



# INFRASTRUCTURE PLAN

## *CHAPTER 4*

4.1 CIRCULATION AND ACCESS

4.2 UTILITY INFRASTRUCTURE PLAN

4.3 CONCEPTUAL GRADING

## CHAPTER 4 - INFRASTRUCTURE PLAN

### 4.1 CIRCULATION AND ACCESS PLAN

The MERRILL COMMERCE CENTER Circulation and Access Plan provides direct, safe, and convenient access for visitors, employees, and goods movement to and from the Specific Plan's 11 planning areas. Components of the Specific Plan's Circulation and Access Plan are discussed and illustrated on the following pages.

#### 4.1.1 Vehicular Circulation

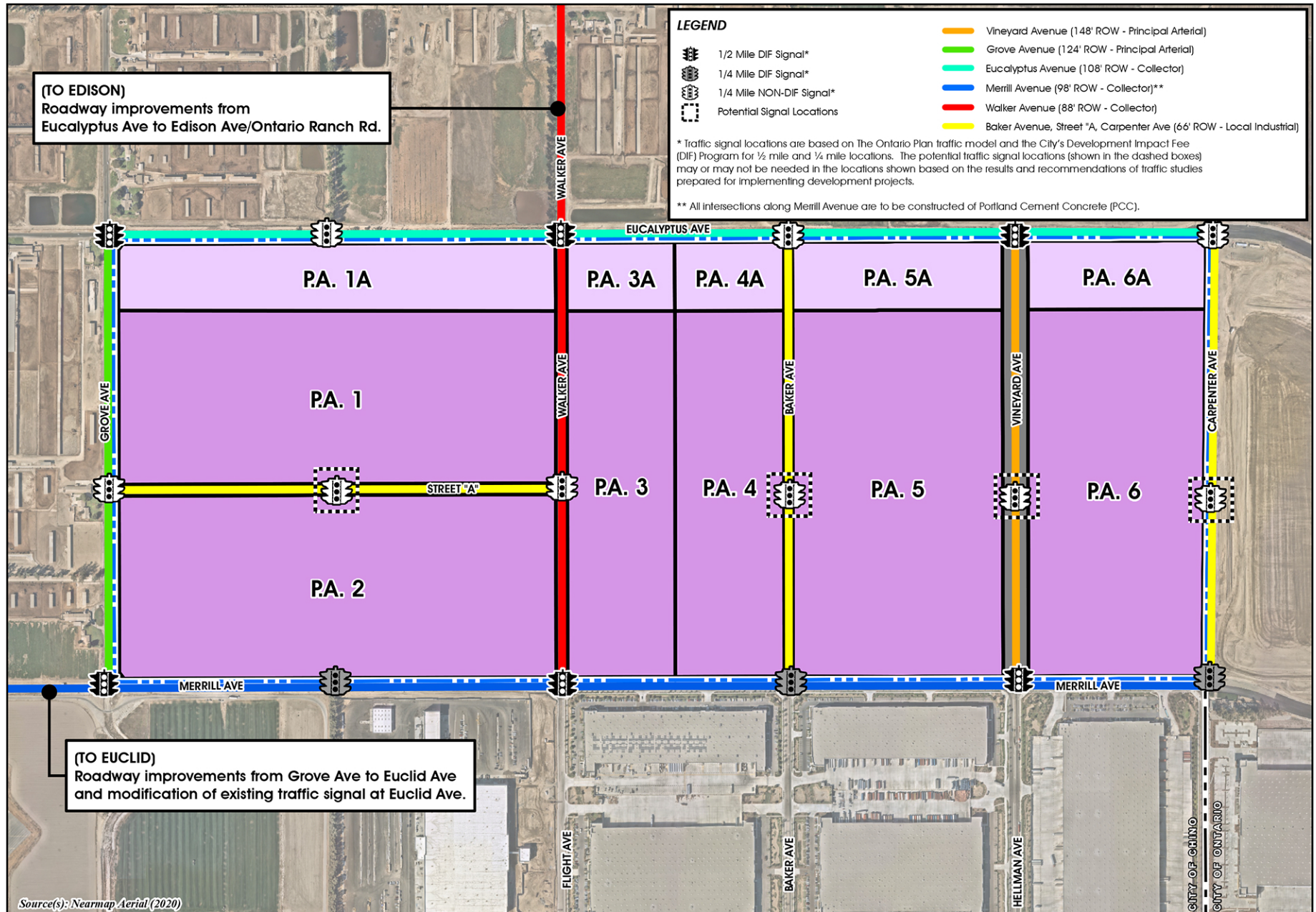
Direct access to the MERRILL COMMERCE CENTER property is provided by several roadways. Merrill Avenue forms the Specific Plan's southern boundary and Eucalyptus Avenue forms the northern boundary. Grove Avenue forms the Specific Plan's western boundary and Carpenter Avenue forms the eastern boundary. Baker Avenue, Walker Avenue, and Vineyard Avenue traverse through the middle of the Specific Plan area in north-south orientations.

Additionally, Street "A," is an internal east-west oriented roadway positioned between Planning Areas 1 and 2 connecting Grove Avenue and Walker Avenue. The ultimate alignment of Street "A" is to be determined and designed in conjunction with implementing development plans. In addition, the installation of traffic controls (traffic signals and stop signs) and the location and orientation of private driveways serving individual buildings will be determined as part of implementing development plans.

Figure 4-1, *Conceptual Vehicular Circulation and Access Plan*, illustrates the vehicular circulation plan. Final intersection designs, intersection spacing, intersection right-of-way, and traffic controls must conform to the findings of the MERRILL COMMERCE CENTER

Specific Plan Traffic Impact Analysis prepared by Urban Crossroads, City standards, and to the satisfaction of the City Engineer.

The following pages describe and illustrate the primary components of the MERRILL COMMERCE CENTER Specific Plan's vehicular circulation network. Refer to Chapter 7, *Implementation Plan*, for additional circulation improvement standards pertaining to phasing.



Conceptual Vehicular Circulation and Access Plan

Figure 4-1

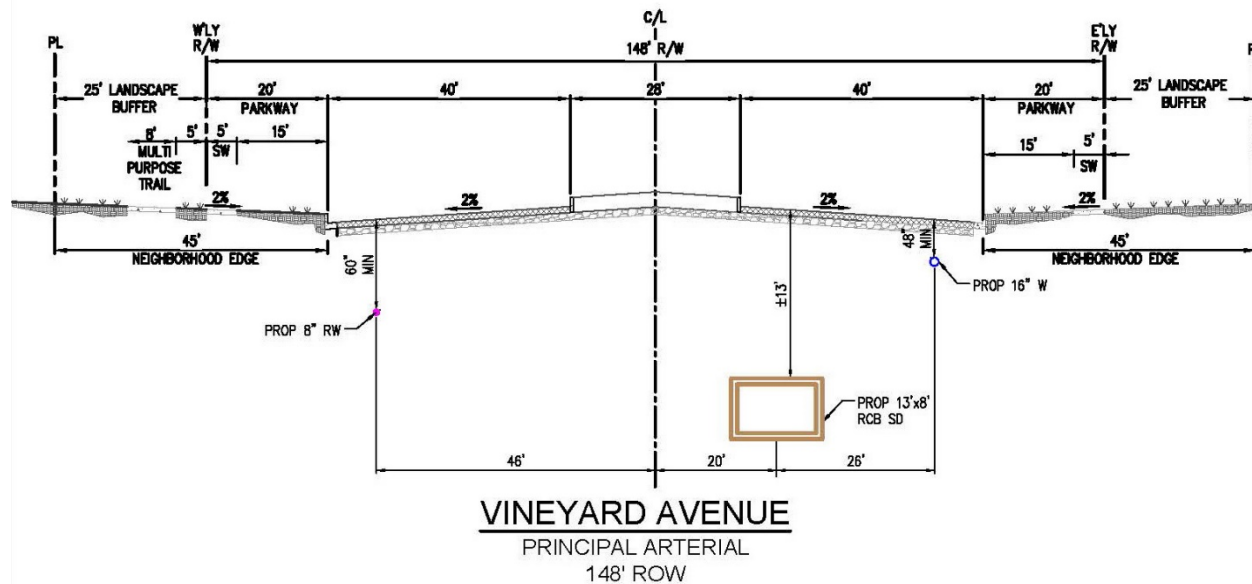


**A. Vineyard Avenue (148-foot ROW Principal Arterial)**

Vineyard Avenue forms the eastern boundary of Planning Areas 5 and 5A and forms the western boundary of Planning Areas 6 and 6A. This public roadway provides access to the Specific Plan area from off-site areas to the north and south. Along the segment of Vineyard Avenue located between Eucalyptus Avenue and Merrill Avenue (includes the segment that abuts the eastern boundary of Planning Areas 5 and 5A and the western boundary of Planning Areas 6 and 6A), the developer(s) of the MERRILL COMMERCE CENTER will construct the entirety of the 148-foot Principal Arterial, which includes 80 feet of paved roadway, a 28-foot wide raised landscaped median, and a 20-foot wide parkway on the east and west sides of the roadway. The 20-foot wide parkways on both sides of Vineyard Avenue contain 15 feet of curb-adjacent landscaping and a 5-foot wide sidewalk.

A 25-foot wide landscape buffer abuts the east and west sides of the Vineyard Avenue right-of-way, with the westerly landscape buffer including an 8-foot wide multi-purpose trail.

Traffic signals will be located at the intersection of Vineyard Avenue with Eucalyptus Avenue (1/2-mile DIF) and the intersection of Vineyard Avenue with Merrill Avenue (1/2-mile DIF). Also, a 1/4-mile non-DIF signal may be needed on Vineyard Avenue mid-way between Eucalyptus Avenue and Merrill Avenue depending on need. Traffic signal locations are subject to change based on the results and recommendations of a traffic study. All improvements to Vineyard Avenue shall comply with applicable City of Ontario requirements, including sight distance requirements. Buildings located in Planning Areas 5, 5A, 6, and 6A connect to Vineyard Avenue via direct driveway connections. Final driveway locations connecting with Vineyard Avenue will be determined in conjunction with the design of implementing development plans.



## B. Grove Avenue (124-foot ROW Principal Arterial)

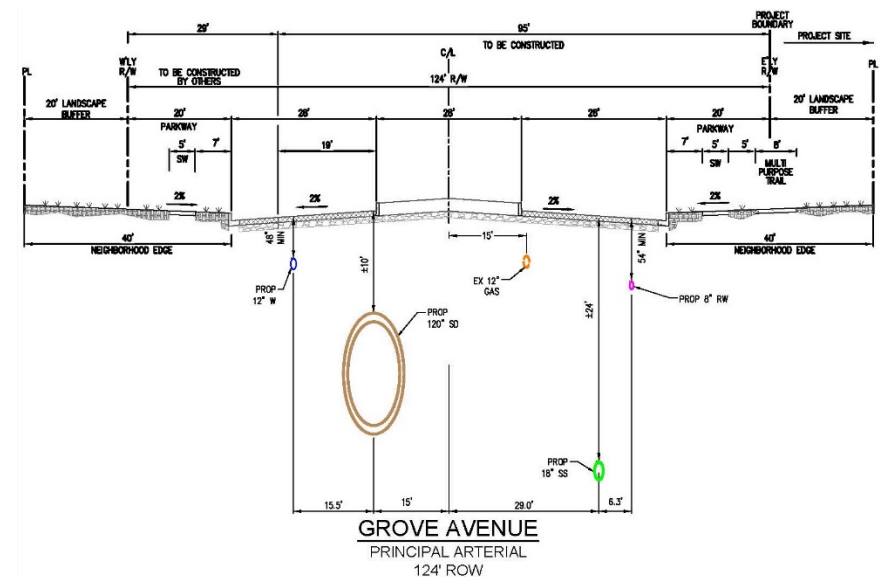
Grove Avenue forms the western boundary of Planning Areas 1, 1A, and 2. Along the segment of Grove Avenue located between Eucalyptus Avenue and Merrill Avenue, the developer(s) of the MERRILL COMMERCE CENTER will construct 95 feet of the ROW of this 124-foot wide Principal Arterial. The portions of Grove Avenue to be constructed by the MERRILL COMMERCE CENTER's developer(s) include 47 feet of paved roadway, a 28-foot-wide raised landscaped median, and a 20-foot wide parkway on the eastern side of the street that contains 7 feet of landscaping, a 5-foot sidewalk, a 5-foot landscape buffer and 3 feet of the 8-foot wide multi-purpose trail (the other 5 feet of the multi-purpose trail are located outside of the Grove Avenue ROW and will be constructed as part of the MERRILL COMMERCE CENTER). The remaining portions of the western side of the Grove Avenue ROW will be constructed by others and are anticipated to include 9 feet of roadway and curb-and-gutter improvements, and a 20-foot wide parkway containing a 7-foot landscaped parkway, 5-foot sidewalk, and 8 feet of landscaping.

A landscape buffer abuts the east and west sides of the Grove Avenue ROW, with the easterly 20-foot-wide landscape buffer to be located in the MERRILL COMMERCE CENTER and including 5 feet of an 8-foot wide multi-purpose trail (the other 3 feet of which are located within the Grove Avenue public ROW).

Traffic signals will be located at the intersections of Grove Avenue with Eucalyptus Avenue (1/2-mile DIF), Street "A" (1/4-mile non-DIF) and Merrill Avenue (1/2-mile DIF). Traffic signal locations are subject to change based on the results and recommendations of a traffic study. All improvements to Grove Avenue are required to

comply with applicable City of Ontario requirements, including sight distance requirements.

Buildings in Planning Areas 1, 1A, and 2 connect to Grove Avenue via direct driveway connections along Grove Avenue. Final driveway locations will be determined in conjunction with the design of implementing development projects, in accordance with Chapter 2.0 Access Guidelines of the City of Ontario's Traffic and Transportation Design Guidelines.



**C. Eucalyptus Avenue (108-foot ROW Collector)**

Eucalyptus Avenue forms the northern boundary of Planning Areas 1A, 3A, 4A, 5A and 6A. This public roadway provides access to the Specific Plan area from the west and east. Along the segment of Eucalyptus Avenue that abuts the northern boundary of Planning Areas 1A, 3A, 4A, 5A, and 6A, the developer(s) of the MERRILL COMMERCE CENTER will construct 79 feet of the Eucalyptus Avenue ROW including 67 feet of paved roadway, and a 12-foot-wide parkway on the south side of the street that contains 7 feet of curb-adjacent landscaping and a 5-foot-wide sidewalk. The remaining portions of the northern side of the Eucalyptus Avenue ROW will be constructed by others and will include 17 feet of roadway and a 12-foot parkway containing 7 feet of curb-adjacent landscaping and a 5-foot sidewalk.

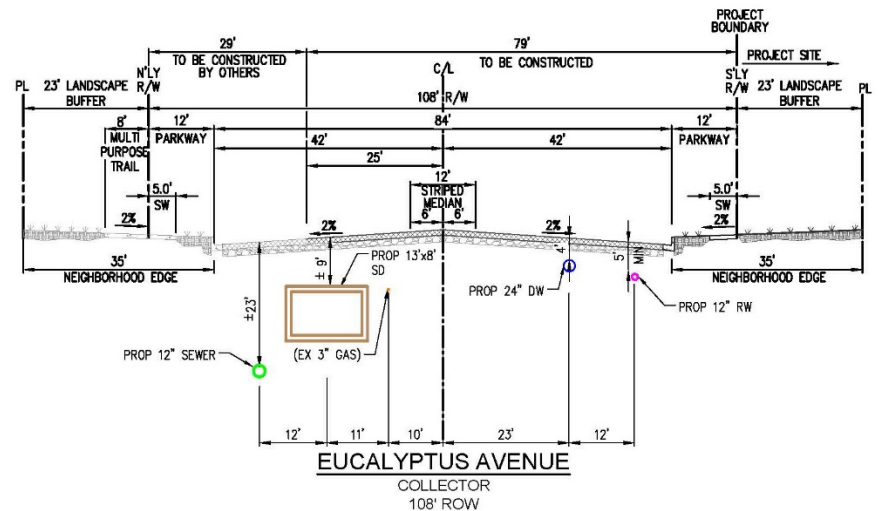
Eucalyptus Avenue is designated by the Chino Airport Compatibility Plan to satisfy open land requirements. For this reason, the median is painted and not raised and light poles and street trees are designed to maintain a clear width of about 75 feet. The light poles will be spaced at approximately 250 feet and staggered on the opposite side of the street.

Traffic signals will be located along Eucalyptus Avenue at its intersections with Grove Avenue, Walker Avenue, and Vineyard Avenue (1/2-mile DIF), and at Baker Avenue and Carpenter Avenue (1/4-mile non-DIF) and potentially mid-way between Grove Avenue and Walker Avenue (1/4-mile non-DIF) depending on need.

Traffic signal locations are subject to change based on the results and recommendations of a traffic study. All improvements to Eucalyptus Avenue are required to comply with applicable City of Ontario requirements, including sight distance requirements.

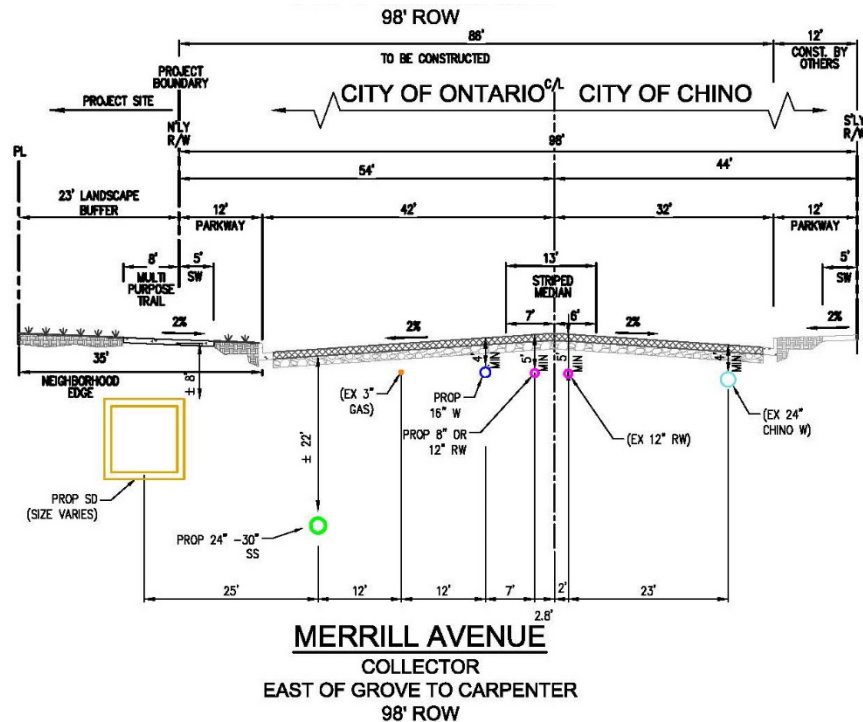
A landscape buffer abuts the north and south sides of the Eucalyptus Avenue right-of-way, with the southernly 23-foot wide landscape buffer located in the MERRILL COMMERCE CENTER outside of the public right-of-way.

Buildings in Planning Areas 1A, 3A, 4A, 5A, and 6A connect to Eucalyptus Avenue via direct driveway connections along Eucalyptus Avenue and via Grove Avenue, Walker Avenue, Baker Avenue, Vineyard Avenue, and Carpenter Avenue. Final driveway locations along Eucalyptus Avenue will be determined in conjunction with the design of implementing development projects, in accordance with Chapter 2.0 Access Guidelines of the City of Ontario’s Traffic and Transportation Design Guidelines.



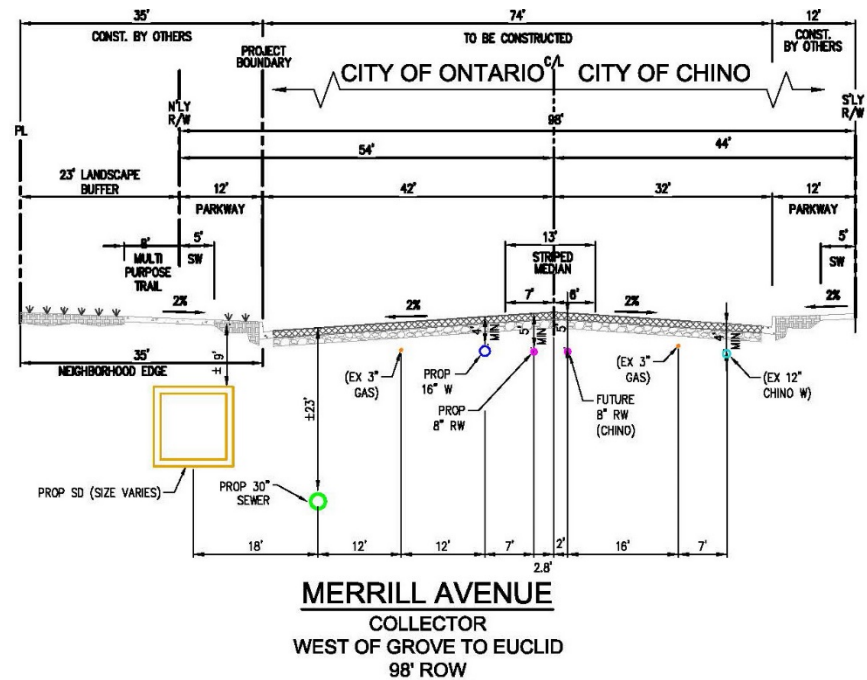
## D. Merrill Avenue (98-foot ROW Collector)

Merrill Avenue forms the southern boundary of Planning Areas 2, 3, 4, 5, and 6 and is the dividing line between the City of Ontario to the north and the City of Chino to the south. This public roadway provides access to the Specific Plan area from off-site areas to the east, south, and west. Along the segment of Merrill Avenue located between Grove Avenue and Carpenter Avenue, the developer(s) of the MERRILL COMMERCE CENTER will construct 86 feet of the ROW of this 98-foot wide Collector. The portions of Merrill Avenue between Grove Avenue and Carpenter that will be constructed as part of the MERRILL COMMERCE CENTER include 74 feet of paved roadway, a 13-foot wide striped (painted) median, and a 12-foot-wide parkway on the north side of the street that contains 7 feet of curb-adjacent landscaping and a 5-foot-wide sidewalk.



The remaining portions of the Merrill Avenue ROW (southerly side of the roadway in the City of Chino) will be constructed by others and is anticipated to include a 12-foot parkway containing 7 feet of curb-adjacent landscaping and a 5-foot wide sidewalk. An approximate 23-foot landscape buffer abuts the northern side of the Merrill Avenue ROW in the MERRILL COMMERCE CENTER, with the landscape buffer including an 8-foot wide multi-purpose trail.

Along the segment of Merrill Avenue located between Euclid Avenue and Grove Avenue, the developer(s) of the MERRILL COMMERCE CENTER will construct 74 feet of the ROW of this 98-foot wide Collector. The portions of Merrill Avenue between Euclid Avenue and Grove Avenue that will be constructed as part of the MERRILL COMMERCE CENTER include 74 feet of paved roadway and a 13-foot wide striped (painted) median.



Merrill Avenue is designated by the Chino Airport Compatibility Plan to partially satisfy open land requirements. For this reason, the median is painted and not raised and light poles and street trees are designed to maintain a clear width of about 75 feet. The light poles will be spaced at approximately 260 feet  $\pm$  15 feet on the same side of the street and 130 feet  $\pm$  1f feet staggered on the opposite side of the street. The portion of Merrill Avenue traversing Airport Safety Zone 1 (the southwest portion of Planning Area 1) must remain clear of permanent aboveground objects, and as such may contain frangible/break-away light poles. The developer shall coordinate with Chino Airport and FAA to determine allowable heights and structures permitted within the southwest portion of Planning Area 1 near the Grove Avenue/Merrill Avenue intersection.

Traffic signals will be located at the intersections of Merrill Avenue with Grove Avenue, Walker Avenue, and Vineyard Avenue (1/2-mile DIF), and at Baker Avenue, Carpenter Avenue, and the mid-way point between Grove and Walker Avenues (1/4-mile DIF) depending on need. Traffic signal locations are subject to change based on the results and recommendations of a traffic study.

As noted on Figure 4-1, the development of the MERRILL COMMERCE CENTER also triggers the need to modify the existing traffic signal at the intersection of Euclid Avenue and Merrill Avenue west of the Specific Plan area. Improvements to Merrill Avenue east of the Specific Plan area were recently constructed and bridge improvements at the intersection of Merrill Avenue and the Cucamonga Channel were pending construction at the time this Specific Plan was prepared (2000). All improvements to Merrill Avenue are required to comply with applicable City of Ontario requirements, including sight distance requirements, in addition to

requirements of the City of Chino pertaining to roadway improvements in the City of Chino's jurisdiction.

Buildings constructed in Planning Areas 2, 3, 4, 5 and 6 connect to Merrill Avenue via direct driveway connections along Merrill Avenue and via Walker Avenue, Baker Avenue, Grove Avenue, Vineyard Avenue, and Carpenter Avenue. Final driveway locations along Merrill Avenue will be determined in conjunction with the design of implementing development projects, in accordance with Chapter 2.0 Access Guidelines of the City of Ontario's Traffic and Transportation Design Guidelines.



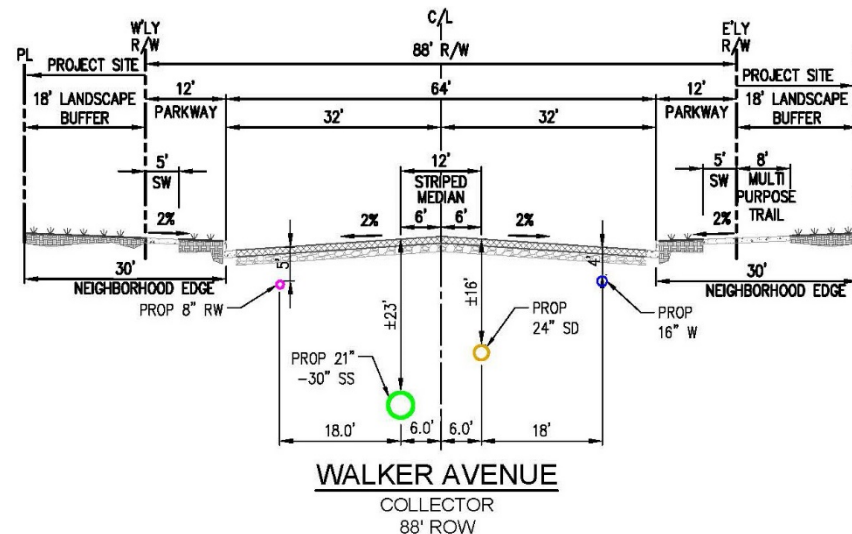
**E. Walker Avenue (88-foot ROW Collector)**

Walker Avenue forms the eastern boundary of Planning Areas 1, 1A and 2, and forms the western boundary of Planning Areas 3 and 3A. This public roadway provides access to the Specific Plan area from off-site areas to the north and south. Along the segment of Walker Avenue located between Edison Avenue and Merrill Avenue, the developer(s) of the MERRILL COMMERCE CENTER will construct the entirety of the 88-foot Collector, which consists of 64 feet of paved roadway and a 12-foot wide striped (painted) median. Additionally, the Walker Avenue ROW includes a 12-foot wide parkway on both sides of the roadway containing 7 feet of curb-adjacent landscaping and a 5-foot wide parkway-adjacent sidewalk.

An approximate 18-foot wide landscape buffer abuts the west and east sides of the Walker Avenue ROW inside the MERRILL COMMERCE CENTER Specific Plan, with the easterly landscape buffer including an 8-foot wide multi-purpose trail.

Traffic signals will be located at the intersections of Walker Avenue with Eucalyptus Avenue and Merrill Avenue (1/2-mile DIF), and with Street "A" (1/4-mile non-DIF) depending on need. Traffic signal locations are subject to change based on the results and recommendations of a traffic study. All improvements to Walker Avenue are required to comply with applicable City of Ontario requirements, including sight distance requirements.

Buildings in Planning Areas 1, 1A, 2, 3, and 3A connect to Walker Avenue via direct driveway connections along Walker Avenue. Final driveway locations will be determined in conjunction with the design of implementing development projects, in accordance with Chapter 2.0 Access Guidelines of the City of Ontario's Traffic and Transportation Design Guidelines.

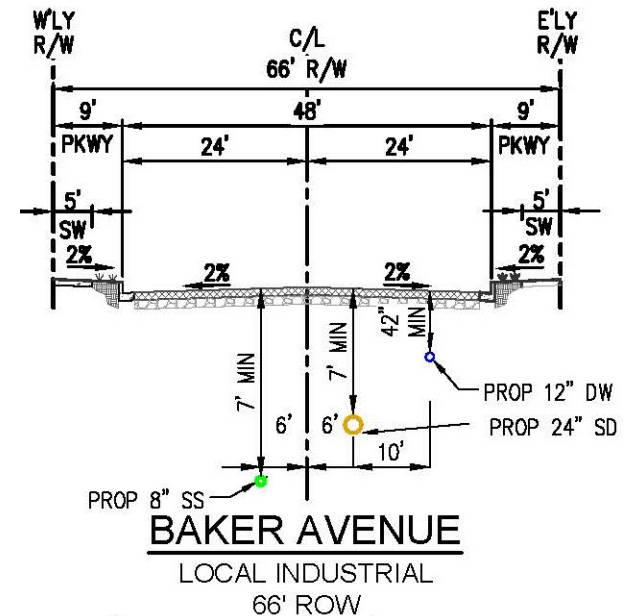


**F. Baker Avenue (66-foot ROW Local Industrial)**

Baker Avenue forms the eastern boundary of Planning Areas 4 and 4A, and forms the western boundary of Planning Areas 5 and 5A. This public roadway provides access to the Specific Plan area from off-site areas to the north and south. Along the segment of Baker Avenue located between Eucalyptus Avenue and Merrill Avenue, the developer(s) of the MERRILL COMMERCE CENTER will construct the entirety of the 66-foot wide Local Industrial Street, which consists of 48 feet of pavement and a 9-foot wide parkway on either side of the roadway containing 4 feet of curb-adjacent landscaping and a 5-foot wide sidewalk.

A traffic signal will be located at the intersection of Baker Avenue with Merrill Avenue (1/4-mile DIF) and at the intersection of Baker Avenue with Eucalyptus Avenue (1/4-mile non-DIF) and potentially at the mid-way point between Eucalyptus and Merrill Avenues (1/4-mile non-DIF) depending on need. Traffic signal locations are subject to change based on the results and recommendations of a traffic study. All improvements to Baker Avenue are required to comply with applicable City of Ontario requirements, including sight distance requirements.

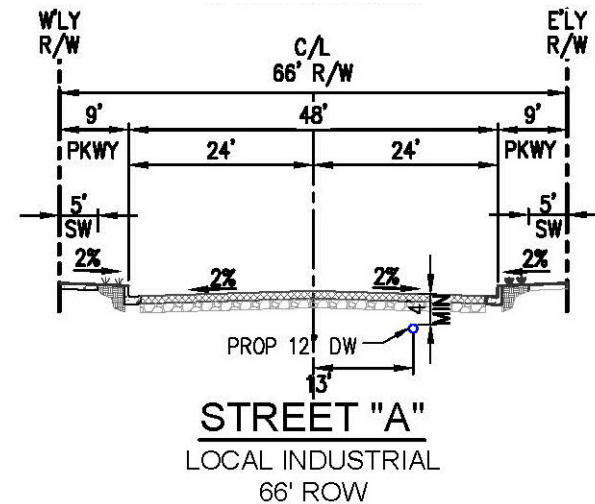
Planning Areas 4, 4A, 5, and 5A connect to Baker Avenue via direct driveway connections along Baker Avenue. Final driveway locations will be determined in conjunction with the design of implementing development projects, in accordance with Chapter 2.0 Access Guidelines of the City of Ontario’s Traffic and Transportation Design Guidelines.



**G. Street "A" (66-foot ROW Local Industrial)**

Street "A" forms the southern boundary of Planning Area 1 and the northern boundary of Planning Area 2 and its exact alignment will be determined in conjunction with implementing development plans. This public roadway provides access to the Specific Plan area from off-site areas to the west and facilitates internal east-west circulation within the westerly portions of the Specific Plan area. Along the segment of Street "A" located between Grove Avenue and Walker Avenue, the developer(s) of the MERRILL COMMERCE CENTER will construct the entirety of the 66-foot wide Local Industrial Street, which consists of 48 feet of pavement and a 9-foot wide parkway on either side of the roadway containing 4 feet of curb-adjacent landscaping and a 5-foot wide sidewalk. A traffic signal will be located at the intersection of Street "A" with Grove Avenue and Walker Avenue (1/4-mile non-DIF), and potentially and at the mid-way point between Gove and Walker Avenues (1/4-mile non-DIF). Traffic signal locations are subject to change based on the results and recommendations of a traffic study. All improvements to Street "A" are required to comply with applicable City of Ontario requirements, including sight distance requirements.

Planning Areas 1 and 2 connect to Street "A" via direct driveway connections along Street "A." Final driveway locations will be determined in conjunction with the design of implementing development projects, in accordance with Chapter 2.0 Access Guidelines of the City of Ontario's Traffic and Transportation Design Guidelines.



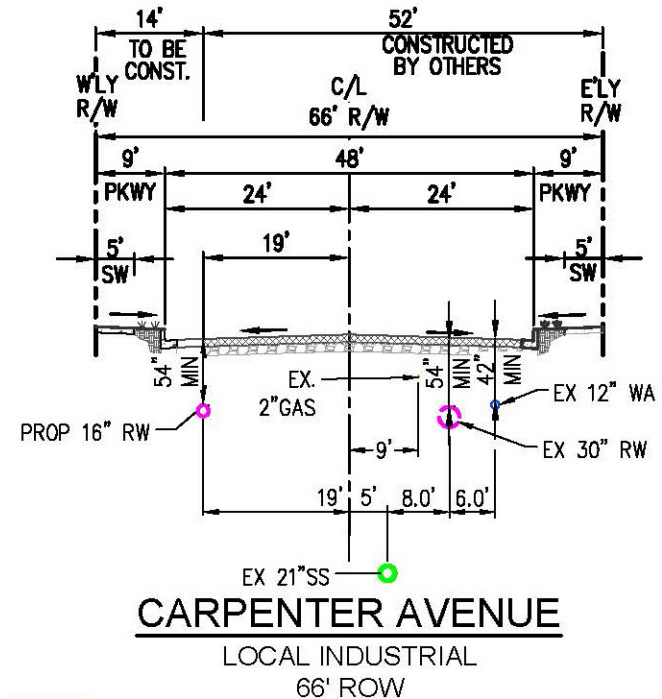
**H. Carpenter Avenue (66-foot ROW Local Industrial)**

Carpenter Avenue forms the eastern boundary of Planning Areas 6 and 6A. This public roadway provides access to the Specific Plan area from off-site areas to the north, south, and east. Along the segment of Carpenter Avenue located between Eucalyptus Avenue and Merrill Avenue (including the segment that abuts the eastern boundary of Planning Areas 6 and 6A, the developer(s) of the MERRILL COMMERCE CENTER will construct 14 feet of the ROW of this 66-foot-wide Local Industrial Street. The portions of Carpenter Avenue to be constructed as part of the Specific Plan include 5 feet of paved roadway (including curb and gutter) and a 9-foot-wide parkway on the western side of the street that contains 4 feet of curb-adjacent landscaping and a 5-foot sidewalk. The remaining portions of the eastern side of the Carpenter Avenue ROW will be constructed by others (the development project located on the east side of the roadway) which will include 43 feet of roadway and curb and gutter improvements, and a 9-foot-wide parkway containing 4 feet of landscaping and a 5-foot parkway-adjacent sidewalk.

Traffic signals will be located at the intersection of Carpenter Avenue with Merrill Avenue (1/4-mile DIF) and with Eucalyptus Avenue (1/4-mile non-DIF) and potentially at the mid-way point between Eucalyptus and Merrill Avenues (1/4-mile non-DIF) depending on need. Traffic signal locations are subject to change based on the results and recommendations of a traffic study. All improvements to Carpenter Avenue are required to comply with applicable City of Ontario requirements, including sight distance requirements.

Planning Areas 6 and 6A connect to Carpenter Avenue via direct driveway connections along Carpenter Avenue. Final driveway

locations will be determined in conjunction with the design of implementing development projects, in accordance with Chapter 2.0 Access Guidelines of the City of Ontario’s Traffic and Transportation Design Guidelines.



### ***I. Private Drive Aisles***

Private Drive Aisles connect individual planning areas to the roadways described above. Within each planning area, Private Drive Aisles provide vehicular access for automobiles and trucks to parking lots, truck courts, loading dock areas, etc. Private Drive Aisles will have pavement widths that range between 24 and 50 feet. Private Drive Aisles are not depicted on Figure 4-1 because their locations, alignments, and widths will be determined in conjunction with the design of implementing development projects.

### ***J. Truck Routes***

Access to the MERRILL COMMERCE CENTER Specific Plan area is provided from Grove Avenue, Eucalyptus Avenue, Vineyard Avenue, Baker Avenue, Carpenter Avenue, Walker Avenue, and Flight Avenue.

Truck traffic to and from the MERRILL COMMERCE CENTER will use the City of Ontario designated truck routes, which include Merrill Avenue, Edison Avenue, and Euclid Avenue. Additionally, truck traffic to and from the MERRILL COMMERCE CENTER will use the City of Chino's designated truck routes, which include Carpenter Avenue, Walker Avenue, and Flight Avenue.

Signalized intersections along truck routes in the City of Ontario will be constructed with PCC pavement per City standards, along with signalized intersections along the truck routes on Merrill Avenue, as shown on Figure 4-1, *Conceptual Vehicular Circulation and Access Plan*.

### 4.1.2 Non-Vehicular Circulation

The MERRILL COMMERCE CENTER Specific Plan encourages circulation by employees and visitors via non-motorized means. Pedestrian circulation is encouraged interior to the Specific Plan area through an integrated network of sidewalks, bikeways, and trails. Additional pedestrian and bike facilities will be designed on individual building sites at the time buildings are designed and positioned in each planning area as part of implementing development projects.

As illustrated on Figure 4-2, *Non-Vehicular Circulation and Mobility Plan*, the MERRILL COMMERCE CENTER Specific Plan provides for sidewalks in the public rights-of-way along the sides of the following streets that front the Specific Plan: Eucalyptus Avenue, Merrill Avenue, Grove Avenue, and Carpenter Avenue. Additionally, the MERRILL COMMERCE CENTER Specific Plan provides for sidewalks in the public rights-of-way along both sides of Baker Avenue (segment located between Eucalyptus Avenue and Merrill Avenue), Walker Avenue (segment located between Edison Avenue/Ontario Ranch Road and Merrill Avenue), Vineyard Avenue (segment located between Eucalyptus Avenue and Merrill Avenue), and Street "A." Pedestrian crosswalks are designed at signalized intersections (as depicted on Figure 4-2) to ensure pedestrian safety.

As illustrated on Figure 4-2, *Non-Vehicular Circulation and Mobility Plan*, the Specific Plan provides for 8-foot-wide multi-purpose trails along the north side of the segment of Merrill Avenue located between Euclid Avenue and Archibald Avenue; along the east side of the segment of Grove Avenue located between Eucalyptus Avenue and Merrill Avenue; along the east side of the segment of Walker Avenue located between Edison Avenue/Ontario Ranch Road and

Merrill Avenue; and along the west side of the segment of Vineyard Avenue located between Eucalyptus Avenue and Merrill Avenue.

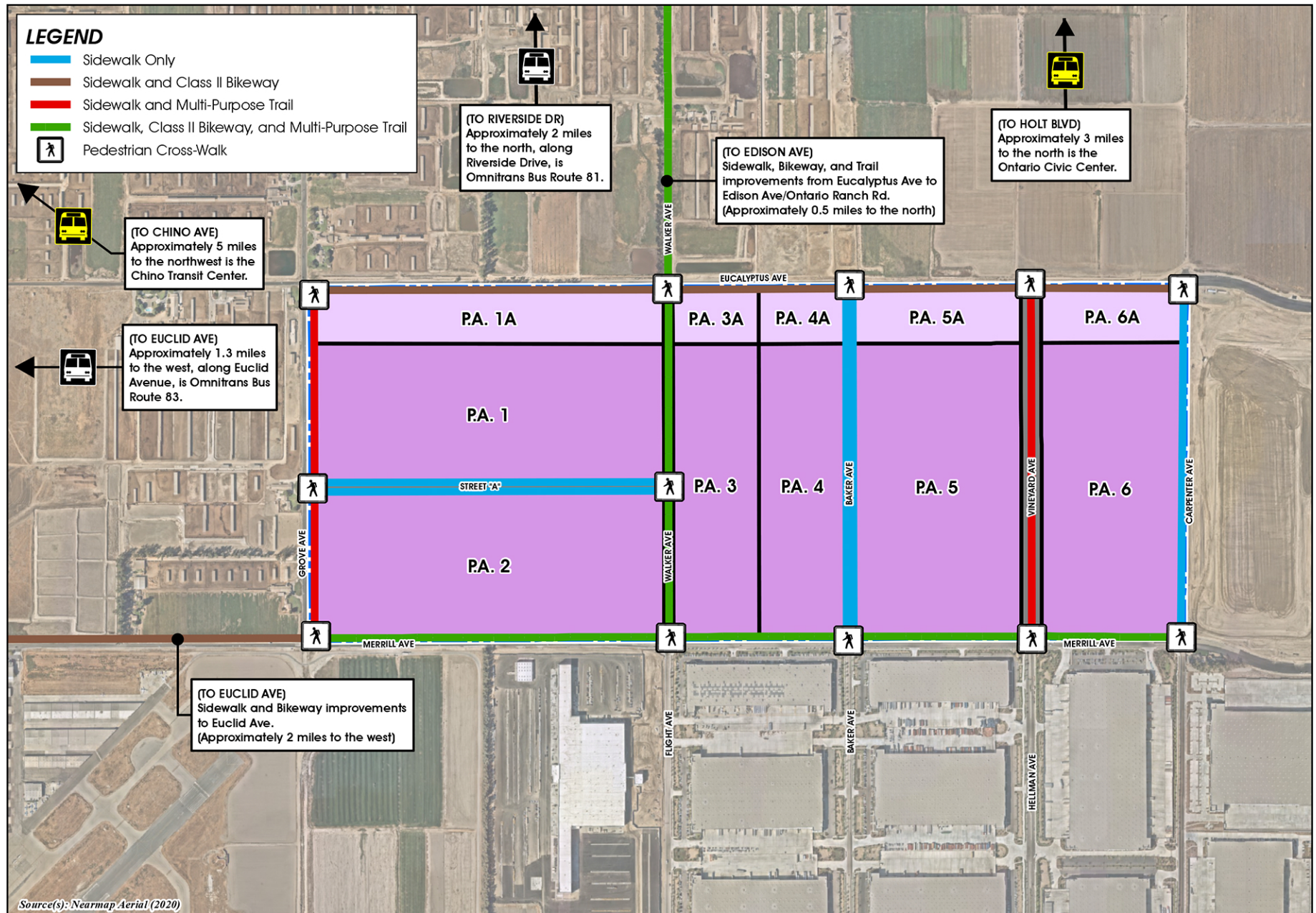
As illustrated on Figure 4-2, *Non-Vehicular Circulation and Mobility Plan*, the Specific Plan provides Class II bike lanes in the public right-of-way along both sides of the segment of Merrill Avenue located between Carpenter Avenue and Euclid Avenue; along both sides of the segment of Walker Avenue between Merrill Avenue and Edison Avenue/Ontario Ranch Road; along the south side of the segment of Eucalyptus Avenue that abuts the northern boundaries of Planning Areas 3A, 4A, 5A, and 6A; and along the north side of Eucalyptus Avenue between Grove Avenue and Walker Avenue.

Given the volume of passenger car and truck traffic circulating on the site, pedestrian and bicycle safety was given due consideration when preparing the design standards for the MERRILL COMMERCE CENTER. Provisions for sidewalks and pedestrian walkways, bicycle storage facilities, and employee and visitor gathering areas interior to the planning areas are set forth in Chapter 6, *Design Guidelines*.

As shown on Figure 4-2, the following bus and transit facilities are located to the west and north of MERRILL COMMERCE CENTER:

- A. Omnitrans Bus Route 83, located approximately 1.3 miles to the west along Euclid Avenue.
- B. Chino Transit Center, located approximately 5 miles to the northwest at Chino Avenue.
- C. Omnitrans Bus Route 81, located approximately 2 miles to the north along Riverside Drive.
- D. Ontario Civic Center/Transfer Station, located approximately 3 miles to the north at Holt Boulevard.

Future bus stops and shelters will be required to be installed to the satisfaction of the City of Ontario and Omnitrans.



**Non-Vehicular Circulation and Mobility Plan**

Figure 4-2





## 4.2 UTILITY INFRASTRUCTURE PLAN

Buildout of the MERRILL COMMERCE CENTER requires the installation of water, sewer, drainage, and other utility infrastructure, as described in this chapter. All utility infrastructure improvements shall be constructed in accordance with applicable City of Ontario design standards and specifications.

### 4.2.1 Potable Water Plan

Potable Water System Improvements for the Specific Plan area (as shown on Figure 4-3) require the planning, design, and construction of the 925 Pressure Zone (PZ) Phase 2 West Backbone, which includes: extending the 24-inch potable water main in Eucalyptus Avenue from Carpenter Avenue to Grove Avenue; and, installing a 30-inch to 42-inch potable water main in Grove Avenue connecting from the 24-inch potable water main in Eucalyptus Avenue and extending to Chino Avenue; installing an 18-inch potable water main in Chino Avenue and connecting to the existing 18-inch potable water main located on the west side of the Cucamonga Creek Channel; and installing a Pressure Reducing Station between the 1010 PZ and 925 PZ near the intersection of Grove Avenue and Chino Avenue.

Master Plan Phase 2 facilities that are required to serve the Project but that will be constructed by others include installing a 42-inch potable water main in Grove Avenue connecting from the 30-inch to 42-inch potable water main in Grove Avenue at Chino Ave and extending to Francis Avenue; and, installing a 42-inch potable main in Francis Avenue connecting from the 42-inch potable water main in Grove Avenue and extending to Bon View Avenue; and, installing a 42-inch potable water main in Bon View Avenue connecting from the 42-inch potable water main in Francis Avenue and extending to

the Bon View Avenue Reservoir site and to the Reservoir; and, installing a 9 million gallon reservoir on the Bon View Reservoir site; and, installing two 2,500 gpm wells with any treatment necessary to meet water quality standards and the 16-inch to 42-inch well collection mains from the wells to the reservoirs. At the time this Specific Plan was prepared, the alignment of the 42-inch water line between Chino Avenue and the water reservoir site had not been finalized and is subject to change. The MERRILL COMMERCE CENTER Project will be required to participate in the future Phase 2 Water System Improvements north of Chino Avenue, as detailed in the development agreement with the City.

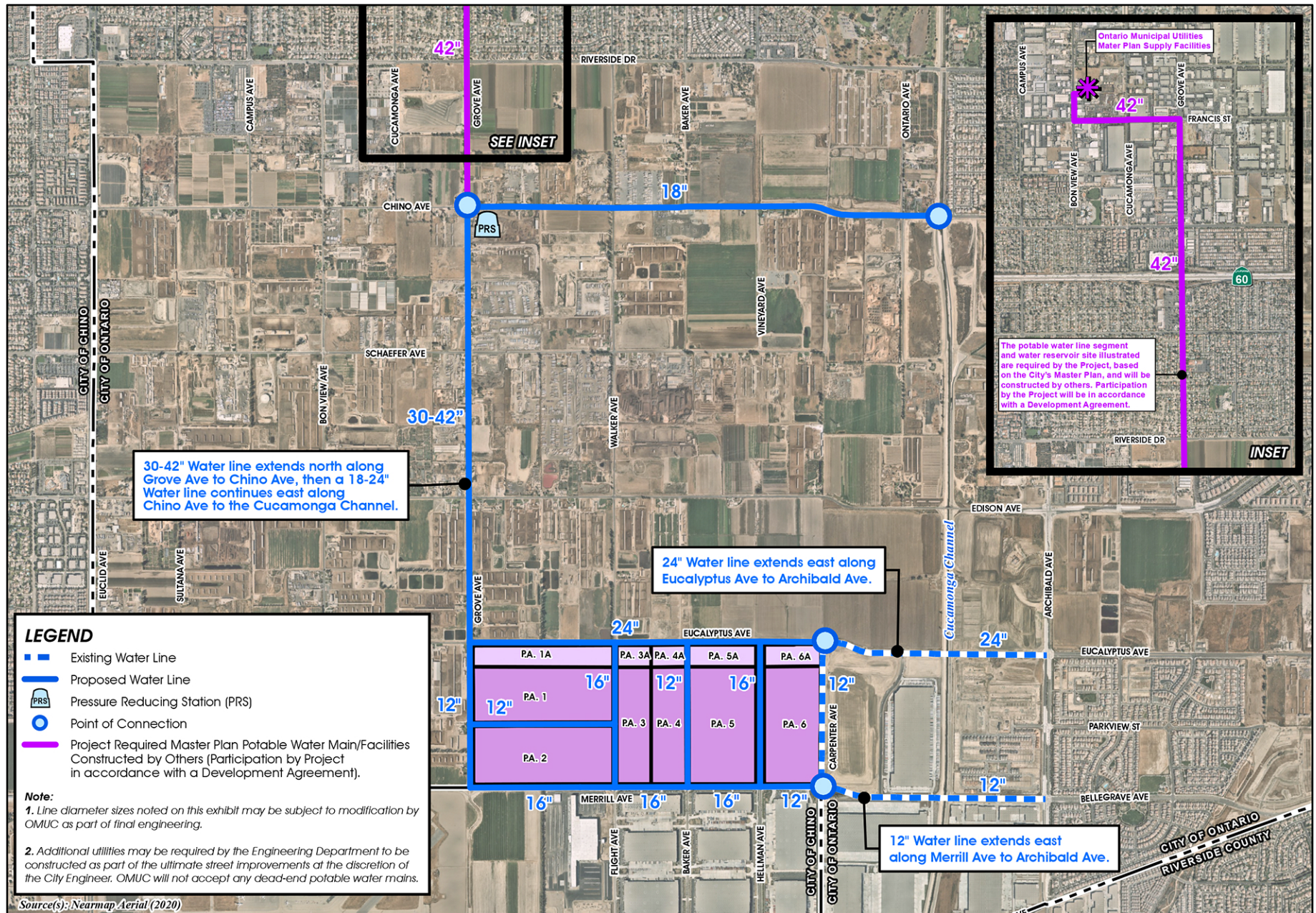
In addition to the 925 Pressure Zone (PZ) Phase 2 West Backbone, the Specific Plan area requires the planning, design, and construction of a Secondary Loop between the 925 Pressure Zone (PZ) Phase 2 West Backbone and the Specific Plan area which includes: installing a 24-inch potable water main in Eucalyptus Avenue connecting to the 30-inch to 42-inch 925 Pressure Zone (PZ) Phase 2 West Backbone main in Grove Avenue; installing a 16-inch potable water main in Merrill Avenue connecting from the 12-inch potable water main in Grove Avenue and extending to Vineyard Avenue; and, installing a 16-inch potable water main in Vineyard Avenue connecting from the 16-inch potable water main in Merrill Avenue and extending to connect to the 24-inch potable water main in Eucalyptus Avenue; and, installing a 12-inch potable water main in Merrill Avenue connecting from the 16-inch potable water main in Vineyard Avenue and extending east to connect to the 12-inch potable water main in Carpenter Avenue.

The Specific Plan area also requires the planning, design, and construction of the Local Adjacent Potable Water System, which includes: installing a 12-inch potable water main in Grove Avenue connecting to the 24-inch potable water main in Eucalyptus Avenue

and extending to connect to the 16-inch potable water main in Merrill Avenue; and, installing a 16-inch potable water main in Walker Avenue connecting to the 24-inch potable water main in Eucalyptus Avenue and extending to connect to the 16-inch potable water main in Merrill Avenue; and, installing a 12-inch potable water main in Baker Avenue connecting to the 24-inch potable water main in Eucalyptus Avenue and extending to connect to the 16-inch potable water main in Merrill Avenue; and, installing a 12-inch potable water main in "Street A" connecting to the 12-inch potable water main in Grove Avenue and extending to connect to the 16-inch potable water main in Walker Avenue.

Required Potable Water Infrastructure is subject to change based upon findings of City approved hydraulic studies, master plan updates, and project final designs; and, potable water main locations are also subject to change based upon the developer-conducted and City-approved Conceptual Design Report. Any existing utilities, including IEUA water mains, that do not meet minimum depths, standard alignment locations, and/or minimum horizontal and vertical separation requirements shall be subject to relocation/ replacement by the developer(s) of the Specific Plan.

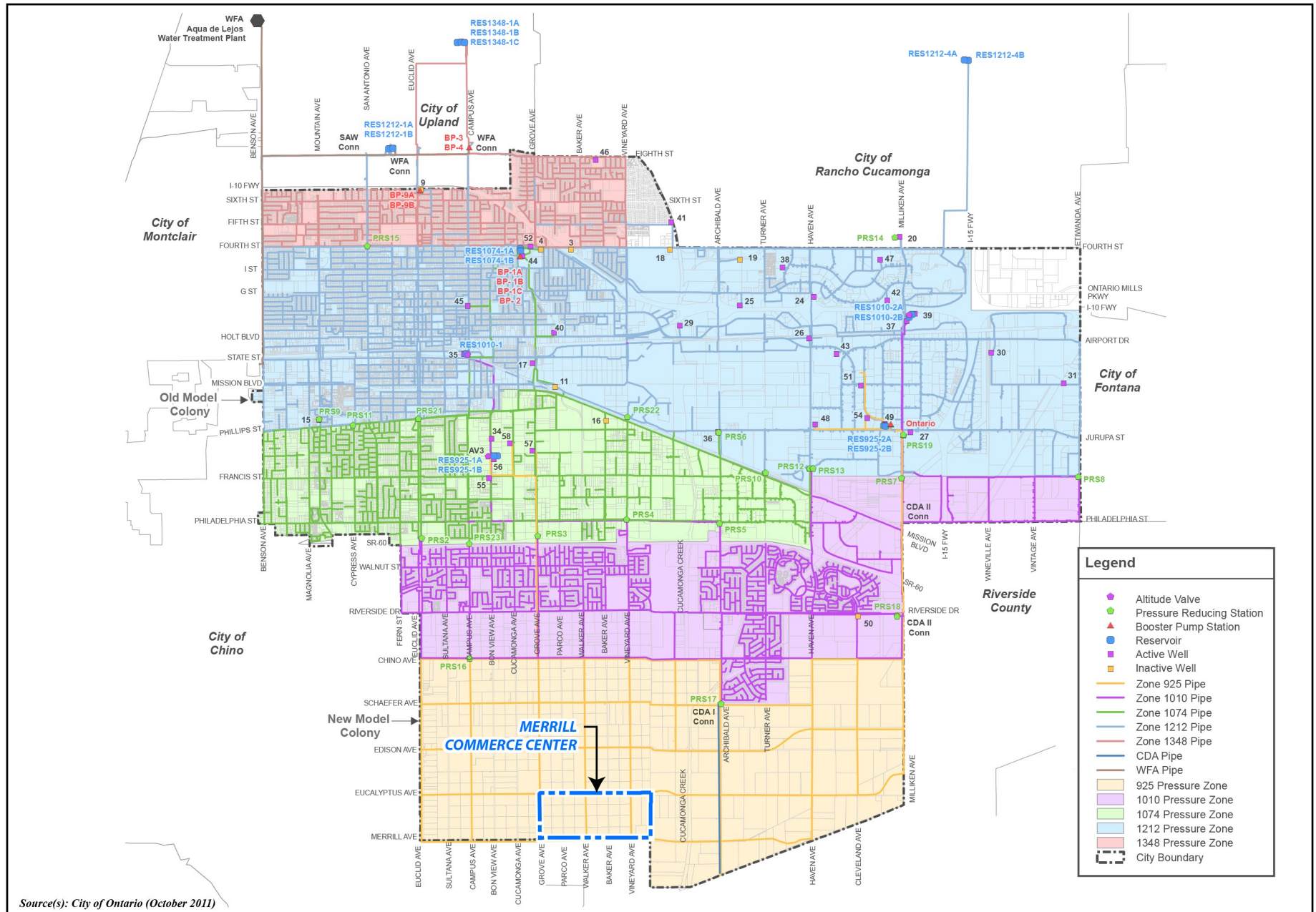
Within the project site, on individual private property, the onsite potable, domestic, and fire systems shall be private and be privately maintained.



Potable Water Infrastructure Plan

Figure 4-3





City of Ontario Ultimate Water System

Figure 4-3A

### 4.2.2 Recycled Water Plan

The City of Ontario/ Ontario Municipal Utilities Company (OMUC) supplies recycled water to the Specific Plan area. Existing City recycled water infrastructure is located to the east of the Specific Plan Area in Carpenter Avenue, Eucalyptus Avenue, and Merrill Avenue. Recycled Water supplied by OMUC is produced by the Inland Empire Utility Agency (IEUA) from its four wastewater reclamation plants.

The entire Specific Plan area is within the City's master planned 930 Pressure Zone (PZ). Recycled Water Infrastructure Improvements for the Specific Plan area (as shown on Figure 4-4) require the planning, design, and construction of the Primary 930 Pressure Zone Recycled Water Master Plan Backbone mains, which includes: installing a 16-inch recycled water main in Carpenter Avenue connecting to the 16-inch 930 Pressure Zone Recycled Water main in Eucalyptus Avenue and connecting to the existing 16-inch 930 Pressure Zone recycled water main at the intersection of Carpenter Avenue and Eucalyptus Avenue; extending it west and transitioning to a 12-inch line at Vineyard Avenue; installing a 12-inch recycled water main in Eucalyptus Avenue and extending to Grove Avenue to connect to the 8-inch 930 Pressure Zone Recycled Water main in Grove Avenue; and, installing an 8-inch recycled water main in Grove Avenue connecting to the 12-inch recycled water main in Eucalyptus Avenue and extending in Grove Avenue to 8-inch recycled water main in Merrill Avenue; and, installing an 8-inch recycled water main in Merrill Avenue connecting to the 16-inch recycled water main in Merrill Avenue at Walker Avenue and extending east to Carpenter Avenue.

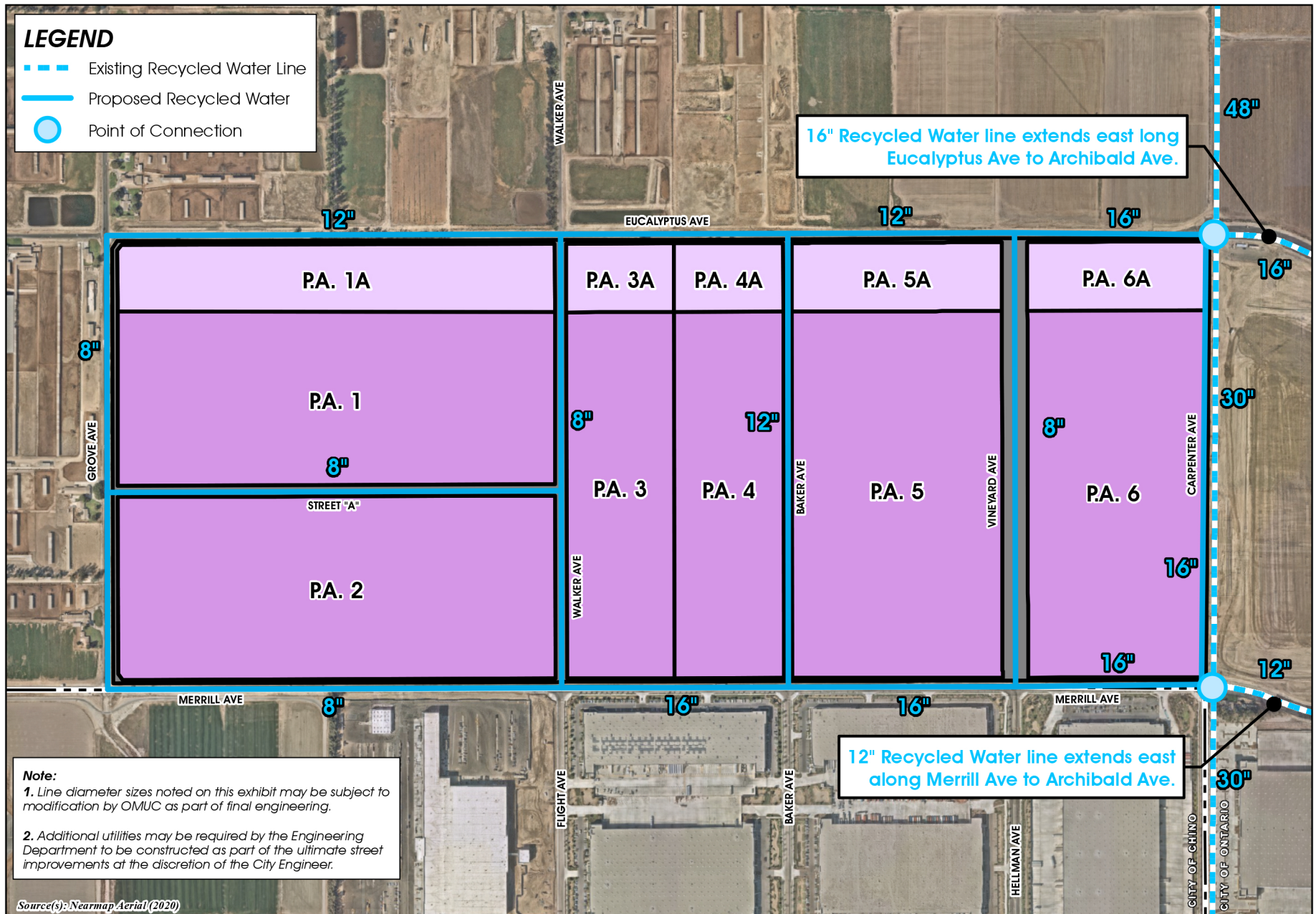
In addition to the Primary 930 Pressure Zone (PZ) Recycled Water Master Plan Backbone mains, the Specific Plan area requires the planning, design, and construction of a Secondary Loop

Improvements which includes: installing an 8-inch recycled water main in Merrill Avenue connecting to the 8-inch recycled water main in Merrill Avenue at Grove Avenue and extending west to Euclid Avenue.

The Specific Plan area also requires the planning, design, and construction of the Adjacent Recycled Water System, which includes: installing an 8-inch recycled water main in Vineyard Avenue connecting to the 16-inch recycled water main in Merrill Avenue and extending it to connect to the 12-inch main in Eucalyptus Avenue; and, installing an 8-inch recycled water main in Walker Avenue connecting to the 8-inch recycled water main in Merrill Avenue and extending it to connect to the 12-inch main in Eucalyptus Avenue.

Required Recycled Water Infrastructure is subject to change based upon findings of City-approved hydraulic studies, master plan updates, and project final designs; and, Recycled Water main locations are also subject to change based upon the developer-conducted and City-approved Conceptual Design Report. Any existing utilities, including IEUA Recycled Water mains, that do not meet minimum depths, standard alignment locations, and/or minimum horizontal and vertical separation requirements shall be subject to relocation/replacement by the developer(s) of the Specific Plan.

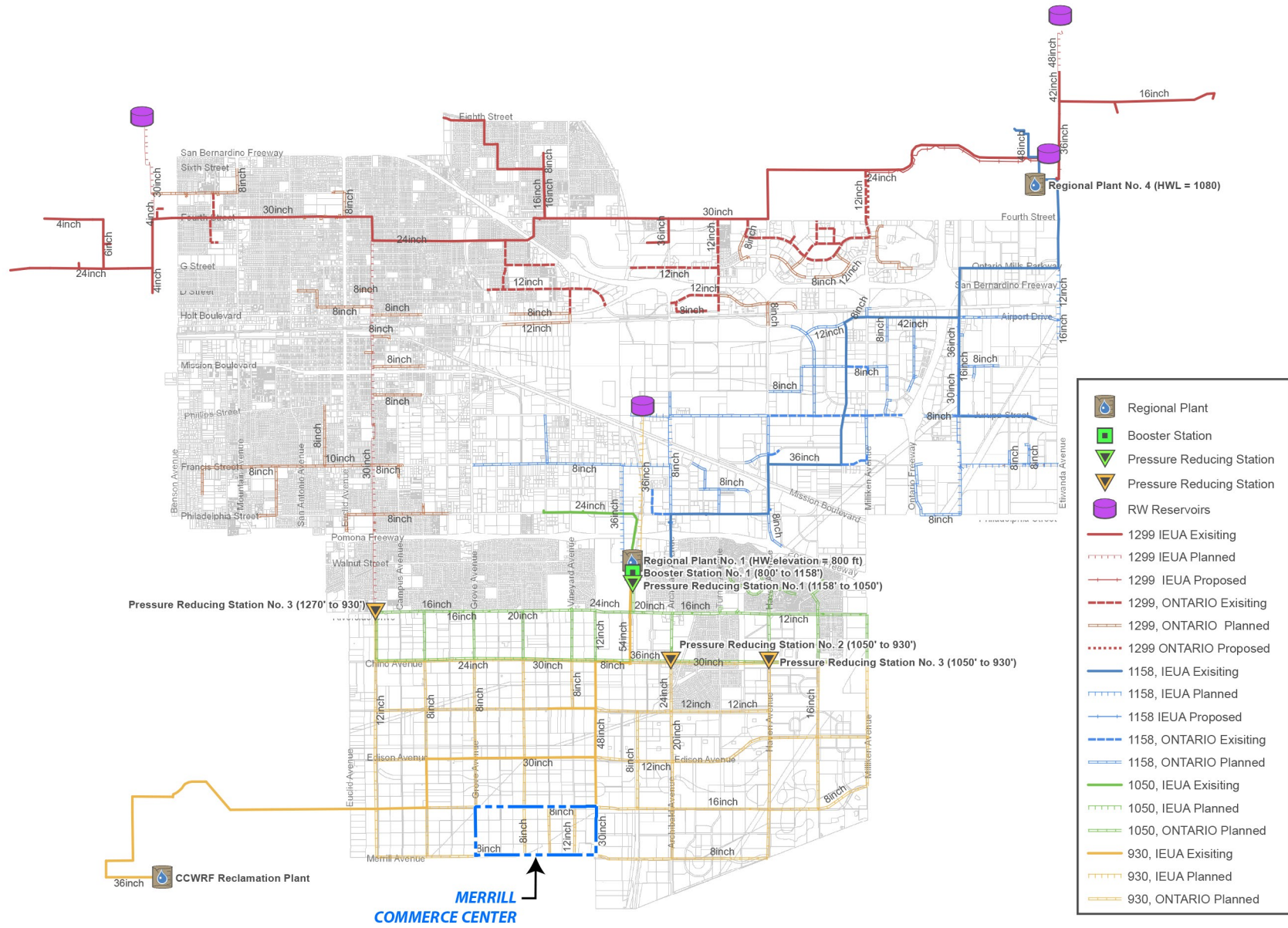
Within the project site, on individual private property, the onsite recycled water and irrigation systems shall be private and be privately maintained.



Recycled Water Infrastructure Plan

Figure 4-4





Source(s): City of Ontario (October 2011)

## City of Ontario Future Recycled Water System

Figure 4-4A

### 4.2.3 Sanitary Sewer Plan

Sanitary Sewer/Wastewater Collections for the Specific Plan area is served by the City of Ontario/ Ontario Municipal Utilities Company (OMUC), which conveys wastewater to the Inland Empire Utility Agency (IEUA) for transmission and treatment.

Currently, existing 21-inch and existing 24-inch City sanitary sewer mains are located in Carpenter Avenue to the east and south of the Specific Plan area. The entire Specific Plan area is included within the City's Sewer Master Plan. The areas west of Vineyard Avenue are Tributary to the Western Trunk Sewer, which connect to IEUA's system at Kimball Avenue and Euclid Avenue; and the areas east of Vineyard Avenue are Tributary to the Eastern Trunk Sewer (ETS), through the City's Carpenter Trunk Sewer which connect to IEUA's system at Vineyard/Hellman Avenue and the San Bernardino/ Riverside County line. Planning Areas 1 to 5 and 1A to 5A are within the Western Trunk Sewer tributary area and Planning Area 6 and 6A are within the Eastern Trunk Sewer tributary area.

Sanitary Sewer Improvements for the Specific Plan area (as shown on Figure 4-5) require the planning, design, and construction of the following Primary Sewer Master Plan Backbone mains of the Western Trunk Sewer (WTS), which includes: installing a 36-inch sewer main in Euclid Avenue connecting to the IEUA's 60-inch Kimball Interceptor at the intersection of Kimball Avenue and Euclid Avenue and extending north to Merrill Avenue; and, installing a 30-inch sewer main in Merrill Ave from Euclid Avenue to Grove Avenue; and, installing a 24-inch to 30-inch sewer main in Merrill Avenue from Grove Avenue to Walker Avenue; and, installing a 21-inch to 30-inch sewer main in Walker Avenue from Merrill Avenue to Eucalyptus Avenue.

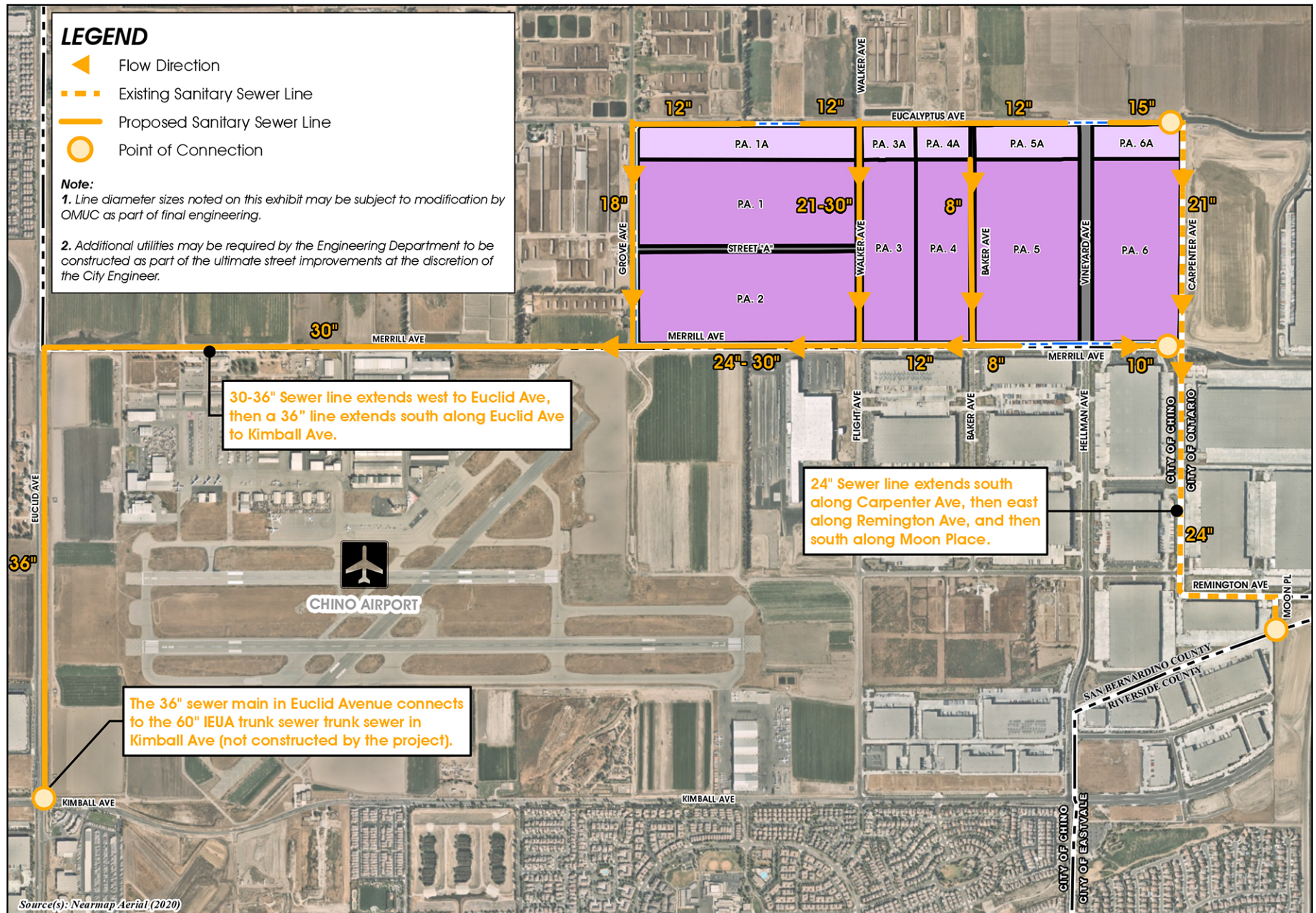
In addition to the Primary Sewer Master Plan Backbone mains, the Specific Plan area requires the planning, design, and construction of a Secondary Master Plan Trunk Sewer, which includes: installing an 18-inch Grove Trunk Sewer main in Grove Avenue from the WTS in Merrill Avenue and extending north in Grove Avenue to Eucalyptus Avenue.

The Specific Plan area also requires the planning, design, and construction of the Adjacent Local Sewer Systems, which includes: installing a 12-inch sewer line in Eucalyptus Avenue from east of Grove Avenue to connect with the 18-inch line in Grove Avenue; installing a 12-inch line in Eucalyptus Avenue from west of Walker Avenue to just west of Vineyard Avenue, and installing a 15-inch sewer line in Eucalyptus Avenue from west of Carpenter Avenue to connect with the existing 21-inch line in Carpenter Avenue. Also, the installation of a 10-inch sewer main in Merrill Avenue from west of Carpenter Avenue to Carpenter Avenue; and, installing an 8-inch line in Merrill Avenue from east of Baker Avenue to Baker Avenue and transitioning to a 12-inch sewer main in Merrill Avenue from Baker Avenue to connect with the WTS in Walker Avenue.; and, installing an 8-inch sewer main in Baker Avenue from Merrill Avenue northerly toward Eucalyptus Avenue.

Required Sanitary Sewer Infrastructure is subject to change based upon findings of City-approved hydraulic studies, master plan updates, and project final designs; and, sewer main locations are also subject to change based upon the developer-conducted and City-approved Conceptual Design Report. Any existing utilities, including IEUA Recycled Water mains, that do not meet minimum depth, standard alignment locations, and/or minimum horizontal and vertical separation requirements shall be subject to relocation/ replacement by the developer(s) of the Specific Plan.



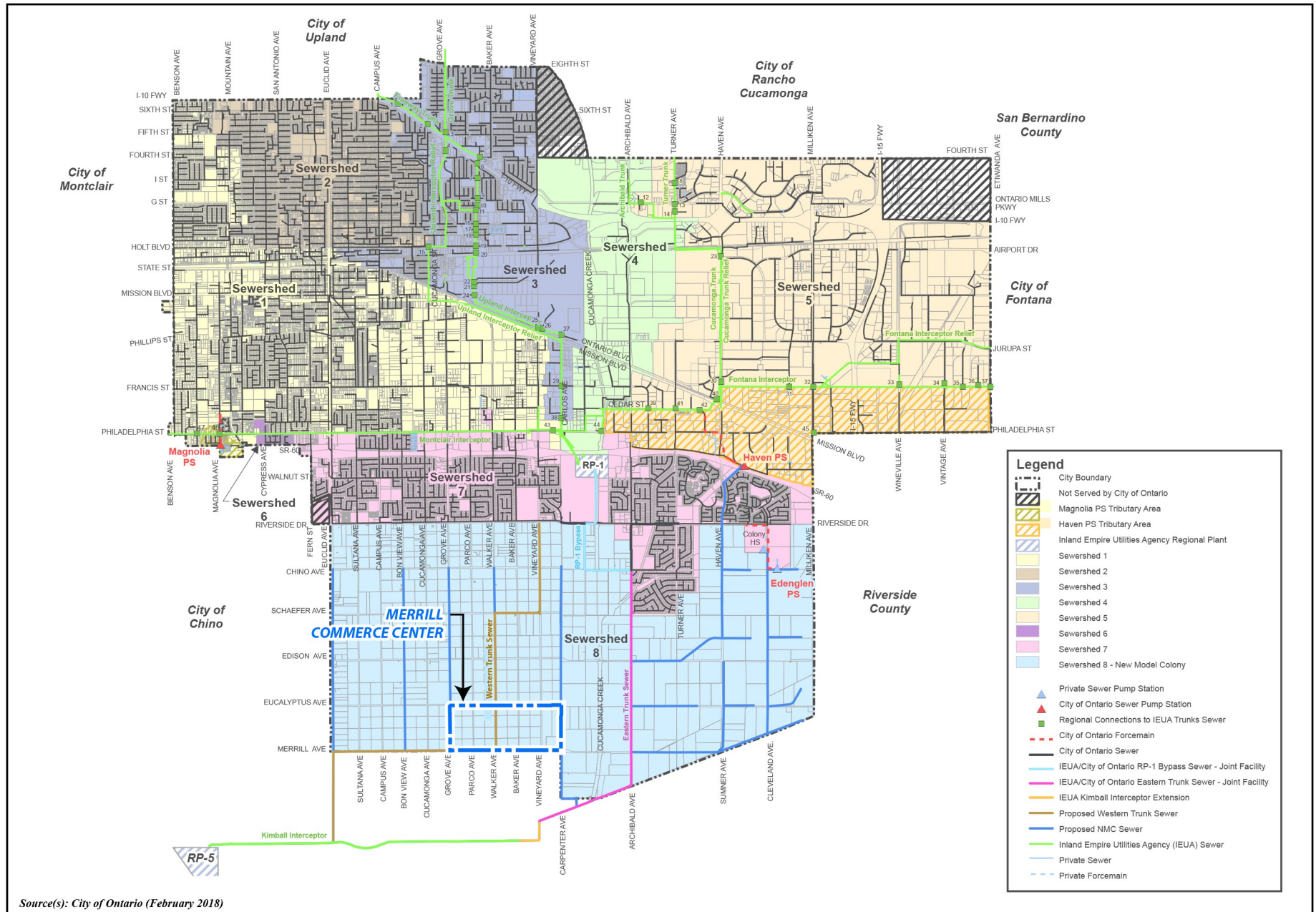
Within the project site, on individual private property, the onsite sewer systems shall be private and be privately maintained.



Sanitary Sewer Infrastructure Plan

Figure 4-5





**City of Ontario Ultimate Sewer System**

Figure 4-5A

#### 4.2.4 Storm Water Management Plan

The master storm drain plan for the MERRILL COMMERCE CENTER is shown on Figure 4-6, *Storm Drain Infrastructure Plan*. Improvements include the construction of the following storm drain improvements: a 13-foot by 8-foot Reinforced Concrete Box (RCB) in the segment of Eucalyptus Avenue located between Walker Avenue and Vineyard Avenue; 24-inch storm drain lines in segments of Eucalyptus Avenue between Walker Avenue and Grove Avenue, a 13-foot by 8-foot Reinforced Concrete Box (RCB) in the segment of Eucalyptus Avenue located between Walker Avenue and Vineyard Avenue; a 6-foot by 3-foot RCB, a double 8-foot by 4-foot RCB, a double 8-foot by 9-foot RCB, and a double 12-foot by 10-foot RCB in various segments of Merrill Avenue located between the midpoint of the southerly boundary of Planning Area 2 and Carpenter Avenue; a 24-inch storm drain line in the segment of Walker Avenue located between the southerly boundary of Planning Area 1 and Merrill Avenue; a 24-inch storm drain line in the segment of Baker Avenue, extending from Merrill Avenue to approximately the midpoint of Baker Avenue between Eucalyptus Avenue and Merrill Avenue; a 120-inch storm drain line in the segment of Grove Avenue located between Eucalyptus Avenue and Merrill Avenue (with a point of connection to the existing open flood channel located south of the intersection of Merrill Avenue and Grove Avenue); and a 13-foot by 8-foot RCB in the segment of Vineyard Avenue located between Merrill Avenue and Eucalyptus Avenue.

Additionally, as indicated on Figure 4-6, the developer(s) of the MERRILL COMMERCE CENTER may be conditioned to improve the existing open flood channel located south of the intersection of Merrill Avenue and Grove Avenue, which may consist of either lowering the elevation of the existing earthen channel or installing a double 10-foot by 6-foot RCB within the existing earthen channel to

connect to an existing RCB located at the southerly terminus of the existing earthen flood channel. The ultimate solution will be determined during the final engineering process.

Planning Areas 1, 1A, and 2 drain in a southerly direction and the drainage ultimately flows into either a water quality basin located in the southwest portion of Planning Area 2, the existing flood channel located south of the intersection of Merrill Avenue and Grove Avenue, or to the RCB drainage system in Merrill Avenue which will convey flows easterly to the Cucamonga Channel.

Stormwater flows from Planning Areas 3 and 3A drain in a southerly direction and the drainage ultimately flows into either the 24-inch line within Walker Avenue or to the RCB system in Merrill Avenue. Planning Areas 4 and 4A also drain in a southerly direction with the drainage ultimately flowing to either a storm drain line installed in Baker Avenue or to the RCB system in Merrill Avenue. Planning Areas 5, 5A, 6, and 6A drain in a southerly direction as well, and the drainage ultimately flows to the 13-foot by 18-foot RCB in Vineyard Avenue or the double 9-foot by 8-foot RCB or 12-foot by 10-foot RCB in Merrill Avenue. Flows from Planning Areas 3, 3A, 4, 4A, 5, 5A, 6, and 6A ultimately drain easterly to an existing inlet connection to the Cucamonga Creek Channel via the existing double 12-foot by 10-foot RCB in Merrill Avenue (east of Carpenter Avenue).

Each storm drain in Grove Avenue and Merrill Avenue will be equipped with a hydrodynamic separator or City approved equal device to satisfy the statewide trash mandate. Each device will be approved by and listed on the Certified Full Capture System List of Trash Treatment Control Devices of the State Water Resources Control Board (SWRCB).

Line diameter sizes and other storm drain facility sizes noted herein may be subject to modification by the City of Ontario and/or the San Bernardino Flood Control District as part of final engineering.

#### **A. National Pollutant Discharge Elimination System (NPDES) and Water Quality Management Plan (WQMP)**

Design for the on-site improvements within the MERRILL COMMERCE CENTER Specific Plan will utilize a variety of Low Impact Development (LID) design concepts to detain, filter, and treat surface runoff in a practical manner to comply with the requirements of the San Bernardino County NPDES Storm Water Program's current Water Quality Management Plan (WQMP) for new development projects.

The objective of the project-specific WQMP is to minimize the detrimental effects of urbanization on the beneficial uses of receiving waters, including effects caused by increased pollutants and changes in hydrology. These effects shall be minimized through the implementation of on-site and off-site Low Impact Development (LID) Site Design Best Management Practices (BMP's) that retain/infiltrate or biotreat 85th percentile storm event runoff from the Specific Plan area.

In addition, non-structural and structural Source Control BMP's will be implemented and documented in the approved Water Quality Management Plan(s) to reduce pollutant generation and transport from the Specific Plan area.

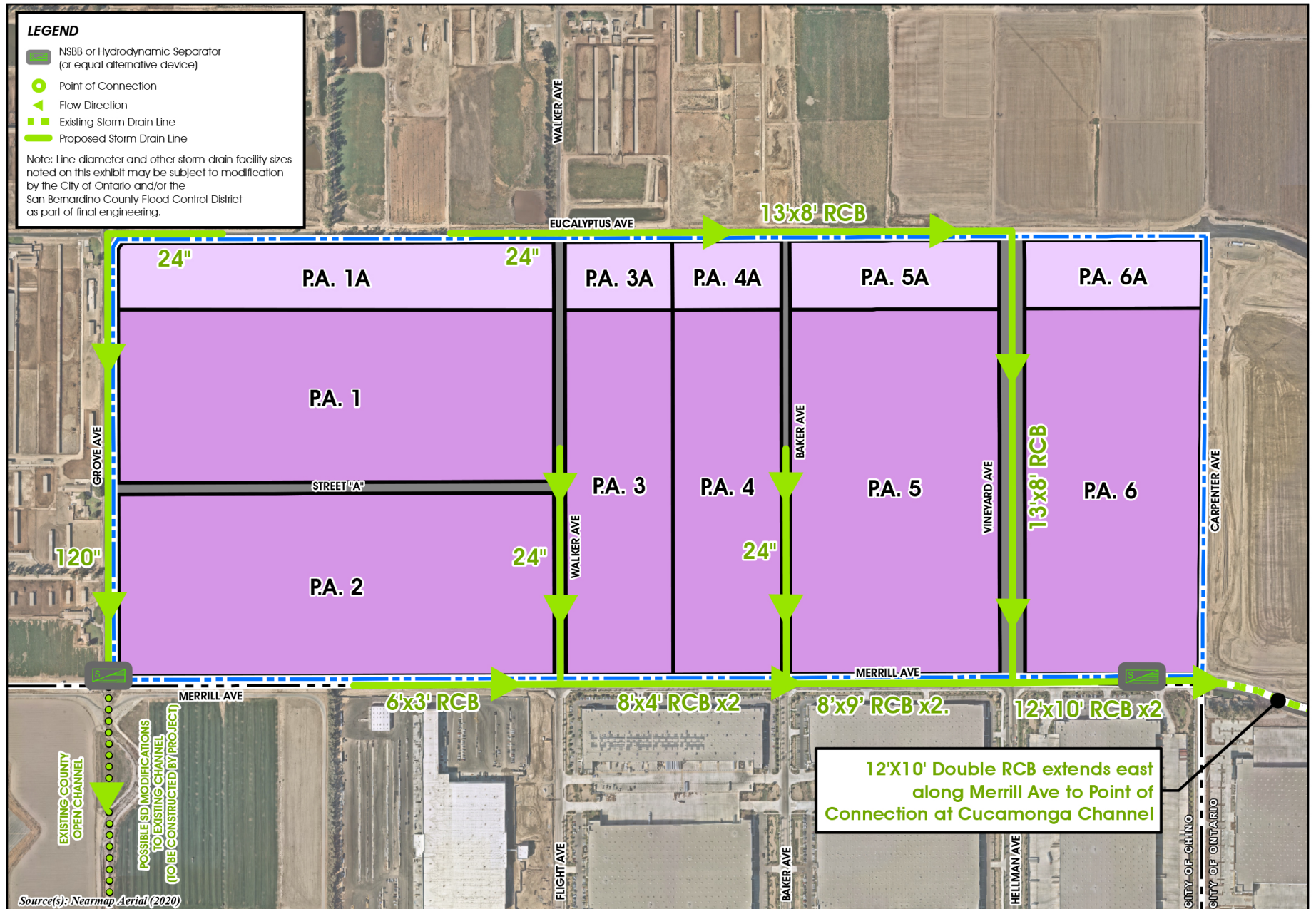
All Priority Land Use (PLU) areas, defined by the State Water Resources Board (SWRCB) as high trash generating areas such as industrial uses, within the Specific Plan area shall comply with the statewide Trash Provisions adopted by the SWRCB and trash

requirements in the most current San Bernardino County Area-Wide MS4 permit.

Prior to the issuance of any grading or construction permits for any parcel map or area that disturbs one (1) acre or more of land within the MERRILL COMMERCE CENTER Specific Plan, an Erosion Control & Sedimentation Plan and Storm Water Pollution Prevention Plans (SWPPP) will be prepared to comply with California State Water Resources Control Board's (State Water Board) current "General Permit to Discharge Storm Water Associated with Construction Activity" and current "Area Wide Urban Storm Water Runoff (Regional NPDES) Permit." SWPPPs are required to identify and detail all appropriate Best Management Practices (BMP's) to be implemented or installed during construction.

#### **B. Airport Compatibility**

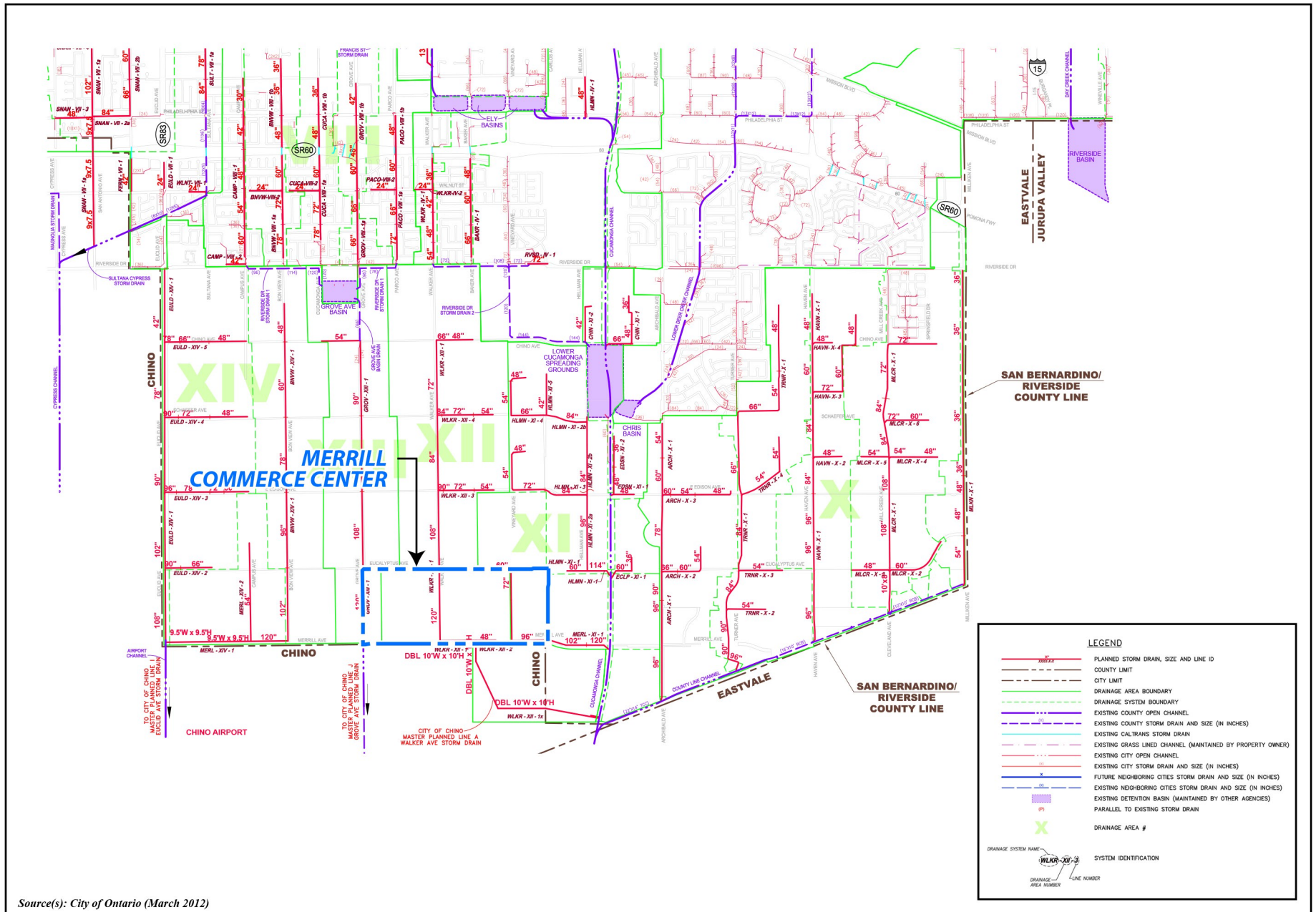
The Specific Plan Area is located in the Airport Influence Areas (AIAs) of the Ontario International Airport and the Chino Airport. The Federal Aviation Administration (FAA) identifies stormwater management facilities as one of the greatest attractants to wildlife hazardous to airport operations. For this reason, all new stormwater management facilities located within the MERRILL COMMERCE CENTER will be designed to avoid the creation of open water and habitat by being designed to drain completely within a maximum 48-hour period following design storm event (i.e., 24-hour storm) and remain totally dry between storm events.



Storm Drain Infrastructure Plan

Figure 4-6





Source(s): City of Ontario (March 2012)

City of Ontario Planned Drainage Facilities

Figure 4-6A

### 4.2.5 Dry Utilities Plan

As shown on Figure 4-7, *Dry Utilities Infrastructure Plan*, primary dry utility lines within joint trenches in Merrill Avenue will be installed to connect to existing dry utility lines at Merrill Avenue to the west of Grove Avenue and at Merrill Avenue to the east of Carpenter Avenue to fully service the Specific Plan area. Lateral dry utility lines within joint trenches will be installed in Grove Avenue, Vineyard Avenue, and Eucalyptus Avenue. The lateral dry utility line within Eucalyptus Avenue will connect to existing dry utility lines at Merrill Avenue and Archibald Avenue to the east. The lateral dry utility lines within Grove Avenue and Vineyard Avenue connect to the primary dry utility lines within Merrill Avenue.

All other dry utilities internal to the MERRILL COMMERCE CENTER will be installed underground in conjunction with the development of the MERRILL COMMERCE CENTER in accordance with applicable public utility standards and specifications and to the satisfaction of the Ontario City Engineer. The locations of other lateral connections, transformers, switches, pull boxes, and dry utility manholes will be determined at the time buildings are positioned in each planning area in conjunction with implementing development.

#### A. Fiber Optics Plan

As shown on Figure 4-8, *Fiber Optics Plan*, fiber optic lines within joint trenches, per the City of Ontario's Master Fiber Optic Plan, will be installed in Grove Avenue and Vineyard Avenue between Merrill Avenue and Eucalyptus Avenue, and in Eucalyptus Avenue and Merrill Avenue between Grove Avenue and Carpenter Avenue. Also, if required to service development, new fiber optic lines will be installed in joint trenches in Street A between Grove Avenue and

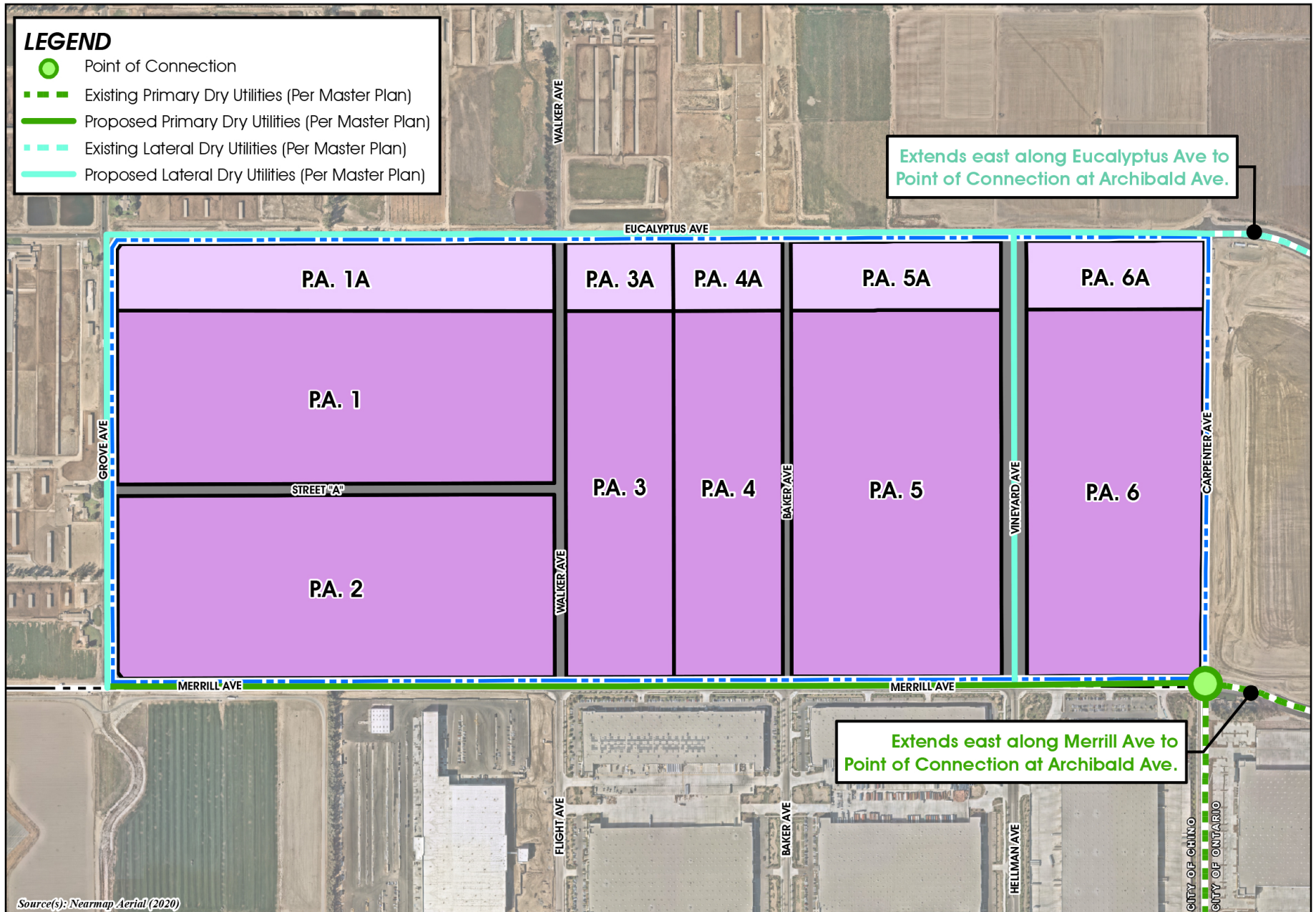
Walker Avenue and in Walker Avenue and Baker Avenue between Merrill Avenue and Eucalyptus Avenue. The backbone street fiber optics (conduits, hand holes, tracer wire, and fiber) will be placed underground within a duct and structure system to be installed by the Master Developer in a joint trench. In-tract fiber and conduit will be installed by the Developer per the in-tract fiber optic design guidelines. Maintenance of the installed system will be the responsibility of the City/Special District. Development of the MERRILL COMMERCE CENTER requires Developer installation of all fiber optic infrastructure and peripheral equipment necessary to service the Specific Plan as a stand-alone development.

Existing power poles located in Grove Avenue between Merrill Avenue and Eucalyptus Avenue, along Eucalyptus Avenue between Walker Avenue and Carpenter Avenue and along Merrill Avenue between Grove Avenue and Carpenter Avenue will be undergrounded as part of the Specific Plan's buildout.

### 4.3 CONCEPTUAL GRADING PLAN

The natural topography of the MERRILL COMMERCE CENTER property is relatively flat. No unusual grading conditions are present and substantial import or export of earth materials is not expected. The primary objectives of the grading plan are to: provide stable development pads for construction; balance the cut and fill grading quantities on-site, and meet City of Ontario building standards and acceptable infrastructure gradient requirements.

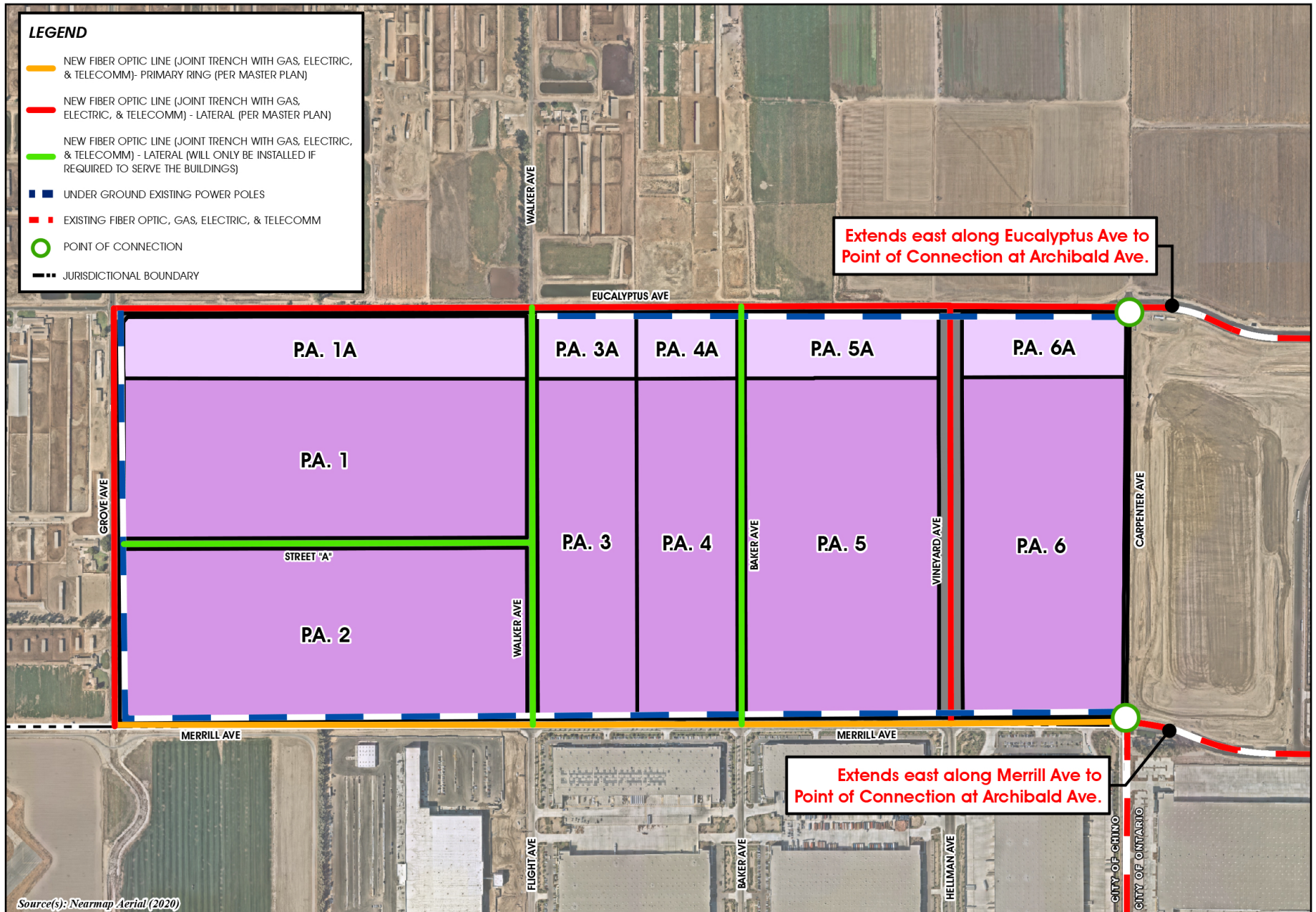




Dry Utilities Infrastructure Plan

Figure 4-7





Fiber Optics Plan

Figure 4-8

