and schools. The Planning Team was established to define and identify the strategies, goals, activities, and development of the HMP. The Planning Team represents a comprehensive team of subject matter experts from a variety of areas that could be affected by the planning effort or could provide great benefit to the team. Each Planning Team member is responsible for communicating the direction and status of the planning effort to their outside members and in return they are expected to bring to the team outside perspectives. The Planning Team will be led by the City Emergency Manager. The Emergency Manager, as the Chair of the EMWC and the Planning Team, will take on the responsibilities of a Project Manager and will facilitate and coordinate activates.

3.2 Public Involvement/Outreach

3.2.1 Public Hearing Process

Public involvement is critical to the success of the emergency management program for the City of Ontario. Representatives for the public are involved in the HMP, as well as other key facets of the emergency management program. Public involvement was solicited throughout the process. The City uses the "Whole Community" approach, which says that emergency management and emergency preparedness must involve the entire community, including residents, businesses and government, to be successful.

Since the last HMP approval, the City has continued to educate the public on the hazards facing the city. At all events, public opinion and comments are solicited. Public involvement for this update was primarily through the EMWC with the varied community representatives, and also included community events (such as Community Emergency Preparedness Fair and Fire Open House) and community presentations (such as Neighborhood Watch).

The City Council will review, approve and adopt the HMP. The City Council will issue a Resolution denoting approval of the HMP. Prior to the City Council approval, the HMP will be posted on the City website as part of the Agenda for the meeting. Any resident of the City may make comments or request information on the HMP during the regularly scheduled meeting. Only after the public has an opportunity to review and comment on the HMP will the Council take action on the agenda item.

3.3 Assess the Hazard

The EMWC facilitated discussions to identify hazards in the community. The EMWC started with the 2005 HMP. The first step was to validate the accuracy of the contents. The next step was to determine if any additional information or hazards should be included or removed. The EMWC used multiple sources for this information, using the subject matter expertise of the EMWC membership. This also assisted in determining hazard priorities in the community. In the 2005 HMP, a scoring system was used. This is now replaced by a non-numerical system of high, medium and low rankings for probability and impact. The hazards are placed in a matrix, which is used to determine planning and project priorities. The list of hazards included some that were not applicable to Ontario or an extremely rare occurrence to determine the perceived risk to the community by the EMWC.

Probability
High: Highly Likely/Likely
Medium: Possible
Low: Unlikely

Impact
High: Catastrophic/Critical
Medium: Limited
Low: Negligible

Table 3-2: Hazard Assessment

event	28 surveys counted...not all questions were answered																			
	Geographic area					Overall significance					Probability of future evnts					Maximum probable event				
	negligible	limited	significant	extensive		low	medium	high			unlikely	occasional	likely	Highly likely		weak	moderate	severe	extreme	
Aircraft accident	11	15	2			14	14			Aircraft accident	1	10	11	6		4	9	10	4	
civil disturbance/ riot	7	15	6			18	8	1		civil disturbance/ riot	4	10	10	4		6	16	3	1	
communications failure	7	10	4	7		13	14	1		communications failure	2	6	12	8		7	19	2		
climate change	9	4	7	8		16	6	6		climate change	10	10	4	1		11	7	5	2	
cyber attack	5	5	7	7		15	8	4		cyber attack	5	5	9	8		5	14	9		
dam inundation	11	3	2	12		18	8			dam inundation	15	3	3	5		12	3	5	2	
drought	2	3		18		12	6	10		drought	5	3	6	14		6	8	9	5	
earth quake	3	7	2	17		8	8	12		earthquake	2	3	6	17		2	4	10	12	
epidemic/health emergency	7	12	8	1		19	7	2		epidemic/health emergency	5	6	7	3		3	9	8	6	
explosion	5	12	2	8		21	7			explosion	7	10	8	2		5	11	7	1	
extreme cold	9	5	3	12		19	8	1		extreme cold	10	5	3	2		14	4	2		
extreme heat	9	3	9	6		6	15	3		extreme heat	3	3	9	13		13	8	1		
fire	7	8	12	1		10	10	5		fire	2	2	8	9		5	13	9	1	
flooding	9	4	11	4		17	9			flooding	6	8	6	7		9	11	6	2	
hail	10	7	9	2		15	9			hail	7	6	10	5		16	7	2		
hazardous materials	13	8	3	1		13	15			hazardous materials	4	5	7	9		8	17	2		
high winds	10	5	3	9		14	8	5		high winds	2	3	8	12		7	13	2		
infestation	7	6	3	7		23	1	2		infestation	5	9	9	4		18	10			
lightning	8	8	1	3		17	7	4		lightning	9	8	3	1		15	13			
mass fatality incident	8	9	1	8		14	10	4		mass fatality incident	5	6	6	5		10	10	6	2	
nuclear	9	4	1	10		12	6	10		nuclear	13	10	4			5	6	4	12	
radiological	9	7	1	11		17	5	6		radiological	11	11		1		5	7	6	10	
severe storm	6	3	3	10		9	11	2		severe storm	5	7	5	1		5	12	6		
terrorism	8	7	2	5		8	12	1		terrorism	3	8	5	5		3	12	9	4	
tornado	12	7	4	3		14	11			tornado	20	4	1	2		9	11	7		
train accident	11	10	2			8	14	1		train accident		8	15	4		8	10	5		
transportation accident	6	8	3	3		13	11	3		transportation accident		5	14	8		6	14	3		
utility/power failure	5	6	4	6		11	13	4		utility/power failure		5	9	6		7	13	2	1	
wildfire	3	8	11	5		10	12	4		wildfire	2	8	10	8		6	14	6	2	
winter storm	11	1	5	8		21	7			winter storm	11	10	4	2		14	11	1		

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3.4 Set Goals

The EMWC identified goals for the HMP update. The EMWC reviewed the hazard probability and impacts, evaluated the latest Hazard Mitigation Plan Goals, then updated the goals for the current update. The EMWC also considered additions and deletions from the list of goals. The goals were reviewed to ensure consistency with various planning documents such as *The Ontario Plan*, Ontario Community Climate Plan, State of California HMP, the SB County Operational Area HMP and other area jurisdictional HMP for consistency, compatibility and conflicts. The goals were then finalized.

3.5 Review and Propose Mitigation Measures

After the goals are set, mitigation measures are updated and developed. This includes a review of projects from the latest HMP. The mitigation measures also include goals and objectives from the City of Ontario *Emergency Management Strategic Plan,* After Action Reports, Corrective Action Plans and other operational documents. Once the mitigation measures are developed, they are then prioritized.

3.6 Draft the Hazard Mitigation Plan

The Hazard Mitigation Plan Update will be drafted by the Emergency Manager/OEM with input and comments from the EMWC and other participants. The public will also have an opportunity for comments during the process. While the last HMP is used as a starting point, many revisions and changes were incorporated to improve the usability of the HMP while still maintaining consistency with the OA guidance.

Once the HMP update has been drafted and reviewed by the EMWC, it will be forwarded to Cal OES and FEMA for approval. If Cal EMA or FEMA have any review comments, they will be incorporated as needed and the revised HMP will be again forwarded for approval.

3.7 Adopt the Plan

After Cal-OES and FEMA have approved the plan, the HMP update will be adopted by the City of Ontario City Council. The item will be part of the consent calendar subject to a public hearing if necessary. The HMP will be listed on the agenda with the plan being made available electronically to the general public prior to the meeting date. Any member of the public can make comments on the HMP during the meeting. The HMP will be included in the Safety Element of the Ontario Plan update (General Plan) and will be integrated into future capital and comprehensive improvement projects and planning.

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Section 4. Risk Assessment

The risk assessment is the process of measuring the potential impact to life, property and economic impacts resulting from natural hazards. The intent of the Risk Assessment is to identify, as much as practicable given existing/available data, the qualitative and quantitative vulnerabilities of a community. The results of the risk assessment allow for a better understanding of the impacts of natural hazards to the community and provides a foundation in which to develop and prioritize mitigation actions to reduce damage from natural disasters through increased preparedness and response times and the better allocation of resources to areas of greatest vulnerability.

This Risk Assessment Section evaluates the potential loss from a hazard event by assessing the vulnerability of buildings, infrastructure, and people. It identifies the characteristics and potential consequences of hazards, how much of the unincorporated areas of the County could be affected by a hazard, and the impact on unincorporated County area assets. The Risk Assessment approach consists of three (3) components:

- Hazard Identification – Identification and screening of hazards (Section 4.1)
- Hazard Profiles – Review of historic occurrences and assessment of the potential for future events (Section 4.2)
- Vulnerability Assessment – Determination of potential losses or impacts to buildings, infrastructure and population (Section 4.3)

4.1 Hazard Identification

4.1.1 Hazard Screening Criteria

The first step in this process was to identify which natural hazards exist in the City. To assist with this identification, an extensive data collection and document review effort was conducted. Identifying new or emerging hazards, obtaining updated hazard maps, hazard probability research studies and reports, reviewing data from new or updated local plans and obtaining information about emergencies or disasters that have occurred since the 2011 HMP provided valuable insights into which parts of the risk assessment, and the overall HMP, required updates.

The hazards that were identified are:

- Earthquake
- Flood
- High Wind
- Wildfire
- Water Shortage
- Extreme Heat Severe Storm
- Hazardous Materials
- Fire (Residential, Commercial, Industrial)
- Extreme Cold
- Dam Inundation
- Infestation
- Lightning
- Hail
- Tornado
- Pandemic
- Radiological
- Nuclear
- Explosion
- Transportation
- Communications Failure
- Civil Disturbance
- Cyber Attack
- Terrorism

The initial assessment of each hazard is based upon the following sources:

- Historic occurrence of the hazard: Assessment is based on frequency, magnitude and potential impact of the hazard.
- Mitigation potential for the hazard: This criteria considers if there are mitigation or counter measures possible to prevent or alleviate the risk. For example, although Ontario International Airport (ONT) is located within the City of Ontario and there are significant concerns over an airplane crash, an airplane crash is not the sort of hazard for which mitigation plans have proved successful.
- Expert opinion: Evaluation of threats includes a literature review and the expertise of the project team.
- Published data and information: Assessment is based on data and/or information from credible publications or websites; for example U.S. Geological Survey, California Geological Survey, National Weather Services, or academic publications.

Table 4-1: Document Review Crosswalk

Hazards	2010 San Bernardino County Multijurisdictional Hazard Mitigation Plan Update	County of San Bernardino 2007 General Plan Safety Element	Ontario 2005 and 2011 HMP And General Plan Safety Element	2013 CA State Hazard Mitigation Plan
Climate Change				■
Dam Inundation	■		■	■
Drought	■		■	■
Earthquake/ Geologic Hazards	■	■	■	■
Extreme Heat	■			■
Extreme Cold	■			■
Flood	■	■	■	■
Hazardous Waste	■	■		■
High Winds/ Straight Line Winds	■	■	■	
Hail	■			
Infestation	■			
Lightning	■			
Terrorism				■
Tornado	■			
Volcanic Activity		■		■
Wildfire	■	■	■	■
Winter Storm (Heavy Snowfall)	■			■

In addition to a document review, previous hazard occurrences were used to identify hazards for this hazard mitigation plan. Previous hazard occurrences provide a historical view of hazards that have affected the Ontario in the past, and thus provide a window into the potential hazards that can affect the Ontario in the future. Information about federal and state disaster declarations in San Bernardino County (declarations are declared by County) was compiled from FEMA and Cal EMA's databases, as shown in Table 4-2. Though not a complete snapshot of hazard incidences in the County (since not all hazard events are federally or state declared), Table 4-2 provided the Ontario EMWC with solidified accounts of the types

and extent of disasters that have affected the County dating back to 1965 when flooding affected entire regions of San Bernardino County. As indicated in Table 4-2 large regional incidents have affected San Bernardino County, including the California Wildfires of 1999. Most recently, disasters for terrorist attacks (2015), flood (2011) and severe storms (2010) were declared in San Bernardino County. The disaster declarations in Table 4-2, provide a baseline for consideration in the hazard prioritization process.

Table 4-2: Federal and State Declared Disasters

Disaster Number	Declaration Date	Disaster Type	Incident Type	Title
Federal Declarations				
Major Disaster Declarations				
1952	1/26/2011	DR	Flood	Severe Winter Storms, Flooding, and Debris and Mud Flows
1884	3/8/2010	DR	Severe Storm(s)	Severe Winter Storms, Flooding, and Debris and Mud Flows
1731	10/24/2007	DR	Fire	Wildfires, Flooding, Mud Flows, and Debris Flows
1689	3/13/2007	DR	Freezing	Severe Freeze
1585	4/14/2005	DR	Severe Storm(s)	Severe Storms, Flooding, Landslides, and Mud and Debris Flows
1577	2/4/2005	DR	Severe Storm(s)	Severe Storms, Flooding, Debris Flows, and Mudslides
1498	10/27/2003	DR	Fire	Wildfires, Flooding, Mudflow and Debris Flow Directly Related T
1203	2/9/1998	DR	Severe Storm(s)	Severe Winter Storms and Flooding
1046	3/12/1995	DR	Severe Storm(s)	Severe Winter Storms, Flooding Landslides, Mud Flow
1044	1/10/1995	DR	Severe Storm(s)	Severe Winter Storms, Flooding, Landslides, Mud Flows
1005	10/28/1993	DR	Fire	Fires, Mud/Landslides, Flooding, Soil Erosion
635	11/27/1980	DR	Fire	Brush & Timber Fires
615	2/21/1980	DR	Flood	Severe Storms, Mudslides & Flooding
145	2/25/1963	DR	Flood	California Severe Storms, Heavy Rains, & Flooding
47	12/23/1955	DR	Flood	California Flood
15	2/5/1954	DR	Flood	California Flood & Erosion
Fire Management Assistance Declarations				
5147	8/16/2016	FM	Fire	Blue Cut Fire
5144	8/7/2016	FM	Fire	Pilot Fire
5089	7/17/2015	FM	Fire	North Fire/ Pine Fire

Disaster Number	Declaration Date	Disaster Type	Incident Type	Title
2955	9/2/2011	FM	Fire	Hill Fire
2841	10/4/2009	FM	Fire	Sheep Fire
2836	9/1/2009	FM	Fire	Pendleton Fire
2833	8/31/2009	FM	Fire	Oak Glen Fire
2792	11/15/2008	FM	Fire	Freeway Fire Complex
3279	10/23/2007	EM	Fire	Wildfires
2738	10/22/2007	FM	Fire	Grass Valley Fire
2728	9/15/2007	FM	Fire	Butler 2 Fire
2653	7/12/2006	FM	Fire	Sawtooth Fire Complex
3248	9/13/2005	EM	Hurricane	Hurricane Katrina Evacuation
2503	10/25/2003	FM	Fire	Old Fire
2501	10/23/2003	FM	Fire	Ca-Grand Prix Fire-10-23-2003
2497	9/6/2003	FM	Fire	Ca-Bridge Fire-09-05-2003
2491	8/19/2003	FM	Fire	Ca-Locust Wildfire-08-19-2003
2464	9/24/2002	FM	Fire	Williams Canyon Fire (Mt. Baldy)
2433	6/17/2002	FM	Fire	Louisiana Fire (Cajon Pass)
2425	6/17/2002	FM	Fire	California Blue Cut Fire (Cajon Pass/ Oak Hills)
Emergency Declarations				
3279	10/23/2007	EM	Fire	Wildfires
3248	9/13/2005	EM	Hurricane	Hurricane Katrina Evacuation
3140	9/1/1999	EM	Fire	Ca-Wildfires-08/25/1999
CAL OES/ State Emergency And Disaster Proclamations/ Executive Orders				
Other Disasters				
2464	9/24/2002	FS	Fire	Williams Fire
2433	6/27/2002	FS	Fire	Louisiana Fire

Disaster Number	Declaration Date	Disaster Type	Incident Type	Title
State Declarations				
5147	8/16/2016	FM	Fire	Blue Cut Fire
CDAA	12/18/2015	CDAA	Terrorist Attack	Waterman Incident Mass Shooting
None	8/5/2014	None	Severe Storm(s)	August Severe Weather - Dir. Concurrence
None	1/17/2014	None	Drought	California Drought
None	12/1/2011	None	Winds	December High Wind Event – Rancho Cucamonga
1952	1/21/2011	DR	Flood	Severe Winter Storms, Flooding, and Debris and Mud Flows
None	11/20/2010	None	Water	Golden State Water Company (GSWC) Contamination
1884	3/8/2010	DR	Severe Storm(s)	Severe Winter Storms, Flooding, and Debris and Mud Flows
2841	10/4/2009	FM	Fire	Sheep Fire
2836	9/1/2009	FM	Fire	Pendleton Fire
2833	8/31/2009	FM	Fire	Oak Glen Fire
2792	11/17/2008	FM	Fire	Freeway Fire Complex - (Ex. Ord. S-15-08 11/18/08)
None	10/15/2008	None	Fire	October Fire events (Foxborough, San Antonio, San Bernardino)
None	10/15/2008	None	Winds	San Bernardino Wind Event - (Ex. Ord. S-11-08 10/16/08)
1731	10/24/2007	DR	Fire	Wildfires, Flooding, Mud Flows, and Debris Flows
3279	10/23/2007	EM	Fire	Wildfires
2738	10/22/2007	FM	Fire	Grass Valley Fire
2728	9/15/2007	FM	Fire	Butler 2 Fire
None	7/27/2007	None	Severe Storm(s)	Severe Weather/Flooding (City of Needles)- Dir. Concurrence
1689	3/13/2007	DR	Freezing	Severe Freeze

Disaster Number	Declaration Date	Disaster Type	Incident Type	Title
2653	7/12/2006	FM	Fire	Sawtooth Fire Complex
3248	9/13/2005	EM	Hurricane	Hurricane Katrina Evacuation
1585	4/14/2005	DR	Severe Storm(s)	Severe Storms, Flooding, Landslides, and Mud and Debris Flows
1577	2/4/2005	DR	Severe Storm(s)	Severe Storms, Flooding, Debris Flows, and Mudslides
2503	10/25/2003	FM	Fire	Old Fire
2501	10/23/2003	FM	Fire	Ca-Grand Prix Fire-10-23-2003
CDAA 2003-02	8/22/2003	CDAA	Flood	Summer Floods (Yucca Valley/Lower Desert)
None	3/7/2003	None	Fire Danger	Bark Beetle Infestation (San Bernardino Mountains)
None	1/17/2001	None	Energy	Statewide Energy Emergency
3140	9/1/1999	EM	Fire	Ca-Wildfires-08/25/1999
1203	2/9/1998	DR	Severe Storm(s)	Severe Winter Storms and Flooding
1044	1/10/1995	DR	Severe Storm(s)	Severe Winter Storms, Flooding, Landslides, Mud Flows
1005	10/28/1993	DR	Fire	Fires, Mud/Landslides, Flooding, Soil Erosion
979	2/3/1993	DR	Flood	Severe Winter Storm, Mud & Land Slides, & Flooding
947	7/2/1992	DR	Earthquake	Earthquake & Aftershocks
935	2/19/1992	DR	Flood	California Snow Storms, Flooding, & Mudslides
894	1/11/1991	DR	Freeze	California Severe Freeze
145	2/14/1963		Severe Storms	California Severe Storms, Heavy Rains, & Flooding
47	12/22/1955		Flood	California Flood
15	2/5/1954		Flood	California Flood & Erosion

Disaster Number	Declaration Date	Disaster Type	Incident Type	Title
County Declarations				
5147	8/16/2016	FM	Fire	Blue Cut Fire
5144	8/9/2016	FM	Fire	Pilot Fire
CDAA	12/15/2015	CDAA	Terrorist Attack	Waterman Incident Mass Shooting
None	6/25/2015	None	Fire	Lake Fire
None	8/5/2014	None	Severe Storm(s)	August Severe Weather - Dir. Concurrence
None	8/5/2014	None	Drought	California Drought
None	4/30/2014	None	Fire	Etiwanda Fire
2955	9/3/2011	FM	Fire	Hill Fire
1952	1/21/2011	DR	Flood	Severe Winter Storms, Flooding, and Debris and Mud Flows
None	11/20/2010	None	Water	Golden State Water Company (GSWC) Contamination
1884	1/21/2010	DR	Severe Storm(s)	Severe Winter Storms, Flooding, and Debris and Mud Flows
2841	10/4/2009	FM	Fire	Sheep Fire
2836	9/1/2009	FM	Fire	Pendleton Fire
2833	9/1//2009	FM	Fire	Oak Glen Fire
2792	11/16/2008	FM	Fire	Freeway Fire Complex - (Ex. Ord. S-15-08 11/18/08)
None	10/14/2008	None	Fire	October Fire events (Foxborough, San Antonio, San Bernardino)
None	10/14/2008	None	Wind	San Bernardino Wind Event
1731	10/24/2007	DR	Fire	Wildfires, Flooding, Mud Flows, and Debris Flows
3279	10/22/2007	EM	Fire	Wildfires
2738	10/22/2007	FM	Fire	Grass Valley Fire

Disaster Number	Declaration Date	Disaster Type	Incident Type	Title
2728	9/14/2007	FM	Fire	Butler 2 Fire
None	8/8/2007	None	Water Shortage	Lucerne Valley Water Crisis
1689	1/17/2007	DR	Freezing	Severe Freeze
2653	7/11/2006	FM	Fire	Sawtooth Fire Complex
None	9/30/2005	None	Fire	Thurman Fire (San Bernardino Mountains)
3248	9/8/2005	EM	Hurricane	Hurricane Katrina Evacuation
1585	10/26/2004	DR	Severe Storm(s)	Severe Storms, Flooding, Landslides, and Mud and Debris Flows
1577	10/26/2004	DR	Severe Storm(s)	Severe Storms, Flooding, Debris Flows, and Mudslides
None	10/26/2004	None	Severe Storm(s)	Winter Storms (10/21 & 10/28/04)
None	6/29/2004	None	Water Shortage	Acute Water Shortage (Wrightwood 07, 08, & 09/04)
2503	10/21/2003	FM	Fire	Old Fire
2501	10/21/2003	FM	Fire	Ca-Grand Prix Fire-10-23-2003
CDAA 2003-02	8/22/2003	CDAA	Flood	Summer Floods (Yucca Valley/Lower Desert)
None	9/24/2002	None	Infestation	Bark Beetle Infestation (San Bernardino Mountains)
3140	9/1/1999	EM	Fire	Ca-Wildfires-08/25/1999
None	7/12/1999	None	Flood	County Flood July 99 (Forest Falls, Apple Valley, and Big Bear)
1203	2/24/1998	DR	Severe Storm(s)	Severe Winter Storms and Flooding
None	3/19/1997	None	EQ	Earthquake (Barstow/Calico RP)
None	2/1/1996	None	Hazmat	Cajon Pass Train Derailment/Hazmat Incident

Disaster Number	Declaration Date	Disaster Type	Incident Type	Title
1044	1/6/1995	DR	Severe Storm(s)	Severe Winter Storms, Flooding, Landslides, Mud Flows
None	6/26/1994	None	Heat/Fire Danger	Severe Heat & Wildland Fire Threat
979	1/8/1993	DR	Flood	Severe Winter Storm, Mud & Land Slides, & Flooding
947	6/28/1992	DR	Earthquake	Earthquake & Aftershocks
935	2/18/1992	DR	Flood	Rain/Snow/Wind Storms, Flooding, Mudslides
894	1/14/1991	DR	Freezing	Severe Freeze
872	6/28/1990	DR	Fire	Fires
None	3/13/1990		Earthquake	Upland Earthquake
None	10/31/1988		Fire	Texas Fire (Watershed Damage)
None	9/3/1987		Fire	Wildland Fires
None	7/13/1984		Weather	Unstable Weather Conditions (City of Big Bear Lake, CSD, Co. Flood Control, Victor Valley Waste Water Authority, Juniper Riviera County Water District)
687	7/1/1983	DR	Flood	Flooding
677	3/7/1983	DR	Coastal Storm	Coastal Storms, Floods, Slides & Tornadoes
635	11/5/1980	DR	Fire	Brush & Timber Fires
615	1/15/1980	DR	Flood	Severe Storms, Mudslides & Flooding
None	9/29/1979		Gasoline Shortage	Gasoline Shortage Emergency
None	6/28/1979		Water Shortage	Water Shortage (Lake Gregory)
None	7/21/1960		Fire	Major and Widespread Fires

The EMWC moved the NHMP from a quantitative to a qualitative ranking system for the 2016 update. A non- numerical rating (High, Medium, or Low) was determined for both the probability and expected impact from each screened hazard. Using the hazard rankings from the 2011 HMP, information on hazard occurrences during the last five years, and available data on specific hazard probabilities, the EMWC assessed each hazard.

4.1.1.1 Probability

High: Highly Likely/Likely. There may or may not have been historic occurrences of the hazard in the community or region but experts feel that it is *likely* that the hazard will occur in the community. Citizens feel that there is a likelihood of occurrence.

Medium: Possible. There may or may not have been a historic occurrence of the hazard in the community or region but experts feel that it is *possible* that the hazard could occur in the community. Citizens may feel that there is a likelihood of occurrence.

Low: Unlikely. There have been no historic occurrences of the hazard in the community or region and both experts and citizens agree that it is highly *unlikely* that the hazard will occur in the community.

4.1.1.2 Impact

High: Catastrophic/Critical. Both experts and citizens feel that the consequences will be significant in terms of building damage and loss of life.

Medium: Limited. Consequences are thought to be modest in terms of building damage and loss of life, limited either in geographic extent or magnitude.

Low: Negligible

Based on the review of hazards identified in similar and relevant documents and previous incidents, as well as historical knowledge of localized events, and developing trends, the EMWC Team developed a preliminary list of hazards with significant potential to occur in Ontario. The hazards the EMWC Team focused on included: **wildfire, flood, earthquake, high winds, climate change and terrorism**. With an understanding of limited resources to implement mitigation actions, the five identified hazards were further prioritized to ensure that appropriate levels of resources are allocated to the hazards determined to have the largest potential impacts on the City of Ontario.

Figure 4-1: Local Disaster Photos
Sources: LA Times, National Geographic, KABC Los Angeles

Figure 4-2: City Archive Photo

4.2 Hazard Prioritization

Once the Hazard Assessment Matrix is developed, the hazards are then given a priority ranking. In the Hazard Assessment Matrix below, the "Red" boxes represents the highest priority hazards, the "Yellow" middle priority and "Green" boxes lower priority. As shown in Hazard Assessment Matrix, the three hazards that are considered to be the greatest threat to the City of Ontario are earthquake, flood, and high winds. The Hazard Profile section profiles these hazards in depth, reviews the exposure of assets to these hazards, and estimates losses or assesses risk for significant events associated with these hazards.

In compliance with the Disaster Mitigation Act (and as further specified by Interim Final Rule 44 CFR Section 206.401(c)(2)(i)) this NHMP addresses, in substantial detail, the primary hazards facing the City. Lower priority hazards are addressed at a lesser level of detail due to their relatively fewer impacts, as identified in the hazard assessment discussion.

4.2.1 Hazard Assessment Matrix

The top three hazards (as required by FEMA HMP Guidelines) for the City of Ontario are in the red section of Table 4-1 and are addressed in the 4.2 Hazard Profile section of the HMP. In addition, some of hazards in the yellow section will be addressed in this version and the rest of the hazards will be addressed in future versions of the HMP. Ultimately, all of the identified hazards will be addressed in the HMP.

Table 4-1: Hazard Assessment Matrix

		IMPACT		
		High	**Medium**	**Low**
PROBABILITY	**High**	• Earthquake • Flood • High Winds	• Water Shortage • Wildfire • Extreme Heat • Severe Storm • Hazardous Materials • Fire	
	Medium	• Transportation • Communications	• Power Outage • Infestation • Lightning	• Extreme Cold • Hail
	Low	• Dam Inundation • Terrorism • Pandemic • Nuclear	• Civil Disturbance • Cyber Attack • Radiological • Explosion	• Tornado

4.3 Hazard Profiles

4.4 Flood Hazard Profile

Floods are the second most common and widespread of all natural disasters faced by the region and cities and towns like Ontario. Most communities in the United States have experienced some kind of flooding during or after spring rains, heavy thunderstorms, winter snow thaws, or summer thunderstorms.

A flood, as defined by FEMA's National Flood Insurance Program (NFIP) is: "A general and temporary condition of partial or complete inundation of two or more acres of normally dry land area or of two or more properties (at least one of which is the policyholder's property) from:

- Overflow of inland or tidal waters, or
- Unusual and rapid accumulation or runoff of surface waters from any source, or
- Mudflow, or
- Collapse or subsidence of land along the shore of a lake or similar body of water as a result of erosion or undermining caused by waves or currents of water exceeding anticipated cyclical levels."

Floods can be slow or fast rising but generally develop over a period of hours or days. Mitigation includes any activities that prevent an emergency, reduce the chance of an emergency happening, or lessen the damaging effects of unavoidable emergencies. Investing in mitigation measures now, such as: engaging in floodplain management activities, constructing barriers such as levees, and purchasing flood insurance will help reduce the amount of structural damage and financial loss from other types of property damage should a flood or flash flood occur.

The standard for flooding is the 1% annual chance flood, commonly called the 100-year flood, the benchmark used by the FEMA to establish a standard of flood control in communities throughout the country. The 1% annual chance flood is also referred to as the base flood.

The 1% annual chance flood is the flood that has a 1% chance of being equaled or exceeded in any given year and it could occur more than once in a relatively short period of time. By comparison, the 10% flood (10-year flood) means that there is a 10% chance for a flood of its size to occur in any given year.

4.4.1 Regulatory Environment

The following agencies are tasked with Flood Control in the City of Ontario and the city works cooperatively with each to alleviate the flood hazard.

- City of Ontario, Ontario Public Works and the Office of Emergency Services
- County of San Bernardino Flood Control, County Public Works and County Office of Emergency Services
- State of California Department of Water Resources (DWR)
- United States Army Corps of Engineers

4.4.1.1 National Flood Insurance Program (NFIP)

The NFIP makes federally backed flood insurance available to homeowners, renters, and business owners in participating communities. As a participating member of the NFIP, Ontario is dedicated to protecting more than 100 homes with policies currently in force. Like most communities participating in NFIP, FEMA has prepared a detailed Flood Insurance Study (FIS)

for areas of San Bernardino County, including the Ontario. The study presents water surface elevations for floods of various magnitudes, including the 1-percent annual chance of flood (the 100-year flood) and the 0.2-percent annual chance of flood (the 500-year flood). Base flood elevations and the boundaries of the 100- and 500-year floodplains are shown on FIRMs. More information on location and geographic extent of the Flood Insurance Rate Maps (FIRMs) are provided in this section.

The Ontario entered the regular phase of the NFIP on 12/02/1980. As a participant in the NFIP, the Ontario is dedicated to regulating development in the FEMA regulated floodplain areas in accordance with NFIP criteria. Before a permit to build in a floodplain area is issued, Ontario ensures that two basic criteria are met:

- All new buildings and developments undergoing substantial improvements must, at a minimum, be elevated to protect against damage by the 100-year flood.
- New floodplain developments must not aggravate existing flood problems or increase damage to other properties.

Structures permitted or built in the County/City before the NFIP regulatory requirements were incorporated into the Ontario ordinances (before the effective date of the Ontario's FIRM) are called "pre-FIRM" structures. For the Ontario, pre-FIRM structures are those permitted or built before 12/02/1980.

Extensive FEMA NFIP databases are used to track claims for every participating community including Ontario. NFIP insurance data provided by FEMA indicates that as of 09/02/2016, there were 128 policies in the Ontario, resulting in $37,939,000.00 of insurance in force; this amounts to $83,043in total premiums. Of the 128 policies, only 21 are for structures located within the 1% annual chance flood zones, while the remaining 107 policies are for structures located outside of the FEMA identified floodplain.

There have been ***16*** closed paid losses totaling $ 74,314. Of the closed paid losses there have been 0 substantial damage claims. Substantial damage" means damage of any origin sustained by a structure whereby the cost of restoring the structure to it's before damaged condition would equal or exceed 50 percent of the market value of the structure before the damage occurred.

Based on this analysis of insurance coverage, the Ontario has assets at risk to the 100-year flood. Of the 88 improved parcels within the 100-year floodplain, only 21 (18.48 %) of those parcels maintain flood insurance[1]. These uninsured structures located in mapped floodplain areas are especially vulnerable.

Currently, the City of Ontario contains (1) RL properties under their jurisdictional umbrella. The total dollar amount of claims paid to date by the NFIP is $ 74,314.

All of the RL properties that have experienced flooding in (explain area of flood hazard) of Ontario are due to urban Street flooding in localized areas. Some mitigation on these properties has been conducted and the Ontario is currently tracking mitigation actions through standardized forms as required by FEMA. Of the 1 repetitive loss properties, all have been mitigated.

[1] An improved property owner may not carry flood insurance for a number of reasons; not everyone is required to carry flood insurance. Structures carrying federally-backed mortgages that are in a SFHA are required to carry flood insurance in Ontario. Owners who have completed the terms of the mortgage or who purchased their property outright may not choose to carry flood insurance and instead bear the costs of recovery on their own.

Important to Note: A property does not have to be currently carrying a flood insurance policy to be considered a RL or SRL property. Often homes in communities are not carrying flood insurance but are still on the community's repetitive loss list. The "repetitive loss" designation follows a property from owner to owner; from insurance policy to no insurance policy, and even after the property has been mitigated. Having an insurance policy and making claims that fall into the repetitive loss criteria will put a property on the RL list. Even after the policy on a property has lapsed or been terminated, the property will remain on Ontario RL list.

Table 4-2: Community Rating System Status and Information

Community Rating System (CRS) Status & Information ONTARIO, CITY OF				
CID	060278			
NFIP Status	PARTICIPATING			
FIRM Status	REVISED			
Map Date	09/02/16			
Contact Type B9	Floodplain Administrator			
Name	Louis Abi-Younes			
Title	*City Engineer*			
Phone	*909-395-2025*		CRS Premium Discounts	
Email	*labi-younes@ci.ontario.ca.us*			
CRS Class	0		**Class**	**Discount**
Total Premium	$83,043.00		1	45%
V-Zone Policy Count	0		2	40%
A-Zone Policy Count	21		3	35%
Total Policy Count	128		4	30%
Total Coverage	$37,939,000.00		5	25%
Total Claims Count	16		6	20%
Total Claims Paid	$74,314.00		7	15%
Substantial Damage Class	0		8	10%
Repetitive Loss Structure	1		9	5%
Severe Repetitive Loss S	0		10/0	0%

The Privacy Act of 1974 (5 U.S.C. 522a) restricts the release of certain types of data to the public. Flood insurance policy and claims data are included in the list of restricted information. FEMA can only release such data to state and local governments, and only if the data are used for floodplain management, mitigation, or research purposes. Therefore, this plan does not identify the repetitive loss properties or include claims data for any individual property.

For more information on California Regulation and the NFIP, please see California's Department of Water Resources Quick Guide here: http://www.water.ca.gov/floodmgmt/lrafmo/fmb/docs/CAQG-screen.pdf

4.4.2 Past Occurrences

Ontario has been subject to periodic flooding. FEMA's Flood Insurance Study (FIS) reports the following on flooding issue:

Issue 1: Urban street flooding due to storm drain system being maxed to capacity and not able to handle the volume of run off.

A majority of the flood risk within Ontario is specifically subject to inundation as a result of heavy rainfall and resulting urban street flooding. The extent of flooding associated with a 1-percent annual probability of occurrence (the base flood or 100-year flood) is used as the regulatory boundary by many agencies, and helps identify the location and extent of flooding in areas across the Ontario. This area is also referred to as the SFHA, and is a convenient tool for assessing vulnerability and risk in flood-prone communities.

Table 4-3: Estimated Flooding Area

Flood Hazard Type	Sum of Acres	Sum of Square Miles
100-Year Flood	580	0.91
100-Year, Floodway	-	-
500-Year Flood	26,562	41.50
500-Year, Protected by Levee	2,260	4
Total	**29,403**	**45.94**

Table 4-4: Estimate loss amounts

Flood Hazard Zone	Improved Parcel Count	Improvement Value Exposure ($000)	Land Value Exposure ($000)	Total Exposure ($000)
100-Year Flood	88	$ 14,267	$ 12,747	$ 27,014
500-Year Flood	32,160	$ 15,810,305	$ 7,684,001	$ 23,494,306
500-Year, Protected by Levee	2,196	$ 1,149,495	$ 297,386	$ 1,446,882
Grand Total	**34,444**	**$ 16,974,067**	**$ 7,994,135**	**$ 24,968,202**

4.4.3 Location / Geographic Extent

Figure 4-9 shows 100-year and 500-year floodplain zones, which are estimated inundation areas based on a flood that has a 1-percent (100-year) and 2-percent (500-year) chance of occurring in any given year. Ontario contains over 29,402 acres of identified flood hazard areas. Table 4-9a provides the total area for both the 100-year and 500-yr. flood hazard areas.

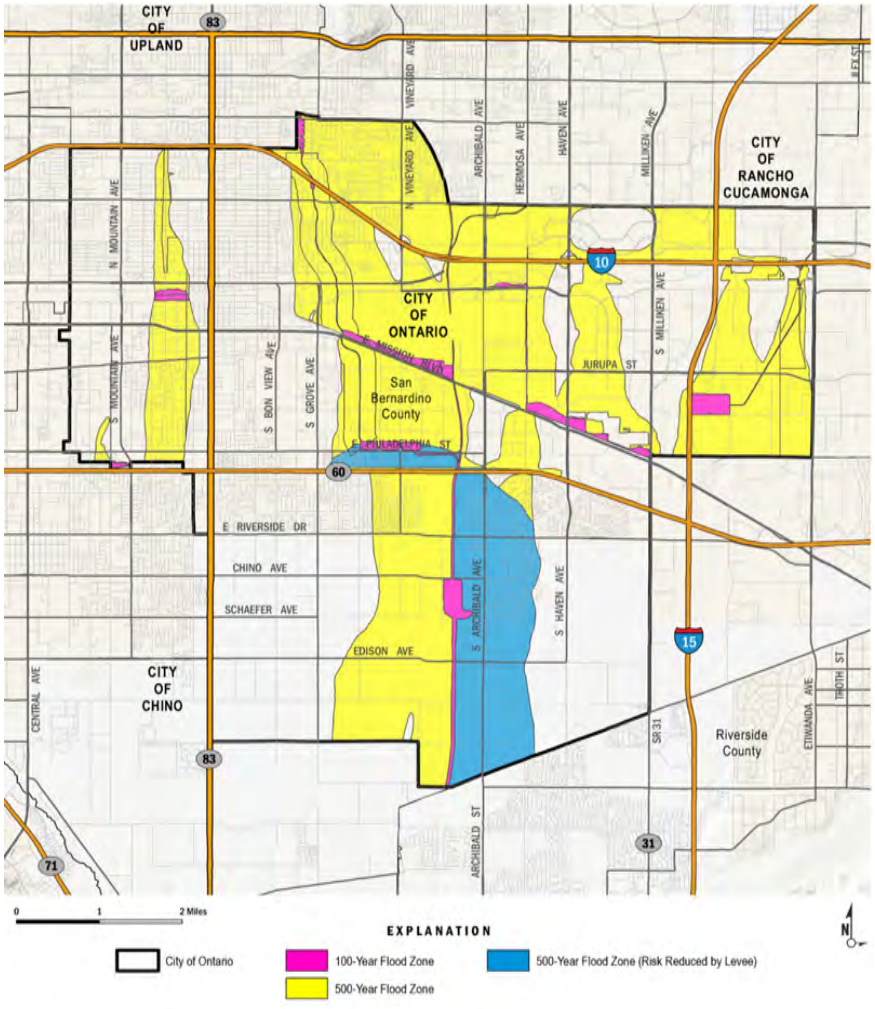


Figure 4-3: 100 and 500-YR Flood Zones

4.4.4 Magnitude/ Severity

In urban areas like Ontario, flood problems are intensified because new homes and other structures, and new streets, driveways, parking lots, and other paved areas decrease the amount of open land available to absorb rainfall and runoff, thus increasing the volume of water that must be carried away by water ways.

4.4.4.1 Flash Flooding

Flash flooding tends to occur in the summer and early fall because of the monsoon rains and is typified by increased humidity and high summer temperatures. Many highways do not have bridges but convey water across the road with dip crossings. Flash flooding causes road and bridge wash outs and erosion of earthen channels and basins when they occur near these facilities. Cities and towns often experience street closures for several days due to sediment transport and road damage. The valley floor in many areas is very flat so even minor rain events can produce flooding of roads and private property. In coordination with local jurisdictions, the County of San Bernardino Flood Control District has prepared Master Drainage plans for many cities and towns to provide a plan for reducing flooding due to minor storms. Maps can be found on the County's Department of Public Works website here:

http://cms.sbcounty.gov/dpw/FloodControl/Planning/MPD.aspx

However, local resources are not sufficient to cover the cost of the construction of the drainage systems. The densely populated (75% of the county population) urban valley region contains the headwaters of the Santa Ana River. The San Gabriel and San Bernardino Mountains border the North side of the valley are steep reaching 5,000 feet with alluvial fans which are developed and densely populated.

Figure 4-4: Typical California urban street flooding

Figure 4-5: An intersection in Ontario is flooded after a storm

Figure 4-6: urban street flooding

Figure 4-7: Flooding in Ontario

4.4.5 Frequency/ Probability of Future Occurrences

The FIRM maps not only identify the flood hazard zones for insurance and floodplain management purposes, but also provide a statement of probability of future occurrence. FIRM maps are located in Annex A.

A 500-year flood has a 0.2-percent chance of occurring in any given year; a 100-year flood has a 1-percent chance, a 50-year flood has a 2-percent chance, and a 10-year flood has a 10-percent chance of occurrence. Although the recurrence interval represents the long-term average period between floods of specific magnitude, significant floods could occur at shorter intervals or even within the same year. The FIRM maps typically identify components of the 500-year and 100-year floodplains. Figure 4-3 shows FEMA 100-year and 500-year flood zones.

Flood hazards to the area can be classified into two general categories: flash flooding down natural channels and sheet flooding across the alluvial fans. A 100-year flood or larger event is anticipated to result in extensive property damage and temporary displacement of hundreds of households. Catastrophic failure of any one of four retaining structures when full, has the potential to cause considerable damage in Ontario.

4.4.6 Goals

S2 Minimized risk of injury, loss of life, property damage and economic and social disruption caused by flooding and inundation hazards.

4.4.7 Policies

S2-1 *Entitlement and Permitting Process*. We follow State guidelines and building code to determine when development proposals require hydrological studies prepared by a State-certified engineer to assess the impact that the new development will have on the flooding potential of existing development down-gradient.

S2-2 *Flood Insurance*. We will limit development in flood plains and participate in the National Flood Insurance Program.

S2-3 *Facilities that Use Hazardous Materials*. We comply with state and federal law and do not permit facilities using, storing, or otherwise involved with substantial quantities of onsite hazardous materials to be located in the 100 year flood zone unless all standards of elevation, flood proofing and storage have been implemented to the satisfaction of the Building Department.

S2-4 *Prohibited Land Uses*. We prohibit the development of new essential and critical facilities in the 100-year floodplain.

S2-5 *Storm Drain System*. We maintain and improve the storm drain system to minimize flooding.

S2-6 *Use of Flood Control Facilities*. We encourage joint use of flood control facilities as open space or other types of recreational facilities.

4.5 Wildfire Hazard Profile

As defined in the California Fire Protection (CAL FIRE) 2010 Strategic Fire Plan, a wildfire event is an unwanted wildland fire including unauthorized human-caused fires, escaped wildfire use events, escaped prescribed wildfire projects, and all other wildfires.

4.5.1 Regulatory Environment

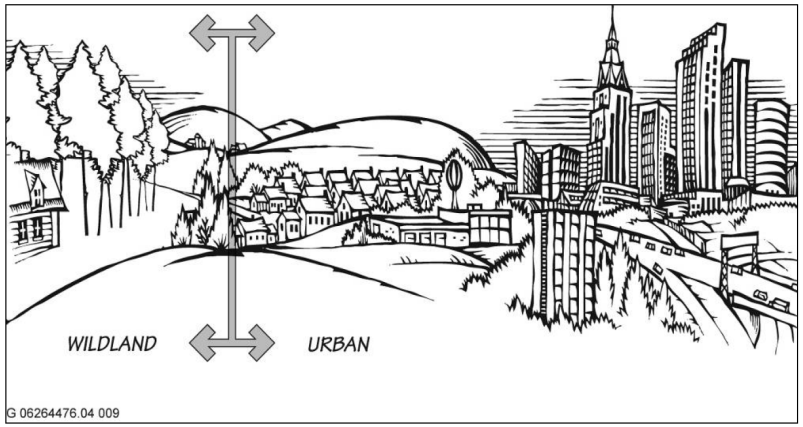
Wildfire regulatory requirements are mandated by the State of California and the City of Ontario.

4.5.1.1 State

Wildfire State Responsibility Area (SRA) Fire Safe Regulations outline basic wildland fire protection standards for local jurisdictions. SRA Fire Safe Regulations (if policed) can decrease the risk of wildfire events in the wildland interface. SRA Fire Safe Regulations do not supersede local regulations, which equal or exceed minimum state regulations. The State statute for wildfire protection is Public Resources Code, Section 4290. Requirements in the code include information on the following (CA Fire Alliance):

- Road Standards for Fire Equipment Access
- Standards for Signs Identifying Streets, Roads and Buildings
- Minimum Private Water Supply Reserves for Emergency Fire Use
- Fuel Breaks and Greenbelts

Figure 4-8: Wildland Urban Interface



4.5.1.2 Local

The City of Ontario is located in a Local Responsibility Area. Fire protection for the City of Ontario is the responsibility of the Ontario Fire Department. The Ontario Fire Department is comprised of 161 staff members. Emergency response personnel are deployed from 10 fire stations located strategically throughout the City.

To reduce risks from wildland fires, the City of Ontario adopted Title 4, Chapter 4 and Title 9 of the Municipal Code, Standards for New Construction Adjacent to Open Space Lands Where Wildfire is a threat. Title 9 provides development standards for new construction adjacent to permanent open or other open lands where no development is anticipated in the near future (as identified in the General Plan) and where wildfire is a threat. Some of the fire reduction strategies incorporated in the code include providing for fire access roads, maintaining a defensible space of non-combustible vegetation around structures, and installing indoor sprinkler systems.

4.5.2 Past Occurrences

Wildfire events are of major concern to the City of Ontario. Cal FIRE maintains a database of wildfire perimeters. There have been 2 major wildland fires in the City of Ontario. The 1958 Pole Line Fire and the 2007 Walker fire that burned 166 acres of dairy pasture and with no homes lost. The Map on the next page shows where those historical burn areas in the City of Ontario have occurred. Fortunately in the past five years there have been no significant wildland fires within the City of Ontario.

4.5.3 Location/Geographic Extent

Using information from the California Department of Forestry (CAL FIRE) Figure 4-10 illustrates the areas at risk to a wildfire event. The areas with the highest risk of wildfire are the in the southern portions of the Ontario. The remainder of Ontario the is urban. The area at risk shrinks daily due to the rapid construction that is taking place throughout Ontario.

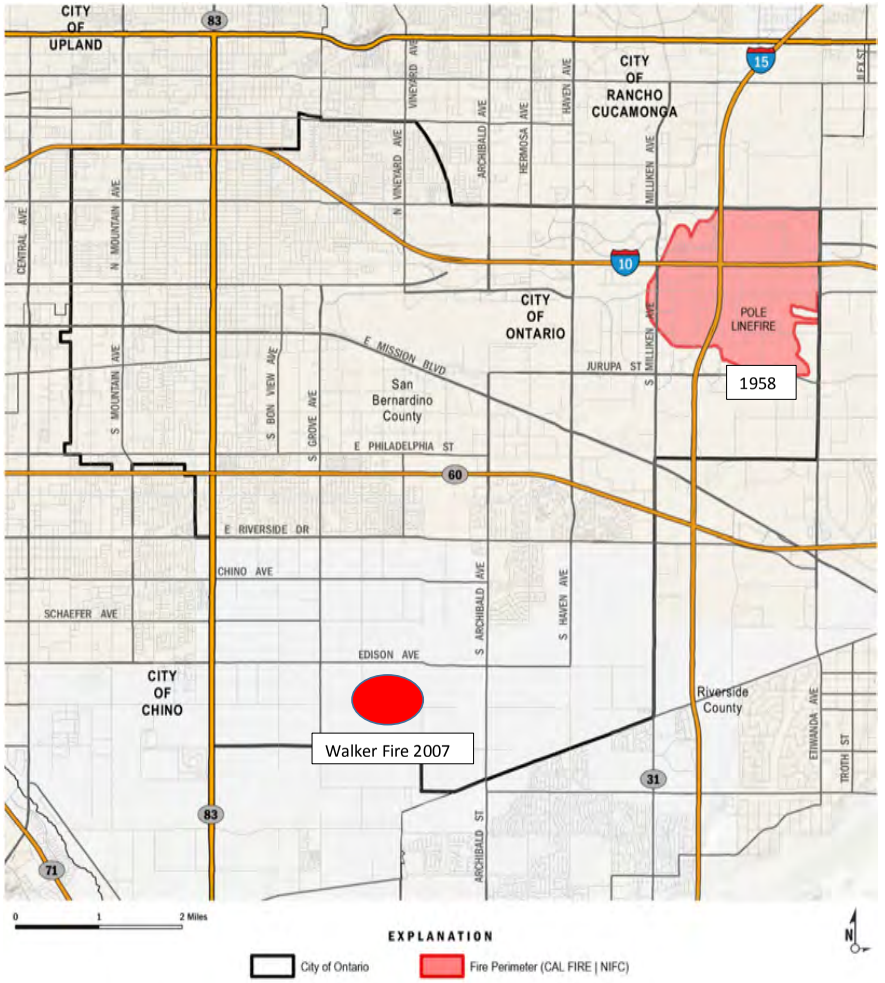


Figure 4-9: Fire Perimeter Map

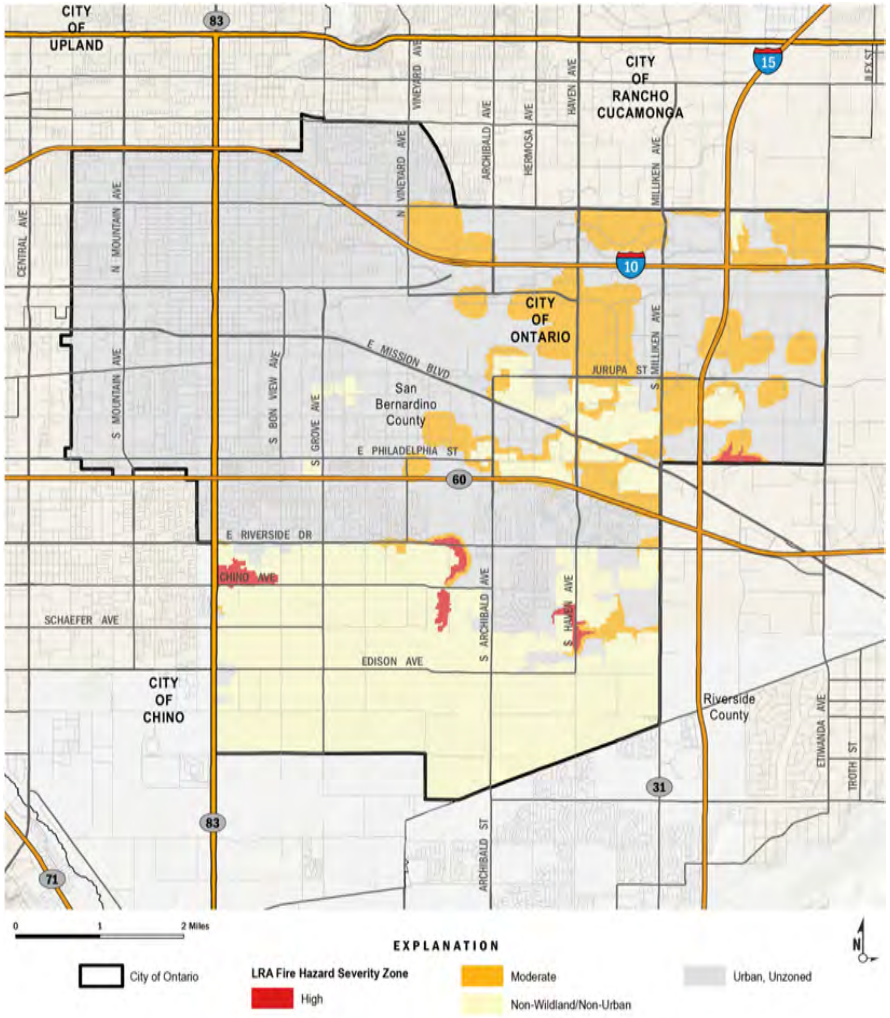


Figure 4-10: NRA Fire Hazard Severity Zones

4.5.4 Magnitude/Severity

The magnitude and severity of a wildfire event is measured by calculating the number of acres burned in a specific wildfire event. CAL FIRE adopted Fire Hazard Severity Zone maps for LRA in June 2008. The Fire Severity Zones for Ontario identify areas of Very High, High, and Moderate fire hazard severity and are mapped in Figure 4-10.

Fire Severity Zones are used in determining additional protective measures required when building new structures or remodeling older structures within the particular zone. Additional measures must be taken on the property around a structure in the higher ranked fire Severity Zones.

Fire hazard mapping is a way to measure the physical fire behavior to predict the damage a fire is likely to cause. Fire hazard measurement includes vegetative fuels, probability of speed at which a wildfire moves the amount of heat the fire produces, and most importantly, the burning fire brands that the fire sends ahead of the flaming front.

The model used to develop the information in accounts for topography, especially the steepness of the slopes (fires burn faster as they burn up-slope.). Weather (temperature, humidity, and wind) also has a significant influence on fire behavior. The areas depicted as moderate and high in are of particular concern and potential fire risk in these are constantly increasing as human development, and the wildland urban interface areas expand.

4.5.5 Frequency/Probability of Future Occurrences

In Ontario, wildfire season commences in the late Spring \ early Summer when temperatures are high, humidity is low, and conditions remain dry. The season continues into the Fall, when the City experiences high velocity, very dry winds coming out of the desert. A statewide drought beginning in 2011 has caused the state to be the driest it's been since record keeping began back in 1895. This has caused extremely dry conditions in creating plentiful fuel sources for wildfires. The frequency and probability of wildfire in the City of Ontario decreases monthly because of the rapid construction in the dairy area which will completely mitigate the threat in a few years.

USGS LANDFIRE (Landscape Fire and Resource Management Planning Tools), is a shared program between the wildland fire management programs of the U.S. Department of Agriculture Forest Service and U.S. Department of the Interior, providing landscape scale geo-spatial products to support cross-boundary planning, management, and operations. Historical fire regimes, intervals, and vegetation conditions are mapped using the Vegetation Dynamics Development Tool (VDDT). This USGS data supports fire and landscape management planning goals in the National Cohesive Wildland Fire Management Strategy, the Federal Wildland Fire Management Policy, and the Healthy Forests Restoration Act.

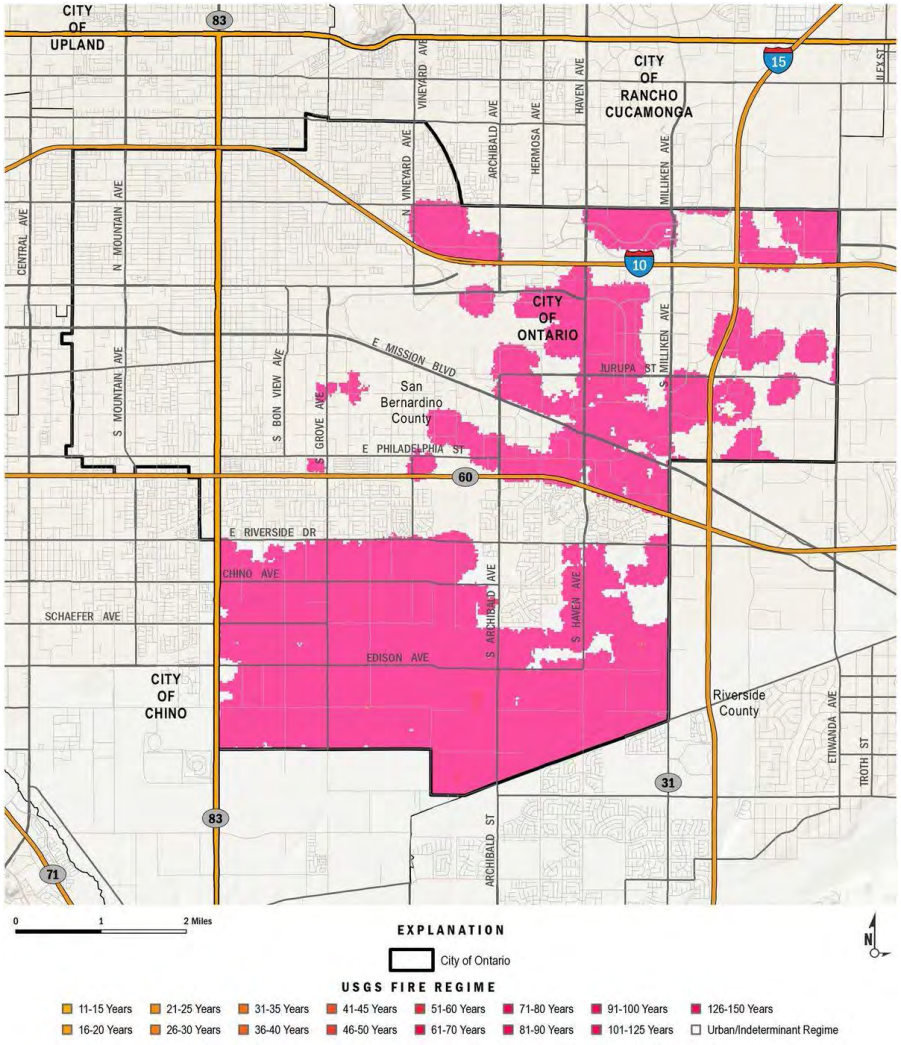


Figure 4-11: Wildfire Return Interval Map

As part of the USGS Landfire data sets, the Mean Fire Return Interval (MFRI) layer quantifies the average period between fires under the presumed historical fire regime. MFRI is intended to describe one component of historical fire regime characteristics in the context of the broader historical time period represented by the LANDFIRE Biophysical Settings (BPS) layer and BPS Model documentation.

MFRI is derived from the vegetation and disturbance dynamics model VDDT (Vegetation Dynamics Development Tool) (LF_1.0.0 CONUS only used the vegetation and disturbance dynamics model LANDSUM). This layer is created by linking the BpS Group attribute in the BpS layer with the Refresh Model Tracker (RMT) data and assigning the MFRI attribute. This geospatial product should display a reasonable approximation of MFRI, as documented in the RMT. See Figure 4-11 for predicted fire return interval for the jurisdictional area.

4.5.6 Future Development in High Fire Hazard Severity Zones (If applicable)

Following the Great Recession of 2009 -2012, the City of Ontario has experience rapid growth in all areas of the city. This construction boom of both commercial and residential units reduces the area that can experience wild fires. That is the reason the city has not experience a large wildfire since the Walker Fire of 2007

Excerpt from the Ontario Plan Safety Element:

Figure 4-12: Ontario firefighters work to extinguish a burning building in the City.

The City of Ontario seeks to mitigate the hazards to life, property and economic viability caused by everyday events and major disasters through the provision of fire, rescue, emergency medical and specialty emergency response services. In Ontario, fires normally originate within a single structure, such as a commercial or residential building. Given the amount of industry and commerce in Ontario, commercial fires account for nearly 80% of total annual damage loss. Residential fire threat, on the other hand, results in more death or injury than commercial fires. Residential fire threats are a particular cause for concern as more than one-half of all Ontario's residential structures were built before 1970, prior to codes that required use of fire resistant building materials. In addition, the City is subject to fire risks associated with earthquakes.

Due to the local topography and nearby Cajon Pass, Santa Ana Winds by far pose the greatest fire hazard to the City. The undeveloped areas of the New Model Colony which have similar characteristics to an urban-wildland interface, have experienced severe fires under high wind conditions. Moreover, the Santa Ana winds pose a continual fire conflagration hazard to any dense area of the City, with an increased risk to older portions of Ontario.

Ontario's commercial and industrial facilities increase the possibility of fires involving hazardous materials, which could affect nearby residential areas. Ontario is also surrounded and bisected by major transportation networks and pipeline transfer systems which add further risk.

4.5.7 Goals

S3 Reduced risk of death, injury, property damage and economic loss due to fires, accidents and normal everyday occurrences through prompt and capable emergency response.

4.5.8 Policies

S3-1 *Prevention Services*. We proactively mitigate or reduce the negative effects of fire, hazardous materials release, and structural collapse by implementing the adopted Fire Code.

S3-2 *Community Outreach*. We provide education to local schools and community groups to promote personal and public safety.

S3-3 *Fire and Emergency Medical Services*. We maintain sufficient fire stations, equipment and staffing to respond effectively to emergencies.

S3-4 *Special Team Services*. We maintain effective special rescue services.

S3-5 *Emergency Communication Services*. We maintain a 9-1-1 emergency communication and dispatch center.

S3-6 *Interagency Cooperation*. In order to back up and supplement our capabilities to respond to emergencies, we participate in the California Fire Rescue and Mutual Aid Plan.

S3-7 *Water Supply and System Redundancy*. We monitor our water system to manage firefighting water supplies.

S3-8 *Fire Prevention through Environmental Design*. We require new development to incorporate fire prevention consideration in the design of streetscapes, sites, open spaces and buildings. (Link to Community Design Element)

S3-9 *Resource Allocation*. We analyze fire data to evaluate the effectiveness of our fire prevention and reduction strategies and allocate resources accordingly.

Development in Ontario is also regulated by the following municipal codes:

- Title 4, Public Safety, chapter 4 of the City fire code, and
- Title 9 the City Development Code

Figure 4-13: Walker Fire
OnSceneTV/HD

Figure 4-14: Ontario Walker Fire 2007

Figure 4-15: photos by OnSceneTV\HD

4.6 Earthquake / Geologic Hazard Profile

An earthquake is both the sudden slip on an active fault and the resulting shaking and radiated seismic energy caused by the slip (USGS, 2009). The majority of major active faults in the Ontario area are strike-slip faults. For this type of fault, during an earthquake event, one side of a fault line slides past the other. The rupture from this type of fault extends almost vertically into the ground.

Earthquakes are a significant concern to the City of Ontario. The area around Ontario is seismically active since it is situated on the boundary between two tectonic plates. Describe seismic activity and faults for the region. Earthquakes can cause serious structural damage to buildings, overlying aqueducts, transportation facilities, utilities, and can lead to loss of life. In addition, earthquakes can cause collateral emergencies including dam and levee failures, fires, and landslides. Seismic shaking is by far the single greatest cause of damage from an earthquake in the City of Ontario followed by liquefaction.

Liquefaction occurs when loosely packed sandy or silty materials saturated with water are shaken hard enough to lose strength and stiffness. Liquefied soils behave like a liquid and are responsible for tremendous damage in an earthquake. For example, it can cause buildings to collapse, pipes to leak, and roads to buckle.

4.6.1 Regulatory Environment

Numerous building and zoning codes exist at a state and local level to decrease the impact of an earthquake event and resulting liquefaction on residents and infrastructure. Building and zoning codes include the Alquist-Priolo Earthquake Fault Zoning Act of 1972, Seismic Hazards Mapping Act of 1990, 2013 California Standards Building Code (CSBC), and City of Ontario General Plan. To protect lives and infrastructure in the City of Ontario, the following building and zoning codes are used.

4.6.1.1 State

The 1971 San Fernando Earthquake resulted in the destruction of numerous structures built across its path. This led to passage of the Alquist-Priolo Earthquake Fault Zoning Act. This Act prohibits the construction of buildings for human occupancy across active faults in the State of California. Similarly, extensive damage caused by ground failures during the 1989 Loma Prieta Earthquake focused attention on decreasing the impacts of landslides and liquefaction. This led to the creation of the Seismic Hazards Mapping Act. This Act increases construction standards at locations where ground failures are probable during earthquakes. Active faults in San Bernardino County have been included under the Alquist-Priolo Geologic Hazards Zones Act and Seismic Hazards Mapping Act.

4.6.1.2 Local

The 2013 California Building Standards Code (also known as Title 24) became effective for the County on January 1st, 2014. Title 24 includes CBC Section 3417: Earthquake Evaluation and Design for Retrofit of Existing Buildings which can be viewed at http://www.documents.dgs.ca.gov/bsc/2015TriCycle/Pre-Cycle-2015/CBC-CEBC/BSC-0X-15-ET-Pt10-Agenda-4d.pdf.

The 2013 CSBC is based on the International Building Codes (IBC), which is widely used throughout the United States. CSBC was modified for California's conditions to include more detailed and stringent building requirements. The City of Ontario Building Department utilizes the 2013 CSBC to regulate the infrastructure in the City of Ontario. This includes unreinforced masonry (URM) buildings. For new buildings, Ontario includes earthquake safety provisions, with enhancements for essential services buildings, hospitals, and public schools.

Figure 4-16: Earthquakes can be so strong they knock houses and buildings off their foundation.

Ontario is susceptible to earthquakes, settlement of alluvial deposits that underlie the region, and subsidence caused by rapid withdrawal of groundwater. In order for the City to thrive and continue to attract investment, residents and investors need assurance that the City is prepared for and will effectively deal with seismic and geologic hazards.

4.6.2 Past Occurrences

The LHMP Planning Team noted the following regional and local events for the seismic activity in the City of Ontario. Although no significate damage result from the earthquakes occurred in the City of Ontario it is only a matter of time before a large damaging earthquake will strike the area

Table 4-5: City of Ontario Seismic Activity

Date	Name
9/12 1970	5.2M Lyle Creek
2/28/1990	5.4 M Upland
6/28/1992	7.3M Big Bear\Landers
10/16/ 1999	7.1M Hector Mine
7/29/2008	5.4M Chino Hills

Table 4-6 shows earthquakes greater than Magnitude 4.0 that have been felt within the San Bernardino County area in the last five years.

Table 4-6: Earthquakes: 2010-2015 San Bernardino County

Date	Name
9/14/2011	Calimesa 4.1
1/15/2014	Fontana 4.4
7/5/2014	Running Springs 4.6
3/29/2014	Brea 5.1
7/25/2015	Fontana 4.2
9/16/15	Big Bear Lake 4.0
12/30/2015	Muscoy 4.4
1/6/2016	Banning 4.4

There are hundreds more small (M<4.0) earthquakes that have occurred within San Bernardino County during this same time frame. Those with a magnitude of below 4.0 are not listed.

4.6.3 Location/Geographic Extent

The risk of seismic hazards to residents of Ontario is based on the approximate location of earthquake faults within and outside the region. This map includes Alquist-Priolo Geologic Hazards Zones Act created under the Seismic Hazards Mapping Act and the USGS Quaternary Fault and Fold Database of the United States. The USGS database contains information on faults and associated folds in the California that are believed to be sources of M>6 earthquakes during the Quaternary (the past 2.6 million years). Figure 4-17 shows faults near the Ontario. There are no known faults in the City of Ontario. Per the California Department of Conservation's Earthquake Fault Zone Maps, Ontario is near the following active fault zones or regulatory fault zones managed by the Department of Conservation.

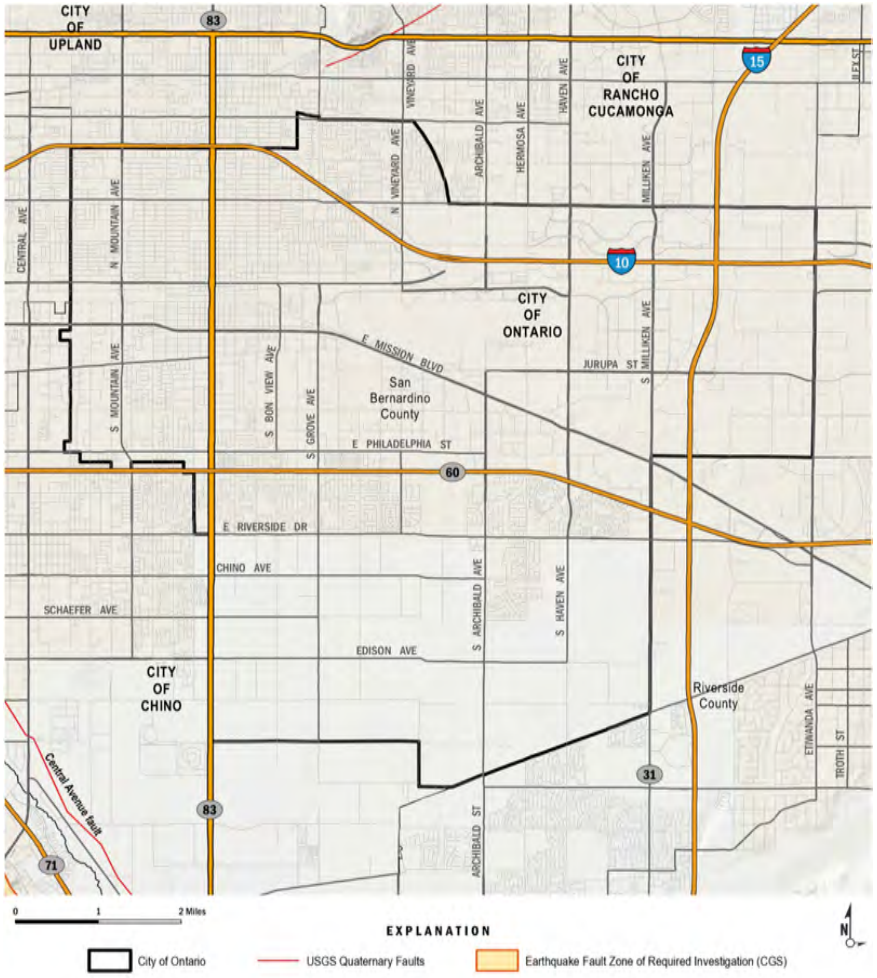


Figure 4-17: Earthquake Fault Zones

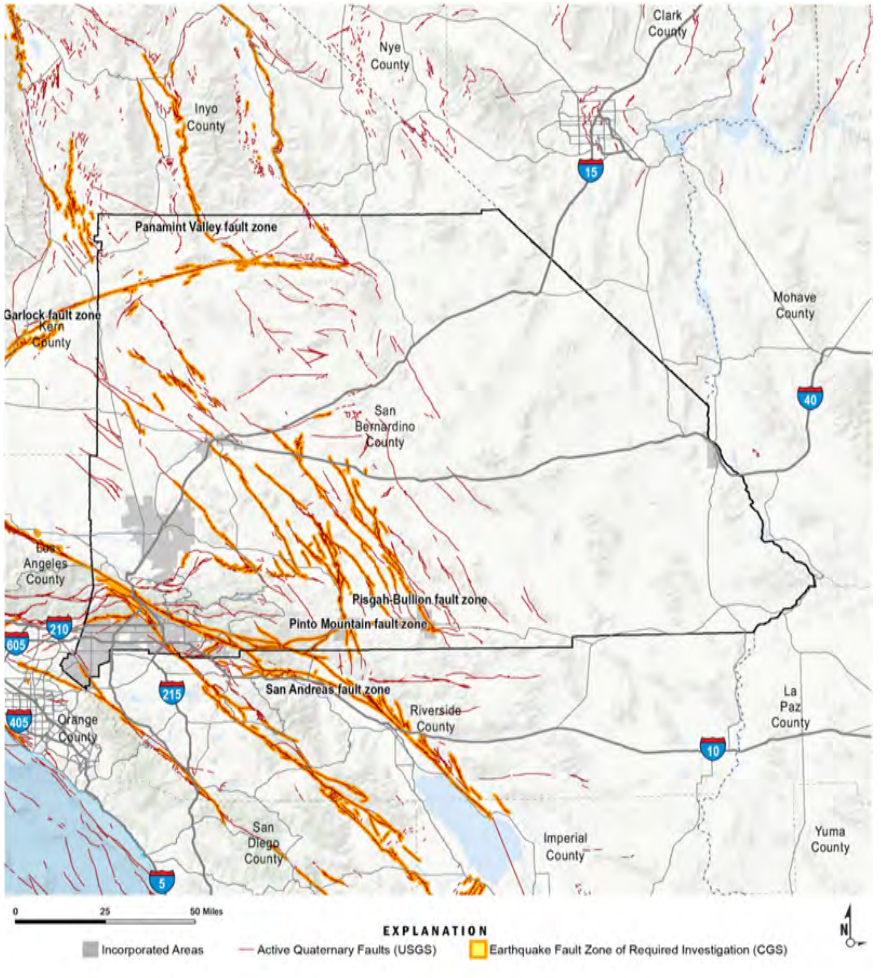


Figure 4-18: Active Fault Map for San Bernardino County

IMPORTANT TO NOTE: The Earthquake Fault Zone of Required Investigation data are published by the California Geological Survey. These zones are delineated to assist cities and counties in fulfilling their responsibilities for protecting the public safety from the effects of earthquake fault rupture as required by the Alquist-Priolo Earthquake Fault Zoning Act (Public Resources Code Sections 2623 et seq)

Historical and geological records show that Southern California has a long history of seismic events. Southern California is probably best known for the San Andreas Fault, a 400-mile long fault running from the Mexican border to a point offshore, west of San Francisco. Geologic studies show that over the past 1,400 to 1,500 years, large earthquakes have occurred at about 130-year intervals on the southern San Andreas Fault. As the last large earthquake on the southern San Andreas occurred in 1857, that section of the fault is considered a likely location for an earthquake within the next few decades.

But San Andreas is only one of dozens of known earthquake faults that crisscross Southern California. Beyond the known faults, there are a potentially large number of "blind" faults that underlie the surface of Southern California. One such blind fault was involved in the Whittier Narrows earthquake in October 1987.

Although the most famous of the faults, the San Andreas, is capable of producing an earthquake with a magnitude of 8+ on the Richter scale, some of the "lesser" faults have the potential to inflict greater damage on the urban core of the Los Angeles Basin and nearby cities.

4.6.4 Magnitude/Severity

The most common method for measuring earthquakes is magnitude, which measures the strengths of earthquake. Although the Richter scale is known as the measurement for magnitude, the majority of scientists currently use either the Mw Scale or Modified Mercalli Intensity (MMI) Scale. The effects of an earthquake in a particular location are measured by intensity. Earthquake intensity decreases with increasing distance from the epicenter of the earthquake.

The magnitude of an earthquake is related to the total area of the fault that ruptured, as well as the amount of offset (displacement) across the fault. As shown in Table 4-7, there are seven earthquake magnitude classes, ranging from great to micro. A magnitude class of great can cause tremendous damage to infrastructure in Ontario, compared to a micro class, which results in minor damage to infrastructure.

The MMI Scale has 12 intensity levels. Each level is defined by a group of observable earthquake effects, such as ground shaking and/or damage to infrastructure. Levels I through VI describe what people see and feel during a small to moderate earthquake. Levels VII through XII describe damage to infrastructure during a moderate to catastrophic earthquake

Table 4-7: Moment Magnitude Scale

Earthquake Magnitude Classes		
Magnitude Class	**Magnitude Range (M = Magnitude)**	**Description**
Great	M > 8	Tremendous damage
Major	7 <= M < 7.9	Widespread heavy damage
Strong	6 <= M < 6.9	Severe damage
Moderate	5 <= M < 5.9	Considerable damage
Light	4 <= M < 4.9	Moderate damage
Minor	3 <= M < 3.9	Rarely causes damage.
Micro	M < 3	Minor damage

Table 4-8: Modified Mercalli Scale

Earthquake Magnitude and Intensity		
Magnitude (M_w)	**Intensity (Modified Mercalli Scale)**	**Description**
1.0 – 3.0	I	I. Not felt except by very few people under especially favorable conditions.
3.0 – 3.9	II – III	II. Felt by a few people, especially those on upper floors of buildings. Suspended objects may swing.
		III. Felt quite noticeably indoors. Many do not recognize it as an earthquake. Standing motorcars may rock slightly.
4.0 – 4.9	IV – V	IV. Felt by many who are indoors; felt by a few outdoors. At night, some awakened. Dishes, windows and doors rattle.
		V. Felt by nearly everyone; many awakened. Some dishes and windows broken; some cracked plaster; unstable objects overturned.
5.0 – 5.9	VI – VII	VI. Felt by everyone; many frightened and run outdoors. Some heavy furniture moved; some fallen plaster or damaged chimneys.
		VII. Most people alarmed and run outside. Damage negligible in well-constructed buildings; considerable damage in poorly constructed buildings.
6.0 – 6.9	VII – IX	VIII. Damage slight in special designed structures; considerable in ordinary buildings; great in poorly built structures. Heavy furniture overturned. Chimneys, monuments, etc. may topple.
		IX. Damage considerable in specially designed structures. Buildings shift from foundations and collapse. Ground cracked. Underground pipes broken.
7.0 and Higher	VIII and Higher	X. Some well-built wooden structures destroyed. Most masonry structures destroyed. Ground badly cracked. Landslides on steep slopes.
		XI. Few, if any, masonry structures remain standing. Railroad rails bent; bridges destroyed. Broad fissure in ground.
		XII. Virtually total destruction. Waves seen on ground. Objects thrown into the air.

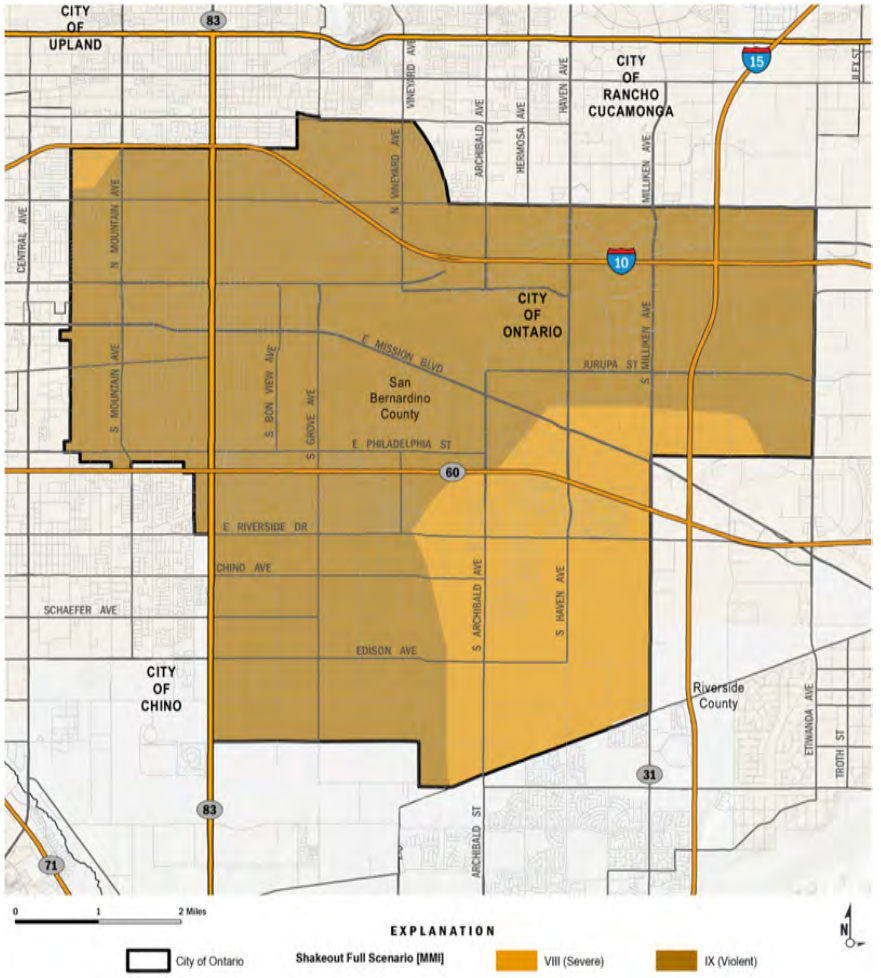


Figure 4-19: Shakeout Full Scenario

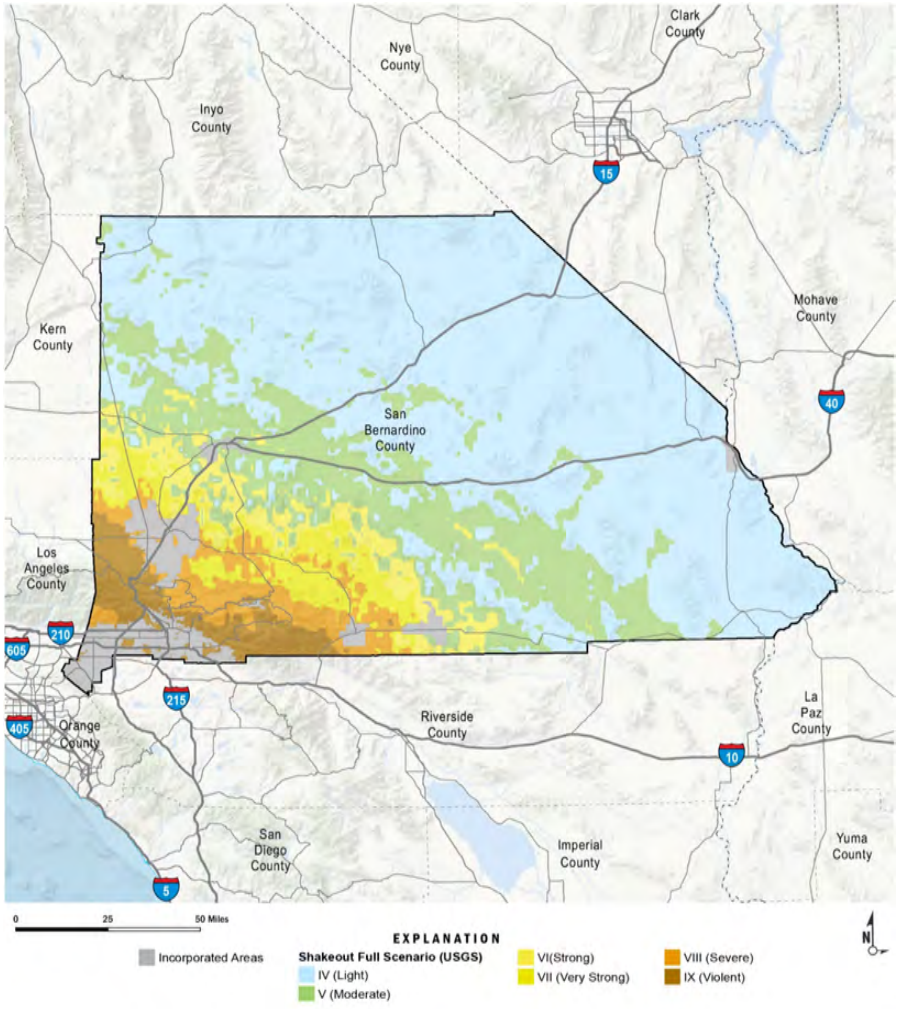


Figure 4-20: Great Shakeout Scenario MMI Classes

4.6.5 Frequency / Probability of Future Occurrences

While earthquakes occur less frequently than other primary natural hazard events, they have accounted for the greatest combined losses (deaths, injuries, and damage costs) in disasters since 1950 in California and have the greatest catastrophic disaster potential (Cal EMA, 2010).

The USGS estimates that the probability of an earthquake occurring over the next 30 Years in the Southern California with a magnitude of 6.7 or greater is 93 percent. Table 4-9 from the USGS lists Average time between earthquakes in the Southern California region together with the likelihood of having one or more such earthquakes in the next 30 years (starting from 2014). "Readiness" indicates the factor by which likelihoods are currently elevated, or lower, because of the length of time since the most recent large earthquakes. The values from the USGS include aftershocks. It is important to note that actual repeat times will exhibit a high degree of variability, and will almost never exactly equal the average listed in the table.

Table 4-9: Southern California Region Earthquake Probability

Magnitude (greater than or equal to)	Average repeat time (years)	30-year likelihood of one or more events	Readiness
5	.7	100%	1.0
6	2.3	100%	1.0
6.7	12	93%	1.0
7	25	75%	1.1
7.5	87	36%	1.2
8	522	7%	1.3

Source: USGS UCERF3: A New Earthquake Forecast for California's Complex Fault System FS 2015-3309

Uniform California Earthquake Forecasts (UCERF) estimated the likelihood that California will experience a magnitude 8 or larger earthquake in the next 30 years has increased from about 4.7% in 2007 (UCERF23F3F[2]) to about 7.0% for the thirty-year duration starting in 2014 (UCERF34F4F[3]). Several of the major Southern California faults have a high probability of

[2] USERF2 = 2008 California Earthquake Probabilities. In April 2008, scientists and engineers released a new earthquake forecast for the State of California called the UCERF. Compiled by USGS, Southern California Earthquake Center (SCEC), and the California Geological Survey (CGS), with support from the California Earthquake Authority, it updates the earthquake forecast made for the greater San Francisco Bay Area by the 2002 Working Group for California Earthquake Probabilities.

[3] UCERF3 = 2014 California Earthquake Probabilities. UCERF3 is the first type of model, representing the latest earthquake-rupture forecast for California. It was developed and reviewed by dozens of leading scientific experts from the fields of seismology, geology, geodesy, paleoseismology, earthquake physics, and earthquake engineering. As such, it represents the best available science with respect to authoritative estimates of the magnitude, location, and likelihood of potentially

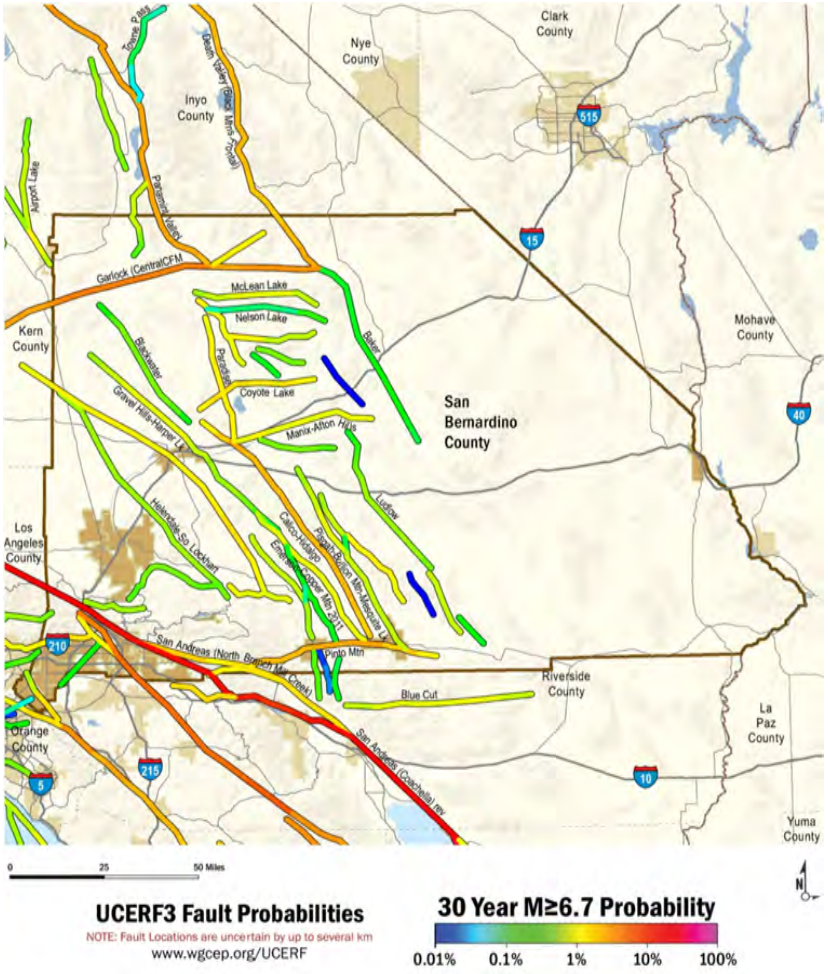


Figure 4-21: UCERF3 Fault Probabilities

damaging earthquakes throughout the state (further background on these models, especially with respect to ingredients, can be found in U.S. Geological Survey Fact Sheet 2008–3027, http://pubs.usgs.gov/fs/2008/3027/)

experiencing a Magnitude 6.7 or greater earthquake within the next 30 years (Figure 9-2); 59% probability of a M6.7 or greater on the Southern San Andreas Fault, 31% probability on the San Jacinto Fault, and 11% probability on the Elsinore Fault. These probabilities were determined by the USGS and CGS in a 2008 study (2007 Working Group on California Earthquake Probabilities, 2008, The Uniform California Earthquake Rupture Forecast, Version 2 (UCERF 2): U.S. Geological Survey Open-File Report 2007-1437 and California Geological Survey Special Report 203 [http://pubs.usgs.gov/of/2007/1437/]).

Figure 4-21 shows the locations of major faults in Southern California, including the four (4) major faults in relation to San Bernardino County region. These faults are the Southern San Andreas, the San Jacinto, the Elsinore, and the Garlock Faults. There are also many smaller faults within San Bernardino County capable of producing significant earthquakes. However, these four faults are considered by the United States Geological Survey (USGS) and the California Geological Survey (CGS) to be the most dangerous in the County. (California Geological Survey Special Publication 42, Interim Revision 2007, "Fault-Rupture Hazard Zones in California" - Alquist-Priolo Earthquake Fault Zoning Act).

4.6.6 Goals

S1 Minimized risk of injury, loss of life, property damage and economic and social disruption caused by earthquake-induced and other geologic hazards.

4.6.7 Policies

S1-1 *Implementation of Regulations and Standards*. We require that all new habitable structures be designed in accordance with the most recent California Building Code adopted by the City, including provisions regarding lateral forces and grading.

S1-2 *Entitlement and Permitting Process.* We follow state guidelines and the California Building Code to determine when development proposals must conduct geotechnical and geological investigations.

S1-3 *Continual Update of Technical Information.* We maintain up-to-date California Geological Survey seismic hazard maps.

S1-4 *Seismically Vulnerable Structures*. We conform to state law regarding unreinforced masonry structures.

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4.7 High Winds

Severe wind storms pose a significant risk to life and property in Ontario by creating conditions that disrupt essential systems such as public utilities, telecommunications, and transportation routes. High winds can and do occasionally cause tornado-like damage to local homes and businesses. Severe windstorms can present a very destabilizing effect on the dry brush that covers local properties and urban wildland interface areas. High winds can have destructive impacts, especially to trees, power lines, and utility services.

4.7.1 Regulatory Environment

City of Ontario has adopted the 2013 California Building Standards Code to regulate development in areas at risk.

Figure 4-22: Ontario is prone to wildfires associated with high "Santa Ana Winds".

Severe windstorms can pose a significant risk to property and life in the region by creating conditions that disrupt essential systems such as public utilities, telecommunications, and transportation routes. High winds, including Santa Ana winds, can cause damage to homes, businesses, landscaping, public property and utilities, and pose threats to public safety, including accelerating a fire. The alluvial sand that underlies the majority of Ontario is generally granular, poorly consolidated, and very susceptible to erosion. In strong winds this sand can impact property, air quality and visibility.

4.7.2 Past Occurrences

Each year there is a high probability that Ontario will be affected by high winds coming down the local canyons and the Cajon Pass.

While the effects of Santa Ana Winds are often overlooked, it should be noted that in 2003, two deaths in Southern California were directly related to the fierce condition. A falling tree struck one woman in San Diego. The second death occurred when a passenger in a vehicle was hit by a flying pickup truck cover launched by the Santa Ana Winds.

The following Santa Ana wind events were featured in news resources during 2003:

January 6, 2003
OC Register

"One of the strongest Santa Ana windstorms in a decade toppled 26 power poles in Orange early today, blew over a mobile derrick in Placentia, crushing two vehicles, and delayed Metrolink rail service." This windstorm also knocked out power to thousands of people in northeastern Orange County.

January 8, 2003
CBSNEWS.com

"Santa Ana's roared into Southern California late Sunday, blowing over trees, trucks and power poles. Thousands of people lost power."

March 16, 2003
Dailybulletin.com

Fire Officials Brace for Santa Ana Winds - - "The forest is now so dry and so many trees have died that fires, during relatively calm conditions, are running as fast and as far as they might during Santa Ana Winds. Now the Santa Ana season is here.

Combine the literally tinder dry conditions with humidity in the single digits and 60- 80 mph winds, and fire officials shudder."

The following is a glimpse of some major Santa Ana wind/windstorm events to hit the local area:

Major Windstorms / Santa Ana Wind Events
Riverside, San Bernardino and Orange County Area from 1961- 2011

Date Location and Damage

November 5-6, 1961 Santa Ana winds. Fire in Topanga Canyon

February 10-11,1973 Strong storm winds:. 57 mph at Riverside, 46 Newport Beach. Some 200 trees uprooted in Pacific Beach alone

October 26-27, 1993 Santa Ana winds. Fire in Laguna Hills

October 14, 1997 Santa Ana winds: gusts 87 mph in central Orange County. Large fire in Orange County

December 29, 1997 Gusts 60+ mph at Santa Ana

March 28-29, 1998 Strong storm winds in Orange County: sustained 30-40 mph. Gust 70 mph at Newport Beach, gust 60 Huntington Beach. Trees down, power out, and damage across Orange and San Diego Counties. 1 illegal immigrant dead in Jamul.

September 2, 1998 Strong winds from thunderstorms in Orange County with gusts to 40mph. Large fires in Orange County

December 6, 1998 Thunderstorm in Los Alamitos and Garden Grove: gust 50-60 mph called "almost a tornado" house and tree damage in Hemet.

March 5-6, 2000 Strong thunderstorm winds at the coast: gust 60 mph at Huntington Beach property damage and trees downed along the coast

April 1, 2000 Santa Ana winds: gust 93 mph at Mission Viejo, 67 Anaheim Hills

December 25-26, 2000 Santa Ana winds: gust 87 mph at Fremont Canyon. Damage and injuries in Ontario, Mira Loma, Orange and Riverside Counties

February 13, 2001 Thunderstorm gust to 89 mph in East Orange

October 14 and 15, 2008 prolonged Santa Ana Wind event trees down, truck blown over in Ontario

November 01, 2011 Santa Ana Wind event Trees down Trucks blown off freeway in Ontario

December 01, 2011 Santa Ana Wind event Trees down trucks blown over in Ontario

4.7.3 Location/Geographic Extent

The entire city of Ontario is at risk for these high winds.

4.7.4 Magnitude/Severity

A windstorm event in the region can range from short term microburst activity lasting only minutes to a long duration Santa Ana wind condition that can last for several days as in the case of the January 2003 and October 2008 Santa Ana wind events. Windstorms in the City of Ontario area can cause extensive damage including heavy tree stands, structures, road and highway infrastructure, and critical utility facilities. The map shows clearly the direction of the Santa Ana winds as they travel from the stable, high-pressure weather system called the Great Basin High through the canyons and towards the low-pressure system off the Pacific.

Clearly the area of the City of Ontario is in the direct path of the ocean-bound Santa Ana winds. With an analysis of

the high wind and tornado events depicted in the "Local History" section, we can deduce the common windstorm impact areas including impacts on life, property, utilities, infrastructure and transportation. Additionally, if a windstorm disrupts power to local residential communities, the American Red Cross and City resources might be called upon for care and shelter duties. Displacing residents and utilizing City resources for shelter staffing and disaster cleanup can cause an economic hardship on the community.

Location and Geographic Extent

The entire city of Ontario is at risk for these high winds. The National Weather Service uses the Beaufort Scale to measure the magnitude and extent of the wind hazard from 0 to 12. In the Ontario area during wind events the Beaufort Scale can range from 8 to 12 on a regular basis.

	Wind Speed	Description	Waves
1	1 - 3	Light airs	Ripples.
2	4 - 6	Light breeze	Small wavelets.
3	7 - 10	Gentle breeze	Occasional crests.
4	11 - 16	Moderate breeze	Frequent white horses.
5	17 - 21	Fresh breeze	Moderate waves, many white crests.
6	22 - 27	Strong breeze	Large waves, white foam crests.
7	28 - 33	Near gale	Sea heaps up, spray, breaking waves, foam blows in streaks.
8	34 - 40	Gale	Moderate / high waves (5.5m), breaking crests. Foam blown in streaks.
9	41 - 47	Severe gale	High waves. (7m), spray affects visibility. Dense streaks of foam along the direction of wind. Crests of waves topple and roll over.
10	48 - 55	Storm	Very high waves (9m) long breaking crests.
11	55 - 63	Violent Storm	Exceptional waves. Sea covered in foam. Visibility affected.
12	64 +	Hurricane	Huge waves. The air filled with foam and spray. Sea completely white with driving spray. Visibility very seriously affected.

4.7.4.1 Life and Property

Based on the history of the region, windstorm events can be expected, perhaps annually, across widespread areas of the city which can be adversely impacted during a windstorm event. This can result in the involvement of City of Ontario emergency response personnel during a wide ranging windstorm or microburst tornadic activity. Both residential and commercial structures with weak reinforcement are susceptible to damage. Wind pressure can create a direct and frontal assault on a structure, pushing walls, doors, and windows inward. Conversely, passing currents can create lift suction forces that pull building components and surfaces outward. With extreme wind forces, the roof or entire building can fail causing considerable damage.

Debris carried along by extreme winds can directly contribute to loss of life and indirectly to the failure of protective building envelopes, siding, or walls. When severe windstorms strike a community, downed trees, power lines, and damaged property can be major hindrances to emergency response and disaster recovery.

4.7.4.2 Utilities

Historically, falling trees have been the major cause of power outages in the region. Windstorms such as strong microbursts and Santa Ana Wind conditions can cause flying debris and downed utility lines. For example, tree limbs breaking in winds of only 45 mph can be thrown over 75 feet. As such, overhead power lines can be damaged even in relatively minor windstorm events. Falling trees can bring electric power lines down to the pavement, creating the possibility of lethal electric shock. Rising population growth and new infrastructure in the region creates a higher probability for damage to occur from windstorms as more life and property are exposed to risk.

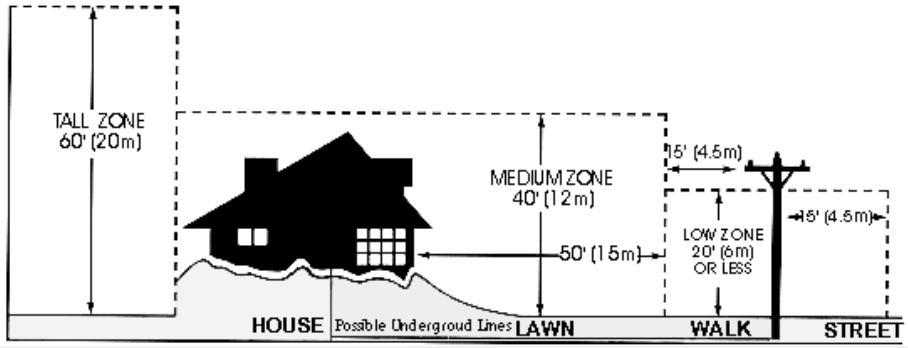

Figure 4-23: Windstorm Zones

4.7.4.3 Infrastructure

Windstorms can damage buildings, power lines, and other property and infrastructure due to falling trees and branches. During wet winters, saturated soils cause trees to become less stable

and more vulnerable to uprooting from high winds. Windstorms can result in collapsed or damaged buildings or blocked roads and bridges, damaged traffic signals, streetlights, and parks, among others. Roads blocked by fallen trees during a windstorm may have severe consequences to people who need access to emergency services. Emergency response operations can be complicated when roads are blocked or when power supplies are interrupted. Industry and commerce can suffer losses from interruptions in electric services and from extended road closures. They can also sustain direct losses to buildings, personnel, and other vital equipment. There are direct consequences to the local economy resulting from windstorms related to both physical damages and interrupted services.

4.7.4.4 Increased Fire Threat

Perhaps the greatest danger from windstorm activity in Southern California comes from the combination of the Santa Ana winds with the major fires that occur every few years in the urban/wildland interface. With the Santa Ana winds driving the flames, the speed and reach of the flames is even greater than in times of calm wind conditions. The higher fire hazard raised by a Santa Ana wind condition requires that even more care and attention be paid to proper brush clearances on property in the wildland/urban interface areas.

4.7.4.5 Transportation

Windstorm activity can have an impact on local transportation in addition to the problems caused by downed trees and electrical wires blocking streets and highways. During periods of extremely strong Santa Ana winds, major highways can be temporarily closed to truck and recreational vehicle traffic. However, typically these disruptions are not long lasting, nor do they carry a severe long term economic impact on the region.

4.7.5 Frequency/Probability of Future Occurrences

High winds can occur at any time and Santa Ana winds come primarily each year from August to December, but with climate change those months can vary each year.

4.7.6 Goals

S5 Reduced risk of injury, property damage and economic loss resulting from windstorms and wind-related hazards.

4.7.7 Policies

S5-1 *Backup Power in Critical Facilities*. We require backup power be maintained in critical facilities.

S5-2 *Dust Control Measures*. We require the implementation of Best Management Practices for dust control at all excavation and grading projects.

S5-3 *Grading in High Winds*. We prohibit excavation and grading during strong wind conditions, as defined by the Building Code.

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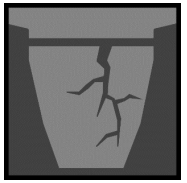
4.8 Dam Failure Hazard Profile



A dam failure is usually the result of neglect, poor design, and/or structural damage caused by a major event such as an earthquake. When a dam failure occurs, a gigantic quantity of water is suddenly released, destroying infrastructure and flooding the area downstream of the dam (ABAG, 2011).

Dams are man-made structures built for a variety of uses. Uses include agriculture, flood protection, power generation, recreation, and water supply. Dam failure can occur with little warning. As outlined by FEMA, dam failure can occur due to one or a combination of the following reasons:

- Overtopping caused by floods that exceed the capacity of the dam.
- Deliberate acts of sabotage to the dam.
- Structural failure of materials used in dam construction.
- Movement and/or failure of the foundation supporting the dam.
- Settlement and cracking of concrete in the dam.
- Piping and internal erosion of soil in the dams.
- Inadequate maintenance and upkeep of the dam.

The San Antonio Dam above Upland is the only dam that could affect the City of Ontario. A large release event from San Antonio Dame would cause extensive property damage and temporary displacement of hundreds of households. Regulatory Environment

Dam regulatory requirements at a federal, state, and local level are critical for the safeguarding of agriculture, economy, power supply, and quality of life in the City. At the federal level, FEMA is working to protect from dam failure through the National Dam Safety Program (NDSP). The Water Resources and Development Act of 1996 formally established the NDSP. The NDSP is a partnership of the states, federal agencies, and other stakeholders to encourage individual and community responsibility for dam safety. The Dam Safety and Security Act of 2002, signed into law on December 2, 2002, reauthorized the NDSP for 4 more years and added enhancements to the 1996 Act that are designed to safeguard dams against terrorist attacks (FEMA, 2010).

Since 1972, the USACE has maintained the National Inventory of Dams (NID). Dams included in the NID are either greater than 25 feet high, hold more than 50 acre-feet of water, or are considered a significant hazard if they were to fail. Dams are classified based on the severity or magnitude of the potential devastation and losses of human life, economic, and environmental resources. Dam hazard classifications are defined as follows:

- High Hazard – loss of one human life is likely if a dam failure should occur.
- Significant Hazard – possible loss of human life and likely significant property or environmental destruction if a dam failure should occur.
- Low Hazard – no probable loss of human life and low economic, and/or environmental losses if a dam failure should occur.

At a state level, laws pertaining to the California dam safety program were originally adopted in 1929. Under this program, the DWR's Division of Safety of Dams (DSoD) independently reviews and evaluates designs of new dams. DWR performs

frequent inspections of dams under construction and of those recently completed to verify compliance with approved plans and specifications.

In the State of California, a number of governmental bodies, specifically the California Emergency Management Agency (Cal EMA) and the California Department of Water Resources (DWR), Division of Safety of Dams (DOSOD), manage the state dam safety program. Within the State, Title 19, Public Safety, Division 2 (Office of Emergency Services), Chapter 2 (Emergencies and Major Disaster), Subchapter 4 (Dam Inundation Mapping Procedures) of the California Code of Regulations (CCR) codifies the mapping criteria for dam owners and operators, specifying the mapping scope and mapping notification requirements. Dam owners are required to submit both a technical report and emergency inundation map to Cal EMA when one of the following applies:

- "Notice of Application" is filed with DWR, DOSOD; or,
- A dam is under construction (new and rehabilitation); or,
- A waiver previously granted by the Cal EMA is no longer applicable; or,
- Changes in land use and or drainage ways within the inundation zone.

The CCR identifies the scope of dam inundation mapping, which is to include the following:

- Delineated lateral boundaries and terminations of the inundation area.
    - The boundary is terminated where floodwaters become less than one (1) foot above the elevation existing before the dam failure and the water velocity is less than 8.8 feet per second.
    - Alternatively, the boundary at which the inundation area may be terminated could be an existing body of water or channel in which dam waters are discharged, provided the dam breach flood discharge does not increase the water elevation by greater than one (1) foot above the flood stage that would have occurred under non-breach conditions or cause additional downstream cumulative impacts.
- Cross-sections located along the floodway at appropriate intervals indicating the following information:
    - Sequential cross-section number,
    - Distance from dam,
    - Flood-wave arrival time,
    - Flood-wave maximum elevation,
    - De-flood time (the amount of time it would take for conditions to return to pre-flood conditions) and,
    - Peak flow.

According to the CCR, approval of an inundation map may be revoked when the inundation map no longer meets the requirements and is no longer an accurate emergency planning document. Upon notification of noncompliance by Cal EMA, the dam owner is required to submit a new and compliant inundation map and technical study within 180 days.

Under the regulation of DSoD, dam owners and operators in San Bernardino County are required to routinely inspect their facilities. These inspections and evaluations will alert owners and operators to potential dam failures and allow immediate action to remedy the problem.

4.8.1 Past Occurrences

There has been no dam failures in the Ontario area.

4.8.2 Location/Geographic Extent

The dam inundation area is primarily the west side of Ontario as shown in Figure 4-24.

4.8.3 Magnitude/Severity

Since 1972, the State has required inundation maps for most dams, showing those areas within the potential dam failure inundation zone. The area affected will be the downtown area and residential of the City of Ontario with a small part of the commercial area in the south.

Important to note: Pursuant to Government Code Section 8589.4, which is commonly referred to as the Potential Flooding - Dam Inundation Act (the "PFDI Act"), inundation maps must be prepared, delivered and approved by the OES. These maps show areas of potential flooding in the event of sudden or total failure of any dam, the failure of which would result in death or personal injury.

4.8.1 Frequency/Probability of Future Occurrences

The probability of a dam failure is extremely rare. The San Antonio Dam only has water behind it in the rainy months. The water is usually passed through on the way to the Prado Dam area in Chino. Even if the dam was full and a complete failure occurred there are 2 below ground freeways (the 10 and the 210) which would channel the water flows around Ontario. The impact to Ontario would be minimal at worst.

4.8.2 Goals

S2 Minimized risk of injury, loss of life, property damage and economic and social disruption caused by flooding and inundation hazards.

4.8.3 Policies

S2-1*Entitlement and Permitting Process*. We follow State guidelines and building code to determine when development proposals require hydrological studies prepared by a State-certified engineer to assess the impact that the new development will have on the flooding potential of existing development down-gradient.

S2-2 *Flood Insurance*. We will limit development in flood plains and participate in the National Flood Insurance Program.

S2-3 *Facilities that Use Hazardous Materials*. We comply with state and federal law and do not permit facilities using, storing, or otherwise involved with substantial quantities of onsite hazardous materials to be located in the 100 year flood zone unless all standards of elevation, flood proofing and storage have been implemented to the satisfaction of the Building Department.

S2-4 *Prohibited Land Uses*. We prohibit the development of new essential and critical facilities in the 100-year floodplain.

S2-5 *Storm Drain System*. We maintain and improve the storm drain system to minimize flooding

S2-6 *Use of Flood Control Facilities*. We encourage joint use of flood control facilities as open space or other types of recreational facilities.

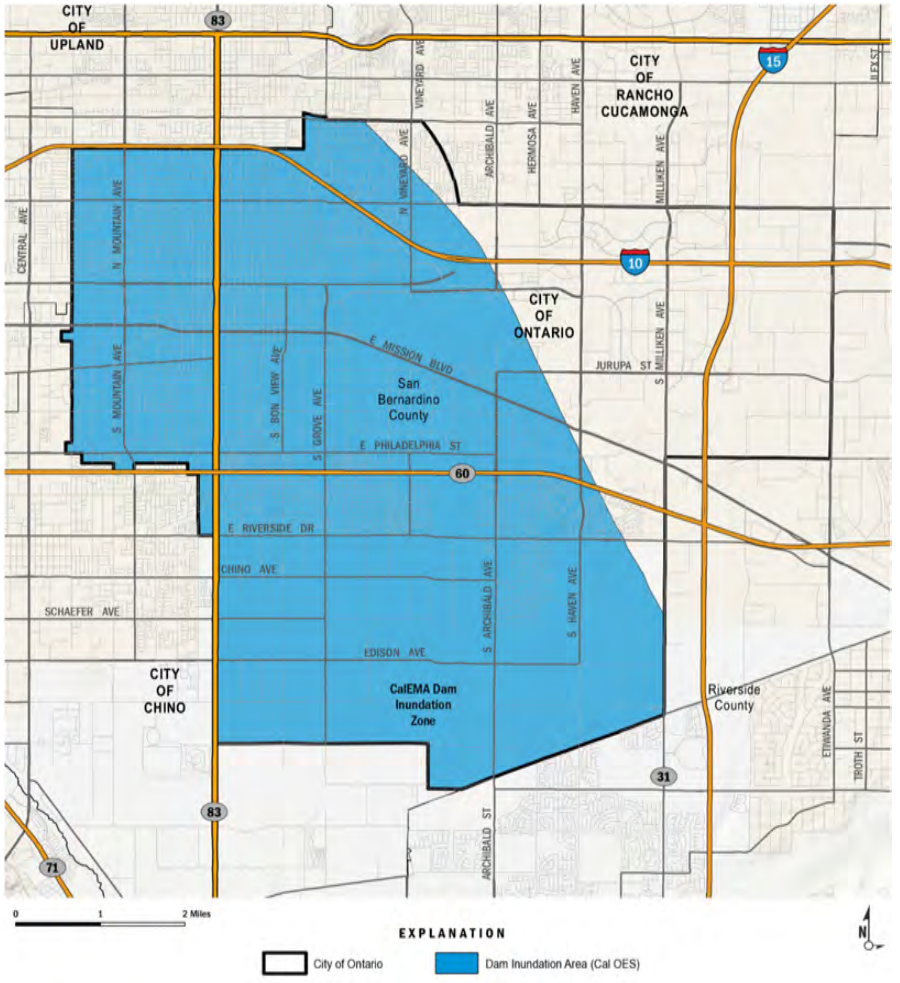


Figure 4-24: Dam Inundation Areas in Ontario

4.9 Climate Change

Climate change refers to any distinct change in measures of climate lasting for a long period of time, more specifically major changes in temperature, rainfall, snow, or wind patterns. Climate change may be limited to a specific region, or may occur across the whole Earth. Climate change may result from:

- Natural factors (e.g., changes in the Sun's energy or slow changes in the Earth's orbit around the Sun);
- Natural processes within the climate system (e.g., changes in ocean circulation); and
- Human activities that change the atmosphere's make-up (e.g., burning fossil fuels) and the land surface (e.g., cutting down forests, planting trees, building developments in cities and suburbs, etc.).

The effects of climate change are varied: warmer and more varied weather patterns, melting ice caps, and poor air quality, for example. As a result, climate change impacts a number of natural hazards.

The 2013 State of California Multi-Hazard Mitigation Plan stated that climate change is already affecting California. Sea levels have risen by as much as seven inches along the California coast over the last century, increasing erosion and pressure on the state's infrastructure, water supplies, and natural resources. The State has also seen increased average temperatures, more extreme hot days, fewer cold nights, a lengthening of the growing season, shifts in the water cycle with less winter precipitation falling as snow, and both snowmelt and rainwater running off sooner in the year. In addition to changes in average temperatures, sea level, and precipitation patterns, the intensity of extreme weather events is also changing.

The City of Ontario's highest risk is drinking water short fall, but Ontario in 2014 put a Community Climate Change Action Plan together to assist in reducing the carbon footprint of the city and reduce the greenhouse gases. This followed a County wide EIR by SANBAG in 2013 for greenhouse gas reduction

4.9.1 Regulatory Environment

The City of Ontario has adopted the following policies to respond to Climate Change Issues

- 2014 Community Climate Change Action Plan
- 2013 SANBAG Greenhouse Gas Reduction EIR
- 2010 Ontario Plan
- 2009 Emergency Water Conservation Ordinance

4.9.1.1 The Sustainable Communities and Climate Protection Act of 2008

The Sustainable Communities and Climate Protection Act of 2008 (Sustainable Communities Act, SB 375, Chapter 728, Statutes of 2008) looks to reduce GHG emissions through coordinated transportation and land use planning with the goal of more sustainable communities. Regional targets are established for GHG emissions reductions from passenger vehicle use by the sustainable communities strategy (SCS) established by each metropolitan planning organization (MPO). The SCS is an integral part of the regional transportation plan (RTP) and contains land use, housing, and transportation strategies to meet GHG reductions targets. In San Bernardino County, the South Coast Air Quality Management District facilitates compliance with the federal Clean Air Act and implements the state's air quality program.

The Office of Planning and Research's General Plan Guidelines and SB 375 builds upon Assembly Bill 162 (flood protection) and Senate Bill 1241 (fire protection) and supports Safeguarding California implementation.

SB 375 also supports Assembly Bill 2140 which requires that a City/County General Plan contains a safety element in addition to a Hazard Mitigation Plan. AB 2140 also requires a vulnerability assessment, adaptation goals, policies and objectives, and a set of feasible implementation measures.

4.9.1.2 California Adaptation Planning Guide (APG)

The State of California has been taking action to address climate change for over 20 years, focusing on both greenhouse gas emissions reduction and adaptation. The California Adaptation Planning Guide (APG) continues the state's effort by providing guidance and support for communities addressing the unavoidable consequences of climate change.

Based on upon specific factors, 11 Climate impact regions were identified. Some of the regions were based on specific factors particularly relevant to the region. As illustrated in Figure 4-25 San Bernardino County is located in the Desert Region.

Figure 4-25: Climate Impact Regions

The Desert is a heavily urbanized inland region (4.3+ million people) made up of sprawling suburban development in the west near the South Coast region and vast stretches of open, largely federally owned desert land to the east. Prominent cities within the desert portion include Palm Springs (44,500+) and El Centro (42,500+). The region's character is defined largely by the San Gabriel Mountains, San Gorgonio Mountains, San Jacinto Mountains, and smaller inland mountains reaching through the desert to the Colorado River, which borders the region on the east. Communities in the Desert region should consider evaluating the following climate change impacts:

- Reduced water supply
- Increased temperature
- Reduced precipitation
- Diminished snowpack
- Wildfire risk
- Public health and social vulnerability
- Stress on special-status species

4.9.2 Agencies

- Ontario Fire Department
- Santa Ana Regional Water Quality
- South Coast Air Quality
- San Bernardino County Fire Environmental Health
- San Bernardino County Agriculture
- California Environmental Protection Agency
- Governor's Office of Planning and Research
- California Air Resources Board
- California Business, Consumer Services, and Housing Agency
- California Government Operations Agency
- California Natural Resources Agency
- California Department of Public Health
- California Emergency management Agency, Cal-EMA
- California Transportation Agency
- California Energy Commission
- California Public Utilities Commission
- California Department of Food and Agriculture
- California Department of Forestry and Fire Protection
- California Department of Fish and Wildlife
- California Department of Transportation
- California Department of Water Resources
- California Department of Resources Recycling and Recovery
- California State Water Resources Control Board
- Federal Environmental Protection Agency EPA
- Federal Department of Energy DOE
- Federal Department of Interior
- Federal Department of Agriculture

- NOAA National Oceanic and Atmospheric Administration

4.9.3 Past Occurrences

Climate change has never been directly responsible for any declared disasters. Past flooding, wildfire, levee failure, and drought disasters may have been exacerbated by climate change, but it is impossible to make direct connections to individual disasters. In addition, unlike earthquake and floods that occur over a finite time period, climate change is an on-going hazard, the effects of which some are already experiencing. Other effects may not be seriously experienced for decades, or may be avoided altogether by mitigation actions taken today.

According to the California State Hazard Mitigation Plan (SHMP), the worst single heat wave event in California occurred in Southern California in 1955, when an eight-day heat wave resulted in 946 deaths. The July 2006 heat wave in California caused approximately 140 deaths over a 13-day period.

At this time Ontario has been able to respond to climate change issues by enforcing water conservation during periods of drought and the utilization of both public and private facilities as cooling centers during heat waves.

4.9.4 Location/Geographic Extent

The effects of climate change are not limited by geographical borders. San Bernardino County, the State of California, the United States, and the rest of the world are all at risk to climate change. As such, the entire County is at risk to the effects of climate change.

Figure 4-26 and Figure 4-27 provide Cal Adapt[4] modeled decadal July high temperature averages for 2010 and 2090. These figures provide current decade-long July temperature averages and possible annual high heating trends for the remaining portion of the century. The data presented in the figures represent a "projection" of potential future climate scenarios, they are not predictions. These figures illustrate how the climate may change based on a variety of different potential social and economic factors. The visualizations are comprised of average values from Coupled Climate model 2.1 (GFDL), Community Climate System Model Version 3 (CCSM3), Coupled Global Climate Model Version 3 (CNRM) and Parallel Climate Model 1 (PCM1). During the next few decades, scenarios project average temperature to rise between 1° and 2.3°F; however, the projected temperature increases begin to diverge at mid-century so that, by the end of the century, the temperature increases projected in the higher emissions scenario (A2) are approximately twice as high as those projected in the lower emissions scenario (B1). Customizable maps can be viewed at http://cal-adapt.org/temperature/decadal/

[4] Cal-Adapt has been funded to provide access to data and information that has been produced by the State's scientific and research community. The data available in this site offer a view of how climate change might affect California at the local level.

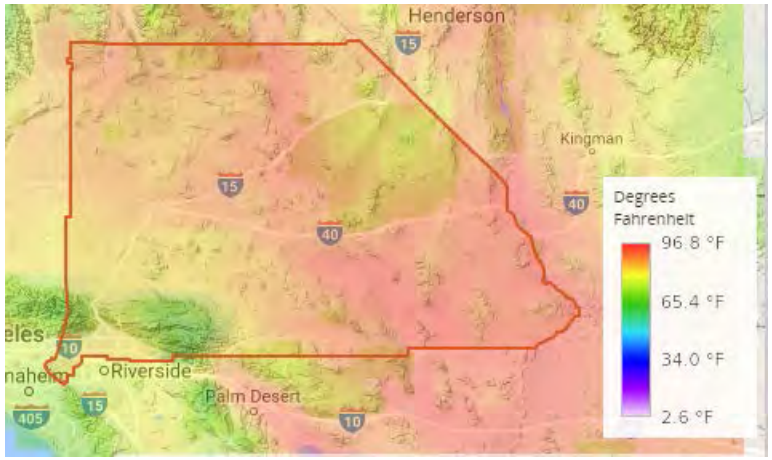


Figure 4-26: July Decadal Average High Temperature Map; 2010

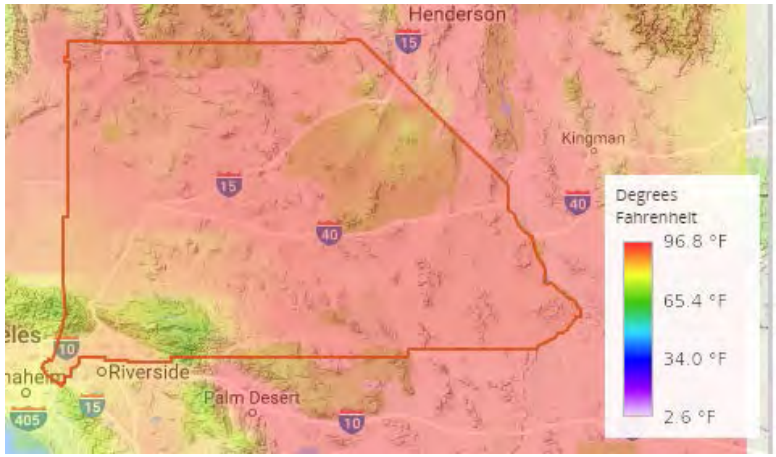


Figure 4-27: July Decadal Average High Temperature Map; 2090

4.9.5 Magnitude/Severity

Ontario has identified that the sick, elderly and the young are at risk for climate change exposures.

The California Adaptation Planning Guide has calculated projections for changes in temperature, precipitation, heat waves, snowpack and wildfire risk in the desert area, as shown in Table 4-10. Hotter, drier conditions are expected to exist in the desert area, increasing the risk for other natural hazards.

Table 4-10: From APG: Table 41. Summary of Cal-Adapt Climate Projections for the Desert Region

Effect	Ranges
Temperature Change, 1990-2100	January increase in average temperatures: 2°F to 4°F by 2050 and 5°F to 8°F by 2100 July increase in average temperatures: 3°F to 5°F by 2050 and 6°F to 9°F by 2100 (Modeled high temperatures; high carbon emissions scenario)
Precipitation	Generally, annual rainfall will decrease in the most populous areas. Wetter areas like the western part of Riverside and southwestern San Bernardino counties will experience a 2 to 4 inch decline by 2050 and 3.5 to 6 inch decline by the end of the century. Big Bear is expected to lose around 8 inches per year by 2090. Southern Imperial County will have a small decline of about 0.5 inches. The eastern, desert portion of the region will see little to no change in annual rainfall. (CCSM3 climate model; high carbon emissions scenario)
Heat Wave	Heat waves are defined by five consecutive days over temperatures in the 100s over most of the region. Three to five more heat waves will be experienced by 2050, increasing to 12 to 16 in the western parts of the region to more than 18 to 20 in the eastern parts of the region.
Snowpack	March snowpack in the Big Bear area will diminish from the 2.5- inch level of 2010 to 1.4 inches in 2030 and almost zero by 2090. (CCSM3 climate model; high emissions scenario)
Wildfire Risk	Most areas are projected to have the same or slightly increased likelihood of wildfire risk. The major exceptions are the Mecca San Gorgonio and San Jacinto Mountains, where wildfire will be 1.5 and 2.0 times more likely. (GFDL model, high carbon emissions scenario)

Public Interest Energy Research, 2011. Cal-Adapt. Retrieved from http://cal-adapt.org]

The California Climate Adaptation Strategy (CAS), citing a California Energy Commission study, states that "over the past 15 years, heat waves have claimed more lives in California than all other declared disaster events combined." This study shows that California is getting warmer, leading to an increased frequency, magnitude, and duration of heat waves. These factors may lead to increased mortality from excessive heat, as shown in Figure 4-47.

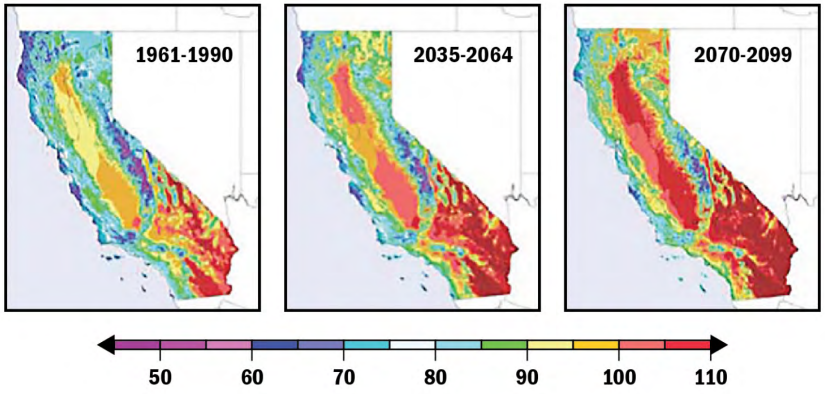


Figure 4-28: California Historical and Projected Temperature Increases - 1961 to 2099

Source: Dan Cayan; California Climate Adaptation Strategy

4.9.6 Frequency/Probability of Future Occurrences

Climate change is one of the few natural hazards where the probability of occurrence is influenced by human action. In addition, unlike earthquake and floods that occur over a finite time period, climate change is an on-going hazard.

The 2009 Climate Adaptation Strategy (CAS) delineated how climate change may impact and exacerbate natural hazards in the future, including wildfires, extreme heat, floods, drought, and levee failure:

- Climate change is expected to lead to increases in the frequency, intensity, and duration of extreme heat events and heat waves in San Bernardino County and the rest of California, which are likely to increase the risk of mortality and morbidity due to heat-related illness and exacerbation of existing chronic health conditions. Those most at risk and vulnerable to climate-related illness are the elderly, individuals with chronic conditions such as heart and lung disease, diabetes, and mental illnesses, infants, the socially or economically disadvantaged, and those who work outdoors.
- The Desert region relies on water from the Colorado River and the State Water Project. Both of these sources begin with mountain snowpack. Climate change will result in drastically reduced supply from these sources. Declining snowpack in the San Gabriel Mountains, San Gorgonio Mountains, and San Jacinto Mountains will lead to permanently diminished local water supply.
- Higher temperatures will melt the snowpack earlier and drive the snowline higher, resulting in less snowpack to supply water to California users.
- Droughts are likely to become more frequent and persistent in the 21st century.
- Intense rainfall events, periodically ones with larger than historical runoff, will continue to affect California with more frequent and/or more extensive flooding.

- Storms and snowmelt may coincide and produce higher winter runoff. Together, these changes will increase the probability of dam and levee failures in the San Bernardino County Flood Control District.
- Warmer weather, reduced snowpack, and earlier snowmelt can be expected to increase wildfire risk through fuel hazards and ignition risks. These changes can also increase plant moisture stress and insect populations, both of which affect forest health and reduce forest resilience to wildfires. An increase in wildfire intensity and extent will increase public safety risks, property damage, fire suppression and emergency response costs to government, watershed and water quality impacts, vegetation conversions and habitat fragmentation.

4.9.7 Planned Development

Ontario has no at-risk areas.

4.9.8 Goals, Policies, and Objectives

The City of Ontario has adopted the following policies to respond to Climate Change Issues

- 2014 Community Climate Change Action Plan
- 2013 SANBAG Greenhouse Gas Reduction EIR
- 2010 Ontario Plan
- 2009 Emergency Water Conservation Ordinance

4.9.9 Implementation Measures

Ontario does not have any at-risk areas for climate change. The City is actively working on reducing its greenhouse gases by implementing the Community Climate Change Action Plan, the 2013 EIR by SANBAG and the 2010 Ontario Plan.

4.10 Terrorism Profile

There is no single, universally accepted definition of terrorism, however, FEMA defines "terrorism" as intentional, criminal, malicious acts. FEMA document 386-7 refers to terrorism specifically as the use of Weapons of Mass Destruction (WMD), including biological, chemical, nuclear, and radiological weapons; arson, incendiary, explosive, and armed attacks; industrial sabotage and intentional hazardous materials releases; and "cyberterrorism."

FEMA developed the Integrated Emergency Management System (IEMS) using an all-hazards approach. While the IEMS was established as an "all-hazard" approach, responding to the threat of terrorism (referred to as counterterrorism) came to be viewed as the responsibility of law enforcement, defense, and intelligence agencies. Furthermore, defensive efforts to protect people and facilities from terrorism (referred to as **antiterrorism**) were generally limited to the government sector, the military, and some industrial interests.

While the term "mitigation" refers generally to activities that reduce loss of life and property by eliminating or reducing the effects of disasters, in the terrorism context it is often interpreted to include a wide variety of preparedness and response actions. For the purposes of this document, the traditional meaning will be assumed; that mitigation refers to specific actions that can be taken to reduce loss of life and property from manmade hazards by "modifying the built environment" or antiterrorism to reduce the risk and potential consequences of these hazards.

4.10.1 Antiterrorism Regulatory Environment

Adopted on February 9th, 2012 and updated on October 1st, 2013, United Facilities Criteria (UFC) 4-010-01 defines the United States Department of Defense's (DoD) minimum antiterrorism standards for both new and existing buildings. The document applies to DoD buildings, National Guard buildings, visitor centers and museums, visitor control facilities and expeditionary structures. Historic preservation compliance for implementation of anti-terrorism standards, philosophy, design strategies and assumptions are all taken into account. Site planning, structural design, architectural design, and electrical and mechanical design are discussed in detail in Appendix B. The document is available to the public and be found online.

4.10.1.1 Counterterrorism Regulatory Environment

After the Waterman Terrorism Incident on December 2nd, 2015 two full time positions with a regional FBI-led terrorist task force (FBI's Joint Terrorism Task Force) were created. These task force officers have the clearance to conduct terrorism investigations in the County. The Task Force includes partners from Homeland Security Investigations (HIS), the San Bernardino Police Department, the San Bernardino County Sheriff's Department, the Riverside County Sheriff's Department, the Ontario Police Department, the Riverside Police Department, the Corona Police Department and the Chino Police Department. For more information regarding the positions, contact the San Bernardino Police Department at (909) 384-5742.

According to the State of California Department of Justice's Anti-terrorism program website, the Anti-terrorism program works with federal, state and local law enforcement agencies to detect, investigate, prosecute, dismantle, prevent and respond to domestic and international terrorist activities.

The State of California Bureau of Security and Investigative Services' Power to Arrest Course includes a Weapons of Mass Destruction (WMD) & Terrorism Awareness section. More information regarding the course can be found in the Bureau of Security and Investigative Services California Code of Regulations. Past Occurrences

There have been two terrorist attacks recorded in San Bernardino County. Table 4-11 describes both attacks.

Table 4-11: Terrorist Attacks in San Bernardino County

Date	Perpetrator Group	Fatalities	Injured	Target Type
3/16/1970	White Extremists	0	1	Government (General)
12/2/2015	Unaffiliated Individuals	16	17	Government (General)

Source: Global Terrorism Database

The state of California has experienced 574 terrorist attacks from 1970-2011 (Integrated United States Security Database (IUSSD): Data on the Terrorist Attacks in the United States Homeland, 1970-2011, 2012). Figure 4-29 shows the types of terrorist attacks in the state of California from 1970 to the present.

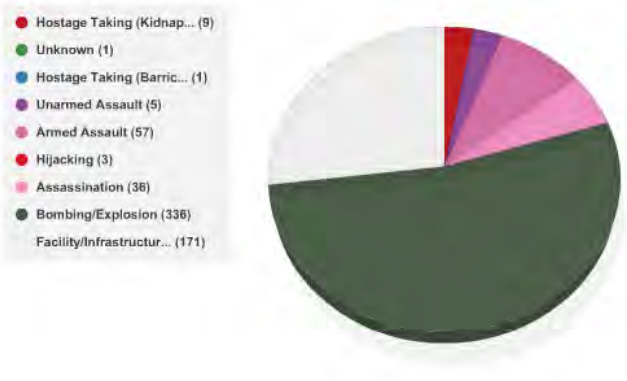
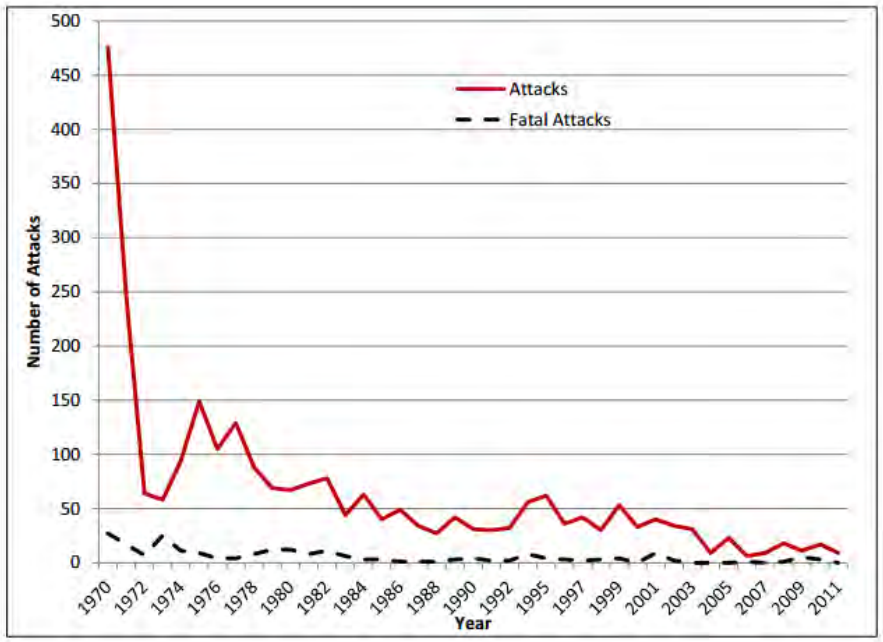


Figure 4-29: Types of Terrorist Attacks in California from 1970- Present

Source: Global Terrorism Database

As seen in Figure 4-30, since 1970, the number of terrorist attacks in the United States has steadily decreased. According to the heritage.org website, most terrorist attacks on America happen outside our nation's borders. The number of international terrorist attacks against the United States from 1970-2011 is shown in Figure 4-31.



Note: There were 2,608 total attacks and 226 fatal attacks between 1970 and 2011.

Figure 4-30: Total and Fatal Terrorist Attacks in the United States by Year

Source: Nine facts about terrorism in the United States since 9/11, The Washington Post 9/11/2013

4.10.2 Location/ Geographic Extent

Unlike natural hazards, which often follow patterns and can be forecasted, manmade hazards such as acts of terrorism are much more unpredictable. Terrorists have the ability to choose targets and tactics and can often adjust conditions to achieve their objective. Terrorist attacks are often in a more specific location rather than a widespread, more predictable area such as a flood plain. As demonstrated in the Waterman Terrorism Incident, "homegrown terrorists" (self- radicalizing and pulls off their attacks without any help or communication with people in other countries) are even harder to detect and predict.

Translating most manmade hazard profiles into meaningful geospatial information is difficult at best. Instead, the planning team will use an asset-specific approach, identifying potentially at-risk critical facilities and systems in the community. Once a comprehensive list of assets has been developed, it will be prioritized so that the community's efforts can be

directed to protect the most important assets first. Then, beginning with the highest priority assets, the vulnerabilities of each facility or system to each type of hazard will be assessed (FEMA, 2003).

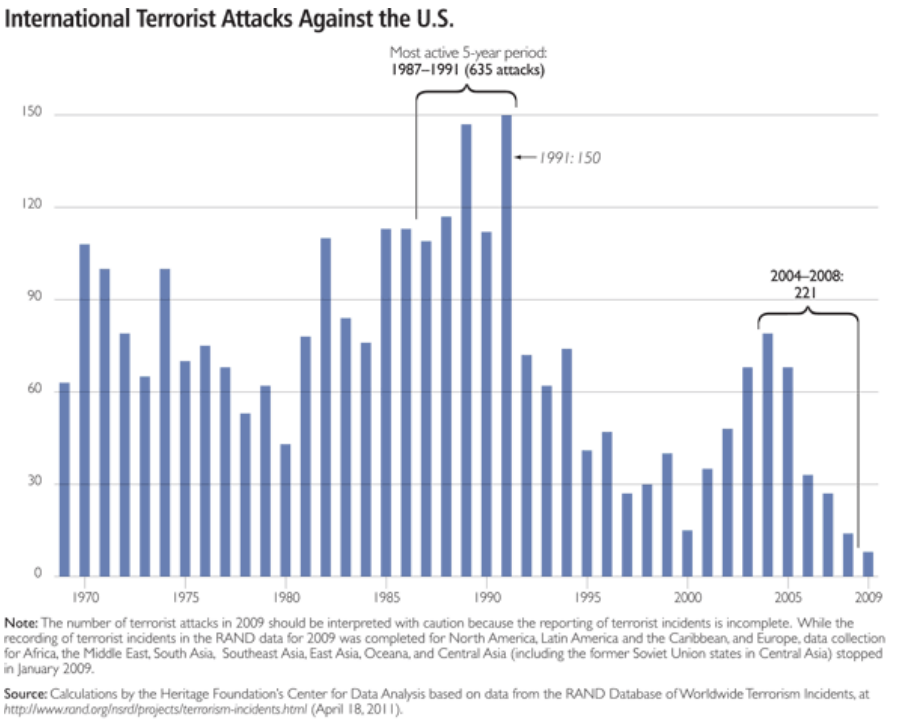


Figure 4-31: International Terrorist Attacks Against the United States

Source: Terror Trends: 40 Years' Data on international and Domestic Terrorism, Heritage.org 5/20/2011

4.10.3 Magnitude/ Severity

As previously discussed, predicting terrorist attacks cannot be done with the same level of accuracy as predicting a natural hazard and its potential impacts on the community. However, we can learn from past terrorist incidents. Table 4-12 profiles 10 different types of terrorist attacks and technological hazards.

4.10.4 Frequency/ Probability of Future Occurrences

We can usually forecast the type, frequency and location of a natural hazard thanks to the laws of physics and nature. However, when dealing with manmade hazards such as terrorism, we are often dealing with functions of the human mind-malevolence, incompetence, carelessness and other behaviors. These actions cannot be predicted with any accuracy, therefore, there is the potential for an act of terrorism to occur anywhere, at any time.

Table 4-12: Event Profiles for Terrorism and Technological Hazards

Hazard	Application Mode	Hazard Duration	Extent of Effects; Static/Dynamic	Mitigating and Exacerbating Conditions
Conventional Bomb/ Improvised Explosive Device	Detonation of explosive device on or near target; delivery via person, vehicle, or projectile.	Instantaneous; additional "secondary devices" may be used, lengthening the time duration of the hazard until the attack site is determined to be clear	Extent of damage is determined by type and quantity of explosive. Effects generally static other than cascading consequences, incremental structural failure, etc.	Overpressure at a given standoff is inversely proportional to the cube of the distance from the blast; thus, each additional increment of standoff provides progressively more protection. Terrain, forestation, structures, etc. can provide shielding by absorbing and/or deflecting energy and debris. Exacerbating conditions include ease of access to target; lack of barriers/shielding; poor construction; and ease of concealment of device
Chemical Agent *	Liquid/aerosol contaminants can be dispersed using sprayers or other aerosol generators; liquids vaporizing from puddles/ containers; or munitions.	Chemical agents may pose viable threats for hours to weeks depending on the agent and the conditions in which it exists.	Contamination can be carried out of the initial target area by persons, vehicles, water and wind. Chemicals may be corrosive or otherwise damaging over time if not remediated.	Air temperature can affect evaporation of aerosols. Ground temperature affects evaporation of liquids. Humidity can enlarge aerosol particles, reducing inhalation hazard. Precipitation can dilute and disperse agents but can spread contamination. Wind can disperse vapors but also cause target area to be dynamic. The micro-meteorological effects of buildings and terrain can alter travel and duration of agents. Shielding in the form of sheltering in place can protect people and property from harmful effects.

Hazard	Application Mode	Hazard Duration	Extent of Effects; Static/Dynamic	Mitigating and Exacerbating Conditions
Arson/ Incendiary Attack	Initiation of fire or explosion on or near target via direct contact or remotely via projectile.	Generally minutes to hours.	Extent of damage is determined by type and quantity of device/ accelerant and materials present at or near target. Effects generally static other than cascading consequences, incremental structural failure, etc.	Mitigation factors include built-in fire detection and protection systems and fire-resistive construction techniques. Inadequate security can allow easy access to target, easy concealment of an incendiary device and undetected initiation of a fire. Non-compliance with fire and building codes as well as failure to maintain existing fire protection systems can substantially increase the effectiveness of a fire weapon.
Armed Attack	Tactical assault or sniping from remote location.	Generally minutes to days.	Varies based upon the perpetrators' intent and capabilities	Inadequate security can allow easy access to target, easy concealment of weapons and undetected initiation of an attack.
Biological Agent *	Liquid or solid contaminants can be dispersed using sprayers/aerosol generators or by point or line sources such as munitions, covert deposits and moving sprayers.	Biological agents may pose viable threats for hours to years depending on the agent and the conditions in which it exists	Depending on the agent used and the effectiveness with which it is deployed, contamination can be spread via wind and water. Infection can be spread via human or animal vectors.	Altitude of release above ground can affect dispersion; sunlight is destructive to many bacteria and viruses; light to moderate wind will disperse agents but higher winds can break up aerosol clouds; the micro- meteorological effects of building and terrain can influence aerosolization and travel of agents.
Cyberterrorism	Electronic attack using one computer system against another.	Minutes to days	Generally no direct effects on built environment.	Inadequate security can facilitate access to critical computer systems, allowing them to be used to conduct attacks.

Hazard	Application Mode	Hazard Duration	Extent of Effects; Static/Dynamic	Mitigating and Exacerbating Conditions
Agriterrorism	Direct, generally covert contamination of food supplies or introduction of pests and/or disease agents to crops and livestock.	Days to months	Varies by type of incident. Food contamination events may be limited to discrete distribution sites, whereas pests and diseases may spread widely. Generally no effects on built environment.	Inadequate security can facilitate adulteration of food and introduction of pests and disease agents to crops and livestock.
Radiological Agent **	Radioactive contaminants can be dispersed using sprayers/aerosol generators, or by point or line sources such as munitions, covert deposits and moving sprayers.	Contaminants may remain hazardous for seconds to years depending on material used.	Initial effects will be localized to site of attack; depending on meteorological conditions, subsequent behavior of radioactive contaminants may be dynamic.	Duration of exposure, distance from source of radiation, and the amount of shielding between source and target determine exposure to radiation.

Hazard	Application Mode	Hazard Duration	Extent of Effects; Static/Dynamic	Mitigating and Exacerbating Conditions
Nuclear Bomb **	Detonation of nuclear device underground, at the surface, in the air or at high altitude.	Light/heat flash and blast/shock wave last for seconds; nuclear radiation and fallout hazards can persist for years. Electromagnetic pulse from a high altitude detonation lasts for seconds and affects only unprotected electronic systems.	Initial light, heat and blast effects of a subsurface, ground or air burst are static and are determined by the device's characteristics and employment; fallout of radioactive contaminants may be dynamic, depending on meteorological conditions.	Harmful effects of radiation can be reduced by minimizing the time of exposure. Light, heat and blast energy decrease logarithmically as a function of distance from seat of blast. Terrain, forestation, structures, etc. can provide shielding by absorbing and/or deflecting radiation and radioactive contaminants.
Hazardous Material Release (fixed facility or transportation)	Solid, liquid and/or gaseous contaminants may be released from fixed or mobile containers.	Hours to days	Chemicals may be corrosive or otherwise damaging over time. Explosion and/or fire may be subsequent. Contamination may be carried out of the incident area by persons, vehicles, water and wind.	As with chemical weapons, weather conditions will directly affect how the hazard develops. The micro-meteorological effects of building and terrain can alter travel and duration of agents. Shielding in the form of sheltering in place can protect people and property from harmful effects. Non-compliance with fire and building codes as well as failure to maintain existing fire protection and containment features can substantially increase the damage from a hazardous materials release.

** Source: Jane's Chem-Bio Handbook*
*** Source: FEMA, Radiological Emergency Management Independent Study Course*
Source: FEMA State and Local Mitigation Planning- how-to guide: Integrating Manmade Hazards

4.11 Vulnerability Assessment

Note: The hazard exposure analysis has been developed with best available data and follows methodology described in the FEMA publication Understanding Your Risks—Identifying Hazards and Estimating Losses.

Note: There are other intangible losses that could result from a natural hazard event, such as losses of historic or cultural integrity or damage to the environment that are difficult to quantify. Other costs, including response and recovery costs, are often unrecoverable and are not addressed in this document.

4.11.1 Methodology

A vulnerability assessment was conducted for each of the identified priority hazards. Geospatial data is essential in determining population and assets exposed to particular hazards. Geospatial analysis can be conducted if a natural hazard has a particular spatial footprint that can be overlaid against the locations of people and assets. In Ontario, wildfire, flood, dam failure, earthquake, and winds have known geographic extents and corresponding spatial information about each hazard.

Several sources of data are necessary to conduct a vulnerability analysis. Figure 4-32 provides an exhibit of the data inputs and outputs used to create the vulnerability analysis results presented in this section. U.S. Census data is the primary source in determining natural hazard exposure to residents. Census data has been used to determine the population at risk, which is generally referred to as population exposure. Population exposure is provided for wildfire, flooding, dam failure, severe weather, earthquakes and landslides as potential hazards later in this section.

Together with the U.S. Census data, asset data was used to provide a snapshot of how City assets are affected by natural hazards. For purposes of this vulnerability analysis, asset data includes parcels and critical infrastructure within the Ontario boundaries. Critical infrastructure is described as assets that are essential for people and a community to function. Critical infrastructure includes such as utilities, city owned facilities, bridges, schools, and other community facilities that provide essential services to residents.

Critical facilities data was developed from a variety of sources including city owned and maintained data, state and federal government datasets, and private industry datasets. A critical infrastructure spatial database was developed to translate critical facilities information into georeferenced[5] points. Critical facility points are intersected with the spatial hazard layers to develop a list of "at risk" critical facilities. The city critical facilities that intersect with natural hazards are referred to as facilities with hazard "exposure". Exposure results are presented later in this section.

[5] To georeference something means to define its existence in physical space. That is, establishing its location in terms of map projections or coordinate systems. The term is used both when establishing the relation between raster or vector images and coordinates, and when determining the spatial location of other geographical features.

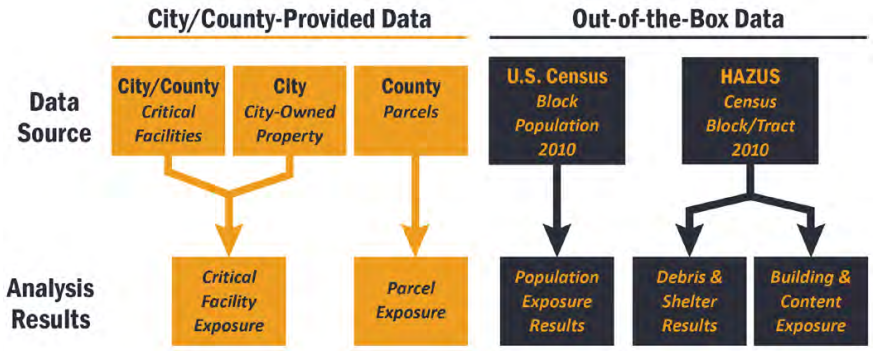


Figure 4-32: Data Source and Methodology

Lastly, FEMA's Hazus 3.2 (HAZUS) software was implemented to conduct detailed loss estimation for flood and earthquake. Hazus is a nationally applicable standardized methodology that contains models for estimating potential losses from earthquakes, floods, and hurricanes. HAZUS uses Geographic Information Systems (GIS) technology to estimate physical, economic, and social impacts of disasters. For purposes of this planning effort, Hazus was used to graphically illustrate the limits of identified high-risk locations due to possible earthquakes and floods.

The vulnerability and potential impacts from priority hazards that do not have specific mapped areas nor the data to support additional vulnerability analyses are discussed in more general terms in alphabetical order following the discussion on wildfire, flooding, dam failure and earthquake hazards.

4.11.2 Population and Assets

To describe vulnerability for each hazard, it is important to understand the "total" population and "total" assets at risk. The exposure for each hazard described in this section will refer to the percent of total population or percent of total assets. This provides the possible significance or vulnerability to people and assets for the natural hazard event and the estimated damage and losses expected during a "worst case scenario" event for each hazard. Sections below provide a description of the total population, critical facilities, and parcel exposure inputs.

4.11.2.1 Population

To develop hazard-specific vulnerability assessments, population near natural hazard risks should be determined to understand the total "at risk" population. We can understand how geographically defined hazards may affect the City of Ontario by analyzing the extent of the hazard in relation to the location of population. For purposes of the vulnerability assessment approximately 167,000 (100%) of the Ontario's population is exposed to one or more hazards within or near the Ontario boundaries. Each natural hazard scenario affects the residents differently depending on the location of the hazard and the population density of where the hazard could occur. Vulnerability assessment sections presented later in this section summarize the population exposure for each natural hazard.

4.11.2.1.1 Vulnerable Populations

The severity of a disaster depends on both the physical nature of the extreme event and the socioeconomic nature of the populations affected by the event. Important socioeconomic factors tend to influence disaster severity. A core concept in a vulnerability analysis is that different people, even within the same region, have a different vulnerability to natural hazards.

4.11.2.1.2 Income and Housing Condition

Income or wealth is one of the most important factors in natural hazard vulnerability. This economic factor affects vulnerability of low income populations in several ways. Lower income populations are less able to afford housing and other infrastructure that can withstand extreme events. Low income populations are less able to purchase resources needed for disaster response and are less likely to have insurance policies that can contribute to recovery efforts. Lower income elderly populations are less likely to have access to medical care due to financial hardship. Because of these and other factors, when disaster strikes, low income residences are far more likely to be injured or left without food and shelter during and after natural disasters.

Figure 4-36 shows the median household income distribution for the Ontario in 2012. The "median" is the value that divides the distribution of household income into two equal parts (e.g., the middle). The average median household income in the Ontario between 2010 and 2014 was $ 57,00, in the United States during the same period the median house household income was $50,157. The map in Figure 4-36 shows 2012 household income estimates using Census 2010 geographies.

4.11.2.1.3 Age

Children and the elderly tend to be more vulnerable during an extreme natural disaster. They have less physical strength to survive disasters and are often more susceptible to certain diseases. The elderly often also have declining vision and hearing and often miss reports of upcoming natural hazard events. Children, especially young children, have the inability to provide for themselves. In many cases, both children and the elderly depend on others to care for them during day to day life.

Finally, both children and the elderly have fewer financial resources and are frequently dependent on others for survival. In order for these populations to remain resilient before and after a natural hazard event, it may be necessary to augment city residents with resources provided by the City, state and federal emergency management agencies and organizations. See Figure 4-37 and Figure 4-38 for location of vulnerable population by age within the City of Ontario.

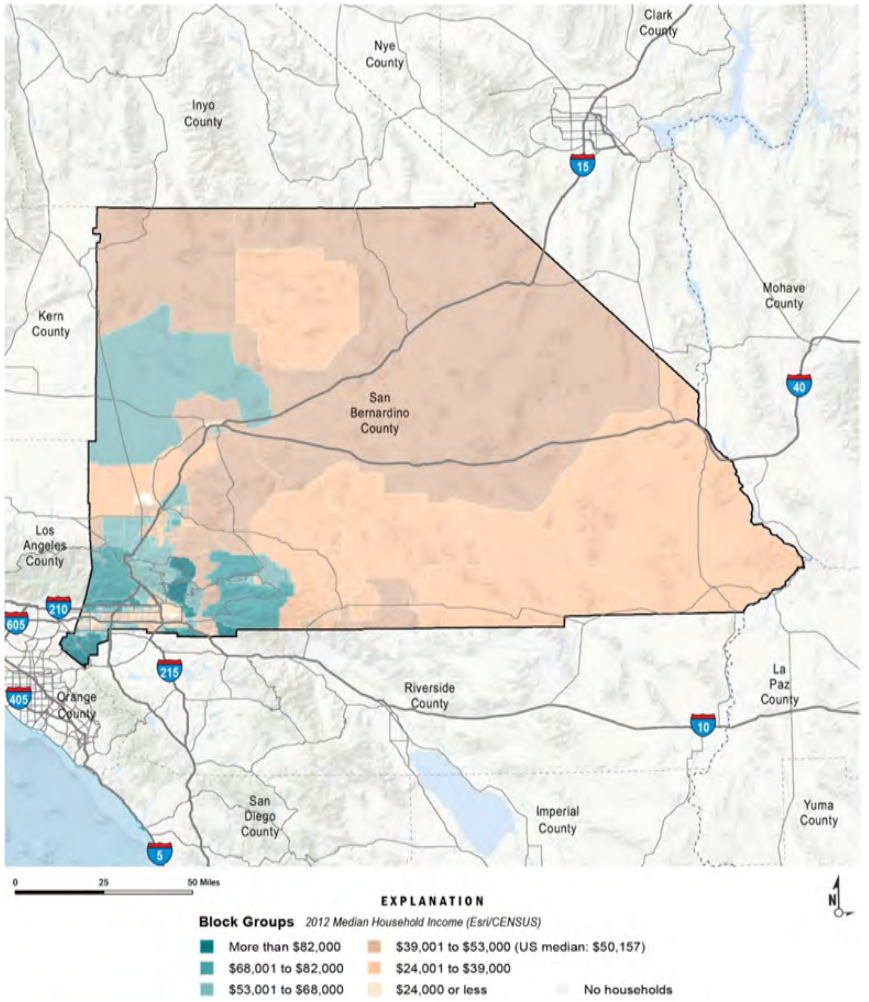


Figure 4-33: Median Household Income Distribution Map

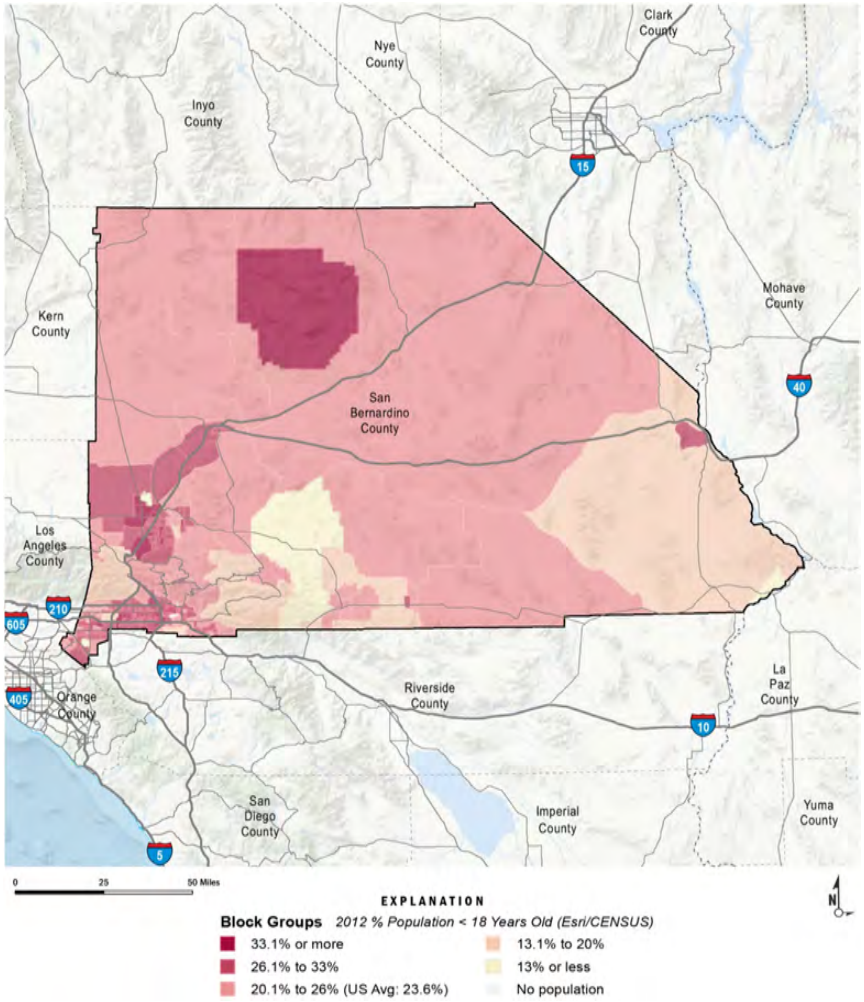


Figure 4-34: Population under 18

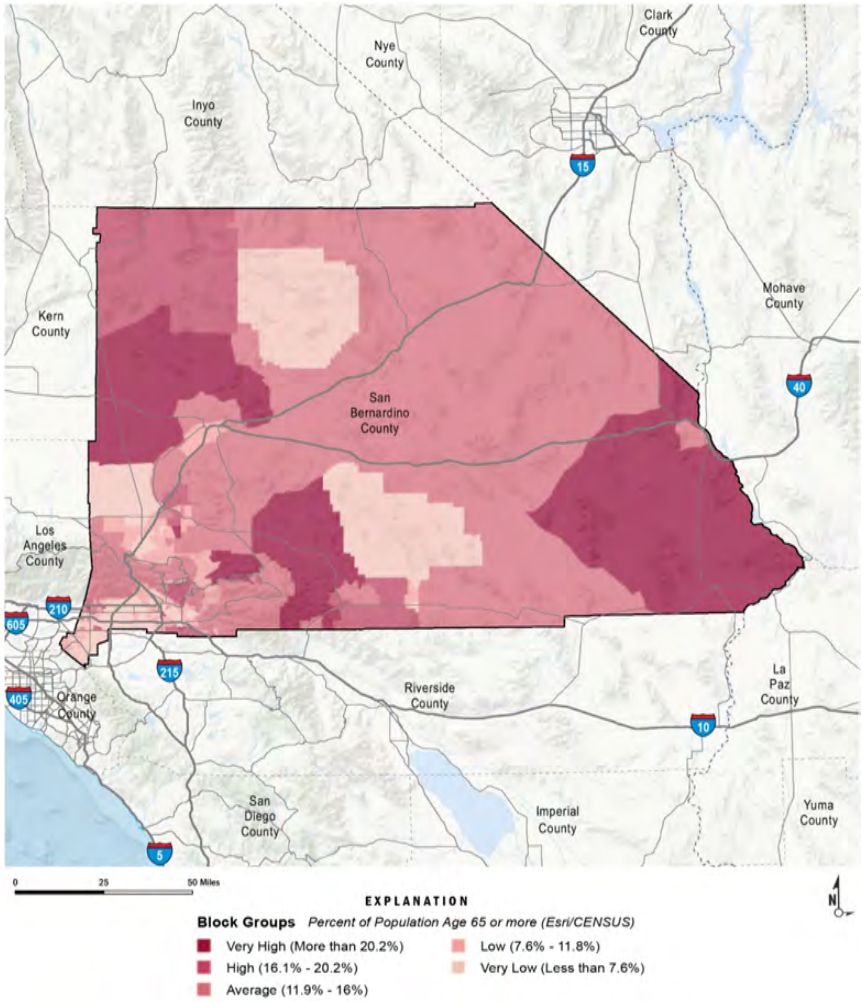


Figure 4-35: Population Over 65

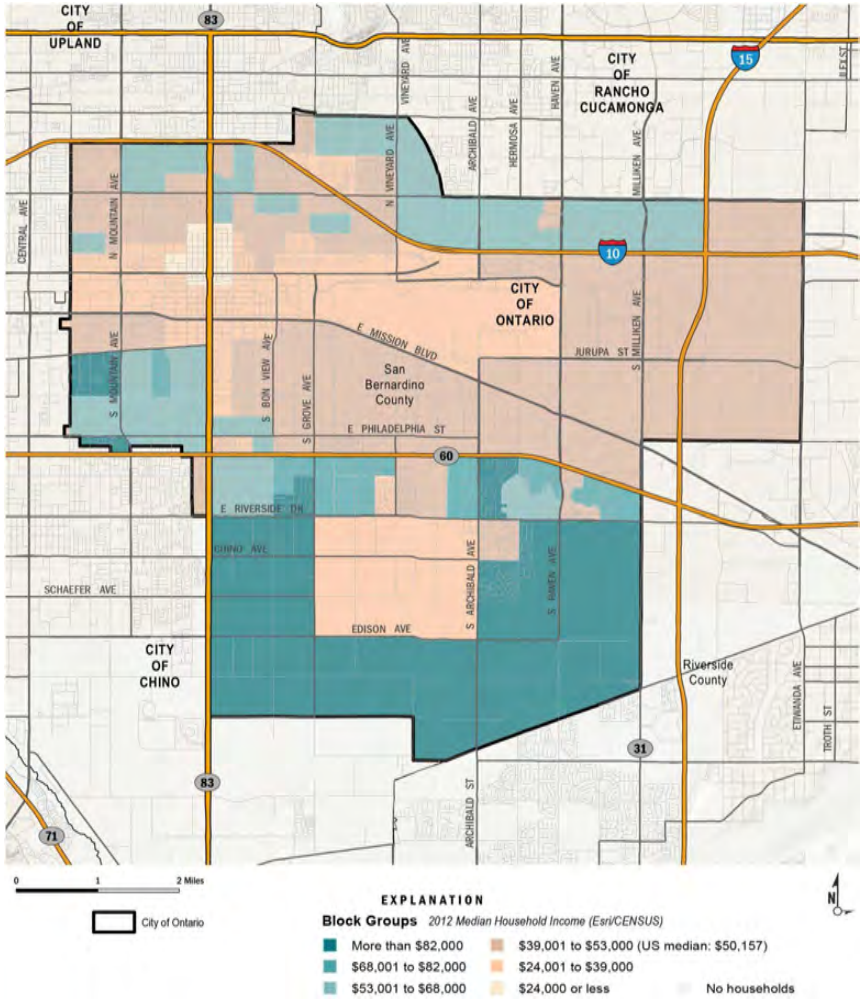


Figure 4-36: Median Household Income in Ontario

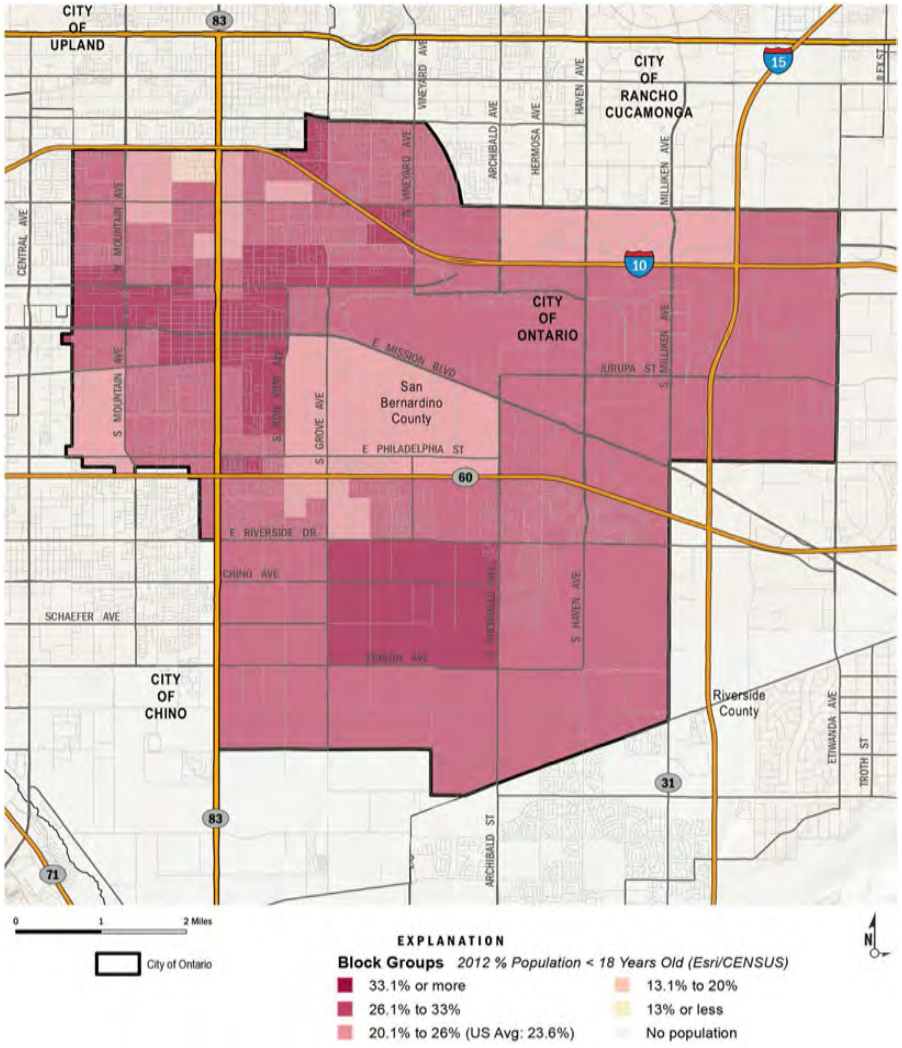


Figure 4-37: Ontario Population Under 18

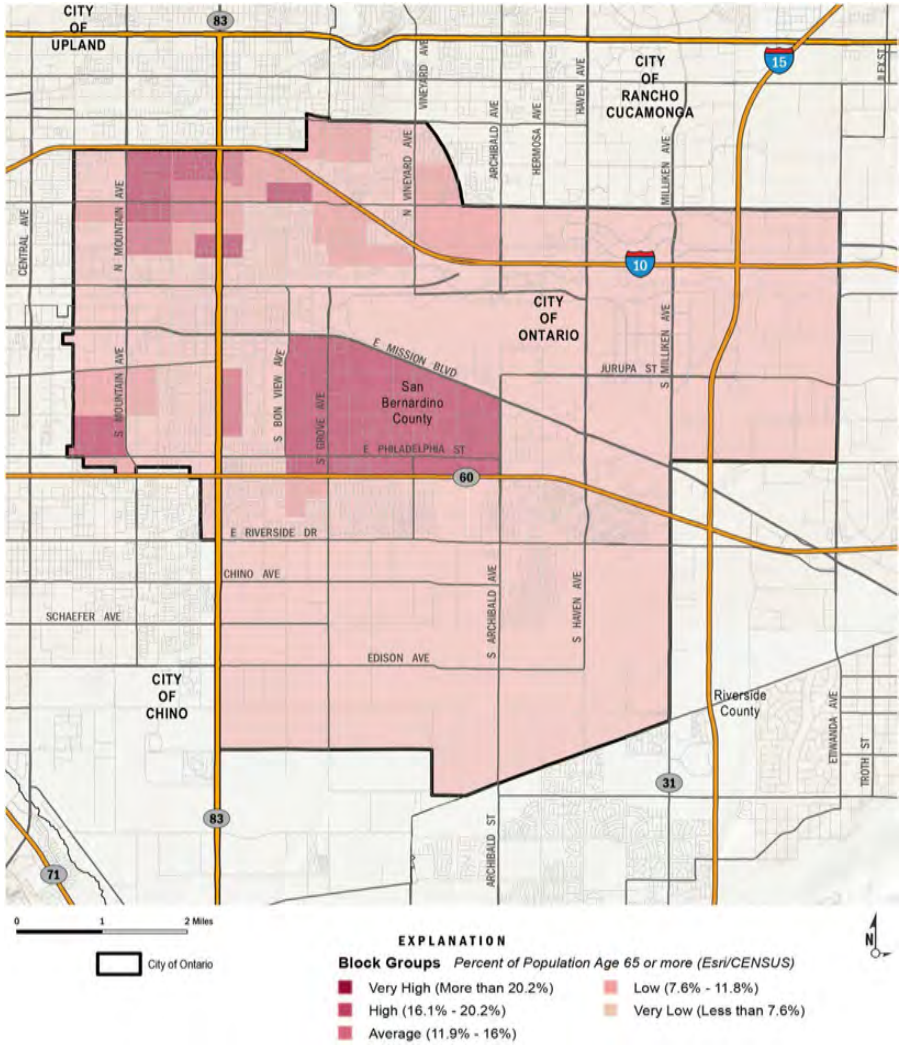


Figure 4-38: Ontario Population 65 or Older

4.11.2.2 Critical Facilities

Critical facilities are of particular concern when conducting hazard mitigation planning. Critical facilities are defined as essential services, and if damaged, would result in severe consequences to the health, safety, and welfare of the public.

An inventory of critical facilities based on data from the County and other publicly sourced information were used to develop a comprehensive inventory of facility points and lifelines. Critical facility points include fire stations, buildings containing hazardous materials (HAZMAT), schools, transportation, utilities, and government buildings. Lifelines include transportation routes only. A current representation of the critical facilities and lifelines are provided in Table 4-13. Some critical facility information has been omitted from documentation due to national security purposes. The Ontario Fire Department manages and maintains a complete list of critical facilities.

Table 4-13: Critical Facility Points

Infrastructure Type	Total Feature Count
Essential Facility	75
EOC	1
Fire Station	9
Government Facility	-
Hospital	6
Police Station	1
School	58
High Potential Loss	883
Dam	-
Economic Element-Major Employer	-
Hazmat	708
Historic/Cultural Resource-Historic	-
Utility-Communication Facility	50
Utility-Electric Power Facility	-
Utility-Natural Gas Facility	1
Utility-Potable Water Facility	41
Utility-Waste Water Facility	1
Vulnerable Population-Adult Residential Care	25
Vulnerable Population-Child Care	42
Vulnerable Population-Flood Zone	-
Vulnerable Population-Foster/Home Care	6
Vulnerable Population-Mobile Home Park	-
Vulnerable Population-RV Park	-
Vulnerable Population-Senior Care	9
Transportation and Lifeline	100
Highway Bridge	91
Railway Bridge	5
Bus Facility	-
Rail Facility	1
Airport Facility	3
Grand Total	**1,058**

4.11.3 HAZUS-MH Inputs

FEMA's loss estimation software, Hazus 3.2, was used to analyze the Ontario's building risk to flood and earthquake hazards. Hazus contains a database of economic, demographic, building stock, transportation facilities, local geology, and other information that can be used for several steps in the risk assessment process. Hazus software operates on structure square footage, structure replacement, and content replacement costs aggregated to the census block and tract levels depending on type of hazard analysis. Table 4-14 and Figure 4-44 provides value data for building categories at the census block and census tract levels. Census block and census tracts are used to provide input information for the Hazus analysis presented in this report.

The project team used the SBEFRA project incorporated these newly updated DFIRM data into HAZUS to assess potential losses in the mapped 100-year (with and without levee protection) and 500-year flood zones. The Ontario results are provided in Table 4-14.

Note: The HAZUS software utilizes different census level information inputs to develop loss estimates depending on the hazard module. The flood module uses census block information while the earthquake module uses census tract information. It is important to understand the total values of each as estimated damage to the community is presented on a percent of total value basis.

Table 4-14: Hazus Flood Census Block Input Values

Building Type	Building Replacement Costs ($000)	Building Replacement Cost (%)	Content Replacement Cost ($000)	Content Replacement Cost (%)	Total Value ($000)	Total Value (%)
Agricultural	$ 70,841.00	0.3%	$ 70,841.00	0.3%	$ 141,682.00	1%
Commercial	$ 1,208,163.00	4.4%	$ 1,231,690.00	4.5%	$ 2,439,853.00	9%
Education	$ 120,017.00	0.4%	$ 127,161.00	0.5%	$ 247,178.00	1%
Governmental	$ 34,216.00	0.1%	$ 43,192.00	0.2%	$ 77,408.00	0%
Industrial	$ 452,710.00	1.6%	$ 610,063.00	2.2%	$ 1,062,773.00	4%
Religion	$ 176,012.00	0.6%	$ 176,012.00	0.6%	$ 352,024.00	1%
Residential	$ 15,483,634.00	56.2%	$ 7,744,650.00	28.1%	$ 23,228,284.00	84%
Total	**$ 17,545,593.00**	**64%**	**$ 10,003,609.00**	**36%**	**$ 27,549,202.00**	

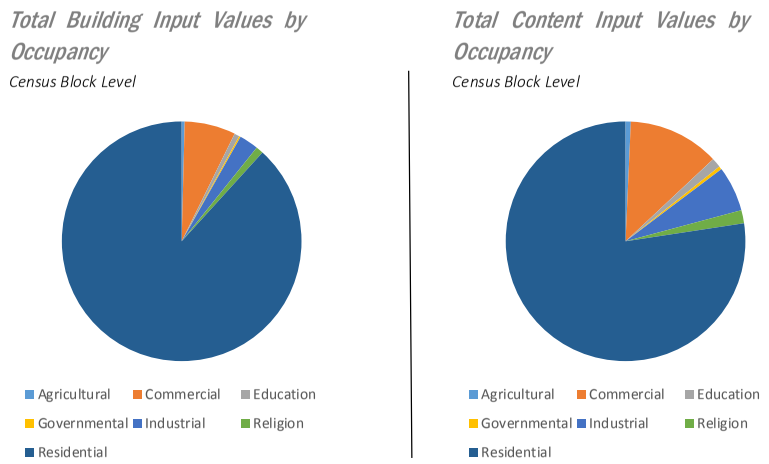


Figure 4-39: Census Block Building and Content Exposure Values

Table 4-15: Hazus Earthquake Census Tract Input Values

Building Type	Building Replacement Costs ($000)	Building Replacement Cost (%)	Content Replacement Cost ($000)	Content Replacement Cost (%)	Total Value ($000)	Total Value (%)
Agricultural	$ 264,949.00	0.2%	$ 264,949.00	0.2%	$ 529,898.00	0%
Commercial	$ 11,056,871.00	6.8%	$ 11,756,479.00	7.2%	$ 22,813,350.00	14%
Education	$ 819,946.00	0.5%	$ 874,703.00	0.5%	$ 1,694,649.00	1%
Governmental	$ 265,933.00	0.2%	$ 316,930.00	0.2%	$ 582,863.00	0%
Industrial	$ 3,733,265.00	2.3%	$ 5,276,431.00	3.2%	$ 9,009,696.00	6%
Religion	$ 958,122.00	0.6%	$ 958,122.00	0.6%	$ 1,916,244.00	1%
Residential	$ 84,302,884.00	51.7%	$ 42,159,954.00	25.9%	$ 126,462,838.00	78%
Total	**$ 101,401,970.00**	**62%**	**$ 61,607,568.00**	**38%**	**$ 163,009,538.00**	

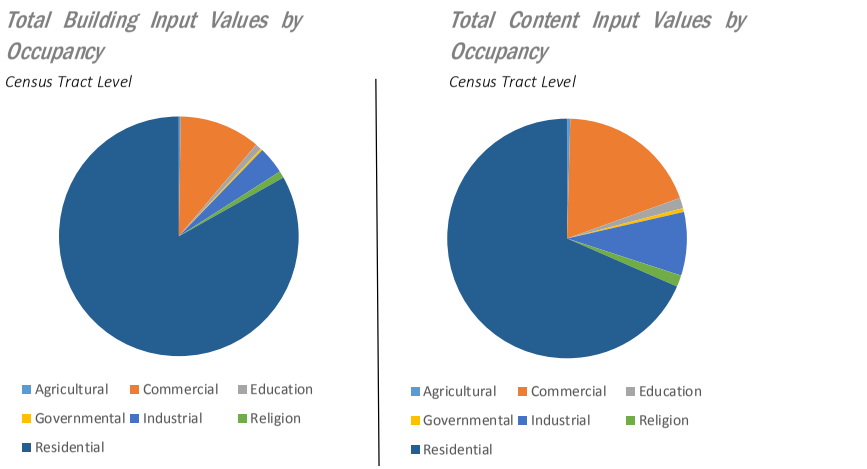


Figure 4-40: Census Tract Building and Content Exposure Values

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4.11.4 Flooding

Flooding is a significant problem in Ontario as described in the flood hazard profile. Historically, the operational area has been subject to flooding during periods of heavy rainfall, falling primarily between the months of October through April, which causes Storm drains to become overwhelmed and overflow their banks and/or inundate storm drainage systems. Occasionally, storm drain flows in Ontario have resulted in flooding of residential properties, road blockages, and traffic disruptions. In urbanizing areas, the increase in paved areas associated with new development decrease the amount of open land available to absorb rainfall and runoff, thus increasing the volume of water that must be carried away from by waterways. Flooding has damaged commercial and residential structures; flooded bridges and streets and flood control works to erode.

4.11.4.1 Population living with Flood Risk

Of greatest concern in the event of a flood is the potential for loss of life. Using 2012 population data aggregated by census blocks, an estimate was made of the population exposed to the 100- and 500-year floodplain. To account for census blocks that were partially within the floodplain, a weighted average was employed to calculate the proportion of the population within the floodplain. The results of the population overlay are shown in Figure 4-41. More than 500 residents live near or within the 100-year floodplain and approximately 57,406 city residents live within the 500-year floodplain. Approximately 10,000 city residents live within areas protected by levees.

Population Exposure

Population Count within the City of Ontario by Flood Hazard Zone

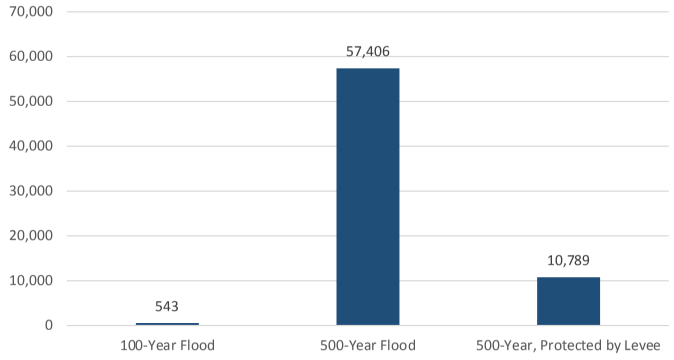


Figure 4-41: Population Exposure to Flood Hazards

Table 4-16: Area of Flood Zones

Flood Hazard Type	Sum of Acres	Sum of Square Miles
100-Year Flood	580.44	0.91
100YR		
500-Year Flood	26,562.00	41.50
500YR	2,260	4
500YR 0.2%	29,403	45.94

4.11.4.2 Residential Parcel Value with Flood Risk

The County's parcel layer was used as the basis for the inventory of improved residential parcels within the FEMA NFIP flood zones. In some cases, a parcel will be within in multiple flood zones. GIS was used to create centroids, or points, to represent the center of each parcel polygon – this is assumed to be the location of the structure for analysis purposes. The centroids were then overlaid with the floodplain layer to determine the flood risk for each structure. The flood zone in which the centroid was located was assigned to the entire parcel. This methodology assumed that every parcel with a square footage value greater than zero was developed in some way. Only improved parcels greater than $20,000 were analyzed. Table 4-17 shows the count of at-risk parcels and their improvement and land exposure values.

Table 4-17: Parcels Exposed to NFIP Flood Zones

Flood Hazard Zone	Improved Parcel Count	Improvement Value Exposure ($000)	Land Value Exposure ($000)	Total Exposure ($000)
100-Year Flood	3,426	$ 518,482.83	$ 368,057.83	$ 886,540.65
500-Year Flood	46,012	$ 8,105,381.05	$ 3,164,341.34	$ 11,269,722.39
500-Year, Protected by Levee	4,608	$ 1,327,941.71	$ 527,317.13	$ 1,855,258.83
Grand Total	54,046	$ 9,951,805.59	$ 4,059,716.30	$ 14,011,521.88

While there are several limitations to this methodology, it does allow for potential loss estimation. It should be noted that the analysis may include structures in the floodplain that are elevated at or above the level of the base flood elevation, which will likely decrease potential flood damage to these structures. Also, it is important to remember that the County Assessor's values are well below actual market values; thus, the actual value of assets at risk may be significantly higher than those included herein.

4.11.4.3 Critical Facilities Exposure

Critical facilities data were overlain with flood hazard data to determine the type and number of facilities within the 100- and 500-year floodplain. Flooding poses numerous risks to critical facilities and infrastructure:

- Roads or railroads that are blocked or damaged can prevent access throughout the area and can isolate residents and emergency service providers needing to reach vulnerable populations or to make repairs.
- Bridges washed out or blocked by floods or debris from floods also can cause isolation.
- Creek or river floodwaters can back up drainage systems causing localized flooding.
- Floodwaters can get into drinking water supplies causing contamination.
- Sewer systems can be backed up causing waste to spill into homes, neighborhoods, rivers, and streams.
- Underground utilities can also be damaged.

Table 4-18 provides an inventory of critical facilities in the floodplain for Ontario and provides the locations of lifelines relative to the floodplain in the areas of the City. With a total of 513 essential facilities, high potential losses, and transportation and lifeline structures located in either the 100- or 500-year flood zone, the impact to the community could be devastating if these critical facilities were damaged or destroyed during a flood event.

Table 4-18: Critical Facility Exposed to NFIP Flood Zones

Infrastructure Type	100 Year Flood Zone	500 Year Flood Zone	500 Year Flood Zone, Protected by Levee	Total Feature Count
Essential Facility	0	23	7	30
EOC	0	0	0	0
Fire Station	0	7	0	7
Government Facility	0	0	0	0
Hospital	0	0	1	1
Police Station	0	0	1	1
School	0	16	5	21
High Potential Loss	6	363	50	419
Dam	0	0	0	0
Economic Element-Major Employer	0	0	0	0
Hazmat	6	298	36	340
Historic/Cultural Resource-Historic	0	0	0	0
Utility-Communication Facility	0	17	6	23
Utility-Electric Power Facility	0	0	0	0
Utility-Natural Gas Facility	0	0	0	0
Utility-Potable Water Facility	0	20	1	21
Utility-Waste Water Facility	0	0	1	1
Vulnerable Population-Adult Residential Care	0	10	2	12
Vulnerable Population-Child Care	0	15	3	18
Vulnerable Population-Flood Zone	0	0	0	0
Vulnerable Population-Foster/Home Care	0	3	0	3
Vulnerable Population-Mobile Home Park	0	0	0	0
Vulnerable Population-RV Park	0	0	0	0
Vulnerable Population-Senior Care	0	0	1	1
Transportation and Lifeline	8	47	9	64
Highway Bridge	8	40	9	57
Railway Bridge	0	4	0	4
Bus Facility	0	0	0	0
Rail Facility	0	0	0	0
Airport Facility	0	3	0	3
Grand Total	**14**	**433**	**66**	**513**

4.11.4.4 Loss Estimation Results

The HAZUS analysis was used to assess the risk from and vulnerability to flooding within Ontario. HAZUS buildings data is aggregated to the census block level, known as the general building stock (GBS), which has a level of accuracy acceptable for hazard mitigation planning purposes. The following sections describe risk to and vulnerability of the GBS within the Ontario's mapped regulatory floodplain. The total value of exposed buildings and content within the Ontario's planning area was generated using HAZUS and is previously summarized in Table 4-19.

HAZUS calculates losses to structures from flooding by considering the depth of flooding and type of structure. Using historical flood insurance claim data, the software estimates the percentage of damage to structures and their contents by applying established depth-damage curves. Damage estimates are then translated to estimated dollar losses. The results are summarized in Table 4-20 and Figure 4-47. An estimate $59,000,000.00 of damage could occur in the Ontario's regulatory floodplain if all flooding sources experienced a 100-year flood event. An all-encompassing event (all tributaries flooding to the NFIP 100-year flood zone) is estimated to cause losses of 0.2 percent of the total GBS within the City boundaries. An estimated $ 396,000.000.00 of damage could occur if all flooding sources experienced a 500-year flood event, representing 1.4 percent of the total GBS within the City boundaries.

While there are several limitations to the FEMA HAZUS model, it does allow for potential loss estimation. It should be noted that the analysis may include structures in the floodplain that are elevated at or above the level of the base flood elevation, which will likely mitigate flood damage. Also, it is important to remember that the replacement costs are well below actual market values, thus, the actual value of assets at risk may be significantly higher than those included herein.

Table 4-19: Flood Loss Estimation (Based on Depth) in NFIP Flood Zones

Flood Hazard Zone	Building Loss ($000)	Building Loss (% of Total Value)	Content Loss ($000)	Content Loss (% of Total Value)	Total Estimated Loss ($000)	Total Estimated (% of Total Value)
100-Year	$ 34,749.00	0.1%	$ 24,858.00	0.1%	$ 59,849.00	0.2%
500-Year	$ 218,454.00	0.8%	$ 173,304.00	0.6%	$ 396,336.00	1.4%

Table 4-20: 100-Year Flood Loss Estimation (Based on Depth) in NFIP Flood Zones by Occupancy Type

Building Type	Building Replacement Costs ($000)	Building Replacement Cost (% of Total Value)	Content Replacement Cost ($000)	Content Replacement Cost (% of Total Value)	Total Estimated Loss ($000)	Total Loss Estimation (% of Total Value)
Agriculture	$ 147.00	0.10%	$ 246.00	0.17%	$ 427.00	0.30%
Commercial	$ 1,874.00	0.08%	$ 4,458.00	0.18%	$ 6,463.00	0.26%
Education	$ 46.00	0.02%	$ 271.00	0.11%	$ 319.00	0.13%
Government	$ 56.00	0.07%	$ 304.00	0.39%	$ 370.00	0.48%
Industrial	$ 201.00	0.02%	$ 389.00	0.04%	$ 624.00	0.06%
Religious/Non-Profit	$ 326.00	0.09%	$ 1,946.00	0.55%	$ 2,279.00	0.65%
Residential	$ 32,099.00	0.14%	$ 17,244.00	0.07%	$ 49,367.00	0.21%
Grand Total	**$ 34,749**	**0.13%**	**$ 24,858**	**0.09%**	**$ 59,849**	**0.22%**

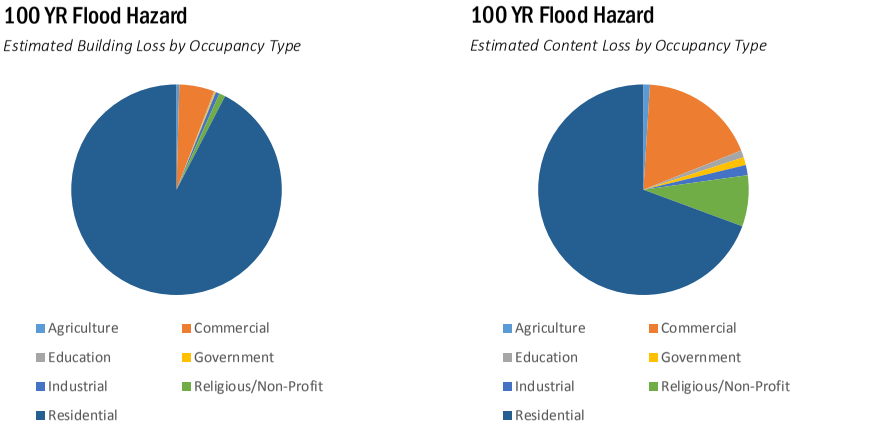


Figure 4-42: Total Building and Content Loss by Occupancy Type

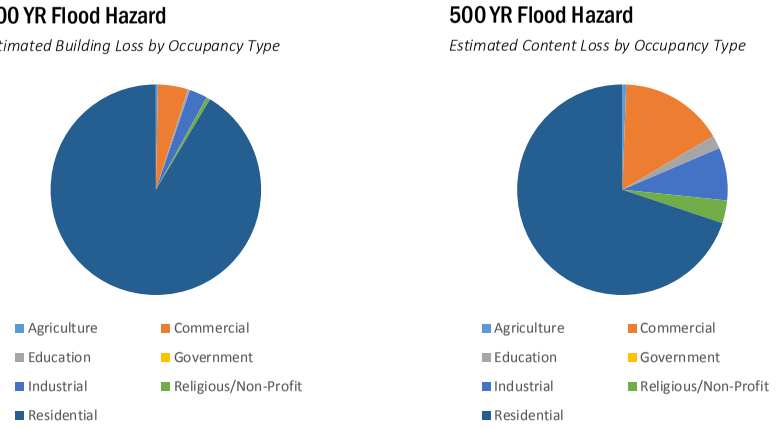


Figure 4-43: Total Building and Content Loss by Occupancy Type

Table 4-21: 500-Year Flood Loss Estimation (Based on Depth) in NFIP Flood Zones by Occupancy Type

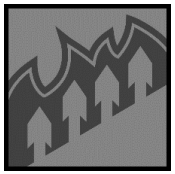
Building Type	Building Replacement Costs ($000)	Building Replacement Cost (% of Total Value)	Content Replacement Cost ($000)	Content Replacement Cost (% of Total Value)	Total Estimated Loss ($000)	Total Loss Estimation (% of Total Value)
Agriculture	$ 674.00	0.48%	$ 981.00	0.69%	$ 1,781.00	1.26%
Commercial	$ 10,080.00	0.41%	$ 27,640.00	1.13%	$ 39,179.00	1.61%
Education	$ 720.00	0.29%	$ 3,563.00	1.44%	$ 4,355.00	1.76%
Government	$ -	0.00%	$ 2.00	0.00%	$ 9.00	0.01%
Industrial	$ 6,036.00	0.57%	$ 13,975.00	1.31%	$ 22,438.00	2.11%
Religious/Non-Profit	$ 1,210.00	0.34%	$ 6,070.00	1.72%	$ 7,332.00	2.08%
Residential	$ 199,734.00	0.86%	$ 121,073.00	0.52%	$321,242.00	1.38%
Grand Total	**$ 218,454**	**0.79%**	**$ 173,304**	**0.63%**	**$ 396,336**	**1.44%**

*Note: *from section 4.10.3 'Hazus Floods Census Block Input Values' totals*
1- Hazus Census Block Building Stock Value ($000):
2- Building Replacement Costs = $17,545,593
3- Content Replacement Cost = $10,003,609
4- Total Value = $27,549,202

Table 4-22: Parcel Value in Flood Zones

Flood Hazard Zone	Improved Parcel Count	Improvement Value Exposure ($000)	Land Value Exposure ($000)	Total Exposure ($000)
100-Year Flood	88	$ 14,267	$ 12,747	$ 27,014
500-Year Flood	32,160	$ 15,810,305	$ 7,684,001	$ 23,494,306
500-Year, Protected by Levee	2,196	$ 1,149,495	$ 297,386	$ 1,446,882
Grand Total	**34,444**	**$ 16,974,067**	**$ 7,994,135**	**$ 24,968,202**

4.11.5 Wildfire



Risk to the Ontario from wildfire is of significant concern. High fuel loads in the hills, along with geographical and topographical features, create the potential for both natural and human-caused fires that can result in loss of life and property. These factors, combined with natural weather conditions common to the area, including periods of drought, high temperatures, low relative humidity, and periodic winds, can result in frequent and sometimes catastrophic fires. During the year round fire season the dry vegetation and hot and sometimes windy weather, combined with continued growth in the WUI areas, results in an increase in the number of ignitions. Any fire, once ignited, has the potential to quickly become large and out-of-control.

Potential losses from wildfire include human life, structures and other improvements, natural and cultural resources, quality and quantity of water supplies, cropland, timber, and recreational opportunities. Short and long-term economic losses could also result due to loss of business and other economic drivers associated with Ontario summer season activities. Smoke and air pollution from wildfires can be a severe health hazard. In addition, catastrophic wildfire can create favorable conditions for other hazards such as flooding, landslides, and erosion during the rainy season.

Generally, there are three major factors that sustain wildfires and predict a given area's potential vulnerability to burn. These factors are fuel, topography, and weather.

- Fuel – Fuel is the material that feeds a fire and is a key factor in wildfire behavior. Fuel is generally classified by type and volume. Fuel sources are diverse and include everything from dead tree leaves, twigs, and branches, to dead standing trees, live trees, brush, and cured grasses. Manmade structures are also considered a fuel source, such as homes and other associated combustibles. The type of prevalent fuel directly influences the behavior of wildfire. Fuel is the only factor that is under human control.
- Topography – An area's terrain and slope affect its susceptibility to wildfire spread. Both fire intensity and rate of spread increase as slope increases due to the tendency of heat from a fire to rise via convection. The arrangement of vegetation throughout a hillside can also contribute to increased fire activity on slopes.
- Weather – Weather components such as temperature, relative humidity, wind, and lightning also affect the potential for wildfire. High temperatures and low relative humidity dry out fuels that feed wildfires, creating a situation where fuel will ignite more readily and burn more intensely. Thus, during periods of drought the threat of wildfire increases. Wind is the most treacherous weather factor. The greater the wind, the faster a fire can spread and the more intense it can be. Wind shifts, in addition to wind speed, can occur suddenly due to temperature changes or the interaction of wind with topographical features such as slopes or steep hillsides. As part of a weather system, lightning also ignites wildfires, often in difficult to reach terrain for firefighters.

Factors contributing to the high, widespread wildfire risk in Ontario include:

- Large undeveloped lots
- Uncut weeds and grasses

4.11.5.1 Population at Risk

Wildfire risk is of greatest concern to populations residing in the wildfire hazard zones. Ontario census block data was used to estimate populations within the hazard zones.

4.11.5.2 Residential Parcel Value at Risk

Population Exposure

Population Count by Wildfire Hazard Zone

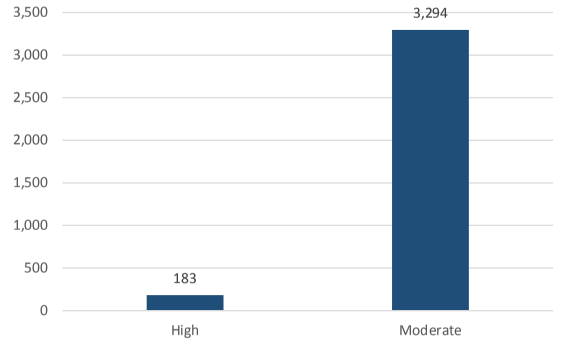


Figure 4-44: Population Exposure to Wildfire

The County's parcel layer was used as the basis for the inventory of improved residential parcels. In some cases, a parcel will be within in multiple fire threat zones. GIS was used to create centroids, or points, to represent the center of each parcel polygon – this is assumed to be the location of the structure for analysis purposes. The centroids were then overlaid with the fire threat layer to determine the risk for each structure. The fire threat zone in which the centroid was located was assigned to the entire parcel. This methodology assumed that every parcel with a square footage value greater than zero was developed in some way. Only improved parcels were analyzed. Table 4-23 exhibits portions of Ontario that have significant assets at risk to wildfire in the fire severity zones.

Table 4-23: Residential Buildings and Content at Risk from Wildfire

Fire Hazard Severity Hazard Zone	Improved Parcel Count	Improvement Value Exposure ($000)	Land Value Exposure ($000)	Total Exposure ($000)
Very High	43,794	$ 8,602,590	$ 3,075,148	$ 11,677,739
High	11,512	$ 1,822,731	$ 551,160	$ 2,373,892
Moderate	25,477	$ 3,221,982	$ 950,044	$ 4,172,026
Non-Wildland/Non-Urban	621	$ 573,866	$ 294,283	$ 868,148
Urban Unzoned	26,974	$ 5,223,286	$ 2,310,932	$ 7,534,219
Grand Total	**108,345**	**$ 19,444,456**	**$ 7,181,567**	**$ 26,626,023**

Note:
1-The table above does not display loss estimation results; the table exhibits total value at risk based upon the hazard overlay and San Bernardino County Assessor data.
2- Parcel information is for all county parcels with greater than $20,000 in assessed parcel improvement value only. The San Bernardino County Assessor's roles only provide spatial information on assessed improvement and land values.

4.11.5.3 Critical Facilities at Risk

Critical facilities data were overlain with fire hazard severity zone data to determine the type and number of facilities within each risk classification. Table 4-24 lists the critical facilities in the wildfire hazard zone for Ontario.

Table 4-24: Critical Facility Exposure to Wildfire

Infrastructure Type	High	Very High	Total Feature Count
Essential Facility	0	0	0
EOC	0	0	0
Fire Station	0	0	0
Government Facility	0	0	0
Hospital	0	0	0
Police Station	0	0	0
School	0	0	0
High Potential Loss	8	0	8
Dam	0	0	0
Economic Element-Major Employer	0	0	0
Hazmat	6	0	6
Historic/Cultural Resource-Historic	0	0	0
Utility-Communication Facility	0	0	0
Utility-Electric Power Facility	0	0	0
Utility-Natural Gas Facility	0	0	0
Utility-Potable Water Facility	0	0	0
Utility-Waste Water Facility	0	0	0
Vulnerable Population-Adult Residential Care	0	0	0
Vulnerable Population-Child Care	2	0	2
Vulnerable Population-Flood Zone	0	0	0
Vulnerable Population-Foster/Home Care	0	0	0
Vulnerable Population-Mobile Home Park	0	0	0
Vulnerable Population-RV Park	0	0	0
Vulnerable Population-Senior Care	0	0	0
Transportation and Lifeline	0	0	0
Highway Bridge	0	0	0
Railway Bridge	0	0	0
Bus Facility	0	0	0
Rail Facility	0	0	0
Airport Facility	0	0	0
Grand Total	**8**	**-**	**8**

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4.11.6 Earthquake

Major Impacts from earthquakes are primarily the probable number of casualties and damage to infrastructure occurring from ground movement along a particular fault (USGS, 2009). The degree of infrastructure damage depends on the magnitude, focal depth, distance from fault, duration of shaking, type of surface deposits, presence of high groundwater, topography, and the design, type, and quality of infrastructure construction.

To analyze the risk to Ontario residents, the Great Shakeout scenario was chosen modeled by the California Integrated Seismic Network (CISN). The 2008 Great Southern California Shake Out was based on a potential magnitude 7.8 earthquake on the southern San Andreas Fault— approximately 5,000 times larger than the magnitude 5.4 earthquake that shook southern California on July 29, 2008. Such an earthquake will cause unprecedented damage to Southern California—greatly dwarfing the massive damage that occurred in Northridge's 6.7-magnitude earthquake in 1994. The hazard foot print for this scenario was used to develop exposure results for population, critical facilities, and single family residential parcel values. FEMA HAZUS analyses was used to conducted loss estimation for both scenarios and include building and content loss estimation results based on peak ground acceleration, peak ground velocity, and peak spectral acceleration modeled for the 7.8 earthquake on the San Andreas Fault.

Important to note: building codes provide one of the best methods of addressing natural hazards. When properly designed, and constructed per code, the average building can withstand many of the impacts of natural hazards. Hazard protection standards for all new and improved or repaired buildings can be incorporated into the local building code to reduce future flood losses.

The City of Ontario has adopted the following:

- 2013 California Building Code Standards
- 2016 City of Ontario Updated City Development Code
- 2016 California Green Building Standards Cal-Green

4.11.6.1 Population at Risk

According to the 2010 US Census, the population of jurisdiction is 164,000. Though rural residential construction is not particularly vulnerable to earthquakes, the chosen earthquake scenarios will directly or indirectly expose the entire population of Ontario to ground shaking. Depending on the time of day (the population differs based on employment opportunities) and exact location of the modeled epicenter, the earthquake scenarios could be experienced differently. Figure 4-45 exhibit the population totals in each modeled earthquake severity zone. Population location is based upon information taken during the 2010 U.S. Census.

Population Exposure

Population Count for Great Shakeout Scenario

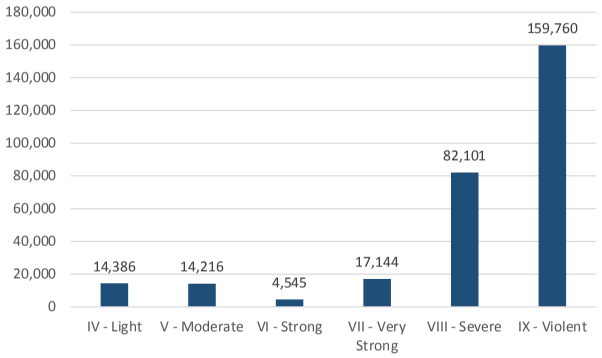


Figure 4-45: Population Exposure to The Great Shakeout EQ Shake Severity Zone

4.11.6.2 Residential Parcel Value at Risk

The County's parcel layer was used as the basis for the inventory of improved residential parcels. GIS was used to create centroids, or points, to represent the center of each parcel polygon – this is assumed to be the location of the structure for analysis purposes. The centroids were then overlaid with the shake severity zones to determine the at-risk structures. Only improved parcels greater than $20,000 were analyzed. The analysis indicates residential parcels the chosen scenario will experience similar, but different shaking patterns. The type and year of construction will greatly influence damage for structures subject to similar shaking. Table 4-25 show the count of at-risk structures and their associated improvement and land exposure values.

Table 4-25: Residential Parcel Value Exposure from Southern California Great Shakeout

Shake Severity Zone	Improved Parcel Count	Improvement Value Exposure ($000)	Land Value Exposure ($000)	Total Exposure ($000)
IV – Light	1,099	$ 181,952	$ 64,548	$ 246,499
V – Moderate	4,382	$ 485,082	$ 215,875	$ 700,956
VI – Strong	1,340	$ 142,763	$ 63,941	$ 206,704
VII - Very Strong	7,669	$ 824,794	$ 206,725	$ 1,031,519
VIII – Severe	46,889	$ 8,741,904	$ 3,039,484	$ 11,781,388
IX – Violent	46,974	$ 9,068,446	$ 3,591,379	$ 12,659,825
Grand Total	**108,345**	**$ 19,444,940**	**$ 7,181,951**	**$ 26,626,891**

4.11.6.3 Critical Facilities with Damage Potential

Earthquakes pose numerous risks to critical facilities and infrastructure. Seismic risks, or losses, that are likely to result from exposure to seismic hazards include:

- Casualties (fatalities and injuries).
- Utility outages.
- Economic losses for repair and replacement of critical facilities, roads, buildings, etc.
- Indirect economic losses such as income lost during downtime resulting from damage to private property or public infrastructure.

Roads or railroads that are blocked or damaged can prevent access throughout the area and can isolate residents and emergency service providers needing to reach vulnerable populations or to make repairs.

Linear utilities and transportation routes are vulnerable to rupture and damage during and after a significant earthquake event. The cascading impact of a single failure can have affects across multiple systems and utility sectors. Degrading infrastructure systems and future large earthquakes with epicenters near critical regional infrastructure could result in system outages that last weeks for the most reliable systems, and multiple months for others.

Table 4-26 provides an inventory of critical facility locations (points only) with earthquake exposure to the Great Shakeout Scenario. The building codes have been amended to include provisions for seismic safety at various bench marks years. Depending on "year built", each critical facility presented in the tables may have varying damage potential.

Table 4-26: Critical Facilities with EQ Risk Southern California Great Shakeout

Infrastructure Type	Violent Shake Zone (IX)	Severe Shake Zone (VIII)	Very Strong (VII)	Strong Shake Zone (VI)	Total Feature Count
Essential Facility	-	-	10	65	75
EOC	-	-	-	1	1
Fire Station	-	-	1	8	9
Government Facility	-	-	-	-	-
Hospital	-	-	-	6	6
Police Station	-	-	1	-	1
School	-	-	8	50	58
High Potential Loss	-	-	77	806	883
Dam	-	-	-	-	-
Economic Element-Major Employer	-	-	-	-	-
Hazmat	-	-	54	654	708
Historic/Cultural Resource-Historic	-	-	-	-	-
Utility-Communication Facility	-	-	3	47	50
Utility-Electric Power Facility	-	-	-	-	-
Utility-Natural Gas Facility	-	-	-	1	1

Infrastructure Type	Violent Shake Zone (IX)	Severe Shake Zone (VIII)	Very Strong (VII)	Strong Shake Zone (VI)	Total Feature Count
Utility-Potable Water Facility	-	-	1	40	41
Utility-Waste Water Facility	-	-	1	-	1
Vulnerable Population-Adult Residential Care	-	-	6	19	25
Vulnerable Population-Child Care	-	-	10	32	42
Vulnerable Population-Flood Zone	-	-	-	-	-
Vulnerable Population-Foster/Home Care	-	-	-	6	6
Vulnerable Population-Mobile Home Park	-	-	-	-	-
Vulnerable Population-RV Park	-	-	-	-	-
Vulnerable Population-Senior Care	-	-	2	7	9
Transportation and Lifeline	-	-	13	87	100
Highway Bridge	-	-	12	79	91
Railway Bridge	-	-	1	4	5
Bus Facility	-	-	-	-	-
Rail Facility	-	-	-	1	1
Airport Facility	-	-	-	3	3
Grand Total	**-**	**-**	**100**	**958**	**1,058**

4.11.6.4 HazMat Fixed Facilities

Although earthquakes are low probability events, they produce hazardous materials (HazMat) threats at very high levels when they do occur. Depending on the year built and construction of each facility containing HazMat, earthquake initiated hazardous material releases (EIHR) potential will vary. HazMat contained within masonry or concrete structures built before certain benchmark years reflecting code improvements may be of particular vulnerability.

4.11.6.5 Transportation

Earthquake events can significantly impact bridges which often provide the only access to some neighborhoods. Since soft soil regions generally follow floodplain boundaries, bridges that cross water courses are considered vulnerable. Since most of the Ontario bridges provide access across water courses, most are at least somewhat vulnerable to earthquakes. Key factors in the degree of vulnerability are the bridge's age and type of construction which indicate the standards to which the bridge was built. Special attention will be paid to the multiple bridges that cross interstates. Interstates would serve as major emergency response and evacuation routes.

4.11.6.6 Utilities

Linear utilities and transportation infrastructure would likely suffer considerable damage in the event of an earthquake. Due to the amount of infrastructure and sensitivity of utility data, linear utilities are difficult to analyze without further investigation of individual system components. Table 4-27 provide best available linear data and it should be assumed that these systems are exposed to breakage and failure.

Table 4-27: Critical Facilities (linear) Exposure

Facility Type	Strong (VI)	Very Strong (VII)	Severe (VIII)	Violent (IX)	Total Mileage
Transportation and Lifeline	0	0	87	532	619
Railway	0	0	1	17	19
Roads	0	0	85	514	600
Interstate Highway	0	0	5	27	32
State / County Highway	0	0	18	86	104
Primary Highway	0	0	0	11	11
Local Road, Major	0	0	39	73	111
Local Road	0	0	17	282	299
Other Minor Road	0	0	1	10	11
Vehicular Trail	0	0	0	0	0
Cul-de-Sac / Traffic Circle	0	0	2	0	2
Ramp	0	0	3	27	30
Service Road	0	0	0	0	0
Total	**0**	**0**	**87**	**532**	**619**

4.11.6.7 Loss Estimation Results

The HAZUS Level 2 analysis was used to assess the risk from and vulnerability to earthquake shaking within Ontario. Hazus buildings data is aggregated to the census tract level for earthquake models, known as the general building stock (GBS), which has a level of accuracy acceptable for planning purposes. Where possible the GBS was enhanced using GIS data from the county as described previously. The following sections describe risk to and vulnerability of the GBS within the Ontario. HAZUS calculates losses to structures from earthquake shaking by considering the amount of ground displacement and type of structure. The software estimates the percentage of damage to structures and their contents by applying established building fragility curves. Damage estimates are then translated to estimated dollar losses.

For each Great Shake Out Scenario ground shaking data (shakemaps) were acquired from CISN and imported into HAZUS. The shakemap data consist of peak ground velocity, peak ground acceleration, peak spectral acceleration at 0.3 seconds, and peak spectral acceleration at 1.0 seconds. The earthquake module operates on census tracts that often include population and structures in the incorporated cities and the unincorporated area within a single tract. Due to this fact the results include census tracts that have a substantial portion of land within the incorporated area (loss estimates for some tracts will include structures in incorporated cities).

The results are summarized in Table 4-28 for the Great Shake Out Scenario. It is important to understand that the HAZUS earthquake module uses the census tract as its enumeration unit rather than the more detailed census block. The loss estimation values for earthquakes are much higher than those of the flooding and dam failure due to this fact. The portions of incorporated areas included within boundary census tracts elevate the values due to the inclusion of additional GBS. Though the difference between census tracts and census blocks are extremely disparate, the most important summary information is the percent of loss estimation against the total value. Reading from the Figure 4-81, residential building and content loss estimation from the Great Shake Out Scenario is $ 36 billion dollars and 59 percent of the total value of the residential buildings. In Great Shake Out Scenario, residential damage will be the greatest. While there are several limitations to the FEMA HAZUS model, it does allow for potential loss estimation. It is important to remember that the replacement costs are well below actual market values, thus, the actual value of assets at risk may be significantly higher than those included herein.

Table 4-28: Great Shake Out Results

Building Type	Building Replacement Costs ($000)	Building Replacement Cost (% of Total Value)	Content Replacement Cost ($000)	Content Replacement Cost (% of Total Value)	Total Estimated Loss ($000)	Total Loss Estimation (% of Total Value)	Total Value ($000)
Agricultural	$21,069	9.9%	$6,775	3.2%	$27,844	13.1%	$212,946.00
Commercial	$1,289,182	14.5%	$375,695	4.2%	$1,664,877	18.8%	$8,878,505.00
Educational	$29,603	8.5%	$8,459	2.4%	$38,062	10.9%	$347,684.00
Government	$14,104	11.3%	$4,541	3.7%	$18,644	15.0%	$124,344.00
Industrial	$609,221	12.5%	$303,135	6.2%	$912,356	18.7%	$4,887,669.00
Religious	$46,528	11.5%	$13,683	3.4%	$60,210	14.9%	$404,834.00
Residential	$967,378	4.6%	$212,124	1.0%	$1,179,502	5.6%	$21,151,777
Grand Total	**$2,977,085**	**8.3%**	**$924,410**	**2.6%**	**$3,901,495**	**10.8%**	**$36,007,759**

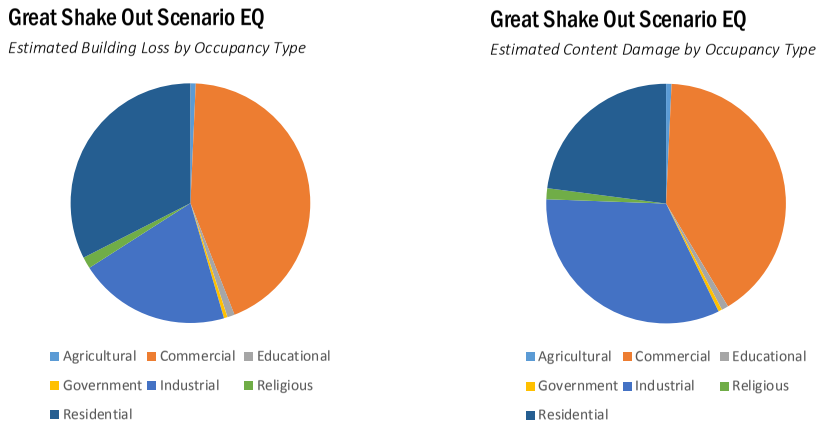


Figure 4-46: Estimated Building and Content Loss by Occupancy Type

4.11.7 High Winds Santa Ana Winds

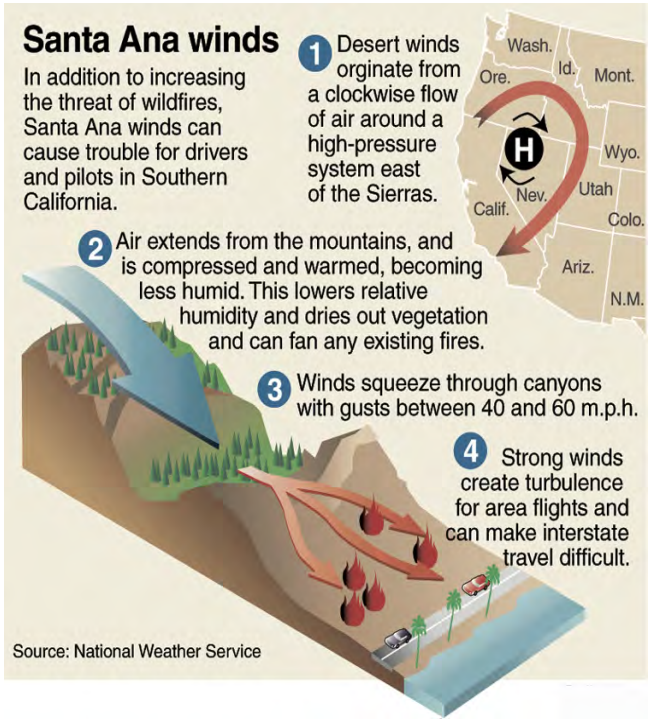
When conditions are right the winds come down through the mountain passes and can reach hurricane force and be sustained winds for days at a time.

4.11.7.1 Population at Risk

The entire city is at risk for damage from high winds.

4.11.7.2 Residential and Lifeline at Risk

It is difficult to estimate the damage from the Santa Ana Winds. The speed, direction, duration and how wet the ground is will determine the extent of damage. In 2011 nearby City of Pasadena had over 15 million dollars in damage from a single wind event lasting only a few hours. The most vulnerable are the power utility lines that are above ground and subject to stress from the winds.



4.11.7.3 Critical Facilities at Risk

Critical facilities data were overlain with Santa Ana Wind hazard severity zone data to determine the type and number of facilities within each risk classification.

Figure 4-47: Photos by Daily Bulletin

4.11.8 Dam Failure

The only dam in the area is the San Antonio Dam in the City of Upland. The dam is 7 miles north of Ontario. There are numerous rock quarries and 2 below grade freeways between the dam and the City of Ontario. The risk is very small a wall of water would impact Ontario

The primary danger associated with dam failure is the high velocity flooding downstream of the dam and limited warning times for evacuation. Vulnerability varies by community and depends on the particular dam profile and the nature and extent of the failure. Vulnerable population is present directly below downstream elements of the dam, especially those incapable of escaping the area within the allowable time frame. This population includes the elderly and young who may be unable to self-evacuate from the inundation area. The vulnerable population also includes those who would not have adequate warning from a television or radio emergency warning system. Dam inundation zones created by Cal EMA were used to develop at risk populations and loss estimations for dam failure.

The most significant issue associated with dam failure involves the properties and populations in the inundation zones. Flooding because of a dam failure would significantly impact these areas. There is often limited warning time for dam failure. These events are frequently associated with other natural hazard events such as earthquakes, landslides, or severe weather, which limits their predictability and compounds the hazard. Important issues associated with dam failure hazards include the following:

- Federally regulated dams have an adequate level of oversight and sophistication in the development of emergency action plans for public notification in the unlikely event of failure; however, the protocol for notification of downstream citizens of imminent failure needs to be tied to local emergency response planning.
- Mapping for federally regulated dams is already required and available; however, mapping for non-federal-regulated dams that estimates inundation depths is needed to better assess the risk associated with dam failure from these facilities.
- Most dam failure mapping required at federal levels requires determination of the probable maximum flood. While the probable maximum flood represents a worst-case scenario, it is generally the event with the lowest probability of occurrence. Mapping of dam failure scenarios for non-federal-regulated dams that are less extreme than the probable maximum flood, but have a higher probability of occurrence, can be valuable to emergency managers and community officials downstream of these facilities. This type of mapping can illustrate areas potentially impacted by more frequent events to support emergency response and preparedness actions.
- The concept of residual risk associated with structural flood control projects should be considered in the design of capital projects and the application of land use regulations.
- Addressing security concerns and the need to inform the public of the risk associated with dam failure is a challenge for public officials.

4.11.8.1 Population at Risk

Populations located in a dam failure inundation zone can be exposed to the risk of a dam failure. The potential for loss of life is affected by the capacity and number of evacuation routes available to populations living in areas of potential inundation.

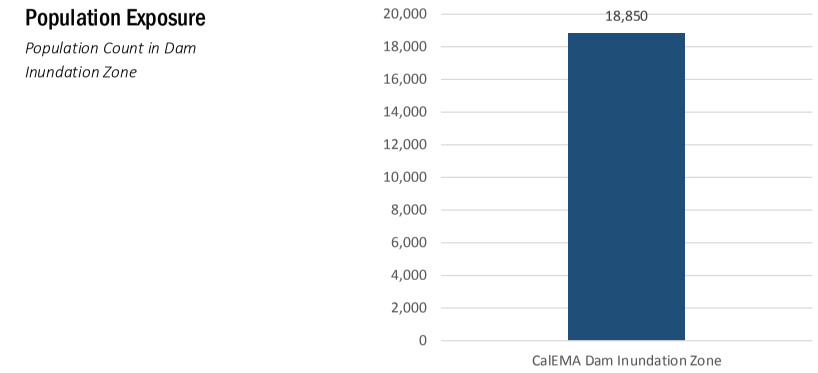


Figure 4-48: Population Exposed to Dam Failure Risk

4.11.8.2 Residential Parcel Value at Risk

The County's parcel layer was used as the basis for the inventory of improved residential parcels within the Cal-EMA Dam Inundation Zone. GIS was used to create centroids, or points, to represent the center of each parcel polygon – this is assumed to be the location of the structure for analysis purposes. The centroids were then overlaid with the dam failure layer to determine the flood risk for each structure. The dam inundation zone in which the centroid was located was assigned to the entire parcel. This methodology assumed that every parcel with a square footage value greater than zero was developed in some way. Only improved parcels greater than $20,000 were analyzed. Table 4-29 shows the count of at-risk structures and their associated building and content exposure values to dam failure.

The most vulnerable properties are those closest to the dam itself as they would experience the largest, most destructive surge of water. A total of $ 17,573,534 worth of buildings and contents are exposed to dam failure hazards within the Ontario Boundaries representing 2% of the total value.

Table 4-29: Parcel Values at Risk from Dam Inundation

Dam Inundation Zone	Improved Parcel Count	Improvement Value Exposure ($000)	Land Value Exposure ($000)	Total Exposure ($000)
Cal-EMA Dam Inundation Zone	32,654	$12,018,266	$5,555,268	$17,573,534

4.11.8.3 Critical Facilities at Risk

Critical Facilities at risk to dam inundation are on file with Ontario and for national security purposes can only be accessed through Public Works. As a general note, low-lying areas are vulnerable to dam inundation, especially transportation routes. This includes all roads, railroads, and bridges in the flow path of water. The most vulnerable critical facilities are those in poor condition that would have difficulty withstanding a large surge of water. Utilities such as overhead power lines and communication lines could also be vulnerable. Loss of these utilities could create additional compounding issues for emergency management officials attempting to conduct evacuation and response actions.

Table 4-30: Critical Infrastructure Exposure to Dam Failure

Infrastructure Type	Total Feature Count
Essential Facility	63
EOC	1
Fire Station	7
Government Facility	0
Hospital	6
Police Station	1
School	48
High Potential Loss	633
Dam	0
Economic Element-Major Employer	0
Hazmat	499
Historic/Cultural Resource-Historic	0
Utility-Communication Facility	38
Utility-Electric Power Facility	0
Utility-Natural Gas Facility	1
Utility-Potable Water Facility	20
Utility-Waste Water Facility	1
Vulnerable Population-Adult Residential Care	23
Vulnerable Population-Child Care	39
Vulnerable Population-Flood Zone	0
Vulnerable Population-Foster/Home Care	3
Vulnerable Population-Mobile Home Park	0
Vulnerable Population-RV Park	0
Vulnerable Population-Senior Care	9
Transportation and Lifeline	61
Highway Bridge	56
Railway Bridge	1
Bus Facility	0
Rail Facility	1
Airport Facility	3
Grand Total	**757**

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4.11.9 Climate Change

The City of Ontario enacted the Community Climate Change Action Plan to reduced greenhouse gasses. At the moment the two issues facing Ontario is water availability and temperature extremes. Drought will cause the City to ration water and enforce conservation policies. Temperature extremes will affect our vulnerable populations and could put our Emergency Medical Services on overload. EMS is already heavily used and an extended temperatures would dramatically increase the calls for service.

4.11.9.1 Population at Risk

Vulnerable populations should receive special attention when assessing the community's vulnerability to climate change. For example, care and sheltering during extreme heat conditions must be provided for vulnerable populations such as the elderly. According to information provided by FEMA, extreme heat is defined as temperatures that hover 10 degrees or more above the average high temperature for the region and last for several weeks. Heat kills by taxing the human body beyond its abilities. In a normal year, about 175 Americans succumb to the demands of summer heat. According to the National Weather Service (NWS), among natural hazards, only the cold of winter—not lightning, hurricanes, tornados, floods, or earthquakes—takes a greater toll. In the 40-year period from 1936 through 1975, nearly 20,000 people were killed in the United States by the effects of heat and solar radiation. In the heat wave of 1980, more than 1,250 people died.

4.11.9.2 Loss Estimation Results

At the present time the City of Ontario would experience the lack of availability of water. That would require that conservation measures would be enacted as per city policies. Long periods of heat would require that facilities would remain open if needed to act as cooling centers to serve our vulnerable populations. Emergency Medical Systems would be taxed to the limit by calls for service to our vulnerable populations.

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4.11.10 Terrorism

Translating most manmade hazard profiles into meaningful geospatial information is difficult at best. Instead, the planning team will use an asset-specific approach. Population, facilities, systems and assets will be prioritized and assessed in this vulnerability assessment.

Special consideration should be given to areas with high density and those containing vulnerable populations (young, old, and those whose primary language is not English).

Facilities at high risk may include gathering places, critical facilities/ transportation and lifelines and utilities.

4.11.10.1 Population at Risk

Since terrorism can happen anytime, anywhere, 100% of the population is vulnerable to terrorism. In particular, people with access and functional needs, the elderly and the very young are especially vulnerable because they often rely heavily on others in their daily lives. Persons with English as a second language are also vulnerable as they may not receive warnings or notifications related to an incident in their primary language.

4.11.10.2 Critical Facilities Exposure

Critical facilities may include essential facilities (such as hospitals, police and fire stations, evacuation centers, etc), transportation systems, lifeline utility systems, high potential loss facilities (such as nuclear power plants, dams and military installations, etc), and hazardous material facilities.

Gathering facilities should also receive special attention. Places of mass gathering not only present terrorists with potential opportunities for mass casualties, symbolism and high impact media coverage, they pose a broad range of security challenges for their owners and operators. (Committe) The National Counter Terrorism Committee has noted that places of mass gathering have been specifically identified by religious and political extremists as attractive targets.

Places of mass gathering incorporate a diverse range of facilities including, but not limited to, sporting venues, shopping and business precincts, tourism/entertainment venues/attractions, hotels and convention centers, major events and public transport hubs. This also includes significant one off events.

Table 4-31: Critical Facilities Terrorism Vulnerability

Critical Facility Name	Rebuild cost	Priority	Vulnerability Rating by FEMA
Airport	271 million	3	4
Arena	147 million	4	4
Police Dep	25 million	2	4
Convention Center	70 million	4	4
Fire Stations	27 million	2	4
City Hall	35 million	2	4
Hospital	562 million	1	4
Ontario Mills	430 Million	4	4

Table 4-32: FEMA Vulnerability Rating

		Criteria
Very High	10	Very High – One or more major weaknesses have been identified that make the asset extremely susceptible to an aggressor or hazard. The building lacks redundancies/ physical protection and the entire building would be only functional again after a very long period of time after the attack.
High	8-9	High – One or more major weaknesses have been identified that make the asset highly susceptible to an aggressor or hazard. The building has poor redundancies/ physical protection and most parts of the building would be only functional again after a long period of time after the attack.
Medium High	7	Medium High – An important weakness has been identified that makes the asset very susceptible to an aggressor or hazard. The building has inadequate redundancies/ physical protection and most critical functions would be only operational again after a long period of time after the attack.
Medium	5-6	Medium – A weakness has been identified that makes the asset fairly susceptible to an aggressor or hazard. The building has insufficient redundancies/physical protection and most part of the building would be only functional again after a considerable period of time after the attack.
Medium Low	4	Medium Low – A weakness has been identified that makes the asset somewhat susceptible to an aggressor or hazard. The building has incorporated a fair level of redundancies/physical protection and most critical functions would be only operational again after a considerable period of time after the attack
Low	2-3	Low – A minor weakness has been identified that slightly increases the susceptibility of the asset to an aggressor or hazard. The building has incorporated a good level of redundancies/physical protection and the building would be operational within a short period of time after an attack.
Very Low	1	Very Low – No weaknesses exist. The building has incorporated excellent redundancies/physical protection and the building would be operational immediately after an attack.

Section 5. Community Capability Assessment

5.1 Active Mitigation Programs

Table 5-1: Current Mitigation Activities

Hazard	Department	Project
Wild fire	Code Enforcement	Weed abatement
Flooding	Utilities	Storm drain install in problem areas
Public Outreach	All Departments	Community events
All Hazards	Media Team	Emergency public notification social media
Climate Change	All Departments	Greenhouse Gas Reduction
Climate Change	Utilities	Ontario Water Wise program

5.2 Local Planning and Regulatory Capabilities (Supporting Possible Mitigation Activities)

The City of Ontario has various ways to expand and improve existing polices, programs and mitigation projects. Traditionally this can be done during the fiscal budget cycle in the Spring of each year when departments are building their next year budget. This works well when the project is ongoing or multi-year. Ontario also has a means to incorporate mitigation projects that needs to be quickly acted on like a Mitigation Grant opportunity. Once the grant or funding opportunity is identified the EMWC convenes and reviews what is applicable to the grant. If feasible the project is forwarded up to City administration to determine if the grant application should move forward. A good example of this process was a recent grant opportunity. The EMWC selected projects that were eligible. The EMWC then prioritized the projects by the method seen on pages 5-2 and 5-3. The project selected was the seismic valves on City water tanks. The City has shovel ready plans for the project and all that was needed was current price quotes. When those come in the project will be forwarded to City Administration for review and if approved submission of the grant to the State.

Most mitigation projects, unless mandated by law are subject to whether the City has funding for the project. In lean budget years it is doubtful any project could get funding unless a political champion has taken on the project. Budget and funding play a major role.

5.2.1 The Ontario Plan .....General Plan

The State of California recommends that the General Plan is updated every 10-20 years; depending mostly on whether or not the plan is meeting the community's needs. The Ontario Plan was last updated and adopted in 2010. There are nine (9) mandatory elements in a General Plan:

- Social Element,
- Environmental Element,
- Housing Element,
- Land Use Element,
- Environmental Element,
- Mobility,
- Community,
- Parks and Recreation, and
- Safety Element.

The Land Use Element of the General Plan establishes land use zoning districts that apply only to lands governed by the City; not for lands controlled by other jurisdictions or lands controlled by federal and state government The Land Use Element also describes land use compatibility for the primary Five (5) hazards: Geologic; Flood; Wind; Noise; and Fire.

In addition to the general plan, the information in Table 5-2 is used to construct mitigation actions aligned with existing planning and regulatory capabilities of the Ontario. Planning and regulatory tools typically used by local jurisdictions to implement hazard mitigation activities are building codes, zoning regulations, floodplain management policies, and other City programs or planning documents. These plans and regulations are linked and referenced to facilitate integration of activities in all hazards.

Table 5-2: Planning and Regulatory Capabilities

Hazard	Plan/Program/ Regulation	Responsible Agency	Comments
Multi-Hazard	California Building Codes	Building Dept.	Most Cities or Towns adopt the latest edition of the California Building Codes. The California Building codes protect buildings to the extent possible from natural occurring hazards. California Residential Code California Code of Regulations, Title 24, Part 2.5. California Building Code California Code of Regulations, Title 24, Part 2, Volumes 1 and 2. Communities may wish to add additional more restrictive building codes to the California Building Codes.

Hazard	Plan/Program/ Regulation	Responsible Agency	Comments
Multi-Hazard	Municipal Codes	Building Dept. or other.	Some communities may elect to adopted Division II of Chapter 1, Chapter 34, and Appendices B, C, F, G, H, I and J of the California Building Code and Division II of Part 1 of Chapter 1 and Appendix E of the California Residential Code.
Climate Change	Urban Water Management Plan (UWMP)	Utilities Dept. or others…	An UWMP may help define water delivery and water security.
Climate Change	2010 California Drought Contingency Plan	California Dept. of Water Resources	Section VI provides an overview of drought preparedness strategies from the California Water Plan Update (see separate entry). Section VII provides a brief description of local, utility, and State agency drought response roles. Situation and assessment reports will be distributed to appropriate agencies and will be posted on the DWR Drought website (www.water.ca.gov/drought).
Flood	Flood Resistant Construction	Public Works or other.	Appendix G of the 2013 California Building Codes stipulates existing Flood Resistant Construction standards.
Flood	NFIP Administration	Public Works Dept. or Other	NFIP makes federally backed flood insurance available to homeowners, renters, and business owners in participating communities. As a participating member of the NFIP, the City is dedicated to protecting homes of more than 20 policies currently in force.
Flood	NFIP CRS	Public Works Dept. or Other	The National Flood Insurance Program's (NFIP) Community Rating System (CRS) is a voluntary program created by FEMA which began in late 1989 with the first communities entering the program in 1990. The CRS program provides reduced flood insurance premiums for policyholders in communities that go above and beyond the base requirements of the NFIP which also helps to better protect residents from the effects of damaging floods.
Climate Change	2014 Community Climate Change Action Plan	All departments	Planning for the reduction of Green House Gases

Hazard	Plan/Program/ Regulation	Responsible Agency	Comments
Climate Change	San Bernardino Associated Governments (SANBAG) San Bernardino County Regional Greenhouse Gas Emissions Inventories and Reduction Plan 2013	All Depts.	Reduce Green House Gas emissions
Climate Change	2010 Urban Water Management Plan	Utility	Water Conservation Emergency Water Conservation ordinance 2907
All Hazards	City Emergency Plan	All departments	SEMS, NIMS, and ICS plan for response and recovery in Ontario
Wild fire	Weed abatement	Code Enforcement	Reduce hazard by controlling weeds and grasses
All Hazards	Emergency Notifications	Media Team	Develop multiple means to get emergency information out to the public…..social media, mass notifications, Emergency Alert System.

5.3 Administrative and Technical Mitigation Capabilities

Table 5-3: Administrative and Technical Capabilities

Staff/Personnel Resources	Dept. / Agency	Comments
Planners (with land use / land development knowledge)	Public Works Dept., Community Development or other	
Planners or engineers (with natural and/or human caused hazards knowledge)	Public Works Dept., Utilities Dept., Community Development or other	Fire Prevention can assist as well.
Engineers or professionals trained in building and/or infrastructure construction practices (includes building inspectors)	Public Works Dept., Utilities Dept., Community Development or other	

Staff/Personnel Resources	Dept. / Agency	Comments
Floodplain Management	Public Works	If your community is a participant in the NFIP a Floodplain Administration must be identified and trained for FEMA's NFIP program.
Land / Building surveyors	Public Works or Other…	City contracts out land surveying services.
Personnel skilled in Geographic Information Systems (GIS) and/or FEMA's HAZUS program	Public Works and IT	
Grant writers or fiscal staff to handle large/complex grants	Public Works Dept., Utilities Dept., Community Development and other	Numerous types of federal, state, local, and private grants have been administered for mitigation at the local level in California. .
Construction Equipment	Public Works Dept. or other.	Most Public Works departments owns and maintains large pieces of equipment available for construction and moving and removal of earthen material
Emergency Management Personnel	Police Department, Fire Departments.	State Office of Emergency Services Access Mobile Emergency Personnel
Care and Sheltering	Regional Red Cross Personal (local office in 10600 Trademark Parkway, Suite 406 Rancho Cucamonga, CA 91730	Care and sheltering during extreme heat conditions, will provide sheltering and support services for fire victims.

5.4 Local Fiscal Capabilities

Table 5-4: Local Fiscal Capabilities

Financial Resources	Dept. / Agency	Comments
Permitting Fees	Development Services, Planning Dept., Building Dept. or other	Development fees, community service, etc.
General Fund Revenue	City Council or Other	In most cases, there is no dedicated budget line items for hazard mitigation, budget is just balanced meeting mandated reserves and operating costs.
Utility Funds	Utilities Dept. or other…	
Capital Improvements Program	City Council, Public Works or other.	CIPs should have infrastructure improvements with mitigation benefits. Most improvements have some degree of hazard mitigation benefits.
State and County Community Development Dept. Block Grants (CDBG)	California Dept. of Housing and Community Development Dept. (HCD)	Programs Include: Community Development (CD) Economic Development (ED) Disaster Recovery Initiative (DRI) Neighborhood Stabilization Program (NSP)
Home Investments Partnership Program	California Dept. of Housing and Community Development	Must apply competitively for grant funds.

5.5 City of Ontario Capabilities

5.5.1 Multi-Hazard Capabilities

Table 5-5: Multi-Hazard Capabilities

Hazard	Plan/Program/ Regulation	Responsible Agency	Comments
Multi-Hazard	Public Out reach	Fire District	Ongoing programs on preparedness and mitigation

5.5.2 City Wildfire Mitigation Programs

Table 5-6: City Wildfire Mitigation Programs

Hazard	Program	Responsible Agency	Comments
Wildfire	City Fire Hazard Abatement	Fire Department Code Enforcement	Fire Hazard Abatement works to reduce the potential for an individual's property to be the source of fire and structural ignitability. For more information see County OES website or hazard mitigation plan.
Wildfire	Southern California Edison (SCE)	Southern California Edison (SCE)	SCE removes dead trees near power lines to reduce fire hazards. For more information see County OES website or hazard mitigation plan.
Wildfire	Inland Empire Fire Safe Alliance	Inland Empire Fire Safe Alliance	The Alliance was created to act as a forum for all Fire Safe Councils in San Bernardino County.
Wildfire	Organized Group Volunteer Activities	Fire Department Police Department	There are several volunteer citizen groups throughout the City that are capable of providing significant resources that are not provided by traditional governmental agency services. For more information see City web site.

5.5.3 City Flood Mitigation Programs

Table 5-7: City Flood Mitigation Programs

Hazard	Program	Responsible Agency	Comments
Flood	National Flood Insurance Program	Public Works	Ongoing outreach for the public to purchase flood insurance

5.5.4 Ontario Public Education and Alert Programs

Table 5-8: Ontario Public Education and Alert Programs

Hazard	Program	Responsible Agency	Comments
Multi-Hazard	CERT	Fire Department	The Community Emergency Response Team (CERT) Program educates people about disaster preparedness and trains them in basic response skills.
Multi-Hazard	Everbridge Nixle Ready Ontario	Media Team	Alerting systems for the city. Phone, e-mail and text are the methods used. Also has a response mode so that message can be acknowledged.
Multi-Hazard	ECS	Fire Department	The Emergency Communications Service (ECS) is a volunteer group providing front-line communications, technical and logistical support to the Fire Department. Their primary mission is to support Fire, Government and other local agencies in time of disaster. In addition, ECS has provided telecommunications and event support to other departments including Public Works, Parks, Recreation, Urban Search and Rescue and other City Departments.

5.6 State and Federal Fiscal Resources

Table 5-9: Potential Funding Programs/Grants from State and Federal Agencies

Agency / Grant Name	Potential Programs/Grants
California DWR Proposition 50/84: **Integrated Regional Water Management (IRWM) Program.**	**DWR has a number of IRWM grant program funding opportunities. Current IRWM grant programs include planning, implementation, and storm water flood management.** http://www.water.ca.gov/irwm/grants/index.cfm Proposition 84, the Safe Drinking Water, Water Quality, and Supply, Flood Control, River and Coastal Protection Bond Act, which provides $1,000,000,000 (P.R.C. §75001-75130) for IRWM Planning and Implementation. CA Dept. of Water Resources' Flood Emergency Response Projects are posted on the webpage at: http://www.water.ca.gov/floodmgmt/hafoo/fob/floodER/
California Housing and Community Development (HCD) Emergency Solutions Grant (ESG) Program	To fund projects that serve homeless individuals and families with supportive services, emergency shelter/transitional housing, assisting persons at risk of becoming homeless with homelessness prevention assistance, and providing permanent housing to the homeless population. The Homeless Emergency Assistance and Rapid Transition to Housing (HEARTH) Act of 2009 places new emphasis on assisting people to quickly regain stability in permanent housing after experiencing a housing crisis and/or homelessness. http://www.hcd.ca.gov/fa/esg/index.html
CalTrans Division of Local Assistance / Safe Routes to School Program	California Dept. of Transportation. Federal funding administered via Caltrans. Local 10% match is the minimum requirement. http://www.dot.ca.gov/hq/LocalPrograms/saferoutes/saferoutes.htm
California State Office of Historic Preservation (OHP) / Statewide Historic Preservation Plan	Local Government; OHP's Local Government Unit (LGU) offers guidance and assistance to city and county governments to preserve historic properties including damage from natural hazards.
U.S. Dept. of Energy / Energy Efficiency and Conservation Block Grant Program	Provides funding for weatherization of structures and development of building codes/ordinances to ensure energy efficiency and restoration of older homes. http://www1.eere.energy.gov/wip/eecbg.html
Dept. of Homeland Security (DHS) / FEMA Grants	For more information on current grants visit: http://www.fema.gov/grants

Agency / Grant Name	Potential Programs/Grants
Office for Victims of Crime: **Antiterrorism and Emergency Assistance Program (AEAP)**	The Office for Victims of Crime supports communities responding to terrorist attacks and cases of mass violence. The AEAP Assistance Programs include crisis response, consequence management, criminal justice support, crime victim compensation and training and technical assistance. More information can be obtained at: https://www.ovc.gov/AEAP/
U.S. Department of State Office of Antiterrorism Assistance (ATA): **Antiterrorism Assistance Program**	Antiterrorism Assistance Program The ATA program trains civilian security and law enforcement personnel from friendly governments in police procedures that deal with terrorism. Since its inception in 1983, the program has trained and assisted over 84,000 foreign security and law enforcement officials from 154 countries. Learn more by visiting: http://www.state.gov/m/ds/terrorism/c8583.htm
California Emergency Management Agency (Cal OES) / Proposition 1B Grants Programs	The Highway Safety, Traffic Reduction, Air Quality and Port Security Bond Act of 2006, approved by the voters as Proposition 1B at the November 7, 2006 general election, authorizes the issuance of nineteen billion nine hundred twenty-five million dollars ($19,925,000,000) in general obligation bonds for specified purposes, including grants for transit system safety, security, and disaster response projects. http://www.calema.ca.gov/EMS-HS-HazMat/Pages/Emergency-Management-Homeland-Security-and-Hazard-Mitigation-Grant-Programs.aspx
California Proposition 1: **The Water Bond (AB 1471)**	Authorize $7.545 billion in general obligation bonds for state water supply infrastructure projects, such as public water system improvements, surface and groundwater storage, drinking water protection, water recycling and advanced water treatment technology, water supply management and conveyance, wastewater treatment, drought relief, emergency water supplies, and ecosystem and watershed protection and restoration. The State Water Resources Control Board (State Water Board) will administer Proposition 1 funds for five programs. The estimated implementation schedule for each is outlined in Five Categories: ▪ Small Community Wastewater ▪ Water Recycling ▪ Drinking Water ▪ Storm water ▪ Groundwater Sustainability http://www.waterboards.ca.gov/water_issues/programs/grants_loans/proposition1.shtml

Agency / Grant Name	Potential Programs/Grants
Assistance to Firefighters Grant Program (AFG); Fire Prevention and Safety (FP&S)	The primary goal of the FP&S Grants is to enhance the safety of the public and firefighters with respect to fire and fire-related hazards. The Grant Programs Directorate administers the FP&S Grants as part of the AFG Program. FP&S Grants are offered to support projects in two activity areas: 1). Fire Prevention and Safety (FP&S) Activity Activities designed to reach high-risk target groups and mitigate the incidence of death and injuries caused by fire and fire-related hazards. 2). Research and Development (R&D) Activity To learn more about how to prepare to apply for a project under this activity, please see the FP&S Research and Development Grant Application Get Ready Guide. https://www.fema.gov/fire-prevention-safety-grants FY 14 Awards: https://www.fema.gov/fire-prevention-safety-grants-award-year-2014

5.7 The Budget in Brief

5.7.1 2016-2017 Budget Highlights

Fiscal Year 2016-2017 City Council Goals

PRIMARY GOAL

Regain Local Control of the Ontario International Airport

SUPPORTING GOALS

- Invest in the Growth and Evolution of the City's Economy
- Maintain the Current High Level of Public Safety
- Operate in a Businesslike Manner
- Pursue City's Goals and Objectives by Working with Other Governmental Agencies
- Focus Resources in Ontario's Commercial and Residential Neighborhoods
- Invest in the City's Infrastructure (Water, Streets, Sewers, Parks, Storm Drains and Public Facilities)
- Encourage, Provide or Support Enhanced Recreational, Educational, Cultural and Healthy City Programs, Policies and Activities
- Ensure the Development of a Well Planned, Balanced, and Self-Sustaining Community in the New Model Colony

2016-2017 Budget accounts are on the following pages.

	2013-14 Actual	2014-15 Actual	2015-16 Adopted Budget	2015-16 Current Budget	2016-17 Adopted Budget	% Change to Adopted Budget 2015-16
Personnel Services						
51010 Salaries-Full Time	$ 58,561,229	$ 62,474,082	$ 68,687,699	$ 68,708,114	**$ 73,918,562**	7.6%
51020 Salaries-Temporary/Part Time	1,607,807	1,770,351	2,245,646	2,261,638	**2,327,897**	3.7%
51030 Salaries-Overtime	11,666,787	13,004,877	11,567,527	13,085,527	**12,348,682**	6.8%
51100 Fringe Benefits	40,685,051	43,769,243	49,768,678	49,935,489	**54,736,704**	10.0%
51210 Auto Allowance	112,752	109,254	113,551	113,551	**105,999**	-6.7%
51310 Uniform Allowance	462 726	421,696	436 229	441 929	**462 622**	6.1%
Total Personnel Services	$ 113,096,352	$ 121,549,503	$ 132,819,330	$ 134,546,248	**$ 143,900,466**	8.3%
Operating Expenditures						
52010 Computer Supplies	$ 35,786	$ 32,578	$ 24,275	$ 24,275	**$ 31,675**	30.5%
52020 Office Supplies	249,513	249,571	332,699	332,699	**334,073**	0.4%
52030 Books/Publications	43,218	27,642	39,110	39,110	**41,727**	6.7%
52031 Library Books Adult	143,331	123,806	106,000	106,000	**96,000**	-9.4%
52032 Library Books Children	86,702	105,611	131,500	131,500	**153,000**	16.3%
52033 Magazines/Periodicals	20,613	21,983	30,325	30,325	**30,325**	0.0%
52034 Media	75,981	57,108	102,500	102,500	**100,500**	-2.0%
52050 Uniforms	215,602	181,859	202,955	207,076	**202,955**	0.0%
52110 Materials	1,148,194	1,021,606	1,451,178	1,660,411	**1,658,168**	14.3%
52120 Fuel & Oil	302,069	348,115	194,250	291,250	**396,250**	104.0%
52140 Chemicals	20,076	19,655	28,000	28,000	**28,000**	0.0%
52160 Equipment Under $15,000	294,035	342,810	422,990	434,335	**665,290**	57.3%
52190 Misc Materials/Supplies	1,025,550	1,128,883	1,049,222	1,090,981	**1,112,138**	6.0%
52210 Maintenance & Repairs	978,606	1,418,008	1,631,154	1,709,813	**1,700,548**	4.3%
52310 Electric Services	2,196,670	2,469,467	2,414,033	2,414,033	**2,414,033**	0.0%
52320 Natural Gas Services	76,322	59,703	93,632	93,632	**97,362**	4.0%
52330 Telecommunication Services	279,191	266,896	400,432	400,432	**398,945**	-0.4%
52341 City Utilities Service	1,491,841	1,363,110	1,713,714	1,713,714	**1,713,714**	0.0%
52410 Advertising/Promotional	760,826	854,262	831,655	941,287	**852,530**	2.5%
52510 Travel/Conference/Training	591,570	685,055	751,204	759,704	**816,716**	8.7%
52520 Dues and Memberships	163,434	171,272	199,199	199,199	**220,119**	10.5%
52530 Employee Education	5,348	4,252	10,300	10,300	**11,000**	6.8%
52610 Rental/Lease Expense	4,269,058	5,062,146	5,041,200	5,056,264	**5,044,072**	0.1%
52710 Duplicating Expense	90,804	79,247	131,645	136,144	**141,985**	7.9%
52720 Postage Expense	417,583	421,291	459,660	459,660	**464,400**	1.0%
52740 Landfill Disposal	46,613	43,924	51,510	51,510	**52,510**	1.9%
52990 Miscellaneous Services	2,467,079	2,670,705	2,785,007	3,030,288	**2,921,918**	4.9%
52991 Maintenance Services	1,420,410	1,660,174	1,918,688	1,952,284	**1,975,036**	2.9%

Expenditures/Revenue Overview - General Fund

2016-17 General Fund Summary

	2013-14 Actuals	2014-15 Actuals	2015-16 Adopted Budget	2015-16 Current Budget	2016-17 Adopted Budget	% Change to Adopted Budget 2015-16
REVENUES						
Sales Tax	$ 69,967,633	$ 77,496,371	$ 71,000,000	$ 71,000,000	**$ 74,000,000**	4.2%
Property Tax	44,294,879	47,733,803	44,750,000	47,750,000	**51,000,000**	14.0%
Development Related	7,799,437	10,217,436	6,734,988	7,733,114	**6,785,000**	0.7%
Business Related:						
Business License Tax	6,405,595	6,825,185	6,400,000	6,400,000	**6,450,000**	0.8%
Occupancy Tax	10,614,157	12,057,576	10,900,000	11,300,000	**12,500,000**	14.7%
Parking Tax	2,988,135	3,126,753	2,700,000	2,700,000	**2,800,000**	3.7%
Franchises	3,251,592	3,476,151	3,200,000	3,200,000	**3,250,000**	1.6%
Interest & Rentals	1,802,996	1,608,544	1,777,930	1,777,930	**1,825,140**	2.7%
Other:						
Motor Vehicle License Fees	0	71,526	0	0	**0**	0.0%
Recreation Program	902,823	964,131	896,300	896,300	**901,000**	0.5%
Miscellaneous Revenues	5,266,069	6,183,402	4,814,295	4,959,295	**7,971,169**	65.6%
Reimbursables	3,559,997	3 628 614	2 448 717	3 591 717	**2 648 021**	8.1%
Total Revenues	$ 156,853,313	$ 173,389,492	$ 155,622,230	$ 161,308,356	**$ 170,130,330**	9.3%
Transfers-In	$ 32,769,412	$ 28,114,147	$ 36,753,002	$ 56,974,084	**$ 35,038,670**	-4.7%
TOTAL REVENUES & TRANSFERS-IN	**$ 189 622 725**	**$ 201 503 639**	**$ 192 375 232**	**$ 218 282 440**	**$ 205 169 000**	6.7%
EXPENDITURES						
Personnel / Services	$ 113,096,352	$ 121,549,503	$ 132,819,330	$ 134,546,248	**$ 143,900,466**	8.3%
Operating Expenditures	20,923,349	23,170,853	24,589,835	57,629,974	**26,046,733**	5.9%
Contractual Services	7,249,558	8,233,148	8,127,660	10,315,447	**8,647,291**	6.4%
Internal Service Allocations	18,405,434	18,656,363	19,096,475	19,123,768	**19,591,327**	2.6%
Debt Service & Capital Outlay	297 032	30 390	4 346 290	7 754 290	**1 072 290**	-75.3%
Total Expenditures	$159,971,725	$171,640,257	$188,979,590	$229,369,727	**$199,258,107**	5.4%
Transfers-out	$ 10,443,004	$ 11,248,205	$ 3,395,642	$ 8,367,705	**$ 6,029,933**	77.6%
TOTAL EXPENDITURES & TRANSFERS-OUT	**$ 170,414,729**	**$ 182 888 462**	**$ 192 375,232**	**$ 237,737 432**	**$ 205,288,040**	6.7%

Section 6.Mitigation Strategy

6.1 Mitigation Overview

The intent of the mitigation strategy is to provide Ontario with a guidebook to future hazard mitigation administration. The mitigation strategy is intended to reduce vulnerabilities outlined in the previous section with a prescription of policies and physical projects. This will help City of Ontario staff to achieve compatibility with existing planning mechanisms and ensures that mitigation activities provide specific roles and resources for implementation success.

6.2 Mitigation 5 Year Progress Report

Table 6-1 is a list of specific projects that were listed in the 2011 HMP in section 6.5. The status of these projects are identified in the far right column in red.

Table 6-1: 2011 HMP Projects

Action	Lead	Funding Source	Timeframe	Priority	2016 Status
Ensure all new development and redevelopment is sited and constructed in accordance with the Ontario Plan and zoning.	Development	Local	Long	C	**Ongoing**
Implement specific projects	Redevelopment Development, OMUC, OEM, IT, other	Local, grant	Long	C	**Deferred due to budget reductions**
Conduct a risk assessment of the City's water treatment plant and City reservoirs	OMUC	Local	Short	C	**Completed**
Conduct a city wide assessment of City employee earthquake preparedness	OEM	Local	Short	C	**Ongoing**
Establish a nonstructural hazard evaluation and risk reduction program for city buildings and departments housing critical functions	OMUC	Local	Short	C	**Ongoing**
Improve damage assessment process and procedures	OEM, OMUC, CPS	Local	Short	C	**Ongoing**
Improve the building and infrastructure inventory for HAZUS	OMUC	Local, Grant	Short	C	**Ongoing**
Develop the primary Emergency Operations Center	Development	Local, Grant	Short	C	**Completed**
Conduct an assessment of City facility seismic hardening	OMUC	Local	Long	H	**Ongoing**
Perform assessment of city parks for mass care locations	OMUC, OEM	Local	Short	H	**Project taken over by the American Red Cross**
Update Disaster Council	OEM	Local	Short	H	**Completed**

Action	Lead	Funding Source	Timeframe	Priority	2016 Status
Continue comprehensive emergency training for all city personnel	OEM	Local	Long	H	**Ongoing**
Continue comprehensive emergency exercises for all city personnel	OEM	Local	Long	H	**Ongoing**
Evaluate City facility warning systems to determine efficacy in reaching all people within the building	IT	Local	Short	H	**Completed**
Assess City facility evacuation/shelter in place procedures	OEM	Local	Short	H	**Ongoing**
Update the mass notification system	IT	Local, Grant	Long	H	**Complete**
Create emergency management website	IT	Local	Short	H	**Complete**
Continue to sponsor annual Community Emergency Preparedness Fair	OEM	Local, Grant	Long	H	**Ongoing**
Enhance Emergency Management Working Committee membership	OEM	Local	Long	M	**Complete**
Improve emergency management public education material distribution	OEM	Local	Long	M	**Ongoing**

Lead agency listing:
Development: Development Agency
OMUC: Ontario Municipal Utilities Company
OEM: Office of Emergency Management
IT: Information Technology Department

6.3 Identifying the Problem

Table 6-2: Problem Statements

Problem Description	Problem Type	Action No.
1. **Wildfire**	Control Fuel growth	6.4.2
2. **Flood**	Urban street flooding due to undersized storm drains	6.4.4
3. **Santa Ana Winds**	Power to critical facilities	6.4.8
4. **Terrorism**	Harden possible targets	6.4.6
5. **Earthquake**	Public education on how to reduce hazards	6.4.3
6. **Climate Change**	Reduce greenhouse gasses	6.4.7
7. **Dam Inundation**	NFIP and update maps	6.4.5

6.4 Mitigation Goals, Objectives, and Projects

6.4.1 Goals and Objectives

6.4.1.1 All Hazard (AH)

GOAL: Increase readiness for all hazards in the City of Ontario. (Complements General Plan Safety Element S-8)

OBJECTIVE 1: Develop a robust community outreach team to promote emergency preparedness and hazard mitigation activities.

OBJECTIVE 2: Develop a volunteer cadre to include CERT (Community Emergency Response Teams), Ham Radio Operators and faith based organizations

6.4.1.2 Wildfire (WF)

GOAL: Continue to reduce fire hazards in the City of Ontario. (Compliments General Plan Safety Element S-3)

WILDFIRE OBJECTIVE 1: Through Code Enforcement enforce the weed abatement program to reduce fuels available to burn

6.4.1.3 Earthquake/Geologic Hazards (EQ)

GOAL: Minimize exposure to structural and contents damage from geologic and seismic conditions. (Complements General Plan Safety Element S-1 and S-8)

EARTHQUAKE OBJECTIVE 1: Educate the public on reducing earthquake risk.

EQ Action 1.1: Improve public education programs and practices to residents for earthquake risk.

6.4.2 Flood (FL)

GOAL: Provide adequate flood protection to minimize hazards and structural damage. (General Plan Safety Element Goal S-2)

FLOOD OBJECTIVE 1: National Flood Insurance Program. Participate in the National Flood Insurance Program (NFIP), which provides flood insurance within designated floodplains.
(General Plan Safety Element, Policy S-5)

FL Action 1.1: Update NFIP data and maps with newly identified flood hazard areas in the County, as new information becomes available.

FL Action 1.2: Develop flood control projects to reduce urban flooding for the following areas:

1) Mountain Avenue – Phillips St to Philadelphia St./Cypress-Sultana Channel
2) Fifth Street – Fourth St./Corona Ave. to El Dorado Ave.
3) San Antonio Avenue – Francis St. to Cypress Channel
4) Parco Avenue - SR-60 Pomona Freeway to Riverside Dr.
5) Grove Avenue - SR-60 Pomona Freeway to Riverside Dr.
6) Cucamonga Avenue - SR-60 Pomona Freeway to Riverside Dr.
7) Bon View Avenue - SR-60 Pomona Freeway to Riverside Dr.
8) Campus Avenue – Cedar St. to Riverside Dr.
9) Sultana Ave. – Phillips St. to Philadelphia St.
10) Campus Avenue & Mission Boulevard – State St. to Francis St. & Cucamonga Ave. to Grove Ave.
11) San Antonio Avenue & Phillips Street – Francis St. to Phillips St. & San Antonio Ave. to Euclid Ave.
12) G Street & Allyn Avenue – Allyn Ave. to West Cucamonga Channel & G St. to Fifth St.

6.4.2.1 Dam Inundation (DI)

GOAL: Reduce damage from a breach in the San Antonio Dam. (General Plan Safety Element S-2)

DAM OBJECTIVE 1: Have Army Corps of Engineers review the inundation zones to reflect the retention basins, quarries, 2 subterranean freeways that now exist between the city and the dam

DAM OBJECTIVE 2: Promote the National Flood Insurance Program

6.4.2.2 Anti-Terrorism (AT)

GOAL: Use antiterrorism strategies to discourage terrorism and protect the people, infrastructure and assets in Ontario from the effects of terrorism. (Compliments General Plan Safety Element S-7)

ANTI-TERRORISM OBJECTIVE 1: Use anti-terrorism design strategies to discourage / prevent acts of terrorism.

AT Action 1.1: Identify and prioritize mitigation activities (anti-terrorism force protection) at critical facilities and gathering places that are vulnerable to terrorist attacks.

6.4.2.3 Climate Change (CC)

GOAL: Reduce the impacts of climate change on the City and limit human activities that change the atmosphere's makeup.

CLIMATE CHANGE OBJECTIVE 1: Meet greenhouse gas (GHG) reductions targets set forth by the Clean Air Act and The City's Community Climate Change Plan and the General Plan Environmental Element Section ER

CC Action 1.1: Continue working with the South Coast Air Quality Management District to meet GHG reductions targets.

CC Action 1.2: Continue implementing the energy conservation and efficiency measures identified in the County of San Bernardino Greenhouse Gas Emissions Reduction Plan, and the City Community Climate Change Plan

6.4.2.4 Santa Ana Winds (SW)

GOAL: Reduce risk of injury, property damage and economic loss resulting from Santa Ana Winds and wind related hazards. (Compliments the General Plan Safety Element S-5)

Santa Ana Wind Objective 1: Require back up power at critical facilities (Safety Element S5-1)

Santa Ana Wind Objective 2: Dust control and grading in high winds (Safety Element S5-2 and S5-3)

Table 6-3: Implementation Strategy Summary

Action	Lead Agency	Hazard	Funding Source
Prevention (PRV): **Preventative activities are intended to keep hazard problems from getting worse, and are typically administered through government programs or regulatory actions that influence the way land is developed and buildings are built. This includes the development of additional code requirements to further reduce or eliminate damages from the identified hazards.**	Planning Department	All Hazards	General Fund, Fees
Property Protection (PPRO): **Property protection measures involve the modification of existing buildings and structures to help them better withstand the forces of a hazard, or removal of the structures from hazardous locations.**	Planning	All Hazards	General Fund, Grants, Fees
Public Education and Awareness (PE&A): **To continue and develop new public education programs targeting the top identified hazards.**	Fire Department Emergency Management	All Hazards	General Fund, Grants
Emergency Services (ES): **Although not typically considered a "mitigation" technique, emergency service measures do minimize the impact of a hazard event on people and property. These commonly are actions taken immediately prior to, during, or in response to a hazard event.**	Fire Department Emergency Management	All Hazards	General Fund, Special District Funds, Grants

Action	Lead Agency	Hazard	Funding Source
Structure Protection (SP) – Flooding **To continue to identify, fund, and build projects that reduce or eliminate flood hazards in the City.**	Utilities	Flooding Hazards	General Fund, Grants, Fees
Structure Protection (SP)– Geological Hazards **To identify unknown hazards and develop additional new and retrofit requirements or programs to reduce or eliminate damage from geological hazards.**	Planning	Geological Hazards	General Fund, Fees, Grants
Structure Protection (SP) – Wildfire **To further protect structures at risk from wildfire through education, building, and enforcement codes and actions.**	Code Enforcement	Wildfire	General Fund, Fees, Grants

6.5 Mitigation Priorities

6.5.1 Prioritization Process

6.5.1.1 Public Input for Mitigation Prioritization

Public input is an essential step in validating the prioritization of mitigation actions. Valuable information was gathered regarding the perception of hazard threats to residents through community meeting and public events.

The community survey found that most had experience an earthquake within the past 10 years within the City of Ontario, and most had experienced street flooding. When asked which hazards would be very likely to cause damage to buildings or harm residents in the City, respondents believed earthquake, fire, winds, and high heat were the most likely to occur.

The survey also investigated the incentives needed to convince residents to perform mitigation actions around their homes. The majority of those asked said they weren't sure how much they'd be willing to spend at one time to protect their home or business from natural hazards, and very few said they'd be willing to spend more than $1,000. The top incentives that would encourage the survey participants to protect their home against natural hazards were grants, insurance premium discounts, property tax breaks or incentives, and a "rebate" program. This community feedback was taken into consideration when prioritizing mitigation actions.

Mitigation Action Evaluation Worksheet

Ontario used this worksheet to help evaluate and prioritize each mitigation action being considered by the EMWC and the public. For each action, evaluate the potential benefits and/or likelihood of successful implementation for the criteria defined below.

Rank each of the criteria with a -1, 0 or 1 using the following scale:

1 = Highly effective or feasible

0 = Neutral

-1 = Ineffective or not feasible

Example Evaluation Criteria

Life Safety – How effective will the action be at protecting lives and preventing injuries?

Property Protection – How significant will the action be at eliminating or reducing damage to structures and infrastructure?

Technical – Is the mitigation action technically feasible? Is it a long-term solution? Eliminate actions that, from a technical standpoint, will not meet the goals.

Political – Is there overall public support for the mitigation action? Is there the political will to support it?

Legal – Does the community have the authority to implement the action?

Environmental – What are the potential environmental impacts of the action? Will it comply with environmental regulations?

Social – Will the proposed action adversely affect one segment of the population? Will the action disrupt established neighborhoods, break up voting districts, or cause the relocation of lower income people?

Administrative – Does the community have the personnel and administrative capabilities to implement the action and maintain it or will outside help be necessary?

Local Champion - Is there a strong advocate for the action or project among local politicians or community group

Mitigation action	Life Safety	Property Protection	Political	Legal	Environmental	Social	Administrative	Local Champion	Other Community Objections	Total score
UBC retrofit downtown	1	1	0	-1	0	1	-1	0	1	4
Old town storm drains	1	1	0	0	1	-1	0	0	0	4
Critical facility back up generators	1	1	0	0	1	1	0	0	0	4
Weed abatement	1	1	1	1	1	0	1	1	0	7
Update flood maps	0	0	0	0	1	1	1	0	0	3
Reduce greenhouse gases	1	1	0	-1	1	0	0	0	0	3
Community Emergency Response Team CERT	1	1	1	1	0	0	1	1	0	6
Community Outreach Resiliency	1	1	1	1	1	1	1	1	1	9
Harden target from **terror**	1	1	0	0	0	0	0	0	0	2

6.5.1.2 Goal, Objective, and Mitigation Action Matrix

Based upon the risk assessment, the City's capabilities and public input, Table 6 -4 shows primary objectives and corresponding mitigation actions selected for further implementation and development during the next planning cycle. Table 6-4 provides details for each mitigation action with mitigation action descriptions, FEMA mitigation category, responsible party, and timeframe. Implementation Action Plans for each action number highlighted in Table 6-5 are shown in further detail in Section 7 (Implementation).

Table 6-4: Goal, Objective, and Mitigation Action Prioritization Matrix

Hazard	RF Factor	Action No.	Action Description	Primary Action
All Hazard	AH	AH-1	Robust community outreach team	y
All Hazard	AH	AH-2	CERT Training	y
Wildfire	WF	WF-1	Code enforcement enforcing the weed abatement program	y
Earthquake	EQ	EQ-1	Improve Community education programs	y
Flood	FL	FL-1	Update NFIP data and promote the program	
Dam Inundation	DI	DI-1	Have maps update to reflect changes from freeway construction	
Anti-terrorism	AT	AT-1	Identify and prioritize mitigation activities at critical facilities and gathering place that are vulnerable to terrorist attack	y
Climate Change	CC	CC-1	Continue networking with South Coast Air Quality Management District to meet greenhouse gas reduction targets	
Climate Change	CC	CC-2	Continue implementing the energy conservation and efficiency measures identified in the County of San Bernardino Greenhouse Gas Emission Reduction Plan and Community Climate Change Plan	
Santa Ana Winds	SW	SW-1	Require backup power at any new critical facility	y
Santa Ana Winds	SW	SW-2	Enforce dust control measures at construction sites during high wind events	y

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6.6 Mitigation Strategy

Table 6-5: Mitigation Action Table

Hazard	Mitigation Action	Description / Background	Mitigation Strategy Type	Funding	Responsible Agency	Time Frame	Status / Comments / Implementation Mechanisms
ALL Hazard	Increase readiness for all hazards in the City of Ontario.	Develop a robust community outreach team to promote emergency preparedness and hazard mitigation activities. Develop a volunteer cadre to include CERT (Community Emergency Response Teams), Ham Radio Operators and faith based organizations	ES	General Fund EMPG, HMPG, UASI.	Fire Department Emergency Management	1-3 YRS.	
Wildfire	Continue to reduce fire hazards in the City of Ontario.	Through Code Enforcement enforce the weed abatement program to reduce fuels available to burn	NRP, PPRO	General Fund Fees	Code Enforcement	On-Going	
Earthquake	Improve public education programs and practices to residents for earthquake risk.	Public education and outreach programs are an efficient and cost-effective way to promote meaningful changes within a community. A Program for Public Information (PPI) for earthquake awareness and mitigation could significantly reduce injury and property damage to earthquake. Use a suite of partnerships, activities, and products to educate the public about earthquake science and motivating homeowners to become prepared for earthquakes.	PE&A	General Fund Grants	Fire Department Emergency Management	On-Going	
Flood	Provide adequate flood protection to minimize hazards and structural damage.	National Flood Insurance Program. Participate in the National Flood Insurance Program (NFIP), which provides flood insurance within designated floodplains. Update NFIP data and maps with newly identified flood hazard areas in the County, as new information becomes available.	PRV	General Fund Fees	Public Works	On-Going	
Dam Inundation	Reduce damage from a breach in the San Antonio Dam.	Have Army Corps of Engineers review the inundation zones to reflect the retention basins, quarries, 2 subterranean freeways that now exist between the city and the dam Promote the National Flood Insurance Program	PRV	General Fund Fees, Grants	Public Works	1-5 Years	
Anti-Terrorism	Use antiterrorism strategies to discourage terrorism and protect the people, infrastructure and assets in Ontario from the effects of terrorism.	Use anti-terrorism design strategies to discourage / prevent acts of terrorism. Identify and prioritize mitigation activities (anti-terrorism force protection) at critical facilities and gathering places that are vulnerable to terrorist attacks.	PRV, PPRO	General Fund EMPG, HMPG, UASI.	Police	On-Going	
Climate Change	Reduce the impacts of climate change on the City and limit human activities that change the atmosphere's makeup.	Meet greenhouse gas (GHG) reductions targets set forth by the Clean Air Act and The City's Community Climate Change Plan and the General Plan Environmental Element Section ER Continue working with the South Coast Air Quality Management District to meet GHG reductions targets. Continue implementing the energy conservation and efficiency measures identified in the County of San Bernardino Greenhouse Gas Emissions Reduction Plan, and the City Community Climate Change Plan	PRV, NRP	General Fund, Grants, Fees	Utilities	On-Going	

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Section 7.Plan Maintenance

7.1 Monitoring, Evaluating and Updating the HMP

As a living document it is important that this plan becomes a tool in the Ontario's resources to ensure reductions in possible damage from a natural hazard event. This section discusses plan adoption, implementation, monitoring, evaluating, and updating the HMP. Plan implementation and maintenance procedures will ensure that the HMP remains relevant and continues to address the changing environment in the Ontario. This section describes the incorporation of the HMP into existing Ontario planning mechanisms, and how the Ontario staff will continue to engage the public.

7.1.1 Plan Adoption

To comply with DMA 2000, the city council has officially adopted the 2016 Ontario HMP. The adoption of the 2016 HMP recognizes the Ontario's commitment to reducing the impacts of natural hazards within the Ontario limits. A copy of the 2016 HMP adoption resolution is included in Section 1.

7.1.2 Implementation

Over time, Implementation Strategies will become more detailed and the Ontario's mitigation planners will work to provide more detail for priority mitigation actions. In conjunction with the progress report processes outlined in Section 6 implementation strategy worksheets provided in Section 7 will be extremely useful as a plan of record tool for updates. Each implementation strategy worksheet provides individual steps and resources need to complete each mitigation action. The following provides several options to consider when developing implementation strategies in the future:

- Use processes that already exist; initial strategy is to take advantage of tools and procedures identified in the capability assessment in Section 5. By using planning mechanisms already in use and familiar to Ontario's departments and organizations, it will give the planning implementation phase a strong initial boost, especially if a mitigation strategy calls for expanding existing programs, or creating new programs or processes at a later date. Section 6 provides more information on existing planning mechanisms.
- Updated work plans, policies, or procedures; hazard mitigation concepts and activities can help integrate the 2016 HMP into daily operations. These changes can include how major development projects and subdivision reviews are addressed in hazard prone areas or ensure that hazard mitigation concerns are considered in the approval of major capital improvement projects.
- Job descriptions; working with department or agency heads to revise job descriptions of government staff to include mitigation-related duties could further institutionalize hazard mitigation. This change would not necessarily result in great financial expenditures or programmatic changes.

7.1.3 Future Participation

The Ontario HMP Planning Committee, established for this update, will become a permanent advisory body to administer and coordinate the implementation and maintenance of the 2016 HMP. The Fire Department will lead the 2016 HMP plan development and updates and all associated HMP maintenance requirements. On an annual basis, the HMP Planning Committee will report to the city council and the public on the status of plan implementation and mitigation opportunities in Ontario. Other duties include reviewing and promoting mitigation opportunities, informing and soliciting input from the public and developing grant applications for hazard mitigation assistance.

7.1.4 Schedule

The HMP will be updated every five years, as required by DMA 2000. The formal update process will begin at least one year prior to the expiration of the 2018 HMP. However, should a significant disaster occur within the Ontario, the HMP Planning Committee will reconvene within 30 days of the disaster to review and update the HMP as appropriate. The city council will adopt written updates to the HMP as a DMA 2000 requirement.

7.1.5 Process

The Emergency Manager for the City of Ontario will be the lead person for the updates and progress of the 2018 HMP. The Emergency Manager will have an agenda item on a quarterly basis at the City Emergency Management Working Committee (EMWC) meetings to receive progress reports on the 2016 HMP projects. If there are any issues the EMWC can forward concerns to the City Manager.

7.2 Incorporation into Existing Planning Mechanisms

An important implementation mechanism is to incorporate the recommendation and underlying principles of the HMP into community planning and development such as capital improvement budgeting, building and zoning codes, general plans and regional plans. Mitigation is most successful when it is incorporated within the day-to-day functions and priorities of the jurisdiction attempting to implement risk reducing actions. The integration of a variety of Ontario's departments on the HMP Planning Committee provides an opportunity for constant and pervasive efforts to network, identify, and highlight mitigation activities and opportunities at all levels of government. This collaborative effort is also important to monitor funding opportunities which can be leveraged to implement the mitigation actions. HMP mitigation planners will actively incorporate information from any updates to the Ontario General Plan or the Community Climate Action Plan.

7.3 Continued Public Involvement

The City of Ontario will continually accept input and provide updates on the 2018 HMP by utilizing the following public outlets:

EMWC meetings, General Plan update meetings, community events, CERT training and refreshers, Alert Ontario, Nixle, Everbridge, Facebook, Twitter, City Web site, annual Shake-Out exercise, annual fire and police open house and events emergency preparedness is invited to like the Ontario Mills Preparedness Fair

Blank Mitigation Action Implementation Plan Worksheets.

Mitigation Action Implementation Plan	
Action x.x.x	
Implementing Agencies	
Lead Agency:	
Roles and Responsibilities:	
Support Agency :	.
Roles and Responsibilities:	
Preliminary Identified Tasks:	
1.	
2.	
3.	
Implementation Costs	
Estimated Capital Costs:	
Estimated Maintenance Costs:	
Implementation Resources	
Financial Resources (Funding):	
Technical Assistance Resources:	
Required Equipment, Vehicles, and Supplies	
Office Supplies	
Vehicles	
Implementation Timeframe	
Estimated Mitigation Action Start Date:	
Estimated Mitigation Action Completion Date:	

Blank Mitigation Action Reporting Forms

---

*Progress Report Period:*_____ *to* _____

(date) *(date)*

*Project Title:*_____ *Project ID#*_____

*Responsible Agency:*_____

*Address:*_____

*City:*_____

*Contact Person:*_____

Phone#: _____ *Email address:*_____

*List Supporting Agencies and Contacts:*_____

*Total Project Cost:*_____

*Funding Source:*_____

*Anticipated Cost Overrun/Underrun:*_____

*Date of Project Approval:*_____ *Start date of the project:*_____

Anticipated completion date: _____

*Description of the Project (include a description of each phase, if applicable, and the time frame for completing each phase):*_____

Milestones	Completed (✓)	Projected Date of Completion

MHMP Goal Addressed: _____

*Indicator of Success:*_____

Project Status:

□ *Project on schedule* □ *Cost unchanged*

□ *Project completed* □ *Cost overrun**

□ *Project delayed**

**explain* _____

□ *Project cancelled**

**explain* _____

Summary of progress on project for this report:

A. What was accomplished during this reporting period?

B. What successes have you encountered, if any?

C. What obstacles, problems, or delays have you encountered, if any?

D. How was each problem resolved?

E. Based on the past experiences (successes and obstacles), what changes, if any, need to be made to ensure completion?

Next Steps: *What are the next step(s) to be accomplished over the next reporting period?*

Other Comments:

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Section 8. Works Cited

- 2011 City of Ontario Hazard Mitigation Plan
- 2014 City of Ontario Community Climate Change Action Plan
- 2013 San Bernardino COUNTY REGIONAL GREENHOUSE GAS EMISSIONS INVENTORIES AND REDUCTION PLAN
- 2005 City of Ontario Hazard Mitigation Plan
- 2011 San Bernardino County Hazard Mitigation Plan
- 2010 State of California Hazard Mitigation Plan
- 2010 Ontario Plan (General Plan)
- DMA 2000 State & Local Plan Criteria: Mitigation Planning Workshop for Local Governments
- Getting Started: Building Support for Mitigation Planning (FEMA 386-1)
- Understanding Your Risks: Identifying Hazards And Estimating Losses (FEMA 386-2)
- Developing The Mitigation Plan: Identifying Mitigation Actions And Implementing Strategies (FEMA 386-3)
- Bringing the Plan to Life: Implementing the Hazard Mitigation Plan (FEMA 386-4)
- Using Benefit-Cost Review in Mitigation Planning (FEMA 386-5)
- Integrating Historic Property and Cultural Resource Considerations into Hazard Mitigation Planning (FEMA 386-6)
- Integrating Manmade Hazards Into Mitigation Planning (FEMA 386-7)
- Multi-Jurisdictional Mitigation Planning (FEMA 386-8)
- Using the Hazard Mitigation Plan to Prepare Successful Mitigation Projects (FEMA 386-9)
- Planning for a Sustainable Future: The Link Between Hazard Mitigation and Livability (FEMA 364)
- Rebuilding for a More Sustainable Future: An Operational Framework (FEMA 365)
- FEMA 322 Public Assistance Guide
- HMP Update Guidance
- HMP Plan Review Tool
- HAZUS Local Database
- Stafford Act
- National Flood Insurance Act
- NOAA History of Significant Weather Events in Southern California
- City of Ontario Emergency Management Strategic Plan

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Appendix

Community Climate Action Plan

November 2014

City Council Approval December 16, 2014
Resolution No. 2012-122

CITY OF ONTARIO

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Contents

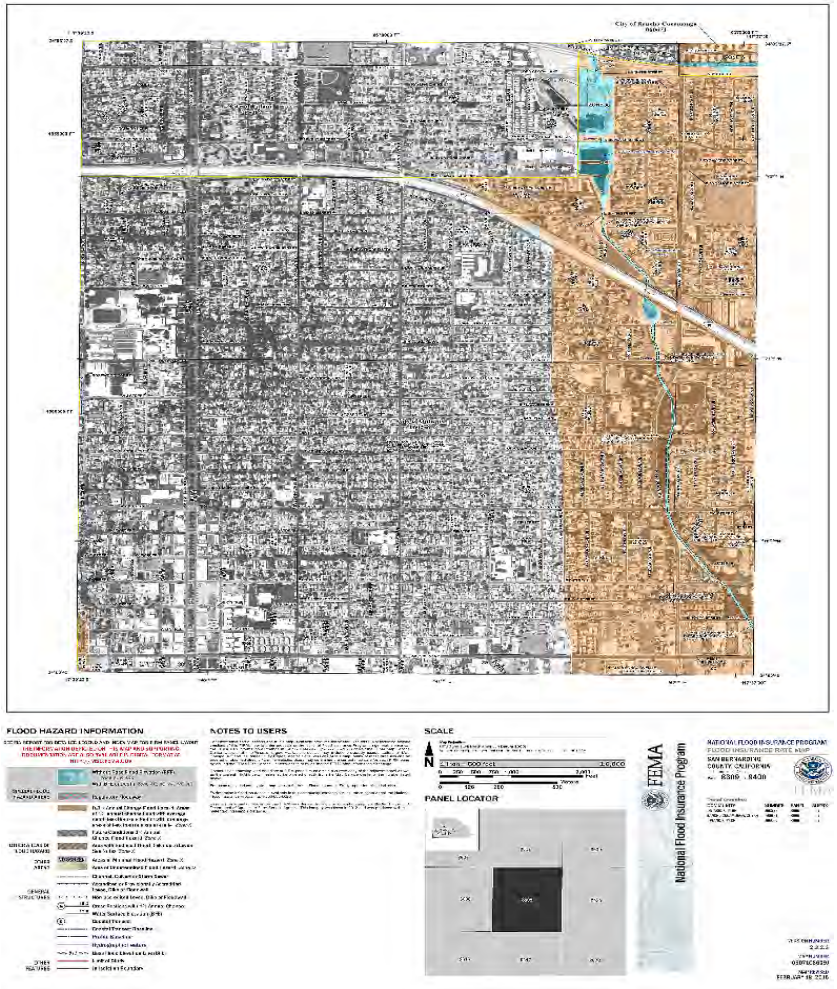
Environmental Impact Report

SAN BERNARDINO ASSOCIATED GOVERNMENTS SAN BERNARDINO COUNTY REGIONAL GREENHOUSE GAS EMISSIONS INVENTORIES AND REDUCTION PLAN Environmental Impact Report SCH No. 2012111046

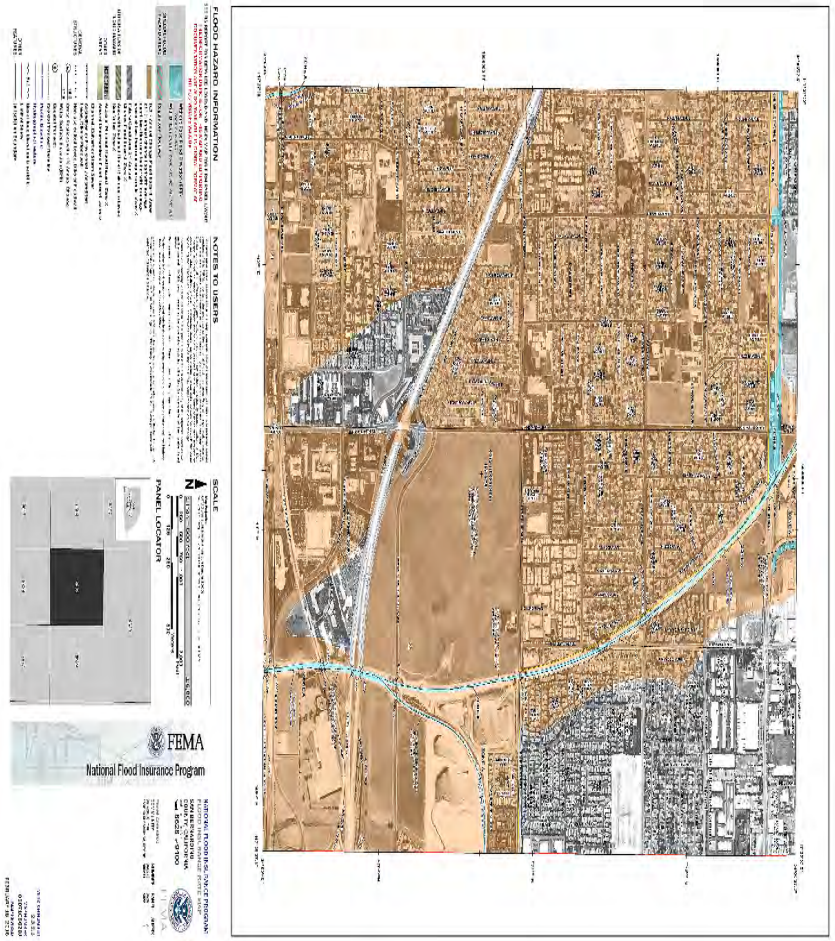
Volume XIV: Draft EIR (Section 4.13 [City of Ontario])

The Ontario Plan Final Environmental Impact Report

FEMA Flood Maps



Map 4-13



Map 4-14

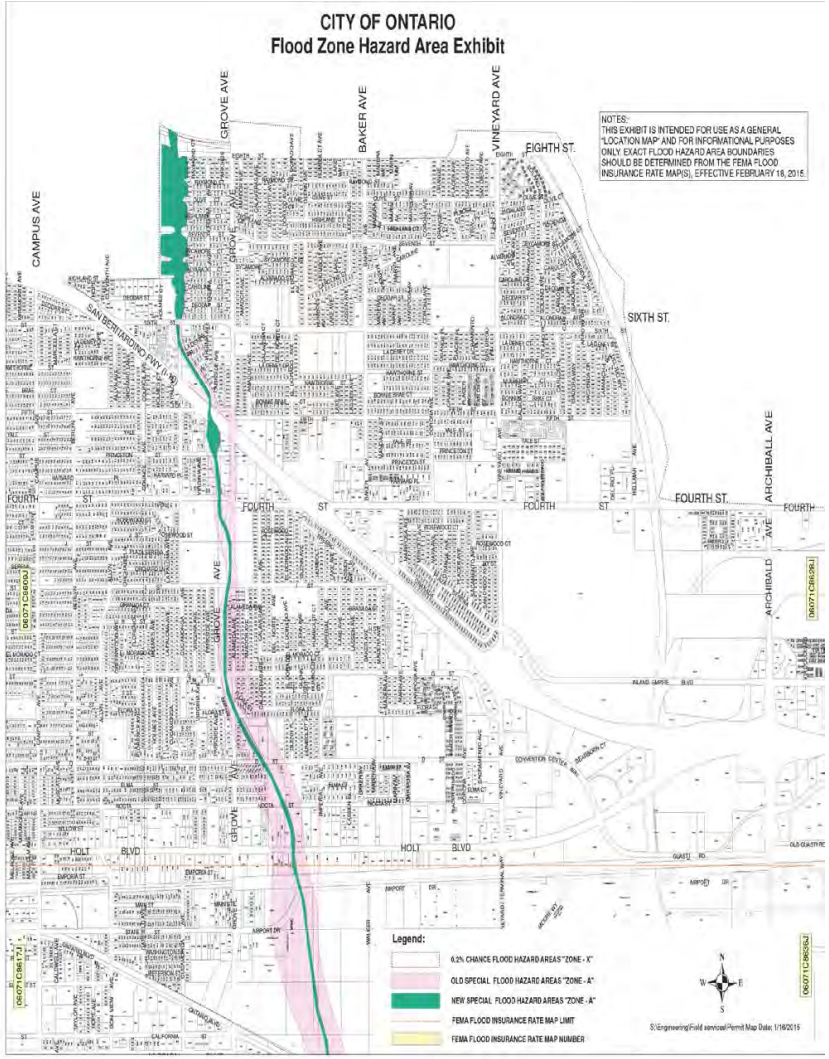
Map 4-16

A-12

map 4-15

A-11

Map



Ontario Business & Industry Partners in Preparedness

March 8, 2017

CITY OF ONTARIO

Agenda

- Emergency Management in Ontario
- Ontario Hazard Mitigation Plan
- ReadyOntario
- Business Continuity Planning
- Roundtable

Emergency Management in Ontario

Ontario M.C. §§4-3.01 - 4-3.10

Disaster Council

Mayor and City Council

Emergency Management Working Committee

City Departments and Agencies

Director of Emergency Services

City Manager

Emergency Manager

Day-to-day Emergency Management responsibilities

Emergency Operations Center

- Full-time, "hot" facility
- Backup power generation
- Backup water supply – 7,000 gallon tank
- Size: 2,996 sq ft
- Maximum occupancy: 75
- Current configuration: Table seating for 48
- Audio-visual displays


How does the government develop the plan?


The local government gathers input from
• Residents
• Government officials from all levels
• Businesses
• Schools
• Utilities
• Partners and stakeholders


Then gathers the data
• Prioritizes the risk
• Determines possible funding sources
• Formulates the plan
• Has the plan reviewed by local, state and federal officials
• Approves the plan by City Council action
• Implements projects as funding becomes available
• Yearly review of progress…..reprioritize as necessary
• Big review and update every 5 years


Questions?
Let's get input for the Hazard Mitigation Plan!


ReadyOntario
Ontario's Preparedness Portal
CITY OF ONTARIO


CITY OF ONTARIO
SOUTHERN CALIFORNIA
Home
Contact Us
RESIDENTS
BUSINESS
VISITORS
GOVERNMENT
JOBS
ReadyOntario
BETTER PREPARED TOGETHER
Return to DEPARTMENTS
ReadyOntario
AlertOntario
ReadyOntario

San Bernardino County
Operational Area Coordinating Council (OACC)

Chino Valle Inde endent Fire District
Fire Training Center
5092 Schaefer Ave.
Chino, CA 91710

Thursday, August 4, 2016
0930 – 1530 Hours

Time	Agenda Item	Action Item
0930	**I. Welcome, Pledge of Allegiance, and Introductions**	
0935	**II. Program Overview and General Updates** *Michael Antonucci, Emergency Services Manager* *San Bernardino County Fire, Office of Emergency Services*	
	ACTION ITEM: Approval of the February 4, 2016, OACC meeting minutes and the August 4, 2016, meeting agenda	**2016-002**
0945	**III. Chino Valley Independent Fire District and Training Center Overview** *Tim Shackelford, Fire Chief* *Chino Valley Independent Fire District*	
1000	**IV. Waterman Terrorism Incident Panel Discussion**	

C of San Bernardino Res onse/Incident Command Post - *Eric Fyvie, Emergency Operations Manager, City of San Bernardino Police Department*

Human As ct – *Corwin Porter, Assistant Director, San Bernardino County Department of Public Health*

Medical/Hos ital Res nse – *Scott Smith, Emergency Preparedness Coordinator, Arrowhead Regional Medical Center (ARMC)*

Mutual Aid Process – *Donna Mayer, Region VI Disaster Medical Health Specialist, Riverside County Emergency Management Department*

City Perspective - *Fay Glass, Emergency Operations Manager, City of Redlands*

PIO Perspective - *Vicki Cervantes, Public Information Officer, City of San Bernardino*

Victim's Services – *Andrew Gruchy, Deputy Director, San Bernardino County Department of Behavioral Health*

Cost Recove – *Valerie Clay, Deputy Executive Officer, San Bernardino County Administrative Office*

EOC and Post-Disaster Activities – *Mike Antonucci, Emergency Services Manager, San Bernardino County Fire, Office of Emergency Services*

1230	**WORKING LUNCH** *Lunch generously provided by the Chino Valley Independent Fire District*
1300	**V. Operational Area Grants Update*** *Kathleen Gonzalez, Staff Analyst* *San Bernardino County Fire, Office of Emergency Services*

***For other reports, please refer to the August 2016 OES Quarterly Newsletter**

1305	**VI. Hazard Mitigation Plan Update** *Miles Wagner, Emergency Services Officer* *San Bernardino County Fire, Office of Emergency Services*
1310	**VII. Active Shooter Awareness Training** *Zack Mullennix, Emergency Services Officer/TLO* *San Bernardino County Fire, Office of Emergency Services*
1530	**VIII. Adjourn**

U comin OACC Meetin :

DATE: Thursday, November 3, 2016
LOCATION: San Bernardino County Department of Behavioral Health
Administration Building
303 E. Vanderbilt Way
San Bernardino, CA 92408

SAN BERNARDINO COUNTY

Plan

Project Management Team Meeting #050

OCTOBER 26, 2016 | 10:00 AM TO 12:00 PM — SBC GOV CTR | COMMUNITY ROOM

MEETING CALLED BY	PMT	Jerry Blum
MEETING PURPOSE	Safety Background Report
PLEASE READ BEFORE	
PLEASE PROVIDE BEFORE	–
PLEASE BRING	–
ATTACHED [ITEM REF#]	- Draft Safety Background Report (forthcoming — not expected to read in advance)

ATTENDEES (^ not in attendance)

COUNTY PMT	ANCILLARY COUNTY STAFF	PLACEWORKS
Jerry Blum	Jeanette Hill	Colin Drukker
Suzanne Peterson	Chris Warrick	Brian Judd
Tom Hudson	Linda Mawby	Mark Hoffman
Terri Rahhal	David Wert	
Karen Watkins	*Note: Ancillary staff will be notified individually when their attendance is required.*	
Dena Smith		
Bob Page		
Gia Kim		
Aaron Dishno		

AGENDA OUTLINE

TIME	LEAD	ITEM
20 min	PlaceWorks	**1. Follow-up Action Item List**
		▪ Land Use Districts
		▪ SOI Agreements and WIB Employment Data
		▪ Community Development Toolkit augment
		▪ State GHG Transportation Sector Strategies
		▪ Geodesign Summit
		▪ Fiscal Interview Data Needs
90 min	PlaceWorks	**2. Draft Safety Background Report**
		▪ Overview and discussion in advance of staff review of report
		- Seismic and Geologic Hazards
		- Flooding Hazards
		- Hazardous Materials
		- Fire Hazards
		- Emergency Preparedness
Balance	Team	**3. Conclusions, Assignments, and Next Steps**

San Bernardino County Fire Office of Emergency Services

H P Review/Conference Call

1743 Miro Way
Rialto, CA 92376

Tuesday, July 19, 2016
3:00 p.m. – 4:00 p.m.

I. **Welcome**

II. **Participants**

III. **Website**

IV. **Resource Requests**
- A. County Assessor
- B. CA Energy Commission

V. **Invoice**

VI. **County Department of Public Works**

VII. **Questions/Closing Remarks**

San Bernardino County Fire Office of Emergency Services

2017 Hazard Mitigation Plan - 5th Stake Holders Meeting

Tuesday, March 28, 2017

18	[illegible]	[illegible]								
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30										

San Bernardino County
Operational Area Coordinating Council (OACC)

Cit of Hes eria
Police Department
Community Room
15840 Smoketree
Hesperia, CA 92345

0930 – 1500 Hours

Time	Agenda Item	Action Item
0930	I. **Welcome, Pledge of Allegiance, and Introductions**	
0935	II. **Program Overview and General Updates** *Michael Antonucci, Emergency Services Manager* *San Bernardino County Fire, Office of Emergency Services*	
	ACTION ITEM: Approval of the November 5, 2015, OACC meeting minutes and the February 4, 2016, meeting agenda	2016-001
0945	III. **Hesperia Emergency Management Projects/Programs** *Brigit Bennington, Emergency Services Coordinator/CERT Coordinator* *City of Hesperia*	
1000	IV. **Governor's Office of Emergency Services (Cal OES) Report** *Doug Huls, Deputy Regional Administrator* *California Governor's Office of Emergency Services (Cal OES)*	
1010	V. **Year in Review: County OES in 2015** *Michael Antonucci, Emergency Services Manager* *San Bernardino County Fire, Office of Emergency Services*	
1030	**BREAK**	
1045	VI. **Hazard Mitigation Plan Process Review** *Miles Wagner, Emergency Services Officer* *San Bernardino County Fire, Office of Emergency Services*	
1055	VII. **Operational Area Grants Update*** *Kathleen Gonzalez, Staff Analyst* *Karen Page, Accounting Technician* *Kathryn Kehl, Staff Analyst* *San Bernardino County Fire, Office of Emergency Services*	

1115	VIII. **Round Table**
1130	IX. **Adjourn**
1200	**WORKING LUNCH** *Lunch generously provided by the City of Hesperia*
1200	**New Emergency Manager Orientation** *Cindy Serrano, Assistant Emergency Services Manager* *San Bernardino County Fire, Office of Emergency Services*

***For other reports, please refer to the February 2016 OES Quarterly Newsletter**

U comin OACC Meetin :

DATE: Thursday, May 5, 2016
LOCATION: TBD

San Bernardino County Fire
Office of Emergency Services

Local Hazard Mitigation Plan Committee

1743 Miro Way
Rialto, CA 92376

Tuesday, August, 30th, 2016
1:30 p.m. – 2:30 p.m.

AGENDA

Welcome and Introductions
Goals and objectives of this committee

I. HMP projects that are: completed, in progress ,suspended or in process
   - . What current projects
   - new projects since 2010
   - list of completed 2010 projects
   - proposed projects and
   - suspended projects

II. Worksheets and what needs to be done

III. Department updates, new names and staff and other changes since 2011

IV. Public notifications and concerns, and county agencies discussion

V. Next meeting or conference call

San Bernardino County Fire
Office of Emergency Services

CERT Symposium on Terrorism

Victoria Gardens Cultural Center
12505 Cultural Center Drive
Rancho Cucamonga, CA 91739

Saturday, September 24, 2016
8:00 a.m. – 4:00 p.m.

AGENDA

I. Check In **(07:30-08:00)**

II. Welcome/HMP Update Announcement **(8:00-8:10)**
Michael A. Ramirez, Emergency Services Officer, San Bernardino County Fire, Office of Emergency Services
Breanna Medina, Emergency Management Coordinator, Rancho Cucamonga Fire Protection District

III. Pledge of Allegiance and December 2, Memorial **(8:10-8:30)**

IV. Overview of the December 2nd, 2015, Mass Shooting Terrorist Event in San Bernardino **(8:30-9:30)**
Captain Raymond King, San Bernardino Police Department

V. Break **(9:30-9:40)**

VI. Counterterrorism Threat Awareness **(9:40-10:40)**
Claude Jubran, Joint Terrorism Task Force

VII. Break **(10:40-10:50)**

VIII. A Case Presentation on the Broken Banner Investigation **(10:50-11:50)**
Wade L. Lee, Special Agent, Federal Bureau of Investigation (FBI) Los Angeles/Riverside

IX. Lunch **(11:50-1:00)**

X. Active Shooter Awareness **(1:00-4:00)**
Rancho Cucamonga Police and Fire Protection District

*Special thanks to the City of Rancho Cucamonga for hosting

San Bernardino County Fire
Office of Emergency Services

Multi-Jurisdictional Hazard Mitigation Plan (MJHMP) 2016-17 Update
Stakeholder Update Meeting # 5

In Person Meeting Only
1743 Miro Way
Rialto, CA 92376

Tuesday, March 28, 2017
10:00 a.m. – 11:30 a.m.

AGENDA

I. **Welcome and Introductions**
II. **Project Updates**
III. **Future Implementation (Section 7 Review)**
IV. **Plan Review and Submittal**
- Draft Plan Review / Checklists
- Public Involvement vs. Review
- Consultant Document Review
- Submitting your plan to FEMA

V. **Upcoming FEMA Hazard Mitigation Training**

CITY OF ONTARIO 2018 HAZARD MITIGATION PLAN

San Bernardino County Fire
Office of Emergency Services

Multi-Jurisdictional Hazard Mitigation Plan (MJHMP) 2016-17 Update
Stakeholder Update Meeting # 5

In Person Meeting Only
1743 Miro Way
Rialto, CA 92376

Tuesday, March 28, 2017
10:00 a.m. – 11:30 a.m.

AGENDA

I. **Welcome and Introductions**
II. **Project Updates**
III. **Future Implementation (Section 7 Review)**
IV. **Plan Review and Submittal**
- Draft Plan Review / Checklists
- Public Involvement vs. Review
- Consultant Document Review
- Submitting your plan to FEMA

V. **Upcoming FEMA Hazard Mitigation Training**

City of Ontario
Emergency Management Working Committee
Agenda

January 12, 2016 – 10:00-11:30 AM
Emergency Operations Center

I. [redacted]

II. Operational Communications

a. Satellite phones, GETS, WPS — Jimmy Chang

b. Public safety dispatching and radio use — Brian Acosta / Liz Morris

c. WebEOC and Everbridge — Ray Cheung

III. EOC Academy

a. Final roster

b. Schedule and flyer

IV. Equipment

a. Bon View warehouse inventory
   i. MREs
   ii. Backpack Kits

V. Roundtable

Next Meetin

Date/Time: February 16, 2017 – 10:00-11:30 AM
Location: EOC
Topic: AlertOntario / Everbridge

City of Ontario
Emergency Management Working Committee
Agenda

February 16, 2017 – 10:00-11:30 AM
Ovitt Family Community Library
215 E. C St, Ontario, CA 91764

I. Introductions

II. Everbridge

a. City use — Ray Cheung
   i. Ontario PD
   ii. Ontario FD
b. WorkDay integration — Anna Vaca
c. AlertOntario — Ray Cheung
   i. Marketing Plan — Media Team

III. Events – January 20-23 Storm

a. Storm Damage — Roberto Perez
b. Proclamation / Recovery process — Ray Cheung

IV. Training and Exercises — Ray Cheung

a. EOC Academy update
b. CERT training
c. ShakeOut Exercise

V. Roundtable

Next Meetin

Date/Time: March 9th, 2017 – 10:00-11:30 AM
Location: EOC
Topic: Walker Fire – Recreation and Comm. Services - "Expect the Unexpected"

City of Ontario
Emergency Management Working Committee
Agenda

April 13, 2017 – 10:00-11:30 AM
Ontario Police Department – Community Room
2500 S. Archibald Ave, Ontario, CA 91761

I. Introductions

II. Emergency Management Brief

III. Planning
- a. Satellite Phone Refresh
  - i. May 1-4
- b. Damage Assessment Workgroup
  - i. May 2, 2017, EOC Conf. Room, 2-3:30 PM

IV. Training and Exercises
- a. EOC Academy – Cohort 2 Scheduling
- b. Amgen TOC Exercise

V. Calendar
- a. EMWC Scheduling
- b. National Preparedness Month activities
  - i. City Hall / Library Preparedness Expo
  - ii. Fire Open House – October 7

VI. Roundtable

VII. OPD Tour — Bill Russell

Next Meetin

Date/Time: May 25, 2017 – 10:00-11:30 AM
Location: Ontario EOC
Topic: After Action Conference

City of Ontario
Emergency Management Working Committee
Agenda

April 13, 2017 – 10:00-11:30 AM
Ontario Police Department – Community Room
2500 S. Archibald Ave, Ontario, CA 91761

I. Introductions

II. Emergency Management Brief

III. Planning
- a. Satellite Phone Refresh
  - i. May 1-4
- b. Damage Assessment Workgroup
  - i. May 2, 2017, EOC Conf. Room, 2-3:30 PM

IV Training and Exercises
- a. EOC Academy – Cohort 2 Scheduling
- b. Amgen TOC Exercise
  - i. Staffing

V. Calendar
- a. EMWC Scheduling
- b. National Preparedness Month activities
  - City Hall / Library Preparedness Expo
  - iii. Fire Open House October 7

VI. Roundtable

VII. OPD Tour — Bill Russell

Next Meetin

Date/Time: May 25, 2017 – 10:00-11:30 AM
Location: Ontario EOC
Topic: After Action Conference

EOC Academy Cohort 2 Schedule

June:	SEMS/NIMS Combined Information/Resource Management
July:	G-775 EOC Management and Ops
August:	G-191 ICS/EOC Interface Mobilization Drill
Sept:	G-611 Section/Position Training G-626E Essentials of EOC Action Planning
Oct 19:	*ShakeOut Full Scale Exercise*

si o	ame
E Director	
EOC Safety	Dave Coote
EOC PIO	
O erations Chief	

z

amage ssessmen ni	oe e ousa n ony ega
Planning Chief	
Situation Analysis Unit	Lorena Mejia
Documentation Unit	Marilyn Bonus
Lo istics Chief	Michael Johnson

e s	
omm nit	rian costa
IT Unit	Peter Witherow
Finance Chief	
Cost Recovery	Giancarlo Mezza
Cost Analysis	Lilyan Villarreal
Comp Claims	Kathy Garozzo

City of Ontario
Emergency Management Working Committee
Agenda

May 25, 2017 – 10:00-11:30 AM
Ontario Emergency Operations Center
415 E. B St, Ontario, CA 91764

I. Introductions

II. Emergency Management Brief

III. Planning

  i. Hazard Mitigation Grant Program - NOI

  ii. ARC Shelter Review

IV. Training and Exercises

  a. Safety Assessment Program Training — Joe De Sousa

  b. EOC Academy – Cohort 2

  c. Ride-EX After Action

V. Roundtable

Next Meetin

Date/Time: July 20, 2017 – 10:00-11:30 AM
Location: TBD / Ontario EOC

City of Ontario
Emergency Management Working Committee
Agenda

July 20, 2017 – 10:00-11:30 AM
Ontario Emergency Operations Center
415 E. B St, Ontario, CA 91764

I. Introductions

III. Mitigation
  a. PDM and FMA grants

IV. Planning
  i. EM Strategic Plan
  ii. Emergency Operations Plan Revision

V. Training and Exercises
  a. WebEOC – Situation Dashboard
    i. August 8th, 2017 – 1-3 PM
    ii. September 27th, 2017 - 1-3 PM
    iii. October 3rd, 2017 – 1-3 PM

  b. ShakeOut – 10:19 am on October 19, 2017

VI. Events
  a. Route 66 – September 15-17, 2017
  b. Emergency Preparedness Expo – September 21, 2017

VII. Roundtable

Next Meeting

Date/Time: August 16, 2017 – 10:00-11:30 AM
Location: Ontario EOC
Topic: Damage Assessment Annex

City of Ontario
Emergency Management Working Committee
Agenda

August 16, 2017 – 10:00-11:30 AM
Ontario Emergency Operations Center
415 E. B St, Ontario, CA 91764

I. Introductions

II. Emergency Management Brief

III. Planning
  i. Damage Assessment Annex Review

IV. Training and Exercises
  a. ShakeOut – 10:19 am on October 19, 2017
    i. Drill Manual Review
    ii. ExDesign Committee – September 5th, 1 PM
  b. Active Shooter Drill Discussion

V. Events
  a. Route 66 – September 15-17, 2017
  b. Emergency Preparedness Expo – September 21, 2017

VI. Roundtable

Next Meeting

Date/Time: September 21, 2017 – 10 AM – 4 PM
Location: Ovitt Family Community Library
Topic: Emergency Preparedness Expo

City of Ontario
Emergency Management Working Committee
Agenda

October 25, 2017 – 10:00-11:30 AM
Public Works Conference Room
1425 S. Bon View Ave, Ontario, CA 91761

I. Introductions

II. Emergency Management Brief

III. Planning
  i. Winter Weather Workshop
  ii. GETS cards

IV. Training and Exercises
  a. ShakeOut AAR
  b. EOC Academy
  c. Statewide Medical Health and Training Exercise – November 9th

V. Events
  a. Emergency Preparedness Expo AAR

VI. Roundtable

Next Meetin

Date/Time: September 30, 2017 – 10 AM – 11:30 AM
Location: Ontario EOC

City of Ontario
Emergency Management Working Committee
Agenda

November 30, 2017 – 10:00-11:30 AM
Ontario EOC
415 E. B St., Ontario, CA 91764

II. Emergency Management Brief

III. Planning
  i. Employee recall policy
  ii. SCAG EQ initiative update
  iii. Functional Annexes
    1. Information Management Annex
      a. Public Information Hotline
    2. Resource Management Annex
    3. Damage Assessment
      a. Workshop

IV. Training and Exercises
  a. EOC Academy Schedule – Cohort 3
  b. Statewide Medical Health and Training Exercise – November 9th
  c. Everbridge Testing

V. Events
  a. Emergency Preparedness Expo Update

VI. Roundtable

Next Meeting

Date/Time: December 21, 2017 or January 18, 2018 – 10 AM – 11:30 AM
Location: Ontario EOC

City of Ontario
Emergency Management Working Committee
Agenda

December 21, 2017 – 10:00-11:30 AM
Ontario EOC
415 E. B St., Ontario, CA 91764

I. Introductions

II. Emergency Management Brief

III. Planning
   i. SCAG EQ Initiative

IV. Training and Exercises
   a. EOC Academy Schedule – Cohort 3
   b. Senior Leadership Academy
   c. Monthly Communications Testing Schedule
   d. 1st Qtr Exercise - February timeframe

V. Events
   a. High Wind / Nursery Fire Event

VI. Year End Review
   a. OEM Survey

VII. Awards

VIII. Roundtable

Next Meetin

Date/Time: January 18, 2018 – 10 AM – 11:30 AM
Location: Ontario EOC

City of Ontario
Emergency Management Working Committee
Minutes

January 12, 2017 – 10:00-11:30 AM
Emergency Operations Center

Sousa, David Coote, Charity Hernandez, Mike Pelletier, Anthony Coletta, Brian Acosta, Giancarlo Mezza, Reed Sigler, Pascal Pengestu, Anna Vaca, Nancy Morales, Shanita Simmons, Lilyan Villarreal, Don Meyer, Rudy Zeledon, Lorena Mejia. Kathy Garozzo, Jimmy Chang, and Raymond Cheung.

II. Operational Communications

a. Satellite phones, GETS, WPS – Jimmy Chang presented on emergency communication methods including satellite phones, Government Emergency Telecommunication Service (GETS), and Wireless Priority Service (WPS). Please see presentation for additional details. People who would like to request a GETS card or WPS added to their city phone, please send a department memo to Emergency Management with the request.

b. Public safety dispatching and radio use - Brian Acosta presented on how the city manages 911 call-taking, public safety dispatching, mutual aid response, and radio communications.

c. Amateur Radio, WebEOC and Everbridge – Raymond Cheung presented on amateur radio capabilities, the WebEOC incident management software used for documentation and information sharing, and Everbridge incident notification system that is used for public notifications as well as for city responders.

III. EOC Academy

a. Final roster The final roster for the EOC Academy was reviewed. A total of 20 people will be in the first cohort. Additional room is available if anyone would still like to attend.
b. Schedule and flyer – The flyer with class schedule was reviewed. This flyer along with Outlook invites will be sent to all attendees.

IV Equipment
The inventory at the Bon View warehouse was recent conducted.

i. Heater Meals – Seven pallets of heater meals with a February expiration date were located. If anyone has contacts with non-profits who may be able to receive/utilize these meals, please contact Emergency Management.
ii. Backpack Kits – EM is conducting an inventory of current CERT backpack locations. Also, there are preparedness backpack kits available for department distribution. Please contact Emergency Management to request.

V. Roundtable

Dave Coote shared that the annual city paving work has been scheduled. Also, 200 dead or diseased trees on city property will be removed.

Lilyan Villarreal shared that Management Services will be conducting the city vehicle inventory.

Reed Sigler shared that HR Connect will be used as a city communication tool. Also, Miscellaneous employees will be receiving a 3% pay increase.

Shanita Simmons shared that they are developing new procedures based on new bidding laws that are going into effect..

Kathy Garozzo shared that Risk Management continues to process claims related to storm damage.

Nancy Morales shared that the Library will be upgrading their preparedness kits.

Charity Hernandez shared that the State of the City will be held on March 29th at the Ontario Convention Center.

Don Meyer shared that the recent storms have raised the reservoir levels at Lake Shasta to 120 feet above the level last year and snowpack is 130% of average. However, we are not out of the drought just yet.

Rudy Zeledon shared that 2017 will be a big year for development with 8,000 approved lots with much commercial, hotel, and industrial development.

Lorena Mejia shared that she is working on the Airport Master Plan.

Marilyn Bonus shared that Records is collecting all the claims from Risk Management.

Pam Martinez shared that Fire is conducting an AED inventory and will be rolling out Agency CPR training again.

Action Items

1. Review EOC Academy roster and send additional attendees to EM.
2. Send GETS/WPS request by department memo to EM.
3. Send potential contacts to distribute Heater Meals.
4. Locate CERT backpacks issued/deployed that are hanging on a wall for inventory.
5. Send request to EM if in need of red backpack preparedness kits.

Next Meetin

Date/Time:	February 16, 2017 – 10:00-11:30 AM
Location:	EOC
Topic:	AlertOntario / Everbridge

City of Ontario
Emergency Management Working Committee
Minutes

February 16, 2017 – 10:00-11:30 AM
Ovitt Family Community Library
215 E. C St, Ontario, CA 91764

I. Introductions were made. Attendees included: Pedro Rico, Marilyn Bonus, Joe DeSousa, David Coote, Nick Gonzalez, Tanya Spiegel, Mauricio Diaz, Antonio Alejos, Tony Coletta, Craig Grabow, Michael Johnson, Reed Sigler, Nancy Morales, Alan Saeger, Lilyan Villarreal, Loretha Nwosu, Don Meyer, Joe Minasso, Andy Marquez, Rudy Zeledon, Julie Dorey, Matt Hickey, Roberto Perez, John Hawkins, and Raymond Cheung.

II. Everbridge

a. Ray Cheung shared that both Ontario Police and Ontario Fire are using the Everbridge system for public and internal notifications via phone, email, and txt. The system was demoed to attendees. The system is available for use by any City department or agency – please contact Ray for more information.
b. Ray Cheung shared that IT and HR are progressing on integrating WorkDay with Everbridge. Reed Sigler assured the committee that confidential employee data will be protected through this process.
c. Nick Gonzalez displayed the graphics for the upcoming marketing plan for AlertOntario – the public facing side of Everbridge. Residents and businesses can sign up easily by texting ONTARIO to 888777 or going to www.Read ntario.com to register. Information about road closures, emergency evacuation orders, shelter in place orders, etc. will be disseminated through AlertOntario.

III. Events – January 20-23 Storm

a. Roberto Perez discussed the $140,937 in damage/costs after the January storm.
b. Ray Cheung presented on the typical disaster recovery / proclamation / recovery process and expectations for agency documentation.

IV. Training and Exercises

a. The EOC Academy is continuing with the two-day G775 EOC Management and Operations class coming up next. Attendees are asked to consider how the

Academy is fitting into their schedule and what the next cohort schedule should look like.
b. CERT training is scheduled for April 21-23, 2017. Employees are eligible to attend with supervisor approval. Registration is available on Eventbrite.com.
c. The 2017 ShakeOut Exercise will be held on October 19, 2017. The Committee was asked to begin thinking about how their agency can actively participate in tis year's exercise.

V. Roundtable

- Nick Gonzalez shared that the State of the City is coming up on March 29.
- John Schmidt shared the he is working on the City Hazard Mitigation Plan and may be contacting staff regarding the update.
- Julie Dorey encouraged the Committee to utilize practical exercises for training.
- Lilyan Villarreal shared that she is working on ensuring emergency purchases on credit cards are available and working properly.
- Loretha Nwosu shared that the Museum is updating their emergency kits.
- Craig Grabow shared that Marina Jimenez is starting at Fleet.
- Joe DeSousa shared that the biannual weed abatement campaign is starting with 900-1,000 letters being sent out.
- Dave Coote shared that Parks and Maintenance is hard and work preparing for the upcoming storm and 9 pallets of sandbags are available for deployment.

Next Meetin

Date/Time: March 9th, 2017 – 10:00-11:30 AM
Location: De Anza Community and Teen Center
Topic: Walker Fire – Recreation and Comm. Services - "Expect the Unexpected"

City of Ontario
Emergency Management Working Committee
Minutes

March 9, 2017 – 10:00-11:30 AM
De Anza Community and Teen Center
1405 S. Fern Ave, Ontario, CA 91762

I. Introductions were made.
Pedro Rico, Joe De Sousa, David Coote, Mauricio Diaz, Antonio Alejos, Peter Witherow, Pascal Pangestu, Nancy Morales, Michelle Sifuentes, Don Meyer, Joe Minasso, Rudy Zeledon, Julie Dorey, Pat Birkett, John Schmidt, and Raymond Cheung were in attendance.

II. Emergency Management Brief
Ray Cheung briefed the group on some of the projects Emergency Management has been working on, including:

- Two Partners in Preparedness workshops were held for Faith-Based organizations as well as for Business and Industry in March.
- Five of the six expired pallets of Heater Meals were donated to local charity.
- A ReadyOntario tent and table covers have been purchased for public education events.
- Over 500 people have signed up for AlertOntario via the website or by text message.
- There are spots left for the April CERT class (note: class has since filled up).
- CERT-trained volunteers are being interviewed to form an active team.
- The G191 EOC and ICS Interface class will be held on March 23rd.
- A question was asked about emergency food and water supplies. At this time, departments are responsible for procuring their own supplies for essential staff with a recommended 3-day supply. MREs may be purchased from http://meyerscustomsupply.com/ by the pallet or individual packs of 12.

III. Presentation - Expect the Unexpected
Julie Dorey gave a presentation on the Walker Fire in 2007 and how Recreation and Community Services supported a shelter for both the public and first responders.

IV. Hazard Mitigation Plan Review

John Schmidt reviewed the Ontario Hazard Mitigation Plan. The committee was asked to review the update and send comments to rschmidt ontarioca. ov by April 13th.

V. Training and Exercises

a. Ray Cheung asked the committee for potential Lunch 'n' Learn topics for city employees to attend on a monthly basis. Topics may include: what it means to be a Disaster Service Worker, modules from CERT training including how to shut-off utilities, CPR/AED training, and the phases of a disaster.
b. The Exercise Design Committee will be meeting on March 21 at 3 pm at the EOC to begin planning for the May 18th EOC exercise.
c. The San Bernardino Operational Area is offering Disaster Cost Recovery training. These are classes that will assist the City in ensuring maximum disaster reimbursement and anyone involved in Finance/Admin, Logistics, or Documentation should try to take one of these if they can. Register at htt s://disastercostrecove series.eventbrite.com.
    i. April 11-12 – Disaster Cost Recovery
    ii. April 13 – Purchasing Compliance with Federal Regulations
    iii. April 27 – D umentation Plan and Work Process Flow

VI. Roundtable

- Don Meyer, OMUC, shared that they are working on the budget and going through water rate studies.
- Joe Minasso, OMUC, shared that they are working on routing solid waste services to the developments at Ontario Ranch.
- Joe De Sousa, Code, shared that an illegal medical marijuana facility was given a vacate warrant.
- Mauricio Diaz, Engineering, shared that the Traffic Management Center is coming along and will be complete in 2-3 months.
- John Schmidt, Emergency Management, shared that Simpler Life in Redlands is an excellent source of preparedness items.
- Julie Dorey, Recreation, shared that they are gearing up for a busy summer season and they have several vacancies they are looking to fill.
- Michelle Sifuentes, Museum, shared that they are putting the finishing touches on their new grounds and will have an open call for the Ontario Open Art Exhibition.
- Nancy Morales, Library, shared that they are busy getting ready for summer and updating their emergency manual.

- Dave Coote, Parks and Maintenance, shared that James R. Bryant Park is being renovated with lighting and cameras, the paving schedule is underway, and dead trees are being cleared from Calaveras and Del Norte.
- Lt. Pat Birkett, Police Dept-Airport Bureau, shared they continue to transition from LAWA to the Ontario International Airport Authority.
- Richard Avila, Planning, shared that there is a lot of incoming development for both new lots and in-fill development.
- Peter Witherow, IT, shared that they have been working with the airport transition as well.

VII. Community Center Tour
Recreation staff gave the committee a tour of the De Anza Community and Teen Center

Next Meetin

Date/Time: April 13, 2017 – 10:00-11:30 AM
Location: Ontario Police Dept Community Center

City of Ontario
Emergency Management Working Committee
Minutes

April 13, 2017 – 10:00-11:30 AM
Ontario Police Department – Community Room
2500 S. Archibald Ave, Ontario, CA 91761

I. Introductions were made. The following were in attendance: Pedro Rico, Anthony Vega, David Coote, Charity Hernandez, Mauricio Diaz, Tony Coletta, Reed Sigler, Peter Witherow, Pascal Pangestu, Nina Kaivan-Mehr, Nancy Morales, Lilyan Villarreal, Don Meyer, Joe Minasso, Andy Marquez, Bill Russell, Kathy Garozzo, Jammee Digon, Michael Krouse, Daniel Adamus, John Schmidt, and Raymond Cheung.

rschmidt ontarioca. ov as soon as possible.

III. Planning
a. Satellite Phone Refresh – New sim cards have been purchased for existing satellite phones with local phone numbers. Emails will be sent out to users to bring in their sat phones to get their sim card exchanged during the week of May 1-4.
b. Damage Assessment Workgroup – This workgroup will establish Rapid Damage Assessment, Safety Assessment, Initial Damage Estimate, Preliminary Damage Assessment policy/procedures which will become the Damage Assessment Annex to the Emergency Operations Plan.
May 2, 2017, City Hall – Community Rooms 1 and 2, 2-3:30 PM

IV. Training and Exercises
a. EOC Academy – Cohort 2 Scheduling – Please send names of those interested/able to attend Cohort 2 to Raymond by April 28th. A class schedule will then be established with those attending.
b. Amgen TOC Exercise – The final exercise will take place on May 18th from 9 AM – 3 PM. Please see staffing roster below and confirm attendance to Raymond.

V. Calendar

a. EMWC Scheduling – The Emergency Management Work Committee will move to the 3rd Thursday of the month at the same scheduled time of 10-11:30 AM.
b. National Preparedness Month activities
    i. City Hall / Library Preparedness Fair – The tentative date for the Preparedness Fair is September 21st from 9 AM – 2 PM. City departments are invited to participate with a booth sharing information that may be useful and pertinent to disaster preparedness. David Coote and Joe Minasso volunteered to be on the planning committee for this event.
    ii. Fire Open House – Another opportunity for public outreach is on October 7th at the annual Fire Dept Open House.

VI. Roundtable

- Pedro Rico shared that Building is working on citizens' access and adding the ability to schedule inspections online.
- Charity Hernandez shared the State of the City was successful and that Economic Development staff will be attending the ICSC is May to promote the City.
- Michael Krouse shared that the Convention and Visitors Bureau will also be sending staff to ICSC. He mentioned the concert bookings are going well at the Arena with the Marvel stage show coming to town. The Convention Center and Arena will be receiving vehicle charging stations. A California Welcome Center will be established at the Airport. The Town Square concert series will also be starting soon.
- John Schmidt shared that he continues work on the Hazard Mitigation Plan as well as prepping for the upcoming CERT class.
- Bill Russell shared the police department is recruiting for new officers and continues to work on staffing for the Airport.
- Tony Coletta shared that the Fire Department is also working on the integration plan to staff the Airport and is hiring to meet those needs. The Department is working on a remodel for Fire Station 2 and a bid for a new Fire Station in Ontario Ranch.
- Anthony Vega shared that weed abatement program is underway with approximately 900 properties in the city.
- Joe Minasso shared that Solid Waste is also hiring additional staff. They are also expanding the food waste program.
- Nancy Morales shared the Library is working on the budget and is reviewing its AED program.
- Don Meyer shared that although the drought is officially over, some of the water restrictions will be permanent including not water 48 hours after measureable rainfall.

- Daniel Adamus shared that airport recently completed its FAA Certification Inspection with a Tabletop on April 12. They are reviewing assets and agreements with the American Red Cross and other agencies to pre-deploy material and resources at the airport.
- Pascal Pengestu shared that IT is expanding fiber services to the Mills, Convention Center, and Arena.
- Dave Coote shared that Parks and Maintenance are installing additional lighting at James R. Bryant Park. Staff were just recertified with chainsaw training.
- Kathy Garozzo shared that insurance filings have been picking up at the Airport and they are working physicals for the many new City employees.
- Mauricio Diaz shared that the Transportation Management Center is continuing to be built out with communications to the signals across the City.
- Reed Sigler shared that HR is supporting the many new hires across City Departments and adding new HR analysts as well. He encourages all employees to ensure their emergency contact information is up to date on WorkDay. HR will be negotiating Misc. employee contracts. HR Connect will soon feature promotional opportunities, new hires, and newly promoted employees.

VII. OPD Tour - Bill Russell graciously gave a tour of OPD headquarters to interested committee members.

Next Meetin

Date/Time: May 25, 2017 – 10:00-11:30 AM
Location: Ontario EOC
Topic: After Action Conference

EOC Academy Cohort 2 Schedule

June: SEMS/NIMS Combined
Information/Resource Management

City of Ontario
Emergency Management Working Committee
Agenda

May 25, 2017 – 10:00-11:30 AM
Ontario Emergency Operations Center
415 E. B St, Ontario, CA 91764

I. Introductions were made. Joe De Sousa, David Coote, Brian Acosta, Reed Sigler, Peter Witherow, Nancy Morales, Lilyan Villarreal, Michelle Sifuentes, Andy Marquez, Bill Russell, Anita Argueta, Kathy Garozzo, Kristen Sten, Mike Machuca, Michael Krouse, Tina Marie Jimenez, Lucia Garcia, Terri Douglas, Eric Richardson, and Raymond Cheung were in attendance.

II. Emergency Management Brief – Raymond Cheung briefed the group on upcoming public outreach events that Emergency Management and CERT volunteers will be attending. He also shared that there are now five Emergency Management volunteers who will be helping out with various duties.

III. Planning

i. Hazard Mitigation Grant Program – Raymond shared that FEMA and CalOES are allowing applications for projects to be funded by the Hazard Mitigation Grant Program (HMGP). The Notice of Interest for potential projects are due by June 15. A city grant-writer is available to assist with the application. Contact Raymond as soon as possible if your department has a project that may qualify for funding.(see PowerPoint).

ii. ARC Shelter Review – Eric Richardson from the American Red Cross discussed that the ARC is updating their shelter database and is looking to reduce the number of shelters listed to make it more manageable. He advised that cities should maintain approximately 6-10 potential shelter locations of varying sizes. Size requirements dictate 20 sqft per person for an evacuation site and 40 sqft for an overnight shelter site. Ontario will be updating the database with refreshed contact info that will be evergreen for city facilities. The Convention Center and Arena expressed interest in being involved as the city builds out the Care and Shelter Annex in the future.

IV. Training and Exercises

a. Safety Assessment Program Training - Joe De Sousa discussed the Safety Assessment Program (SAP) training he is coordinating. The SAP program certifies building inspectors and engineers to "red-tag" damaged structures. The training is also good for staff who may encounter any damaged buildings to have some knowledge about their safety. The anticipated training is being targeted for July 10-11 and July 12-13 to give an opportunity for staff to rotate into the training. If departments are interested in having staff attend, please contact Joe by June 8th.

b. EOC Academy – Cohort 2 – Raymond discussed the upcoming second Cohort of the EOC Academy. The schedule was changed to allow for half-day trainings per survey results. The culminating exercise will be the Shakeout Exercise on October 19. To be added to the roster, please email names to Raymond by June 2nd.

c. Ride-EX After Action – Raymond led the group discussion on the EOC exercise last week. Various improvements were discussed which will be integrated into the After Action Report for the exercise. Exercise participants who have not sent into their feedback, please send it to Raymond by June 15th.

V. Roundtable-

Michael Krouse, Ontario Convention Center, shared that after the Manchester Arena attack, SMG has been reviewing security protocols and perimeter controls. Both the Convention Center and Arena will be conducting additional emergency exercises in collaboration with city staff in order to be more prepared for similar situations.

Reed Sigler, Human Resources, shared that they continue to support the public safety transition at the Airport with an additional 27 firefighters and 8 police officers coming on staff.

Michelle Sifuentes, Museum, shared that the Ontario Open exhibit is closing and the "Beyond Words" exhibit will be opening in July. The "Great Adventure" program will also be starting soon for children.

Peter Witherow, IT, shared that they wrapping up several big projects and are continuing to support the Airport transition.

Kathy Garozzo, Risk Management, shared that they are processing daily liability claims as usual.

Bill Russell, OPD, shared that OPD headquarters is starting their renovation which will take place over the next few weeks and months.

Dave Coote, Parks and Maintenance, shared that 50+ trees at Homer F. Briggs Park have been identified as dead or diseased and will need to be removed.

Lilyan Villareal, Management Services, shared that they have been updating their policies including for OPD, Code, and EOC. A credit card for the EOC with a $1,500 limit has been ordered and a secure location identified.

Brian Acosta, Fire, shared that both OPD and OFD are hiring entry-level dispatchers and the recruitment is currently open.

Joe De Sousa, Code Enforcement, shared that they are wrapping up their weed abatement season, however, there are lots near the Convention Center that have not been touched due to the presence of burrowin owls

Next Meeting

Date/Time:	**July 20, 2017 – 10:00-11:30 AM**
Location:	**Ontario EOC**
Topic:	**EM Strategic Plan / Ontario Emergency Operations Plan**

City of Ontario
Emergency Management Working Committee
Minutes

July 20, 2017 – 10:00-11:30 AM
Ontario Emergency Operations Center
435 E. B St, Ontario, CA 91764

I. Introductions were made. In attendance were: Charity Hernandez, Economic Development; Mauricio Diaz, Engineering; Pascal Pengestu, IT; Nancy Morales, Library; Michelle Sifuentes, Museum; Don Meyer, OMUC; Joe Minasso, OMUC; Melissa Ramirez, OPD; Craig Frame, Chino Valley USD; Mike Machuca, CBB Arena; Tina Marie Jimenez, Ontario Convention Center; John Ayres, Ontario Convention Center; Jennifer Shaw, Southern California Edison; John Schmidt, OFD; Raymond Cheung, OFD.

II. Emergency Management Brief – Raymond Cheung briefed the Committee on the progress of the EOC Academy Cohort-2 and the events that the Emergency Management volunteers are attending or are scheduled to attend, including National Night Out on August 1st. The power outage on July 14th was also discussed where 1,000+ customers and multiple city facilities lost power. The Revenue building's generator backup power did work – Municipal Services is investigating the problem. Jennifer Shaw from SCE explained that the failure was due to the "A-banks" being locked out.

III. Mitigation
   a. PDM and FMA grants – FEMA's Pre-Disaster Mitigation and Flood Mitigation Act grants are currently available. The Notice of Interest (NOI) is due on August 4th. Currently, no agencies or departments have expressed interest in applying.

IV. Planning
   i. The 5-year EM Strategic Plan was reviewed. Final comments should be sent to Raymond Cheung. Approval will be made during the August EMWC.
   ii. The Emergency Operations Plan revision was reviewed by the Committee. Final comments should be sent to Raymond Cheung. Approval will be made during the August EMWC.

V. Training and Exercises

a. WebEOC – A new board has been developed called the Situation Dashboard. This board will be used to track the status of all city departments, school districts, and partner agencies/utilities throughout the city after an emergency. This is a new training and all EMWC Department Emergency Coordinators should take this training and be familiar with the Situation Dashboard (except for Cohort 2 attendees who have taken this class).

   The following training dates are being offered at the EOC. If you would like to schedule a training for multiple people at your site, please contact Raymond Cheung (RSVPs also go to Raymond).

   i. August 8th, 2017 – 1-3 PM
   ii. September 27th, 2017 - 1-3 PM
   iii. October 3rd, 2017 – 1-3 PM

b. ShakeOut – This year's ShakeOut drill will occur at 10:19 am on October 19, 2017. The Committee discussed last year's drill and what they would like to see this year. The Committee recommended the following:
   i. Use of the PA system to announce the drill in city buildings where it is available.
   ii. Evacuation and accountability drill of City Hall.
   iii. Evacuation and accountability drill for Public Works.
   iv. Use of the WebEOC Situation Dashboard.
   v. Damage Assessment field response.

VI. Events

a. Route 66 – This year's Route 66 event is scheduled for September 15-17, 2017. The EOC will be activated at a Level 3 (lowest level) to support the event, particularly for OPD. Don Meyer, Joe Minasso, and Andy Marquez indicated that they would be available to participate in the activation for training purposes. If others would like to take part, please contact Raymond Cheung.
b. Emergency Preparedness Expo – This first annual expo will take place September 21, 2017 from 10 am – 4 pm between the Library and the Ontario Senior Center. The primary audience will be City employees and Library/Senior Center patrons. Confirmed booths include ReadyOntario/CERT, Fire Prevention, Seismic Simulator, the Mobile Command Post, Southern California Edison, Solid Waste/Utility, and the Library. The Committee suggested to advertise the event in the HR Connect email and to combine it with a city fundraiser.

VII. Roundtable

- Don Meyer, OMUC, shared that a new meter reading system is being developed where readings will be transmitted and available in near real-time.
- Joe Minasso, Solid Waste, shared that they are working on routing operations to Ontario Ranch where development is growing rapidly. The commercial food waste program is also moving forward.
- Charity Hernandez, Econ. Development, shared that they are working on land development and video shorts for city businesses.
- Michelle Sifuentes, Museum, shared that the Beyond Words exhibit is winding down. The Photorealism exhibit is next up. The Museum will also be conducting emergency training in August.
- John Schmidt, OFD, shared that he has been working on the EOP.
- Nancy Morales, Library, shared that the summer reading program will be wrapping up soon and that KinderGo will be starting.
- Mauricio Diaz, Engineering, shared they are working on two signal projects

- Tina Marie Jimenez, Ontario Convention Center, shared that they are also increasing security measures with tent entries for bag check as well.
- Pascal Pengestu, IT, shared that they are supporting OFD's move into the fire station at the airport. Windows 10 and Office 365 are also on the slate for city-wide deployment.
- Craig Frame, Chino Valley USD, shared that the district is implementing a new security system using key fobs and adding more security cameras.
- Melissa Ramirez, OPD, shared that the remodel is going well and event planning for National Night Out is continuing.

Next Meetin

Date/Time: August 16, 2017 – 10:00-11:30 AM (***off schedule meeting***)
Location: Ontario EOC
Topic: Damage Assessment Annex

City of Ontario
Emergency Management Working Committee
Minutes

August 16, 2017 – 10:00-11:30 AM
Ontario Emergency Operations Center
415 E. B St, Ontario, CA 91764

I. Introductions were made. The following attendees were present: Pedro Rico, Building; Joe DeSousa, Code Enforcement; David Coote, Parks/Maintenance; Tanya Spiegel, Economic Development; Tony Coletta, Fire; Mike Johnson, Municipal Services; Reed Sigler, HR; Peter Witherow, IT; Nina Kaivan-Mehr, IT; Nancy Morales, Library; Michelle Sifuentes, Museum; Don Meyer, OMUC; Joe Minasso, OMUC; Andy Marques, OMUC; Melissa Ramirez, OPD; Kristine Scott, SoCalGas; Raymond Cheung, Fire.

II. Emergency Management Brief – Emergency Manager Raymond Cheung briefed the Committee on the CERT Advanced Training held on August 16th, the upcoming CERT Basic Course on October 27-29, the Collaborative Organizations Active In Disaster (COAD) hosted by the City, and the Partners in Preparedness presentations being offered.

III. Planning
   i. The Damage Assessment Annex was reviewed by the Committee. This annex will be used primarily following a large earthquake and many departments will need to work together to achieve a good assessment of damage city-wide. Please review and send comments back by September 29th.

IV. Training and Exercises
   a. ShakeOut – 10:19 am on October 19, 2017 – The EOC will activate for a Functional Exercise for ShakeOut day. Cohort 2 will be filling EOC positions, but OEM will be reaching out to fill additional positions for the exercise.
      i. Drill Manual Review – The committee reviewed the drill manual that will be made available to all departments to use for their ShakeOut participation. The ShakeOut flyer should also be posted prior to the drill.
      ii. The ExDesign Committee will be reconvening to design the disaster that will befall the EOC during the ShakeOut exercise. Don Meyer, Joe Minasso, David Coote, and Andy Marquez volunteered to sit on the committee.

   b. Active Shooter Drills were discussed. San Bernardino County was awarded a grant that will conduct train-the-trainer sessions and provide drill equipment.

V. Events
   a. Planning for the Route 66 event continues. OPD will be utilizing the EOC during the event from Sept 15-17. EOC staff may conduct a training activation on Saturday, Sept 16.
   b. The inaugural Emergency Preparedness Expo will take place on Sept 21 from 10 am – 4 pm. There will be a dozen city depts., organizations, or vendors participating including the Seismic Simulator from the County. All employees are encouraged to come and learn more about how to become more prepared.

VI. Roundtable

Tony Coletta, Fire, reminded all that September was National Preparedness Month and how it was important to ensure your families are prepared so that you can rest easy and be able to focus on the critical tasks at hand.

Mike Johnson, Municipal Services, shared that they have had several new recruitments including for supervisors and mechanics. They are also assisting with the PD dispatch renovation and replacing the sump pump in City Hall Annex.

Don Meyer, Utilities, shared that they are also filling 7-8 openings from entry-level on up.

Joe Minasso, Solid Waste, shared they are hiring as well, including drivers due to the growth in the Ontario Ranch area.

Pedro Rico, Building, shared that they are busy with the new development and are fully staffed.

Peter Witherow, IT, shared that they continue to be involved in the Airport transition.

Nancy Morales, Library, shared that they have a new montage with vintage pictures of the Model Colony. There is the ability to print out the pictures and add captions to them.

Joe DeSousa, Code Enforcement, shared that they hired four new officers and are conducting operations regarding illegal dumping.

David Coote, Parks and Maintenance, shared that the book drop at the Library was moved to be in a safer location. He also conducted a safety/wellness training in relation to conflict resolution.

Tanya Spiegel, Economic Development, shared that Econ. Dev. has been busy with new development and projects across the city.

Reed Sigler, HR, shared that they are in hiring mode and will now be supporting the Airport with HR services.

Kristin Scott, SoCalGas, shared that they are replacing valves at Etiwanda and 4th which will allow the ability to shut-off valves automatically in an emergency.

Michelle Sifuentes, Museum, shared they their photorealism exhibit is opening and they will be conducting emergency training for staff.

Melissa Ramirez, OPD, shared they have been hiring sworn and professional staff and are fully taking over law enforcement services at the Airport.

Next Meetin s

Date/Time:	September 21, 2017 – 10 AM – 4 PM
Location:	Ovitt Family Community Library
Topic:	Emergency Preparedness Expo

Date/Time:	October 26, 2017 – 10 AM – 11:30 AM
Location:	Ontario EOC
Topic:	ShakeOut After-Action and Winter Weather

City of Ontario
Emergency Management Working Committee
Minutes

October 25, 2017 – 10:00-11:30 AM
Public Works Conference Room
1425 S. Bon View Ave, Ontario, CA 91761

I. Introductions were made. In attendance: Pedro Rico, Building; Joe De Sousa, Code Enforcement; Mike Pelletier, OFD; Anthony Coletta, OFD; Brian Acosta, OFD; Raymond Cheung, OFD; Robert Schmidt, OFD; David Bertola, OFD; Bill Russell, OPD; Nancy Morales, Library; Don Meyer, OMUC; Julie Dorey, Recreation.

II. Emergency Management Brief. Emergency Manager Raymond Cheung briefed on the following items.
- The 2nd CERT class of the year will be held on October 27-29. It is a fully registered class and will be at the Ontario Fire Training Center.
- The City has been participating in the Southern California Association of Government Earthquake Cohort which has the Inland Empire cities working together to increase resiliency to earthquakes in the region. Pedro Rico and Don Meyer volunteered to participate in the Cohort as building and water infrastructure issues are prevalent.
- Emergency Management now has the ability to directly order Government Emergency Telecommunication Service (GETS) cards which prioritize landline network service during an emergency. Please contact Emergency Management if you feel your Department needs GETS cards.
- The International Association of Emergency Manager's conference is taking place in Long Beach from November 12-15. Contact Emergency Management if you are interested in attending.
- A Faith Communities Partners in Preparedness Workshop is being organized for November 29. Julie Dorey recommended utilizing the *promotores* to spread the word about the workshop.

III. Planning
   i. Winter Weather Workshop. Don Meyer briefed the Committee on the National Weather Service predictions for the upcoming winter. Thus far, the modeling has been highly variable with the latest prediction being that there are equal chances for either above or below average precipitation for this rain season.

IV Training and Exercises

a. ShakeOut AAR – The ShakeOut exercise on October 19th was discussed. Many City departments participated in the Drop, Cover, Hold On drill and the Senior Center conducted an evacuation drill of the facility as well. Next year's exercise may include a component with an Everbridge notification to all City employees as test of the system.
b. EOC Academy – The 2nd Cohort of the EOC Academy graduated 16 individuals. Cohort 3 will start up again in January and run through April to allow for more people with end of fiscal year duties to participate. It will remain on a half-day schedule as participants seem to prefer that option.
c. Statewide Medical Health and Training Exercise – November 16th – The City will be participating in a Chempack exercise along with County Public Health and County Office of Emergency Services. This will test the request and deployment of a Chempack nerve agent antidote to an incident location in Ontario.

V. Events

a. Emergency Preparedness Expo AAR – The Expo that took place on September 21st was discussed. Just over 500 people visited the Expo during opening hours. The Committee recommended to hold it with an already existing event to maximize promotional efforts. Combining it with a Concert in the Park was one of the options presented and will be investigated further.

VI. Roundtable

- Tony Coletta noted that next year's ShakeOut will take place on October 18th at 10:18 AM.
- Julie Dorey shared that her staff would like to see more functional learning opportunities including more drills.
- Pedro Rico announced Building had 12 plan-checkers attend Safety Assessment Program training with CalBO. Another training will be held in February in Anaheim. The new Development Director, Hassan Haghani, is very aggressive about revitalizing the downtown area.
- Joe De Sousa announced that he is a new grandfather.
- Bill Russell shared that construction at OPD should be complete by Thanksgiving. The COPS Division received a grant to enforce alcohol beverage sales to minors. A new street racing enforcement program has also rolled out recently.
- Don Meyer shared that Utilities will be conducting tabletop exercises for field staff.

- John Schmidt shared that he has been reaching out to counterparts in Santa Rosa for lessons learned related to the recent fires and sheltering operations.

Next Meeting

Date/Time: November 30, 2017 – 10 AM – 11:30 AM
Location: Ontario EOC

City of Ontario
Emergency Management Working Committee
Agenda

November 30, 2017 – 10:00-11:30 AM
Ontario EOC
415 E. B St., Ontario, CA 91764

I. Introductions were made. In attendance were: Pedro Rico, Building; Anthony Vega, Code Enforcement; David Coote, Community & Public Services; Charity Hernandez, Economic Development; Tanya Spiegel, Economic Development; Tony Colleta, OFD; Brian Acosta, OFD; John Schmidt, OFD; Pam Martinez, OFD; Sylvia Rodriguez, HR; Peter Witherow, IT; Pascal Pengestu, IT; Nancy Morales, Library; Don Meyer, OMUC; Joe Minasso, OMUC.

II. Emergency Management Brief – Raymond briefed on the following topics:

- A Faith Communities Partners in Preparedness Workshop was held on November 29 with 8 attendees. The next meeting will be on February 14 and recur on a quarterly basis.
- Raymond was a Controller/Evaluator at a City of Los Angeles Functional Exercise and complimented the Ontario EOC team on how well perform compared to a much larger city.
- Tony and Raymond attended the International Association of Emergency Manager's conference in Long Beach.
- Southern California Edison held a workshop recently with a couple of key takeaways. An outage map will be emailed if an outage covering 150+ customers is expected to last over 90 minutes. The Estimated Restoration Time on the outage webpage is calculated by a computer and may not be accurate in the first hour.
- SoCalGas also held a workshop with fire and PD reps and emphasized the close partnership between the utility and first responders.
- The Emergency Management Performance Grant is expected to receive final approval within the next week or so.
- Intermedix will release an update for WebEOC to version 8.4 in December. It will be evaluated and if no significant bugs are anticipated, the city server will be upgraded next quarter.
- A hotwash was held with instructors from the October CERT class. One of the changes will be to not schedule the class during the World Series. Additionally, the City CERT program was discussed. Contingent on instructor availability, City CERT refresher modules will be held as a test ground for further expansion of the program.

III. Planning

i. Employee recall policy - The new employee orientation discusses the need for City employees to respond to the nearest city if they are not able to respond to their work location. The possibility of a City policy to codify this expectation was also discussed.

ii. SCAG EQ Initiative – Three potential project ideas were discussed including: seismic retrofitting of historic buildings in the downtown area, an inventory of URM and soft-story structures, and the installation of seismic valves at two City water reservoirs. Due to several factors, it is likely that the seismic valves will be the most feasible/achievable. Charity Hernandez and Pedro Rico will be coordinating the update of the current URM database.

iii. Functional Annex development was discussed and committee members volunteered to participate in one or more of the annexes.

1. Information Management Annex – Joe Minasso, Tony Coletta, Don Meyer, Nancy Morales.
2. Resource Management Annex – Brian Acosta, Tony Coletta, Charity Hernandez.
3. Damage Assessment Annex – Raymond is reviewing additional data input options for ArcGIS. Following finalization, a seminar and drills/exercises will be held to continue annex familiarization.

IV. Training and Exercises

a. EOC Academy Schedule – Cohort 3 Draft Schedule was disseminated to be reviewed by Committee by December 15 for any city-wide scheduling conflicts. The Task Book was also reviewed for responders who will be submitting for their EOC position credential. Sylvia Rodriguez advised people to enter their CSTI certificates into WorkDay for tracking.

b. Statewide Medical Health and Training Exercise held on November 9 was discussed. This was a communications drill between the field, EOC, and the Operational Area EOC. After action improvements include more radio training, more training on the WebEOC OA server, and communication options with Kaiser Ontario.

c. Everbridge – The Everbridge contract renewal is up at the end of December. A request is in progress to upgrade the account to include additional functionality in order to ease the ability of Police and Fire Dispatch to utilize the system. The system is available to all departments to use for internal notifications as well – If anyone is interested, please contact Emergency Management. Also, the

Conference Bridge functionality will begin to be tested on a quarterly basis beginning in January.

V. Events

a. Emergency Preparedness Expo Update – The current strategy to increase successful participation is to combine forces with the last scheduled date of the Summer Concerts at Townsquare. A ReadyOntario booth will be setup in each of the preceding concerts to advertise the Expo. Additionally, the Expo will be used to highlight the National Preparedness Month Campaign which will include several events including a disaster scavenger hunt and escape room.

VI. Roundtable was skipped due to time.

ACTION ITEMS:

- Review Draft EOC Academy Cohort 3 schedule and return comments by December 15.

Next Meetin

Date/Time: December 21, 2017 - 10 AM – 11:30 AM
Location: Ontario EOC

City of Ontario
Emergency Management Working Committee
Minutes

December 21, 2017 – 10:00-11:30 AM
Ontario EOC
415 E. B St., Ontario, CA 91764

I. Introductions were made. In attendance were Pedro Rico, Building; Joe De Sousa, Code; David Coote, Parks & Maintenance; Mike Pelletier, Fire; Anthony Coletta, Fire; John Schmidt, Fire; Brian Acosta, Fire; Raymond Cheung, Fire; Pascal Pengestu, IT; Nancy Morales, Library; Michelle Sifuentes, Museum; Joe Minasso, Solid Waste; Imee Perius, Chino Valley USD;

II. Emergency Management Brief – Raymond briefed on the following topics:

- The State/County has still not yet given final approval for the FY17 Emergency Management Performance Grant allocations.
- Raymond attended the first week of the FEMA Advanced Academy last week and it has been a very good in-depth training so far covering a wide-variety of topics including leadership principles, communication/collaboration facilitation, and case studies
- The CERT End of Year Volunteer Appreciation meeting was held on December 19 and was very well attended.

III. Planning

i. SCAG EQ Initiative – The final project submitted was the seismic valves for the city reservoirs. Next steps include acquiring cost estimates and researching grant/funding opportunities.

IV. Training and Exercises

a. EOC Academy Schedule – Cohort 3 – The final schedule was discussed which had some minor changes including G-606 going online (decreasing required classroom time) and minor schedule adjustments. Department Coordinators should recruit and submit attendee names to Raymond by January 13.
b. Senior Leadership Academy – OEM is developing a half-day Senior Leadership Academy for senior leaders who do not have the scheduling flexibility to go through the regular EOC Academy. Those who qualify for the Senior Leadership Academy will be Department Heads or Directors responsible for filling a Policy Group role or will be directing staff to the EOC. This class will be certificated, but will not satisfy the state credentialing standard. The Committee recommended

that a memo from city management also be developed to establish this direction.

c. The Monthly Communications Testing Schedule for 2018 was discussed. The monthly test will occur on the 3rd Wednesday of the month (one day before scheduled EMWC) and disseminated via Everbridge at 9 am by Fire Communications.
   - Everbridge Polling will occur in January, April, July, October
   - Everbridge Conference Calling will occur in February, May, August, November
   - WebEOC Activity Log will occur in March, June, September, December

d. 1st Quarter EOC Exercise – An EOC Functional Exercise will be scheduled for the 1st quarter with a tentative February date to be determined. The Exercise Design Committee will meet on January 10 at 10 am to begin exercise development.

V. Events

a. High Wind / Nursery Fire Event- Deputy Chief Mike Pelletier discussed this event which began around noon on December 5. Fire crews responded to a mulch fire with size of approximately 50 x 100 yards. A city-owned excavator and two water tenders were used during the response. Heavy smoke from the area affected residents along Clover Rd which necessitated multiple Everbridge, Nixle, and Twitter notifications. Everbridge was also used to staff off-duty firefighters on reserve engines. Four dogs were rescued during the incident. The police helicopter downlink was also used to acquire imagery.

VI. Year End Review – Raymond went through a list of the many accomplishments by the Committee this year and is looking forward to an even better 2018.

a. OEM Survey – Raymond shared that a Surveymonkey link (https://www.surveymonkey.com/r/CLF7V33) will be sent out asking for feedback on the quality of Emergency Management services this year.

VII. Awards – Members of the Exercise Design Committee and Damage Assessment Committee were awarded Certificates of Appreciation for their work.

VIII. Roundtable

- Nancy Morales shared that the Library received a $30k grant to develop a Makers' Space which will have 3D printers, sewing machines, and other related equipment for the public to use.
- Joe Minasso shared that Solid Waste conducted their quarterly community cleanup with 350 cars attending the event. With an additional 1,000 new residents recently, additional staff are being hired.

- Charity Hernandez reported that Economic Development is focusing on business retention and attraction. The State of the City sponsorship packages are being sent out. Several incoming high-profile projects are also in the works.
- Pedro Rico shared that he is continuing to work on the list of unreinforced masonry buildings in the city. Many of the buildings no longer exist and many are also considered historical buildings. The Building Dept. is also hiring two college interns for the first time.
- Tony Coletta shared that the new City Manager is interested in the work we are doing and the Committee should expect to see the City Manager attending future trainings and exercises.
- Pascal Pengestu reported that IT is working connecting city facilities to the fiber network in the New Year which will bring faster and more reliable service.
- Michelle Sifuentes shared that the Museum has been very busy with the "Darkness to Light" exhibit closing soon and the "Diversity and Inclusion" exhibit opening soon thereafter. New docent training will be happening in 2018.
- David Coote reported the he, Mark Chase, Roberto Perez, and Raymond Cheung met to discuss the creation of a Parks and Maintenance Department Operations Center and the utilization of WebEOC for DOC response and documentation.
- Brian Acosta shared the LAWA dispatchers from the Airport have moved into Fire Dispatch and will be cross-training Fire Dispatchers in airport operations dispatching as part of the OIA transition.
- Imee Perius reported that she is filling in for Craig Frame as the rep from Chino Valley USD.

ACTION ITEMS

1. Send EOC Academy attendees to Raymond by January 13.
2. Complete OEM Year-End Survey at htt s: www.serve monke .com r CLF7V33.

Next Meetin

Date/Time: January 18, 2018 – 10 AM – 11:30 AM
Location: Ontario EOC

City of Ontario
Emergency Management Working Committee
Agenda

October 13, 2016 – 10:00-11:30 AM
Emergency Operations Center

II. EMWC Mission Statement
  a. Goals and Objectives, Future Topics
  b. Meeting Dates and Time

III. Department Emergency Coordinator (DEC) Overview
  a. DEC Roles & Responsibilities
  b. DEC Roster
  c. EOC Organization and Activation Rosters

IV. Local Hazard Mitigation Plan (LHMP)
  a. Timeline
  b. Hazard Identification and Risk Assessment
  c. Mitigation Projects

V. Exercises
  a. ShakeOut – October 20 at 10:20 AM

VI. Training and Credentialing
  a. EOC - ICS/SEMS/NIMS, G775, G191, Section/Position
  b. WebEOC

VII. Technology
  a. WebEOC Demo
  b. Everbridge Demo

VIII. Roundtable

Next Meeting

Date/Time: November 10, 2016 – 10:00-11:30 AM
Location: EOC
Topics: LHMP Projects

City of Ontario
Emergency Management Working Committee
Agenda

November 10, 2016 – 10:00-11:30 AM
Emergency Operations Center

II. EMWC Mission Statement
  a. Goals and Objectives

III. Local Hazard Mitigation Plan (LHMP)
  a. Critical Facilities
  b. Mitigation Projects

IV. Events
  a. State St. Fire — Deputy Chief Pelletier
    i. Tabletop

V. Winter Weather Overview — Don Meyer

VI. Training
  a. NIMS certificate uploading in Workday — Reed Sigler

VII. Exercises
  a. ShakeOut – After Action

VIII. EOC / Technology
  a. Meeting Locations
  b. Everbridge - AlertOntario

IX. Roundtable

Next Meetin

Date/Time: December 8, 2016 – 10:00-11:30 AM
Location: TBD
Topic: 2017 Training and Exercise Calendar

City of Ontario
Emergency Management Working Committee
Agenda

December 8, 2016 – 10:00-11:30 AM
Emergency Operations Center

II. Local Hazard Mitigation Plan (LHMP)
   a. Hazard Identification Review

III. Planning
   a. EOC Organization
   b. Position Rosters

IV. Events
   a. Santa Ana Wind Event
      i. Cost/damage tracking discussion

V. Training & Exercises
   a. Training and Exercise Workshop

VI. Roundtable

Next Meeting

Date/Time: January 12, 2017 – 10:00-11:30 AM
Location: EOC
Topic: Operational Communications

City of Ontario
Emergency Management Working Committee
Minutes

October 13, 2016 – 10:00-11:30 AM
Emergency Operations Center

Fierro, Vicki Kasad, Dave Bucholtz, David Coote, Robin Lucero, Andy Narquez, Scott Murphy, Lorena Mejia, Bill Russell, Liz Morris, Delilah Patterson, Anita Argueta, Kathy Garozzo, Nina Kai-van Mehr, Anna Vaca, Nancy Morales, Shanita Simmons, Janny Phan, Michelle Sifuentes, Don Meyer, Joe Minasso, Tanya Spiegel, Mauricio Diaz, Jaime Maciel-Carrerra, Antonio Alejos, Mike Pelletier, Tony Coletta, Brian Acosta, Giancarlo Mezza, Craig Grabow, Reed Sigler, Pascal Pangestu, Raymond Cheung

II. The draft EMWC Mission Statement was announced: "The Emergency Management Working Committee works as a cohesive team to prevent, mitigate, prepare for, respond to, and recover from any disaster in order to save lives, property, and the environment from harm in the City of Ontario and beyond." A phrase including continuity of operations may be added as well.
   a. The goals and objectives of the EMWC for 2017 will need to be drafted. Each member is to submit one SMART objective they would like the committee to tackle.
   b. The committee decided to keep the meetings on the second Thursday of the month starting at 10 AM. Departments who wish to host meetings in the future are invited to do so.

III. Department Emergency Coordinator (DEC) Overview
   a. The roles and responsibilities of the DEC were discussed. Each rep is the primary department contact point, contributes to city-wide planning, and coordinates department planning and preparedness.
   b. DECs were asked to confirm the accuracy of the roster and add their mobile phone numbers to the sheet and to Workday. HR offered to fill-in the employee ID area of the roster which will be used for Everbridge and WebEOC accounts.
   c. The committee discussed the EOC activation roster for Management and General Staff. Agencies were assigned to each position and will be filling out the roster.

IV. Local Hazard Mitigation Plan (LHMP)
   a. The LHMP is tentatively scheduled to be submitted to FEMA by March 2017. The EMWC will be responsible for the Hazard Identification and Risk Assessment,

Mitigation Strategy and Projects, Vulnerability Assessment, and overall review of the plan. City Clerk / Records will be investigating if the plan has been adopted into the Safety Element of the General Plan per AB 2140. If not, Planning will be assisting in this effort. AB 2140 compliance provides the opportunity for increased disaster reimbursement.

b. The committee worked together on the Hazard Identification and Risk Assessment for the city and graded various hazards on probability, extent, geographic area, and overall significance. This will be the first in "ranking" the hazards facing the city.
c. Next month, the committee will look at updating the mitigation projects in the current plan and add additional ones if needed.

V. Exercises
a. The ShakeOut exercise is going to be held on October 20 at 10:20 AM. It will consist of a drop, cover, hold-on drill, a stand-up meeting to go over emergency procedures, non-structural mitigation assessment, and satellite phone test. An emergency kit contest will be held at the EOC at 11 AM. Flyers and a drill manual were discussed.

VI. Training and Credentialing
a. EOC responders are required to be credentialed for the positions they hold. The training that will be required include: ICS/SEMS/NIMS, G775, G191, Section/Position, and EOC Action Planning training. The committee discussed the best schedule to hold these in-person, multi-day classes and the consensus so far was to hold them one day a week for one month.
b. WebEOC training will only last 1-2 hours and can be held on Wednesday afternoons.

VII. The WebEOC and Everbridge demos were postponed to next month due to available time.

VIII. Roundtable – Departments shared the various initiatives and projects they are working on. The Library has a Dia de los Muertos event coming up. Parks recently opened the Schimmel Dog Park. HR reminded the committee about open enrollment and shared they will be utilizing Workday as a repository for the required NIMS training. Code Enforcement shared that they are going around the city conducting a presentation on the services they provide. The Police Department is engrossed in transition of the Ontario International Airport. PD also advised of many career opportunities at the department. The Museum has a great model colony exhibit on current display. Building shared that they have had $400 million of recent development projects. Solid Waste shared of an upcoming Community Cleanup

event at City Yard. Water Utilities has a $20 million recycled water project. Planning is getting 3-4 new projects a week with development in the Ontario Ranch area picking up. Engineering is also getting more projects in the city with two major storm drain projects and a grade separation project. Municipal Services has been busy keeping up with city growth including adding additional vehicles to the city fleet.

Action Items -

- Email Ray at least one EMWC objective
- Update EMWC and EOC roster
- Confirm satellite phone list owners and numbers
- Conduct Shakeout drill on 10/20 at 10:20 AM
- Come up with desired topics and meeting locations

Next Meetin

Date/Time:	November 10, 2016 – 10:00-11:30 AM
Location:	EOC
Topics:	LHMP Projects

City of Ontario
Emergency Management Working Committee
Agenda

November 10, 2016 – 10:00-11:30 AM
Emergency Operations Center

Joe Minasso, Andy Marquez, Scott Murphy, Anita Argueta, Marilyn Bonus, David Coote, Mauricio Diaz, Mike Pelletier, Tony Coletta, Brian Acosta, Pascal Pangestu, Nancy Morales, Michelle Sifuentes, Lorena Mejia, Bill Russell, Kathy Garozzo, Janet Dorsett, and Raymond Cheung were in attendance.

II. The EMWC Mission Statement was approved by the Committee:
The Emergency Management Working Committee works as a cohesive team to increase the city's disaster resiliency, ensure continuity of city services, and save lives, property, and the environment from harm in the City of Ontario and beyond.

a. A review of submitted goals and objectives was conducted. It was decided that the primary objective for 2017 would be to conduct an extensive training and exercise of EOC and DOC related functions and responsibilities.

III. Local Hazard Mitigation Plan (LHMP)
a. A list of Critical Facilities needs to be updated in order to create an accurate Vulnerability Assessment. Please look over the Excel spreadsheet and contact Ray if any facilities need to be updated or added as soon as possible.
b. The Committee reviewed and updated the status of the Mitigation Projects from the 2011 plan. Several additional projects were identified. Any other projects are due by September 30th.

IV. Events
a. Deputy Chief Pelletier gave an overview of the State St. Fire that occurred on October 19th. 82 personnel responded to that incident with over 4 million gallons of water used to extinguish the blaze.
    i. A tabletop exercise was conducted with a scenario replicating the State St. Fire, but adding Santa Ana winds. Groups were divided into ICS sections to discuss how the EOC would respond to such a situation.

V. Don Meyer gave an overview of what we expecting during the upcoming La Nina winter weather season. The weather service is forecasting our area to receive 33% below normal rainfall and 40% above normal temperature.

VI. Training
a. Reed Sigler gave an overview of the new onboarding procedure all new employees are now receiving through WorkDay. Additionally, all NIMS certificates will be uploaded and tracked in Workday as well.

VII. Exercises
a. The After Action comments for the ShakeOut exercise were reviewed. Ares of success included the Drop, Cover, Hold-on drill, holding an accountability drill and discussing with staff on post-EQ procedures. Additional improvements that could be made were better evacuation maps, the PA system not being heard in many locations, the necessity of a communication plan if cell network unavailable, the need to keep personal emergency kits updated.

VIII. EOC / Technology
a. Additional city meeting locations were identified including the City Library, the City Yard at Bon View, City Community Rooms, and Police Department Community Rooms.
b. The AlertOntario website is where city residents can register their cell phones and email addresses in the city Everbridge emergency notification system. The portal can be accessed off the read ontario.com website.

IX. Roundtable – No comments.

Next Meetin

Date/Time:	December 8, 2016 – 10:00-11:30 AM
Location:	TBD
Topic:	2017 Training and Exercise Calendar

City of Ontario
Emergency Management Working Committee
Minutes

December 8, 2016 – 10:00-11:30 AM
Emergency Operations Center

DeSousa, David Coote, Mauricio Diaz, Antonio Alejos, Mike Pelletier, Brian Acosta, Giancarlo Mezza, Craig Grabow, Reed Sigler, Pascal Pangestu, Anna Vaca, Alan Saegar, Michelle Sifuentes, Don Meyer, Joe Minasso, Andy Marquez, Julie Dorey, Janny Pan, Kathy Garozzo, and Raymond Cheung.

II. Local Hazard Mitigation Plan (LHMP)

a. Hazard Identification Review – The committee reviewed the hazard identification survey results and following a discussion, approved the following top five hazards:

1. Earthquake
2. Extreme Weather (High winds, Severe Storm, Flooding, Climate Change)
3. Hazardous Materials
4. Transportation Accident (Aircraft, Train)
5. Urban Fire

III. Planning

a. EOC Organization – The committee approved changing the name of the Health and Welfare Branch to the Care and Shelter Branch and added a Medical Branch and a Volunteer/Donations Management Unit.

b. Position Rosters – The committee was advised that Raymond will be reaching out to individual departments to gather names for the EOC position rosters. **Position assignments are due by December 22nd.**

IV. Events

a. Santa Ana Wind Event – The wind event on December 2nd was discussed. The city experienced three power failures at city well pumps. In addition, 40 city trees were felled by the winds, costing approximately $18,000 in cleanup costs. One fire engine was also damaged by a fallen tree.

i. Cost/damage tracking discussion – Fiscal Services informed the committee that response costs can be assigned a program code for tracking purposes. Further discussion will be needed to create a system to initiate and document emerging incident costs.

V. Training & Exercises

a. Training and Exercise Workshop – After discussion, the committee decided to establish a six-month cycle for training EOC responders. Each cohort will take all the trainings together and at the end will fulfill most of the general requirements for credentialing by the California Governor's Office of Emergency Services (CalOES). **Attendees for this first cohort are due by December 22nd.** The following schedule was set by the committee (the January Information/Resource Management training was changed due to a conflict).

EOC Academy Training Schedule – Cohort 1

January 25	Information/Resource Management - WebEOC
January 26	G-606 SEMS/NIMS Combined
February 22-23	G-775 EOC Management and Ops
March 23	G-191 ICS/EOC Interface / Mobilization Drill
April 20	G-626E Essentials of EOC Action Planning
April 24-27	G-611 Section Training April 24 – Management / Finance April 25 – Operations April 26 – Logistics April 27 - Planning
May 18	Tour of California Functional Exercise

VI. Roundtable

Next Meeting

Date/Time: January 12, 2017 – 10:00-11:30 AM
Location: TBD
Topic: Operational Communications

November 29, 2017

10:00 - 11:30 AM

Ovitt Family Community Library

Agenda

1. **Welcome and Introductions**
2. **Purpose**
3. **Introduction to City of Ontario – Office of Emergency Management**
4. **Resources and Readiness Tools**
5. **Roundtable Discussion**
6. **Next Steps**

uld like to invite you to join us for our Partners in
where you can learn how to best prepare your House
as well as how you can help the City respond and
recover from any kind of emergency.

0 MBER 29, 2017
10:00 AM 11:30 AM

OVITT FAMILY COMMUNITY LIBRARY
215 E. C STREET
ONTARIO, CA 91764

The workshop will cover the following topics:

- Individual and Family Preparedness within your House of Worship
- How the City operates during an emergency or disaster and where you fit in
- Getting involved in disaster response and recovery
- How to develop an Emergency Operations Plan for your House of Worship
- Connecting with partners and resources to help your House of Worship prepare for emergencies

Register for FREE today at www.ontariofaith.eventbrite.com

CITY OF ONTARIO

BE READY ONTARIO

Mayor Paul S. Leon • Mayor pro Tem Alan D. Wapner
Council Members Jim W. Bowman, Debra Dorst-Porada and Ruben Valencia

APPENDIX P

COUNTY OF SAN BERNARDINO'S MULTI-JURISDICTIONAL HAZARD MITIGATION PLAN

SAN BERNARDINO COUNTY

MULTI-JURISDICTIONAL HAZARD MITIGATION PLAN

FEMA Approved: July 13, 2017

San Bernardino County Unincorporated Area
San Bernardino County Fire Protection District
San Bernardino County Flood Control District
San Bernardino County Special Districts Department

This document was supported by HSGP Grant No. 2015-0078 awarded by the U.S. Department of Homeland Security (DHS) Federal Emergency Management Agency (FEMA). Points of view, opinions, findings, and conclusions expressed in this document are those of the authors and do not necessarily represent the official position of policies of FEMA or DHS. DHS/FEMA reserves a royalty-free, non-exclusive, and irrevocable license to reproduce, publish, and use these materials and to authorize others to do so.

2017

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RESOLUTION NO. 2017-_____

A RESOLUTION OF THE BOARD OF SUPERVISORS OF THE COUNTY OF SAN BERNARDINO, STATE OF CALIFORNIA, ADOPTING THE SAN BERNARDINO COUNTY UNINCORPORATED AREA MULTI-JURISDICTIONAL HAZARD MITIGATION PLAN DATED MARCH 2017, AND AUTHORIZING FUTURE NON-SUBSTANTIVE AMENDMENTS TO THE PLAN

On Tuesday, _____, 2017, on motion of Supervisor _____, duly seconded by Supervisor _____ and carried, the following resolution is adopted by the Board of Supervisors of San Bernardino County, State of California.

WHEREAS, the preservation of life and property is an inherent responsibility of local, state and federal government, including the County of San Bernardino, and the San Bernardino County Office of Emergency Services, to prepare a local Multi-Jurisdictional Hazard Mitigation Plan (HMP) for the unincorporated area of San Bernardino County to define hazard mitigation measures to reduce or eliminate loss of life and/or property; and

WHEREAS, this HMP represents a comprehensive description of the County's commitment to reducing, preventing or eliminating potential impacts of disasters caused by natural hazards; and

WHEREAS, the HMP is a Federal requirement under the Disaster Mitigation Act of 2000 for the County to be eligible to apply for federal funds for disaster recovery and mitigation assistance; and

WHEREAS, the HMP established a coordinated effort to support mitigation activities, identifies measures to combat natural hazards within our County; and

WHEREAS, the HMP is an extension of the State of California Multi-Hazard Mitigation Plan, and will be reviewed periodically and revised as necessary to meet changing conditions; and

WHEREAS, the Board of Supervisors agrees to adopt this HMP and urges all officials, employees, public and private organizations, and citizens, individually and collectively, to do their share in furthering the preparation of hazard mitigation within the County of San Bernardino;

NOW, THEREFORE, BE IT RESOLVED THAT:

The Board of Supervisors of the County of San Bernardino, a public entity established under the laws of the State of California, hereby authorizes this HMP to be adopted, that the San Bernardino County Fire Protection District Office of Emergency Services Division Manager is hereby authorized to implement future non-substantive amendments, recommended by the Federal Emergency Management Agency upon their review, to the HMP, that a copy of the Board of Supervisors' approved San Bernardino County Unincorporated Area Hazard Mitigation Plan be forwarded to the Federal Emergency Management Agency and CalOES, that once approved the HMP will be considered to be incorporated into the County's General Plan, and this plan become effective immediately.

PASSED AND ADOPTED by the Board of Supervisors of the County of San Bernardino, State of California, by the following vote:

AYES: SUPERVISORS:

NOES: SUPERVISORS:

ABSENT: SUPERVISORS:

* * * * *

STATE OF CALIFORNIA)
) ss.
COUNTY OF SAN BERNARDINO)

I, **LAURA H. WELCH,** Clerk of the Board of Supervisors of the County of San Bernardino, State of California, hereby certify the foregoing to be a full, true and correct copy of the record of the action taken by the Board of Supervisors, by vote of the members present, as the same appears in the Official Minutes of said Board at its meeting of _____, 2017.

LAURA H. WELCH
Clerk of the Board of Supervisors

By _____
Deputy

RESOLUTION NO. 2017-_____

A RESOLUTION OF THE BOARD OF SUPERVISORS OF THE SAN BERNARDINO COUNTY FLOOD CONTROL DISTRICT, STATE OF CALIFORNIA, ADOPTING THE SAN BERNARDINO COUNTY UNINCORPORATED AREA MULTI-JURISDICTIONAL HAZARD MITIGATION PLAN DATED MARCH 2017, AND AUTHORIZING FUTURE NON-SUBSTANTIVE AMENDMENTS TO THE PLAN

On Tuesday, _____, 2017, on motion of Supervisor _____, duly seconded by Supervisor _____ and carried, the following resolution is adopted by the Board of Supervisors of the San Bernardino County Flood Control District, State of California.

WHEREAS, the preservation of life and property is an inherent responsibility of local, state and federal government, including the County of San Bernardino, and the San Bernardino County Office of Emergency Services, to prepare a local Multi-Jurisdictional Hazard Mitigation Plan (HMP) for the unincorporated area of San Bernardino County to define hazard mitigation measures to reduce or eliminate loss of life and/or property; and

WHEREAS, this HMP represents a comprehensive description of the County's commitment to reducing, preventing or eliminating potential impacts of disasters caused by natural hazards; and

WHEREAS, the HMP is a Federal requirement under the Disaster Mitigation Act of 2000 for the County to be eligible to apply for federal funds for disaster recovery and mitigation assistance; and

WHEREAS, the HMP established a coordinated effort to support mitigation activities, identifies measures to combat natural hazards within our County; and

WHEREAS, the HMP is an extension of the State of California Multi-Hazard Mitigation Plan, and will be reviewed periodically and revised as necessary to meet changing conditions; and

WHEREAS, the Board of Supervisors agrees to adopt this HMP and urges all officials, employees, public and private organizations, and citizens, individually and collectively, to do their share in furthering the preparation of hazard mitigation within the County of San Bernardino

NOW, THEREFORE, BE IT RESOLVED THAT:

The Board of Supervisors of the San Bernardino County Flood Control District, a public entity established under the laws of the State of California, hereby authorizes this HMP to be adopted, that the San Bernardino County Fire Protection District Office of Emergency Services Division Manager is hereby authorized to implement future non-substantive amendments, recommended by the Federal Emergency Management Agency upon their review, to the HMP, that a copy of the Board of Supervisors' approved San Bernardino County Unincorporated Area Hazard Mitigation Plan be forwarded to the Federal Emergency Management Agency and the CalOES, that once

approved the HMP will be considered to be incorporated into the County's General Plan, and this plan become effective immediately.

PASSED AND ADOPTED by the Board of Supervisors of the San Bernardino County Flood Control District, State of California, by the following vote:

AYES: SUPERVISORS:

NOES: SUPERVISORS:

ABSENT: SUPERVISORS:

* * * * *

STATE OF CALIFORNIA)
) ss.
COUNTY OF SAN BERNARDINO)

I, **LAURA H. WELCH,** Clerk of the Board of Supervisors of the San Bernardino County Flood Control District, State of California, hereby certify the foregoing to be a full, true and correct copy of the record of the action taken by the Board of Supervisors, by vote of the members present, as the same appears in the Official Minutes of said Board at its meeting of _____, 2017.

LAURA H. WELCH
Clerk

By _____
Deputy

RESOLUTION NO. 2017-

A RESOLUTION OF THE BOARD OF DIRECTORS OF THE BOARD GOVERNED COUNTY SERVICE AREAS ADOPTING THE SAN BERNARDINO COUNTY UNINCORPORATED AREA MULTI-JURISDICTIONAL HAZARD MITIGATION PLAN DATED MARCH 2017, AND AUTHORIZING FUTURE NON-SUBSTANTIVE AMENDMENTS TO THE PLAN

On Tuesday, , 2017, on motion of Director , duly seconded by Director and carried, the following resolution is adopted by the Board of Directors of the Board Governed County Service Areas and their Zones.

WHEREAS, the preservation of life and property is an inherent responsibility of local, state and federal government, including the County of San Bernardino, and the San Bernardino County Office of Emergency Services, to prepare a local Multi-Jurisdictional Hazard Mitigation Plan (HMP) for the unincorporated area of San Bernardino County to define hazard mitigation measures to reduce or eliminate loss of life and/or property; and

WHEREAS, this HMP represents a comprehensive description of the County's commitment to reducing, preventing or eliminating potential impacts of disasters caused by natural hazards; and

WHEREAS, the HMP is a Federal requirement under the Disaster Mitigation Act of 2000 for the County to be eligible to apply for federal funds for disaster recovery and mitigation assistance; and

WHEREAS, the HMP established a coordinated effort to support mitigation activities, identifies measures to combat natural hazards within our County; and

WHEREAS, the HMP is an extension of the State of California Multi-Hazard Mitigation Plan, and will be reviewed periodically and revised as necessary to meet changing conditions; and

WHEREAS, the Board of Directors agrees to adopt this HMP and urges all officials, employees, public and private organizations, and citizens, individually and collectively, to do their share in furthering the preparation of hazard mitigation within the County of San Bernardino;

NOW, THEREFORE, BE IT RESOLVED THAT:

The Board of Directors of the Board Governed County Service Areas and their Zones, a public entity established under the laws of the State of California, hereby authorizes this HMP to be adopted, that the San Bernardino County Fire Protection District Office of Emergency Services Division Manager is hereby authorized to implement future non-substantive amendments, recommended by the Federal Emergency Management Agency upon their review, to the HMP, that a copy of the Board of Directors' approved San Bernardino County Unincorporated Area Hazard Mitigation Plan be forwarded to the Federal Emergency Management Agency and CalOES, that

once approved the HMP will be considered to be incorporated into the County's General Plan, and this plan become effective immediately.

PASSED AND ADOPTED by the Board of Directors of the Board Governed County Service Areas and their Zones by the following vote:

AYES: DIRECTORS:

NOES: DIRECTORS:

ABSENT: DIRECTORS:

* * * * *

STATE OF CALIFORNIA)
) ss.
COUNTY OF SAN BERNARDINO)

I, **LAURA H. WELCH,** Secretary of Board of Directors of the Board Governed County Service Areas and their Zones, hereby certify the foregoing to be a full, true and correct copy of the record of the action taken by the Board of Directors, by vote of the members present, as the same appears in the Official Minutes of said Board at its meeting of Tuesday, , 2017.

LAURA H. WELCH
Secretary

By _____
Deputy

RESOLUTION NO. 2017-

A RESOLUTION OF THE BOARD OF DIRECTORS OF THE SAN BERNARDINO COUNTY FIRE PROTECTION DISTRICT ADOPTING THE SAN BERNARDINO COUNTY UNINCORPORATED AREA MULTI-JURISDICTIONAL HAZARD MITIGATION PLAN DATED MARCH 2017, AND AUTHORIZING FUTURE NON-SUBSTANTIVE AMENDMENTS TO THE PLAN

On Tuesday, , 2017, on motion of Director , duly seconded by Director and carried, the following resolution is adopted by the Board of Directors of San Bernardino County Fire Protection District.

WHEREAS, the preservation of life and property is an inherent responsibility of local, state and federal government, including the County of San Bernardino, and the San Bernardino County Office of Emergency Services, to prepare a local Multi-Jurisdictional Hazard Mitigation Plan (HMP) for the unincorporated area of San Bernardino County to define hazard mitigation measures to reduce or eliminate loss of life and/or property; and

WHEREAS, this HMP represents a comprehensive description of the County's commitment to reducing, preventing or eliminating potential impacts of disasters caused by natural hazards; and

WHEREAS, the HMP is a Federal requirement under the Disaster Mitigation Act of 2000 for the County to be eligible to apply for federal funds for disaster recovery and mitigation assistance; and

WHEREAS, the HMP established a coordinated effort to support mitigation activities, identifies measures to combat natural hazards within our County; and

WHEREAS, the HMP is an extension of the State of California Multi-Hazard Mitigation Plan, and will be reviewed periodically and revised as necessary to meet changing conditions; and

WHEREAS, the Board of Directors agrees to adopt this HMP and urges all officials, employees, public and private organizations, and citizens, individually and collectively, to do their share in furthering the preparation of hazard mitigation within the County of San Bernardino;

NOW, THEREFORE, BE IT RESOLVED THAT:

The Board of Directors of the San Bernardino County Fire Protection District, a public entity established under the laws of the State of California, hereby authorizes this HMP to be adopted, that the San Bernardino County Fire Protection District Office of Emergency Services Division Manager is hereby authorized to implement future non-substantive amendments, recommended by the Federal Emergency Management Agency upon their review, to the HMP, that a copy of the Board of Directors' approved San Bernardino County Unincorporated Area Hazard Mitigation Plan be forwarded to the Federal Emergency Management Agency and CalOES, that once approved

the HMP will be considered to be incorporated into the County's General Plan, and this plan become effective immediately.

PASSED AND ADOPTED by the Board of Directors of the San Bernardino County Fire Protection District by the following vote:

AYES: DIRECTORS:

NOES: DIRECTORS:

ABSENT: DIRECTORS:

* * * * *

STATE OF CALIFORNIA)
) ss.
COUNTY OF SAN BERNARDINO)

I, **LAURA H. WELCH,** Secretary of Board of Directors of the San Bernardino County Fire Protection District, hereby certify the foregoing to be a full, true and correct copy of the record of the action taken by the Board of Directors, by vote of the members present, as the same appears in the Official Minutes of said Board at its meeting of Tuesday, , 2017.

LAURA H. WELCH
Secretary

By _____
Deputy

Section 1. Introduction

The Multi-Jurisdictional Hazard Mitigation Plan (MJHMP) update is a "living document" that should be reviewed, monitored, and updated to reflect changing conditions and new information. As required, the MJHMP must be updated every five (5) years to remain in compliance with regulations and Federal mitigation grant conditions. In that spirit, this MJHMP is an update of the San Bernardino County Unincorporated Area MJHMP approved by FEMA on October 11, 2011. This MJHMP presents updated information regarding hazards being faced by the County, the San Bernardino County Fire Protection District, the San Bernardino County Flood Control District, and those Board-governed Special Districts administered by the San Bernardino County Special Districts Department.

These Board-Governed Special Districts were formed by the Board of Supervisors to provide a specific service for a specific area of San Bernardino County. Additionally, these Special Districts are treated as an all-inclusive County Organization, not as separate or independent entities. Each Special District is governed cooperatively by the San Bernardino County Board of Supervisors acting as the Board of Supervisors for each of the individual districts.

The County of San Bernardino is governed by five (5) Supervisors; one for each supervisorial district who collectively make up the County Board of Supervisors. The Board of Supervisors is responsible for the County department and agencies, including Board Governed Special Districts, providing services to the unincorporated area.

The Board of Supervisors acts as the Board of Directors for the County Fire Protection District, the County Flood Control District, and the Special Districts Department as part of their responsibilities as an elected member of the County of San Bernardino Board of Supervisors.

The San Bernardino County Organizational Chart clearly shows the relationships between these Board-governed Special Districts and other County departments as one of equal relationship Departments/Districts. See Figure 1-1.

COUNTY OF SAN BERNARDINO - Hazard Mitigation Plan Update

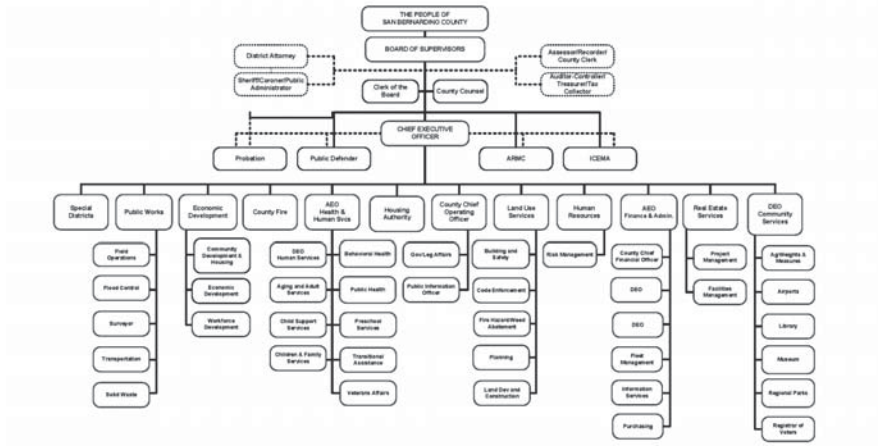

Figure 1-1: Organizational Chart for San Bernardino County

1.1 San Bernardino County Unincorporated Area

The Unincorporated Area of San Bernardino County has a population of 309,759 persons (14.48%) of the entire County Population) and covers 19,233 square miles (95.67% of the entire County land area). There are approximately 61 unincorporated communities within the unincorporated County. San Bernardino County is the largest County in the continental United States. San Bernardino County provides basic services to the residents and citizens of the unincorporated areas. These services include Law Enforcement, Fire Protection, Building and Safety Services, Public Health Services, Library, and Human Services (social services). Five Interstate Highways and four inter-continental railroad lines cross the County, providing vital transportation links from southern California to the remainder of the United States.

1.1.1 San Bernardino County Fire Protection District

San Bernardino County Fire Protection District is a community based all-risk emergency services organization dedicated to the health and well-being of the citizens of San Bernardino County through a balance of regionalized services delivery and accountability to the local community. On July 1, 2008, twenty-seven separate fire districts were merged into one single board governed fire protection district with four regional service zones. The reorganization was not only an administrative advancement but also a significant advancement in operations and delivery of emergency response services.

It has resulted in simplified budgeting and fiscal operations, greater flexibility in the use in the use of department resources and assets and more effective use of day-to-day operations. The reorganization will continue to improve the delivery of fire services and overall operating efficiency.

The San Bernardino County Fire Protection District (County Fire) covers 19,278 square miles, operates 85 fire stations and facilities within 6 Regional Service Zones (Mountain, North Desert, South Desert, High Desert, West Valley and East Valley), and serves 64 unincorporated communities, the City of Grand Terrace, and the Town of Yucca Valley. There are also 6 ambulance enterprise operations that provide service within these Regional Service Zones. In addition, 7 cities are Independent Fire Protection Districts that contract with County Fire: Adelanto, Fontana, Hesperia, Needles, Twentynine Palms, San Bernardino and Victorville. County Fire's executive management is provided by the Fire Chief/County Fire Warden, Deputy Chief, Assistant Chief of Operations as well as Division Managers and Division Chiefs.

County Fire is an all-risk department providing emergency mitigation and management for fire suppression, emergency medical services (paramedic and non-paramedic), ambulance services, HAZMAT response, arson investigation, technical rescue including water borne, flooding and mudslide, winter rescue operations, terrorism and weapons of mass destruction. As part of disaster preparation, response, and mitigation, the department's Office of Emergency Services specifically provides support and assistance to the 24 cities and towns, as well as, all the unincorporated portions of the county. The field functions are supported by a countywide management system that includes organizational business practices, human resources, financial and accounting services, vehicles services and support, and equipment warehousing and distribution. County Fire also provides for the management of community safety services such as: fire prevention, building construction plans and permits, household hazardous waste, Local Oversight Program for hazardous materials, HAZMAT facility inspections, planning and engineering, and public education and outreach.

San Bernardino County Fire Protection District
San Bernardino County, California

Figure 1-2: San Bernardino County Fire Protection District

1.1.2 San Bernardino County Flood Control District

1.1.2.1 Description of Major Services

The San Bernardino County Flood Control District (District) was created in 1939 under special state legislation. Since its inception, the District has developed a very extensive system of flood control and water conservation facilities, including dams, conservation basins, debris basins, channels and storm drains. The purpose of these facilities is to intercept and convey flood flows through and away from developed areas of the county, as well as to promote water conservation and improved water quality.

The District covers the entire county, including all of the incorporated cities. The District is divided into six geographic flood zones (in recognition of the different characteristics and flood control needs in various areas).

- Zone 1 encompasses the county's West End, from the Los Angeles and Riverside County lines to West Fontana.
- Zone 2 encompasses the central area of the San Bernardino Valley easterly of Zone 1 to approximately the Santa Ana River and City Creek demarcations.
- Zone 3 covers the east end of San Bernardino valley, east of Zone 2.

- Zone 4 covers the Mojave River valley region, from the San Bernardino Mountains to Silver Lakes.
- Zone 5 primarily includes the San Bernardino Mountains.
- Zone 6 encompasses the remainder of the county not covered by other zones.

The District has also established a countywide administrative zone (Zone 7)

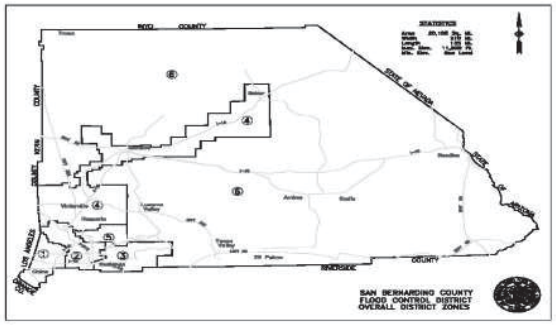

Figure 1-3: Map of San Bernardino County Flood Control District

The District's funding is primarily derived from property taxes, federal and state aid on specific projects, subdivision and permit fees, rents and royalties, and revenue from local water agencies for water spreading services. The District's principal functions are as follows:

- **Flood Protection on Major Streams:** In cooperation with the federal government, the District conducts programs for channel and levee construction, floodwater retention, and debris basin maintenance. Programs or projects are often done in cooperation with the incorporated cities, the U.S. Army Corps of Engineers, and the U.S. Bureau of Reclamation.

- **Water Conservation:** The District operates and maintains water conservation basins and spreading grounds. Water from the local mountains and northern California is spread and percolated into the groundwater basins underlying the county. The District has numerous joint use agreements with water districts allowing use of District facilities for groundwater recharge.

- **Storm Drain Construction:** The District is active in comprehensive storm drain master

planning/construction and cooperates with incorporated cities and other agencies in storm drain projects.

- **Facility Maintenance:** The District has a proactive maintenance program for its facilities. Regular inspections of the storm drains, channels, and basins are made as required by various state and federal agencies.

- **National Pollution Discharge Elimination System (NPDES):** The District is the lead permittee in the San Bernardino valley area-wide NPDES permit with 16 cities as co-permittees. The NPDES program, through the State Water Quality Management Board, regulates storm water quality through very detailed and complex permits, which affect everyone within the Santa Ana River Watershed and is expanding into the high desert area of the Victor Valley under Phase II of the permit.

- **State Water Quality Management Board:** regulates storm water quality through very detailed and complex permits, which affect everyone within the Santa Ana River Watershed and is expanding into the high desert area of the Victor Valley under Phase II of the permit.

- **Flood Operations:** During the flood season, the District maintains telemetry systems for monitoring rainfall and runoff and dispatches storm patrols as dictated by the projected severity of a storm. The District has access to a weather satellite data delivery system to provide state-of-the-art weather information. The system provides advance warning of major storm activity.

- **Flood Area Safety Task Force (FAST):** As a result of the October/November fires of 2003, the FAST organization was created. The District is a key component of this task force, which is meant to respond to the elevated flood risk associated with the aftermath of these devastating fires.

1.1.3 Special Districts Department

The Special Districts Department promotes safe, healthy, enjoyable and dynamic communities by providing essential programs and municipal services that meet the current and future needs of the communities served.

The San Bernardino County Board of Supervisors is the governing body for all Board governed Districts, County Service Areas (CSA), and Improvement Zones. The day-to-day management and administration is done through the Special Districts Department. The County Board of Supervisors and the Special Districts Department depend quite heavily on input from the community. The successful operation of a District, CSA and Improvement Zone is a team effort between County staff and property owners. Where needed, the Board of Supervisors will set up a

property owner Advisory Commission or Municipal Advisory Council (MAC) to work with and make recommendations to the Board and County staff.

The formation process begins with a request from property owners and then involves a feasibility study performed by the Special District Department with the assistance of many other County Departments. The final approval of the District, CSA and Improvement Zone is done by the County Board of Supervisors at a public hearing. Depending on the complexity of the issues, the process can take from three (3) months to one (1) year to complete.

There are various forms of financial mechanisms that can be used to fund services such as fees, special taxes, assessments, etc. Prior to a new funding source being implemented, it must receive approval from either the property owners or the registered voters in the area. It is important to understand that all funding is generated through the Districts, CSAs, and Improvement Zones. No County general funds are used or are available.

Special Districts Department is responsible for operating the Board-governed Special Districts within San Bernardino County. There are 102 special districts managed by the Special Districts Department:

Table 1-1: Special Districts Department District Listing

	District Type	Number
1	Special Revenue Districts	11
2	Enterprise Funds (Airport and Refuse)	3
3	Parks Districts	19
4	Road Districts	41
5	Enterprise Funds (Sewer)	9
6	Street Light Districts	11
7	Enterprise Funds (Water)	8
Total Special Districts		102

- **Special Revenue Districts** were created to provide a service to the property owners within the Special Revenue District.
- **Enterprise Funds Districts** derive their funds through fees collected for delivery of a service or good such as water, sewer, refuse or airport fees from the users within the individual District.
- **Parks Districts** derive their funds through property taxes levied on property owners

within the individual Park District.

- **Road Districts** derive their funds through property taxes levied on property owners within the Road District.
- **Street Light Districts** derive their funds through property taxes levied on property owners within the Street Light District.

The two Special Districts listed below were formed differently than the other special districts listed above managed by the Special Districts Department. These two districts were formed with a Board of Directors. (San Bernardino County Board of Supervisors) and are not independently elected. All governance actions are by the elected members of the Board of Supervisors acting as the Board of Directors for the Recreation and Park District.

Big Bear Valley Recreation and Parks District

Big Bear Valley Recreation and Park District currently maintains 6 developed parks, 2 undeveloped parks, several community buildings including the Big Bear Valley Senior Center, 3 ball fields, and a swim beach. Moonridge Animal Park is administered by the Big Bear Valley Recreation and Park District. The Zoo is open year round for visitors to see alpine species on exhibit. The Zoo receives approximately 99,600 visitors annually.

Bloomington Recreation and Parks District

Bloomington Recreation and Park District maintains two community parks, an equestrian arena, sports fields, and a community center.

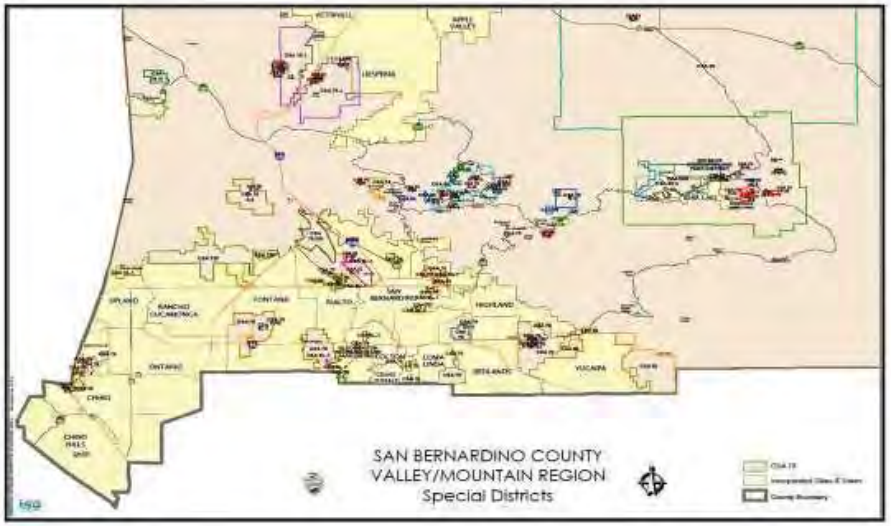

Figure 1-4: Map of Special District Department Districts

Figure 1-5: Special Districts Valley/Mountain Region

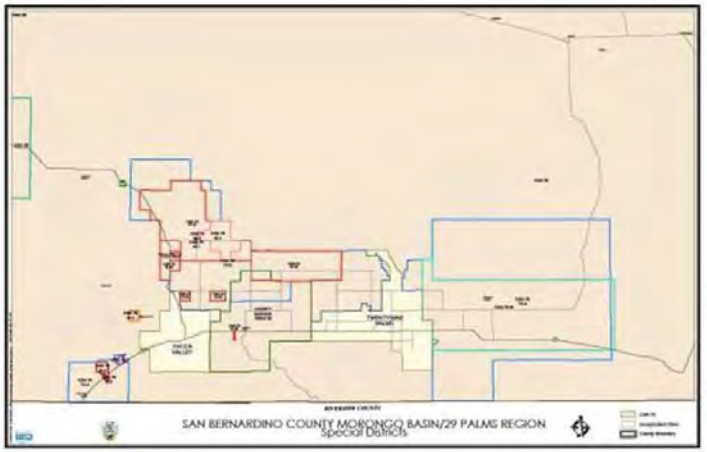

Figure 1-6: Morongo Basin/Twentynine Palms Region

Figure 1-7: Special Districts Victor Valley/Barstow Region

1.2 Purpose of the Plan

The intent of hazard mitigation is to reduce and/or eliminate loss of life and property. Hazard mitigation is defined by FEMA as "any action taken to reduce or eliminate the long-term risk to human life and property from natural hazards." A "hazard" is defined by FEMA as "any event or condition with the potential to cause fatalities, injuries, property damage, infrastructure damage, agricultural loss, environmental damage, business interruption, or other loss."

The purpose of the Multi-Jurisdictional Hazard Mitigation Plan (MJHMP) is to demonstrate the plan for reducing and/or eliminating risk in the unincorporated area of the County and within areas overseen or managed by the Flood Control District, Fire District and Special Districts Department. The MJHMP process encourages communities within the unincorporated county to develop goals and projects that will reduce risk and build a more disaster resilient community by analyzing potential hazards. By cooperatively and jointly together as a Multi-Jurisdictional Planning team, the partners were able to develop common goals and objectives for mitigation efforts. The individual stakeholders can then take the goals and objectives back to their individual Special Districts for discussion, ranking and project development, and then bring the resulting projects back to the Multi-Jurisdictional Planning Team. The Multi-Jurisdictional Planning Team can then

integrate all projects into the appropriate project listing to be acted upon by the most appropriate managing department or district for the listed projects.

After disasters, repairs and reconstruction are often completed in such a way as to simply restore to pre-disaster conditions. Such efforts expedite a return to normalcy; however, the restoring of things to pre-disaster conditions sometimes result in feeding the disaster cycle; damage, reconstruction, and repeated damage. Mitigation is one of the primary phases of emergency management specifically dedicated to breaking the cycle of damage. Hazard mitigation is distinguished from other disaster management functions by measures that make County development and the natural environment safer and more disaster resilient. Mitigation generally involves alteration of physical environments, significantly reducing risks and vulnerability to hazards by altering the built environment so that life and property losses can be avoided or reduced. Mitigation also makes it easier and less expensive to respond to and recover from disasters.

1.3 Authority

In 2000, FEMA adopted revisions to the Code of Federal Regulations. This revision is known as "Disaster Mitigation Act (DMA)." DMA 2000, Section 322 (a-d) requires that local governments, as a condition of receiving federal disaster mitigation funds, have a Multi-Jurisdictional Hazard Mitigation Plan (MJHMP) that describes the process for assessing hazards, risks and vulnerabilities, identifying and prioritizing mitigation actions, and engaging/soliciting input from the community (public), key stakeholders, and adjacent jurisdictions/agencies.

With an approved (and adopted) MJHMP, the County and participating jurisdictions are eligible for federal disaster mitigation funds/grants (Hazard Mitigation Grant Program, Pre-Disaster Mitigation, and Flood Management Assistance) aimed to reduce and/or eliminate risk.

1.4 What's New

The 2011 San Bernardino County Multi-Jurisdictional Hazard Mitigation Plan (MJHMP) contained a detailed description of the planning process, a risk assessment of identified hazards for the San Bernardino County Planning Area and an overall mitigation strategy for reducing the risk and vulnerability from these hazards. Since approval of the plan by FEMA, much progress has been made by San Bernardino County and the participating County Districts on implementation of the mitigation strategy. As part of this 2016 MJHMP Update, a thorough review and update of the 2011 plan was conducted to ensure that this update reflects current community conditions and priorities in order to realign the overall mitigation strategy for the next five-year planning period. This section of the plan includes the following:

- **What's New in the Plan Update** This section provides an overview of the approach to updating the plan and identifies new analyses, data and information included in this Plan Update to reflect current community conditions. This includes a summary of new hazard and risk assessment data as it relates to the San Bernardino Planning Area as well as information on current and future development trends affecting community vulnerability

and related issues. The actual updated data, discussions, and associated analyses are contained in their respected sections within this 2016 MJHMP Update.

- **Summary of Significant Changes to Current Conditions and Hazard Mitigation Program Priorities.** This section provides a summary of significant changes in current conditions, changes in vulnerability, and any resulting modifications to the community's mitigation program priorities.

- **2011 Mitigation Strategy Status and Successes.** This section provides a description of the status of mitigation actions from the 2011 plan and also indicates whether a project is no longer relevant or is recommended for inclusion in the updated 2016 mitigation strategy. This section also highlights key mitigation success stories of the County and participating jurisdictions since the 2011 MJHMP.

This What's New section provides documentation of San Bernardino County Planning Area's progress or changes in their risk and vulnerability to hazards and their overall hazard mitigation program. Completion of this 2016 MJHMP Update further provides documentation of the San Bernardino County community's continued commitment and engagement in the mitigation planning process.

1.4.1 Updates to the Current Plan

This MJHMP update involved a comprehensive review and update of each section of the 2011 plan and includes an assessment of the success of the participating County Districts in evaluating, monitoring and implementing the mitigation strategy outlined in the initial plan. Only the information and data still valid from the 2011 plan was carried forward as applicable into this MJHMP update. In fact, based in part on the issuance of new 2011 and 2013 planning guidance, this 2016 plan has been significantly updated and rewritten.

The San Bernardino County Multi-Jurisdictional Hazard Mitigation Plan (2011) focused on integrating the MJHMP with the County General Plan goals and policies as well as incorporating specific flood mitigation projects that were programmed for completion over the five (5) year period. The Plan did not clearly identify mitigation projects the County would focus on for all priority hazards identified in the plan. However, the County has been very active and engaged in implementing and supporting projects and programs designed to reduce and/or eliminate risk in the County. The list of successful projects in this section represents the activities that the County has undertaken and/or supported to reduce the risks from Wildfire, Earthquake, Flood, Drought, Terrorism, and Climate Change.

1.4.2 New Jurisdictional Annexes

Newly refined and reconfigured Jurisdictional Annexes detail the hazard mitigation planning elements specific to the participating jurisdiction to the San Bernardino County MJHMP Update.

The Annexes are not intended to be a standalone document, but appends to and supplements the information contained in the 2016 base plan document. As such, all sections of the base plan, including the planning process and other procedural requirements apply to and were met by the participating jurisdictions. The newly refined Jurisdictional Annexes provide additional information specific to county participating special district or departments, with a focus on providing additional details on the mitigation strategies for the Fire Protection District, Flood Control District and Special Districts Department. The three annexes provide more detail on mitigation strategies, mitigation projects and existing implementation mechanism for each participating jurisdiction.

The 2011 MJHMP included the Big Bear Valley Recreation and Parks District and Bloomington Recreation and Parks District as standalone jurisdictions. For purposes of this 2016 plan update, Big Bear Valley Recreation and Parks District, and Bloomington Recreation and Parks District hazard mitigation planning efforts are included under the supervision of the Special Districts hazard mitigation planning efforts.

1.4.3 New Risk Assessment

As part of its comprehensive review and update of each section of the plan, San Bernardino County and participating jurisdictions recognized that updated data, if available, would enhance the analysis presented in the risk assessment and utilized in the development of the updated mitigation strategy. Highlights of new data used for this Plan Update is identified below in this Section and is also sourced in context within Chapter 4, Risk Assessment. Specific data used is sourced throughout this plan document. This new data and associated analysis provided valuable input for the development of the mitigation strategy presented in Chapter 5 of this plan. A highlight of new information and analyses contained in this plan update includes the following:

- A new assessment of updated hazards affecting the San Bernardino Planning Area was completed resulting in additional hazards added to planning documents the new hazards include climate change, drought and terrorism.

- The drought hazard was expanded to include water shortage impacts to the County, to better align with the State of California Hazard Mitigation Plan and to reflect the significant issues related to drought conditions resulting from the current and ongoing drought within the County and State of California.

- The climate change hazard was added to include to comply and align with the State of California Hazard Mitigation Plan and to reflect recent SB 379 initiatives. Climate change is affecting and will continue to affect the frequency and severity of natural hazard events, a trend that is of concern across the United States.

- An entire rework of the risk assessment for each identified hazard. This included reworking the hazard profile and adding new hazard event occurrences; redoing the entire vulnerability analysis to add items identified below and updating the vulnerability assessment based on more recent hazard data as well as using the most current parcel and assessor data for the existing built environment.

- An update of the flood hazard analysis to include an updated analysis of the 100-year flood, an analysis of the 500-year flood, including the use the new and updated DFIRMs.
- Utilizing updated critical facility GIS mapping for the Planning Area to provide an updated inventory of critical facilities by jurisdiction (including all municipalities) and a GIS analysis of critical facilities vulnerable to hazards with spatial footprints which include: flood, wildfire, and earthquake.
- An enhanced vulnerability assessment which added a GIS analysis of updated future development areas in the Planning Area and specific to each of the mapped hazards.
- Incorporation and analysis of the new 2010 Census data was utilized for this LHMP update. Census data was used in an intersect analysis to determine how much of the population is exposed to flood, wildfire and earthquake hazards.
- Also, as required by current FEMA planning guidance, an analysis of the County's ongoing and continued compliance with the NFIP is included in the Flood Hazard profile.
- Terrorism is now a reoccurring possibility within the United States, due to the terror attack in San Bernardino County in December of 2015, a hazard profile on this matter has been added to this plan.

1.4.4 Successful Wildfire Mitigation Implementation

1.4.4.1 Fire Safe Councils (FSC) Fuel Reduction Program Success

Fire Safe Councils have received and implemented millions of dollars in grant money for fuels reduction and for public education. Of note recently the Arrowhead Communities FSC developed a grant that did fuels reduction but used the existing staff at the County Tree Removal Program rather than pay additional consultants to do the same work. The benefit of this is that the FSC was able to maximize their expenditure and give the contractor a check upon completion of the project. This way 100% of their grant money went directly to the contractor and none went to administrative overhead.

1.4.4.2 Red Cross Grant Fuel Reduction Success

Although this grant was just recently started, the ARC has successfully removed and reduced fuels on several properties. They have also met with County Roads Sign Division and created the correct number of evacuation directional signs. Fifty signs will be posted in the Moon Ridge area of Big Bear Lake in 2010 and 2011. During an emergency, these directional signs will direct people out of a very confusing network of streets.

1.4.4.3 USFS Grants ARRA and Otherwise and Chipping Program Success

San Bernardino County and its Special Districts were successful in obtaining $3 million in American Recovery and Reinvestment Act funding to support ongoing fuel reduction programs and to create new jobs for the recovering economy. The USFS also funded an additional $13 million to carry on after the NRCS projects were closed out.

Project design, contracting and operations are managed by the County's Public Works Department but the priorities are set by local fire chiefs in monthly MAST Operations Meetings. It is the oldest and most significant program for reducing wildfire threat on a mountain wide basis. Table 1-2 shows current and planned fuels reduction Projects for the San Bernardino County Mountain areas.

Table 1-2: Hazardous Tree Removal Project and Fuel Modification Projects

Project Name	Contract No	Funding	Cost	Project Stage
Mojave view	FM179USFS	USFS	$23,840.00	Complete 2013
Strawberry Lodge	n/a	USFS	n/a	Complete 2013
Harich	n/a	USFS	n/a	Complete 2013
Camp Oaks	n/a	USFS	n/a	Complete 2013
Swinson/Arrowbear	n/a	USFS	n/a	Complete 2013
Osito Rancho/Cedar	n/a	USFS*	n/a	Complete 2013
BBV286SP	n/a	USFS	n/a	Complete 2013
BBV287SP	n/a	USFS	n/a	Complete 2013
BBV280SP	n/a	USFS	n/a	Complete 2013
FF288SP	n/a	USFS	n/a	Complete 2013
LA291SP	n/a	USFS	n/a	Complete 2013
RS292SP	n/a	USFS	n/a	Complete 2013
GVL293SP	n/a	USFS	n/a	Complete 2013
AB294SP	n/a	USFS	n/a	Complete 2013
BBV295SP	n/a	USFS	n/a	Complete 2013
Green Briar	FM100ARRA	ARRA**	$88,000.00	Complete 2013
West Hook Creek	n/a	ARRA	$14,700.00	Complete 2013
Silverwood Lake	n/a	ARRA	$21,000.00	Complete 2013
Weesha	n/a	ARRA	n/a	Complete 2013
Erwin Lake	n/a	ARRA	n/a	Complete 2013
Wrightwood	n/a	ARRA	n/a	Complete 2013
Camp Tahquitz	n/a	ARRA	n/a	Complete 2013

Project Name	Contract No	Funding	Cost	Project Stage
West Cajon	n/a	ARRA	n/a	Complete 2013
LA285SP	n/a	ARRA	n/a	Complete 2013
WW290SP	n/a	ARRA	n/a	Complete 2013
CL289SP	n/a	ARRA	n/a	Complete 2013
Rob Roy	n/a	ARRA	n/a	Complete 2013
Santa's Village	n/a	ARRA	n/a	Complete 2013
Saw Pitt II	n/a	ARRA	n/a	Complete 2013
Oak Hills	n/a	ARRA	n/a	Complete 2013
Fawnskin	n/a	ARRA	n/a	Complete 2013
Heaps Peak	n/a	ARRA	n/a	Complete 2013
Houston	n/a	ARRA	n/a	Complete 2013
Calvary	n/a	ARRA	n/a	Complete 2013
WW298SP	n/a	ARRA	n/a	Complete 2013
LG299SP	n/a	ARRA	n/a	Complete 2013
Project Name	**Contract No**	**Funding**	**Cost**	Complete 2013
Waterman Canyon	n/a	ARRA	n/a	Complete 2013
Willow Creek	FM6501AFSC	ACFSC***	$11,900.00	Complete 2013
LA191EVA	EVA191AFSC	ACFSC	n/a	Complete 2013
NorthBay	FM192AFCS	ACFSC	n/a	Complete 2013
LA215EVA	**n/a**	**ACFSC**	**n/a**	**Complete 2013**

** Funded by United States Forest Service*
*** Funder by American Reinvestment and Recovery Act of 2009*
**** Funded by Arrowhead Communities Fire Safe Council*

1.4.4.4 NRCS Fuel Reduction Project Success

San Bernardino County was the recipient of 72 million dollars that were granted from the National Resource Conservation Service (NRCS) to San Bernardino County Fire Protection District to reduce the amount of fuel and the potential for ignitability. In February of 2010, the grant was successfully closed out one month in advance of the target date. The $72,000,000 provided for almost 1,000 projects substantially reducing heavy fuels on tens of thousands of properties at risk across all mountain communities. Within that grant, $6.7million was provided to the USFS to conduct fuel modifications on Federal land and $7.2 million was provided to Cal Trans to remove fuels along evacuation routes. An additional $2 million was forwarded to San Diego to assist them. The activities funded under this program represent the first of their kind to be accomplished by local/state governments with federal grant funding.

To date the Fuel Management Program has removed over 450,000 trees, improving the overall health of the forested areas in the San Bernardino Mountains and reduced the overall fire threat. On several occasions completed projects have resulted in assisting fire suppression efforts and allowing fire to be contained before it threatens a local community, including Deer Lodge Park in Lake Arrowhead and Nob Hill in Running Springs during the Grass Valley and Slide Fires of 2007.

1.4.5 Flood Hazard Mitigation Success

1.4.5.1 2011 General Plan Amendments

A General Plan Amendment to the Safety Element of the County of San Bernardino 2007 General Plan amended the Flood Plain Overlay District, which became effective on March 11, 2010. The Safety Element includes several layers of hazard overlays that are included in the General Plan mapping system to inform the public of potential hazards to development of property within certain areas of the County and to enable the County to mitigate the risks presented to property owners by these hazards. These overlays include potential flood hazards. Over the past twenty years, certain federal and state agencies have been in the process of digitizing much of this hazard data. The digitization of this data has allowed for greater accuracy as well as more timely updates. In recognition of the new data from various federal and state agencies, the County updated the Flood Hazard Overlay Maps contained within the Safety Element of the General Plan. The Flood Plain Safety Overlay District is amended to incorporate revised FEMA (Federal Emergency Management Agency) Flood Plain data, modifying 47 detail and seven regional General Plan Quad Maps. The FEMA Digital Flood Insurance Rate Map database was adopted in the General Plan Amendment as released by FEMA as it exists as of February 9, 2010 and will updated in the future for the County, by integrating automatic map updates as new data is published by FEMA.

Below is a list of the updated Flood Plain Safety Overlay District Maps effective March 11, 2010.

Map	Quad Name	Map #	Quad Name	Map	Quad Name
DI16B	Baker	FH12B	Telegraph Peak	FH21	Devore
EH07	Hinkley	FH13B	Cajon	FH22	San Bernardino N.
EH14	Wild Crossing	FH14B	Silverwood Lake	FH23	Harrison Mtn.
EH15	Hodge	/FJ B	S Portion of County	FH28	Guasti
EH16	Barstow SE	FH11B	Mt. San Antonio	FH29	Fontana
EH22	Helendale	CK/DK	NE Portion of County	FH30	San Bernardino S.
EH29	Adelanto	EH/FH	SW Portion of County	FH31	Redlands
EH30	Victorville	EI/FI B	S Portion of County	FH32	Yucaipa
EH31	Apple Valley N.	EK/FK B	SW Portion of County	FI09B	Fawnskin
EI01B	Nebo	FH06B	Hesperia	FI10B	Big Bear City
EI02B	Yermo	FH07B	Apple Valley S.	FI17B	Big Bear Lake

Map	Quad Name	Map #	Quad Name	Map	Quad Name
EI03B	Harvard Hill	CH/DH	NW Portion of County	FI18B	Moonridge
EI04B	Manix	CI/DI B	N Portion of County	FH15	Lake Arrowhead
EI09B	Daggett	FH03B	Mescal Creek	FH19	Mt. Baldy
EK03	Needles NW	FH04B	Phelan	FH20	Cucamonga Peak
EK11	Needles SW	FI30B	Joshua Tree S.	FI23B	Sunfair
EK12	Needles	FI32B	Queen Mountain	FI25B	Forest Falls
EK20	**Whale Mountain**	**FI28B**	**Morongo Valley**		

Completed Flood Control Projects with Mitigation Characteristics

Table 1-3: Completed Flood Control Projects

Project Number	Completion Date	Total Cost	Total Funding
F02527	2016	$392,885	$392,885
F00282	2016	$4,100,000	$4,100,000
1-	2010	$7,770,000	$7,700,000
F01761	2016	$4,000,000	$4,000,000
F02234	2016	$1,100,000	$1,100,000
F01767	2014	$3,700,000	$3,700,000
F01389-	2008	$1,300,000	$1,300,000
F01545	2009	$1,500,000	$1,500,000
F01566-	2010	$3,300,000	$3,300,000

1.4.5.2 F02527 29TH Street Basin Levee Certification Restoration Project - Completed

Ensure that the surrounding residential and commercial areas will not be re-mapped as floodplain areas.
Status: Completed
Completion Date: March 2016
Local Priority: High
Total Cost: $392,885
Funding Description: From Flood Control District Budget through Property Tax
Project Selected for: Public safety: history of flood damage at this location
Hazard Mitigated: Potential flooding
Resources to Implement: High

Cost to Implement: High
Time to Implement: High

1.4.5.3 F00282 Alabama at City Creek - Completed

Construct RCB and channel improvements to increase capacity and minimize the possibility of road closures and flood damage.
Status: Completed
Completion Date: January 2016
Local Priority: High
Total Cost: $4.1 million
Funding Description: San Bernardino County Flood Control Tax Revenues
Project Selected for: Public safety & convenience
Hazard Mitigated: Flooding, flood damage, road closures and road damage
Resources to Implement: Low
Cost to Implement: High
Time to Implement: Medium

1.4.5.1 F02234 Wilson Creek - Completed

Status: Completed June, 2016
Local Priority: Low
Total Cost: $1.1 million
Funding Description: San Bernardino County Flood Control Property Taxes, City of Yucaipa
Project Selected for: public safety and infrastructure protection
Hazard Mitigated: attenuation of high velocities (50 fps); slope protection
Resources to Implement: Low
Cost to Implement: High
Time to Implement: High

1.4.5.2 F01767 Lytle Cajon – Completed

Replacement of damaged concrete invert
Status: completed
Completion Date: 2014
Local Priority: High
Total Cost: $3.7million
Funding Description: San Bernardino County Flood Control
Project Selected for: Public safety and to prevent additional channel damage
Hazard Mitigated: Additional damage to invert and walls; potential flooding and washouts of nearby area
Resources to Implement: Medium
Cost to Implement: High
Time to Implement: High

1.4.5.3 F01761 Kitchen Wash – Completed

To intercept flows upstream of Rimrock Road to capture headwaters and re-route them to the Mojave River
Status: In preliminary design process
Completion Date: Estimated 2017/2018
Local Priority: Low
Total Cost: $4.0 million
Funding Description: San Bernardino County Flood Control Property Taxes
Project Selected for: Public safety; protection of commercial center
Hazard Mitigated: local flooding, road damage
Resources to Implement: Low
Cost to Implement: High
Time to Implement: High

1.4.5.4 Successful "Finalization" of Drainage Feasibility Study Report

The final Drainage Feasibility Study has been completed to evaluate the continuing landslide hazard within Rimforest and the role of concentrated storm runoff in propagating slope failure. The village of Rimforest has eroding cliff-side property and bluff retreat in the Southern part of the village.

This problem is primarily caused by storm runoff from either rainstorms or snowmelt after winter storms. The runoff flows to the south side of Rimforest and is discharged over the cliff at two principal locations. This study report evaluated a number of options to re-direct the majority of the runoff to other discharge locations for the purpose of reducing and mostly eliminating the cliff-side erosion. Two options presented the study appear to be feasible if new conventional storm drain systems are installed. One of the options is now included as potential future mitigation action presented in Section 6 of this plan.

1.4.6 Geologic Hazard Mitigation Success

1.4.6.1 Successful Geologic Hazard Prevention General Plan Amendments

Twenty two overlay maps were completed as part of the 2007 General Plan Amendment which became effective on March 11th, 2010. For more information on the overlay maps, see Section 6.2.2.3.

1.4.6.2 Amendment to Title 6 County Code to Adopt by Reference the 2010 Editions of the California Building Standards Codes

An amendment to Title 6 of the County of San Bernardino Code to adopt by reference the 2010 Editions of the California Building Standards Codes went before the Board of Supervisors on November 2, 2010 and was continued for a second reading on November 16, 2010 and approved unanimously. The amendment became effective on January 1, 2011.

The County of San Bernardino amendment to Title 6 of the County Code to adopt by reference the 2010 Editions of the California Building Standards Codes repealed the current chapters of Division 3 of Title 6 that reflect the 1994/1995 editions of the California Building Standards Codes and adopt the 2010 editions of these codes by reference.

The California Building Standards Commission approved the California Building Standards Code (Code) for a statewide effective date of January 1, 2011 and requires this Code apply in all parts of the state. This Code consists of the California Building, Residential, Plumbing, Mechanical, Electrical, Energy, Historical Buildings, Existing Building (Unreinforced Masonry) and the Green Building Standards Codes. Since this 2010 Edition was adopted by local ordinance, the prior editions of this code will be repealed and the most recent editions of the codes with applicable amendments requiring express findings and certain appendices necessary for the health and safety of the citizens of this County will be in effect within the unincorporated areas of San Bernardino County. The benefit of adopting this Code is that it provides consistency and clarification for the building community as well as building inspectors and plans examiners. State law (Health & Safety Code 18941.5 and 17958.7) requires the local government make express findings in order to amend building standards and the amendments must be necessary due to local climatic, geological, or topographical conditions.

Those amendments and findings are included in the County's ordinance and were filed with the California Building Standards Commission.

The recommended modifications not requiring express findings are administrative or procedural in nature and concern the local implementation issues that are not covered by building standards.

An example of this type of modification is to the California Residential Code, Section R105.3.1.1 which requires the Board of Appeals to confirm substantial valuations in the flood plain. The traditional purpose of the Board of Appeals has been reserved for a contested decision of the Building Official, and it is felt that it should remain as such.

With respect to grading and excavation regulations found in Appendix J of the 2010 State published code, the 2001 California Building Code dealt with grading with more clarity in regards to what activities require a permit and set forth rules to ensure large grading projects are scrutinized in greater detail than smaller projects by requiring more reporting and inspection of such work. The grading chapter in the 2001 Code has been trusted and in use in its primary form for years. The 2010 Appendix J grading chapter needs substantial amendment and modification to address all grading issues and is not recommended for adoption in its present form. The Board adopted the 2001 Appendix Chapter 33 regulations as part of this proposed ordinance. Relocation permit requirements have been moved to a new section of the Code, and it retains specific standards for relocation procedures in details not found in the 2010 State-published code. Clarification of the types of buildings affected by the new regulations has also been made.

Administrative changes to the 2010 California Existing Building Code (Part 10 of Title 24) were approved to outline the procedures required to set allowable time limits for the retrofit and repair

of unreinforced masonry buildings. Staff is also recommending that authorization be given to the Building and Safety Division of the Land Use Services Department to issue Administrative Citations as an alternative means of enforcement of the County Code provisions.

Express findings are made for changes to the California Plumbing Code, Appendix K regarding the soil conditions that exist in this county. These changes are supported by the Environmental Health Division. These express findings are iterated in the ordinance and will be filed with the Building Standards Commission as required by law in order to become effective.

1.5 Community Profile

1.5.1 Physical Setting

The County is bounded by the states of Arizona and Nevada on the east, Inyo County on the north, Kern and Los Angeles Counties on the west, and Orange and Riverside Counties on the south.

San Bernardino County covers 20,102 square miles and is geographically the largest county in the continental United States. The States of Hawaii, Connecticut, Delaware, and Rhode Island and the District of Columbia could all fit inside the County boundary at the same time. The unincorporated area of San Bernardino County covers approximately 19,848 square miles; this is 98.7% of the entire County.

The remaining 1.3% of acreage (254 square miles) is under the jurisdiction of incorporated cities or towns. Figure 7 displays the unincorporated area and the cities/towns. The cities/towns on the map are concentrated in the south/west portion of the county and are color-coded.

San Bernardino County is characterized by three (3) distinct geographic areas: Valley, Mountains, and Desert: the Valley Region contains the majority of the county's incorporated areas and is the most populous region; the

Mountain Region is primarily comprised of public lands owned and managed by federal and state agencies; and, the Desert Region is the largest region (over 93% of the county's land area) and includes parts of the Mojave Desert.4 Aside from open or undeveloped land, the largest land use in the county is for military purposes.

The mountains stretch across the south end of the county. The mountain elevations range from 2,000 feet along the foothills to the 11,502-foot summit of Mount San Gorgonio, the highest peak in Southern California. Figure 8 displays the terrain/topographic features throughout San Bernardino County.

The San Bernardino Mountains feature four (4) large lakes (Big Bear Lake, Silverwood Lake, Lake Arrowhead, and Lake Gregory), and many smaller lakes. The majority of the lakes are the headwaters of the Santa Ana River and the Mojave River.

The Santa Ana River originates in the San Bernardino Mountains and flows southwest to the ocean. The Santa Ana Watershed includes streams flowing south from the San Gabriel Mountains and streams flowing north and west from the San Jacinto Mountains in Riverside County.

The desert area contains low mountains, valleys, and dry lakebeds. The elevations within the valley range of the County is from about 500 feet on the valley floor to 1,700 feet in Live Oak Canyon, and to about 5,400 feet in the hills in Yucaipa. The desert area is an assemblage of mountain ranges interspersed with long, broad valleys that often contain dry lakes. Many of these mountains rise from 1,000 to 4,000 feet above the valleys. Due to the persistent winds that blow throughout the year, large portions of the desert surface have been modified into a mosaic of pebbles and stones known as desert pavement.

A major physical resource of the desert area is the Mojave River, a critical water source for many of its residents. Among the few rivers that both flow north and do not empty into an ocean, the Mojave River travels north and east away from its watershed in the San Bernardino Mountains. The major part of it is over 100-mile length is marked by a dry riverbed that only on occasion reveals the water within it. Except in exceedingly wet years, the Mojave River ends its flow at Soda Dry Lake near Baker. The Colorado River, at the California and Arizona border, borders the County on the east. Streams in the eastern areas of the County area flow into the Colorado River which eventually ends at the Gulf of California.

The densely urban southern part of the County is at the headwaters of the Santa Ana River with its tributaries crossing the valley floor. With the construction of the Seven Oaks Dam the main river source has been controlled. However, Mill Creek, City Creek, Lytle Creek, and Cajon Creek still have the potential to flood areas of the valley if levees fail. A similar potential occurs with the high desert portion of the County with the Mojave River, which is controlled by the Mojave River Falls Dam that flows north from the San Bernardino Mountains to the city of Barstow. The San Antonio Dam on the southwest side of the county provides more than 100-year flood protection to the west end of the San Bernardino Valley. The Colorado River is on the eastern border of the County. The dams along the river have controlled the flow but bank erosion and damage to roads in the area have been experienced during periods of high water.

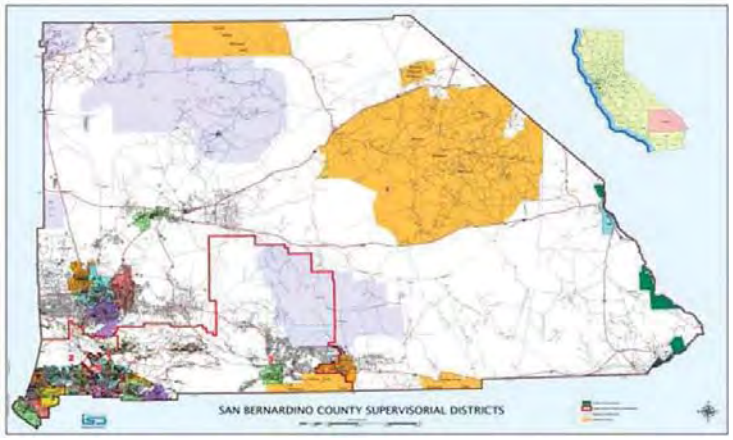

Figure 1-8: Unincorporated and Corporate Areas in San Bernardino County

Figure 1-9: Topographic Features in San Bernardino County

1.5.2 History

Paleo-Indian sites dating from c. 10,000 BC show that the San Bernardino County area has been inhabited for at least 12,000 years. Artifacts in the Calico area suggest much earlier human occupation, but this has not been confirmed. In the past three thousand years, various Indian tribes flourished in the area: the Gabrielenos occupied the West Valley; the Serranos lived in the foothills of the San Bernardino Mountains; the Vanyumes lived along the Mojave River; the Mohave lived along the Colorado River; and the Chemehuevi occupied the Mojave Desert.

The first European explorers to enter the area were Pedro Fages, Military Commander of California, in 1772 and Fr. Francisco Garces, a missionary priest, in 1774. On May 20, 1810, Franciscan missionary Francisco Dumatz, of the San Gabriel Mission, led his company into a valley. In observance of the feast day of St. Bernardine of Siena, Dumatz named the valley San Bernardino. This name was later given to the nearby mountain range, and later the city and county.

In 1842 the Lugo family was granted the Rancho San Bernardino, a holding of 37,700 acres encompassing the entire San Bernardino Valley. Captain Jefferson Hunt, of the Mormon Battalion, led a group of settlers into San Bernardino and founded a Mormon Colony. In 1851 the Mormon Colony purchased the Rancho from the Lugo family.

In 1850 California was admitted into the United States. On April 26, 1853, San Bernardino County was created from parts of Los Angeles, San Diego, and Mariposa Counties. In 1854 the City of San Bernardino was incorporated as the county seat.
In 1857, three orange trees were set out on a farm in Old San Bernardino. By 1882 a rail car load of oranges and lemons grown in the East Valley was shipped to Denver, Colorado. As early as the 1840s, vineyards were planted in the Cucamonga area and in the 1870 census; San Bernardino County was credited with producing 48,720 gallons of wine.

In 1860, gold was discovered in Holcomb and Bear Valleys in the San Bernardino Mountains, and placer mining began in Lytle Creek. Silver was being mined at Ivanpah in 1870, and the rich silver mines of the Calico district were developed in the 1880s. Borax was first discovered in 1761 at Searles Dry Lake near Trona, and transported out by twelve-, eighteen- or twenty-mule team wagons.

As a county, San Bernardino has been uniquely endowed with rich mineral deposits. Large deposits of gold have been mined at Stedman and Vanderbilt, with smaller but still important deposits at Alvord, Oro Grande, Old Dad Mountain, Dale and Nantan, Calico, Ivanpah, Waterman and Providence were the largest silver deposits, with lesser, but important deposits in the Mescal Mountains and at the Death Valley Mine. The most important copper mines are the Copper World and the Bagdad Chase (known usually for its gold production).

Except for a brief period after World War I when silver prices were high, low metal prices and inflation put a damper on mining in the 1920s. However, with the Great Depression of the 1930's

and an increase in the price of gold by nearly $15 an ounce, many small operators reactivated old mines. The region around Barstow, Vanderbilt, Stedman, and Dale were the principal centers of mining activity until World War II.

During World War II, iron was extracted from the Vulcan Mine in the Providence Mountains, and the Bagdad Chase Mine remained active. Since the war, there has been sporadic mining of gold, silver, and tungsten in the county. A major new mine opened during the 1950s, the Mountain Pass rare earth mine. Recently, exploration has outlined potential large tonnage molybdenum properties in the New York and Ord Mountains, copper in the Cooper Basin area of the Whipple Mountains and gold in the Clark Mountains.

After World War II, the citrus industry slowly declined. However, dairies relocating out of Los Angeles County settled in the Chino Valley area, creating a robust dairy industry in San Bernardino County.

Elsewhere in the Valley region, suburbs grew as moderate priced housing developments were built. By the late 1980's, the county had grown into bedroom communities and warehousing for southern California.

1.5.3 Climate

The valleys between mountain ranges experience very high temperatures, while the adjacent mountains often experience much cooler temperatures, particularly at their summits. Rainfall and humidity are low. The annual average precipitation for the area is approximately 30 inches. The differences in elevation and topography are in part responsible for variations in temperature and precipitation from the Valley and Desert areas.

Winter temperatures in some areas of the Desert range near zero, the cold often compounded by the wind-chill factor. In the summer, temperatures can reach as high as 134°F in the lower elevations and along the Colorado River area. Temperatures in the San Bernardino valley area range from an average high of 80ºF and an average low of 53ºF. The record high for the area is 117ºF and the record low is 17ºF. The annual average rainfall for the area is 15.6 inches. During the fall and winter months, strong "Santa Ana" winds blow across the area.

The mountains experience a four-season climate. Temperatures in the Mountain area range from an average high of 62ºF and an average low of 36ºF. The record high for the area is 106ºF and the record low is -25ºF. With the possible exception of some of the higher elevations in the mountains, precipitation throughout the Desert area is less than four inches per year, usually of short duration and high intensity. The resulting flash floods rapidly modify the terrain that is exposed to the erosive surface runoff. Unusually heavy or persistent rains often result in the temporary filling of a number of dry lakes until the surface water evaporates or infiltrates the soil. Persistent winds blow throughout the year

1.5.4 Demographics

The total population of San Bernardino County is approximately 2,139,570 people *(State of California, Department of Finance, E-4 Population Estimates for Cities, Counties, and the State, 2011-2016, with 2010 Census Benchmark. Sacramento, California, May 2016)*. Most of the County's population is in the valley areas located in the south west portion of the County. The County's population has grown by 4.13%, 84,835 people, since 2011 (population in 2011 was 2,054,735 people).

The population of the unincorporated area of the County in 2011 was 294,753 people. In 2016, the population is 309,759; an increase of 14,976 persons (or 1.05%) *(State of California, Department of Finance, E-4 Population Estimates for Cities, Counties, and the State, 2011-2016, with 2010 Census Benchmark. Sacramento, California, May 2016)*

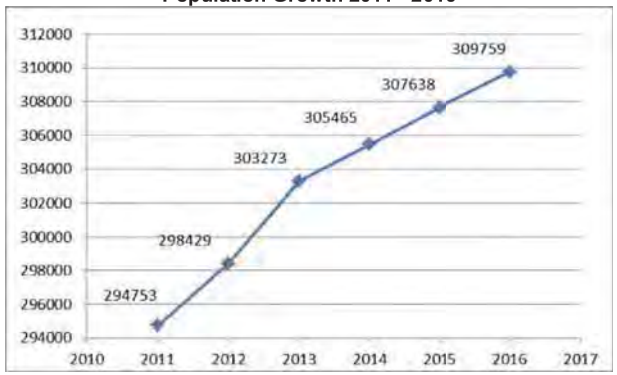

Figure 1-10: San Bernardino County Unincorporated Area Population Changes 2011 - 2016

Source: California Department of Finance E-4

Ethnic composition includes Hispanics (48%) who form the largest share of the County's population, followed by Whites (34%). Blacks (9%) and Asians (5%) form a relatively lower share of the total population. It should be noted that the Hispanic population is growing at the fastest rate among all ethnic groups. From 2000 to 2010, the Hispanic population increased by 44%. This trend is consistent with that of the neighboring counties of Riverside and Orange, where the

Latino population grew by 63% and 24%, respectively. During this period, the Asian population grew by 38%, whereas the Black population grew by 15%. The population of Whites declined in

all the six counties in Southern California; San Bernardino County experienced a decline of 7% in its White population. Changes in Ethnicity are from the California Department of Finance, Demographics Unit.

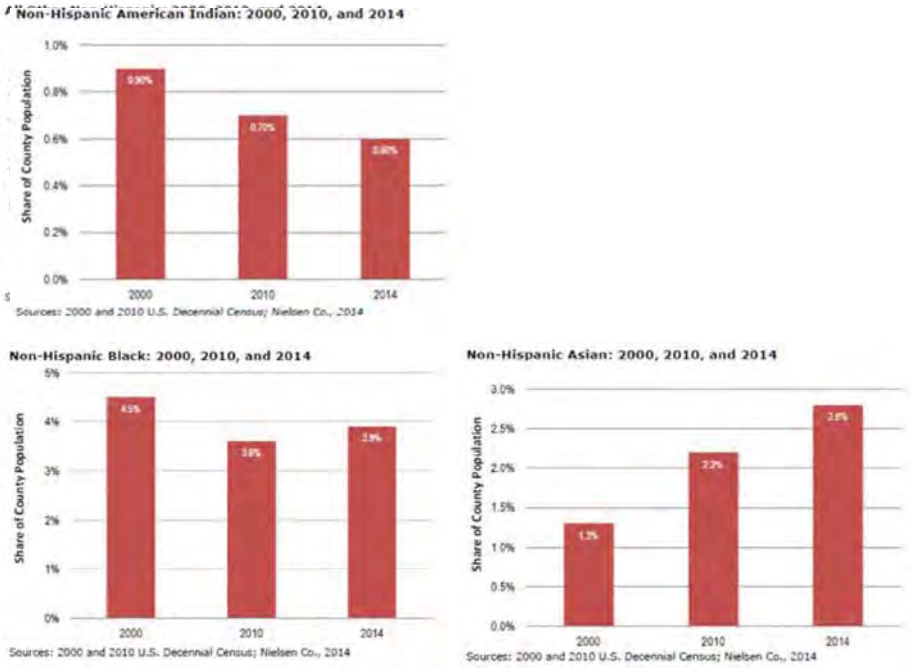

Figure 1-11: San Bernardino County Unincorporated Area 2014 Population by Ethnicity

1.5.5 Existing Land Use

The County has adopted a “one-map approach.” The “one-map approach” permits the use of a single map showing both General Plan land use designations and zoning classifications. The one-map approach assures that there will always be land use consistency between the County's General Plan and its Zoning Code.

There are 18 land use zoning districts that apply only to privately owned lands in the County and not to the lands controlled by other jurisdictions. Lands that are controlled by other jurisdictions, including lands controlled by federal and state agencies as well as incorporated cities, are mapped to identify the public agencies that control them. The 18 land use zoning districts are as follows:

- Resource Conservation (RC)
- Agriculture (AG)
- Rural Living (RL),
- Single Residential (RS),
- Multiple Residential (RM),
- Office Commercial (CO),
- Neighborhood Commercial (CN),
- Rural Commercial (CR),
- Highway Commercial (CH),
- General Commercial (CG),
- Service Commercial (CS),
- Community Industrial (IC),
- Regional Industrial (IR),
- Institutional (IN),
- Special Development (SD),
- Floodway (FW),
- Specific Plan (SP), and
- Open Space (OS).

Resource Conservation (RC) comprises the majority (55.98 percent) of the designated land uses in the County. This land use designation covers over 1 million acres, or about 1,500 square miles of land. Most of the land within this designation is publicly owned (federal and state) and includes national parks, military bases, conservation areas, and lands owned by other federal and state agencies. The County has designated approximately 681,500 acres or 1,065 square miles (37.92 percent) for residential uses. Out of this, about 587,535 acres (32.76 percent of total unincorporated area) are designated Rural Living, 67,691 acres are designated Single Residential, while 4,986 acres are designated Multiple Residential.

Commercial land use zoning districts (Office Commercial, Neighborhood Commercial, Rural Commercial, Highway Commercial, General Commercial, and Service Commercial) occupy a total of 12,177 acres or 0.68 percent of the total unincorporated area. Industrial land use zoning districts (including Community Industrial and Regional Industrial) occupy 21,834 acres or 1.21

percent of the total unincorporated area. Other land use designations include Agriculture occupying 41,793 acres (2.32 percent), Institutional occupying 8,567.51 acres (0.48 percent), Floodway occupying 20,281 acres (1.13 percent), and Specific Plan occupying 4,861.37 acres (0.27 percent).

Because of the size of the County, the San Bernardino County General Plan divides the county into 8 quadrants (Figure 1-12). The "one-map approach" allows the quadrant maps to be used for many different planning and development purposes. Figure 1-13 presents the Land Use Zoning for each quadrant. The Land Use Zoning identifies the type of construction and growth that exists or may occurs in area.

County designated Land Use Zoning Districts do not apply to Federal, State, or incorporated owned property.

The County's General Plan can be found at: http://countywideplan.com/home/about/

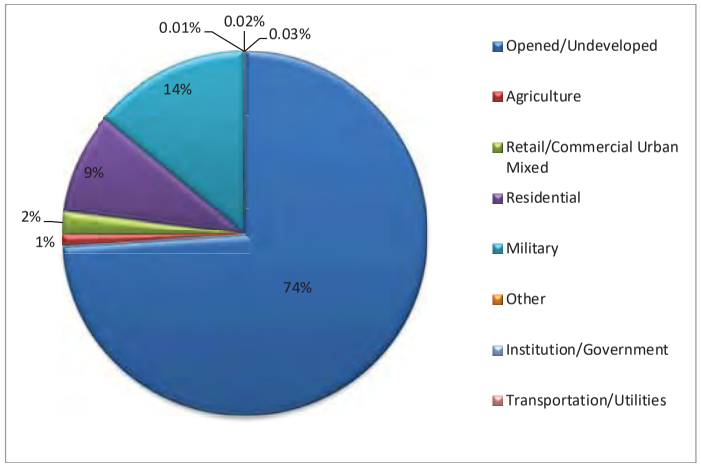

Figure 1-12: San Bernardino County Land Use

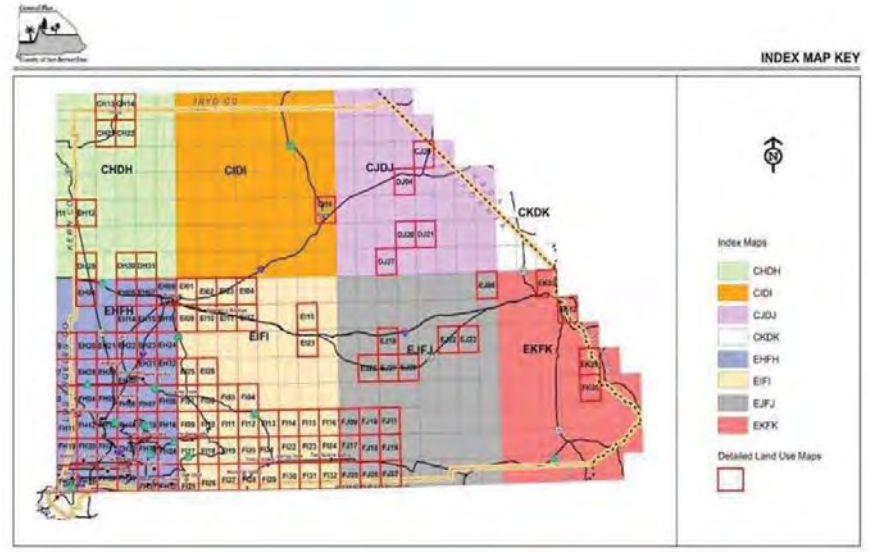

Figure 1-13: San Bernardino County Land Use Map

1.5.6 Development Trends

No major developments occurred in the unincorporated area of the county since the 2010 MJHMP was adopted. The limited development that did occur was scattered throughout the unincorporated area; with no one area being singled out. All development was in accordance with the pre-designated Land Use Zones development zones and complied with all Fire, Flood, and Seismic codes of the County and State at the time of development. This includes commercial, industrial, and residential developments.

The County is optimistic about the potential for future development. The High Desert area of San Bernardino County is one of the best places in the world for solar energy development because of its high altitude, the number of sunny days each year and existing power infrastructure.

- Many large solar energy projects are being proposed in California's desert area on federal Bureau of Land Management (BLM) land. BLM has received right-of-way requests encompassing more than 300,000 acres for the development of approximately 34 large solar thermal power plants totaling approximately 24,000 megawatts. This number of projects has not yet reached the stage of an Application for Certification (AFC) with the California Energy Commission.
- California's electric utility companies are required to use renewable energy to produce 20 percent of their power by 2010 and 33 percent by 2020. A main source of renewable power will be solar energy. Within the County of San Bernardino a Hybrid Power Project has been approved in the Victor Valley area. As of August 2010, three large Solar Projects to be placed in the County are in review by the California Energy Commission.

Once built, these projects will not impact the area to a great extent. Minimal staffing is required to operate these facilities and their very nature places them in remote locations of the County.

Additionally, with the completion of the Alameda Corridor and the emergence of the Ports of Los Angeles and Long Beach as the largest ports in the U.S., shipping trans-Pacific goods from the booming Asian economies, San Bernardino County has evolved as the logistics and distribution hub for the 20 million resident Southern California market and into the rest of the nation. As the international economy recovers amidst tightening land availability for warehousing and transit, San Bernardino County is better positioned than other areas in the region to harness the opportunity to become an even more important logistics hub.

The County has also started development of a bullet train. The bullet train will connect Victorville, CA and Las Vegas NV generally following the I-15 corridor (NOTE: There are discussions of additional bullet trains connecting San Bernardino with Los Angeles and San Diego and San Bernardino County and San Francisco/Sacramento).

While all of these development trends may not be recognized over the next 5 years, all future development that will take place is planned to occur in accordance with the General Plan Land Use Zones and will consider all potential hazards identified within this plan. Additionally, all development will be in compliance with all Fire, Flood, and Seismic codes of the County and State at the time of development.

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Section 2. Plan Adoption

2.1 Adoption by Local Governing Body

The San Bernardino County Board of Supervisors created "districts" to provide a specific service to an area / population of San Bernardino County. These Districts are Board Governed in that the Board of Supervisors has direct control and legislative oversight of the Districts. The Board of Supervisors acts on behalf of each District whenever governance items are necessary. The participating jurisdictions listed in this plan are separate legal entities from the County of San Bernardino. For tax/revenue purposes the Board of Supervisors, acting as the Board of Directors for each participating jurisdiction or "District", will be adopting the Multi-Jurisdictional Hazard Mitigation Plan on behalf of each District. The Districts are not independent from San Bernardino County but are controlled and administered as any other County Department is administered.

This plan represents mitigation efforts for the unincorporated portions of the County and the efforts of three jurisdictions participating in this Multi-Jurisdictional Hazard Mitigation planning effort. The participating jurisdictional special districts include:

San Bernardino County Fire District
San Bernardino County Flood Control District
San Bernardino County Special Districts Department

San Bernardino County Board of Supervisors is responsible for the review, approval, and adoption of the Multi-Jurisdictional Hazard Mitigation Plan (MJHMP) update for the unincorporated area of San Bernardino County, the San Bernardino County Fire Protection District, the San Bernardino County Flood Control District, and for the County's Board Governed Special Districts Department. It is also the intent of the San Bernardino County Board of Supervisors to take appropriate actions to incorporate the MJHMP update into the San Bernardino County General Plan.

2.2 Promulgation Authority

The Promulgator Authority for the adoption of the Multi-Jurisdictional Hazard Mitigation Plan by the unincorporated area of San Bernardino County, the San Bernardino County Fire Protection District, the San Bernardino County Flood Control District, and for the County's Board Governed Special Districts Department and incorporation of the MJHMP into the San Bernardino County General Plan is:

- Chairman Robert A. Lovingood First District
- Janice Rutherford Second District Supervisor
- James Ramos Third District Supervisor
- Vice Chairman Curt Hagman Fourth District Supervisor
- Josie Gonzales Fifth District Supervisor

The Point of Contact for information regarding this MJHMP is:

Michael Antonucci, Emergency Services Manager
San Bernardino County Fire
Office of Emergency Services
1743 Miro Way
Rialto, CA 92376
(909) 356-3998

Section 3. Planning Process

3.1 Preparing the Plan

Multi-Jurisdictional Hazard Mitigation Planning is a process State, Tribal, and local governments use to identify risks and vulnerabilities associated with natural disasters, and to develop long-term strategies for protecting people and property from future hazard events.

Planning creates a way to solicit and consider input from diverse interests. Involving stakeholders is essential to building community-wide support for the plan. In addition to emergency managers, the planning process involves other government agencies (e.g., zoning, floodplain management, public works, community, and economic development), businesses, civic groups, environmental groups, and schools.

To assist with the updating of the Multi-Jurisdictional Hazard Mitigation Plan (MJHMP), a Multi-Jurisdictional Planning Team (Planning Team) was established. The Planning Team was the lynchpin for all activities to update the MJHMP. The Planning Team was established to define and identify the strategies, goals, activities, and development of the MJHMP. The Planning Team represents a comprehensive team of subject matter experts from a range of areas that the team felt was affected by the plan or could provide great benefit to the team. Members of the Planning Team were drawn from San Bernardino County Departments, the San Bernardino County Fire Protection District, the San Bernardino County Flood Control District, and the San Bernardino County Special Districts Department.

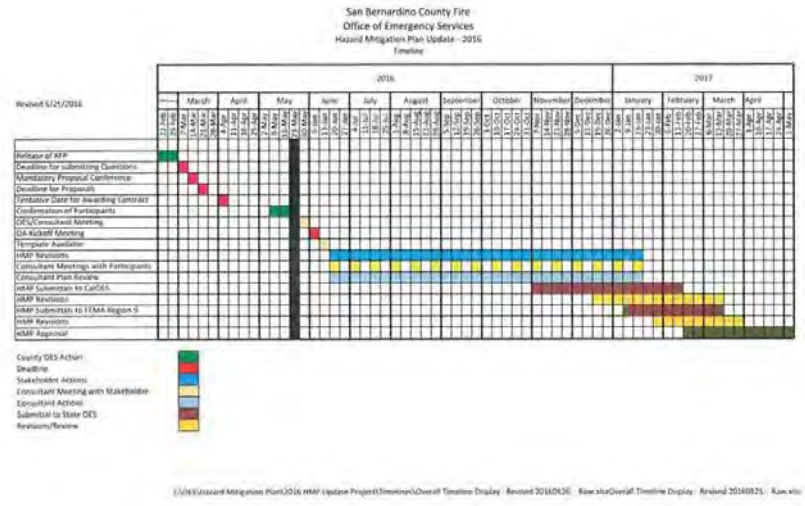
The Multi-Jurisdictional Planning Team members worked together to jointly determine and rank the risks facing the six participating agencies, develop goals and objectives to mitigate the risks, and identify which of the participating jurisdictions would be most appropriate for leading any particular project area identified by the Multi-Jurisdictional Planning Team. The individual Planning Team members then returned to their respective Special Districts where discussions were held, input sought, and potential projects developed and ranked for each of the Planning Team identified risks and projects relevant to the Special District. The Planning Team members then returned to the Multi-Jurisdictional Planning Team and provided the Planning Team with their vetted, prioritized list of potential projects and budgets to include in the Multi-Jurisdictional Hazard Mitigation Plan. These projects and budgets were integrated into the Multi-Jurisdictional Hazard Mitigation Plan. Upon approval, each participating jurisdiction would then be able to apply for grant funding for their prioritized projects without interference from another participating jurisdiction as funding became available.

The Planning Team was led by a representative from the San Bernardino County Fire Protection District-Office of Emergency Service. This representative took on the responsibilities of a Project Manager and facilitated and coordinated activates.

The Project Manager also represented the Unincorporated County at the San Bernardino County Operational Area (OA) Stakeholder meetings. San Bernardino County OES led the effort to coordinate Stakeholder in the Operational Area update their local MJHMP. This effort included: proving technical support, establishing a platform to encourage the exchange of ideas, and help coordination among neighboring stakeholders. The Project Manager was responsible for attending these meetings and incorporating the material into their planning process. One of the resource materials provided through the OA Stakeholder meetings was a suggested Table of Contents (TOC) the purpose of the TOC was to ensure all aspect of the MJHMP requirements were being met and could be found in similar sections in each of the Stakeholders updated MJHMPs.

This sample TOC was reviewed by the Planning Team and incorporated into the unincorporated county's MJHMP update efforts. Using the TOC, the Planning Team decided to conduct a section by section; page by page review of the 2016 MJHMP. To assist with this effort, a proposed project timeline was developed. The proposed Project Timeline illustrates the windows when each section of the 2016 MJHMP will be reviewed and the section revised.

Table 3-1: Proposed Project Timeline



Based on the TOC, the Planning Team divided the update process into seven (7) phases; one for each section of the TOC. This approach allowed for a much focused review of the material and

provided an organized method to introduce new or updated material. The Project Manager led the discussion, solicited comments, took notes, and incorporated results in the MJHMP. Additionally, the Project Manager collected and summarized material provide by Planning Team members. During the Planning Team meetings some members were assigned tasks or action items which were to be completed prior to the next meeting.

Staff assigned to the MJHMP Update reviewed the 2016 MJHMP and provided comments referencing updated information such as current population statistics, new HAZUS-MH MR3 analysis of floods and earthquakes, and provide suggestions for updating the MJHMP. The Planning Team then reviewed the update information and validated/identified Goals, Objectives, and Projects. This step included discussion of how the projects would be prioritized.

3.1.1 Project Prioritization Involved Comprehensive Consideration of Criteria/Factors

While there is not a standard process followed by each of San Bernardino County Departments, and Districts; they all considered social, technological, administrative, political, legal, economic, and environmental factors. The County and each district participated on the Planning Team, and then took the risks, goals, objectives and projects back to their respective jurisdiction for discussion and vetting. After vetting, the individual Planning Team members returned to the Multi-Jurisdictional Planning Team where the individual materials were combined into a single Multi-Jurisdictional Hazard Mitigation Plan. This Multi-Jurisdictional effort resulted in goals, objectives and projects for all participants being listed under the appropriate hazard sections and not by individual participants. This reflects the overall County philosophy of allowing the department/district with the most expertise to suggest and/or manage a project that may affect another participant who does not have expertise in the hazard.

3.1.2 Planning Team

Much of the Planning Team is composed of representatives who were part of the development of the 2010 Unincorporated Area County MJHMP. This provided added value to the team in that they were familiar with the process and provided continuity in the updating of the 2010 MJHMP.

The Planning Team is comprised of representatives from San Bernardino County Departments, the San Bernardino County Fire Protection District, the San Bernardino County Flood Control District, and the San Bernardino County Special Districts Department who specialize in mitigation type activities/planning.

The Planning Team members represented select aspects of the community and were thought of as liaisons to the greater community. Each Planning Team member was responsible for communicating the direction and status of the planning effort to their outside members and in return they are expected to bring to the team outside perspectives. Additionally, the individual Planning Team members acted as liaisons for their respective Special Districts and were responsible for ensuring that the Special Districts provide appropriate input from their respective internal planning processes. Potential projects/budget meetings were held where alternative mitigation actions were discussed and potential mitigation projects were developed and prioritized along with budget development for the individual participating Special Districts and Departments. Additional prioritization after budgets were developed to ensure proper Benefit Cost Analysis (BCA) techniques were applied.

Representation was present on the Multi-Jurisdictional Planning Team from various County Departments and the three participating jurisdictional departments. Planning Team included representatives from all the participating San Bernardino County Special Districts and Departments. See Table 3-2 and Table 3-3.

Table 3-2: Multi-Jurisdictional Planning Team

Multi-Jurisdictional Planning Team Members	Title / Role
Unincorporated County	
Suzanne Peterson	*Countywide Plan Coordinator / Land Use Services / Mitigation Review*
Jerry Blum	*Countywide Plan Coordinator /*
Brent Rolf	*County GIS / Hazus Data Coordinator / Information Services*
Frank Jordan	*Land Use Services / Mitigation Review*
Jim Sowers	*Building and Safety / Risk Assessment Review and Mitigation Action Plan Development*
Patricia Cole	*Economic Development Agency / Implementation and Funding Review*
Carl Alban	*Architecture and Engineering Department*
John Amrhein	*Sherriff's Corner Department Rep. / Mitigation Action Review*
Mazin Kasey	*Public Works Dept. /Transportation Division*
Art Rivera	*Solid Waste Management Division*
Norma Spencer	*Superintendent of Schools*
Fire Protection District	
Michael Antonucci	*OES Director / MJHMP Plan Representative*
Cindy Serrano,	*Project Manager for Planning Process*
Miles Wagner	*Emergency Services Officer, GIS Representative and Stakeholder Coordination.*
David Davis	*Emergency Services Officer / Fire District Representative and Technical Writer*
Mary Barnett	*Technical Writer / Plan Update and Edits*

Multi-Jurisdictional Planning Team Members	Title / Role
Cheryl Nagy	*Emergency Services Officer*
Carrie Cruz	*Emergency Services Officer*
Elli Maldonado	*Elli Maldonado – Office Assistant*
Michael Horton	*Michael Horton – Fire Marshal*
Flood Control District	
Kevin Blakeslee, Deputy Director – Flood Control	*Deputy Director – Flood Control*
Kenneth Eke, Chief, Flood Control Planning/ Water Resources Division	*Chief, Flood Control Planning/ Water Resources Division*
Michael Fam	*Flood Control Planning*
Mona Sadek	*Flood Control Planning*
Marjorie Schrage	*Flood Control Planning*
Special Districts Department	
Jeff Rigney	*Special Districts Dept. Director*
Steve Samaras	*Special Districts Dept. Acting Deputy Director*
Erin Opliger	*Big Bear Valley Recreation and Parks District Rep.*
Erin Opliger	*Bloomington Recreation and Parks District Rep.*

Table 3-3: Stakeholder List

Stakeholder Members	Name	Title / Role
Municipal Partners		
City of Barstow	*Jamie Williams*	*Fire Chief*
City of San Bernardino	*Eric Fyvie*	*Sergeant*
City of Chino	*Chris Wolff*	*Administrative Services Manager*
City of Chino Hills	*Bonnie Michaels*	*Emergency Services Analyst*
City of Colton	*Shannon Kendall*	*Emergency Services Coordinator*
City of Fontana	*Cheryl Nagy/ Mary*	*Emergency Services Officer*
City of Grand Terrace	*Haide Aguirre*	*Management Analyst*
City of Hesperia	*Rachel Molina*	*Public Information Officer*
City of Loma Linda	*Shannon Kendall*	*Emergency Services Coordinator*
City of Montclair	*Angelic Bird*	*Emergency Services Coordinator*
City of Ontario	*Raymond Cheung*	*New Emergency Manager*
City of Rancho Cucamonga	*Breanna Medina/ Denise School*	*Emergency Manager*
City of Redlands	*Fay Glass/ Wanda Viser*	*Emergency Operations Manager*

Stakeholder Members	Name	Title / Role
City of Rialto	*Art Podeska*	*Battalion Chief*
City of Upland	*Angelic Bird*	*Emergency Services Coordinator*
City of Victorville	*Dana Wellborn*	*Emergency Services Manager*
Town of Apple Valley	*Joseph Ramos*	*Emergency Services Officer*
Town of Yucca Valley	*Jessica Rice*	*Management Analyst*
School District Partners		
Apple Valley Unified School District	*Janet Gould*	*Director, Risk Management*
Chino Valley Unified School District	*Dr. Grace Park*	*Assistant Superintendent*
San Bernardino County Superintendent of Schools	*Norma Spencer*	*Risk Management Analyst*
Snowline Joint Unified School District	*Robert Chacon*	*Director of Risk Management*
Special District Partners		
Inland Empire Utilities Agency District Headquarters	*Claudia Neighbors/ Tony Arellano*	*Safety Officer*
Newberry Community Services District	*Stephen Miller*	*Fire Chief- Barstow Fire Protection District*
Omnitrans	*Mark Crosby*	*Security and Emergency Preparedness Coordinator*
Santa Ana Watershed Project Authority	*Richard Haller/ Carlos Quintero*	*Exec. Manager of Engineering and Operations*
Water District Partners		
Crestline Village Water District	*Larrie Ann Davis*	*Office Manager*
Cucamonga Valley Water District	*Rosanna Ammari / Maria Kennedy*	*Maria Kennedy Consultant Representative*
East Valley Water District	*Cecilia Contreras / Gary Sturdivan*	*Administrative Assistant*
Monte Vista Water District	*Jonathon Dizon*	*Engineering Technician*
San Bernardino Valley Municipal Water District	*Dan Borrell/ Brent Adair*	*Project manager- Construction*
Twenty-nine Palms Water District	*Gary Sturdivan*	*Consultant Rep.*
Yucaipa Valley Water District	*John Hull*	*Public Works Management*
CERT Teams		
Wrightwood		*CERT Citizens*
Phelan/Pinion Hills		*CERT Citizens*
Angelus Oaks		*CERT Citizens*
Big Bear Valley		*CERT Citizens*
Helendale		*CERT Citizens*
Lucerne Valley		*CERT Citizens*
Lytle Creek		*CERT Citizens*
Mill Creek Canyon		*CERT Citizens*

Stakeholder Members	Name	Title / Role
Morongo Basin		*CERT Citizens*
Mountain		*CERT Citizens*
Oak Hills		*CERT Citizens*
Rosena Ranch		*CERT Citizens*
San Antonio Heights		*CERT Citizens*
Silver Valley		*CERT Citizens*
Public Representatives		
-	*Destiny Davis*	*Interested Citizen*
-	*John Ferdon*	*Interested Citizen*
Other Partner Agencies		
San Manuel Band of Mission Indians	*Michael Russ*	*Disaster Services Manager*
Arrowhead Regional Medical Center	*Weston Scott Smith*	*Emergency Preparedness*
United States Forest Service	*Marc Stamer*	*San Bernardino National Forest and Angeles National Forest Rep.*
Wrightwood Fire Safe Council	*John Aziz*	*Fire Safe Council*
Rim of the World Mountain Mutual Aid Association	*Aaron Scullin*	*President*

There were a series of meetings held with the Planning Team. Each meeting had a primary focus and provided an opportunity to discuss updates and exchange ideas. Below is a list of the Planning Team meetings:

Table 3-4: Planning Team Meetings

Date	Activity
February 4, 2016	In person meeting to discuss revisions and additions to the Planning Process, Risk Assessment, Community Capability Assessment, Mitigation Strategies, Plan Maintenance, Fiscal Resources, and Public Outreach. Each section was reviewed and discussed by the Team. Additions and corrections will be forwarded to OES for inclusion into the plan.
June 23, 2016	Organizational Meeting for County Unincorporated Area Planning team. Planning Team members were introduced to the project and assigned to review 2016 MJHMP and update risks and mitigation projects as needed.
July 19,2016	Conference Call with participants to discuss revisions and additions to the Planning Process, risk Assessment, Community capability Assessment, Mitigation Strategies, Plan maintenance, fiscal Resources, and Public Outreach. Each section was reviewed and discussed by the Team. Additions and corrections will be forwarded to OES for inclusion into the plan.

August 4, 2010	In person meeting to discuss revisions and additions to the Planning Process, risk Assessment, Community capability Assessment, Mitigation Strategies, Plan maintenance, fiscal Resources, and Public Outreach. Each section was reviewed and discussed by the Team. Additions and corrections will be forwarded to OES for inclusion into the plan
August 30, 2016	In person meeting to discuss revisions and additions to the Planning Process, risk Assessment, Community Capability Assessment, Mitigation Strategies, Plan Maintenance, Fiscal Resources, and Public Outreach. Each section was reviewed and discussed by the Team. Additions and corrections will be forwarded to OES for inclusion in the plan.
September 14, 2016	In Person meeting of the Morongo Basin COAD Community Organizations Active in Disaster. Hazard Mitigations Plan Discussion and outreach for public input on the update of the Hazard Mitigation Plan, and contact information given to the public.
September 20, 2016	In person meeting to discuss changes suggestions with the Fire Safe Council for the following communities: Wrightwood, Phelan, Pinion hills, West Cajon Valley, and Baldy Mesa. The first item on the agenda was the discussion of the LHMP update and explained how to review the current HMP and instructions were given on who and how to contact OES and about 79 persons of the public were present
September 21, 2016	Rim of the World Mountains Mutual Aid Association in Person meeting to discuss Planning Team Goals and Objectives, and any public concerns and contact information was given and it was the first item on the agenda for the meeting. And continuing fire fuel thinning programs (MAST) and Bark Beetle tree removal.
September 24, 2016	In Person meeting of CERT Training on Terrorism, The hazard Mitigation Plan was brought up and discussed and contact information given to the public, a few topics and subjects were brought up.

3.2 Coordination with Other External Jurisdictions, Agencies and Organizations

3.2.1 Internal Coordination

Because of the size and geographical location of Unincorporated County area, there are many jurisdictions, agencies, and organizations that are affected by or have influence on the county and the mitigation planning process. As part of the planning process, the Planning Team, and particularly the Project Manager, took great efforts to engage and include as many members as possible. These members were drawn from San Bernardino County Departments, the San Bernardino County Fire Protection District, the San Bernardino County Flood Control District, and the San Bernardino County Special Districts Department.

One of the first efforts that were made was when the Planning Team was being established. The Planning Team members gave special considerations as to what they thought needed to be in the MJHMP and attempted to identify a person who could representative that area. This consideration went beyond the county departments.

As mentioned above, in addition to being required to participate in the Planning Team meetings, the Planning Team members were also required to liaison with other groups including their own

department/districts planning and project staff and with cooperating agencies to provide updates on the project and to bring to the team the different perspectives and comments. The Planning Team conducted a very extensive outreach effort.

This was done mostly through leveraging of existing meetings and efforts. In this liaison role, the Planning Team members coordinated with CalFire; the United States Forest Service, San Bernardino National Forest and Angeles National Forest; Natural Resource Conservation Service, Special Districts, and the 24 cities and towns within the County. This allowed for the Planning Team to capture a larger perspective; while keeping the Planning Team at a manageable level. The information was then brought back to the Multi-Jurisdictional Planning Team by the individual Planning Team members. At these meeting, potential cooperative projects were discussed, categorized, and prioritized for inclusion in the Multi-Jurisdictional Hazard Mitigation Plan.

As previously mentioned, the Unincorporated County and special districts were also active members of the San Bernardino OA Stakeholder Group meetings. These meetings provided an opportunity to coordinate with all cities/towns and special districts in the county. Through this venue, the Planning Team and the Project Manager reached out to adjacent jurisdictions and associated special districts to ensure that their efforts and findings were not in conflict. Stakeholder Meetings include the primary, alternate, and any consultants for all the participating jurisdictions.

As part of this effort, an OA Stakeholder Web Portal was developed to assist the jurisdictions update their MJHMPs, and encouraged sharing information, resources, and ideas necessary to complete the update process. Meetings, attended by the County Project Manager, were both in person and by conference call; many including a webinar. The Project Manager then brought the materials and discussions held at these meetings back to the Planning Team for review and action wherever applicable to the MJHMP effort. Participating Stakeholders are listed in Annex 5. A list of the OA Stakeholder Meetings is listed below:

- September 21, 2016
  Stakeholders Conference Call/Webinar at OES Headquarters
  1:30 p.m. to 2:30 p.m.

  8 participants in MJHMP Update Project Portal Rollout participated in the Conference Call and Webinar to introduce MJHMP Update Portal. Portal has public and stakeholder sections. During this conference call participants were shown the portal and walked through the log-in process to access the stakeholders' side of the website. Also discussed having weekly and some occasions office calls to update plan progress and needs for information.

- September 28, 2016
  Production team conference call OES Headquarters
  1:30 p.m. to 2:30 p.m.

  This meeting presented the website updates, progress chart and needs from other stakeholder departments to provide data such as proposed, in progress and completed hazard mitigating projects. The MJHMP Resource material was also reviewed. The tentative schedule of Production group meetings was reviewed.

- October 5, 2016
  Production Group Conference Call
  1:30 p.m. to 2:30 a.m.

  Stakeholders discussed MJHMP progress of the MJHMP updates. Revised timelines for updates were presented. New Reference Materials now available on the Web Portal were presented. Questions from the participants were discussed and answered.

- October 12, 2016
  Production team conference call
  OES Headquarters
  1:30 p.m. to 2:30 p.m.

  This meeting presented the website updates, progress chart and needs from other stakeholder departments to provide data such as proposed, in progress and completed hazard mitigating projects. The MJHMP Resource material was also reviewed. The tentative schedule of Production group meetings was reviewed.

- October 19, 2016
  OES Headquarters
  1:30 p.m. to 2:30 p.m.

  This meeting presented the website updates, progress chart and needs from other stakeholder departments to provide data such as proposed, in progress and completed hazard mitigating projects. The MJHMP Resource material was also reviewed. The tentative schedule of Production group meetings was reviewed.

- October 26, CISN
  Project Management Team Meeting
  San Bernardino County Government Center Community Room,
  10:00 a.m. to 12:00 a.m.

  This meeting was with 12 county members and any public to go over changes in the general plan and updates the County Hazard Mitigation plan with current and proposed and approved projects as well as code updates and ordinance changes and draft safety proposals.

- October 26, 2016
  Entire project Teams representatives via in person or video and voice call in
  Video Conference Call
  2 p.m. to 4 p.m.

  All project team stakeholder representatives discussed progress of the MJHMP updates. And timelines were discussed. Questions from the participants were discussed and answered. Also a live meeting in conjunction with Land Use representatives and Fire also consultant staff. 32 in attendance and 108 called in or video linked. Internal and External groups

3.2.2 External Coordination

The unincorporated county also had representation on the OA Working Group team. The Working Group is a small group of OA Stakeholders with experience in developing Multi-Jurisdictional Hazard Mitigation Plans. Members are drawn from the 24 cities/towns, 33 special districts, and the County. The goal of the Working Group is to vet the direction and material being provided to the larger Stakeholder Group such as crosswalk, Web Portal, use of maps, and a method to prioritize and rank the existing and any new hazards. The Working Group also discusses problems and solutions that arise during the MJHMP update process. Meetings were either in person or by conference call.

- June 23, 2016
  Stakeholders Meeting
  San Bernardino Unified School District Community Room, San Bernardino, CA
  2:00 p.m. to 4:00 p.m.

  54 Participants representing 24 cities/towns, 30 special districts, and the unincorporated area of participated. This Stakeholders Meeting introduced the Web Portal and the process to develop a current MJHMP from the 2010 MJHMP. Timelines were presented as well as templates for use in updating the project. Copies of the 2010 MJHMP for the jurisdictions were made available on the Web Portal to use as a starting point in the update process.

- August 30, 2016
  Stakeholders Meeting at OES Headquarters 1:30 p.m. to 2:30 p.m.

  In person meeting to discuss revisions and additions to the Planning Process, risk Assessment, Community capability Assessment, Mitigation Strategies, Plan maintenance, fiscal Resources, and Public Outreach. Each section was reviewed and discussed by the Team. Additions and corrections will be forwarded to OES for inclusion in the plan.

- October 26, 2016
  Entire project Teams representatives via in person, video or voice call in
  Video Conference Call
  2 p.m. to 4 p.m.

  All project team stakeholder representatives discussed progress of the MJHMP updates.
  Timelines were discussed.
  Questions from the participants were discussed and answered. Also a live meeting in conjunction with Land Use representatives and Fire also consultant staff. 32 in attendance and 108 called in or video linked.

3.3 Public Involvement/Outreach

Public involvement was solicited throughout the process. Since the 2016 MJHMP approval, the County and its special districts have taken several steps to educate the public on the hazards facing the county and had several public forums where mitigation projects were discussed and identified. At all events, public opinion and comments are solicited.

The Planning Team also considered the possibility of including public members on the Planning Team. However, because of the vast size of the county and the volume of possibilities, it was determined that having the Planning Team members liaison with the public would better serve and capture the public interest.

During this process, the County and Special Districts also used several platforms to reach out and inform the public of the MJHMP update. Wherever possible, a joint effort was made by the Planning Team members to include discussion for each participating jurisdictions hazards, goals, and objectives. These joint meetings of the Special Districts and County resulted in joint leverage of the planning effort and a resulting joint benefit of goals/objectives, and project development for the MJHMP development. Public Involvement consisted of meetings for County Departments or Special Districts which gave the public the direct opportunity to comment on the County Unincorporated Area MJHMP, meetings of County Department or Special District advisory committees where hazard specific information and possible projects were discussed, updates on the County website, press releases regarding the MJHMP, and public hearing regarding the MJHMP. All participants collectively supported the following public outreach meetings. Below is a summary list of the public outreach:

3.3.1 Public Meetings

- Wrightwood Fire Safe Council
  Wrightwood Museum, Wrightwood, CA
  July 19, 2016
  7:00 p.m. to 9:00 p.m.

17 community members and 7 Wrightwood Fire Safe Council members attended. A demonstration of Thermo-Gel and various application methods was demonstrated by a private vendor.

Reports of activities were given by the Angeles National Forest and the San Bernardino National Forest.
San Bernardino County Fire Protection District Office of Emergency Services presented a PowerPoint presentation on the effort to update the MJHMP for the unincorporated area of the County. A copy of this PowerPoint is in Annex 9 of the MJHMP.

- Rim of the World Mutual Aid Association
  100 W. Meadow Lane, Big Bear City, CA
  August 21, 2016
  6:00 p.m. to 7:30 a.m.

  24 representatives of local agencies, special districts, utilities, and the public in the Big Bear Valley attended the meeting. The City of Big Bear Lake and the Big Bear City CSD reported on the status of their MJHMP Update efforts. Both are proceeding with the goal of submitting the plan following the Group 1 timelines. Both agencies made presentations to their residents explaining the MJHMP Update Process, public involvement, and timelines.

  San Bernardino County Fire Protection District Office of Emergency Services presented a PowerPoint presentation on the effort to update the MJHMP for the unincorporated area of the County.

- Morongo Basin COAD Community Organizations Active in Disasters
  September 14, 2016
  10:00 a.m. to 12:00 p.m.

  This was a public meeting to discuss volunteers in disasters and the Local Hazard Mitigation Plan and the future of volunteer organizations in active disasters in the areas of Morongo and the entire county of San Bernardino County.

- Wrightwood Fire Safe Council
  Wrightwood Elementary School, Wrightwood, Ca
  September 20, 2016

  Community meeting of the fire safe council for the communities of Wrightwood, Pinion Hills, Phelan, West Cajon Valley, Baldy mesa the meeting covered topics of Emergency Alert System and notifications, repopulation and evacuation pans as well as the Local Hazard Mitigation Plan Update

- Rim of the World Mountain Mutual Aid Association
  September 21, 2016

  Rim of the World Mountains Mutual Aid Association in Person meeting to discuss Planning Team Goals and Objectives, and any public concerns and contact information was given and it was the first item on the agenda for the meeting; continuing on with fire fuel thinning programs (MAST) and Bark Beetle tree removal.

- CERT Terrorism Meeting/Training
  Victoria Gardens Community Center Rancho Cucamonga, CA
  September 24, 2016
  8:00 a.m. to 4:00 p.m.

  This was a CERT Symposium on Terrorism that covered the December 2nd Terror Attack and mass shooting incidents and how to react. An Active Shooter Awareness Course and discussion on the Local Hazard Mitigation Plan Update and Counter Terrorism Awareness courses were all presented to 100 CERT Members and public attendees.

3.3.2 Ready SB County Preparedness App Message/Web Postings

An App message was sent out to alert the public about the hazard mitigation process. The message was sent to over 15,000 people via the SB County Preparedness Mobile App and it is attached to the San Bernardino County Fire Website https://sbcfire.org as referenced in Annex 6. Ready SB County Preparedness Mobile App can be used on either an Android or iPhone. This app provides multiple resources for our residents that will assist them in preparing for a disaster and enhancing the recovery process. Protect yourself and your loved ones before, during and after a disaster.

In addition to hazard mitigation plan updates the public can get the Latest News from SBCounty.gov, CalTrans, National Weather Service, and San Bernardino County Fire Office of Emergency Services. This app provides the public with emergency supply kit lists, grocery lists and checklists tailored to an individual. The public can access and update preparedness plans as needed. Learn all you need to plan for and respond to natural disasters, terrorism and pandemic flu in San Bernardino County.

3.3.3 CERT Teams

The Press Release and Executive Summary were forwarded to the CERT Team leaders for those CERT Teams located in the unincorporated County area. The Team Leaders forwarded the MJHMP Press Release and Executive summary to their team members with the request for comments on the MJHMP. The fourteen (14) CERT Teams within the unincorporated County include:

Angelus Oaks CERT	Big Bear Valley CERT	Helendale CERT
Lucerne Valley CERT	Lytle Creek CERT	Mill Creek Canyon CERT
Morongo Basin CERT	Mountain CERT	Oak Hills CERT
Phelan/Pinon Hills CERT	Rosena Beach CERT	San Antonio Heights CERT
Silver Valley CERT	Wrightwood CERT	

3.3.4 Public Hearing Process (to be completed upon FEMA Approval)

Once FEMA "approval pending adoption" notification is received, the Board of Supervisors reviewed, approved, and adopted the Unincorporated Area Multi-Jurisdictional Hazard Mitigation Plan for the County and its Special Districts at the Public Hearing meeting **(date to be determined)**. The Board of Supervisors issued a Letter of Promulgation and Resolution denoting approval of the Multi-Jurisdictional Hazard Mitigation Plan for the County and its special Districts.

Prior to the Public Adoption Hearing Date (date to be determined), the Plan will be posted on the San Bernardino County website as part of the Agenda for the meeting. The Agenda with all attachments is posted the Wednesday prior to the hearing date as a public review requirement. Members of the public were invited to review and make comments at the meeting on (date to be determined). The Multi-Jurisdictional Hazard Mitigation Plan for the County and its Special Districts was on the Board of Supervisors agenda for review and adoption at their regularly scheduled meeting on (date to be determined).Residents of the County were requested to make comments or request information on the Multi-Jurisdictional Hazard Mitigation Plan during the regularly scheduled meeting. After the public had an opportunity to review and comment on the Plan the Board of Supervisors took action on the Board Agenda items.

3.4 Planning Process

As discussed, the planning process followed FEMA How to guides which includes; organizing resources, conducting the risk assessment, developing a capabilities assessment, developing a mitigation strategy and providing implementation measures for continued mitigation success, The Risk Assessment process includes four (4) basic step; 1) hazard identification and screening; 2) hazard profiling; 3) hazard exposure; and, 4) hazard vulnerability. The Project Manager, working with the Planning Team, facilitated discussions around these steps.
The first step in this process was to identify all natural hazards present in the community. The Planning Team started with the 2010 MJHMP and augmented as necessary. This augmentation

considered both adding and removing of hazards to develop a list of potential natural hazards in the community. The Planning Team utilized several sources to ensure they were considering all potential hazards. Material reviewed included the following: 2010 San Bernardino County Operational Area MJHMP, State of California MJHMP, FEMA "How-to Guides," and several surround community MJHMPs. After the list of potential hazards in the community is generated, the hazards were screened. For a full listing of documents see Section 5.1.1

3.4.1 Hazard Screening

The intent of screening hazards is to help prioritize which hazard creates the greatest concern in the community. In 2010, the MJHMP process used Critical Priority Risk Index (CPRI) software to evaluate hazards. In 2016 an alternative approach was implemented. The Planning Team agreed to utilize a non-numerical ranking system for the MJHMP update process. This process consists of generating a qualitative ranking (High, Medium, or Low) rating for: 1) probability; and, 2) impact from each hazard. To further assist with the process, the following definition of "High", "Medium", and "Low" probability and impacts are being provided (NOTE: these definitions we utilized in the 2010 MJHMP process):

Probability
High-Highly Likely/Likely
Medium-Possible
Low-Unlikely
Impact
High-Catastrophic/Critical
Medium-Limited
Low-Negligible

The hazards were then placed into a matrix with the appropriate/corresponding box/cell. The table below is an example of how the process will capture the results.

		Impact		
		High	Medium	Low
Probability	High			
	Medium			
	Low			

After all hazards had been analyzed, the Planning Team then determined which Probability and Impact category (i.e., High Impact; High Probability, Medium Impact) the community will focus on over the next five (5) years. An example of how the hazards may be prioritized is below (Red equaling high priority):

		Impact		
		High	Medium	Low
Probability	High			
	Medium			
	Low			

After identifying the "higher" priority hazards in the community, each of the "high" priority hazards were profiled. The hazard profiling include the incorporation of all new information, material, and reports to better help the Planning Team and the community understand the hazard.

Additionally, for each of the profiled hazards, the Planning Team then analyzed the community's exposure to each hazard (inventory of assets) and the potential impact under scenario events. The Planning Team used HAZUS and hazards intersect analyses recently completed within San Bernardino County to produce this information. See Section 4 for more information.

3.4.2 Set Goals

Goal setting was approached by the Planning Team as a two layered process. The first layer involved the stakeholders acting together as the Planning Team. The second layer involved the individual Special Districts working internally to coordinate those goals identified by the Planning Team with the goals identified internally by the Special Districts. The Planning Team validated and identified new Goals and Objectives for the MJHMP update in 2016. The Planning Team reviewed the hazard exposure and scenario impacts developed during the Risk Assessment portion of the process. With a firm understanding of the risk the community is potentially facing, the Planning Team then re-evaluated the 2010 Multi-Jurisdictional Hazard Mitigation Plan Goals and Objectives; assessed their status and effectiveness in meeting the 2010 Mitigation Measures and identified new Goals and Objectives.

As part of this process, the Planning Team also reviewed the County's General Plan, the State of California MJHMP, Floodplain Management Plans, Task Force After Action, and/or documents, and adjacent local jurisdiction MJHMPs to ensure the Goals and Objectives were comprehensive and compatible with those outlined in this plan.

3.4.3 Review and Propose Mitigation Measures

After the Goals and Objectives were established, the Planning Team then turned to identifying projects under each Goal and Objective that could be implemented to help reduce and/or eliminate the impacts from the priority hazards. As part of this process, the Planning Team reviewed the projects in the 2010 MJHMP to determine which are completed, which are ongoing, and which were deferred. For projects that were not completed the Planning Team validated whether or not the project was necessary.

With a firm understanding of past accomplishments and a good understanding of the potential exposure and scenario impacts from the Risk Assessment section, the Planning Team then started to identify projects that will help reduce and/or eliminate the risk for the high priority hazards. Again, a two-layer approach was used. The Planning Team as a whole identified common projects. These common projects were then coordinated internally by the Special Districts and the County to develop a common list of projects. After a list of all possible projects has been identified, the Planning Team then went through the process of prioritizing the projects.

To assist with this effort the Planning Team adopted the STAPLEE methodology. STAPLEE stands for:

- Social - The public must support the overall implementation strategy and specific mitigation actions. Therefore, the projects will have to be evaluated in terms of community acceptance.
- Technology - It is important to determine if the proposed action is technically feasible, will help to reduce losses in the long term, and has minimal secondary impacts. Determine whether the alternative action is a whole or partial solution, or not a solution at all.
- Administrative - Under this part of the evaluation criteria, examine the anticipated staffing, funding, and maintenance requirements for the mitigation action to determine if the jurisdiction/special district has the personnel and administrative capabilities necessary to implement the action or whether outside help will be needed
- Political - Understanding how your current community and State political leadership feel's about issues related to the environment, economic development, safety, and emergency management. This will provide valuable insight into the level of political support you may have for the mitigation activities and programs. Proposed mitigation objectives sometimes fail because of a lack of political acceptability.
- Legal - Without the appropriate legal authority, the action cannot lawfully be undertaken. When considering this criterion, determine whether your jurisdiction has the legal authority at the State, or local level to implement the action, or whether the jurisdiction must pass new laws or regulations. Each level of government operates under a specific source of delegated authority. As a general rule, most local governments operate under enabling legislation that gives them the power to engage in different activities. Identify the unit of government undertaking the mitigation action, and include an analysis of the interrelationships between local, regional, State, and Federal governments. Legal authority is likely to have a significant role later in the process when your State, or community will

have to determine how mitigation activities can best be carried out, and to what extent mitigation policies and programs can be enforced.

- Economic - Every local government experiences budget constraints at one time or another. Cost effective mitigation actions that can be funded in current or upcoming budget cycles are much more likely to be implemented than mitigation actions requiring general obligation bonds or other instruments that would incur long-term debt to a community. Local communities with tight budgets or budget shortfalls may be more willing to undertake a mitigation initiative if it can be funded, at least in part, by outside sources. "Big ticket" mitigation actions, such as large-scale acquisitions and relocation, are often considered for implementation in a post-disaster scenario when additional Federal and State funding for mitigation is available.
- Environmental - Impact on the environment is an important consideration because of public desire for sustainable and environmentally healthy communities and the many statutory considerations, such as NEPA, to keep in mind when using Federal funds. The Planning Team needed to evaluate whether, when implementing mitigation actions, there would be negative consequences to environmental assets such as threatened and endangered species, wetlands, and other protected natural resources.

In addition to the STAPLEE methodology, the Planning Team incorporated other criteria/factor questions into the process to help engage and solicit input from members. Examples of these criteria/factor questions are:

- Does the Action:
  - Solve the problem?
  - Address Vulnerability Assessment?
  - Reduce the exposure or vulnerability to the highest priority hazard?
  - Address multiple hazards?
  - Address more than one (1) Goal/Objective?
  - Benefits equal or exceed costs?

- Can the Action:
  - Be implemented with existing funds?
  - Be implemented by existing state or federal grant programs?
  - Be completed within the 5-year life cycle of the LMJHMP?
  - Be implemented with currently available technologies?

- Will the Action:
  - Be accepted by the community?
  - Be supported by community leaders?
  - Adversely impact segments of the population or neighborhoods?
  - Require a change in local ordinances or zoning laws?
  - Result in legal action such as a lawsuit?
  - Positively or negatively impact the environment?
  - Comply with all local, state, and federal environmental laws and regulations?

- Is there:
  - Sufficient staffing to undertake the project?
  - Existing authority to undertake the project?

After going through the above mentioned process for each project, the Planning Team identified higher priority projects.

3.4.4 Draft the Multi-Jurisdictional Hazard Mitigation Plan

The Multi-Jurisdictional Hazard Mitigation Plan Update was drafted by the Project Manager, based on input and comments provided by the Planning Team. As indicated previously, the Planning Team used the 2010 MJHMP as a starting point but revised it to reflect updated information). The 2016 MJHMP format and is similar to the 2010 plan with slight heading changes and differences in content. In addition to the heading changes and improved risk assessment information, the Planning Team also uses the FEMA Guidance and materials provided by the consultant hired to coordinate the Operational Area MJHMP and Stakeholder groups. This material aided in the Planning Team's understanding of the level of detail and type of information that is excepting in each section.

This process started with the Special Districts and County providing information to the Planning Team through their liaison on the planning team. After the Planning Team ranked and prioritized the materials, the liaisons returned to their respective Special Districts to vet the Planning Team's work. The Planning Team then worked together with the vetted materials to produce the draft MJHMP. As mentioned earlier, each section was reviewed and updated as necessary. While some Planning Team members are responsible for the updating select sections, all members are responsible for reviewing and commenting on the entire MJHMP. The Planning Team Project Manager was responsible for version control and distribution of the final MJHMP for review.

Once the MJHMP update was drafted, the Planning Team provided opportunities for the public to review and comment on the plan. After the public comment period was closed, the Planning Team finalized the plan and forwarded to Cal EMA and FEMA for approval.

3.4.5 Adopt the Plan

The San Bernardino County Board of Supervisors created each of the Special Districts to provide a specific service to a particular area/population of San Bernardino County. These Special Districts are Board Governed in that the Board of Supervisors has direct control and legislative oversight of the Special Districts. The Board of Supervisors takes action on behalf of each Special District whenever governance items are necessary. As the Five special districts are separate legal entities from the County of San Bernardino for tax/revenue purposes the Board of supervisors, acting as the Board of Directors for each Special District, will be adopting the Multi-

Jurisdictional Hazard Mitigation Plan on behalf of each Special District. The Special Districts are not independent from San Bernardino County but are controlled and administered as any other County Department is administered. In order to comply with legal requirement for each of the five Special Districts, separate resolutions are required. Copies of these resolutions are attached at the front of this MJHMP.

San Bernardino County Board of Supervisors is responsible for the review, approval, and adoption of the Multi-Jurisdictional Hazard Mitigation Plan (MJHMP) update for the unincorporated area of San Bernardino County, the San Bernardino County Fire Protection District, the San Bernardino County Flood Control District, the Big Bear Valley Recreation and Park District, Bloomington Recreation and Park District and for the County's board governed Special Districts Department. It is also the intent of the San Bernardino County Board of Supervisors to take appropriate actions to incorporate the MJHMP update into the San Bernardino County General Plan.

After Cal EMA and FEMA have approved the HMP update, it will be adopted by the San Bernardino County Board of Supervisors. Currently, the adoption process is scheduled for **(date to be determined)**. The item will be part of the consent calendar subject to a public hearing if necessary. The HMP will be listed on the agenda with the plan being made available electronically to the general public for at least three (3) business days prior to the Board of Supervisor's meeting date. Any member of the public can make comments on the Plan during the meeting prior to any action by the Board of Supervisors.

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Section 4. Risk Assessment

The goal of mitigation is to reduce and/or eliminate the future impacts of a hazard including property damage, disruption to local and regional economies, and the amount of public and private funds spent to assist with recovery. However, mitigation should be based on an assessment of the risk.

This Risk Assessment Section evaluates the potential loss from a hazard event by assessing the vulnerability of buildings, infrastructure, and people. It identifies the characteristics and potential consequences of hazards, how much of the unincorporated areas of the County could be affected by a hazard, and the impact on unincorporated County area assets. The Risk Assessment approach consists of three (3) components:

- ***Hazard Identification*** *– Identification and screening of hazards (Section 4.1)*
- ***Hazard Profiles*** *– Review of historic occurrences and assessment of the potential for future events (Section 4.2)*
- ***Vulnerability Assessment*** *– Determination of potential losses or impacts to buildings, infrastructure and population (Section 4.3)*

4.1 Hazard Identification

4.1.1 Hazard Screening Criteria

Per FEMA Guidance, the first step in developing the Risk Assessment is identifying the hazards. The County's HMP Planning Team reviewed a number of previously prepared hazard mitigation plans and other relevant documents to determine the universe of natural hazards that have the potential to affect the County and the nearby region. Table 4-1 provides a crosswalk of hazards identified in the 2010 San Bernardino County Multijurisdictional Hazard Mitigation Plan Update, the County of San Bernardino 2007 General Plan Safety Element, Single Jurisdictional Plans and the 2013 CA State Hazard Mitigation Plan. Seventeen different hazards were identified based on a thorough document review. The crosswalk was used to develop a preliminary hazards list providing a framework for County HMP Planning Team members to evaluate which hazards were truly relevant to the County and which ones are not. For example, volcanic activity was considered to be of little relevance to the County, while earthquake, flooding, and wildfire were indicated in almost all hazard documentation.

Table 4-1: Document Review Crosswalk

Hazards	2010 San Bernardino County Multi-Jurisdictional Hazard Mitigation Plan	County of San Bernardino 2007 General Plan Safety Element	Single Jurisdictional Plans	2013 CA State Hazard Mitigation Plan
Climate Change				■
Dam Inundation			■	■
Drought			■	■
Earthquake/ Geologic Hazards	■	■	■	■
Extreme Heat				■
Extreme Cold				■
Flood	■	■	■	■
Hazardous Waste		■	■	■
High Winds/ Straight Line Winds		■	■	
Hail				
Infestation				
Lightning				
Terrorism			■	■
Tornado				
Volcanic Activity		■		■
Wildfire	■	■	■	■
Winter Storm (Heavy Snowfall)				■

In addition to a document review, previous hazard occurrences were used to identify hazards for this hazard mitigation plan. Previous hazard occurrences provide a historical view of hazards that have affected the County in the past, and thus provide a window into the potential hazards that can affect the County in the future. Information about federal and state disaster declarations in San Bernardino County (declarations are declared by County) was compiled from FEMA and Cal EMA's databases, as shown in Table 4-2. Though not a complete snapshot of hazard incidences in the County (since not all hazard events are federally or state declared), Table 4-2 provided the County HMP Planning Team with solidified accounts of the types and extent of disasters that have affected the County dating back to 1965 when flooding affected entire regions of San Bernardino County. As indicated in Table 4-2 large regional incidents have affected San Bernardino County, including the California Wildfires of 1999. Most recently, disasters for terrorist attacks (2015), flood (2011) and severe storms (2010) were declared in San Bernardino County. The disaster declarations in Table 4-2 provide a baseline for consideration in the hazard prioritization process.

Table 4-2: Federal, State and County Declared Disasters

Disaster Number	Declaration Date	Disaster Type	Incident Type	Title
Federal Declarations				
Major Disaster Declarations				
1952	1/26/2011	DR	Flood	Severe Winter Storms, Flooding, and Debris and Mud Flows
1884	3/8/2010	DR	Severe Storm(s)	Severe Winter Storms, Flooding, and Debris and Mud Flows
1731	10/24/2007	DR	Fire	Wildfires, Flooding, Mud Flows, and Debris Flows
1689	3/13/2007	DR	Freezing	Severe Freeze
1585	4/14/2005	DR	Severe Storm(s)	Severe Storms, Flooding, Landslides, and Mud and Debris Flows
1577	2/4/2005	DR	Severe Storm(s)	Severe Storms, Flooding, Debris Flows, and Mudslides
1498	10/27/2003	DR	Fire	Wildfires, Flooding, Mudflow and Debris Flow Directly Related T
1203	2/9/1998	DR	Severe Storm(s)	Severe Winter Storms and Flooding
1046	3/12/1995	DR	Severe Storm(s)	Severe Winter Storms, Flooding Landslides, Mud Flow
1044	1/10/1995	DR	Severe Storm(s)	Severe Winter Storms, Flooding, Landslides, Mud Flows
1005	10/28/1993	DR	Fire	Fires, Mud/Landslides, Flooding, Soil Erosion
979	2/3/1993	DR	Flood	Severe Winter Storm, Mud & Land Slides, & Flooding
947	7/2/1992	DR	Earthquake	Earthquake & Aftershocks
935	2/25/1992	DR	Flood	Rain/Snow/Wind Storms, Flooding, Mudslides
894	2/11/1991	DR	Freezing	Severe Freeze
872	6/30/1990	DR	Fire	Fires
690	9/22/1983	DR	Flood	Flash Flooding
687	7/1/1983	DR	Flood	Flooding
677	2/9/1983	DR	Coastal Storm	Coastal Storms, Floods, Slides & Tornadoes
635	11/27/1980	DR	Fire	Brush & Timber Fires
615	2/21/1980	DR	Flood	Severe Storms, Mudslides & Flooding
547	2/15/1978	DR	Flood	Coastal Storms, Mudslides & Flooding
521	9/21/1976	DR	Flood	Flooding, Tropical Storm Kathleen
295	9/29/1970	DR	Fire	Forest & Brush Fires
253	1/26/1969	DR	Flood	Severe Storms & Flooding
223	1/2/1967	DR	Flood	Severe Storms & Flooding
211	12/7/1965	DR	Flood	Heavy Rains & Flooding
Fire Management Assistance Declarations				
2955	9/2/2011	FM	Fire	Hill Fire
2841	10/4/2009	FM	Fire	Sheep Fire
2836	9/1/2009	FM	Fire	Pendleton Fire
2833	8/31/2009	FM	Fire	Oak Glen Fire
2792	11/15/2008	FM	Fire	Freeway Fire Complex
3279	10/23/2007	EM	Fire	Wildfires
2738	10/22/2007	FM	Fire	Grass Valley Fire
2728	9/15/2007	FM	Fire	Butler 2 Fire
2653	7/12/2006	FM	Fire	Sawtooth Fire Complex

Disaster Number	Declaration Date	Disaster Type	Incident Type	Title
3248	9/13/2005	EM	Hurricane	Hurricane Katrina Evacuation
2503	10/25/2003	FM	Fire	Old Fire
2501	10/23/2003	FM	Fire	Ca-Grand Prix Fire-10-23-2003
2497	9/6/2003	FM	Fire	Ca-Bridge Fire-09-05-2003
2491	8/19/2003	FM	Fire	Ca-Locust Wildfire-08-19-2003
Emergency Declarations				
3140	9/1/1999	EM	Fire	Ca-Wildfires-08/25/1999
CALOES Emergency and Disaster Proclamations/ Executive Orders				
Other Disasters				
2464	9/24/2002	FS	Fire	Williams Fire
2433	6/27/2002	FS	Fire	Louisiana Fire
2425	6/17/2002	FS	Fire	Blue Cut Fire
###	12/18/2015	EM	Terrorist Attack	Mass Shooting
State Declarations				
145	2/14/1963		Severe Storms	California Severe Storms, Heavy Rains, & Flooding
47	12/22/1955		Flood	California Flood
15	2/5/1954		Flood	California Flood & Erosion
County Declarations				
	3/13/1990		Earthquake	Upland Earthquake
	10/31/1988		Fire	Texas Fire (Watershed Damage)
	9/3/1987		Fire	Wildland Fires
	7/13/1984		Weather	Unstable Weather Conditions (City of Big Bear Lake, CSD, Co. Flood Control, Victor Valley Waste Water Authority, Juniper Riviera County Water District)
	9/29/1979		Gasoline Shortage	Gasoline Shortage Emergency
	6/28/1979		Water Shortage	Water Shortage (Lake Gregory)
	7/22/1960		Fire	Major and Widespread Fires

4.1.2 Hazard Prioritization

The Planning Team determined that the County and its Special Districts should focus over the next five (5) years on hazards that fell within the HIGH and MEDIUM "Probability" and "Impact" categories. While all the hazards present a potential problem in the County, the Planning Team felt that if they were able to reduce or eliminate the risk from these hazards, it would provide a greater service to the people within the jurisdiction. Table 4-3 illustrates how the final prioritization of the hazard; the "Green" colored box represents the highest priority hazards; and the "White" colored boxes represent lower (second and third tier) priority hazards.

		Impact		
		High	Medium	Low
Probability	High	Wildfire Flood Earthquake/ Geologic Hazards	Drought	
	Medium	Terrorism	Climate Change (Extreme Heat and other)	Hail Infestation
	Low		Dam Inundation	Tornado High Winds Winter Storm Lightning Extreme Cold

Table 4-3: Prioritized Hazard Assessment Matrix

4.2 Hazard Profiles

Although the County faces the risk of experiencing many natural and manmade hazards, this section profiles only the County's highest priority natural hazards the unincorporated County areas and Special District areas are expected to experience; earthquake, wildfire, flood, drought, terrorism and climate change. The priority hazards are based on the Calculated Priority Risk Index (CPRI) explained in Section 4.1.2.

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4.3 Earthquake Geologic Hazards

An earthquake is a sudden, rapid shaking of the earth caused by the breaking and shifting of rock beneath the earth's surface. For hundreds of millions of years, the forces of plate tectonics have shaped the earth as the huge plates that form the earth's surface move slowly over, under, and past each other. Sometimes the movement is gradual. At other times, the plates are locked together, unable to release the accumulating energy. When the accumulated energy grows strong enough, the plates break free, causing the ground to shake. Most earthquakes occur at the boundaries where the plates meet; however, some earthquakes occur in the middle of plates.

Ground shaking from earthquakes can collapse buildings and bridges; disrupt gas, electric, and phone service; and sometimes trigger landslides, avalanches, flash floods, fires, and huge, destructive ocean waves (tsunamis). Buildings with foundations resting on unconsolidated landfill and other unstable soil, and trailers and homes not tied to their foundations are at risk because they can be shaken off their mountings during an earthquake. When an earthquake occurs in a populated area, it may cause deaths and injuries and extensive property damage.
Earthquakes can strike suddenly, without warning. Earthquakes can occur at any time of the year and at any time of the day or night. On a yearly basis, 70 to 75 damaging earthquakes occur throughout the world.

4.3.1 Regulatory Environment

The Alquist-Priolo Earthquake Fault Zoning (AP) Act was passed into law following the destructive February 9, 1971 San Fernando earthquake. The AP Act provides a mechanism for reducing losses from surface fault rupture on a statewide basis. The intent of the AP Act is to ensure public safety by prohibiting the siting of most structures for human occupancy across traces of active faults that constitute a potential hazard to structures from surface faulting or fault creep.

The 2013 California Building Standards Code (also known as Title 24) became effective for the County on January 1st, 2014. Title 24 includes CBC Section 3417: Earthquake Evaluation and Design for Retrofit of Existing Buildings which can be viewed at http://www.bsc.ca.gov/codes.aspx

Changes or additions to the seismic provisions come from many different sources, including new research results and documentation of performance in past earthquakes. A primary resource is the National Earthquake Hazard Reduction Program (NEHRP) Recommended Seismic Provisions for New Buildings and Other Structures (FEMA P-750: http://www.fema.gov/media-library/assets/documents/18152). FEMA's companion document Earthquake Resistant Design

Concepts (FEMA P-749: http://www.fema.gov/media-library/assets/documents/21866) provides a nontechnical background explanation.

4.3.2 Past Occurrences

Table 4-4 shows earthquakes greater than Magnitude 4.0 that have been felt within the San Bernardino County area in the last five years.

Table 4-4: Earthquakes: 2010-2015 San Bernardino County

Date	Name
9/14/2011	Calimesa 4.1
1/15/2014	Fontana 4.4
7/5/2014	Running Springs 4.6
3/29/2014	Brea 5.1
7/25/2015	Fontana 4.2
9/16/15	Big Bear Lake 4.0
12/30/2015	Muscoy 4.4
1/6/2016	Banning 4.4

There are hundreds more small (M<4.0) earthquakes that have occurred within San Bernardino County during this same time frame. Those with a magnitude of below 4.0 are not listed.

4.3.3 Location/Geographic Extent

Figure 4-1 shows the locations of major faults in California, including the four (4) major faults in Southern California in relation to San Bernardino County. These faults are the Southern San Andreas, the San Jacinto, the Elsinore, and the Garlock Faults. There are also many smaller faults within San Bernardino County capable of producing significant earthquakes. However, these four faults are considered by the United States Geological Survey (USGS) and the California Geological Survey (CGS) to be the most dangerous in the County. (California Geological Survey Special Publication 42, Interim Revision 2007, "Fault-Rupture Hazard Zones in California" - Alquist-Priolo Earthquake Fault Zoning Act). Other geologic hazards include liquefaction and landslides. Both occur during and after earthquakes.

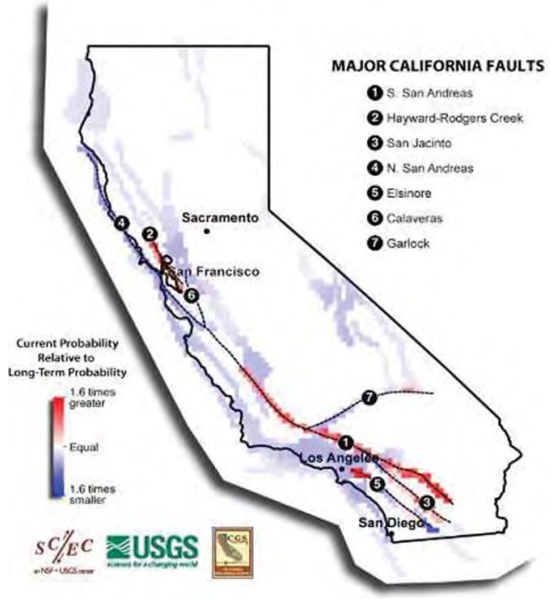

Figure 4-1: Major California Faults

Liquefaction of the ground occurs when the groundwater table is high and soil conditions are favorable. Liquefaction Susceptibility Zones as mapped by the USGS for the 2008 ShakeOut Scenario1 shows areas of the County susceptible to liquefaction during an earthquake. See Figure 4-2

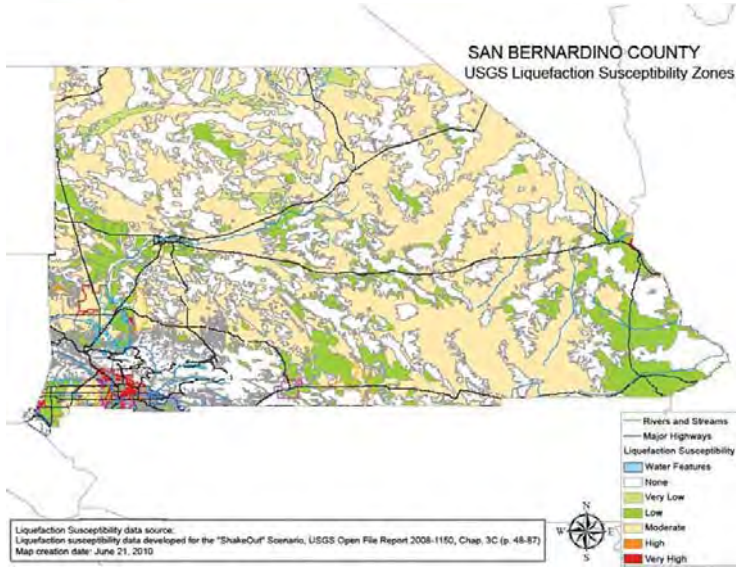

Figure 4-2: USGS Liquefaction Susceptibility Zone

4.3.4 Magnitude/Severity

The MMI Scale measures earthquake intensity as shown in Table 4-5. The MMI Scale has 12 intensity levels. Each level is defined by a group of observable earthquake effects, such as ground shaking and/or damage to infrastructure. Levels I through VI describe what people see and feel during a small to moderate earthquake. Levels VII through XII describe damage to infrastructure during a moderate to catastrophic earthquake.

See Section 4.3.5 to see how magnitude and severity are linked to the probability of earthquake occurrences.

Table 4-5: MMI Scale

Earthquake Magnitude and Intensity		
Magnitude (M_w)	**Intensity (Modified Mercalli Scale)**	**Description**
1.0 – 3.0	I	I. Not felt except by very few people under especially favorable conditions.
3.0 – 3.9	II – III	II. Felt by a few people, especially those on upper floors of buildings. Suspended objects may swing.
		III. Felt quite noticeably indoors. Many do not recognize it as an earthquake. Standing motorcars may rock slightly.
4.0 – 4.9	IV – V	IV. Felt by many who are indoors; felt by a few outdoors. At night, some awakened. Dishes, windows and doors rattle.
		V. Felt by nearly everyone; many awakened. Some dishes and windows broken; some cracked plaster; unstable objects overturned.
5.0 – 5.9	VI – VII	VI. Felt by everyone; many frightened and run outdoors. Some heavy furniture moved; some fallen plaster or damaged chimneys.
		VII. Most people alarmed and run outside. Damage negligible in well-constructed buildings; considerable damage in poorly constructed buildings.
6.0 – 6.9	VII – IX	VIII. Damage slight in special designed structures; considerable in ordinary buildings; great in poorly built structures. Heavy furniture overturned. Chimneys, monuments, etc. may topple.
		IX. Damage considerable in specially designed structures. Buildings shift from foundations and collapse. Ground cracked. Underground pipes broken.
7.0 and Higher	VIII and Higher	X. Some well-built wooden structures destroyed. Most masonry structures destroyed. Ground badly cracked. Landslides on steep slopes.
		XI. Few, if any, masonry structures remain standing. Railroad rails bent; bridges destroyed. Broad fissure in ground.
		XII. Virtually total destruction. Waves seen on ground. Objects thrown into the air.

4.3.5 Frequency and Probability of Occurrence

Several of the major Southern California faults have a high probability of experiencing a Magnitude 6.7 or greater earthquake within the next 30 years (Figure 4-2); 59% probability of a M6.7 or greater on the Southern San Andreas Fault, 31% probability on the San Jacinto Fault, and 11% probability on the Elsinore Fault. These probabilities were determined by the USGS and CGS in a 2008 study (2007 Working Group on California Earthquake Probabilities, 2008, The Uniform California Earthquake Rupture Forecast, Version 2 (UCERF 2): U.S. Geological Survey Open-File Report 2007-1437 and California Geological Survey Special Report 203 http://pubs.usgs.gov/of/2007/1437/).

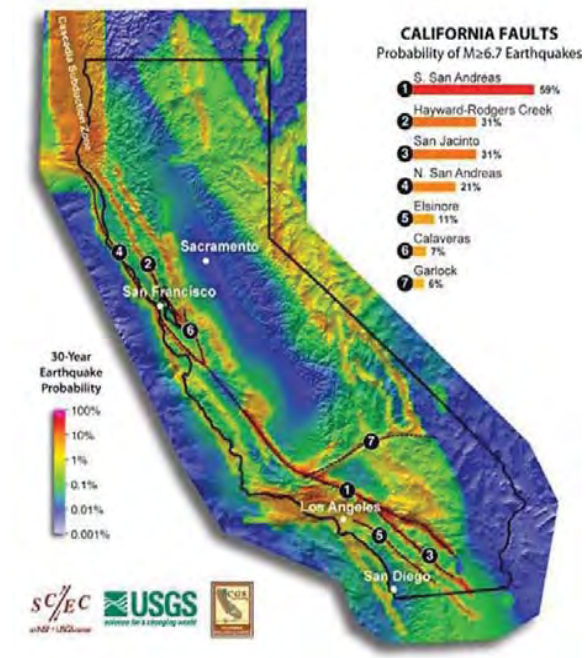

Figure 4-3: California Faults Probability of ≥ M 6.7 Earthquake

As shown in Figure 4-3 the probability of an earthquake with a Magnitude 6.7 or greater occurring somewhere in Southern California within the next 30 years is estimated to be 97% (2007 Working Group on California Earthquake Probabilities, 2008). As can be seen in the table, earthquake probabilities in Southern California are higher than those for Northern California.

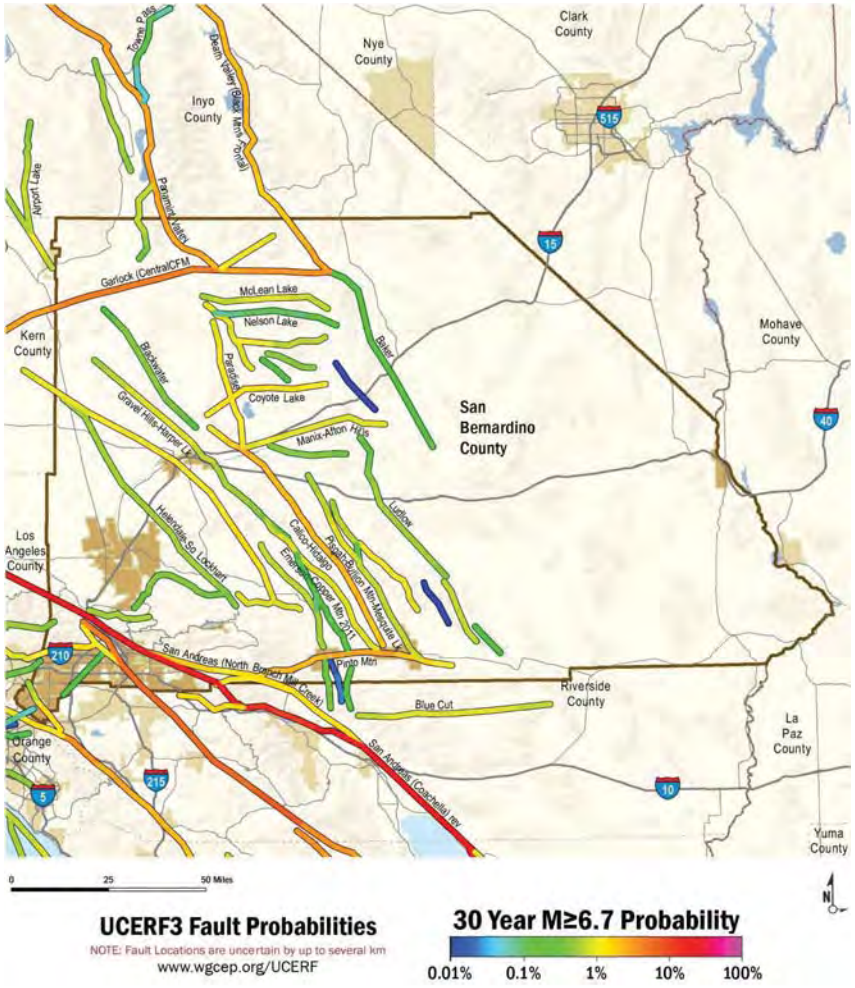

Figure 4-4: California Area Earthquake Probabilities by Magnitude

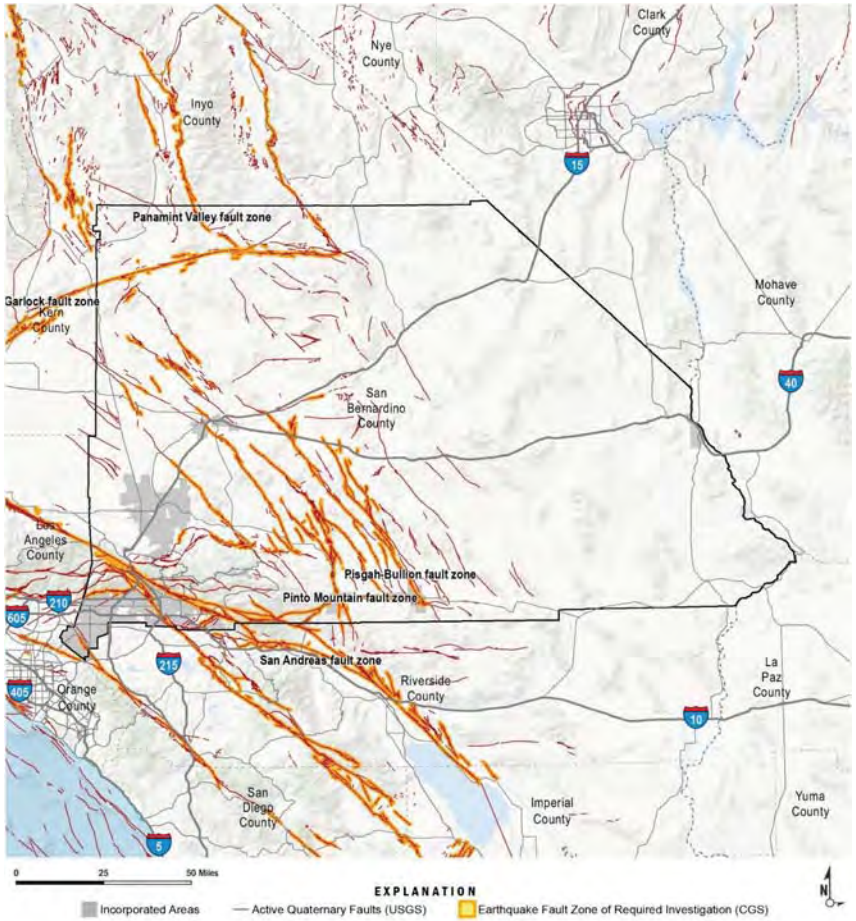

Figure 4-5: Earthquake Fault Zone

4.4 Wildfire

Wildfires present a significant potential for disaster in the County, a region of relatively high temperatures, low humidity, and low precipitation during the summer. This long summer season is followed by a fall season that is famous for high velocity, very dry winds that come out of the desert. The Santa Ana winds very consistently arrive from the middle of October to the end of November. In and of themselves, these weather patterns would be of little significance without the un-naturally dense forest and the dense undergrowth that has been allowed to grow unabated for the last several decades. Compounding the vegetative growth that has occurred is the unchecked development of substantial housing and businesses in mountain communities. This urbanized growth has required parallel growth and sophistication in the fire service that responds to wildfires in the wild land urban interface. With immediate responses to initial fire starts, the vast majority of fires are successfully extinguished in short order. In doing so, this eliminates nature's way of thinning the forest through smaller fires.

Another factor that is a potential for disaster is the number of dead trees in the mountain region. Due to the over densification of the forest combined with drought conditions during the past ten years, trees in the local mountains have become weakened, creating a perfect environment for Bark Beetles to proliferate from 2003 to 2008. Combine these severe burning conditions with people or lightning and the stage is set for the occurrence of large, destructive wildfires. In addition, the forested areas of the County are not only the most popular, with the most visitors in the Nation, but are also the most populated in residences and businesses in the Nation as well. The final element in this catastrophe waiting to happen is that because of the steep mountain terrain, there are only five routes in and out for almost 60,000 residents. On a holiday weekend though, this population can dramatically increase by 50,000 to 100,000 people as weekend vacationers.

4.4.1 Regulatory Environment

4.4.1.1 State

Wildfire State Responsibility Area (SRA) Fire Safe Regulations outline basic wildland fire protection standards for local jurisdictions. SRA Fire Safe Regulations (if policed) can decrease the risk of wildfire events in the wildland interface. SRA Fire Safe Regulations do not supersede local regulations, which equal or exceed minimum state regulations. The State statute for wildfire protection is Public Resources Code, Section 4290. Requirements in the code include information on the following (CA Fire Alliance):

- Road Standards for Fire Equipment Access
- Standards for Signs Identifying Streets, Roads and Buildings
- Minimum Private Water Supply Reserves for Emergency Fire Use
- Fuel Breaks and Greenbelts

4.4.1.2 Local

4.4.1.2.1 Fire Hazard Abatement Program

In an effort to reduce the threat of wild fires, the San Bernardino County Fire Hazard Abatement (FHA) Program enforces the fire hazard requirements outlined in San Bernardino County Code Section 23.0301–23.0319. The primary function of the Fire Hazard Abatement Program is to reduce the risk of fires within communities by pro-actively establishing defensible space and reduction/removal of flammable materials on properties.

The Fire Hazard Abatement Program conducts surveys to identify fire hazards throughout the year. Fire hazards are identified and notices to abate the hazard(s) are mailed to property owners. Property owners are given 30 days to abate the violations. Failure to abate may result in citations, penalties, and/or fees for abatement by the County. The Fire Hazard Abatement Program responds to complaints year round in the unincorporated areas and contracting Cities and Fire Districts.

4.4.2 Past Occurrences

Wildfire locations from 1900 – 2016 are shown in Figure 4-6. In the past five years (since the 2010 MJHMP was approved) there have been 13 significant wildland fires within San Bernardino County. These fires are listed in Table 4-7, and several of the more damaging fires are discussed below.

Table 4-6: Wildfire Occurrences 2010-2016

Number	Date	Name	Acres
1.	9/5/2011	Hill Fire	1,158
2.	11/5/2012	Devore Fire	335
3.	6/28/2013	Mill Fire	534
4.	8/8/2013	Sharp Fire	243
5.	9/24/2013	Sierra Fire	200
6.	4/30/2014	Etiwanda Fire	2,143
7.	5/13/2014	Rancho Incident	1,548
8.	3/31/2015	River Bottom Fire	185
9.	6/17/2015	Lake Fire	31,359
10.	7/17/2015	North Fire/ Pines Fire	4,250
11.	8/23/2015	Summit Fire	555
12.	8/7/2016	Pilot Fire	8,110
13.	8/16/2016	Blue Cut Fire	36,274
			86,894

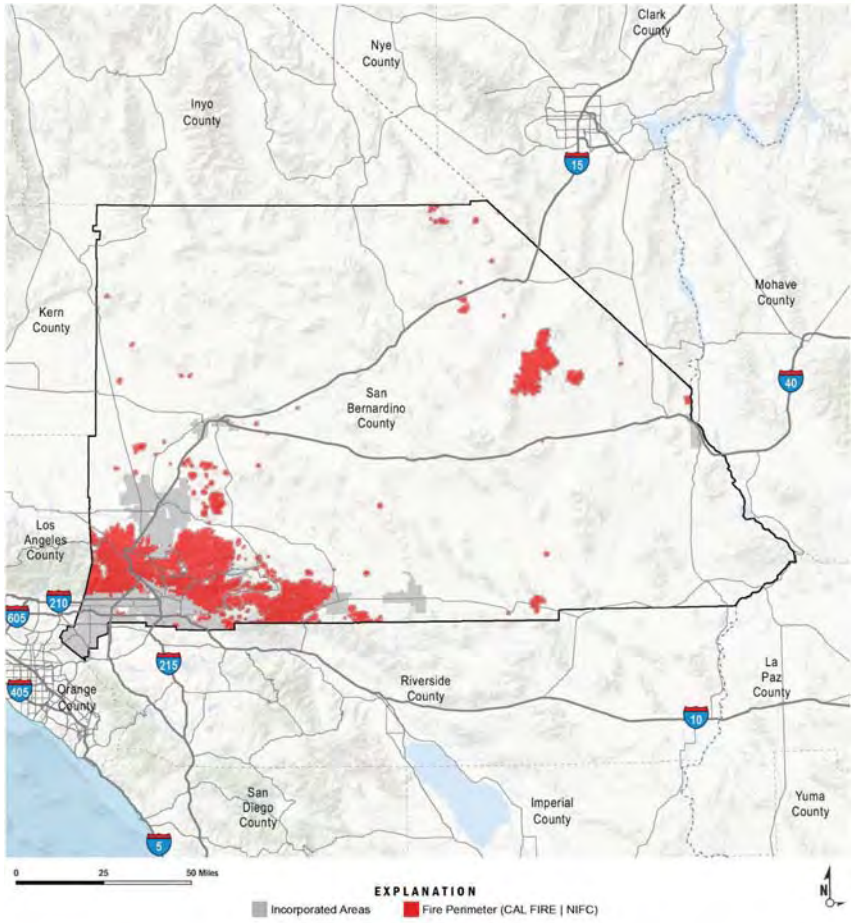

Figure 4-6: Wildfire History 1900 – 2016 (CalFire and USFS Data 2010)

The 2016 Blue Cut Fire was a reminder that wildfires are a significant threat to lives and property in the unincorporated San Bernardino County area. The Blue Cut Fire burned 36,274 acres, destroying an estimated 105 single family residences and 216 outbuildings. In addition, 3 single family residences and 5 other structures were damaged.

In 2015 The Lake Fire burned 31,359 acres and was the cause of 6 minor firefighter injuries and 1 residence and 3 outbuildings were destroyed.

North Fire/Pines Fire in 2015 burned a total of 4,250 acres, destroying 7 homes, 16 outbuildings and 44 vehicles in the community of Baldy Mesa. No injuries were reported.

The Blue Cut Fire, Lake Fire, and North Fire/ Pines Fire all occurred in the County's mapped Very High Fire Severity Zone. Mitigation efforts have reduced but not eliminated the threat from wildfire. The strong fall winds that are capable of creating firestorms cannot be controlled. Drought cannot be controlled. Fuels reduction programs reduce the potential spread of fire, upgraded Building Codes make structures more fire resistant, and public education prepares residents for wildfires. However, the threat of wildfire remains. The continuing goal is to reduce the threat from wildfire wherever possible.

4.4.3 Location/Geographic Extent

Using information from the California Department of Forestry (CAL FIRE) Figure 4-8, illustrates the areas at risk to a wildfire event. The areas with the highest risk of wildfire are the in the southwestern portions of County in the mountainous region.

Figure 4-7 illustrates vegetation mortality due to bark beetle infestation, drought, and other factors in San Bernardino County. These conditions create extreme fire hazards.

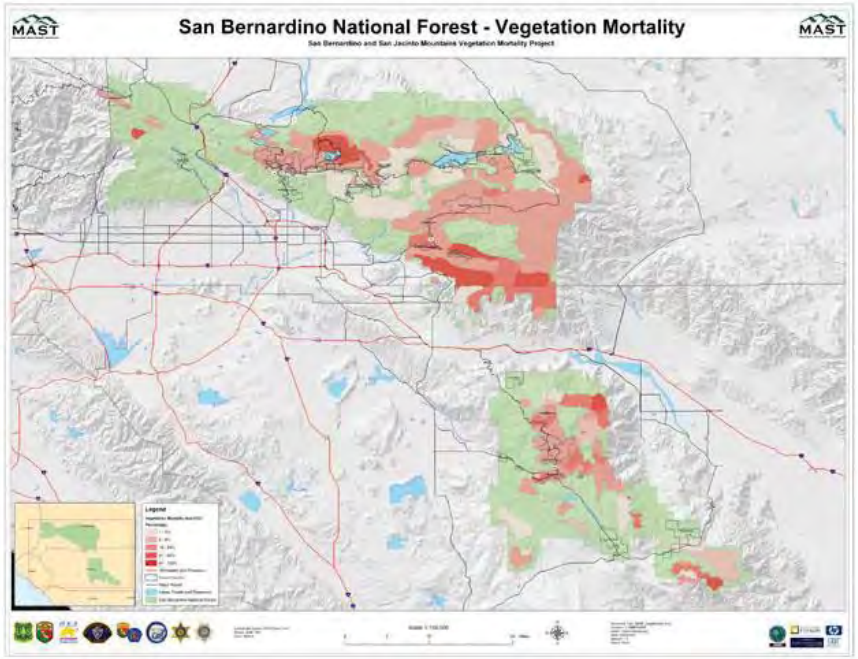

Figure 4-7: San Bernardino National Forest – Vegetation Mortality

4.4.4 Magnitude/Severity

Fire Severity Zones are used in determining additional protective measures required when building new structures or remodeling older structures within the particular zone. Additional measures must be taken on the property around a structure in the higher ranked fire Severity Zones.

CAL FIRE adopted Fire Hazard Severity Zone maps for LRA in June 2008. The Fire Severity Zones for County identifies areas of Very High, High, and Moderate fire hazard severity throughout the County and are mapped in Figure 4-8.

Fire Severity Zones are used in determining additional protective measures required when building new structures or remodeling older structures within the particular zone. Additional measures must be taken on the property around a structure in the higher ranked fire Severity Zones.

Fire hazard mapping is a way to measure the physical fire behavior to predict the damage a fire is likely to cause. Fire hazard measurement includes vegetative fuels, probability of speed at which a wildfire moves the amount of heat the fire produces, and most importantly, the burning fire brands that the fire sends ahead of the flaming front.

The model used to develop the information in accounts for topography, especially the steepness of the slopes (fires burn faster as they burn up-slope.). Weather (temperature, humidity, and wind) also has a significant influence on fire behavior. The areas depicted as moderate and high in are of particular concern and potential fire risk in these are constantly increasing as human development, and the wildland urban interface areas expand.

4.4.5 Frequency/Probability of Future Occurrences

In San Bernardino County, wildfire season commences in the summer when temperatures are high, humidity is low, and conditions remain dry. The season continues into the fall, when the County experiences high velocity, very dry winds coming out of the desert. A statewide drought beginning in 2011 has caused the state to be the driest it's been since record keeping began back in 1895 (California 2016). This has caused extremely dry conditions in unincorporated areas of the County creating plentiful fuel sources for wildfires.

USGS LANDFIRE (Landscape Fire and Resource Management Planning Tools), is a shared program between the wildland fire management programs of the U.S. Department of Agriculture Forest Service and U.S. Department of the Interior, providing landscape scale geo-spatial products to support cross-boundary planning, management, and operations. Historical fire regimes, intervals, and vegetation conditions are mapped using the Vegetation Dynamics Development Tool (VDDT). This USGS data supports fire and landscape management planning goals in the National Cohesive Wildland Fire Management Strategy, the Federal Wildland Fire Management Policy, and the Healthy Forests Restoration Act.

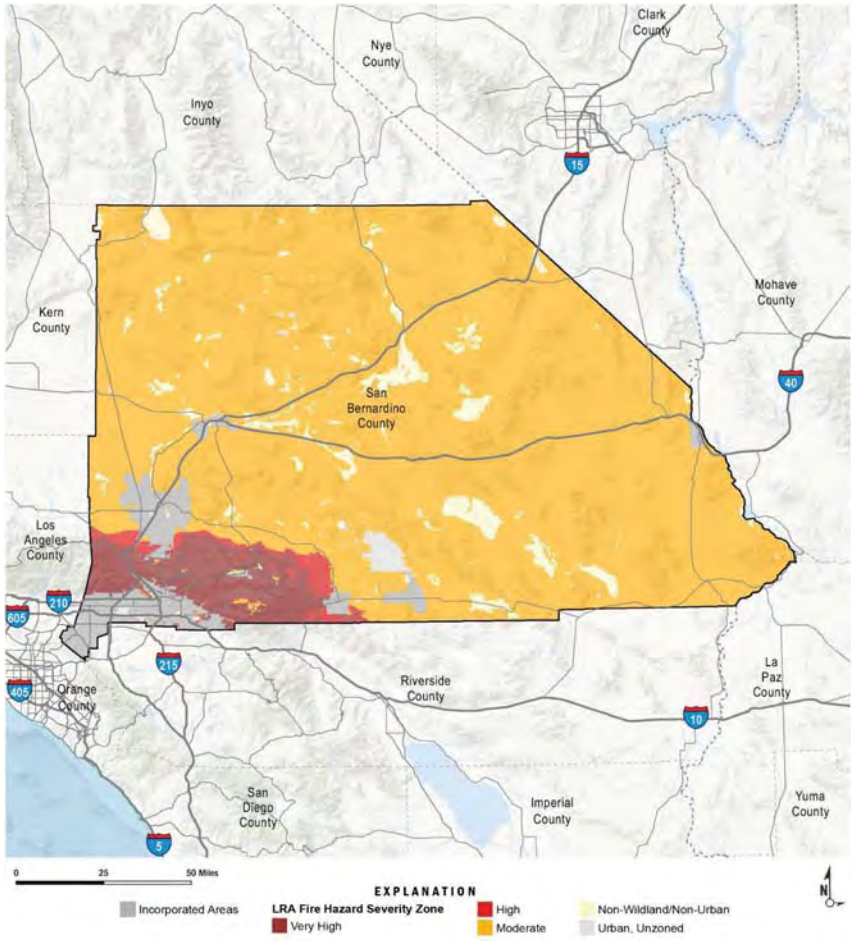

Figure 4-8: Fire Hazard Severity Zone

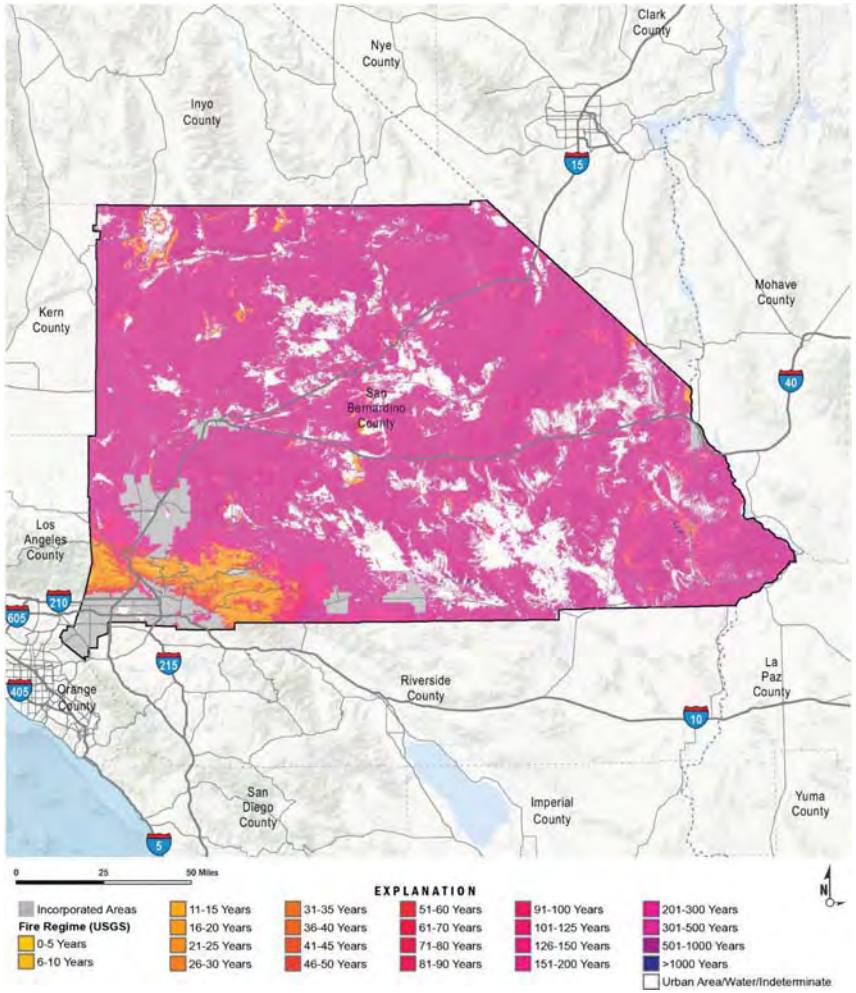

Figure 4-9: USGS Mean Fire Return Interval Map

As part of the USGS Landfire data sets, the Mean Fire Return Interval (MFRI) layer quantifies the average period between fires under the presumed historical fire regime. MFRI is intended to describe one component of historical fire regime characteristics in the context of the broader historical time period represented by the LANDFIRE Biophysical Settings (BPS) layer and BPS Model documentation.

MFRI is derived from the vegetation and disturbance dynamics model VDDT (Vegetation Dynamics Development Tool) (LF_1.0.0 CONUS only used the vegetation and disturbance dynamics model LANDSUM). This layer is created by linking the BpS Group attribute in the BpS layer with the Refresh Model Tracker (RMT) data and assigning the MFRI attribute. This geospatial product should display a reasonable approximation of MFRI, as documented in the RMT. See Figure 4-9 for predicted fire return interval for the jurisdictional area.

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4.5 Flood

Floods are the second most common and widespread of all natural disasters faced by the County and its Special Districts. Most communities in the United States have experienced some kind of flooding during or after spring rains, heavy thunderstorms, winter snow thaws, or summer thunderstorms.

A flood, as defined by the National Flood Insurance Program is: "A general and temporary condition of partial or complete inundation of two or more acres of normally dry land area or of two or more properties (at least one of which is the policyholder's property) from:

- Overflow of inland or tidal waters, or
- Unusual and rapid accumulation or runoff of surface waters from any source, or
- Mudflow, or
- Collapse or subsidence of land along the shore of a lake or similar body of water as a result of erosion or undermining caused by waves or currents of water exceeding anticipated cyclical levels."

Floods can be slow or fast rising but generally develop over a period of hours or days. Mitigation includes any activities that prevent an emergency, reduce the chance of an emergency happening, or lessen the damaging effects of unavoidable emergencies. Investing in mitigation measures now, such as: engaging in floodplain management activities, constructing barriers such as levees, and purchasing flood insurance will help reduce the amount of structural damage to structures and financial loss from building and crop damage should a flood or flash flood occur.

The standard for flooding is the 1% annual chance flood, commonly called the 100-year flood, the benchmark used by the Federal Emergency Management Agency (FEMA) to establish a standard of flood control in communities throughout the country. The 1% annual chance flood is also referred to as the base flood.

The 1% annual chance flood is the flood that has a 1% chance of being equaled or exceeded in any given year and it could occur more than once in a relatively short period of time. By comparison, the 10% flood (10-year flood) means that there is a 10% chance for a flood of its size to occur in any given year.

4.5.1 Regulatory Environmental

4.5.1.1 County of San Bernardino 2007 Development Code and Zoning Ordinances

One of the purposes of this Development Code is to create a comprehensive and stable pattern of land uses upon which to plan drainage/flood control and other public facilities and utilities. The follow chapters of the development code address floodways, flood control and development near such:

Chapter 82.14 Flood Plain Safety (FP) Overlay
Chapter 85.07 Flood Hazard Development Review
Chapter 86.04 Flood Plain Management Administrator

The County has also adopted Zoning Ordinances that are not part of the County Code but are part of the General Plan. These ordinances regulate land use; map the official land use and hazard overlay districts to include safety hazard and environmental protection areas.

4.5.1.2 National Flood Insurance Program

The National Flood Insurance Program (NFIP) makes federally backed flood insurance available to homeowners, renters, and business owners in participating communities. As a participating member of the NFIP, San Bernardino County is dedicated to protecting homes with more than 1,000 policies currently in force. Like most communities participating in NFIP, FEMA has prepared a detailed Flood Insurance Study (FIS) for areas of San Bernardino County. The study presents water surface elevations for floods of various magnitudes, including the 1-percent annual chance of flood (the 100-year flood) and the 0.2-percent annual chance of flood (the 500-year flood). Base flood elevations and the boundaries of the 100 and 500 year floodplains are shown on the Flood Insurance Rate Maps (FIRM). More information on location and geographic extent of the FIRMs are provided in this section.
The County of San Bernardino entered the regular phase of the NFIP on September 09, 1978; in 2016 the County Floodplain Administrator is Marlene Mioyshi. As a participant in the NFIP, San Bernardino County is dedicated to regulating development in the FEMA regulated floodplain areas in accordance with NFIP criteria. Before a permit to build in a floodplain area is issued, San Bernardino County ensures that two basic criteria are met:

- All new buildings and developments undergoing substantial improvements must, at a minimum, be elevated to protect against damage by the 100-year flood.
- New floodplain developments must not aggravate existing flood problems or increase damage to other properties.

Structures permitted or built in the County/City before the NFIP regulatory requirements were incorporated into the San Bernardino County ordinances (before the effective date of the San Bernardino County FIRM) are called "pre-FIRM" structures. For the San Bernardino County, pre-FIRM structures are those permitted or built before September 09, 1978

Extensive FEMA NFIP databases are used to track claims for every participating community including San Bernardino County. NFIP insurance data provided by FEMA indicates that as of September 02, 2016, there were 1,772 policies in San Bernardino County, resulting in $403,874,500 of insurance in force; this amounts to $1,758,534 in total premiums. Of the 1,772 policies, only 1,070 are for structures located within the 1% annual chance flood zones, while the remaining 701 policies are for structures located outside of the FEMA identified floodplain.

Based on this analysis of insurance coverage, San Bernardino County has significant assets at risk to the 100-year flood. Of the 3,426 improved parcels within the 100-year floodplain, only 1,070 of those parcels maintain flood insurance[1]. That means approximately 2,356 improved parcels are without flood insurance in high risk areas according to FEMA. This condition could exist for a number of different reasons. Ground floor elevations are one foot above the 100-year floodplain and home owners and business that wish not to purchase floodplain insurance (non-federally backed loans, home with no mortgage, homes that are "grandfathered" into the NFIP). The 2,356 uninsured structures located in mapped floodplain areas are especially vulnerable.

Currently, San Bernardino County contains 12 Repetitive Loss (RL) properties under their jurisdictional umbrella. The total dollar amount of claims paid to date by the NFIP is $2,606,098. San Bernardino County also contains zero (0) Severe Repetitive Loss (SRL) structure.

Most of the RL properties that have experienced flooding are in the High Desert and Mountain areas of San Bernardino County are due to debris flow in localized areas. Every loss claim is seasonal in nature as all loss claims have been in December, January or February. Some mitigation on these properties has been conducted and San Bernardino County is currently tracking mitigation actions through standardized forms as required by FEMA.

NOTE: A property does not have to be currently carrying a flood insurance policy to be considered a RL or SRL property. Often homes in communities are not carrying flood insurance but are still on the community's repetitive loss list. The "repetitive loss" designation follows a property from owner to owner; from insurance policy to no insurance policy, and even after the property has been mitigated. Having an insurance policy and making claims that fall into the repetitive loss criteria will put a property on the RL list. Even after the policy on a property has lapsed or been terminated, the property will remain on San Bernardino County RL list.

NOTE: The Privacy Act of 1974 (5 U.S.C. 522a) restricts the release of certain types of data to the public. Flood insurance policy and claims data are included in the list of restricted information. FEMA can only release such data to state and local governments, and only if the data are used for floodplain management, mitigation, or research purposes. Therefore, this plan does not identify the repetitive loss properties or include claims data for any individual property.
For more information on California Regulation and the NFIP, please see California's Department of Water Resources Quick Guide here: http://www.water.ca.gov/floodmgmt/lrafmo/fmb/docs/CAQG-screen.pdf

4.5.2 Past Occurrences

Severe weather events leading to flooding are listed in Table 4-7; several major events are discussed below.

[1] An improved property owner may not carry flood insurance for a number of reasons; not everyone is required to carry flood insurance. Structures carrying federally-backed mortgages that are in a SFHA are required to carry flood insurance in the County of San Bernardino. Owners who have completed the terms of the mortgage or who purchased their property outright may not choose to carry flood insurance and instead bear the costs of recovery on their own.

Table 4-7: Severe Weather Events 2010-Present

Date	Type
1/18/2010	January 2010 Winter Storms
12/17/2010	Highland Flooding Incident
8/25/2013	Flooding- Remnants of Tropical Storm Ivo
11/21/2013	Winter Storms
2/28/2014	Winter Storm
8/3/2014	Thunderstorms, heavy rain, flash flooding, mudslides
7/6/2015	Flash flooding resulting from Lake Fire
7/30/2015	Severe Thunderstorms
1/6/2016	Strong rain, flooding and mudslides
8/22/16	Flash flooding from storm system

4.5.3 Location/Geographic Extent

Table 4-8 shows the number of acres and square miles that lie in flood hazard areas within the County. Figure 4-10 provides flood hazard data for San Bernardino County as mapped in FEMA's National Flood Hazard Layer for California (April, 2010). Mapped areas include areas subject to inundation by the 1% Annual Chance Flood (also referred to as the 100-year flood), and areas subject to inundation in the 0.2% Annual Chance Flood (500-year flood).

Table 4-8: San Bernardino County Flood Hazard Area

Flood Hazard Type	Sum of Acres	Sum of Square Miles
100-Year Flood	65,209	101.89
100-Year, Floodway	13,968	21.83
500-Year Flood	13,838	21.62
500-Year, Protected by Levee	4,336	7
Total	**97,351**	**152.11**

Table 4-9 shows a land use compatibility chart for 100 year flood plains.

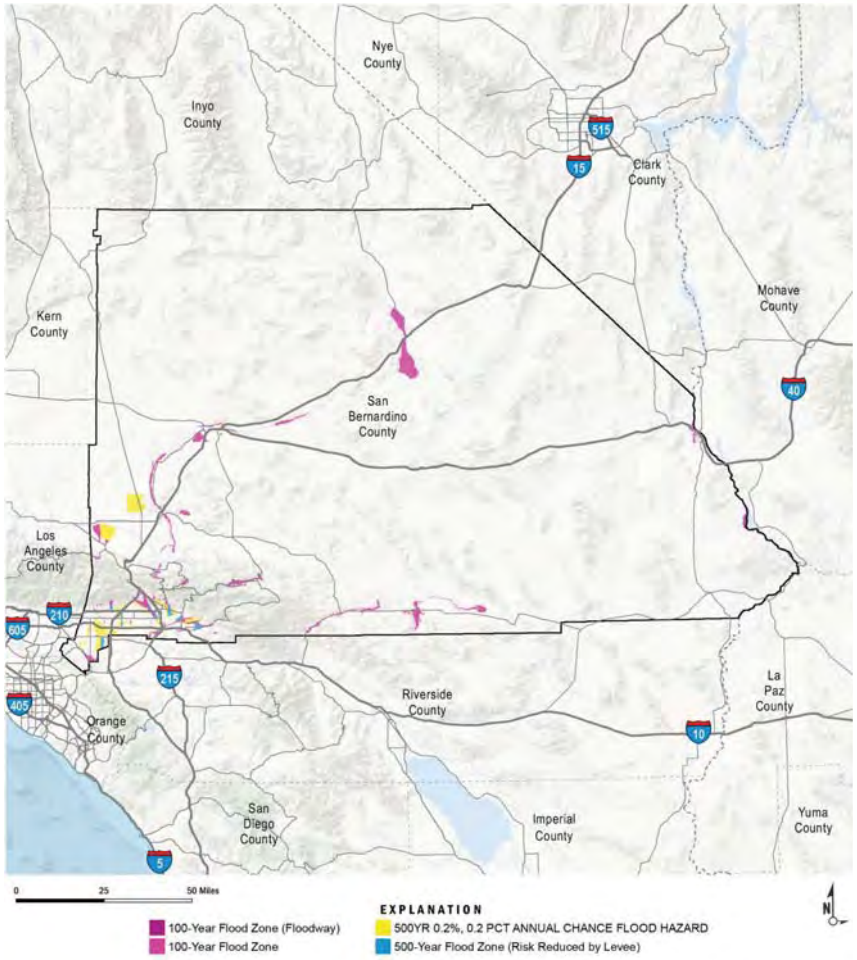

Figure 4-10: Flood Hazard Severity Zone Map

Table 4-9: Land Use Compatibility Chart for 100 Year Flood Plains (General Plan Table S-1)

Land Uses	Compatibility in 100-Year Floodplains
Critical Nuclear related systems; explosives or hazardous materials/ manufacturing, handling or storage; hospitals and other emergency medical facilities.	Restricted
Essential Police, fire and communications systems; Emergency Operations Centers (EOC's); electric power inter-tie systems; power plants; utility substations; sewage treatment plants; water-works; local gas and electric distribution lines; aqueducts; major pipelines; major highways, bridges and tunnels; ambulance services; public assembly sites with 300 or more capacity; schools.	Restricted
High Occupancy Multi-family residential of 20 or more units; major commercial including large shopping centers; office buildings; large hotels; health care clinics and convalescent homes; heavy industry; gas stations.	Generally Incompatible
Normal-Low Risk Single-family and two-family residential; multi-family of less than 20 units; small scale commercial; small hotels, motels; light industry; warehousing.	Generally Incompatible

Restricted unless alternative sites are not available or feasible and it is demonstrated that, although mitigation may be difficult, hazards will be adequately mitigated. Generally Incompatible Restricted unless site investigation demonstrates that site is suitable or that hazards will be adequately mitigated.

4.5.4 Magnitude/Severity

4.5.4.1 Flash Flooding

Flash flooding tends to occur in the summer and early fall because of the monsoon rains and is typified by increased humidity and high summer temperatures.

The desert area contains many mountain ranges that are steep and experience summer thunder storms causing flash floods in many dry washes on the desert floor. The water collects in dry lake beds throughout the desert area.

Environmental permit processing has delayed or prohibited work in the washes to provide flow lines to many bridges on county highways. Many highways do not have bridges but convey water across the road with dip crossings. Flash flooding cause's road and bridge wash outs and erosion of earthen channels and basins when they occur near these facilities.

Cities and towns often experience street closures for several days due to sediment transport and road damage. Because of the sheet flow character of the desert, many private properties experience erosion and sediment deposits. The urban valley also can experience flash flooding in its narrow canyons and within the many unimproved creeks and interim channels feeding the Santa Ana River. The valley floor in many areas is very flat so even minor rain events can produce flooding of roads and private property. In coordination with local jurisdictions, the County of San Bernardino Flood Control District has prepared Master Drainage plans for many cities and towns to provide a plan for reducing flooding due to minor storms. Maps can be found on the County's Department of Public Works website here: http://cms.sbcounty.gov/dpw/FloodControl/Planning/MPD.aspx

However, local resources are not sufficient to cover the cost of the construction of the drainage systems. The densely populated (75% of the county population) urban valley region contains the headwaters of the Santa Ana River. The San Gabriel and San Bernardino Mountains border the North side of the valley are steep reaching 5,000 feet with alluvial fans which are developed and densely populated.

4.5.5 Frequency/Probability of Future Occurrences

The Flood Insurance Rate Map (FIRM) not only identifies the flood hazard zones for insurance and floodplain management purposes, but also provides a statement of probability of future occurrence.

A 500-year flood has a 0.2-percent chance of occurring in any given year; a 100-year flood has a 1-percent chance, a 50-year flood has a 2-percent chance, and a 10-year flood has a 10-percent chance of occurrence. Although the recurrence interval represents the long-term average period between floods of specific magnitude, significant floods could occur at shorter intervals or even within the same year. The FIRM maps typically identify components of the 500-year and 100-year floodplains

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4.6 Drought

Drought is a normal, recurrent feature of climate. It occurs almost everywhere, although its features vary from region to region. Drought severity depends on numerous factors, including duration, intensity, and geographic extent, as well as regional water supply demands by humans and vegetation. The severity of drought can be aggravated by other climatic factors, such as prolonged high winds and low relative humidity.

Drought originates from a deficiency of precipitation over an extended period, usually one or more seasons. Drought can result in a water shortage for some activity, group, or environmental sector. Drought is a complex natural hazard, which is reflected in the following four definitions commonly used to describe it:

- Agricultural – drought is defined principally in terms of naturally occurring soil moisture deficiencies relative to water demands of plant life, usually arid crops.
- Hydrological – drought is related to the effects of precipitation shortfalls on stream flows and reservoir, lake, and groundwater levels.
- Meteorological – drought is defined solely on the degree of dryness, expressed as a departure of actual precipitation from an expected average or normal amount based on monthly, seasonal, or annual time scales.
- Socioeconomic – drought associates the supply and demand of economic goods or services with elements of meteorological, hydrologic, and agricultural drought. Socioeconomic drought occurs when the demand for water exceeds the supply as a result of weather-related supply shortfall. It may also be called a water management drought.

Although climate is a primary contributor to hydrological drought, other factors such as changes in land use (e.g., deforestation), land degradation, and the construction of dams all affect the hydrological characteristics of the basin. Since regions are interconnected by hydrologic systems, the impact of meteorological drought may extend well beyond the borders of the precipitation-deficient area. Similarly, changes in land use upstream may alter hydrologic characteristics such as infiltration and runoff rates, resulting in more variable streamflow and a higher incidence of hydrologic drought downstream. Land use change is one of the ways human actions alter the frequency of water shortage even when no change in the frequency of meteorological drought has been observed.

4.6.1 Regulatory Environment

The County and participating jurisdictions have a number of regulatory requirements and documents to address planning for drought in the County. This includes Watershed Water Quality Management Plans (WQMP) for San Bernardino County and the Mojave and Santa Ana Watersheds. On June 21st, 2013, the Executive Officer approved the revised Technical Guidance Document for Water Quality Management Plan (TGD-WQMP).

The 1972 Federal Water Pollution Control Act, also known as the Clean Water Act (CWA) provides the basis for the protection of all inland surface waters, estuaries, and coastal waters. California's Porter-Cologne Water Quality Control Act of 1970 established the Regional Water Quality Control Board as the agency responsible for implementing the CWA and Porter-Cologne requirements in the Santa Ana Watershed.

In 2006, California State lawmakers adopted AB 1881. This provided guidelines and timelines for the revision of the State's Model Water Efficient Landscape Ordinance (MWELO) and mandated that every city, county or other agency within the State adopt MWELO or be in compliance with it through their own ordinance by January 2010. On January 1, 2010 the San Bernardino County Water Efficient Landscape Ordinance was implemented. It can be obtained on the county website.

4.6.1.1 Watershed Water Quality Management Plan

San Bernardino County's WQMP draft was written in 2013 and final approval was given on June 21, 2013.

4.6.1.2 Technical Guidance Document for Water Quality Management Plan (TGD-WQMP)

Approved on June 21, 2013, this document provides direction to project proponents on the regulatory requirements applicable to a private or public development activity, including public works transportation projects, from project conception to completion.

4.6.2 Past Occurrences

- The 2013 California State MHMP states that from 1950 to 2012, there has been eight-drought State Emergency Proclamations in California. Specifically for San Bernardino County, there have been six drought events since 1896. Previous occurrences of drought are described as follows:

- **1975 to 1977:** California experienced the two driest years (1976 and 1977) in the State's history in 1976 and 1977. The drought was declared an Emergency (FEMA-EM-3023) on January 20, 1977. Total crop damages statewide totaled $2.67 billion dollars for both years ($888.5 million in 1976 and $1.8 billion in 1977).

- **2006 to 2009:** A California State-declared three-year drought of below-average rainfall, low snowmelt runoff, and the largest court-ordered water restricting in state's history. The dry conditions damaged crops, deteriorated water quality, and caused extreme wildfire danger. Approximately $300 million in agricultural revenue loss, and a potential $3 billion in economic losses over time.

- **2012 to 2016:** San Bernardino County first declared a local drought emergency in 2014. As of May 23rd, 2016, San Bernardino County and the City of Rancho Cucamonga had both submitted local Emergency Proclamations. This ongoing drought is the most severe drought in over 100 years. In order to abide by the State Water Resources Control Board's mandatory water reductions, the San Bernardino Municipal Water Department Board of Water Commissioners authorized implementation of Stage IIA of the department's Water Supply Contingency Plan on June 1, 2015. The State Water Board will adjust emergency water conservation regulations through the end of January 2017, in recognition of the differing water supply conditions across the state, and develop proposed emergency water restrictions for 2017 if the drought persists.

Additional information about previous occurrences of droughts in California (in general) can be obtained from the California DWR.

4.6.3 Location/Geographic Extent

Drought can affect the County, region, and the State of California as a whole. The County's primary source of water is imported by the San Bernardino Valley Municipal Water District (http://www.sbvmwd.com/about-us/what-we-do) through participation in the State Water Project (SWP). It is received at the Devil Canyon Power Plant Afterbay. This supply is supplemented by groundwater basins in the County. Drought has no defined geographical boundaries and cannot be depicted in map form. As such, the entire County is subject to drought.

4.6.4 Magnitude/Severity

The magnitude of drought is usually measured in time and the severity of the hydrologic deficit. There are several resources available to evaluate drought status and estimate future expected conditions. The National Integrated Drought Information System (NIDIS) Act of 2006 (Public Law 109-430) prescribes an interagency approach for drought monitoring, forecasting, and early warning. The NIDIS maintains the U.S. Drought Portal (www.drought.gov) which is a web-based

access point to several drought related resources. Resources include the U.S. Drought Monitor (USDM) and the U.S. Seasonal Drought Outlook (USSDO).

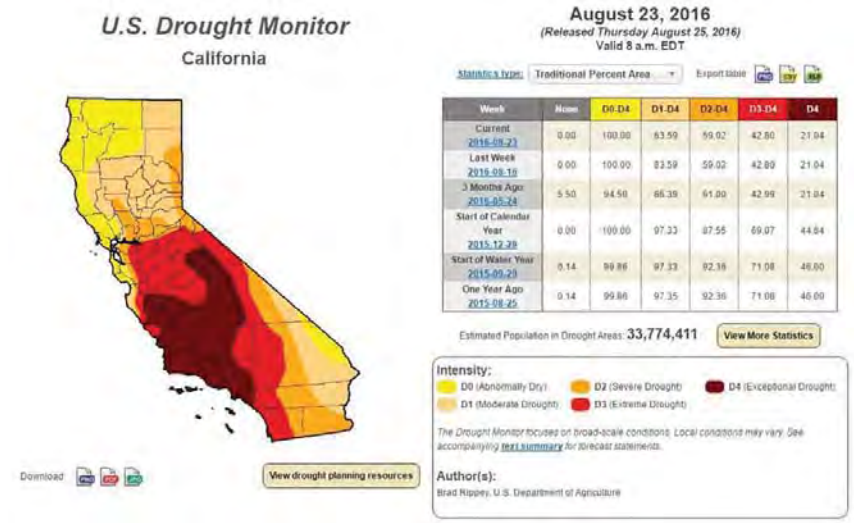

Figure 4-11: US Drought Monitor Map for the State of California on August 23, 2016

The USDM provides a summary of drought conditions across the United States and Puerto Rico and is developed and maintained by the National Drought Mitigation Center (www.drought.unl.edu). USDM includes the U.S. Drought Monitor Map. This map is updated weekly by combining a variety of drought database and indicators, and local expert input into a single composite drought indicator. The map denotes four levels of drought intensity (ranging from D1 - D4) and one level of "abnormal dryness" (D0). In addition, the map depicts areas experiencing agricultural (A) or hydrological (H) drought impacts. These impact indicators help communicate whether short or long-term precipitation deficits are occurring. An example Drought Monitor Map for the State of California for August 23, 2016 is illustrated in Figure 4-11.

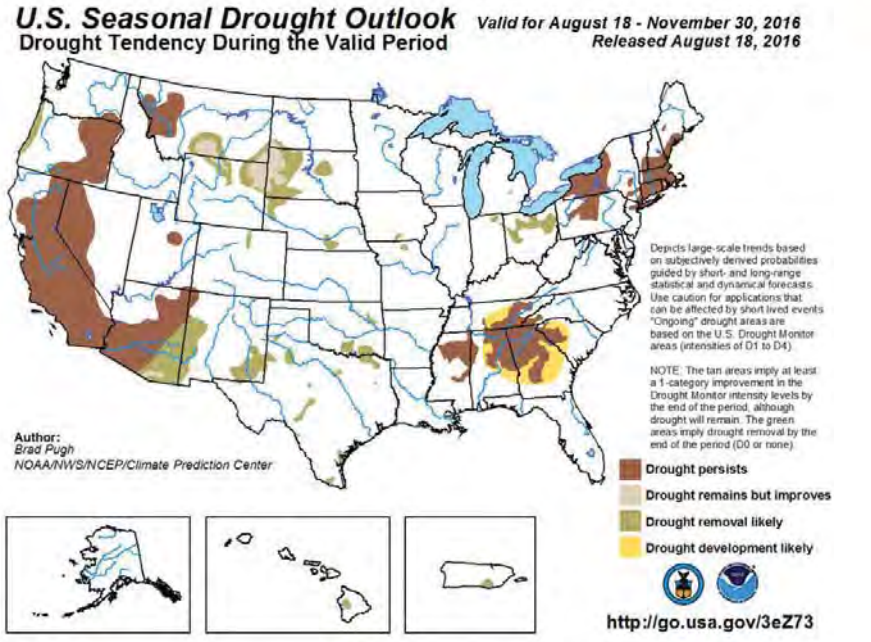

Figure 4-12: USSDO Drought Tendency Map (Valid August 18-November 30, 2016

For western States with mountainous terrain and complex regional microclimates, it is also useful to supplement the PDSI values with other indices such as Surface Water Supply Index and Standardized Precipitation Index (SPI). The Surface Water Supply Index takes snowpack and other unique conditions into account. The National Drought Mitigation Center (NDMC) uses the SPI to identify emerging drought months sooner than the PDSI. It is computed on various time scales to monitor moisture supply conditions. The SPI is the number of standard deviations that precipitation value would deviate from the long-term mean. As shown in Figure 4-13 the 72-month SPI through the end of August 2016 for San Bernardino County is low.

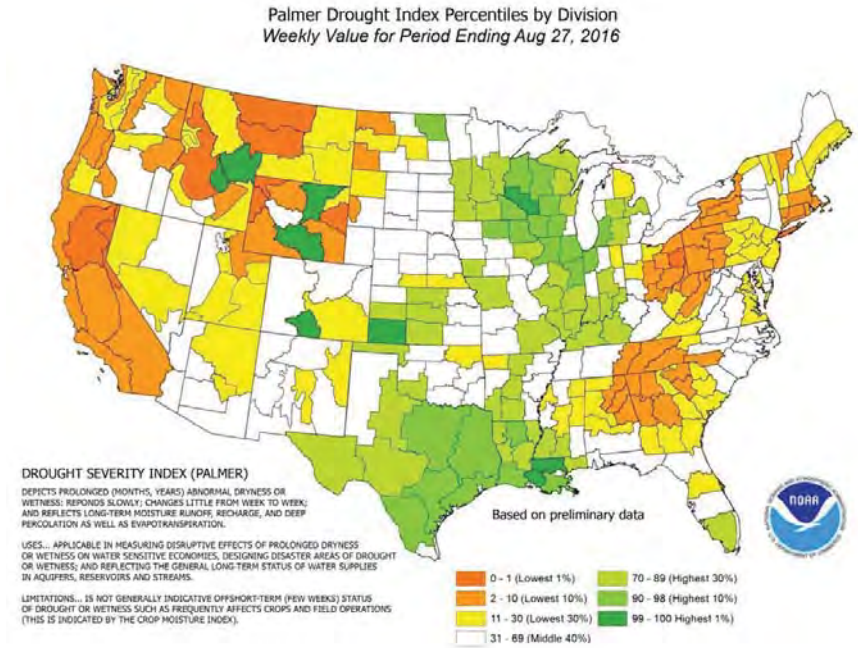

Figure 4-13: Month SPI through the end of August 2016 for San Bernardino County

A number of indices measure how much precipitation for a given period has deviated from historically established norms. The primary indicator for the USDM and USSDO for the western United States is the Palmer Drought Severity Index (PDSI). The PDSI is widely used by the USDA to determine when to grant emergency drought assistance to affected areas. PDSI is a commonly used index that measures the severity of drought for agriculture and water resource management. It is calculated from observed temperature and precipitation values and estimates soil moisture. However, the PDSI is not considered consistent enough to characterize the risk of drought on a nationwide basis (FEMA, 1997) and is not well suited to the dry, mountainous areas in the western U.S.

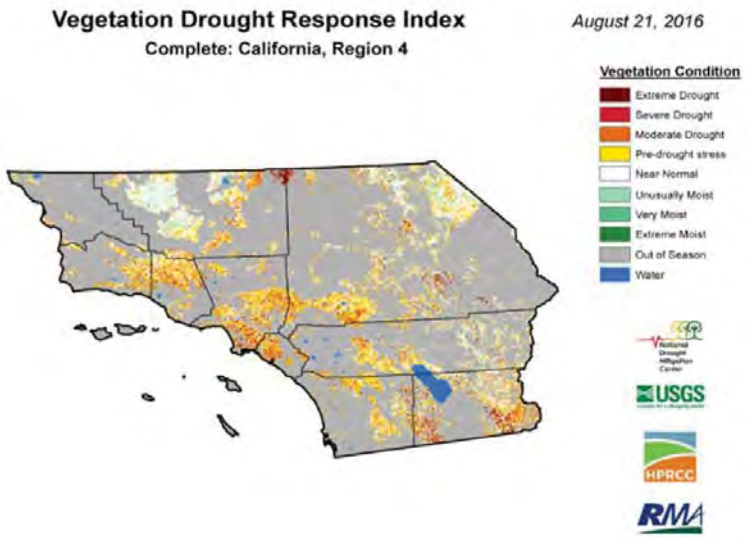

Figure 4-14: Vegetation Drought Response Index – California Region 4 for August 21, 2016

The Vegetation Drought Response Index, or VegDRI, is a bi-weekly depiction of vegetation stress across the contiguous United States. VegDRI is a fine resolution (1-km^2) index based on remote sensing data, and incorporates climate and biophysical data to determine the cause of vegetation stress. Development of the VegDRI map and associated products is a joint effort by the National Drought Mitigation Center (NDMC), the U.S. Geological Survey's (USGS) National Center for Earth Resources Observation and Science (EROS), and the High Plains Regional Climate Center (HPRCC). Figure 4-14 illustrates the VegDRI results for Southern California for August 21, 2016.

4.6.5 Frequency/Probability of Future Occurrences

Currently there is no data on the probability of drought that would be comparable to the USGS effort on earthquakes in the region, or how 100-year flood maps are created.

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4.7 Terrorism

This section was added due to the December 2, 2015 terror attack in San Bernardino County. There is no single, universally accepted definition of terrorism; however, FEMA defines "terrorism" as intentional, criminal, malicious acts. FEMA document 386-7 refers to terrorism specifically as the use of Weapons of Mass Destruction (WMD), including biological, chemical, nuclear, and radiological weapons; arson, incendiary, explosive, and armed attacks; industrial sabotage and intentional hazardous materials releases; and "cyberterrorism."

FEMA developed the Integrated Emergency Management System (IEMS) using an all-hazards approach. While the IEMS was established as an "all-hazard" approach, responding to the threat of terrorism (referred to as counterterrorism) came to be viewed as the responsibility of law enforcement, defense, and intelligence agencies. Furthermore, defensive efforts to protect people and facilities from terrorism (referred to as antiterrorism) were generally limited to the government sector, the military, and some industrial interests.

While the term "mitigation" refers generally to activities that reduce loss of life and property by eliminating or reducing the effects of disasters, in the terrorism context it is often interpreted to include a wide variety of preparedness and response actions. For the purposes of this document, the traditional meaning will be assumed; that mitigation refers to specific actions that can be taken to reduce loss of life and property from manmade hazards by "modifying the built environment" or antiterrorism to reduce the risk and potential consequences of these hazards.

4.7.1 Antiterrorism Regulatory Environment

Adopted on February 9, 2012 and updated on October 1, 2013, United Facilities Criteria (UFC) 4-010-01 defines the United States Department of Defense's (DoD) minimum antiterrorism standards for both new and existing buildings. The document applies to DoD buildings, National Guard buildings, visitor centers and museums, visitor control facilities and expeditionary structures. Historic preservation compliance for implementation of anti-terrorism standards, philosophy, design strategies and assumptions are all taken into account. Site planning, structural design, architectural design, and electrical and mechanical design are discussed in detail in Appendix B.
https://www.fema.gov/news-release/2004/01/13/dhs-announces-new-building-science-guidelines-enhance-terrorism-resistance

4.7.2 Counterterrorism Regulatory Environment

After the 12/2/15 mass shooting, two full time positions with a regional FBI-led terrorist task force (FBI's Joint Terrorism Task Force) were created. These task force officers have the clearance to conduct terrorism investigations in the County. The Task Force includes partners from Homeland Security Investigations (HSI), the San Bernardino Police Department, the San Bernardino County Sheriff's Department, the Riverside County Sheriff's Department, the Ontario Police Department, the Riverside Police Department, the Corona Police Department and the Chino Police Department. For more information regarding the positions, contact the San Bernardino Police Department at (909) 384-5742. Read more here: http://www.pe.com/articles/task-789539-force-san.html

The State of California Department of Justice's Anti-terrorism program works with federal, state and local law enforcement agencies to detect, investigate, prosecute, dismantle, prevent and respond to domestic and international terrorist activities. Read more here: https://oag.ca.gov/bi/atp

The State of California Bureau of Security and Investigative Services' Power to Arrest Course includes a Weapons of Mass Destruction (WMD) & Terrorism Awareness section. Read More Here: http://www.bsis.ca.gov/about_us/laws/bsis_regulations.pdf

4.7.3 Past Occurrences

There have been two terrorist attacks recorded in San Bernardino County. Table 4-10 describes both attacks.
Source: https://www.start.umd.edu/gtd/search/Results.aspx?search=san+bernardino&sa.x=0&sa.y=0&sa=Search

Table 4-10: Terrorist Attacks in San Bernardino County

Date	Perpetrator Group	Fatalities	Injured	Target Type
3/16/1970	White Extremists	0	1	Government (General)
12/2/2015	Unaffiliated Individuals	16	17	Government (General)

The state of California has experienced 574 terrorist attacks from 1970-2011 (Integrated United States Security Database (IUSSD): Data on the Terrorist Attacks in the United States Homeland, 1970-2011 2012). Figure 4-17 shows the types of terrorist attacks in the state of California from 1970 to the present.

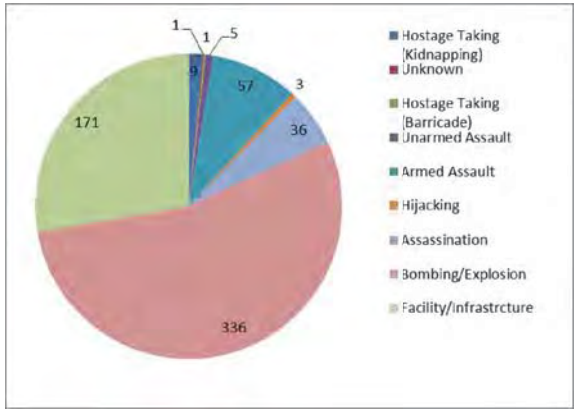
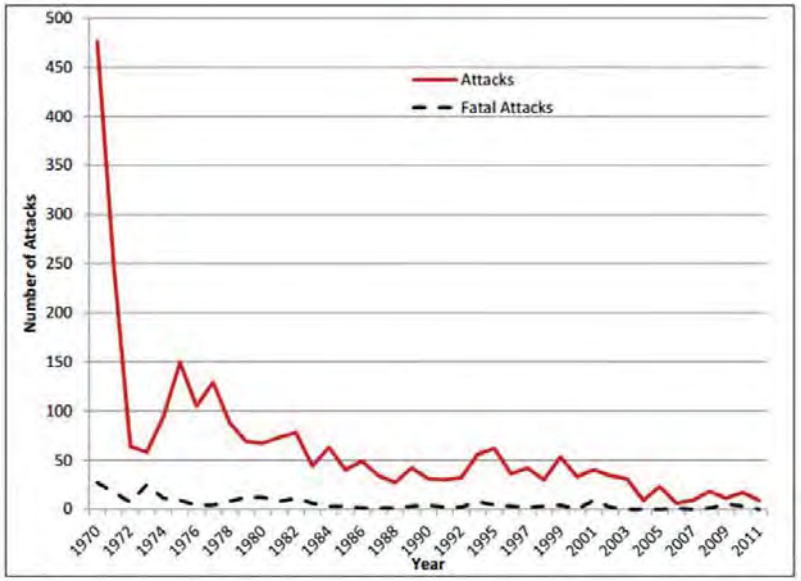


Figure 4-15: Types of Terrorist Attacks in California from 1970-Present

As seen in Figure 4-15 since 1970, the number of terrorist attacks in the United States has steadily decreased. According to http://www.heritage.org most terrorist attacks on America happen outside our nation's borders. The number of international terrorist attacks against the United States from 1970-2011 is shown in Figure 4-16 and Figure 4-17.



Note: There were 2,608 total attacks and 226 fatal attacks between 1970 and 2011.

Figure 4-16: Total and Fatal Terrorist Attacks in the United States by Year

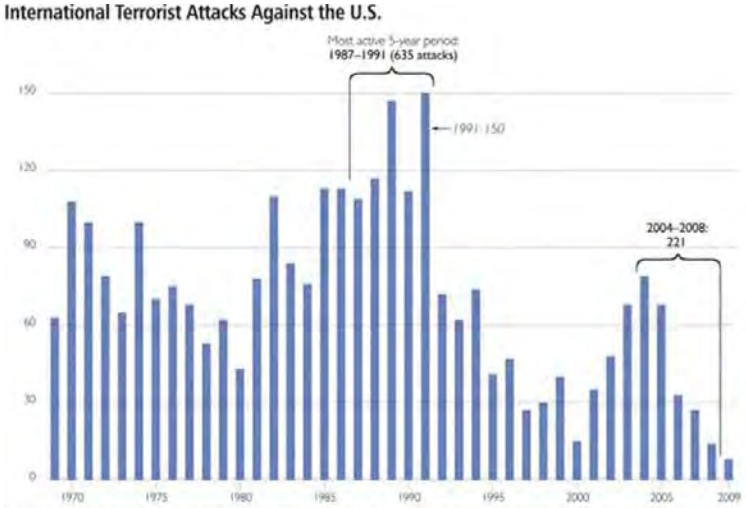


Figure 4-17: International Terrorist Attacks Against the United States

4.7.4 Location/Geographic Extent

Unlike natural hazards, which often follow patterns and can be forecasted, manmade hazards such as acts of terrorism are much more unpredictable. Terrorists have the ability to choose targets and tactics and can often adjust conditions to achieve their objective. Terrorist attacks are often in a more specific location rather than a widespread, more predictable area such as a flood plain. As demonstrated in the 12/2/15 mass shooting, "homegrown terrorists" (self-radicalizing and pulls off their attacks without any help or communication with people in other countries) are even harder to detect and predict.

Translating most manmade hazard profiles into meaningful geospatial information is difficult at best. Instead, the planning team will use an asset-specific approach, identifying potentially at-risk critical facilities and systems in the community. Once a comprehensive list of assets has been developed, it will be prioritized so that the community's efforts can be directed to protect the most

important assets first. Then, beginning with the highest priority assets, the vulnerabilities of each facility or system to each type of hazard will be assessed (FEMA 2003).

4.7.5 Magnitude/Severity

As previously discussed, predicting terrorist attacks cannot be done with the same level of accuracy as predicting a natural hazard and its potential impacts on the community. However, we can learn from past terrorist incidents. Table 4-11 profiles 10 different types of terrorist attacks and technological hazards.

Table 4-11: Event Profiles for Terrorism and Technological Hazards

Hazard	Application Mode	Hazard Duration	Extent of Effects; Static/Dynamic	Mitigating and Exacerbating Conditions
Conventional Bomb/ Improvised Explosive Device	Detonation of explosive device on or near target; delivery via person, vehicle, or projectile.	Instantaneous; additional "secondary devices" may be used, lengthening the time duration of the hazard until the attack site is determined to be clear	Extent of damage is determined by type and quantity of explosive. Effects generally static other than cascading consequences, incremental structural failure, etc.	Overpressure at a given standoff is inversely proportional to the cube of the distance from the blast; thus, each additional increment of standoff provides progressively more protection. Terrain, forestation, structures, etc. can provide shielding by absorbing and/or deflecting energy and debris. Exacerbating conditions include ease of access to target; lack of barriers/shielding; poor construction; and ease of concealment of device
Chemical Agent *	Liquid/aerosol contaminants can be dispersed using sprayers or other aerosol generators; liquids vaporizing from puddles/ containers; or munitions.	Chemical agents may pose viable threats for hours to weeks depending on the agent and the conditions in which it exists.	Contamination can be carried out of the initial target area by persons, vehicles, water and wind. Chemicals may be corrosive or otherwise damaging over time if not remediated.	Air temperature can affect evaporation of aerosols. Ground temperature affects evaporation of liquids. Humidity can enlarge aerosol particles, reducing inhalation hazard. Precipitation can dilute and disperse agents but

Hazard	Application Mode	Hazard Duration	Extent of Effects; Static/Dynamic	Mitigating and Exacerbating Conditions
				can spread contamination. Wind can disperse vapors but also cause target area to be dynamic. The micro-meteorological effects of buildings and terrain can alter travel and duration of agents. Shielding in the form of sheltering in place can protect people and property from harmful effects.
Arson/ Incendiary Attack	Initiation of fire or explosion on or near target via direct contact or remotely via projectile.	Generally minutes to hours.	Extent of damage is determined by type and quantity of device/ accelerant and materials present at or near target. Effects generally static other than cascading consequences, incremental structural failure, etc.	Mitigation factors include built-in fire detection and protection systems and fire-resistive construction techniques. Inadequate security can allow easy access to target, easy concealment of an incendiary device and undetected initiation of a fire. Non-compliance with fire and building codes as well as failure to maintain existing fire protection systems can substantially increase the effectiveness of a fire weapon.
Armed Attack	Tactical assault or sniping from remote location.	Generally minutes to days.	Varies based upon the perpetrators' intent and capabilities	Inadequate security can allow easy access to target, easy concealment of weapons and undetected initiation of an attack.
Biological Agent *	Liquid or solid contaminants can be dispersed using sprayers/aerosol generators or by point or line	Biological agents may pose viable threats for hours to years depending on the agent and the	Depending on the agent used and the effectiveness with which it is deployed, contamination can	Altitude of release above ground can affect dispersion; sunlight is destructive to many bacteria and viruses; light to

Hazard	Application Mode	Hazard Duration	Extent of Effects; Static/Dynamic	Mitigating and Exacerbating Conditions
	sources such as munitions, covert deposits and moving sprayers.	conditions in which it exists	be spread via wind and water. Infection can be spread via human or animal vectors.	moderate wind will disperse agents but higher winds can break up aerosol clouds; the micro-meteorological effects of building and terrain can influence aerosolization and travel of agents.
Cyberterrorism	Electronic attack using one computer system against another.	Minutes to days	Generally no direct effects on built environment.	Inadequate security can facilitate access to critical computer systems, allowing them to be used to conduct attacks.
Agriterrorism	Direct, generally covert contamination of food supplies or introduction of pests and/or disease agents to crops and livestock.	Days to months	Varies by type of incident. Food contamination events may be limited to discrete distribution sites, whereas pests and diseases may spread widely. Generally no effects on built environment.	Inadequate security can facilitate adulteration of food and introduction of pests and disease agents to crops and livestock.
Radiological Agent **	Radioactive contaminants can be dispersed using sprayers/aerosol generators, or by point or line sources such as munitions, covert deposits and moving sprayers.	Contaminants may remain hazardous for seconds to years depending on material used.	Initial effects will be localized to site of attack; depending on meteorological conditions, subsequent behavior of radioactive contaminants may be dynamic.	Duration of exposure, distance from source of radiation, and the amount of shielding between source and target determine exposure to radiation.
Nuclear Bomb **	Detonation of nuclear device underground, at the surface, in the air or at high altitude.	Light/heat flash and blast/shock wave last for seconds; nuclear radiation and fallout hazards can persist for years. Electromagnetic pulse from a high altitude detonation lasts for seconds and affects only	Initial light, heat and blast effects of a subsurface, ground or air burst are static and are determined by the device's characteristics and employment; fallout of radioactive contaminants may	Harmful effects of radiation can be reduced by minimizing the time of exposure. Light, heat and blast energy decrease logarithmically as a function of distance from seat of blast. Terrain, forestation, structures, etc. can provide shielding by

Hazard	Application Mode	Hazard Duration	Extent of Effects; Static/Dynamic	Mitigating and Exacerbating Conditions
		unprotected electronic systems.	be dynamic, depending on meteorological conditions.	absorbing and/or deflecting radiation and radioactive contaminants.
Hazardous Material Release (fixed facility or transportation)	Solid, liquid and/or gaseous contaminants may be released from fixed or mobile containers.	Hours to days	Chemicals may be corrosive or otherwise damaging over time. Explosion and/or fire may be subsequent. Contamination may be carried out of the incident area by persons, vehicles, water and wind.	As with chemical weapons, weather conditions will directly affect how the hazard develops. The micro-meteorological effects of building and terrain can alter travel and duration of agents. Shielding in the form of sheltering in place can protect people and property from harmful effects. Non-compliance with fire and building codes as well as failure to maintain existing fire protection and containment features can substantially increase the damage from a hazardous materials release.

* Source: Jane's Chem-Bio Handbook
** Source: FEMA, Radiological Emergency Management Independent Study Course

4.7.6 Frequency/Probability of Future Occurrences

We can usually forecast the type, frequency and location of a natural hazard thanks to the laws of physics and nature. However, when dealing with manmade hazards such as terrorism, we are often dealing with functions of the human mind-malevolence, incompetence, carelessness and other behaviors. These actions cannot be predicted with any accuracy; therefore, there is the potential for an act of terrorism to occur anywhere, at any time.

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4.8 Climate Change

Climate change refers to any distinct change in measures of climate lasting for a long period of time, more specifically major changes in temperature, rainfall, snow, or wind patterns. Climate change may be limited to a specific region, or may occur across the whole Earth. Climate change may result from:

- Natural factors (e.g., changes in the Sun's energy or slow changes in the Earth's orbit around the Sun);
- Natural processes within the climate system (e.g., changes in ocean circulation); and
- Human activities that change the atmosphere's make-up (e.g., burning fossil fuels) and the land surface (e.g., cutting down forests, planting trees, building developments in cities and suburbs, etc.).

The effects of climate change are varied: warmer and more varied weather patterns, melting ice caps, and poor air quality, for example. As a result, climate change impacts a number of natural hazards.

The 2013 State of California Multi-Hazard Mitigation Plan stated that climate change is already affecting California. Sea levels have risen by as much as seven inches along the California coast over the last century, increasing erosion and pressure on the state's infrastructure, water supplies, and natural resources. The State has also seen increased average temperatures, more extreme hot days, fewer cold nights, a lengthening of the growing season, shifts in the water cycle with less winter precipitation falling as snow, and both snowmelt and rainwater running off sooner in the year. In addition to changes in average temperatures, sea level, and precipitation patterns, the intensity of extreme weather events is also changing.

4.8.1 Regulatory Environment

California's response to climate change is directed by Legislation and Regulations and by other Mandates such as executive orders.

4.8.1.1 The Sustainable Communities and Climate Protection Act of 2008

The Sustainable Communities and Climate Protection Act of 2008 (Sustainable Communities Act, SB 375, Chapter 728, Statutes of 2008) looks to reduce GHG emissions through coordinated transportation and land use planning with the goal of more sustainable communities. Regional targets are established for GHG emissions reductions from passenger vehicle use by the sustainable communities strategy (SCS) established by each metropolitan planning organization (MPO). The SCS is an integral part of the regional transportation plan (RTP) and contains land use, housing, and transportation strategies to meet GHG reductions targets. In San Bernardino County, the South Coast Air Quality Management District facilitates compliance with the federal Clean Air Act and implements the state's air quality program.

The Office of Planning and Research's General Plan Guidelines and SB 375 builds upon Assembly Bill 162 (flood protection) and Senate Bill 1241 (fire protection) and supports Safeguarding California implementation.

SB 375 also supports Assembly Bill 2140 which requires that a City/County General Plan contains a safety element in addition to a Hazard Mitigation Plan. AB 2140 also requires a vulnerability assessment, adaptation goals, policies and objectives, and a set of feasible implementation measures.

4.8.1.2 California Adaptation Planning Guide (APG)

The State of California has been taking action to address climate change for over 20 years, focusing on both greenhouse gas emissions reduction and adaptation. The California Adaptation Planning Guide (APG) continues the state's effort by providing guidance and support for communities addressing the unavoidable consequences of climate change.

Based on upon specific factors, 11 Climate impact regions were identified. Some of the regions were based on specific factors particularly relevant to the region. As illustrated in Figure 4-18 San Bernardino County is located in the Desert Region.

The Desert is a heavily urbanized inland region (4.3+ million people) made up of sprawling suburban development in the west near the South Coast region and vast stretches of open, largely federally owned desert land to the east. Prominent cities within the desert portion include Palm Springs (44,500+) and El Centro (42,500+). The region's character is defined largely by the San Gabriel Mountains, San Gorgonio Mountains, San Jacinto Mountains, and smaller inland mountains reaching through the desert to the Colorado River, which borders the region on the east. Communities in the Desert region should consider evaluating the following climate change impacts:

- Reduced water supply
- Increased temperature
- Reduced precipitation
- Diminished snowpack
- Wildfire risk
- Public health and social vulnerability
- Stress on special-status species

Figure 4-18: Climate Impact Regions

4.8.2 Past Occurrences

Climate change has never been directly responsible for any declared disasters. Past flooding, wildfire, levee failure, and drought disasters may have been exacerbated by climate change, but it is impossible to make direct connections to individual disasters. In addition, unlike earthquake and floods that occur over a finite time period, climate change is an on-going hazard the effects of which some are already experiencing. Other effects may not be seriously experienced for decades, or may be avoided altogether by mitigation actions taken today.

4.8.3 Location/Geographic Extent

The effects of climate change are not limited by geographical borders. San Bernardino County, the State of California, the United States, and the rest of the world are all at risk to climate change. As such, the entire County is at risk to the effects of climate change.

Figure 4-19 and Figure 4-20 provide Cal Adapt[2] modeled decadal July high temperature averages for 2010 and 2090. These figures provide current decade-long July temperature averages and possible annual high heating trends for the remaining portion of the century. The data presented in the figures represent a "projection" of potential future climate scenarios, they are not predictions. These figures illustrate how the climate may change based on a variety of different potential social and economic factors. The visualizations are comprised of average values from Coupled Climate model 2.1 (GFDL), Community Climate System Model Version 3 (CCSM3), Coupled Global Climate Model Version 3 (CNRM) and Parallel Climate Model 1 (PCM1). During the next few decades, scenarios project average temperature to rise between 1° and 2.3°F; however, the projected temperature increases begin to diverge at mid-century so that, by the end of the century, the temperature increases projected in the higher emissions scenario (A2) are approximately twice as high as those projected in the lower emissions scenario (B1). Customizable maps can be viewed at http://cal-adapt.org/temperature/decadal/

[2] Cal-Adapt has been funded to provide access to data and information that has been produced by the State's scientific and research community. The data available in this site offer a view of how climate change might affect California at the local level.

Figure 4-19: July Decadal Average High Temperature Map; 2010

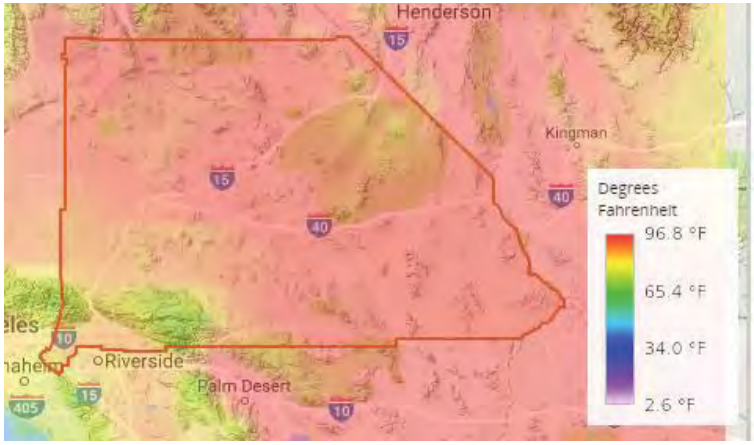


Figure 4-20: July Decadal Average High Temperature Map; 2090

4.8.4 Magnitude/Severity

The California Climate Adaptation Strategy (CAS), citing a California Energy Commission study, states that "over the past 15 years, heat waves have claimed more lives in California than all other declared disaster events combined." This study shows that California is getting warmer, leading to an increased frequency, magnitude, and duration of heat waves. These factors may lead to increased mortality from excessive heat, as shown in Figure 4-21: California Historical and Projected Temperature Increases 1961 to 2099

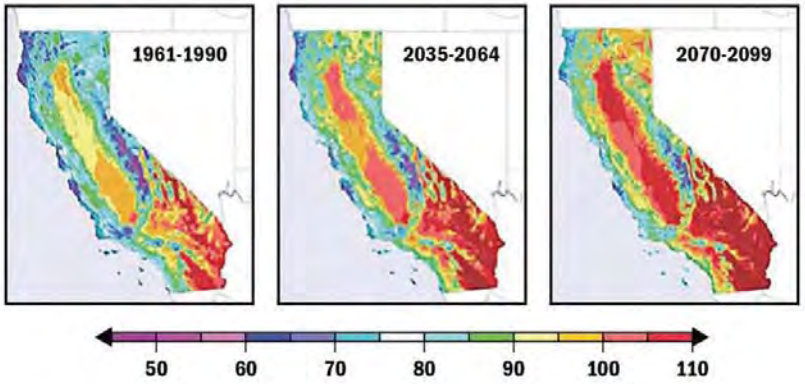


Figure 4-21: California Historical and Projected Temperature increases 1961-2099

Source: Dan Cayan; California Climate Adaptation Strategy

4.8.5 Frequency/Probability of Future Occurrences

According to the ABAG 2010 Local Hazard Mitigation Plan (LHMP), climate change is one of the few natural hazards where the probability of occurrence is influenced by human action. In addition, unlike earthquake and floods that occur over a finite time period, climate change is an on-going hazard.

The 2009 Climate Adaptation Strategy (CAS) delineated how climate change may impact and exacerbate natural hazards in the future, including wildfires, extreme heat, floods, drought, and levee failure:

Climate change is expected to lead to increases in the frequency, intensity, and duration of extreme heat events and heat waves in San Bernardino County and the rest of California, which

are likely to increase the risk of mortality and morbidity due to heat-related illness and exacerbation of existing chronic health conditions. Those most at risk and vulnerable to climate-related illness are the elderly, individuals with chronic conditions such as heart and lung disease, diabetes, and mental illnesses, infants, the socially or economically disadvantaged, and those who work outdoors.

- Higher temperatures will melt the Sierra snowpack earlier and drive the snowline higher, resulting in less snowpack to supply water to California users.
- Droughts are likely to become more frequent and persistent in the 21st century.
- Intense rainfall events, periodically ones with larger than historical runoff, will continue to affect California with more frequent and/or more extensive flooding.
- Storms and snowmelt may coincide and produce higher winter runoff from the landward side, while accelerating sea-level rise will produce higher storm surges during coastal storms. Together, these changes will increase the probability of levee and dam failures in the Sacramento-San Joaquin Delta.
- Warmer weather, reduced snowpack, and earlier snowmelt can be expected to increase wildfire through fuel hazards and ignition risks. These changes can also increase plant moisture stress and insect populations, both of which affect forest health and reduce forest resilience to wildfires. An increase in wildfire intensity and extent will increase public safety risks, property damage, fire suppression and emergency response costs to government, watershed and water quality impacts, vegetation conversions and habitat fragmentation.

4.8.6 El Niño Effect

El Niño is defined as an abnormal weather pattern that is caused by the warming of the Pacific Ocean near the equator, off the coast of South America. This occurs when the normal trade winds weaken (or even reverse), which lets the warm water that is usually found in the western Pacific flow instead towards the east. This warm water displaces the cooler water that is normally found near the surface of the eastern Pacific, setting off atmospheric changes that affect weather patterns in many parts of the world.

As a result of the predicted El Niño in 2015 the following meetings were held during the months of January – December 2015:

El Niño Awareness Program

- **January - December 2015**

- **October 28, 2015** (Two meetings) two separate meetings one with the Public with 200 High Desert residents attending, the other meeting was at the same location of the Victor Ville City Council Chambers of 80 operators
- **November 9, 2015** South Desert Meeting at the Town of Yucca Valley Community Center, with 50 Operators and 235 general public ,residents
- **November 12, 2015** 2:30pm-4:30pm Valley Cooperators Meeting, City of Rancho Cucamonga, Victoria Gardens, 90 Operators and 2nd Meeting at the same location held at 530pm-730pm meeting with 205 public and residents
- **November 16, 2015** Public Meeting at Upland city Hal l for San Antonio heights, Mt. Baldy and local residents 110 Public and Residents in attendance .
- **November 23, 2015** Wrightwood Community Center, 80 Operators and 330 Public and Residents
- **November 24, 2015** City of Yucaipa 40 operators at Yucaipa City Hall
- **December, 2015** 5000 English pamphlets and 5000 Spanish pamphlets distributed Winter Weather Workshop meetings (discuss long term weather models and predictions as far as estimated rain fall anticipated. and Extreme Heat Program meetings (stakeholder and Red Cross and SCE and other responders/operators meetings on anticipated overly hot days and local assistance plans. program in place by OES.

4.8.7 Extreme Weather

The Extreme Weather – Excessive Heat Standard Operating Guidelines (SOG) were developed in response to the potential for Excessive Heat and heat related Power Outage events in San Bernardino County. The following objectives and activities have been established to prevent the harmful effects of excessive heat on at-risk populations and the potential for life-threatening repercussions of power outages during excessive heat events.

The Extreme Weather – Excessive Heat SOG describe the County operations during heat related emergencies and provide guidance for local jurisdictions in their preparation for heat emergencies and other related activities.

The information included in this document is “situation” and/or “incident” driven and subject to revision by the Extreme Weather Committee as conditions warrant. Notifications are information dependent and modification of the activities in these guidelines may be required in response to changing conditions, situations and/or inaccurate weather predictions.
The Extreme Weather – Excessive Heat Standard Operating Guidelines (SOG) were developed through the collaborative efforts of the “Extreme Weather Committee”. The committee consists of

representatives from key County Departments and private sector partners who have a shared interest, responsibility and/or expertise in the County's preparation for an Excessive Heat event. It is designed to protect all of the County's population especially the most vulnerable populations.

For the last ten years the annual Winter Weather Workshop and Meeting brings together San Bernardino County Fire Office of Emergency Services with The San Bernardino County Special Districts key stakeholders and first responders as well as weather experts. The annual meeting is an accumulation of meetings with NOAA and other Meteorological experts on the possible winter weather outlook and forecast including possible precipitation levels and wide ranging forecasts.

The meeting includes discussions on possible plans of actions and response to flooding emergencies and or snow or white out events and the other possibility of continuing long duration droughts.

4.9 Other Hazards

As mentioned earlier, lower priority hazards are addressed at a lesser level of detail due to their relatively fewer impacts, as identified in the preceding hazard assessment section. The lower priority hazards for the unincorporated area are:

- Severe Thunderstorm
- Infestation
- Drought
- High Winds/Straight Line Winds
- Lightning
- Extreme Heat
- Hail
- Tornado

Although not part of the MJHMP, the remaining hazards are a part of the San Bernardino County 2007 General Plan and are addressed in the County Building Codes and Ordinance.

The information in this section provides an explicit representation of what a community stands to lose in a disaster. This is useful for county officials and other decision makers who will need to balance the costs of mitigation against the potential harm to citizens and damage to property. It provides comparable measurements of community natural hazard exposure and assists in determining which hazards and/or what parts of San Bernardino County to focus on making resilient to disaster first. Based upon possible assets at risk, hazard mitigation resources can be directed where need be, in-part, by a vulnerability assessment and information found in hazard profiles presented in Section 4.8.

4.10 Vulnerability Assessment

The information in this section provides an explicit representation of what a community stands to lose in a disaster. This is useful for county officials and other decision makers who will need to balance the costs of mitigation against the potential harm to citizens and damage to property. It provides comparable measurements of community natural hazard exposure[3] and assists in determining which hazards and/or what parts of San Bernardino County to focus on making resilient to disaster first. Based upon possible assets at risk, hazard mitigation resources can be directed where need be, in-part, by a vulnerability assessment and information found in hazard profiles presented in Section 4.2.

The vulnerability assessment is developed by providing the hazard mitigation analysts with quantitative and qualitative information for each hazard identified by the HMP Planning Team Through an exposure analysis, quantitative data is developed for each hazard. An exposure analysis provides quantities of people and assets at risk to particular hazards. Qualitative data has been developed and presented in this section for hazards without measurable data. Qualitative data provides information beyond quantities of people and assets at risk, but rather a description of how the hazard could affect a region like San Bernardino County.

Note: The hazard exposure analysis has been developed with best available data and follows methodology described in the FEMA publication Understanding Your Risks—Identifying Hazards and Estimating Losses.

Note: There are other intangible losses that could result from a natural hazard event, such as losses of historic or cultural integrity or damage to the environment that are difficult to quantify. Other costs, including response and recovery costs, are often unrecoverable and are not addressed in this document.

4.10.1 Methodology

A vulnerability assessment was conducted for each of the identified priority hazards. Geospatial data is essential in determining population and assets exposed to particular hazards. Geospatial analysis can be conducted if a natural hazard has a particular spatial footprint that can be overlaid against the locations of people and assets. In San Bernardino County, wildfire, flood, earthquake, and landslides have known geographic extents and corresponding spatial information about each hazard.

Several sources of data are necessary to conduct a vulnerability analysis. Figure 4-22provides an exhibit of the data inputs and outputs used to create the vulnerability analysis results presented in this section. U.S. Census data is the primary source in determining natural hazard exposure to residents. Census data has been used to determine the population at risk, which is generally referred to as population exposure. Population exposure is provided for wildfire, flooding, earthquakes and landslides as potential hazards later in this section.

[3] Elements at risk; Risk inventory; Exposure encompasses all elements, processes, and subjects that might be affected by a hazardous event. Consequently, exposure is the presence of social, economic, environmental or cultural assets in areas that may be impacted by a hazard.

Together with the U.S. Census data, asset data was used to provide a snapshot of how City assets are affected by natural hazards. For purposes of this vulnerability analysis, asset data includes parcels and critical infrastructure within the San Bernardino County boundaries. Critical infrastructure is described as assets that are essential for people and a community to function. Critical infrastructure includes such as utilities, San Bernardino County owned facilities, bridges, schools, and other community facilities that provide essential services to residents.

Critical facilities data was developed from a variety of sources including San Bernardino County owned and maintained data, state and federal government datasets, and private industry datasets. A critical infrastructure spatial database was developed to translate critical facilities information into georeferenced[4] points. Critical facility points are intersected with the spatial hazard layers to develop a list of "at risk" critical facilities. The San Bernardino County critical facilities that intersect with natural hazards are referred to as facilities with hazard "exposure". Exposure results are presented later in this section.

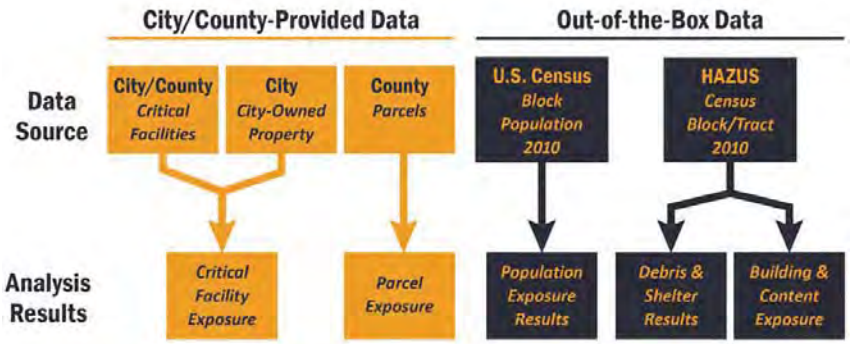


Figure 4-22: Data Source and Methodology

Lastly, FEMA's Hazus-MH MR5 (Hazus) software was implemented to conduct detailed loss estimation for flood and earthquake. Hazus is a nationally applicable standardized methodology that contains models for estimating potential losses from earthquakes, floods, and hurricanes. HAZUS uses Geographic Information Systems (GIS) technology to estimate physical, economic, and social impacts of disasters. For purposes of this planning effort, Hazus was used to graphically illustrate the limits of identified high-risk locations due to possible earthquakes and floods.

[4] To georeference something means to define its existence in physical space. That is, establishing its location in terms of map projections or coordinate systems. The term is used both when establishing the relation between raster or vector images and coordinates, and when determining the spatial location of other geographical features.

The vulnerability and potential impacts from priority hazards that do not have specific mapped areas nor the data to support additional vulnerability analyses are discussed in more general terms in alphabetical order following the discussion on wildfire, flooding and earthquake hazards.

4.10.2 Hazus MH Inputs

FEMA's loss estimation software, Hazus MH, was used to analyze the San Bernardino County building risk to flood and earthquake hazards. Hazus contains a database of economic, demographic, building stock, transportation facilities, local geology, and other information that can be used for several steps in the risk assessment process. Hazus software operates on structure square footage, structure replacement, and content replacement costs aggregated to the census block and tract levels depending on type of hazard analysis. The following table provides value data for building categories at the census block and census tract levels. Census block and census tracts are used to provide input information for the Hazus analysis presented in this report.

The project team used the San Bernardino County Essential Facilities Risk Assessment (SBEFRA) project and incorporated the newly updated DFIRM data into HAZUS to assess potential losses in the mapped 100-year (with and without levee protection) and 500-year flood zones.

Note: The Hazus software utilizes different census level information inputs to develop loss estimates depending on the hazard module. The flood module uses census block information while the earthquake module uses census track information. It is important to understand the total values of each as estimated damage to the community is presented on a percent of total value basis.

Table 4-12: Hazus Flood Census Block Input Values

Building Type	Building Replacement Costs ($000)	Building Replacement Cost (%)	Content Replacement Cost ($000)	Content Replacement Cost (%)	Total Value ($000)	Total Value (%)
Agricultural	$ 70,841	0.3%	$ 70,841	0.3%	$ 141,682	1%
Commercial	$ 1,208,163	4.4%	$ 1,231,690	4.5%	$ 2,439,853	9%
Education	$ 120,017	0.4%	$ 127,161	0.5%	$ 247,178	1%
Governmental	$ 34,216	0.1%	$ 43,192	0.2%	$ 77,408	0%
Industrial	$ 452,710	1.6%	$ 610,063	2.2%	$ 1,062,773	4%
Religion	$ 176,012	0.6%	$ 176,012	0.6%	$ 352,024	1%
Residential	$ 15,483,634	56.2%	$ 7,744,650	28.1%	$ 23,228,284	84%
Total	**$ 17,545,593**	**64%**	**$ 10,003,609**	**36%**	**$ 27,549,202**	**100 %**

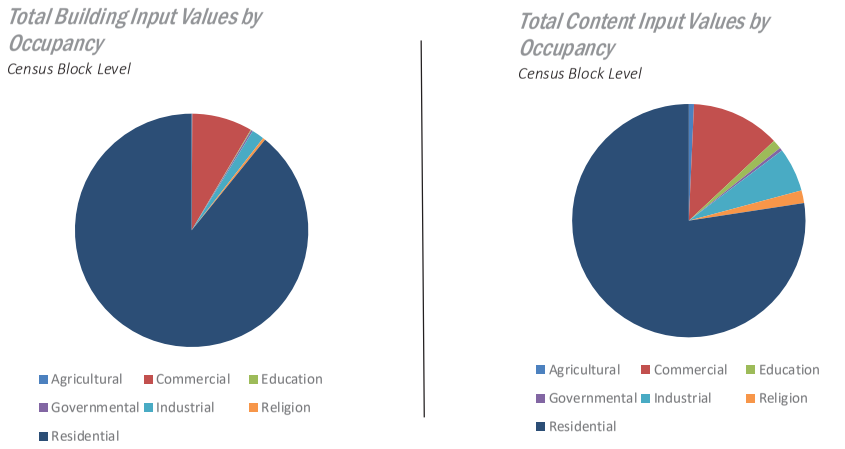


Figure 4-23: Census Block Building and Content Exposure Values

Table 4-13: Hazus Earthquake Census Tract Input Values

Building Type	Building Replacement Costs ($000)	Building Replacement Cost (%)	Content Replacement Cost ($000)	Content Replacement Cost (%)	Total Value ($000)	Total Value (%)
Agricultural	$ 264,949	50.0%	$ 264,949	50.0%	$ 529,898	1%
Commercial	$ 11,056,871	48.5%	$ 11,756,479	51.5%	$ 22,813,350	9%
Education	$ 819,946	48.4%	$ 874,703	51.6%	$ 1,694,649	1%
Governmental	$ 265,933	45.6%	$ 316,930	54.4%	$ 582,863	0%
Industrial	$ 3,733,265	41.4%	$ 5,276,431	58.6%	$ 9,009,696	4%
Religion	$ 958,122	50.0%	$ 958,122	50.0%	$ 1,916,244	1%
Residential	$ 84,302,884	66.7%	$ 42,159,954	33.3%	$ 126,462,838	84%
Total	**$ 101,401,970**	**62%**	**$ 61,607,568**	**38%**	**$ 163,009,538**	**100 %**

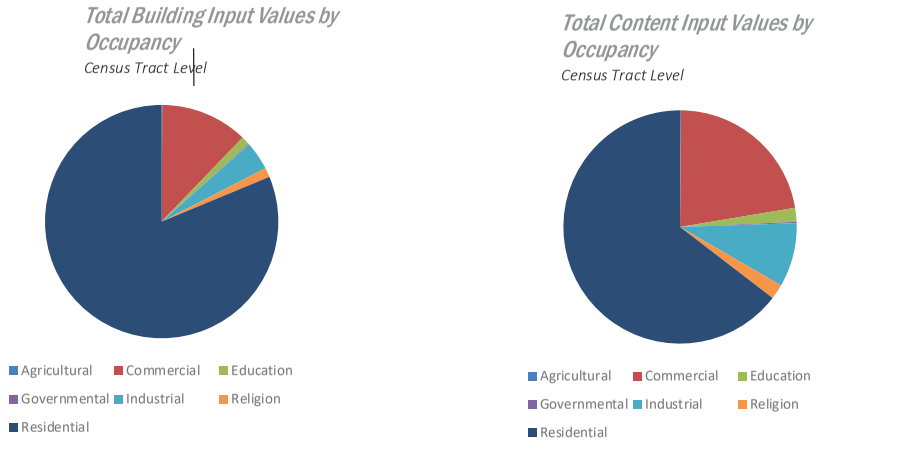


Figure 4-24: Census Tract Building and Content Exposure Values

4.11 Population and Assets

To describe vulnerability for each hazard, it is important to understand the "total" population and "total" assets at risk. The exposure for each hazard described in this section will refer to the percent of total population or percent of total assets. This provides the possible significance or vulnerability to people and assets for the natural hazard event and the estimated damage and losses expected during a "worst case scenario" event for each hazard. Sections below provide a description of the total population, critical facilities, and parcel exposure inputs.

Table 4-12 and Table 4-13 provide an estimate of the number and size of buildings in the County's unincorporated areas and its Special Districts, as well as the replacement value of the buildings and their contents. The table provides information by occupancy class (e.g., residential, commercial, etc.), as well as by construction type (e.g., concrete, wood frame, etc.).

4.11.1 Population

To develop hazard-specific vulnerability assessments, population near natural hazard risks should be determined to understand the total "at risk" population. We can understand how geographically defined hazards may affect San Bernardino County by analyzing the extent of the hazard in relation to the location of population. For purposes of the vulnerability assessment approximately 292,152 (100 %) of the San Bernardino County's population is exposed to one or more hazards within or near the County of San Bernardino boundaries. Each natural hazard scenario affects the San Bernardino County residents differently depending on the location of the hazard and the population density of where the hazard could occur. Vulnerability assessment sections presented later in this section summarize the population exposure for each natural hazard.

4.11.1.1 Vulnerable Populations

The severity of a disaster depends on both the physical nature of the extreme event and the socioeconomic nature of the populations affected by the event. Important socioeconomic factors tend to influence disaster severity. A core concept in a vulnerability analysis is that different people, even within the same region, have a different vulnerability to natural hazards.

4.11.1.2 Income and Housing Condition

Income or wealth is one of the most important factors in natural hazard vulnerability. This economic factor affects vulnerability of low income populations in several ways. Lower income populations are less able to afford housing and other infrastructure that can withstand extreme events. Low income populations are less able to purchase resources needed for disaster response and are less likely to have insurance policies that can contribute to recovery efforts. Lower income elderly populations are less likely to have access to medical care due to financial hardship. Because of these and other factors, when disaster strikes, low income residences are far more likely to be injured or left without food and shelter during and after natural disasters.

Figure 4-25 shows the median household income distribution for the County of San Bernardino in 2012. The "median" is the value that divides the distribution of household income into two equal parts (e.g., the middle). The average median household income in the County of San Bernardino between 2010 and 2014 was $54,100, in the United States during the same period the median house household income was $51,759.

4.11.1.3 Age

Children and the elderly tend to be more vulnerable during an extreme natural disaster. They have less physical strength to survive disasters and are often more susceptible to certain diseases. The elderly often also have declining vision and hearing and often miss reports of upcoming natural hazard events. Children, especially young children, have the inability to provide for themselves. In many cases, both children and the elderly depend on others to care for them during day to day life.

Finally, both children and the elderly have fewer financial resources and are frequently dependent on others for survival. In order for these populations to remain resilient before and after a natural hazard event, it may be necessary to augment city residents with resources provided by the City, state and federal emergency management agencies and organizations. See Figure 4-26 and Figure 4-27 for location of vulnerable population by age within the County of San Bernardino.

Figure 4-25: Median Household Income Distribution Maps

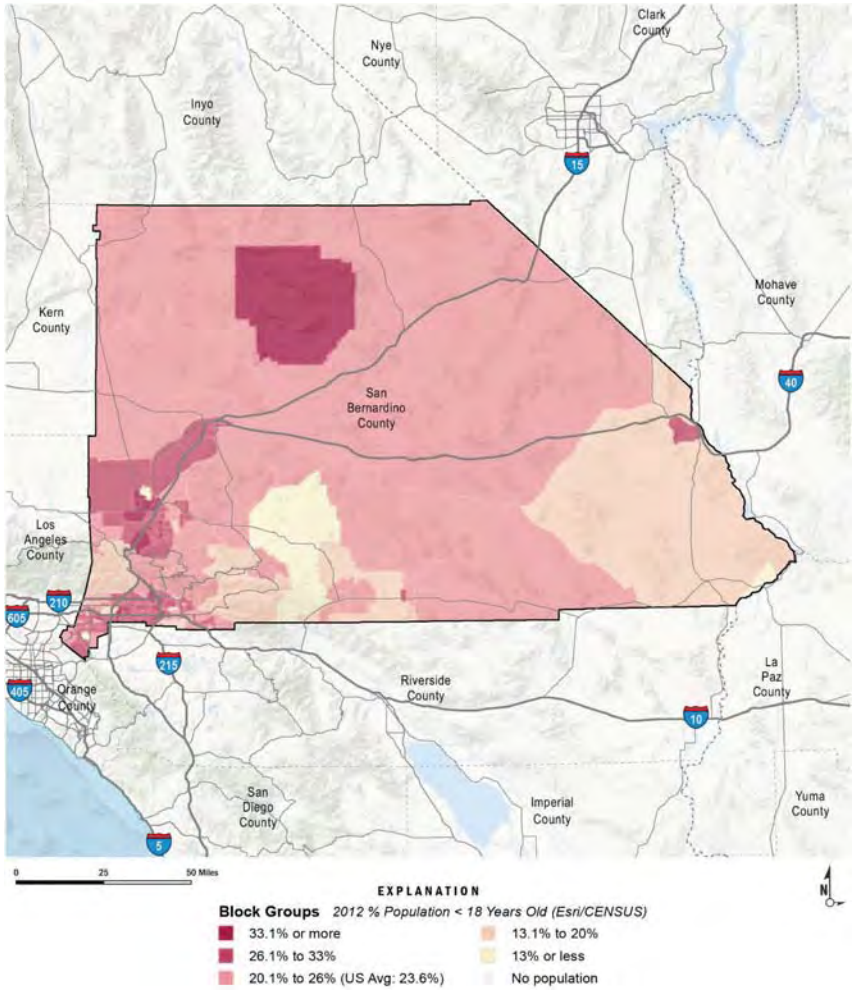


Figure 4-26: Population Under Age 18

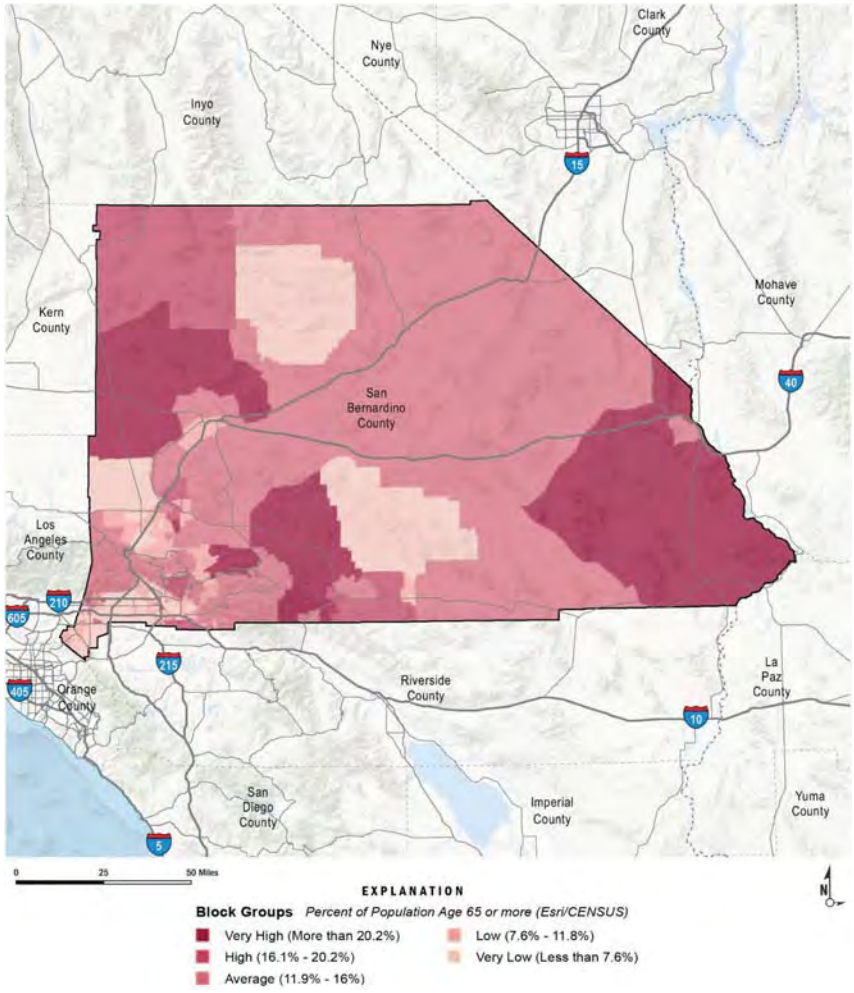


Figure 4-27: Population Over Age 65

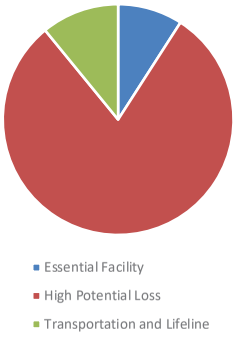
4.11.1.4 Critical Facility List

As stated in the San Bernardino County Emergency Operations Plan (EOP), the San Bernardino County Sheriff's Department (Sheriff) is the lead County agency in identifying critical infrastructure in the County and its Special Districts. A Sheriff's Department Working Group was established to identify Critical Facilities throughout San Bernardino County. Due to Homeland Security and issues related to terrorism, this list is not included in the MJHMP, but is available through the Sheriff's Department.

The Sheriff's Department maintains a Critical Infrastructure Database listing the site name, location, critical level, threat level, site type, and contact information. This database was created for the 2010 MJHMP and has been updated regularly by the Intelligence Division. The Sheriff's Intelligence Division has created Emergency Response Folders (Folders) on each of the locations. The Folders contain site-specific information needed by emergency personnel to respond to any type of emergency. The Folders contain floor plans, photographs, entry/exit points, utility locations, ingress and egress locations, known hazardous materials on site, and emergency contact information for the responsible persons of the site. The Sheriff's Department maintains control and transport of this information to an Incident Command Post/Department Operations Center/Emergency Operations Center when needed.

Table 4-14: Critical Facility Points

Infrastructure Type	Feature Count
Essential Facility	**268**
EOC	2
Fire Station	99
Hospital	9
Police Station	28
School	130
High Potential Loss	**1,155**
Child Care Center	91
Child Residential Care - 24 hour	2
Foster Family Agency	2
Adult Residential Care	52
Home Care Organization	2
Elder Residential Care	35
Communication Facility	40
Dam	24
Waste Water Facility	2



Infrastructure Type	Feature Count
HAZMAT	51
EPA FRS Facility	731
FCC ASR	107
Electric Power Facility	6
Natural Gas Facility	7
Potable Water Facility	3
Transportation and Lifeline	**636**
Airport	34
Runway	36
Bus Facility	2
Highway Bridge	553
Railway Bridge	11
Grand Total	**2,059**

Table 4-15: Linear Utilities

Infrastructure Type	Total Linear Mileage
Transportation and Lifeline	**16,992**
Railway	**719**
Roads	**16,273**
Interstate Highway	587
State / County Highway	1,259
Primary Highway	308
Local Road, Major	2,928
Local Road	6,530
Other Minor Road	4,031
Vehicular Trail	543
Cul-de-Sac / Traffic Circle	11
Ramp	68
Service Road	8
Grand Total	**16,992**

4.11.1.5 Utility Agencies

The utilities and transportation infrastructure is another significant concern for the County and its Special Districts. Various laws, ordinances, regulations, standards, and guidelines have been established to ensure proper and thorough mitigation measures to decrease the effects of hazards.

The following are two of the major utility agencies:

Southern California Edison (SCE) has undertaken an all-hazards approach to planning for an emergency event. SCE has developed an Emergency Response and Recovery Plan to provide a safe and reliable electric service. SCE also has a long-standing relationship with the County and is an active member of several local, state, and federal organizations. According to SCE they have acted to mitigate the impacts of hazards on their electrical system.

Southwest Gas Corporation (SWG) has also coordinated with the County, maintains a natural gas high-pressure system within the County, and consists of approximately 100 miles of underground pipelines. The system also includes some above ground facilities. The total replacement cost for the entire system is approximately $40,000,000. Southwest Gas conducts annual training for the first responders within their service territories to teach the proper methods of responding to and working with natural gas leaks. Staff from SWG serves on local emergency management committees within their service territory.

4.12 Hazard Specific Vulnerabilities

This section summarizes the possible impacts and quantifies, where data permits, the County's vulnerability to each of the priority hazards identified in the hazard profiles earlier in this section.

An estimate of the vulnerability of the County to each identified hazard, in addition to the estimate of risk of future occurrence, is provided in each of the hazard-specific sections that follow. Vulnerability is measured in general, qualitative terms and is a summary of the potential impact based on past occurrences, geographic extent, and damage and casualty potential. It is categorized into the following classifications:

Low: Minimal potential impact the occurrence and potential cost of damage to life and property is minimal.

Medium: Moderate potential impact this ranking carries a moderate threat level to the general population and/or built environment. Here the potential damage is more isolated and less costly than a more widespread disaster.

High: Widespread potential impact this ranking carries a high threat to the general population and/or built environment. The potential for damage is widespread. Hazards in this category may have occurred in the past.

Extremely High: Very widespread with catastrophic impact.

Vulnerability can be quantified in those instances where there is a known, identified hazard area, such as a mapped floodplain. In these instances, the numbers and types of buildings subject to the identified hazard can be inventoried and their values tabulated. Other information can be collected in regard to the hazard area, such as the location of critical community facilities, historic structures, and valued natural resources. Together, this information conveys the vulnerability of that area to a hazard.

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4.13 Earthquake

Major Impacts from earthquakes are primarily the probable number of casualties and damage to infrastructure occurring from ground movement along a particular fault (USGS, 2016). The degree of infrastructure damage depends on the magnitude, focal depth, distance from fault, duration of shaking, type of surface deposits, presence of high groundwater, topography, and the design, type, and quality of infrastructure construction.

To analyze the risk to San Bernardino County residents, the Great Shakeout scenario was chosen modeled by the California Integrated Seismic Network (CISN). The 2016 Great Southern California ShakeOut was based on a potential magnitude 7.8 Earthquake on the southern San Andreas Fault approximately 5,000 times larger than the magnitude 5.4 earthquake that shook southern California on July 29, 2008. Such an earthquake will cause unprecedented damage to Southern California greatly dwarfing the massive damage that occurred in Northridge's 6.7-magnitude earthquake in 1994. The hazard foot print for this scenario was used to develop exposure results for population, critical facilities, and single family residential parcel values. FEMA Hazus analyses was used to conducted loss estimation for both scenarios and include building and content loss estimation results based on peak ground acceleration, peak ground velocity, and peak spectral acceleration modeled for the 7.8 earthquake on the San Andreas Fault.

4.13.1 Population at Risk

According to the 2010 US Census, the population of jurisdiction is 297,425. Though rural residential construction is not particularly vulnerable to earthquakes, the chosen earthquake scenarios will directly or indirectly expose the entire population of San Bernardino County to ground shaking. Depending on the time of day (the population differs based on employment opportunities) and exact location of the modeled epicenter, the earthquake scenarios could be experienced differently. Figure 4-28 exhibit the population totals in each modeled earthquake severity zone. Population location is based upon information taken during the 2010 U.S. Census.

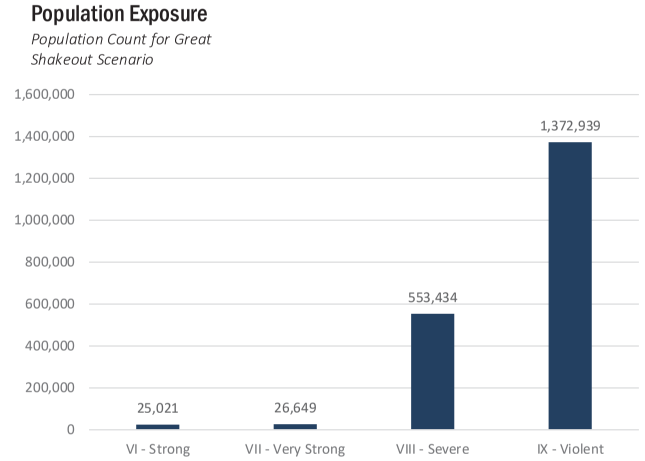

Figure 4-28: Population Exposure to the Great Shakeout EQ Shake Severity Zone

4.13.2 Improved Parcel Value at Risk

The County's parcel layer was used as the basis for the inventory of improved residential parcels. GIS was used to create centroids, or points, to represent the center of each parcel polygon this is assumed to be the location of the structure for analysis purposes. The centroids were then overlaid with the shake severity zones to determine the at-risk structures. Only improved parcels greater than $20,000 were analyzed. The analysis indicates residential parcels the chosen scenario will experience similar, but different shaking patterns. The type and year of construction will greatly influence damage for structures subject to similar shaking. Table 4-16 shows the count of at-risk structures and their associated improvement and land exposure values.

Table 4-16: Improved Parcel Value Exposure from Southern California Great ShakeOut

Shake Severity Zone	Improved Parcel Count	Improvement Value Exposure ($000)	Land Value Exposure ($000)	Total Exposure ($000)
IV - Light	1,099	$ 181,952	$ 64,548	$ 246,499
V - Moderate	4,382	$ 485,082	$ 215,875	$ 700,956

Shake Severity Zone	Improved Parcel Count	Improvement Value Exposure ($000)	Land Value Exposure ($000)	Total Exposure ($000)
VI - Strong	1,340	$ 142,763	$ 63,941	$ 206,704
VII - Very Strong	7,669	$ 824,794	$ 206,725	$ 1,031,519
VIII - Severe	46,889	$ 8,741,904	$ 3,039,484	$ 11,781,388
IX - Violent	46,974	$ 9,068,446	$ 3,591,379	$ 12,659,825
Grand Total	**108,353**	**$ 19,444,940**	**$ 7,181,951**	**$ 26,626,891**

4.13.3 Critical Facilities with Damage Potential

Earthquakes pose numerous risks to critical facilities and infrastructure. Seismic risks, or losses, that are likely to result from exposure to seismic hazards include:

- Casualties (fatalities and injuries).
- Utility outages.
- Economic losses for repair and replacement of critical facilities, roads, buildings, etc.
- Indirect economic losses such as income lost during downtime resulting from damage to private property or public infrastructure.

Roads or railroads that are blocked or damaged can prevent access throughout the area and can isolate residents and emergency service providers needing to reach vulnerable populations or to make repairs.

Linear utilities and transportation routes are vulnerable to rupture and damage during and after a significant earthquake event. The cascading impact of a single failure can have affects across multiple systems and utility sectors. Degrading infrastructure systems and future large earthquakes with epicenters near critical regional infrastructure could result in system outages that last weeks for the most reliable systems, and multiple months for others.
Table 4-17provides an inventory of critical facility locations (points only) with earthquake exposure to the Great Shakeout Scenario. The building codes have been amended to include provisions for seismic safety at various bench marks years. Depending on “year built”, each critical facility presented in the tables may have varying damage potential.

Table 4-17: Critical Facilities with Earthquake Risk Southern California Great ShakeOut

Infrastructure Type	Violent Shake Zone (IX)	Severe Shake Zone (VIII)	Very Strong (VII)	Strong Shake Zone (VI)	Feature Count
Essential Facility	3	12	80	122	217
EOC	-	-	2	-	2
Fire Station	3	7	31	34	75
Hospital	-	-	9	-	9
Police Station	-	-	3	24	27
School	-	5	35	64	104

Infrastructure Type	Violent Shake Zone (IX)	Severe Shake Zone (VIII)	Very Strong (VII)	Strong Shake Zone (VI)	Feature Count
High Potential Loss	31	56	213	484	784
Child Care Center	1	3	25	56	85
Child Residential Care – 24 hour	-	-	-	2	2
Foster Family Agency	-	-	-	2	2
Adult Residential Care	2	5	10	34	51
Home Care Organization	-	-	1	1	2
Elder Residential Care	-	1	9	25	35
Communication Facility	1	9	9	8	27
Dam	1	-	11	4	16
Electric Power Facility	1	-	-	-	1
Natural Gas Facility	2	-	-	-	2
Waste Water Facility	-	2	-	-	2
HAZMAT	-	-	6	16	22
EPA FRS Facility	21	27	115	307	470
FCC ASR	2	9	27	29	67
Transportation and Lifeline	16	20	41	131	208
Airport	5	5	8	-	18
Runway	5	6	7	1	19
Bus Facility	-	-	1	-	1
Highway Bridge	6	8	24	124	162
Railway Bridge	-	1	1	6	8
Grand Total	**50**	**88**	**334**	**737**	**1,209**

HazMat Fixed Facilities

Although earthquakes are low probability events, they produce hazardous materials (HazMat) threats at very high levels when they do occur. Depending on the year built and construction of each facility containing HazMat, earthquake initiated hazardous material releases (EIHR) potential will vary. HazMat contained within masonry or concrete structures built before certain benchmark years reflecting code improvements may be of particular vulnerability.

Transportation

Earthquake events can significantly impact bridges which often provide the only access to some neighborhoods. Since soft soil regions generally follow floodplain boundaries, bridges that cross water courses are considered vulnerable. Since most of the San Bernardino County bridges provide access across water courses, most are at least somewhat vulnerable to earthquakes. Key factors in the degree of vulnerability are the bridge’s age and type of construction which indicate the standards to which the bridge was built. Special attention will be paid to the multiple bridges that cross interstates. Interstates would serve as major emergency response and evacuation routes.

Utilities

Linear utilities and transportation infrastructure would likely suffer considerable damage in the event of an earthquake. Due to the amount of infrastructure and sensitivity of utility data, linear utilities are difficult to analyze without further investigation of individual system components. Table 4-18 provides the best available linear data and it should be assumed that these systems are exposed to breakage and failure.

Table 4-18: Lifeline with Earthquake Risk Southern California Great ShakeOut

Facility Type	Strong	Very Strong	Severe	Violent	Total Mileage
Transportation and Lifeline	1,324	1,951	2,796	2,624	8,697
Railway	47	22	22	99	191
Roads	1,277	1,929	2,774	2,525	8,506
Interstate Highway	22	7	-	48	77
State / County Highway	57	90	263	233	644
Primary Highway	34	15	19	27	95
Local Road, Major	102	207	625	792	1,726
Local Road	540	1,153	1,728	1,128	4,550
Other Minor Road	494	423	109	96	1,122
Vehicular Trail	25	32	26	178	261
Cul-de-Sac / Traffic Circle	-	1	2	2	5
Ramp	2	1	2	20	25
Service Road	-	-	-	1	1
Grand Total	**1,324**	**1,951**	**2,796**	**2,624**	**8,695**

4.13.4 Loss Estimation Results

The Hazus Level 2 analysis was used to assess the risk from and vulnerability to earthquake shaking within San Bernardino County. Hazus buildings data is aggregated to the census tract level for earthquake models, known as the general building stock (GBS), which has a level of accuracy acceptable for planning purposes. Where possible the GBS was enhanced using GIS data from the county as described previously. The following sections describe risk to and vulnerability of the GBS within the San Bernardino County Hazus calculates losses to structures from earthquake shaking by considering the amount of ground displacement and type of structure. The software estimates the percentage of damage to structures and their contents by applying established building fragility curves. Damage estimates are then translated to estimated dollar losses.

For each Great ShakeOut Scenario ground shaking data (shakemaps) were acquired from CISN and imported into Hazus. The shakemap data consist of peak ground velocity, peak

ground acceleration, peak spectral acceleration at 0.3 seconds, and peak spectral acceleration at 1.0 seconds. The earthquake module operates on census tracts that often include population and structures in the incorporated cities and the unincorporated area within a single tract. Due to this fact the results include census tracts that have a substantial portion of land within the incorporated area (loss estimates for some tracts will include structures in incorporated cities).

The results are summarized in Table 4-17 for the Great ShakeOut Scenario. It is important to understand that the Hazus earthquake module uses the census tract as its enumeration unit rather than the more detailed census block. The loss estimation values for earthquakes are much higher than those of the flooding and dam failure due to this fact. The portions of incorporated areas included within boundary census tracts elevate the values due to the inclusion of additional GBS. Though the difference between census tracts and census blocks are extremely disparate, the most important summary information is the percent of loss estimation against the total value.

Residential building and content loss estimation from the Great ShakeOut Scenario is *$9.3* billion dollars and 57 percent of the total value of the residential buildings. In Great ShakeOut Scenario, residential damage will be the greatest. While there are several limitations to the FEMA Hazus model, it does allow for potential loss estimation. It is important to remember that the replacement costs are well below actual market values, thus, the actual value of assets at risk may be significantly higher than those included herein.

Table 4-19: Estimated Building and Content Loss Great ShakeOut Scenario Earthquake

Building Type	Building Replacement Costs ($000)	Building Replacement Cost (% of Total Value)	Content Replacement Cost ($000)	Content Replacement Cost (% of Total Value)	Total Estimated Loss ($000)	Total Loss Estimation (% of Total Value)
Agricultural	$ 51,431	9.7%	$ 17,215.68	3.2%	$ 68,646.80	13.0%
Commercial	$ 3,286,331	14.4%	$ 1,110,422.84	4.9%	$ 4,396,754.29	19.3%
Educational	$ 175,987	10.4%	$ 56,822.89	3.4%	$ 232,810.20	13.7%
Government	$ 53,348	9.2%	$ 20,298.84	3.5	$ 73,647.28	12.6%
Industrial	$ 1,179,339	13.1%	$ 590,913.81	6.6%	$ 1,770,253.41	19.6%
Religious	$ 243,891	12.7%	$ 80,862.72	4.2%	$ 324,754.33	16.9%
Residential	$ 7,841,645	6.2%	$ 1,525,181.65	1.2%	$ 9,366,826.84	7.4%
Grand Total	**$ 12,831,972**	**7.9%**	**$ 3,401,718.42**	**2.1%**	**$ 16,233,693.14**	**10.0%**

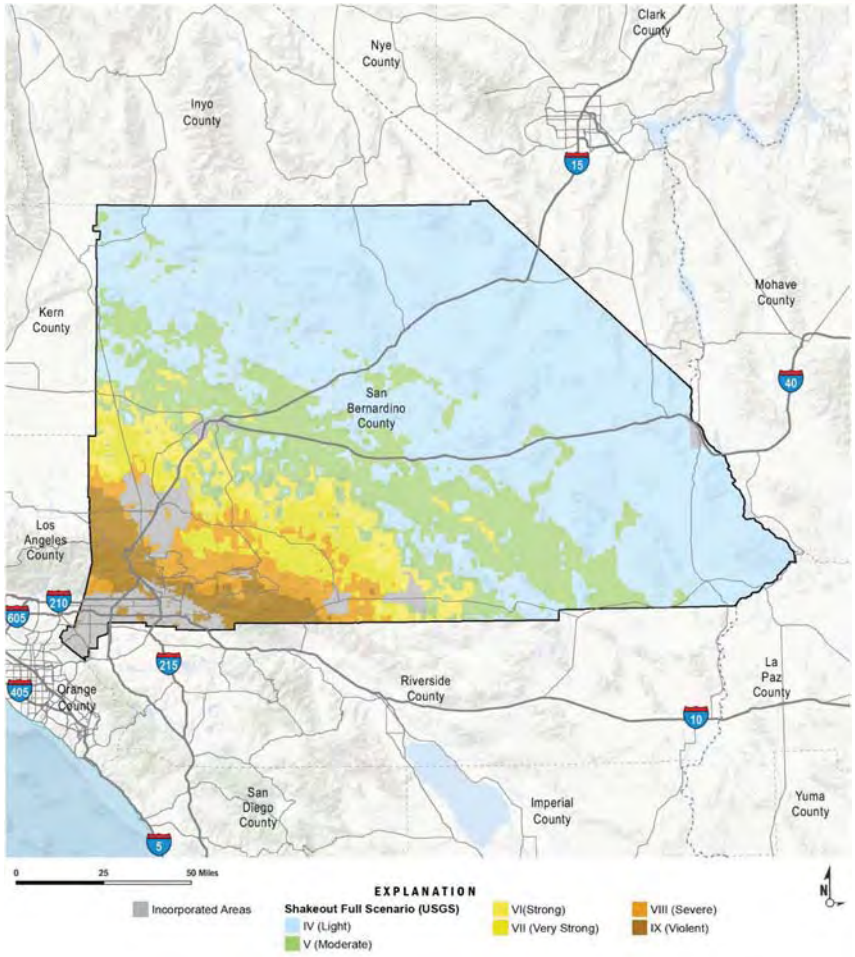

Figure 4-29: Great Shakeout Scenario MMI Classes

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4.14 Wildfire

Risk to the County of San Bernardino from wildfire is of significant concern. High fuel loads in the hills, along with geographical and topographical features, create the potential for both natural and human-caused fires that can result in loss of life and property. These factors, combined with natural weather conditions common to the area, including periods of drought, high temperatures, low relative humidity, and periodic winds, can result in frequent and sometimes catastrophic fires. During the May to October fire season the dry vegetation and hot and sometimes windy weather, combined with continued growth in the WUI areas, results in an increase in the number of ignitions. Any fire, once ignited, has the potential to quickly become large and out-of-control.

Potential losses from wildfire include human life, structures and other improvements, natural and cultural resources, quality and quantity of water supplies, cropland, timber, and recreational opportunities. Short and long-term economic losses could also result due to loss of business and other economic drivers associated with San Bernardino County summer season activities. Smoke and air pollution from wildfires can be a severe health hazard. In addition, catastrophic wildfire can create favorable conditions for other hazards such as flooding, landslides, and erosion during the rainy season.

Generally, there are three major factors that sustain wildfires and predict a given area's potential vulnerability to burn. These factors are fuel, topography, and weather.

- Fuel – Fuel is the material that feeds a fire and is a key factor in wildfire behavior. Fuel is generally classified by type and volume. Fuel sources are diverse and include everything from dead tree leaves, twigs, and branches, to dead standing trees, live trees, brush, and cured grasses. Manmade structures are also considered a fuel source, such as homes and other associated combustibles. The type of prevalent fuel directly influences the behavior of wildfire. Fuel is the only factor that is under human control. Development in the mountain region currently possesses the highest vulnerability to wildfire.

- The residents of this region are also considered to be the most vulnerable due to their age and income levels. This area is comprised of lower income (that is, lower than the US median income) homes as well as a higher than average amount of residents under age 18 and an average amount of residents 65 or older.
- Topography – An area's terrain and slope affect its susceptibility to wildfire spread. Both fire intensity and rate of spread increase as slope increases due to the tendency of heat from a fire to rise via convection. The arrangement of vegetation throughout a hillside can also contribute to increased fire activity on slopes.

- Weather – Weather components such as temperature, relative humidity, wind, and lightning also affect the potential for wildfire. High temperatures and low relative humidity dry out fuels that feed wildfires, creating a situation where fuel will ignite more readily and burn more intensely. Thus, during periods of drought the threat of wildfire increases. Wind is the most treacherous weather factor. The greater the wind, the faster a fire can spread and the more intense it can be. Wind shifts, in addition to wind speed, can occur suddenly due to temperature changes or the interaction of wind with topographical features such as slopes or steep hillsides. As part of a weather system, lightning also ignites wildfires, often in difficult to reach terrain for firefighters.

Factors contributing to the high, widespread wildfire risk in San Bernardino County include:

- Narrow and often one-lane and/or dead-end roads complicating evacuation and emergency response.
- Nature and frequency of ignitions; and increasing population density leading to more ignitions.
- Slope of the foothills;
- Residential development along the foothills;

4.14.1 Population at Risk

Wildfire risk is of greatest concern to populations residing in the moderate, high, and very high wildfire hazard zones. The San Bernardino County census block data was used to estimate populations within the hazard zones. There are a significant number of people living within the WUI described in the wildfire profiles. More than 34,000 residents in the unincorporated county live within areas considered very high fire hazard and more than 63,000 residents live within a very high hazard

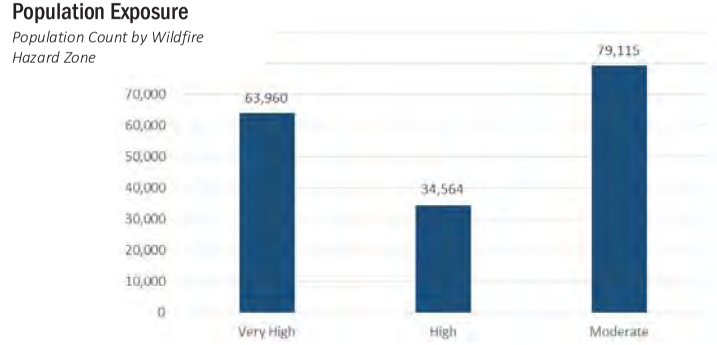

Figure 4-30: Population at Risk from Wildfire Hazards

4.14.2 Improved Parcel Value at Risk

The County's parcel layer was used as the basis for the inventory of improved residential parcels. In some cases, a parcel will be within in multiple fire threat zones. GIS was used to create centroids, or points, to represent the center of each parcel polygon – this is assumed to be the location of the structure for analysis purposes. The centroids were then overlaid with the fire threat layer to determine the risk for each structure. The fire threat zone in which the centroid was located was assigned to the entire parcel. This methodology assumed that every parcel with a square footage value greater than zero was developed in some way. Only improved parcels were analyzed. Table 4-20 exhibits portions of San Bernardino County that have significant assets at risk to wildfire in the Moderate, High and Very High fire severity zones.

Table 4-20: Residential Buildings and Content at Risk from Wildfire

Fire Hazard Severity Hazard Zone	Improved Parcel Count	Improvement Value Exposure ($000)	Land Value Exposure ($000)	Total Exposure ($000)
Very High	43,794	$ 8,602,590	$ 3,075,148	$ 11,677,739
High	11,512	$ 1,822,731	$ 551,160	$ 2,373,892
Moderate	25,477	$ 3,221,982	$ 950,044	$ 4,172,026
Non-Wildland/Non-Urban	621	$ 573,866	$ 294,283	$ 868,148
Urban Un-zoned	26,974	$ 5,223,286	$ 2,310,932	$ 7,534,219
Grand Total	**108,378**	**$ 19,444,456**	**$ 7,181,567**	**$ 26,626,023**

Note:
1-The table above does not display loss estimation results; the table exhibits total value at risk based upon the hazard overlay and San Bernardino County Assessor data.
2- Parcel information is for all county parcels with greater than $20,000 in assessed parcel improvement value only. The San Bernardino County Assessor's roles only provide spatial information on assessed improvement and land values.

4.14.3 Critical Facilities at Risk

Critical facilities data were overlain with fire hazard severity zone data to determine the type and number of facilities within each risk classification. Tables 4-21 and 4-22 list the critical facilities in the High and Very High wildfire hazard zones for San Bernardino County.

Table 4-21: Critical Facilities at Risk from Wildfire

Infrastructure Type	High	Very High	Feature Count
Essential Facility	11	105	116
EOC	2	0	2
Fire Station	4	45	49
Hospital	0	5	5
Police Station	0	24	24
School	5	31	36
High Potential Loss	72	177	249
Child Care Center	3	29	32
Child Residential Care - 24 hour	1	0	1
Foster Family Agency	0	0	0
Adult Residential Care	11	4	15
Home Care Organization	0	0	0
Elder Residential Care	8	5	13
Communication Facility	2	13	15
Dam	0	14	14
Electric Power Facility	0	0	0
Natural Gas Facility	0	0	0
Potable Water Facility	0	0	0
Waste Water Facility	0	0	0
HAZMAT	0	2	2
EPA FRS Facility	37	83	120
FCC ASR	10	27	37
Transportation and Lifeline	10	103	113
Airport	1	0	1
Runway	1	0	1
Bus Facility	1	0	1
Highway Bridge	7	101	108
Railway Bridge	0	2	2
Grand Total	**93**	**385**	**478**

Table 4-22: Lifelines with Wildfire Risk

Facility Type	High	Very High	Total Mileage
Transportation and Lifeline	819	1,906	2,725
Railway	19	47	66
Roads	800	1,859	2,659
Interstate Highway	4	37	41
State / County Highway	33	226	259
Primary Highway	17	13	30
Local Road, Major	311	521	832
Local Road	389	806	1,195
Other Minor Road	34	56	91
Vehicular Trail	10	184	195
Cul-de-Sac / Traffic Circle	1	2	3
Ramp	2	12	13
Service Road	0	1	1
Grand Total	**819**	**1,906**	**2,725**

4.14.4 Loss Estimation Results

Wildland fire cost impacts of damage done to land and structures and also to critical infrastructure

It is impossible to estimate the possible cost in dollars to replace and pay for actual firefighting as the damage costs that incur from wildland fires varies so greatly. One of the varied costs is the replacement and repair of structures and remediate of the damaged properties. Then the rebuilding costs and replacing of the structures with laws requiring new buildings to meet new criteria as a result of state laws that may require more stringent building and construction practices far greater than the original building of the said structure. Also the estimate of damages to critical infrastructures such as power lines and delivery systems as it is difficult the collateral loses to businesses and individuals losing power for and unknown time. Also damages to railroads and bridges also to road way, freeways as it is impossible to gauge the actual lose amounts from commerce being impeded.

Many of the County's landfills, transfer stations, and closed disposal sites are situated in areas subject to wildfires. In 2003, the Old Fire burned through three separate sites and caused major damage at the Heaps Peak Transfer Station when the fire burned through the office building and Transfer Station site.

None of this takes into account the costs of labor and retardants, vehicle damages and fuel and wear and tear as well as equipment expended and used and or damaged. Along with replace any safety gear or injuries to any persons working to mitigate the wildland fire

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4.15 Flooding

The County has experienced severe and widespread flooding throughout its history. Several major drainage basins have the potential to subject residents and structures to a high risk of flooding. In addition, the cumulative increase in impervious surfaces has increased problems related to surface run- off. While complete avoidance or protection through control facilities is not practical, considerable improvement can be made through structural and non-structural methods.

The County currently utilizes land use zoning districts to prohibit habitable structures in floodways as defined by the federal requirements necessary to participate in the National Flood Insurance Program. The consistent adoption of overlays is needed to require special review, conditions, and the prohibition of some uses in floodplain areas (areas subject to 100-year floods), including dry lakes. In addition, there are land use policies and development standards that can be implemented, including reduction of impervious surfaces; increase of percolation, infiltration, and recharge; and the control of urban run-off. There is a need for the County to identify all areas of flood and drainage hazards, especially in the Desert Region where mapping is sparse, as well as areas with a heavy concentration of debris or the potential for dam inundation. Flood hazards are more comprehensively discussed in the Safety Background Report.

The vulnerable areas are addressed in the County's General Plan. See Sections 5 and 6 for additional information. San Bernardino County has seven (7) properties listed in the Repetitive Loss and Severe Repetitive Loss properties. All of the properties are single-family residences. The properties are located in:

- Barstow – 2 properties (1999 and 2005)
- Crestline (1980 and 1982)
- Forest Falls (1995 and 1999)
- Lake Arrowhead (1998 and 2005)
- Lytle Creek (1998 and 2005)
- Sugarloaf (1993 and 1995)

These properties were damaged during unusual storms and/or immediately after a wildfire in the area and are isolated properties in widely scattered areas of the County. The properties were not damaged during the 2009 or 2010 winter storm events. Property addresses are not listed to comply with privacy laws.

The areas are now covered by the County General Plan and County Ordinance. These are in compliance with the National Flood Insurance Program.

4.15.1 Population at Risk

Of greatest concern in the event of a flood is the potential for loss of life. Using 2012 population data aggregated by census blocks, an estimate was made of the population exposed to the 100 and 500-year floodplain. To account for census blocks that were partially within the floodplain, a weighted average was employed to calculate the proportion of the population within the floodplain. The results of the population overlay are shown in Figure 4-31. More than 9,500 residents live near or within the 100-year floodplain and approximately 13,346 county residents live within the 500-year floodplain. Approximately 18,816 county residents live within areas protected by levees.

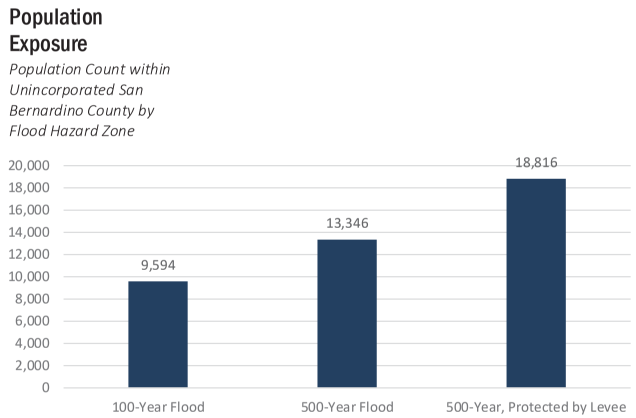


Figure 4-31: Population Exposed to NFIP Flood Zones

4.15.2 Residential Parcel Value with Flood Risk

The County's parcel layer was used as the basis for the inventory of improved residential parcels within the FEMA NFIP flood zones. In some cases, a parcel will be within in multiple flood zones. GIS was used to create centroids, or points, to represent the center of each parcel polygon – this is assumed to be the location of the structure for analysis purposes. The centroids were then overlaid with the floodplain layer to determine the flood risk for each structure. The flood zone in which the centroid was located was assigned to the entire parcel. This methodology assumed that every parcel with a square footage value greater than zero was developed in some way. Only improved parcels greater than $20,000 were analyzed.

Table 4-23 shows the count of at-risk parcels and their improvement and land exposure values.

Table 4-23: Parcels Exposed to NFIP Flood Zones

Flood Hazard Zone	Improved Parcel Count	Improvement Value Exposure ($000)	Land Value Exposure ($000)	Total Exposure ($000)
100-Year Flood	3,426	$ 518,483	$ 368,058	$ 886,541
500-Year Flood	3,397	$ 833,287	$ 338,728	$ 1,172,014
500-Year, Protected by Levee	4,608	$ 1,327,942	$ 527,317	$ 1,855,259
Grand Total	11,431	$ 2,679,711	$ 1,234,103	$ 3,913,814

While there are several limitations to this methodology, it does allow for potential loss estimation. It should be noted that the analysis may include structures in the floodplain that are elevated at or above the level of the base flood elevation, which will most likely decrease potential flood damage to these structures. Also, it is important to remember that the County Assessor's values are well below actual market values; thus, the actual value of assets at risk may be significantly higher than those included herein.

4.15.3 Critical Facilities Exposure

Critical facilities data were overlain with flood hazard data to determine the type and number of facilities within the 100- and 500-year floodplain. Flooding poses numerous risks to critical facilities and infrastructure:

- Roads or railroads that are blocked or damaged can prevent access throughout the area and can isolate residents and emergency service providers needing to reach vulnerable populations or to make repairs.
- Bridges washed out or blocked by floods or debris from floods also can cause isolation.
- Creek or river floodwaters can back up drainage systems causing localized flooding.
- Floodwaters can get into drinking water supplies causing contamination.
- Sewer systems can be backed up causing waste to spill into homes, neighborhoods, rivers, and streams.
- Underground utilities can also be damaged.

Tables 4-24 and 4-25 provide an inventory of critical facilities in the floodplain for San Bernardino County and it provides the location of lifelines relative to the floodplain in the areas of the San Bernardino County. With a total of 810 essential facilities, high potential losses, and transportation and lifeline structures located in either the 100 or 500-year flood zone, the impact to the community could be devastating if these critical facilities were damaged or destroyed during a flood event.

Table 4-24: Critical Facility Exposed to NFIP Flood Zones

Infrastructure Type	100 Year Flood Zone	500 Year Flood Zone	500 Year Flood Zone, Protected by Levee	Feature Count
Essential Facility	21	114	5	140
EOC	0	1	0	1
Fire Station	4	27	2	33
Hospital	0	4	0	4
Police Station	2	23	0	25
School	15	59	3	77
High Potential Loss	52	458	52	562
Child Care Center	13	57	3	73
Child Residential Care - 24 hour	0	2	0	2
Foster Family Agency	0	2	0	2
Adult Residential Care	0	37	3	40
Home Care Organization	0	2	0	2
Elder Residential Care	0	24	8	32
Communication Facility	0	7	0	7
Dam	2	3	0	5
Waste Water Facility	1	0	0	1
HAZMAT	0	16	1	17
EPA FRS Facility	33	286	35	354
FCC ASR	3	22	2	27
Transportation and Lifeline	26	77	5	108
Airport	2	5	0	7
Runway	2	5	0	7
Bus Facility	1	1	0	2
Highway Bridge	20	65	5	90
Railway Bridge	1	1	0	2
Grand Total	**99**	**649**	**62**	**810**

Table 4-25: Lifelines Exposure to NFIP Flood Zones

Facility Type	100 Year	500 Year Flood Zone	500 Year Flood Zone, Protected by Levee	Total Mileage
Transportation and Lifeline	204	1,952	69	2,225
Railway	9	44	6	59
Roads	195	1,908	63	2,166
Interstate Highway	1	34	1	36
State / County Highway	20	189	9	218
Primary Highway	7	20	-	28

Facility Type	100 Year	500 Year Flood Zone	500 Year Flood Zone, Protected by Levee	Total Mileage
Local Road, Major	32	377	38	447
Local Road	115	1,168	13	1,295
Other Minor Road	18	86	2	107
Vehicular Trail	2	15	-	17
Cul-de-Sac / Traffic Circle	0	1	-	1
Ramp	0	18	0	19
Grand Total	**204**	**1,952**	**69**	**2,225**

4.15.4 Loss Estimation Results

The Hazus analysis was used to assess the risk from and vulnerability to flooding within San Bernardino County. Hazus buildings data is aggregated to the census block level, known as the general building stock (GBS), which has a level of accuracy acceptable for hazard mitigation planning purposes. The following sections describe risk to and vulnerability of the GBS within the San Bernardino County mapped regulatory floodplain. The total value of exposed buildings and content within the San Bernardino planning area was generated using Hazus and is previously summarized.

Hazus calculates losses to structures from flooding by considering the depth of flooding and type of structure. Using historical flood insurance claim data, the software estimates the percentage of damage to structures and their contents by applying established depth-damage curves. Damage estimates are then translated to estimated dollar losses. The results are summarized in Tables 4-26 and 4-27 and Figure 4-32. While there are several limitations to the FEMA Hazus model, it does allow for potential loss estimation. It should be noted that the analysis may include structures in the floodplain that are elevated at or above the level of the base flood elevation, which will likely mitigate flood damage. Also, it is important to remember that the replacement costs are well below actual market values, thus, the actual value of assets at risk may be significantly higher than those included herein.

Table 4-26: Flood Loss Estimation (Based on Depth) in NFIP Flood Zones

Flood Hazard Zone	Building Loss ($000)	Building Loss (% of Total Value)	Content Loss ($000)	Content Loss (% of Total Value)	Total Estimated Loss ($000)	Total Estimated (% of Total Value)
100-Year	$ 34,749.00	0.1%	$ 24,858.00	0.1%	$ 59,849.00	0.2%
500-Year	$ 218,454.00	0.8%	$ 173,304.00	0.6%	$ 396,336.00	1.4%

Table 4-27: 100 Year Flood Los Estimation (Based on Depth) in NFIP Flood Zones by Occupancy Type

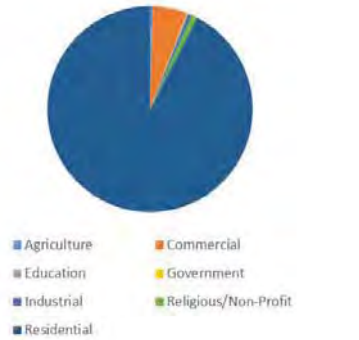
Building Type	Building Replacement Costs ($000)	Building Replacement Cost (% of Total Value)	Content Replacement Cost ($000)	Content Replacement Cost (% of Total Value)	Total Estimated Loss ($000)	Total Loss Estimation (% of Total Value)
Agriculture	$ 147.00	0.10%	$ 246.00	0.17%	$ 427.00	0.30%
Commercial	$ 1,874.00	0.08%	$ 4,458.00	0.18%	$ 6,463.00	0.26%
Education	$ 46.00	0.02%	$ 271.00	0.11%	$ 319.00	0.13%
Government	$ 56.00	0.07%	$ 304.00	0.39%	$ 370.00	0.48%
Industrial	$ 201.00	0.02%	$ 389.00	0.04%	$ 624.00	0.06%
Religious/Non-Profit	$ 326.00	0.09%	$ 1,946.00	0.55%	$ 2,279.00	0.65%
Residential	$ 32,099.00	0.14%	$ 17,244.00	0.07%	$ 49,367.00	0.21%
Grand Total	**$ 34,749**	**0.13%**	**$ 24,858**	**0.09%**	**$ 59,849**	**0.22%**

100 YR Flood Hazard

Estimated Content Loss by Occupancy Type

100 YR Flood Hazard

Estimated Building Loss by Occupancy Type



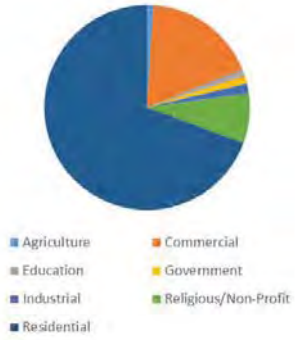
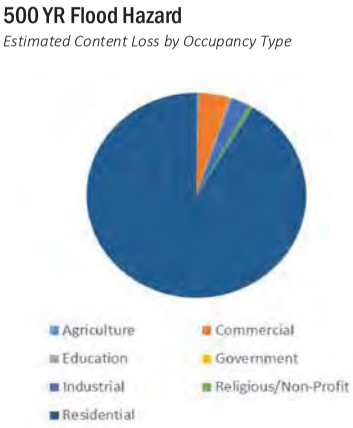


Figure 4-32: Total Building and Content Loss by Occupancy Type for 100 Year Flood

Table 4-28: 500 Year Flood Loss Estimation (Based on Depth) In NFIP Flood Zones by Occupancy Type

Building Type	Building Replacement Costs ($000)	Building Replacement Cost (% of Total Value)	Content Replacement Cost ($000)	Content Replacement Cost (% of Total Value)	Total Estimated Loss ($000)	Total Loss Estimation (% of Total Value)
Agriculture	$ 674.00	0.48%	$ 981.00	0.69%	$ 1,781.00	1.26%
Commercial	$ 10,080.00	0.41%	$ 27,640.00	1.13%	$ 39,179.00	1.61%
Education	$ 720.00	0.29%	$ 3,563.00	1.44%	$ 4,355.00	1.76%
Government	$ -	0.00%	$ 2.00	0.00%	$ 9.00	0.01%
Industrial	$ 6,036.00	0.57%	$ 13,975.00	1.31%	$ 22,438.00	2.11%
Religious/Non-Profit	$ 1,210.00	0.34%	$ 6,070.00	1.72%	$ 7,332.00	2.08%
Residential	$ 199,734.00	0.86%	$ 121,073.00	0.52%	$321,242.00	1.38%
Grand Total	**$ 218,454**	**0.79%**	**$ 173,304**	**0.63%**	**$ 396,336**	**1.44%**



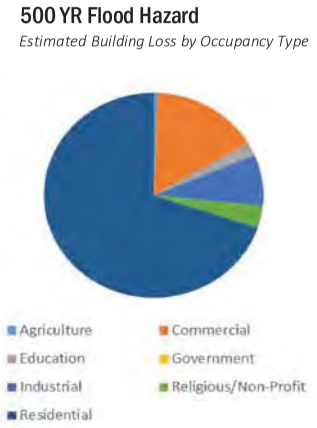


Figure 4-33: Total Building and Content Loss by Occupancy Type for 500 Year Flood

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4.16 Drought

Drought should not be viewed as merely a physical phenomenon or natural event. Its impacts on society result from the interplay between a natural event (less precipitation than expected resulting from natural climatic variability) and the demand people place on water supply.

Due to the lack of defined geographical boundaries, the vulnerability assessment for drought differs from other natural hazards. The impacts of drought can be categorized as economic, environmental, or social. Many economic impacts occur in agriculture and related sectors, including forestry and fisheries, because of the reliance of these sectors on surface and subsurface water supplies. In addition to obvious losses in yields in crop and livestock production, drought is associated with increases in insect infestations, plant disease, and wind erosion. Droughts also bring increased problems with insects and diseases to forests and reduce growth. The incidence of forest and range fires increases substantially during extended droughts, which in turn places human and wildlife populations, buildings, infrastructure and critical facilities, at higher levels of risk.

Income loss is another indicator used in assessing the impacts of drought because so many sectors are affected. Reduced income for farmers has a ripple effect. Retailers and others who provide goods and services to farmers face reduced business. This leads to unemployment, increased credit risk for financial institutions, capital shortfalls and loss of tax revenue for local, state and federal government. Less discretionary income affects the recreation and tourism industries. Prices for food, energy and other products increase as supplies are reduced. In some cases, local shortages of certain goods result in the need to import these goods from outside the stricken region.

4.16.1 Loss Estimation Results

No standardized methodology exists for estimating losses due to drought. Drought does not generally have a direct impact on critical and non-critical facilities and building stock. Instead, drought vulnerability is primarily measured by its potential impact to sectors of the County's economy and natural resources. In San Bernardino County some of the potential impacts to the economy include the following:

- Reduced agricultural and livestock production;
- Loss of timber from increased wildfires;
- Decreased municipal and industrial water supply;
- Loss of recreation/tourism; and
- Decreased wildlife and wildlife habitat.

4.16.2 Statewide Mandatory Water Reductions

Recognizing persistent, yet less severe, drought conditions throughout California, on May 18, 2016 the State Water Resources Control Board adopted an emergency water conservation

regulation requiring locally developed conservation standards based upon each water supplier's specific circumstances. It replaces the prior percentage reduction-based water conservation standard. In San Bernardino County, each water wholesaler (Mojave Water Agency) was required to calculate the supply of water for the next three years, considering drought conditions persist. Each water supply retailer subsequently self-certified the expected demand on water resources, determining whether or not there is sufficient supply to meet demand. Our Department certified that there is sufficient water supply to meet the demand over the next three years; however due to ongoing drought conditions in the region, water conservation efforts should continue. The County has developed a watering schedule, watering hour restrictions and additional end user watering restrictions which can be viewed here: http://www.specialdistricts.org/index.aspx?page=548

4.17 Terrorism

Translating most manmade hazard profiles into meaningful geospatial information is difficult at best. Instead, the planning team will use an asset-specific approach. Population, facilities, systems and assets will be prioritized and assessed in this vulnerability assessment.

Special consideration should be given to areas with high density and those containing vulnerable populations (young, old, and those whose primary language is not English).

Facilities at high risk may include gathering places, critical facilities/ transportation and lifelines and utilities.

4.17.1 Population at Risk

Since terrorism can happen anytime, anywhere, 100% of the population is vulnerable to terrorism. In particular, people with access and functional needs, the elderly and the very young are especially vulnerable because they often rely heavily on others in their daily lives. Persons with English as a second language are also vulnerable as they may not receive warnings or notifications related to an incident in their primary language.

4.17.2 Critical Facilities Exposure

Critical facilities may include essential facilities (such as hospitals, police and fire stations, evacuation centers, etc.), transportation systems, lifeline utility systems, high potential loss facilities (such as nuclear power plants, dams and military installations, etc.), and hazardous material facilities.

Gathering facilities should also receive special attention. Places of mass gathering not only present terrorists with potential opportunities for mass casualties, symbolism and high impact media coverage, they pose a broad range of security challenges for their owners and operators. The National Counter Terrorism Committee has noted that places of mass gathering have been specifically identified by religious and political extremists as attractive targets.

Places of mass gathering incorporate a diverse range of facilities including, but not limited to, sporting venues, shopping and business precincts, tourism/entertainment venues/attractions, hotels and convention centers, major events and public transport hubs. This also includes significant one off events.

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4.18 Climate Change

The vulnerability assessment for climate change is different from other natural hazards discussed in this HMP due to the lack of defined geographical boundaries. This section provides a summary of San Bernardino County's vulnerability to climate change.

The most serious threats to the public health of Californians will stem primarily from the higher frequency of extreme conditions, principally more frequent, more intense, and longer heat waves. A heat wave is defined as 5 or more consecutive extreme heat days. An increase in heat waves may increase the risk of directly related conditions such as heat stroke and dehydration.

In the desert areas of the County, the Extreme Heat Day Threshold temperatures are around 110°F and in the mountainous regions it is in the mid 80's. According to the Cal-Adapt Extreme Heat Tool, the number of extreme heat days (a day in April through October where the maximum temperature (Tmax) exceeds the 98th historical percentile of maximum temperatures based on daily temperature data between 1961 and 1990) will continue to increase rapidly from the present day to 2090.

Projections by Scripps Institution of Oceanography show little change in total annual precipitation in San Bernardino County. However, even modest changes would have a significant impact because California ecosystems are conditioned to historical precipitation levels and water resources are nearly fully utilized. The Mediterranean seasonal precipitation pattern is expected to continue, with most precipitation falling during winter from North Pacific storms. In the mountainous areas of the County, it is projected that the decadal average of snowpack will continue to decrease until 2090. As shown in Figure 4-34 the sharpest decreases in snowpack are projected to begin around 2030. The area projected to be burnt by wildfire toward the end of the century will not increase substantially in the County. The most change will be experienced in the mountainous regions.

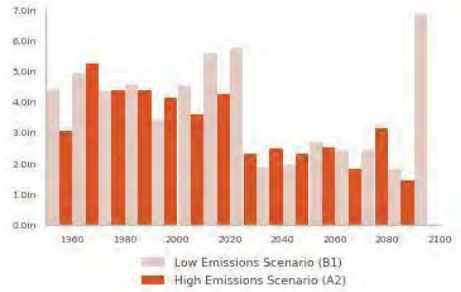

Figure 4-34: Decadal Snowpack Averages 1960-2090

Source: cal-adapt.org/snowpack/decadal

4.18.1 Population at Risk

Vulnerable populations should receive special attention when assessing the community's vulnerability to climate change. For example, care and sheltering during extreme heat conditions must be provided for vulnerable populations such as the elderly. Heat kills by taxing the human body beyond its abilities. In a normal year, about 175 Americans succumb to the demands of summer heat. According to the National Weather Service (NWS), among natural hazards, only the cold of winter—not lightning, hurricanes, tornados, floods, or earthquakes—takes a greater toll. In the 40-year period from 1936 through 1975, nearly 20,000 people were killed in the United States by the effects of heat and solar radiation. In the heat wave of 1980, more than 1,250 people died.

Section 5. Community Capability Assessment

5.1 Existing Plans, Policies and Programs

San Bernardino County is encouraging all departments, special districts, and agencies to share reports and common information. This sharing and exchanging of ideas has led to more coordinated efforts and better planning. The driving document in the County of San Bernardino is the County's General Plan. The County General Plan provides the foundation on which all development and future programs are built upon.

5.1.1 San Bernardino County General Plan

The State of California recommends that the General Plan is updated every 10-20 years; depending mostly on whether or not the plan is meeting the community's needs. The San Bernardino County General Plan was last updated and adopted in 2007. There are seven (7) mandatory elements in a General Plan:

- Circulation Element,
- Conservation Element,
- Housing Element,
- Land Use Element,
- Noise Element,
- Open Space Element, and
- Safety Element.

However, there are several optional elements. The County of San Bernardino General Plan includes an optional element, the Economic Development Element.

The Land Use Element of the General Plan establishes 18 land use zoning districts that apply only to lands governed by the County; not for lands controlled by other jurisdictions or lands controlled by federal and state government (see Section 1.3.5, page 8 for a listing of the 18 Land Use districts in the Land Use Element). The Land Use Element also describes land use compatibility for the primary three (3) hazards: Geologic; Flood; and, Wildfire. Because of these commonalities between the General Plan and the MJHMP, the county Board of Supervisors has adopted the MJHMP as part of the County's General Plan.

5.1.2 Regulations, Code, Policies and Ordinances

The following titles of the San Bernardino County Code include regulations and ordinances on the following issues and topics related to hazard mitigation:

Table 5-1: County Development Code Hazard Crosswalk

Hazard	Plan/Program/ Regulation	Description
Multi-Hazard	**Title 2**	Emergency Services Uniform Fire Code and related miscellaneous fire regulations Police Regulations and Public Protection
Multi-Hazard	**Title 3**	Emergency Medical Services Domestic Water Sources and Systems Hazardous Materials and Toxics Control Waste Management
Multi-Hazard	**Title 6**	California Building Code California Electrical Code California Plumbing Code California Mechanical Code
Multi-Hazard	**Title 7**	Airport Rules and Regulations
Multi-Hazard	**Title 8**	Development Code includes regulations relative to Land Use, Development Standards, Safety Standards, and Environmental Protection.
Multi-Hazard	**Zoning Ordinances**	The County has also adopted Zoning Ordinances that are not part of the County Code but are part of the General Plan. These ordinances regulate land use; map the official land use and hazard overlay districts to include safety hazard and environmental protection areas.

5.1.3 Local Programs for Mitigation Implementation

The information in Table 5-2 is used to construct mitigation actions aligned with existing planning and regulatory capabilities of the County. Planning and regulatory tools typically used by local jurisdictions to implement hazard mitigation activities are building codes, zoning regulations, floodplain management policies, and other County programs or planning documents.

Table 5-2: Planning and Regulatory Mitigation Capabilities Summary

Hazard	Plan/Program/ Regulation	Responsible Agency	Comments
Multi-Hazard	Mountain Mutual Aid	Fire District	Mountain Mutual Aid is an operational group of emergency responders. It is comprised of all of the agencies and volunteer relief groups that would be and have been involved in any and all disasters on the mountain. It is of note to that their main and most frequent call to service is in response to a wildfire. They meet monthly and maintain themselves in a constant state of readiness.
Wildfire	Forest Care	Cal Fire	Forest Care is a program dedicated to creating a healthier forest. This program provides foresters to assess individual properties for thinning the vegetation and then provides 75% of the funding to do so. Funding originates at the Federal level but is passed through Cal Fire and it employs Cal Fire Foresters as well as staff from the National Forest Association

5.1.3.1 Public Education and Alert Programs

Table 5-3: Public Education and Alert Programs

Hazard	Program	Responsible Agency	Comments
Multi-Hazard	MAST	Multiple	Mountain Area Safety Taskforce (MAST) has a substantial public education component. All agencies participate with the goal to have no one on the mountain uneducated about creating a thinner forest which is a more fire safe forest. For more information on MAST, see Annex A Section A.6 Fire Protection District Mitigation Project .
Multi-Hazard	CERT	Fire District	The Community Emergency Response Team (CERT) Program educates people about disaster preparedness and trains them in basic response

Hazard	Program	Responsible Agency	Comments
			skills. For more information, see Annex A Section A.6 Fire Protection District Mitigation Project .
Multi-Hazard	Listos	Fire District	Listos, which means "ready" in Spanish, is a twelve-hour disaster preparedness course created specifically for the Spanish-speaking community and is delivered entirely in Spanish. The program is intended to be adaptable, flexible and culturally relevant. This means participants are encouraged to involve the entire family and accommodations are made for young children. San Bernardino County Fire, Office of Emergency Services currently partners with the Cities of Fontana and Rialto to bring Listos to their communities
Multi-Hazard	California Disaster Corps	Fire District	The Disaster Corps is a first-in-the-nation effort to professionalize, standardize and coordinate highly trained disaster volunteers statewide. This program initiative was built collaboratively in partnership with California Volunteers from the ground up through public-private partnerships and with a wide range of subject matter experts. See Annex A Section A.6 Fire Protection District Mitigation Project .
Multi-Hazard	TENS	Fire District	Telephone Emergency Notification Systems (TENS) During an emergency, public safety can be a direct function of the speed and accuracy of the dissemination of information. This is particularly important during emergencies that require evacuations. To that end the Board of Supervisors dedicated General Fund money in 2003 to the implementation of an automated phone dialing system that calls telephones in specific geographic areas of concern. All areas of San Bernardino County have all been preprogrammed so that during an emergency, the specific target group can be notified as quickly as possible.

Hazard	Program	Responsible Agency	Comments
Multi-Hazard	ECS	Fire District	The Emergency Communications Service (ECS) is a volunteer group providing front-line communications, technical and logistical support to the San Bernardino County Fire Department and Office of Emergency Services. Their primary mission is to support County Fire, County Government and other local agencies in time of disaster. In addition, ECS has provided telecommunications and event support to other County departments including Public Health, Behavioral Health, Public Works, Pre-School Services, Sheriff's Search and Rescue and other County Departments.
Multi-Hazard	AM Radio	Fire District	Community Based AM Radio Transmitters The Fire Safe Councils discovered the existence of very inexpensive but very effective community based AM radio transmitters. The transmitters are very effective for providing information and updates to a community that is either preparing for a community emergency or just had one. As a delivery modality they are extremely reliable because in most all emergencies the AM radio in your car is likely to be operational particularly when the electricity is out in your house.
Multi-Hazard	IPAWS	Fire District	During an emergency, alert and warning officials need to provide the public with life-saving information quickly. The Integrated Public Alert and Warning System (IPAWS) is a modernization and integration of the nation's alert and warning infrastructure and will save time when time matters most, protecting life and property. Federal, State, Territorial, Tribal, and local alerting authorities can use IPAWS and integrate local systems that use Common Alerting Protocol (CAP) standards with the IPAWS infrastructure. IPAWS provides public safety officials with an effective way to alert and warn the public about serious emergencies using the Emergency Alert System (EAS), Wireless Emergency Alerts (WEA), the

Hazard	Program	Responsible Agency	Comments
			National Oceanic and Atmospheric Administration (NOAA) Weather Radio, and other public alerting systems from a single interface.

5.1.3.2 Wildfire Mitigation Programs

San Bernardino County has one of the most comprehensive set of programs to mitigate the potential for catastrophic wildfires in the Nation. There is no other jurisdiction that has the comprehensive, multi-agency cooperation and coordination as is found in San Bernardino County. See Annex A Section A.6 Fire Protection District Mitigation Project to see how the Fire Protection District will implement the following programs:

Table 5-4: Wildfire Mitigation Programs

Hazard	Program	Responsible Agency	Comments
Wildfire	MAST	Multiple	The mission of the MAST is to facilitate a coordinated effort by cities, county, state, federal, and non-profit agencies to provide for protection from wildfire. For more information on MAST, see Annex A Section A.6 Fire Protection District Mitigation Project .
Wildfire	Community Based Fuels Reduction program	Fire District	This program is designed to create community based fuel modification programs across the mountain communities. For more information see Annex A Section A.6 Fire Protection District Mitigation Project .
Wildfire	Cal Fire	Cal Fire	Cal Fire provides programs to increase fire safety in high fire hazard severity zones. For more information, see Annex A Section A.6 Fire Protection District Mitigation Project .
Wildfire	County Fire Hazard Abatement	Fire District	Fire Hazard Abatement works to reduce the potential for an individual's property to be the source of fire and structural ignitability. For more information, see Annex A Section A.6 Fire Protection District Mitigation Project .

Hazard	Program	Responsible Agency	Comments
Wildfire	Contractor Certification	City of Big Bear Lake Fire Department	This program trains and certifies landscape contractors to provide a qualified workforce to conduct fuels reduction activities on individual properties. For more information, see Annex A Section A.6 Fire Protection District Mitigation Project .
Wildfire	Southern California Edison (SCE)	Southern California Edison (SCE)	SCE removes dead trees near power lines to reduce fire hazards. For more information, see Annex A Section A.6 Fire Protection District Mitigation Project .
Wildfire	Wood Shake Roof Replacement	County	This code requires that all Wood Shake Roofs in the Fire Safety Overlay, as defined in the Development Code, ongoing effort.
Wildfire	Inland Empire Fire Safe Alliance	Inland Empire Fire Safe Alliance	The Alliance was created to act as a forum for all Fire Safe Councils in San Bernardino County. For more information, see Annex A Section A.6 Fire Protection District Mitigation Project .
Wildfire	Community Wildfire Protection Plans (CWPP)	Fire District	CWPPs are designed to provide a means for a community to have input into and actively participate in the planning, strategy, goals, and objectives of creating a fire safe community. For more information, see Annex A Section A.6 Fire Protection District Mitigation Project .
Wildfire	Organized Group Volunteer Activities	Fire District	There are several volunteer citizen groups throughout the County that are capable of providing significant resources that are not provided by traditional governmental agency services. For more information, see Annex A Section A.6 Fire Protection District Mitigation Project .

5.1.3.3 Earthquake/Geologic Mitigation Programs

San Bernardino County's seismic mitigation programs focus on two areas that have historically resulted in the greatest amount of damage and life loss from major earthquakes in California.

5.1.3.3.1 Bridge Retrofit Program

Caltrans inspects County and City bridges yearly every 2 years for structural sufficiency (which applies to earthquake) and functional obsolescence (which applies to floods). Caltrans provides reports that include recommended repairs or replacement. The County and Cities make the repairs and/or apply for bridge replacement funds thru the Federal Highway Bridge Program (HBR). Currently the County has 5 funded HBR replacements due to structural deficiencies:

- Dola Ditch, (out for bid to construct)
- Lanzit Ditch, (out for bid to construct)
- Garnett at Mill Creek (under construction)
- Yermo Rd at Manix Wash.(waiting for SCAG approval for additional funds to move forward with the Design & Environmental)
- Baker Blvd west of SR127. (waiting for HBP fund for Design & Environmental)
- National Trails Hwy at Kalmia Bridge (waiting for HBP funds)
- National Trails HWY @ Adena Ditch (Received HBP funds for design phase)
- Bridge Management (consultant on board that has prioritized all timber bridges on National Trails Highway and DPW is submitting groups of bridges for funding over a ten year period)

The design and environmental work has been started for Rock Springs Road (functionally obsolete bridge) using DPW funds, waiting for HBP funds for R/W phase.

The County has completed the construction of the Alabama Street at Plunge Creek bridge replacement using Federal Emergency Relief funds.

5.1.3.3.2 Unreinforced Masonry Building Program

In the 1990's, the County of San Bernardino compiled a master list of suspected Unreinforced Masonry Buildings within the unincorporated areas. Since that time, several sites have been incorporated and therefore, are now removed from County jurisdiction. In addition, several appear to have been demolished or retrofitted since the 1990's. The Land Use Services Department's Building and Safety Division is currently in the process of re-evaluating the URM list. Re-evaluation will include a field visit to each site photographing structures and verifying the occurrence of unreinforced masonry. This process is scheduled to be completed by the end of the 2010.The program would be an inspection program and maintenance and inspections as warranted.

There are no large publically utilized URM structures currently on the list. These types of structures are typically restricted to the incorporated areas of the County. There are only twenty-two (22) structures remaining on the list.

5.1.3.3.3 Geologic Hazard Mapping

The Seismic Hazards Mapping Act (Public Resources Code, Chapter 7.8 Section 2690-2699.6) directs the Department of Conservation, California Geological Survey (CGS) to identify and map areas prone to liquefaction, earthquake-induced landslides and amplified ground shaking. Although the San Bernardino area has a full spectrum of geologic hazards, CGS does not have adequate funding to complete the hazard mapping within the County.

5.1.3.4 Flood Mitigation Programs

The flood mitigation projects are programs that were established by San Bernardino County Flood Control District to protect life and property. These projects are typically designed to convey 1% annual chance or greater storm flows in order to mitigate danger to life and property, and critical infrastructure consisting of existing, new and future structures. Also, these projects include revisions to local land use and building codes where analysis or experience shows the need for code revisions or amendments to meet previously unidentified circumstances.

Hazard	Program	Responsible Agency	Comments
Flood	Flood Area Safety Taskforce(FAST)	Flood Control District	The FAST Organization stresses liaison with the communities, provides for community education and information, and places emphases on Community and city partnerships. For more information on FAST, see Annex B Section B.6 Flood Project Prioritization and Implementation.
Flood	Alluvial Fan Task Force	Alluvial Fan Task Force	The Task Force reviews the state of knowledge regarding alluvial fan floodplains, determine future research needs, and, if appropriate, develop recommendations relating to alluvial fan floodplain management, with an emphasis on alluvial fan floodplains that are being considered for development. For more information, see Annex B Section B.6 Flood Project Prioritization and Implementation.
Flood	StormReady	Flood Control District	San Bernardino County is a StormReady County. For more information, see Annex B Section B.6 Flood Project Prioritization and Implementation.

5.1.3.5 Climate Change Programs

5.1.3.5.1 Extreme Heat, Extreme Cold Programs

This document is a contingency plan supporting the San Bernardino County Emergency Operations Plan (EOP).

Excessive Cold events are commonplace in San Bernardino County and most often warrant monitoring activities only. These Standard Operating Guidelines provide GUIDANCE based on the most likely scenario, and can be expanded to meet the parameters of a "disaster" scenario if necessary.

The Extreme Weather – Excessive Cold Standard Operating Guidelines (SOG) were developed in response to the potential for Excessive Cold and cold related Power Outage events in San Bernardino County. The following objectives and activities are to prevent the harmful effects of excessive cold on at-risk populations and the potential for life-threatening repercussions of power outages during excessive cold events.

The information included in this plan is "situation" and/or "incident" driven and subject to revision by the Extreme Weather Committee as conditions warrant. Notifications are information dependent and modification of the activities in these guidelines may be required in response to changing conditions, situations and/or inaccurate weather predictions

5.1.3.5.2 San Bernardino County Fire Office of Emergency Services Heat Plan

This document is a contingency plan supporting the San Bernardino County Emergency Operations Plan (EOP). The Extreme Weather – Excessive Heat Standard Operating Guidelines (SOG) were developed in response to the potential for Excessive Heat and heat related Power Outage events in San Bernardino County. The following objectives and activities have been established to prevent the harmful effects of excessive heat on at-risk populations and the potential for life-threatening repercussions of power outages during excessive heat events. The Extreme Weather – Excessive Heat SOG describe the County operations during heat related emergencies and provide guidance for local jurisdictions in their preparation for heat emergencies and other related activities. The information included in this plan is "situation" and/or "incident" driven and subject to revision by the Extreme Weather Committee as conditions warrant. Notifications are information dependent and modification of the activities in these guidelines may be required in response to changing conditions, situations and/or inaccurate weather predictions.

5.2 Fiscal Resources

The 2016-17 recommended budgets of $5.4 Billion are balanced and consistent with policy and direction received from the Board of Supervisors. The 2016-17 Recommended Budgets address the following key issues:

- Ongoing funding for neglected raises for County employees
- Ongoing funding for maintenance of County roads
- Continues investment in facilities, infrastructure and operating systems.
- Ongoing funding of mental health and medical services for County residents.
- Maintains fiscal responsibility through contributions to the reserves of $62.8 million.

The budget represents the County General Fund and County restricted general funds .It also presents capitol project funds, special revenue funds, enterprise funds, internal service funds and permanent funds for all entities in the 2016-17 Recommended Budget including the County Board Governed County Service Areas, San Bernardino County Fire Protection District, San Bernardino County Flood Control District. Other agencies presented in the budget include County Industrial Development Authority, Inland Counties Emergency Medical Agency and the recently added Housing Authority of the County of San Bernardino. The total requirements for these funds in the 2016-17 are $5.4 billion, which includes amounts budgeted as contingencies or contributions to reserves. Excluding these amounts, total projected expenditures for the 2016-17 are $5.3 billion. The General fund Requirements total $2.9 billion and are funded by countywide discretionary revenues (primary property taxes), departmental revenues and other funding sources of the General Fund, of this $2.9 billion, only $558.3 million is truly discretionary.

5.2.1 The Budget in Brief

This budget book collectively presents the general fund, special revenue funds, capital project funds, internal service funds, and enterprise funds for the county and its Special Districts. The total spending authority for these funds in 2016– 2017 is $5.4 billion. The general fund spending authority totals $5.3 billion and is funded by countywide discretionary, and the beginning fund balance of the General Fund. Of this $2.9 billion, only $558.5 million is truly discretionary.

Table 5-5: Spending Authority for San Bernardino County

	Spending Authority (in Millions)		
	2015-16	2016–2017	Change
General Fund	$ 2,984.3	$ 2,911.1	$ (73.2)
Restricted Funds	49.3	49.7	(.4)
Capital Project Funds	1169.	911.3	(258.4)
Special Revenue Funds	257.6	298.4	40.7
Enterprise Funds	984.9	1001.	16.5
Internal Service Funds	1.6	0.0	(1.6)
	$ 5,692.0	**$ 5,420.0**	**272.0**

There is a $73.2 million net decrease in General Fund requirements due to a $106.1 million reduction in contributions to General Fund reserves, as the Board of Supervisors approved an increase to multiple County General Fund operational groups' requirements are increasing by $32.9 million. There are Law and Justice ($12.5 million). The Human Services Operational Group is anticipating increased State and Federal funding that will support Department of Behavioral Health services, including inpatient hospitalization, indigent hospital care, general mental health services, and services for children, youth, and families .The County is also continuing to allocate additional resources to meet the growing need for augmented health and mental health correctional services associated with Public Safety Realignment.

The net reduction of $258.4 Million is Special Revenue Funds is associated with the County's shift in 2015-16 from budgeting contingencies to instead placing unallocated resources in reserves. This technical change resulted in a large one-time contribution to reserves in 2015-16 that is not required in 2016-17. This reduction in contributions to reserves totaling $289.6 million is offset by increased operational costs of $31.2 million. This is due to increases within the Department of Behavioral Health's Mental Health Services Act (MHSA) budget unit and the County Fire Protection budget is increasing as a result of the pending annexation of fire prevention and suppression services from the City of San Bernardino (429.6 million) and Twentynine Palms ($1.7 million).

The $40.7 million increase in Capital Project Funds is primarily due to the planned construction of two Department of Behavioral funded Crisis Stabilization Centers and four Crisis Residential Treatment Centers totaling $36.5 million. This will enable Community Crisis Response Team (CCRT) clinics throughout the County to be expanded to provide 24 hour services and to respond to request by law enforcement for support during the night hours.

Enterprise Funds requirements are increasing a net $16.5 million. Notably, the Housing Authority of the County of San Bernardino has been added to the budget book and is contributing to the overall increase in Enterprise Fund requirements, including additional assumed payments for Housing Assistance and increased Capital Expenditures.

Table 5-6: 2015-2017 Staffing Budget

	Budgeted Staffing		
	2015–2016	2016–2017	Change
General Fund	14,332	14,425	93
Other Funds	6,375	6,508	133
Special Districts and Other Agencies	1402	15601	159
Total:	**22,109**	**36,534**	**385**

5.2.2 Budget Highlights (2016 – 2017)

Create and Maintain and Grow Jobs and Economic Value in the County

- The Real Estate Services Department of Project Management Division (formerly Architecture and Engineering) Capital improvement budget includes 355 active projects with total requirements of $295.2 million, including $128.2 million in new projects funded with $57.7 million of Discretionary General Funding includes an ongoing base budget of $12.0 million for maintenance and non-major Capital Improvement Plan (CIP) projects ,and $45.7 million for construction and major CIP projects .These major projects include $26.4 million for the 800 Megahertz Upgrade Project ,$12.2 million for various Sheriff's facility improvements ,$8.0 million for the County Buildings Acquisition and Retrofit Project including the upgrade of the County Government Center parking lots and grounds ,and $7.6 million for a variety of other projects.

Improve County Government Operations

- Enterprise Financial Management System: Implementation of the new system began in May 2016 with the first phase (out of two phases) continuing into 2016-17 at an estimated cost of $7.1 million. The total cost for the financial system is estimated to be $25.0 million and will streamline business processes and provide better management information.

- Public Health will continue its efforts to achieve and maintain National Accreditation, through the Public Health Accreditation Board (PHAB). Accreditation ensures the Department's continued focus on quality and performance improvement, transparency and accountability to all stakeholders, and the capacity to deliver core Public Health functions. The department will be submitting the required application to PHAB in December 2016.

- The County Library continues its plans to enhance service by replacing outdated computer hardware and software. Funding has been included in the Library's material's budget, which adds high demand items to the collection, including an expanded digital book collection.
- Land Use Services, in conjunction with Public Works, Information Services, and other County departments, continues to upgrade to a new enterprise permit solution, Accela. The new system will include a shared database, precise digital maps, and satellite images of land data that are linked to the County's GIS database. It will also provide field staff remote real-time access to the database. This solution will streamline the permitting process, offering the public access to a web portal to manage and monitor applications and permits online.

Operate in a Fiscally-Responsible and Business-like Manner

- The County Museum's budget of $3.8 million demonstrates the County's commitment to support the Museum through a time of transition. The budget includes $1.1 million in one-time Discretionary General Funding which includes bridge funds to support current operations and funding for activities related to re-accreditation. The County Museum continues to implement the consultant study recommendations as approved by the Board of Supervisors, to address organizational and financial challenges.

- The Transitional Assistance Department is in the second of a four year reduction to the State's CalFresh Match Waiver pursuant to the phase-out agreement adopted in the prior year State budget. This wavier allowed the County to draw additional Federal and half of the State funding without increasing the County's Maintenance of Effort. The budget includes the use of $2.5 million of the original $5.0 million general fund reserve that the Board approved in 2014-15 for this phase-out period.

Ensure Development of a Well-Planned, Balanced, and Sustainable County

- The County continues work on a complete overhaul of the County's General Plan, referred to as the Countywide Plan. This Countywide Plan will be a comprehensive web-based system to document land use planning and organizational governance policies. It will be comprised of three basic components: The Policy Plan (a comprehensive general plan); the County Business Plan (a system that will define and guide how the County government operates and manages itself); and the Regional Issues Forum (a web-based resource center containing information regarding shared Countywide issues). Additionally, the County is updating and expanding the community plans. When completed, there will be 27 web-based community plans involving 49 communities.

- A team of County departments will continue to monitor the drought and develop ways to reduce water usage at County facilities to show good stewardship of this valuable resource. The Special Districts Department, in collaboration with other County

departments, will continue to implement water conservation programs/strategies at various County Service Areas and Districts throughout the County.

- The Registrar of Voters budget fluctuates based on the 4-year election cycle, with the Presidential Election being the largest and most costly of the major elections. The Department is transitioning from a one minor and two major election cycles in 2015-16 to a one minor and one major election cycle for 2016-17. The budget includes provisions for the following: November 8, 2016 Presidential General Election (major); December 6, 2016 San Bernardino County Employees' Retirement Association Election (minor); and three anticipated, but unscheduled special elections (minor). The minor elections are 100% reimbursable; however, the November Presidential General Election is only 30% reimbursable and thus requires one-time Discretionary General Funding (Net County Cost) of $3.7 million for the year.

- The Public Works – Transportation budget includes over $35.0 million in major infrastructure projects, funded in part with Discretionary General Funding. Budgeted activities include design, right of way and/or construction for major projects including:
  - Bridge replacements on: Glen Helen Parkway, Baker Boulevard, Garnet Street, Rock Springs Road, Dola Ditch Bridge, Lanzit Ditch Bridge, Yermo Road and Arrowbear Drive;
  - New bridge on Shadow Mountain Road;
  - Widening of Slover Avenue in the Bloomington Area;
  - Installation of raised pavement markers on National Trails Highway in the Amboy area;
  - Reconstruction of Institution Road to improve access to the Sheriff facility in San Bernardino;
  - National Trails Highway Bridges: Bridge management plan for the repair, rehabilitation or replacement of 127 bridges on National Trails Highway and starting the design phase for replacement of 10 bridges:
  - Rehabilitation and re-profiling at various locations on Needles Highway in the Needles area;
  - Improvements to alleviate congestion and improve circulation of the interchange on Interstate 10 at Cedar Avenue

- The Public Works – Transportation budget includes $31.5 million worth of pavement improvement projects, funded in part with ongoing Discretionary General Funding, to preserve the County's roadways by investing enough to keep the system from deteriorating further.

- The Public Works – Solid Waste Management Division plans to complete $8.9 million of capital improvement projects, which includes the following:
  - $2.0 million for resurfacing the entrance and haul roads at the San Timoteo Landfill;
  - $957,000 for construction of Groundwater Treatment Systems at the closed Lenwood-Hinkley Landfill and Yucaipa Disposal Site;

- $1.5 million for the East Slope Stabilization and Mitigation project at the closed Heaps Peak Disposal Site;
- $1.5 million for construction of Landfill Gas Extraction Systems at the Barstow and Big Bear Landfills which includes $300,000 to bring electrical power to the Barstow Landfill

- The Public Works – Flood Control District (District) budget includes $37.6 million in capital improvement projects. The District anticipates completion of the following projects: Cactus Basin # 3, Wilson Creek Channel, Santa Ana River Flood Wall Repair, and the waterline relocations for Bandicoot Basin and Amethyst Basin. The District also plans to start construction on the following projects: Levee Certification Restoration for Patton Basin, Mojave River Levee, and Sand Creek/Warm Creek Confluence.

- Land Use Services Planning budget includes $150,000 of Discretionary General Funding for the preparation of a Morongo Basin Cultural Plan.

- The Special Districts department's budget includes $45.3 million capital improvement projects including the design and construction of the Big Bear Alpine Zoo relocation, rehabilitation of the Lake Gregory Dam, and construction of Snow Drop Road. Water and sanitation infrastructure projects of $19.2 million include pipeline replacements; water system improvements, and design and construction of a pipeline, a 75,000-gallon water reservoir, and a pump station in CSA 70 W-4 – Pioneertown.

- Community Development & Housing is constructing Phase 2 of the Bloomington Community and Neighborhood Revitalization. A total of 190 multi-generational affordable housing units include 120 family units and 70 senior units and the Bloomington Branch Library. The Bloomington Branch Library and the first phase of housing are completed. The second phase is currently under construction and will be completed by spring 2017.

Provide for the Safety, Health and Social Service Needs of County Residents

- The County is expanding efforts to provide homeless support to County residents through the flowing allocations included in the 2016-17 budget:
  - The Department of Behavioral Health is investing $4.0 million by providing basic needs, case management, outreach services, and additional built and supportive housing opportunities.
  - The Sheriff/Coroner/Public Administrator is continuing to fund the HOPE Program (Homeless Outreach Proactive Enforcement) Team ($620,000), which provides services to the homeless population by connecting them to the appropriate agencies for much needed services that help in the transition from homelessness.
  - The Probation Department has included $3.2 million towards transitional housing for adult offenders requiring Probation Department supervision.

- The Department of Behavioral Health is expanding Mental Health Treatment Services, notable in the following areas:
  - $1.0 million towards staffing Community Crisis Response Team clinics, which will now provide 24 hour services to departmental consumers and respond to requests by law enforcement for support during night hours. The department has also allocated $36.5 million towards the construction of new CCRT clinics throughout the County to expand these services.
  - $8.5 million for the Mental Health Act (MHSA) Comprehensive Children and Family Support Services program to support expanded mental health services for children.
  - $4.3 million for the MHSA Regional Adult Full Service Partnership (FSP) program support expanded mental health services to adults.
  - $1.0 million for the MHSA Forensic Integrated Mental Health Partnership program to expand services to develop peer support and mentoring strategies for individuals who have been released early from County jail or State prison.

- The Sheriff/Coroner/Public Administrator budget included $1.1 million of existing departmental resources for a program authorized by the Board as a pilot on December 15, 2015 (Item No. 72) related to the delivery of law enforcement services to unincorporated areas of the West End including the North Rancho/Etiwanda Preserve and the Mission Corridor, respectively. The program was successful and is now being incorporated as an ongoing service beginning in 2016-17 ,

- The Sheriff/Coroner/Public Administrator budget includes $9.0 million of one-time Discretionary General Funding (Net County Cost) to replace 2 aging and obsolete patrol helicopters: including equipment, travel and training for pilots and mechanics, installation of equipment, and delivery charges. The helicopter replacements will provide newer more reliable aircraft.
- The Public Defender Proposition 47 program will use media resources to reach all potential citizens who have convictions eligible for reclassification to further enhance their ability to rehabilitate within the community.

- County Fire is assuming fire, rescue, Emergency Medical Services (EMS), and prevention responsibilities within the Cities of San Bernardino ($29.6 million) and Twentynine Palms ($1.7 million) as a result of the pending annexations. This continued expansion of a regional approach will provide a more effective and efficient delivery of fire services for County residents.

- Land Use Services Code Enforcement is continuing to pilot various strategic initiatives to address issues with short-term rentals, particularly in the mountain areas. For 2016-17, a pilot program for a short-term rental hotline will be established where the public can report illegal or disruptive activities at short-term rental properties.

- The Information Services Department Telecommunication Services division is in the process of upgrading the County's Regional Public Safety Radio System (800 Mhz Upgrade Project). The project is currently on schedule, with an estimated completion date of 2020-21. The estimated cost of the project is $158.2 million primarily funded with Discretionary General Funding.

- The Department of Aging and Adult Services (DAAS) budget of $8.3 million will supplement programs such as the Elderly Nutrition, Supportive Services, Medicare Improvements for Patients and Providers Act, and Family Caregiver.

- The Arrowhead Regional Medical Center (ARMC) budget includes the addition of 14 positions to strengthen the Sterile Processing division to meet operational needs and ensure compliance with regulatory standards.

- The Department of Children and Family Services is implementing an After Hours Response Center (ARC) in June 2016 to provide optimal customer services to our community partners, children and families. The Center will enhance the departments critical after hour function of responding to child abuse, neglect and exploitation referrals called into the Child and Adult Abuse Hotline (CAAHL).

Pursue County Goals and Objectives by Working with Other Agencies

- ARMC is participating in California's 1115 waiver Renewal (Medi-Cal 2020), working alongside the California Association of Public Hospitals, the State of California, The Centers for Medicare & Medicaid Services, and multiple County departments focusing on improved patient outcomes, efficiencies and access in patient care integrated care models and procuring maximum reimbursement for performance of prescriptive clinical measures. The budget includes $52.5 million in revenues related to the Medicaid Waiver programs.

Focus on Recovery and Resiliency Following the December 2, 2015 Terrorist Attack (SB Strong)

- The County Administrative Office has commenced a countywide effort to document the impact and ongoing response to the December 2, 2015 terrorist attack while pursuing multiple sources of potential cost-reimbursement and to create a historic and best-practices document.

- The County has allocated approximately $10.2 million in funds towards improving security at County facilities. This includes $8.2 million in immediate improvements to facilities, such as expanded security guard services, upgraded security camera and key card access installations, and $2.0 million to conduct a security assessment of all County facilities.

Challenges in Fiscal Year 2016-17 and Beyond

Although the balancing of future costs with projected revenue has improved compared to prior County five year forecasts, broad economic challenges remain. The current economic expansion will be 7 years at the end of June 2016, which is the fourth longest in the history of the United States and cannot be assumed to last indefinitely. In addition, the fiscal uncertainly inherent in the State budget process continues to present a major challenge to the County's fiscal planning efforts.

Economic Challenges

The County's Five Year Financial Forecast covers July 2016 through June 2021 and includes moderate growth of major revenue streams throughout the period. Not included in the forecast are the impacts of a potential recession or the unknown economic impacts of the coming statewide $15 minimum wage.

By the end of the third year of the County's forecast the current economic expansion would match the longest expansion in history. Although the weakness of the current recovery and quantitative easing may have pushed off the next recession temporarily, it would be without precedent for the economy to expand throughout the County's entire five year forecast. In response to these unknown variables, the County has taken the approach of budgeting revenue growth in a conservative fashion over the entire five year forecast rather than assuming greater potential revenue increase in the immediate future with reductions in the later part of the forecast.

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Section 6. Mitigation Strategy

6.1 Mitigation Goals and Objectives

Goals and objectives discussed in this section help describe what actions should occur, using increasingly narrow descriptors. Long-term goals are developed which can be accomplished by objectives. To achieve the stated objectives "mitigation actions" provide specific measurable descriptors on how to accomplish the objective. The goals, objectives, and actions form the basis for the development of a Mitigation Action Strategy and specific mitigation projects to be considered for implementation.

The process consists of 1) setting goals and objectives, 2) considering mitigation alternatives, 3) identifying strategies or "actions", and 4) developing a prioritized action plan resulting in a mitigation strategy.

The following section provides an overview of the Mitigation Goals and Objectives for profiled hazards, Wildfire, Earthquake, Flood, Drought, Terrorism, and Climate Change for the County Unincorporated Area and the County's Special Districts. These goals were compiled from various sources including the County of San Bernardino 2007 General Plan. (See Section 3.5 for a detailed description of the process used by the County Planning Team)

6.1.1 All Hazard (AH)

AH GOAL: Increase readiness for all hazards in the unincorporated areas of San Bernardino County.

OBJECTIVE 1: Construct All-Hazard Response Facilities: Construct facilities to increase operational readiness to reduce impacts of natural hazards.

> **AH Action 1.1: Construct Valley Dispatch and Operations Center.** Construct facility and ensure cohesive working and response to any scale emergency and operations in a secure complex
>
> **AH Action 1.2: Construct Shelter Operations Compound (SHOC).** This shelter concept provides a new one-stop shelter concept. The SHOC combines a shelter, a Local Assistance Center (LAC) and a Non-LAC Unit in one easy location.

OBJECTIVE 2: Special District Funding: Continue Special Districts Projects relating to all hazards.

AH Action 2.1: Continue funding and support for Special Districts Projects relating to water systems, sewer systems, wastewater treatment, roads, TV districts, park districts, Big

Bear Valley Recreation Park District and Bloomington Recreation and Park District for all hazards.

AH Action 2.2: Install Generators at Critical Facilities Retrofit existing buildings and facilities with connectors/ ATS for emergency generators and/or install permanent emergency generators at critical facilities, including wells and booster station locations.

AH Action 2.3: Water Systems Repair Plan Develop a plan for speeding the repair of and functional restoration of water and wastewater systems through stockpiling of shoring materials, temporary pumps, surface pipelines, portable hydrants, and other supplies.

AH Action 2.4: Smart Water Meters and SCADA Utilization of SCADA and Smart Water Meters to get real time data on problems with the system and reduce drive time emissions as a result of traditional meter reading.

AH Action 2.5: Provide Employees with Emergency Supplies Provide emergency supplies of food, water, and portable generators for employees at office and field locations.

AH Action 2.6: Annual Tower and Guide Wire Inspections Conduct annual tower and guide wire inspections to mitigate storm/wind/earthquake hazards from knocking out communications.

AH Action 2.7: **Maintain Tower Lighting** Maintain lights on all tower locations.

AH Action 2.8: Designate Emergency Operations Sites Conduct an inventory or list of County Park Facilities and Community Centers to establish a list of pre-designated emergency operations or disaster relief sites. Not all Community Centers are an appropriate size to accommodate large numbers of evacuees and may only serve as command and control centers or distribution centers.

AH Action 2.9: Establish Power Sources for Emergency Operations Sites Establish small solar energy fields or other forms of renewable power at County Community Centers to
facilitate stand-alone emergency operations for the community.

AH Action 2.10: Connect Water Systems to Generators Connect water systems to generators to ensure delivery even in disaster situations.

AH Action 2.11: Establish a Centralized Communications Network Establish a centralized communications network to monitor channel output for TV Districts and provide emergency information by way of character generator tied to channel transmissions.

AH Action 2.12: Incorporate as appropriate requirements from the State of California's most recent land use regulations regarding the hazard mitigation planning process (Government Code 65302 and 8685.9).

6.1.2 Wildfire (WF)

WF GOAL: Continue to reduce fire hazards in the unincorporated areas of San Bernardino County.

WILDFIRE OBJECTIVE 1: **Mountain Area Safety Taskforce.** Continue the cooperation and coordination of Fire Hazard Mitigation efforts with all stakeholders in the mountain areas of San Bernardino County through participation in MAST.

WF Action 1.1: Continue Mountain Area Safety Taskforce (MAST) funding to support mitigation activity.

WILDFIRE OBJECTIVE 2: Support Mountain Mutual Aid Objectives. Continue development of and continue the mission of mutual aid between the first responders in the County mountain areas through County Mitigation Planning.

WF Action 2.1: Update Mountain Mutual Aid Mapbook to document.

WF Action 2.2: Update Community Structure Protection Plans as necessary.

WILDFIRE OBJECTIVE 3: Community Based Fuels Reduction Program. Continue the community based Fuels Reduction Program through community based programs, both volunteer and government funded.

WF Action 3.1: Implement identified community based fuels reduction projects.

WF Action 3.2: Develop fuels reduction "maintenance program" by obtaining participation from citizens and/or homeowners associations.

WF Action 3.3: Vegetation Removal Clear vegetation from Road District facilities/yards.

WILDFIRE OBJECTIVE 4: Forest Care. Continue providing assistance to homeowners by expanding services to all communities in the Mountain areas of the County.

WF Action 4.1: Increase homeowner assistance services to mountain residents for fuel reduction.

WF Action 4.2: Continue working with Southern California Edison to remove dead trees near power lines.

WILDFIRE OBJECTIVE 5: County Fire Hazard Abatement. Overcome funding shortfalls while improving service delivery.

WF Action 5.1: Inspect every residence in the mountain communities within the next two years to enforce the new Fire Hazard Abatement code that addresses green fuels.

WF Action 5.2: Continue to collaborate with Forest Care, Red, Cross and Cal Fire to overcome increased costs of enforcement.

WILDFIRE OBJECTIVE 6: Decrease Wildfire Hazards at Private Property through the Fire Hazard Abatement Programs

WF Action 6.1: Train and Certify landscape contractors to comply with the new Fire Hazard Abatement Code.

WF Action 6.2: Continue wildfire mitigation efforts under the Wood Shake Roof Replacement Program.

WF Action 6.3: Protect Property in Wilderness Areas Rockscape or pave property grounds which have structures located in wilderness and or areas prone to wildfires. Double the width of external fire breaks.

WILDFIRE OBJECTIVE 7: Support Mitigation Strategies in Community Wildfire Protection Plans. Continue to improve CWPP's in cooperation with Cal Fire, the IEFSA and individual Fire Safe Councils.

WF Action 7.1: Modify independent and unique CWPPs into a more common framework making them similar but leaving room to provide specific hazard characteristics and mitigation actions for each community.

WILDFIRE OBJECTIVE 8: Improve Emergency Access. Improve and maintain emergency access for wildfire protection.

WF Action 8.1: Construct Arrowbear Drive Realignment and Widening

WF Action 8.2: Construct Cedar Glen Fire Access Road

WF Action 8.3: Structural Fire Breaks Widening Double the width of external fire breaks on grounds which have structures located in wilderness and or areas prone to wildfires.

WILDFIRE OBJECTIVE 9: Special District Funding: Continue Special Districts Projects relating to wildfire.

WF Action 9.1: Continue funding and support for Special Districts Projects relating to wildfire in the categories of water systems, sewer systems, wastewater treatment, roads, TV districts, park districts, Big Bear Valley Recreation Park District and Bloomington Recreation and Park District.

WF Action 9.2: Emergency Water Supplies Purchase emergency water supply or water purification devices to ensure uninterrupted supply of water to emergency response personal. (completed with continuous fresh of supplies and rotation)

6.1.3 Earthquake/Geologic Hazards (EQ)

GOAL: Minimize exposure to structural and contents damage from geologic and seismic conditions. (Complements General Plan, Section VIII, Safety Element (Goal S 7)

EARTHQUAKE OBJECTIVE 1: Educate the public on reducing earthquake risk.

EQ Action 1.1: Improve public education programs and practices to residents for earthquake risk.

EARTHQUAKE OBJECTIVE 2: Protect occupants and structures in proposed developments from high levels of risk caused by rupture of the ground surface during an earthquake (Complements General Plan, Section VIII Safety Element Policy S 7.4).

EQ Action 2.1: Evaluate single family homes for Earthquake hazard when conducting permit applications and plan reviews.

EQ Action 2.2: Seismic Strapping for existing water tanks and future construction.

EQ Action 2.3: Employee Emergency Sheltering Develop a plan for short-term and intermediate-term sheltering of employees.

EARTHQUAKE OBJECTIVE 3: Continue geologic hazard mapping projects to minimize and prevent damage caused by earthquakes and other geologic hazards.

EQ Action 3.1: Identify liquefaction hazard areas outside the currently designated Geologic Hazard Overlay Districts.

EARTHQUAKE OBJECTIVE 4: Protect life and property from risks resulting from gravity-derived and/or earthquake-triggered landslides, expansive soils and/or other poor soil conditions. (Complements General Plan, Section VIII, Safety Element Policy § 7.6)

EQ Action 4.1: Require development on hillsides to minimizes the extent of topographic alteration and erosion, to maintain slope stability, and to reduce the potential for offsite sediment transport (Complements General Plan, Section VIII, Safety Element Policy § 6.1).

EQ Action 4.2: Generator Installation Install generators at all road facilities. This will allow uninterrupted communications and provide power to refuel critical emergency response equipment.

EARTHQUAKE OBJECTIVE 5: Reduce runoff over the cliffs in the Rimforest neighborhood. (Complements Rimforest Drainage Feasibility Study)

EQ Action 5.1: Divert runoff to Little Bear Creek.

EARTHQUAKE OBJECTIVE 6: Special District Funding: Continue Special Districts Projects relating to earthquake hazards.

EQ Action 6.1: Continue funding and support for Special Districts Projects relating to earthquake hazards in the categories of water systems, sewer systems, wastewater treatment, roads, TV districts, park districts, Big Bear Valley Recreation Park District and Bloomington Recreation and Park District.

6.1.4 Flood (FL)

GOAL: Provide adequate flood protection to minimize hazards and structural damage. (General Plan, Safety Element, Goal S 5)

FLOOD OBJECTIVE 1: National Flood Insurance Program. Participate in the National Flood Insurance Program (NFIP), which provides flood insurance within designated floodplains. (General Plan, Safety Element, Policy S 5)

FL Action 1.1: Update NFIP data and maps with newly identified flood hazard areas in the County, as new information becomes available.

FLOOD OBJECTIVE 2: Alluvial Task Force. Review and analyze the findings and recommendations from the recently released Alluvial Fan Task Force reports, as funding permits.

FL Action 2.1: Determine whether or not additional amendments to development standards or policies are merited, based on the completed analysis.

FLOOD OBJECTIVE 3: Flood Hazard Reduction. Reduce flood hazards through development standards and policies stated in the County of San Bernardino General Plan and County of San Bernardino 2010 Development Code.

FL Action 3.1: Amend the Flood Plain Safety Overlay District through automatic map updates as new data is released and published by FEMA.

FL Action 3.2: Review development plans to ensure compliance with ordinances.

FL Action 3.3: Inspect construction to ensure compliance with approved development plans.

FL Action 3.4: Soil Stabilization on Roadways and Along Roadway Shoulders Soil stabilization on roadway shoulders and dirt roads. This will prevent erosion caused by flood conditions.

FL Action 3.5: Encasing Pipelines Encase water pipelines with specific sized rock, gravel, and road base in natural waterways to prevent continual washout or exposure during heavy storm events/floods.

FLOOD OBJECTIVE 4: Future Flood Mitigation Projects. Improve existing facilities and construct new facilities to mitigate flooding with the County.

FL Action 4.1: In each flood control zone, construct facilities identified in those zones by the Flood Control Advisory Committee. See Flood Control District Annex for a listing of projects.

FLOOD OBJECTIVE 5: Special District Funding: Continue Special Districts Projects relating to flood hazards.

FL Action 6.1: Continue funding and support for Special Districts Projects relating to flood hazards in the categories of water systems, sewer systems, wastewater treatment, roads, TV districts, park districts, Big Bear Valley Recreation Park District and Bloomington Recreation and Park District.

FL Action 6.2: On Call Contractors Employ on call contractors to assist in emergency situations.

6.1.5 Drought (DR)

GOAL: Minimize the effects of drought on the County in all aspects including economically and socially.

DROUGHT OBJECTIVE 1: Educate the public on water conservation methods.

DR Action 1.1: Create a public awareness campaign advising citizens, business owners and farmers on water conservation.

DR Action 1.2: Provide incentives for farmers to grow crops that are less water intensive.

DR Action 1.3: Continue to coordinate with the San Bernardino Valley Water Conservation District to provide Qualified Water Efficient Landscaper (QWEL) training.

DR Action 1.4: Continue to enforce the watering schedule and watering restrictions throughout the County.

DROUGHT OBJECTIVE 2: Protect the quality of the County's watersheds.

DR Action 2.1: Approve the County's Watershed Water Quality Management Plan written in 2013.

DROUGHT OBJECTIVE 3: Special District Funding: Continue Special Districts Projects relating to drought hazards.

DR Action 3.1: Continue funding and support for Special Districts Projects relating to drought hazards in the categories of water systems, sewer systems, wastewater treatment, roads, TV districts, park districts, Big Bear Valley Recreation Park District and Bloomington Recreation and Park District.

6.1.6 Anti-Terrorism (AT)

GOAL: Use antiterrorism strategies to discourage terrorism and protect the people, infrastructure and assets in San Bernardino County from the effects of terrorism.

ANTI-TERRORISM OBJECTIVE 1: Use anti-terrorism design strategies to discourage / prevent acts of terrorism.

AT Action 1.1: Identify and prioritize mitigation activities (anti-terrorism force protection) at critical facilities and gathering places that are vulnerable to terrorist attacks.

ANTI-TERRORISM OBJECTIVE 2: Special District Funding: Continue Special Districts Projects relating to terrorism hazards.

AT Action 2.1: Continue funding and support for Special Districts Projects relating to terrorism hazards in the categories of water systems, sewer systems, wastewater treatment, roads, TV districts, park districts, Big Bear Valley Recreation Park District and Bloomington Recreation and Park District.

6.1.7 Climate Change (CC)

GOAL: Reduce the impacts of climate change on the County and limit human activities that change the atmosphere's makeup.

CLIMATE CHANGE OBJECTIVE 1: Meet greenhouse gas (GHG) reductions targets set forth by the Clean Air Act.

CC Action 1.1: Continue working with the South Coast Air Quality Management District and the Mojave Desert AQMD to meet GHG reductions targets.

CC Action 1.2: Continue implementing the energy conservation and efficiency measures identified in the County of San Bernardino Greenhouse Gas Emissions Reduction Plan. (San Bernardino County Renewable Energy and conservation Element)

CLIMATE CHANGE OBJECTIVE 2: Educate the public on the effects of climate change and reducing our impact.

CC Action 2.1: Encourage carpooling and the use of public/ alternative transportation methods.

CC Action 2.2: Optimize energy efficiency in the built environment and promote the local economic benefits of energy efficiency retrofits. (San Bernardino County Renewable Energy and conservation Element)

CC Action 2.3: Encourage residents and businesses to conserve energy. (San Bernardino County Renewable Energy and conservation Element)

CLIMATE CHANGE OBJECTIVE 3: Special District Funding: Continue Special Districts Projects relating to climate change hazards.

CC Action 3.1: Continue funding and support for Special Districts Projects relating to climate change hazards in the categories of water systems, sewer systems, wastewater treatment, roads, TV districts, park districts, Big Bear Valley Recreation Park District and Bloomington Recreation and Park District.

6.2 Mitigation Strategy

To narrow mitigation alternatives for inclusion, FEMA's six broad categories of mitigation alternatives were used. Each FEMA category is listed below. The HMP Planning Committee developed several mitigation alternatives for implementation under each mitigation category.

- Prevention (PRV)

- Property Protection (PPRO)
- Public Education and Awareness (PE&A)
- Natural Resource Protection (NRP)
- Emergency Services (ES)
- Structural Projects (SP)

Table 6-1 summarizes the mitigation alternatives for categories of projects addressing the hazards in the San Bernardino County Unincorporated Area Multi-Jurisdictional Hazard Mitigation Plan. The Table includes implementation strategies for the wildfire, earthquake/geologic hazards, flood, drought, climate change and terrorism.

Table 6-1: Mitigation Alternative Summary

Action	Lead Agency	Hazard	Funding Source
Prevention (PRV): **Preventative activities are intended to keep hazard problems from getting worse, and are typically administered through government programs or regulatory actions that influence the way land is developed and buildings are built. This includes the development of additional code requirements to further reduce or eliminate damages from the identified hazards.**	County Land Use Services	All Hazards	General Fund
Natural Resource Protection (NRP): **To locate and protect natural and cultural resources at risk from the identified hazards.**	Fire Protection District / Flood Control District	Wildfire and Flood	General Fund, Grants
Property Protection (PPRO): **Property protection measures involve the modification of existing buildings and structures to help them better withstand the forces of a hazard, or removal of the structures from hazardous locations.**	Fire Protection District.	Wildfire	General Fund, Grants
Public Education and Awareness (PE&A): **To continue and develop new public education programs targeting the top identified hazards.**	Fire Protection District.	All Hazards	General Fund, Grants

Action	Lead Agency	Hazard	Funding Source
Emergency Services (ES): **Although not typically considered a "mitigation" technique, emergency service measures do minimize the impact of a hazard event on people and property. These commonly are actions taken immediately prior to, during, or in response to a hazard event. Examples include:**	Fire Protections District	All Hazards	General Fund, Special District Funds, Grants
Structure Protection (SP) – Flooding **To continue to identify, fund, and build projects that reduce or eliminate flood hazards in the County.**	Flood Control District	Flooding Hazards	General Fund, Special District Funds, Grants
Structure Protection (SP)– Geological Hazards **To identify unknown hazards and develop additional new and retrofit requirements or programs to reduce or eliminate damage from geological hazards.**	Land Use Services	Geological Hazards	General Fund Grants
Structure Protection (SP) – Wildfire **To further protect structures at risk from wildfire through education, building, and enforcement codes and actions.**	Fire Protections District	Wildfire	General Fund, Special District Funds, Grants

6.2.1 Mitigation Action Plan

This section serves to identify *on-going* actions and projects in the County Unincorporated Area. With the results of the hazard risk assessment finalized, mitigation goal established, and capabilities assessed, the County and participating districts then set out to identify new mitigation actions that would reduce the outlined in the vulnerability assessment.

Not all identified mitigation actions are implementable in the 5-year plan cycle, due to technical feasibility, political acceptance, lack of funding, or other constraints. Once the mitigation actions for each participating jurisdiction were identified, they were evaluated and prioritized (by providing a time frame) to identify the most suitable mitigation actions for each participating jurisdiction to implement.

Cost effectiveness of each measure was a primary consideration when developing mitigation actions. Because mitigation is an investment to reduce future damages, it is important to select measures for which the reduced damages over the life of the measure are likely to be greater than the project cost. For structural projects, the level of cost effectiveness is primarily based on the likelihood of damages occurring in the future, the severity of the damages when they occur, and the level of effectiveness of the selected measure. While detailed analysis was not conducted during the mitigation action development process, these factors were of primary concern when selecting measures. For measures that do not result in a quantifiable reduction of damages, such as public education and outreach, the relationship of the probable future benefits and the cost of each measure was considered when developing the mitigation actions.

Based upon the participating jurisdiction capabilities, Table 6-2 shows primary actions selected for further implementation and development during the next planning cycle. Table 6-2 provides details for each mitigation action with mitigation action descriptions, FEMA mitigation category, responsible party, and timeframe.

Important to Note: See Jurisdictional Annexes for more information on implementation mechanisms and mitigation projects for each participating jurisdiction. If a participating jurisdiction is identified as a primary lead for implementation, the mitigation actions are also contained the corresponding jurisdictional annex.

Table 6-2: Mitigation Action Descriptions

Hazard	Mitigation Action	Description / Background	Mitigation Strategy Type	Funding	Responsible Agency	Time Frame	Status / Comments / Implementation Mechanisms
ALL Hazard	**AH Action 1.1:** Valley Dispatch and Operations Center.	Update and maintain the operations of the facility and ensure cohesive working and response to any scale emergency and operations in a secure complex	ES	Budgetary Items from County and Federal Grant Funding EMPG, HMPG, UASI.	Fire Protection District.	1-3 Years	See Fire Protection District Annex A. Section A.6 Fire Protection District Mitigation Project .
ALL Hazard	**AH Action 1.2:** Maintain Shelter Operations Compound (SHOC). This shelter concept provides a new one-stop shelter concept. The SHOC combines a shelter, a Local Assistance Center (LAC) and a Non-LAC Unit in one easy location.	After the 2003 Wildland Fires, the County and American Red Cross recognized the need to provide services beyond basic care and short-term sheltering, especially during large fires, floods, and earthquakes The Mass Care & Shelter Plan and Concept of Operations, outlines the framework of a new one-stop shelter concept. Shelter Operations Compound (SHOC). It combines a shelter, a Local Assistance Center (LAC) and a Non-LAC Unit in one easy location. Residents can access public information and referral services through the LAC, and then take a short walk to the Non-LAC Unit for communication, postal services, and other private organizations/business at little to no cost. The completion of the Plan in 2012 will help to sync local resources, encourage local self-sufficiency, foster partnership between public and private agencies, and serve as a reference document for the region. By June 2017, the program will have 32 trailers/caches equipped with mass care and shelter supplies, strategically placed throughout the County and ready for rapid deployment. It is expected to serve over 12,000 residents. In addition to enhancing the comfort levels of shelter residents, the program will produce standardized documents and protocols for procuring and maintaining Mass Care and Shelter trailers/caches. These plans and programs will help the County prepare for and mitigate damages from hazards. This is an update and expansion of the plan and done without more grant funds.	ES	To increase Mass Care and Shelter capability of the county, grants from 2008-2009 Homeland Security Grant Program (HSGP) and 2009 Riverside Regional Urban Area Security Initiative (UASI) funded the Mass Care and Shelter Trailer/Cache Program.	Fire Protection District/	1-5 Years	See Fire Protection District Annex A. Section A.6 Fire Protection District Mitigation Project .
All-Hazard	**AH Action 2.1:** Continue funding and support for Special Districts Projects relating to all hazards.	Continue funding and support for Special Districts Projects relating to water systems, sewer systems, wastewater treatment, roads, TV districts, park districts, Big Bear Valley Recreation Park District and Bloomington Recreation and Park District for all hazards. For more information regarding these projects, see Annex C Section C.7.	VARIES	VARIES	VARIES	Ongoing	
All-Hazard	**AH Action 2.2:** Install Generators at Critical Facilities	Retrofit existing buildings and facilities with connectors/ ATS for emergency generators and/or install permanent emergency generators at critical facilities, including wells and booster station locations.	ES, SP	TBD	Water Systems	TBD	Critical sites are already set up for connection or has a permanently installed generator

Hazard	Mitigation Action	Description / Background	Mitigation Strategy Type	Funding	Responsible Agency	Time Frame	Status / Comments / Implementation Mechanisms
All-Hazard	**AH Action 2.3:** Water Systems Repair Plan	Develop a plan for speeding the repair of and functional restoration of water and wastewater systems through stockpiling of shoring materials, temporary pumps, surface pipelines, portable hydrants, and other supplies.	PRV	SDD WAS	Water Systems	TBD	We have a warehouse and inventory. Add'l inventory would need to be purchased from local wholesaler
All-Hazard	**AH Action 2.4:** Smart Water Meters and SCADA	Utilization of SCADA and Smart Water Meters to get real time data on problems with the system and reduce drive time emissions as a result of traditional meter reading.	PRV	Individual CSAs	Water Systems	Ongoing	Both SCADA and Smart Meters have been installed and continue to be installed
All-Hazard	**AH Action 2.5:** Provide Employees with Emergency Supplies	Provide emergency supplies of food, water, and portable generators for employees at office and field locations.	ES	SDD/WAS	Water Systems	Ongoing	WAS has a stock of emergency food supplies, water, and generators.
All-Hazard	**AH Action 2.6:** Annual Tower and Guide Wire Inspections	Conduct annual tower and guide wire inspections to mitigate storm/wind/earthquake hazards from knocking out communications.	PRV	TBD	TV Districts	7/1/2016-7/1/2017	All Districts
All-Hazard	**AH Action 2.7**: Maintain Tower Lighting	Maintain lights on all tower locations.	SP	TBD	TV Districts	June-17	
All-Hazard	**AH Action 2.8:** Designate Emergency Operations Sites	Conduct an inventory or list of County Park Facilities and Community Centers to establish a list of pre-designated emergency operations or disaster relief sites. Not all Community Centers are an appropriate size to accommodate large numbers of evacuees and may only serve as command and control centers or distribution centers.	PRV	TBD	Park Districts	April-17	All Districts
All-Hazard	**AH Action 2.9:** Establish Power Sources for Emergency Operations Sites	Establish small solar energy fields or other forms of renewable power at County Community Centers to facilitate stand-alone emergency operations for the community.	PRV, SP	TBD	Park Districts	12/1/2016-7/1/2018	Lucerne Valley Joshua Tree
All-Hazard	**AH Action 2.10:** Connect Water Systems to Generators	Connect water systems to generators to ensure delivery even in disaster situations.	PRV, SP	TBD	Park Districts	TBD	
All-Hazard	**AH Action 2.11:** Establish a Centralized Communications Network	Establish a centralized communications network to monitor channel output for TV Districts and provide emergency information by way of character generator tied to channel transmissions.	PRV	TBD	TV Districts	7/1/2017-12/1/2017	All districts
All-Hazard	**AH Action 2.12** Incorporate as appropriate requirements from the State of California's	Government Code 65302.6 requires the following elements to be included in the hazard mitigation plan: (1) An initial earthquake performance evaluation of public facilities that provide essential services, shelter, and critical governmental functions.	PRV, NRP	TBD	Primary: Land Use Services	1-3 years	

Hazard	Mitigation Action	Description / Background	Mitigation Strategy Type	Funding	Responsible Agency	Time Frame	Status / Comments / Implementation Mechanisms
	most recent land use regulations regarding the hazard mitigation planning process (Government Code 65302 and 8685.9).	(2) An inventory of private facilities that are potentially hazardous, including, but not limited to, multiunit, soft story, concrete tilt-up, and concrete frame buildings. (3) A plan to reduce the potential risk from private and governmental facilities in the event of a disaster. Government Code 8685.9 requires that the state share shall not exceed 75 percent of total state eligible costs unless the local agency is located within a city, county, or city and county that has adopted a local hazard mitigation plan as part of the safety element of its general plan. In that situation, the Legislature may provide for a state share of local costs that exceeds 75 percent of total state eligible costs.			Secondary: Fire Protection District/		
All-Hazard	**AH Action 3.1:** Continue funding and support for Special Districts Projects relating to all hazards.	Continue funding and support for Special Districts Projects relating to water systems, sewer systems, wastewater treatment, roads, TV districts, park districts, Big Bear Valley Recreation Park District and Bloomington Recreation and Park District for all hazards. For more information regarding these projects, see Annex C Section C.7.	VARIES	VARIES	VARIES	On-Going	
Wildfire	**WF Action 1.1** Continue Mountain Area Safety Taskforce (MAST) funding to support mitigation activity.	MAST was formed to mitigate the region wide risk of a catastrophic wildfire due to dead and dying trees in the mountain communities. The mission of the MAST is to facilitate a coordinated effort by cities, county, state, federal, and non-profit agencies to provide for the protection of property owners, residents, and property subject to the risk of catastrophic wildfire that could occur in San Bernardino County with an initial emphasis on the threat resulting from the Old and Grand Prix fires in 2003. MAST priorities are to continue reducing fire hazards through fuel reduction programs and hazard abatement though enforcement of county ordinances. The Mountain Area Safety Taskforce (MAST) Operations Section meets monthly. MAST Operations Section determines project priorities based on the benefit cost analysis of the projects and the effect of the project on the overall goals of the MAST organization. Goals can change as detailed Benefit Cost Analysis is conducted and CEQA/NEPA reviews are completed.	NRP, PPRO	Seeking additional funding through HMPG.	San Bernardino County Fire Protection District	On-Going	See Implementation plan on more information on MAST. See Fire Protection District Annex A. Section A.6 Fire Protection District Mitigation Project .
Wildfire	**WF Action 2.1:** Update Mountain Mutual Aid Map Book to document updated information contained in 2016 HMP.	The Map Book portion of the Community Safety and Structure Protection Plan provides not only a street network of the area but more importantly it provides the locations of strategic and critical resources for fire fighters. These include but are not limited to safe zones, open areas, locations for refuge. They also identify areas within communities that have narrow and steep winding streets and or with limited ingress and egress. The document is handed out to all responding strike teams from out of the area and has proved invaluable in directing and coordinating an effective firefighting response and reduces the potential for life loss and property damage.	ES	Seeking additional funding through HMPG.	San Bernardino County Fire Protection District	On-Going	See Fire Protection District Annex A. Section A.6 Fire Protection District Mitigation Project .

Hazard	Mitigation Action	Description / Background	Mitigation Strategy Type	Funding	Responsible Agency	Time Frame	Status / Comments / Implementation Mechanisms
Wildfire	**WF Action 2.2** Update Community Structure Protection Plans as necessary.	This is an on-going action (from the 2011 MJHMP) with the goal to continue development of and continue the mission of mutual aid between first responders in the County mountain areas.	PPRO		Fire Protection District	On-Going	
Wildfire	**WF Action 3.1:** Implement identified community based fuels reduction projects.	The Fuels Reduction Program is designed to create community based fuel modification programs across the mountain communities. These projects are selected specifically to reduce the potential for catastrophic wildfires and the damage that they can do to the communities. Project design, contracting, and operations are managed by the County's Public Works Department with priorities set by local fire chiefs in monthly MAST Operations Meetings. This program is the oldest and most significant for reducing wildfire threat on a mountain wide basis.	PPRO	Current Funding: Seeking additional funding through HMPG.	Primary: San Bernardino Public Works Department Secondary: County Fire Protection District	On-Going	
Wildfire	**WF Action 3.2:** Develop fuels reduction "maintenance program" by obtaining participation from citizens and/or homeowners associations.	To survive a wildfire, property owners need to manage the land surrounding their homes and communities effectively. Removing fuels in the wildland fuel reduction zone beyond the defensible space can reduce the speed and intensity of an oncoming wildfire. But if these areas aren't regularly **maintained**, they lose their effectiveness. Plants grow back, and flammable vegetation needs to be routinely removed and disposed of properly. This guide provides tips on how to create and maintain defensible space and wildland fuels treatments around your property.	PPRO, PE&A	Seeking additional funding through HMPG	Primary: Public Works Secondary: Fire Protection District	On-Going	
Wildfire	**WF Action 4.1** Increase homeowner assistance services to mountain residents for fuel reduction.	This is an ongoing wildfire mitigation action (from the 2011 MJHMP) for the group Forest Care to achieve the goal of providing assistance to homeowners by expanding services to all communities in the Mountain areas of the County. Forest Care is a program dedicated to creating a healthier forest. This program provides foresters to assess individual properties for thinning the vegetation and then provides 75% of the funding to do so.	PPRO, PE&A	Seeking additional funding through HMPG	San Bernardino County Fire Protection District	On-Going	
Wildfire	**WF Action 4.2** Continue working with Southern California Edison (SCE) to remove dead trees near power lines.	A significant number of fires across the State are caused by trees falling into power lines. When the forests in the mountain communities became infested with bark beetles the pine tree die off was unprecedented. Thousands of these dead trees were standing precariously close to power lines. Early in the Bark Beetle Emergency in 2004, Southern California Edison swiftly initiated a program to remove all trees that were dead, dying, and/or diseased that had the potential to fall into any SCE power lines.	PRV, PPRO	As of July of 2010 Southern California Edison (SCE) has spent $179,758,978 to remove dead dying and diseased trees.	San Bernardino County Fire Protection District	On-Going	

Hazard	Mitigation Action	Description / Background	Mitigation Strategy Type	Funding	Responsible Agency	Time Frame	Status / Comments / Implementation Mechanisms
		The role of Southern California Edison was critical to the success of MAST both operationally and financially. Edison still removes the most difficult trees, the most costly trees; and the ones that are most likely to be the source of ignition for a wild land fire. They are also removing the trees that are immediately threatening homes. They have removed 118,305 trees since the inception of the program in 2004. They also provided reimbursements to people that removed their own trees.					
Wildfire	**WF Action 5.1:** Inspect every residence in the mountain communities throughout the year to enforce the Fire Hazard Abatement code that addresses green fuels.	The Fire Hazard Abatement Program conducts surveys to identify fire hazards throughout the year. Fire hazards are identified and notices to abate the hazard(s) are mailed to property owners. Property owners are given 30 days to abate the violations. Failure to abate may result in citations, penalties, and/or fees for abatement by the County. The Fire Hazard Abatement Program responds to complaints year round in the unincorporated areas and contracting Cities and Fire Districts. The Division completes more than 430,000 inspections, issues more than 45,000 Notices to Abate Fire Hazards, issues over 4,000 citations for non-compliance, and abates the fire hazards on more than 2,000 parcels annually. Within the last 5 years, the Fire Hazard Abatement Division has received even more financial resources that enable them to abate all properties declared a fire hazard.	PRV, PPRO, PE&A	Seeking additional funding through HMPG	Primary: Land Use Services Secondary: Fire Protection District	On-Going	For more information on Contractor Certification, see Annex A Section A.6 Fire Protection District Mitigation Project .
Wildfire	**WF Action 5.2:** Continue to collaborate with Forest Care, Red, Cross and Cal Fire to overcome increased costs of enforcement.	This is an on-going action from the 2011 MJHMP with the goal of overcoming funding shortfalls for the County Fire Hazard Abatement Program.	PRV		San Bernardino County Fire Protection District	On-Going	
Wildfire	**WF Action 6.1** Train and Certify landscape contractors to comply with the Fire Hazard Abatement Code.	The City of Big Bear Lake created a program to train and certify landscape contractors to provide a qualified workforce to conduct fuels reduction activities on individual properties. The contractors are trained to comply with the new Fire Hazard Abatement Code that exists both in the City of Big Bear and the County unincorporated area. The City of Big Bear Lake Fire Department conducts the classes for landscapers and handy persons. This provides an incentive for the contractors and provides a level of certification that the homeowner can rely on when they are deciding to hire a landscape contractor to conduct fuels abatement around their home.	PRV, PPRO	Seeking additional funding through HMPG	San Bernardino County Fire Protection District	On-Going	On-Going

Hazard	Mitigation Action	Description / Background	Mitigation Strategy Type	Funding	Responsible Agency	Time Frame	Status / Comments / Implementation Mechanisms
Wildfire	**WF Action 6.2:** Continue wildfire mitigation efforts under the Wood Shake Roof Replacement Program.	The County successfully passed an ordinance that requires the replacement of wood shake roofs by 2014. MAST has successfully mapped all of the wood shake roofs in the fire safety overlay and has created a strategy as to which roofs will be selected to participate in the FEMA funded project. This is an on-going project in cooperation with Big Bear Lake Fire Protection District in order to provide more funding for wood shake roof replacements by property owners.	PRV, PPRO, SP		Primary: MAST Secondary: San Bernardino County Fire Protection District	On-Going	
Wildfire	**WF Action 6.3:** Protect Property in Wilderness Areas	Rockscape or pave property grounds which have structures located in wilderness and or areas prone to wildfires. Double the width of external fire breaks.	PPRO, PRV, SP	TBD	Sewer Systems	January-17	All sewer pump stations have paving
Wildfire	**WF Action 7.1:** Modify independent and unique CWPPs into a more common framework making them similar but leaving room to provide specific hazard characteristics and mitigation actions for each community.	Community Wildfire Protection Plans are designed to provide a means for a community, usually through the Fire Safe Council, to have input into and actively participate in the planning, strategy, goals, and objectives of creating a fire safe community.	PRV	Seeking additional funding through HMPG	San Bernardino County Fire Protection District	On-Going	On-Going For more information on CWPP see Annex A Section A.6 Fire Protection District Mitigation Project .
Wildfire	**WF Action 8.1:** Construct Arrowbear Drive Realignment and Widening.	The Arrowbear community off State Highway 18 has limited access to State Highway 138. The existing bridge/spillway and road needs to be realigned and widened to facilitate access by emergency personnel during wildfires and flooding. Mitigation strategy for this is to remove and replace existing bridge/spillway, realign and widen the road.	SP	Seeking grant funding Total Cost: $3,000,000 Approx.	Primary: Public Works Secondary: San Bernardino County Fire Protection District	1-3 Years	
Wildfire	**WF Action 8.2:** Construct Cedar Glen Fire Access Road.	Lack of paved roads inhibits traffic circulation and the ability to enter and exit the area without backtracking during wildfire emergencies. Strategy is to Construct road and drainage improvements to Little Bear Creek Road and Elder Drive.	SP	Seeking grant funding **Total Cost:** $2,500,000	Public Works	1-3 Years	

Hazard	Mitigation Action	Description / Background	Mitigation Strategy Type	Funding	Responsible Agency	Time Frame	Status / Comments / Implementation Mechanisms
Wildfire	**WF Action 8.3:** Structural Fire Breaks Widening	Double the width of external fire breaks on grounds which have structures located in wilderness and or areas prone to wildfires.	SP, PRV	Individual CSAs	Water Systems	7/1/2017-7/19/2019	
Wildfire	**WF Action 9.1:** Continue funding and support for Special Districts Projects relating to wildfire.	Continue funding and support for Special Districts Projects relating to wildfire in the categories of water systems, sewer systems, wastewater treatment, roads, TV districts, park districts, Big Bear Valley Recreation Park District and Bloomington Recreation and Park District. For more information regarding these projects, see Annex C Section C.7.	VARIES	VARIES	VARIES	On-Going	
Wildfire	**WF Action 9.2:** Emergency Water Supplies	Purchase emergency water supply or water purification devices to ensure uninterrupted supply of water to emergency response personal.(completed with continuous fresh of supplies and rotation)	ES	TBD	Roads	TBD	
Earthquake	**EQ Action 1.1:** Improve public education programs and practices to residents for earthquake risk.	Public education and outreach programs are an efficient and cost-effective way to promote meaningful changes within a community. A Program for Public Information (PPI) for earthquake awareness and mitigation could significantly reduce injury and property damage to earthquake. Use a suite of partnerships, activities, and products to educate the public about earthquake science and motivating homeowners to become prepared for earthquakes.	PE&A		Human Resources	5-10 Years	
Earthquake	**EQ Action 2.1:** Evaluate single family homes for Earthquake hazard when conducting permit applications and plan reviews.	82.15.040 Development Standards states that a structure used for human occupancy shall be located 50 feet or farther from any active earthquake fault traces. Lesser setbacks may be applicable in certain situations as determined by an appropriate geologic investigation and approved by the County Geologist or other engineering geologist designated by the Building Official. Alquist-Priolo Earthquake Fault Zoning Act (Public Resources Code Section 2621 et seq.) requires the delineation of potential damage areas along known active faults throughout California. It requires local governments to withhold approval of construction permits in those zones until geologic investigation has determined that the site is not threatened by surface displacement from future faulting.	PRV		Land Use Services	TBD	On-Going
Earthquake	**EQ Action 2.2:** Seismic Strapping	Seismic strapping for existing water tanks and future construction.	SP, PRV	CSA 64	Water Systems	7/17/2017-7/1/2019	Ongoing currently
Earthquake	**EQ Action 2.3:** Employee Emergency Sheltering	Develop a plan for short-term and intermediate-term sheltering of employees.	PRV	WAS	Sewer Systems	7/17/2017-7/19/2019	To purchase cots, small portable generators, tents, etc.

Hazard	Mitigation Action	Description / Background	Mitigation Strategy Type	Funding	Responsible Agency	Time Frame	Status / Comments / Implementation Mechanisms
Earthquake	**EQ Action 3.1:** Identify liquefaction hazard areas outside the currently designated Geologic Hazard Overlay Districts.	Supported by General Plan mechanism (General Plan, Section VIII, Safety Element Policy § 7.5; California Building Code §1803.5.11); Seismically- induced lateral spreading, and/or seismically-induced lateral flow, can cause devastating structural damage and a high potential for saturation exists when the groundwater level is within the upper 50 feet of alluvial material.	PRV		Land Use Services	5-10 Years	
Earthquake	**EQ Action 4.1**: Require development on hillsides to minimizes the extent of topographic alteration and erosion, to maintain slope stability, and to reduce the potential for offsite sediment transport (Complements General Plan, Section VIII, Safety Element Policy § 6.1).	This mitigation action is especially important in the San Bernardino and San Gabriel Mountains which have high slope failure / erosion potential. Typical slope mitigation techniques that are used include: Drainage Improvements - Since water is the biggest culprit in failing slopes, drainage improvements should be the first priority. Some drainage improvements may include: ▪ Collect or divert surface water from the problem slope. This may include catch basins, swales, or sealing tension cracks to prevent infiltration. ▪ Collect and remove subsurface water. This may include drains constructed within the subsurface to remove excess seepage, or lower ground water. Some earthwork mitigation techniques are as follows: ▪ Remove the upper soils of the slope to create a flatter slope. ▪ Buttress the slope toe by filling with rock, gravel, or soil. ▪ Benching the slope if each bench is on competent subgrade. ▪ Structural Improvements - Structural improvements include: ▪ Friction Piles ▪ Retaining walls ▪ Geo Grid ▪ Sheet Piles ▪ Rock Bolts ▪ Vegetative Cover Complements General Plan, Section VIII, Safety Element Policy § 7.6 Complements General Plan, Section VIII, Safety Element Policy § 6.1)	PRV	N/A	Land Use Services	On-Going	Provide enhanced information during the development review process to address slope failure concerns.
Earthquake	**EQ Action 4.2:** Generator Installation	Install generators at all road facilities. This will allow uninterrupted communications and provide power to refuel critical emergency response equipment.	SP, PPRO	TBD	Roads	TBD	

Hazard	Mitigation Action	Description / Background	Mitigation Strategy Type	Funding	Responsible Agency	Time Frame	Status / Comments / Implementation Mechanisms
Earthquake	**EQ Action 5.1:** Divert runoff to Little Bear Creek.	To reduce the runoff over the cliff(s) in the Rimforest neighborhood, the runoff must be diverted to another path. This will be accomplished over three phases: • Phase 1: Reduce Runoff Tributary Area by 64%- 50.35 AC • Phase 2: Reduce Runoff Tributary Area by 30%- 23.79 AC • Phase 3: Reduce Runoff Tributary Area by 5%- 3.99 AC	SP, NRP, PRV		Primary: Public Works Secondary: Flood Control District		
Earthquake	**EQ Action 6.1:** Continue funding and support for Special Districts Projects relating to earthquake hazards.	Continue funding and support for Special Districts Projects relating to earthquake hazards in the categories of water systems, sewer systems, wastewater treatment, roads, TV districts, park districts, Big Bear Valley Recreation Park District and Bloomington Recreation and Park District. For more information regarding these projects, see Annex C Section C.7.	VARIES	VARIES	VARIES	On-Going	
Flood	**FL Action 1.1:** Update NFIP data and maps with newly identified flood hazard areas in the County, as new information becomes available.	As required by the State of California, National Flood Insurance Program (NFIP) maps published by FEMA must be included in the HMP or General Plan Safety Element. Keeping this information current is an important mitigation action.	PRV, PPRO		San Bernardino County Flood Control District	On-Going	
Flood	**FL Action 2.1:** Determine whether or not additional amendments to development standards or policies are merited, based on the Alluvial Fan Task Force Recommendation.	This is an on-going mitigation action from the 2011 MJHMP.	PRV		Primary: San Bernardino County Flood Control District Secondary: Land Use Services	On-Going	
Flood	**FL Action 3.1:** Amend the Flood Plain Safety Overlay District through automatic map updates as new data is released and published by FEMA.	Current San Bernardino County Hazard Maps can be found at: http://cms.sbcounty.gov/lus/Planning/ZoningOverlayMaps/HazardMaps.aspx.	PRV, NRP		Primary: San Bernardino County Flood Control District Secondary: Land Use Services	On-Going	

Hazard	Mitigation Action	Description / Background	Mitigation Strategy Type	Funding	Responsible Agency	Time Frame	Status / Comments / Implementation Mechanisms
Flood	**FL Action 3.2:** Review development plans to ensure compliance with ordinances.	This is an on-going mitigation action from the 2011 MJHMP in order to reduce the flood hazards through development standards and policies stated in the General Plan and San Bernardino 2077 Development Code.	PRV		Primary: Land Use Services Secondary: San Bernardino County Flood Control District	On-Going	
Flood	**FL Action 3.3:** Inspect construction to ensure compliance with approved development plans.	This is an on-going mitigation action from the 2011 MJHMP in order to reduce the flood hazards through development standards and policies stated in the General Plan and San Bernardino 2077 Development Code.	PRV, PPRO, SP		Primary: Public Works Secondary: Flood Control District	On-Going	
Flood	**FL Action 3.4:** Soil Stabilization on Roadways and Along Roadway Shoulders	Soil stabilization on roadway shoulders and dirt roads. This will prevent erosion caused by flood conditions.	SP, PRV	TBD	Roads	TBD	
Flood	**FL Action 3.5:** Encasing Pipelines	Encase water pipelines with specific sized rock, gravel, and road base in natural waterways to prevent continual washout or exposure during heavy storm events/floods.	SP, PRV	CSA 70 J	Water Systems	7/17/2017-7/1/2027	
Flood	**FL Action 4.1:** In each flood control zone, construct facilities identified in those zones by the Flood Control Advisory Committee. See Flood Control District Annex for a listing of projects.	This is an ongoing mitigation action from the 2011 MJHMP to achieve the goal of improving existing facilities and construct new facilities to mitigate flooding within the County.	SP		Primary: Public Works Secondary: San Bernardino County Flood Control District	On-Going	
Flood	**FL Action 6.1:** Continue funding and support for Special Districts Projects relating to flood hazards.	Continue funding and support for Special Districts Projects relating to flood hazards in the categories of water systems, sewer systems, wastewater treatment, roads, TV districts, park districts, Big Bear Valley Recreation Park District and Bloomington Recreation and Park District. For more information regarding these projects, see Annex C Section C.7.	VARIES	VARIES	VARIES	On-Going	

Hazard	Mitigation Action	Description / Background	Mitigation Strategy Type	Funding	Responsible Agency	Time Frame	Status / Comments / Implementation Mechanisms
Flood	**FL Action 6.2:** On Call Contractors	Employ on call contractors to assist in emergency situations.	PRV, ES	TBD	Roads	TBD	
Drought	**DR Action 1.1:** Create a public awareness campaign advising citizens, business owners and farmers on water conservation.	Public education and outreach programs are an efficient and cost-effective way to promote meaningful changes within a community. A program to raise awareness on the importance of water conservation could significantly reduce the amount of water used by the public.	PE&A, NRP		Human Resources	TBD	
Drought	**DR Action 1.2:** Provide incentives for farmers to grow crops that are less water intensive.	Farmers use 80% of the State's water. By offering incentives to produce less water intensive foods (such as beets, carrots and potatoes) as opposed to more water intensive foods such as almonds, beef and pork) would make a substantial difference in water consumption.	NRP, PRV,		DAO Community Services?	On-Going	
Drought	**DR Action 1.3:** Continue to coordinate with the San Bernardino Valley Water Conservation District to provide Qualified Water Efficient Landscaper (QWEL) training.	The Qualified Water Efficient Landscaper training presents an affordable proactive local approach to reducing landscape water demand. QWEL provides graduates with knowledge in water efficient and sustainable landscape practices including water management and preservation of other valuable resources.	PE&A		Economic Development Agency?	On-Going	
Drought	**DR Action 1.2:** Approve the County's Watershed Water Quality Management Plan.	The County's Watershed Water Quality Management Plan written in 2013.	PRV, NRP			On-Going	
Drought	**DR Action 1.4:** Continue to enforce the watering schedule and watering restrictions throughout the County.	In response to the State Water Resources Control Board's 2016 emergency water conservation regulation, the County enforces a watering schedule for residential and commercial addresses.	PRV, NRP		Land Use Services	On-Going	
Drought	**DR Action 3.1:** Continue funding and support for Special Districts Projects relating to drought hazards.	Continue funding and support for Special Districts Projects relating to drought hazards in the categories of water systems, sewer systems, wastewater treatment, roads, TV districts, park districts, Big Bear Valley Recreation Park District and Bloomington Recreation and Park District. For more information regarding these projects, see Annex C Section C.7	VARIES	VARIES	VARIES	On-Going	

Hazard	Mitigation Action	Description / Background	Mitigation Strategy Type	Funding	Responsible Agency	Time Frame	Status / Comments / Implementation Mechanisms
Anti-Terrorism	**AT Action 1.1:** Identify and prioritize mitigation activities (anti-terrorism force protection) at critical facilities and gathering places that are vulnerable to terrorist attacks.	Critical facilities may include essential facilities (such as hospitals, police and fire stations, evacuation centers, etc.), transportation systems, lifeline utility systems, high potential loss facilities (such as nuclear power plants, dams and military installations, etc.), and hazardous material facilities. Gathering facilities should also receive special attention. Places of mass gathering not only present terrorists with potential opportunities for mass casualties, symbolism and high impact media coverage, they pose a broad range of security challenges for their owners and operators.	PRV, PPRO		Land Use Services	On-Going	
Anti-Terrorism	**AT Action 2.1:** Continue funding and support for Special Districts Projects relating to terrorism hazards.	Continue funding and support for Special Districts Projects relating to terrorism hazards in the categories of water systems, sewer systems, wastewater treatment, roads, TV districts, park districts, Big Bear Valley Recreation Park District and Bloomington Recreation and Park District. For more information regarding these projects, see Annex C Section C.7.	VARIES	VARIES	VARIES	On-Going	
Climate Change	**CC Action 1.1:** Continue working with the South Coast Air Quality Management District to meet GHG reductions targets.	The San Bernardino County General Plan Amendment and Greenhouse Gas Reduction Plan addresses the environmental effects specific to the proposed General Plan Amendment, Greenhouse Gas Reduction Plan, and associated Development Code Amendment and can be found here: http://www.sbcounty.gov/Uploads/lus/Countywide/GreenhouseGas/Full-Vol-1.pdf	PRV, NRP		Land Use Services	On-Going	
Climate Change	**CC Action 1.2:** Continue implementing the energy conservation and efficiency measures identified in the County of San Bernardino Greenhouse Gas Emissions Reduction Plan.	According to the San Bernardino County Renewable Energy and conservation Element, San Bernardino County's commercial, institutional and residential communities will continue to grow in the foreseeable future. Access to dependable and affordable energy sources is critical to maintaining and enhancing the quality of life enjoyed by San Bernardino residents and businesses. As energy needs grow, so do the needs to develop new energy sources.	PRV, NRP		Land Use Services	On-Going	
Climate Change	**CC Action 2.1:** Encourage carpooling and the use of public/ alternative transportation methods.	Reduction Measure R2T1 of the County of San Bernardino Greenhouse Gas Emissions Reduction Plan establishes an Employment Based Trip and VMT Reduction Policy. Some features include a compressed work week, car/vanpools, employee bicycle/pedestrian programs, and shuttle/ transit programs.	PE&A, PRV, NRP		Human Resources	On-Going	

Hazard	Mitigation Action	Description / Background	Mitigation Strategy Type	Funding	Responsible Agency	Time Frame	Status / Comments / Implementation Mechanisms
Climate Change	**CC Action 2.2:** Optimize energy efficiency in the built environment and promote the local economic benefits of energy efficiency retrofits. (San Bernardino County Renewable Energy and Conservation Element)	This is an on-going mitigation policy from the San Bernardino County Renewable Energy and Conservation Element.	SP, PE&A, PRV		Public Works	On-Going	
Climate Change	**CC Action 2.3:** Encourage residents and businesses to conserve energy. (San Bernardino County Renewable Energy and conservation Element)	This is an on-going mitigation policy from the San Bernardino County Renewable Energy and Conservation Element.	PE&A, NRP, PRV		Human Resources	On-Going	
Climate Change	**CC Action 3.1:** Continue funding and support for Special Districts Projects relating to climate change hazards.	Continue funding and support for Special Districts Projects relating to climate change hazards in the categories of water systems, sewer systems, wastewater treatment, roads, TV districts, park districts, Big Bear Valley Recreation Park District and Bloomington Recreation and Park District. For more information regarding these projects, see Annex C Section C.7.	VARIES	VARIES	VARIES	On-Going	

Section 7. Plan Maintenance

7.1 Monitoring Evaluating and Updating the HMP

The San Bernardino County Fire Protection District Office of Emergency Services (OES) is the custodian of the Multi-Jurisdictional Hazard Mitigation Plan (MJHMP). In the 2010 MJHMP, County of San Bernardino indicated that the MJHMP would be reviewed annually. Although no formal meetings were held, OES reviewed the plan annually and collected new hazard mitigation information and mitigation efforts throughout the county. Additionally, OES referenced/reviewed the MJHMP before submitting grant applications to ensure the project was captured in the plan when applying for all grants to assist their mitigation efforts.

There are three (3) main components to the MJHMP: hazards, projects, and stakeholder involvement (public, as well as, county staff). The County and its Special Districts have focused on these components and over the last 5 years have made steady improvements in all areas. The County and its Special Districts participated and facilitated several meetings and established several tasks forces to help advance the understanding of hazards in the community. This information was shared with other county personnel and the general public. OES believes that this sharing of information leads to a more informed community, thus a more robust MJHMP.

Departments and Special Districts with projects track the status of the projects through the entire life cycle from concept to completion. Projects in progress are tracked to ensure all milestones are met and payments are made in a timely manner. Each year proposed projects are reviewed during budget development every spring and selected projects are submitted for funding to the appropriate funding source. These funding sources include but are not limited to grant funding, General Fund funding, and Special District funding.

Because the MJHMP is a living document that reflects ongoing hazard mitigation activities, the process of monitoring, evaluating, and updating will be critical to the effectiveness of hazard mitigation within the County Unincorporated Area. The County and its Special Districts will hold internal planning meetings to discuss current projects and evaluate newly proposed projects resulting from internal staff meetings and input from the public. The results of these Departmental/Special District meetings will be presented to the Multi-Jurisdictional Planning Team meetings at their annual meetings. To facilitate the Multi-Jurisdictional Hazard Mitigation Planning process, OES is proposing to conduct these annual meeting with the Multi-Jurisdictional County Planning Team where the Team Members will discuss the projects, priorities, and goals in the current plan and from individual Special District meetings and suggest any necessary changes. Results of the annual meeting will be retained and compiled for the 2016 update. The County Planning Team will continue to support focused outreach for county Departments and Districts as well as support Countywide activities.

7.1.1 Plan Adoption

To comply with DMA 2000, the San Bernardino County Board of Supervisors has officially adopted the 2016 San Bernardino County Multi-Jurisdictional Hazard Mitigation Plan. The adoption of the 2016 MJHMP recognizes the County's commitment to reducing the impacts of natural hazards within the County limits. A copy of the 2016 MJHMP adoption resolution is included after the table of contents in this document.

7.1.2 Implementation

The knowledge gained from the MJHMP has helped the county enhance other planning efforts. One of the biggest results from the 2010 MJHMP efforts was the incorporation of the MJHMP into the 2007 General Plan's Safety Element. This merging of plans has help ensure development decisions are considering the most recent hazard information. It is the County's intent to incorporate by reference the updated MJHMP into the County General Plan upon approval from FEMA.

The MJHMP has also led to the strengthening and improvement of several County Ordinances, which are designed to ensure proper fuels reduction was completed in the Severe Fire Hazard Zones. Two new ordinances were passed requiring replacement of wood shake roofs in the Severe Fire Hazard Severity Zones by 2014 and the reduction of live fuel loads around structures in the Very High Fire Hazard zone.

The MJHMP goals and actions will be incorporated into various general operations of government. For example, much of the information from the MJHMP will be included in the County Operational Area Emergency Operation Plan (EOP). As any future County plans are developed, the Multi-Jurisdictional Hazard Mitigation Plan will be a great asset in any plan development efforts. As noted earlier, much of the information contained in this MJHMP is from the County General Plan and is already part of the planning process.

Additional benefit is gained from the County and its Special Districts reviewing existing mitigation projects and development of additional mitigation projects at their internal annual Planning Team meetings. This input includes comments and suggestions from the public as well as from the internal planning process of each County department and District.

7.1.2.1 Implementation through Existing County Mechanisms

7.1.2.1.1 All Hazards

7.1.2.1.2 Amendment to Title 6 County Code

An amendment to Title 6 of the County of San Bernardino Code to adopt by reference the 2010 Editions of the California Building Standards Codes went before the Board of Supervisors on

November 2, 2010 and was continued for a second reading on November 16, 2010 and approved unanimously. The amendment became effective on January 1, 2011.

The County of San Bernardino amendment to Title 6 of the County Code to adopt by reference the 2010 Editions of the California Building Standards Codes repealed the current chapters of Division 3 of Title 6 that reflect the 1994/1995 editions of the California Building Standards Codes and adopt the 2010 editions of these codes by reference.

The California Building Standards Commission approved the California Building Standards Code (Code) for a statewide effective date of January 1, 2011 and requires this Code apply in all parts of the state. This Code consists of the California Building, Residential, Plumbing, Mechanical, Electrical, Energy, Historical Buildings, Existing Building (Unreinforced Masonry) and the Green Building Standards Codes. Since this 2010 Edition was adopted by local ordinance, the prior editions of this code will be repealed and the most recent editions of the codes with applicable amendments requiring express findings and certain appendices necessary for the health and safety of the citizens of this County will be in effect within the unincorporated areas of San Bernardino County. The benefit of adopting this Code is that it provides consistency and clarification for the building community as well as building inspectors and plans examiners. State law (Health & Safety Code 18941.5 and 17958.7) requires the local government make express findings in order to amend building standards and the amendments must be necessary due to local climatic, geological, or topographical conditions.

Those amendments and findings are included in the County's ordinance and were filed with the California Building Standards Commission.

The recommended modifications not requiring express findings are administrative or procedural in nature and concern the local implementation issues that are not covered by building standards.

An example of this type of modification is to the California Residential Code, Section R105.3.1.1 which requires the Board of Appeals to confirm substantial valuations in the flood plain. The traditional purpose of the Board of Appeals has been reserved for a contested decision of the Building Official, and it is felt that it should remain as such.

With respect to grading and excavation regulations found in Appendix J of the 2010 State published code, the 2001 California Building Code dealt with grading with more clarity in regards to what activities require a permit and set forth rules to ensure large grading projects are scrutinized in greater detail than smaller projects by requiring more reporting and inspection of such work. The grading chapter in the 2001 Code has been trusted and in use in its primary form for years. The 2010 Appendix J grading chapter needs substantial amendment and modification to address all grading issues and is not recommended for adoption in its present form. The Board adopted the 2001 Appendix Chapter 33 regulations as part of this proposed ordinance. Relocation permit requirements have been moved to a new section of the Code, and it retains specific standards for relocation procedures in details not found in the 2010 State-published code. Clarification of the types of buildings affected by the new regulations has also been made.

Administrative changes to the 2010 California Existing Building Code (Part 10 of Title 24) were approved to outline the procedures required to set allowable time limits for the retrofit and repair of unreinforced masonry buildings. Staff is also recommending that authorization be given to the Building and Safety Division of the Land Use Services Department to issue Administrative Citations as an alternative means of enforcement of the County Code provisions.

Express findings are made for changes to the California Plumbing Code, Appendix K regarding the soil conditions that exist in this county. These changes are supported by the Environmental Health Division. These express findings are iterated in the ordinance and will be filed with the Building Standards Commission as required by law in order to become effective.

7.1.2.2 Wildfire

7.1.2.2.1 Inland Empire Fire Safe Alliance (IEFSA)

The Inland Empire Fire Safe Alliance (IEFSA) was created to act as a forum for all Fire Safe Councils in San Bernardino County. Some of the benefits are developing a consistent and comprehensive message to citizens about fire safety; coordinating efforts for grant administration, writing, and reporting; a one-stop shop for information, resources and research; and a centralized source for sharing of updates from cooperating governmental agencies. There are approximately 20 Fire Safe Councils active in San Bernardino County.

IEFSA has held bimonthly meetings for over 5 years and have been the focal point for all regional Fire Safe Councils including some from Riverside County. They have also held numerous workshops and seminars regarding fire resistive construction, and materials, BAER reports, CWPPs and grant writing. The IEFSA was the focal point for Fire Safe Councils (FSCs) that were working on completing their CWPPs and created a focus group and a steering committee to accomplish these critical plans. To support public education and involvement,

IEFSA created the web site www.fireinformation.com as well as participated in countless safety fairs and fire wise awareness activities. They also conducted a Public Education Media Exchange where all FSC and Agencies got together to share educational modalities and create common thought and educational threads. They have reached out to thousands of mountain residents in preparing them for wildfires.

7.1.2.2.2 Mountain Area Safety Taskforce (MAST)

MAST was formed to mitigate the region wide risk of a catastrophic wildfire due to dead and dying trees in the mountain communities. The mission of the MAST is to facilitate a coordinated effort by cities, county, state, federal, and non-profit agencies to provide for the protection of property owners, residents, and property subject to the risk of catastrophic wildfire that could occur in San Bernardino County with an initial emphasis on the threat resulting from the Old and Grand Prix fires in 2003. MAST priorities are to continue reducing fire hazards through fuel reduction programs and hazard abatement though enforcement of county ordinances.

The Mountain Area Safety Taskforce (MAST) Operations Section meets monthly. MAST Operations Section determines project priorities based on the benefit cost analysis of the projects and the effect of the project on the overall goals of the MAST organization.

The MAST Unified Command identified the following objectives as their focus and direction:

- Provide for Community Safety.
- Develop Coordinated Public Information Dissemination Between Cities, County, Special Districts, State, Federal, and Non-Profit Agencies.
- Develop Immediate, Mid-range and Long-range Coordinated Agency Plans.
- Identify and Secure Potential Funding Resources to Provide Protective Measures.
- Document Task Force Activities Including Mission, Goals and Objectives, Policies, Procedures, and Outcomes. Prior to any type of flood threat, the following precautionary measures may be taken by MAST members to reduce the impact of impending fires:
- Review mutual aid agreements
- Define evacuation areas and trigger points
- Review the use of alert and warning systems
- Provide information to the public of fire prone areas and protective measures in progress or planned for those areas
- Educate public on emergency self-help and preparedness
- Develop and maintain emergency notification procedures and checklists

MAST is the central point of coordination for all projects related to the reduction of the potential for catastrophic wildfires. There are numerous participants and all levels of government. MAST partners collaborate to provide multi-agency technical support to ensure project success. Economic impacts are considered and the result has been significant increase in economic activity through thoughtful application of grant funding. MAST has been so successful in the environmental management of projects that all of the local environmental groups including national affiliates are now supporters of MAST fuels projects.

The MAST group includes:

- San Bernardino County Board of Supervisors
- County Administrative Office
- County Public Works-Flood Control/Transportation/Solid Waste

- County Fire Protection District
- County Fire Protection District/Office of Emergency Services (OES)
- County Sheriff's Department
- Southern California Edison
- Bear Valley Electric
- Arrowbear Lake Fire Department
- Big Bear City Fire Protection District
- City of Big Bear Lake Fire Department
- Crest Forest Fire Protection District
- Running Springs Fire Department
- USFS
- San Bernardino National Forest Association
- Forest Care
- Cal Fire
- Caltrans
- California Highway Patrol
- Inland Empire Fire Safe Alliance
- Angelus Oaks Fire Safe Council
- Arrowhead Communities Fire Safe Council
- Bear Valley Fire Safe Council
- Lytle Creek Fire Safe Council
- Mill Creek Fire Safe Council
- Mountain Rim Fire Safe Council
- Wrightwood Fire Safe Council

Since its beginnings, MAST has been the Unified Command that has successfully implemented and completed numerous programs leading to safer communities, a more educated public and an improved environment.

MAST provides an extensive Fuels Reduction Program. The Fuels Reduction Program began with removal of dead hazardous trees from areas threatening electrical transmission lines, evacuation routes, and structures within the San Bernardino Mountains. Dead and dying trees pose an extreme fire danger, and MAST members began removing these trees under state and federal grants, including a $70 million grant from the USDA Natural Resources Conservation Service. At the height of the program, Southern California Edison contractors were taking out 650 trees a day. As the program developed, additional hazards were identified, such as green fuel load density and wood shake roofs on structures within the San Bernardino Mountains

The MAST mission has expanded to include reducing green fuel by thinning live trees in densely wooded areas. Property owners also are being urged to thin the live trees and vegetation on their property to gain an upper hand on the bark beetle infestation and reduce the risk of catastrophic wildfires like the Grand Prix and Old fires in 2003.

Other MAST Achievements include:

- Increasing awareness of the drought-related bark beetle emergency and the threat of catastrophic wildfires
- Distributing fire safety and prevention information to the public
- Developing evacuation plans and distributing emergency planning information to the public
- Developing commercial use or disposal options for waste wood products.

The Mountain Area Safety Taskforce (MAST) Operations Section meets monthly. MAST Operations Section determines project priorities based on the benefit cost analysis of the projects and the effect of the project on the overall goals of the MAST organization.

Goals can change as detailed Benefit Cost Analysis is conducted and CEQA/NEPA reviews are completed.

7.1.2.2.3 Fire Safety Overlay District Mitigation

A General Plan Amendment to the Safety Element of the County of San Bernardino 2007 General Plan updated the Fire Safety Overlay District effective March 11, 2010. The Safety Element includes several hazard overlays that are included in the General Plan mapping system to inform the public of potential hazards to development of property within certain areas of the County and to enable the County to mitigate the risks presented to property owners by these hazards, by requiring fire resistant building construction methods. The overlays include potential fire hazards within the mountain regions as well as the valley and desert "interface". Over the past twenty years, certain federal and state agencies have been in the process of digitizing much of this hazard data. The digitization of this data has allowed for greater accuracy as well as more timely updates. In recognition of the new data from various federal and state agencies, the County updated the Fire Safety Overlay District contained within the Safety Element of the General Plan. The Fire Safety Overlay District is amended by modifying four General Plan Quad Maps to incorporate updated fire safety mapping published by Cal Fire for the Valley area.

As new information is received, the overlay maps are updated to reflect changes. These updates are made by the Land Use Services Department in collaboration with County Fire Protection District. More areas have been added through annexation and contract for services and so there has been large growth and the overlay will be updated. The future 2018 CountyWide Plan will replace the General Plan, and will contain more update maps and regulations that will allow development to occur but ensure safety and sustainability within the Fire Safety Overlay District.

7.1.2.2.4 Public Education Programs

The County through MAST conducted a comprehensive mountain-wide multi-modality Public Outreach Program from 2006 to 2008. It can be found at www.CalMAST.org. The program in both English and Spanish created and presented multiple public educational meetings, newsletters,

brochures, calendars, and posters. Because of the large number of visitors to the forest, MAST also created Emergency Information Visitors brochure and glove box sized Emergency Response Evacuation maps for the mountain communities. The program won national awards for advertising and public relations. Other jurisdictions initiated their own public education activities but brought them back through MAST so that the entire group could receive the benefit. The City of Big Bear Lake Fire Department was the most prolific in developing innovative and creative educational programs. They developed the Thin-Is-In website at (www.thinisin.org) that is an excellent site for citizens and agencies as well. Since the Big Bear Valley is served by an excellent radio station KBHR (k-bear) they have posted numerous public safety messages. Also during the Butler, Butler II and Slide Fires, KBHR provided constant updates to the community regarding the fire.

7.1.2.2.5 County Fire Hazard Abatement

Land Use Services Department, Environmental Health Division is responsible for Fire Hazard Abatement (FHA). Fire Hazard Abatement works to reduce the potential for an individual's property to be the source of fire and structural ignitability. Failing to maintain private property in a fire safe condition is seen as a fire threat and is considered a threat to neighbor's property rights. To obtain compliance, FHA issues notices of violation to properties that have dry vegetation and flammable green vegetation. If the property owner doesn't comply with the notice, FHA then obtains a warrant to go onto the property and abate the fire hazard.

The Fire Hazard Abatement portion of the County Code was completely rewritten and redesigned around real flammable fuels. The most significant change was to include certain types of green fuels as flammable vegetation.

Following in the City of Big Bear Lake's path, the County adopted the new code in the fall of 2008. In January of 2010 the County amended the Hazard Overlay maps.

The Fire Hazard Abatement Division of the Land Use Services Department conducts annual inspections of all parcels of land in mountain regions for the purpose of identifying exterior fire hazards. Biannual inspections are completed in valley and desert serviced areas. The targeted hazards include high energy release shrubs, dead and hazardous trees, flammable vegetation, weeds, grasses and combustible rubbish. The Division completes more than 430,000 inspections, issues more than 45,000 Notices to Abate Fire Hazards, issues over 4,000 citations for non-compliance, and abates the fire hazards on more than 2,000 parcels annually. Within the last 5 years, the Fire Hazard Abatement Division has received even more financial resources that enable them to abate all properties declared a fire hazard.

7.1.2.2.6 Countywide Fuels Management Program

In May of 2005 the San Bernardino County Fire Protection District and the San Bernardino County Flood Control District formed a partnership to implement the Hazardous Tree Removal Program, later the Fuels Management Program. In this endeavor the Flood Control District

formed the Hazardous Tree Removal Operations Division which was tasked with developing, bidding and administering Tree Removal and Fuel Reduction Contracts funded by various grants. Contracts originally focused on removing dead, dying, and diseased trees caused by the drought conditions and the bark beetle infestation. The program has evolved to include fuel modification projects which remove hazardous vegetative fuels through the thinning of live vegetation. In addition the location of the fuel reduction projects are moving beyond the limits of the San Bernardino Mountains and into the interface between the Mountain foothills and the high desert.

The following are the types of programs/projects included in the Fuels Management Program:

- Emergency Tree Removal Projects consist of the removal of a tree (or trees) that poses an immediate threat to safety, a structure, or the public right-of-way.
- Block Projects are dead dying diseased tree removal projects on multiple parcels which are located in close proximity to one another.
- Large Urban Parcel Projects are dead dying diseased tree removal projects on a single or multiple large parcels.
- Fuel Modification Projects focus on the removal of hazardous fire fuels in the wildland/urban interface. The fuels removed in these projects are both live and dead vegetation. The goal of these projects is to reduce a future forest fire's intensity as well as the removal of ladder fuels which carry the fire from the forest floor to the forest canopy and result in a crownfire.

In addition to the Hazardous Tree Removal Operations Division, the San Bernardino County Fire Fuels Management Crews are also funded by the same grant sources. The primary focus of the crews is to create and maintain fuel modification projects in the vicinity of communities at risk and construct fuel breaks. In addition the crews assist the public with curb side chipping programs throughout local partner jurisdictions.

7.1.2.2.7 Fireworks Interdiction

The unlawful transport of dangerous fireworks continues to be enforced by several local and state fire and law enforcement agencies, The program continues ensures that thousands of pounds of fireworks per year are seized and properly disposed of, preventing fires, fire injuries and fire deaths.

7.1.2.2.8 Programs Listed in Fire District Annex

Table 7-1: Wildfire Mitigation Implementation Methods

Mitigation type	Description
PPRO	SCE removes dead trees near power lines to reduce fire hazards. For more information, see Annex A Section A.6 Mitigation Project Prioritization and Implementation.
ES	Mountain Mutual Aid is an operational group of emergency responders.
PRV	The Alliance was created to act as a forum for all Fire Safe Councils in San Bernardino County. For more information, see Annex A Section A.6 Mitigation Project Prioritization and Implementation.
PRV	Fire Hazard Abatement works to reduce the potential for an individual's property to be the source of fire and structural ignitability. For more information, see Annex A Section A.6 Fire Protection District Mitigation Project .
PE&A	Cal Fire provides programs to increase fire safety in high fire hazard severity zones. For more information, see Annex A Section A.6 Mitigation Project Prioritization and Implementation.
PRV, PPRO	The Contractor Certification program trains and certifies landscape contractors to provide a qualified workforce to conduct fuels reduction activities on individual properties. For more information, see Annex A Section A.6 Fire Protection District Mitigation Project .
PRV, PPRO	CWPPs are designed to provide a means for a community to have input into and actively participate in the planning, strategy, goals, and objectives of creating a fire safe community. For more information, see Annex A Section A.6 Fire Protection District Mitigation Project .

7.1.2.3 Earthquake / Geologic

A General Plan Amendment to the Safety Element of the County of San Bernardino 2007 General Plan updated the Geologic Hazard Overlay Maps which became effective on March 11, 2010. The Safety Element includes several layers of hazard overlays that are included in the General Plan mapping system to inform the public of potential hazards to development of property within certain areas of the County and to enable the County to mitigate the risks presented to property owners by these hazards. These overlays include potential geologic hazards. Over the past twenty years, certain federal and state agencies have been in the process of digitizing much of this hazard data. The digitization of this data has allowed for greater accuracy as well as more timely updates. In recognition of the new data from various federal and state agencies, the County updated the geologic hazard overlay maps, specifically the Generalized Liquefaction

Susceptibility layer and the Generalized Landslide Susceptibility layer, contained within the Safety Element of the General Plan.

The Generalized Liquefaction Susceptibility layer was amended to modify four General Plan Quad Maps to incorporate new liquefaction data in the Big Bear Lake area designated by the County Geologist for the Big Bear Lake Valley. This information was then incorporated into the County-designated Geologic Hazard Overlay District.

The Generalized Landslide Susceptibility layer was amended by modifying 17 General Plan Quad Maps and one regional Quad Map, to incorporate updated existing landslide data published by the U. S. Geological Survey for the Mountain area. The County Geologist updated the landslide inventory within the Geologic Hazard Overlay District by incorporating new geologic mapping by the U.S. Geological Survey.

The following is a list of the updated General Plan Geologic Hazard Overlay Maps effective on March 11, 2010:

Table 7-2: General Plan Geologic Hazard Overlay Maps

Map #	Quad Name
FH08C	Fifteen Mile Valley
FH11C	Mt. San Antonio
FH12C	Telegraph Peak
FH13C	Cajon
FH14C	Silverwood Lake
FH15C	Lake Arrowhead
FH16C	Butler Peak
FH19C	Mt. Baldy
FH20C	Cucamonga Peak
FH21C	Devore
FH22C	San Bernardino North.
FH24C	Keller Peak
FH27C	Ontario
FH30C	San Bernardino South
FH31C	Redlands
FH32C	Yucaipa
FI09C	Fawnskin
FI10C	Big Bear City

Map #	Quad Name
FI17C	Big Bear Lake
FI18C	Moonridge
EH/FH C	SW Portion of County
FH23C	**Harrison Mtn.**

7.1.2.4 Flood

7.1.2.4.1 Existing Drainage Studies

Drainage studies including review of upstream properties, site drainage area, potential upstream development, and site-specific development will help to mitigate damage from future storm events. San Bernardino County owns landfill sites, transfer stations and closed disposal sites where combined site property totals several hundred acres. Landfills and disposal site properties include acreage that has been constructed to design grades and may include improved drainage systems. Also, within most landfill and disposal site properties there are many acres of property that remain in its natural state including native vegetation and natural grades. During severe weather events, both engineered areas and undisturbed areas are subject to erosion from storm run-off. The erosion can range from minor to severe depending on the storm event and amount of precipitation. Most sites where engineered drainage systems are in place hold up well experiencing only minor erosion and debris flow. However, during major storm events, runoff from native and unimproved areas carrying solids and debris flow may compromise downstream drainage systems and overwhelm system facilities. Much of the damage to landfill and disposal sites during the December 2010 Winter Storm event was caused by erosion with sediment carried from undeveloped/undisturbed areas or where no improved drainage system is in place.

Other events that may cause damage to property and structures include earthquakes, wildfires, high winds, extreme freezes, and lightning storms.

- Earthquakes have the potential of causing damage to site roadways, structures, and systems including concrete drainage systems, Landfill Gas systems (LFG) and Leachate Collection Recovery Systems (LCRS). With earthquakes, there is always the potential of slope failure and slides on the landfill surface. Damage to any of these facilities has the potential to result in an inability to temporarily service the community.
- High Winds can cause damage to temporary drainage structures, fencing, and metal structures. During past high wind events, Transfer Stations have experienced roof panels being torn from the beams. Landfill sites with exposed geo-synthetic liners may experience damage if the winds lift and tear the liners.
- In January 2007, the County experienced a loss of over $21,000 in damage when water pipes at three separate Transfer Stations froze, then burst, causing damage to offices and electrical equipment.

- Lightning storms have the potential to damage electrical components in scale houses, in-ground scales, LFG, and LCRS.

7.1.2.4.2 NFIP Program and County General Plan Policies

Because the County has entered into an agreement to participate in the National Flood Insurance Program (NFIP) which provides flood insurance within designated floodplains, the following goals, policies and programs shall apply:

As stated in the San Bernardino County General Plan Safety Element:

GOAL S 5
The County will provide adequate flood protection to minimize hazards and structural damage.

Policy S 5.1: Participate in the National Flood Insurance Program (NFIP), which provides flood insurance within designated floodplains.

Programs

1) Designate Floodway and Floodplain areas, as identified by the Federal Emergency Management Agency (FEMA) on flood insurance rate maps and flood boundary maps, as Floodway (FW) on the Land Use Maps and Floodplain Overlays on the Hazards Overlay Maps.

2) Designated floodway areas will be preserved for non-structural uses through restrictions of the FW Land Use Zoning District

3) All new development, including filling, grading, and construction, proposed within designated floodplains, will require submission of a written assessment prepared by a qualified hydrologist or engineer, in accordance with the latest "San Bernardino County Hydrology Manual" and the various detention basin policies (see Existing Policy FL-11), to determine whether the development will significantly increase flood hazard and to show that all new structures will be adequately protected. Development will be conditioned on receiving approval of this assessment by the San Bernardino County Surveyor Division of the Public Works Department. All new construction in a Floodplain Overlay area will be required to be flood-proofed, located, and designed to allow unrestricted flow of floodwaters.

4) The Land Use Compatibility Chart for 100-Year Flood Plains Table 5-1 will apply to County reviews of all discretionary and ministerial actions in County designated floodplains.

5) Lands within floodplain areas may be developed with non-critical and non-essential uses if mitigation measures are incorporated to ensure that the proposed development will not be hazardous, increase flood depths or velocities downstream, or degrade water quality, especially uses such as parks, trails, and open space.

6) Provide known flood hazard information with every discretionary or ministerial application.

7) When no mapped data exist, existing topographical, watershed, and drainage course data will be evaluated for a determination of potential flood hazard for every discretionary and ministerial action.

Policy S 5.2: Update data and maps with newly identified flood hazard areas in the County, as new information becomes available.

Programs

1) As new overflow studies and mapping are completed and approved by either the County's Land Development Engineer or the San Bernardino County Flood Control District, they will supplement the FEMA mapping and will be incorporated into Flood Hazard Overlay mapping.

2) Initiate and finance programs for the continuous evaluation and designation of floodway, floodplain, and drainage areas.

3) Timely application for FEMA mapping changes will be initiated to reflect any additions to or alterations in identified Floodways or Floodplains by the County Floodplain Management Administrator.

7.1.2.5 Drought

7.1.2.5.1 Water Efficient Landscape Ordinance

Over the years, the State of California has been promoting water conservation for all new development within the State. In a drought-prone California, where approximately 60 percent of all residential water is used in landscape applications, California lawmakers have adopted such legislation as Assembly Bill (AB) 325 (1990), AB 2717 (2004), and AB 1881 (2006) that outline, and in some instances mandate, the practice of water conservation in landscape applications. As part of AB 325, the Department of Water Resources (DWR) was charged to assemble a task force of stakeholders representing the landscape, water, and building industries as well as cities, counties, and other agencies that would help DWR prepare and promote the State's first Model Water Efficient Landscape Ordinance (MWELO).

While AB 325 did not require cities, counties, and other agencies within the State to comply with the first adopted MWELO, it did encourage local agencies to implement water conservation techniques into their local ordinances and codes. The County adopted Administrative Guidelines

that were amended several times and ultimately given the status of "regulation" when they were incorporated into the Development Code (Chapter 83.10) during the 2007 General Plan Update process.

In 2006, State lawmakers adopted AB 1881, which gave guidelines and timelines for revision of the State's MWELO and mandated that every city, county, or other agency within the State of California adopt the State's revised MWELO, or be in compliance with it through their own ordinance, by January 2010. Local agencies are required to report their final action, along with findings of ordinance effectiveness, to DWR by January 2011. While this process was underway, Senate Bill X7-7 was enacted (2009). This bill requires the State of California to achieve a 20 percent reduction in urban per capita water use by December 31, 2020; additionally, it requires the State to make incremental progress towards this goal by reducing per capita water use by at least 10 percent by December 31, 2015. These requirements were incorporated into the MWELO and, in February 2008, DWR made a draft of the State's revised MWELO available to all cities, counties, and other agencies within the State. The final version of the revised MWELO was released in September 2009.

Upon review of the final version of the State's MWELO and the provisions of AB 1881, staff determined the County would need to revise Development Code Chapter 83.10 which sets forth landscaping and irrigation standards within the unincorporated areas of the County. This would in part, become a mitigation measure to assist with any drought hazard the County may encounter. In the meanwhile, the County began enforcing the State's revised MWELO in January 2010, as required by law.
Once the proposed changes to the Development Code have been adopted by the Board of Supervisors, staff will notify and forward all required information regarding the adoption and effectiveness of the County's Water Efficient Landscaping Ordinance to the State DWR as required by January 2011.

The proposed Development Code Amendment will revise the landscaping standards to reflect the changes governed by and to be as effective as, the State of California's revised Model Water Efficient Landscape Ordinance, while continuing to recognize the unique character of the regions that make up the County of San Bernardino.
The ***proposed revisions*** will require the applicant/developer to:

- Design and install systems that meet more effective and efficient water conservation standards in all landscaped areas on a project site, including residential;
- Comply with the revised standards for all new and rehabilitated landscape areas regardless of square footage for projects that are not homeowner installed and for all new and rehabilitated landscape areas, that are homeowner installed, that are 5,000 square feet or greater. This includes the following:
    - Submit a comprehensive Landscape Documentation Package, which has been prepared by a landscape architect licensed to work in the State of California or other licensed professional authorized to design and prepare Landscape Plans within the State of California;

    - Submit estimated annual water budget calculations for compliance with water conservation practices and the efficient use of water for each new or rehabilitated landscape. Calculations for the annual water budget for a project/site specific landscape shall use the formulas for the Maximum Applied Water Allowance (MAWA) and the Estimated Annual Water Use (EAWU) outlined in the ordinance;
    - Submit a Landscape Certificate of Compliance prepared by the landscape professional who prepared the Landscape Documentation Package conveying the project's compliance with the requirements of Development Code prior to final inspection;
    - Planting material within landscaped areas shall be chosen based on the information found in the Water Use Classification of Landscape Species, third edition (WUCOLS III) and the climate zone for the region based on information found in Sunset Western Garden Book;
    - Irrigation systems shall be equipped with a "smart" irrigation controller, which automatically adjusts the frequency and/or duration of irrigation events in response to changing environmental conditions.
    - Submit a rough and/or precise grading plan on all projects proposing more than 50 cubic yards of grading;
    - Submit a soil management report, that includes recommendations for soil modification and/or amendment;
    - Submit a project-specific regular maintenance schedule and two project-specific irrigation schedules for those projects subject to the ordinance.

Other provisions of the new regulations include standards for non-potable/recycled water use where it is available and new enforcement standards for compliance with water conservation practices.

Since the State law became effective on January 1, 2010, the Landscape Plan Review Fee was adjusted (Ordinance #4412, June 22, 2010) to reflect the increase in staff time necessary to meet these additional requirements.

The Planning Commission considered this ordinance on October 21, 2010. There was no one at the hearing who wished to address the Commission on this issue. The Commission recommended that the Board adopt the ordinance as presented on a vote of four commissioners in favor and one absent.

The proposed amendment is exempt from the California Environmental Quality Act (CEQA) in accordance with Section 15061(b) (3) of the CEQA Guidelines as the proposed change does not have the potential to cause a significant effect on the environment.

The proposed Ordinance is to be presented to the County of San Bernardino Board of Supervisors for adoption in the first quarter of 2011. Utilizing either the State Water Efficient Landscape Ordinance, which is in effect currently, or the County's specific Water Efficient Landscape Ordinance; the drought mitigation for this hazard is positive.

7.1.2.5.2 San Bernardino County Desert Area Groundwater Inventory and Atlas

As of January 2011, the California Department of Water Resources anticipates releasing the Final Local Groundwater Assistance (LGA) Guidelines later this calendar year. In December 2009, the draft LGA Guidelines and Proposal Solicitation Package (PSP) was available for public comment. The comment period ended on January 12, 2010.

Local public agencies with authority to manage groundwater resources are encouraged to apply Examples of projects that may be considered are: Groundwater data collection, modeling, monitoring and management studies; monitoring programs and installation of equipment; basin management; development of information systems; and other groundwater related work.

The County of San Bernardino Board of Supervisors may consider an action directing staff to apply for the grant when it becomes available for a Desert Area Groundwater Inventory (DGI) and Atlas. The DGI falls within the scope of the Local Groundwater Assistance (LGA) Program, which is funded with Prop 84 IRWM funds anticipated to be available for fiscal year 2010-2011. Grants are limited to $250,000 per recipient, and total funding is $4.7 million.

California Department of Water Resources will give priority to local agencies with adopted groundwater management plans (SB1938 compliant), and which demonstrate collaboration with other local agencies in managing groundwater basins. County's groundwater management ordinance satisfies this requirement.

By having a Desert Area Groundwater Inventory and Atlas, this would enable the County to have a database providing locational and water depth information for specific regions of the County that currently do not have a groundwater inventory. This Inventory and Atlas would provide information applicable for flood mitigation or ground water availability for usage during severe drought. The location and water depth in the inventory are important for an earthquake hazard analysis, if liquefaction potential exists.

Since there is not a Desert Area Groundwater Inventory currently, and if liquefaction is a concern in a specific region of the County, then the water depth data would estimate the vertical distance from the land surface to the top of the groundwater aquifer (i.e., the groundwater-saturated layer.)

Table 7-3: Tentative Schedule for the LGA Grant

Date	Event	
TBD	Release Final LGA Guidelines and PSP	Dependent upon Grant approval
TBD	Proposal Applications Due	Dependent upon Grant approval
TBD	Public Release of Draft Award Recommendations	Dependent upon Grant approval

Fund Source: Proposition 84

7.1.3 Continued Public Involvement

As indicated earlier, the County will continue to engage the general public and seek input on the mitigation and preparedness planning process. In addition to the San Bernardino County Board of Supervisor meetings, the actions include:

- Municipal Advisory Communities throughout the unincorporated County area,
- Flood Zone Advisor Committees,
- Special District Advisory Committees,
- Public hearings for County General Plan updates held four times a year,
- MAST and FAST meetings,
- Fire Safe Council meetings,
- Community Emergency Response Team meetings, and
- Public events where educational efforts are undertaken in the unincorporated areas.

Additionally, the public is kept involved through annual programs such as the Great Shakeout held annually in October, SKY Warn events sponsored by the National Weather Service, and other monthly safety programs. The County will continue to use several different methods to reach out to the public: mailers, cable TV, website, social networks, e-mail, posting in public libraries, and fairs.

Section 8. Works Cited

USGS. (2009).

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Appendix A. Outreach Documentation

A.1 Ready SB County Preparedness App Message

An App message was sent out to over 15,000 persons with the App and it is attached to the San Bernardino County Fire Website. .Ready SB County Preparedness Mobile App can be used on either an Android or iPhone. This app provides multiple resources for our residents that will assist them in preparing for a disaster and enhancing the recovery process. Protect yourself and your loved ones before, during and after a disaster.

Get the Latest News from SBCounty.gov, CalTrans, National Weather Service, and San Bernardino County Fire Office of Emergency Services. This app will provide you with an emergency supply kit list, grocery list and checklists tailored to your needs. You can access and update your plan as needed. Learn all you need to plan for and respond to natural disasters, terrorism and pandemic flu in San Bernardino County

A.2. San Bernardino County Fire Public Input Requested

San Bernardino County Fire Department/Office of Emergency Services (OES) is coordinating the update of the San Bernardino County Unincorporated Area Multi Hazard Mitigation Plan. Hazard Mitigation Plans are updated every five years and must be approved by Cal OES and FEMA. The purpose of the public input and comment is to show progress being made and elimination of hazards since the last plan. Your input is appreciated by reviewing and commenting on the current plan (link below) by calling OES at 909-356-3998 – ask for David Davis. Comment period **closed at 5:00 p.m., Wednesday, November 3, 2016.**
http://www.sbcfire.org/oes/Documents.aspx

A.3. MJHMP PowerPoint Presentation

Annex A. Fire Protection District

A.1 Introduction

This Annex details the hazard mitigation planning elements specific to the Fire Protection District, a previously participating jurisdiction to the 2011 San Bernardino County Hazard Mitigation Plan Update. This Annex is not intended to be a standalone document, but appends to and supplements the information contained in the base plan document. As such, all sections of the base plan, including the planning process and other procedural requirements apply to and were met by the Fire Protection District. This Annex provides additional information specific to the Fire Protection District, with a focus on providing additional details on mitigation actions and projects.

The Board of Supervisors acts as the Board of Directors for the County Flood Control District, and as part of their responsibilities as an elected member of the County of San Bernardino Board of Supervisors.

A.2 Fire District Profile

The San Bernardino County Fire Department is an all-risk/full-service fire department committed to providing the highest level of service in the most efficient and cost effective manner to the citizens and communities that we serve. At 20,160 square miles, San Bernardino County is the largest county in the continental United States. Our jurisdiction encompasses 19,278 square miles of extremely diverse environments that stretch from the Los Angeles County line on the west, to the Colorado River on the east, to the Nevada State line and Kern and Inyo counties on the north. We provide services to more than 60 communities/cities and all unincorporated areas of the county.

Mission Statement
Community-based all-risk emergency services organization dedicated to the health and well-being of the citizens of San Bernardino County through a balance of regionalized services delivery and accountability to the local community supported by centralized management and services.

Service Motto
Duty, Honor, Community.

Standard of Commitment
"Where Courage, Integrity, and Service Meet."

Vision Statement
Committed to Providing Premier Fire Services.

Hazard Mitigation Planning Group:
Michael Antonucci – Emergency Services Manager

A.3 Planning Process

As described above, the County Fire District followed the planning process detailed in Section 3 of the base plan. In addition to providing representation on the San Bernardino County Hazard Mitigation Planning Committee (HMPC), the District formulated their own internal planning team to support the broader planning process requirements. Internal planning participants, their positions, and how they participated in the planning process are shown in Table A-1. Additional details on plan participation and District representatives are included in Appendix A.

Table A-1: Fire District Planning Team

Name	Title / Role
Michael Antonucci	Emergency Services Manager
Cindy Serrano	Assistant Emergency Services Manager
David Davis	Emergency Services Officer
Miles Wagner	Emergency Services Officer
Cheryl Nagy	Emergency Services Officer
Carrie Cruz	Emergency Services Officer
Elli Maldonado	Office Assistant
Mary Barnett	Technical Writer / Plan Update and Edits
Michael Horton	Fire Marshal

Weekly meetings held every Tuesday since July 2016 with conference calls to the consultant group and other stakeholders plus all meetings listed in this document.

A.4 Hazard Identification and Prioritization

The County Fire Protection District Planning Team participated in the County hazard identification and prioritization process described in the base plan. The Fire District Planning Team assisted to summarize the extent, probability of future occurrences, potential magnitude/severity, and significance specific to the Fire District in the base plan.

The Planning Team (all participating jurisdictions) determined that the County and its Special Districts should focus over the next five (5) years on hazards that fell within the HIGH and MEDIUM “Probability” and “Impact” categories. While all the hazards present a potential problem in the County, the Planning Team felt that if they were able to reduce or eliminate the risk from “fire related” hazards, it would provide a greater service to the people within the jurisdiction. Table 4-3 illustrates how the final prioritization of the hazard; the “Green” colored box represents the highest priority hazards; and the “White” colored boxes represent lower (second and third tier) priority hazards.

Table A-2: Fire District Hazard Priority Matrix

		Impact		
		High	Medium	Low
Probability	High	**Wildfire** Flood Earthquake/ Geologic Hazards	Drought	
	Medium	Terrorism	Climate Change (Extreme Heat and other)	Hail Infestation
	Low		Dam Inundation	Tornado High Winds Winter Storm Lightning Extreme Cold

A.5 Coordination with existing Fire District Mechanisms

Coordination with other District planning efforts is paramount to the successful implementation of this plan. This Section provides information on how the Fire Protection District integrated the previously-approved 2011 Plan into existing planning mechanisms and programs.

While not designed or proposed specifically as mitigation projects, the County Fire Protection District undertakes many activities that incorporate mitigation elements and integrate risk reduction as an additional benefit. The following describes a number of these projects which exemplify how the County integrates hazard mitigation into county-wide programs.

A.5.1 Critical Route Planning Committee

San Bernardino County Fire Protection District Office of Emergency Services has a “Critical Route Planning Committee” that is developing countywide routes and alternate routes for use in evacuating residents from a disaster area while simultaneously allowing first responders’ access into a disaster area without congestion and gridlock. The Committee members are from County departments, City and Town representatives, and key state and federal agencies. The Critical Route Planning effort is being coordinated with surrounding counties to prevent congestion and gridlock at the County boundaries.

A.5.2 Public Alert and Education Programs

A.5.2.1 Wireless Emergency Alerts (WEA)

During threatening emergencies in your area, authorized government agencies can send Wireless emergency Alerts to your mobile device. Messages regarding extreme weather, life threatening emergencies, AMBER alerts, and Presidential Alerts during a national emergency are all sent through the WEA system

A.5.2.2 Emergency Alert System (EAS)

The Emergency Alert Systems: national public warning system that requires TV and radio broadcasters, cable television systems, wireless cable systems, satellite digital audio radio service providers, direct broadcast satellite service providers and wireline video service providers to offer to the President the communications capability to address the American public during a national emergency. The FCC works with the Federal Emergency Management Agency and the National Oceanic and Atmospheric
Administration's National Weather Service to implement the EAS at the national level. Only the President determines when the EAS will be activated at the national level, and has delegated the administration of this function to FEMA.
Accordingly, FEMA activates the national EAS, and directs national EAS tests and exercises. The NWS uses the EAS on a local and statewide basis to provide the public with alerts and warnings regarding dangerous weather and other emergency conditions.

The EAS allows participating providers to send and receive emergency information quickly and automatically, even if their facilities are unattended. If one link in the system for spreading emergency alert information is broken, members of the public have multiple alternate sources of warning. EAS equipment also provides a method for automatic interruption of regular programming, and in certain instances is able to relay emergency messages in languages other than English.

A.5.2.3 Integrated Public Alert & Warning System (IPAWS)

During an emergency, alert and warning officials need to provide the public with lite-saving Information quickly. The Integrated Public Alert and Warning System (IPAWS) is a modernization and integration of the nation's alert and warning infrastructure and will save time when time matters most, protecting life and property. Federal, State, territorial, tribal and local alerting authorities can use IPAWS and integrate local systems that use Common Alerting Protocol (CAP) standards with the IPAWS infrastructure. IPAWS provides public safety officials with an effective way to alert and warn the public about serious emergencies using the Emergency Alert System {EAS}, Wireless Emergency Alerts (WEA), the National Oceanic and Atmospheric Administration (NOAA) Weather Radio and other public alerting systems from a single interface.

A.5.2.4 Telephone Emergency Notification System (TENS) Implementation

Emergency service agencies like the Sheriff's Office have implemented TENS on numerous occasions to notify residents in specified areas to evacuate. Most recently it was used to evacuate hundreds of homes in the eastern portion of Yucaipa during the Pendleton Fire and in Wrightwood during the Sheep Fire when the entire community was ordered evacuated.

A.5.2.5 Emergency Communications Services (ECS)

In the last 10 year the ECS program has continually provided support to all major and minor incidents. The more recent events were the Pilot Fire and the Blue Cut Fire in 2016. ECS provides communications and logistical support to public safety and disaster preparedness events. They have also set up a training program for other County Departments that are not typical emergency responders but provided support in an emergency. ECS delivered and set up amateur radio equipment for Department of Public Works, Department of Public Health, Preschool Services Department, and Department of Behavioral Health and provided training for the employees.

A.5.2.6 Fire Safe Council/CERT Community Based AM Radio Transmitters

The Wrightwood Fire Safe Council and the Big Bear City CSD set up and operates a local AM radio transmitter. It has been brought into use during local incidents including a power outage where it is very useful. In power outages, the AM radio in a person's car still works. It was also used to provide preparatory information to the citizens of Wrightwood as the Station Fire was approaching the community from the west. It is also used extensively during the Wrightwood Fire Wise Awareness Days to keep citizens apprised of community events.

A.5.3 OES Volunteer Programs

The San Bernardino County Fire, Office of Emergency Services (County OES) is proud to provide residents of San Bernardino County with meaningful disaster-related volunteer opportunities. Recognizing that during disasters and other emergencies professional responders may be overwhelmed or need assistance County OES trains residents to integrate with and support professional responders during incidents. County OES currently does these through three volunteer programs; the Community Emergency Response Team (CERT), Emergency Communications Service (ECS) and California Disaster Corps programs. Please visit the links below to learn about the programs offered.

A.5.3.1 Community Emergency Response Team (CERT)

The Community Emergency Response Team (CERT) Program educates people about disaster preparedness and trains them in basic response skills. Following a catastrophic event CERT

Members can assist themselves, their families, and others in their neighborhood or workplace until professional responders arrive. Fourteen (14) CERT programs are in the communities of:

- Angelus Oaks
- Big Bear Valley
- Helendale
- Lucerne Valley
- Lytle Creek
- Mill Creek Canyon
- Morongo Basin
- Mountain
- Oak Hills
- Phelan/Pinon Hills
- Rosena Ranch
- San Antonio Heights
- Silver Valley
- Wrightwood CERT

San Bernardino County Fire Protection District Office of Emergency Services has sworn in over 1000 CERT participants as California Disaster Service Workers. These participants have gone on to receive a Sheriff's Department background check to become members of their community's CERT.

The program receives guidance and resources from Department of Homeland Security, FEMA, Citizen Corps, and California Volunteers. The program is administered locally by the San Bernardino County Fire Protection District Office of Emergency Services.

A.5.3.2 LISTOS

Listos, which means "ready" in Spanish, is a twelve-hour disaster preparedness course created specifically for the Spanish-speaking community and is delivered entirely in Spanish. The program is intended to be adaptable, flexible and culturally relevant. This means participants are encouraged to involve the entire family and accommodations are made for young children. San Bernardino County Fire, Office of Emergency Services currently partners with the Cities of Fontana and Rialto to bring Listos to their communities

A.5.3.3 California Disaster Corps

The Disaster Corps is a first-in-the-nation effort to professionalize, standardize and coordinate highly trained disaster volunteers statewide. This program initiative was built collaboratively in partnership with California Volunteers from the ground up through public-private partnerships and with a wide range of subject matter experts including representatives from all levels of government, local emergency managers, state agency volunteer coordinators, and leaders in non-governmental volunteer programs.

Disaster Corps programs reside only in San Bernardino, San Francisco and Riverside Counties. San Bernardino County Disaster Corps volunteers are those volunteers participating in the volunteer programs residing within the unincorporated communities of San Bernardino County and have demonstrated commitment to their volunteer program and strive to continue developing their skills and training to better support their program and their community.

Within San Bernardino County Disaster Corps volunteers are set aside from regular CERT (Community Emergency Response Team) and ECS (Emergency Communication Services) volunteers by having the ability to be deployed throughout other areas of San Bernardino County and the state. They have received specialized training in SEMS and NIMS, plus have completed many other ICS courses and First Aid and CPR training. In addition there are additional training opportunities not offered to the regular CERT and ECS volunteers.

A.5.3.4 ECS Emergency Communications Service

The Emergency Communications Service (ECS) is a volunteer group providing front-line communications, technical and logistical support to the San Bernardino County Fire Department and Office of Emergency Services. Their primary mission is to support County Fire, County Government and other local agencies in time of disaster. In addition, ECS has provided telecommunications and event support to other County departments including Public Health, Behavioral Health, Public Works, Pre-School Services, Sheriff's Search and Rescue and other County Departments.

ECS coordinates disaster communications between city and county agencies, provides a communication link to Cal OES and ensures backup communication channels are kept open in times of a major disaster.

In an average calendar year, ECS supports approximately two-dozen events and incidents throughout the County. These events range from parades and community events, to major public safety incidents including fires and floods. The 200 ECS volunteers donate an average of 9,100 hours per year to the County of San Bernardino.

ECS currently provides multiple HAM licensing classes to County Departments and the residents of San Bernardino County each year.

A.5.4 ROPE Plan (Responders Organized For Pass Emergencies)

ROPE Field Operations Guide (FOG) and Standard Operating Guide (SOG) for use by participating Federal, State, County, and Municipal agencies and industries for day-to-day incidents in the Cajon Pass, as well as for larger regional incidents requiring coordinated and unified multi agency response. The ROPE FOG contains; communications information, emergency contact information, critical infrastructure mapping and ICS planning tools.

A.5.5 Great ShakeOut County Drill in all Disciplines (held annually)

The San Bernardino County Operational Area will be participating in the annual The Great ShakeOut drill which will focus on the Southern California Regional Catastrophic Plan (SCRCP). This plan is based on a large scale magnitude earthquake scenario along the southern section of the San Andres Fault. The purpose for participation in the Great ShakeOut Exercise is to address the County's potential to respond to a catastrophic earthquake event based on the plan, and to better prepare for such an occurrence. The goal of the exercise will be to conduct an effective multiagency/multi-jurisdictional evaluation of the Regional Catastrophic Plan with our Operational Area response partners.

A.5.6 "Ready SB" Smart Phone App for Disaster Preparedness Program

The new mobile app, Ready SB, provides residents with multiple resources that will assist them in preparing for a disaster. Ready SB is now available as a free download from the Apple App Store and the Google Play Store it can immediately help residents prepare themselves for emergencies.

Ready SB features include: "My Plan", an individual emergency plan and/or a family or group plan. The person that downloads the application will receive county wide alerts and notifications of emergency situations in that person's area. There is a feature called "Share My Status" it is a place to update your status via text or email.

The app also includes information about areas that need to be evacuated, where to go, what routes are open and also what resources are available during that emergency.
The app features include: Evacuation Routes and Shelters, Need to Know, and has a Resources List.

A.5.7 Cal Fire

Cal Fire provides programs to increase fire safety in high fire hazard severity zones. It funds and staffs programs from public education activities to performing fuel modifications with inmate crews. One example is the active Re-Leaf program where mountain residents are educated about drought tolerant and fire resistive landscaping that is available and sustainable. Cal Fire is also the lead agency on reforestation after a wildfire to ensure the stability of the environment. Cal Fire Foresters are active participants in the MAST process helping educate citizens and leading forestry activities on private lands within the USFS boundary.

Numerous fuels projects have been completed by State inmate crews that do significant hand work in dense fuels adjacent to communities. Cal Fire has also led the way in countless re-forestation projects that ensure that new stands of the same trees will repopulate an area and that the original forest won't be overtaken by a different type of replacement forest.

A.5.8 Organized Group Volunteer Activities

Mountain communities are populated by several volunteer citizen groups that are capable of providing significant resources that are not provided by traditional governmental agency services.

Volunteer groups particularly “Mountain Hearts and Lives” (MHL) responded to numerous emergencies particularly of note the Grass Valley and Slide Fires. These groups have also spent significant time working to prepare citizens for disasters. MHL has coordinated CERT training as well as HAM radio operator training. Other activities can be found at www.heartsandlives.org. Other partners that assist in coordinated endeavors for disaster preparedness and disaster relief are Rim Family Services and the Rim Resource Community Network. Members of these and other groups work very closely with MAST, Mountain Mutual Aid and the American Red Cross.

A.6 Fire Protection District Mitigation Project Prioritizing

Cost effectiveness of each measure was a primary consideration when developing mitigation actions. Because mitigation is an investment to reduce future damages, it is important to select measures for which the reduced damages over the life of the measure are likely to be greater than the project cost. For structural projects, the level of cost effectiveness is primarily based on the likelihood of damages occurring in the future, the severity of the damages when they occur, and the level of effectiveness of the selected measure. While detailed analysis was not conducted during the mitigation action development process, these factors were of primary concern when selecting measures. For measures that do not result in a quantifiable reduction of damages, such as public education and outreach, the relationship of the probable future benefits and the cost of each measure was considered when developing the mitigation actions.

Based upon the Fire Districts capabilities, Table A-3: Mitigation Project Prioritization and Implementation shows primary actions selected for further implementation and development during the next planning cycle. Table A-3 provides details for each mitigation action with mitigation action descriptions, FEMA mitigation category, responsible party, and timeframe.

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A.7 Fire Protection District Mitigation Project Actions

Table A-3: Mitigation Project Prioritization and Implementation

Hazard	Mitigation Action	Description / Background	Mitigation Strategy Type	Funding	Responsible Agency	Time Frame	Status / Comments / Implementation Mechanisms
ALL Hazard	**AH Action 1.1:** Valley Dispatch and Operations Center.	Update and maintain the operations of the facility and ensure cohesive working and response to any scale emergency and operations in a secure complex	ES	General Fund and HMP Grant	Fire Protection District/	1-3 Years	See Fire Protection District Annex A. Section A.6 Fire Protection District Mitigation Project .
ALL Hazard	**AH Action 1.2:** Maintain Shelter Operations Compound (SHOC). This shelter concept provides a new one-stop shelter concept. The SHOC combines a shelter, a Local Assistance Center (LAC) and a Non-LAC Unit in one easy location.	After the 2003 Wildland Fires, the County and American Red Cross recognized the need to provide services beyond basic care and short-term sheltering, especially during large fires, floods, and earthquakes The Mass Care & Shelter Plan and Concept of Operations, outlines the framework of a new one-stop shelter concept, Shelter Operations Compound (SHOC). It combines a shelter, a Local Assistance Center (LAC) and a Non-LAC Unit in one easy location. Residents can access public information and referral services through the LAC, and then take a short walk to the Non-LAC Unit for communication, postal services, and other private organizations/business at little to no cost. The completion of the Plan in 2012 will help to sync local resources, encourage local self-sufficiency, foster partnership between public and private agencies, and serve as a reference document for the region. By June 2017, the program will have 32 trailers/caches equipped with mass care and shelter supplies, strategically placed throughout the County and ready for rapid deployment. It is expected to serve over 12,000 residents. In addition to enhancing the comfort levels of shelter residents, the program will produce standardized documents and protocols for procuring and maintaining Mass Care and Shelter trailers/caches. These plans and programs will help the County prepare for and mitigate damages from hazards. This is an update and expansion of the plan and done without more grant funds.	ES	To increase Mass Care and Shelter capability of the county, grants from 2008-2009 Homeland Security Grant Program (HSGP) and 2009 Riverside Regional Urban Area Security Initiative (UASI) funded the Mass Care and Shelter Trailer/Cache Program.	Fire Protection District/	1-5 Year	See Fire Protection District Annex A. Section A.6 Fire Protection District Mitigation Project .
All-Hazard	**AH Action 2.1** Incorporate as appropriate requirements from the State of California's most recent land use regulations regarding the hazard mitigation planning process (Government Code 65302 and 8685.9).	Government Code 65302.6 requires the following elements to be included in the hazard mitigation plan: (1) An initial earthquake performance evaluation of public facilities that provide essential services, shelter, and critical governmental functions.	PRV, NRP	General Fund	Primary: Land Use Services Secondary: Fire Protection District/	1-3 years	

Hazard	Mitigation Action	Description / Background	Mitigation Strategy Type	Funding	Responsible Agency	Time Frame	Status / Comments / Implementation Mechanisms
		(2) An inventory of private facilities that are potentially hazardous, including, but not limited to, multiunit, soft story, concrete tilt-up, and concrete frame buildings. (3) A plan to reduce the potential risk from private and governmental facilities in the event of a disaster. Government Code 8685.9 requires that the state share shall not exceed 75 percent of total state eligible costs unless the local agency is located within a city, county, or city and county that has adopted a local hazard mitigation plan as part of the safety element of its general plan. In that situation, the Legislature may provide for a state share of local costs that exceeds 75 percent of total state eligible costs.					
Wildfire	**WF Action 1.1** Continue Mountain Area Safety Taskforce (MAST) funding to support mitigation activity.	MAST was formed to mitigate the region wide risk of a catastrophic wildfire due to dead and dying trees in the mountain communities. The mission of the MAST is to facilitate a coordinated effort by cities, county, state, federal, and non-profit agencies to provide for the protection of property owners, residents, and property subject to the risk of catastrophic wildfire that could occur in San Bernardino County with an initial emphasis on the threat resulting from the Old and Grand Prix fires in 2003. MAST priorities are to continue reducing fire hazards through fuel reduction programs and hazard abatement though enforcement of county ordinances. The Mountain Area Safety Taskforce (MAST) Operations Section meets monthly. MAST Operations Section determines project priorities based on the benefit cost analysis of the projects and the effect of the project on the overall goals of the MAST organization. Goals can change as detailed Benefit Cost Analysis is conducted and CEQA/NEPA reviews are completed.	NRP, PPRO	Seeking additional funding through HMPG.	San Bernardino County Fire Protection District	On-Going	See Implementation plan on more information on MAST. See Fire Protection District Annex A. Section A.6 Fire Protection District Mitigation Project .
Wildfire	**WF Action 2.1:** Update Mountain Mutual Aid Map Book to document updated information contained in 2016 HMP.	The Map Book portion of the Community Safety and Structure Protection Plan provides not only a street network of the area but more importantly it provides the locations of strategic and critical resources for fire fighters. These include but are not limited to safe zones, open areas, locations for refuge. They also identify areas within communities that have narrow and steep winding streets and or with limited ingress and egress. The document is handed out to all responding strike teams from out of the	ES	Seeking additional funding through HMPG.	San Bernardino County Fire Protection District	On-Going	See Fire Protection District Annex A. Section A.6 Fire Protection District Mitigation Project .

Hazard	Mitigation Action	Description / Background	Mitigation Strategy Type	Funding	Responsible Agency	Time Frame	Status / Comments / Implementation Mechanisms
		area and has proved invaluable in directing and coordinating an effective fire-fighting response and reduces the potential for life loss and property damage.					
Wildfire	**WF Action 2.2** Update Community Structure Protection Plans as necessary.	This is an on-going action (from the 2011 MJHMP) with the goal to continue development of and continue the mission of mutual aid between first responders in the County mountain areas.	PPRO	HMP Grant Funding	Primary: San Bernardino County Fire Protection District Secondary: Land Use Services	On-Going	
Wildfire	**WF Action 3.1:** Implement identified community based fuels reduction projects.	The Fuels Reduction Program is designed to create community based fuel modification programs across the mountain communities. These projects are selected specifically to reduce the potential for catastrophic wildfires and the damage that they can do to the communities. Project design, contracting, and operations are managed by the County's Public Works Department with priorities set by local fire chiefs in monthly MAST Operations Meetings. This program is the oldest and most significant for reducing wildfire threat on a mountain wide basis.	PPRO	Current Funding: Seeking additional funding through HMPG.	Primary: San Bernardino Public Works Department Secondary: County Fire Protection District	On-Going	
Wildfire	**WF Action 3.2:** Develop fuels reduction "maintenance program" by obtaining participation from citizens and/or homeowners associations.	To survive a wildfire, property owners need to manage the land surrounding their homes and communities effectively. Removing fuels in the wildland fuel reduction zone beyond the defensible space can reduce the speed and intensity of an oncoming wildfire. But if these areas aren't regularly **maintained**, they lose their effectiveness. Plants grow back, and flammable vegetation needs to be routinely removed and disposed of properly. This guide provides tips on how to create and maintain defensible space and wildland fuels treatments around your property.	PPRO, PE&A	Seeking additional funding through HMPG	Primary: Public Works Secondary: Fire Protection District	On-Going	
Wildfire	**WF Action 4.1** Increase homeowner assistance services to mountain residents for fuel reduction.	This is an ongoing wildfire mitigation action (from the 2011 MJHMP) for the group Forest Care to achieve the goal of providing assistance to homeowners by expanding services to all communities in the Mountain areas of the County. Forest Care is a program dedicated to creating a healthier forest. This program provides foresters to assess individual properties for thinning the vegetation and then provides 75% of the funding to do so.	PPRO, PE&A	Seeking additional funding through HMPG	San Bernardino County Fire Protection District	On-Going	

Hazard	Mitigation Action	Description / Background	Mitigation Strategy Type	Funding	Responsible Agency	Time Frame	Status / Comments / Implementation Mechanisms
Wildfire	**WF Action 4.2** Continue working with Southern California Edison (SCE) to remove dead trees near power lines.	A significant number of fires across the State are caused by trees falling into power lines. When the forests in the mountain communities became infested with bark beetles the pine tree die off was unprecedented. Thousands of these dead trees were standing precariously close to power lines. Early in the Bark Beetle Emergency in 2004, Southern California Edison swiftly initiated a program to remove all trees that were dead, dying, and/or diseased that had the potential to fall into any SCE power lines. The role of Southern California Edison was critical to the success of MAST both operationally and financially. Edison still removes the most difficult trees, the most costly trees; and the ones that are most likely to be the source of ignition for a wild land fire. They are also removing the trees that are immediately threatening homes. They have removed 118,305 trees since the inception of the program in 2004. They also provided reimbursements to people that removed their own trees.	PRV, PPRO	As of July of 2010 Southern California Edison (SCE) has spent $179,758,978 to remove dead dying and diseased trees.	San Bernardino County Fire Protection District	On-Going	
Wildfire	**WF Action 5.1:** Inspect every residence in the mountain communities throughout the year to enforce the Fire Hazard Abatement code that addresses green fuels.	The Fire Hazard Abatement Program conducts surveys to identify fire hazards throughout the year. Fire hazards are identified and notices to abate the hazard(s) are mailed to property owners. Property owners are given 30 days to abate the violations. Failure to abate may result in citations, penalties, and/or fees for abatement by the County. The Fire Hazard Abatement Program responds to complaints year round in the unincorporated areas and contracting Cities and Fire Districts. The Division completes more than 430,000 inspections, issues more than 45,000 Notices to Abate Fire Hazards, issues over 4,000 citations for non-compliance, and abates the fire hazards on more than 2,000 parcels annually. Within the last 5 years, the Fire Hazard Abatement Division has received even more financial	PRV, PPRO, PE&A	Seeking additional funding through HMPG	Primary: Land Use Services Secondary: San Bernardino County Fire Protection District	On-Going	For more information on Contractor Certification, see Annex A Section A.6 Fire Protection District Mitigation Project .

Hazard	Mitigation Action	Description / Background	Mitigation Strategy Type	Funding	Responsible Agency	Time Frame	Status / Comments / Implementation Mechanisms
		resources that enable them to abate all properties declared a fire hazard.					
Wildfire	**WF Action 5.2:** Continue to collaborate with Forest Care, Red, Cross and Cal Fire to overcome increased costs of enforcement.	This is an on-going action from the 2011 MJHMP with the goal of overcoming funding shortfalls for the County Fire Hazard Abatement Program.	PRV	HMP Grant Funding	San Bernardino County Fire Protection District	On-Going	
Wildfire	**WF Action 6.1** Train and Certify landscape contractors to comply with the Fire Hazard Abatement Code.	The City of Big Bear Lake created a program to train and certify landscape contractors to provide a qualified workforce to conduct fuels reduction activities on individual properties. The contractors are trained to comply with the new Fire Hazard Abatement Code that exists both in the City of Big Bear and the County unincorporated area. The City of Big Bear Lake Fire Department conducts the classes for landscapers and handy persons. This provides an incentive for the contractors and provides a level of certification that the homeowner can rely on when they are deciding to hire a landscape contractor to conduct fuels abatement around their home.	PRV, PPRO	Seeking additional funding through HMPG	San Bernardino County Fire Protection District	On-Going	On-Going
Wildfire	**WF Action 6.2:** Continue wildfire mitigation efforts under the Wood Shake Roof Replacement Program.	The County successfully passed an ordinance that requires the replacement of wood shake roofs by 2014. MAST has successfully mapped all of the wood shake roofs in the fire safety overlay and has created a strategy as to which roofs will be selected to participate in the FEMA funded project. This is an on-going project in cooperation with Big Bear Lake Fire Protection District in order to provide more funding for wood shake roof replacements by property owners.	PRV, PPRO, SP	Various Grant Funding from Edison, FEMA, Cal Fire	Primary: MAST Secondary: San Bernardino County fire Protection District	On-Going	
Wildfire	**WF Action 7.1:** Modify independent and unique CWPPs into a more common framework making them similar but leaving room to provide specific hazard characteristics and mitigation actions for each community.	Community Wildfire Protection Plans are designed to provide a means for a community, usually through the Fire Safe Council, to have input into and actively participate in the planning, strategy, goals, and objectives of creating a fire safe community.	PRV	Seeking additional funding through HMPG	San Bernardino County Fire Protection District	On-Going	On-Going For more information on CWPP see Annex A Section A.6 Fire Protection District Mitigation Project .

Hazard	Mitigation Action	Description / Background	Mitigation Strategy Type	Funding	Responsible Agency	Time Frame	Status / Comments / Implementation Mechanisms
Wildfire	**WF Action 8.1:** Construct Arrowbear Drive Realignment and Widening.	The Arrowbear community off State Highway 18 has limited access to State Highway 138. The existing bridge/spillway and road needs to be realigned and widened to facilitate access by emergency personnel during wildfires and flooding. Mitigation strategy for this is to remove and replace existing bridge/spillway, realign and widen the road.	SP	Seeking grant funding Total Cost: $2,000,000	Primary: Public Works Secondary: San Bernardino County Fire Protection District	1-3 Years	
Wildfire	**WF Action 8.2:** Construct Cedar Glen Fire Access Road.	Lack of paved roads inhibits traffic circulation and the ability to enter and exit the area without backtracking during wildfire emergencies. Strategy is to Construct road and drainage improvements to Little Bear Creek Road and Elder Drive.	SP	Seeking grant funding **Total Cost:** $2,500,000	Primary: Public Works Secondary: San Bernardino County Fire Protection District	1-3 Years	
Wildfire	**WF Action 9.1:** Continue funding and support for Special Districts Projects relating to wildfire.	Continue funding and support for Special Districts Projects relating to wildfire in the categories of water systems, sewer systems, wastewater treatment, roads, TV districts, park districts, Big Bear Valley Recreation Park District and Bloomington Recreation and Park District. For more information regarding these projects, see Annex C Section C.7.	VARIES	VARIES	VARIES	On-Going	
Wildfire	**WF Action 9.2:** Emergency Water Supplies	Purchase emergency water supply or water purification devices to ensure uninterrupted supply of water to emergency response personal.(completed with continuous fresh of supplies and rotation)	ES	TBD	Roads	TBD	

Annex B. Flood Control District

B.1 Introduction

This Annex details the hazard mitigation planning elements specific to the Flood Control District, a previously participating jurisdiction to the 2010 San Bernardino County Hazard Mitigation Plan Update. This Annex is not intended to be a standalone document, but appends to and supplements the information contained in the base plan document. As such, all sections of the base plan, including the planning process and other procedural requirements apply to and were met by the Flood Control District. This Annex provides additional information specific to the Flood Control District, with a focus on providing additional details on mitigation actions and projects.

The Board of Supervisors acts as the Board of Directors for the County Flood Control District, and as part of their responsibilities as an elected member of the County of San Bernardino Board of Supervisors.

B.2 Flood District Profile

Flood Control District Functions:
The Flood Control functions are handled through the San Bernardino County Flood Control District under State legislation enacted in 1939. The District has developed a very extensive system of facilities, including dams, conservation basins, channels, and storm drains. The purpose of these facilities is to intercept and convey flood flows through and away from the major developed areas of the County. The principle functions are:

- Flood protection on major streams.
- Water conservation.
- Storm Drain construction.

Mission:
To enhance the quality of life for our communities by developing and maintaining public infrastructure, and providing a variety of municipal services that complements our natural resources and environment.

Vision:
Lead the way to a thriving community through innovation in public works, fiscal responsibility, and environmental stewardship.

B.3 Planning Process

As described above, the County Flood Control District followed the planning process detailed in Section 3 of the base plan. In addition to providing representation on the San Bernardino County Hazard Mitigation Planning Committee (HMPC), the District formulated their own internal planning team to support the broader planning process requirements. Internal planning participants, their positions, and how they participated in the planning process are shown in Table B-4. Additional details on plan participation and District representatives are included in Appendix A.

Table B-4: Flood Control District Hazard Mitigation Planning Team

Name	Title	Role
Kevin Blakeslee	Deputy Director – Flood Control	Public Works Deputy Director
Kenneth Eke	Chief Flood Control Planning/ Water Resources Division	Public Works Engineer
Michael Fam	Flood Control Planning	Public Works Engineer
Mona Sadek	Flood Control Planning	Flood Control Planner
Marjorie Schrage	Flood Control Planning	Public Works Engineer Technician

B.4 Hazard Identification and Prioritization

The Flood Control District Planning Team participated in the County hazard identification and prioritization process described in the base plan. The Flood Control District Planning Team assisted to summarize the extent, probability of future occurrences, potential magnitude/severity, and significance specific to the Flood Control District (See Section 4).

The Planning Team determined that the County and its Special Districts should focus over the next five (5) years on hazards that fell within the HIGH and MEDIUM "Probability" and "Impact" categories. While all the hazards present a potential problem in the County, the Planning Team felt that if they were able to reduce or eliminate the risk from "food and drought related" hazards, it would provide a greater service to the people within the jurisdiction. Table 4-3 illustrates how the final prioritization of the hazard; the "Green" colored box represents the highest priority hazards; and the "White" colored boxes represent lower (second and third tier) priority hazards.

Table B-5: Prioritized Hazard Assessment Matrix

		Impact		
		High	Medium	Low
Probability	High	Wildfire **Flood**[x] Earthquake/ Geologic Hazards	Drought	
	Medium	Terrorism	Climate Change (Extreme Heat and other)	Hail Infestation
	Low		Dam Inundation	Tornado High Winds Winter Storm Lightning Extreme Cold

[x] = Flood District Area of Concentration

B.5 Coordination with Existing Flood District Mechanisms

Coordination with other County planning efforts is paramount to the successful implementation of this plan. This Section provides information on how the Flood Control District integrated the previously-approved 2011 Plan into existing planning mechanisms and programs. Specifically, the District incorporated into or implemented the 2011 MJHMP through other plans and programs shown below.

B.5.1 Flood Area Safety Taskforce (FAST)

During the devastating fires in the fall of 2003, there was great concern of what the ramifications might be for flooding in the burned areas, as well as in the valleys. In response to these concerns, an organization was established that mirrored the Mountain Area Safety Taskforce (MAST), mentioned above, which played a key role in minimizing damage.

While the fires were ravishing the countryside, representatives from multiple agencies met often to address potential issues associated with flood, mud and debris flows develop a strategy and to protect communities from flooding incidents. These agencies united together to become the Flood Area Safety Taskforce (FAST). FAST is structured as an ICS/SEMS Organization for managing incident activities both readiness and response. The FAST Organization stresses liaison with the communities, provides for community education and information, and places emphases on Community and city partnerships.

The FAST group includes:

- Elected State officials
- Representatives from all five (5) County Supervisorial Districts
- State Office of Emergency Services
- County Administrative Office
- County Public Works-Flood Control/ Transportation/Solid Waste
- County Fire Protection District
- County Fire Protection District/Office of Emergency Services (OES)
- County Sheriff's Department
- Representatives from the cities of Fontana, Highland Rancho Cucamonga, Rialto, and San Bernardino.
- USFS
- Caltrans
- CHP

The mission of the FAST is to facilitate a coordinated effort by cities, county, state, federal, and non-profit agencies to provide for the protection of property owners, residents, and property subject to the risk of erosion, mudflows, and flooding that could occur in San Bernardino County with an initial emphasis on the threat resulting from the Old and Grand Prix fires in 2003.

The FAST Unified Command identified the following objectives as the focus and direction of the FAST:

- Provide for Community Safety.
- Develop Coordinated Public Information Dissemination between Cities, County, State, Federal and Non-Profit Agencies.
- Develop Immediate, Mid-range and Long-range Coordinated Agency Plans.
- Identify and Secure Potential Funding Resources to Provide Document Task Force Activities Including Mission, Goals and Objectives, Policies, Procedures, and Outcomes.

Prior to any type of flood threat, the following precautionary measures may be taken by FAST members to reduce the impact of impending flooding:

- Review mutual aid agreements
- Define evacuation areas and trigger points
- Review the use of alert and warning systems
- Provide information to the public of potentially susceptible flooding areas and protective measures in progress or planned for those areas
- Educate public on emergency self-help and preparedness
- Develop and maintain emergency notification procedures and checklists.

A FAST Concept of Operations (CONOPS) was developed to provide activity guidelines for pre-flood activities related to National Weather Service (NWS) watches and warnings. Due to the unstable condition of the burned areas, activities and coordination needed to be established and implemented between departments.

The CONOPS is "situation" and "incident" driven and subject to revision by the Unified Command which includes County Flood Control District & Co Roads, County Fire Protection District, United States Forest Service (USFS), California Department of Transportation (Caltrans), California Highway Patrol (CHP), County Sheriff, City of Fontana, City of Highland, City of Rancho Cucamonga, City of Rialto, and City of San Bernardino. The Unified Command has the ability to modify activities in these guidelines in response to current situations and predicted changes. Currently, the CONOPS includes both summer and Winter Storm Event Readiness.

In addition, the CONOPS includes the San Bernardino County Flood Area Safety Taskforce Paging Network and a draft of the Alert Communication Matrix by Rain Amount/NWS Warning.

Over the past 10 years, the County has used the FAST CONOPS many times, greatly enhancing the County's ability to respond to flash flood in the desert and foothill areas. The CONOPS activity coordination between the agencies has been very successful. Because of the great success of the CONOPS, State Emergency Management Agency (Cal EMA) is using the CONOPS as a model for other agencies throughout the State.

In addition, San Bernardino County the CONOPS and FAST Plan is updated every two years and has done so since been put in to action the latest update being May of 2015.

B.5.2 Alluvial Fan Task Force

In December of 2002, the California Floodplain Management Task Force Report recommended that "The State should convene a task force specifically for alluvial fans, with stakeholder participation, to review the state of knowledge regarding alluvial fan floodplains, determine future research needs, and, if appropriate, develop recommendations relating to alluvial fan floodplain management, with an emphasis on alluvial fan floodplains that are being considered for development."

In September of 2004, Governor Arnold Schwarzenegger signed Assembly Bill 2141, which recommended the creation of the Alluvial Fan Task Force (Task Force). The Director of the Department of Water Resources (DWR) convened the Task Force in December of 2007 after funding to support Task Force activities was secured from a Pre-Disaster Mitigation Planning Grant from the Federal Emergency Management Agency (FEMA) and a state match was authorized by Assembly Bill 466. Funding supported the tasks charged to the Task Force including:

- Review the state of knowledge regarding alluvial fan floodplains;
- Determine future research needs;
- Develop a voluntary locally-adopted model ordinance for communities subject to alluvial fan flooding that supports land use decisions on alluvial fans;
- Develop local planning tools to assist local communities evaluate development on alluvial fans;
- Prepare recommendations relating to alluvial fan floodplain management.

Appointments to the Task Force by DWR Director Lester Snow represented a broad range of interests. Members included elected officials, represented by five Supervisors from Kern, Los Angeles, Riverside, San Diego and San Bernardino County where future alluvial fan development is projected. Appointments also included representatives of the development and environmental community, local floodplain managers and associated state and federal agencies, including the Federal Emergency Management Agency (FEMA), plus at-large members representing other issues related to future development on alluvial fans. The entire process was coordinated by the Water Resources Institute at California State University San Bernardino.

Primarily, the purpose of the Alluvial Fan Taskforce *Findings and Recommendations Report* (July 2010) and *The Integrated Approach for Sustainable Development on Alluvial Fans* (July 2010) documents are to provide a non-prescriptive and flexible model that local governments can use at their own discretion adapting to local conditions and needs that supports wise future land use decisions associated with development on alluvial fans.

As one of the ten Southern California counties studied by the Task Force, the County may review the development of the suite of local planning tools for pre-project screening for future development proposals on alluvial fans. If funding allows for the review, these planning tools may be useful as an optional database reference for project management. Additionally, the flood management tools designed to analyze alluvial fan flood hazards and formulate flood hazard protection, which were developed to be consistent with FEMA guidelines, may provide an optional data source for project development. Long term funding for updating and maintaining the pre-project screening tools database is a concern regarding the reliability for current data.

If funding exists, for the implementation of the *Integrated Approach for Sustainable Development on Alluvial Fans*, the methods contained therein may be used as some of the approaches for planning and evaluating the suitability of development on alluvial fans. During the analysis and review, if budgets allow, the long term ecological and financial sustainability issues would also be evaluated.

Based on the Findings from the Alluvial Fan Task Force process, recommendations were made for specific future actions that the State and other public agencies should consider regarding alluvial fans. The San Bernardino County Departments of Land Use, Special Districts and the Flood Control District are all coordinating on the below recommendations:

Recommendation 1: *on-going*

In February 2010, a General Plan Amendment (GPA) to the Safety Element of the 2007 General Plan was adopted to amend the Flood Plain Safety Overlay District to incorporate revised FEMA (Federal Emergency Management Agency) Flood Plain data, modifying 47 detail and seven regional General Plan Quad Maps. The GPA also adopted the FEMA Digital Flood Insurance Rate Map database as released by FEMA as it currently exists and as updated in the future for the County allowing for automatic map updates as new data are published by FEMA. This action by the County of San Bernardino Board of Supervisors implements the portion of the first recommendation from the Alluvial Fan Task Force by working with FEMA to continue updating flood insurance rate maps.

In addition, the GPA for the Safety Element in 2010 (a) amended the Generalized Landslide Susceptibility layer, modifying 17 General Plan Quad Maps and one regional Quad Map, to incorporate updated existing landslide data published by the U. S. Geological Survey for the Mountain area; (b) amended the Fire Safety Overlay District, modifying four General Plan Quad Maps to incorporate updated fire safety mapping published by Cal Fire for the Valley area; and (c) amended the Generalized Liquefaction Susceptibility layer, modifying four General Plan Quad Maps to incorporate new liquefaction data in the Big Bear Lake area designated by the County Geologist for the Big Bear Lake area.

Recommendation 2: *on-going*

The County will coordinate with the California Geological Survey (CGS) and the United States Geological Survey (USGS) to review any newly developed Quaternary geologic maps in alluvial fan areas in order to identify potential hazards in areas projected for future development.

Recommendation 4: *on-going*

Historical, documentation of flooding occurrences are preserved by the County's Flood Control District that would review the recommendation to identify flooding events that were associated with alluvial fans.

Recommendation 6: *on-going*

The increased severity and intensity of wildfires in Southern California increase flood risk because the same structures subject to fire risk are also prone to post-fire debris flows. Many of the debris basins that were constructed some time ago did not anticipate the increased severity and intensity of wildfires or the additional developments that would follow. The CalOES projects that climate change will further increase the severity of storms, wildland fires, flooding, mudslides and landslides in areas of Southern California where existing debris basins are located.

All of San Bernardino County Flood Control District's Debris Basins in the valley area; from the Los Angeles County Line to Yucaipa, were analyzed after the Grand Prix and Old Fires. Flood Control District Safety Assessment Teams utilized the Corps of Engineers' Los Angeles District methodology to determine debris production, the same methodology the Corps uses when designing debris basins. In many cases basins were physically expanded and additional measures such as K-rails and debris racks were installed. The understanding of post-fire debris flows continues to evolve; we work closely with the USGS as they develop Post Wildfire Debris Flow Hazard Assessments. The rainfall "Trigger Points" in our FAST CONOPS is a result of the USGS assessments. All Flood Control Basins are also studied on an annual basis to determine existing capacity.

Any additional funding to support our efforts will meet the intent of recommendation #6 which states that the State and local agencies should conduct assessments of the adequacy of strategically located debris basins under a range of scenarios in urbanized areas in light of increased fire and post-fire debris-flow events.

Recommendation 8: *on-going*

When funding sources become available for the maintenance and further development of the database for the web-based portal; which would be utilized as a pre-project screening and flood management tool for special alluvial fan areas, the County may evaluate the benefits of its use in the planning process.

Recommendation 9: future proposal

As financial resources are allocated, the County will consider the analysis of the Integrated Approach tools to be studied for use in land use planning for development on alluvial fans.

Recommendation 10: f*uture proposal*

If funding is provided, the County will review and propose for adoption a model ordinance tailored for the specific needs of the County.

Recommendation 12: *future proposal*

The County's Office of Legislative Affairs, after consulting with the appropriate departments and staff, may explore supporting the economic strategies recommended in the Integrated Approach regarding future maintenance of flood management infrastructure.

B.5.3 StormReady

On July 29, 2009, the National Weather Service recognized San Bernardino County as a "StormReady County". This recognition is valid until July 29, 2012 and has been renewed in use (2016) when the National Weather Service will review the County's weather related planning and notification procedures prior to renewing the "StormReady County" status.

San Bernardino County is the only StormReady jurisdiction in the United States covered by three Weather Forecast Offices. The NWS Offices are:

- San Diego, CA;
- Las Vegas, NV; and
- Phoenix, AZ.

This NWS Recognition may provide the County residents with a discount on their Flood Insurance premiums.

B.6 Mitigation Project Prioritization and Implementation

Flood Project Prioritization and Implementation

Hazard	Mitigation Action	Description / Background	Mitigation Strategy Type	Funding	Responsible Agency	Time Frame	Status / Comments / Implementation Mechanisms
Earthquake	**EQ Action 5.1:** Divert runoff to Little Bear Creek.	To reduce the runoff over the cliff(s) in the Rimforest neighborhood, the runoff must be diverted to another path. This will be accomplished over three phases: • Phase 1: Reduce Runoff Tributary Area by 64%- 50.35 AC • Phase 2: Reduce Runoff Tributary Area by 30%- 23.79 AC • Phase 3: Reduce Runoff Tributary Area by 5%- 3.99 AC	SP, NRP, PRV	TBD	Primary: Public Works Secondary: San Bernardino County Flood Control District		
Flood	**FL Action 1.1:** Update NFIP data and maps with newly identified flood hazard areas in the County, as new information becomes available.	As required by the State of California, National Flood Insurance Program (NFIP) maps published by FEMA must be included in the HMP or General Plan Safety Element. Keeping this information current is an important mitigation action.	PRV, PPRO	TBD	San Bernardino County Flood Control District	On-Going	
Flood	**FL Action 2.1:** Determine whether or not additional amendments to development standards or policies are merited, based on the Alluvial Fan Task Force Recommendations.	This is an on-going mitigation action from the 2011 MJHMP.	PRV	TBD	Primary: San Bernardino County Flood Control District Secondary: Land Use Services	On-Going	
Flood	**FL Action 3.1:** Amend the Flood Plain Safety Overlay District through automatic map updates as new data is released and published by FEMA.	Current San Bernardino County Hazard Maps can be found at: http://cms.sbcounty.gov/lus/Planning/ZoningOverlayMaps/HazardMaps.aspx.	PRV, NRP	TBD	Primary: San Bernardino County Flood Control District Secondary: Land Use Services	On-Going	
Flood	**FL Action 3.2:** Review development plans to ensure compliance with ordinances.	This is an on-going mitigation action from the 2011 MJHMP in order to reduce the flood hazards through development standards and policies stated in the General Plan and San Bernardino 2077 Development Code.	PRV	TBD	Primary: Land Use Services Secondary: San Bernardino	On-Going	

Hazard	Mitigation Action	Description / Background	Mitigation Strategy Type	Funding	Responsible Agency	Time Frame	Status / Comments / Implementation Mechanisms
					County Flood Control District		
Flood	**FL Action 3.3:** Inspect construction to ensure compliance with approved development plans.	This is an on-going mitigation action from the 2011 MJHMP in order to reduce the flood hazards through development standards and policies stated in the General Plan and San Bernardino 2077 Development Code.	PRV, PPRO, SP	TBD	Primary: Public Works Secondary: San Bernardino County Flood Control District	On-Going	
Flood	**FL Action 4.1:** In each flood control zone, construct facilities identified in those zones by the Flood Control Advisory Committee. See the following pages for a listing of projects.	This is an ongoing mitigation action from the 2011 MJHMP to achieve the goal of improving existing facilities and construct new facilities to mitigate flooding within the County.	SP	TBD	Primary: Public Works Secondary: San Bernardino County Flood Control District	On-Going	

B.7 Flood Project Prioritization and Implementation

The Flood District project rankings utilize the same format as the 2011 Multi-Jurisdictional Hazard Mitigation Plan, and rankings are based on the current project funding status as shown on the County Flood Control District's 10 year Plan. A 'High' Local Priority, or (3), indicates that project funding is expected to be complete within about the next three years, depending on the Flood Zone and its' available revenue. A 'Medium' Local Priority (2) indicates that project funding is expected to be complete within about four to seven years. A 'Low' Local Priority (1) indicates that the project is on the 10-Year Plan but complete funding is likely eight to ten years or more in the future.

The task of determining local project priority is the responsibility of the County Flood Control District's staff and City Engineers. Each of the six zones of the District is represented by a Citizens Advisory Committee, composed of eleven members and serving by appointment of the Board of Supervisors without compensation. Each committee is formed of spirited citizens and public officials with unselfish and devoted interests, organized to meet annually or on call to afford recommendations to the Board of Supervisors on matters of tax levies, budgets, work programs, priority of projects, ventures and other counsel. The Mayor of each incorporated city in the District is a committee member with full standing for the appropriate zone.

County Flood Control District staff and the City Engineers for each zone meet twice per year to discuss future project needs and current project status. Projects are proposed based on the public safety needs within the particular zone. In addition to public safety, other issues are considered in the prioritization process such as grant funding, environmental reviews and approvals, and other impediments that may cause construction of the project to be delayed. (See Annex 1 for examples of how these prioritization factors are applied to proposed projects.)

Almost without reservation, the recommendations of these organized committees have been accepted by the Board of Supervisors in its administration of County Flood Control District functions.

Each flood control zone constructs facilities identified in those zones by the Flood Control Advisory Committee. The City Engineers for each zone along with the Flood Control District I Advisory Committee establishes Project Priorities based on Benefit Cost Analysis, Community input, and fiscal resources available for the project in addition to any other noted factors. The following three tables illustrate priority rankings based on three key factors: Total Cost, Hazard Assessment, and Potential Fatalities.

Table B-6: Priority Flood Control Projects

Project No	Completion Date	Total Cost	Total Funding	Status
1-112	5 Year Plan	$10,000,000	$10,000,000	Priority
1-114	10 Year Plan	$15,000,000	$1,000,000	Priority

Project No	Completion Date	Total Cost	Total Funding	Status
1-701	5 Year Plan	$1,100,000	$1,100,000	Priority
1-806	10 Year Plan	$5,000,000	$1,000,000	Priority
1-809	5 Year Plan	$8,500,000	$1,000,000	Priority
1-910	10 Year Plan	$10,000,000	$2,000,000	Priority
2-113	10 Year Plan	$3,100,000	$500,000	Priority
2-308	10 Year Plan	$27,000,000	$500,000	Priority
F01272	10 Year Plan	$31,600,000	$600,000	Priority
F01336	2017-2018	$12,800,000	$13,740,000	Priority
F01389-2	10 Year Plan	$2,700,000	$1,430,000	Priority
F01417	10 Year Plan	$39,500,000	$21,150,000	Priority
F01452-2	2017-2018	$38,400,000	$1,170,000	Priority
F01473	10 Year Plan	$8,100,000	$5,001,000	Priority
F01650	2017-2018	$5,200,000	$3,440,000	Priority
F01667	10 Year Plan	$26,900,000	$16,000,000	Priority
F01911	2018-2019	$8,700,000	$3,140,000	Priority
F02129	10 Year Plan	$16,700,000	$1,024,000	Priority
F02228	10 Year Plan	$8,700,000	$7,600,000	Priority
F02243	10 Year Plan	$2,400,000	$400,000	Priority
Totals:		$281,400,000	$91,795,000	

B.7.1 Priority Project Descriptions

B.7.1.1 1-112 West State Storm Drain – Priority

Channel Invert Repair
Status: Proposed
Completion Date: 5-year plan
Total Cost: 11.4 million
Funding Description: San Bernardino County Flood Control Tax Revenues
Project Selected for: Public Safety; protection of local and downstream infrastructure
Hazard Mitigated: Downstream flooding

B.7.1.2 1-114 Carbon Canyon Channel – Priority

Channel improvement
Status: Proposed
Completion Date: 10-year plan
Total Cost: 15 million
Funding Description: San Bernardino County Flood Control Tax Revenues
Project Selected for: Public Safety; protection of local and downstream infrastructure
Hazard Mitigated: Downstream flooding

B.7.1.3 1-701 Etiwanda Channel Invert Repair – Priority

Channel Invert Repair
Status: Proposed
Completion Date: 5-year plan
Total Cost: 1.1 million
Funding Description: San Bernardino County Flood Control Tax Revenues
Project Selected for: Public Safety; protection of local and downstream infrastructure
Hazard Mitigated: Downstream flooding

B.7.1.4 1-806 Hawker Crawford Channel and Rich Basin – Priority

Channel / Basin improvement
Status: Proposed
Completion Date: 10-year plan
Total Cost: 5 million
Funding Description: San Bernardino County Flood Control Tax Revenues
Project Selected for: Public Safety; protection of local and downstream infrastructure by reducing peak Q
Hazard Mitigated: Downstream flooding

B.7.1.5 1-809 West Fontana Channel (From Banana Basin to Hickory Basin) – Priority

Channel Repair
Status: Proposed
Completion Date: 5-year plan
Total Cost: 8.5 million
Funding Description: San Bernardino County Flood Control Tax Revenues
Project Selected for: Public Safety; protection of local and downstream infrastructure
Hazard Mitigated: Downstream flooding

B.7.1.6 1-910 Grove Basin-Priority

Basin out improvement
Status: Proposed
Completion Date: 10-year plan
Total Cost: 10 million
Funding Description: San Bernardino County Flood Control Tax Revenues
Project Selected for: Public Safety; protection of local and downstream infrastructure by reducing peak Q
Hazard Mitigated: Downstream flooding

B.7.1.7 2-113 Randal Basin outlet improvement – Priority

Outlet improvements D/S of the Basin
Status: Proposed
Completion Date: On 10-year plan

Local Priority: Medium
Total Cost: $3.1 million
Funding Description: San Bernardino County Flood Control Property Taxes
Project Selected for: Public Safety
Hazard Mitigated: Potential failure & flooding downstream
Resources to Implement: Medium
Cost to Implement: High
Time to Implement: High

B.7.1.8 2-308 Cable Creek Channel – Priority

Channel improvements
Status: Proposed
Completion Date: On 10-year plan
Local Priority: Low
Total Cost: $27 million
Funding Description: San Bernardino County Flood Control Tax Revenues
Project Selected for: Compliance with FEMA Levee Certification program
Hazard Mitigated: Reduction of floodplain; reduction of potential for major flooding
Resources to Implement: High
Cost to Implement: High
Time to Implement: High

B.7.1.9 F01272 Rialto Channel, Etiwanda Avenue to Willow Avenue – Priority

Construct Rialto channel to ultimate condition
Status: Proposed
Completion Date: On 10-year plan
Local Priority: Low
Total Cost: $31.6 million
Funding Description: San Bernardino County Flood Control Property Taxes, City of Rialto
Project Selected for: Public Safety & convenience Hazard Mitigated: Residential area flooding and road closures due to wash-outs
Resources to Implement: Low
Cost to Implement: High
Time to Implement: High

B.7.1.10 F01336 Amethyst Detention Basin – Priority

Construct a detention basin at Amethyst and Sycamore
Status: Design completed, Permits In process
Completion Date: Estimated 2017/2018
Local Priority: High
Total Cost: $12.8 million
Funding Description: San Bernardino County Flood Control Property Taxes, City of Victorville
Project Selected for: Public Safety; protection of local and downstream infrastructure by reducing peak Q
Hazard Mitigated: downstream flooding

Resources to Implement: Low
Cost to Implement: High
Time to Implement: High

B.7.1.11 F01389-2 Mojave River Phase II – Priority

Construct earthen levee lined with 1/2 ton rock slope protection between Oro Grande Wash and Mojave River Phase I
Status: Proposed
Completion Date: On 10-year plan
Local Priority: Low
Total Cost: $2.7million
Funding Description: San Bernardino County Flood Control Property Taxes
Project Selected for: To finalize levee improvement construction; protection of Amtrak station
Hazard Mitigated: Local flooding, railroad flooding
Resources to Implement: Low
Cost to Implement: High
Time to Implement: High

B.7.1.12 F01417 Bandicoot Detention Basin (Phase I&II) – Priority

Construction of detention basin, inlet/outlet facilities, fencing to attenuate 10-year storm flows adjacent to California Aqueduct and downstream residential and commercial properties developments.
Status: Proposed
Completion Date: On 10-year plan
Local Priority: Low
Total Cost: $39.5 million
Funding Description: San Bernardino County Flood Control Property Taxes
Project Selected for: To protect the State water aqueduct
Hazard Mitigated: Flood damage to aqueduct & local area
Resources to Implement: Low
Cost to Implement: High
Time to Implement: High

B.7.1.13 F01452-2 West Fontana Channel, Phase I – Priority

Construction of concrete channel from Juniper to Banana Basin
Status: In process
Completion Date: Estimated 2017/2018
Local Priority: Medium
Total Cost: $38.4 million
Funding Description: San Bernardino County Flood Control Taxes, City of Fontana
Project Selected for: Public safety & convenience
Hazard Mitigated: Flooding of railroad & Metrolink tracks; road damage & closure
Resources to Implement: Medium
Cost to Implement: High

Time to Implement: High

B.7.1.14 F01473 Rialto Channel – Priority

Construct channel improvements south of Interstate 10
Status: Proposed
Completion Date: On 10-year plan
Local Priority: Medium
Total Cost: $8.1 million
Funding Description: San Bernardino County Flood Control Property Taxes, City of Rialto
Project Selected for: Public Safety
Hazard Mitigated: Existing channel is interim and undersized
Resources to Implement: Medium
Cost to Implement: High
Time to Implement: High

B.7.1.15 F01650 Sand Creek/ Warm Creek Channels – Priority

Improve existing confluence of Sand Creek and Warm Creek Channels
Status: In process
Completion Date: Estimated 2017/2018
Local Priority: Medium
Total Cost: $5.2 million
Funding Description: San Bernardino County Flood Control
Project Selected for: channel improvements to interim storm drain system
Hazard Mitigated: Potential damage to infrastructure
Resources to Implement: High
Cost to Implement: High
Time to Implement: High

B.7.1.16 F01667 Cactus Basins #4 & 5 – Priority

Construction of detention basins to mitigate downstream flooding of Rialto Channel Work includes inlet/outlet structures
Status: Proposed
Completion Date: 10-year plan
Local Priority: Low
Total Cost: $26.9 million
Funding Description: San Bernardino County Flood Control, City of Rialto
Project Selected for: Ability to reduce downstream peak Q
Hazard Mitigated: flooding of nearby area

B.7.1.17 F01911 Elder Gulch – Priority

Construct trapezoidal rock-lined channel
Status: Proposed
Completion Date: Estimated FY 18/19
Local Priority: High

Total Cost: $8.7 million
Funding Description: San Bernardino County Flood Control Property Taxes
Project Selected for: Public safety
Hazard Mitigated: Flooding of local area
Resources to Implement: Low
Cost to Implement: High
Time to Implement: Medium

B.7.1.18 F02129 Wildwood Channel – Priority

Channel improvement
Status: In preliminary design process
Completion Date: On 10-year plan
Local Priority: High
Total Cost: $16.7 million
Funding Description: San Bernardino County Flood Control Property Taxes, City of Yucaipa
Project Selected for: History of flooding due to high debris flows
Hazard Mitigated: reduction in size of floodplain; minimized flooding
Resources to Implement: Low
Cost to Implement: High
Time to Implement: Low

B.7.1.19 F02228 Plunge Creek Spillway – Priority

Repair of severe damage caused by storms in 2005
Status: Proposed
Completion Date: On 10-year plan
Local Priority: High
Total Cost: $3 million
Funding Description: San Bernardino County Flood Control Property Taxes
Project Selected for: Necessary repairs due to previous flood damage
Hazard Mitigated: Potential failure & flooding downstream
Resources to Implement: Low
Cost to Implement: High
Time to Implement: High

B.7.1.20 F02243 Rialto Channel Priority Crossings – Priority

Status: In preliminary design process
Completion Date: On 10-year plan
Local Priority: Low
Total Cost: $2.4 million
Funding Description: San Bernardino County Flood Control Property Taxes, City of Rialto

Project Selected for: Public Safety & convenience
Hazard Mitigated: Elimination of flooding at intersections
Resources to Implement: Low
Cost to Implement: High
Time to Implement: High

B.7.2 Projects with Mitigation Benefits

Table B-7 is a list of the proposed projects to mitigate the Flood hazard within the County Unincorporated Area.

Table B-7: In Progress Flood Control Mitigation Projects

Project No	Completion Date	Total Cost	Total Funding	Status
F01312	2017/2018	4,400,000	2,200,000	Under Construction
F01666	2017/2018	17,800,000	17,800,000	Under Construction
F02094	2017	4,000,000	4,000,000	Under Construction
F02126	2017/2018	8,300,000	6,180,000	Under Construction
	Totals:	34,500,000	30,180,000	

B.7.2.1 F01312 English Channel/ Peyton Drive (Under Construction)

Construct triple RCB and channel upstream and downstream of Peyton Drive.
Status: In preliminary design process
Completion Date: Estimated 2017/2018
Local Priority: High
Total Cost: $4.4 million
Funding Description: San Bernardino County Flood Control Property Taxes, 50% and City of Chino Hills 50%
Project Selected for: Public safety & convenience
Hazard Mitigated: Flooding of roads in residential area
Resources to Implement: High
Cost to Implement: High
Time to Implement: Medium

B.7.2.2 F01666 Cactus Basin #3/ Expansion of Basin #3 – (Under Construction)

Status: In process
Completion Date: Estimated 2017/2018
Local Priority: High
Total Cost: $17.8 million
Funding Description: San Bernardino County Flood Control Property Taxes, City of Rialto

Project Selected for: Public safety & improved future development; protection of water filtration plant across the street; reduction of peak Q downstream.
Hazard Mitigated: Flooding of immediate area and downstream along Rialto Channel
Resources to Implement: Low
Cost to Implement: High
Time to Implement: Medium

B.7.2.3 F02094 Cucamonga Basin #6, Phase II – (Under Construction)

Landscaping improvements
Status: Partial Completed
Completion Date: Mid-2011 – (Landscaping Phase Completion date end of 2017)
Local Priority: High
Total Cost: $4.0 million
Funding Description: San Bernardino County Flood Control Tax Revenues
Project Selected for: Environmental compliance & aesthetics
Hazard Mitigated:
Resources to Implement: Low
Cost to Implement: High
Time to Implement: Low

B.7.2.4 F02126 Francis Street Storm Drain (Under Construction)

Construct ultimate storm drain improvements from Sultana Avenue east to beyond Grove Avenue
Status: In preliminary design process
Completion Date: Estimated 2017/2018
Local Priority: Low
Total Cost: $8.3 million
Funding Description: San Bernardino County Flood Control Property Taxes 75% and City of Ontario 25%
Project Selected for: Public safety & convenience
Hazard Mitigated: Existing storm drain is undersized/interim; local flooding
Resources to Implement: Medium

B.7.3 Future Year Projects

Table B-8: Future Year Projects

Project Number/Name	Completion Date	Total Cost	Status
2-509 Little Sand Creek	10 Year Plan	$10,500,000	Future
3-501 Mission Channel	10 Year Plan	$28,800,000	Future
3-601 Wilson Creek (10th St-I-10)	10 Year Plan	$38,800,000	Future
CSDP Drain Project	10 Year Plan	$18,500,000	Future
Extension of VV Line E-01	10 Year Plan	$2,000,000	Future
F01284	10 Year Plan	$7,200,000	Future
F01582	10 Year Plan	$19,000,000	Future
F01584	2018/2019	$11,700,000	Future
F01609	10 Year Plan	$32,500,000	Future

Project Number/Name	Completion Date	Total Cost	Status
F02225	10 Year Plan	$33,100,000	Future
F02475	10 Year Plan	$9,000,000	Future
F02476	10 Year Plan	$32,300,000	Future
H1458	2021	$3,000,000	Future
Institution Road	2021	$30,000,000	Future
Line C-01 Hesperia	10 Year Plan	$5,300,000	Future
Line D-01 Hesperia	10 Year Plan	$32,500,000	Future
Line E-01 Apple Valley	10 Year Plan	$36,300,000	Future
Lone Pine Canyon Road Culvert	TBD	$25,000,000	Future
National Trails Hwy Bridge	TBD	$40,000,000	Future
Old Waterman Canyon Rd Culvert	TBD	$2,500,000	Future
Pine View Dr. Storm Drain	TBD	$6,000,000	Future
Piute Wash	2021	$34,500,000	Future
Rimforest Drainage Project	10 Year Plan	$6,900,000	Future
Rock Springs Rd Bridge Replacement	TBD	$32,876,000	Future
Tussing Ranch-Juniper Basin	10 Year Plan	$6,500,000	Future
Yermo Rd/National Trails Hwy Bridge	TBD	$40,000,000	Future
	Totals:	$544,776,000	

B.7.3.1 2-509 Little Sand Creek

Creek improvements between Date Street and Del Lemon basin
Status: Proposed
Completion Date: 10-year plan
Local Priority: Medium
Total Cost: $10.5 million
Funding Description: San Bernardino County Flood Control
Project Selected for: Public safety; residential area with school nearby
Hazard Mitigated: Flooding and pedestrian hazards
Resources to Implement: Medium
Cost to Implement: High
Time to Implement: High

B.7.3.2 3-501 Mission Channel

Channel Repair, Construct concrete channel improvements
Status: Proposed
Completion Date: 10-year plan
Local Priority: Medium
Total Cost: $28.8 million
Funding Description: San Bernardino County Flood Control
Project Selected for: Public safety; residential area with school nearby
Hazard Mitigated: Flooding and pedestrian hazards
Resources to Implement: Medium

Cost to Implement: High
Time to Implement: High

B.7.3.3 3-601 Wilson Creek (from 10st Street to I-10)

Channel Repair, between 10st Street to I-10
Status: Proposed
Completion Date: 10-year plan
Local Priority: Medium
Total Cost: $38.8 million
Funding Description: San Bernardino County Flood Control
Project Selected for: Public safety; residential area with school nearby
Hazard Mitigated: Flooding and pedestrian hazards
Resources to Implement: Medium
Cost to Implement: High
Time to Implement: High

B.7.3.4 CSDP -- Storm Drain Project – Colton

Construction of storm drains from Randall Basin to the Santa Ana River according to Comprehensive Storm Drain Plan (CSDP) 3-5 and 3-8
Status: Proposed
Completion Date: On 10-year plan
Local Priority: Medium
Total Cost: $18.5 million
Funding Description: San Bernardino County Flood Control Property Taxes
Hazard Mitigated: Existing channel is interim and undersized
Resources to Implement: Medium
Cost to Implement: High
Time to Implement: High

B.7.3.5 Extension of Victorville Line E-01

Construct Storm Drain line E-01
Status: In preliminary design process
Completion Date: On 10-year plan
Local Priority: High
Total Cost: $2.0 million
Funding Description: San Bernardino County Flood Control Property Taxes, City of Victorville
Project Selected for: Public safety of commercial area
Hazard Mitigated: local flooding; road closure/road damage (State Hwy)
Resources to Implement: High
Cost to Implement: High
Time to Implement: Low

B.7.3.6 FO1284 Donnell Basin (Phase I&II)

Construct detention basin.
Status: Proposed
Completion Date: 10-year plan
Local Priority: Medium
Total Cost: $7.2 million
Funding Description: San Bernardino County Flood Control Property Taxes
Project Selected for: Public Safety; roadway protection; Safe Routes to School Program (SR2S)
Hazard Mitigated: Flood protection for homes, infrastructure, and pedestrians
Resources to Implement: Low

B.7.3.7 FO1582 Desert Knolls II

Construct flood control channel from Apple Valley Road to Tuscola Road
Status: Proposed
Completion Date: On 10-year plan
Local Priority: High
Total Cost: $19 million
Funding Description: San Bernardino County Flood Control
Project Selected for: Public safety/future development
Hazard Mitigated: Potential localized flooding due to increased development
Resources to Implement: Low
Cost to Implement: High
Time to Implement: High

B.7.3.8 FO1584 Desert Knolls

Construct channel improvements from the Mojave River to Phase I
Strategy: Construct concrete lined channel to provide for 100 year storm flows and debris flows.
Status: Proposed
Completion Date: Estimated FY 18/19
Local Priority: High
Total Cost: $11.7 million
Funding Description: San Bernardino County Flood Control Tax Revenues
Project Selected for: Environmental requirements
Hazard Mitigated: This project is the mitigation aspect of Phase II
Resources to Implement: Low
Cost to Implement: High
Time to Implement: Medium

B.7.3.9 FO1609 Ranchero Basin

Construct detention basin
Status: Proposed

Completion Date: 10-year plan
Local Priority: High
Total Cost: $32.5 million
Funding Description: San Bernardino County Flood Control
Project Selected for: Public safety and reduction of peak Q
Hazard Mitigated: Potential damage to bridges and roads downstream due to high flows
Resources to Implement: Low
Cost to Implement: High
Time to Implement: High

B.7.3.10 F02225 Del Rosa

Channel Repair, Construct concrete channel improvements between Pacific Street and Del Rosa Avenue
Status: Proposed
Completion Date: 10-year plan
Local Priority: Medium
Total Cost: $33.1 million
Funding Description: San Bernardino County Flood Control
Project Selected for: Public safety; residential area with school nearby
Hazard Mitigated: Flooding and pedestrian hazards
Resources to Implement: Medium
Cost to Implement: High
Time to Implement: High

B.7.3.11 F02475 Seneca Basin

Construct detention basin
Status: Proposed
Completion Date: 10-year plan
Local Priority: High
Total Cost: $9 million
Funding Description: San Bernardino County Flood Control
Project Selected for: Public safety and reduction of peak Q
Hazard Mitigated: Potential damage to bridges and roads downstream due to high flows
Resources to Implement: Low
Cost to Implement: High
Time to Implement: High

B.7.3.12 F02476 Oak Hills Basin

Construct detention basin
Status: Proposed
Completion Date: 10-year plan
Local Priority: High
Total Cost: $32.3 million
Funding Description: San Bernardino County Flood Control
Project Selected for: Public safety and reduction of peak Q
Hazard Mitigated: Potential damage to bridges and roads downstream due to high flows
Resources to Implement: Low

Cost to Implement: High
Time to Implement: High

B.7.3.13 H1458 Arrowbear Dr. Bridge Replacement

Replacement of bridge crossing on Arrowbear Drive and increase spillway flow capacity to prevent flooding
Status: Proposed
Completion Date: 2021
Total Cost: $3,000,000.00
Funding Description: Major Local Highway Project Funds
Project Selected for: Public Safety and convenience
Hazard Mitigated: flood damage, road closures and road damage

B.7.3.14 Institution Road

Construction of bridge crossing along Institution Road on Cajon Wash
Status: Proposed
Completion Date: 2021
Total Cost: $30,000,000.00
Funding Description: seeking grant funding
Project Selected for: Public Safety and convenience
Hazard Mitigated: flood damage, road closures and road damage

B.7.3.15 Line C-01 Hesperia

Construction of concrete trapezoidal channel improvements, short reach of levee along the channel, 96 inch RCP and reconstruction of the existing deficient reach as a concrete trapezoidal channel with a portion of riprap channel
Status: Proposed
Completion Date: 10-year plan
Total Cost: $5.3 million
Funding Description: San Bernardino County flood Control
Project selected for: Public safety and roadway protection
Hazard Mitigated: Flooded roads and residential area
Resources to implement: High
Cost to implement: High
Time to implement: High

B.7.3.16 Line D-01 Hesperia

Improve the storm drain facility.
Status: Proposed
Completion Date: 10-year plan
Total Cost: $32.5 million
Funding Description: San Bernardino County flood Control
Project selected for: Public safety and roadway protection
Hazard Mitigated: Flooded roads and residential area
Resources to implement: High
Cost to implement: High

Time to implement: High

B.7.3.17 Line E-01 Apple Valley

Improve the storm drain facility.
Status: Proposed
Completion Date: 10-year plan
Total Cost: $36.3 million
Funding Description: San Bernardino County flood Control
Project selected for: Public safety and roadway protection
Hazard Mitigated: Flooded roads and residential area
Resources to implement: High
Cost to implement: High
Time to implement: High

B.7.3.18 Lone Pine Canyon Road Culvert

Construction of Culvert on Long Pine Canyon Road
Status: Proposed
Completion Date: No date until funding is available
Total Cost: $2,500,000.00
Funding Description: TBD
Project Selected for: Public Safety and convenience
Hazard Mitigated: flood damage, road closures and road damage

B.7.3.19 National Trails Highway Bridge Replacement

Removal of approximately 31 old timber bridges and construction of replacement bridges spanning Under 20' on National Trails Highway
Status: Preliminary engineering and environmental study only
Completion Date: No date until funding is available
Total Cost: $40,000,000.00
Funding Description: TBD
Project Selected for: Public Safety and convenience
Hazard Mitigated: flood damage, road closures and road damage

B.7.3.20 Old Waterman Canyon Road Culvert

Removal of approximately 31 old timber bridges and construction of replacement bridges spanning less than 20' on National Trails Highway
Status: Preliminary engineering and environmental study only
Completion Date: No date until funding is available
Total Cost: $2,500,000.00
Funding Description:
Project Selected for: Public Safety and convenience
Hazard Mitigated: flood damage, road closures and road damage

B.7.3.21 Pine View Dr. Storm Drain

Construction of storm drain on Pine View Drive
Status: Proposed
Completion Date: Shelf ready but no date until funding is available
Total Cost: $6,000,000.00
Funding Description: TBD
Project Selected for: Public Safety and convenience
Hazard Mitigated: flood damage, road closures and road damage

B.7.3.22 Piute Wash

Construction of bridge crossing along Needles highway road on Piute washes to prevent flooding and washing the road out.
Status: Proposed
Completion Date: 2021
Total Cost: $34,500,000
Funding Description: seeking grant funding
Project Selected for: Public Safety and convenience
Hazard Mitigated: flood damage, road closures and road damage

B.7.3.23 Rimforest Drainage Project – Rimforest Area

Capture the surface water within Rimforest and convey it to Little Bear Creek, away from the escarpment.
Status: In preliminary design process
Completion Date: On 10-year plan
Local Priority: High
Total Cost: $6.9 million
Funding Description: San Bernardino County Flood Control Property Taxes
Project Selected for: Public safety of commercial area
Hazard Mitigated: Public safety and reduction of peak Q
Resources to Implement: High
Cost to Implement: High
Time to Implement: Low

B.7.3.24 Rock Springs Road Bridge Replacement

Construct Replacement Bridge on Glen Helen Parkway over Cajon Wash It will increase flow capacity with a longer span and reduce flooding of the roadway.
Status: Proposed
Completion Date: No date until full funding is available
Total Cost: $32,876,000
Funding Description: Partially funded with General Fund Money
Project Selected for: Public Safety and convenience
Hazard Mitigated: flood damage, road closures and road damage

B.7.3.25 Tussing Ranch – Juniper Basin

Construct detention basin
Status: Proposed
Completion Date: 10-year plan
Local Priority: High
Total Cost: $6.5 million
Funding Description: San Bernardino County Flood Control
Project Selected for: Public safety and reduction of peak Q
Hazard Mitigated: Potential damage to bridges and roads downstream due to high flows
Resources to Implement: Low
Cost to Implement: High
Time to Implement: High

B.7.3.26 Yermo Road and National Trails Highway Bridge Replacement

Removal of approximately 11 old timber bridges and construction of replacement bridges spanning under 20' on National Trails Highway and Yermo Road. The military is using high load tractors and trailers warranting the need to increase the load capacity of the bridges.
Status: Preliminary engineering and environmental study only
Completion Date: No date until funding is available
Total Cost: $40,000,000.00
Funding Description: TBD
Project Selected for: Public Safety and convenience
Hazard Mitigated: flood damage, road closures and road damage

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Annex C. Special Districts Department

C.1 Introduction

Special Districts Department, under the direction of the San Bernardino County Board of Supervisors, provides administrative oversight and manages the operation of over 100 special districts throughout San Bernardino County. Through the formation of County Service Areas (CSAs) and Improvement Zones, these special districts provide a variety of municipal-type services to unincorporated areas of the county.

C.2 Special Districts Profile

Special District Functions:
The County Service Areas (CSAs) and Improvement Zones can provide one or all of the following services to meet the individual needs of communities, neighborhoods and new developments depending on needs and financial feasibility:

- Cemetery
- Dam Operation
- Detention Basin
- Engineering and Construction
- Landscaping
- Open Spaces
- Park and Recreation
- Public Financing
- Refuse
- Roads
- Streetlights
- Television Translator
- Water and Sanitation

Mission:
The Special Districts Department works to ensure safe, healthy, and enjoyable communities by providing customizable programs and municipal services for those who work, play and stay in San Bernardino County.

Vision:
To be recognized as the preeminent provider of customized municipal services focusing on improved quality of life for the residents and visitors of San Bernardino County.

C.3 Planning Process

As described above, the County Flood Control District followed the planning process detailed in Section 3 of the base plan. In addition to providing representation on the San Bernardino County Hazard Mitigation Planning Committee (HMPC), the District formulated their own internal planning team to support the broader planning process requirements. Internal planning participants, their positions, and how they participated in the planning process are shown in Table C-9. Additional details on plan participation and District representatives are included in Appendix A.

Table C-9: Special District Hazard Mitigation Planning Team

Name	Title
Jeffrey Rigney	Director of Special Districts
Steve Samaras	Water and Sanitation Division Manager
Tim Millington	Engineering Division Manager,
Reese Troublefield	Operations Division Manager
Erin Opliger	Districts Services Coordinator

The Special Districts Department has attending the following planning meetings:

Meeting Date	Meeting Type	Attendees	Additional Details
6/23/16	LHMP Update - Kickoff Meeting	Steve Samaras, Erin Opliger	
8/30/16	LHMP Group Meeting	Erin Opliger	
10/26/16	LHMP Blue Jeans Meeting	Erin Opliger	

The County of San Bernardino Special Districts Department (Department) has historically identified goals, objectives, and projects to mitigate the negative effects of hazards. The Department continues to work with various Advisory Commissions and the public to identify and mitigate the impacts of hazards to the various services that the Department provides, including: cemetery operations, dam operations, detention basin operations, landscaping services, open space, parks and recreation, refuse services, roads, streetlights, television translator, water distribution and treatment system operations, sewer collection system operations, and wastewater treatment plant operations.

The Department diligently identifies the hazards that each service district or County Service Area (CSA) and its zones face, and has assessed the vulnerability according to the potential event. Hazards, whether they are technological or natural, affect CSAs with varying frequency and can cause injury, impose monetary losses, and the disruption of services, affecting the Department's mission as a public agency service provider. Losses can be substantially reduced or eliminated through comprehensive pre- disaster planning and mitigation actions.

Many groups and individuals have contributed to the Department's planning for Disasters and the necessary hazard mitigation efforts. Advisory Committees, located in the Department's various CSAs, provide on-going input and support for the various aspects of hazard mitigation, including identifying persistent hazards that develop after storm events and options for mitigation.

Department staff participates in the hazard mitigation process by completing semi-annual audits of various CSAs, recommending temporary fixes and/or permanent solutions. CSA customers and the public have also participated in hazard mitigation planning by approaching staff in the field, contacting the office, and/or attending public meetings to identify temporary and ongoing hazards that need to be addressed. These resources have proved valuable to the Department in identifying and mitigating potential hazards. The Department also uses the following process to prepare hazard mitigation plans:

- Identify and prioritize disaster events that are most probable and destructive;
- Identify critical facilities;
- Identify areas within communities that are most vulnerable;
- Develop goals and objectives for reducing the effects of a disaster event;
- Develop specific projects to be implemented for each goal;
- Identify funding sources;
- Develop procedures for monitoring progress;
- Mitigate identified potential hazards.

The Department has identified areas for mitigation projects within the Special Districts of San Bernardino County as a result of their internal planning processes. These projects, shown below, are organized by type of special district these proposed projects are in the conceptual stage and detailed planning will be done in the future as funding becomes available. Prioritization of projects will be done in the planning stages, based on the risk prioritizations developed for the current Multi-Jurisdictional Hazard Mitigation Plan.

C.4 Hazard Identification and Prioritization

The Special Districts Planning Team participated in the County hazard identification and prioritization process described in the base plan. The Special Districts Planning Team assisted to summarize the extent, probability of future occurrences, potential magnitude/severity, and significance specific to the Special Districts (See Section 4).

C.5 Coordination with County Planning Efforts

Coordination with other County planning efforts is paramount to the successful implementation of this plan. This Section provides information on how the Special Districts integrated the previously-approved 2011 Plan into existing planning mechanisms and programs. Specifically, the District incorporated into or implemented the 2011 MJHMP through other plans and programs shown below.

C.5.1 3.2 Water Systems (Distribution Systems):

Fire:

- Rockscape or paved property grounds which have structures located in wilderness and or areas prone to wildfires. Double the width of external fire breaks.
- Re-roof buildings and structures with tile, metal or fire resistant material.

Flood:

- Add drainage, elevate facilities and adjust sloping for facilities in low-lying areas and in natural waterways or floodplains. (Recent Completion)
- Conduct hydrologic and hydraulic studies for all facilities located near flood plains/natural waterways.
- Encase water pipelines with specific sized rock, gravel, and road base in natural waterways to prevent continual washout or exposure during heavy storm events/floods.

Earthquake:

- Retrofit structures to higher seismic standards.
- Purchase portable containers (Conex containers) to stage emergency supplies and equipment for the first responders (i.e. water, food, small off road vehicles, fuel, cots, toiletries, communication devices, blankets, wet weather gear, etc.) at strategic water system locations throughout County of San Bernardino. Conex containers can be relocated if necessary to assist field staff during a disaster to maintain the operations of water systems. (Recent Completion and in implementation phase)

General Hazard (Fire/Flood/Earthquake):

- Retrofit existing buildings and facilities with connectors/ATS for emergency generators and/or install permanent emergency generators at critical facilities, including wells and booster station locations.
- Develop a plan for speeding the repair of and functional restoration of water and wastewater systems through stockpiling of shoring materials, temporary pumps, surface pipelines, portable hydrants, and other supplies.
- Develop a plan for areas subject to high ground shaking, earthquake-induced ground failure, and surface fault rupture to determine a replacement schedule for pipelines (along with importance, age, type of construction material, size, condition, and maintenance or repair history).(Project now in effect)
- Develop a plan for short-term and intermediate-term sheltering of employees.
- Develop a plan to work with local agencies that handle hazardous materials to coordinate mitigation efforts for the possible release of these materials due to a natural disaster such as an earthquake, flood, fire, or landslide.

- Utilization of SCADA and Smart Water Meters to get real time data on problems with the system and reduce drive time emissions as a result of traditional meter reading.
- Provide emergency supplies of food, water, and portable generators for employees at office and field locations.
- Install emergency generators at district facilities

C.5.2 3.3 Sewer Systems (Collection Systems):

Fire:

- Rockscape or pave property grounds which have structures located in wilderness and or areas prone to wildfires. Double the width of external fire breaks.(Completion and program implementation by January 2017 estimated)
- Re-roof buildings and structures with tile or fire resistant material.

Flood:

- Add drainage, elevate facilities and adjust sloping for facilities in low-lying areas and in natural waterways or floodplains.
- Encase sewer pipelines with specific sized rock, gravel, and road base in natural waterways to prevent continual washout or exposure during heavy storm events/floods.

Earthquake:

- Develop a plan for short-term and intermediate-term sheltering of employees.
- Retrofit structures to higher seismic standards.

General Hazard (Fire/Flood/Earthquake):

- Retrofit existing buildings and facilities with connectors/ATS for emergency generators and/or install permanent emergency generators.

- Develop a plan for speeding the repair and functional restoration of water and wastewater systems through stockpiling of shoring materials, temporary pumps, surface pipelines, portable hydrants, and other supplies.
- Develop a plan for areas subject to high ground shaking, earthquake-induced ground failure, and surface fault rupture to determine a replacement schedule for pipelines (along with importance, age, type of construction material, size, condition, and maintenance or repair history).
- Install emergency power generators at district facilities.

C.5.3 3.4 Wastewater Treatment Plant

Fire:

- Rockscape or pave property grounds which have structures located in wilderness and or areas prone to wildfires. Double the width of external fire breaks.
- Purchase and store water pumps capable of suppressing fire.

Flood

- Add drainage, elevate facilities and adjust sloping for facilities in low-lying areas and in natural waterways or floodplains.

Earthquake:

- Develop a plan for short-term and intermediate-term sheltering of employees.

C.5.4 3.5 Roads

Fire:

- Install generators at all road facilities. This will allow uninterrupted communications and provide power to refuel critical emergency response equipment.
- Purchase emergency water supply or water purification devices to ensure uninterrupted supply of water to emergency response personal.(completed with continuous fresh of supplies and rotation)
- Clear vegetation from Road District facilities/yards

Flood:

- Upgrade culverts in all flood prone areas. Most existing culvert sizes were never designed for high water volume. Upgrading will prevent roadway washouts caused by water bypassing existing culverts.(Complete and continuous maintenance)
- Upgrade culvert sizes in Main Channels and replace old culverts in Main Channels as required.(complete and continuous maintenance)
- Slope stabilization at water crossing areas along roadways. This will prevent the loss of the roadways at these areas by preventing undermining by the water.
- Install generators at all road facilities. This will allow uninterrupted communications and provide power to refuel critical emergency response equipment.
- Purchase emergency water supply or water purification devices to ensure uninterrupted supply of water to emergency response personal.
- Soil stabilization on roadway shoulders. This will prevent erosion caused by flood conditions.

- Soil stabilization of dirt roadways. This will help mitigate the loss of material from the roadway during flooding conditions.
- Employ on call contractors to assist in emergency situations.

Earthquake:
Install generators at all road facilities. This will allow uninterrupted communications and provide power to refuel critical emergency response equipment.
Purchase emergency water supply or water purification devices to ensure uninterrupted supply of water to emergency response personal. (Completed and refresh of supplies as needed)

C.5.5 3.6 Television Translator Districts

General Hazard (Fire, Flooding, Earthquake):

- Install and maintain emergency generators at all TV Translator sites. Newberry Springs, Lucerne Valley, and Morongo Valley TV Transmitter sites are in need emergency generators. Pinto and Elephant Mountain sites have existing generators. Installing emergency generators at these sites will enable emergency information to be disseminated to the residents living in these remote locations.(Complete and maintenance of upgrades)
- Establish a centralized communications network to monitor channel output for TV Districts and provide emergency information by way of character generator tied to channel transmissions.
- Conduct annual tower and guide wire inspections to mitigate storm/wind/earthquake hazards from knocking out communications.
- Install poly insulators on power poles with high voltage power lines for Pinto Mountain. Establish an open purchase order for a High Voltage Electrician to provide annual inspections of power poles and service lines.(Completed and continuous maintenance)
- Maintain roadways on mountaintops and within washes leading to remote tower sites. Earthquakes and flash floods can block roadways, making them impassable to restore emergency communications.
- Maintain lights on all tower locations.

C.5.6 3.7 Parks Districts

- Trim large trees in parks to avert limb breakage and toppling during storm events.
- Establish emergency centers to ration drinking water at various County Park Community Centers.
- Establish community garden plots in designated County Park areas as an ongoing and emergency food source, including planting fruit bearing trees.
- Conduct an inventory or list of County Park Facilities and Community Centers to establish a list of pre-designated emergency operations or disaster relief sites. Not all Community

Centers are an appropriate size to accommodate large numbers of evacuees and may only serve as command and control centers or distribution centers.
- Establish small solar energy fields or other forms of renewable power at County Community Centers to facilitate stand-alone emergency operations for the community.
- Conduct repair and replacement of old roofs, and clearing of gutters and roof drains to minimize potential damage from major storm events.(Completed and continuous maintenance)
- Conduct an evaluation or study of County Park and Community Center facilities to install curbs, retaining walls, and drains to carry or divert water away from buildings.
- Connect water systems to generators to ensure delivery even in disaster situations.
- Provide emergency supply of food and water for employees in disaster situations.

C.6 Special Districts Mitigation Project Prioritizing

Cost effectiveness of each measure was a primary consideration when developing mitigation actions. Because mitigation is an investment to reduce future damages, it is important to select measures for which the reduced damages over the life of the measure are likely to be greater than the project cost. For structural projects, the level of cost effectiveness is primarily based on the likelihood of damages occurring in the future, the severity of the damages when they occur, and the level of effectiveness of the selected measure. While detailed analysis was not conducted during the mitigation action development process, these factors were of primary concern when selecting measures. For measures that do not result in a quantifiable reduction of damages, such as public education and outreach, the relationship of the probable future benefits and the cost of each measure was considered when developing the mitigation actions.

Based upon the Special Districts capabilities, Table C-10 shows primary actions selected for further implementation and development during the next planning cycle. Table C-10 provides details for each mitigation action with mitigation action descriptions, FEMA mitigation category, responsible party, and timeframe.

C.7 Special Districts Mitigation Actions

Table C-10: Mitigation Project Prioritization and Implementation

Hazard	Mitigation Action	Description / Background	Mitigation Strategy Type	Funding	Responsible Agency	Time Frame	Status / Comments / Implementation Mechanisms
All-Hazard	**AH Action 2.1:** Continue funding and support for Special Districts Projects relating to all hazards.	Continue funding and support for Special Districts Projects relating to water systems, sewer systems, wastewater treatment, roads, TV districts, park districts, Big Bear Valley Recreation Park District and Bloomington Recreation and Park District for all hazards. For more information regarding these projects, see Annex C Section C.7.	VARIES	VARIES	VARIES	Ongoing	
All-Hazard	**AH Action 2.2:** Install Generators at Critical Facilities	Retrofit existing buildings and facilities with connectors/ ATS for emergency generators and/or install permanent emergency generators at critical facilities, including wells and booster station locations.	ES, SP	TBD	Water Systems	TBD	Critical sites are already set up for connection or has a permanently installed generator
All-Hazard	**AH Action 2.3:** Water Systems Repair Plan	Develop a plan for speeding the repair of and functional restoration of water and wastewater systems through stockpiling of shoring materials, temporary pumps, surface pipelines, portable hydrants, and other supplies.	PRV	SDD WAS	Water Systems	TBD	We have a warehouse and inventory. Add'l inventory would need to be purchased from local wholesaler
All-Hazard	**AH Action 2.4:** Smart Water Meters and SCADA	Utilization of SCADA and Smart Water Meters to get real time data on problems with the system and reduce drive time emissions as a result of traditional meter reading.	PRV	Individual CSAs	Water Systems	Ongoing	Both SCADA and Smart Meters have been installed and continue to be installed
All-Hazard	**AH Action 2.5:** Provide Employees with Emergency Supplies	Provide emergency supplies of food, water, and portable generators for employees at office and field locations.	ES	SDD/WAS	Water Systems	Ongoing	WAS has a stock of emergency food supplies, water, and generators.
All-Hazard	**AH Action 2.6:** Annual Tower and Guide Wire Inspections	Conduct annual tower and guide wire inspections to mitigate storm/wind/earthquake hazards from knocking out communications.	PRV	TBD	TV Districts	7/1/2016-7/1/2017	All Districts
All-Hazard	**AH Action 2.7**: Maintain Tower Lighting	Maintain lights on all tower locations.	SP	TBD	TV Districts	June-17	
All-Hazard	**AH Action 2.8:** Designate Emergency Operations Sites	Conduct an inventory or list of County Park Facilities and Community Centers to establish a list of pre-designated emergency operations or disaster relief sites. Not all Community Centers are an appropriate size to accommodate large numbers of evacuees and may only serve as command and control centers or distribution centers.	PRV	TBD	Park Districts	April-17	All Districts
All-Hazard	**AH Action 2.9:** Establish Power Sources for Emergency Operations Sites	Establish small solar energy fields or other forms of renewable power at County Community Centers to facilitate stand-alone emergency operations for the community.	PRV, SP	TBD	Park Districts	12/1/2016-7/1/2018	Lucerne Valley Joshua Tree
All-Hazard	**AH Action 2.10:** Connect Water Systems to Generators	Connect water systems to generators to ensure delivery even in disaster situations.	PRV, SP	TBD	Park Districts	TBD	

Hazard	Mitigation Action	Description / Background	Mitigation Strategy Type	Funding	Responsible Agency	Time Frame	Status / Comments / Implementation Mechanisms
All-Hazard	**AH Action 2.11:** Establish a Centralized Communications Network	Establish a centralized communications network to monitor channel output for TV Districts and provide emergency information by way of character generator tied to channel transmissions.	PRV	TBD	TV Districts	7/1/2017-12/1/2017	All districts
Wildfire	**WF Action 3.3:** Vegetation Removal	Clear vegetation from Road District facilities/yards	PRV	TBD	Roads	TBD	
Wildfire	**WF Action 6.3:** Protect Property in Wilderness Areas	Rockscape or pave property grounds which have structures located in wilderness and or areas prone to wildfires. Double the width of external fire breaks.	PPRO, PRV, SP	TBD	Sewer Systems	January-17	All sewer pump stations have paving
Wildfire	**WF Action 8.3:** Structural Fire Breaks Widening	Double the width of external fire breaks on grounds which have structures located in wilderness and or areas prone to wildfires.	SP, PRV	Individual CSAs	Water Systems	7/1/2017-7/19/2019	
Wildfire	**WF Action 9.1:** Continue funding and support for Special Districts Projects relating to wildfire.	Continue funding and support for Special Districts Projects relating to wildfire in the categories of water systems, sewer systems, wastewater treatment, roads, TV districts, park districts, Big Bear Valley Recreation Park District and Bloomington Recreation and Park District. For more information regarding these projects, see Annex C Section C.7.	VARIES	VARIES	VARIES	Ongoing	
Wildfire	**WF Action 9.2:** Emergency Water Supplies	Purchase emergency water supply or water purification devices to ensure uninterrupted supply of water to emergency response personal.(completed with continuous fresh of supplies and rotation)	ES	TBD	Roads	TBD	
Earthquake	**EQ Action 2.2:** Seismic Strapping	Seismic strapping for existing water tanks and future construction.	SP, PRV	CSA 64	Water Systems	7/17/2017- 7/1/2019	Ongoing currently
Earthquake	**EQ Action 2.3:** Employee Emergency Sheltering	Develop a plan for short-term and intermediate-term sheltering of employees.	PRV	WAS	Sewer Systems	7/17/2017-7/19/2019	To purchase cots, small portable generators, tents, etc.
Earthquake	**EQ Action 4.2:** Generator Installation	Install generators at all road facilities. This will allow uninterrupted communications and provide power to refuel critical emergency response equipment.	SP, PPRO	TBD	Roads	TBD	
Earthquake	**EQ Action 6.1:** Continue funding and support for Special Districts Projects relating to earthquake hazards.	Continue funding and support for Special Districts Projects relating to earthquake hazards in the categories of water systems, sewer systems, wastewater treatment, roads, TV districts, park districts, Big Bear Valley Recreation Park District and Bloomington Recreation and Park District. For more information regarding these projects, see Annex C Section C.7.	VARIES	VARIES	VARIES	Ongoing	
Flood	**FL Action 3.4:** Soil Stabilization on Roadways and Along Roadway Shoulders	Soil stabilization on roadway shoulders and dirt roads. This will prevent erosion caused by flood conditions.	SP, PRV	TBD	Roads	TBD	

Hazard	Mitigation Action	Description / Background	Mitigation Strategy Type	Funding	Responsible Agency	Time Frame	Status / Comments / Implementation Mechanisms
Flood	**FL Action 3.5:** Encasing Pipelines	Encase water pipelines with specific sized rock, gravel, and road base in natural waterways to prevent continual washout or exposure during heavy storm events/floods.	SP, PRV	CSA 70 J	Water Systems	7/17/2017-7/1/2027	
Flood	**FL Action 6.1:** Continue funding and support for Special Districts Projects relating to flood hazards.	Continue funding and support for Special Districts Projects relating to flood hazards in the categories of water systems, sewer systems, wastewater treatment, roads, TV districts, park districts, Big Bear Valley Recreation Park District and Bloomington Recreation and Park District. For more information regarding these projects, see Annex C Section C.7.	VARIES	VARIES	VARIES	Ongoing	
Flood	**FL Action 6.2:** On Call Contractors	Employ on call contractors to assist in emergency situations.	PRV, ES	TBD	Roads	TBD	
Drought	**DR Action 3.1:** Continue funding and support for Special Districts Projects relating to drought hazards.	Continue funding and support for Special Districts Projects relating to drought hazards in the categories of water systems, sewer systems, wastewater treatment, roads, TV districts, park districts, Big Bear Valley Recreation Park District and Bloomington Recreation and Park District. For more information regarding these projects, see Annex C Section C.7.	VARIES	VARIES	VARIES	Ongoing	
Anti-Terrorism	**AT Action 2.1:** Continue funding and support for Special Districts Projects relating to terrorism hazards.	Continue funding and support for Special Districts Projects relating to terrorism hazards in the categories of water systems, sewer systems, wastewater treatment, roads, TV districts, park districts, Big Bear Valley Recreation Park District and Bloomington Recreation and Park District. For more information regarding these projects, see Annex C Section C.7.	VARIES	VARIES	VARIES	Ongoing	
Climate Change	**CC Action 3.1:** Continue funding and support for Special Districts Projects relating to climate change hazards.	Continue funding and support for Special Districts Projects relating to climate change hazards in the categories of water systems, sewer systems, wastewater treatment, roads, TV districts, park districts, Big Bear Valley Recreation Park District and Bloomington Recreation and Park District. For more information regarding these projects, see Annex C Section C.7.	VARIES	VARIES	VARIES	Ongoing	

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APPENDIX Q

WATER RATES

Fees

Water Rates - Effective 01/01/2017

Water rates are a combination of a Readiness-to-Serve Charge, which is based on the size of the meter, and a Usage Charge, which is based on the amount of water used.

Readiness-to-Serve Charge

Meter Size	Potable Water Per Month	Recycled Water Per Month
5/8"	$23.85	$13.90
3/4"	$32.20	$18.85
1"	$42.35	$24.80
1 1/2"	$94.00	$54.85
2"	$135.00	$79.00
3"	$264.00	$154.00
4"	$419.00	$245.00
6"	$866.00	$506.00
8"	$1285.00	$750.00
10"	$1983.00	$1155.00

Usage Charge - Per HCF (Hundred Cubic Feet)

Potable Water	
Up to 15 HCF	$2.44 per HCF
Over 15 HCF	$2.84 per HCF

Recycled Water	**City Wide**
Per HCF	$1.71

Water Turn On Charges	
Restore Water Service Same Day Before 3:30 PM	$54.00
Restore Water Service Same Day After 3:30 PM	108.00

Fire Service Rates

Pipe Size	**Per Month**
2"	$12.70
4"	$25.85
6"	$51.45
8"	$72.70
10"	$98.60
12"	$193.00
16"	$383.00

Other Water Services and Products

Broken Meter Lock	$145.00
Install Meter Same Day	$270.00
Install Meter Next Day	$158.00
Meter Tampering	$675.00
Fire Hydrant Meter Deposit	$2535.00
Fire Hydrant Meter Move without Notice	$185.00
Bacteriological Test	$44.00
Backflow Prevention per Device	$5.30

Sewer Rates - Effective 07/05/2019

Integrated Waste Rates - Effective 01/01/2017

MUNICIPAL UTILITIES COMPANY MENU

APPENDIX R

RESOLUTIONS ADOPTING 2020 UWMP, WSCP, AND ADDENDUM TO 2015 UWMP

RESOLUTION NO. 2021-059

A RESOLUTION OF THE CITY COUNCIL OF THE CITY OF ONTARIO, CALIFORNIA, ADOPTING THE 2020 URBAN WATER MANAGEMENT PLAN.

WHEREAS, The California Urban Water Management Planning Act, (Wat. Code § 10610, et seq. (the Act)), mandates that every urban supplier of water providing water for municipal purposes to more than 3,000 customers or supplying more than 3,000 acre feet of water annually, prepare, and adopt an Urban Water Management Plan (Plan); and

WHEREAS, the Act generally requires that said Plan be updated and adopted at least once every five years on or before July 1, in years ending in six and one; and

WHEREAS, pursuant to recent amendments to the Act, urban water suppliers are required to update and electronically submit their 2020 Plans to the California Department of Water Resources (DWR) by July 1, 2021; and

WHEREAS, pursuant to Water Conservation Act of 2009, also referred to as SB X7-7 (Wat. Code § 10608 et seq.), an "urban retail water supplier" is defined as a water supplier that directly provides potable municipal water to more than 3,000 end users or that supplies more than 3,000 acre feet of potable water annually at retail for municipal purposes, and an "urban wholesale water supplier" is defined as a water supplier that provides more than 3,000 acre feet of water annually at wholesale for potable municipal purposes; and

WHEREAS, the City of Ontario meets the definition of an urban retail water supplier for purposes of the Act and SB X7-7; and

WHEREAS, the City of Ontario has prepared an 2020 Plan in accordance with the Act and SB X7-7, and in accordance with applicable legal requirements, has undertaken certain coordination, notice, public involvement, public comment, and other procedures in relation to its 2020 Plan; and

WHEREAS, in accordance with the Act and SB X7-7, the City of Ontario has prepared its 2020 Plan with its own staff, with the assistance of consulting professionals, and in cooperation with other governmental agencies, and has utilized and relied upon industry standards and the expertise of industry professionals in preparing its 2020 Plan, and has also utilized DWR's Urban Water Management Plan Guidebook 2020, including its related appendices, in preparing its 2020 Plan; and

WHEREAS, in accordance with applicable law, including Water Code sections 10608.26 and 10642, and Government Code section 6066, a Notice of a Public Hearing regarding the City of Ontario's 2020 Plan was published within the jurisdiction of the City of Ontario on June 1, 2021 and June 8, 2021; and

WHEREAS, in accordance with applicable law, including but not limited to Water Code sections 10608.26 and 10642, a public hearing was held on June 15, 2021 at 6:30 PM, or soon thereafter, in City of Ontario City Hall in order to provide members of the public and other interested entities with the opportunity to be heard in connection with proposed adoption of the 2020 Plan and issues related thereto; and

WHEREAS, pursuant to said public hearing on City of Ontario's 2020 Plan, City of Ontario, among other things, encouraged the active involvement of diverse social, cultural, and economic members of the community within City of Ontario's service area with regard to the 2020 Plan and encouraged community input regarding City of Ontario's 2020 Plan; and

WHEREAS, the City Council of the City of Ontario has reviewed and considered the purposes and requirements of the Act and SB X7-7, the contents of the 2020 Plan, and the documentation contained in the administrative record in support of the 2020 Plan, and has determined that the factual analyses and conclusions set forth in the 2020 Plan are legally sufficient; and

WHEREAS, the City Council of the City of Ontario desires to adopt the 2020 Plan prior to July 1, 2021 in order to comply with the Act and SB X7-7; and

WHEREAS, Section 10652 of the California Water Code provides that the California Environmental Quality Act (Division 13 (commencing with Section 21000) of the Public Resources Code) (CEQA) does not apply to the preparation and adoption of the 2020 Plan pursuant to this part.

NOW THEREFORE BE IT RESOLVED, the City Council of the City of Ontario hereby resolves as follows:

SECTION 1. The City of Ontario's 2020 Plan is hereby adopted as amended by changes incorporated by the City Council of the City of Ontario as a result of input received (if any) at the public hearing and ordered filed with the Secretary of the City Council of the City of Ontario.

SECTION 2. The Utilities General Manager is hereby authorized and directed to include a copy of this Resolution in the City of Ontario's 2020 Plan.

SECTION 3. The Utilities General Manager is hereby authorized and directed, in accordance with Water Code sections 10621(d) and 10644(a)(1)-(2), to electronically submit a copy of the 2020 Plan to the DWR no later than July 1, 2021.

SECTION 4. The Utilities General Manager is hereby authorized and directed, in accordance with Water Code section 10644(a), to submit a copy of the 2020 Plan to the California State Library, and any city of county within which the City of Ontario provides water supplies no later than thirty (30) days after this adoption date.

SECTION 5. The Utilities General Manager is hereby authorized and directed, in accordance with Water Code section 10645, to make the 2020 Plan available for public review at the City of Ontario's offices during normal business hours or on its website at https://www.ontarioca.gov/OMUC/Utilities no later than thirty (30) days after filing a copy of the Plan with DWR.

SECTION 6. The Utilities General Manager is hereby authorized and directed, in accordance with Water Code Section 10635(c), to provide that portion of the 2020 Plan prepared pursuant to Water Code Section 10635(a)-(b) to any city or county within which the City of Ontario provides water supplies no later than sixty (60) days after submitting a copy of the Plan with DWR.

SECTION 7. The Utilities General Manager is hereby authorized and directed to implement the 2020 Plan in accordance with the Act and SB X7-7 and to provide recommendations to the City Council of the City of Ontario regarding the necessary budgets, procedures, rules, regulations, or further actions to carry out the effective and equitable implementation of the 2020 Plan.

SECTION 8. The City Council of the City of Ontario finds and determines that this resolution is not subject to CEQA pursuant to Water Code Section 10652 because CEQA does not apply to the preparation and adoption, including addenda thereto, of an urban water management plan or to the implementation of the actions taken pursuant to such plans. Because this resolution comprises the City of Ontario's adoption of its Addendum to the 2020 Plan and involves its implementation, no CEQA review is required.

SECTION 9. Pursuant to CEQA, the City Council of the City of Ontario directs staff to file a Notice of Exemption with the San Bernardino County Clerk of the Board of Supervisors within five (5) working days of adoption of this resolution.

SECTION 10. The document and materials that constitute the record of proceedings on which this resolution and the above findings have been based are located at City Hall, 303 East "B" Street, Ontario, CA 91764. The custodian for these records is the City Clerk of the City of Ontario.

The City Clerk of the City of Ontario shall certify as to the adoption of this Resolution.

PASSED, APPROVED, AND ADOPTED this 15th day of June 2021.

PAUL S. LEON, MAYOR

ATTEST:

SHEILA MAUTZ, CITY CLERK

APPROVED AS TO FORM:

BEST BEST & KRIEGER, LLP
CITY ATTORNEY

STATE OF CALIFORNIA)
COUNTY OF SAN BERNARDINO)
CITY OF ONTARIO)

I, SHEILA MAUTZ, City Clerk of the City of Ontario, DO HEREBY CERTIFY that foregoing Resolution No. 2021-059 was duly passed and adopted by the City Council of the City of Ontario at their regular meeting held June 15, 2021 by the following roll call vote, to wit:

AYES:	MAYOR/COUNCIL MEMBERS:	LEON, WAPNER, BOWMAN, DORST-PORADA AND VALENCIA
NOES:	COUNCIL MEMBERS:	NONE
ABSENT:	COUNCIL MEMBERS:	NONE

Sheila Mautz
SHEILA MAUTZ, CITY CLERK

(SEAL)

The foregoing is the original of Resolution No. 2021-059 duly passed and adopted by the Ontario City Council at their regular meeting held June 15, 2021.

Sheila Mautz
SHEILA MAUTZ, CITY CLERK

(SEAL)

RESOLUTION NO. 2021-060

A RESOLUTION OF THE CITY COUNCIL OF THE CITY OF ONTARIO, CALIFORNIA, ADOPTING A WATER SHORTAGE CONTINGENCY PLAN (WSCP).

WHEREAS, The California Urban Water Management Planning Act, (Wat. Code §10610, et seq. (the Act)), mandates that every urban supplier of water providing water for municipal purposes to more than 3,000 customers or supplying more than 3,000 acre feet of water annually, prepare and adopt, in accordance with prescribed requirements, a Water Shortage Contingency Plan (WSCP) as part of its Urban Water Management Plan (Plan); and

WHEREAS, the Act specifies the requirements and procedures for adopting such WSCPs; and

WHEREAS, pursuant to recent amendments to the Act, urban water suppliers are required to adopt and electronically submit their WSCPs to the California Department of Water Resources (DWR) by July 1, 2021; and

WHEREAS, pursuant to the Act, "urban water supplier" means a supplier, either publicly or privately owned, providing water for municipal purposes either directly or indirectly to more than 3,000 customers or supplying more than 3,000 acre-feet of water annually. An urban water supplier includes a supplier or contractor for water, regardless of the basis of right, which distributes or sells for ultimate resale to customers; and

WHEREAS, the City of Ontario meets the definition of an urban water supplier for purposes of the Act and is required to prepare and adopt and WSCP as part of its 2020 Plan; and

WHEREAS, the City of Ontario has prepared a WSCP in accordance with the Act, and in accordance with applicable legal requirements, has undertaken certain coordination, notice, public involvement, public comment, and other procedures in relation to its WSCP; and

WHEREAS, in accordance with the Act, the City of Ontario has prepared its WSCP with its own staff, with the assistance of consulting professionals, and in cooperation with other governmental agencies, and has utilized and relied upon industry standards and the expertise of industry professionals in preparing its WSCP, and has also utilized DWR's Urban Water Management Plan Guidebook 2020, including its related appendices, in preparing its WSCP; and

WHEREAS, in accordance with applicable law, including Water Code section 10642, and Government Code section 6066, a Notice of a Public Hearing regarding the City of Ontario's WSCP was published within the jurisdiction of City of Ontario on June 1, 2021 and June 8, 2021; and

WHEREAS, in accordance with applicable law, including but not limited to Water Code section 10642, a public hearing was held on June 15, 2021 at 6:30 PM, or soon thereafter, in City of Ontario City Hall in order to provide members of the public and other interested entities with the opportunity to be heard in connection with proposed adoption of the WSCP and issues related thereto; and

WHEREAS, pursuant to said public hearing on the City of Ontario's WSCP, the City of Ontario, among other things, encouraged the active involvement of diverse social, cultural, and economic members of the community within the City of Ontario's service area with regard to the WSCP, and encouraged community input regarding the City of Ontario's WSCP; and

WHEREAS, the City Council of the City of Ontario has reviewed and considered the purposes and requirements of the Act, the contents of the WSCP, and the documentation contained in the administrative record in support of the WSCP, and has determined that the factual analyses and conclusions set forth in the WSCP are legally sufficient; and

WHEREAS, the City Council of the City of Ontario desires to adopt the WSCP and to incorporate it as part of its 2020 Plan prior to July 1, 2021 in order to comply with the Act.

WHEREAS, Section 10652 of the California Water Code provides that the California Environmental Quality Act (Division 13 (commencing with Section 21000) of the Public Resources Code) (CEQA) does not apply to the preparation and adoption of a WSCP as part of Plan pursuant to California Water Code section 10632.

NOW THEREFORE BE IT RESOLVED, the City Council of the City of Ontario hereby resolves as follows:

SECTION 1. The Water Shortage Contingency Plan (WSCP) is hereby adopted as amended by changes incorporated by the City Council of the City of Ontario as a result of input received (if any) at the public hearing and ordered filed with the Secretary of the City Council of the City of Ontario and shall be incorporated into City of Ontario's 2020 Plan; and

SECTION 2. The Utilities General Manager is hereby authorized and directed to include a copy of this Resolution in [WATER SUPPLIER]'s WSCP and/or in City of Ontario's 2020 Plan; and

SECTION 3. The Utilities General Manager is hereby authorized and directed, in accordance with Water Code sections 10621(d) and 10644(a)(1)-(2), to electronically submit a copy of the WSCP, as part of its 2020 Plan, to DWR no later than July 1, 2021; and

SECTION 4. The Utilities General Manager is hereby authorized and directed, in accordance with Water Code section 10644(a), to submit a copy of the WSCP, as part of its 2020 Plan, to the California State Library, and to any city or county within which the City of Ontario provides water supplies no later than thirty (30) days after this adoption date; and

SECTION 5. The Utilities General Manager is hereby authorized and directed, in accordance with Water Code section 10645, to make the WSCP available for public review at the City of Ontario's offices during normal business hours and on its website at https://www.ontarioca.gov/OMUC/Utilities no later than thirty (30) days after filing a copy of the WSCP, as part of its 2020 Plan, with DWR; and

SECTION 6. The Utilities General Manager is hereby authorized and directed to implement the WSCP in accordance with the Act and to provide recommendations to the City Council of the City of Ontario regarding the necessary budgets, procedures, rules, regulations, or further actions to carry out the effective and equitable implementation of the WSCP.

SECTION 7. The City Council of the City of Ontario finds and determines that this resolution is not subject to CEQA pursuant to Water Code Section 10652 because CEQA does not apply to the preparation and adoption of a WSCP or to the implementation of the actions taken pursuant to such plans. Because this resolution comprises the City Council of the City of Ontario's adoption of its WSCP and involves its implementation, no CEQA review is required.

SECTION 8. Pursuant to CEQA, the City Council of the City of Ontario directs staff to file a Notice of Exemption with the San Bernardino County Clerk of the Board of Supervisors within five (5) working days of adoption of this Resolution.

SECTION 9. The document and materials that constitute the record of proceedings on which this resolution and the above findings have been based are located at City Hall, 303 East "B" Street, Ontario, CA 91764. The custodian for these records is the City Clerk of the City of Ontario.

The City Clerk of the City of Ontario shall certify as to the adoption of this Resolution.

PASSED, APPROVED, AND ADOPTED this 15th day of June 2021.

PAUL S. LEON, MAYOR

ATTEST:

SHEILA MAUTZ, CITY CLERK

APPROVED AS TO FORM:

BEST BEST & KRIEGER, LLP
CITY ATTORNEY

STATE OF CALIFORNIA)
COUNTY OF SAN BERNARDINO)
CITY OF ONTARIO)

I, SHEILA MAUTZ, City Clerk of the City of Ontario, DO HEREBY CERTIFY that foregoing Resolution No. 2021-060 was duly passed and adopted by the City Council of the City of Ontario at their regular meeting held June 15, 2021 by the following roll call vote, to wit:

AYES:	MAYOR/COUNCIL MEMBERS:	LEON, WAPNER, BOWMAN, DORST-PORADA AND VALENCIA
NOES:	COUNCIL MEMBERS:	NONE
ABSENT:	COUNCIL MEMBERS:	NONE

Sheila Mautz
SHEILA MAUTZ, CITY CLERK

(SEAL)

The foregoing is the original of Resolution No. 2021-060 duly passed and adopted by the Ontario City Council at their regular meeting held June 15, 2021.

Sheila Mautz
SHEILA MAUTZ, CITY CLERK

(SEAL)

RESOLUTION NO. 2021-061

A RESOLUTION OF THE CITY COUNCIL OF THE CITY OF ONTARIO, CALIFORNIA, ADOPTING AN ADDENDUM TO THE 2015 URBAN WATER MANAGEMENT PLAN.

WHEREAS, The California Urban Water Management Planning Act, (Wat. Code §10610, et seq. (the Act)), mandates that every urban supplier of water providing water for municipal purposes to more than 3,000 customers or supplying more than 3,000 acre feet of water annually, prepare an Urban Water Management Plan (Plan); and

WHEREAS, the Act generally requires that said Plan be updated and adopted at least once every five years on or before July 1, in years ending in six and one; and

WHEREAS, pursuant to the Sacramento-San Joaquin Delta Reform Act of 2009 (Wat. Code § 85000, et seq.), the Delta Plan, and Water Code section 85021, which declares that the State's policy is to "reduce reliance on the Delta in meeting California's future water needs through a statewide strategy of investing in improved regional supplies, conservation, and water use efficiency," urban water suppliers are encouraged by the California Department of Water Resources (DWR) and the Delta Stewardship Council (DSC) to consider adopting an Addendum to their 2015 Plans to demonstrate consistency with the Delta Plan Policy WR P1 to Reduce Reliance on the Delta Through Improved Regional Water Self-Reliance (Cal. Code Regs. tit. 23, § 5003); and

WHEREAS, the City of Ontario meets the definition of an urban retail water supplier for purposes of the Act; and

WHEREAS, the City of Ontario has prepared an Addendum to its 2015 Plan in accordance with Delta Plan Policy WR P1, and in accordance with applicable legal requirements, has undertaken certain coordination, notice, public involvement, public comment, and other procedures in relation to its Addendum; and

WHEREAS, in accordance with the Act and Delta Plan Policy WR P1, the City of Ontario has prepared its Addendum to the 2015 Plan with its own staff, with the assistance of consulting professionals, and in cooperation with other governmental agencies, and has utilized and relied upon industry standards and the expertise of industry professionals in preparing its Addendum to its 2015 Plan, and has also utilized DWR's Urban Water Management Plan Guidebook 2020, including its related appendices, in preparing its Addendum to the 2015 Plan; and

WHEREAS, in accordance with applicable law, including Water Code section 10642, and Government Code section 6066, a Notice of a Public Hearing regarding the City of Ontario's Addendum to the 2015 Plan was published within the jurisdiction of the City of Ontario on June 1, 2021 and June 8, 2021; and

WHEREAS, in accordance with applicable law, including but not limited to Water Code section 10642, a public hearing was held on June 15, 2021 at 6:30 PM, or soon thereafter, in City of Ontario City Hall in order to provide members of the public and other interested entities with the opportunity to be heard in connection with proposed adoption of the Addendum to the 2015 Plan and issues related thereto; and

WHEREAS, pursuant to said public hearing on the City of Ontario's Addendum to the 2015 Plan, the City of Ontario, among other things, encouraged the active involvement of diverse social, cultural, and economic members of the community within the City of Ontario's service area with regard to the Addendum to the 2015 Plan and encouraged community input regarding the City of Ontario's Addendum to the 2015 Plan; and

WHEREAS, the City Council of the City of Ontario has reviewed and considered the purposes and requirements of the Act and Delta Plan Policy WR P1, the contents of the Addendum to the 2015 Plan, and the documentation contained in the administrative record in support of the Addendum to the 2015 Plan, and has determined that the factual analyses and conclusions set forth in the Addendum to the 2015 Plan are legally sufficient; and

WHEREAS, the City Council of the City of Ontario desires to adopt the Addendum to the 2015 Plan prior to July 1, 2021 in order to comply with the Act and Delta Plan Policy WR P1.

WHEREAS, Section 10652 of the California Water Code provides that the California Environmental Quality Act (Division 13 (commencing with Section 21000) of the Public Resources Code) (CEQA) does not apply to the preparation and adoption, including addenda thereto, of urban water management plans pursuant to this part.

NOW THEREFORE BE IT RESOLVED, the City Council of the City of Ontario hereby resolves as follows:

SECTION 1. The Addendum to City of Ontario's 2015 Urban Water Management Plan to demonstrate consistency with the Delta Plan Policy to Reduce Reliance on the Delta Through Improved Regional Water Self-Reliance is hereby adopted as amended by changes incorporated by the City Council of the City of Ontario as a result of input received (if any) at the public hearing and ordered filed with the Secretary of the City Council of the City of Ontario; and

SECTION 2. The [GENERAL MANAGER/OTHER] is hereby authorized and directed to include a copy of this Resolution in [WATER SUPPLIER]'s 2015 Plan Addendum;

SECTION 3. The [GENERAL MANAGER/OTHER] is hereby authorized and directed, in accordance with Water Code sections 10621(d) and 10644(a)(1)-(2), to electronically submit a copy of the Addendum to the 2015 Plan to DWR no later than July 1, 2021; and

SECTION 4. The Utilities General Manager is hereby authorized and directed, in accordance with Water Code section 10644(a), to submit a copy of the Addendum to the 2015 Plan to the California State Library, and to any city or county within which the City of Ontario provides water supplies no later than thirty (30) days after this adoption date; and

SECTION 5. The Utilities General Manager is hereby authorized and directed, in accordance with Water Code section 10645, to make the Addendum to the 2015 Plan available for public review at the City of Ontario's offices during normal business hours and on its website at https://www.ontarioca.gov/OMUC/Utilities no later than thirty (30) days after filing a copy of the Addendum to the 2015 Plan with DWR.

SECTION 6. The City Council of the City of Ontario finds and determines that this resolution is not subject to CEQA pursuant to Water Code Section 10652 because CEQA does not apply to the preparation and adoption, including addenda thereto, of an urban water management plan or to the implementation of the actions taken pursuant to such plans. Because this resolution comprises the City Council of the City of Ontario's adoption of its Addendum to the 2015 Plan and involves its implementation, no CEQA review is required.

SECTION 7. Pursuant to CEQA, the City Council of the City of Ontario directs staff to file a Notice of Exemption with the San Bernardino County Clerk of the Board of Supervisors within five (5) working days of adoption of this resolution.

SECTION 8. The document and materials that constitute the record of proceedings on which this resolution and the above findings have been based are located at City Hall, 303 East "B" Street, Ontario, CA 91764. The custodian for these records is the City Clerk of the City of Ontario.

The City Clerk of the City of Ontario shall certify as to the adoption of this Resolution.

PASSED, APPROVED, AND ADOPTED this 15th day of June 2021.

PAUL S. LEON, MAYOR

ATTEST:

SHEILA MAUTZ, CITY CLERK

APPROVED AS TO FORM:

BEST BEST & KRIEGER, LLP
CITY ATTORNEY

STATE OF CALIFORNIA)
COUNTY OF SAN BERNARDINO)
CITY OF ONTARIO)

I, SHEILA MAUTZ, City Clerk of the City of Ontario, DO HEREBY CERTIFY that foregoing Resolution No. 2021-061 was duly passed and adopted by the City Council of the City of Ontario at their regular meeting held June 15, 2021 by the following roll call vote, to wit:

AYES:	MAYOR/COUNCIL MEMBERS:	LEON, WAPNER, BOWMAN, DORST-PORADA AND VALENCIA
NOES:	COUNCIL MEMBERS:	NONE
ABSENT:	COUNCIL MEMBERS:	NONE

Sheila Mautz
SHEILA MAUTZ, CITY CLERK

(SEAL)

The foregoing is the original of Resolution No. 2021-061 duly passed and adopted by the Ontario City Council at their regular meeting held June 15, 2021.

Sheila Mautz
SHEILA MAUTZ, CITY CLERK

(SEAL)