

Appendix E: Traffic Impact Analysis



Submitted by



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1 INTRODUCTION

1.1 Introduction

The purpose of this study is to assess the potential future traffic and circulation impacts resulting from the development of a new planned community in the New Model Colony area of the City of Ontario through the implementation of a specific plan. It also identifies the traffic mitigation measures necessary to maintain the established level of service standards for the elements of the impacted roadway system in compliance with the San Bernardino County Congestion Management Program (CMP) and the City of Ontario standards. The CMP requirement has been met per the *Ontario Sphere of Influence CMP TIA* (November 2000) and that this analysis is not intended to replace or supplement the CMP requirement. The CMP is referenced as a reminder of the CMP traffic study guidelines.

The scope of this traffic study was developed by Meyer, Mohaddes Associates (MMA) in consultation with City of Ontario transportation and planning staffs. The study is intended to quantify and analyze the potential future traffic and circulation impacts associated with project generated traffic on the street system within the area surrounding the project site during both the AM and PM peak hours.

The following traffic scenarios and horizon years are included in the analysis:

- Existing Conditions (2005)
- Horizon Year Without the Project (2015)
- Horizon Year With the Project (2015)

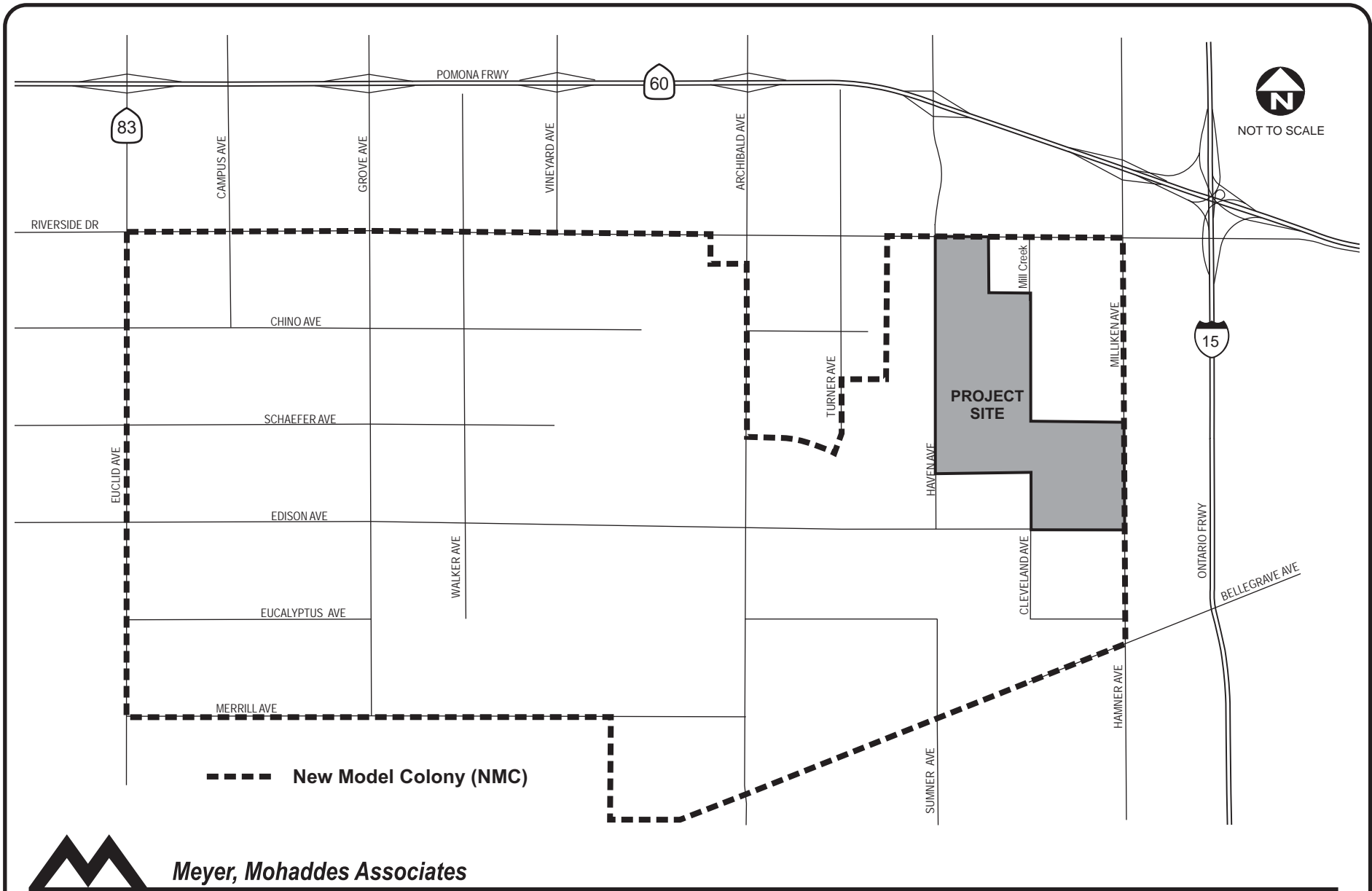
1.2 Project Description

The applicant is proposing a new planned residential community, commercial and mixed-use development in the New Model Colony of the City of Ontario. Under the Rich-Haven Specific Plan, Richland Communities, Watt Commercial, and Pietersma propose to develop approximately 4,258 dwelling units (consisting of 1,330 single family units and 2,928 multi-family units) and approximately 889,200 square feet of commercial uses on a total of 510.6 acres. The Rich-Haven Specific Plan encompasses portions of Planning Subareas 6 and 12, and all of Planning Subarea 19 of the City of Ontario General Plan Update for the proposed New Model Colony. Within the Subareas, a total of 21 Planning Areas have been identified. Planning Areas 1-19 consist of residential uses while Planning Areas 20 and 21 are made up of mixed uses (residential, retail, and office).

It should be recognized that the above project description represents the preferred plan and is referred to as the Specific Plan throughout this document. In addition to the preferred plan, the potential traffic impacts associated with the Baseline Scenario, which would represent buildout of the Rich-Haven Specific Plan area under the General Plan Amendment, were assessed and discussed in **Section 7.0** of this report.

Project Site Location:

Figure 1 illustrates the location of the proposed project site, i.e., Specific Plan area, in relation to the surrounding street network. The project is bounded on the north by Riverside Drive and will generally be bounded on the south by Edison Avenue. Haven Avenue serves as the western boundary while Mill Creek Avenue and Milliken Avenue define the eastern boundary.



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**FIGURE 1
Project Vicinity**

Land Use Plan:

Figure 2 illustrates the land use plan; Residential, Commercial and Mixed-Use for the Rich-Haven Specific Plan. The Rich-Haven Land Use Plan is described below.

Richland Communities proposes to develop up to 2,481 dwelling units (1,128 single-family units and 1,353 multi-family units) within the 350.6 acres of the Specific Plan area defined by Planning Areas 1-19 (Residential District); located within the area bounded by Riverside Drive, Edison Avenue, Haven Avenue, and Mill Creek Avenue. The neighborhoods within the Residential District would be connected by multiple pedestrian routes, bikeways, and multi-use trails. The Residential District's organized, simple, and neo-traditional system of streets, pathways, and entries aid in encouraging interaction among residents and provides connections for residents to parks, recreation and public facilities. Residential neighborhoods planned for Rich-Haven and their densities are illustrated in **Figure 2**.

Within the Mixed-Use District, Richland Communities plans to develop a total of approximately 725 dwelling units and 440,800 square feet of commercial uses in Planning Area 20 which consists of 80 acres. Together Watt Commercial and Pietersma propose to develop approximately 1,052 dwelling units (202 single-family units and 850 multi-family units) and 448,400 square feet of commercial uses on the 80 acres defined as Planning Area 21. The Mixed-Use District is envisioned as a high activity and employment area which would be supported by residents of Rich-Haven, the New Model Colony, and the greater Ontario region. The Mixed-Use planning regions are also shown on **Figure 2**.

Site Access and Circulation:

Figure 3 illustrates the proposed internal circulation and principal points of vehicular access to the surrounding street network for the residential and mixed-use components of the project. Principal vehicular access to the proposed residential district will be provided via Haven Avenue, Mill Creek Avenue, Riverside Avenue, Chino Avenue, and Edison Avenue. Access to the proposed mixed-use developments will be provided via Mill Creek Avenue, Milliken Avenue, and Edison Avenue.

As shown, within Planning Areas 1-6, a series of internal streets are proposed which would provide seven access points along Riverside Drive, Chino Avenue, Haven Avenue and Mill Creek Avenue. For Planning Areas 7-14, four access points are provided, two each along Haven Avenue and Mill Creek Avenue. As shown on **Figure 3**, the SCE easements limit the north/south internal roadway system within Planning Areas 7-14. There are three access points which will serve Planning Areas 15-19 located on Haven Avenue, Mill Creek Avenue, and Edison Avenue. Within the Mixed-Use District, three access points are provided for Planning Area 20 while four are provided for Planning Area 21.

1.3 Study Methodology

Prior to commencing work on this traffic study, coordination meetings were held with City of Ontario staff as part of the scoping process to finalize the traffic study parameters and methodology. The CMP allows an intersection to operate at level of service "E" however the City of Ontario requires a more stringent level of service "D". In this analysis minimum acceptable intersection operating conditions will follow the City of Ontario guidelines for all intersections. In consultation with city staff, the horizon year for this analysis is 2015.

Traffic operations in the project vicinity were analyzed, as directed by the City of Ontario staff, using the Highway Capacity Manual (HCM) methodology, as described in the Highway Capacity Manual, HCM 2000 (Transportation Research Board, Washington, D.C., 2000.).



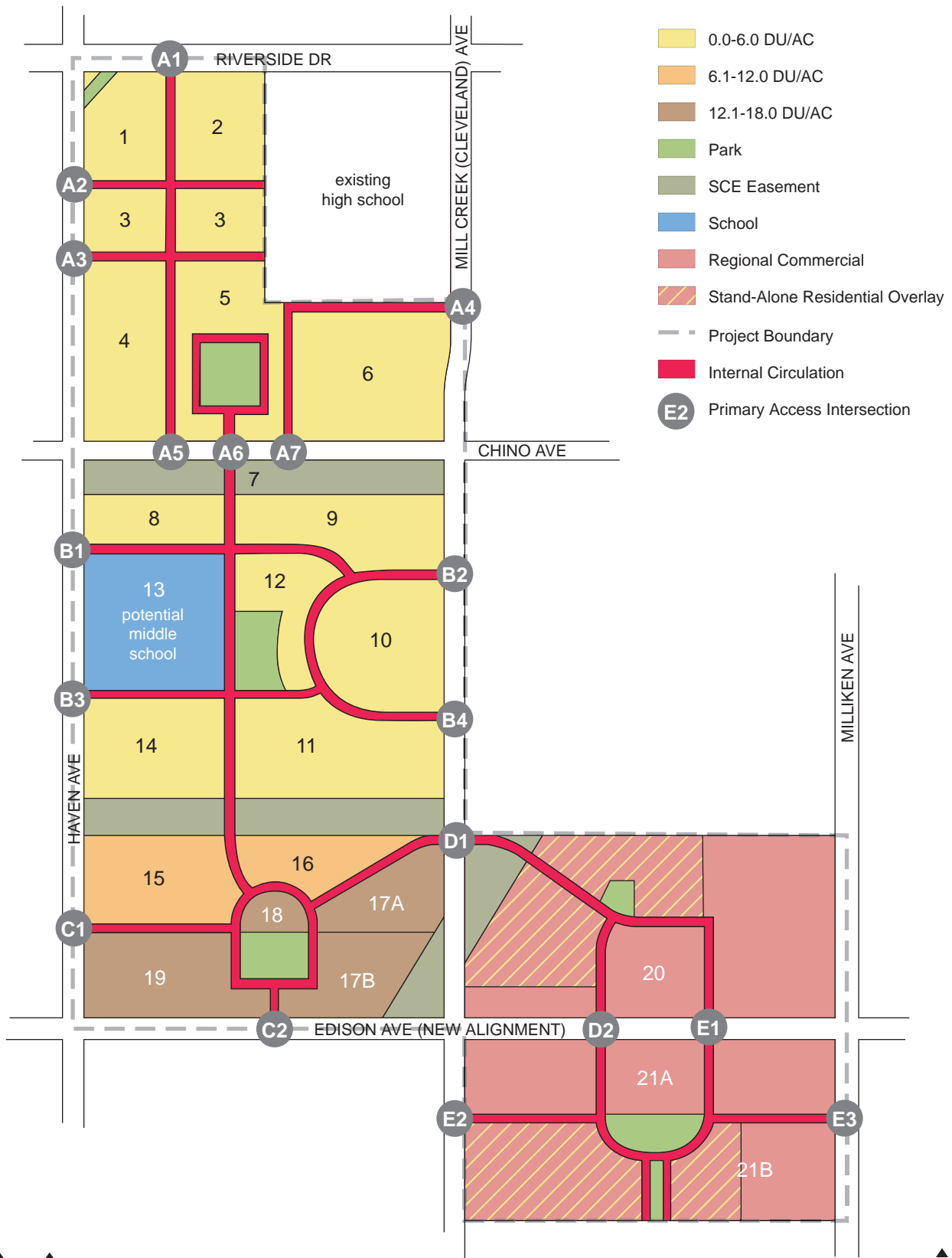
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NOT TO SCALE

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**FIGURE 2
Land Use Plan**



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**FIGURE 3
Project Site Access and Internal Circulation**

The efficiency of traffic operations at a location is measured in terms of level of service (LOS). Level of service is a description of traffic performance at intersections. The level of service concept is a measure of the average operating conditions at an intersection during an hour. It is based on vehicle-delay and is defined by a range of grades from A to F. LOS A represents free-flow conditions where little or no delay is experienced at the intersection. LOS F characterizes extremely unstable flow conditions and severe congestion with volumes at or near the designed capacity. At LOS F, vehicles are likely to experience major delays crossing an intersection. Minor incidents may lead to forced-flow conditions (LOS F) with operating traffic flows substantially below capacity, which may result in long queues backing up from all approaches to intersections. This analysis incorporates the effects of the lane geometry and signal phasing (i.e. protected or permitted left turns) to produce the results described by the level of service scale indicated by delay and LOS. **Table 1** describes the level of service concept and the operating conditions expected under each level of service for signalized and unsignalized intersections.

The following project scenarios were analyzed in this study:

- Existing Conditions (2005) – Analyzes current operating conditions on study intersections using existing traffic counts.
- Horizon Year Without the Project (2015) – Analyzes the future operating conditions of the study area intersections at the horizon year “without” the proposed project using forecast traffic volumes.
- Horizon Year With the Project (2015) – Analyzes the future operating conditions of the study area intersections at the horizon year “with” the proposed project using forecast traffic volumes.

TABLE 1: LEVEL OF SERVICE INTERPRETATION

Level of Service	Description	Signalized Intersection Delay (seconds per vehicle)	Stop-Controlled Intersection Delay (seconds per vehicle)
A	Excellent operation. All approaches to the intersection appear quite open, turning movements are easily made, and nearly all drivers find freedom of operation.	≤ 10	≤ 10
B	Very good operation. Many drivers begin to feel somewhat restricted within platoons of vehicles. This represents stable flow. An approach to an intersection may occasionally be fully utilized and traffic queues start to form.	>10 and ≤ 20	>10 and ≤ 15
C	Good operation. Occasionally drivers may have to wait more than 60 seconds, and back-ups may develop behind turning vehicles. Most drivers feel somewhat restricted.	>20 and ≤ 35	>15 and ≤ 25
D	Fair operation. Cars are sometimes required to wait more than 60 seconds during short peaks. There are no long-standing traffic queues.	>35 and ≤ 55	>25 and ≤ 35
E	Poor operation. Some long-standing vehicular queues develop on critical approaches to intersections. Delays may be up to several minutes.	>55 and ≤ 80	>35 and ≤ 50
F	Forced flow. Represents jammed conditions. Backups form locations downstream or on the cross street may restrict or prevent movement of vehicles out of the intersection approach lanes; therefore, volumes carried are not predictable. Potential for stop and go type traffic flow.	> 80	> 50
Source: <i>Highway Capacity Manual</i> , Special Report 209, Transportation Research Board, Washington, D.C., 2000.			

2.0 EXISTING CONDITIONS

MMA conducted several site visits in order to thoroughly assess existing conditions at the project site and within the study area. The field inventory included review of existing intersection geometric layout, traffic control, lane configurations, posted speed limits, transit service, land use, and parking. This information is required for subsequent traffic impact analysis.

A total of twenty intersections were selected in consultation with City of Ontario staff for the level of service (LOS) analysis. The twenty intersections were selected because they represent the locations that may potentially be impacted by traffic due to the proposed project. Twelve of the intersections are existing intersections and eight intersections are future intersections. **Table 2** presents the list of study intersections and the type of traffic control for each location.

TABLE 2: STUDY INTERSECTIONS

Intersection		CMP Intersection	Signalized Intersection
1	Archibald Avenue at Riverside Drive	✓	✓
2	Archibald Avenue at Chino Avenue	-	✓
3	Archibald Avenue at Schaefer Avenue*	N/A	N/A
4	Archibald Avenue at Edison Avenue	-	✓
5	Turner Avenue at Riverside Drive	-	✓
6	Turner Avenue at Chino Avenue [a]	-	-
7	Turner Avenue at Schaefer Avenue *	N/A	N/A
8	Edison Avenue at Schaefer Avenue *	N/A	N/A
9	Haven Avenue at SR-60 WB Ramps	✓	✓
10	Haven Avenue at SR-60 EB Ramps	✓	✓
11	Haven Avenue at Riverside Drive	-	✓
12	Haven Avenue at Chino Avenue *	N/A	N/A
13	Haven Avenue at Edison Avenue *	N/A	N/A
14	Mill Creek Avenue at Riverside Drive	-	✓
15	Mill Creek Avenue at Chino Avenue *	N/A	N/A
16	Mill Creek Avenue at Edison Avenue *	N/A	N/A
17	Milliken Avenue at SR-60 WB Ramps	✓	✓
18	Milliken Avenue at SR-60 EB Ramps	✓	✓
19	Milliken Avenue at Riverside Drive	-	✓
20	Milliken Avenue/Hamner Avenue at Chino Avenue *	N/A	N/A
21	Milliken Avenue/Hamner Avenue at Edison Avenue *	N/A	N/A

* Future Intersection

[a] Stop controlled location

2.1 Description of Existing Intersections

Figure 4 illustrates the existing intersection lane configurations for the twelve existing analyzed intersections. A brief description of each study intersection follows.

Archibald Avenue and Riverside Drive is controlled by a four-phase traffic signal with protected left-turn phasing in all directions. The northbound and southbound approaches are striped as a left-turn-only lane, two through-only lanes and a shared through/right-turn lane. The eastbound approach is striped as a left-turn-only lane, a through-only lane and a shared through/right-turn lane. The westbound approach is striped as a left-turn-only lane, a through-only lane and a right-turn-only lane.

Archibald Avenue and Chino Avenue is controlled by a three-phase traffic signal with protected left-turn phasing for Archibald Avenue. The northbound approach is striped as a left-turn-only lane, two through-only lanes and a shared through/right-turn lane. The southbound approach is striped as a left-turn-only lane, a through-only lane and a shared through/right-turn lane. The eastbound approach is striped as a left-turn-only lane and a shared through/right-turn lane. The westbound approach is striped as a left-turn-only lane, a through-only lane and a right-turn-only lane.

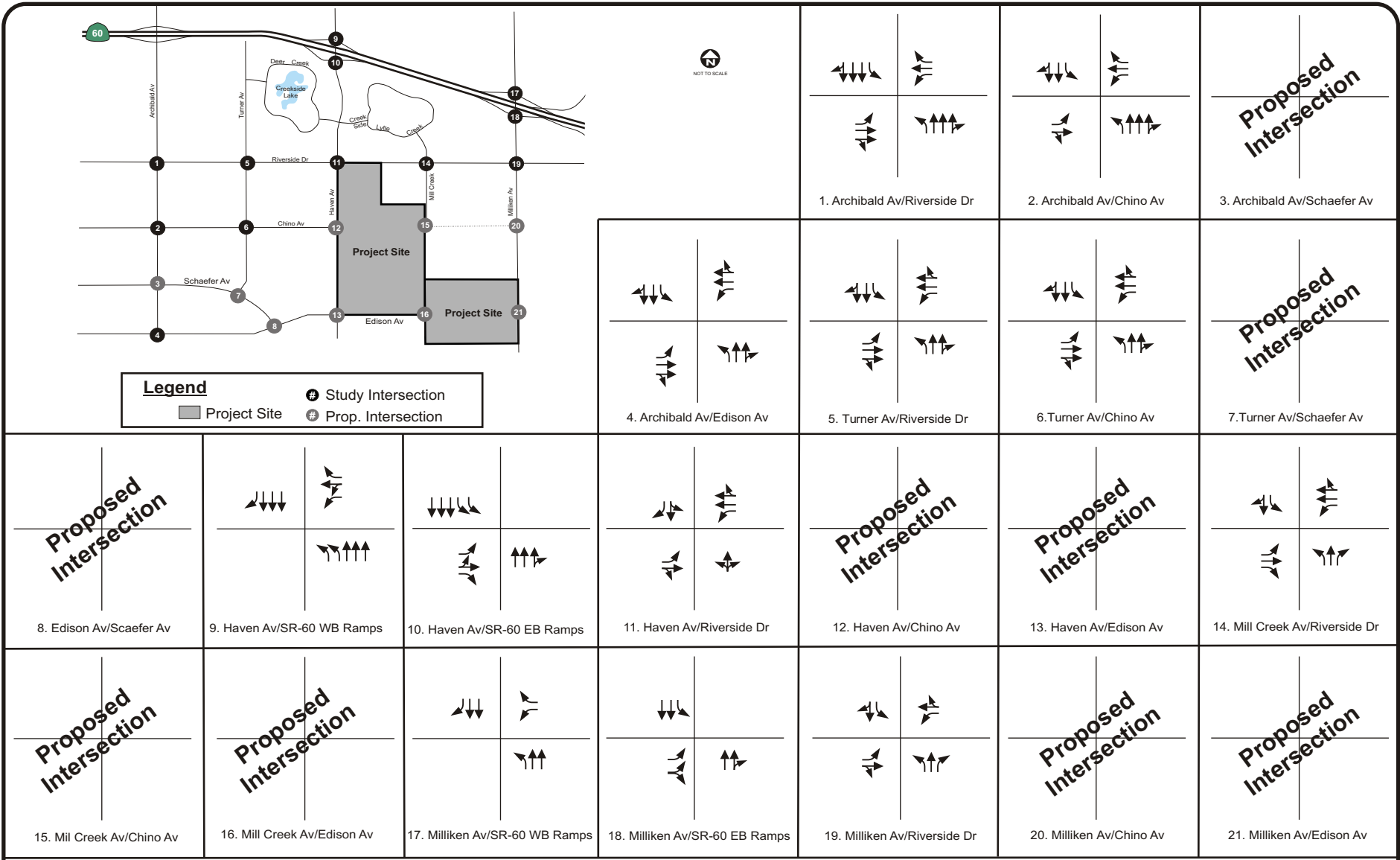
Archibald Avenue and Edison Avenue is controlled by a four-phase traffic signal with protected left-turn phasing in all directions. The northbound approach is striped as a left-turn-only lane, a through-only lane and a shared through/right-turn lane. The southbound approach is striped as a left-turn-only lane, a through-only lane and a shared through/right-turn lane. The eastbound approach is striped as a left-turn-only lane and a shared through/right-turn lane. The westbound approach is striped as a left-turn-only lane, a through-only lane and a right-turn-only lane.

Turner Avenue and Riverside Drive is controlled by a three-phase traffic signal with protected left-turn phasing for Riverside Avenue. The northbound and southbound approaches are striped as a left-turn-only lane, a through-only lane and a shared through/right-turn lane. The eastbound and westbound approaches are striped as a left-turn-only lane, a through-only lane and a shared through/right-turn lane.

Turner Avenue and Chino Avenue is an all-way stop-controlled intersection. The northbound and southbound approaches are striped as a left-turn-only lane, a through-only lane and a shared through/right-turn lane. The eastbound and westbound approaches are striped as a left-turn-only lane, a through-only lane and a shared through/right-turn lane.

Haven Avenue and SR-60 WB Ramps is controlled by a three phase traffic signal with protected left-turn phasing for Haven Avenue (northbound). The northbound approach is striped as dual left-turn-only lanes and three through-only lanes. The southbound approach is striped as three through-only lanes and a right-turn-only lane. The westbound approach (off-ramp) is striped as a left-turn-only lane, a shared left-turn/through lane and a free-right-turn-only lane.

Haven Avenue and SR-60 EB Ramps is controlled by a three phase traffic signal with protected left-turn phasing for Haven Avenue (southbound). The northbound approach is striped as two through-only lanes and a shared through/right-turn lane. The southbound approach is striped as dual left-turn-only lanes and three through-only lanes. The eastbound approach (off-ramp) is striped as a left-turn-only lane, a shared left-turn/through lane and a right-turn-only lane.



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FIGURE 4
Existing Lane Configuration

Haven Avenue and Riverside Drive is controlled by a three-phase traffic signal with protected left-turn phasing for Riverside Avenue. The northbound approach is striped as a shared left-turn/through/right-turn lane. The southbound approach is striped as a shared left-turn/through lane and a right-turn-only lane. The eastbound approach is striped as a left-turn-only lane and a shared through/right-turn lane. The westbound approach is striped as a left-turn-only lane, a through-only lane and a shared through/right-turn lane.

Mill Creek Avenue and Riverside Drive is controlled by a three-phase traffic signal with protected left-turn phasing for Riverside Avenue. The northbound approach is striped as a left-turn-only lane, a through-only lane and a right-turn-only lane. The southbound approach is striped as a left-turn-only lane and a shared through/right-turn lane. The eastbound approach is striped as a left-turn-only lane, a through-only lane and a right-turn-only lane. The westbound approach is striped as a left-turn-only lane, a through-only lane and a shared through/right-turn lane.

Milliken Avenue and SR-60 WB Ramps is controlled by a three phase traffic signal with protected left-turn phasing for Milliken Avenue (northbound). The northbound approach is striped as a left-turn-only lane and two through-only lanes. The southbound approach is striped as two through-only lanes and a right-turn-only lane. The westbound approach (off-ramp) is striped as a left-turn-only lane and a right-turn-only lane.

Milliken Avenue and SR-60 EB Ramps is controlled by a three phase traffic signal with protected left-turn phasing for Milliken Avenue (southbound). The northbound approach is striped as a through-only lane and a shared through/right-turn lane. The southbound approach is striped as a left-turn-only lane and two through-only lanes. The eastbound approach (off-ramp) is striped as a left-turn-only lane and a shared left-turn/right-turn lane.

Milliken Avenue and Riverside Drive is controlled by a three-phase traffic signal with protected left-turn phasing for Milliken Avenue. The northbound approach is striped as a left-turn-only lane, a through-only lane and a right-turn-only lane. The southbound approach is striped as a left-turn-only lane and a shared through/right-turn lane. The eastbound and westbound approaches are striped as a left-turn-only lane and a shared through/right-turn lane.

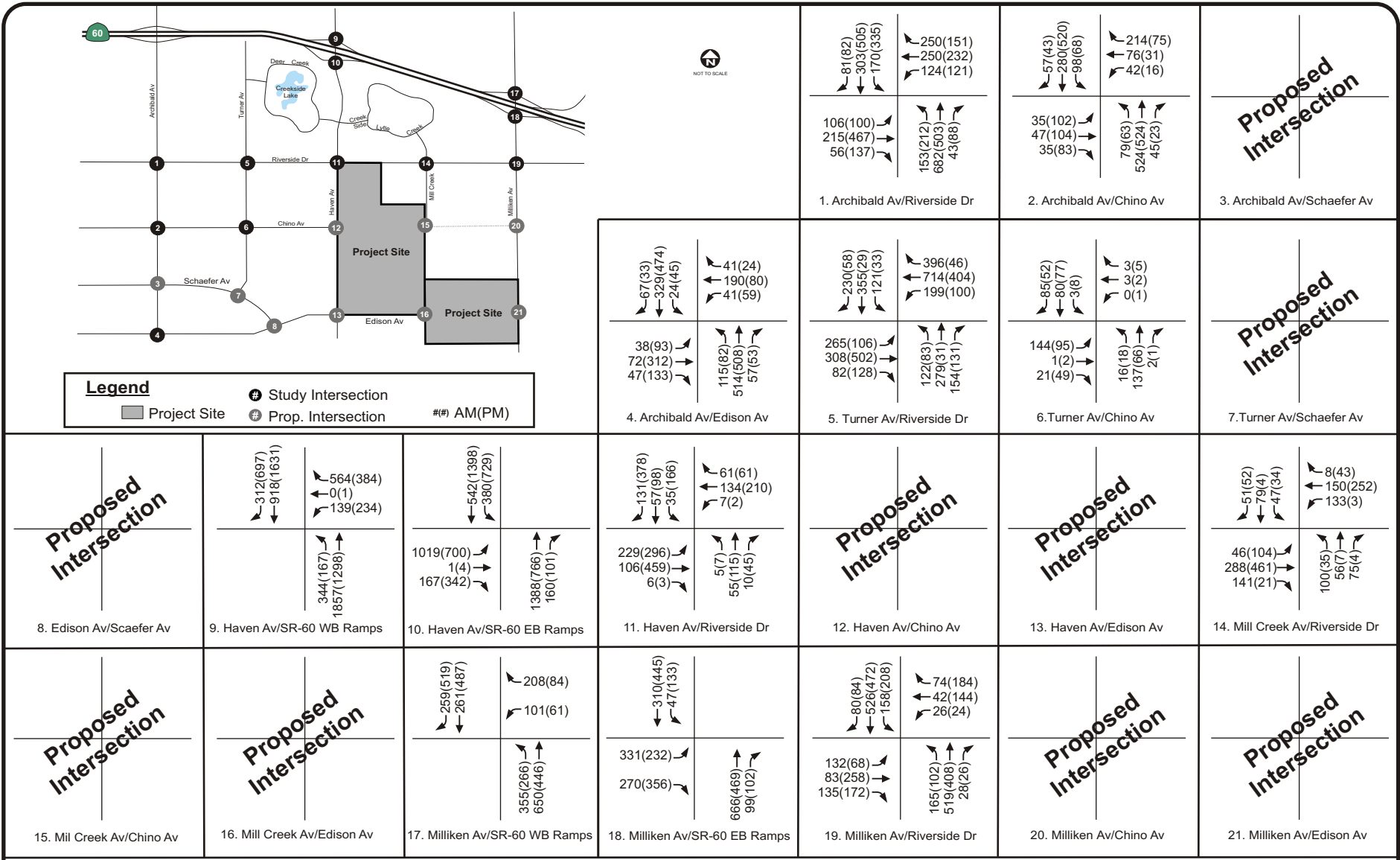
2.2 Existing Traffic Volumes

Morning and evening peak hour traffic counts for the Rich-Haven Traffic Impact Analysis were obtained from previous traffic studies conducted in the area which are provide in **Appendix A**. These 2004 traffic counts were adjusted using a growth factor of four percent per year (per city of Ontario) to reflect the existing (2005) conditions. **Figure 5** illustrates the existing AM and PM peak hour turning movement volumes at the existing study intersections

2.3 Description of Existing Road Network

The following describes existing conditions at the major roadways within the study area.

Archibald Avenue is a north-south arterial located east of the project site. It has a curb-to-curb width of approximately 100 feet and a posted speed limit of 45 miles per hour. Archibald Avenue has four travel lanes in the northbound direction and three travel lanes in the southbound direction between SR-60 and Riverside Drive. It has four lanes of travel between Riverside Drive and Chino Avenue. The segment between Chino Avenue and the southern boundary of the MNC Planning Subarea 5 has two travel lanes in the northbound direction and one travel lane in the



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FIGURE 5
2005 Existing Peak Hour Traffic Volumes

southbound direction. Archibald Avenue has two travel lanes from the southern boundary of MNC Planning Subarea 5 to the San Bernardino-Riverside County Line. It carries an average of 15,000 vehicles per day through the New Model Colony.

Turner Avenue is a north-south arterial located east of the project site. It has a curb-to-curb width of approximately 60 feet and a posted speed limit of 45 miles per hour. Turner Avenue has four travel lanes between SR-60 to south of Chino Avenue. Turner Avenue carries approximately 3,200 vehicles per day.

Haven Avenue is a north-south arterial located east of the project site. It has varying curb-to-curb widths of approximately 132, 78 and 65 feet between SR-60 and Creek Side, Creek Side and Riverside Drive, and Riverside Drive and Chino Avenue, respectively. Haven Avenue has three travel lanes in the northbound direction and two lanes in the southbound direction between SR-60 and Creek Side. It has two travel lanes in the northbound direction and one travel lane in the southbound direction between Creek Side and Riverside Drive with one travel lane in each direction south of Riverside Drive through the study area. Haven Avenue has a posted speed limit of 40 miles per hour north of Creek Side and 50 miles per hour south of Creek Side to Chino Avenue. It carries approximately 11,000 vehicles per day north of Riverside Drive and 3,000 vehicles per day south of Riverside Drive.

Riverside Drive is an east-west arterial located north of the project site. It has varying curb-to-curb widths throughout the study area and a posted speed limit of 50 miles per hour. Riverside Drive has two through lanes in the westbound direction and one through lane in the eastbound direction through the New Model Colony. Riverside Drive carries approximately 12,000 vehicles per day.

Mill Creek Avenue is a north-south arterial located west of the project site. It has varying curb-to-curb widths of approximately 40 feet north of Riverside Drive and 65 feet south Riverside Drive and a posted speed limit of 35 miles per hour. Mill Creek Avenue has two travel lanes and carries approximately 1,500 vehicles per day.

Milliken Avenue is a north-south arterial located east of the project site. It has varying curb-to-curb widths of approximately 90 feet north of Riverside Drive and 55 feet south Riverside Drive and a posted speed limit of 40 miles per hour. Milliken Avenue has four travel lanes north of Riverside Drive and two travel lanes south of Riverside Drive and carries approximately 12,700 vehicles per day.

Chino Avenue is an east-west arterial that divides the project site into north and south sections. It serves as the physical divide between the project planning areas. Chino Avenue has two travel lanes throughout the study area with a posted speed limit of 40 miles per hour, and carries approximately 3,500 vehicles per day.

Edison Avenue is an east-west arterial located south of the project site. Edison Avenue has two travel lanes throughout the study area and a posted speed limit of 50 miles per hour. Edison Avenue carries approximately 4,000 vehicles per day.

2.4 Existing Transit Services

Omnitrans, the public agency serving San Bernardino Valley, operates one line through the study area as illustrated in **Figure 6**.

Route 70 – Ontario-Creekside-Ontario Mills – Route 70 travels mainly along Campus Avenue, Walnut Avenue, Riverside Drive and Milliken Avenue. This route provides service between Montclair, Ontario and Rancho Cucamonga. Popular destinations along this route include the Ontario Civic Center and the Ontario Mills Mall. Transfers to other Omnitrans routes and public transit can be made at the Ontario Civic Center and Ontario Mills Mall (Routes 60, 61, 71, 75, and 90). This route operates seven days a week. On weekday, it operates with 60-minute headways from 7 AM to 9 PM. On Saturdays and Sundays, it operates every 60 minutes from 7:30 AM to 6:30 PM.

2.5 Existing Traffic Operations Analysis

The morning and evening peak hour level of service analyses were conducted at the twelve existing study intersections based on the existing traffic volume counts and the methodologies described previously. The level of service analysis was performed using TRAFFIX software for signalized intersections using the HCM 2000 Operations Methodology.

Table 3 summarizes the level of service calculations for the study intersections under existing conditions during the AM and PM peak hours (detailed HCM worksheets are included in **Appendix B**). An examination of the data in **Table 3** indicates that all twelve intersections are currently operating acceptably in the AM peak hour. Four intersections are operating at LOS B and eight intersections are operating at LOS C. In the PM peak hour, also all twelve intersections are operating acceptably. Two intersections are operating at LOS A, four at LOS B and six are operating at LOS C.

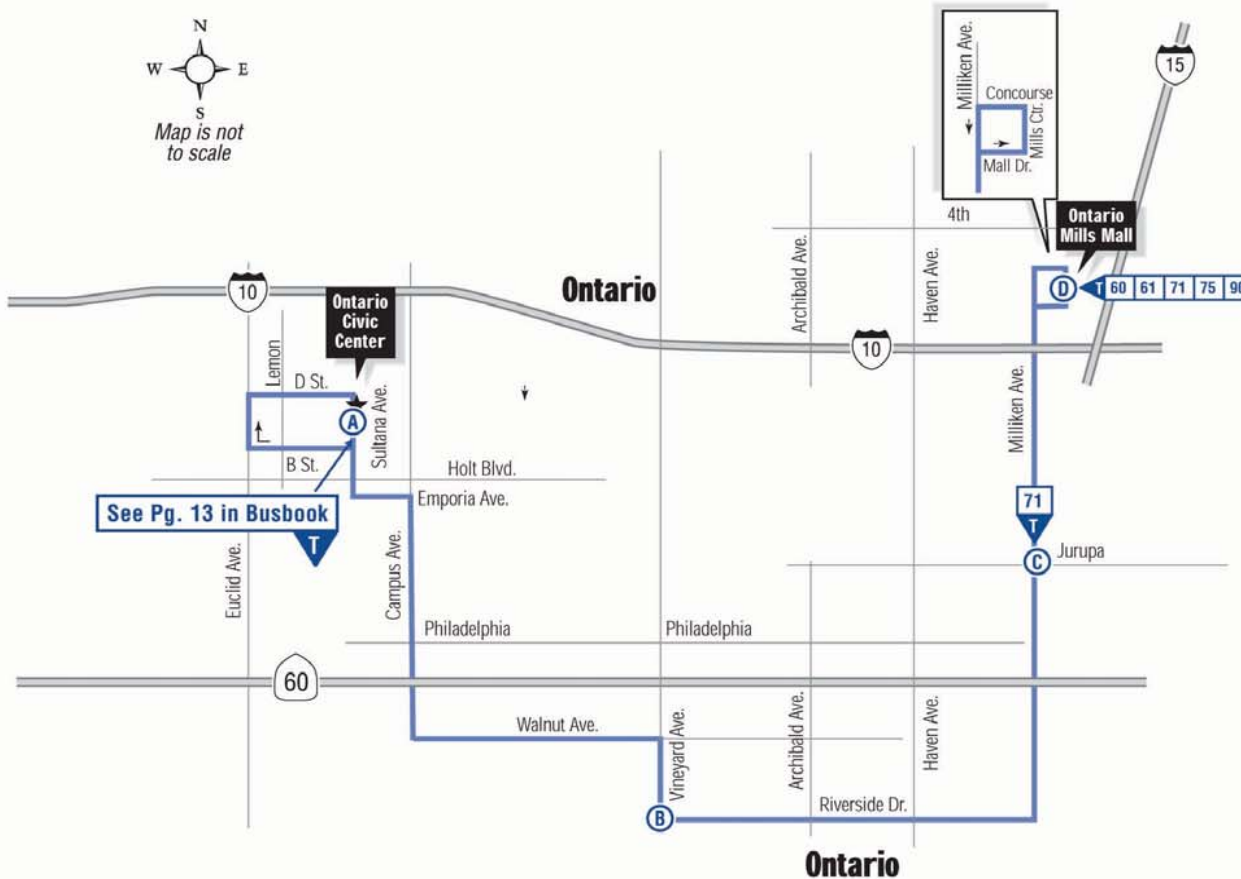
It should be noted that the intersection of Archibald Avenue at Schaefer Avenue exists, however it is an uncontrolled intersection with minimal conflicting volumes, therefore this location was analyzed under future conditions.



70

Ontario – Creekside – Ontario Mills

A Time Point
 T Transfer Point
 1 Route Number
 — Regular Routing



- A D St. & Sultana
- B Vineyard & Riverside
- C Jurupa & Milliken
- D Ontario Mills



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SOURCE: www.omnitrans.org

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FIGURE 6
Study Area Transit Routes

TABLE 3: EXISTING CONDITIONS

Intersection	Year 2005 - Existing Conditions					
	AM Peak Hour			PM Peak Hour		
	LOS	Delay (Sec.)	V/C	LOS	Delay (Sec.)	V/C
1. Archibald Avenue at Riverside Drive	C	30.3	0.508	C	32.5	0.619
2. Archibald Avenue at Chino Avenue	C	22.4	0.318	B	18.7	0.317
3. Archibald Avenue at Schaefer Avenue*	--	--	--	--	--	--
4. Archibald Avenue at Edison Avenue	C	20.7	0.283	C	23.9	0.374
5. Turner Avenue at Riverside Drive	C	30.9	0.833	B	19.5	0.357
6. Turner Avenue at Chino Avenue [a]	B	11.1	N/A	A	10.0	N/A
7. Turner Avenue at Schaefer Avenue *	--	--	--	--	--	--
8. Edison Avenue at Schaefer Avenue *	--	--	--	--	--	--
9. Haven Avenue at SR-60 WB Ramps	B	14.0	0.443	A	7.7	0.623
10. Haven Avenue at SR-60 EB Ramps	C	29.3	0.840	C	23.5	0.698
11. Haven Avenue at Riverside Drive	C	22.6	0.287	C	21.9	0.512
12. Haven Avenue at Chino Avenue *	--	--	--	--	--	--
13. Haven Avenue at Edison Avenue *	--	--	--	--	--	--
14. Mill Creek Avenue at Riverside Drive	C	22.6	0.369	B	12.4	0.311
15. Mill Creek Avenue at Chino Avenue *	--	--	--	--	--	--
16. Mill Creek Avenue at Edison Avenue *	--	--	--	--	--	--
17. Milliken Avenue at SR-60 WB Ramps	B	19.1	0.552	B	14.4	0.589
18. Milliken Avenue at SR-60 EB Ramps	B	19.2	0.557	C	22.4	0.581
19. Milliken Avenue at Riverside Drive	C	24.0	0.625	C	26.9	0.667
20. Milliken Avenue/Hamner Avenue at Chino Avenue *	--	--	--	--	--	--
21. Milliken Avenue/Hamner Avenue at Edison Avenue *	--	--	--	--	--	--

Note: LOS = Level of Service, Delay = Average Vehicle Delay (Seconds), V/C = Volume-to-Capacity Ratio
 HCM 2000 Operations Methodology
 * Future Intersection

3.0 TRAFFIC FORECAST MODEL DEVELOPMENT

Traffic forecasts for the Rich-Haven Traffic Impact Analysis were prepared by MMA in consultation and coordination with City of Ontario staff. MMA developed an updated version of the city's Existing General Plan Circulation Element traffic model specifically for this project and other specific plans that are currently underway in the New Model Colony. This model will be referred to in this report as the *Updated Year 2015 Ontario NMC Traffic Model (September 2005)*.

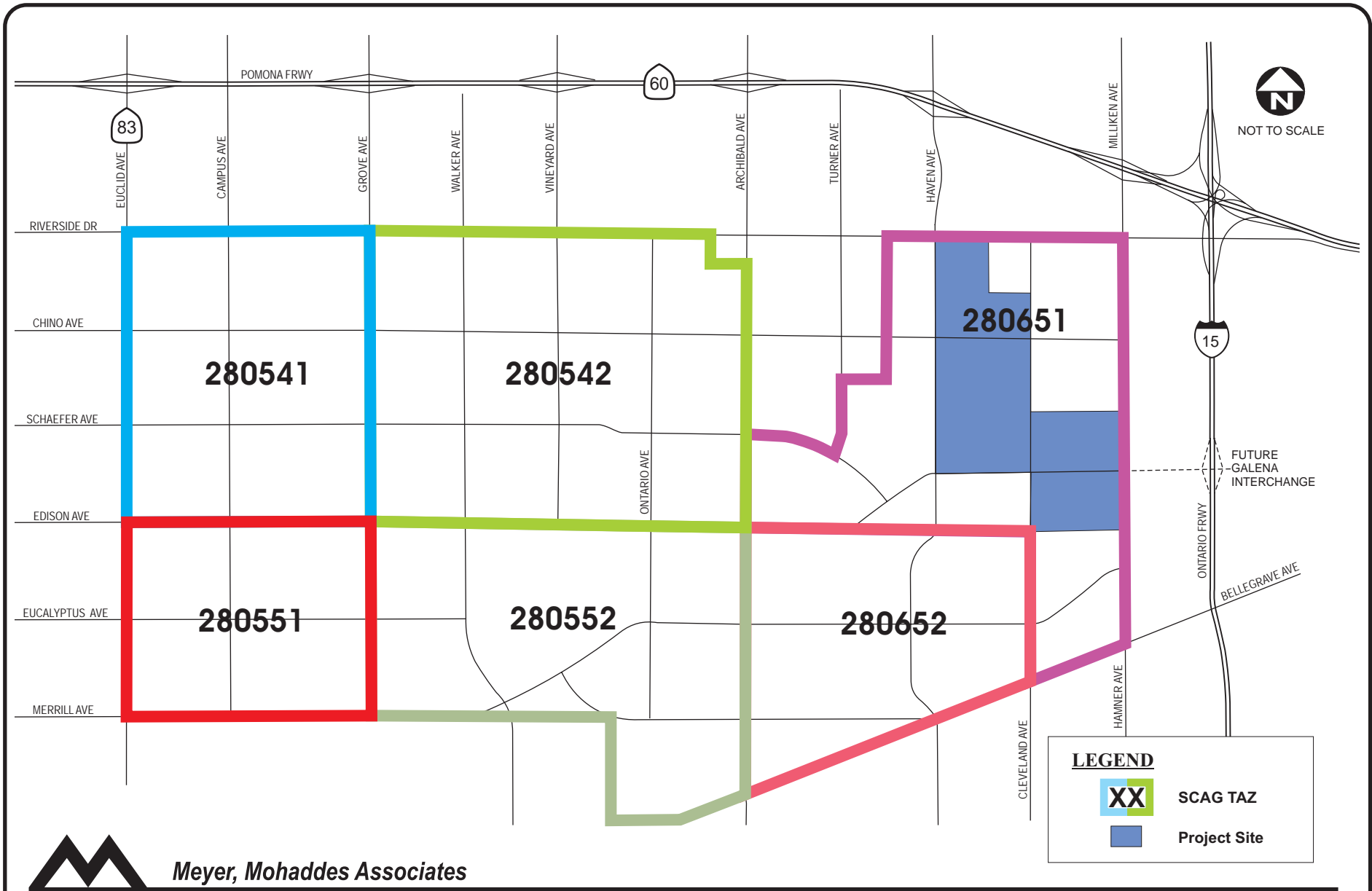
3.1 Background

The *City of Ontario Traffic Model* was originally prepared by Parsons Brinckerhoff Quade & Douglas, Incorporated (March 1996). The model was developed as a focused model encompassing the entire Riverside-San Bernardino (RIVSAN) modeling area with greater detail in the City of Ontario. The primary area included the City of Ontario, but did not include the New Model Colony (NMC). The *City of Ontario Traffic Model* provided Year 2015 Forecasts from a 1990 Base Year.

In preparation of the *City of Ontario Sphere of Influence General Plan Amendment (January 7, 1998)*, MMA developed the *Year 2015 Ontario NMC Traffic Model*. In 1997 MMA updated the *City of Ontario Traffic Model* to include the City of Ontario Sphere of Influence (referred to today as the New Model Colony). The new planning area was considered as a “buffer” area during the development of the original city model. In order to support a general plan amendment the new planning area had to undergo a series of planning exercises to define the level of proposed development and the circulation system in the area. MMA developed the *Year 2015 Ontario NMC Traffic Model* which included a greater level of land use and highway network detail than the original city model. The redefined study area and the refined planning data available at the time were incorporated into the model development process in order to achieve a higher level of reliability in the traffic forecasts on City streets. MMA updated the circulation system in the New Model Colony and disaggregated the traffic analysis zones (TAZs) in the study area. As illustrated in **Figure 7**, the New Model Colony was originally represented by a total of six Southern California Association of Governments (SCAG) Traffic Analysis Zones; too large for the proposed focused planning effort in the area. Project staff refined the traffic analysis zones in the study area to a total of thirty New Model Colony Planning Subareas, illustrated in **Figure 8**. Finally, in an effort to best represent the future traffic conditions in the NMC, MMA disaggregated the thirty planning subareas to fifty-three (53) Ontario Traffic Analysis Zones as illustrated in **Figure 9**.

3.2 Updated Traffic Model

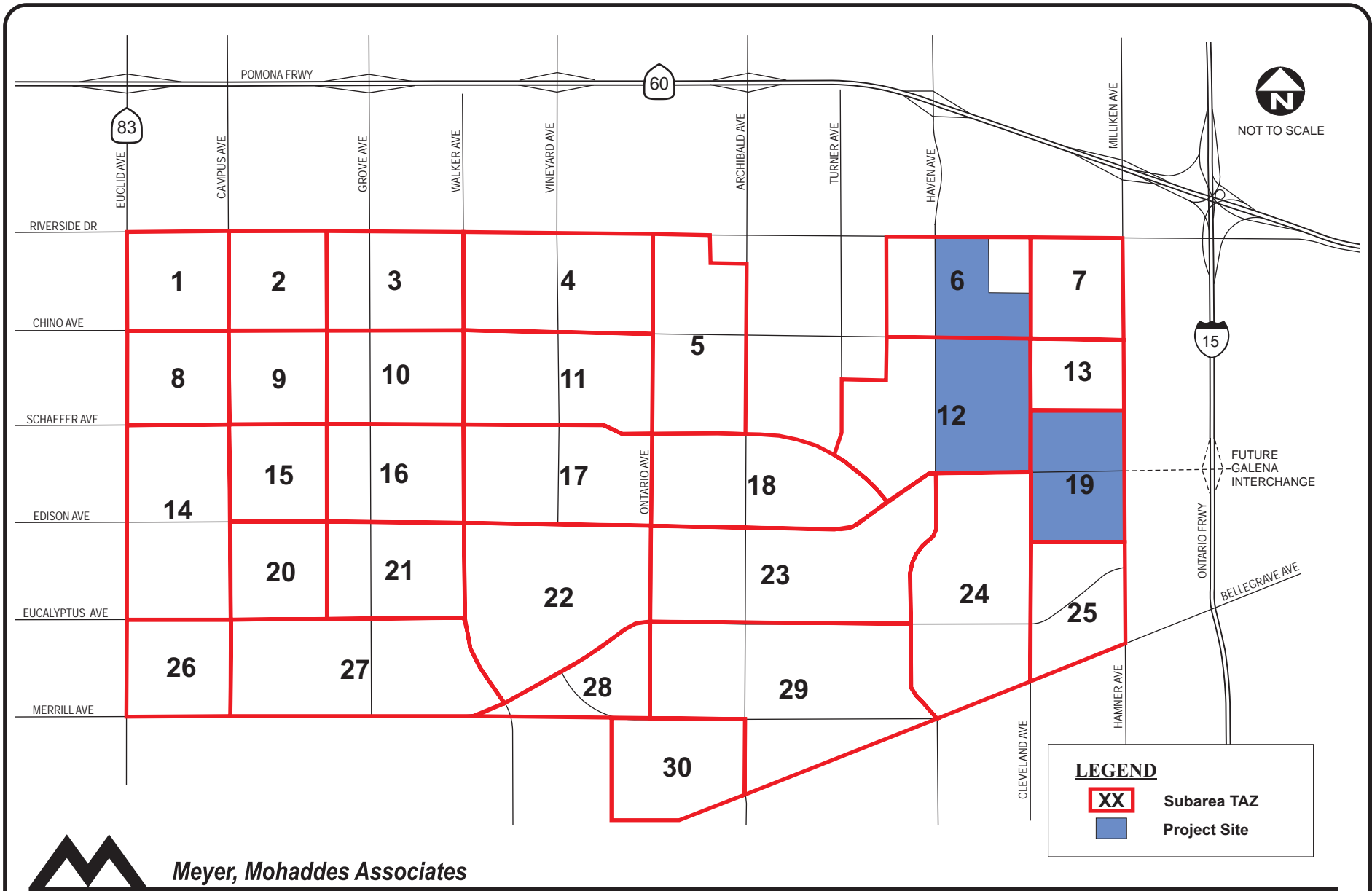
Recent planning and development activity in the New Model Colony have identified a greater, more refined and detailed vision for the developments in the NMC. Specific plans in the NMC propose developments of new communities designed to become a part of the overall City of Ontario. The specific plans provide detailed planning information not available at the time of the General Plan amendment. Other developments outside the New Model Colony were also incorporated into the updated model; such developments include the Eastvale Community Plan in Riverside County and the planned developments in the former Chino Agricultural Preserve in San Bernardino County. MMA also updated the city's buildout model. The *Updated Buildout Ontario NMC Traffic Model (September 2005)* will provide the city with additional traffic forecasts beyond Year 2015 (not included in this study).



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FIGURE 7
SCAG Traffic Analysis Zones

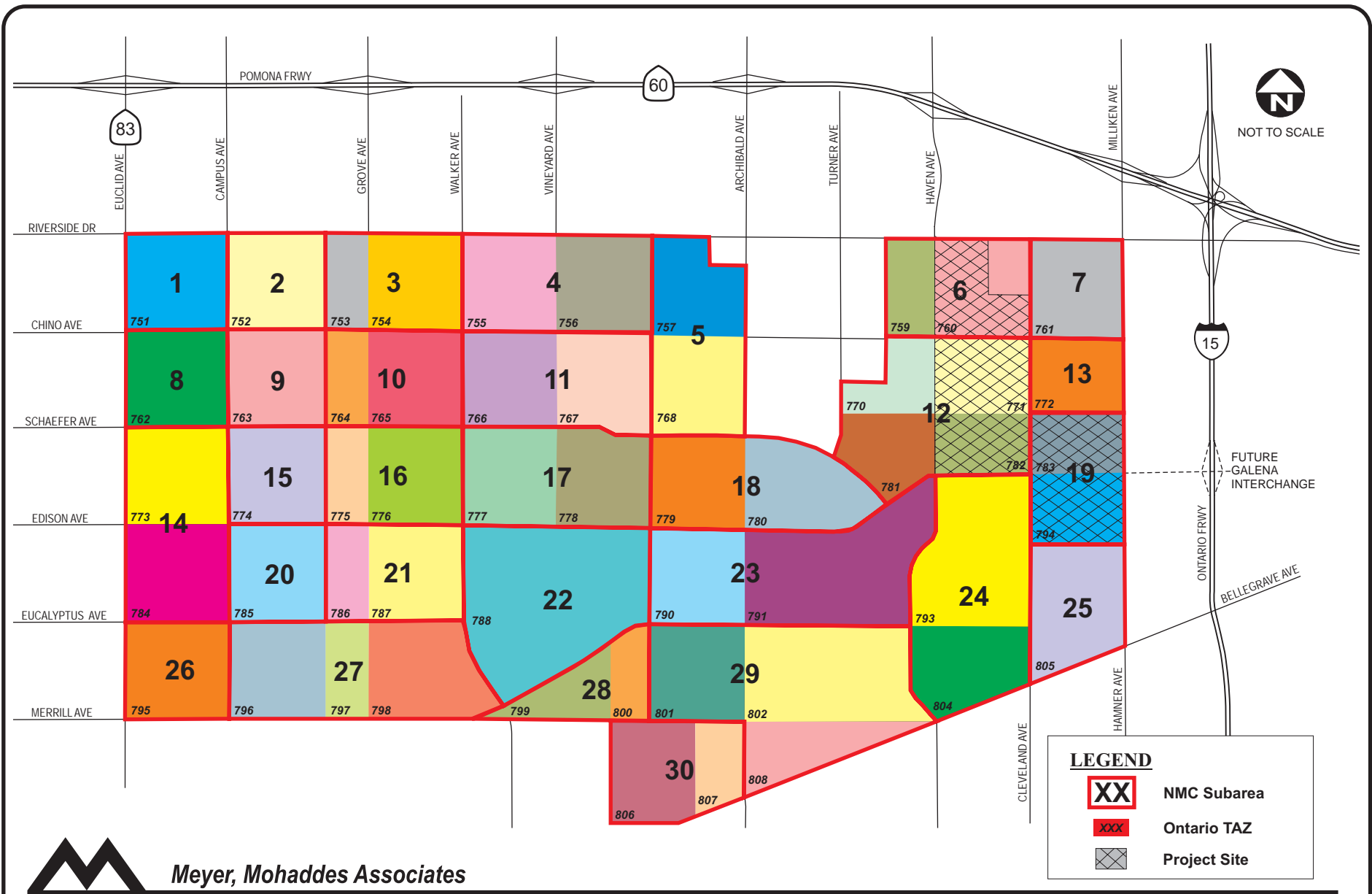


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**FIGURE 8
New Model Colony Planning Subareas**



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FIGURE 9
Subarea TAZ and Ontario TAZ

3.3 2015 Land Use Assumptions

The land use data documented in the General Plan Amendment/EIR for the Ontario Sphere of Influence (now NMC) was thoroughly reviewed and found to be the same as the land use data in the original *Buildout Ontario NMC Traffic Model*. MMA and city staff cooperatively developed “Year 2015 Land Use Data” for the New Model Colony, based on the project description for each of the currently proposed New Model Colony specific plan development (Edenglen, Countryside, West Haven, Parkside, Hettinga, Legacy, Rich-Haven and other local projects). This scaled back version of the “Buildout Land Use Data” is representative of estimated most reasonable Year 2015 conditions. The west half of the New Model Colony is expected to be less developed than the east half, where specific plan preparations are already in progress, included among these the Rich-Haven Specific Plan.

The city’s traffic model has been customized to provide updated Year 2015 Forecasts for the Ontario New Model Colony. MMA has customized the land use data, traffic analysis zone structure, and highway network to reflect all planned and programmed development in the Eastside of the New Model Colony including the Countryside, West Haven, Edenglen, Parkside, Hettinga, Rich-Haven and Legacy Specific Plans. The *Updated Year 2015 Ontario NMC Traffic Model (September 2005)* will be used for all specific plan analyses in the area.

3.4 2015 Traffic Assignment

The “Year 2015 Land Use Data” along with a customized traffic analysis zone structure and updated highway network that reflects all planned and programmed development in the New Model Colony were used to generate a Year 2015 traffic assignment.

The Year 2015 traffic assignment is representative of a region with significant planned residential and commercial development. The New Model Colony in Year 2015 and beyond is envisioned to undergo drastic changes in land use and infrastructure from the generally rural setting of today. The Year 2015 turning movement traffic volumes are obtained directly from the updated traffic model. Typically a post-processing of the model generated traffic volumes based on existing traffic trends would be performed by MMA. However, due to the existing rural setting and the magnitude of the planned developments in the area, the existing traffic circulation is expected to change dramatically, and therefore the current traffic movement patterns cannot be used as the basis for future traffic volume adjustments. The Year 2015 turning movement volumes will be used for level of service analysis for future conditions.

4.0 FUTURE BASE PROJECT CONDITIONS

This section summarizes the assumptions, methodology, and analysis related to future conditions without the proposed project. The 2015 Future Base “Without Project” Conditions for each respective intersection turning movement traffic volume is calculated by subtracting the *Project-Only Trip Distribution* from the 2015 “With Project” Conditions. This will serve as the basis for estimating impacts of the proposed project on background conditions for Year 2015.

4.1 2015 Future Base Lane Assumptions

The Year 2015 future base circulation system in the New Model Colony was developed by MMA in consultation with City of Ontario staff. The roadway segments expected to be in place by Year 2015, the number of lanes carrying through traffic and the corresponding intersection lane configurations were determined from various sources.

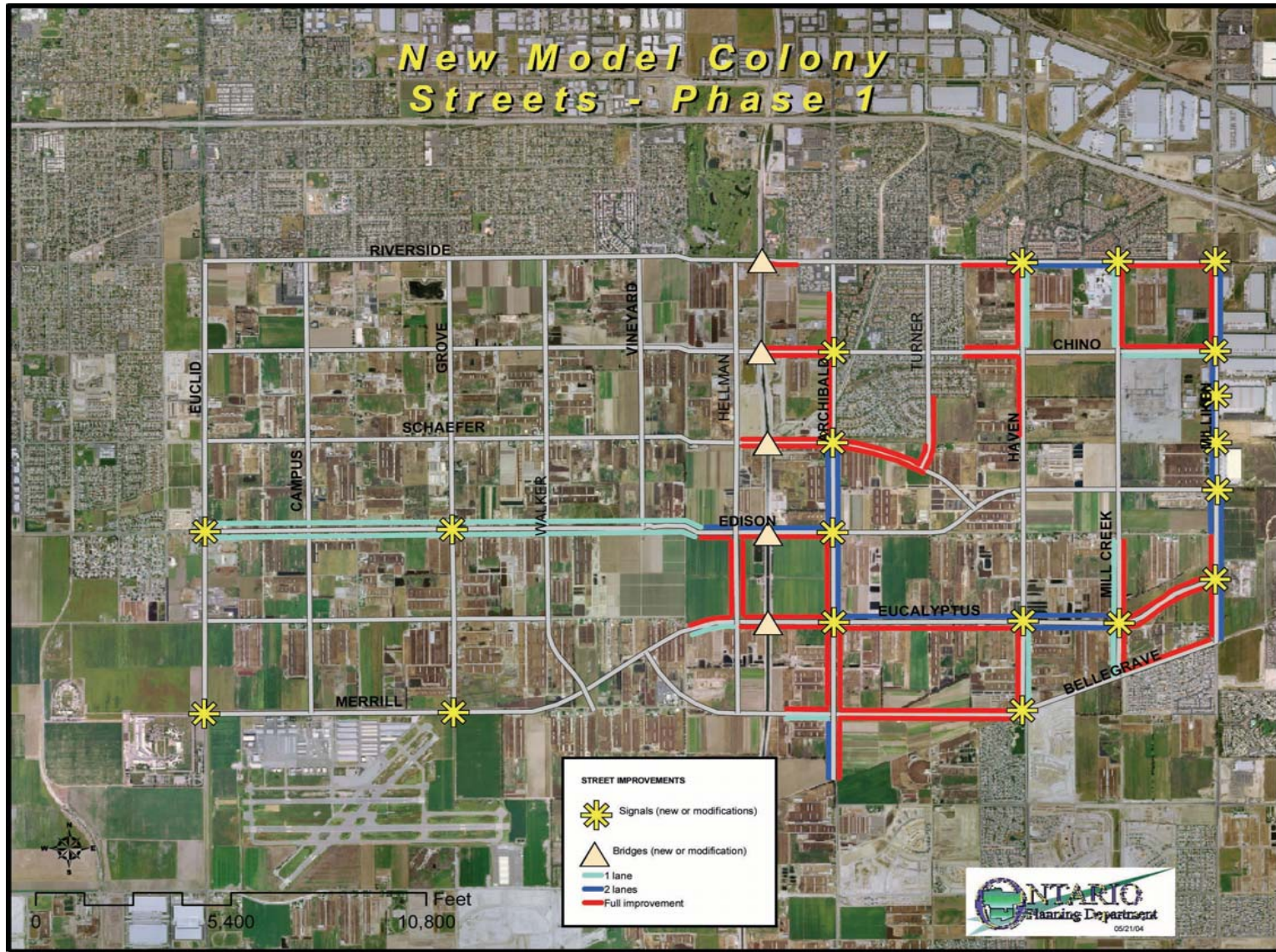
Roadway segments expected to be in place by Year 2015 were identified by city staff based on planned and programmed developments in the New Model Colony. The specific plans for developments in the Eastside of the New Model Colony provide information for particular roadway segments bordering each respective project site. The Rich-Haven Specific Plan identifies street improvements adjacent to the proposed project site; Chino Avenue (eastbound and westbound), Milliken Avenue (northbound and southbound), Mill Creek Avenue (northbound and southbound), Haven Avenue (northbound and southbound) and Edison Avenue (eastbound and westbound) are expected to be in place by Year 2015. **Figure 10**, New Model Colony Streets – Phase I, identifies other improvements in the New Model Colony including signal modifications/installations, bridge modification/installations, and roadway arterial improvements (one additional lane, two additional lanes and/or fully improved arterials).

In addition to the improvements illustrated in **Figure 10**, city staff identified other proposed roadway segments which are considered essential circulation system components for the New Model Colony for 2015. These proposed roadway segments, which are identified in the Rich-Haven Specific Plan area, are as follows:

- Mill Creek Avenue between Chino Avenue and Edison Avenue
- Edison Avenue between Haven Avenue and Milliken Avenue/Hamner Avenue
- Chino Avenue between Haven Avenue and Mill Creek Avenue

MMA first performed a Year 2015 traffic assignment with only the improvements illustrated in **Figure 10**. An inspection of the traffic forecasts from this model run resulted in a need for extensive intersection mitigation measures at key intersection in the study area. A subsequent modeling effort which included the roadway segments listed above resulted in identification of mitigation measures within the buildout assumptions described in the *City of Ontario Sphere of Influence General Plan Amendment (January 7, 1998)*. Each proposed roadway segment illustrated in **Figure 11** is included in Year 2015 conditions and a “fair-share” cost analysis for each segment is discussed in **Section 6.5.2** of this report.

Intersection lane designation assumptions in the New Model Colony are based on the information provided in the *Ontario New Model Colony Transportation Program Implementation Plan (by MMA, February 2001)*. Information in this report include conceptual roadway alignments, width of public right-of-way, the number and width of lanes, parkway and median widths, location of

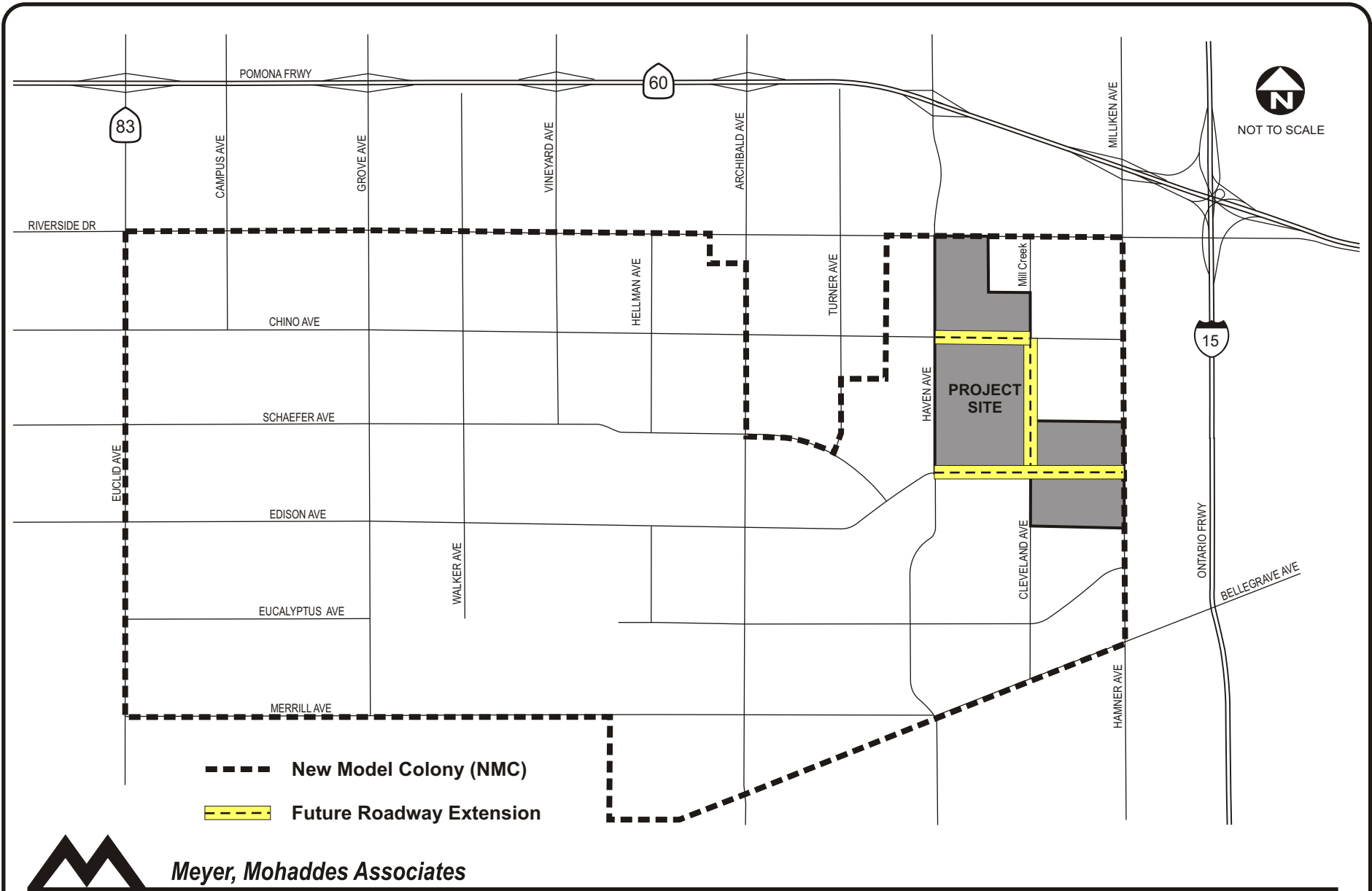


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FIGURE 10
New Model Colony Streets - Phase 1



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**FIGURE 11
Future Base with Roadway Improvements**

bikeways and conceptual tree planning scheme. The figures in **Appendix C** were used to designate intersection lane configurations in the New Model Colony for Year 2015 as illustrated in **Figure 12**.

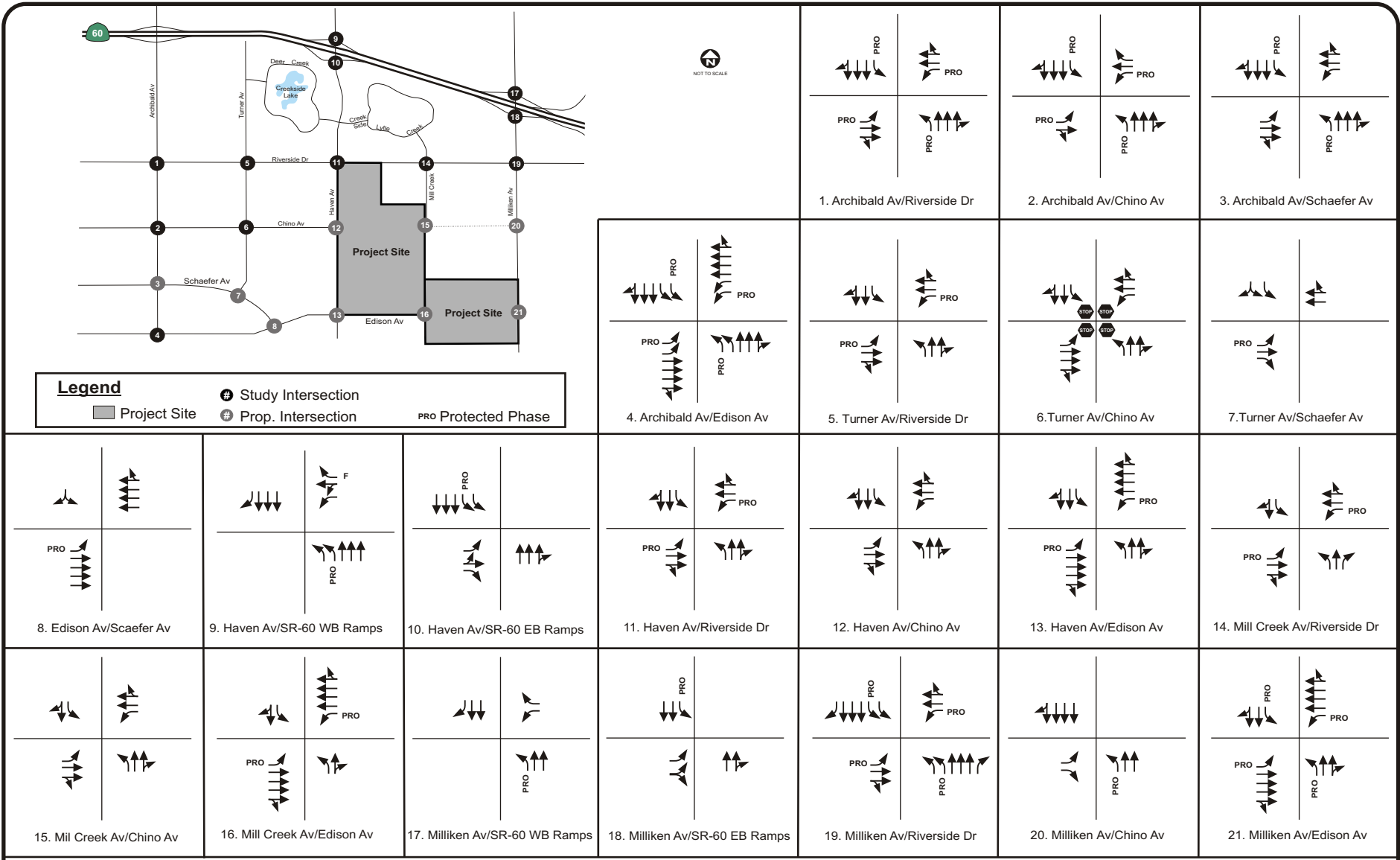
4.2 2015 Future Base Traffic Operations Analysis

Figure 13 illustrates the AM and PM peak hour traffic volumes for *2015 Future Base “Without Project” Conditions* at the study intersections. Based on the peak hour volumes shown in **Figure 13**, level of service analysis was then performed for both AM and PM peak hours as summarized in **Table 4**. Detailed HCM worksheets are included in **Appendix D**.

During the AM peak hour, **Table 4** shows that all 21 analyzed intersections are expected to operate acceptably (LOS D or better). For the PM peak hour conditions, **Table 4** shows that the following intersections are projected to operate at unacceptable levels (LOS E or F or V/C>1.0):

- Archibald Avenue at Edison Avenue (LOS F)
- Milliken Avenue at SR-60 Westbound Ramps (LOS E)
- Milliken Avenue at SR-60 Eastbound Ramps (LOS F)
- Milliken Avenue at Riverside Drive (LOS F)
- Milliken Avenue/Hamner Avenue at Edison Avenue (LOS D with V/C ratio 1.034)

The remaining sixteen intersections are expected to operate acceptably during the PM peak hour.

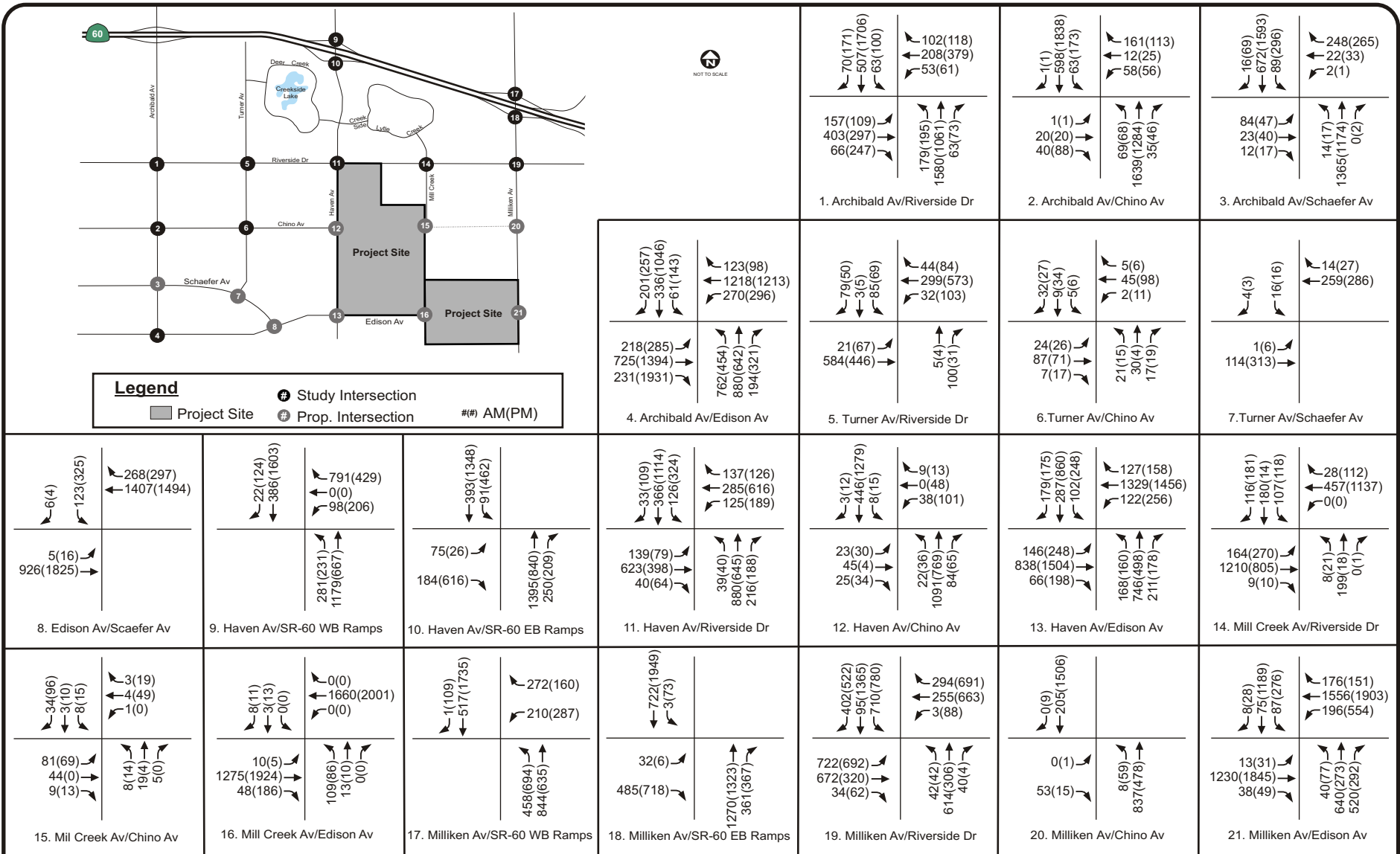


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FIGURE 12
2015 Base Lane Configuration



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FIGURE 13
2015 Future Base Peak Hour Traffic Volumes

TABLE 4: 2015 FUTURE WITHOUT PROJECT CONDITIONS

Intersection	Year 2015 - Without Project Conditions					
	AM Peak Hour			PM Peak Hour		
	LOS	Delay (Sec.)	V/C	LOS	Delay (Sec.)	V/C
1. Archibald Avenue at Riverside Drive	C	22.9	0.566	C	25.3	0.724
2. Archibald Avenue at Chino Avenue	B	11.4	0.485	B	12.1	0.516
3. Archibald Avenue at Schaefer Avenue	B	15.4	0.500	B	18.0	0.599
4. Archibald Avenue at Edison Avenue	C	29.0	0.656	F	214.5	1.805
5. Turner Avenue at Riverside Drive	B	13.7	0.270	B	14.8	0.294
6. Turner Avenue at Chino Avenue [a]	A	7.9	0.069	A	8.0	0.079
7. Turner Avenue at Schaefer Avenue	A	2.6	0.088	A	2.1	0.103
8. Edison Avenue at Schaefer Avenue	A	3.0	0.303	A	7.1	0.382
9. Haven Avenue at SR-60 WB Ramps	B	10.0	0.269	B	10.4	0.464
10. Haven Avenue at SR-60 EB Ramps	B	10.8	0.491	C	28.0	0.772
11. Haven Avenue at Riverside Drive	C	23.2	0.711	C	31.6	0.952
12. Haven Avenue at Chino Avenue	A	4.0	0.386	A	5.8	0.462
13. Haven Avenue at Edison Avenue	C	24.5	0.655	D	41.5	0.975
14. Mill Creek Avenue at Riverside Drive	B	17.1	0.530	B	17.3	0.661
15. Mill Creek Avenue at Chino Avenue	B	12.0	0.086	B	13.3	0.127
16. Mill Creek Avenue at Edison Avenue	A	5.5	0.329	A	3.4	0.397
17. Milliken Avenue at SR-60 WB Ramps	C	20.7	0.610	E	73.3	1.110
18. Milliken Avenue at SR-60 EB Ramps	B	19.4	0.818	F	161.4	1.038
19. Milliken Avenue at Riverside Drive	D	50.8	0.987	F	101.7	1.216
20. Milliken Avenue/Hamner Avenue at Chino Avenue	B	10.5	0.279	A	2.9	0.277
21. Milliken Avenue/Hamner Avenue at Edison Avenue	C	28.4	0.731	D	51.1	1.034

Note: LOS = Level of Service, Delay = Average Vehicle Delay (Seconds), V/C = Volume-to-Capacity Ratio
 HCM 2000 Operations Methodology ; **BOLD** indicates unacceptable operating conditions.

5.0 PROJECT TRAFFIC

5.1 Introduction

This chapter describes the traffic generation and trip distribution associated with the proposed Rich-Haven Project. The project trip generation is presented first, followed by a discussion of the distribution of project generated trips in relation to the project site.

5.2 Trip Generation

The trip generation component of the *Updated Year 2015 Ontario NMC Traffic Model (September 2005)* was used to generate the project-specific trips for the Rich-Haven Project. The city traffic model uses the Institute of Transportation Engineers (ITE) Trip Generation Manual, 5th Edition, rates during the assignment process to calculate project trips. The “Year 2015 Land Use Data” includes specific land use data for City of Ontario Traffic Analysis Zones (TAZs) 760, 771, 782, 783, and 794 also known as the New Model Colony Planning Subareas 6, 12, and 19 (Rich-Haven Specific Plan area). The land use data for these TAZs were updated based on the Specific Plan Land Use Scenario. **Table 5** summarizes the land uses and the Daily, AM and PM peak hour trip generation for the Specific Plan scenario. After the TAZs were updated with the Specific Plan land use data, the resulting model trip generation estimates were further refined to reflect the anticipated trips from the Specific Plan scenario shown in **Table 5**.

It should be noted that **Table 5** is consistent with the “Specific Plan Scenario” described in the *Rich-Haven Specific Plan* (RBF Consulting, November 2005). Land use data, trip generation rates and trip generation estimates for the Specific Plan Scenario can be found in the Specific Plan document (Tables 3-1, 8-1, and 8-3).

5.3 Trip Distribution

Trip distribution assumptions were derived from the results of the *Updated Year 2015 Ontario NMC Traffic Model (September 2005)* using “select zone” model runs for the proposed project (TAZ 761). Select zone model runs (AM and PM) report the specific trip distribution for a designated traffic analysis zone. The directional percent distribution at each intersection and/or roadway for project traffic in the AM and PM peak hour is illustrated in **Figure 14**; the project trip distribution is illustrated in **Figure 15**.

TABLE 5: PROJECT TRIP GENERATION

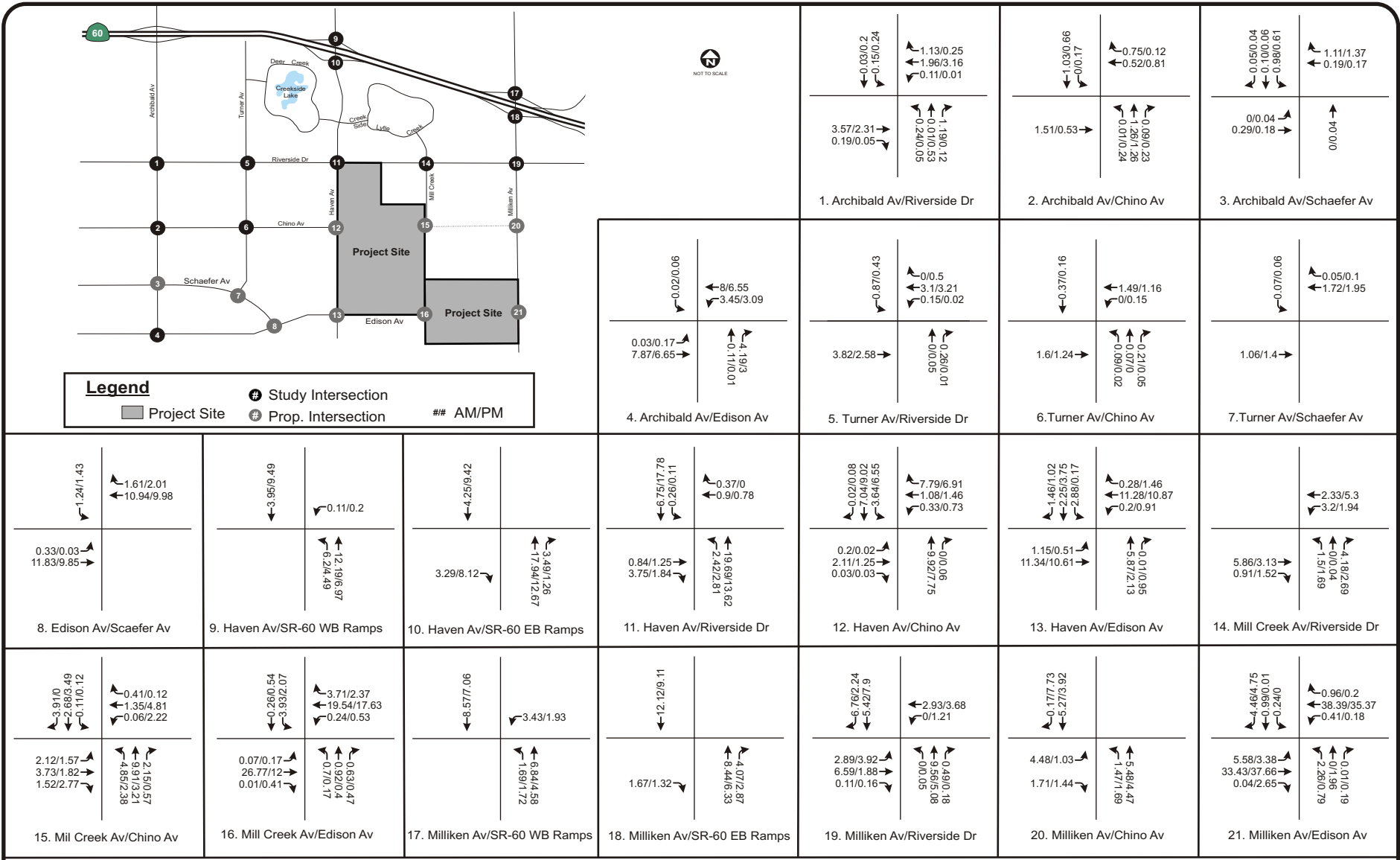
Land Use	Size	Daily Trips	AM Peak Hour			PM Peak Hour		
			In	Out	Total	In	Out	Total
Sub Area 6 (Planning Areas 1-6)								
Single-Family Residential	507 dus	4,852	95	285	380	328	184	512
County Park	13.3 ac	<u>30</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>1</u>
Subtotal		4,882	95	285	380	328	185	513
Sub Area 12 (Planning Areas 7-19)								
Single-Family Residential	621 dus	5,943	116	349	466	401	226	627
Condominiums [a]	1,353 dus	7,929	101	494	595	689	339	1,028
County Park	37.1 ac	<u>85</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>1</u>	<u>1</u>	<u>2</u>
Subtotal		13,956	218	844	1,061	1,091	566	1,658
Sub Area 19 (Planning Area 20)								
Condominiums	725 dus	4,249	54	265	319	369	182	551
Internal Capture		<u>-1,033</u>	<u>-7</u>	<u>-8</u>	<u>-15</u>	<u>-53</u>	<u>-36</u>	<u>-89</u>
Residential Total		3,216	47	257	304	316	146	462
Regional Commercial	247,400 sf	7,009	103	66	168	293	318	611
Neighborhood Commercial	<u>143,400</u> sf	<u>3,270</u>	<u>51</u>	<u>32</u>	<u>83</u>	<u>105</u>	<u>113</u>	<u>218</u>
Retail Subtotal	390,800 sf	10,2784	153	98	251	398	431	829
Internal Capture		<u>-1,130</u>	<u>-9</u>	<u>-10</u>	<u>-19</u>	<u>-44</u>	<u>-56</u>	<u>-100</u>
Retail Total		9,148	144	88	232	354	375	729
Town Center Office	50,000 sf	551	69	9	78	13	62	75
Internal Capture		<u>-107</u>	<u>-3</u>	<u>-2</u>	<u>-5</u>	<u>-4</u>	<u>-9</u>	<u>-13</u>
Office Total		444	66	7	73	9	53	62
Subtotal		12,807	257	352	609	679	574	1,253
Sub Area 19 (Planning Area 21A)								
Watt								
Single-Family Residential	202 dus	1,933	38	114	152	131	73	204
Multi-Family Residential	<u>650</u> dus	<u>4,056</u>	<u>62</u>	<u>247</u>	<u>309</u>	<u>245</u>	<u>132</u>	<u>377</u>
Residential Subtotal	852 dus	5,989	100	361	460	376	205	581
Internal Capture		<u>-606</u>	<u>-4</u>	<u>-5</u>	<u>-9</u>	<u>-29</u>	<u>-18</u>	<u>-47</u>
Residential Total		5,383	96	356	451	347	187	534
Regional Commercial	50,000 Sf	1,417	21	13	34	59	64	124
Neighborhood Commercial	<u>200,000</u> sf	<u>4,560</u>	<u>71</u>	<u>45</u>	<u>116</u>	<u>146</u>	<u>158</u>	<u>304</u>
Retail Subtotal	250,000 sf	5,977	92	59	150	205	222	428
Internal Capture		<u>-751</u>	<u>-6</u>	<u>-6</u>	<u>-12</u>	<u>-23</u>	<u>-33</u>	<u>-56</u>
Retail Total		5,226	86	53	138	182	189	372
Town Center Office	75,000 sf	826	103	14	117	19	93	112
Internal Capture		<u>-161</u>	<u>-2</u>	<u>-2</u>	<u>-4</u>	<u>-6</u>	<u>-6</u>	<u>-12</u>
Office Total		665	101	12	113	13	87	100
Watt Subtotal		11,273	282	420	702	542	463	1,005

TABLE 5 (CONTINUED): PROJECT TRIP GENERATION

Land Use	Size	Daily Trips	AM Peak Hour			PM Peak Hour		
			In	Out	Total	In	Out	Total
Pietersma (Planning Area 21B)								
Multi-Family Residential	200 dus	1,248	19	76	95	75	41	116
Internal Capture		<u>-320</u>	<u>-2</u>	<u>-2</u>	<u>-4</u>	<u>-18</u>	<u>-12</u>	<u>-30</u>
Residential Total		928	17	74	91	57	29	86
Regional Commercial	112,600 sf	3,190	47	30	77	133	145	278
Internal Capture		<u>-341</u>	<u>-3</u>	<u>-3</u>	<u>-6</u>	<u>-15</u>	<u>-18</u>	<u>-33</u>
Retail Total		2,849	44	27	71	118	127	245
Town Center Office	10,800 sf	119	15	2	17	3	13	16
Internal Capture		<u>-23</u>	<u>-1</u>	<u>0</u>	<u>-1</u>	<u>-1</u>	<u>-3</u>	<u>-4</u>
Office Total		96	14	2	16	2	10	12
Pietersma Subtotal		3,873	75	103	177	178	166	343
Total for Sub Area 19		27,954	614	875	1,489	1,398	1,203	2,601
Total Trips		46,792	927	2,004	2,931	2,818	1,954	4,772

Note:

[a] Trips based on ITE condominium/townhouse rates.

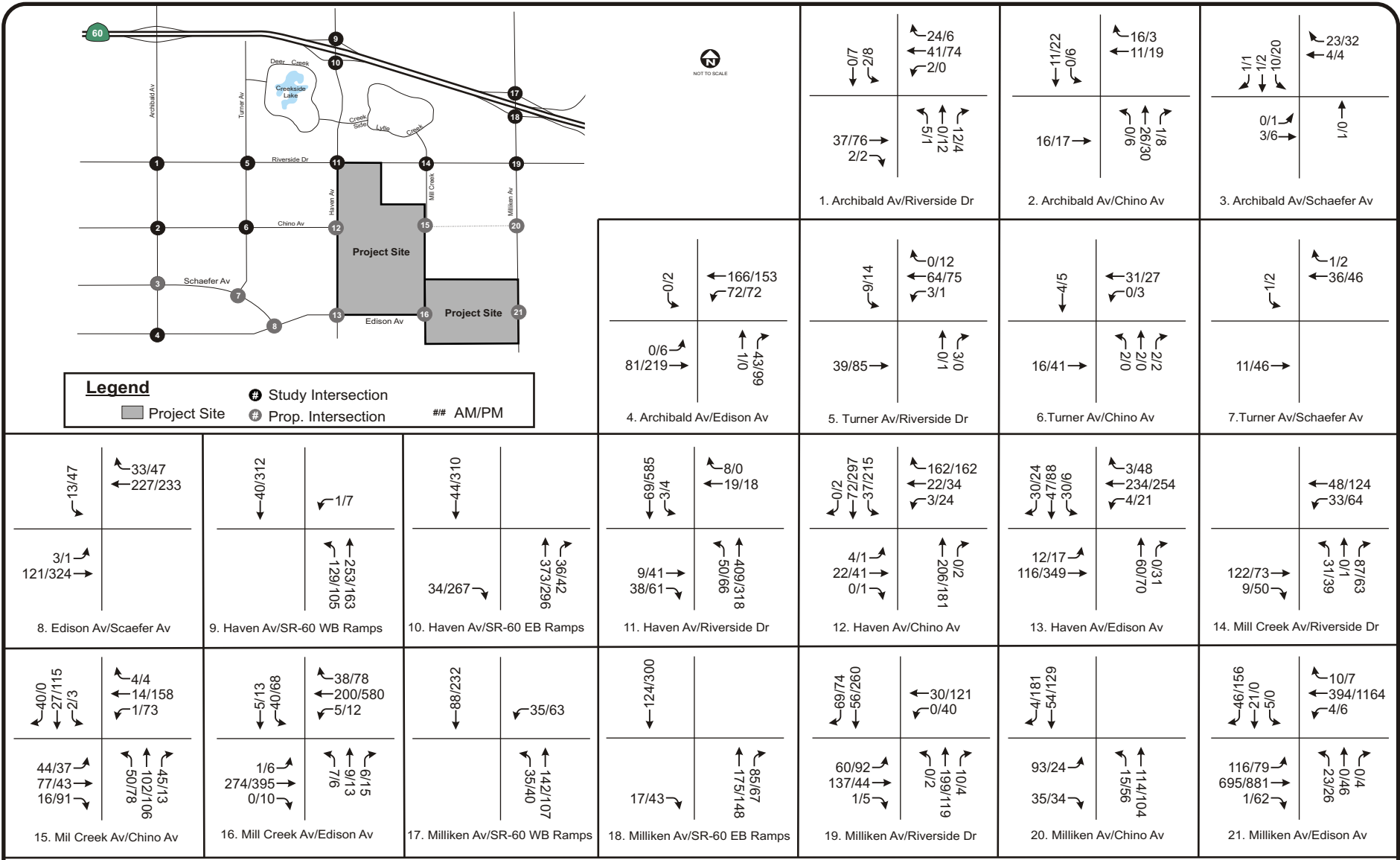


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FIGURE 14
Project Only Trip Distribution



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**FIGURE 15
Project Only Peak Hour Traffic Volumes**

6.0 TRAFFIC IMPACT ANALYSIS

6.1 Introduction

This chapter describes the results of traffic analysis conducted for one future horizon year and identifies the potential impacts of the project-generated traffic on the surrounding roadway system. An analysis of traffic conditions for Year 2015 is presented first, followed by a discussion of the long-term mitigation measures required for intersections to comply with CMP and City of Ontario level of service standards.

6.2 2015 Future With Project Traffic Operations Analysis

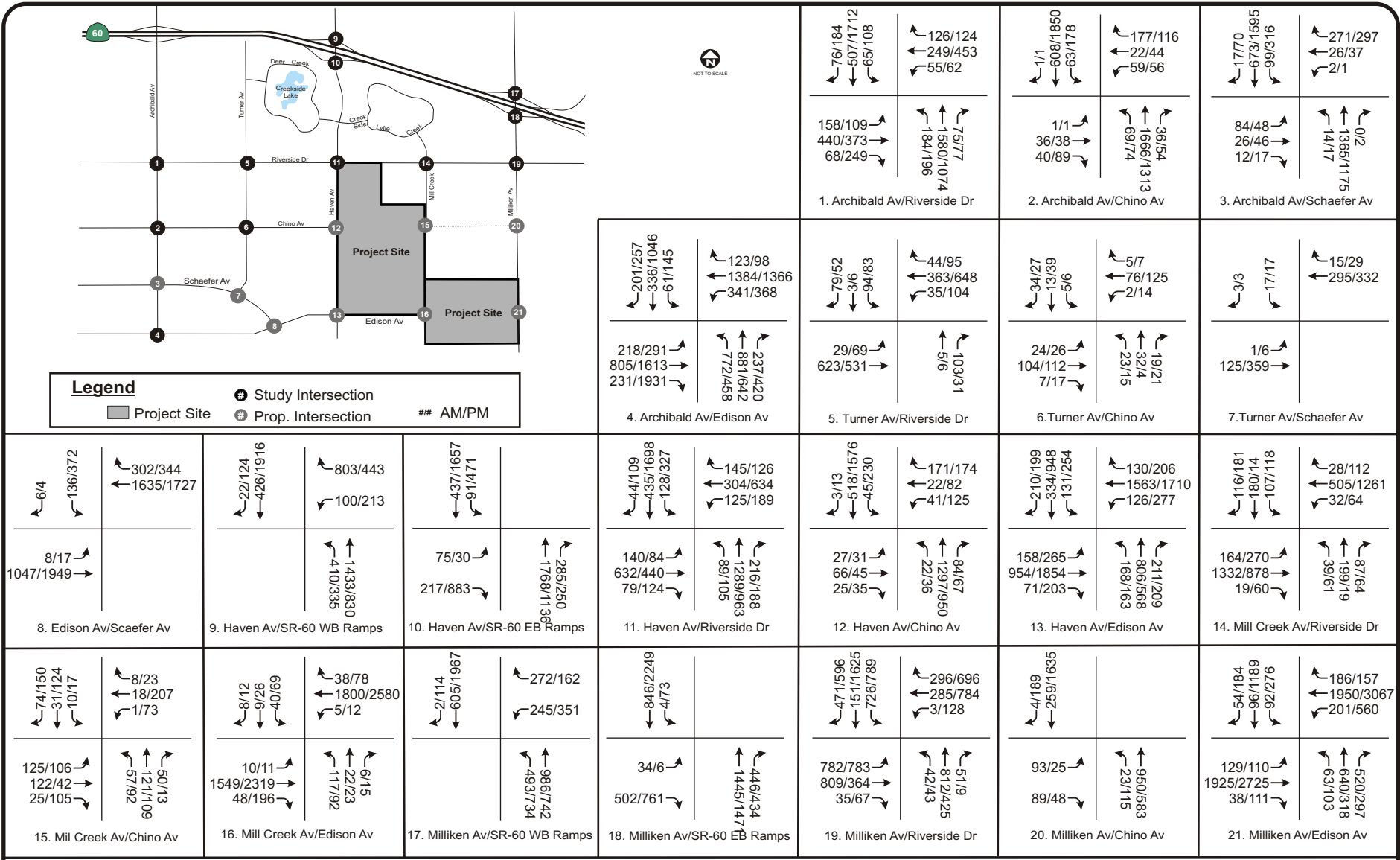
Figure 16 illustrates the resulting *2015 Future With Project* AM and PM peak hour intersection turning volumes. These intersection volumes were analyzed for future level of service and impacts at study intersections for project conditions. Results of the analysis are summarized in **Table 6** for both the AM and PM peak hour. Detailed HCM worksheets are included in **Appendix E**.

The results of the 2015 with project analysis for the AM peak hour indicate that two intersection is expected to operate at unacceptable condition (LOS E) and/or V/C ratio greater than 1.000. The intersection of Haven Avenue and Riverside Drive is expected to have a V/C ratio or 1.008 and would require improvement measures. In addition, the intersection of Milliken Avenue and Riverside Drive is projected to operate unacceptably with a delay of 66.9 seconds and a volume to capacity ratio of 1.070 and would require improvement measures. The remaining 18 analyzed intersections are expected to operate acceptably during the AM peak hour.

Similarly the results of the 2015 “with project” analysis for the PM peak hour indicate that eight of the analyzed intersections are expected to operate at LOS E or F or have a V/C ratio greater than 1.000. These intersections are:

- Archibald Avenue at Edison Avenue (LOS F)
- Haven Avenue at SR-60 Eastbound Ramps (V/C = 1.018)
- Haven Avenue at Riverside Drive (LOS E)
- Haven Avenue at Edison Avenue (LOS F)
- Milliken Avenue at SR-60 Westbound Ramps (LOS F)
- Milliken Avenue at SR-60 Eastbound Ramps (LOS F)
- Milliken Avenue at Riverside Drive (LOS F)
- Milliken Avenue/Hammer Avenue at Edison Avenue (LOS F)

The above study intersections are projected to be out of compliance with CMP guidelines and City of Ontario LOS standards (LOS D or better with V/C<1.0) and would require improvement measures. The remaining 13 analyzed intersections are expected to operate acceptably during the PM peak hour.



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TABLE 6: 2015 FUTURE WITH PROJECT CONDITIONS

Intersection	Year 2015 - With Project Conditions					
	AM Peak Hour			PM Peak Hour		
	LOS	Delay (Sec.)	V/C	LOS	Delay (Sec.)	V/C
1. Archibald Avenue at Riverside Drive	C	23.9	0.591	C	26.7	0.752
2. Archibald Avenue at Chino Avenue	B	12.0	0.501	B	13.0	0.534
3. Archibald Avenue at Schaefer Avenue	B	16.5	0.521	B	19.2	0.633
4. Archibald Avenue at Edison Avenue	C	29.7	0.684	F	216.9	1.822
5. Turner Avenue at Riverside Drive	B	14.1	0.292	B	14.5	0.332
6. Turner Avenue at Chino Avenue [a]	A	8.1	0.084	A	8.3	0.103
7. Turner Avenue at Schaefer Avenue	A	2.3	0.099	A	1.9	0.117
8. Edison Avenue at Schaefer Avenue	A	2.9	0.347	A	7.4	0.440
9. Haven Avenue at SR-60 WB Ramps	A	9.4	0.322	B	11.3	0.563
10. Haven Avenue at SR-60 EB Ramps	B	11.0	0.597	D	50.4	1.018
11. Haven Avenue at Riverside Drive	C	34.4	1.008	E	72.4	1.267
12. Haven Avenue at Chino Avenue	A	8.4	0.521	A	8.8	0.677
13. Haven Avenue at Edison Avenue	C	27.0	0.809	F	80.4	1.164
14. Mill Creek Avenue at Riverside Drive	B	18.4	0.589	B	19.5	0.697
15. Mill Creek Avenue at Chino Avenue	B	14.3	0.164	B	14.5	0.282
16. Mill Creek Avenue at Edison Avenue	A	5.7	0.374	A	4.0	0.489
17. Milliken Avenue at SR-60 WB Ramps	C	21.1	0.657	F	113.4	1.241
18. Milliken Avenue at SR-60 EB Ramps	C	23.2	0.910	F	204.4	1.153
19. Milliken Avenue at Riverside Drive	E	66.9	1.070	F	147.0	1.349
20. Milliken Avenue/Hamner Avenue at Chino Avenue	B	14.0	0.335	A	6.5	0.384
21. Milliken Avenue/Hamner Avenue at Edison Avenue	C	33.1	0.843	F	99.0	1.251

Note: LOS = Level of Service, Delay = Average Vehicle Delay (Seconds), V/C = Volume-to-Capacity Ratio HCM 2000 Operations Methodology ; **BOLD** indicates unacceptable operating conditions.

6.3 Project Site Primary Access and Locations

Figure 3 illustrates the project site access locations for the proposed Rich-Haven development. Project access points A1-7, B1-4, C1-2, and D-1 represent the primary access intersections that serve traffic volumes entering and exiting the project site for the residential component of the project. Similarly intersections D1-2 and E1-3 represent the primary access intersections that serve traffic volumes entering and exiting the project site for the mixed-use component of the project. MMA performed site specific project trip generation and distribution analyses based on the most current land use designations for the planned specific neighborhoods and areas that comprise the Rich-Haven development. Future level of service analysis and traffic signal warrants analyses were conducted at each primary access intersection. Each intersection was analyzed as a stop-controlled intersection at the minor street approach only. A signal warrants analysis identified the need for traffic signalization at Primary Access Intersection D2 and E1 along Edison Avenue. Both of these access points serve the planned mixed-use district. Detailed HCM worksheets and signal warrants analyses are included in **Appendix F**.

6.4 Recommended Mitigation Measures for 2015

The following mitigation measures are proposed to bring projected deficient intersections to acceptable operating conditions, (LOS D or better and V/C of less than 1.0) per City of Ontario standards. The mitigated level of service forecasts for the AM and PM peak hours are shown in **Table 7**.

The following mitigation measures are within the guidelines of the *City of Ontario Sphere of Influence General Plan Amendment (January 7, 1998)*. An analysis of the traffic forecasts from the city's buildout model, the *Updated Buildout Ontario NMC Traffic Model (September 2005)*, identifies that the Year 2015 mitigation measures presented in this section would satisfy the operating conditions of the intersections for buildout conditions. This is due to the subsequent redistribution of traffic expected beyond Year 2015.

Description of Study Intersection Mitigation Measures:

Intersection #4 Archibald Avenue/Edison Avenue

- provide EB free-flow-right-turn only lane

Intersection #10 Haven Avenue/SR-60 EB Ramps

- restripe EB center lane as shared left-turn/right-turn lane

Intersection #11 Haven Avenue/Riverside Drive

- provide NB and SB left turn protected phasing

Intersection #13 Haven Avenue/Edison Avenue

- provide NB and SB left turn protected phasing

Intersection #17 Milliken Avenue/SR-60 WB Ramps

- provide NB left-turn only lane
- provide WB shared left-turn/right-turn lane

Intersection #18 Milliken Avenue/SR-60 EB Ramps

- restripe EB shared left-turn/right-turn lane as free-flow-right-turn only lane

TABLE 7: 2015 FUTURE PROJECT CONDITIONS WITH MITIGATIONS

Intersection	2015 Future Project With Mitigations					
	AM Peak Hour			PM Peak Hour		
	LOS	Delay (Sec.)	V/C	LOS	Delay (Sec.)	V/C
1. Archibald Avenue at Riverside Drive	C	23.9	0.591	C	26.7	0.752
2. Archibald Avenue at Chino Avenue	B	12.0	0.501	B	13.0	0.534
3. Archibald Avenue at Schaefer Avenue	B	16.5	0.521	B	19.2	0.633
4. Archibald Avenue at Edison Avenue	C	29.4	0.684	C	32.7	0.787
5. Turner Avenue at Riverside Drive	B	14.1	0.292	B	14.5	0.332
6. Turner Avenue at Chino Avenue [a]	A	8.1	0.084	A	8.3	0.103
7. Turner Avenue at Schaefer Avenue	A	2.3	0.099	A	1.9	0.117
8. Edison Avenue at Schaefer Avenue	A	2.9	0.347	A	7.4	0.440
9. Haven Avenue at SR-60 WB Ramps	A	9.4	0.322	B	11.3	0.563
10. Haven Avenue at SR-60 EB Ramps	A	8.6	0.624	C	23.1	0.776
11. Haven Avenue at Riverside Drive	C	31.1	0.815	D	36.2	0.883
12. Haven Avenue at Chino Avenue	A	8.4	0.521	A	8.8	0.677
13. Haven Avenue at Edison Avenue	C	30.7	0.745	D	42.8	0.932
14. Mill Creek Avenue at Riverside Drive	B	18.4	0.589	B	19.5	0.697
15. Mill Creek Avenue at Chino Avenue	B	14.3	0.164	B	14.5	0.282
16. Mill Creek Avenue at Edison Avenue	A	5.7	0.374	A	4.0	0.489
17. Milliken Avenue at SR-60 WB Ramps	B	18.0	0.448	C	31.1	0.944
18. Milliken Avenue at SR-60 EB Ramps	A	1.3	0.595	A	1.9	0.659
19. Milliken Avenue at Riverside Drive	C	29.6	0.739	C	34.0	0.886
20. Milliken Avenue/Hamner Avenue at Chino Avenue	B	14.0	0.335	A	6.5	0.384
21. Milliken Avenue/Hamner Avenue at Edison Avenue	C	30.8	0.828	D	41.4	0.980

Note: LOS = Level of Service, Delay = Average Vehicle Delay (Seconds), V/C = Volume-to-Capacity Ratio
 HCM 2000 Operations Methodology
BOLD indicates mitigated operating conditions.

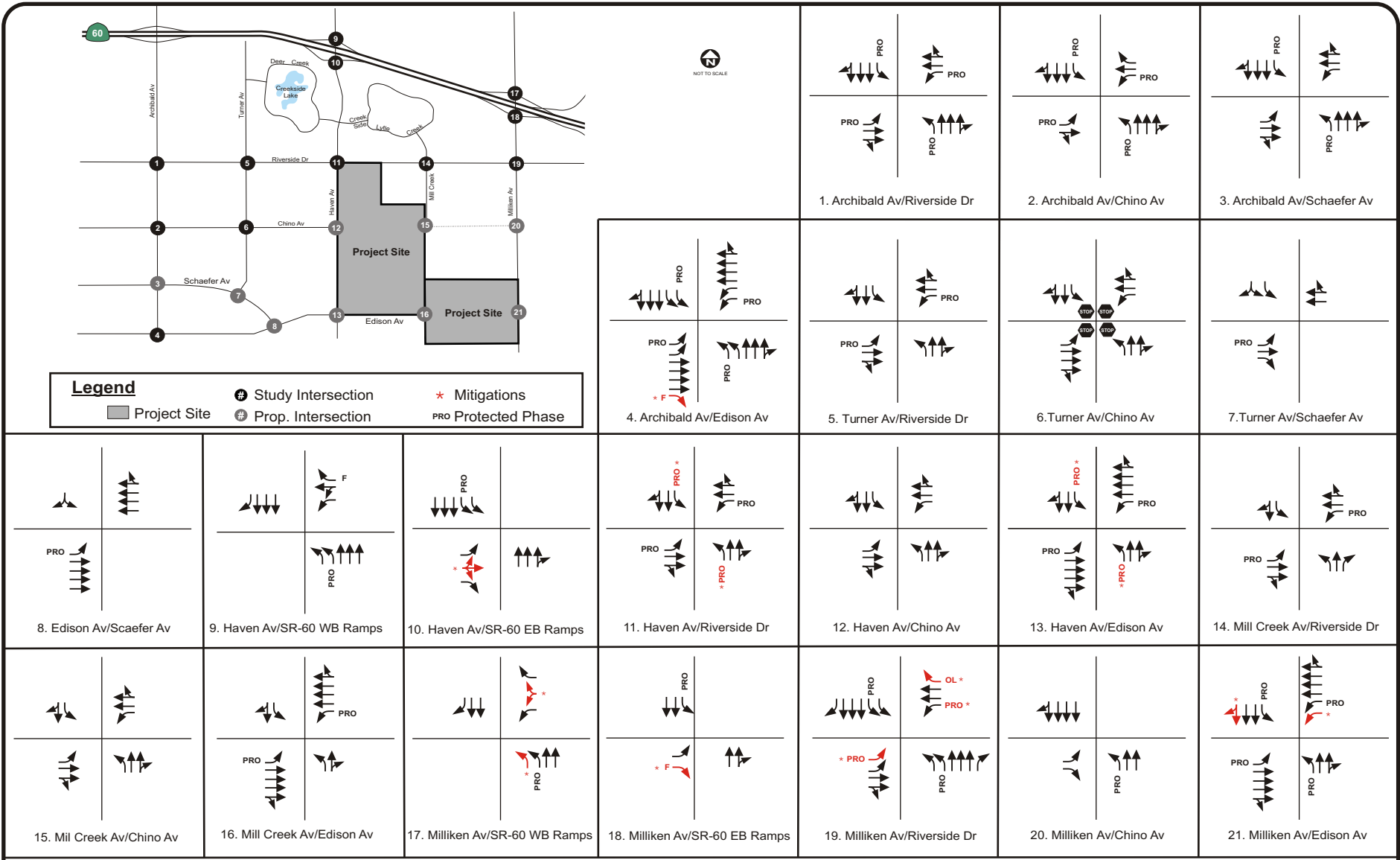
Intersection #19 Milliken Avenue/Riverside Drive

- provide EB and WB left turn protected phasing
- provide WB right-turn only lane with overlap phasing
- provide EB left-turn only lane

Intersection #21 Milliken Avenue/Edison Avenue

- provide SB shared through/right-turn lane
- provide WB left-turn only lane

The above proposed intersection improvement measures are graphically illustrated in **Figure 17** at the end of this section. Detailed HCM worksheets are included in **Appendix G**.



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FIGURE 17
2015 Future With Mitigation Lane Configuration

6.5 Contribution of Project Trips to Future Traffic Volume

It must be noted that in the formulation of potential mitigation measures, there are cases where the most appropriate intersection capacity improvement cannot feasibly be accomplished due to right-of-way constraints. Therefore, at some intersections, no feasible mitigation can be accomplished while at other locations, a secondary improvement (other than the improvement for the primary critical movements) is the only measure that is feasible and is therefore recommended.

It must also be noted that some of the proposed mitigations are presented to bring intersections to acceptable operating conditions, besides being technically infeasible due to right-of-way constraints, are also restricted by the physical capacity of the existing roadway system. Therefore a case-by-case approach to finalize the design and costs estimates for each proposed intersection mitigation is necessary and should be supported by detailed engineering plans and compatibility to the City of Ontario Street Master Plan before the exaction of fees to implement these preliminary measures are finalized.

6.5.1 Study Intersection Fair-Share Cost Analysis

Tables 8 and 9 presents the share of project-generated trips at each study intersection at Year 2015 for AM and PM peak hours, respectively. The percentage figures represent the share of project trips as a percent of total additional trips by Year 2015. Additional trips at each intersection were calculated by subtracting Year 2005 traffic volumes from total Year 2015 traffic volumes, which include the project trips. These total added trips are collectively responsible for degradation of intersection operating conditions and the need for the recommended improvement measures at deficient intersections. However, the proposed project will be responsible for only a portion of the cost of mitigation measures at these deficient intersections as indicated by the corresponding percent contribution.

Table 10 provides an order of magnitude estimate of costs for the recommended mitigation measures to improve each deficient location. The preliminary estimate includes only the costs for the actual proposed physical improvements (excluding any possible right of way acquisition costs) or assumes these improvements could be made within existing right-of-way. The estimated total improvement cost of each location is then multiplied by the percent contribution of project trips to the total added traffic to arrive at the corresponding projects share of mitigation costs. The estimated preliminary total cost for intersection improvement measures at the eight future deficient intersections for the AM/PM peak hours (worst case) is \$793,420 and the share of this total cost allocated to the project is \$202,099 or 25.47 percent.

TABLE 8: PERCENT PROJECT TRIPS - AM PEAK HOUR

Intersection	AM Peak Hour				
	Project Trips	2015 Total Volume	2005 Existing Volume	Change in Volume 2015-2005	Percent Project Trips
1. Archibald Avenue at Riverside Drive	133	3,582	2,433	1,149	11.57%
2. Archibald Avenue at Chino Avenue	83	2,777	1,532	1,245	6.67%
3. Archibald Avenue at Schaefer Avenue	42	2,588	0	2,588	1.62%
4. Archibald Avenue at Edison Avenue	378	5,591	1,535	4,056	9.32%
5. Turner Avenue at Riverside Drive	128	1,379	3,225	-1,846	0.00%
6. Turner Avenue at Chino Avenue [a]	62	344	495	-151	0.00%
7. Turner Avenue at Schaefer Avenue	49	456	0	456	10.75%
8. Edison Avenue at Schaefer Avenue	399	3,133	0	3,133	12.73%
9. Haven Avenue at SR-60 WB Ramps	437	3,193	4,134	-941	0.00%
10. Haven Avenue at SR-60 EB Ramps	487	2,874	3,657	-784	0.00%
11. Haven Avenue at Riverside Drive	618	3,626	836	2,790	22.15%
12. Haven Avenue at Chino Avenue	532	2,324	0	2,324	22.90%
13. Haven Avenue at Edison Avenue	543	4,861	0	4,861	11.17%
14. Mill Creek Avenue at Riverside Drive	332	2,808	1,174	1,634	20.32%
15. Mill Creek Avenue at Chino Avenue	423	641	0	641	65.95%
16. Mill Creek Avenue at Edison Avenue	590	3,653	0	3,653	16.15%
17. Milliken Avenue at SR-60 WB Ramps	304	2,603	1,834	769	39.52%
18. Milliken Avenue at SR-60 EB Ramps	406	3,277	1,723	1,554	26.12%
19. Milliken Avenue at Riverside Drive	581	4,463	1,968	2,495	23.29%
20. Milliken Avenue/Hamner Avenue at Chino Avenue	316	1,417	0	1,417	22.29%
21. Milliken Avenue/Hamner Avenue at Edison Avenue	1,316	5,893	0	5,893	22.33%

TABLE 9: PERCENT PROJECT TRIPS - PM PEAK HOUR

Intersection	PM Peak Hour				
	Project Trips	2015 Total Volume	2005 Existing Volume	Change in Volume 2015-2005	Percent Project Trips
1. Archibald Avenue at Riverside Drive	206	4,721	2,933	1,788	11.52%
2. Archibald Avenue at Chino Avenue	112	3,814	1,652	2,162	5.18%
3. Archibald Avenue at Schaefer Avenue	67	3,621	0	3,621	1.85%
4. Archibald Avenue at Edison Avenue	556	8,635	1,896	6,739	8.25%
5. Turner Avenue at Riverside Drive	194	1,625	1,651	-26	0.00%
6. Turner Avenue at Chino Avenue [a]	82	413	376	37	NA
7. Turner Avenue at Schaefer Avenue	97	747	0	747	12.98%
8. Edison Avenue at Schaefer Avenue	655	4,415	0	4,415	14.84%
9. Haven Avenue at SR-60 WB Ramps	601	3,861	4,412	-551	0.00%
10. Haven Avenue at SR-60 EB Ramps	928	4,427	4,040	387	NA
11. Haven Avenue at Riverside Drive	1,098	4,988	1,840	3,148	34.88%
12. Haven Avenue at Chino Avenue	962	3,365	0	3,365	28.59%
13. Haven Avenue at Edison Avenue	918	6,854	0	6,854	13.39%
14. Mill Creek Avenue at Riverside Drive	416	3,102	1,020	2,082	19.98%
15. Mill Creek Avenue at Chino Avenue	777	1,063	0	1,063	73.06%
16. Mill Creek Avenue at Edison Avenue	1,198	5,433	0	5,433	22.05%
17. Milliken Avenue at SR-60 WB Ramps	452	4,071	1,863	2,208	20.47%
18. Milliken Avenue at SR-60 EB Ramps	561	4,993	1,737	3,256	17.23%
19. Milliken Avenue at Riverside Drive	775	6,309	2,150	4,159	18.63%
20. Milliken Avenue/Hamner Avenue at Chino Avenue	529	2,595	0	2,595	20.39%
21. Milliken Avenue/Hamner Avenue at Edison Avenue	2,433	9,097	0	9,097	26.74%

**TABLE 10
INTERSECTION LANE NEEDS AND MITIGATION COSTS**

Intersection	Additional Lane Needs															Signal Phasing	Intersection Signalization	Restripe Lanes Only	Free Right Turn	Improvement Costs					Worst Peak Hour	Project Contribution	Project Share \$	
	NORTHBOUND			EASTBOUND			SOUTHBOUND			WESTBOUND			INTERSECTION TOT							Lump Sum	Left-Turn Lanes	Through Lanes	Right-Turn Lanes	Total				
	L	T	R	L	T	R	L	T	R	L	T	R	L	T	R													
4. Archibald Avenue at Edison Avenue														0	0	0				**	\$106,800				\$106,800	AM	9.32%	\$9,954
10. Haven Avenue and SR 60 EB Ramps														0	0	0			*		\$500				\$500	PM	239.92%	\$1,200
11. Haven Avenue at Riverside Drive														0	0	0	*				\$25,000				\$25,000	PM	34.88%	\$8,721
13. Haven Avenue at Edison Avenue														0	0	0	*				\$25,000				\$25,000	PM	13.39%	\$3,348
17. Milliken Avenue at SR 60 Freeway westbound ramps	1												1	1	0	1				*		\$53,400		\$53,400	\$106,800	AM	39.52%	\$42,204
18. Milliken Avenue at SR 60 Freeway eastbound ramps														0	0	0			*	*	\$53,900				\$53,900	AM	26.12%	\$14,081
19. Milliken Avenue at Riverside Drive				1									1	1	0	1	*				\$25,000	\$53,400		\$53,400	\$131,800	AM	23.29%	\$30,693
21. Milliken Avenue/Hamner Avenue at Edison Avenue (proposed new alignment)								1	0	1				1	1	0			*		\$500	\$53,400	\$289,720		\$343,620	PM	26.74%	\$91,899
Preliminary Estimated Costs																					\$236,700	\$160,200	\$289,720	\$106,800	\$793,420		25.47%	\$202,099

Itemized Tool Box for Intersection Mitigation

Ramp Intersection Improvements

Widen existing OC structure	\$	110 sq. ft	
Widen OC structure - 1 through lane	\$	1,584,000	(600x2)x12x\$110=\$1,584,000 assumes 12' wide lane, 600' on one side of intersection
Widen OC structure - 1LT/RT lane	\$	330,000	250x12x\$110=\$330,000 250' of roadwork included
Widen ramps - 1 Lane	\$	350,000	
Widen Ramps - 2 Lanes	\$	700,000	
Signalize Ramp Intersection (no roadwork)	\$	90,000	per location

Street Intersection Improvements

Left-Turn Lane	\$	53,400	
Through Lane	\$	289,720	\$15.78 per square foot to construct a through lane for a length of 600' before and after intersection with a transition lane of 55:1 (Transition Lane = 600/2)
Right-Turn Lane	\$	53,400	
Free Right Turn (with existing RT pocket)	\$	53,400	
Free Right Turn (no existing RT pocket)	\$	106,800	
Restripe lanes Only	\$	500	
Signalization of intersection (with roadwork)	\$	250,000	per location
Signalization of intersection (no roadwork)	\$	90,000	per location
Upgrade existing signal (new pole, signal head, camera, etc)	\$	75,000	per intersection
Add signal heads (ex. Permitted to Protected LT, Overlap RT)	\$	25,000	per intersection
Adjustment to signal phasing (2 phase to 4 phase, new signal heads)	\$	25,000	same as adding signal heads

6.5.2 Proposed Roadway Fair-Share Cost Analysis

The Year 2015 future base circulation system in the New Model Colony was developed by MMA in consultation with City of Ontario staff. The roadway segments expected to be in place by Year 2015, the number of lanes carrying through traffic and the corresponding intersection lane configurations were determined from various sources.

In addition to these improvements, city staff identified proposed roadway segments considered essential circulation system components of the New Model Colony and in particular the Rich-Haven Specific Plan area for Year 2015. The proposed roadway segments were identified by MMA and city staff based on a number of modeling scenarios and strategies. The proposed modeling scenarios considered roadway alignment, roadway capacity, traffic circulation, and lane balance along major arterials. The addition of the following proposed roadway segments resulted in intersection mitigation measures within the guidelines of the *City of Ontario Sphere of Influence General Plan Amendment (January 7, 1998)*.

These proposed roadway segments include:

- Mill Creek Avenue between Chino Avenue and Edison Avenue
- Edison Avenue between Haven Avenue and Milliken Avenue/Hamner Avenue
- Chino Avenue between Haven Avenue and Mill Creek Avenue

Tables 11 and 12 present the share of project-generated trips expected on each proposed roadway segment listed above at Year 2015 for AM and PM peak hours, respectively. The percentage figures represent the share of project trips as a percent of the total trips by Year 2015. The proposed project will be responsible for only a portion of the cost as indicated by the corresponding percent contribution. The cost summary for all proposed roadway segments is shown in **Table 13**. The total order of magnitude cost to construct all of the proposed roadway segments near the study area is about \$10,480,000 of which the project can be expected to be responsible for approximately \$4,998,405 or approximately 47.69 percent of the total.

TABLE 11: PERCENT PROJECT TRIPS - AM PEAK HOUR

Roadway Segment	AM Peak Hour			
	Length of Roadway Segment (miles)	Project Trips	2015 Total Volume	Percent Project Trips
Chino Avenue: Haven Avenue & Mill Creek Avenue	0.54	244	426	57.28%
Edison Avenue: Haven Avenue & Mill Creek Avenue	0.54	435	3,322	13.09%
Mill Creek Avenue: Chino Avenue & Edison Avenue	1.00	167	258	64.73%

TABLE 12: PERCENT PROJECT TRIPS - PM PEAK HOUR

Roadway Segment	PM Peak Hour			
	Length of Roadway Segment (miles)	Project Trips	2015 Total Volume	Percent Project Trips
Chino Avenue: Haven Avenue & Mill Creek Avenue	0.54	470	713	65.92%
Edison Avenue: Haven Avenue & Mill Creek Avenue	0.54	854	4,860	17.57%
Mill Creek Avenue: Chino Avenue & Edison Avenue	1.00	328	466	70.39%

TABLE 13: PROJECT SHARE FOR ROADWAY SEGMENTS

Roadway Segment	Highest Peak Hour					
	Project Trips	Percent Project Share	Lanes	Segment Length (Miles)	Cost of Mitigation	Project Share
Chino Avenue: Haven Avenue & Mill Creek Avenue	470	65.92%	4	0.54	\$2,160,000	\$1,423,843
Edison Avenue: Haven Avenue & Mill Creek Avenue	854	17.57%	8	0.54	\$4,320,000	\$759,111
Mill Creek Avenue: Chino Avenue & Edison Avenue	328	70.39%	4	1.00	\$4,000,000	\$2,815,451
					\$10,480,000	\$4,998,405

*Mitigation costs per San Bernardino County Congestion Management Program:

1. ROW has already been acquired.
2. Asphalt concrete pavement is used.
3. Asphalt Concrete Pavement Cost = \$1,000,000 per mile per lane

7.0 TRAFFIC IMPACT ANALYSIS – BASELINE CONDITIONS

7.1 Introduction

This chapter describes the results of traffic analysis conducted for the Baseline Conditions of the Rich-Haven Specific Plan. The Baseline Conditions would represent buildout of the Rich-Haven Specific Plan area assuming the General Plan Amendment land uses. These land uses consist of 410 single-family units in Subarea 6 (Planning Areas 1-6), 819 single-family units in Subarea 12 (Planning Areas 7-19) and 1,306,800 square feet of regional commercial in Subarea 19 (Planning Areas 20 and 21). An analysis of traffic conditions for Year 2015 is presented first, followed by a discussion of the long-term mitigation measures required for intersections to comply with CMP and City of Ontario level of service standards.

7.2 Trip Generation – Baseline Conditions

Similar to the methodology utilized for the Specific Plan scenario, the *Updated Year 2015 Ontario NMC Traffic Model (September 2005)* was used to generate the project-specific trips for the Baseline scenario. The land use data for the Rich-Haven TAZs were updated based on the Baseline Land Use Scenario. **Table 14** summarizes the land uses and the Daily, AM and PM peak hour trip generation for Baseline conditions. After the TAZs were updated with the Specific Plan land use data, the resulting model trip generation estimates were further refined to reflect the anticipated trips from the Baseline scenario shown in **Table 14**.

It should be noted that **Table 14** is consistent with the “Baseline Scenario” described in the *Rich-Haven Specific Plan* (RBF Consulting, November 2005). Land use data, trip generation rates and trip generation estimates for the Specific Plan Scenario can be found in the Specific Plan document (Tables 8-1, and 8-2).

TABLE 14: PROJECT TRIP GENERATION – BASELINE CONDITIONS

Land Use	Size	Daily Trips	AM Peak Hour			PM Peak Hour		
			In	Out	Total	In	Out	Total
Sub Area 6 (Planning Areas 1-6)								
Single-Family Residential	410 dus	3,924	77	231	308	265	149	414
County Park	13.3 ac	30	0	0	0	0	0	1
Subtotal		3,954	77	231	308	265	150	415
Sub Area 12 (Planning Areas 7-19)								
Single-Family Residential	819 dus	7,838	154	461	615	529	298	827
County Park	37.1 ac	85	0	0	0	1	1	2
Subtotal		7,922	154	461	615	630	299	829
Sub Area 19 (Planning Areas 20 and 21)								
Regional Commercial	1,306,800 sf	37,022	540	347	889	1,549	1,678	3,228
Total Trips		48,898	773	1,038	1,811	2,345	2,127	4,472

7.3 2015 Future With Project Traffic Operations Analysis – Baseline Conditions

Figure 18 illustrates the resulting 2015 Future With Project AM and PM peak hour intersection turning volumes. These intersection volumes were analyzed for future level of service and impacts at study intersections for project conditions. Results of the analysis are summarized in **Table 15** for the AM and PM peak hour, respectively. Detailed HCM worksheets are included in **Appendix H**.

The results of the 2015 with project analysis for the AM peak hour indicate that one intersection is expected to operate at unacceptable condition (LOS E). The intersection of Milliken Avenue and Riverside Drive operates unacceptably with a delay of 61.8 seconds and a volume to capacity ratio of 1.044 and would require improvement measures. The remaining 20 analyzed intersections are expected to operate acceptably during the AM peak hour.

Similarly the results of the 2015 “with project” analysis for the PM peak hour indicate that seven of the analyzed intersections are expected to operate at LOS E or F. These intersections are:

- Archibald Avenue at Edison Avenue (LOS F)
- Haven Avenue at Riverside Drive (LOS E)
- Haven Avenue at Edison Avenue (LOS E)
- Milliken Avenue at SR-60 Westbound Ramps (LOS F)
- Milliken Avenue at SR-60 Eastbound Ramps (LOS F)
- Milliken Avenue at Riverside Drive (LOS F)
- Milliken Avenue/Hamner Avenue at Edison Avenue (LOS F)

The above study intersections are projected to be out of compliance with CMP guidelines and City of Ontario LOS standards (LOS D or better with V/C<1.0) and would require improvement measures. The remaining 14 analyzed intersections are expected to operate acceptably during the PM peak hour.

7.4 Recommended Mitigation Measures for 2015 – Baseline Conditions

The following mitigation measures are proposed to bring projected deficient intersections to acceptable operating conditions, (LOS D or better and V/C of less than 1.0) per City of Ontario Standards. The mitigated level of service forecasts for both the AM and PM peak hours are shown in **Table 16**.

The following mitigation measures are within the guidelines of the *City of Ontario Sphere of Influence General Plan Amendment (January 7, 1998)*. An analysis of the traffic forecasts from the city’s buildout model, the *Updated Buildout Ontario NMC Traffic Model (September 2005)*, identifies that the Year 2015 mitigation measures presented in this section would satisfy the operating conditions of the intersections for buildout conditions. This is due to the subsequent redistribution of traffic expected beyond Year 2015.

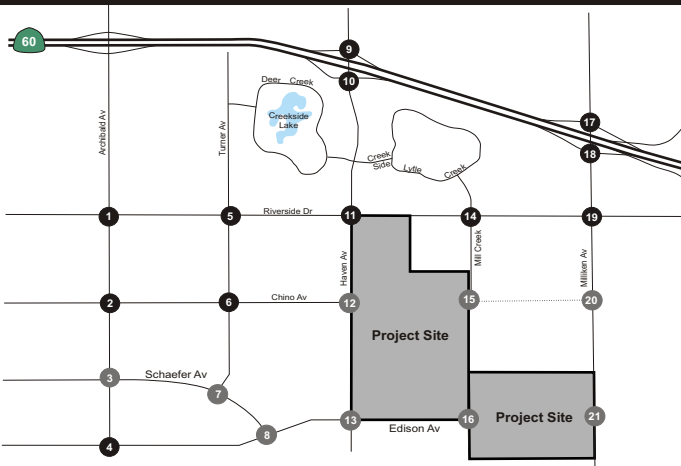
Description of Study Intersection Mitigation Measures:

Intersection #4 Archibald Avenue/Edison Avenue

- provide EB free-flow-right-turn only lane

Intersection #11 Haven Avenue/Riverside Drive

- provide NB and SB left turn protected phasing



Legend	Study Intersection
Project Site	Prop. Intersection
	## AM(PM)

<table border="1"> <tr> <td>65(176) 486(1700) 62(100)</td> <td>119(119) 239(453) 52(63)</td> </tr> <tr> <td>154(116) 440(359) 66(245)</td> <td>177(199) 1573(1072) 81(80)</td> </tr> </table> <p>1. Archibald Av/Riverside Dr</p>	65(176) 486(1700) 62(100)	119(119) 239(453) 52(63)	154(116) 440(359) 66(245)	177(199) 1573(1072) 81(80)	<table border="1"> <tr> <td>1(1) 55(1837) 58(117)</td> <td>168(117) 25(41) 58(57)</td> </tr> <tr> <td>1(1) 25(34) 36(90)</td> <td>65(72) 1658(1313) 38(51)</td> </tr> </table> <p>2. Archibald Av/Chino Av</p>	1(1) 55(1837) 58(117)	168(117) 25(41) 58(57)	1(1) 25(34) 36(90)	65(72) 1658(1313) 38(51)	<table border="1"> <tr> <td>16(73) 665(1586) 98(309)</td> <td>253(295) 26(38) 2(1)</td> </tr> <tr> <td>84(45) 25(43) 12(18)</td> <td>15(16) 1368(1175) 0(2)</td> </tr> </table> <p>3. Archibald Av/Schaefer Av</p>	16(73) 665(1586) 98(309)	253(295) 26(38) 2(1)	84(45) 25(43) 12(18)	15(16) 1368(1175) 0(2)
65(176) 486(1700) 62(100)	119(119) 239(453) 52(63)													
154(116) 440(359) 66(245)	177(199) 1573(1072) 81(80)													
1(1) 55(1837) 58(117)	168(117) 25(41) 58(57)													
1(1) 25(34) 36(90)	65(72) 1658(1313) 38(51)													
16(73) 665(1586) 98(309)	253(295) 26(38) 2(1)													
84(45) 25(43) 12(18)	15(16) 1368(1175) 0(2)													

<table border="1"> <tr> <td>195(253) 332(1035) 62(148)</td> <td>120(97) 1309(1354) 312(363)</td> </tr> <tr> <td>215(291) 792(1554) 229(1954)</td> <td>772(459) 885(639) 233(395)</td> </tr> </table> <p>4. Archibald Av/Edison Av</p>	195(253) 332(1035) 62(148)	120(97) 1309(1354) 312(363)	215(291) 792(1554) 229(1954)	772(459) 885(639) 233(395)	<table border="1"> <tr> <td>74(48) 2(6) 95(80)</td> <td>39(93) 346(652) 35(102)</td> </tr> <tr> <td>29(69) 628(510)</td> <td>5(4) 102(31)</td> </tr> </table> <p>5. Turner Av/Riverside Dr</p>	74(48) 2(6) 95(80)	39(93) 346(652) 35(102)	29(69) 628(510)	5(4) 102(31)	<table border="1"> <tr> <td>35(28) 13(35) 4(6)</td> <td>3(7) 72(123) 1(15)</td> </tr> <tr> <td>18(23) 100(98) 3(12)</td> <td>23(13) 32(3) 19(20)</td> </tr> </table> <p>6. Turner Av/Chino Av</p>	35(28) 13(35) 4(6)	3(7) 72(123) 1(15)	18(23) 100(98) 3(12)	23(13) 32(3) 19(20)	<table border="1"> <tr> <td>3(3) 16(16)</td> <td>13(30) 277(331)</td> </tr> <tr> <td>2(5) 122(348)</td> <td></td> </tr> </table> <p>7. Turner Av/Schaefer Av</p>	3(3) 16(16)	13(30) 277(331)	2(5) 122(348)	
195(253) 332(1035) 62(148)	120(97) 1309(1354) 312(363)																		
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<table border="1"> <tr> <td>6(5) 133(359) 283(344) 1531(1708)</td> <td>21(123) 428(1787) 803(423) 96(206)</td> </tr> <tr> <td>7(17) 1031(1867)</td> <td>365(326) 1336(640)</td> </tr> </table> <p>8. Edison Av/Schaefer Av</p>	6(5) 133(359) 283(344) 1531(1708)	21(123) 428(1787) 803(423) 96(206)	7(17) 1031(1867)	365(326) 1336(640)	<table border="1"> <tr> <td>431(1524) 93(468)</td> <td>74(29) 215(782)</td> </tr> <tr> <td>1626(1089) 286(246)</td> <td></td> </tr> </table> <p>10. Haven Av/SR-60 EB Ramps</p>	431(1524) 93(468)	74(29) 215(782)	1626(1089) 286(246)		<table border="1"> <tr> <td>40(103) 429(1470) 129(330)</td> <td>128(136) 300(651) 121(192)</td> </tr> <tr> <td>141(85) 644(443) 72(90)</td> <td>70(88) 1162(900) 215(183)</td> </tr> </table> <p>11. Haven Av/Riverside Dr</p>	40(103) 429(1470) 129(330)	128(136) 300(651) 121(192)	141(85) 644(443) 72(90)	70(88) 1162(900) 215(183)	<table border="1"> <tr> <td>3(13) 536(1527) 30(91)</td> <td>32(97) 15(75) 40(107)</td> </tr> <tr> <td>27(30) 59(36) 25(32)</td> <td>23(34) 1295(967) 85(67)</td> </tr> </table> <p>12. Haven Av/Chino Av</p>	3(13) 536(1527) 30(91)	32(97) 15(75) 40(107)	27(30) 59(36) 25(32)	23(34) 1295(967) 85(67)	<table border="1"> <tr> <td>203(193) 332(949) 125(253)</td> <td>124(211) 1447(1703) 107(281)</td> </tr> <tr> <td>157(249) 936(177) 71(200)</td> <td>165(157) 806(568) 207(191)</td> </tr> </table> <p>13. Haven Av/Edison Av</p>	203(193) 332(949) 125(253)	124(211) 1447(1703) 107(281)	157(249) 936(177) 71(200)	165(157) 806(568) 207(191)	<table border="1"> <tr> <td>112(177) 174(14) 103(116)</td> <td>26(112) 485(1252) 33(42)</td> </tr> <tr> <td>151(270) 1316(853) 19(63)</td> <td>15(75) 184(18) 82(39)</td> </tr> </table> <p>14. Mill Creek Av/Riverside Dr</p>	112(177) 174(14) 103(116)	26(112) 485(1252) 33(42)	151(270) 1316(853) 19(63)	15(75) 184(18) 82(39)
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<table border="1"> <tr> <td>41(100) 63(142) 5(10)</td> <td>2(13) 14(72) 11(104)</td> </tr> <tr> <td>83(69) 58(22) 38(111)</td> <td>38(118) 122(131) 44(18)</td> </tr> </table> <p>15. Mill Creek Av/Chino Av</p>	41(100) 63(142) 5(10)	2(13) 14(72) 11(104)	83(69) 58(22) 38(111)	38(118) 122(131) 44(18)	<table border="1"> <tr> <td>8(12) 9(25) 36(73)</td> <td>42(72) 1685(2388) 3(16)</td> </tr> <tr> <td>10(11) 1442(2225) 43(186)</td> <td>115(88) 22(21) 8(17)</td> </tr> </table> <p>16. Mill Creek Av/Edison Av</p>	8(12) 9(25) 36(73)	42(72) 1685(2388) 3(16)	10(11) 1442(2225) 43(186)	115(88) 22(21) 8(17)	<table border="1"> <tr> <td>2(116) 579(1936)</td> <td>271(164) 244(344)</td> </tr> <tr> <td></td> <td>466(735) 923(732)</td> </tr> </table> <p>17. Milliken Av/SR-60 WB Ramps</p>	2(116) 579(1936)	271(164) 244(344)		466(735) 923(732)	<table border="1"> <tr> <td>820(2209) 3(71)</td> <td>33(6) 489(754)</td> </tr> <tr> <td></td> <td>1356(1462) 416(409)</td> </tr> </table> <p>18. Milliken Av/SR-60 EB Ramps</p>	820(2209) 3(71)	33(6) 489(754)		1356(1462) 416(409)	<table border="1"> <tr> <td>458(576) 127(1614) 722(773)</td> <td>293(693) 279(774) 3(81)</td> </tr> <tr> <td>783(747) 796(353) 37(65)</td> <td>41(43) 697(430) 14(5)</td> </tr> </table> <p>19. Milliken Av/Riverside Dr</p>	458(576) 127(1614) 722(773)	293(693) 279(774) 3(81)	783(747) 796(353) 37(65)	41(43) 697(430) 14(5)	<table border="1"> <tr> <td>9(97) 232(1670)</td> <td>27(13) 81(37)</td> </tr> <tr> <td></td> <td>18(92) 874(598)</td> </tr> </table> <p>20. Milliken Av/Chino Av</p>	9(97) 232(1670)	27(13) 81(37)		18(92) 874(598)	<table border="1"> <tr> <td>27(183) 95(1217) 89(272)</td> <td>181(148) 1897(2859) 200(557)</td> </tr> <tr> <td>56(125) 1525(2824) 29(121)</td> <td>66(94) 637(316) 520(295)</td> </tr> </table> <p>21. Milliken Av/Edison Av</p>	27(183) 95(1217) 89(272)	181(148) 1897(2859) 200(557)	56(125) 1525(2824) 29(121)	66(94) 637(316) 520(295)
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Meyer, Mohaddes Associates

a business unit of Iteris, Inc.

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**FIGURE 18
2015 Future With Project Peak Hour Traffic Volumes
(Baseline Conditions)**

TABLE 15: 2015 FUTURE BASELINE CONDITIONS

Intersection	Year 2015 - With Baseline Conditions					
	AM Peak Hour			PM Peak Hour		
	LOS	Delay (Sec.)	V/C	LOS	Delay (Sec.)	V/C
1. Archibald Avenue at Riverside Drive	C	23.4	0.581	C	26.6	0.752
2. Archibald Avenue at Chino Avenue	B	11.2	0.489	B	12.9	0.530
3. Archibald Avenue at Schaefer Avenue	B	15.9	0.509	B	19.0	0.627
4. Archibald Avenue at Edison Avenue	C	29.3	0.668	F	220.7	1.836
5. Turner Avenue at Riverside Drive	B	14.1	0.294	B	14.3	0.330
6. Turner Avenue at Chino Avenue [a]	A	8.0	0.078	A	8.2	0.099
7. Turner Avenue at Schaefer Avenue	A	2.5	0.093	A	1.8	0.116
8. Edison Avenue at Schaefer Avenue	A	3.0	0.327	A	7.2	0.434
9. Haven Avenue at SR-60 WB Ramps	A	9.6	0.301	B	11.8	0.532
10. Haven Avenue at SR-60 EB Ramps	B	11.2	0.567	D	38.1	0.941
11. Haven Avenue at Riverside Drive	C	27.9	0.910	E	63.0	1.203
12. Haven Avenue at Chino Avenue	A	4.7	0.450	A	7.0	0.548
13. Haven Avenue at Edison Avenue	C	25.8	0.764	E	70.7	1.130
14. Mill Creek Avenue at Riverside Drive	B	17.9	0.579	B	18.9	0.692
15. Mill Creek Avenue at Chino Avenue	B	13.3	0.126	B	13.5	0.242
16. Mill Creek Avenue at Edison Avenue	A	5.9	0.356	A	4.0	0.454
17. Milliken Avenue at SR-60 WB Ramps	C	21.0	0.632	F	109.3	1.229
18. Milliken Avenue at SR-60 EB Ramps	C	20.6	0.865	F	197.7	1.137
19. Milliken Avenue at Riverside Drive	E	61.8	1.044	F	138.9	1.310
20. Milliken Avenue/Hamner Avenue at Chino Avenue	B	12.6	0.308	A	5.0	0.352
21. Milliken Avenue/Hamner Avenue at Edison Avenue	C	30.5	0.777	F	104.7	1.268

Note: LOS = Level of Service, Delay = Average Vehicle Delay (Seconds), V/C = Volume-to-Capacity Ratio
 HCM 2000 Operations Methodology
BOLD indicates mitigated operating conditions.

TABLE 16: 2015 FUTURE BASELINE CONDITIONS WITH MITIGATIONS

Intersection	2015 Future Baseline With Mitigations					
	AM Peak Hour			PM Peak Hour		
	LOS	Delay (Sec.)	V/C	LOS	Delay (Sec.)	V/C
1. Archibald Avenue at Riverside Drive	C	23.4	0.581	C	26.6	0.752
2. Archibald Avenue at Chino Avenue	B	11.2	0.489	B	12.9	0.530
3. Archibald Avenue at Schaefer Avenue	B	15.9	0.509	B	19.0	0.627
4. Archibald Avenue at Edison Avenue	C	29.0	0.668	C	32.6	0.774
5. Turner Avenue at Riverside Drive	B	14.1	0.294	B	14.3	0.330
6. Turner Avenue at Chino Avenue [a]	A	8.0	0.078	A	8.2	0.099
7. Turner Avenue at Schaefer Avenue	A	2.5	0.093	A	1.8	0.116
8. Edison Avenue at Schaefer Avenue	A	3.0	0.327	A	7.2	0.434
9. Haven Avenue at SR-60 WB Ramps	A	9.6	0.301	B	11.8	0.532
10. Haven Avenue at SR-60 EB Ramps	B	11.2	0.567	D	38.1	0.941
11. Haven Avenue at Riverside Drive	C	30.0	0.777	C	33.4	0.815
12. Haven Avenue at Chino Avenue	A	4.7	0.450	A	7.0	0.548
13. Haven Avenue at Edison Avenue	C	30.1	0.720	D	41.3	0.917
14. Mill Creek Avenue at Riverside Drive	B	17.9	0.579	B	18.9	0.692
15. Mill Creek Avenue at Chino Avenue	B	13.3	0.126	B	13.5	0.242
16. Mill Creek Avenue at Edison Avenue	A	5.9	0.356	A	4.0	0.454
17. Milliken Avenue at SR-60 WB Ramps	B	18.1	0.431	C	30.0	0.933
18. Milliken Avenue at SR-60 EB Ramps	A	1.2	0.558	A	1.8	0.648
19. Milliken Avenue at Riverside Drive	C	28.8	0.713	C	32.7	0.859
20. Milliken Avenue/Hamner Avenue at Chino Avenue	B	12.6	0.308	A	5.0	0.352
21. Milliken Avenue/Hamner Avenue at Edison Avenue	C	28.6	0.771	D	40.5	0.992

Note: LOS = Level of Service, Delay = Average Vehicle Delay (Seconds), V/C = Volume-to-Capacity Ratio
 HCM 2000 Operations Methodology
BOLD indicates mitigated operating conditions.

Intersection #13 Haven Avenue/Edison Avenue

- provide NB and SB left turn protected phasing

Intersection #17 Milliken Avenue/SR-60 WB Ramps

- provide NB left-turn only lane
- provide WB shared left-turn/right-turn lane

Intersection #18 Milliken Avenue/SR-60 EB Ramps

- restripe EB shared left-turn/right-turn lane as free-flow-right-turn only lane

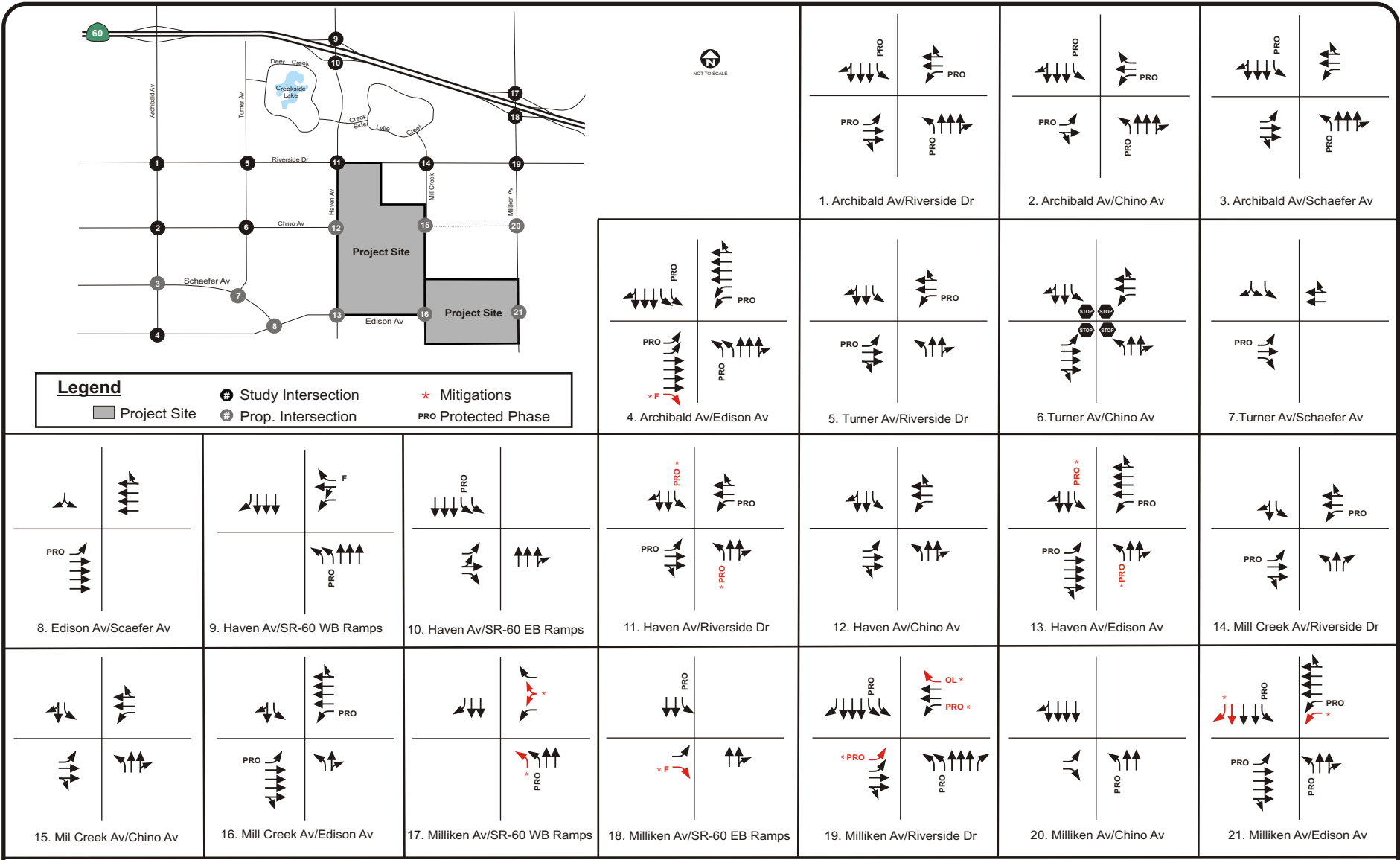
Intersection #19 Milliken Avenue/Riverside Drive

- provide EB and WB left turn protected phasing
- provide WB right-turn only lane with overlap phasing
- provide EB left-turn only lane

Intersection #21 Milliken Avenue/Edison Avenue

- provide SB right-turn only lane
- provide SB through only lane
- provide WB left-turn only lane

The above proposed intersection improvement measures are graphically illustrated in **Figure 19** at the end of this section. Detailed HCM worksheets are included in **Appendix I**.



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FIGURE 19
2015 Future With Mitigation Lane Configuration
(Baseline Conditions)

7.5 Contribution of Project Trips to Future Traffic Volume – Baseline Conditions

It must be noted that in the formulation of potential mitigation measures, there are cases where the most appropriate intersection capacity improvement cannot feasibly be accomplished due to right-of-way constraints. Therefore, at some intersections, no feasible mitigation can be accomplished while at other locations, a secondary improvement (other than the improvement for the primary critical movements) is the only measure that is feasible and is therefore recommended.

It must also be noted that some of the proposed mitigations presented to bring intersections to acceptable operating conditions, besides being technically infeasible due to right-of-way constraints, are also restricted by the physical capacity of the existing roadway system. Therefore a case-by-case approach to finalize the design and costs estimates for each proposed intersection mitigation is necessary and should be supported by detailed engineering plans and compatibility to the City of Ontario Street Master Plan before the exaction of fees to implement these preliminary measures are finalized.

7.5.1 Study Intersection Fair-Share Cost Analysis – Baseline Conditions

Tables 17 and 18 presents the share of project-generated trips at each study intersection at Year 2015 for AM and PM peak hours, respectively. The percentage figures represent the share of project trips as a percent of total additional trips by Year 2015. Additional trips at each intersection were calculated by subtracting Year 2005 traffic volumes from total Year 2015 traffic volumes, which include the project trips. These total added trips are collectively responsible for degradation of intersection operating conditions and the need for the recommended improvement measures at deficient intersections. However, the proposed project will be responsible for only a portion of the cost of mitigation measures at these deficient intersections as indicated by the corresponding percent contribution.

Table 19 provides an order of magnitude estimate of costs for the recommended mitigation measures to improve each deficient location. The preliminary estimate includes only the costs for the actual proposed physical improvements (excluding any possible right of way acquisition costs) or assumes these improvements could be made within existing right-of-way. The estimated total improvement cost of each location is then multiplied by the percent contribution of project trips to the total added traffic to arrive at the corresponding projects share of mitigation costs. The estimated preliminary total cost for intersection improvement measures at the seven future deficient intersections for the AM/PM peak hours (worst case) is \$845,820 and the share of this total cost allocated to the project is \$168,169 or 19.88 percent.

TABLE 17: PERCENT PROJECT TRIPS (BASELINE) - AM PEAK HOUR

Intersection	AM Peak Hour				
	Project Trips	2015 Total Volume	2005 Existing Volume	Change in Volume 2015-2005	Percent Project Trips
1. Archibald Avenue at Riverside Drive	75	3,513	2,433	1,080	6.95%
2. Archibald Avenue at Chino Avenue	33	2,727	1,532	1,195	2.76%
3. Archibald Avenue at Schaefer Avenue	17	2,565	0	2,565	0.66%
4. Archibald Avenue at Edison Avenue	186	5,457	1,535	3,922	4.74%
5. Turner Avenue at Riverside Drive	81	1,355	3,225	-1,870	0.00%
6. Turner Avenue at Chino Avenue [a]	28	324	495	-171	0.00%
7. Turner Avenue at Schaefer Avenue	17	434	0	434	3.92%
8. Edison Avenue at Schaefer Avenue	208	2,991	0	2,991	6.95%
9. Haven Avenue at SR-60 WB Ramps	248	3,048	4,134	-1,086	0.00%
10. Haven Avenue at SR-60 EB Ramps	306	2,726	3,657	-931	0.00%
11. Haven Avenue at Riverside Drive	397	3,449	836	2,613	15.19%
12. Haven Avenue at Chino Avenue	357	2,170	0	2,170	16.45%
13. Haven Avenue at Edison Avenue	301	4,679	0	4,679	6.43%
14. Mill Creek Avenue at Riverside Drive	248	2,700	1,174	1,526	16.25%
15. Mill Creek Avenue at Chino Avenue	40	520	0	520	7.69%
16. Mill Creek Avenue at Edison Avenue	323	3,422	0	3,422	9.44%
17. Milliken Avenue at SR-60 WB Ramps	149	2,484	1,834	650	22.93%
18. Milliken Avenue at SR-60 EB Ramps	216	3,117	1,723	1,394	15.50%
19. Milliken Avenue at Riverside Drive	326	4,251	1,968	2,283	14.28%
20. Milliken Avenue/Hamner Avenue at Chino Avenue	136	1,241	0	1,241	10.96%
21. Milliken Avenue/Hamner Avenue at Edison Avenue	709	5,321	0	5,321	13.33%

TABLE 18: PERCENT PROJECT TRIPS (BASELINE) - PM PEAK HOUR

Intersection	PM Peak Hour				
	Project Trips	2015 Total Volume	2005 Existing Volume	Change in Volume 2015-2005	Percent Project Trips
1. Archibald Avenue at Riverside Drive	145	4,689	2,933	1,750	8.29%
2. Archibald Avenue at Chino Avenue	90	3,793	1,652	2,141	4.20%
3. Archibald Avenue at Schaefer Avenue	67	3,601	0	3,601	1.86%
4. Archibald Avenue at Edison Avenue	419	8,543	1,896	6,647	6.30%
5. Turner Avenue at Riverside Drive	132	1,596	1,651	-55	0.00%
6. Turner Avenue at Chino Avenue [a]	58	384	376	8	NA
7. Turner Avenue at Schaefer Avenue	73	732	0	732	9.97%
8. Edison Avenue at Schaefer Avenue	507	4,300	0	4,300	11.79%
9. Haven Avenue at SR-60 WB Ramps	407	3,505	4,412	-907	0.00%
10. Haven Avenue at SR-60 EB Ramps	598	4,139	4,040	99	NA
11. Haven Avenue at Riverside Drive	757	4,671	1,840	2,831	26.74%
12. Haven Avenue at Chino Avenue	654	3,076	0	3,076	21.26%
13. Haven Avenue at Edison Avenue	736	6,731	0	6,731	10.93%
14. Mill Creek Avenue at Riverside Drive	334	3,031	1,020	2,011	16.61%
15. Mill Creek Avenue at Chino Avenue	617	910	0	910	67.80%
16. Mill Creek Avenue at Edison Avenue	875	5,135	0	5,135	17.04%
17. Milliken Avenue at SR-60 WB Ramps	360	4,027	1,863	2,164	16.64%
18. Milliken Avenue at SR-60 EB Ramps	455	4,911	1,737	3,174	14.34%
19. Milliken Avenue at Riverside Drive	571	6,155	2,150	4,005	14.26%
20. Milliken Avenue/Hamner Avenue at Chino Avenue	404	2,506	0	2,506	16.12%
21. Milliken Avenue/Hamner Avenue at Edison Avenue	2,280	9,009	0	9,009	25.31%

**TABLE 19
INTERSECTION LANE NEEDS AND MITIGATION COSTS
(BASELINE CONDITIONS)**

Intersection	Additional Lane Needs												Signal Phasing	Intersection Signalization	Restripe Lanes Only	Free Right Turn	Improvement Costs					Worst Peak Hour	Project Contribution	Project Share \$			
	NORTHBOUND			EASTBOUND			SOUTHBOUND			WESTBOUND							INTERSECTION TOT			Lump Sum	Left-Turn Lanes				Through Lanes	Right-Turn Lanes	Total
	L	T	R	L	T	R	L	T	R	L	T	R					L	T	R								
4. Archibald Avenue at Edison Avenue													0	0	0				**	\$106,800				\$106,800	PM	6.30%	\$6,732
11. Haven Avenue at Riverside Drive													0	0	0	*				\$25,000				\$25,000	PM	26.74%	\$6,685
13. Haven Avenue at Edison Avenue													0	0	0	*				\$25,000				\$25,000	PM	10.93%	\$2,734
17. Milliken Avenue at SR 60 Freeway westbound ramps	1											1	1	0	1						\$53,400		\$53,400	\$106,800	AM	22.93%	\$24,494
18. Milliken Avenue at SR 60 Freeway eastbound ramps													0	0	0			*	*	\$53,900				\$53,900	AM	15.50%	\$8,353
19. Milliken Avenue at Riverside Drive				1								1	1	0	1	*				\$25,000	\$53,400		\$53,400	\$131,800	AM	14.28%	\$18,823
21. Milliken Avenue/Hamner Avenue at Edison Avenue (proposed new alignment)								1	1	1			1	1	1						\$53,400	\$289,720	\$53,400	\$396,520	PM	25.31%	\$100,348
Preliminary Estimated Costs																\$235,700	\$160,200	\$289,720	\$160,200	\$845,820		19.88%	\$168,169				

Itemized Tool Box for Intersection Mitigation

Ramp Intersection Improvements

Widen existing OC structure	\$	110 sq. ft	
Widen OC structure - 1 through lane	\$	1,584,000	(600x2)x12x\$110=\$1,584,000 assumes 12' wide lane, 600' on one side of intersection
Widen OC structure - 1LT/RT lane	\$	330,000	250x12x\$110=\$330,000 250' of roadwork included
Widen ramps - 1 Lane	\$	350,000	
Widen Ramps - 2 Lanes	\$	700,000	
Signalize Ramp Intersection (no roadwork)	\$	90,000	per location

Street Intersection Improvements

Left-Turn Lane	\$	53,400	
Through Lane	\$	289,720	\$15.78 per square foot to construct a through lane for a length of 600' before and after intersection with a transition lane of 55:1 (Transition Lane = 600/2)
Right-Turn Lane	\$	53,400	
Free Right Turn (with existing RT pocket)	\$	53,400	
Free Right Turn (no existing RT pocket)	\$	106,800	
Restripe lanes Only	\$	500	
Signalization of intersection (with roadwork)	\$	250,000	per location
Signalization of intersection (no roadwork)	\$	90,000	per location
Upgrade existing signal (new pole, signal head, camera, etc)	\$	75,000	per intersection
Add signal heads (ex. Permitted to Protected LT, Overlap RT)	\$	25,000	per intersection
Adjustment to signal phasing (2 phase to 4 phase, new signal heads)	\$	25,000	same as adding signal heads

7.5.2 Proposed Roadway Fair-Share Cost Analysis – Baseline Conditions

The Year 2015 future base circulation system in the New Model Colony was developed by MMA in consultation with City of Ontario staff. The roadway segments expected to be in place by Year 2015, the number of lanes carrying through traffic and the corresponding intersection lane configurations were determined from various sources.

In addition to these improvements, city staff identified proposed roadway segments considered essential circulation system components of the New Model Colony and in particular the Rich-Haven Specific Plan area for Year 2015. The proposed roadway segments were identified by MMA and city staff based on a number of modeling scenarios and strategies. The proposed modeling scenarios considered roadway alignment, roadway capacity, traffic circulation, and lane balance along major arterials. The addition of the following proposed roadway segments resulted in intersection mitigation measures within the guidelines of the *City of Ontario Sphere of Influence General Plan Amendment (January 7, 1998)*.

These proposed roadway segments include:

- Mill Creek Avenue between Chino Avenue and Edison Avenue
- Edison Avenue between Haven Avenue and Milliken Avenue/Hamner Avenue
- Chino Avenue between Haven Avenue and Mill Creek Avenue

Tables 20 and 21 present the share of project-generated trips expected on each proposed roadway segment listed above at Year 2015 for AM and PM peak hours, respectively. The percentage figures represent the share of project trips as a percent of the total trips by Year 2015. The proposed project will be responsible for only a portion of the cost as indicated by the corresponding percent contribution. The cost summary for all proposed roadway segments is shown in **Table 22**. The total order of magnitude cost to construct all of the proposed roadway segments near the study area is about \$10,480,000 of which the project can be expected to be responsible for approximately \$4,369,299 or approximately 41.69 percent of the total.

TABLE 20: PERCENT PROJECT TRIPS (BASELINE) - AM PEAK HOUR

Roadway Segment	AM Peak Hour			
	Length of Roadway Segment (miles)	Project Trips	2015 Total Volume	Percent Project Trips
Chino Avenue: Haven Avenue & Mill Creek Avenue	0.54	79	267	29.59%
Edison Avenue: Haven Avenue & Mill Creek Avenue	0.54	205	3125	6.56%
Mill Creek Avenue: Chino Avenue & Edison Avenue	1.00	153	223	68.61%

TABLE 21: PERCENT PROJECT TRIPS (BASELINE) - PM PEAK HOUR

Roadway Segment	PM Peak Hour			
	Length of Roadway Segment (miles)	Project Trips	2015 Total Volume	Percent Project Trips
Chino Avenue: Haven Avenue & Mill Creek Avenue	0.54	233	482	48.34%
Edison Avenue: Haven Avenue & Mill Creek Avenue	0.54	627	4664	13.44%
Mill Creek Avenue: Chino Avenue & Edison Avenue	1.00	344	445	77.30%

TABLE 22: PROJECT SHARE FOR ROADWAY SEGMENTS – BASELINE CONDITIONS

Roadway Segment	PM Peak Hour					
	Project Trips	Percent Project Share	Lanes	Segment Length (Miles)	Cost of Mitigation	Project Share
Chino Avenue: Haven Avenue & Mill Creek Avenue	233	48.34%	4	0.54	\$2,160,000	\$1,044,149
Edison Avenue: Haven Avenue & Mill Creek Avenue	627	13.44%	8	0.54	\$4,320,000	\$580,755
Mill Creek Avenue: Chino Avenue & Edison Avenue	344	68.61%	4	1.00	\$4,000,000	\$2,744,395
					\$10,480,000	\$4,369,299

*Mitigation costs per San Bernardino County Congestion Management Program:

1. ROW has already been acquired.
2. Asphalt concrete pavement is used.
3. Asphalt Concrete Pavement Cost = \$1,000,000 per mile per lane

8.0 SUMMARY AND CONCLUSION

This section of the report summarizes the results and conclusions of the traffic analysis for the proposed Rich-Haven Specific Plan in the New Model Colony of the City of Ontario. The traffic impact analysis was conducted for Year 2015 horizon year, for both AM and PM peak hour conditions. The Specific Plan Scenario (preferred plan) analyzed in this study consists of 4,258 dwelling units (1,330 single family units and 2,928 multi-family units) and approximately 889,200 square feet of commercial uses on a total of 510.6 acres. In addition to the preferred plan, the Baseline Conditions were also analyzed which represents the Rich-Haven Specific Plan area built out under the General Plan Amendment.

The traffic study area is comprised of twenty study intersections. This report analyzed traffic operations within the study area for the following scenarios:

- Existing Conditions (2005)
- Horizon Year Without the Project (2015)
- Horizon Year With the Project (2015)

The existing AM and PM peak hour intersection turn volumes for the study intersections were obtained from previous counts conducted in the area and utilized in other NMC Specific Plan studies. All of the study intersections are currently operating at acceptable levels of service.

The Specific Plan is estimated to generate a total of approximately 46,790 daily trips, 2,930 AM peak hour trips and 4,770 PM peak hour trips. Under the Baseline Conditions, a total of approximately 48,900 daily trips, 1,810 AM peak hour trips and 4,470 PM peak hour trips would be expected.

Analysis of intersections for conditions without the Specific Plan reveals that all of the analyzed intersections are projected to operate at acceptable levels of service during the AM peak hour. During the PM peak hour, five of the 21 study intersections are expected to operate unacceptably.

For the Year 2015 with project conditions for the preferred plan, two study intersections during the AM peak hour and eight intersections during PM peak hour are projected to operate at a level of service below the minimum acceptable level of service criteria (i.e., LOS D for the City of Ontario and a volume to capacity ratio below 1.0).

For the Year 2015 with project conditions for baseline conditions, one study intersection during the AM peak hour and seven intersections during PM peak hour are projected to operate at a level of service below the minimum acceptable level of service criteria.

The following proposed roadway segments were also considered in this analysis:

- Mill Creek Avenue between Chino Avenue and Edison Avenue
- Edison Avenue between Haven Avenue and Milliken Avenue/Hamner Avenue
- Chino Avenue between Haven Avenue and Mill Creek Avenue

For conditions under the preferred Specific Plan scenario, the total intersection improvement cost for the AM/PM peak hours (worst case) was estimated at \$793,420, and the project share of the total cost is estimated to be approximately \$202,099. The cost to construct the proposed roadway segments is about \$10,480,000 of which the project can be expected to be responsible for approximately \$4,998,405.

For conditions under Baseline conditions \$845,820 the total intersection improvement cost for the AM/PM peak hours (worst case) was estimated at \$168,170, and the project share of the total cost is estimated to be approximately \$118,145. The cost to construct the proposed roadway segments is about \$10,480,000 of which the project can be expected to be responsible for approximately \$4,369,300.

A summary of the comparison for conditions with the Specific Plan Scenario and Baseline Conditions is presented in **Tables 23 and 24**. The tables show the results for the Specific Plan Scenario and Baseline Conditions with and without mitigations, respectively.

**TABLE 23: COMPARISON OF SPECIFIC PLAN SCENARIO AND BASELINE CONDITIONS
(WITHOUT MITIGATIONS)**

INTERSECTIONS		SPECIFIC PLAN SCENARIO			BASELINE CONDITIONS		
		LOS	DELAY	V/C	LOS	DELAY	V/C
1. Archibald Avenue at Riverside Drive	AM	C	23.9	0.591	C	23.4	0.581
	PM	C	26.7	0.752	C	26.6	0.752
2. Archibald Avenue at Chino Avenue	AM	B	12.0	0.501	B	11.2	0.489
	PM	B	13.0	0.534	B	12.9	0.530
3. Archibald Avenue at Schaefer Avenue	AM	B	16.5	0.521	B	15.9	0.509
	PM	B	19.2	0.633	B	19.0	0.627
4. Archibald Avenue at Edison Avenue	AM	C	29.7	0.684	C	29.3	0.668
	PM	F	216.9	1.822	F	220.7	1.836
5. Turner Avenue at Riverside	AM	B	14.1	0.292	B	14.1	0.294
	PM	B	14.5	0.332	B	14.3	0.330
6. Turner Avenue at Chino Avenue [a]	AM	A	8.1	0.084	A	8.0	0.078
	PM	A	8.3	0.103	A	8.2	0.099
7. Turner Avenue at Schaefer Avenue	AM	A	2.3	0.099	A	2.5	0.093
	PM	A	1.9	0.117	A	1.8	0.116
8. Edison Avenue at Schaefer Avenue	AM	A	2.9	0.347	A	3.0	0.327
	PM	A	7.4	0.440	A	7.2	0.434
9. Haven Avenue at SR 60 WB Ramps	AM	A	9.4	0.322	A	9.6	0.301
	PM	B	11.3	0.563	B	11.8	0.532
10. Haven Avenue at SR 60 EB Ramps	AM	B	11.0	0.597	B	11.2	0.567
	PM	D	50.4	1.018	D	38.1	0.941
11. Haven Avenue at Riverside Drive	AM	C	34.4	1.008	C	27.9	0.910
	PM	E	72.4	1.267	E	63.0	1.203
12. Haven Avenue at Chino Avenue	AM	A	8.4	0.521	A	4.7	0.450
	PM	A	8.8	0.677	A	7.0	0.548
13. Haven Avenue at Edison Avenue	AM	C	27.0	0.809	C	25.8	0.764
	PM	F	80.4	1.164	E	70.7	1.130
14. Mill Creek Avenue at Riverside Avenue	AM	B	18.4	0.589	B	17.9	0.579
	PM	B	19.5	0.697	B	18.9	0.692
15. Mill Creek Avenue at Chino Avenue	AM	B	14.3	0.164	B	13.3	0.126
	PM	B	14.5	0.282	B	13.5	0.242
16. Mill Creek Avenue at Edison Avenue	AM	A	5.7	0.374	A	5.9	0.356
	PM	A	4.0	0.489	A	4.0	0.454
17. Milliken Avenue at SR 60 WB Ramps	AM	C	21.1	0.657	C	21.0	0.632
	PM	F	113.4	1.241	F	109.3	1.229
18. Milliken Avenue at SR 60 EB Ramps	AM	C	23.2	0.910	C	20.6	0.865
	PM	F	204.4	1.153	F	197.7	1.137
19. Milliken Avenue at Riverside Drive	AM	E	66.9	1.070	E	61.8	1.044
	PM	F	147.0	1.349	F	138.9	1.310
20. Milliken Avenue/Hammer Avenue at Chino Avenue	AM	B	14.0	0.335	B	12.6	0.308
	PM	A	6.5	0.384	A	5.0	0.352
21. Milliken Avenue/Hammer Avenue at Edison Avenue	AM	C	33.1	0.843	C	30.5	0.777
	PM	F	99.0	1.251	F	104.7	1.268

TABLE 24: COMPARISON OF SPECIFIC PLAN SCENARIO AND BASELINE CONDITIONS (WITH MITIGATIONS)

INTERSECTION		SPECIFIC PLAN SCENARIO (MITIGATED)			BASELINE CONDITIONS (MITIGATED)		
		LOS	DELAY	V/C	LOS	DELAY	V/C
1. Archibald Avenue at Riverside Drive	AM	C	23.9	0.591	C	23.4	0.581
	PM	C	26.7	0.752	C	26.6	0.752
2. Archibald Avenue at Chino Avenue	AM	B	12.0	0.501	B	11.2	0.489
	PM	B	13.0	0.534	B	12.9	0.530
3. Archibald Avenue at Schaefer Avenue	AM	B	16.5	0.521	B	15.9	0.509
	PM	B	19.2	0.633	B	19.0	0.627
4. Archibald Avenue at Edison Avenue	AM	C	29.4	0.684	C	29.0	0.668
	PM	C	32.7	0.787	C	32.6	0.774
5. Turner Avenue at Riverside	AM	B	14.1	0.292	B	14.1	0.294
	PM	B	14.5	0.332	B	14.3	0.330
6. Turner Avenue at Chino Avenue [a]	AM	A	8.1	0.084	A	8.0	0.078
	PM	A	8.3	0.103	A	8.2	0.099
7. Turner Avenue at Schaefer Avenue	AM	A	2.3	0.099	A	2.5	0.093
	PM	A	1.9	0.117	A	1.8	0.116
8. Edison Avenue at Schaefer Avenue	AM	A	2.9	0.347	A	3.0	0.327
	PM	A	7.4	0.440	A	7.2	0.434
9. Haven Avenue at SR 60 WB Ramps	AM	A	9.4	0.322	A	9.6	0.301
	PM	B	11.3	0.563	B	11.8	0.532
10. Haven Avenue at SR 60 EB Ramps	AM	A	8.6	0.624	B	11.2	0.567
	PM	C	23.1	0.776	D	38.1	0.941
11. Haven Avenue at Riverside Drive	AM	C	31.1	0.815	C	30.0	0.777
	PM	D	36.2	0.883	C	33.4	0.815
12. Haven Avenue at Chino Avenue	AM	A	8.4	0.521	A	4.7	0.450
	PM	A	8.8	0.677	A	7.0	0.548
13. Haven Avenue at Edison Avenue	AM	C	30.7	0.745	C	30.1	0.720
	PM	D	42.8	0.932	D	41.3	0.917
14. Mill Creek Avenue at Riverside Avenue	AM	B	18.4	0.589	B	17.9	0.579
	PM	B	19.5	0.697	B	18.9	0.692
15. Mill Creek Avenue at Chino Avenue	AM	B	14.3	0.164	B	13.3	0.126
	PM	B	14.5	0.282	B	13.5	0.242
16. Mill Creek Avenue at Edison Avenue	AM	A	5.7	0.374	A	5.9	0.356
	PM	A	4.0	0.489	A	4.0	0.454
17. Milliken Avenue at SR 60 WB Ramps	AM	B	18.0	0.448	B	18.1	0.431
	PM	C	31.1	0.944	C	30.0	0.933
18. Milliken Avenue at SR 60 EB Ramps	AM	A	1.3	0.595	A	1.2	0.558
	PM	A	1.9	0.659	A	1.8	0.648
19. Milliken Avenue at Riverside Drive	AM	C	29.6	0.739	C	28.8	0.713
	PM	C	34.0	0.886	C	32.7	0.859
20. Milliken Avenue/Hamner Avenue at Chino Avenue	AM	B	14.0	0.335	B	12.6	0.308
	PM	A	6.5	0.384	A	5.0	0.352
21. Milliken Avenue/Hamner Avenue at Edison Avenue	AM	C	30.8	0.828	C	28.6	0.771
	PM	D	41.4	0.980	D	40.5	0.992

**APPENDIX
A
2004 TURNING
MOVEMENT COUNTS**

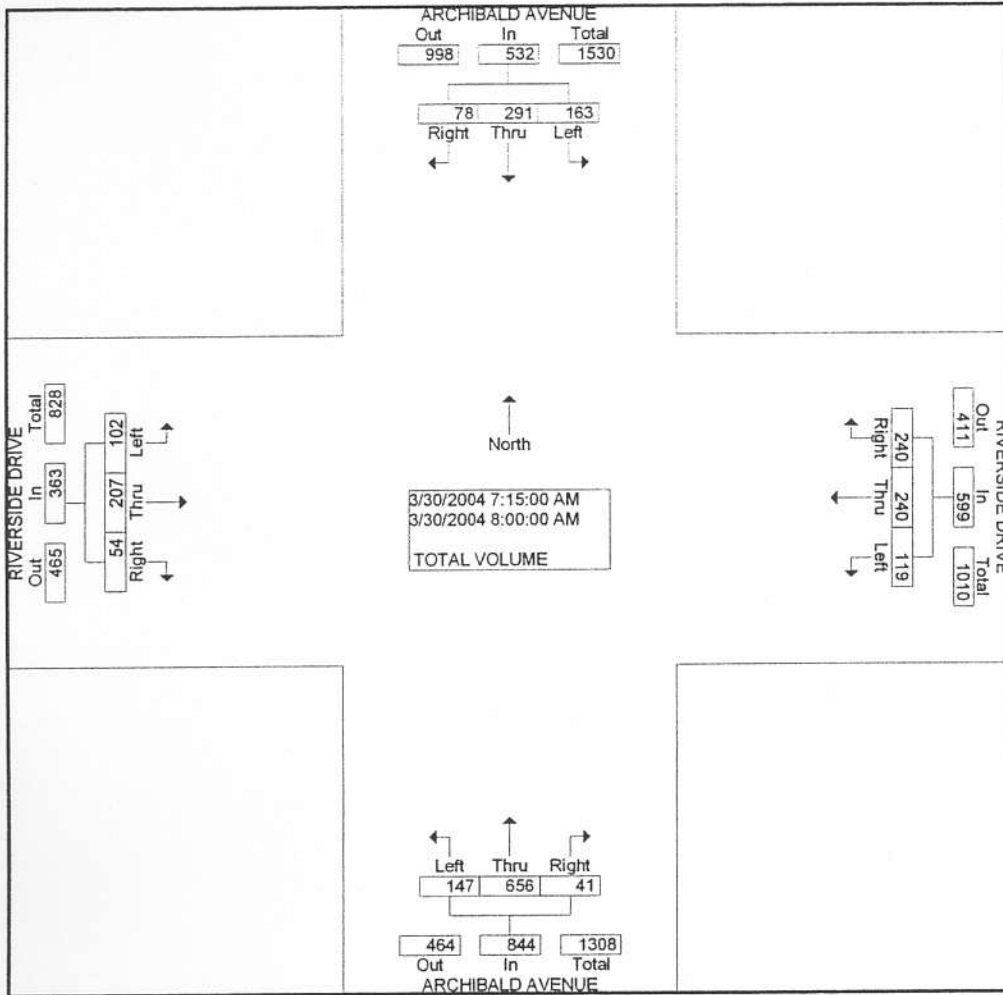
CITY OF ONTARIO
ARCHIBALD AVENUE / RIVERSIDE DRIVE

Turning Movement Counts
March 2004

CITY OF ONTARIO
 N/S: ARCHIBALD AVENUE
 E/W: RIVERSIDE DRIVE
 WEATHER: SUNNY

COUNTS UNLIMITED INC.
 25424 JACLYN AVENUE
 MORENO VALLEY CA 92557
 909-247-6716

File Name : ONARRIAM
 Site Code : 00671220
 Start Date : 3/30/2004
 Page No : 2



Peak Hour From 07:00 AM to 08:45 AM - Peak 1 of 1

By Approach	07:15 AM				07:15 AM				07:15 AM				07:15 AM			
Volume	163	291	78	532	119	240	240	599	147	656	41	844	102	207	54	363
Percent	30.6	54.7	14.7		19.9	40.1	40.1		17.4	77.7	4.9		28.1	57.0	14.9	
High Int.	07:30 AM				07:45 AM				07:45 AM				07:30 AM			
Volume	44	87	19	150	40	74	59	173	41	186	12	239	39	60	11	110
Peak Factor				0.887				0.866				0.883				0.825

CITY OF ONTARIO
 N/S: ARCHIBALD AVENUE
 E/W: RIVERSIDE DRIVE
 WEATHER: SUNNY

COUNTS UNLIMITED INC.
 25424 JACLYN AVENUE
 MORENO VALLEY CA 92557
 909-247-6716

File Name : ONARRIAM
 Site Code : 00671220
 Start Date : 3/30/2004
 Page No : 1

Groups Printed- TOTAL VOLUME

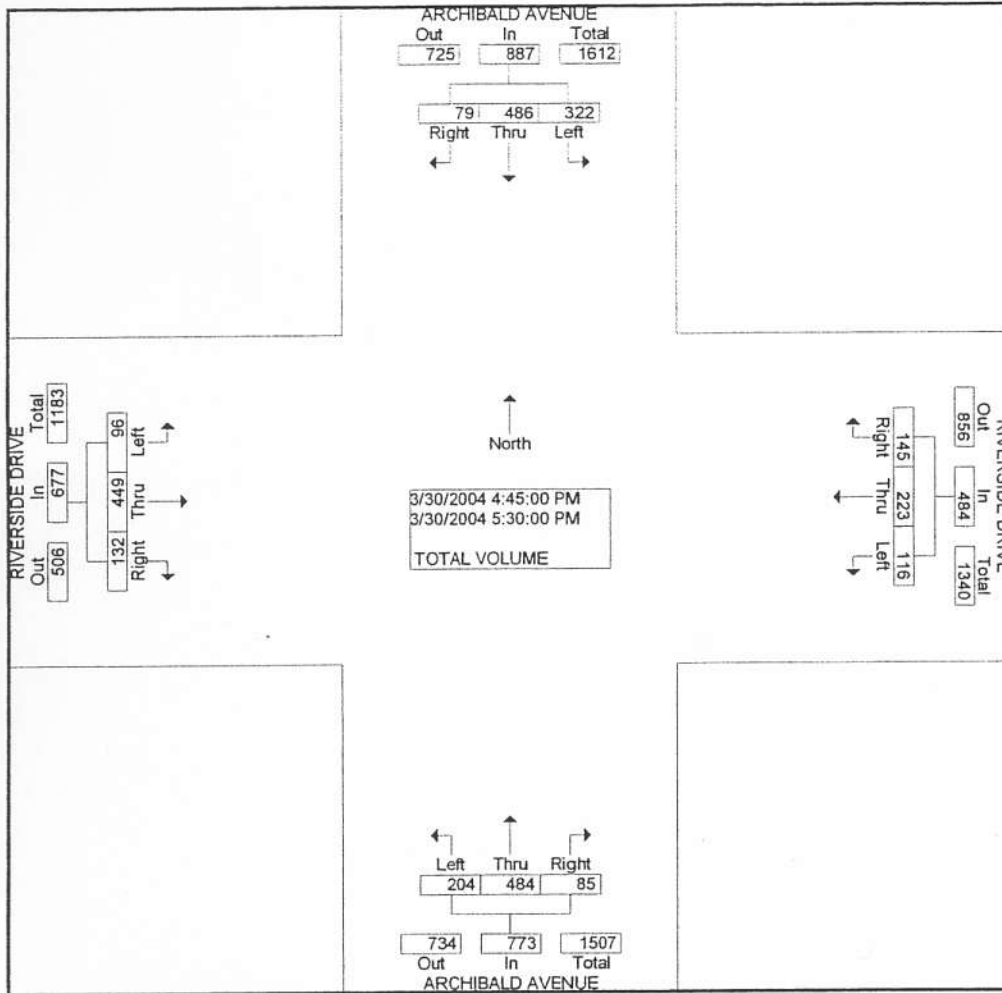
Start Time	ARCHIBALD AVENUE Southbound				RIVERSIDE DRIVE Westbound				ARCHIBALD AVENUE Northbound				RIVERSIDE DRIVE Eastbound				Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	
Factor	1.0	1.0	1.0		1.0	1.0	1.0		1.0	1.0	1.0		1.0	1.0	1.0		
07:00 AM	21	80	9	110	18	37	42	97	29	142	11	182	13	31	14	58	447
07:15 AM	47	60	14	121	28	52	63	143	27	137	9	173	20	55	12	87	524
07:30 AM	44	87	19	150	30	59	71	160	34	158	10	202	39	60	11	110	622
07:45 AM	33	78	21	132	40	74	59	173	41	186	12	239	25	59	17	101	645
Total	145	305	63	513	116	222	235	573	131	623	42	796	97	205	54	356	2238
08:00 AM	39	66	24	129	21	55	47	123	45	175	10	230	18	33	14	65	547
08:15 AM	25	57	18	100	16	48	42	106	43	114	7	164	22	32	16	70	440
08:30 AM	24	59	24	107	9	42	28	79	29	134	10	173	16	37	12	65	424
08:45 AM	25	53	20	98	12	44	28	84	20	120	5	145	20	26	14	60	387
Total	113	235	86	434	58	189	145	392	137	543	32	712	76	128	56	260	1798
Grand Total	258	540	149	947	174	411	380	965	268	1166	74	1508	173	333	110	616	4036
Apprch %	27.2	57.0	15.7		18.0	42.6	39.4		17.8	77.3	4.9		28.1	54.1	17.9		
Total %	6.4	13.4	3.7	23.5	4.3	10.2	9.4	23.9	6.6	28.9	1.8	37.4	4.3	8.3	2.7	15.3	

Start Time	ARCHIBALD AVENUE Southbound				RIVERSIDE DRIVE Westbound				ARCHIBALD AVENUE Northbound				RIVERSIDE DRIVE Eastbound				Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	
Peak Hour From 07:00 AM to 08:45 AM - Peak 1 of 1																	
Intersection	07:15 AM																
Volume	163	291	78	532	119	240	240	599	147	656	41	844	102	207	54	363	2338
Percent	30.6	54.7	14.7		19.9	40.1	40.1		17.4	77.7	4.9		28.1	57.0	14.9		
07:45 Volume	33	78	21	132	40	74	59	173	41	186	12	239	25	59	17	101	645
Peak Factor																	0.906
High Int.	07:30 AM				07:45 AM				07:45 AM				07:30 AM				
Volume	44	87	19	150	40	74	59	173	41	186	12	239	39	60	11	110	
Peak Factor	0.887								0.866				0.883				0.825

CITY OF ONTARIO
 N/S: ARCHIBALD AVENUE
 E/W: RIVERSIDE DRIVE
 WEATHER: SUNNY

COUNTS UNLIMITED INC.
 25424 JACLYN AVENUE
 MORENO VALLEY CA 92557
 909-247-6716

File Name : ONARRIPM
 Site Code : 00671220
 Start Date : 3/30/2004
 Page No : 2



Peak Hour From 04:00 PM to 05:45 PM - Peak 1 of 1

By Approach	04:45 PM				05:00 PM				04:45 PM				04:45 PM			
Volume	322	486	79	887	136	221	155	512	204	484	85	773	96	449	132	677
Percent	36.3	54.8	8.9		26.6	43.2	30.3		26.4	62.6	11.0		14.2	66.3	19.5	
High Int.	04:45 PM				05:45 PM				05:30 PM				05:00 PM			
Volume	85	127	29	241	44	59	46	149	59	149	20	228	36	107	34	177
Peak Factor	0.920				0.859				0.848				0.956			

COUNTS UNLIMITED INC.
 25424 JACLYN AVENUE
 MORENO VALLEY CA 92557
 909-247-6716

CITY OF ONTARIO
 N/S: ARCHIBALD AVENUE
 E/W: RIVERSIDE DRIVE
 WEATHER: SUNNY

File Name : ONARRIPM
 Site Code : 00671220
 Start Date : 3/30/2004
 Page No : 1

Groups Printed- TOTAL VOLUME

Start Time	ARCHIBALD AVENUE Southbound				RIVERSIDE DRIVE Westbound				ARCHIBALD AVENUE Northbound				RIVERSIDE DRIVE Eastbound				Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	
Factor	1.0	1.0	1.0		1.0	1.0	1.0		1.0	1.0	1.0		1.0	1.0	1.0		
04:00 PM	64	99	19	182	20	57	39	116	42	145	16	203	28	101	29	158	659
04:15 PM	62	127	18	207	18	49	36	103	48	121	14	183	22	109	39	170	663
04:30 PM	59	100	17	176	21	72	35	128	35	135	12	182	25	109	29	163	649
04:45 PM	85	127	29	241	24	61	36	121	45	114	23	182	15	116	33	164	708
Total	270	453	83	806	83	239	146	468	170	515	65	750	90	435	130	655	2679
05:00 PM	74	103	15	192	25	51	34	110	45	119	21	185	36	107	34	177	664
05:15 PM	76	136	18	230	36	48	41	125	55	102	21	178	29	111	27	167	700
05:30 PM	87	120	17	224	31	63	34	128	59	149	20	228	16	115	38	169	749
05:45 PM	68	115	27	210	44	59	46	149	47	113	17	177	35	96	28	159	695
Total	305	474	77	856	136	221	155	512	206	483	79	768	116	429	127	672	2808
Grand Total	575	927	160	1662	219	460	301	980	376	998	144	1518	206	864	257	1327	5487
Apprch %	34.6	55.8	9.6		22.3	46.9	30.7		24.8	65.7	9.5		15.5	65.1	19.4		
Total %	10.5	16.9	2.9	30.3	4.0	8.4	5.5	17.9	6.9	18.2	2.6	27.7	3.8	15.7	4.7	24.2	

Start Time	ARCHIBALD AVENUE Southbound				RIVERSIDE DRIVE Westbound				ARCHIBALD AVENUE Northbound				RIVERSIDE DRIVE Eastbound				Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	
Peak Hour From 04:00 PM to 05:45 PM - Peak 1 of 1																	
Intersection	04:45 PM																
Volume	322	486	79	887	116	223	145	484	204	484	85	773	96	449	132	677	2821
Percent	36.3	54.8	8.9		24.0	46.1	30.0		26.4	62.6	11.0		14.2	66.3	19.5		
05:30	87	120	17	224	31	63	34	128	59	149	20	228	16	115	38	169	749
Volume																	
Peak Factor																	0.942
High Int.	04:45 PM				05:30 PM				05:30 PM				05:00 PM				
Volume	85	127	29	241	31	63	34	128	59	149	20	228	36	107	34	177	
Peak Factor	0.920				0.945				0.848				0.956				

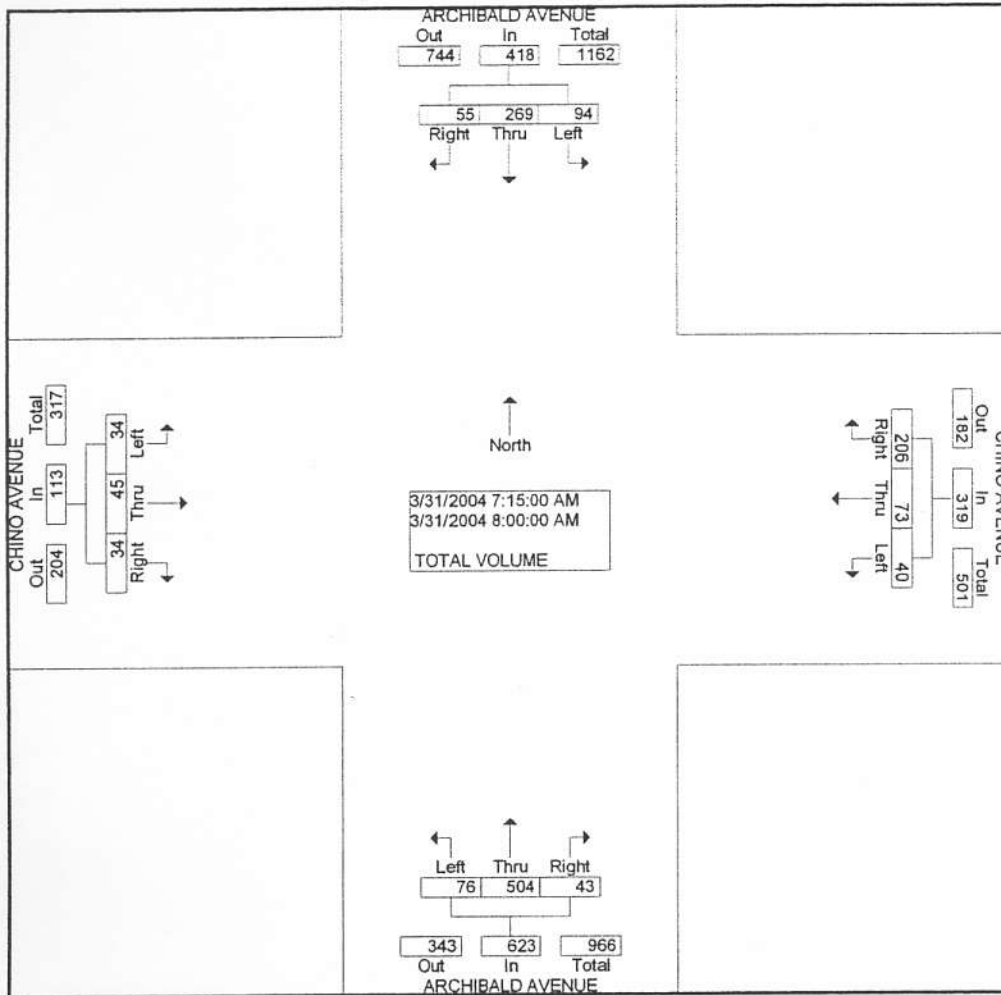
CITY OF ONTARIO
ARCHIBALD AVENUE / CHINO AVENUE

Turning Movement Counts
March 2004

CITY OF ONTARIO
 N/S: ARCHIBALD AVENUE
 E/W: CHINO AVENUE
 WEATHER: SUNNY

COUNTS UNLIMITED INC.
 25424 JACLYN AVENUE
 MORENO VALLEY CA 92557
 909-247-6716

File Name : ONARCHAM
 Site Code : 00671218
 Start Date : 3/31/2004
 Page No : 2



Peak Hour From 07:00 AM to 08:45 AM - Peak 1 of 1

By Approach	07:30 AM				07:15 AM				07:15 AM				07:45 AM			
Volume	94	281	51	426	40	73	206	319	76	504	43	623	43	34	41	118
Percent	22.1	66.0	12.0		12.5	22.9	64.6		12.2	80.9	6.9		36.4	28.8	34.7	
High Int.	07:45 AM				07:45 AM				07:30 AM				08:00 AM			
Volume	38	73	18	129	16	19	84	119	26	133	18	177	13	7	14	34
Peak Factor	0.826				0.670				0.880				0.868			

CITY OF ONTARIO
 N/S: ARCHIBALD AVENUE
 E/W: CHINO AVENUE
 WEATHER: SUNNY

COUNTS UNLIMITED INC.
 25424 JACLYN AVENUE
 MORENO VALLEY CA 92557
 909-247-6716

File Name : ONARCHAM
 Site Code : 00671218
 Start Date : 3/31/2004
 Page No : 1

Groups Printed- TOTAL VOLUME

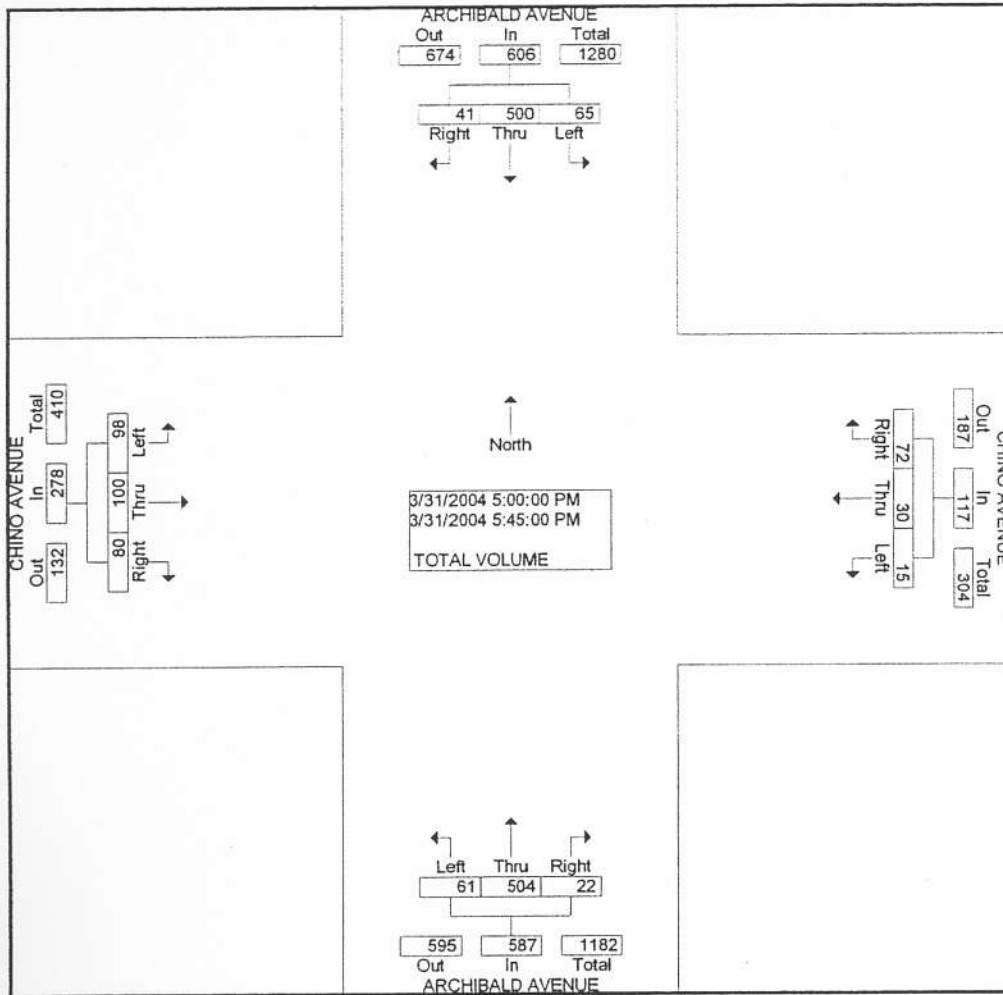
Start Time	ARCHIBALD AVENUE Southbound				CHINO AVENUE Westbound				ARCHIBALD AVENUE Northbound				CHINO AVENUE Eastbound				Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	
Factor	1.0	1.0	1.0		1.0	1.0	1.0		1.0	1.0	1.0		1.0	1.0	1.0		
07:00 AM	6	81	12	99	5	15	28	48	10	111	3	124	4	6	10	20	291
07:15 AM	9	62	13	84	7	16	27	50	24	128	10	162	2	12	8	22	318
07:30 AM	30	64	17	111	15	24	46	85	26	133	18	177	9	11	7	27	400
07:45 AM	38	73	18	129	16	19	84	119	14	133	10	157	10	15	5	30	435
Total	83	280	60	423	43	74	185	302	74	505	41	620	25	44	30	99	1444
08:00 AM	17	70	7	94	2	14	49	65	12	110	5	127	13	7	14	34	320
08:15 AM	9	74	9	92	2	7	25	34	16	98	1	115	8	8	6	22	263
08:30 AM	11	86	8	105	1	8	18	27	7	102	1	110	12	4	16	32	274
08:45 AM	11	59	8	78	2	7	24	33	10	90	1	101	4	3	14	21	233
Total	48	289	32	369	7	36	116	159	45	400	8	453	37	22	50	109	1090
Grand Total	131	569	92	792	50	110	301	461	119	905	49	1073	62	66	80	208	2534
Apprch %	16.5	71.8	11.6		10.8	23.9	65.3		11.1	84.3	4.6		29.8	31.7	38.5		
Total %	5.2	22.5	3.6	31.3	2.0	4.3	11.9	18.2	4.7	35.7	1.9	42.3	2.4	2.6	3.2	8.2	

Start Time	ARCHIBALD AVENUE Southbound				CHINO AVENUE Westbound				ARCHIBALD AVENUE Northbound				CHINO AVENUE Eastbound				Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	
Peak Hour From 07:00 AM to 08:45 AM - Peak 1 of 1																	
Intersection	07:15 AM																
Volume	94	269	55	418	40	73	206	319	76	504	43	623	34	45	34	113	1473
Percent	22.5	64.4	13.2		12.5	22.9	64.6		12.2	80.9	6.9		30.1	39.8	30.1		
07:45																	
Volume	38	73	18	129	16	19	84	119	14	133	10	157	10	15	5	30	435
Peak Factor																	0.847
High Int.	07:45 AM				07:45 AM				07:30 AM				08:00 AM				
Volume	38	73	18	129	16	19	84	119	26	133	18	177	13	7	14	34	
Peak Factor	0.810				0.670				0.880				0.831				

CITY OF ONTARIO
 N/S: ARCHIBALD AVENUE
 E/W: CHINO AVENUE
 WEATHER: SUNNY

COUNTS UNLIMITED INC.
 25424 JACLYN AVENUE
 MORENO VALLEY CA 92557
 909-247-6716

File Name : ONARCHPM
 Site Code : 00671218
 Start Date : 3/31/2004
 Page No : 2



Peak Hour From 04:00 PM to 05:45 PM - Peak 1 of 1

By Approach	05:00 PM				05:00 PM				04:30 PM				05:00 PM			
Volume	65	500	41	606	15	30	72	117	46	550	26	622	98	100	80	278
Percent	10.7	82.5	6.8		12.8	25.6	61.5		7.4	88.4	4.2		35.3	36.0	28.8	
High Int.	05:45 PM				05:45 PM				05:15 PM				05:15 PM			
Volume	18	138	10	166	3	11	18	32	14	151	7	172	33	34	26	93
Peak Factor	0.913				0.914				0.904				0.747			

Groups Printed- TOTAL VOLUME

Start Time	ARCHIBALD AVENUE Southbound				CHINO AVENUE Westbound				ARCHIBALD AVENUE Northbound				CHINO AVENUE Eastbound				Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	
Factor	1.0	1.0	1.0		1.0	1.0	1.0		1.0	1.0	1.0		1.0	1.0	1.0		
04:00 PM	20	120	7	147	5	7	12	24	13	133	2	148	20	13	15	48	367
04:15 PM	20	94	9	123	5	6	8	19	13	118	2	133	23	20	20	63	338
04:30 PM	26	128	7	161	3	11	16	30	6	144	9	159	18	22	14	54	404
04:45 PM	19	111	7	137	1	7	15	23	14	123	8	145	20	22	14	56	361
Total	85	453	30	568	14	31	51	96	46	518	21	585	81	77	63	221	1470
05:00 PM	14	118	7	139	2	7	20	29	12	132	2	146	19	10	9	38	352
05:15 PM	18	116	9	143	5	8	15	28	14	151	7	172	33	34	26	93	436
05:30 PM	15	128	15	158	5	4	19	28	21	124	8	153	22	30	23	75	414
05:45 PM	18	138	10	166	3	11	18	32	14	97	5	116	24	26	22	72	386
Total	65	500	41	606	15	30	72	117	61	504	22	587	98	100	80	278	1588
Grand Total	150	953	71	1174	29	61	123	213	107	1022	43	1172	179	177	143	499	3058
Apprch %	12.8	81.2	6.0		13.6	28.6	57.7		9.1	87.2	3.7		35.9	35.5	28.7		
Total %	4.9	31.2	2.3	38.4	0.9	2.0	4.0	7.0	3.5	33.4	1.4	38.3	5.9	5.8	4.7	16.3	

Start Time	ARCHIBALD AVENUE Southbound				CHINO AVENUE Westbound				ARCHIBALD AVENUE Northbound				CHINO AVENUE Eastbound				Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	
Peak Hour From 04:00 PM to 05:45 PM - Peak 1 of 1																	
Intersection	05:00 PM																
Volume	65	500	41	606	15	30	72	117	61	504	22	587	98	100	80	278	1588
Percent	10.7	82.5	6.8		12.8	25.6	61.5		10.4	85.9	3.7		35.3	36.0	28.8		
05:15																	
Volume	18	116	9	143	5	8	15	28	14	151	7	172	33	34	26	93	436
Peak Factor																	0.911
High Int.	05:45 PM				05:45 PM				05:15 PM				05:15 PM				
Volume	18	138	10	166	3	11	18	32	14	151	7	172	33	34	26	93	
Peak Factor	0.913				0.914				0.853				0.747				

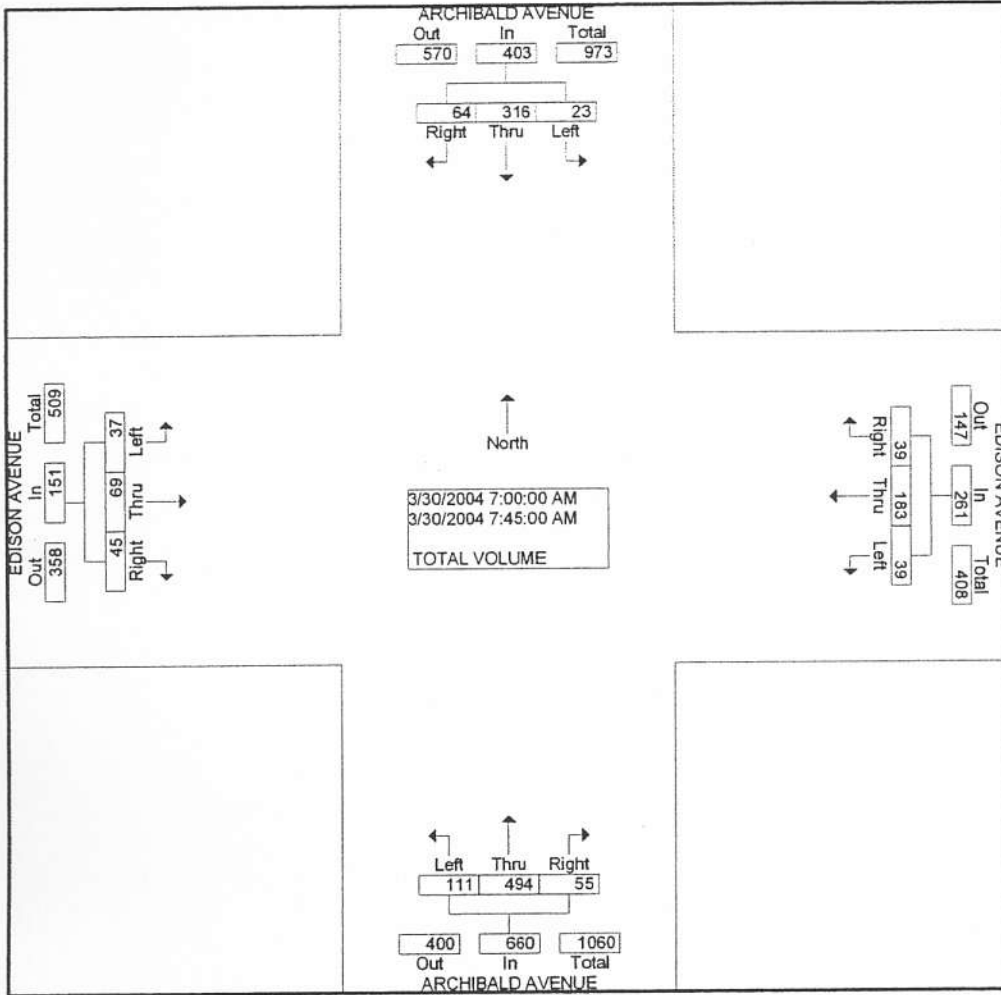
CITY OF ONTARIO
ARCHIBALD AVENUE / EDISON AVENUE

Turning Movement Counts
March 2004

CITY OF ONTARIO
 N/S: ARCHIBALD AVENUE
 E/W: EDISON AVENUE
 WEATHER: SUNNY

COUNTS UNLIMITED INC.
 25424 JACLYN AVENUE
 MORENO VALLEY CA 92557
 909-247-6716

File Name : ONAREDAM
 Site Code : 00671208
 Start Date : 3/30/2004
 Page No : 2



Peak Hour From 07:00 AM to 08:45 AM - Peak 1 of 1

By Approach	07:00 AM				07:00 AM				07:00 AM				07:00 AM			
Volume	23	316	64	403	39	183	39	261	111	494	55	660	37	69	45	151
Percent	5.7	78.4	15.9		14.9	70.1	14.9		16.8	74.8	8.3		24.5	45.7	29.8	
High Int.	07:30 AM				07:15 AM				07:30 AM				07:30 AM			
Volume	7	84	18	109	16	52	14	82	23	151	12	186	10	23	12	45
Peak Factor	0.924				0.796				0.887				0.839			

COUNTS UNLIMITED INC.
 25424 JACLYN AVENUE
 MORENO VALLEY CA 92557
 909-247-6716

CITY OF ONTARIO
 N/S: ARCHIBALD AVENUE
 E/W: EDISON AVENUE
 WEATHER: SUNNY

File Name : ONAREDAM
 Site Code : 00671208
 Start Date : 3/30/2004
 Page No : 1

Groups Printed- TOTAL VOLUME

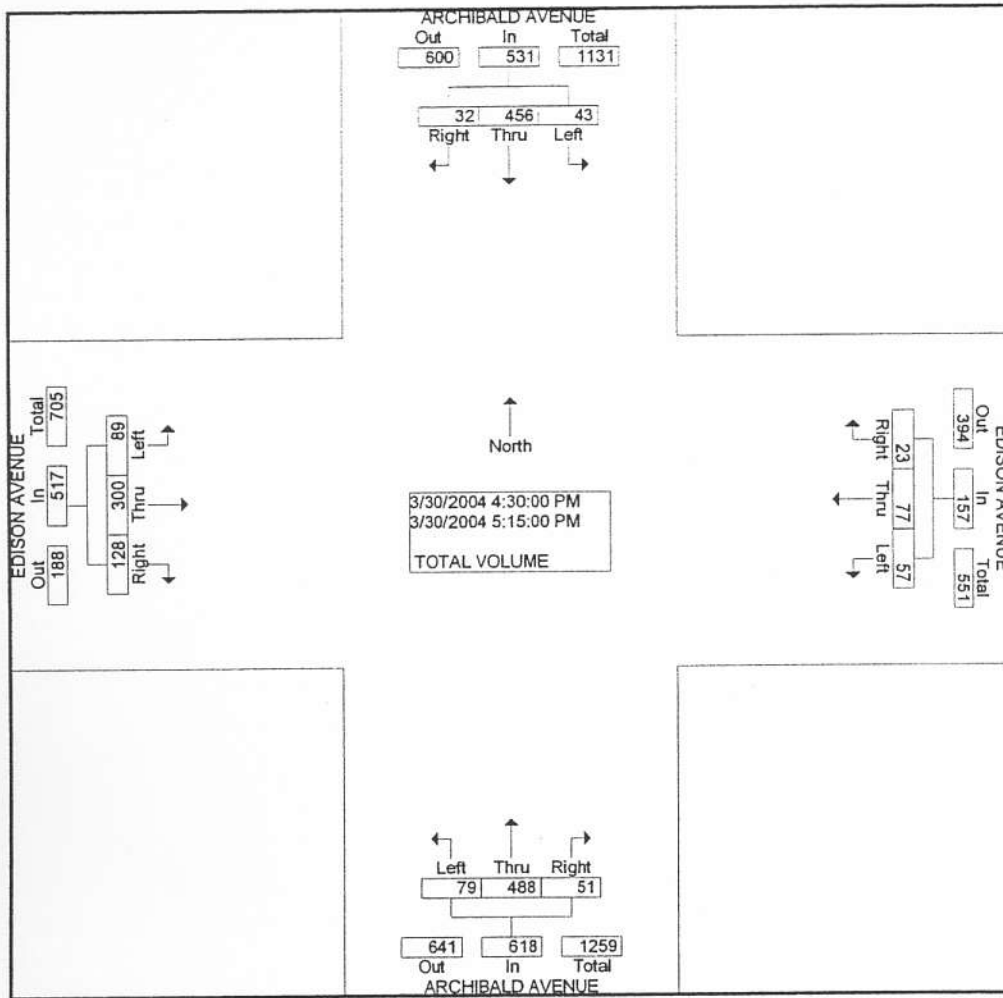
Start Time	ARCHIBALD AVENUE Southbound				EDISON AVENUE Westbound				ARCHIBALD AVENUE Northbound				EDISON AVENUE Eastbound				Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	
Factor	1.0	1.0	1.0		1.0	1.0	1.0		1.0	1.0	1.0		1.0	1.0	1.0		
07:00 AM	2	76	17	95	10	49	9	68	28	113	15	156	4	15	11	30	349
07:15 AM	4	75	14	93	16	52	14	82	36	105	17	158	12	15	12	39	372
07:30 AM	7	84	18	109	5	50	5	60	23	151	12	186	10	23	12	45	400
07:45 AM	10	81	15	106	8	32	11	51	24	125	11	160	11	16	10	37	354
Total	23	316	64	403	39	183	39	261	111	494	55	660	37	69	45	151	1475
08:00 AM	9	54	11	74	8	30	7	45	24	85	7	116	8	10	7	25	260
08:15 AM	4	39	17	60	11	26	12	49	22	74	2	98	5	9	19	33	240
08:30 AM	1	62	10	73	12	18	4	34	31	100	2	133	2	13	12	27	267
08:45 AM	5	54	8	67	1	24	6	31	18	65	9	92	10	8	18	36	226
Total	19	209	46	274	32	98	29	159	95	324	20	439	25	40	56	121	993
Grand Total	42	525	110	677	71	281	68	420	206	818	75	1099	62	109	101	272	2468
Apprch %	6.2	77.5	16.2		16.9	66.9	16.2		18.7	74.4	6.8		22.8	40.1	37.1		
Total %	1.7	21.3	4.5	27.4	2.9	11.4	2.8	17.0	8.3	33.1	3.0	44.5	2.5	4.4	4.1	11.0	

Start Time	ARCHIBALD AVENUE Southbound				EDISON AVENUE Westbound				ARCHIBALD AVENUE Northbound				EDISON AVENUE Eastbound				Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	
Peak Hour From 07:00 AM to 08:45 AM - Peak 1 of 1																	
Intersection	07:00 AM																
Volume	23	316	64	403	39	183	39	261	111	494	55	660	37	69	45	151	1475
Percent	5.7	78.4	15.9		14.9	70.1	14.9		16.8	74.8	8.3		24.5	45.7	29.8		
07:30	7	84	18	109	5	50	5	60	23	151	12	186	10	23	12	45	400
Volume																	0.922
Peak Factor	0.924																
High Int.	07:30 AM				07:15 AM				07:30 AM				07:30 AM				
Volume	7	84	18	109	16	52	14	82	23	151	12	186	10	23	12	45	45
Peak Factor	0.924				0.796				0.887				0.839				

CITY OF ONTARIO
 N/S: ARCHIBALD AVENUE
 E/W: EDISON AVENUE
 WEATHER: SUNNY

COUNTS UNLIMITED INC.
 25424 JACLYN AVENUE
 MORENO VALLEY CA 92557
 909-247-6716

File Name : ONAREDPM
 Site Code : 00671208
 Start Date : 3/30/2004
 Page No : 2



Peak Hour From 04:00 PM to 05:45 PM - Peak 1 of 1

By Approach	05:00 PM				04:30 PM				04:30 PM				04:30 PM			
Volume	26	498	28	552	57	77	23	157	79	488	51	618	89	300	128	517
Percent	4.7	90.2	5.1		36.3	49.0	14.6		12.8	79.0	8.3		17.2	58.0	24.8	
High Int.	05:00 PM				05:15 PM				05:15 PM				04:30 PM			
Volume	8	137	7	152	17	22	9	48	18	140	12	170	25	79	31	135
Peak Factor	0.908				0.818				0.909				0.957			

COUNTS UNLIMITED INC.
 25424 JACLYN AVENUE
 MORENO VALLEY CA 92557
 909-247-6716

File Name : ONAREDPM
 Site Code : 00671208
 Start Date : 3/30/2004
 Page No : 1

CITY OF ONTARIO
 N/S: ARCHIBALD AVENUE
 E/W: EDISON AVENUE
 WEATHER: SUNNY

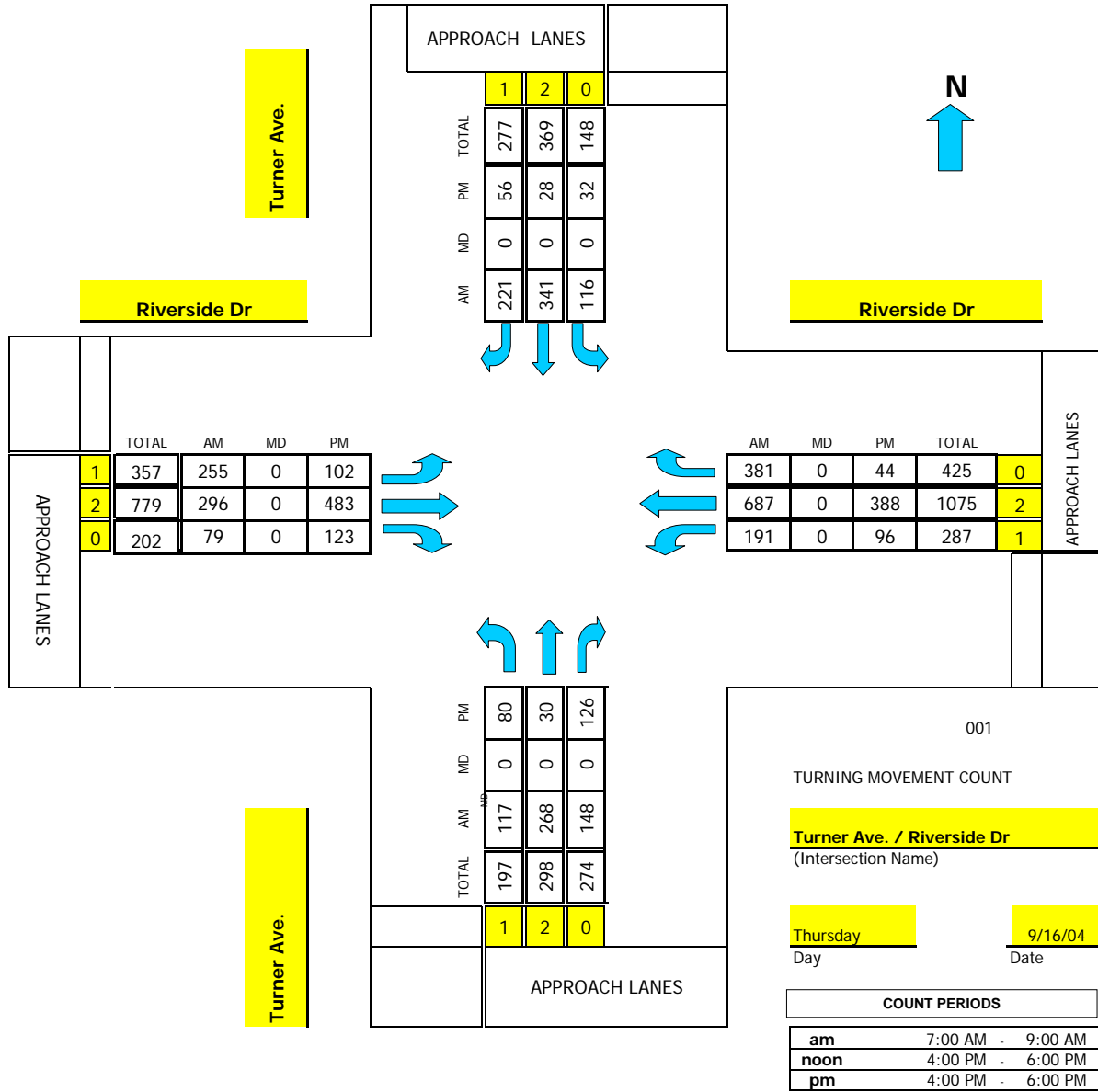
Groups Printed- TOTAL VOLUME

Start Time	ARCHIBALD AVENUE Southbound				EDISON AVENUE Westbound				ARCHIBALD AVENUE Northbound				EDISON AVENUE Eastbound				Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	
Factor	1.0	1.0	1.0		1.0	1.0	1.0		1.0	1.0	1.0		1.0	1.0	1.0		
04:00 PM	12	97	6	115	5	17	6	28	20	106	12	138	20	53	29	102	383
04:15 PM	14	88	6	108	5	24	6	35	19	100	11	130	25	66	23	114	387
04:30 PM	14	105	6	125	14	23	4	41	22	115	14	151	25	79	31	135	452
04:45 PM	14	92	11	117	8	15	6	29	19	120	16	155	23	74	36	133	434
Total	54	382	29	465	32	79	22	133	80	441	53	574	93	272	119	484	1656
05:00 PM	8	137	7	152	18	17	4	39	20	113	9	142	21	69	29	119	452
05:15 PM	7	122	8	137	17	22	9	48	18	140	12	170	20	78	32	130	485
05:30 PM	7	133	5	145	12	14	7	33	15	106	19	140	29	48	26	103	421
05:45 PM	4	106	8	118	11	13	6	30	14	105	11	130	8	46	18	72	350
Total	26	498	28	552	58	66	26	150	67	464	51	582	78	241	105	424	1708
Grand Total	80	880	57	1017	90	145	48	283	147	905	104	1156	171	513	224	908	3364
Apprch %	7.9	86.5	5.6		31.8	51.2	17.0		12.7	78.3	9.0		18.8	56.5	24.7		
Total %	2.4	26.2	1.7	30.2	2.7	4.3	1.4	8.4	4.4	26.9	3.1	34.4	5.1	15.2	6.7	27.0	

Start Time	ARCHIBALD AVENUE Southbound				EDISON AVENUE Westbound				ARCHIBALD AVENUE Northbound				EDISON AVENUE Eastbound				Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	
Peak Hour From 04:00 PM to 05:45 PM - Peak 1 of 1																	
Intersection	04:30 PM																
Volume	43	456	32	531	57	77	23	157	79	488	51	618	89	300	128	517	1823
Percent	8.1	85.9	6.0		36.3	49.0	14.6		12.8	79.0	8.3		17.2	58.0	24.8		
05:15																	
Volume	7	122	8	137	17	22	9	48	18	140	12	170	20	78	32	130	485
Peak Factor																	0.940
High Int.	05:00 PM				05:15 PM				05:15 PM				04:30 PM				
Volume	8	137	7	152	17	22	9	48	18	140	12	170	25	79	31	135	
Peak Factor	0.873								0.818				0.909				0.957

TMC Summary of Turner Ave./Riverside Dr

Project #: 04-3355-001



AM PEAK HOUR	700 AM
NOON PEAK HOUR	0 AM
PM PEAK HOUR	400 PM

Intersection Turning Movement

Prepared by: Southland Car Counters

N-S STREET: Turner Ave.

DATE: 9/16/2004

LOCATION: City of Ontario

E-W STREET: Riverside Dr

DAY: THURSDAY

PROJECT# 04-3355-001

LANES:	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			TOTAL
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	
	1	2	0	1	2	0	1	2	0	1	2	0	
6:00 AM													
6:15 AM													
6:30 AM													
6:45 AM													
7:00 AM	24	56	28	14	75	34	44	62	11	53	142	89	632
7:15 AM	31	82	33	23	98	69	79	56	14	42	199	124	850
7:30 AM	36	113	47	42	126	75	96	77	27	68	240	147	1094
7:45 AM	26	17	40	37	42	43	36	101	27	28	106	21	524
8:00 AM	29	14	32	26	23	28	17	88	19	19	82	16	393
8:15 AM	33	8	39	11	15	19	14	92	12	23	63	12	341
8:30 AM	20	2	28	2	4	11	7	73	9	11	58	15	240
8:45 AM	22	9	27	8	9	14	10	69	10	14	66	11	269
9:00 AM													
9:15 AM													
9:30 AM													
9:45 AM													
10:00 AM													
10:15 AM													
10:30 AM													
10:45 AM													
11:00 AM													
11:15 AM													
11:30 AM													
11:45 AM													

TOTAL VOLUMES =	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
	221	301	274	163	392	293	303	618	129	258	956	435	4343

AM Peak Hr Begins at: 700 AM

PEAK VOLUMES =	117	268	148	116	341	221	255	296	79	191	687	381	3100
PEAK HR. FACTOR:		0.680			0.698			0.788			0.692		0.708

CONTROL: signalized

Intersection Turning Movement

Prepared by: Southland Car Counters

N-S STREET: [Turner Ave.](#)

DATE: [9/16/2004](#)

LOCATION: [City of Ontario](#)

E-W STREET: [Riverside Dr](#)

DAY: [THURSDAY](#)

PROJECT# [04-3355-001](#)

LANES:	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			TOTAL
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	
	1	2	0	1	2	0	1	2	0	1	2	0	
1:00 PM													
1:15 PM													
1:30 PM													
1:45 PM													
2:00 PM													
2:15 PM													
2:30 PM													
2:45 PM													
3:00 PM													
3:15 PM													
3:30 PM													
3:45 PM													
4:00 PM	20	7	21	7	7	10	18	126	26	23	94	14	373
4:15 PM	15	5	32	9	7	14	31	115	38	25	91	10	392
4:30 PM	19	8	39	10	6	10	24	124	22	28	104	8	402
4:45 PM	26	10	34	6	8	22	29	118	37	20	99	12	421
5:00 PM	22	7	25	7	4	15	22	103	23	26	93	9	356
5:15 PM	21	11	16	5	1	14	35	109	21	19	82	9	343
5:30 PM	25	6	20	4	3	8	28	111	30	14	100	13	362
5:45 PM	18	4	17	4	5	7	21	102	22	23	87	7	317
6:00 PM													
6:15 PM													
6:30 PM													
6:45 PM													

TOTAL VOLUMES =	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
	166	58	204	52	41	100	208	908	219	178	750	82	2966

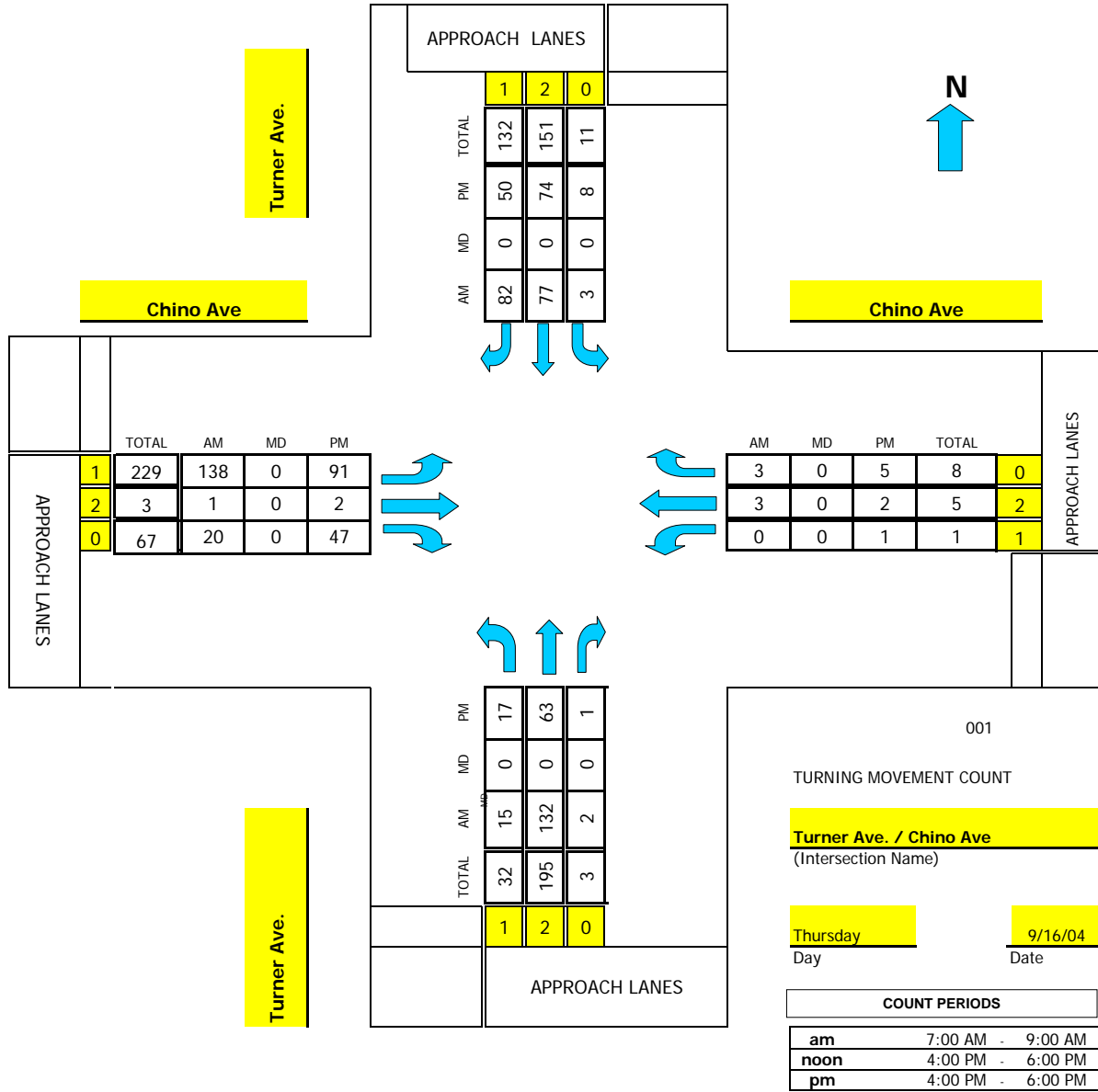
PM Peak Hr Begins at: 400 PM

PEAK VOLUMES =	80	30	126	32	28	56	102	483	123	96	388	44	1588
PEAK HR. FACTOR:		0.843		0.806			0.962			0.943			0.943

CONTROL: [signalized](#)

TMC Summary of Turner Ave./Chino Ave

Project #: 04-3355-002



AM PEAK HOUR	700 AM
NOON PEAK HOUR	0 AM
PM PEAK HOUR	415 PM

Intersection Turning Movement

Prepared by: Southland Car Counters

N-S STREET: Turner Ave.

DATE: 9/16/2004

LOCATION: City of Ontario

E-W STREET: Chino Ave

DAY: THURSDAY

PROJECT# 04-3355-002

LANES:	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			TOTAL
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	
	1	2	0	1	2	0	1	2	0	1	2	0	
6:00 AM													
6:15 AM													
6:30 AM													
6:45 AM													
7:00 AM	3	29	0	1	15	13	22	0	4	0	0	1	88
7:15 AM	6	46	1	0	18	19	37	0	3	0	0	0	130
7:30 AM	2	33	1	2	26	28	48	1	5	0	2	1	149
7:45 AM	4	24	0	0	18	22	31	0	8	0	1	1	109
8:00 AM	2	17	1	0	9	5	24	3	9	0	0	0	70
8:15 AM	2	14	0	1	7	9	8	0	3	0	0	1	45
8:30 AM	1	18	0	1	11	6	12	0	6	1	0	1	57
8:45 AM	1	11	1	0	6	12	16	0	4	0	0	2	53
9:00 AM													
9:15 AM													
9:30 AM													
9:45 AM													
10:00 AM													
10:15 AM													
10:30 AM													
10:45 AM													
11:00 AM													
11:15 AM													
11:30 AM													
11:45 AM													

TOTAL VOLUMES =	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
	21	192	4	5	110	114	198	4	42	1	3	7	701

AM Peak Hr Begins at: 700 AM

PEAK VOLUMES =	15	132	2	3	77	82	138	1	20	0	3	3	476
PEAK HR. FACTOR:		0.703			0.723			0.736			0.500		0.799

CONTROL: 4-way stop

Intersection Turning Movement

Prepared by: Southland Car Counters

N-S STREET: Turner Ave.

DATE: 9/16/2004

LOCATION: City of Ontario

E-W STREET: Chino Ave

DAY: THURSDAY

PROJECT# 04-3355-002

LANES:	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			TOTAL
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	
	1	2	0	1	2	0	1	2	0	1	2	0	
1:00 PM													
1:15 PM													
1:30 PM													
1:45 PM													
2:00 PM													
2:15 PM													
2:30 PM													
2:45 PM													
3:00 PM													
3:15 PM													
3:30 PM													
3:45 PM													
4:00 PM	6	12	0	1	14	8	13	1	12	0	0	0	67
4:15 PM	5	19	0	3	22	14	28	0	19	0	1	0	111
4:30 PM	1	10	0	1	19	17	26	0	13	0	0	2	89
4:45 PM	7	16	0	2	15	9	20	0	8	1	1	3	82
5:00 PM	4	18	1	2	18	10	17	2	7	0	0	0	79
5:15 PM	4	22	0	4	17	6	21	0	10	1	1	1	87
5:30 PM	5	14	1	3	20	4	13	3	7	0	0	0	70
5:45 PM	3	13	0	2	16	7	12	1	8	0	0	0	62
6:00 PM													
6:15 PM													
6:30 PM													
6:45 PM													

TOTAL VOLUMES =	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
	35	124	2	18	141	75	150	7	84	2	3	6	647

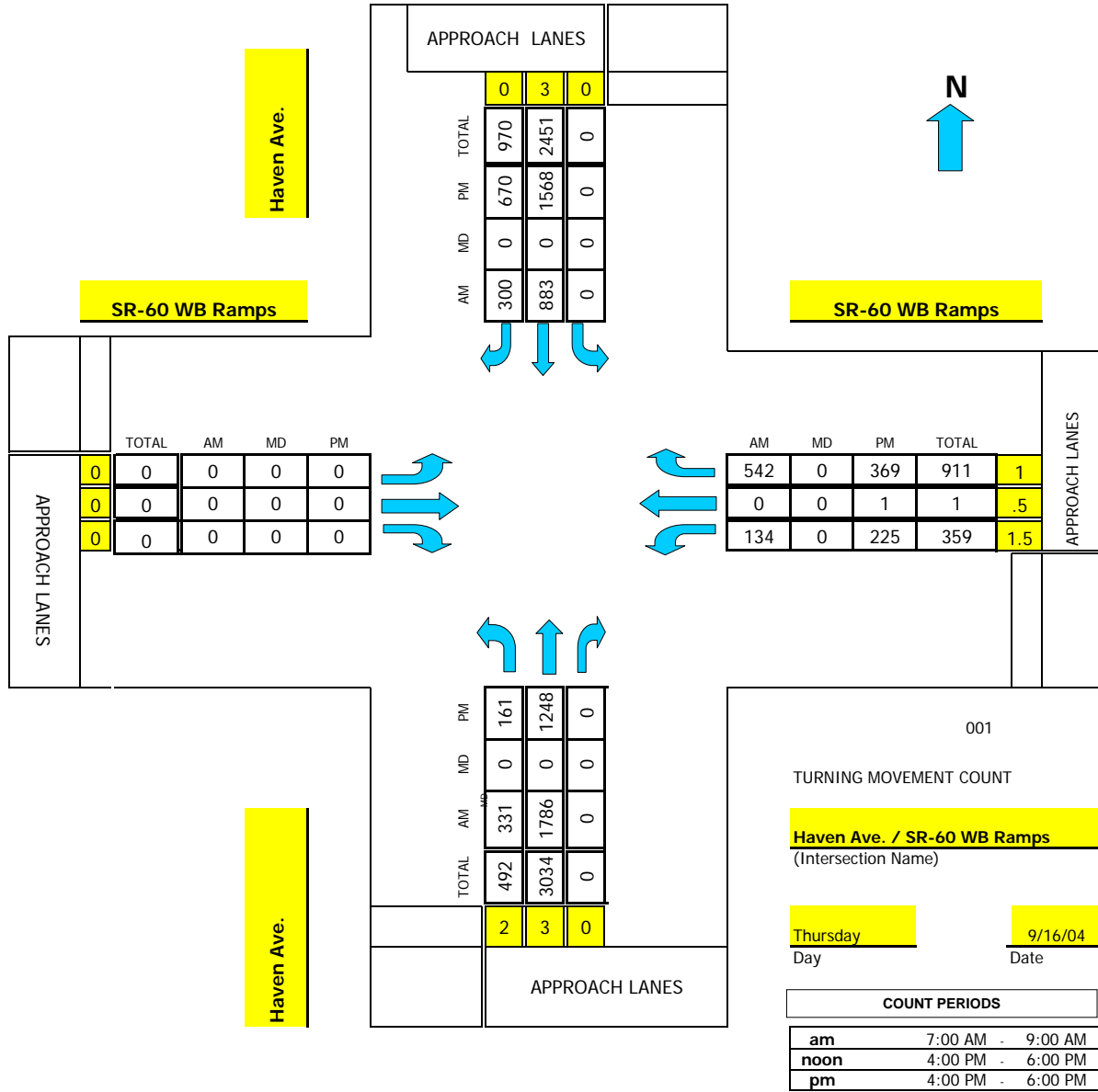
PM Peak Hr Begins at: 415 PM

PEAK VOLUMES =	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
	17	63	1	8	74	50	91	2	47	1	2	5	361
PEAK HR. FACTOR:		0.844			0.846			0.745			0.400		0.813

CONTROL: 4-way stop

TMC Summary of Haven Ave./SR-60 WB Ramps

Project #: 04-3355-003



AM PEAK HOUR 745 AM

NOON PEAK HOUR 0 AM

PM PEAK HOUR 400 PM

Intersection Turning Movement

Prepared by: Southland Car Counters

N-S STREET: Haven Ave. DATE: 9/16/2004 LOCATION: City of Ontario
 E-W STREET: SR-60 WB Ramps DAY: THURSDAY PROJECT# 04-3355-003

	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
	2	3	0	0	3	0	0	0	0	1.5	.5	1	

6:00 AM													
6:15 AM													
6:30 AM													
6:45 AM													
7:00 AM	76	401			190	62				20	0	102	851
7:15 AM	105	480			158	53				32	0	124	952
7:30 AM	84	458			178	88				23	1	119	951
7:45 AM	86	421			177	76				26	0	113	899
8:00 AM	67	442			247	95				44	0	160	1055
8:15 AM	86	459			218	77				30	0	143	1013
8:30 AM	92	464			241	52				34	0	126	1009
8:45 AM	61	410			191	61				22	0	107	852
9:00 AM													
9:15 AM													
9:30 AM													
9:45 AM													
10:00 AM													
10:15 AM													
10:30 AM													
10:45 AM													
11:00 AM													
11:15 AM													
11:30 AM													
11:45 AM													

TOTAL VOLUMES =	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
	657	3535	0	0	1600	564	0	0	0	231	1	994	7582

AM Peak Hr Begins at: 745 AM

PEAK VOLUMES =	331	1786	0	0	883	300	0	0	0	134	0	542	3976
PEAK HR. FACTOR:		0.952			0.865			0.000		0.828		0.942	

CONTROL: signalized

Intersection Turning Movement

Prepared by: Southland Car Counters

N-S STREET: Haven Ave.

DATE: 9/16/2004

LOCATION: City of Ontario

E-W STREET: SR-60 WB Ramps

DAY: THURSDAY

PROJECT# 04-3355-003

	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
1:00 PM	2	3	0	0	3	0	0	0	0	1.5	.5	1	
1:15 PM													
1:30 PM													
1:45 PM													
2:00 PM													
2:15 PM													
2:30 PM													
2:45 PM													
3:00 PM													
3:15 PM													
3:30 PM													
3:45 PM													
4:00 PM	40	338			375	162				54	0	82	1051
4:15 PM	41	332			360	166				47	1	85	1032
4:30 PM	34	258			405	159				66	0	99	1021
4:45 PM	46	320			428	183				58	0	103	1138
5:00 PM	35	267			387	172				44	0	67	972
5:15 PM	29	257			435	180				59	1	89	1050
5:30 PM	50	273			444	154				62	0	72	1055
5:45 PM	40	262			399	145				53	0	63	962
6:00 PM													
6:15 PM													
6:30 PM													
6:45 PM													

TOTAL VOLUMES =	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
	315	2307	0	0	3233	1321	0	0	0	443	2	660	8281

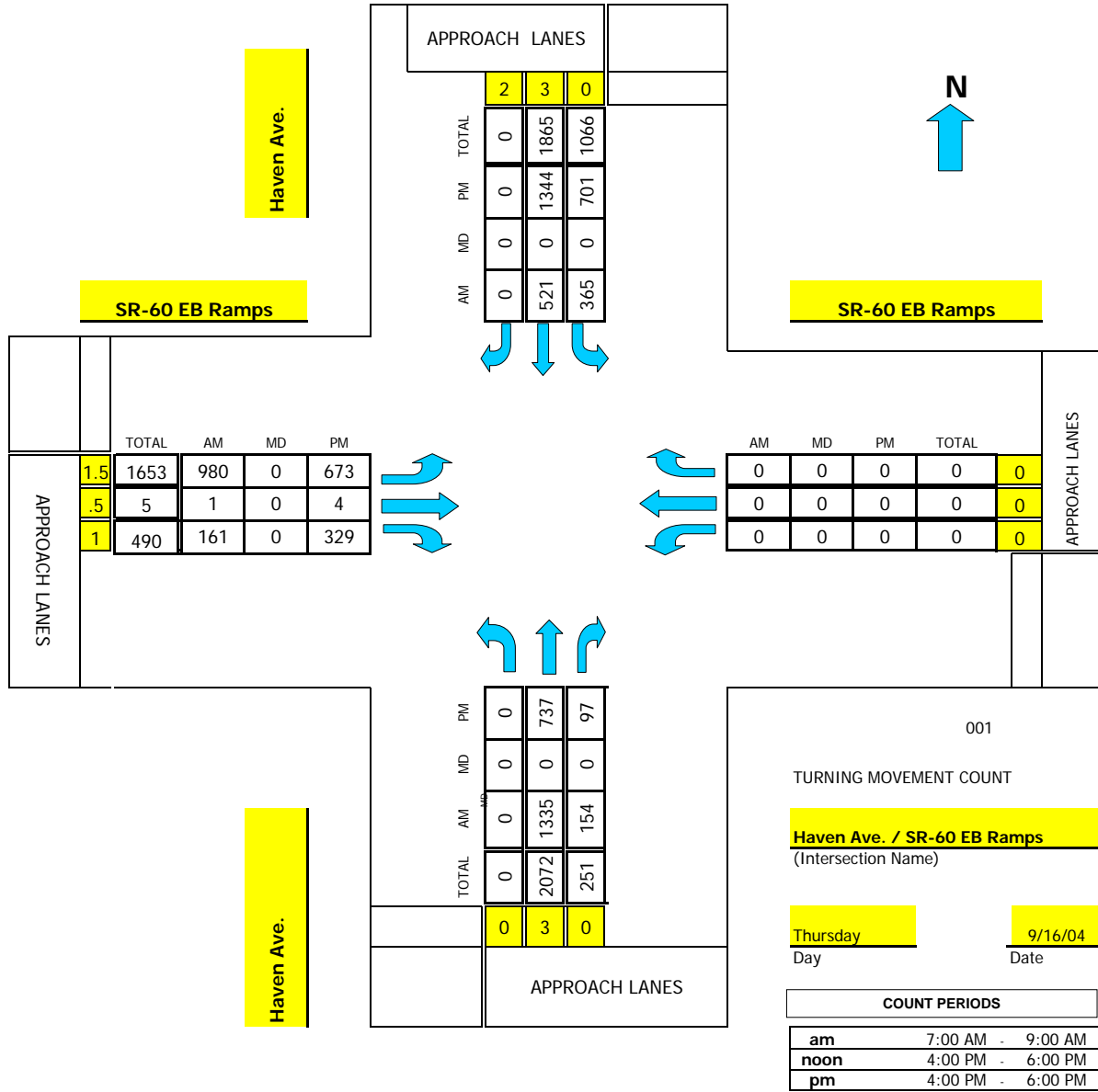
PM Peak Hr Begins at: 400 PM

PEAK VOLUMES =	161	1248	0	0	1568	670	0	0	0	225	1	369	4242
PEAK HR. FACTOR:		0.932			0.916			0.000			0.902		0.932

CONTROL: signalized

TMC Summary of Haven Ave./SR-60 EB Ramps

Project #: 04-3355-004



AM PEAK HOUR	745 AM
NOON PEAK HOUR	0 AM
PM PEAK HOUR	500 PM

Intersection Turning Movement

Prepared by: Southland Car Counters

N-S STREET: Haven Ave.

DATE: 9/16/2004

LOCATION: City of Ontario

E-W STREET: SR-60 EB Ramps

DAY: THURSDAY

PROJECT# 04-3355-004

LANES:	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			TOTAL
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	
	0	3	0	2	3	0	1.5	.5	1	0	0	0	
6:00 AM													
6:15 AM													
6:30 AM													
6:45 AM													
7:00 AM		223	33	98	184		182	0	46				766
7:15 AM		255	42	70	118		255	1	31				772
7:30 AM		215	37	101	101		299	1	38				792
7:45 AM		332	49	109	131		245	0	27				893
8:00 AM		358	28	80	115		266	0	47				894
8:15 AM		328	42	92	146		221	1	53				883
8:30 AM		317	35	84	129		248	0	34				847
8:45 AM		271	32	68	136		213	0	46				766
9:00 AM													
9:15 AM													
9:30 AM													
9:45 AM													
10:00 AM													
10:15 AM													
10:30 AM													
10:45 AM													
11:00 AM													
11:15 AM													
11:30 AM													
11:45 AM													

TOTAL VOLUMES =	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
	0	2299	298	702	1060	0	1929	3	322	0	0	0	6613

AM Peak Hr Begins at: 745 AM

PEAK VOLUMES =	0	1335	154	365	521	0	980	1	161	0	0	0	3517
PEAK HR. FACTOR:		0.964		0.923			0.912			0.000			0.984

CONTROL: signalized

Intersection Turning Movement

Prepared by: Southland Car Counters

N-S STREET: Haven Ave.

DATE: 9/16/2004

LOCATION: City of Ontario

E-W STREET: SR-60 EB Ramps

DAY: THURSDAY

PROJECT# 04-3355-004

	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
	0	3	0	2	3	0	1.5	.5	1	0	0	0	
1:00 PM													
1:15 PM													
1:30 PM													
1:45 PM													
2:00 PM													
2:15 PM													
2:30 PM													
2:45 PM													
3:00 PM													
3:15 PM													
3:30 PM													
3:45 PM													
4:00 PM		164	23	108	224		112	0	68				699
4:15 PM		138	39	169	278		140	1	80				845
4:30 PM		175	26	154	251		146	0	59				811
4:45 PM		160	29	210	245		125	2	77				848
5:00 PM		176	27	167	369		167	0	78				984
5:15 PM		189	22	202	322		161	3	96				995
5:30 PM		205	28	183	357		197	0	83				1053
5:45 PM		167	20	149	296		148	1	72				853
6:00 PM													
6:15 PM													
6:30 PM													
6:45 PM													

TOTAL VOLUMES =	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
	0	1374	214	1342	2342	0	1196	7	613	0	0	0	7088

PM Peak Hr Begins at: 500 PM

PEAK VOLUMES =	0	737	97	701	1344	0	673	4	329	0	0	0	3885
PEAK HR. FACTOR:		0.895		0.947			0.898			0.000			0.922

CONTROL: signalized

04

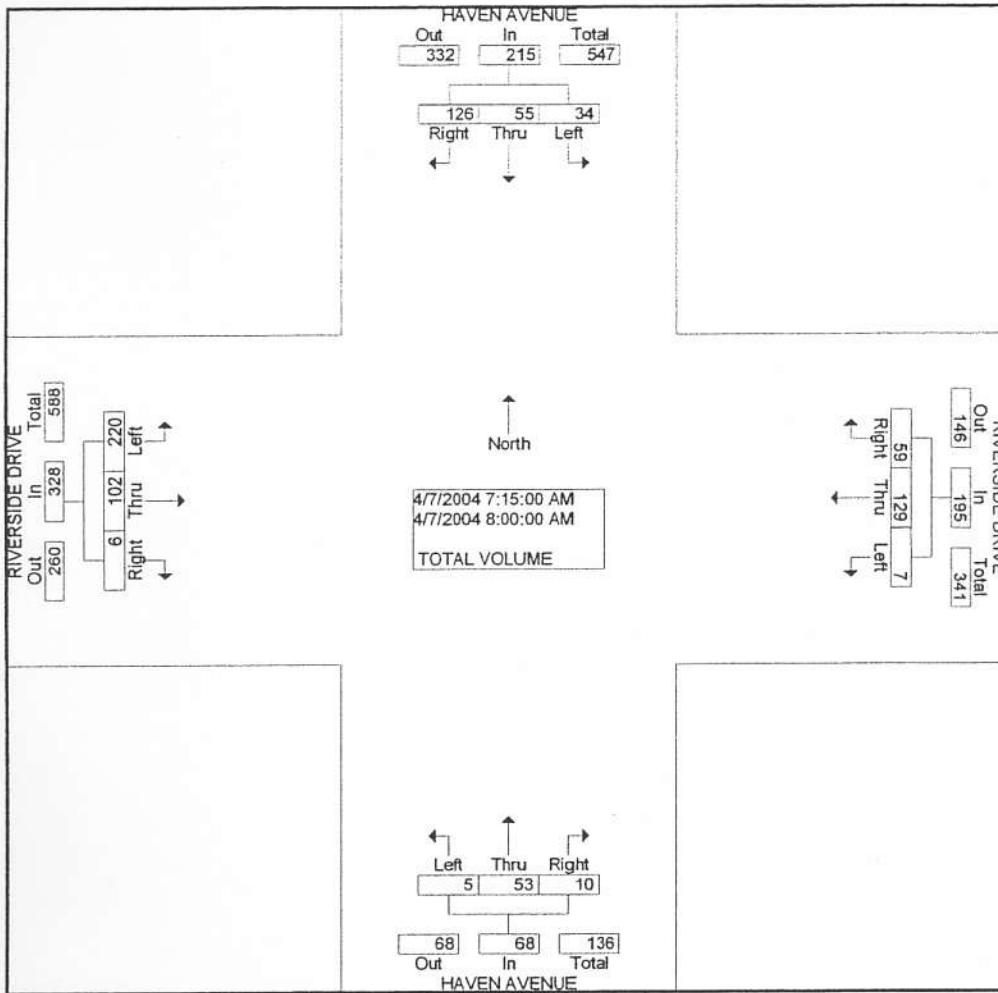
CITY OF ONTARIO
HAVEN AVENUE / RIVERSIDE DRIVE

Turning Movement Counts
March 2004

CITY OF ONTARIO
 N/S: HAVEN AVENUE
 E/W: RIVERSIDE DRIVE
 WEATHER: SUNNY

COUNTS UNLIMITED INC.
 25424 JACLYN AVENUE
 MORENO VALLEY CA 92557
 909-247-6716

File Name : ONHARIAM
 Site Code : 00671220
 Start Date : 4/7/2004
 Page No : 2



Peak Hour From 07:00 AM to 08:45 AM - Peak 1 of 1

By Approach	07:45 AM				07:15 AM				07:30 AM				07:15 AM			
Volume	48	47	128	223	7	129	59	195	5	55	10	70	220	102	6	328
Percent	21.5	21.1	57.4		3.6	66.2	30.3		7.1	78.6	14.3		67.1	31.1	1.8	
High Int.	07:45 AM				07:15 AM				07:45 AM				07:45 AM			
Volume	11	12	38	61	3	27	23	53	0	25	3	28	68	22	0	90
Peak Factor	0.914				0.920				0.625				0.911			

CITY OF ONTARIO
 N/S: HAVEN AVENUE
 E/W: RIVERSIDE DRIVE
 WEATHER: SUNNY

COUNTS UNLIMITED INC.
 25424 JACLYN AVENUE
 MORENO VALLEY CA 92557
 909-247-6716

File Name : ONHARIAM
 Site Code : 00671220
 Start Date : 4/7/2004
 Page No : 1

Groups Printed- TOTAL VOLUME

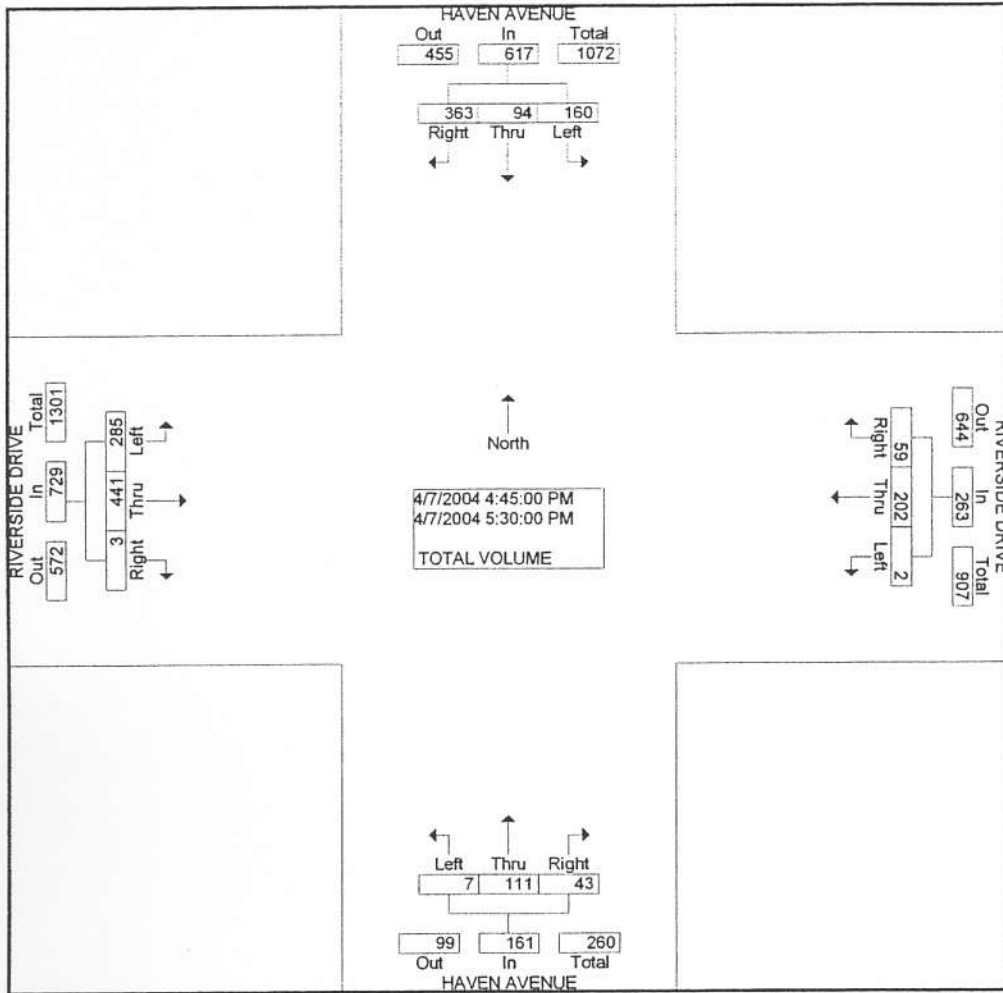
Start Time	HAVEN AVENUE Southbound				RIVERSIDE DRIVE Westbound				HAVEN AVENUE Northbound				RIVERSIDE DRIVE Eastbound				Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	
Factor	1.0	1.0	1.0		1.0	1.0	1.0		1.0	1.0	1.0		1.0	1.0	1.0		
07:00 AM	14	15	26	55	4	25	10	39	0	7	1	8	49	31	4	84	186
07:15 AM	5	17	32	54	3	27	23	53	1	8	2	11	50	24	3	77	195
07:30 AM	5	12	30	47	1	38	10	49	3	12	3	18	53	21	2	76	190
07:45 AM	11	12	38	61	2	34	17	53	0	25	3	28	68	22	0	90	232
Total	35	56	126	217	10	124	60	194	4	52	9	65	220	98	9	327	803
08:00 AM	13	14	26	53	1	30	9	40	1	8	2	11	49	35	1	85	189
08:15 AM	15	7	32	54	1	25	8	34	1	10	2	13	43	18	1	62	163
08:30 AM	9	14	32	55	1	32	8	41	1	8	1	10	53	23	1	77	183
08:45 AM	3	9	36	48	0	23	12	35	3	8	4	15	50	33	1	84	182
Total	40	44	126	210	3	110	37	150	6	34	9	49	195	109	4	308	717
Grand Total	75	100	252	427	13	234	97	344	10	86	18	114	415	207	13	635	1520
Apprch %	17.6	23.4	59.0		3.8	68.0	28.2		8.8	75.4	15.8		65.4	32.6	2.0		
Total %	4.9	6.6	16.6	28.1	0.9	15.4	6.4	22.6	0.7	5.7	1.2	7.5	27.3	13.6	0.9	41.8	

Start Time	HAVEN AVENUE Southbound				RIVERSIDE DRIVE Westbound				HAVEN AVENUE Northbound				RIVERSIDE DRIVE Eastbound				Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	
Peak Hour From 07:00 AM to 08:45 AM - Peak 1 of 1																	
Intersection	07:15 AM																
Volume	34	55	126	215	7	129	59	195	5	53	10	68	220	102	6	328	806
Percent	15.8	25.6	58.6		3.6	66.2	30.3		7.4	77.9	14.7		67.1	31.1	1.8		
07:45																	
Volume	11	12	38	61	2	34	17	53	0	25	3	28	68	22	0	90	232
Peak Factor																	
High Int.	07:45 AM																
Volume	11	12	38	61	3	27	23	53	0	25	3	28	68	22	0	90	232
Peak Factor	0.881				0.920				0.607				0.911				0.869

CITY OF ONTARIO
 N/S: HAVEN AVENUE
 E/W: RIVERSIDE DRIVE
 WEATHER: SUNNY

COUNTS UNLIMITED INC.
 25424 JACLYN AVENUE
 MORENO VALLEY CA 92557
 909-247-6716

File Name : ONHARIPM
 Site Code : 00671220
 Start Date : 4/7/2004
 Page No : 2



Peak Hour From 04:00 PM to 05:45 PM - Peak 1 of 1

By Approach	04:45 PM				04:30 PM				04:15 PM				04:45 PM			
Volume	160	94	363	617	1	210	62	273	10	117	48	175	285	441	3	729
Percent	25.9	15.2	58.8		0.4	76.9	22.7		5.7	66.9	27.4		39.1	60.5	0.4	
High Int.	05:30 PM				05:15 PM				04:15 PM				05:00 PM			
Volume	47	27	118	192	0	52	23	75	2	30	15	47	71	138	1	210
Peak Factor	0.803				0.910				0.931				0.868			

COUNTS UNLIMITED INC.
 25424 JACLYN AVENUE
 MORENO VALLEY CA 92557
 909-247-6716

CITY OF ONTARIO
 N/S: HAVEN AVENUE
 EW: RIVERSIDE DRIVE
 WEATHER: SUNNY

File Name : ONHARIPM
 Site Code : 00671220
 Start Date : 4/7/2004
 Page No : 1

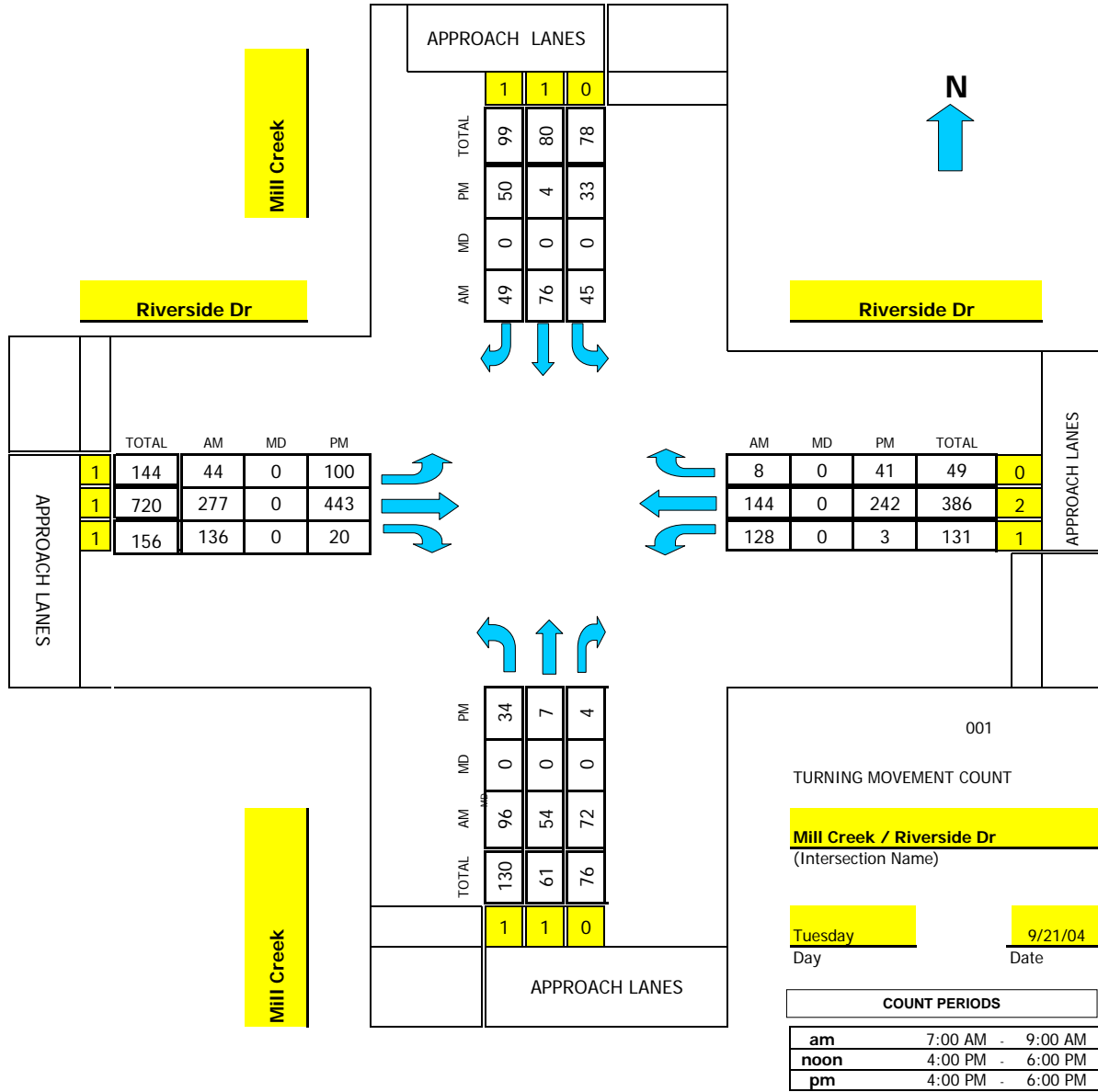
Groups Printed- TOTAL VOLUME

Start Time	HAVEN AVENUE Southbound				RIVERSIDE DRIVE Westbound				HAVEN AVENUE Northbound				RIVERSIDE DRIVE Eastbound				Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	
Factor	1.0	1.0	1.0		1.0	1.0	1.0		1.0	1.0	1.0		1.0	1.0	1.0		
04:00 PM	34	14	63	111	0	40	7	47	3	32	5	40	70	78	6	154	352
04:15 PM	37	17	69	123	3	38	14	55	2	30	15	47	53	75	1	129	354
04:30 PM	36	10	87	133	0	53	16	69	3	31	9	43	56	78	2	136	381
04:45 PM	38	19	86	143	0	49	11	60	2	27	15	44	69	97	0	166	413
Total	145	60	305	510	3	180	48	231	10	120	44	174	248	328	9	585	1500
05:00 PM	33	23	70	126	1	56	12	69	3	29	9	41	71	138	1	210	446
05:15 PM	42	25	89	156	0	52	23	75	2	33	10	45	78	113	1	192	468
05:30 PM	47	27	118	192	1	45	13	59	0	22	9	31	67	93	1	161	443
05:45 PM	23	20	92	135	0	51	14	65	0	19	5	24	61	73	2	136	360
Total	145	95	369	609	2	204	62	268	5	103	33	141	277	417	5	699	1717
Grand Total	290	155	674	1119	5	384	110	499	15	223	77	315	525	745	14	1284	3217
Apprch %	25.9	13.9	60.2		1.0	77.0	22.0		4.8	70.8	24.4		40.9	58.0	1.1		
Total %	9.0	4.8	21.0	34.8	0.2	11.9	3.4	15.5	0.5	6.9	2.4	9.8	16.3	23.2	0.4	39.9	

Start Time	HAVEN AVENUE Southbound				RIVERSIDE DRIVE Westbound				HAVEN AVENUE Northbound				RIVERSIDE DRIVE Eastbound				Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	
Peak Hour From 04:00 PM to 05:45 PM - Peak 1 of 1																	
Intersection	04:45 PM																
Volume	160	94	363	617	2	202	59	263	7	111	43	161	285	441	3	729	1770
Percent	25.9	15.2	58.8		0.8	76.8	22.4		4.3	68.9	26.7		39.1	60.5	0.4		
05:15																	
Volume	42	25	89	156	0	52	23	75	2	33	10	45	78	113	1	192	468
Peak Factor																	0.946
High Int.	05:30 PM				05:15 PM				05:15 PM				05:00 PM				
Volume	47	27	118	192	0	52	23	75	2	33	10	45	71	138	1	210	
Peak Factor	0.803								0.877				0.894				0.868

TMC Summary of Mill Creek/Riverside Dr

Project #: 04-3355-006



AM PEAK HOUR	700 AM
NOON PEAK HOUR	0 AM
PM PEAK HOUR	445 PM

Intersection Turning Movement

Prepared by: Southland Car Counters

N-S STREET: Mill Creek

DATE: 9/21/2004

LOCATION: City of Ontario

E-W STREET: Riverside Dr

DAY: TUESDAY

PROJECT# 04-3355-006

LANES:	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			TOTAL
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	
	1	1	0	1	1	0	1	1	1	1	2	0	
6:00 AM													
6:15 AM													
6:30 AM													
6:45 AM													
7:00 AM	12	9	18	10	22	9	8	62	28	25	29	0	232
7:15 AM	27	14	26	18	29	14	16	74	56	46	35	2	357
7:30 AM	38	23	22	11	16	10	13	82	35	39	42	3	334
7:45 AM	19	8	6	6	9	16	7	59	17	18	38	3	206
8:00 AM	7	0	1	9	3	13	20	53	5	2	34	4	151
8:15 AM	5	0	2	5	3	7	9	29	8	4	26	3	101
8:30 AM	4	1	0	8	2	10	11	36	6	3	29	1	111
8:45 AM	2	0	0	4	0	6	12	27	9	3	22	2	87
9:00 AM													
9:15 AM													
9:30 AM													
9:45 AM													
10:00 AM													
10:15 AM													
10:30 AM													
10:45 AM													
11:00 AM													
11:15 AM													
11:30 AM													
11:45 AM													

TOTAL VOLUMES =	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
	114	55	75	71	84	85	96	422	164	140	255	18	1579

AM Peak Hr Begins at: 700 AM

PEAK VOLUMES =	96	54	72	45	76	49	44	277	136	128	144	8	1129
PEAK HR. FACTOR:		0.669		0.697			0.783			0.833			0.791

CONTROL: signalized

Intersection Turning Movement

Prepared by: Southland Car Counters

N-S STREET: Mill Creek

DATE: 9/21/2004

LOCATION: City of Ontario

E-W STREET: Riverside Dr

DAY: TUESDAY

PROJECT# 04-3355-006

LANES:	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			TOTAL
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	
	1	1	0	1	1	0	1	1	1	1	2	0	
1:00 PM													
1:15 PM													
1:30 PM													
1:45 PM													
2:00 PM													
2:15 PM													
2:30 PM													
2:45 PM													
3:00 PM													
3:15 PM													
3:30 PM													
3:45 PM													
4:00 PM	8	2	1	6	0	4	23	94	4	0	42	7	191
4:15 PM	10	0	0	8	0	9	27	103	5	2	59	11	234
4:30 PM	13	0	2	10	2	9	34	99	7	0	59	10	245
4:45 PM	8	2	1	6	0	12	21	114	3	0	66	12	245
5:00 PM	7	3	0	11	1	7	22	102	2	1	65	5	226
5:15 PM	11	1	2	7	0	18	28	118	6	0	60	13	264
5:30 PM	8	1	1	9	3	13	29	109	9	2	51	11	246
5:45 PM	8	0	1	8	1	10	24	105	4	1	45	10	217
6:00 PM													
6:15 PM													
6:30 PM													
6:45 PM													

TOTAL VOLUMES =	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
	73	9	8	65	7	82	208	844	40	6	447	79	1868

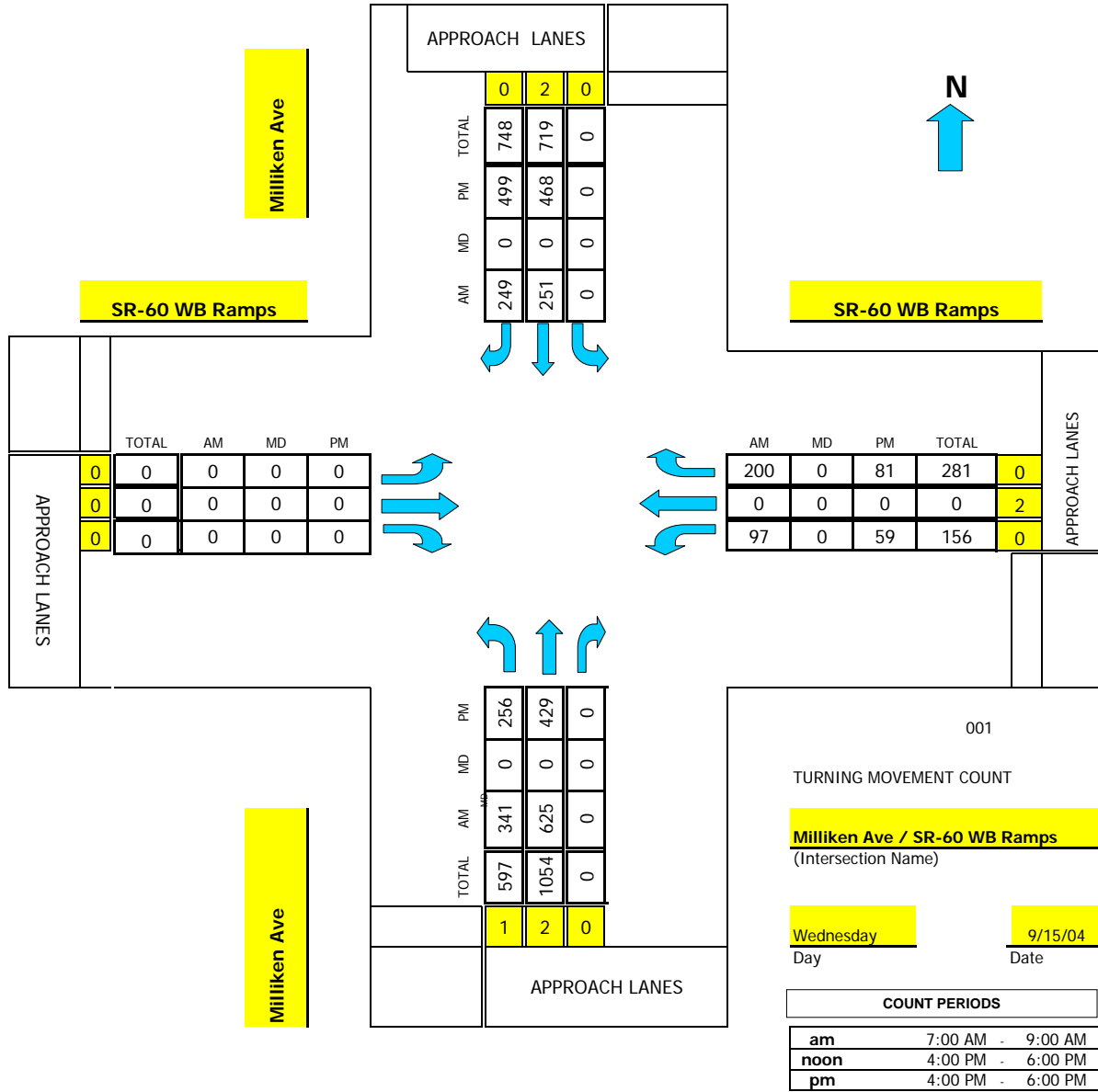
PM Peak Hr Begins at: 445 PM

PEAK VOLUMES =	34	7	4	33	4	50	100	443	20	3	242	41	981
PEAK HR. FACTOR:		0.804			0.870			0.926			0.917		0.929

CONTROL: signalized

TMC Summary of Milliken Ave/SR-60 WB Ramps

Project #: 04-3357-001



AM PEAK HOUR	700 AM
NOON PEAK HOUR	0 AM
PM PEAK HOUR	400 PM

Intersection Turning Movement

Prepared by: Southland Car Counters

N-S STREET: **Milliken Ave** DATE: **9/15/2004** LOCATION: **City of Ontario**
 E-W STREET: **SR-60 WB Ramps** DAY: **WEDNESDAY** PROJECT# **04-3357-001**

	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
	1	2	0	0	2	0	0	0	0	0	2	0	

6:00 AM													
6:15 AM													
6:30 AM													
6:45 AM													
7:00 AM	82	129			61	63				25		46	406
7:15 AM	98	153			71	72				26		55	475
7:30 AM	86	174			62	53				21		47	443
7:45 AM	75	169			57	61				25		52	439
8:00 AM	68	150			35	37				18		51	359
8:15 AM	56	112			46	51				15		59	339
8:30 AM	49	84			49	40				8		51	281
8:45 AM	41	91			39	32				11		46	260
9:00 AM													
9:15 AM													
9:30 AM													
9:45 AM													
10:00 AM													
10:15 AM													
10:30 AM													
10:45 AM													
11:00 AM													
11:15 AM													
11:30 AM													
11:45 AM													

TOTAL VOLUMES =	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
	555	1062	0	0	420	409	0	0	0	149	0	407	3002

AM Peak Hr Begins at: 700 AM

PEAK VOLUMES =	341	625	0	0	251	249	0	0	0	97	0	200	1763
PEAK HR. FACTOR:		0.929			0.874			0.000			0.917		0.928

CONTROL: **signalized**

Intersection Turning Movement

Prepared by: Southland Car Counters

N-S STREET: Milliken Ave DATE: 9/15/2004 LOCATION: City of Ontario
 E-W STREET: SR-60 WB Ramps DAY: WEDNESDAY PROJECT# 04-3357-001

	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
	1	2	0	0	2	0	0	0	0	0	2	0	
1:00 PM													
1:15 PM													
1:30 PM													
1:45 PM													
2:00 PM													
2:15 PM													
2:30 PM													
2:45 PM													
3:00 PM													
3:15 PM													
3:30 PM													
3:45 PM													
4:00 PM	57	102			113	118				19		21	430
4:15 PM	62	100			102	137				19		25	445
4:30 PM	71	120			114	125				12		14	456
4:45 PM	66	107			139	119				9		21	461
5:00 PM	58	80			107	103				12		16	376
5:15 PM	62	112			122	121				23		17	457
5:30 PM	48	99			98	106				17		16	384
5:45 PM	40	87			104	104				9		12	356
6:00 PM													
6:15 PM													
6:30 PM													
6:45 PM													

TOTAL VOLUMES =	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
	464	807	0	0	899	933	0	0	0	120	0	142	3365

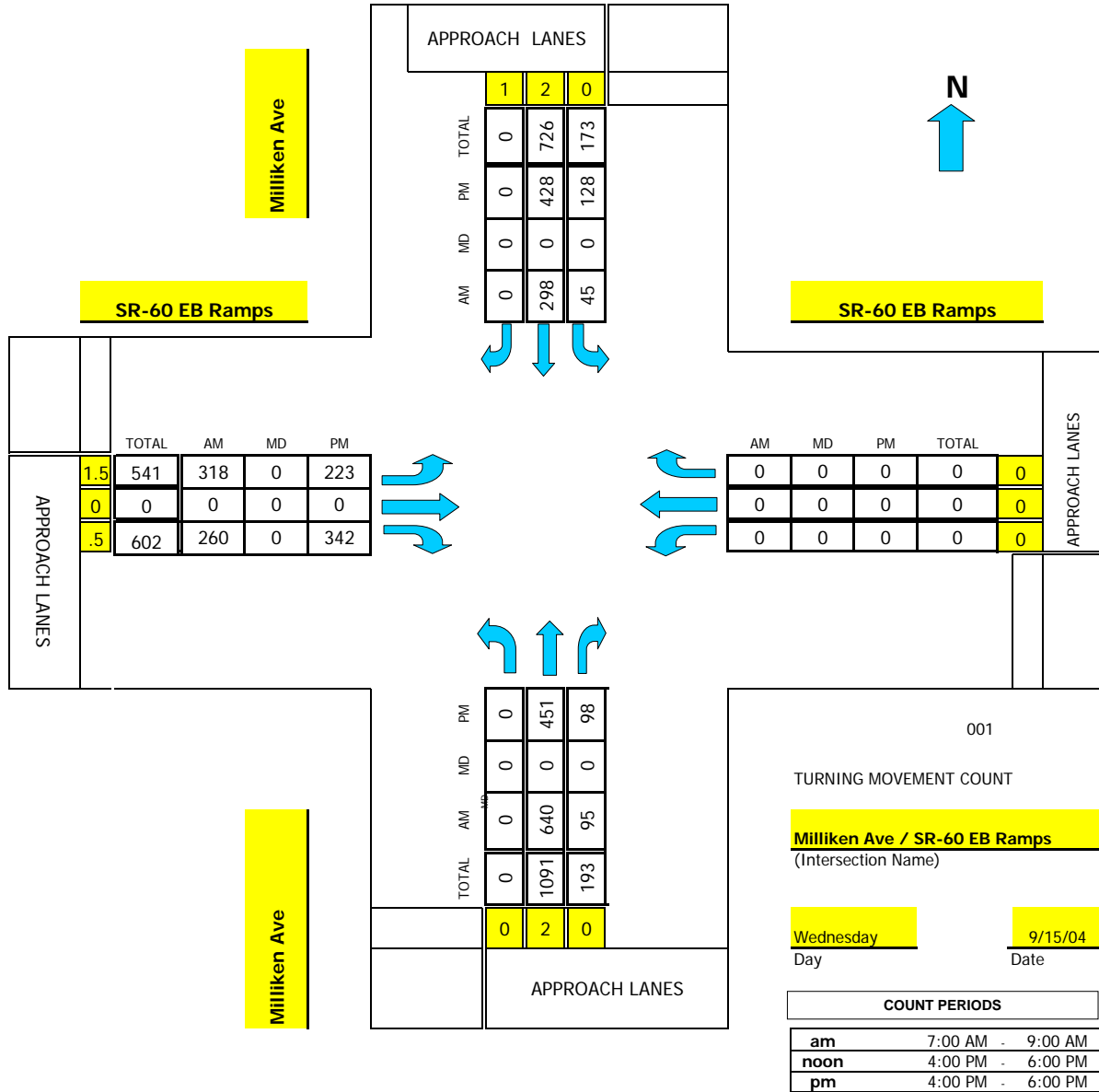
PM Peak Hr Begins at: 400 PM

PEAK VOLUMES =	256	429	0	0	468	499	0	0	0	59	0	81	1792
PEAK HR. FACTOR:		0.897			0.937			0.000			0.795		0.972

CONTROL: signalized

TMC Summary of Milliken Ave/SR-60 EB Ramps

Project #: 04-3357-002



AM PEAK HOUR	700 AM
NOON PEAK HOUR	0 AM
PM PEAK HOUR	430 PM

Intersection Turning Movement

Prepared by: Southland Car Counters

N-S STREET: Milliken Ave

DATE: 9/15/2004

LOCATION: City of Ontario

E-W STREET: SR-60 EB Ramps

DAY: WEDNESDAY

PROJECT# 04-3357-002

LANES:	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			TOTAL
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	
	0	2	0	1	2	0	1.5	0	.5	0	0	0	

6:00 AM													
6:15 AM													
6:30 AM													
6:45 AM													
7:00 AM		149	21	7	75		59		62				373
7:15 AM		173	34	14	82		70		85				458
7:30 AM		165	27	9	71		89		72				433
7:45 AM		153	13	15	70		100		41				392
8:00 AM		137	20	12	41		79		53				342
8:15 AM		100	14	6	51		64		37				272
8:30 AM		70	15	12	42		67		48				254
8:45 AM		81	10	10	37		54		47				239
9:00 AM													
9:15 AM													
9:30 AM													
9:45 AM													
10:00 AM													
10:15 AM													
10:30 AM													
10:45 AM													
11:00 AM													
11:15 AM													
11:30 AM													
11:45 AM													

TOTAL VOLUMES =	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
	0	1028	154	85	469	0	582	0	445	0	0	0	2763

AM Peak Hr Begins at: 700 AM

PEAK VOLUMES =	0	640	95	45	298	0	318	0	260	0	0	0	1656
PEAK HR. FACTOR:		0.888		0.893			0.898			0.000			0.904

CONTROL: signalized

Intersection Turning Movement

Prepared by: Southland Car Counters

N-S STREET: **Milliken Ave** DATE: **9/15/2004** LOCATION: **City of Ontario**
 E-W STREET: **SR-60 EB Ramps** DAY: **WEDNESDAY** PROJECT# **04-3357-002**

LANES:	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			TOTAL
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	
	0	2	0	1	2	0	1.5	0	.5	0	0	0	
1:00 PM													
1:15 PM													
1:30 PM													
1:45 PM													
2:00 PM													
2:15 PM													
2:30 PM													
2:45 PM													
3:00 PM													
3:15 PM													
3:30 PM													
3:45 PM													
4:00 PM		125	22	21	104		29		63				364
4:15 PM		121	19	30	98		37		54				359
4:30 PM		137	27	24	109		48		76				421
4:45 PM		111	18	36	105		52		68				390
5:00 PM		83	28	27	97		63		91				389
5:15 PM		120	25	41	117		60		107				470
5:30 PM		96	17	22	101		49		76				361
5:45 PM		88	12	16	106		38		67				327
6:00 PM													
6:15 PM													
6:30 PM													
6:45 PM													

TOTAL VOLUMES =	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
	0	881	168	217	837	0	376	0	602	0	0	0	3081

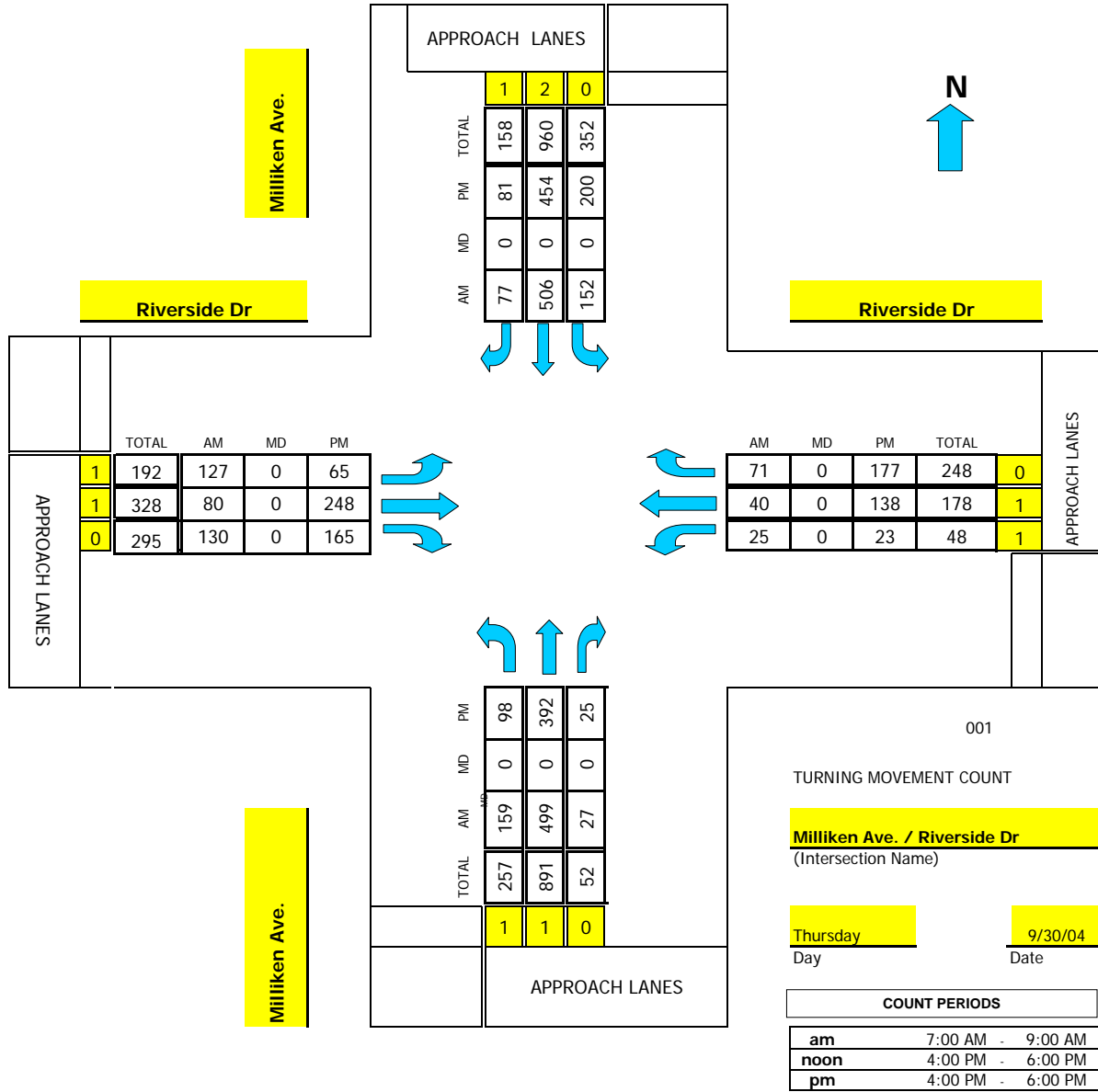
PM Peak Hr Begins at: 430 PM

PEAK VOLUMES =	0	451	98	128	428	0	223	0	342	0	0	0	1670
PEAK HR. FACTOR:		0.837		0.880			0.846			0.000			0.888

CONTROL: **signalized**

TMC Summary of Milliken Ave./Riverside Dr

Project #: 04-3355-007



AM PEAK HOUR	730 AM
NOON PEAK HOUR	0 AM
PM PEAK HOUR	415 PM

Intersection Turning Movement

Prepared by: Southland Car Counters

N-S STREET: Milliken Ave.

DATE: 9/30/2004

LOCATION: City of Ontario

E-W STREET: Riverside Dr

DAY: THURSDAY

PROJECT# 04-3355-007

LANES:	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			TOTAL
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	
	1	1	0	1	2	0	1	1	0	1	1	0	
6:00 AM													
6:15 AM													
6:30 AM													
6:45 AM													
7:00 AM	38	84	5	28	82	38	22	12	17	2	12	19	359
7:15 AM	44	97	7	23	93	52	41	13	12	3	17	20	422
7:30 AM	43	127	6	37	131	22	43	28	36	5	8	16	502
7:45 AM	42	138	4	39	135	17	16	16	34	4	8	20	473
8:00 AM	34	110	9	34	124	26	26	22	28	8	14	22	457
8:15 AM	40	124	8	42	116	12	42	14	32	8	10	13	461
8:30 AM	43	99	8	23	108	13	23	17	23	5	9	17	388
8:45 AM	38	102	7	29	101	19	25	18	17	6	6	16	384
9:00 AM													
9:15 AM													
9:30 AM													
9:45 AM													
10:00 AM													
10:15 AM													
10:30 AM													
10:45 AM													
11:00 AM													
11:15 AM													
11:30 AM													
11:45 AM													

TOTAL VOLUMES =	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
	322	881	54	255	890	199	238	140	199	41	84	143	3446

AM Peak Hr Begins at: 730 AM

PEAK VOLUMES =	159	499	27	152	506	77	127	80	130	25	40	71	1893
PEAK HR. FACTOR:		0.931		0.962			0.787			0.773			0.943

CONTROL: signalized

Intersection Turning Movement

Prepared by: Southland Car Counters

N-S STREET: Milliken Ave.

DATE: 9/30/2004

LOCATION: City of Ontario

E-W STREET: Riverside Dr

DAY: THURSDAY

PROJECT# 04-3355-007

LANES:	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			TOTAL
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	
	1	1	0	1	2	0	1	1	0	1	1	0	
1:00 PM													
1:15 PM													
1:30 PM													
1:45 PM													
2:00 PM													
2:15 PM													
2:30 PM													
2:45 PM													
3:00 PM													
3:15 PM													
3:30 PM													
3:45 PM													
4:00 PM	11	88	6	44	98	19	11	43	38	8	27	34	427
4:15 PM	31	72	9	48	124	27	18	59	33	7	47	49	524
4:30 PM	21	131	8	33	109	16	14	66	41	5	34	62	540
4:45 PM	22	99	3	53	105	16	20	56	45	3	22	21	465
5:00 PM	24	90	5	66	116	22	13	67	46	8	35	45	537
5:15 PM	17	105	6	59	103	18	19	54	39	4	38	38	500
5:30 PM	21	86	6	43	106	14	22	49	30	9	18	20	424
5:45 PM	18	81	4	42	93	15	16	43	32	9	22	24	399
6:00 PM													
6:15 PM													
6:30 PM													
6:45 PM													

TOTAL VOLUMES =	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
	165	752	47	388	854	147	133	437	304	53	243	293	3816

PM Peak Hr Begins at: 4:15 PM

PEAK VOLUMES =	98	392	25	200	454	81	65	248	165	23	138	177	2066
PEAK HR. FACTOR:		0.805		0.901			0.948			0.820			0.956

CONTROL: signalized

**APPENDIX
B
LOS CALCULATIONS
EXISTING CONDITIONS**

 Ontario New Model -Rich Haven External Intersections
 AM Existing
 Meyer, Mohaddes Associates

Scenario: XAM (Existing) Scenario Report

Command: XAM
 Volume: XAM
 Geometry: Existing
 Impact Fee: Default Impact Fee
 Trip Generation: None
 Trip Distribution: None
 Paths: Default Paths
 Routes: Default Routes
 Configuration: XAM

 Ontario New Model -Rich Haven External Intersections
 AM Existing
 Meyer, Mohaddes Associates

Intersection Volume Report
 Base Volume Alternative

Node Intersection	Northbound			Southbound			Eastbound			Westbound		
	L	T	R	L	T	R	L	T	R	L	T	R
1 Archibald Ave	153	682	43	170	303	81	106	215	56	124	250	250
2 Archibald Ave	79	524	45	98	280	57	35	47	35	42	76	214
3 Archibald Ave	0	0	0	0	0	0	0	0	0	0	0	0
4 Archibald Ave	115	514	57	24	329	67	38	72	47	41	190	41
5 Turner Avenue	122	279	154	121	355	230	265	308	82	199	714	396
6 Turner Avenue	16	137	2	3	80	85	144	1	21	0	3	3
7 Turner Avenue	0	0	0	0	0	0	0	0	0	0	0	0
8 Edison Avenue	0	0	0	0	0	0	0	0	0	0	0	0
9 Haven Avenue/	344	1857	0	0	918	312	0	0	0	139	0	564
10 Haven Avenue/	0	1388	160	380	542	0	1019	1	167	0	0	0
11 Haven Avenue/	5	55	10	35	57	131	229	106	6	7	134	61
12 Haven Avenue	0	0	0	0	0	0	0	0	0	0	0	0
13 Haven Avenue	0	0	0	0	0	0	0	0	0	0	0	0
14 Mill Creek Av	100	56	75	47	79	51	46	288	141	133	150	8
15 Mill Creek Av	0	0	0	0	0	0	0	0	0	0	0	0
16 Mill Creek Av	0	0	0	0	0	0	0	0	0	0	0	0
17 Milliken Aven	355	650	0	0	261	259	0	0	0	101	0	208
18 Milliken Aven	0	666	99	47	310	0	331	0	270	0	0	0
19 Milliken Aven	165	519	28	158	526	80	132	83	135	26	42	74
20 Milliken Ave	0	0	0	0	0	0	0	0	0	0	0	0
21 Milliken Aven	0	0	0	0	0	0	0	0	0	0	0	0
550 Haven Avenue/	14	887	34	141	280	235	269	12	24	42	16	224

Ontario New Model -Rich Haven External Intersections
AM Existing
Meyer, Mohaddes Associates

Impact Analysis Report
Level Of Service

Intersection	Base		Future		Change in	
	Del/ LOS	V/ Veh C	Del/ LOS	V/ Veh C		
# 1 Archibald Avenue/Riverside Dri	C	30.3 0.508	C	30.3 0.508	+ 0.000	D/V
# 2 Archibald Avenue/Chino Avenue	C	22.4 0.318	C	22.4 0.318	+ 0.000	D/V
# 3 Archibald Avenue/Schaefer Aven		0.0 0.000		0.0 0.000	+ 0.000	D/V
# 4 Archibald Avenue/Edison Avenue	C	20.7 0.283	C	20.7 0.283	+ 0.000	D/V
# 5 Turner Avenue/Riverside Drive	C	30.9 0.833	C	30.9 0.833	+ 0.000	D/V
# 6 Turner Avenue/Chino Avenue	A	9.0 0.245	A	9.0 0.245	+ 0.000	V/C
# 7 Turner Avenue at Schaefer Aven		0.0 0.000		0.0 0.000	+ 0.000	D/V
# 8 Edison Avenue at Schaefer Aven		0.0 0.000		0.0 0.000	+ 0.000	D/V
# 9 Haven Avenue/SR-60 WB Ramps	B	14.0 0.443	B	14.0 0.443	+ 0.000	D/V
# 10 Haven Avenue/SR-60 EB Ramps	C	28.8 0.831	C	28.8 0.831	+ 0.000	D/V
# 11 Haven Avenue/Riverside Drive	C	22.6 0.287	C	22.6 0.287	+ 0.000	D/V
# 12 Haven Avenue at Chino Avenue		0.0 0.000		0.0 0.000	+ 0.000	D/V
# 13 Haven Avenue at Edison Avenue		0.0 0.000		0.0 0.000	+ 0.000	D/V
# 14 Mill Creek Avenue/Riverside Dr	C	22.6 0.369	C	22.6 0.369	+ 0.000	D/V
# 15 Mill Creek Avenue at Chino Ave		0.0 0.000		0.0 0.000	+ 0.000	D/V
# 16 Mill Creek Avenue at Edison Av		0.0 0.000		0.0 0.000	+ 0.000	D/V
# 17 Milliken Avenue/SR-60 WB Ramps	B	19.1 0.552	B	19.1 0.552	+ 0.000	D/V
# 18 Milliken Avenue/SR-60 EB Ramps	B	19.2 0.557	B	19.2 0.557	+ 0.000	D/V
# 19 Milliken Avenue/Riverside Driv	C	24.0 0.625	C	24.0 0.625	+ 0.000	D/V
# 20 Milliken Ave / Chino Ave		0.0 0.000		0.0 0.000	+ 0.000	D/V
# 21 Milliken Avenue/Edison Avenue		0.0 0.000		0.0 0.000	+ 0.000	D/V
#550 Haven Avenue/Creekside Drive	C	26.5 0.707	C	26.5 0.707	+ 0.000	D/V

Ontario New Model -Rich Haven External Intersections
AM Existing
Meyer, Mohaddes Associates

Level Of Service Computation Report
2000 HCM Operations Method (Future Volume Alternative)

Intersection #1 Archibald Avenue/Riverside Drive

Cycle (sec): 100 Critical Vol./Cap.(X): 0.508
Loss Time (sec): 0 (Y+R=4.0 sec) Average Delay (sec/veh): 30.3
Optimal Cycle: 46 Level Of Service: C

Approach:	North Bound	South Bound	East Bound	West Bound
Movement:	L - T - R	L - T - R	L - T - R	L - T - R
Control:	Protected	Protected	Protected	Protected
Rights:	Include	Include	Include	Include
Min. Green:	0 0 0	0 0 0	0 0 0	0 0 0
Lanes:	1 0 2 1 0	1 0 2 1 0	1 0 1 1 0	1 0 1 0 1

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Volume Module:
Base Vol: 147 656 41 163 291 78 102 207 54 119 240 240
Growth Adj: 1.04 1.04 1.04 1.04 1.04 1.04 1.04 1.04 1.04 1.04 1.04 1.04
Initial Bse: 153 682 43 170 303 81 106 215 56 124 250 250
Added Vol: 0 0 0 0 0 0 0 0 0 0 0 0
PasserByVol: 0 0 0 0 0 0 0 0 0 0 0 0
Initial Fut: 153 682 43 170 303 81 106 215 56 124 250 250
User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
PHF Adj: 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95
PHF Volume: 161 718 45 178 319 85 112 227 59 130 263 263
Reduct Vol: 0 0 0 0 0 0 0 0 0 0 0 0
Reduced Vol: 161 718 45 178 319 85 112 227 59 130 263 263
PCE Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
MLF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
Final Vol.: 161 718 45 178 319 85 112 227 59 130 263 263
-----|-----|-----|-----|-----|

Saturation Flow Module:
Sat/Lane: 1800 1800 1800 1800 1800 1800 1800 1800 1800 1800 1800 1800
Adjustment: 0.90 0.90 0.90 0.90 0.88 0.88 0.90 0.92 0.92 0.90 1.00 0.85
Lanes: 1.00 2.82 0.18 1.00 2.37 0.63 1.00 1.59 0.41 1.00 1.00 1.00
Final Sat.: 1615 4583 286 1615 3751 1005 1615 2628 686 1615 1800 1530
-----|-----|-----|-----|-----|

Capacity Analysis Module:
Vol/Sat: 0.10 0.16 0.16 0.11 0.08 0.08 0.07 0.09 0.09 0.08 0.15 0.17
Crit Moves: **** *
Green/Cycle: 0.28 0.31 0.31 0.22 0.24 0.24 0.14 0.24 0.24 0.23 0.34 0.34
Volume/Cap: 0.35 0.51 0.51 0.51 0.35 0.35 0.51 0.35 0.35 0.35 0.43 0.51
Delay/Veh: 28.9 28.6 28.6 35.6 31.6 31.6 42.0 31.5 31.5 32.9 26.2 27.3
User DelAdj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
AdjDel/Veh: 28.9 28.6 28.6 35.6 31.6 31.6 42.0 31.5 31.5 32.9 26.2 27.3
LOS by Move: C C C D C C D C C C C
HCM2kAvgQ: 4 7 7 6 4 4 4 4 4 4 6 7

Note: Queue reported is the number of cars per lane.

Ontario New Model -Rich Haven External Intersections
AM Existing
Meyer, Mohaddes Associates

Level Of Service Computation Report
2000 HCM Operations Method (Future Volume Alternative)

Intersection #2 Archibald Avenue/Chino Avenue

Cycle (sec): 100 Critical Vol./Cap.(X): 0.318
Loss Time (sec): 0 (Y+R=4.0 sec) Average Delay (sec/veh): 22.4
Optimal Cycle: 27 Level Of Service: C

Approach: North Bound South Bound East Bound West Bound
Movement: L - T - R L - T - R L - T - R L - T - R

Control: Protected Protected Permitted Permitted
Rights: Include Include Include Include
Min. Green: 0 0 0 0 0 0 0 0 0 0 0 0
Lanes: 1 0 2 1 0 1 0 1 1 0 1 0 1

Volume Module:

Base Vol: 76 504 43 94 269 55 34 45 34 40 73 206
Growth Adj: 1.04 1.04 1.04 1.04 1.04 1.04 1.04 1.04 1.04 1.04 1.04 1.04
Initial Bse: 79 524 45 98 280 57 35 47 35 42 76 214
Added Vol: 0 0 0 0 0 0 0 0 0 0 0 0
PasserByVol: 0 0 0 0 0 0 0 0 0 0 0 0
Initial Fut: 79 524 45 98 280 57 35 47 35 42 76 214
User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
PHF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
PHF Volume: 79 524 45 98 280 57 35 47 35 42 76 214
Reduct Vol: 0 0 0 0 0 0 0 0 0 0 0 0
Reduced Vol: 79 524 45 98 280 57 35 47 35 42 76 214
PCE Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
MLF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
Final Vol.: 79 524 45 98 280 57 35 47 35 42 76 214

Saturation Flow Module:

Sat/Lane: 1800 1800 1800 1800 1800 1800 1800 1800 1800 1800 1800
Adjustment: 0.90 0.90 0.90 0.90 0.93 0.93 0.63 0.94 0.94 0.62 1.00 0.85
Lanes: 1.00 2.76 0.24 1.00 1.66 0.34 1.00 0.57 0.43 1.00 1.00 1.00
Final Sat.: 1615 4473 382 1615 2768 566 1136 960 725 1122 1800 1530

Capacity Analysis Module:

Vol/Sat: 0.05 0.12 0.12 0.06 0.10 0.10 0.03 0.05 0.05 0.04 0.04 0.14
Crit Moves: ****
Green/Cycle: 0.18 0.37 0.37 0.19 0.38 0.38 0.44 0.44 0.44 0.44 0.44 0.44
Volume/Cap: 0.27 0.32 0.32 0.32 0.27 0.27 0.07 0.11 0.11 0.08 0.10 0.32
Delay/Veh: 35.6 22.7 22.7 35.5 21.7 21.7 16.2 16.5 16.5 16.3 16.4 18.5
User DelAdj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
AdjDel/Veh: 35.6 22.7 22.7 35.5 21.7 21.7 16.2 16.5 16.5 16.3 16.4 18.5
LOS by Move: D C C D C C B B B B B
HCM2kAvgQ: 2 5 5 3 4 4 1 1 1 1 1 4

Note: Queue reported is the number of cars per lane.

Ontario New Model -Rich Haven External Intersections
AM Existing
Meyer, Mohaddes Associates

Level Of Service Computation Report
2000 HCM Operations Method (Future Volume Alternative)

Intersection #3 Archibald Avenue/Schaefer Avenue

Cycle (sec): 100 Critical Vol./Cap.(X): 0.000
Loss Time (sec): 0 (Y+R=4.0 sec) Average Delay (sec/veh): 0.0
Optimal Cycle: 0 Level Of Service: C

Approach: North Bound South Bound East Bound West Bound
Movement: L - T - R L - T - R L - T - R L - T - R

Control: Protected Protected Protected Protected
Rights: Include Include Include Include
Min. Green: 0 0 0 0 0 0 0 0 0 0 0 0
Lanes: 0 0 1! 0 0 0 0 1! 0 0 0 0 1! 0 0

Volume Module:

Base Vol: 0 0 0 0 0 0 0 0 0 0 0 0 0
Growth Adj: 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00
Initial Bse: 0 0 0 0 0 0 0 0 0 0 0 0 0
Added Vol: 0 0 0 0 0 0 0 0 0 0 0 0 0
PasserByVol: 0 0 0 0 0 0 0 0 0 0 0 0 0
Initial Fut: 0 0 0 0 0 0 0 0 0 0 0 0 0
User Adj: 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00
PHF Adj: 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00
PHF Volume: 0 0 0 0 0 0 0 0 0 0 0 0 0
Reduct Vol: 0 0 0 0 0 0 0 0 0 0 0 0 0
Reduced Vol: 0 0 0 0 0 0 0 0 0 0 0 0 0
PCE Adj: 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00
MLF Adj: 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00
Final Vol.: 0 0 0 0 0 0 0 0 0 0 0 0 0

Saturation Flow Module:

Sat/Lane: 0 0 0 0 0 0 0 0 0 0 0 0 0
Adjustment: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
Lanes: 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00
Final Sat.: 0 0 0 0 0 0 0 0 0 0 0 0 0

Capacity Analysis Module:

Vol/Sat: 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00
Crit Moves: ****
Green/Cycle: 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00
Volume/Cap: 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00
Delay/Veh: 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0
User DelAdj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
AdjDel/Veh: 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0
LOS by Move: D C C D C C B B B B B
HCM2kAvgQ: 0 0 0 0 0 0 0 0 0 0 0 0 0

Note: Queue reported is the number of cars per lane.

Ontario New Model -Rich Haven External Intersections
AM Existing
Meyer, Mohaddes Associates

Level Of Service Computation Report
2000 HCM Operations Method (Future Volume Alternative)

Intersection #4 Archibald Avenue/Edison Avenue

Cycle (sec): 100 Critical Vol./Cap.(X): 0.283
Loss Time (sec): 0 (Y+R=4.0 sec) Average Delay (sec/veh): 20.7
Optimal Cycle: 32 Level Of Service: C

Approach: North Bound South Bound East Bound West Bound
Movement: L - T - R L - T - R L - T - R L - T - R

Control: Protected Protected Protected Protected
Rights: Include Include Include Include
Min. Green: 0 0 0 0 0 0 0 0 0 0 0 0
Lanes: 1 0 1 1 0 1 0 1 1 0 1 0 1 1 0

Volume Module:
Base Vol: 111 494 55 23 316 64 37 69 45 39 183 39
Growth Adj: 1.04 1.04 1.04 1.04 1.04 1.04 1.04 1.04 1.04 1.04 1.04 1.04
Initial Bse: 115 514 57 24 329 67 38 72 47 41 190 41
Added Vol: 0 0 0 0 0 0 0 0 0 0 0 0
PasserByVol: 0 0 0 0 0 0 0 0 0 0 0 0
Initial Fut: 115 514 57 24 329 67 38 72 47 41 190 41
User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
PHF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
PHF Volume: 115 514 57 24 329 67 38 72 47 41 190 41
Reduct Vol: 0 0 0 0 0 0 0 0 0 0 0 0
Reduced Vol: 115 514 57 24 329 67 38 72 47 41 190 41
PCE Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
MLF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
Final Vol.: 115 514 57 24 329 67 38 72 47 41 190 41

Saturation Flow Module:
Sat/Lane: 1800 1800 1800 1800 1800 1800 1800 1800 1800 1800 1800 1800
Adjustment: 0.90 0.94 0.94 0.90 0.93 0.93 0.90 0.89 0.89 0.90 0.93 0.93
Lanes: 1.00 1.80 0.20 1.00 1.66 0.34 1.00 1.21 0.79 1.00 1.65 0.35
Final Sat.: 1615 3031 337 1615 2773 562 1615 1948 1270 1615 2746 585

Capacity Analysis Module:
Vol/Sat: 0.07 0.17 0.17 0.01 0.12 0.12 0.02 0.04 0.04 0.03 0.07 0.07
Crit Moves: **** **
Green/Cycle: 0.25 0.62 0.62 0.05 0.42 0.42 0.08 0.20 0.20 0.13 0.24 0.24
Volume/Cap: 0.28 0.27 0.27 0.27 0.28 0.28 0.28 0.19 0.19 0.19 0.28 0.28
Delay/Veh: 30.5 8.9 8.9 47.1 19.3 19.3 44.1 33.7 33.7 38.9 30.8 30.8
User DelAdj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
AdjDel/Veh: 30.5 8.9 8.9 47.1 19.3 19.3 44.1 33.7 33.7 38.9 30.8 30.8
LOS by Move: C A A D B B D C C D C C
HCM2kAvgQ: 3 4 4 1 4 4 1 2 2 1 3 3

Note: Queue reported is the number of cars per lane.

Ontario New Model -Rich Haven External Intersections
AM Existing
Meyer, Mohaddes Associates

Level Of Service Computation Report
2000 HCM Operations Method (Future Volume Alternative)

Intersection #5 Turner Avenue/Riverside Drive

Cycle (sec): 100 Critical Vol./Cap.(X): 0.833
Loss Time (sec): 0 (Y+R=4.0 sec) Average Delay (sec/veh): 30.9
Optimal Cycle: 112 Level Of Service: C

Approach: North Bound South Bound East Bound West Bound
Movement: L - T - R L - T - R L - T - R L - T - R

Control: Permitted Permitted Protected Protected
Rights: Include Include Include Include
Min. Green: 0 0 0 0 0 0 0 0 0 0 0 0
Lanes: 1 0 1 1 0 1 0 1 1 0 1 0 1 1 0

Volume Module:
Base Vol: 117 268 148 116 341 221 255 296 79 191 687 381
Growth Adj: 1.04 1.04 1.04 1.04 1.04 1.04 1.04 1.04 1.04 1.04 1.04 1.04
Initial Bse: 122 279 154 121 355 230 265 308 82 199 714 396
Added Vol: 0 0 0 0 0 0 0 0 0 0 0 0
PasserByVol: 0 0 0 0 0 0 0 0 0 0 0 0
Initial Fut: 122 279 154 121 355 230 265 308 82 199 714 396
User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
PHF Adj: 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95
PHF Volume: 128 293 162 127 373 242 279 324 86 209 752 417
Reduct Vol: 0 0 0 0 0 0 0 0 0 0 0 0
Reduced Vol: 128 293 162 127 373 242 279 324 86 209 752 417
PCE Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
MLF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
Final Vol.: 128 293 162 127 373 242 279 324 86 209 752 417

Saturation Flow Module:
Sat/Lane: 1800 1800 1800 1800 1800 1800 1800 1800 1800 1800 1800 1800
Adjustment: 0.24 0.90 0.90 0.33 0.89 0.89 0.90 0.92 0.92 0.90 0.90 0.90
Lanes: 1.00 1.29 0.71 1.00 1.21 0.79 1.00 1.58 0.42 1.00 1.29 0.71
Final Sat.: 428 2086 1152 600 1953 1266 1615 2613 697 1615 2081 1154

Capacity Analysis Module:
Vol/Sat: 0.30 0.14 0.14 0.21 0.19 0.19 0.17 0.12 0.12 0.13 0.36 0.36
Crit Moves: **** **
Green/Cycle: 0.36 0.36 0.36 0.36 0.36 0.36 0.21 0.31 0.31 0.33 0.43 0.43
Volume/Cap: 0.83 0.39 0.39 0.59 0.53 0.53 0.83 0.40 0.40 0.40 0.83 0.83
Delay/Veh: 59.8 24.1 24.1 30.3 25.9 25.9 54.2 27.1 27.1 26.5 29.5 29.5
User DelAdj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
AdjDel/Veh: 59.8 24.1 24.1 30.3 25.9 25.9 54.2 27.1 27.1 26.5 29.5 29.5
LOS by Move: E C C C C C D C C C C C
HCM2kAvgQ: 6 6 6 4 8 8 11 5 5 5 19 19

Note: Queue reported is the number of cars per lane.

Ontario New Model -Rich Haven External Intersections
AM Existing
Meyer, Mohaddes Associates

Level Of Service Computation Report
2000 HCM 4-Way Stop Method (Future Volume Alternative)

Intersection #6 Turner Avenue/Chino Avenue

Cycle (sec): 100 Critical Vol./Cap.(X): 0.245
Loss Time (sec): 0 (Y+R=4.0 sec) Average Delay (sec/veh): 9.0
Optimal Cycle: 0 Level Of Service: A

Approach: North Bound South Bound East Bound West Bound
Movement: L - T - R L - T - R L - T - R L - T - R
Control: Stop Sign Stop Sign Stop Sign Stop Sign
Rights: Include Include Include Include
Min. Green: 0 0 0 0 0 0 0 0 0 0 0 0
Lanes: 1 0 1 1 0 1 0 1 1 0 1 0 1 1 0
Volume Module:
Base Vol: 15 132 2 3 77 82 138 1 20 0 3 3
Growth Adj: 1.04 1.04 1.04 1.04 1.04 1.04 1.04 1.04 1.04 1.04 1.04 1.04
Initial Bse: 16 137 2 3 80 85 144 1 21 0 3 3
Added Vol: 0 0 0 0 0 0 0 0 0 0 0 0
PasserByVol: 0 0 0 0 0 0 0 0 0 0 0 0
Initial Fut: 16 137 2 3 80 85 144 1 21 0 3 3
User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
PHF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
PHF Volume: 16 137 2 3 80 85 144 1 21 0 3 3
Reduct Vol: 0 0 0 0 0 0 0 0 0 0 0 0
Reduced Vol: 16 137 2 3 80 85 144 1 21 0 3 3
PCE Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
MLF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
Final Vol.: 16 137 2 3 80 85 144 1 21 0 3 3
Saturation Flow Module:
Adjustment: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
Lanes: 1.00 1.97 0.03 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
Final Sat.: 588 1267 19 589 644 735 586 635 725 539 583 658
Capacity Analysis Module:
Vol/Sat: 0.03 0.11 0.11 0.01 0.12 0.12 0.24 0.00 0.03 0.00 0.01 0.00
Crit Moves: **** **** ****
Delay/Veh: 8.7 8.7 8.7 8.6 8.8 8.0 10.4 8.1 7.5 0.0 8.5 7.8
Delay Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
AdjDel/Veh: 8.7 8.7 8.7 8.6 8.8 8.0 10.4 8.1 7.5 0.0 8.5 7.8
LOS by Move: A A A A A A B A * A A
ApproachDel: 8.7 8.4 10.0 8.1
Delay Adj: 1.00 1.00 1.00
ApprAdjDel: 8.7 8.4 10.0 8.1
LOS by Appr: A A B A
AllWayAvgQ: 0.0 0.1 0.1 0.0 0.1 0.1 0.3 0.0 0.0 0.0 0.0 0.0

Note: Queue reported is the number of cars per lane.

Ontario New Model -Rich Haven External Intersections
AM Existing
Meyer, Mohaddes Associates

Level Of Service Computation Report
2000 HCM Operations Method (Future Volume Alternative)

Intersection #7 Turner Avenue at Schaefer Avenue

Cycle (sec): 100 Critical Vol./Cap.(X): 0.000
Loss Time (sec): 0 (Y+R=4.0 sec) Average Delay (sec/veh): 0.0
Optimal Cycle: 0 Level Of Service: A

Approach: North Bound South Bound East Bound West Bound
Movement: L - T - R L - T - R L - T - R L - T - R
Control: Protected Protected Protected Protected
Rights: Include Include Include Include
Min. Green: 0 0 0 0 0 0 0 0 0 0 0 0
Lanes: 0 0 0 0 0 0 0 0 0 0 0 0
Volume Module:
Base Vol: 0 0 0 0 0 0 0 0 0 0 0 0
Growth Adj: 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00
Initial Bse: 0 0 0 0 0 0 0 0 0 0 0 0
Added Vol: 0 0 0 0 0 0 0 0 0 0 0 0
PasserByVol: 0 0 0 0 0 0 0 0 0 0 0 0
Initial Fut: 0 0 0 0 0 0 0 0 0 0 0 0
User Adj: 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00
PHF Adj: 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00
PHF Volume: 0 0 0 0 0 0 0 0 0 0 0 0
Reduct Vol: 0 0 0 0 0 0 0 0 0 0 0 0
Reduced Vol: 0 0 0 0 0 0 0 0 0 0 0 0
PCE Adj: 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00
MLF Adj: 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00
Final Vol.: 0 0 0 0 0 0 0 0 0 0 0 0
Saturation Flow Module:
Sat/Lane: 0 0 0 0 0 0 0 0 0 0 0 0
Adjustment: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
Lanes: 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00
Final Sat.: 0 0 0 0 0 0 0 0 0 0 0 0
Capacity Analysis Module:
Vol/Sat: 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00
Crit Moves:
Green/Cycle: 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00
Volume/Cap: 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00
Delay/Veh: 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0
User DelAdj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
AdjDel/Veh: 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0
LOS by Move:
HCM2kAvgQ: 0 0 0 0 0 0 0 0 0 0 0 0

Note: Queue reported is the number of cars per lane.

Ontario New Model -Rich Haven External Intersections
AM Existing
Meyer, Mohaddes Associates

Level Of Service Computation Report

2000 HCM Operations Method (Future Volume Alternative)

Intersection #8 Edison Avenue at Schaefer Avenue

Cycle (sec): 100 Critical Vol./Cap.(X): 0.000
Loss Time (sec): 0 (Y+R=4.0 sec) Average Delay (sec/veh): 0.0
Optimal Cycle: 0 Level Of Service:

Approach: North Bound South Bound East Bound West Bound
Movement: L - T - R L - T - R L - T - R L - T - R

Control: Protected Protected Protected Protected
Rights: Include Include Include Include
Min. Green: 0 0 0 0 0 0 0 0 0 0 0 0
Lanes: 0 0 0 0 0 0 0 0 0 0 0 0

Volume Module:
Base Vol: 0 0 0 0 0 0 0 0 0 0 0 0
Growth Adj: 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00
Initial Bse: 0 0 0 0 0 0 0 0 0 0 0 0
Added Vol: 0 0 0 0 0 0 0 0 0 0 0 0
PasserByVol: 0 0 0 0 0 0 0 0 0 0 0 0
Initial Fut: 0 0 0 0 0 0 0 0 0 0 0 0
User Adj: 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00
PHF Adj: 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00
PHF Volume: 0 0 0 0 0 0 0 0 0 0 0 0
Reduct Vol: 0 0 0 0 0 0 0 0 0 0 0 0
Reduced Vol: 0 0 0 0 0 0 0 0 0 0 0 0
PCE Adj: 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00
MLF Adj: 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00
Final Vol.: 0 0 0 0 0 0 0 0 0 0 0 0

Saturation Flow Module:
Sat/Lane: 0 0 0 0 0 0 0 0 0 0 0 0
Adjustment: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
Lanes: 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00
Final Sat.: 0 0 0 0 0 0 0 0 0 0 0 0

Capacity Analysis Module:
Vol/Sat: 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00
Crit Moves:
Green/Cycle: 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00
Volume/Cap: 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00
Delay/Veh: 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0
User DelAdj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
AdjDel/Veh: 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0
LOS by Move:
HCM2kAvgQ: 0 0 0 0 0 0 0 0 0 0 0 0

Note: Queue reported is the number of cars per lane.

Ontario New Model -Rich Haven External Intersections
AM Existing
Meyer, Mohaddes Associates

Level Of Service Computation Report

2000 HCM Operations Method (Future Volume Alternative)

Intersection #9 Haven Avenue/SR-60 WB Ramps

Cycle (sec): 100 Critical Vol./Cap.(X): 0.443
Loss Time (sec): 0 (Y+R=4.0 sec) Average Delay (sec/veh): 14.0
Optimal Cycle: 52 Level Of Service: B

Approach: North Bound South Bound East Bound West Bound
Movement: L - T - R L - T - R L - T - R L - T - R

Control: Protected Permitted Split Phase Split Phase
Rights: Include Include Include Ignore
Min. Green: 0 0 0 0 0 0 0 0 0 0 0 0
Lanes: 2 0 3 0 0 0 0 3 0 1 0 0 0 0 1 1 1 0 0 1

Volume Module:
Base Vol: 3311786 0 0 883 300 0 0 0 134 0 542
Growth Adj: 1.04 1.04 1.04 1.04 1.04 1.04 1.04 1.04 1.04 1.04 1.04 1.04
Initial Bse: 344 1857 0 0 918 312 0 0 0 139 0 564
Added Vol: 0 0 0 0 0 0 0 0 0 0 0 0
PasserByVol: 0 0 0 0 0 0 0 0 0 0 0 0
Initial Fut: 344 1857 0 0 918 312 0 0 0 139 0 564
User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 0.00
PHF Adj: 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.00
PHF Volume: 362 1955 0 0 967 328 0 0 0 147 0 0
Reduct Vol: 0 0 0 0 0 0 0 0 0 0 0 0
Reduced Vol: 362 1955 0 0 967 328 0 0 0 147 0 0
PCE Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 0.00
MLF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 0.00
Final Vol.: 362 1955 0 0 967 328 0 0 0 147 0 0

Saturation Flow Module:
Sat/Lane: 1800 1800 1800 1800 1800 1800 1800 1800 1800 1800 1800
Adjustment: 0.84 0.91 1.00 0.94 0.91 0.85 0.94 1.00 1.00 0.90 1.00 1.00
Lanes: 2.00 3.00 0.00 0.00 3.00 1.00 0.00 0.00 0.00 2.00 0.00 1.00
Final Sat.: 3040 4914 0 0 4914 1530 0 0 0 3237 0 1800

Capacity Analysis Module:
Vol/Sat: 0.12 0.40 0.00 0.00 0.20 0.21 0.00 0.00 0.00 0.05 0.00 0.00
Crit Moves: ****
Green/Cycle: 0.62 0.93 0.00 0.00 0.31 0.31 0.00 0.00 0.00 0.07 0.00 0.00
Volume/Cap: 0.19 0.43 0.00 0.00 0.64 0.70 0.00 0.00 0.00 0.64 0.00 0.00
Delay/Veh: 8.2 0.5 0.0 0.0 30.8 35.1 0.0 0.0 0.0 51.2 0.0 0.0
User DelAdj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
AdjDel/Veh: 8.2 0.5 0.0 0.0 30.8 35.1 0.0 0.0 0.0 51.2 0.0 0.0
LOS by Move: A A A A C D A A A D A A
HCM2kAvgQ: 3 3 0 0 10 10 0 0 0 4 0 0

Note: Queue reported is the number of cars per lane.

Ontario New Model -Rich Haven External Intersections
AM Existing
Meyer, Mohaddes Associates

Level Of Service Computation Report

2000 HCM Operations Method (Future Volume Alternative)

Intersection #10 Haven Avenue/SR-60 EB Ramps

Cycle (sec): 100 Critical Vol./Cap.(X): 0.831
Loss Time (sec): 0 (Y+R=4.0 sec) Average Delay (sec/veh): 28.8
Optimal Cycle: 110 Level Of Service: C

Approach: North Bound South Bound East Bound West Bound
Movement: L - T - R L - T - R L - T - R L - T - R

Control: Permitted Protected Split Phase Split Phase
Rights: Include Include Include Include
Min. Green: 0 0 0 0 0 0 0 0 0 0 0 0
Lanes: 0 0 2 1 0 2 0 3 0 0 1 1 0 0 1 0 0 0 0 0

Volume Module:
Base Vol: 0 1335 154 365 521 0 980 1 161 0 0 0
Growth Adj: 1.04 1.04 1.04 1.04 1.04 1.04 1.04 1.04 1.04 1.04 1.04 1.04
Initial Bse: 0 1388 160 380 542 0 1019 1 167 0 0 0
Added Vol: 0 0 0 0 0 0 0 0 0 0 0 0
PasserByVol: 0 0 0 0 0 0 0 0 0 0 0 0
Initial Fut: 0 1388 160 380 542 0 1019 1 167 0 0 0
User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
PHF Adj: 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95
PHF Volume: 0 1461 169 400 570 0 1073 1 176 0 0 0
Reduced Vol: 0 0 0 0 0 0 0 0 0 0 0 0
Reduced Vol: 0 1461 169 400 570 0 1073 1 176 0 0 0
PCE Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
MLF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
Final Vol.: 0 1461 169 400 570 0 1073 1 176 0 0 0

Saturation Flow Module:
Sat/Lane: 1800 1800 1800 1800 1800 1800 1800 1800 1800 1800 1800
Adjustment: 0.94 0.90 0.90 0.84 0.91 1.00 0.82 0.87 0.85 0.94 1.00 1.00
Lanes: 0.00 2.69 0.31 2.00 3.00 0.00 1.99 0.01 1.00 0.00 0.00 0.00
Final Sat.: 0 4340 501 3040 4914 0 2959 3 1530 0 0 0

Capacity Analysis Module:
Vol/Sat: 0.00 0.34 0.34 0.13 0.12 0.00 0.36 0.36 0.12 0.00 0.00 0.00
Crit Moves: ****
Green/Cycle: 0.00 0.41 0.41 0.16 0.56 0.00 0.44 0.44 0.44 0.00 0.00 0.00
Volume/Cap: 0.00 0.83 0.83 0.83 0.21 0.00 0.83 0.83 0.26 0.00 0.00 0.00
Delay/Veh: 0.0 29.8 29.8 52.4 10.8 0.0 29.6 29.6 18.2 0.0 0.0 0.0
User DelAdj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
AdjDel/Veh: 0.0 29.8 29.8 52.4 10.8 0.0 29.6 29.6 18.2 0.0 0.0 0.0
LOS by Move: A C C D B A C C B A A A
HCM2kAvgQ: 0 19 19 9 3 0 18 18 3 0 0 0

Note: Queue reported is the number of cars per lane.

Ontario New Model -Rich Haven External Intersections
AM Existing
Meyer, Mohaddes Associates

Level Of Service Computation Report

2000 HCM Operations Method (Future Volume Alternative)

Intersection #11 Haven Avenue/Riverside Drive

Cycle (sec): 100 Critical Vol./Cap.(X): 0.287
Loss Time (sec): 0 (Y+R=4.0 sec) Average Delay (sec/veh): 22.6
Optimal Cycle: 26 Level Of Service: C

Approach: North Bound South Bound East Bound West Bound
Movement: L - T - R L - T - R L - T - R L - T - R

Control: Permitted Permitted Protected Protected
Rights: Include Include Include Include
Min. Green: 0 0 0 0 0 0 0 0 0 0 0 0
Lanes: 0 0 1 0 0 0 1 0 0 1 0 1 0 1 0 1 0 1 0

Volume Module:
Base Vol: 5 53 10 34 55 126 220 102 6 7 129 59
Growth Adj: 1.04 1.04 1.04 1.04 1.04 1.04 1.04 1.04 1.04 1.04 1.04 1.04
Initial Bse: 5 55 10 35 57 131 229 106 6 7 134 61
Added Vol: 0 0 0 0 0 0 0 0 0 0 0 0
PasserByVol: 0 0 0 0 0 0 0 0 0 0 0 0
Initial Fut: 5 55 10 35 57 131 229 106 6 7 134 61
User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
PHF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
PHF Volume: 5 55 10 35 57 131 229 106 6 7 134 61
Reduced Vol: 0 0 0 0 0 0 0 0 0 0 0 0
Reduced Vol: 5 55 10 35 57 131 229 106 6 7 134 61
PCE Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
MLF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
Final Vol.: 5 55 10 35 57 131 229 106 6 7 134 61

Saturation Flow Module:
Sat/Lane: 1800 1800 1800 1800 1800 1800 1800 1800 1800 1800 1800
Adjustment: 0.91 0.97 0.97 0.85 0.90 0.85 0.90 0.99 0.99 0.90 0.91 0.91
Lanes: 0.08 0.77 0.15 0.40 0.60 1.00 1.00 0.94 0.06 1.00 1.37 0.63
Final Sat.: 128 1353 255 603 976 1530 1615 1686 99 1615 2236 1023

Capacity Analysis Module:
Vol/Sat: 0.04 0.04 0.04 0.06 0.06 0.09 0.14 0.06 0.06 0.00 0.06 0.06
Crit Moves: ****
Green/Cycle: 0.30 0.30 0.30 0.30 0.30 0.30 0.49 0.65 0.65 0.05 0.21 0.21
Volume/Cap: 0.14 0.14 0.14 0.20 0.20 0.29 0.29 0.10 0.10 0.10 0.29 0.29
Delay/Veh: 25.8 25.8 25.8 26.4 26.4 27.3 15.2 6.4 6.4 46.2 33.5 33.5
User DelAdj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
AdjDel/Veh: 25.8 25.8 25.8 26.4 26.4 27.3 15.2 6.4 6.4 46.2 33.5 33.5
LOS by Move: C C C C C C B A A D C C
HCM2kAvgQ: 2 2 2 2 2 3 4 1 1 0 3 3

Note: Queue reported is the number of cars per lane.

Ontario New Model -Rich Haven External Intersections
AM Existing
Meyer, Mohaddes Associates

Level Of Service Computation Report
2000 HCM Operations Method (Future Volume Alternative)

Intersection #12 Haven Avenue at Chino Avenue

Cycle (sec): 100 Critical Vol./Cap.(X): 0.000
Loss Time (sec): 0 (Y+R=4.0 sec) Average Delay (sec/veh): 0.0
Optimal Cycle: 0 Level Of Service:

Approach: North Bound South Bound East Bound West Bound
Movement: L - T - R L - T - R L - T - R L - T - R

Control: Protected Protected Protected Protected
Rights: Include Include Include Include
Min. Green: 0 0 0 0 0 0 0 0 0 0 0 0
Lanes: 0 0 0 0 0 0 0 0 0 0 0 0

Volume Module:

Base Vol: 0 0 0 0 0 0 0 0 0 0 0 0
Growth Adj: 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00
Initial Bse: 0 0 0 0 0 0 0 0 0 0 0 0
Added Vol: 0 0 0 0 0 0 0 0 0 0 0 0
PasserByVol: 0 0 0 0 0 0 0 0 0 0 0 0
Initial Fut: 0 0 0 0 0 0 0 0 0 0 0 0
User Adj: 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00
PHF Adj: 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00
PHF Volume: 0 0 0 0 0 0 0 0 0 0 0 0
Reduct Vol: 0 0 0 0 0 0 0 0 0 0 0 0
Reduced Vol: 0 0 0 0 0 0 0 0 0 0 0 0
PCE Adj: 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00
MLF Adj: 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00
Final Vol.: 0 0 0 0 0 0 0 0 0 0 0 0

Saturation Flow Module:

Sat/Lane: 0 0 0 0 0 0 0 0 0 0 0 0
Adjustment: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
Lanes: 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00
Final Sat.: 0 0 0 0 0 0 0 0 0 0 0 0

Capacity Analysis Module:

Vol/Sat: 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00
Crit Moves:
Green/Cycle: 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00
Volume/Cap: 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00
Delay/Veh: 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0
User DelAdj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
AdjDel/Veh: 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0
LOS by Move:
HCM2kAvgQ: 0 0 0 0 0 0 0 0 0 0 0 0

Note: Queue reported is the number of cars per lane.

Ontario New Model -Rich Haven External Intersections
AM Existing
Meyer, Mohaddes Associates

Level Of Service Computation Report
2000 HCM Operations Method (Future Volume Alternative)

Intersection #13 Haven Avenue at Edison Avenue

Cycle (sec): 100 Critical Vol./Cap.(X): 0.000
Loss Time (sec): 0 (Y+R=4.0 sec) Average Delay (sec/veh): 0.0
Optimal Cycle: 0 Level Of Service:

Approach: North Bound South Bound East Bound West Bound
Movement: L - T - R L - T - R L - T - R L - T - R

Control: Protected Protected Protected Protected
Rights: Include Include Include Include
Min. Green: 0 0 0 0 0 0 0 0 0 0 0 0
Lanes: 0 0 0 0 0 0 0 0 0 0 0 0

Volume Module:

Base Vol: 0 0 0 0 0 0 0 0 0 0 0 0
Growth Adj: 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00
Initial Bse: 0 0 0 0 0 0 0 0 0 0 0 0
Added Vol: 0 0 0 0 0 0 0 0 0 0 0 0
PasserByVol: 0 0 0 0 0 0 0 0 0 0 0 0
Initial Fut: 0 0 0 0 0 0 0 0 0 0 0 0
User Adj: 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00
PHF Adj: 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00
PHF Volume: 0 0 0 0 0 0 0 0 0 0 0 0
Reduct Vol: 0 0 0 0 0 0 0 0 0 0 0 0
Reduced Vol: 0 0 0 0 0 0 0 0 0 0 0 0
PCE Adj: 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00
MLF Adj: 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00
Final Vol.: 0 0 0 0 0 0 0 0 0 0 0 0

Saturation Flow Module:

Sat/Lane: 0 0 0 0 0 0 0 0 0 0 0 0
Adjustment: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
Lanes: 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00
Final Sat.: 0 0 0 0 0 0 0 0 0 0 0 0

Capacity Analysis Module:

Vol/Sat: 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00
Crit Moves:
Green/Cycle: 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00
Volume/Cap: 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00
Delay/Veh: 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0
User DelAdj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
AdjDel/Veh: 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0
LOS by Move:
HCM2kAvgQ: 0 0 0 0 0 0 0 0 0 0 0 0

Note: Queue reported is the number of cars per lane.

Ontario New Model -Rich Haven External Intersections
AM Existing
Meyer, Mohaddes Associates

Level Of Service Computation Report

2000 HCM Operations Method (Future Volume Alternative)

Intersection #14 Mill Creek Avenue/Riverside Drive

Cycle (sec): 100 Critical Vol./Cap.(X): 0.369
Loss Time (sec): 0 (Y+R=4.0 sec) Average Delay (sec/veh): 22.6
Optimal Cycle: 29 Level Of Service: C

Approach: North Bound South Bound East Bound West Bound
Movement: L - T - R L - T - R L - T - R L - T - R

Control:	Permitted			Permitted			Protected			Protected		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	1	0	1	0	1	0	1	0	1	0	1	1

Volume Module:
Base Vol: 96 54 72 45 76 49 44 277 136 128 144 8
Growth Adj: 1.04 1.04 1.04 1.04 1.04 1.04 1.04 1.04 1.04 1.04 1.04 1.04
Initial Bse: 100 56 75 47 79 51 46 288 141 133 150 8
Added Vol: 0 0 0 0 0 0 0 0 0 0 0 0
PasserByVol: 0 0 0 0 0 0 0 0 0 0 0 0
Initial Fut: 100 56 75 47 79 51 46 288 141 133 150 8
User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
PHF Adj: 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95
PHF Volume: 105 59 79 49 83 54 48 303 149 140 158 9
Reduce Vol: 0 0 0 0 0 0 0 0 0 0 0 0
Reduced Vol: 105 59 79 49 83 54 48 303 149 140 158 9
PCE Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
MLF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
Final Vol.: 105 59 79 49 83 54 48 303 149 140 158 9

Saturation Flow Module:
Sat/Lane: 1800 1800 1800 1800 1800 1800 1800 1800 1800 1800 1800 1800
Adjustment: 0.51 1.00 0.85 0.63 0.94 0.94 0.90 1.00 0.85 0.90 0.94 0.94
Lanes: 1.00 1.00 1.00 1.00 0.61 0.39 1.00 1.00 1.00 1.00 1.89 0.11
Final Sat.: 921 1800 1530 1132 1030 664 1615 1800 1530 1615 3214 179

Capacity Analysis Module:
Vol/Sat: 0.11 0.03 0.05 0.04 0.08 0.08 0.03 0.17 0.10 0.09 0.05 0.05
Crit Moves: ****
Green/Cycle: 0.31 0.31 0.31 0.31 0.31 0.31 0.26 0.46 0.46 0.23 0.43 0.43
Volume/Cap: 0.37 0.11 0.17 0.14 0.26 0.26 0.11 0.37 0.21 0.37 0.11 0.11
Delay/Veh: 27.8 24.8 25.3 25.2 26.3 26.3 28.2 18.1 16.5 32.7 17.1 17.1
User DelAdj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
AdjDel/Veh: 27.8 24.8 25.3 25.2 26.3 26.3 28.2 18.1 16.5 32.7 17.1 17.1
LOS by Move: C C C C C C C B B C B B
HCM2kAvgQ: 3 1 2 1 3 3 1 6 3 4 2 2

Note: Queue reported is the number of cars per lane.

Ontario New Model -Rich Haven External Intersections
AM Existing
Meyer, Mohaddes Associates

Level Of Service Computation Report

2000 HCM Operations Method (Future Volume Alternative)

Intersection #15 Mill Creek Avenue at Chino Avenue

Cycle (sec): 100 Critical Vol./Cap.(X): 0.000
Loss Time (sec): 0 (Y+R=4.0 sec) Average Delay (sec/veh): 0.0
Optimal Cycle: 0 Level Of Service: C

Approach: North Bound South Bound East Bound West Bound
Movement: L - T - R L - T - R L - T - R L - T - R

Control:	Protected			Protected			Protected			Protected		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	0	0	0	0	0	0	0	0	0	0	0	0

Volume Module:
Base Vol: 0 0 0 0 0 0 0 0 0 0 0 0
Growth Adj: 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00
Initial Bse: 0 0 0 0 0 0 0 0 0 0 0 0
Added Vol: 0 0 0 0 0 0 0 0 0 0 0 0
PasserByVol: 0 0 0 0 0 0 0 0 0 0 0 0
Initial Fut: 0 0 0 0 0 0 0 0 0 0 0 0
User Adj: 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00
PHF Adj: 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00
PHF Volume: 0 0 0 0 0 0 0 0 0 0 0 0
Reduce Vol: 0 0 0 0 0 0 0 0 0 0 0 0
Reduced Vol: 0 0 0 0 0 0 0 0 0 0 0 0
PCE Adj: 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00
MLF Adj: 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00
Final Vol.: 0 0 0 0 0 0 0 0 0 0 0 0

Saturation Flow Module:
Sat/Lane: 0 0 0 0 0 0 0 0 0 0 0 0
Adjustment: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
Lanes: 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00
Final Sat.: 0 0 0 0 0 0 0 0 0 0 0 0

Capacity Analysis Module:
Vol/Sat: 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00
Crit Moves: ****
Green/Cycle: 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00
Volume/Cap: 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00
Delay/Veh: 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0
User DelAdj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
AdjDel/Veh: 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0
LOS by Move: C C C C C C C B B C B B
HCM2kAvgQ: 0 0 0 0 0 0 0 0 0 0 0 0

Note: Queue reported is the number of cars per lane.

Ontario New Model -Rich Haven External Intersections
AM Existing
Meyer, Mohaddes Associates

Level Of Service Computation Report
2000 HCM Operations Method (Future Volume Alternative)

Intersection #16 Mill Creek Avenue at Edison Avenue

Cycle (sec): 100 Critical Vol./Cap.(X): 0.000
Loss Time (sec): 0 (Y+R=4.0 sec) Average Delay (sec/veh): 0.0
Optimal Cycle: 0 Level Of Service:

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Protected			Protected			Protected			Protected		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	0	0	0	0	0	0	0	0	0	0	0	0
Volume Module:												
Base Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Growth Adj:	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Initial Bse:	0	0	0	0	0	0	0	0	0	0	0	0
Added Vol:	0	0	0	0	0	0	0	0	0	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	0	0	0	0	0	0	0	0	0	0	0	0
User Adj:	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
PHF Adj:	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
PHF Volume:	0	0	0	0	0	0	0	0	0	0	0	0
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	0	0	0	0	0	0	0	0	0	0	0	0
PCE Adj:	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MLF Adj:	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Final Vol.:	0	0	0	0	0	0	0	0	0	0	0	0
Saturation Flow Module:												
Sat/Lane:	0	0	0	0	0	0	0	0	0	0	0	0
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Final Sat.:	0	0	0	0	0	0	0	0	0	0	0	0
Capacity Analysis Module:												
Vol/Sat:	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Crit Moves:												
Green/Cycle:	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Volume/Cap:	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Delay/Veh:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
LOS by Move:												
HCM2kAvgQ:	0	0	0	0	0	0	0	0	0	0	0	0

Note: Queue reported is the number of cars per lane.

Ontario New Model -Rich Haven External Intersections
AM Existing
Meyer, Mohaddes Associates

Level Of Service Computation Report
2000 HCM Operations Method (Future Volume Alternative)

Intersection #17 Milliken Avenue/SR-60 WB Ramps

Cycle (sec): 100 Critical Vol./Cap.(X): 0.552
Loss Time (sec): 0 (Y+R=4.0 sec) Average Delay (sec/veh): 19.1
Optimal Cycle: 42 Level Of Service: B

Approach:	North Bound			South Bound			East Bound			West Bound			
Movement:	L	T	R	L	T	R	L	T	R	L	T	R	
Control:	Protected			Permitted			Split Phase			Split Phase			
Rights:	Include			Include			Include			Include			
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0	
Lanes:	1	0	2	0	0	2	0	0	0	0	0	0	
Volume Module:													
Base Vol:	341	625	0	0	0	251	249	0	0	0	97	0	200
Growth Adj:	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	
Initial Bse:	355	650	0	0	261	259	0	0	0	101	0	208	
Added Vol:	0	0	0	0	0	0	0	0	0	0	0	0	
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0	
Initial Fut:	355	650	0	0	261	259	0	0	0	101	0	208	
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
PHF Adj:	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	
PHF Volume:	373	684	0	0	275	273	0	0	0	106	0	219	
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0	
Reduced Vol:	373	684	0	0	275	273	0	0	0	106	0	219	
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Final Vol.:	373	684	0	0	275	273	0	0	0	106	0	219	
Saturation Flow Module:													
Sat/Lane:	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	
Adjustment:	0.90	0.95	1.00	0.94	0.95	0.85	0.94	1.00	1.00	0.90	1.00	0.85	
Lanes:	1.00	2.00	0.00	0.00	2.00	1.00	0.00	0.00	0.00	1.00	0.00	1.00	
Final Sat.:	1615	3420	0	0	3420	1530	0	0	0	1615	0	1530	
Capacity Analysis Module:													
Vol/Sat:	0.23	0.20	0.00	0.00	0.08	0.18	0.00	0.00	0.00	0.07	0.00	0.14	
Crit Moves:	*****												
Green/Cycle:	0.42	0.74	0.00	0.00	0.32	0.32	0.00	0.00	0.00	0.26	0.00	0.26	
Volume/Cap:	0.55	0.27	0.00	0.00	0.25	0.55	0.00	0.00	0.00	0.25	0.00	0.55	
Delay/Veh:	23.0	4.3	0.0	0.0	25.1	29.3	0.0	0.0	0.0	29.7	0.0	33.7	
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
AdjDel/Veh:	23.0	4.3	0.0	0.0	25.1	29.3	0.0	0.0	0.0	29.7	0.0	33.7	
LOS by Move:													
HCM2kAvgQ:	10	4	0	0	3	7	0	0	0	3	0	6	

Note: Queue reported is the number of cars per lane.

Ontario New Model -Rich Haven External Intersections
AM Existing
Meyer, Mohaddes Associates

Level Of Service Computation Report
2000 HCM Operations Method (Future Volume Alternative)

Intersection #18 Milliken Avenue/SR-60 EB Ramps

Cycle (sec): 100 Critical Vol./Cap.(X): 0.557
Loss Time (sec): 0 (Y+R=4.0 sec) Average Delay (sec/veh): 19.2
Optimal Cycle: 42 Level Of Service: B

Approach: North Bound South Bound East Bound West Bound
Movement: L - T - R L - T - R L - T - R L - T - R

Control: Permitted Protected Split Phase Split Phase
Rights: Include Include Include Include
Min. Green: 0 0 0 0 0 0 0 0 0 0 0 0
Lanes: 0 0 1 1 0 1 0 2 0 0 1 0 1 0 0 0 0 0 0 0

Volume Module:

Base Vol: 0 640 95 45 298 0 318 0 260 0 0 0
Growth Adj: 1.04 1.04 1.04 1.04 1.04 1.04 1.04 1.04 1.04 1.04 1.04 1.04
Initial Bse: 0 666 99 47 310 0 331 0 270 0 0 0
Added Vol: 0 0 0 0 0 0 0 0 0 0 0 0
PasserByVol: 0 0 0 0 0 0 0 0 0 0 0 0
Initial Fut: 0 666 99 47 310 0 331 0 270 0 0 0
User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
PHF Adj: 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95
PHF Volume: 0 701 104 49 326 0 348 0 285 0 0 0
Reduced Vol: 0 0 0 0 0 0 0 0 0 0 0 0
Reduced Vol: 0 701 104 49 326 0 348 0 285 0 0 0
PCE Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
MLF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
Final Vol.: 0 701 104 49 326 0 348 0 285 0 0 0

Saturation Flow Module:

Sat/Lane: 1800 1800 1800 1800 1800 1800 1800 1800 1800 1800 1800
Adjustment: 0.94 0.93 0.93 0.90 0.95 1.00 0.86 1.00 0.91 0.94 1.00 1.00
Lanes: 0.00 1.74 0.26 1.00 2.00 0.00 1.39 0.00 0.61 0.00 0.00 0.00
Final Sat.: 0 2921 434 1615 3420 0 2150 0 992 0 0 0

Capacity Analysis Module:

Vol/Sat: 0.00 0.24 0.24 0.03 0.10 0.00 0.16 0.00 0.29 0.00 0.00 0.00
Crit Moves: ****
Green/Cycle: 0.00 0.43 0.43 0.05 0.49 0.00 0.51 0.00 0.51 0.00 0.00 0.00
Volume/Cap: 0.00 0.56 0.56 0.56 0.20 0.00 0.31 0.00 0.56 0.00 0.00 0.00
Delay/Veh: 0.0 21.8 21.8 53.8 14.7 0.0 14.1 0.0 17.1 0.0 0.0 0.0
User DelAdj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
AdjDel/Veh: 0.0 21.8 21.8 53.8 14.7 0.0 14.1 0.0 17.1 0.0 0.0 0.0
LOS by Move: A C C D B A B A B A A A
HCM2kAvgQ: 0 10 10 2 3 0 5 0 10 0 0 0

Note: Queue reported is the number of cars per lane.

Ontario New Model -Rich Haven External Intersections
AM Existing
Meyer, Mohaddes Associates

Level Of Service Computation Report
2000 HCM Operations Method (Future Volume Alternative)

Intersection #19 Milliken Avenue/Riverside Drive

Cycle (sec): 100 Critical Vol./Cap.(X): 0.625
Loss Time (sec): 0 (Y+R=4.0 sec) Average Delay (sec/veh): 24.0
Optimal Cycle: 50 Level Of Service: C

Approach: North Bound South Bound East Bound West Bound
Movement: L - T - R L - T - R L - T - R L - T - R

Control: Protected Protected Permitted Permitted
Rights: Include Include Include Include
Min. Green: 0 0 0 0 0 0 0 0 0 0 0 0
Lanes: 1 0 1 0 1 1 0 0 1 0 1 0 1 0 1 0

Volume Module:

Base Vol: 159 499 27 152 506 77 127 80 130 25 40 71
Growth Adj: 1.04 1.04 1.04 1.04 1.04 1.04 1.04 1.04 1.04 1.04 1.04 1.04
Initial Bse: 165 519 28 158 526 80 132 83 135 26 42 74
Added Vol: 0 0 0 0 0 0 0 0 0 0 0 0
PasserByVol: 0 0 0 0 0 0 0 0 0 0 0 0
Initial Fut: 165 519 28 158 526 80 132 83 135 26 42 74
User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
PHF Adj: 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95
PHF Volume: 174 546 30 166 554 84 139 88 142 27 44 78
Reduced Vol: 0 0 0 0 0 0 0 0 0 0 0 0
Reduced Vol: 174 546 30 166 554 84 139 88 142 27 44 78
PCE Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
MLF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
Final Vol.: 174 546 30 166 554 84 139 88 142 27 44 78

Saturation Flow Module:

Sat/Lane: 1800 1800 1800 1800 1800 1800 1800 1800 1800 1800 1800 1800
Adjustment: 0.90 1.00 0.85 0.90 0.98 0.98 0.50 0.91 0.91 0.32 0.90 0.90
Lanes: 1.00 1.00 1.00 1.00 0.87 0.13 1.00 0.38 0.62 1.00 0.36 0.64
Final Sat.: 1615 1800 1530 1615 1531 233 894 622 1011 576 586 1041

Capacity Analysis Module:

Vol/Sat: 0.11 0.30 0.02 0.10 0.36 0.36 0.16 0.14 0.14 0.05 0.07 0.07
Crit Moves: ****
Green/Cycle: 0.17 0.56 0.56 0.19 0.58 0.58 0.25 0.25 0.25 0.25 0.25 0.25
Volume/Cap: 0.63 0.54 0.03 0.54 0.63 0.63 0.63 0.57 0.57 0.19 0.30 0.30
Delay/Veh: 42.8 14.4 9.8 38.5 15.1 15.1 38.9 34.7 34.7 30.3 30.9 30.9
User DelAdj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
AdjDel/Veh: 42.8 14.4 9.8 38.5 15.1 15.1 38.9 34.7 34.7 30.3 30.9 30.9
LOS by Move: D B A D B B D C C C C C
HCM2kAvgQ: 6 11 0 6 13 13 5 7 7 1 3 3

Note: Queue reported is the number of cars per lane.

Ontario New Model -Rich Haven External Intersections
AM Existing
Meyer, Mohaddes Associates

Level Of Service Computation Report
2000 HCM Operations Method (Future Volume Alternative)

Intersection #20 Milliken Ave / Chino Ave

Cycle (sec): 100 Critical Vol./Cap.(X): 0.000
Loss Time (sec): 0 (Y+R=4.0 sec) Average Delay (sec/veh): 0.0
Optimal Cycle: 0 Level Of Service:

Approach: North Bound South Bound East Bound West Bound
Movement: L - T - R L - T - R L - T - R L - T - R

Control: Protected Protected Protected Protected
Rights: Include Include Include Include
Min. Green: 0 0 0 0 0 0 0 0 0 0 0 0
Lanes: 0 0 0 0 0 0 0 0 0 0 0 0

Volume Module:
Base Vol: 0 0 0 0 0 0 0 0 0 0 0 0
Growth Adj: 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00
Initial Bse: 0 0 0 0 0 0 0 0 0 0 0 0
Added Vol: 0 0 0 0 0 0 0 0 0 0 0 0
PasserByVol: 0 0 0 0 0 0 0 0 0 0 0 0
Initial Fut: 0 0 0 0 0 0 0 0 0 0 0 0
User Adj: 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00
PHF Adj: 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00
PHF Volume: 0 0 0 0 0 0 0 0 0 0 0 0
Reduct Vol: 0 0 0 0 0 0 0 0 0 0 0 0
Reduced Vol: 0 0 0 0 0 0 0 0 0 0 0 0
PCE Adj: 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00
MLF Adj: 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00
Final Vol.: 0 0 0 0 0 0 0 0 0 0 0 0

Saturation Flow Module:
Sat/Lane: 0 0 0 0 0 0 0 0 0 0 0 0
Adjustment: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
Lanes: 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00
Final Sat.: 0 0 0 0 0 0 0 0 0 0 0 0

Capacity Analysis Module:
Vol/Sat: 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00
Crit Moves:
Green/Cycle: 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00
Volume/Cap: 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00
Delay/Veh: 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0
User DelAdj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
AdjDel/Veh: 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0
LOS by Move:
HCM2kAvgQ: 0 0 0 0 0 0 0 0 0 0 0 0

Note: Queue reported is the number of cars per lane.

Ontario New Model -Rich Haven External Intersections
AM Existing
Meyer, Mohaddes Associates

Level Of Service Computation Report
2000 HCM Operations Method (Future Volume Alternative)

Intersection #21 Milliken Avenue/Edison Avenue

Cycle (sec): 100 Critical Vol./Cap.(X): 0.000
Loss Time (sec): 0 (Y+R=4.0 sec) Average Delay (sec/veh): 0.0
Optimal Cycle: 0 Level Of Service:

Approach: North Bound South Bound East Bound West Bound
Movement: L - T - R L - T - R L - T - R L - T - R

Control: Protected Protected Protected Protected
Rights: Include Include Include Include
Min. Green: 0 0 0 0 0 0 0 0 0 0 0 0
Lanes: 0 0 0 0 0 0 0 0 0 0 0 0

Volume Module:
Base Vol: 0 0 0 0 0 0 0 0 0 0 0 0
Growth Adj: 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00
Initial Bse: 0 0 0 0 0 0 0 0 0 0 0 0
Added Vol: 0 0 0 0 0 0 0 0 0 0 0 0
PasserByVol: 0 0 0 0 0 0 0 0 0 0 0 0
Initial Fut: 0 0 0 0 0 0 0 0 0 0 0 0
User Adj: 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00
PHF Adj: 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00
PHF Volume: 0 0 0 0 0 0 0 0 0 0 0 0
Reduct Vol: 0 0 0 0 0 0 0 0 0 0 0 0
Reduced Vol: 0 0 0 0 0 0 0 0 0 0 0 0
PCE Adj: 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00
MLF Adj: 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00
Final Vol.: 0 0 0 0 0 0 0 0 0 0 0 0

Saturation Flow Module:
Sat/Lane: 0 0 0 0 0 0 0 0 0 0 0 0
Adjustment: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
Lanes: 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00
Final Sat.: 0 0 0 0 0 0 0 0 0 0 0 0

Capacity Analysis Module:
Vol/Sat: 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00
Crit Moves:
Green/Cycle: 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00
Volume/Cap: 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00
Delay/Veh: 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0
User DelAdj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
AdjDel/Veh: 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0
LOS by Move:
HCM2kAvgQ: 0 0 0 0 0 0 0 0 0 0 0 0

Note: Queue reported is the number of cars per lane.

Ontario New Model -Rich Haven External Intersections
AM Existing
Meyer, Mohaddes Associates

Level Of Service Computation Report
2000 HCM Operations Method (Future Volume Alternative)

Intersection #550 Haven Avenue/Creekside Drive

Cycle (sec): 100 Critical Vol./Cap.(X): 0.707
Loss Time (sec): 0 (Y+R=4.0 sec) Average Delay (sec/veh): 26.5
Optimal Cycle: 78 Level Of Service: C

Approach: North Bound South Bound East Bound West Bound
Movement: L - T - R L - T - R L - T - R L - T - R
-----|-----|-----|-----|
Control: Protected Protected Prot+Permit Prot+Permit
Rights: Include Include Include Include
Min. Green: 0 0 0 0 0 0 0 0 0 0 0 0
Lanes: 1 0 1 1 0 1 0 1 1 0 1 1 0 1 0 1
-----|-----|-----|-----|
Volume Module:
Base Vol: 13 853 33 136 269 226 259 12 23 40 15 215
Growth Adj: 1.04 1.04 1.04 1.04 1.04 1.04 1.04 1.04 1.04 1.04 1.04 1.04
Initial Bse: 14 887 34 141 280 235 269 12 24 42 16 224
Added Vol: 0 0 0 0 0 0 0 0 0 0 0 0
PasserByVol: 0 0 0 0 0 0 0 0 0 0 0 0
Initial Fut: 14 887 34 141 280 235 269 12 24 42 16 224
User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
PHF Adj: 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95
PHF Volume: 14 934 36 149 294 247 284 13 25 44 16 235
Reduct Vol: 0 0 0 0 0 0 0 0 0 0 0 0
Reduced Vol: 14 934 36 149 294 247 284 13 25 44 16 235
PCE Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
MLF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
Final Vol.: 14 934 36 149 294 247 284 13 25 44 16 235
-----|-----|-----|-----|
Saturation Flow Module:
Sat/Lane: 1800 1800 1800 1800 1800 1800 1800 1800 1800 1800 1800
Adjustment: 0.90 0.94 0.94 0.90 0.88 0.88 0.90 1.00 0.85 0.90 1.00 0.85
Lanes: 1.00 1.93 0.07 1.00 1.09 0.91 1.00 1.00 1.00 1.00 1.00 1.00
Final Sat.: 1615 3273 127 1615 1730 1454 1615 1800 1530 1615 1800 1530
-----|-----|-----|-----|
Capacity Analysis Module:
Vol/Sat: 0.01 0.29 0.29 0.09 0.17 0.17 0.18 0.01 0.02 0.03 0.01 0.15
Crit Moves: **** **
Green/Cycle: 0.03 0.40 0.40 0.13 0.51 0.51 0.42 0.18 0.18 0.47 0.22 0.22
Volume/Cap: 0.34 0.71 0.71 0.71 0.34 0.34 0.45 0.04 0.09 0.06 0.04 0.71
Delay/Veh: 52.5 26.6 26.6 52.1 14.7 14.7 20.6 34.3 34.7 14.7 30.9 43.0
User DelAdj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
AdjDel/Veh: 52.5 26.6 26.6 52.1 14.7 14.7 20.6 34.3 34.7 14.7 30.9 43.0
LOS by Move: D C C D B B C C C B C D
HCM2kAvgQ: 1 14 14 6 5 5 7 0 1 1 0 8

Note: Queue reported is the number of cars per lane.

Ontario New Model -Rich Haven External Intersections
AM Existing
Meyer, Mohaddes Associates

Lane Geometry Report

Number of approach lanes: (L) (LT) (T) (RT) (R) (LTR)

Node Intersection	NB	SB	EB	WB
1 Archibald Avenue/Riverside Drive	102100	102100	101100	101010
2 Archibald Avenue/Chino Avenue	102100	101100	100100	101010
3 Archibald Avenue/Schaefer Avenue	000001	000001	000001	000001
4 Archibald Avenue/Edison Avenue	101100	101100	101100	101100
5 Turner Avenue/Riverside Drive	101100	101100	101100	101100
6 Turner Avenue/Chino Avenue	101100	101100	101100	101100
7 Turner Avenue at Schaefer Avenue	000000	000000	000000	000000
8 Edison Avenue at Schaefer Avenue	000000	000000	000000	000000
9 Haven Avenue/SR-60 WB Ramps	203000	003010	000000	110010
10 Haven Avenue/SR-60 EB Ramps	002100	203000	110010	000000
11 Haven Avenue/Riverside Drive	000001	010010	100100	101100
12 Haven Avenue at Chino Avenue	000000	000000	000000	000000
13 Haven Avenue at Edison Avenue	000000	000000	000000	000000
14 Mill Creek Avenue/Riverside Drive	101010	100100	101010	101100
15 Mill Creek Avenue at Chino Avenue	000000	000000	000000	000000
16 Mill Creek Avenue at Edison Avenue	000000	000000	000000	000000
17 Milliken Avenue/SR-60 WB Ramps	102000	002010	000000	100010
18 Milliken Avenue/SR-60 EB Ramps	001100	102000	100001	000000
19 Milliken Avenue/Riverside Drive	101010	100100	100100	100100
20 Milliken Ave / Chino Ave	000000	000000	000000	000000
21 Milliken Avenue/Edison Avenue	000000	000000	000000	000000
550 Haven Avenue/Creekside Drive	101100	101100	101010	101010

 Ontario New Model -Rich Haven External Intersections
 Existing PM Peak
 Meyer, Mohaddes Associates

Scenario: XPM (Existing) Scenario Report

Command: XPM
 Volume: XPM
 Geometry: Existing
 Impact Fee: Default Impact Fee
 Trip Generation: None
 Trip Distribution: None
 Paths: Default Paths
 Routes: Default Routes
 Configuration: XPM

 Ontario New Model -Rich Haven External Intersections
 Existing PM Peak
 Meyer, Mohaddes Associates

Intersection Volume Report
 Base Volume Alternative

Node Intersection	Northbound			Southbound			Eastbound			Westbound		
	L	T	R	L	T	R	L	T	R	L	T	R
1 Archibald Ave	212	503	88	335	505	82	100	467	137	121	232	151
2 Archibald Ave	63	524	23	68	520	43	102	104	83	16	31	75
3 Archibald Ave	0	0	0	0	0	0	0	0	0	0	0	0
4 Archibald Ave	82	508	53	45	474	33	93	312	133	59	80	24
5 Turner Avenue	83	31	131	33	29	58	106	502	128	100	404	46
6 Turner Avenue	18	66	1	8	77	52	95	2	49	1	2	5
7 Turner Avenue	0	0	0	0	0	0	0	0	0	0	0	0
8 Edison Avenue	0	0	0	0	0	0	0	0	0	0	0	0
9 Haven Avenue/	167	1298	0	0	1631	697	0	0	0	234	1	384
10 Haven Avenue/	0	766	101	729	1398	0	700	4	342	0	0	0
11 Haven Avenue/	7	115	45	166	98	378	296	459	3	2	210	61
12 Haven Avenue	0	0	0	0	0	0	0	0	0	0	0	0
13 Haven Avenue	0	0	0	0	0	0	0	0	0	0	0	0
14 Mill Creek Av	35	7	4	34	4	52	104	461	21	3	252	43
15 Mill Creek Av	0	0	0	0	0	0	0	0	0	0	0	0
16 Mill Creek Av	0	0	0	0	0	0	0	0	0	0	0	0
17 Milliken Aven	266	446	0	0	487	519	0	0	0	61	0	84
18 Milliken Aven	0	469	102	133	445	0	232	0	356	0	0	0
19 Milliken Aven	102	408	26	208	472	84	68	258	172	24	144	184
20 Milliken Ave	0	0	0	0	0	0	0	0	0	0	0	0
21 Milliken Aven	0	0	0	0	0	0	0	0	0	0	0	0
550 Haven Avenue/	81	619	112	409	797	356	146	17	24	104	22	134

Ontario New Model -Rich Haven External Intersections
Existing PM Peak
Meyer, Mohaddes Associates

Impact Analysis Report
Level Of Service

Intersection		Base		Future		Change in	
		Del/ LOS Veh	V/ C	Del/ LOS Veh	V/ C		
# 1 Archibald Avenue/Riverside Dri	C	32.5	0.619	32.5	0.619	+ 0.000	D/V
# 2 Archibald Avenue/Chino Avenue	B	18.7	0.317	18.7	0.317	+ 0.000	D/V
# 3 Archibald Avenue/Schaefer Aven		0.0	0.000	0.0	0.000	+ 0.000	D/V
# 4 Archibald Avenue/Edison Avenue	C	23.9	0.374	23.9	0.374	+ 0.000	D/V
# 5 Turner Avenue/Riverside Drive	B	19.5	0.357	19.5	0.357	+ 0.000	D/V
# 6 Turner Avenue/Chino Avenue	A	8.3	0.153	8.3	0.153	+ 0.000	V/C
# 7 Turner Avenue at Schaefer Aven		0.0	0.000	0.0	0.000	+ 0.000	D/V
# 8 Edison Avenue at Schaefer Aven		0.0	0.000	0.0	0.000	+ 0.000	D/V
# 9 Haven Avenue/SR-60 WB Ramps	A	7.7	0.623	7.7	0.623	+ 0.000	D/V
# 10 Haven Avenue/SR-60 EB Ramps	C	23.2	0.684	23.2	0.684	+ 0.000	D/V
# 11 Haven Avenue/Riverside Drive	C	21.9	0.512	21.9	0.512	+ 0.000	D/V
# 12 Haven Avenue at Chino Avenue		0.0	0.000	0.0	0.000	+ 0.000	D/V
# 13 Haven Avenue at Edison Avenue		0.0	0.000	0.0	0.000	+ 0.000	D/V
# 14 Mill Creek Avenue/Riverside Dr	B	12.4	0.311	12.4	0.311	+ 0.000	D/V
# 15 Mill Creek Avenue at Chino Ave		0.0	0.000	0.0	0.000	+ 0.000	D/V
# 16 Mill Creek Avenue at Edison Av		0.0	0.000	0.0	0.000	+ 0.000	D/V
# 17 Milliken Avenue/SR-60 WB Ramps	B	14.4	0.589	14.4	0.589	+ 0.000	D/V
# 18 Milliken Avenue/SR-60 EB Ramps	C	22.4	0.581	22.4	0.581	+ 0.000	D/V
# 19 Milliken Avenue/Riverside Driv	C	26.9	0.667	26.9	0.667	+ 0.000	D/V
# 20 Milliken Ave / Chino Ave		0.0	0.000	0.0	0.000	+ 0.000	D/V
# 21 Milliken Avenue/Edison Avenue		0.0	0.000	0.0	0.000	+ 0.000	D/V
#550 Haven Avenue/Creekside Drive	C	24.3	0.684	24.3	0.684	+ 0.000	D/V

Ontario New Model -Rich Haven External Intersections
Existing PM Peak
Meyer, Mohaddes Associates

Level Of Service Computation Report
2000 HCM Operations Method (Future Volume Alternative)

Intersection #1 Archibald Avenue/Riverside Drive

Cycle (sec): 100 Critical Vol./Cap.(X): 0.619
Loss Time (sec): 0 (Y+R=4.0 sec) Average Delay (sec/veh): 32.5
Optimal Cycle: 60 Level Of Service: C

Approach:	North Bound	South Bound	East Bound	West Bound
Movement:	L - T - R	L - T - R	L - T - R	L - T - R
Control:	Protected	Protected	Protected	Protected
Rights:	Include	Include	Include	Include
Min. Green:	0 0 0	0 0 0	0 0 0	0 0 0
Lanes:	1 0 2 1 0	1 0 2 1 0	1 0 1 1 0	1 0 1 0 1

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Volume Module:

Base Vol:	204	484	85	322	486	79	96	449	132	116	223	145
Growth Adj:	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04
Initial Bse:	212	503	88	335	505	82	100	467	137	121	232	151
Added Vol:	0	0	0	0	0	0	0	0	0	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	212	503	88	335	505	82	100	467	137	121	232	151
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
PHF Volume:	223	530	93	353	532	86	105	492	145	127	244	159
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	223	530	93	353	532	86	105	492	145	127	244	159
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Final Vol.:	223	530	93	353	532	86	105	492	145	127	244	159

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Saturation Flow Module:

Sat/Lane:	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Adjustment:	0.90	0.89	0.89	0.90	0.89	0.89	0.90	0.92	0.92	0.90	1.00	0.85
Lanes:	1.00	2.55	0.45	1.00	2.58	0.42	1.00	1.55	0.45	1.00	1.00	1.00
Final Sat.:	1615	4088	718	1615	4138	673	1615	2553	751	1615	1800	1530

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Capacity Analysis Module:

Vol/Sat:	0.14	0.13	0.13	0.22	0.13	0.13	0.07	0.19	0.19	0.08	0.14	0.10
Crit Moves:	****	****	****	****	****	****	****	****	****	****	****	****
Green/Cycle:	0.29	0.21	0.21	0.35	0.27	0.27	0.14	0.31	0.31	0.13	0.30	0.30
Volume/Cap:	0.47	0.62	0.62	0.62	0.47	0.47	0.46	0.62	0.62	0.62	0.46	0.35
Delay/Veh:	29.9	37.1	37.1	28.9	30.8	30.8	40.8	30.6	30.6	47.0	29.3	28.1
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	29.9	37.1	37.1	28.9	30.8	30.8	40.8	30.6	30.6	47.0	29.3	28.1
LOS by Move:	C	D	D	C	C	C	D	C	C	D	C	C
HCM2kAvgQ:	6	7	7	10	6	6	4	9	9	5	6	4

Note: Queue reported is the number of cars per lane.

Ontario New Model -Rich Haven External Intersections
Existing PM Peak
Meyer, Mohaddes Associates

Level Of Service Computation Report

2000 HCM Operations Method (Future Volume Alternative)

Intersection #2 Archibald Avenue/Chino Avenue

Cycle (sec): 100 Critical Vol./Cap.(X): 0.317
Loss Time (sec): 0 (Y+R=4.0 sec) Average Delay (sec/veh): 18.7
Optimal Cycle: 27 Level Of Service: B

Approach: North Bound South Bound East Bound West Bound
Movement: L - T - R L - T - R L - T - R L - T - R

Control: Protected Protected Permitted Permitted
Rights: Include Include Include Include
Min. Green: 0 0 0 0 0 0 0 0 0 0 0 0
Lanes: 1 0 2 1 0 1 0 1 1 0 1 0 1 0 1

Volume Module:

Base Vol: 61 504 22 65 500 41 98 100 80 15 30 72
Growth Adj: 1.04 1.04 1.04 1.04 1.04 1.04 1.04 1.04 1.04 1.04 1.04 1.04
Initial Bse: 63 524 23 68 520 43 102 104 83 16 31 75
Added Vol: 0 0 0 0 0 0 0 0 0 0 0 0
PasserByVol: 0 0 0 0 0 0 0 0 0 0 0 0
Initial Fut: 63 524 23 68 520 43 102 104 83 16 31 75
User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
PHF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
PHF Volume: 63 524 23 68 520 43 102 104 83 16 31 75
Reduce Vol: 0 0 0 0 0 0 0 0 0 0 0 0
Reduced Vol: 63 524 23 68 520 43 102 104 83 16 31 75
PCE Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
MLF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
Final Vol.: 63 524 23 68 520 43 102 104 83 16 31 75

Saturation Flow Module:

Sat/Lane: 1800 1800 1800 1800 1800 1800 1800 1800 1800 1800 1800
Adjustment: 0.90 0.90 0.90 0.90 0.94 0.94 0.68 0.93 0.93 0.47 1.00 0.85
Lanes: 1.00 2.87 0.13 1.00 1.85 0.15 1.00 0.56 0.44 1.00 1.00 1.00
Final Sat.: 1615 4680 204 1615 3126 256 1222 933 746 845 1800 1530

Capacity Analysis Module:

Vol/Sat: 0.04 0.11 0.11 0.04 0.17 0.17 0.08 0.11 0.11 0.02 0.02 0.05
Crit Moves: ****
Green/Cycle: 0.12 0.47 0.47 0.18 0.52 0.52 0.35 0.35 0.35 0.35 0.35 0.35
Volume/Cap: 0.32 0.24 0.24 0.24 0.32 0.32 0.24 0.32 0.32 0.05 0.05 0.14
Delay/Veh: 40.9 15.7 15.7 35.8 13.7 13.7 23.2 24.0 24.0 21.5 21.4 22.2
User DelAdj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
AdjDel/Veh: 40.9 15.7 15.7 35.8 13.7 13.7 23.2 24.0 24.0 21.5 21.4 22.2
LOS by Move: D B B D B B C C C C C C
HCM2kAvgQ: 2 4 4 2 5 5 2 4 4 0 1 2

Note: Queue reported is the number of cars per lane.

Ontario New Model -Rich Haven External Intersections
Existing PM Peak
Meyer, Mohaddes Associates

Level Of Service Computation Report

2000 HCM Operations Method (Future Volume Alternative)

Intersection #3 Archibald Avenue/Schaefer Avenue

Cycle (sec): 100 Critical Vol./Cap.(X): 0.000
Loss Time (sec): 0 (Y+R=4.0 sec) Average Delay (sec/veh): 0.0
Optimal Cycle: 0 Level Of Service: B

Approach: North Bound South Bound East Bound West Bound
Movement: L - T - R L - T - R L - T - R L - T - R

Control: Protected Protected Protected Protected
Rights: Include Include Include Include
Min. Green: 0 0 0 0 0 0 0 0 0 0 0 0
Lanes: 0 0 1! 0 0 0 0 1! 0 0 0 0 1! 0 0

Volume Module:

Base Vol: 0 0 0 0 0 0 0 0 0 0 0 0
Growth Adj: 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00
Initial Bse: 0 0 0 0 0 0 0 0 0 0 0 0
Added Vol: 0 0 0 0 0 0 0 0 0 0 0 0
PasserByVol: 0 0 0 0 0 0 0 0 0 0 0 0
Initial Fut: 0 0 0 0 0 0 0 0 0 0 0 0
User Adj: 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00
PHF Adj: 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00
PHF Volume: 0 0 0 0 0 0 0 0 0 0 0 0
Reduce Vol: 0 0 0 0 0 0 0 0 0 0 0 0
Reduced Vol: 0 0 0 0 0 0 0 0 0 0 0 0
PCE Adj: 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00
MLF Adj: 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00
Final Vol.: 0 0 0 0 0 0 0 0 0 0 0 0

Saturation Flow Module:

Sat/Lane: 0 0 0 0 0 0 0 0 0 0 0 0
Adjustment: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
Lanes: 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00
Final Sat.: 0 0 0 0 0 0 0 0 0 0 0 0

Capacity Analysis Module:

Vol/Sat: 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00
Crit Moves:
Green/Cycle: 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00
Volume/Cap: 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00
Delay/Veh: 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0
User DelAdj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
AdjDel/Veh: 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0
LOS by Move:
HCM2kAvgQ: 0 0 0 0 0 0 0 0 0 0 0 0

Note: Queue reported is the number of cars per lane.

Ontario New Model -Rich Haven External Intersections
Existing PM Peak
Meyer, Mohaddes Associates

Level Of Service Computation Report

2000 HCM Operations Method (Future Volume Alternative)

Intersection #4 Archibald Avenue/Edison Avenue

Cycle (sec): 100 Critical Vol./Cap.(X): 0.374
Loss Time (sec): 0 (Y+R=4.0 sec) Average Delay (sec/veh): 23.9
Optimal Cycle: 36 Level Of Service: C

Approach: North Bound South Bound East Bound West Bound
Movement: L - T - R L - T - R L - T - R L - T - R

Control: Protected Protected Protected Protected
Rights: Include Include Include Include
Min. Green: 0 0 0 0 0 0 0 0 0 0 0 0
Lanes: 1 0 1 1 0 1 0 1 1 0 1 0 1 1 0

Volume Module:

Base Vol:	79	488	51	43	456	32	89	300	128	57	77	23
Growth Adj:	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04
Initial Bse:	82	508	53	45	474	33	93	312	133	59	80	24
Added Vol:	0	0	0	0	0	0	0	0	0	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	82	508	53	45	474	33	93	312	133	59	80	24
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	82	508	53	45	474	33	93	312	133	59	80	24
Reduce Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	82	508	53	45	474	33	93	312	133	59	80	24
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Final Vol.:	82	508	53	45	474	33	93	312	133	59	80	24

Saturation Flow Module:

Sat/Lane:	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Adjustment:	0.90	0.94	0.94	0.90	0.94	0.94	0.90	0.91	0.91	0.90	0.92	0.92
Lanes:	1.00	1.81	0.19	1.00	1.87	0.13	1.00	1.40	0.60	1.00	1.54	0.46
Final Sat.:	1615	3053	319	1615	3164	222	1615	2289	977	1615	2544	760

Capacity Analysis Module:

Vol/Sat:	0.05	0.17	0.17	0.03	0.15	0.15	0.06	0.14	0.14	0.04	0.03	0.03
Crit Moves:	****			****			****			****		
Green/Cycle:	0.14	0.46	0.46	0.08	0.40	0.40	0.30	0.36	0.36	0.10	0.16	0.16
Volume/Cap:	0.37	0.36	0.36	0.36	0.37	0.37	0.19	0.37	0.37	0.37	0.19	0.19
Delay/Veh:	40.4	17.6	17.6	45.6	21.3	21.3	26.3	23.6	23.6	43.7	36.2	36.2
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	40.4	17.6	17.6	45.6	21.3	21.3	26.3	23.6	23.6	43.7	36.2	36.2
LOS by Move:	D	B	B	D	C	C	C	C	C	D	D	D
HCM2kAvgQ:	3	6	6	2	6	6	2	5	5	2	2	2

Note: Queue reported is the number of cars per lane.

Ontario New Model -Rich Haven External Intersections
Existing PM Peak
Meyer, Mohaddes Associates

Level Of Service Computation Report

2000 HCM Operations Method (Future Volume Alternative)

Intersection #5 Turner Avenue/Riverside Drive

Cycle (sec): 100 Critical Vol./Cap.(X): 0.357
Loss Time (sec): 0 (Y+R=4.0 sec) Average Delay (sec/veh): 19.5
Optimal Cycle: 29 Level Of Service: B

Approach: North Bound South Bound East Bound West Bound
Movement: L - T - R L - T - R L - T - R L - T - R

Control: Permitted Permitted Protected Protected
Rights: Include Include Include Include
Min. Green: 0 0 0 0 0 0 0 0 0 0 0 0
Lanes: 1 0 1 1 0 1 0 1 1 0 1 0 1 1 0

Volume Module:

Base Vol:	80	30	126	32	28	56	102	483	123	96	388	44
Growth Adj:	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04
Initial Bse:	83	31	131	33	29	58	106	502	128	100	404	46
Added Vol:	0	0	0	0	0	0	0	0	0	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	83	31	131	33	29	58	106	502	128	100	404	46
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
PHF Volume:	88	33	138	35	31	61	112	529	135	105	425	48
Reduce Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	88	33	138	35	31	61	112	529	135	105	425	48
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Final Vol.:	88	33	138	35	31	61	112	529	135	105	425	48

Saturation Flow Module:

Sat/Lane:	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Adjustment:	0.60	0.84	0.84	0.51	0.86	0.86	0.90	0.92	0.92	0.90	0.94	0.94
Lanes:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.59	0.41	1.00	1.80	0.20
Final Sat.:	1083	1503	1503	918	1539	1539	1615	2644	673	1615	3026	343

Capacity Analysis Module:

Vol/Sat:	0.08	0.02	0.09	0.04	0.02	0.04	0.07	0.20	0.20	0.07	0.14	0.14
Crit Moves:	****			****			****			****		
Green/Cycle:	0.26	0.26	0.26	0.26	0.26	0.26	0.25	0.56	0.56	0.18	0.50	0.50
Volume/Cap:	0.31	0.08	0.36	0.15	0.08	0.15	0.28	0.36	0.36	0.36	0.28	0.28
Delay/Veh:	30.7	28.2	30.8	29.0	28.2	28.9	31.0	12.2	12.2	36.5	14.8	14.8
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	30.7	28.2	30.8	29.0	28.2	28.9	31.0	12.2	12.2	36.5	14.8	14.8
LOS by Move:	C	C	C	C	C	C	C	B	B	D	B	B
HCM2kAvgQ:	3	1	4	1	1	2	3	6	6	3	4	4

Note: Queue reported is the number of cars per lane.

Ontario New Model -Rich Haven External Intersections
Existing PM Peak
Meyer, Mohaddes Associates

Level Of Service Computation Report
2000 HCM 4-Way Stop Method (Future Volume Alternative)

Intersection #6 Turner Avenue/Chino Avenue
Cycle (sec): 100 Critical Vol./Cap.(X): 0.153
Loss Time (sec): 0 (Y+R=4.0 sec) Average Delay (sec/veh): 8.3
Optimal Cycle: 0 Level Of Service: A
Approach: North Bound South Bound East Bound West Bound
Movement: L - T - R L - T - R L - T - R L - T - R
Control: Stop Sign Stop Sign Stop Sign Stop Sign
Rights: Include Include Include Include
Min. Green: 0 0 0 0 0 0 0 0 0 0 0 0
Lanes: 1 0 1 1 0 1 0 1 1 0 1 0 1 1 0
Volume Module:
Base Vol: 17 63 1 8 74 50 91 2 47 1 2 5
Growth Adj: 1.04 1.04 1.04 1.04 1.04 1.04 1.04 1.04 1.04 1.04 1.04 1.04
Initial Bse: 18 66 1 8 77 52 95 2 49 1 2 5
Added Vol: 0 0 0 0 0 0 0 0 0 0 0 0
PasserByVol: 0 0 0 0 0 0 0 0 0 0 0 0
Initial Fut: 18 66 1 8 77 52 95 2 49 1 2 5
User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
PHF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
PHF Volume: 18 66 1 8 77 52 95 2 49 1 2 5
Reduct Vol: 0 0 0 0 0 0 0 0 0 0 0 0
Reduced Vol: 18 66 1 8 77 52 95 2 49 1 2 5
PCE Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
MLF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
Final Vol.: 18 66 1 8 77 52 95 2 49 1 2 5
Saturation Flow Module:
Adjustment: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
Lanes: 1.00 1.97 0.03 1.00 1.19 0.81 1.00 1.00 1.00 1.00 1.00 1.00
Final Sat.: 607 1309 21 620 827 613 620 676 779 580 631 719
Capacity Analysis Module:
Vol/Sat: 0.03 0.05 0.05 0.01 0.09 0.08 0.15 0.00 0.06 0.00 0.00 0.01
Crit Moves: **** **** ****
Delay/Veh: 8.6 8.2 8.1 8.4 8.2 7.7 9.3 7.8 7.4 8.6 8.1 7.4
Delay Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
AdjDel/Veh: 8.6 8.2 8.1 8.4 8.2 7.7 9.3 7.8 7.4 8.6 8.1 7.4
LOS by Move: A A A A A A A A A A A A
ApproachDel: 8.2 8.0 8.6 7.7
Delay Adj: 1.00 1.00 1.00
ApprAdjDel: 8.2 8.0 8.6 7.7
LOS by Appr: A A A A
AllWayAvgQ: 0.0 0.0 0.0 0.0 0.1 0.1 0.2 0.0 0.1 0.0 0.0 0.0

Note: Queue reported is the number of cars per lane.

Ontario New Model -Rich Haven External Intersections
Existing PM Peak
Meyer, Mohaddes Associates

Level Of Service Computation Report
2000 HCM Operations Method (Future Volume Alternative)

Intersection #7 Turner Avenue at Schaefer Avenue
Cycle (sec): 100 Critical Vol./Cap.(X): 0.000
Loss Time (sec): 0 (Y+R=4.0 sec) Average Delay (sec/veh): 0.0
Optimal Cycle: 0 Level Of Service: A
Approach: North Bound South Bound East Bound West Bound
Movement: L - T - R L - T - R L - T - R L - T - R
Control: Protected Protected Protected Protected
Rights: Include Include Include Include
Min. Green: 0 0 0 0 0 0 0 0 0 0 0 0
Lanes: 0 0 0 0 0 0 0 0 0 0 0 0
Volume Module:
Base Vol: 0 0 0 0 0 0 0 0 0 0 0 0
Growth Adj: 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00
Initial Bse: 0 0 0 0 0 0 0 0 0 0 0 0
Added Vol: 0 0 0 0 0 0 0 0 0 0 0 0
PasserByVol: 0 0 0 0 0 0 0 0 0 0 0 0
Initial Fut: 0 0 0 0 0 0 0 0 0 0 0 0
User Adj: 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00
PHF Adj: 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00
PHF Volume: 0 0 0 0 0 0 0 0 0 0 0 0
Reduct Vol: 0 0 0 0 0 0 0 0 0 0 0 0
Reduced Vol: 0 0 0 0 0 0 0 0 0 0 0 0
PCE Adj: 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00
MLF Adj: 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00
Final Vol.: 0 0 0 0 0 0 0 0 0 0 0 0
Saturation Flow Module:
Sat/Lane: 0 0 0 0 0 0 0 0 0 0 0 0
Adjustment: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
Lanes: 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00
Final Sat.: 0 0 0 0 0 0 0 0 0 0 0 0
Capacity Analysis Module:
Vol/Sat: 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00
Crit Moves:
Green/Cycle: 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00
Volume/Cap: 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00
Delay/Veh: 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0
User DelAdj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
AdjDel/Veh: 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0
LOS by Move:
HCM2kAvgQ: 0 0 0 0 0 0 0 0 0 0 0 0

Note: Queue reported is the number of cars per lane.

Ontario New Model -Rich Haven External Intersections
Existing PM Peak
Meyer, Mohaddes Associates

Level Of Service Computation Report
2000 HCM Operations Method (Future Volume Alternative)

Intersection #8 Edison Avenue at Schaefer Avenue

Cycle (sec): 100 Critical Vol./Cap.(X): 0.000
Loss Time (sec): 0 (Y+R=4.0 sec) Average Delay (sec/veh): 0.0
Optimal Cycle: 0 Level Of Service:

Approach: North Bound South Bound East Bound West Bound
Movement: L - T - R L - T - R L - T - R L - T - R

Control: Protected Protected Protected Protected
Rights: Include Include Include Include
Min. Green: 0 0 0 0 0 0 0 0 0 0 0 0
Lanes: 0 0 0 0 0 0 0 0 0 0 0 0

Volume Module:
Base Vol: 0 0 0 0 0 0 0 0 0 0 0 0
Growth Adj: 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00
Initial Bse: 0 0 0 0 0 0 0 0 0 0 0 0
Added Vol: 0 0 0 0 0 0 0 0 0 0 0 0
PasserByVol: 0 0 0 0 0 0 0 0 0 0 0 0
Initial Fut: 0 0 0 0 0 0 0 0 0 0 0 0
User Adj: 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00
PHF Adj: 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00
PHF Volume: 0 0 0 0 0 0 0 0 0 0 0 0
Reduct Vol: 0 0 0 0 0 0 0 0 0 0 0 0
Reduced Vol: 0 0 0 0 0 0 0 0 0 0 0 0
PCE Adj: 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00
MLF Adj: 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00
Final Vol.: 0 0 0 0 0 0 0 0 0 0 0 0

Saturation Flow Module:
Sat/Lane: 0 0 0 0 0 0 0 0 0 0 0 0
Adjustment: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
Lanes: 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00
Final Sat.: 0 0 0 0 0 0 0 0 0 0 0 0

Capacity Analysis Module:
Vol/Sat: 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00
Crit Moves:
Green/Cycle: 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00
Volume/Cap: 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00
Delay/Veh: 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0
User DelAdj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
AdjDel/Veh: 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0
LOS by Move:
HCM2kAvgQ: 0 0 0 0 0 0 0 0 0 0 0 0

Note: Queue reported is the number of cars per lane.

Ontario New Model -Rich Haven External Intersections
Existing PM Peak
Meyer, Mohaddes Associates

Level Of Service Computation Report
2000 HCM Operations Method (Future Volume Alternative)

Intersection #9 Haven Avenue/SR-60 WB Ramps

Cycle (sec): 100 Critical Vol./Cap.(X): 0.623
Loss Time (sec): 0 (Y+R=4.0 sec) Average Delay (sec/veh): 7.7
Optimal Cycle: 49 Level Of Service: A

Approach: North Bound South Bound East Bound West Bound
Movement: L - T - R L - T - R L - T - R L - T - R

Control: Protected Permitted Split Phase Split Phase
Rights: Include Include Include Ignore
Min. Green: 0 0 0 0 0 0 0 0 0 0 0 0
Lanes: 2 0 3 0 0 0 0 3 0 1 0 0 0 0 1

Volume Module:
Base Vol: 1611248 0 0 1568 670 0 0 0 225 1 369
Growth Adj: 1.04 1.04 1.04 1.04 1.04 1.04 1.04 1.04 1.04 1.04 1.04 1.04
Initial Bse: 167 1298 0 0 1631 697 0 0 234 1 384
Added Vol: 0 0 0 0 0 0 0 0 0 0 0 0
PasserByVol: 0 0 0 0 0 0 0 0 0 0 0 0
Initial Fut: 167 1298 0 0 1631 697 0 0 234 1 384
User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
PHF Adj: 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95
PHF Volume: 176 1366 0 0 1717 733 0 0 246 1 0
Reduct Vol: 0 0 0 0 0 0 0 0 0 0 0 0
Reduced Vol: 176 1366 0 0 1717 733 0 0 246 1 0
PCE Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
MLF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
Final Vol.: 176 1366 0 0 1717 733 0 0 246 1 0

Saturation Flow Module:
Sat/Lane: 1800 1800 1800 1800 1800 1800 1800 1800 1800 1800 1800
Adjustment: 0.84 0.91 1.00 0.94 0.91 0.85 0.94 1.00 1.00 0.80 0.85 1.00
Lanes: 2.00 3.00 0.00 0.00 3.00 1.00 0.00 0.00 0.00 1.99 0.01 1.00
Final Sat.: 3040 4914 0 0 4914 1530 0 0 2881 13 1800

Capacity Analysis Module:
Vol/Sat: 0.06 0.28 0.00 0.00 0.35 0.48 0.00 0.00 0.00 0.09 0.09 0.00
Crit Moves: ****
Green/Cycle: 0.09 0.86 0.00 0.00 0.77 0.77 0.00 0.00 0.00 0.14 0.14 0.00
Volume/Cap: 0.62 0.32 0.00 0.00 0.45 0.62 0.00 0.00 0.00 0.62 0.62 0.00
Delay/Veh: 47.9 1.3 0.0 0.0 4.2 6.1 0.0 0.0 0.0 43.7 43.7 0.0
User DelAdj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
AdjDel/Veh: 47.9 1.3 0.0 0.0 4.2 6.1 0.0 0.0 0.0 43.7 43.7 0.0
LOS by Move:
HCM2kAvgQ: D A A A A A A A A D D A
4 3 0 0 7 11 0 0 0 5 5 0

Note: Queue reported is the number of cars per lane.

Ontario New Model -Rich Haven External Intersections
Existing PM Peak
Meyer, Mohaddes Associates

Level Of Service Computation Report

2000 HCM Operations Method (Future Volume Alternative)

Intersection #10 Haven Avenue/SR-60 EB Ramps

Cycle (sec): 100 Critical Vol./Cap.(X): 0.684
Loss Time (sec): 0 (Y+R=4.0 sec) Average Delay (sec/veh): 23.2
Optimal Cycle: 59 Level Of Service: C

Approach: North Bound South Bound East Bound West Bound
Movement: L - T - R L - T - R L - T - R L - T - R

Control: Permitted Protected Split Phase Split Phase
Rights: Include Include Include Include
Min. Green: 0 0 0 0 0 0 0 0 0 0 0 0
Lanes: 0 0 2 1 0 2 0 3 0 0 1 1 0 0 1 0 0 0 0 0

Volume Module:
Base Vol: 0 737 97 701 1344 0 673 4 329 0 0 0
Growth Adj: 1.04 1.04 1.04 1.04 1.04 1.04 1.04 1.04 1.04 1.04 1.04 1.04
Initial Bse: 0 766 101 729 1398 0 700 4 342 0 0 0
Added Vol: 0 0 0 0 0 0 0 0 0 0 0 0
PasserByVol: 0 0 0 0 0 0 0 0 0 0 0 0
Initial Fut: 0 766 101 729 1398 0 700 4 342 0 0 0
User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
PHF Adj: 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95
PHF Volume: 0 807 106 767 1471 0 737 4 360 0 0 0
Reduce Vol: 0 0 0 0 0 0 0 0 0 0 0 0
Reduced Vol: 0 807 106 767 1471 0 737 4 360 0 0 0
PCE Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
MLF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
Final Vol.: 0 807 106 767 1471 0 737 4 360 0 0 0

Saturation Flow Module:
Sat/Lane: 1800 1800 1800 1800 1800 1800 1800 1800 1800 1800 1800
Adjustment: 0.94 0.89 0.89 0.84 0.91 1.00 0.85 0.90 0.85 0.94 1.00 1.00
Lanes: 0.00 2.65 0.35 2.00 3.00 0.00 1.99 0.01 1.00 0.00 0.00 0.00
Final Sat.: 0 4269 562 3040 4914 0 3043 18 1530 0 0 0

Capacity Analysis Module:
Vol/Sat: 0.00 0.19 0.19 0.25 0.30 0.00 0.24 0.24 0.24 0.00 0.00 0.00
Crit Moves: ****
Green/Cycle: 0.00 0.28 0.28 0.37 0.65 0.00 0.35 0.35 0.35 0.00 0.00 0.00
Volume/Cap: 0.00 0.68 0.68 0.68 0.46 0.00 0.68 0.68 0.66 0.00 0.00 0.00
Delay/Veh: 0.0 33.8 33.8 28.4 9.1 0.0 29.3 29.3 30.4 0.0 0.0 0.0
User DelAdj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
AdjDel/Veh: 0.0 33.8 33.8 28.4 9.1 0.0 29.3 29.3 30.4 0.0 0.0 0.0
LOS by Move: A C C C A A C C C A A A
HCM2kAvgQ: 0 10 10 12 8 0 11 11 10 0 0 0

Note: Queue reported is the number of cars per lane.

Ontario New Model -Rich Haven External Intersections
Existing PM Peak
Meyer, Mohaddes Associates

Level Of Service Computation Report

2000 HCM Operations Method (Future Volume Alternative)

Intersection #11 Haven Avenue/Riverside Drive

Cycle (sec): 100 Critical Vol./Cap.(X): 0.512
Loss Time (sec): 0 (Y+R=4.0 sec) Average Delay (sec/veh): 21.9
Optimal Cycle: 38 Level Of Service: C

Approach: North Bound South Bound East Bound West Bound
Movement: L - T - R L - T - R L - T - R L - T - R

Control: Permitted Permitted Protected Protected
Rights: Include Include Include Include
Min. Green: 0 0 0 0 0 0 0 0 0 0 0 0
Lanes: 0 0 1 0 0 0 1 0 0 1 0 1 0 1 0

Volume Module:
Base Vol: 7 111 43 160 94 363 285 441 3 2 202 59
Growth Adj: 1.04 1.04 1.04 1.04 1.04 1.04 1.04 1.04 1.04 1.04 1.04 1.04
Initial Bse: 7 115 45 166 98 378 296 459 3 2 210 61
Added Vol: 0 0 0 0 0 0 0 0 0 0 0 0
PasserByVol: 0 0 0 0 0 0 0 0 0 0 0 0
Initial Fut: 7 115 45 166 98 378 296 459 3 2 210 61
User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
PHF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
PHF Volume: 7 115 45 166 98 378 296 459 3 2 210 61
Reduce Vol: 0 0 0 0 0 0 0 0 0 0 0 0
Reduced Vol: 7 115 45 166 98 378 296 459 3 2 210 61
PCE Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
MLF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
Final Vol.: 7 115 45 166 98 378 296 459 3 2 210 61

Saturation Flow Module:
Sat/Lane: 1800 1800 1800 1800 1800 1800 1800 1800 1800 1800 1800
Adjustment: 0.90 0.95 0.95 0.67 0.71 0.85 0.90 1.00 1.00 0.90 0.92 0.92
Lanes: 0.04 0.69 0.27 0.64 0.36 1.00 1.00 0.99 0.01 1.00 1.55 0.45
Final Sat.: 74 1180 457 778 457 1530 1615 1786 12 1615 2557 747

Capacity Analysis Module:
Vol/Sat: 0.10 0.10 0.10 0.21 0.21 0.25 0.18 0.26 0.26 0.00 0.08 0.08
Crit Moves: ****
Green/Cycle: 0.48 0.48 0.48 0.48 0.48 0.48 0.36 0.52 0.52 0.00 0.16 0.16
Volume/Cap: 0.20 0.20 0.20 0.44 0.44 0.51 0.51 0.50 0.50 0.50 0.51 0.51
Delay/Veh: 15.0 15.0 15.0 17.6 17.6 18.5 26.0 16.2 16.2 121.2 39.3 39.3
User DelAdj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
AdjDel/Veh: 15.0 15.0 15.0 17.6 17.6 18.5 26.0 16.2 16.2 121.2 39.3 39.3
LOS by Move: B B B B B B C B B F D D
HCM2kAvgQ: 3 3 3 6 6 8 8 9 9 0 5 5

Note: Queue reported is the number of cars per lane.

Ontario New Model -Rich Haven External Intersections
Existing PM Peak
Meyer, Mohaddes Associates

Level Of Service Computation Report
2000 HCM Operations Method (Future Volume Alternative)

Intersection #12 Haven Avenue at Chino Avenue

Cycle (sec): 100 Critical Vol./Cap.(X): 0.000
Loss Time (sec): 0 (Y+R=4.0 sec) Average Delay (sec/veh): 0.0
Optimal Cycle: 0 Level Of Service:

Approach: North Bound South Bound East Bound West Bound
Movement: L - T - R L - T - R L - T - R L - T - R

Control: Protected Protected Protected Protected
Rights: Include Include Include Include
Min. Green: 0 0 0 0 0 0 0 0 0 0 0 0
Lanes: 0 0 0 0 0 0 0 0 0 0 0 0

Volume Module:
Base Vol: 0 0 0 0 0 0 0 0 0 0 0 0
Growth Adj: 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00
Initial Bse: 0 0 0 0 0 0 0 0 0 0 0 0
Added Vol: 0 0 0 0 0 0 0 0 0 0 0 0
PasserByVol: 0 0 0 0 0 0 0 0 0 0 0 0
Initial Fut: 0 0 0 0 0 0 0 0 0 0 0 0
User Adj: 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00
PHF Adj: 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00
PHF Volume: 0 0 0 0 0 0 0 0 0 0 0 0
Reduct Vol: 0 0 0 0 0 0 0 0 0 0 0 0
Reduced Vol: 0 0 0 0 0 0 0 0 0 0 0 0
PCE Adj: 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00
MLF Adj: 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00
Final Vol.: 0 0 0 0 0 0 0 0 0 0 0 0

Saturation Flow Module:
Sat/Lane: 0 0 0 0 0 0 0 0 0 0 0 0
Adjustment: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
Lanes: 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00
Final Sat.: 0 0 0 0 0 0 0 0 0 0 0 0

Capacity Analysis Module:
Vol/Sat: 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00
Crit Moves:
Green/Cycle: 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00
Volume/Cap: 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00
Delay/Veh: 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0
User DelAdj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
AdjDel/Veh: 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0
LOS by Move:
HCM2kAvgQ: 0 0 0 0 0 0 0 0 0 0 0 0

Note: Queue reported is the number of cars per lane.

Ontario New Model -Rich Haven External Intersections
Existing PM Peak
Meyer, Mohaddes Associates

Level Of Service Computation Report
2000 HCM Operations Method (Future Volume Alternative)

Intersection #13 Haven Avenue at Edison Avenue

Cycle (sec): 100 Critical Vol./Cap.(X): 0.000
Loss Time (sec): 0 (Y+R=4.0 sec) Average Delay (sec/veh): 0.0
Optimal Cycle: 0 Level Of Service:

Approach: North Bound South Bound East Bound West Bound
Movement: L - T - R L - T - R L - T - R L - T - R

Control: Protected Protected Protected Protected
Rights: Include Include Include Include
Min. Green: 0 0 0 0 0 0 0 0 0 0 0 0
Lanes: 0 0 0 0 0 0 0 0 0 0 0 0

Volume Module:
Base Vol: 0 0 0 0 0 0 0 0 0 0 0 0
Growth Adj: 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00
Initial Bse: 0 0 0 0 0 0 0 0 0 0 0 0
Added Vol: 0 0 0 0 0 0 0 0 0 0 0 0
PasserByVol: 0 0 0 0 0 0 0 0 0 0 0 0
Initial Fut: 0 0 0 0 0 0 0 0 0 0 0 0
User Adj: 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00
PHF Adj: 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00
PHF Volume: 0 0 0 0 0 0 0 0 0 0 0 0
Reduct Vol: 0 0 0 0 0 0 0 0 0 0 0 0
Reduced Vol: 0 0 0 0 0 0 0 0 0 0 0 0
PCE Adj: 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00
MLF Adj: 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00
Final Vol.: 0 0 0 0 0 0 0 0 0 0 0 0

Saturation Flow Module:
Sat/Lane: 0 0 0 0 0 0 0 0 0 0 0 0
Adjustment: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
Lanes: 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00
Final Sat.: 0 0 0 0 0 0 0 0 0 0 0 0

Capacity Analysis Module:
Vol/Sat: 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00
Crit Moves:
Green/Cycle: 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00
Volume/Cap: 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00
Delay/Veh: 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0
User DelAdj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
AdjDel/Veh: 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0
LOS by Move:
HCM2kAvgQ: 0 0 0 0 0 0 0 0 0 0 0 0

Note: Queue reported is the number of cars per lane.

Ontario New Model -Rich Haven External Intersections
Existing PM Peak
Meyer, Mohaddes Associates

Level Of Service Computation Report

2000 HCM Operations Method (Future Volume Alternative)

Intersection #14 Mill Creek Avenue/Riverside Drive

Cycle (sec): 100 Critical Vol./Cap.(X): 0.311
Loss Time (sec): 0 (Y+R=4.0 sec) Average Delay (sec/veh): 12.4
Optimal Cycle: 27 Level Of Service: B

Approach: North Bound South Bound East Bound West Bound
Movement: L - T - R L - T - R L - T - R L - T - R

Control: Permitted Permitted Protected Protected
Rights: Include Include Include Include
Min. Green: 0 0 0 0 0 0 0 0 0 0 0 0
Lanes: 1 0 1 0 1 1 0 0 1 0 1 1 0

Volume Module:

Base Vol: 34 7 4 33 4 50 100 443 20 3 242 41
Growth Adj: 1.04 1.04 1.04 1.04 1.04 1.04 1.04 1.04 1.04 1.04 1.04 1.04
Initial Bse: 35 7 4 34 4 52 104 461 21 3 252 43
Added Vol: 0 0 0 0 0 0 0 0 0 0 0 0
PasserByVol: 0 0 0 0 0 0 0 0 0 0 0 0
Initial Fut: 35 7 4 34 4 52 104 461 21 3 252 43
User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
PHF Adj: 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95
PHF Volume: 37 8 4 36 4 55 109 485 22 3 265 45
Reduct Vol: 0 0 0 0 0 0 0 0 0 0 0 0
Reduced Vol: 37 8 4 36 4 55 109 485 22 3 265 45
PCE Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
MLF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
Final Vol.: 37 8 4 36 4 55 109 485 22 3 265 45

Saturation Flow Module:

Sat/Lane: 1800 1800 1800 1800 1800 1800 1800 1800 1800 1800 1800 1800
Adjustment: 0.52 1.00 0.85 0.70 0.86 0.86 0.90 1.00 0.85 0.90 0.93 0.93
Lanes: 1.00 1.00 1.00 1.00 0.07 0.93 1.00 1.00 1.00 1.00 1.71 0.29
Final Sat.: 940 1800 1530 1256 115 1435 1615 1800 1530 1615 2860 485

Capacity Analysis Module:

Vol/Sat: 0.04 0.00 0.00 0.03 0.04 0.04 0.07 0.27 0.01 0.00 0.09 0.09
Crit Moves: ****
Green/Cycle: 0.13 0.13 0.13 0.13 0.13 0.13 0.37 0.87 0.87 0.01 0.50 0.50
Volume/Cap: 0.31 0.03 0.02 0.23 0.30 0.30 0.18 0.31 0.02 0.31 0.18 0.18
Delay/Veh: 41.1 38.3 38.2 39.9 40.4 40.4 21.5 1.3 0.9 65.5 13.6 13.6
User DelAdj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
AdjDel/Veh: 41.1 38.3 38.2 39.9 40.4 40.4 21.5 1.3 0.9 65.5 13.6 13.6
LOS by Move: D D D D D C A A E B B
HCM2kAvgQ: 1 0 0 1 2 2 2 3 0 0 3 3

Note: Queue reported is the number of cars per lane.

Ontario New Model -Rich Haven External Intersections
Existing PM Peak
Meyer, Mohaddes Associates

Level Of Service Computation Report

2000 HCM Operations Method (Future Volume Alternative)

Intersection #15 Mill Creek Avenue at Chino Avenue

Cycle (sec): 100 Critical Vol./Cap.(X): 0.000
Loss Time (sec): 0 (Y+R=4.0 sec) Average Delay (sec/veh): 0.0
Optimal Cycle: 0 Level Of Service: B

Approach: North Bound South Bound East Bound West Bound
Movement: L - T - R L - T - R L - T - R L - T - R

Control: Protected Protected Protected Protected
Rights: Include Include Include Include
Min. Green: 0 0 0 0 0 0 0 0 0 0 0 0
Lanes: 0 0 0 0 0 0 0 0 0 0 0 0

Volume Module:

Base Vol: 0 0 0 0 0 0 0 0 0 0 0 0
Growth Adj: 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00
Initial Bse: 0 0 0 0 0 0 0 0 0 0 0 0
Added Vol: 0 0 0 0 0 0 0 0 0 0 0 0
PasserByVol: 0 0 0 0 0 0 0 0 0 0 0 0
Initial Fut: 0 0 0 0 0 0 0 0 0 0 0 0
User Adj: 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00
PHF Adj: 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00
PHF Volume: 0 0 0 0 0 0 0 0 0 0 0 0
Reduct Vol: 0 0 0 0 0 0 0 0 0 0 0 0
Reduced Vol: 0 0 0 0 0 0 0 0 0 0 0 0
PCE Adj: 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00
MLF Adj: 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00
Final Vol.: 0 0 0 0 0 0 0 0 0 0 0 0

Saturation Flow Module:

Sat/Lane: 0 0 0 0 0 0 0 0 0 0 0 0
Adjustment: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
Lanes: 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00
Final Sat.: 0 0 0 0 0 0 0 0 0 0 0 0

Capacity Analysis Module:

Vol/Sat: 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00
Crit Moves: ****
Green/Cycle: 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00
Volume/Cap: 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00
Delay/Veh: 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0
User DelAdj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
AdjDel/Veh: 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0
LOS by Move: 0 0 0 0 0 0 0 0 0 0 0 0
HCM2kAvgQ: 0 0 0 0 0 0 0 0 0 0 0 0

Note: Queue reported is the number of cars per lane.

Ontario New Model -Rich Haven External Intersections
Existing PM Peak
Meyer, Mohaddes Associates

Level Of Service Computation Report
2000 HCM Operations Method (Future Volume Alternative)

Intersection #16 Mill Creek Avenue at Edison Avenue

Cycle (sec): 100 Critical Vol./Cap.(X): 0.000
Loss Time (sec): 0 (Y+R=4.0 sec) Average Delay (sec/veh): 0.0
Optimal Cycle: 0 Level Of Service:

Approach: North Bound South Bound East Bound West Bound
Movement: L - T - R L - T - R L - T - R L - T - R

Control: Protected Protected Protected Protected
Rights: Include Include Include Include
Min. Green: 0 0 0 0 0 0 0 0 0 0 0 0
Lanes: 0 0 0 0 0 0 0 0 0 0 0 0

Volume Module:

Base Vol: 0 0 0 0 0 0 0 0 0 0 0 0
Growth Adj: 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00
Initial Bse: 0 0 0 0 0 0 0 0 0 0 0 0
Added Vol: 0 0 0 0 0 0 0 0 0 0 0 0
PasserByVol: 0 0 0 0 0 0 0 0 0 0 0 0
Initial Fut: 0 0 0 0 0 0 0 0 0 0 0 0
User Adj: 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00
PHF Adj: 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00
PHF Volume: 0 0 0 0 0 0 0 0 0 0 0 0
Reduct Vol: 0 0 0 0 0 0 0 0 0 0 0 0
Reduced Vol: 0 0 0 0 0 0 0 0 0 0 0 0
PCE Adj: 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00
MLF Adj: 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00
Final Vol.: 0 0 0 0 0 0 0 0 0 0 0 0

Saturation Flow Module:

Sat/Lane: 0 0 0 0 0 0 0 0 0 0 0 0
Adjustment: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
Lanes: 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00
Final Sat.: 0 0 0 0 0 0 0 0 0 0 0 0

Capacity Analysis Module:

Vol/Sat: 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00
Crit Moves:
Green/Cycle: 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00
Volume/Cap: 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00
Delay/Veh: 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0
User DelAdj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
AdjDel/Veh: 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0
LOS by Move:
HCM2kAvgQ: 0 0 0 0 0 0 0 0 0 0 0 0

Note: Queue reported is the number of cars per lane.

Ontario New Model -Rich Haven External Intersections
Existing PM Peak
Meyer, Mohaddes Associates

Level Of Service Computation Report
2000 HCM Operations Method (Future Volume Alternative)

Intersection #17 Milliken Avenue/SR-60 WB Ramps

Cycle (sec): 100 Critical Vol./Cap.(X): 0.589
Loss Time (sec): 0 (Y+R=4.0 sec) Average Delay (sec/veh): 14.4
Optimal Cycle: 45 Level Of Service: B

Approach: North Bound South Bound East Bound West Bound
Movement: L - T - R L - T - R L - T - R L - T - R

Control: Protected Permitted Split Phase Split Phase
Rights: Include Include Include Include
Min. Green: 0 0 0 0 0 0 0 0 0 0 0 0
Lanes: 1 0 2 0 0 0 0 2 0 1 0 0 0 0 0 1

Volume Module:

Base Vol: 256 429 0 0 468 499 0 0 0 59 0 81
Growth Adj: 1.04 1.04 1.04 1.04 1.04 1.04 1.04 1.04 1.04 1.04 1.04 1.04
Initial Bse: 266 446 0 0 487 519 0 0 0 61 0 84
Added Vol: 0 0 0 0 0 0 0 0 0 0 0 0
PasserByVol: 0 0 0 0 0 0 0 0 0 0 0 0
Initial Fut: 266 446 0 0 487 519 0 0 0 61 0 84
User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
PHF Adj: 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95
PHF Volume: 280 470 0 0 512 546 0 0 0 65 0 89
Reduct Vol: 0 0 0 0 0 0 0 0 0 0 0 0
Reduced Vol: 280 470 0 0 512 546 0 0 0 65 0 89
PCE Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
MLF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
Final Vol.: 280 470 0 0 512 546 0 0 0 65 0 89

Saturation Flow Module:

Sat/Lane: 1800 1800 1800 1800 1800 1800 1800 1800 1800 1800 1800
Adjustment: 0.90 0.95 1.00 0.94 0.95 0.85 0.94 1.00 1.00 0.90 1.00 0.85
Lanes: 1.00 2.00 0.00 0.00 2.00 1.00 0.00 0.00 0.00 1.00 0.00 1.00
Final Sat.: 1615 3420 0 0 3420 1530 0 0 0 1615 0 1530

Capacity Analysis Module:

Vol/Sat: 0.17 0.14 0.00 0.00 0.15 0.36 0.00 0.00 0.00 0.04 0.00 0.06
Crit Moves: ****
Green/Cycle: 0.29 0.90 0.00 0.00 0.61 0.61 0.00 0.00 0.00 0.10 0.00 0.10
Volume/Cap: 0.59 0.15 0.00 0.00 0.25 0.59 0.00 0.00 0.00 0.41 0.00 0.59
Delay/Veh: 32.0 0.6 0.0 0.0 9.2 13.0 0.0 0.0 0.0 44.0 0.0 49.1
User DelAdj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
AdjDel/Veh: 32.0 0.6 0.0 0.0 9.2 13.0 0.0 0.0 0.0 44.0 0.0 49.1
LOS by Move: C A A A A B A A A D A D
HCM2kAvgQ: 8 1 0 0 4 11 0 0 0 2 0 4

Note: Queue reported is the number of cars per lane.

Ontario New Model -Rich Haven External Intersections
Existing PM Peak
Meyer, Mohaddes Associates

Level Of Service Computation Report

2000 HCM Operations Method (Future Volume Alternative)

Intersection #18 Milliken Avenue/SR-60 EB Ramps

Cycle (sec): 100 Critical Vol./Cap.(X): 0.581
Loss Time (sec): 0 (Y+R=4.0 sec) Average Delay (sec/veh): 22.4
Optimal Cycle: 44 Level Of Service: C

Approach: North Bound South Bound East Bound West Bound
Movement: L - T - R L - T - R L - T - R L - T - R

Control: Permitted Protected Split Phase Split Phase
Rights: Include Include Include Include
Min. Green: 0 0 0 0 0 0 0 0 0 0 0 0
Lanes: 0 0 1 1 0 1 0 2 0 0 1 0 1 0 0 0 0 0 0 0

Volume Module:
Base Vol: 0 451 98 128 428 0 223 0 342 0 0 0
Growth Adj: 1.04 1.04 1.04 1.04 1.04 1.04 1.04 1.04 1.04 1.04 1.04 1.04
Initial Bse: 0 469 102 133 445 0 232 0 356 0 0 0
Added Vol: 0 0 0 0 0 0 0 0 0 0 0 0
PasserByVol: 0 0 0 0 0 0 0 0 0 0 0 0
Initial Fut: 0 469 102 133 445 0 232 0 356 0 0 0
User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
PHF Adj: 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95
PHF Volume: 0 494 107 140 469 0 244 0 374 0 0 0
Reduced Vol: 0 0 0 0 0 0 0 0 0 0 0 0
Reduced Vol: 0 494 107 140 469 0 244 0 374 0 0 0
PCE Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
MLF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
Final Vol.: 0 494 107 140 469 0 244 0 374 0 0 0

Saturation Flow Module:
Sat/Lane: 1800 1800 1800 1800 1800 1800 1800 1800 1800 1800 1800
Adjustment: 0.94 0.92 0.92 0.90 0.95 1.00 0.84 1.00 0.89 0.94 1.00 1.00
Lanes: 0.00 1.64 0.36 1.00 2.00 0.00 1.26 0.00 0.74 0.00 0.00 0.00
Final Sat.: 0 2734 594 1615 3420 0 1905 0 1193 0 0 0

Capacity Analysis Module:
Vol/Sat: 0.00 0.18 0.18 0.09 0.14 0.00 0.13 0.00 0.31 0.00 0.00 0.00
Crit Moves: **** **
Green/Cycle: 0.00 0.31 0.31 0.15 0.46 0.00 0.54 0.00 0.54 0.00 0.00 0.00
Volume/Cap: 0.00 0.58 0.58 0.58 0.30 0.00 0.24 0.00 0.58 0.00 0.00 0.00
Delay/Veh: 0.0 29.8 29.8 43.2 17.0 0.0 12.2 0.0 16.2 0.0 0.0 0.0
User DelAdj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
AdjDel/Veh: 0.0 29.8 29.8 43.2 17.0 0.0 12.2 0.0 16.2 0.0 0.0 0.0
LOS by Move: A C C D B A B A B A A A
HCM2kAvgQ: 0 9 9 5 5 0 3 0 11 0 0 0

Note: Queue reported is the number of cars per lane.

Ontario New Model -Rich Haven External Intersections
Existing PM Peak
Meyer, Mohaddes Associates

Level Of Service Computation Report

2000 HCM Operations Method (Future Volume Alternative)

Intersection #19 Milliken Avenue/Riverside Drive

Cycle (sec): 100 Critical Vol./Cap.(X): 0.667
Loss Time (sec): 0 (Y+R=4.0 sec) Average Delay (sec/veh): 26.9
Optimal Cycle: 56 Level Of Service: C

Approach: North Bound South Bound East Bound West Bound
Movement: L - T - R L - T - R L - T - R L - T - R

Control: Protected Protected Permitted Permitted
Rights: Include Include Include Include
Min. Green: 0 0 0 0 0 0 0 0 0 0 0 0
Lanes: 1 0 1 0 1 1 0 0 1 0 1 0 1 0 1 0

Volume Module:
Base Vol: 98 392 25 200 454 81 65 248 165 23 138 177
Growth Adj: 1.04 1.04 1.04 1.04 1.04 1.04 1.04 1.04 1.04 1.04 1.04 1.04
Initial Bse: 102 408 26 208 472 84 68 258 172 24 144 184
Added Vol: 0 0 0 0 0 0 0 0 0 0 0 0
PasserByVol: 0 0 0 0 0 0 0 0 0 0 0 0
Initial Fut: 102 408 26 208 472 84 68 258 172 24 144 184
User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
PHF Adj: 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95
PHF Volume: 107 429 27 219 497 89 71 271 181 25 151 194
Reduced Vol: 0 0 0 0 0 0 0 0 0 0 0 0
Reduced Vol: 107 429 27 219 497 89 71 271 181 25 151 194
PCE Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
MLF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
Final Vol.: 107 429 27 219 497 89 71 271 181 25 151 194

Saturation Flow Module:
Sat/Lane: 1800 1800 1800 1800 1800 1800 1800 1800 1800 1800 1800
Adjustment: 0.90 1.00 0.85 0.90 0.98 0.98 0.34 0.94 0.94 0.24 0.92 0.92
Lanes: 1.00 1.00 1.00 1.00 0.85 0.15 1.00 0.60 0.40 1.00 0.44 0.56
Final Sat.: 1615 1800 1530 1615 1492 266 603 1016 676 423 722 926

Capacity Analysis Module:
Vol/Sat: 0.07 0.24 0.02 0.14 0.33 0.33 0.12 0.27 0.27 0.06 0.21 0.21
Crit Moves: **** **
Green/Cycle: 0.10 0.38 0.38 0.22 0.50 0.50 0.40 0.40 0.40 0.40 0.40 0.40
Volume/Cap: 0.67 0.62 0.05 0.62 0.67 0.67 0.29 0.67 0.67 0.15 0.52 0.52
Delay/Veh: 53.6 26.9 19.5 38.9 20.7 20.7 21.0 27.0 27.0 19.5 23.5 23.5
User DelAdj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
AdjDel/Veh: 53.6 26.9 19.5 38.9 20.7 20.7 21.0 27.0 27.0 19.5 23.5 23.5
LOS by Move: D C B D C C C C C B C C
HCM2kAvgQ: 5 11 1 7 14 14 2 12 12 1 8 8

Note: Queue reported is the number of cars per lane.

Ontario New Model -Rich Haven External Intersections
Existing PM Peak
Meyer, Mohaddes Associates

Level Of Service Computation Report
2000 HCM Operations Method (Future Volume Alternative)

Intersection #20 Milliken Ave / Chino Ave

Cycle (sec): 100 Critical Vol./Cap.(X): 0.000
Loss Time (sec): 0 (Y+R=4.0 sec) Average Delay (sec/veh): 0.0
Optimal Cycle: 0 Level Of Service:

Approach: North Bound South Bound East Bound West Bound
Movement: L - T - R L - T - R L - T - R L - T - R
Control: Protected Protected Protected Protected
Rights: Include Include Include Include
Min. Green: 0 0 0 0 0 0 0 0 0 0 0 0
Lanes: 0 0 0 0 0 0 0 0 0 0 0 0
Volume Module:
Base Vol: 0 0 0 0 0 0 0 0 0 0 0 0
Growth Adj: 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00
Initial Bse: 0 0 0 0 0 0 0 0 0 0 0 0
Added Vol: 0 0 0 0 0 0 0 0 0 0 0 0
PasserByVol: 0 0 0 0 0 0 0 0 0 0 0 0
Initial Fut: 0 0 0 0 0 0 0 0 0 0 0 0
User Adj: 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00
PHF Adj: 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00
PHF Volume: 0 0 0 0 0 0 0 0 0 0 0 0
Reduct Vol: 0 0 0 0 0 0 0 0 0 0 0 0
Reduced Vol: 0 0 0 0 0 0 0 0 0 0 0 0
PCE Adj: 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00
MLF Adj: 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00
Final Vol.: 0 0 0 0 0 0 0 0 0 0 0 0
Saturation Flow Module:
Sat/Lane: 0 0 0 0 0 0 0 0 0 0 0 0
Adjustment: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
Lanes: 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00
Final Sat.: 0 0 0 0 0 0 0 0 0 0 0 0
Capacity Analysis Module:
Vol/Sat: 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00
Crit Moves:
Green/Cycle: 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00
Volume/Cap: 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00
Delay/Veh: 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0
User DelAdj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
AdjDel/Veh: 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0
LOS by Move:
HCM2kAvgQ: 0 0 0 0 0 0 0 0 0 0 0 0

Note: Queue reported is the number of cars per lane.

Ontario New Model -Rich Haven External Intersections
Existing PM Peak
Meyer, Mohaddes Associates

Level Of Service Computation Report
2000 HCM Operations Method (Future Volume Alternative)

Intersection #21 Milliken Avenue/Edison Avenue

Cycle (sec): 100 Critical Vol./Cap.(X): 0.000
Loss Time (sec): 0 (Y+R=4.0 sec) Average Delay (sec/veh): 0.0
Optimal Cycle: 0 Level Of Service:

Approach: North Bound South Bound East Bound West Bound
Movement: L - T - R L - T - R L - T - R L - T - R
Control: Protected Protected Protected Protected
Rights: Include Include Include Include
Min. Green: 0 0 0 0 0 0 0 0 0 0 0 0
Lanes: 0 0 0 0 0 0 0 0 0 0 0 0
Volume Module:
Base Vol: 0 0 0 0 0 0 0 0 0 0 0 0
Growth Adj: 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00
Initial Bse: 0 0 0 0 0 0 0 0 0 0 0 0
Added Vol: 0 0 0 0 0 0 0 0 0 0 0 0
PasserByVol: 0 0 0 0 0 0 0 0 0 0 0 0
Initial Fut: 0 0 0 0 0 0 0 0 0 0 0 0
User Adj: 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00
PHF Adj: 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00
PHF Volume: 0 0 0 0 0 0 0 0 0 0 0 0
Reduct Vol: 0 0 0 0 0 0 0 0 0 0 0 0
Reduced Vol: 0 0 0 0 0 0 0 0 0 0 0 0
PCE Adj: 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00
MLF Adj: 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00
Final Vol.: 0 0 0 0 0 0 0 0 0 0 0 0
Saturation Flow Module:
Sat/Lane: 0 0 0 0 0 0 0 0 0 0 0 0
Adjustment: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
Lanes: 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00
Final Sat.: 0 0 0 0 0 0 0 0 0 0 0 0
Capacity Analysis Module:
Vol/Sat: 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00
Crit Moves:
Green/Cycle: 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00
Volume/Cap: 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00
Delay/Veh: 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0
User DelAdj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
AdjDel/Veh: 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0
LOS by Move:
HCM2kAvgQ: 0 0 0 0 0 0 0 0 0 0 0 0

Note: Queue reported is the number of cars per lane.

Ontario New Model -Rich Haven External Intersections
Existing PM Peak
Meyer, Mohaddes Associates

Level Of Service Computation Report

2000 HCM Operations Method (Future Volume Alternative)

Intersection #550 Haven Avenue/Creekside Drive

Cycle (sec): 100 Critical Vol./Cap.(X): 0.684
Loss Time (sec): 0 (Y+R=4.0 sec) Average Delay (sec/veh): 24.3
Optimal Cycle: 72 Level Of Service: C

Approach: North Bound South Bound East Bound West Bound
Movement: L - T - R L - T - R L - T - R L - T - R

Control:	Protected			Protected			Prot+Permit			Prot+Permit		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	1	0	1	1	0	1	1	0	1	1	0	1

Volume Module:
Base Vol: 78 595 108 393 766 342 140 16 23 100 21 129
Growth Adj: 1.04 1.04 1.04 1.04 1.04 1.04 1.04 1.04 1.04 1.04 1.04 1.04
Initial Bse: 81 619 112 409 797 356 146 17 24 104 22 134
Added Vol: 0 0 0 0 0 0 0 0 0 0 0 0
PasserByVol: 0 0 0 0 0 0 0 0 0 0 0 0
Initial Fut: 81 619 112 409 797 356 146 17 24 104 22 134
User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
PHF Adj: 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95
PHF Volume: 85 651 118 430 839 374 153 18 25 109 23 141
Reduct Vol: 0 0 0 0 0 0 0 0 0 0 0 0
Reduced Vol: 85 651 118 430 839 374 153 18 25 109 23 141
PCE Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
MLF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
Final Vol.: 85 651 118 430 839 374 153 18 25 109 23 141

Saturation Flow Module:
Sat/Lane: 1800 1800 1800 1800 1800 1800 1800 1800 1800 1800 1800 1800
Adjustment: 0.90 0.93 0.93 0.90 0.91 0.91 0.90 1.00 0.85 0.90 1.00 0.85
Lanes: 1.00 1.69 0.31 1.00 1.38 0.62 1.00 1.00 1.00 1.00 1.00 1.00
Final Sat.: 1615 2828 513 1615 2256 1007 1615 1800 1530 1615 1800 1530

Capacity Analysis Module:
Vol/Sat: 0.05 0.23 0.23 0.27 0.37 0.37 0.09 0.01 0.02 0.07 0.01 0.09
Crit Moves: **** *
Green/Cycle: 0.09 0.34 0.34 0.39 0.64 0.64 0.19 0.05 0.05 0.27 0.13 0.13
Volume/Cap: 0.58 0.68 0.68 0.68 0.58 0.58 0.52 0.18 0.31 0.26 0.09 0.68
Delay/Veh: 49.7 30.3 30.3 28.5 11.0 11.0 37.8 46.1 47.7 28.6 38.1 50.3
User DelAdj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
AdjDel/Veh: 49.7 30.3 30.3 28.5 11.0 11.0 37.8 46.1 47.7 28.6 38.1 50.3
LOS by Move: D C C C B B D D C D D
HCM2kAvgQ: 4 12 12 13 12 12 5 1 1 3 1 6

Note: Queue reported is the number of cars per lane.

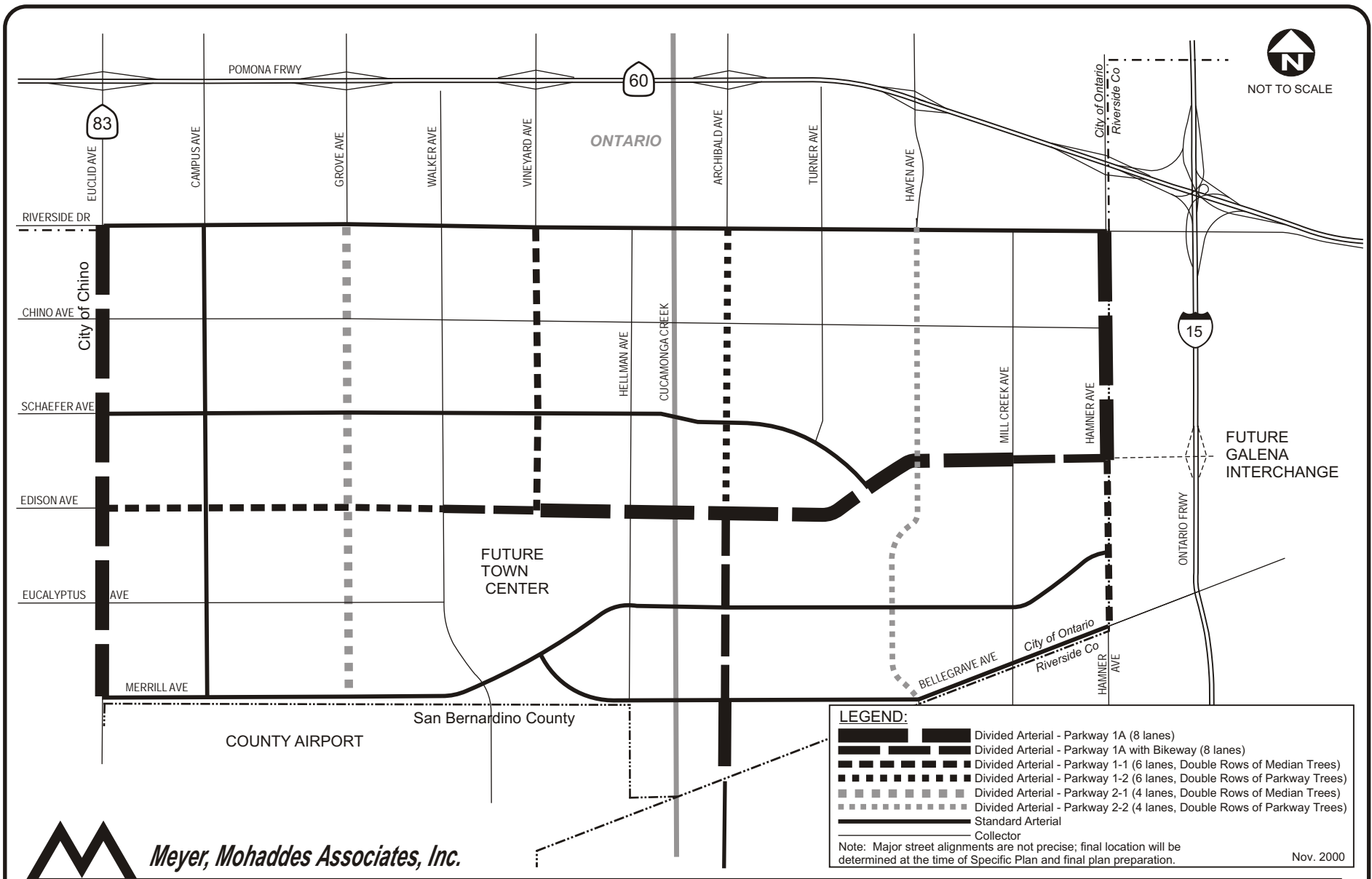
Ontario New Model -Rich Haven External Intersections
Existing PM Peak
Meyer, Mohaddes Associates

Lane Geometry Report

Number of approach lanes: (L) (LT) (T) (RT) (R) (LTR)

Node Intersection	NB	SB	EB	WB
1 Archibald Avenue/Riverside Drive	102100	102100	101100	101010
2 Archibald Avenue/Chino Avenue	102100	101100	100100	101010
3 Archibald Avenue/Schaefer Avenue	000001	000001	000001	000001
4 Archibald Avenue/Edison Avenue	101100	101100	101100	101100
5 Turner Avenue/Riverside Drive	101100	101100	101100	101100
6 Turner Avenue/Chino Avenue	101100	101100	101100	101100
7 Turner Avenue at Schaefer Avenue	000000	000000	000000	000000
8 Edison Avenue at Schaefer Avenue	000000	000000	000000	000000
9 Haven Avenue/SR-60 WB Ramps	203000	003010	000000	110010
10 Haven Avenue/SR-60 EB Ramps	002100	203000	110010	000000
11 Haven Avenue/Riverside Drive	000001	010010	100100	101100
12 Haven Avenue at Chino Avenue	000000	000000	000000	000000
13 Haven Avenue at Edison Avenue	000000	000000	000000	000000
14 Mill Creek Avenue/Riverside Drive	101010	100100	101010	101100
15 Mill Creek Avenue at Chino Avenue	000000	000000	000000	000000
16 Mill Creek Avenue at Edison Avenue	000000	000000	000000	000000
17 Milliken Avenue/SR-60 WB Ramps	102000	002010	000000	100010
18 Milliken Avenue/SR-60 EB Ramps	001100	102000	100001	000000
19 Milliken Avenue/Riverside Drive	101010	100100	100100	100100
20 Milliken Ave / Chino Ave	000000	000000	000000	000000
21 Milliken Avenue/Edison Avenue	000000	000000	000000	000000
550 Haven Avenue/Creekside Drive	101100	101100	101010	101010

**APPENDIX
C
INTERSECTION LANE
DESIGNATIONS**



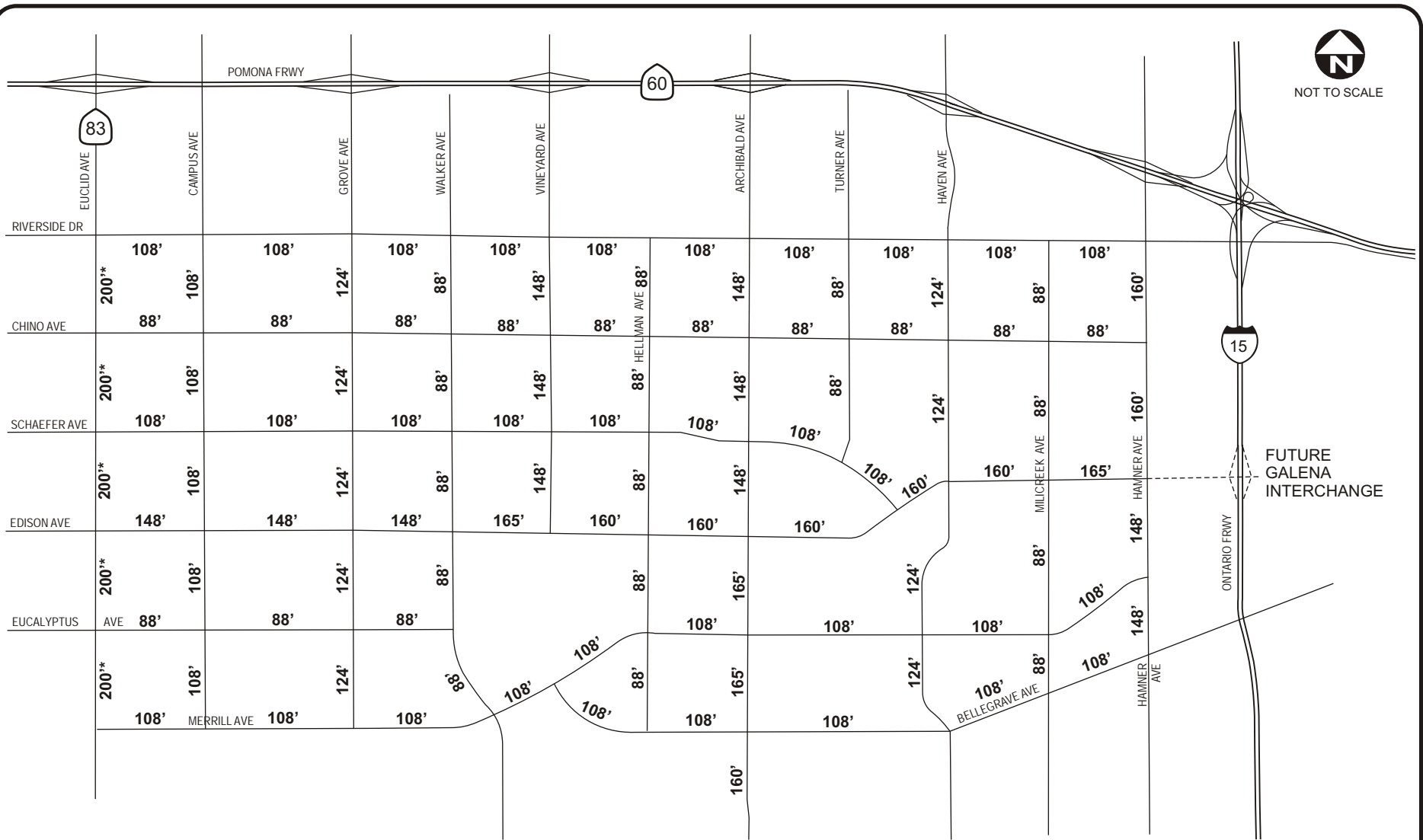
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**ONTARIO NEW MODEL COLONY
TRANSPORTATION IMPLEMENTATION PLAN**

**FIGURE 2
Roadway Classifications**



NOT TO SCALE



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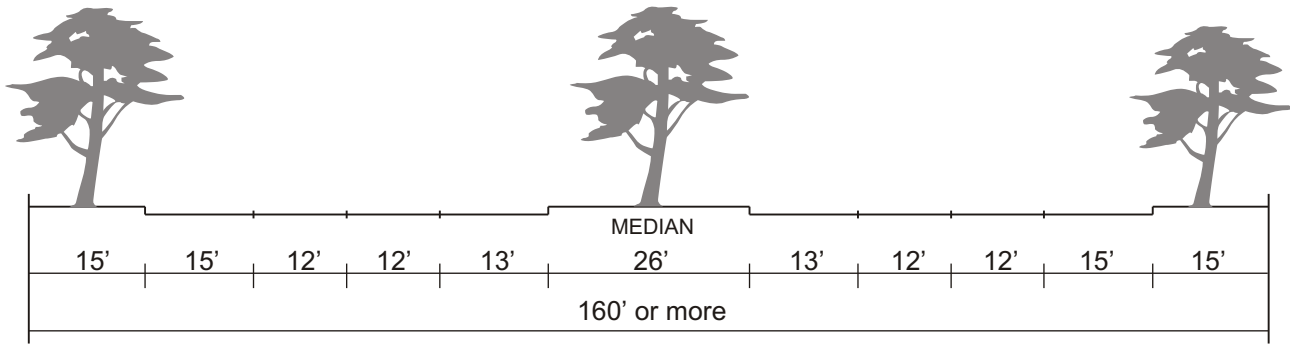
An Iteris Company

* Existing 200' Right of Way to remain

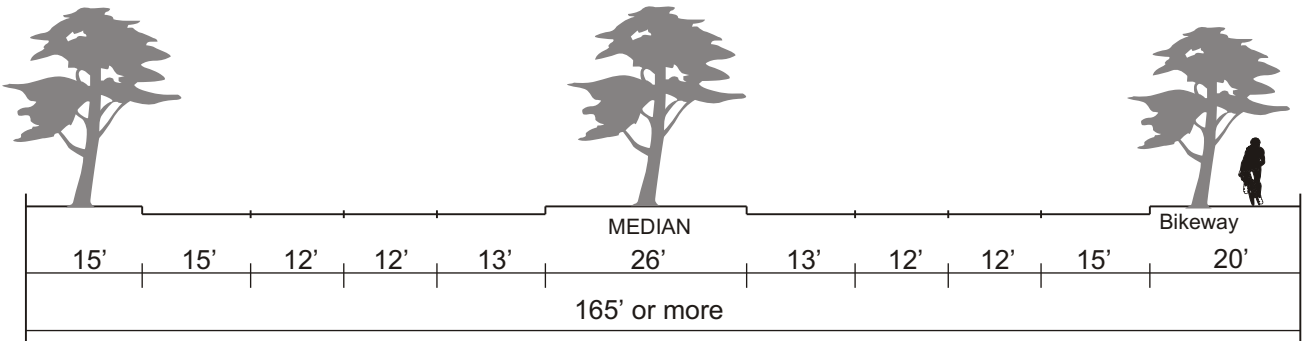
**ONTARIO NEW MODEL COLONY
TRANSPORTATION IMPLEMENTATION PLAN**

**FIGURE 8
Minimum Right of Way Requirements**

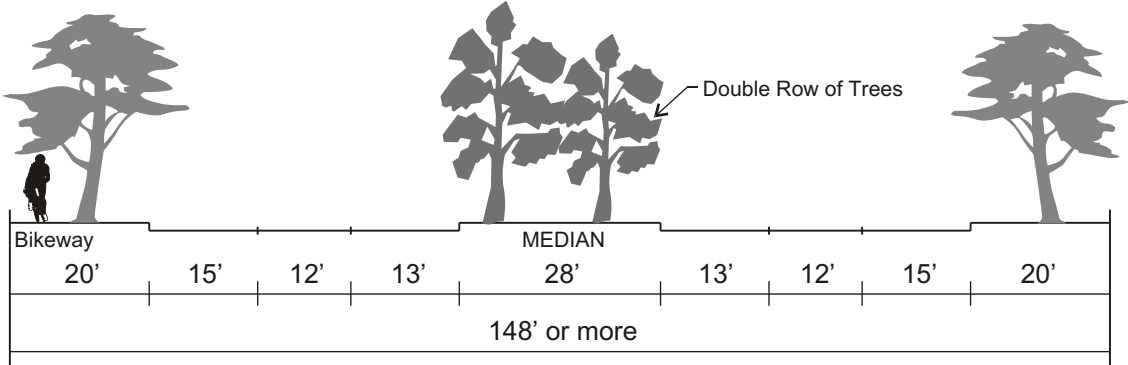
Parkway 1A (8 Lanes)



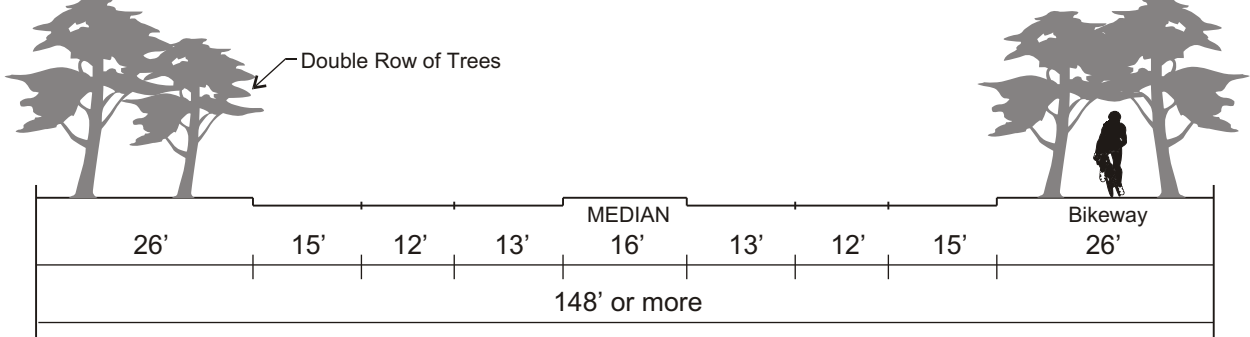
Parkway 1A with Bikeway (8 Lanes)



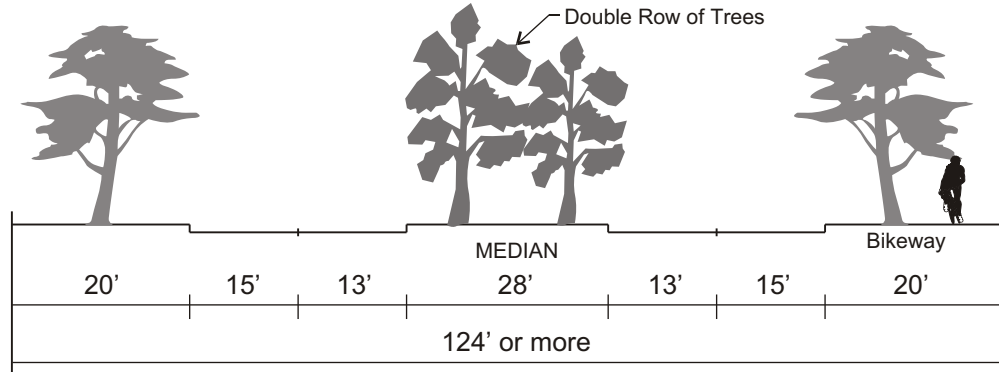
Parkway 1-1 (6 Lanes, Bikeway, Double Rows of Median Trees)



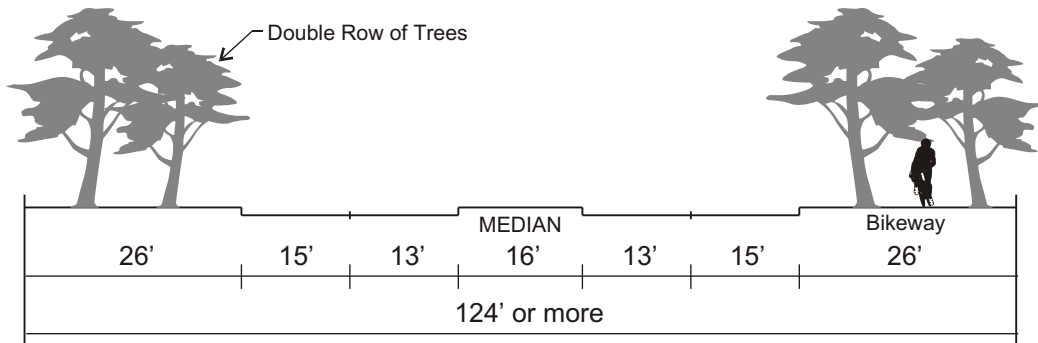
Parkway 1-2 (6 Lanes, Bikeway, Double Rows of Parkway Trees)



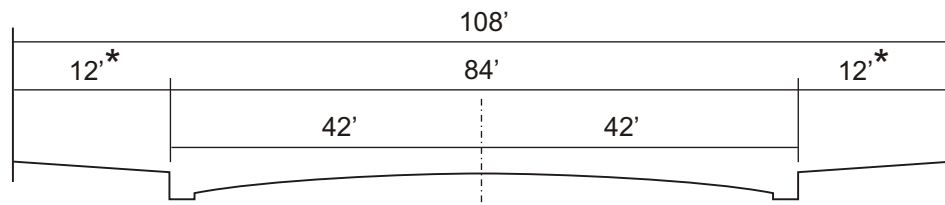
Parkway 2-1 (4 Lanes, Bikeway, Double Rows of Median Trees)



Parkway 2-2 (4 Lanes, Bikeway, Double Rows of Parkway Trees)



Standard Arterial

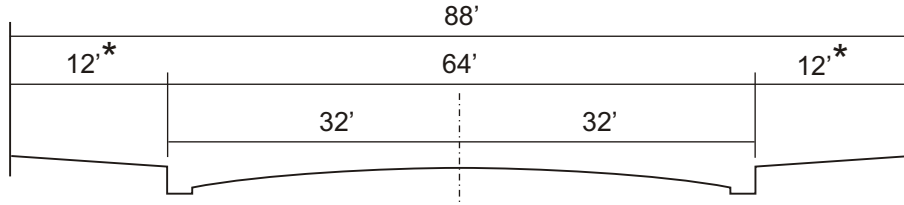


* Sidewalks to be provided on all parkways.

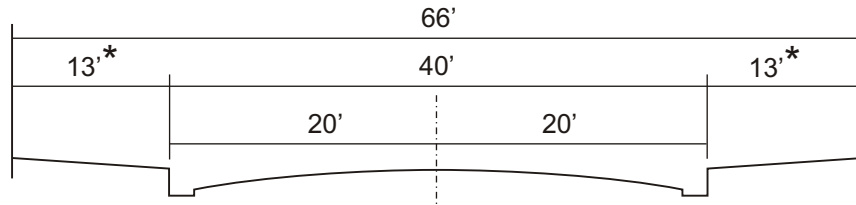


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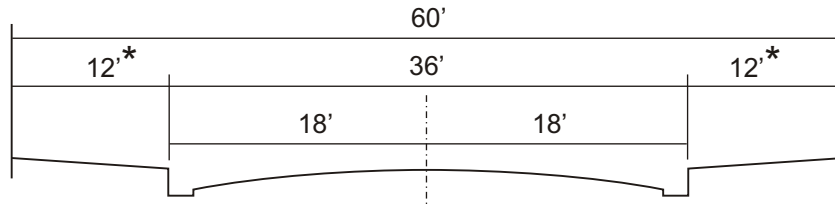
Collector Street



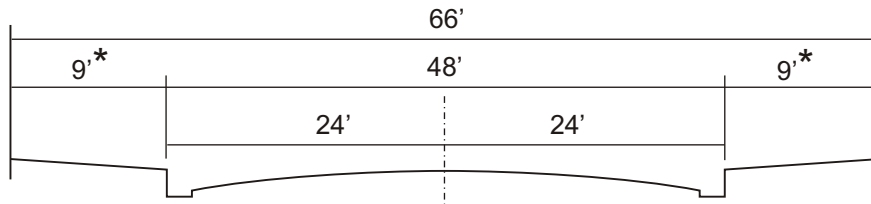
Local Street



Cul de sac < 600' in length



Local Industrial Street



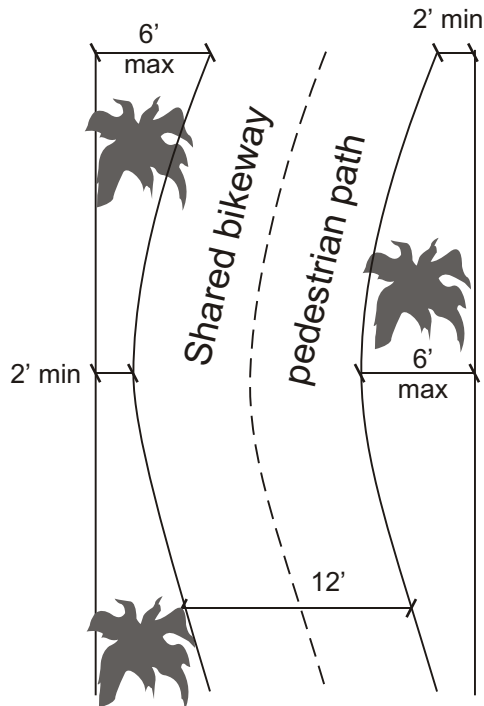
* Sidewalks to be provided on all parkways.



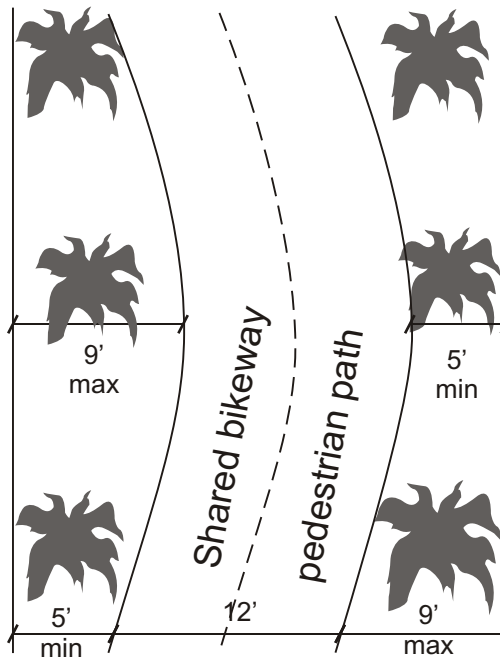
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20 foot Parkway



26 foot Parkway

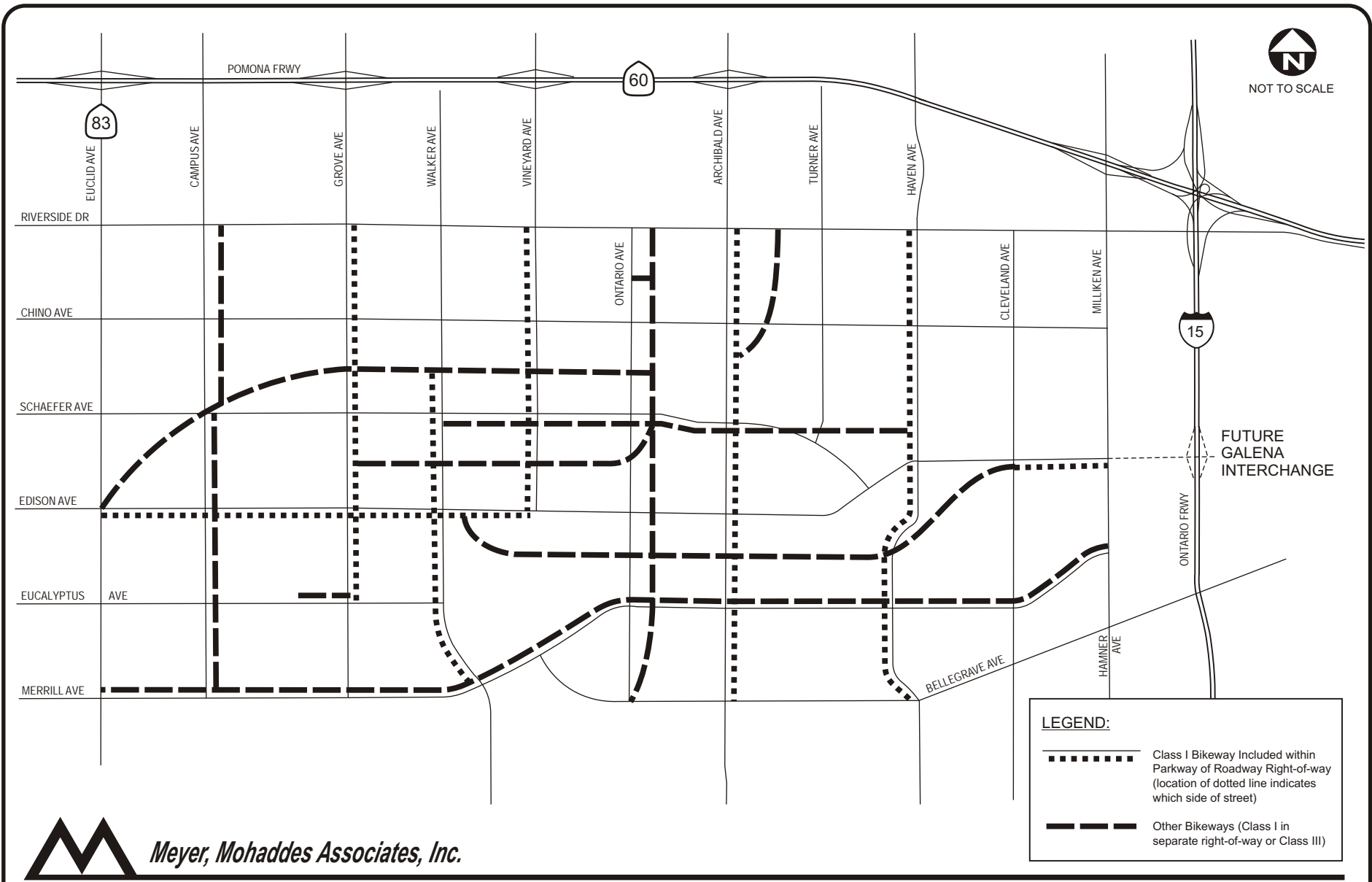


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**ONTARIO NEW MODEL COLONY
TRANSPORTATION IMPLEMENTATION PLAN**

**FIGURE 6
Conceptual Parkway Layouts
with Bikeways**



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**ONTARIO NEW MODEL COLONY
TRANSPORTATION IMPLEMENTATION PLAN**

**FIGURE 9
Bicycle Facilities**

**APPENDIX
D
LOS CALCULATIONS
2015 FUTURE BASE**

Ontario New Model - Rich Haven External Intersections
 2015 AM Peak w/o Project (Fut Base)
 Meyer, Mohaddes Associates

Scenario: Fut Base AM (Without Project)

Command: Fut Base AM
 Volume: Fut Base AM
 Geometry: Future Base
 Impact Fee: Default Impact Fee
 Trip Generation: None
 Trip Distribution: None
 Paths: Default Paths
 Routes: Default Routes
 Configuration: Fut Base AM

Scenario Report

Ontario New Model - Rich Haven External Intersections
 2015 AM Peak w/o Project (Fut Base)
 Meyer, Mohaddes Associates

Intersection Volume Report
 Base Volume Alternative

Node Intersection	Northbound			Southbound			Eastbound			Westbound		
	L	T	R	L	T	R	L	T	R	L	T	R
1 Archibald Ave	179	1580	63	63	507	70	157	403	66	53	208	102
2 Archibald Ave	69	1639	35	63	598	1	1	20	40	58	12	161
3 Archibald Ave	14	1365	0	89	672	16	84	23	12	2	22	248
4 Archibald Ave	762	880	194	61	336	201	218	725	231	270	1218	123
5 Turner Avenue	0	5	100	85	3	79	21	584	0	32	299	44
6 Turner Avenue	21	30	17	5	9	32	24	87	7	2	45	5
7 Turner Avenue	0	0	0	16	0	4	1	114	0	0	259	14
8 Edison Avenue	0	0	0	123	0	6	5	926	0	0	1407	268
9 Haven Avenue/	281	1179	0	0	386	22	0	0	0	98	0	791
10 Haven Avenue/	0	1395	250	91	393	0	75	0	184	0	0	0
11 Haven Avenue/	39	880	216	126	366	33	139	623	40	125	285	137
12 Haven Avenue	22	1091	84	8	446	3	23	45	25	38	0	9
13 Haven Avenue	168	746	211	102	287	179	146	838	66	122	1329	127
14 Mill Creek Av	8	199	0	107	180	116	164	1210	9	0	457	28
15 Mill Creek Av	8	19	5	8	3	34	81	44	9	1	4	3
16 Mill Creek Av	109	13	0	0	3	8	10	1275	48	0	1600	0
17 Milliken Aven	458	844	0	0	517	1	0	0	0	210	0	272
18 Milliken Aven	0	1270	361	3	722	0	32	0	485	0	0	0
19 Milliken Aven	42	614	40	710	95	402	722	672	34	3	255	294
20 Milliken Ave	8	837	0	0	205	0	0	0	53	0	0	0
21 Milliken Aven	40	640	520	87	75	8	13	1230	38	196	1556	176
550 Haven Avenue/	0	0	0	0	0	0	0	0	0	0	0	0

Ontario New Model - Rich Haven External Intersections
 2015 AM Peak w/o Project (Fut Base)
 Meyer, Mohaddes Associates

Impact Analysis Report
 Level Of Service

Intersection	Base LOS	V/ C	Future LOS	V/ C	Change in		
						Del/	Del/
# 1 Archibald Avenue/Riverside Drive	C	22.9	C	22.9	+ 0.000	D/V	
# 2 Archibald Avenue/Chino Avenue	B	11.4	B	11.4	+ 0.000	D/V	
# 3 Archibald Avenue/Schaefer Avenue	B	15.4	B	15.4	+ 0.000	D/V	
# 4 Archibald Avenue/Edison Avenue	C	29.0	C	29.0	+ 0.000	D/V	
# 5 Turner Avenue/Riverside Drive	B	13.7	B	13.7	+ 0.000	D/V	
# 6 Turner Avenue/Chino Avenue	A	7.9	A	7.9	+ 0.000	V/C	
# 7 Turner Avenue at Schaefer Avenue	A	2.6	A	2.6	+ 0.000	D/V	
# 8 Edison Avenue at Schaefer Avenue	A	3.0	A	3.0	+ 0.000	D/V	
# 9 Haven Avenue/SR-60 WB Ramps	B	10.0	B	10.0	+ 0.000	D/V	
# 10 Haven Avenue/SR-60 EB Ramps	B	10.8	B	10.8	+ 0.000	D/V	
# 11 Haven Avenue/Riverside Drive	C	23.2	C	23.2	+ 0.000	D/V	
# 12 Haven Avenue at Chino Avenue	A	4.0	A	4.0	+ 0.000	D/V	
# 13 Haven Avenue at Edison Avenue	C	24.5	C	24.5	+ 0.000	D/V	
# 14 Mill Creek Avenue/Riverside Drive	B	17.1	B	17.1	+ 0.000	D/V	
# 15 Mill Creek Avenue at Chino Avenue	B	12.0	B	12.0	+ 0.000	D/V	
# 16 Mill Creek Avenue at Edison Avenue	A	5.5	A	5.5	+ 0.000	D/V	
# 17 Milliken Avenue/SR-60 WB Ramps	C	20.7	C	20.7	+ 0.000	D/V	
# 18 Milliken Avenue/SR-60 EB Ramps	B	19.4	B	19.4	+ 0.000	D/V	
# 19 Milliken Avenue/Riverside Drive	D	50.8	D	50.8	+ 0.000	D/V	
# 20 Milliken Avenue / Chino Avenue	B	10.5	B	10.5	+ 0.000	D/V	
# 21 Milliken Avenue/Edison Avenue	C	28.4	C	28.4	+ 0.000	D/V	
#550 Haven Avenue/Creekside Drive		0.0		0.0	+ 0.000	D/V	

Ontario New Model - Rich Haven External Intersections
 2015 AM Peak w/o Project (Fut Base)
 Meyer, Mohaddes Associates

Level Of Service Computation Report
 2000 HCM Operations Method (Future Volume Alternative)

 Intersection #1 Archibald Avenue/Riverside Drive

Cycle (sec):	100	Critical Vol./Cap.(X):	0.566
Loss Time (sec):	0 (Y+R=4.0 sec)	Average Delay (sec/veh):	22.9
Optimal Cycle:	53	Level Of Service:	C

Approach:	North Bound	South Bound	East Bound	West Bound
Movement:	L - T - R	L - T - R	L - T - R	L - T - R

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Control:	Protected	Protected	Protected	Protected
Rights:	Include	Include	Include	Include
Min. Green:	0 0 0	0 0 0	0 0 0	0 0 0
Lanes:	1 0 2 1 0	1 0 2 1 0	1 0 1 1 0	1 0 1 1 0

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Volume Module:

Base Vol:	179 1580 63	63 507 70	157 403 66	53 208 102
Growth Adj:	1.00 1.00 1.00	1.00 1.00 1.00	1.00 1.00 1.00	1.00 1.00 1.00
Initial Bse:	179 1580 63	63 507 70	157 403 66	53 208 102
Added Vol:	0 0 0	0 0 0	0 0 0	0 0 0
PasserByVol:	0 0 0	0 0 0	0 0 0	0 0 0
Initial Fut:	179 1580 63	63 507 70	157 403 66	53 208 102
User Adj:	1.00 1.00 1.00	1.00 1.00 1.00	1.00 1.00 1.00	1.00 1.00 1.00
PHF Adj:	0.95 0.95 0.95	0.95 0.95 0.95	0.95 0.95 0.95	0.95 0.95 0.95
PHF Volume:	188 1663 66	66 534 74	165 424 69	56 219 107
Reduced Vol:	0 0 0	0 0 0	0 0 0	0 0 0
Reduced Vol:	188 1663 66	66 534 74	165 424 69	56 219 107
PCE Adj:	1.00 1.00 1.00	1.00 1.00 1.00	1.00 1.00 1.00	1.00 1.00 1.00
MLF Adj:	1.00 1.00 1.00	1.00 1.00 1.00	1.00 1.00 1.00	1.00 1.00 1.00
Final Vol.:	188 1663 66	66 534 74	165 424 69	56 219 107

-----|-----|-----|-----|

Saturation Flow Module:

Sat/Lane:	1900 1900 1900	1900 1900 1900	1900 1900 1900	1900 1900 1900
Adjustment:	0.90 0.90 0.90	0.90 0.89 0.89	0.90 0.93 0.93	0.90 0.90 0.90
Lanes:	1.00 2.88 0.12	1.00 2.64 0.36	1.00 1.72 0.28	1.00 1.34 0.66
Final Sat.:	1710 4958 198	1710 4476 618	1710 3037 497	1710 2304 1130

-----|-----|-----|-----|

Capacity Analysis Module:

Vol/Sat:	0.11 0.34 0.34	0.04 0.12 0.12	0.10 0.14 0.14	0.03 0.10 0.10
Crit Moves:	****	****	****	****
Green/Cycle:	0.32 0.59 0.59	0.07 0.34 0.34	0.17 0.27 0.27	0.06 0.17 0.17
Volume/Cap:	0.35 0.57 0.57	0.57 0.35 0.35	0.57 0.51 0.51	0.51 0.57 0.57
Delay/Veh:	26.6 12.7 12.7	51.4 24.6 24.6	40.6 31.0 31.0	49.2 39.6 39.6
User DelAdj:	1.00 1.00 1.00	1.00 1.00 1.00	1.00 1.00 1.00	1.00 1.00 1.00
AdjDel/Veh:	26.6 12.7 12.7	51.4 24.6 24.6	40.6 31.0 31.0	49.2 39.6 39.6
LOS by Move:	C B B	D C C	D C C	D D D
HCM2kAvgQ:	5 12 12	3 5 5	6 7 7	2 6 6

Note: Queue reported is the number of cars per lane.

Ontario New Model - Rich Haven External Intersections
2015 AM Peak w/o Project (Fut Base)
Meyer, Mohaddes Associates

Level Of Service Computation Report

2000 HCM Operations Method (Future Volume Alternative)

Intersection #2 Archibald Avenue/Chino Avenue

Cycle (sec): 90 Critical Vol./Cap.(X): 0.485
Loss Time (sec): 0 (Y+R=4.0 sec) Average Delay (sec/veh): 11.4
Optimal Cycle: 44 Level Of Service: B

Approach: North Bound South Bound East Bound West Bound
Movement: L - T - R L - T - R L - T - R L - T - R

Control: Protected Protected Protected Protected
Rights: Include Include Include Include
Min. Green: 0 0 0 0 0 0 0 0 0 0 0 0
Lanes: 1 0 2 1 0 1 0 2 1 0 1 0 1 0 1

Volume Module:

Base Vol: 69 1639 35 63 598 1 1 20 40 58 12 161
Growth Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
Initial Bse: 69 1639 35 63 598 1 1 20 40 58 12 161
Added Vol: 0 0 0 0 0 0 0 0 0 0 0 0 0
PasserByVol: 0 0 0 0 0 0 0 0 0 0 0 0 0
Initial Fut: 69 1639 35 63 598 1 1 20 40 58 12 161
User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
PHF Adj: 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95
PHF Volume: 73 1725 37 66 629 1 1 21 42 61 13 169
Reduced Vol: 0 0 0 0 0 0 0 0 0 0 0 0 0
Reduced Vol: 73 1725 37 66 629 1 1 21 42 61 13 169
PCE Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
MLF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
Final Vol.: 73 1725 37 66 629 1 1 21 42 61 13 169

Saturation Flow Module:

Sat/Lane: 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900
Adjustment: 0.90 0.91 0.91 0.90 0.91 0.91 0.90 0.90 0.90 0.90 1.00 0.85
Lanes: 1.00 2.94 0.06 1.00 2.99 0.01 1.00 0.33 0.67 1.00 1.00 1.00
Final Sat.: 1710 5063 108 1710 5178 9 1710 570 1140 1710 1900 1615

Capacity Analysis Module:

Vol/Sat: 0.04 0.34 0.34 0.04 0.12 0.12 0.00 0.04 0.04 0.04 0.01 0.10
Crit Moves: ****
Green/Cycle: 0.20 0.70 0.70 0.08 0.58 0.58 0.00 0.11 0.11 0.11 0.22 0.22
Volume/Cap: 0.21 0.49 0.49 0.49 0.21 0.21 0.49 0.33 0.33 0.33 0.03 0.49
Delay/Veh: 30.2 6.1 6.1 42.3 9.1 9.1 159.8 38.0 38.0 38.3 27.9 31.9
User DelAdj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
AdjDel/Veh: 30.2 6.1 6.1 42.3 9.1 9.1 159.8 38.0 38.0 38.3 27.9 31.9
LOS by Move: C A A D A A F D D D C C
HCM2kAvgQ: 2 8 8 3 3 3 0 2 2 2 0 5

Note: Queue reported is the number of cars per lane.

Ontario New Model - Rich Haven External Intersections
2015 AM Peak w/o Project (Fut Base)
Meyer, Mohaddes Associates

Level Of Service Computation Report

2000 HCM Operations Method (Future Volume Alternative)

Intersection #3 Archibald Avenue/Schaefer Avenue

Cycle (sec): 100 Critical Vol./Cap.(X): 0.500
Loss Time (sec): 0 (Y+R=4.0 sec) Average Delay (sec/veh): 15.4
Optimal Cycle: 37 Level Of Service: B

Approach: North Bound South Bound East Bound West Bound
Movement: L - T - R L - T - R L - T - R L - T - R

Control: Protected Protected Permitted Permitted
Rights: Include Include Include Include
Min. Green: 0 0 0 0 0 0 0 0 0 0 0 0
Lanes: 1 0 2 1 0 1 0 2 1 0 1 0 1 0 1

Volume Module:

Base Vol: 14 1365 0 89 672 16 84 23 12 2 22 248
Growth Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
Initial Bse: 14 1365 0 89 672 16 84 23 12 2 22 248
Added Vol: 0 0 0 0 0 0 0 0 0 0 0 0 0
PasserByVol: 0 0 0 0 0 0 0 0 0 0 0 0 0
Initial Fut: 14 1365 0 89 672 16 84 23 12 2 22 248
User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
PHF Adj: 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95
PHF Volume: 15 1437 0 94 707 17 88 24 13 2 23 261
Reduced Vol: 0 0 0 0 0 0 0 0 0 0 0 0 0
Reduced Vol: 15 1437 0 94 707 17 88 24 13 2 23 261
PCE Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
MLF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
Final Vol.: 15 1437 0 94 707 17 88 24 13 2 23 261

Saturation Flow Module:

Sat/Lane: 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900
Adjustment: 0.90 0.91 0.91 0.90 0.91 0.91 0.45 0.90 0.90 0.68 0.82 0.82
Lanes: 1.00 3.00 0.00 1.00 2.93 0.07 1.00 1.31 0.69 1.00 1.00 1.00
Final Sat.: 1710 5187 0 1710 5051 120 846 2251 1175 1296 1556 1556

Capacity Analysis Module:

Vol/Sat: 0.01 0.28 0.00 0.05 0.14 0.14 0.10 0.01 0.01 0.00 0.01 0.17
Crit Moves: ****
Green/Cycle: 0.04 0.55 0.00 0.11 0.63 0.63 0.34 0.34 0.34 0.34 0.34 0.34
Volume/Cap: 0.22 0.50 0.00 0.50 0.22 0.22 0.31 0.03 0.03 0.00 0.04 0.50
Delay/Veh: 48.4 13.9 0.0 44.0 8.2 8.2 25.3 22.3 22.3 22.1 22.4 27.2
User DelAdj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
AdjDel/Veh: 48.4 13.9 0.0 44.0 8.2 8.2 25.3 22.3 22.3 22.1 22.4 27.2
LOS by Move: D B A D A A C C C C C C
HCM2kAvgQ: 1 10 0 4 3 3 2 0 0 0 0 1 7

Note: Queue reported is the number of cars per lane.

Ontario New Model - Rich Haven External Intersections
2015 AM Peak w/o Project (Fut Base)
Meyer, Mohaddes Associates

Level Of Service Computation Report

2000 HCM Operations Method (Future Volume Alternative)

Intersection #4 Archibald Avenue/Edison Avenue

Cycle (sec): 100 Critical Vol./Cap.(X): 0.656
Loss Time (sec): 0 (Y+R=4.0 sec) Average Delay (sec/veh): 29.0
Optimal Cycle: 66 Level Of Service: C

Approach: North Bound South Bound East Bound West Bound
Movement: L - T - R L - T - R L - T - R L - T - R

Control: Protected Protected Protected Protected
Rights: Include Include Include Include
Min. Green: 0 0 0 0 0 0 0 0 0 0 0 0
Lanes: 2 0 2 1 0 2 0 2 1 0 2 0 3 1 0 2 0 3 1 0

Volume Module:

Base Vol: 762 880 194 61 336 201 218 725 231 270 1218 123
Growth Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
Initial Bse: 762 880 194 61 336 201 218 725 231 270 1218 123
Added Vol: 0 0 0 0 0 0 0 0 0 0 0 0
PasserByVol: 0 0 0 0 0 0 0 0 0 0 0 0
Initial Fut: 762 880 194 61 336 201 218 725 231 270 1218 123
User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
PHF Adj: 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95
PHF Volume: 802 926 204 64 354 212 229 763 243 284 1282 129
Reduced Vol: 0 0 0 0 0 0 0 0 0 0 0 0
Reduced Vol: 802 926 204 64 354 212 229 763 243 284 1282 129
PCE Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
MLF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
Final Vol.: 802 926 204 64 354 212 229 763 243 284 1282 129

Saturation Flow Module:

Sat/Lane: 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900
Adjustment: 0.85 0.89 0.89 0.85 0.86 0.86 0.85 0.88 0.88 0.85 0.90 0.90
Lanes: 2.00 2.46 0.54 2.00 2.00 1.00 2.00 3.03 0.97 2.00 3.63 0.37
Final Sat.: 3230 4135 912 3230 3264 1632 3230 5056 1611 3230 6194 625

Capacity Analysis Module:

Vol/Sat: 0.25 0.22 0.22 0.02 0.11 0.13 0.07 0.15 0.15 0.09 0.21 0.21
Crit Moves: ****
Green/Cycle: 0.38 0.53 0.53 0.05 0.20 0.20 0.11 0.27 0.27 0.16 0.32 0.32
Volume/Cap: 0.66 0.42 0.42 0.42 0.55 0.66 0.66 0.56 0.56 0.56 0.66 0.66
Delay/Veh: 27.0 14.4 14.4 48.2 36.7 38.8 47.3 32.0 32.0 40.5 30.3 30.3
User DelAdj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
AdjDel/Veh: 27.0 14.4 14.4 48.2 36.7 38.8 47.3 32.0 32.0 40.5 30.3 30.3
LOS by Move: C B B D D D D C C C D C C
HCM2kAvgQ: 12 8 8 2 6 8 5 8 8 5 11 11

Note: Queue reported is the number of cars per lane.

Ontario New Model - Rich Haven External Intersections
2015 AM Peak w/o Project (Fut Base)
Meyer, Mohaddes Associates

Level Of Service Computation Report

2000 HCM Operations Method (Future Volume Alternative)

Intersection #5 Turner Avenue/Riverside Drive

Cycle (sec): 100 Critical Vol./Cap.(X): 0.270
Loss Time (sec): 0 (Y+R=4.0 sec) Average Delay (sec/veh): 13.7
Optimal Cycle: 25 Level Of Service: B

Approach: North Bound South Bound East Bound West Bound
Movement: L - T - R L - T - R L - T - R L - T - R

Control: Permitted Permitted Protected Protected
Rights: Include Include Include Include
Min. Green: 0 0 0 0 0 0 0 0 0 0 0 0
Lanes: 1 0 1 1 0 1 0 1 1 0 1 0 1 1 0 1 0 1 1 0

Volume Module:

Base Vol: 0 5 100 85 3 79 21 584 0 32 299 44
Growth Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
Initial Bse: 0 5 100 85 3 79 21 584 0 32 299 44
Added Vol: 0 0 0 0 0 0 0 0 0 0 0 0
PasserByVol: 0 0 0 0 0 0 0 0 0 0 0 0
Initial Fut: 0 5 100 85 3 79 21 584 0 32 299 44
User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
PHF Adj: 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95
PHF Volume: 0 5 105 89 3 83 22 615 0 34 315 46
Reduced Vol: 0 0 0 0 0 0 0 0 0 0 0 0
Reduced Vol: 0 5 105 89 3 83 22 615 0 34 315 46
PCE Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
MLF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
Final Vol.: 0 5 105 89 3 83 22 615 0 34 315 46

Saturation Flow Module:

Sat/Lane: 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900
Adjustment: 0.95 0.81 0.81 0.59 0.81 0.81 0.90 0.95 0.95 0.90 0.93 0.93
Lanes: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 2.00 0.00 1.00 1.74 0.26
Final Sat.: 1800 1547 1547 1123 1545 1545 1710 3610 0 1710 3087 454

Capacity Analysis Module:

Vol/Sat: 0.00 0.00 0.07 0.08 0.00 0.05 0.01 0.17 0.00 0.02 0.10 0.10
Crit Moves: ****
Green/Cycle: 0.00 0.30 0.30 0.30 0.30 0.30 0.08 0.63 0.00 0.07 0.63 0.63
Volume/Cap: 0.00 0.01 0.23 0.27 0.01 0.18 0.16 0.27 0.00 0.27 0.16 0.16
Delay/Veh: 0.0 24.9 26.9 27.4 24.9 26.4 43.5 8.2 0.0 45.0 7.9 7.9
User DelAdj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
AdjDel/Veh: 0.0 24.9 26.9 27.4 24.9 26.4 43.5 8.2 0.0 45.0 7.9 7.9
LOS by Move: A C C C C C D A A D A A
HCM2kAvgQ: 0 0 3 2 0 2 1 4 0 1 2 2

Note: Queue reported is the number of cars per lane.

Ontario New Model - Rich Haven External Intersections
2015 AM Peak w/o Project (Fut Base)
Meyer, Mohaddes Associates

Level Of Service Computation Report

2000 HCM 4-Way Stop Method (Future Volume Alternative)

Intersection #6 Turner Avenue/Chino Avenue

Cycle (sec): 100 Critical Vol./Cap.(X): 0.069
Loss Time (sec): 0 (Y+R=4.0 sec) Average Delay (sec/veh): 7.9
Optimal Cycle: 0 Level Of Service: A

Approach: North Bound South Bound East Bound West Bound
Movement: L - T - R L - T - R L - T - R L - T - R

Control: Stop Sign Stop Sign Stop Sign Stop Sign
Rights: Include Include Include Include
Min. Green: 0 0 0 0 0 0 0 0 0 0 0 0
Lanes: 1 0 1 1 0 1 0 1 1 0 1 0 1 1 0

Volume Module:
Base Vol: 21 30 17 5 9 32 24 87 7 2 45 5
Growth Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
Initial Bse: 21 30 17 5 9 32 24 87 7 2 45 5
Added Vol: 0 0 0 0 0 0 0 0 0 0 0 0
PasserByVol: 0 0 0 0 0 0 0 0 0 0 0 0
Initial Fut: 21 30 17 5 9 32 24 87 7 2 45 5
User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
PHF Adj: 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95
PHF Volume: 22 32 18 5 9 34 25 92 7 2 47 5
Reduct Vol: 0 0 0 0 0 0 0 0 0 0 0 0
Reduced Vol: 22 32 18 5 9 34 25 92 7 2 47 5
PCE Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
MLF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
Final Vol.: 22 32 18 5 9 34 25 92 7 2 47 5

Saturation Flow Module:
Adjustment: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
Lanes: 1.00 1.28 0.72 1.00 1.00 1.00 1.00 1.85 0.15 1.00 1.80 0.20
Final Sat.: 623 891 546 616 674 775 645 1325 108 625 1247 141

Capacity Analysis Module:
Vol/Sat: 0.04 0.04 0.03 0.01 0.01 0.04 0.04 0.07 0.07 0.00 0.04 0.04
Crit Moves: ****
Delay/Veh: 8.5 7.8 7.4 8.4 7.9 7.3 8.3 7.9 7.9 8.3 7.9 7.8
Delay Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
AdjDel/Veh: 8.5 7.8 7.4 8.4 7.9 7.3 8.3 7.9 7.9 8.3 7.9 7.8
LOS by Move: A A A A A A A A A A A A
ApproachDel: 7.9 7.5 8.0 7.9
Delay Adj: 1.00 1.00 1.00 1.00
ApprAdjDel: 7.9 7.5 8.0 7.9
LOS by Appr: A A A A
AllWayAvgQ: 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.1 0.1 0.0 0.0 0.0

Note: Queue reported is the number of cars per lane.

Ontario New Model - Rich Haven External Intersections
2015 AM Peak w/o Project (Fut Base)
Meyer, Mohaddes Associates

Level Of Service Computation Report

2000 HCM Operations Method (Future Volume Alternative)

Intersection #7 Turner Avenue at Schaefer Avenue

Cycle (sec): 100 Critical Vol./Cap.(X): 0.088
Loss Time (sec): 0 (Y+R=4.0 sec) Average Delay (sec/veh): 2.6
Optimal Cycle: 20 Level Of Service: A

Approach: North Bound South Bound East Bound West Bound
Movement: L - T - R L - T - R L - T - R L - T - R

Control: Split Phase Split Phase Protected Permitted
Rights: Include Include Include Include
Min. Green: 0 0 0 0 0 0 0 0 0 0 0 0
Lanes: 0 0 0 0 0 1 0 1 0 0 1 0 2 0 0 0 0 1 1 0

Volume Module:
Base Vol: 0 0 0 16 0 4 1 114 0 0 259 14
Growth Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
Initial Bse: 0 0 0 16 0 4 1 114 0 0 259 14
Added Vol: 0 0 0 0 0 0 0 0 0 0 0 0
PasserByVol: 0 0 0 0 0 0 0 0 0 0 0 0
Initial Fut: 0 0 0 16 0 4 1 114 0 0 259 14
User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
PHF Adj: 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95
PHF Volume: 0 0 0 17 0 4 1 120 0 0 273 15
Reduct Vol: 0 0 0 0 0 0 0 0 0 0 0 0
Reduced Vol: 0 0 0 17 0 4 1 120 0 0 273 15
PCE Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
MLF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
Final Vol.: 0 0 0 17 0 4 1 120 0 0 273 15

Saturation Flow Module:
Sat/Lane: 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900
Adjustment: 0.95 1.00 1.00 0.88 1.00 0.93 0.90 0.95 1.00 0.95 0.94 0.94
Lanes: 0.00 0.00 0.00 1.68 0.00 0.32 1.00 2.00 0.00 0.00 1.90 0.10
Final Sat.: 0 0 0 2819 0 570 1710 3610 0 0 3397 184

Capacity Analysis Module:
Vol/Sat: 0.00 0.00 0.00 0.01 0.00 0.01 0.00 0.03 0.00 0.00 0.08 0.08
Crit Moves: ****
Green/Cycle: 0.00 0.00 0.00 0.08 0.00 0.08 0.01 0.92 0.00 0.00 0.91 0.91
Volume/Cap: 0.00 0.00 0.00 0.07 0.00 0.09 0.09 0.04 0.00 0.00 0.09 0.09
Delay/Veh: 0.0 0.0 0.0 42.3 0.0 42.5 52.5 0.4 0.0 0.0 0.5 0.5
User DelAdj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
AdjDel/Veh: 0.0 0.0 0.0 42.3 0.0 42.5 52.5 0.4 0.0 0.0 0.5 0.5
LOS by Move: A A A D A D D A A A A A
HCM2kAvgQ: 0 0 0 0 0 0 0 0 0 0 0 1 1

Note: Queue reported is the number of cars per lane.

Ontario New Model - Rich Haven External Intersections
2015 AM Peak w/o Project (Fut Base)
Meyer, Mohaddes Associates

Level Of Service Computation Report

2000 HCM Operations Method (Future Volume Alternative)

Intersection #8 Edison Avenue at Schaefer Avenue

Cycle (sec): 100 Critical Vol./Cap.(X): 0.303
Loss Time (sec): 0 (Y+R=4.0 sec) Average Delay (sec/veh): 3.0
Optimal Cycle: 27 Level Of Service: A

Approach: North Bound South Bound East Bound West Bound
Movement: L - T - R L - T - R L - T - R L - T - R

Control: Split Phase Split Phase Permitted Permitted
Rights: Include Include Include Include
Min. Green: 0 0 0 0 0 0 0 0 0 0 0 0
Lanes: 0 0 0 0 0 1 0 1 0 0 1 0 4 0 0 0 0 0 3 1 0

Volume Module:
Base Vol: 0 0 0 123 0 6 5 926 0 0 1407 268
Growth Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
Initial Bse: 0 0 0 123 0 6 5 926 0 0 1407 268
Added Vol: 0 0 0 0 0 0 0 0 0 0 0 0 0
PasserByVol: 0 0 0 0 0 0 0 0 0 0 0 0 0
Initial Fut: 0 0 0 123 0 6 5 926 0 0 1407 268
User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
PHF Adj: 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95
PHF Volume: 0 0 0 129 0 6 5 975 0 0 1481 282
Reduced Vol: 0 0 0 0 0 0 0 0 0 0 0 0 0
Reduced Vol: 0 0 0 129 0 6 5 975 0 0 1481 282
PCE Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
MLF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
Final Vol.: 0 0 0 129 0 6 5 975 0 0 1481 282

Saturation Flow Module:
Sat/Lane: 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900
Adjustment: 0.95 1.00 1.00 0.90 1.00 0.95 0.11 0.91 1.00 0.95 0.89 0.89
Lanes: 0.00 0.00 0.00 1.92 0.00 0.08 1.00 4.00 0.00 0.00 3.36 0.64
Final Sat.: 0 0 0 3270 0 152 207 6916 0 0 5670 1080

Capacity Analysis Module:
Vol/Sat: 0.00 0.00 0.00 0.04 0.00 0.04 0.03 0.14 0.00 0.00 0.26 0.26
Crit Moves: ****
Green/Cycle: 0.00 0.00 0.00 0.14 0.00 0.14 0.86 0.86 0.00 0.00 0.86 0.86
Volume/Cap: 0.00 0.00 0.00 0.29 0.00 0.30 0.03 0.16 0.00 0.00 0.30 0.30
Delay/Veh: 0.0 0.0 0.0 39.1 0.0 39.2 1.0 1.1 0.0 0.0 1.3 1.3
User DelAdj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
AdjDel/Veh: 0.0 0.0 0.0 39.1 0.0 39.2 1.0 1.1 0.0 0.0 1.3 1.3
LOS by Move: A A A D A D A A A A A A
HCM2kAvgQ: 0 0 0 2 0 2 0 1 0 0 3 3

Note: Queue reported is the number of cars per lane.

Ontario New Model - Rich Haven External Intersections
2015 AM Peak w/o Project (Fut Base)
Meyer, Mohaddes Associates

Level Of Service Computation Report

2000 HCM Operations Method (Future Volume Alternative)

Intersection #9 Haven Avenue/SR-60 WB Ramps

Cycle (sec): 100 Critical Vol./Cap.(X): 0.269
Loss Time (sec): 0 (Y+R=4.0 sec) Average Delay (sec/veh): 10.0
Optimal Cycle: 29 Level Of Service: B

Approach: North Bound South Bound East Bound West Bound
Movement: L - T - R L - T - R L - T - R L - T - R

Control: Protected Permitted Split Phase Split Phase
Rights: Include Include Include Ignore
Min. Green: 0 0 0 0 0 0 0 0 0 0 0 0
Lanes: 2 0 3 0 0 0 0 3 0 1 0 0 0 0 0 1 1 0 0 0 1

Volume Module:
Base Vol: 281 1179 0 0 386 22 0 0 0 98 0 791
Growth Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
Initial Bse: 281 1179 0 0 386 22 0 0 0 98 0 791
Added Vol: 0 0 0 0 0 0 0 0 0 0 0 0 0
PasserByVol: 0 0 0 0 0 0 0 0 0 0 0 0 0
Initial Fut: 281 1179 0 0 386 22 0 0 0 98 0 791
User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
PHF Adj: 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95
PHF Volume: 296 1241 0 0 406 23 0 0 0 103 0 0
Reduced Vol: 0 0 0 0 0 0 0 0 0 0 0 0 0
Reduced Vol: 296 1241 0 0 406 23 0 0 0 103 0 0
PCE Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
MLF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
Final Vol.: 296 1241 0 0 406 23 0 0 0 103 0 0

Saturation Flow Module:
Sat/Lane: 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900
Adjustment: 0.85 0.91 1.00 0.95 0.91 0.85 0.95 1.00 1.00 0.90 1.00 1.00
Lanes: 2.00 3.00 0.00 0.00 3.00 1.00 0.00 0.00 0.00 2.00 0.00 1.00
Final Sat.: 3230 5187 0 0 5187 1615 0 0 0 3427 0 1900

Capacity Analysis Module:
Vol/Sat: 0.09 0.24 0.00 0.00 0.08 0.01 0.00 0.00 0.00 0.03 0.00 0.00
Crit Moves: ****
Green/Cycle: 0.69 0.91 0.00 0.00 0.23 0.23 0.00 0.00 0.00 0.09 0.00 0.00
Volume/Cap: 0.13 0.26 0.00 0.00 0.35 0.06 0.00 0.00 0.00 0.35 0.00 0.00
Delay/Veh: 5.4 0.5 0.0 0.0 32.7 30.5 0.0 0.0 0.0 43.7 0.0 0.0
User DelAdj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
AdjDel/Veh: 5.4 0.5 0.0 0.0 32.7 30.5 0.0 0.0 0.0 43.7 0.0 0.0
LOS by Move: A A A A C C A A A D A A
HCM2kAvgQ: 2 2 0 0 4 1 0 0 0 2 0 0

Note: Queue reported is the number of cars per lane.

Ontario New Model - Rich Haven External Intersections
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Meyer, Mohaddes Associates

Level Of Service Computation Report

2000 HCM Operations Method (Future Volume Alternative)

Intersection #10 Haven Avenue/SR-60 EB Ramps

Cycle (sec): 100 Critical Vol./Cap.(X): 0.491
Loss Time (sec): 0 (Y+R=4.0 sec) Average Delay (sec/veh): 10.8
Optimal Cycle: 37 Level Of Service: B

Approach: North Bound South Bound East Bound West Bound
Movement: L - T - R L - T - R L - T - R L - T - R

Control: Permitted Protected Split Phase Split Phase
Rights: Include Include Include Include
Min. Green: 0 0 0 0 0 0 0 0 0 0 0 0
Lanes: 0 0 2 1 0 2 0 3 0 0 1 1 0 0 1 0 0 0 0 0

Volume Module:
Base Vol: 0 1395 250 91 393 0 75 0 184 0 0 0
Growth Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
Initial Bse: 0 1395 250 91 393 0 75 0 184 0 0 0
Added Vol: 0 0 0 0 0 0 0 0 0 0 0 0
PasserByVol: 0 0 0 0 0 0 0 0 0 0 0 0
Initial Fut: 0 1395 250 91 393 0 75 0 184 0 0 0
User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
PHF Adj: 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95
PHF Volume: 0 1468 263 96 414 0 79 0 194 0 0 0
Reduced Vol: 0 0 0 0 0 0 0 0 0 0 0 0
Reduced Vol: 0 1468 263 96 414 0 79 0 194 0 0 0
PCE Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
MLF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
Final Vol.: 0 1468 263 96 414 0 79 0 194 0 0 0

Saturation Flow Module:
Sat/Lane: 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900
Adjustment: 0.95 0.89 0.89 0.85 0.91 1.00 0.90 1.00 0.85 0.95 1.00 1.00
Lanes: 0.00 2.54 0.46 2.00 3.00 0.00 2.00 0.00 1.00 0.00 0.00 0.00
Final Sat.: 0 4298 770 3230 5187 0 3427 0 1615 0 0 0

Capacity Analysis Module:
Vol/Sat: 0.00 0.34 0.34 0.03 0.08 0.00 0.02 0.00 0.12 0.00 0.00 0.00
Crit Moves: ****
Green/Cycle: 0.00 0.70 0.70 0.06 0.76 0.00 0.24 0.00 0.24 0.00 0.00 0.00
Volume/Cap: 0.00 0.49 0.49 0.49 0.11 0.00 0.09 0.00 0.49 0.00 0.00 0.00
Delay/Veh: 0.0 7.2 7.2 47.4 3.2 0.0 29.3 0.0 33.4 0.0 0.0 0.0
User DelAdj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
AdjDel/Veh: 0.0 7.2 7.2 47.4 3.2 0.0 29.3 0.0 33.4 0.0 0.0 0.0
LOS by Move: A A A D A A C A C A A A
HCM2kAvgQ: 0 9 9 2 1 0 1 0 6 0 0 0

Note: Queue reported is the number of cars per lane.

Ontario New Model - Rich Haven External Intersections
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Meyer, Mohaddes Associates

Level Of Service Computation Report

2000 HCM Operations Method (Future Volume Alternative)

Intersection #11 Haven Avenue/Riverside Drive

Cycle (sec): 100 Critical Vol./Cap.(X): 0.711
Loss Time (sec): 0 (Y+R=4.0 sec) Average Delay (sec/veh): 23.2
Optimal Cycle: 64 Level Of Service: C

Approach: North Bound South Bound East Bound West Bound
Movement: L - T - R L - T - R L - T - R L - T - R

Control: Permitted Permitted Protected Protected
Rights: Include Include Include Include
Min. Green: 0 0 0 0 0 0 0 0 0 0 0 0
Lanes: 1 0 1 1 0 1 0 1 1 0 1 0 1 1 0

Volume Module:
Base Vol: 39 880 216 126 366 33 139 623 40 125 285 137
Growth Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
Initial Bse: 39 880 216 126 366 33 139 623 40 125 285 137
Added Vol: 0 0 0 0 0 0 0 0 0 0 0 0
PasserByVol: 0 0 0 0 0 0 0 0 0 0 0 0
Initial Fut: 39 880 216 126 366 33 139 623 40 125 285 137
User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
PHF Adj: 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95
PHF Volume: 41 926 227 133 385 35 146 656 42 132 300 144
Reduced Vol: 0 0 0 0 0 0 0 0 0 0 0 0
Reduced Vol: 41 926 227 133 385 35 146 656 42 132 300 144
PCE Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
MLF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
Final Vol.: 41 926 227 133 385 35 146 656 42 132 300 144

Saturation Flow Module:
Sat/Lane: 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900
Adjustment: 0.44 0.92 0.92 0.16 0.94 0.94 0.90 0.94 0.94 0.90 0.90 0.90
Lanes: 1.00 1.61 0.39 1.00 1.83 0.17 1.00 1.88 0.12 1.00 1.35 0.65
Final Sat.: 828 2812 690 302 3272 295 1710 3362 216 1710 2319 1115

Capacity Analysis Module:
Vol/Sat: 0.05 0.33 0.33 0.44 0.12 0.12 0.09 0.20 0.20 0.08 0.13 0.13
Crit Moves: ****
Green/Cycle: 0.62 0.62 0.62 0.62 0.62 0.62 0.15 0.27 0.27 0.11 0.23 0.23
Volume/Cap: 0.08 0.53 0.53 0.71 0.19 0.19 0.56 0.71 0.71 0.71 0.56 0.56
Delay/Veh: 7.8 11.2 11.2 25.1 8.3 8.3 42.1 35.1 35.1 55.2 34.9 34.9
User DelAdj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
AdjDel/Veh: 7.8 11.2 11.2 25.1 8.3 8.3 42.1 35.1 35.1 55.2 34.9 34.9
LOS by Move: A B B C A A D D D E C C
HCM2kAvgQ: 1 11 11 5 3 3 5 11 11 6 7 7

Note: Queue reported is the number of cars per lane.

Ontario New Model - Rich Haven External Intersections
2015 AM Peak w/o Project (Fut Base)
Meyer, Mohaddes Associates

Level Of Service Computation Report

2000 HCM Operations Method (Future Volume Alternative)

Intersection #12 Haven Avenue at Chino Avenue

Cycle (sec): 100 Critical Vol./Cap.(X): 0.386
Loss Time (sec): 0 (Y+R=4.0 sec) Average Delay (sec/veh): 4.0
Optimal Cycle: 23 Level Of Service: A

Approach: North Bound South Bound East Bound West Bound
Movement: L - T - R L - T - R L - T - R L - T - R

Control: Permitted Permitted Permitted Permitted
Rights: Include Include Include Include
Min. Green: 0 0 0 0 0 0 0 0 0 0 0 0
Lanes: 1 0 1 1 0 1 0 1 1 0 1 0 1 1 0

Volume Module:

Base Vol: 22 1091 84 8 446 3 23 45 25 38 0 9
Growth Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
Initial Bse: 22 1091 84 8 446 3 23 45 25 38 0 9
Added Vol: 0 0 0 0 0 0 0 0 0 0 0 0
PasserByVol: 0 0 0 0 0 0 0 0 0 0 0 0
Initial Fut: 22 1091 84 8 446 3 23 45 25 38 0 9
User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
PHF Adj: 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95
PHF Volume: 23 1148 88 8 469 3 24 47 26 40 0 9
Reduct Vol: 0 0 0 0 0 0 0 0 0 0 0 0
Reduced Vol: 23 1148 88 8 469 3 24 47 26 40 0 9
PCE Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
MLF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
Final Vol.: 23 1148 88 8 469 3 24 47 26 40 0 9

Saturation Flow Module:

Sat/Lane: 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900
Adjustment: 0.44 0.94 0.94 0.20 0.95 0.95 0.70 0.90 0.90 0.54 0.95 0.81
Lanes: 1.00 1.86 0.14 1.00 1.99 0.01 1.00 1.29 0.71 1.00 1.00 1.00
Final Sat.: 842 3315 255 382 3582 24 1337 2195 1220 1021 1805 1534

Capacity Analysis Module:

Vol/Sat: 0.03 0.35 0.35 0.02 0.13 0.13 0.02 0.02 0.02 0.04 0.00 0.01
Crit Moves: ****
Green/Cycle: 0.90 0.90 0.90 0.90 0.90 0.90 0.10 0.10 0.10 0.10 0.00 0.10
Volume/Cap: 0.03 0.39 0.39 0.02 0.15 0.15 0.18 0.21 0.21 0.39 0.00 0.06
Delay/Veh: 0.5 0.9 0.9 0.6 0.6 0.6 41.7 41.5 41.5 44.4 0.0 40.8
User DelAdj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
AdjDel/Veh: 0.5 0.9 0.9 0.6 0.6 0.6 41.7 41.5 41.5 44.4 0.0 40.8
LOS by Move: A A A A A A D D D D A D
HCM2kAvgQ: 0 3 3 0 1 1 1 1 1 2 0 0

Note: Queue reported is the number of cars per lane.

Ontario New Model - Rich Haven External Intersections
2015 AM Peak w/o Project (Fut Base)
Meyer, Mohaddes Associates

Level Of Service Computation Report

2000 HCM Operations Method (Future Volume Alternative)

Intersection #13 Haven Avenue at Edison Avenue

Cycle (sec): 100 Critical Vol./Cap.(X): 0.655
Loss Time (sec): 0 (Y+R=4.0 sec) Average Delay (sec/veh): 24.5
Optimal Cycle: 54 Level Of Service: C

Approach: North Bound South Bound East Bound West Bound
Movement: L - T - R L - T - R L - T - R L - T - R

Control: Permitted Permitted Protected Protected
Rights: Include Include Include Include
Min. Green: 0 0 0 0 0 0 0 0 0 0 0 0
Lanes: 1 0 1 1 0 1 0 1 1 0 1 0 3 1 0

Volume Module:

Base Vol: 168 746 211 102 287 179 146 838 66 122 1329 127
Growth Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
Initial Bse: 168 746 211 102 287 179 146 838 66 122 1329 127
Added Vol: 0 0 0 0 0 0 0 0 0 0 0 0
PasserByVol: 0 0 0 0 0 0 0 0 0 0 0 0
Initial Fut: 168 746 211 102 287 179 146 838 66 122 1329 127
User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
PHF Adj: 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95
PHF Volume: 177 785 222 107 302 188 154 882 69 128 1399 134
Reduct Vol: 0 0 0 0 0 0 0 0 0 0 0 0
Reduced Vol: 177 785 222 107 302 188 154 882 69 128 1399 134
PCE Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
MLF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
Final Vol.: 177 785 222 107 302 188 154 882 69 128 1399 134

Saturation Flow Module:

Sat/Lane: 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900
Adjustment: 0.38 0.92 0.92 0.17 0.89 0.89 0.90 0.90 0.90 0.90 0.90 0.90
Lanes: 1.00 1.56 0.44 1.00 1.23 0.77 1.00 3.71 0.29 1.00 3.65 0.35
Final Sat.: 713 2721 770 315 2094 1306 1710 6341 499 1710 6231 595

Capacity Analysis Module:

Vol/Sat: 0.25 0.29 0.29 0.34 0.14 0.14 0.09 0.14 0.14 0.08 0.22 0.22
Crit Moves: ****
Green/Cycle: 0.52 0.52 0.52 0.52 0.52 0.52 0.14 0.31 0.31 0.17 0.34 0.34
Volume/Cap: 0.48 0.55 0.55 0.66 0.28 0.28 0.66 0.45 0.45 0.45 0.66 0.66
Delay/Veh: 16.3 16.6 16.6 26.7 13.5 13.5 47.5 27.7 27.7 38.5 28.5 28.5
User DelAdj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
AdjDel/Veh: 16.3 16.6 16.6 26.7 13.5 13.5 47.5 27.7 27.7 38.5 28.5 28.5
LOS by Move: B B B C B B D C C D C C
HCM2kAvgQ: 4 11 11 4 4 4 6 7 7 4 12 12

Note: Queue reported is the number of cars per lane.

Ontario New Model - Rich Haven External Intersections
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Meyer, Mohaddes Associates

Level Of Service Computation Report

2000 HCM Operations Method (Future Volume Alternative)

Intersection #14 Mill Creek Avenue/Riverside Drive

Cycle (sec): 100 Critical Vol./Cap.(X): 0.530
Loss Time (sec): 0 (Y+R=4.0 sec) Average Delay (sec/veh): 17.1
Optimal Cycle: 40 Level Of Service: B

Approach: North Bound South Bound East Bound West Bound
Movement: L - T - R L - T - R L - T - R L - T - R

Control: Permitted Permitted Protected Protected
Rights: Include Include Include Include
Min. Green: 0 0 0 0 0 0 0 0 0 0 0 0
Lanes: 1 0 1 0 1 1 0 0 1 1 0 1 0 1 1 0

Volume Module:
Base Vol: 8 199 0 107 180 116 164 1210 9 0 457 28
Growth Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
Initial Bse: 8 199 0 107 180 116 164 1210 9 0 457 28
Added Vol: 0 0 0 0 0 0 0 0 0 0 0 0
PasserByVol: 0 0 0 0 0 0 0 0 0 0 0 0
Initial Fut: 8 199 0 107 180 116 164 1210 9 0 457 28
User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
PHF Adj: 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95
PHF Volume: 8 209 0 113 189 122 173 1274 9 0 481 29
Reduced Vol: 0 0 0 0 0 0 0 0 0 0 0 0
Reduced Vol: 8 209 0 113 189 122 173 1274 9 0 481 29
PCE Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
MLF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
Final Vol.: 8 209 0 113 189 122 173 1274 9 0 481 29

Saturation Flow Module:
Sat/Lane: 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900
Adjustment: 0.31 1.00 1.00 0.43 0.94 0.94 0.90 0.95 0.95 0.95 0.94 0.94
Lanes: 1.00 1.00 1.00 1.00 0.61 0.39 1.00 1.99 0.01 1.00 1.88 0.12
Final Sat.: 583 1900 1900 817 1087 701 1710 3580 27 1800 3371 207

Capacity Analysis Module:
Vol/Sat: 0.01 0.11 0.00 0.14 0.17 0.10 0.36 0.36 0.00 0.14 0.14
Crit Moves: ****
Green/Cycle: 0.33 0.33 0.00 0.33 0.33 0.33 0.28 0.67 0.67 0.00 0.39 0.39
Volume/Cap: 0.04 0.34 0.00 0.42 0.53 0.53 0.36 0.53 0.53 0.00 0.36 0.36
Delay/Veh: 23.0 25.6 0.0 27.2 28.2 28.2 29.5 8.6 8.6 0.0 21.6 21.6
User DelAdj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
AdjDel/Veh: 23.0 25.6 0.0 27.2 28.2 28.2 29.5 8.6 8.6 0.0 21.6 21.6
LOS by Move: C C A C C C C A A C C
HCM2kAvgQ: 0 5 0 3 8 8 5 11 11 0 6 6

Note: Queue reported is the number of cars per lane.

Ontario New Model - Rich Haven External Intersections
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Meyer, Mohaddes Associates

Level Of Service Computation Report

2000 HCM Operations Method (Future Volume Alternative)

Intersection #15 Mill Creek Avenue at Chino Avenue

Cycle (sec): 100 Critical Vol./Cap.(X): 0.086
Loss Time (sec): 0 (Y+R=4.0 sec) Average Delay (sec/veh): 12.0
Optimal Cycle: 16 Level Of Service: B

Approach: North Bound South Bound East Bound West Bound
Movement: L - T - R L - T - R L - T - R L - T - R

Control: Permitted Permitted Permitted Permitted
Rights: Include Include Include Include
Min. Green: 0 0 0 0 0 0 0 0 0 0 0 0
Lanes: 1 0 1 1 0 1 0 0 1 0 1 0 1 0 1 1 0

Volume Module:
Base Vol: 8 19 5 8 3 34 81 44 9 1 4 3
Growth Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
Initial Bse: 8 19 5 8 3 34 81 44 9 1 4 3
Added Vol: 0 0 0 0 0 0 0 0 0 0 0 0
PasserByVol: 0 0 0 0 0 0 0 0 0 0 0 0
Initial Fut: 8 19 5 8 3 34 81 44 9 1 4 3
User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
PHF Adj: 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95
PHF Volume: 8 20 5 8 3 36 85 46 9 1 4 3
Reduced Vol: 0 0 0 0 0 0 0 0 0 0 0 0
Reduced Vol: 8 20 5 8 3 36 85 46 9 1 4 3
PCE Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
MLF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
Final Vol.: 8 20 5 8 3 36 85 46 9 1 4 3

Saturation Flow Module:
Sat/Lane: 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900
Adjustment: 0.65 0.92 0.92 0.70 0.86 0.86 0.72 0.93 0.93 0.68 0.89 0.89
Lanes: 1.00 1.58 0.42 1.00 0.08 0.92 1.00 1.66 0.34 1.00 1.14 0.86
Final Sat.: 1242 2769 729 1321 133 1505 1372 2922 598 1289 1931 1448

Capacity Analysis Module:
Vol/Sat: 0.01 0.01 0.01 0.01 0.02 0.02 0.06 0.02 0.02 0.00 0.00 0.00
Crit Moves: ****
Green/Cycle: 0.28 0.28 0.28 0.28 0.28 0.28 0.72 0.72 0.72 0.72 0.72 0.72
Volume/Cap: 0.02 0.03 0.03 0.02 0.09 0.09 0.09 0.02 0.02 0.00 0.00 0.00
Delay/Veh: 26.4 26.4 26.4 26.4 26.9 26.9 4.1 3.9 3.9 3.8 3.8 3.8
User DelAdj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
AdjDel/Veh: 26.4 26.4 26.4 26.4 26.9 26.9 4.1 3.9 3.9 3.8 3.8 3.8
LOS by Move: C C C C C C A A A A A A
HCM2kAvgQ: 0 0 0 0 1 1 1 0 0 0 0 0

Note: Queue reported is the number of cars per lane.

Ontario New Model - Rich Haven External Intersections
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Meyer, Mohaddes Associates

Level Of Service Computation Report

2000 HCM Operations Method (Future Volume Alternative)

Intersection #16 Mill Creek Avenue at Edison Avenue

Cycle (sec): 100 Critical Vol./Cap.(X): 0.329
Loss Time (sec): 0 (Y+R=4.0 sec) Average Delay (sec/veh): 5.5
Optimal Cycle: 21 Level Of Service: A

Approach: North Bound South Bound East Bound West Bound
Movement: L - T - R L - T - R L - T - R L - T - R

Control: Permitted Permitted Permitted Permitted
Rights: Include Include Include Include
Min. Green: 0 0 0 0 0 0 0 0 0 0 0 0
Lanes: 1 0 0 1 0 1 0 0 1 0 1 0

Volume Module:
Base Vol: 109 13 0 0 3 8 10 1275 48 0 1600 0
Growth Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
Initial Bse: 109 13 0 0 3 8 10 1275 48 0 1600 0
Added Vol: 0 0 0 0 0 0 0 0 0 0 0 0
PasserByVol: 0 0 0 0 0 0 0 0 0 0 0 0
Initial Fut: 109 13 0 0 3 8 10 1275 48 0 1600 0
User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
PHF Adj: 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95
PHF Volume: 115 14 0 0 3 8 11 1342 51 0 1684 0
Reduct Vol: 0 0 0 0 0 0 0 0 0 0 0 0
Reduced Vol: 115 14 0 0 3 8 11 1342 51 0 1684 0
PCE Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
MLF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
Final Vol.: 115 14 0 0 3 8 11 1342 51 0 1684 0

Saturation Flow Module:
Sat/Lane: 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900
Adjustment: 0.70 1.00 1.00 0.95 0.89 0.89 0.11 0.91 0.91 0.95 0.91 0.91
Lanes: 1.00 1.00 0.00 1.00 0.27 0.73 1.00 3.85 0.15 1.00 4.00 0.00
Final Sat.: 1339 1900 0 1800 462 1231 211 6632 250 1800 6916 0

Capacity Analysis Module:
Vol/Sat: 0.09 0.01 0.00 0.00 0.01 0.01 0.05 0.20 0.20 0.00 0.24 0.00
Crit Moves: ****
Green/Cycle: 0.26 0.26 0.00 0.00 0.26 0.26 0.74 0.74 0.74 0.00 0.74 0.00
Volume/Cap: 0.33 0.03 0.00 0.00 0.03 0.03 0.07 0.27 0.27 0.00 0.33 0.00
Delay/Veh: 30.5 27.6 0.0 0.0 27.6 27.6 3.7 4.3 4.3 0.0 4.5 0.0
User DelAdj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
AdjDel/Veh: 30.5 27.6 0.0 0.0 27.6 27.6 3.7 4.3 4.3 0.0 4.5 0.0
LOS by Move: C C A A C C A A A A A A
HCM2kAvgQ: 3 0 0 0 0 0 4 4 0 5 0

Note: Queue reported is the number of cars per lane.

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Meyer, Mohaddes Associates

Level Of Service Computation Report

2000 HCM Operations Method (Future Volume Alternative)

Intersection #17 Milliken Avenue/SR-60 WB Ramps

Cycle (sec): 100 Critical Vol./Cap.(X): 0.610
Loss Time (sec): 0 (Y+R=4.0 sec) Average Delay (sec/veh): 20.7
Optimal Cycle: 48 Level Of Service: C

Approach: North Bound South Bound East Bound West Bound
Movement: L - T - R L - T - R L - T - R L - T - R

Control: Protected Permitted Split Phase Split Phase
Rights: Include Include Include Include
Min. Green: 0 0 0 0 0 0 0 0 0 0 0 0
Lanes: 1 0 2 0 0 0 0 2 0 1 0 0 0 0 0 1

Volume Module:
Base Vol: 458 844 0 0 517 1 0 0 0 210 0 272
Growth Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
Initial Bse: 458 844 0 0 517 1 0 0 0 210 0 272
Added Vol: 0 0 0 0 0 0 0 0 0 0 0 0
PasserByVol: 0 0 0 0 0 0 0 0 0 0 0 0
Initial Fut: 458 844 0 0 517 1 0 0 0 210 0 272
User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
PHF Adj: 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95
PHF Volume: 482 888 0 0 544 1 0 0 0 221 0 286
Reduct Vol: 0 0 0 0 0 0 0 0 0 0 0 0
Reduced Vol: 482 888 0 0 544 1 0 0 0 221 0 286
PCE Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
MLF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
Final Vol.: 482 888 0 0 544 1 0 0 0 221 0 286

Saturation Flow Module:
Sat/Lane: 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900
Adjustment: 0.90 0.95 1.00 0.95 0.95 0.85 0.95 1.00 1.00 0.90 1.00 0.85
Lanes: 1.00 2.00 0.00 0.00 2.00 1.00 0.00 0.00 0.00 1.00 0.00 1.00
Final Sat.: 1710 3610 0 0 3610 1615 0 0 0 1710 0 1615

Capacity Analysis Module:
Vol/Sat: 0.28 0.25 0.00 0.00 0.15 0.00 0.00 0.00 0.00 0.13 0.00 0.18
Crit Moves: ****
Green/Cycle: 0.46 0.71 0.00 0.00 0.25 0.25 0.00 0.00 0.00 0.29 0.00 0.29
Volume/Cap: 0.61 0.35 0.00 0.00 0.61 0.00 0.00 0.00 0.00 0.44 0.00 0.61
Delay/Veh: 21.5 5.7 0.0 0.0 34.6 28.4 0.0 0.0 0.0 29.5 0.0 32.9
User DelAdj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
AdjDel/Veh: 21.5 5.7 0.0 0.0 34.6 28.4 0.0 0.0 0.0 29.5 0.0 32.9
LOS by Move: C A A A C C A A A A C
HCM2kAvgQ: 12 6 0 0 9 0 0 0 0 6 0 8

Note: Queue reported is the number of cars per lane.

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Meyer, Mohaddes Associates

Level Of Service Computation Report

2000 HCM Operations Method (Future Volume Alternative)

Intersection #18 Milliken Avenue/SR-60 EB Ramps

Cycle (sec): 100 Critical Vol./Cap.(X): 0.818
Loss Time (sec): 0 (Y+R=4.0 sec) Average Delay (sec/veh): 19.4
Optimal Cycle: 102 Level Of Service: B

Approach: North Bound South Bound East Bound West Bound
Movement: L - T - R L - T - R L - T - R L - T - R

Control: Permitted Protected Split Phase Split Phase
Rights: Include Include Include Include
Min. Green: 0 0 0 0 0 0 0 0 0 0 0 0
Lanes: 0 0 1 1 0 1 0 2 0 0 1 0 1 0 0 0 0 0 0 0

Volume Module:
Base Vol: 0 1270 361 3 722 0 32 0 485 0 0 0
Growth Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
Initial Bse: 0 1270 361 3 722 0 32 0 485 0 0 0
Added Vol: 0 0 0 0 0 0 0 0 0 0 0 0
PasserByVol: 0 0 0 0 0 0 0 0 0 0 0 0
Initial Fut: 0 1270 361 3 722 0 32 0 485 0 0 0
User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
PHF Adj: 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95
PHF Volume: 0 1337 380 3 760 0 34 0 511 0 0 0
Reduct Vol: 0 0 0 0 0 0 0 0 0 0 0 0
Reduced Vol: 0 1337 380 3 760 0 34 0 511 0 0 0
PCE Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
MLF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
Final Vol.: 0 1337 380 3 760 0 34 0 511 0 0 0

Saturation Flow Module:
Sat/Lane: 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900
Adjustment: 0.95 0.92 0.92 0.90 0.95 1.00 0.81 1.00 0.86 0.95 1.00 1.00
Lanes: 0.00 1.56 0.44 1.00 2.00 0.00 1.03 0.00 0.97 0.00 0.00 0.00
Final Sat.: 0 2718 773 1710 3610 0 1593 0 1572 0 0 0

Capacity Analysis Module:
Vol/Sat: 0.00 0.49 0.49 0.00 0.21 0.00 0.02 0.00 0.32 0.00 0.00 0.00
Crit Moves: ****
Green/Cycle: 0.00 0.60 0.60 0.00 0.60 0.00 0.40 0.00 0.40 0.00 0.00 0.00
Volume/Cap: 0.00 0.82 0.82 0.80 0.35 0.00 0.05 0.00 0.82 0.00 0.00 0.00
Delay/Veh: 0.0 18.3 18.3 344.9 10.1 0.0 18.6 0.0 34.8 0.0 0.0 0.0
User DelAdj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
AdjDel/Veh: 0.0 18.3 18.3 344.9 10.1 0.0 18.6 0.0 34.8 0.0 0.0 0.0
LOS by Move: A B B F B A B A C A A A
HCM2kAvgQ: 0 24 24 1 6 0 1 0 17 0 0 0

Note: Queue reported is the number of cars per lane.

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Meyer, Mohaddes Associates

Level Of Service Computation Report

2000 HCM Operations Method (Future Volume Alternative)

Intersection #19 Milliken Avenue/Riverside Drive

Cycle (sec): 100 Critical Vol./Cap.(X): 0.987
Loss Time (sec): 0 (Y+R=4.0 sec) Average Delay (sec/veh): 50.8
Optimal Cycle: 180 Level Of Service: D

Approach: North Bound South Bound East Bound West Bound
Movement: L - T - R L - T - R L - T - R L - T - R

Control: Protected Protected Protected Protected
Rights: Include Include Include Include
Min. Green: 0 0 0 0 0 0 0 0 0 0 0 0
Lanes: 2 0 3 0 1 2 0 3 0 1 1 0 1 1 0 1 0 1 1 0

Volume Module:
Base Vol: 42 614 40 710 95 402 722 672 34 3 255 294
Growth Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
Initial Bse: 42 614 40 710 95 402 722 672 34 3 255 294
Added Vol: 0 0 0 0 0 0 0 0 0 0 0 0
PasserByVol: 0 0 0 0 0 0 0 0 0 0 0 0
Initial Fut: 42 614 40 710 95 402 722 672 34 3 255 294
User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
PHF Adj: 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95
PHF Volume: 44 646 42 747 100 423 760 707 36 3 268 309
Reduct Vol: 0 0 0 0 0 0 0 0 0 0 0 0
Reduced Vol: 44 646 42 747 100 423 760 707 36 3 268 309
PCE Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
MLF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
Final Vol.: 44 646 42 747 100 423 760 707 36 3 268 309

Saturation Flow Module:
Sat/Lane: 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900
Adjustment: 0.85 0.91 0.85 0.85 0.91 0.85 0.90 0.94 0.94 0.90 0.87 0.87
Lanes: 2.00 3.00 1.00 2.00 3.00 1.00 1.00 1.90 0.10 1.00 1.00 1.00
Final Sat.: 3230 5187 1615 3230 5187 1615 1710 3412 173 1710 1661 1661

Capacity Analysis Module:
Vol/Sat: 0.01 0.12 0.03 0.23 0.02 0.26 0.44 0.21 0.21 0.00 0.16 0.19
Crit Moves: ****
Green/Cycle: 0.02 0.13 0.13 0.23 0.34 0.34 0.45 0.63 0.63 0.01 0.19 0.19
Volume/Cap: 0.76 0.99 0.21 0.99 0.06 0.76 0.99 0.33 0.33 0.33 0.86 0.99
Delay/Veh: 93.6 75.3 39.7 67.4 22.0 35.5 56.2 8.6 8.6 68.3 49.7 74.1
User DelAdj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
AdjDel/Veh: 93.6 75.3 39.7 67.4 22.0 35.5 56.2 8.6 8.6 68.3 49.7 74.1
LOS by Move: F E D E C D E A A E D E
HCM2kAvgQ: 2 12 1 18 1 13 31 6 6 0 11 15

Note: Queue reported is the number of cars per lane.

Ontario New Model - Rich Haven External Intersections
2015 AM Peak w/o Project (Fut Base)
Meyer, Mohaddes Associates

Level Of Service Computation Report

2000 HCM Operations Method (Future Volume Alternative)

Intersection #20 Milliken Ave / Chino Ave

Cycle (sec): 100 Critical Vol./Cap.(X): 0.279
Loss Time (sec): 0 (Y+R=4.0 sec) Average Delay (sec/veh): 10.5
Optimal Cycle: 27 Level Of Service: B

Approach: North Bound South Bound East Bound West Bound
Movement: L - T - R L - T - R L - T - R L - T - R

Control: Protected Permitted Split Phase Split Phase
Rights: Include Include Include Include
Min. Green: 0 0 0 0 0 0 0 0 0 0 0 0
Lanes: 1 0 2 0 0 0 0 3 1 0 1 0 0 0 0 0

Volume Module:

Base Vol: 8 837 0 0 205 0 0 0 0 53 0 0 0 0
Growth Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
Initial Bse: 8 837 0 0 205 0 0 0 0 53 0 0 0 0
Added Vol: 0 0 0 0 0 0 0 0 0 0 0 0 0 0
PasserByVol: 0 0 0 0 0 0 0 0 0 0 0 0 0 0
Initial Fut: 8 837 0 0 205 0 0 0 0 53 0 0 0 0
User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
PHF Adj: 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95
PHF Volume: 8 881 0 0 216 0 0 0 0 56 0 0 0 0
Reduct Vol: 0 0 0 0 0 0 0 0 0 0 0 0 0 0
Reduced Vol: 8 881 0 0 216 0 0 0 0 56 0 0 0 0
PCE Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
MLF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
Final Vol.: 8 881 0 0 216 0 0 0 0 56 0 0 0 0

Saturation Flow Module:

Sat/Lane: 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900
Adjustment: 0.90 0.95 1.00 0.95 0.91 0.91 0.95 1.00 0.85 0.95 1.00 1.00
Lanes: 1.00 2.00 0.00 0.00 4.00 0.00 1.00 0.00 1.00 0.00 0.00 0.00
Final Sat.: 1710 3610 0 0 6916 0 1800 0 1615 0 0 0 0

Capacity Analysis Module:

Vol/Sat: 0.00 0.24 0.00 0.00 0.03 0.00 0.00 0.00 0.03 0.00 0.00 0.00
Crit Moves: ****
Green/Cycle: 0.79 0.89 0.00 0.00 0.10 0.00 0.00 0.00 0.11 0.00 0.00 0.00
Volume/Cap: 0.01 0.27 0.00 0.00 0.31 0.00 0.00 0.00 0.31 0.00 0.00 0.00
Delay/Veh: 2.3 0.9 0.0 0.0 42.0 0.0 0.0 0.0 41.9 0.0 0.0 0.0
User DelAdj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
AdjDel/Veh: 2.3 0.9 0.0 0.0 42.0 0.0 0.0 0.0 41.9 0.0 0.0 0.0
LOS by Move: A A A A D A A A D A A A
HCM2kAvgQ: 0 2 0 0 2 0 0 0 2 0 0 0 0

Note: Queue reported is the number of cars per lane.

Ontario New Model - Rich Haven External Intersections
2015 AM Peak w/o Project (Fut Base)
Meyer, Mohaddes Associates

Level Of Service Computation Report

2000 HCM Operations Method (Future Volume Alternative)

Intersection #21 Milliken Avenue/Edison Avenue

Cycle (sec): 100 Critical Vol./Cap.(X): 0.731
Loss Time (sec): 0 (Y+R=4.0 sec) Average Delay (sec/veh): 28.4
Optimal Cycle: 85 Level Of Service: C

Approach: North Bound South Bound East Bound West Bound
Movement: L - T - R L - T - R L - T - R L - T - R

Control: Protected Protected Protected Protected
Rights: Include Include Include Include
Min. Green: 0 0 0 0 0 0 0 0 0 0 0 0
Lanes: 1 0 1 1 0 1 0 1 1 0 1 0 3 1 0 1 0 3 1 0

Volume Module:

Base Vol: 40 640 520 87 75 8 13 1230 38 196 1556 176
Growth Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
Initial Bse: 40 640 520 87 75 8 13 1230 38 196 1556 176
Added Vol: 0 0 0 0 0 0 0 0 0 0 0 0 0 0
PasserByVol: 0 0 0 0 0 0 0 0 0 0 0 0 0 0
Initial Fut: 40 640 520 87 75 8 13 1230 38 196 1556 176
User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
PHF Adj: 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95
PHF Volume: 42 674 547 92 79 8 14 1295 40 206 1638 185
Reduct Vol: 0 0 0 0 0 0 0 0 0 0 0 0 0 0
Reduced Vol: 42 674 547 92 79 8 14 1295 40 206 1638 185
PCE Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
MLF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
Final Vol.: 42 674 547 92 79 8 14 1295 40 206 1638 185

Saturation Flow Module:

Sat/Lane: 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900
Adjustment: 0.90 0.89 0.89 0.90 0.94 0.94 0.90 0.91 0.91 0.90 0.90 0.90
Lanes: 1.00 1.10 0.90 1.00 1.81 0.19 1.00 3.88 0.12 1.00 3.59 0.41
Final Sat.: 1710 1858 1510 1710 3216 343 1710 6682 206 1710 6120 692

Capacity Analysis Module:

Vol/Sat: 0.02 0.36 0.36 0.05 0.02 0.02 0.01 0.19 0.19 0.12 0.27 0.27
Crit Moves: ****
Green/Cycle: 0.29 0.50 0.50 0.07 0.28 0.28 0.01 0.27 0.27 0.17 0.42 0.42
Volume/Cap: 0.09 0.73 0.73 0.73 0.09 0.09 0.64 0.73 0.73 0.73 0.64 0.64
Delay/Veh: 26.3 21.6 21.6 64.9 26.3 26.3 99.9 35.0 35.0 49.0 23.6 23.6
User DelAdj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
AdjDel/Veh: 26.3 21.6 21.6 64.9 26.3 26.3 99.9 35.0 35.0 49.0 23.6 23.6
LOS by Move: C C C E C C F D D C C
HCM2kAvgQ: 1 17 17 5 1 1 12 12 8 8 13 13

Note: Queue reported is the number of cars per lane.

Ontario New Model - Rich Haven External Intersections
 2015 AM Peak w/o Project (Fut Base)
 Meyer, Mohaddes Associates

Level Of Service Computation Report
 2000 HCM Operations Method (Future Volume Alternative)

 Intersection #550 Haven Avenue/Creekside Drive

 Cycle (sec): 100 Critical Vol./Cap.(X): 0.000
 Loss Time (sec): 0 (Y+R=4.0 sec) Average Delay (sec/veh): 0.0
 Optimal Cycle: 0 Level Of Service:

 Approach: North Bound South Bound East Bound West Bound
 Movement: L - T - R L - T - R L - T - R L - T - R
 -----|-----|-----|-----|
 Control: Protected Protected Prot+Permit Prot+Permit
 Rights: Include Include Include Include
 Min. Green: 0 0 0 0 0 0 0 0 0 0 0 0
 Lanes: 1 0 1 1 0 1 0 1 1 0 1 1 0 1 0 1
 -----|-----|-----|-----|
 Volume Module:
 Base Vol: 0 0 0 0 0 0 0 0 0 0 0 0
 Growth Adj: 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00
 Initial Bse: 0 0 0 0 0 0 0 0 0 0 0 0
 Added Vol: 0 0 0 0 0 0 0 0 0 0 0 0
 PasserByVol: 0 0 0 0 0 0 0 0 0 0 0 0
 Initial Fut: 0 0 0 0 0 0 0 0 0 0 0 0
 User Adj: 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00
 PHF Adj: 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00
 PHF Volume: 0 0 0 0 0 0 0 0 0 0 0 0
 Reduct Vol: 0 0 0 0 0 0 0 0 0 0 0 0
 Reduced Vol: 0 0 0 0 0 0 0 0 0 0 0 0
 PCE Adj: 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00
 MLF Adj: 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00
 Final Vol.: 0 0 0 0 0 0 0 0 0 0 0 0
 -----|-----|-----|-----|
 Saturation Flow Module:
 Sat/Lane: 0 0 0 0 0 0 0 0 0 0 0 0
 Adjustment: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
 Lanes: 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00
 Final Sat.: 0 0 0 0 0 0 0 0 0 0 0 0
 -----|-----|-----|-----|
 Capacity Analysis Module:
 Vol/Sat: 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00
 Crit Moves:
 Green/Cycle: 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00
 Volume/Cap: 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00
 Delay/Veh: 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0
 User DelAdj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
 AdjDel/Veh: 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0
 LOS by Move:
 HCM2kAvgQ: 0 0 0 0 0 0 0 0 0 0 0 0

 Note: Queue reported is the number of cars per lane.

Ontario New Model - Rich Haven External Intersections
 2015 AM Peak w/o Project (Fut Base)
 Meyer, Mohaddes Associates

Lane Geometry Report

Number of approach lanes: (L) (LT) (T) (RT) (R) (LTR)

Node Intersection	NB	SB	EB	WB
1 Archibald Avenue/Riverside Drive	102100	102100	101100	101100
2 Archibald Avenue/Chino Avenue	102100	102100	100100	101010
3 Archibald Avenue/Schaefer Avenue	102100	102100	101100	101100
4 Archibald Avenue/Edison Avenue	202100	202100	203100	203100
5 Turner Avenue/Riverside Drive	101100	101100	101100	101100
6 Turner Avenue/Chino Avenue	101100	101100	101100	101100
7 Turner Avenue at Schaefer Avenue	000000	100001	102000	001100
8 Edison Avenue at Schaefer Avenue	000000	100001	104000	003100
9 Haven Avenue/SR-60 WB Ramps	203000	003010	000000	110010
10 Haven Avenue/SR-60 EB Ramps	002100	203000	110010	000000
11 Haven Avenue/Riverside Drive	101100	101100	101100	101100
12 Haven Avenue at Chino Avenue	101100	101100	101100	101100
13 Haven Avenue at Edison Avenue	101100	101100	103100	103100
14 Mill Creek Avenue/Riverside Drive	101010	100100	101100	101100
15 Mill Creek Avenue at Chino Avenue	101100	100100	101100	101100
16 Mill Creek Avenue at Edison Avenue	100100	100100	103100	103100
17 Milliken Avenue/SR-60 WB Ramps	102000	002010	000000	100010
18 Milliken Avenue/SR-60 EB Ramps	001100	102000	100001	000000
19 Milliken Avenue/Riverside Drive	203010	203010	101100	101100
20 Milliken Ave / Chino Ave	102000	003100	100010	000000
21 Milliken Avenue/Edison Avenue	101100	101100	103100	103100
550 Haven Avenue/Creekside Drive	101100	101100	101010	101010

Ontario New Model - Rich Haven External Intersections
 2015 PM Peak w/o Project (Fut Base)
 Meyer, Mohaddes Associates

Scenario Report
 Scenario: Fut Base PM (Without Project)

Command: Fut Base PM
 Volume: Fut Base PM
 Geometry: Future Base
 Impact Fee: Default Impact Fee
 Trip Generation: None
 Trip Distribution: None
 Paths: Default Paths
 Routes: Default Routes
 Configuration: Fut Base PM

Ontario New Model - Rich Haven External Intersections
 2015 PM Peak w/o Project (Fut Base)
 Meyer, Mohaddes Associates

Intersection Volume Report
 Base Volume Alternative

Node Intersection	Northbound			Southbound			Eastbound			Westbound		
	L	T	R	L	T	R	L	T	R	L	T	R
1 Archibald Ave	195	1061	73	100	1706	171	109	297	247	61	379	118
2 Archibald Ave	68	1284	46	173	1828	1	1	20	88	56	25	113
3 Archibald Ave	17	1174	2	296	1593	69	47	40	17	1	33	265
4 Archibald Ave	454	642	321	143	1046	257	285	1394	1931	296	1213	98
5 Turner Avenue	0	4	31	69	5	50	67	446	0	103	573	84
6 Turner Avenue	15	4	19	6	34	27	26	71	17	11	98	6
7 Turner Avenue	0	0	0	16	0	3	6	313	0	0	286	27
8 Edison Avenue	0	0	0	325	0	4	16	1625	0	0	1494	297
9 Haven Avenue/	231	667	0	0	1603	124	0	0	0	206	0	429
10 Haven Avenue/	0	840	209	462	1348	0	26	0	616	0	0	0
11 Haven Avenue/	40	645	188	324	1114	109	79	398	64	189	616	126
12 Haven Avenue	36	769	65	15	1279	12	30	4	34	101	48	13
13 Haven Avenue	160	498	178	248	860	175	248	1504	198	256	1456	158
14 Mill Creek Av	21	18	1	118	14	181	270	805	10	0	1137	112
15 Mill Creek Av	14	4	0	15	10	96	69	0	13	0	49	19
16 Mill Creek Av	86	10	0	0	13	11	5	1924	186	0	2001	0
17 Milliken Aven	694	635	0	0	1735	109	0	0	0	287	0	160
18 Milliken Aven	0	1323	367	73	1949	0	6	0	718	0	0	0
19 Milliken Aven	42	306	4	780	1365	522	692	320	62	88	663	691
20 Milliken Ave	59	478	0	0	1506	9	1	0	15	0	0	0
21 Milliken Aven	77	273	292	276	1189	28	31	1845	49	554	1903	151
550 Haven Avenue/	0	0	0	0	0	0	0	0	0	0	0	0

Ontario New Model - Rich Haven External Intersections
 2015 PM Peak w/o Project (Fut Base)
 Meyer, Mohaddes Associates

Impact Analysis Report
 Level Of Service

Intersection	Base LOS	V/ C	Future LOS	V/ C	Change in	
# 1 Archibald Avenue/Riverside Drive	C	25.3	C	25.3	+ 0.000	D/V
# 2 Archibald Avenue/Chino Avenue	B	12.1	B	12.1	+ 0.000	D/V
# 3 Archibald Avenue/Schaefer Avenue	B	18.0	B	18.0	+ 0.000	D/V
# 4 Archibald Avenue/Edison Avenue	F	214.5	F	214.5	+ 0.000	D/V
# 5 Turner Avenue/Riverside Drive	B	14.8	B	14.8	+ 0.000	D/V
# 6 Turner Avenue/Chino Avenue	A	8.0	A	8.0	+ 0.000	V/C
# 7 Turner Avenue at Schaefer Avenue	A	2.1	A	2.1	+ 0.000	D/V
# 8 Edison Avenue at Schaefer Avenue	A	7.1	A	7.1	+ 0.000	D/V
# 9 Haven Avenue/SR-60 WB Ramps	B	10.4	B	10.4	+ 0.000	D/V
# 10 Haven Avenue/SR-60 EB Ramps	C	28.0	C	28.0	+ 0.000	D/V
# 11 Haven Avenue/Riverside Drive	C	31.6	C	31.6	+ 0.000	D/V
# 12 Haven Avenue at Chino Avenue	A	5.8	A	5.8	+ 0.000	D/V
# 13 Haven Avenue at Edison Avenue	D	41.5	D	41.5	+ 0.000	D/V
# 14 Mill Creek Avenue/Riverside Drive	B	17.3	B	17.3	+ 0.000	D/V
# 15 Mill Creek Avenue at Chino Avenue	B	13.3	B	13.3	+ 0.000	D/V
# 16 Mill Creek Avenue at Edison Avenue	A	3.4	A	3.4	+ 0.000	D/V
# 17 Milliken Avenue/SR-60 WB Ramps	E	73.3	E	73.3	+ 0.000	D/V
# 18 Milliken Avenue/SR-60 EB Ramps	F	161.4	F	161.4	+ 0.000	D/V
# 19 Milliken Avenue/Riverside Drive	F	101.7	F	101.7	+ 0.000	D/V
# 20 Milliken Avenue / Chino Avenue	A	2.9	A	2.9	+ 0.000	D/V
# 21 Milliken Avenue/Edison Avenue	D	51.1	D	51.1	+ 0.000	D/V
#550 Haven Avenue/Creekside Drive		0.0		0.0	+ 0.000	D/V

Ontario New Model - Rich Haven External Intersections
 2015 PM Peak w/o Project (Fut Base)
 Meyer, Mohaddes Associates

Level Of Service Computation Report
 2000 HCM Operations Method (Future Volume Alternative)

 Intersection #1 Archibald Avenue/Riverside Drive

Cycle (sec):	100	Critical Vol./Cap.(X):	0.724
Loss Time (sec):	0 (Y+R=4.0 sec)	Average Delay (sec/veh):	25.3
Optimal Cycle:	83	Level Of Service:	C

Approach:	North Bound	South Bound	East Bound	West Bound
Movement:	L - T - R	L - T - R	L - T - R	L - T - R

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Control:	Protected	Protected	Protected	Protected
Rights:	Include	Include	Include	Include
Min. Green:	0 0 0	0 0 0	0 0 0	0 0 0
Lanes:	1 0 2 1 0	1 0 2 1 0	1 0 1 1 0	1 0 1 1 0

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Volume Module:

Base Vol:	195 1061 73	100 1706 171	109 297 247	61 379 118
Growth Adj:	1.00 1.00 1.00	1.00 1.00 1.00	1.00 1.00 1.00	1.00 1.00 1.00
Initial Bse:	195 1061 73	100 1706 171	109 297 247	61 379 118
Added Vol:	0 0 0	0 0 0	0 0 0	0 0 0
PasserByVol:	0 0 0	0 0 0	0 0 0	0 0 0
Initial Fut:	195 1061 73	100 1706 171	109 297 247	61 379 118
User Adj:	1.00 1.00 1.00	1.00 1.00 1.00	1.00 1.00 1.00	1.00 1.00 1.00
PHF Adj:	0.95 0.95 0.95	0.95 0.95 0.95	0.95 0.95 0.95	0.95 0.95 0.95
PHF Volume:	205 1117 77	105 1796 180	115 313 260	64 399 124
Reduced Vol:	0 0 0	0 0 0	0 0 0	0 0 0
Reduced Vol:	205 1117 77	105 1796 180	115 313 260	64 399 124
PCE Adj:	1.00 1.00 1.00	1.00 1.00 1.00	1.00 1.00 1.00	1.00 1.00 1.00
MLF Adj:	1.00 1.00 1.00	1.00 1.00 1.00	1.00 1.00 1.00	1.00 1.00 1.00
Final Vol.:	205 1117 77	105 1796 180	115 313 260	64 399 124

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Saturation Flow Module:

Sat/Lane:	1900 1900 1900	1900 1900 1900	1900 1900 1900	1900 1900 1900
Adjustment:	0.90 0.90 0.90	0.90 0.90 0.90	0.90 0.89 0.89	0.90 0.92 0.92
Lanes:	1.00 2.81 0.19	1.00 2.73 0.27	1.00 1.09 0.91	1.00 1.53 0.47
Final Sat.:	1710 4805 331	1710 4648 466	1710 1837 1528	1710 2654 826

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Capacity Analysis Module:

Vol/Sat:	0.12 0.23 0.23	0.06 0.39 0.39	0.07 0.17 0.17	0.04 0.15 0.15
Crit Moves:	****	****	****	****
Green/Cycle:	0.17 0.55 0.55	0.15 0.53 0.53	0.09 0.25 0.25	0.05 0.21 0.21
Volume/Cap:	0.72 0.42 0.42	0.42 0.72 0.72	0.72 0.69 0.69	0.69 0.72 0.72
Delay/Veh:	48.4 13.1 13.1	40.0 18.7 18.7	59.3 36.8 36.8	66.5 40.6 40.6
User DelAdj:	1.00 1.00 1.00	1.00 1.00 1.00	1.00 1.00 1.00	1.00 1.00 1.00
AdjDel/Veh:	48.4 13.1 13.1	40.0 18.7 18.7	59.3 36.8 36.8	66.5 40.6 40.6
LOS by Move:	D B B	D B B	E D D	E D D
HCM2kAvgQ:	8 8 8	4 18 18	5 10 10	3 9 9

Note: Queue reported is the number of cars per lane.

Ontario New Model - Rich Haven External Intersections
2015 PM Peak w/o Project (Fut Base)
Meyer, Mohaddes Associates

Level Of Service Computation Report

2000 HCM Operations Method (Future Volume Alternative)

Intersection #2 Archibald Avenue/Chino Avenue

Cycle (sec): 90 Critical Vol./Cap.(X): 0.516
Loss Time (sec): 0 (Y+R=4.0 sec) Average Delay (sec/veh): 12.1
Optimal Cycle: 47 Level Of Service: B

Approach: North Bound South Bound East Bound West Bound
Movement: L - T - R L - T - R L - T - R L - T - R

Control: Protected Protected Protected Protected
Rights: Include Include Include Include
Min. Green: 0 0 0 0 0 0 0 0 0 0 0 0
Lanes: 1 0 2 1 0 1 0 2 1 0 1 0 1 0 1 1

Volume Module:
Base Vol: 68 1284 46 173 1828 1 1 20 88 56 25 113
Growth Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
Initial Bse: 68 1284 46 173 1828 1 1 20 88 56 25 113
Added Vol: 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
PasserByVol: 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
Initial Fut: 68 1284 46 173 1828 1 1 20 88 56 25 113
User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
PHF Adj: 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95
PHF Volume: 72 1352 48 182 1924 1 1 21 93 59 26 119
Reduced Vol: 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
Reduced Vol: 72 1352 48 182 1924 1 1 21 93 59 26 119
PCE Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
MLF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
Final Vol.: 72 1352 48 182 1924 1 1 21 93 59 26 119

Saturation Flow Module:
Sat/Lane: 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900
Adjustment: 0.90 0.91 0.91 0.90 0.91 0.91 0.90 0.88 0.88 0.90 1.00 0.85
Lanes: 1.00 2.90 0.10 1.00 2.99 0.01 1.00 0.19 0.81 1.00 1.00 1.00
Final Sat.: 1710 4983 179 1710 5184 3 1710 309 1359 1710 1900 1615

Capacity Analysis Module:
Vol/Sat: 0.04 0.27 0.27 0.11 0.37 0.37 0.00 0.07 0.07 0.03 0.01 0.07
Crit Moves: ****
Green/Cycle: 0.08 0.58 0.58 0.23 0.72 0.72 0.00 0.13 0.13 0.07 0.20 0.20
Volume/Cap: 0.52 0.47 0.47 0.47 0.52 0.52 0.37 0.52 0.52 0.52 0.07 0.37
Delay/Veh: 43.0 11.3 11.3 31.1 5.7 5.7 112.3 38.5 38.5 44.6 29.5 32.0
User DelAdj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
AdjDel/Veh: 43.0 11.3 11.3 31.1 5.7 5.7 112.3 38.5 38.5 44.6 29.5 32.0
LOS by Move: D B B C A A F D D C C C
HCM2kAvgQ: 3 8 8 5 9 9 0 4 4 2 1 3

Note: Queue reported is the number of cars per lane.

Ontario New Model - Rich Haven External Intersections
2015 PM Peak w/o Project (Fut Base)
Meyer, Mohaddes Associates

Level Of Service Computation Report

2000 HCM Operations Method (Future Volume Alternative)

Intersection #3 Archibald Avenue/Schaefer Avenue

Cycle (sec): 100 Critical Vol./Cap.(X): 0.599
Loss Time (sec): 0 (Y+R=4.0 sec) Average Delay (sec/veh): 18.0
Optimal Cycle: 46 Level Of Service: B

Approach: North Bound South Bound East Bound West Bound
Movement: L - T - R L - T - R L - T - R L - T - R

Control: Protected Protected Permitted Permitted
Rights: Include Include Include Include
Min. Green: 0 0 0 0 0 0 0 0 0 0 0 0
Lanes: 1 0 2 1 0 1 0 2 1 0 1 0 1 1 0

Volume Module:
Base Vol: 17 1174 2 296 1593 69 47 40 17 1 33 265
Growth Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
Initial Bse: 17 1174 2 296 1593 69 47 40 17 1 33 265
Added Vol: 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
PasserByVol: 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
Initial Fut: 17 1174 2 296 1593 69 47 40 17 1 33 265
User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
PHF Adj: 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95
PHF Volume: 18 1236 2 312 1677 73 49 42 18 1 35 279
Reduced Vol: 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
Reduced Vol: 18 1236 2 312 1677 73 49 42 18 1 35 279
PCE Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
MLF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
Final Vol.: 18 1236 2 312 1677 73 49 42 18 1 35 279

Saturation Flow Module:
Sat/Lane: 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900
Adjustment: 0.90 0.91 0.91 0.90 0.90 0.90 0.40 0.91 0.91 0.65 0.82 0.82
Lanes: 1.00 2.99 0.01 1.00 2.88 0.12 1.00 1.40 0.60 1.00 1.00 1.00
Final Sat.: 1710 5178 9 1710 4942 214 763 2419 1028 1237 1565 1565

Capacity Analysis Module:
Vol/Sat: 0.01 0.24 0.24 0.18 0.34 0.34 0.06 0.02 0.02 0.00 0.02 0.18
Crit Moves: ****
Green/Cycle: 0.02 0.40 0.40 0.30 0.68 0.68 0.30 0.30 0.30 0.30 0.30 0.30
Volume/Cap: 0.50 0.60 0.60 0.60 0.50 0.50 0.22 0.06 0.06 0.00 0.07 0.60
Delay/Veh: 58.9 24.3 24.3 31.5 7.8 7.8 26.9 25.1 25.1 24.7 25.2 32.0
User DelAdj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
AdjDel/Veh: 58.9 24.3 24.3 31.5 7.8 7.8 26.9 25.1 25.1 24.7 25.2 32.0
LOS by Move: E C C C A A C C C C C C
HCM2kAvgQ: 1 11 11 9 10 10 1 1 1 0 1 8

Note: Queue reported is the number of cars per lane.

Ontario New Model - Rich Haven External Intersections
2015 PM Peak w/o Project (Fut Base)
Meyer, Mohaddes Associates

Level Of Service Computation Report

2000 HCM Operations Method (Future Volume Alternative)

Intersection #4 Archibald Avenue/Edison Avenue

Cycle (sec): 100 Critical Vol./Cap.(X): 1.805
Loss Time (sec): 0 (Y+R=4.0 sec) Average Delay (sec/veh): 214.5
Optimal Cycle: 180 Level Of Service: F

Approach: North Bound South Bound East Bound West Bound
Movement: L - T - R L - T - R L - T - R L - T - R

Control: Protected Protected Protected Protected
Rights: Include Include Include Include
Min. Green: 0 0 0 0 0 0 0 0 0 0 0 0
Lanes: 2 0 2 1 0 2 0 2 1 0 2 0 3 1 0 2 0 3 1 0

Volume Module:

Base Vol: 454 642 321 143 1046 257 285 1394 1931 296 1213 98
Growth Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
Initial Bse: 454 642 321 143 1046 257 285 1394 1931 296 1213 98
Added Vol: 0 0 0 0 0 0 0 0 0 0 0 0
PasserByVol: 0 0 0 0 0 0 0 0 0 0 0 0
Initial Fut: 454 642 321 143 1046 257 285 1394 1931 296 1213 98
User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
PHF Adj: 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95
PHF Volume: 478 676 338 151 1101 271 300 1467 2033 312 1277 103
Reduced Vol: 0 0 0 0 0 0 0 0 0 0 0 0
Reduced Vol: 478 676 338 151 1101 271 300 1467 2033 312 1277 103
PCE Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
MLF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
Final Vol.: 478 676 338 151 1101 271 300 1467 2033 312 1277 103

Saturation Flow Module:

Sat/Lane: 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900
Adjustment: 0.85 0.86 0.86 0.85 0.88 0.88 0.85 0.83 0.83 0.85 0.90 0.90
Lanes: 2.00 2.00 1.00 2.00 2.41 0.59 2.00 3.00 1.00 2.00 3.70 0.30
Final Sat.: 3230 3285 1643 3230 4039 992 3230 4736 1579 3230 6329 511

Capacity Analysis Module:

Vol/Sat: 0.15 0.21 0.21 0.05 0.27 0.27 0.09 0.31 1.29 0.10 0.20 0.20
Crit Moves: ****
Green/Cycle: 0.08 0.19 0.19 0.04 0.15 0.15 0.24 0.71 0.71 0.05 0.53 0.53
Volume/Cap: 1.80 1.08 1.08 1.08 1.80 1.80 0.38 0.43 1.80 1.80 0.38 0.38
Delay/Veh: 422.6 94.9 94.9 148.0 410 409.8 32.0 6.0 378.5 431.5 14.2 14.2
User DelAdj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
AdjDel/Veh: 422.6 94.9 94.9 148.0 410 409.8 32.0 6.0 378.5 431.5 14.2 14.2
LOS by Move: F F F F F C A F B B
HCM2kAvgQ: 24 19 19 6 44 44 5 7 189 16 7 7

Note: Queue reported is the number of cars per lane.

Ontario New Model - Rich Haven External Intersections
2015 PM Peak w/o Project (Fut Base)
Meyer, Mohaddes Associates

Level Of Service Computation Report

2000 HCM Operations Method (Future Volume Alternative)

Intersection #5 Turner Avenue/Riverside Drive

Cycle (sec): 100 Critical Vol./Cap.(X): 0.294
Loss Time (sec): 0 (Y+R=4.0 sec) Average Delay (sec/veh): 14.8
Optimal Cycle: 26 Level Of Service: B

Approach: North Bound South Bound East Bound West Bound
Movement: L - T - R L - T - R L - T - R L - T - R

Control: Permitted Permitted Protected Protected
Rights: Include Include Include Include
Min. Green: 0 0 0 0 0 0 0 0 0 0 0 0
Lanes: 1 0 1 1 0 1 0 1 1 0 1 0 1 1 0 1 0 1 1 0

Volume Module:

Base Vol: 0 4 31 69 5 50 67 446 0 103 573 84
Growth Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
Initial Bse: 0 4 31 69 5 50 67 446 0 103 573 84
Added Vol: 0 0 0 0 0 0 0 0 0 0 0 0
PasserByVol: 0 0 0 0 0 0 0 0 0 0 0 0
Initial Fut: 0 4 31 69 5 50 67 446 0 103 573 84
User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
PHF Adj: 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95
PHF Volume: 0 4 33 73 5 53 71 469 0 108 603 88
Reduced Vol: 0 0 0 0 0 0 0 0 0 0 0 0
Reduced Vol: 0 4 33 73 5 53 71 469 0 108 603 88
PCE Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
MLF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
Final Vol.: 0 4 33 73 5 53 71 469 0 108 603 88

Saturation Flow Module:

Sat/Lane: 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900
Adjustment: 0.95 0.82 0.82 0.67 0.82 0.82 0.90 0.95 0.95 0.90 0.93 0.93
Lanes: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 2.00 0.00 1.00 1.74 0.26
Final Sat.: 1800 1565 1565 1265 1560 1560 1710 3610 0 1710 3089 453

Capacity Analysis Module:

Vol/Sat: 0.00 0.00 0.02 0.06 0.00 0.03 0.04 0.13 0.00 0.06 0.20 0.20
Crit Moves: ****
Green/Cycle: 0.00 0.20 0.20 0.20 0.20 0.20 0.14 0.54 0.00 0.26 0.66 0.66
Volume/Cap: 0.00 0.01 0.11 0.29 0.02 0.17 0.29 0.24 0.00 0.24 0.29 0.29
Delay/Veh: 0.0 32.5 33.2 35.0 32.5 33.8 39.2 12.2 0.0 29.2 7.1 7.1
User DelAdj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
AdjDel/Veh: 0.0 32.5 33.2 35.0 32.5 33.8 39.2 12.2 0.0 29.2 7.1 7.1
LOS by Move: A C C D C C D B A C A A
HCM2kAvgQ: 0 0 1 2 0 1 2 4 0 3 5 5

Note: Queue reported is the number of cars per lane.

Ontario New Model - Rich Haven External Intersections
2015 PM Peak w/o Project (Fut Base)
Meyer, Mohaddes Associates

Level Of Service Computation Report

2000 HCM 4-Way Stop Method (Future Volume Alternative)

Intersection #6 Turner Avenue/Chino Avenue

Cycle (sec): 100 Critical Vol./Cap.(X): 0.079
Loss Time (sec): 0 (Y+R=4.0 sec) Average Delay (sec/veh): 8.0
Optimal Cycle: 0 Level Of Service: A

Approach: North Bound South Bound East Bound West Bound
Movement: L - T - R L - T - R L - T - R L - T - R

Control: Stop Sign Stop Sign Stop Sign Stop Sign
Rights: Include Include Include Include
Min. Green: 0 0 0 0 0 0 0 0 0 0 0 0
Lanes: 1 0 1 1 0 1 0 1 1 0 1 0 1 1 0

Volume Module:

Base Vol: 15 4 19 6 34 27 26 71 17 11 98 6
Growth Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
Initial Bse: 15 4 19 6 34 27 26 71 17 11 98 6
Added Vol: 0 0 0 0 0 0 0 0 0 0 0 0
PasserByVol: 0 0 0 0 0 0 0 0 0 0 0 0
Initial Fut: 15 4 19 6 34 27 26 71 17 11 98 6
User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
PHF Adj: 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95
PHF Volume: 16 4 20 6 36 28 27 75 18 12 103 6
Reduct Vol: 0 0 0 0 0 0 0 0 0 0 0 0
Reduced Vol: 16 4 20 6 36 28 27 75 18 12 103 6
PCE Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
MLF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
Final Vol.: 16 4 20 6 36 28 27 75 18 12 103 6

Saturation Flow Module:

Adjustment: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
Lanes: 1.00 1.00 1.00 1.00 1.11 0.89 1.00 1.61 0.39 1.00 1.88 0.12
Final Sat.: 594 646 740 601 741 655 629 1136 281 629 1311 81

Capacity Analysis Module:

Vol/Sat: 0.03 0.01 0.03 0.01 0.05 0.04 0.04 0.07 0.06 0.02 0.08 0.08
Crit Moves: **** **** **** ****
Delay/Veh: 8.6 8.0 7.4 8.5 8.1 7.5 8.5 8.0 7.8 8.3 8.1 8.1
Delay Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
AdjDel/Veh: 8.6 8.0 7.4 8.5 8.1 7.5 8.5 8.0 7.8 8.3 8.1 8.1
LOS by Move: A A A A A A A A A A A A
ApproachDel: 8.0 7.9 8.1 8.1
Delay Adj: 1.00 1.00 1.00 1.00
ApprAdjDel: 8.0 7.9 8.1 8.1
LOS by Appr: A A A A
AllWayAvgQ: 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.1 0.1 0.0 0.1 0.1

Note: Queue reported is the number of cars per lane.

Ontario New Model - Rich Haven External Intersections
2015 PM Peak w/o Project (Fut Base)
Meyer, Mohaddes Associates

Level Of Service Computation Report

2000 HCM Operations Method (Future Volume Alternative)

Intersection #7 Turner Avenue at Schaefer Avenue

Cycle (sec): 100 Critical Vol./Cap.(X): 0.103
Loss Time (sec): 0 (Y+R=4.0 sec) Average Delay (sec/veh): 2.1
Optimal Cycle: 21 Level Of Service: A

Approach: North Bound South Bound East Bound West Bound
Movement: L - T - R L - T - R L - T - R L - T - R

Control: Split Phase Split Phase Protected Permitted
Rights: Include Include Include Include
Min. Green: 0 0 0 0 0 0 0 0 0 0 0 0
Lanes: 0 0 0 0 0 1 0 1 0 0 1 0 2 0 0 0 0 1 1 0

Volume Module:

Base Vol: 0 0 0 16 0 3 6 313 0 0 286 27
Growth Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
Initial Bse: 0 0 0 16 0 3 6 313 0 0 286 27
Added Vol: 0 0 0 0 0 0 0 0 0 0 0 0
PasserByVol: 0 0 0 0 0 0 0 0 0 0 0 0
Initial Fut: 0 0 0 16 0 3 6 313 0 0 286 27
User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
PHF Adj: 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95
PHF Volume: 0 0 0 17 0 3 6 329 0 0 301 28
Reduct Vol: 0 0 0 0 0 0 0 0 0 0 0 0
Reduced Vol: 0 0 0 17 0 3 6 329 0 0 301 28
PCE Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
MLF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
Final Vol.: 0 0 0 17 0 3 6 329 0 0 301 28

Saturation Flow Module:

Sat/Lane: 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900
Adjustment: 0.95 1.00 1.00 0.89 1.00 0.94 0.90 0.95 1.00 0.95 0.94 0.94
Lanes: 0.00 0.00 0.00 1.74 0.00 0.26 1.00 2.00 0.00 0.00 1.83 0.17
Final Sat.: 0 0 0 2931 0 467 1710 3610 0 0 3256 307

Capacity Analysis Module:

Vol/Sat: 0.00 0.00 0.00 0.01 0.00 0.01 0.00 0.09 0.00 0.00 0.09 0.09
Crit Moves: **** ****
Green/Cycle: 0.00 0.00 0.00 0.07 0.00 0.07 0.04 0.93 0.00 0.00 0.90 0.90
Volume/Cap: 0.00 0.00 0.00 0.09 0.00 0.10 0.10 0.10 0.00 0.00 0.10 0.10
Delay/Veh: 0.0 0.0 0.0 44.1 0.0 44.2 47.4 0.3 0.0 0.0 0.6 0.6
User DelAdj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
AdjDel/Veh: 0.0 0.0 0.0 44.1 0.0 44.2 47.4 0.3 0.0 0.0 0.6 0.6
LOS by Move: A A A D A D D A A A A A
HCM2kAvgQ: 0 0 0 0 0 0 0 0 0 0 0 1 1

Note: Queue reported is the number of cars per lane.

Ontario New Model - Rich Haven External Intersections
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Meyer, Mohaddes Associates

Level Of Service Computation Report

2000 HCM Operations Method (Future Volume Alternative)

Intersection #8 Edison Avenue at Schaefer Avenue

Cycle (sec): 100 Critical Vol./Cap.(X): 0.382
Loss Time (sec): 0 (Y+R=4.0 sec) Average Delay (sec/veh): 7.1
Optimal Cycle: 30 Level Of Service: A

Approach: North Bound South Bound East Bound West Bound
Movement: L - T - R L - T - R L - T - R L - T - R

Control: Split Phase Split Phase Permitted Permitted
Rights: Include Include Include Include
Min. Green: 0 0 0 0 0 0 0 0 0 0 0 0
Lanes: 0 0 0 0 0 1 0 1 0 0 1 0 4 0 0 0 0 0 3 1 0

Volume Module:
Base Vol: 0 0 0 325 0 4 16 1625 0 0 1494 297
Growth Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
Initial Bse: 0 0 0 325 0 4 16 1625 0 0 1494 297
Added Vol: 0 0 0 0 0 0 0 0 0 0 0 0 0
PasserByVol: 0 0 0 0 0 0 0 0 0 0 0 0 0
Initial Fut: 0 0 0 325 0 4 16 1625 0 0 1494 297
User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
PHF Adj: 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95
PHF Volume: 0 0 0 342 0 4 17 1711 0 0 1573 313
Reduce Vol: 0 0 0 0 0 0 0 0 0 0 0 0 0
Reduced Vol: 0 0 0 342 0 4 17 1711 0 0 1573 313
PCE Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
MLF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
Final Vol.: 0 0 0 342 0 4 17 1711 0 0 1573 313

Saturation Flow Module:
Sat/Lane: 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900
Adjustment: 0.95 1.00 1.00 0.90 1.00 0.95 0.09 0.91 1.00 0.95 0.89 0.89
Lanes: 0.00 0.00 0.00 1.98 0.00 0.02 1.00 4.00 0.00 0.00 3.34 0.66
Final Sat.: 0 0 0 3385 0 41 164 6916 0 0 5625 1118

Capacity Analysis Module:
Vol/Sat: 0.00 0.00 0.00 0.10 0.00 0.10 0.10 0.25 0.00 0.00 0.28 0.28
Crit Moves: ****
Green/Cycle: 0.00 0.00 0.00 0.27 0.00 0.27 0.73 0.73 0.00 0.00 0.73 0.73
Volume/Cap: 0.00 0.00 0.00 0.38 0.00 0.38 0.14 0.34 0.00 0.00 0.38 0.38
Delay/Veh: 0.0 0.0 0.0 30.1 0.0 30.1 4.5 4.8 0.0 0.0 5.0 5.0
User DelAdj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
AdjDel/Veh: 0.0 0.0 0.0 30.1 0.0 30.1 4.5 4.8 0.0 0.0 5.0 5.0
LOS by Move: A A A C A C A A A A A A
HCM2kAvgQ: 0 0 0 5 0 5 0 5 0 0 6 6

Note: Queue reported is the number of cars per lane.

Ontario New Model - Rich Haven External Intersections
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Meyer, Mohaddes Associates

Level Of Service Computation Report

2000 HCM Operations Method (Future Volume Alternative)

Intersection #9 Haven Avenue/SR-60 WB Ramps

Cycle (sec): 100 Critical Vol./Cap.(X): 0.464
Loss Time (sec): 0 (Y+R=4.0 sec) Average Delay (sec/veh): 10.4
Optimal Cycle: 35 Level Of Service: B

Approach: North Bound South Bound East Bound West Bound
Movement: L - T - R L - T - R L - T - R L - T - R

Control: Protected Permitted Split Phase Split Phase
Rights: Include Include Include Ignore
Min. Green: 0 0 0 0 0 0 0 0 0 0 0 0
Lanes: 2 0 3 0 0 0 0 3 0 1 0 0 0 0 0 1 1 1 0 0 1

Volume Module:
Base Vol: 231 667 0 0 1603 124 0 0 0 206 0 429
Growth Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
Initial Bse: 231 667 0 0 1603 124 0 0 0 206 0 429
Added Vol: 0 0 0 0 0 0 0 0 0 0 0 0 0
PasserByVol: 0 0 0 0 0 0 0 0 0 0 0 0 0
Initial Fut: 231 667 0 0 1603 124 0 0 0 206 0 429
User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
PHF Adj: 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95
PHF Volume: 243 702 0 0 1687 131 0 0 0 217 0 0
Reduce Vol: 0 0 0 0 0 0 0 0 0 0 0 0 0
Reduced Vol: 243 702 0 0 1687 131 0 0 0 217 0 0
PCE Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
MLF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
Final Vol.: 243 702 0 0 1687 131 0 0 0 217 0 0

Saturation Flow Module:
Sat/Lane: 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900
Adjustment: 0.85 0.91 1.00 0.95 0.91 0.85 0.95 1.00 1.00 0.90 1.00 1.00
Lanes: 2.00 3.00 0.00 0.00 3.00 1.00 0.00 0.00 0.00 2.00 0.00 1.00
Final Sat.: 3230 5187 0 0 5187 1615 0 0 0 3427 0 1900

Capacity Analysis Module:
Vol/Sat: 0.08 0.14 0.00 0.00 0.33 0.08 0.00 0.00 0.00 0.06 0.00 0.00
Crit Moves: ****
Green/Cycle: 0.16 0.86 0.00 0.00 0.70 0.70 0.00 0.00 0.00 0.14 0.00 0.00
Volume/Cap: 0.46 0.16 0.00 0.00 0.46 0.12 0.00 0.00 0.00 0.46 0.00 0.00
Delay/Veh: 38.6 1.1 0.0 0.0 6.7 4.9 0.0 0.0 0.0 40.5 0.0 0.0
User DelAdj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
AdjDel/Veh: 38.6 1.1 0.0 0.0 6.7 4.9 0.0 0.0 0.0 40.5 0.0 0.0
LOS by Move: D A A A A A A A A D A A
HCM2kAvgQ: 4 1 0 0 8 1 0 0 0 4 0 0

Note: Queue reported is the number of cars per lane.

Ontario New Model - Rich Haven External Intersections
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Meyer, Mohaddes Associates

Level Of Service Computation Report

2000 HCM Operations Method (Future Volume Alternative)

Intersection #10 Haven Avenue/SR-60 EB Ramps

Cycle (sec): 100 Critical Vol./Cap.(X): 0.772
Loss Time (sec): 0 (Y+R=4.0 sec) Average Delay (sec/veh): 28.0
Optimal Cycle: 81 Level Of Service: C

Approach: North Bound South Bound East Bound West Bound
Movement: L - T - R L - T - R L - T - R L - T - R

Control: Permitted Protected Split Phase Split Phase
Rights: Include Include Include Include
Min. Green: 0 0 0 0 0 0 0 0 0 0 0 0
Lanes: 0 0 2 1 0 2 0 3 0 0 1 1 0 0 1 0 0 0 0 0

Volume Module:

Base Vol: 0 840 209 462 1348 0 26 0 616 0 0 0
Growth Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
Initial Bse: 0 840 209 462 1348 0 26 0 616 0 0 0
Added Vol: 0 0 0 0 0 0 0 0 0 0 0 0
PasserByVol: 0 0 0 0 0 0 0 0 0 0 0 0
Initial Fut: 0 840 209 462 1348 0 26 0 616 0 0 0
User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
PHF Adj: 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95
PHF Volume: 0 884 220 486 1419 0 27 0 648 0 0 0
Reduced Vol: 0 0 0 0 0 0 0 0 0 0 0 0
Reduced Vol: 0 884 220 486 1419 0 27 0 648 0 0 0
PCE Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
MLF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
Final Vol.: 0 884 220 486 1419 0 27 0 648 0 0 0

Saturation Flow Module:

Sat/Lane: 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900
Adjustment: 0.95 0.88 0.88 0.85 0.91 1.00 0.90 1.00 0.85 0.95 1.00 1.00
Lanes: 0.00 2.40 0.60 2.00 3.00 0.00 2.00 0.00 1.00 0.00 0.00 0.00
Final Sat.: 0 4029 1002 3230 5187 0 3427 0 1615 0 0 0

Capacity Analysis Module:

Vol/Sat: 0.00 0.22 0.22 0.15 0.27 0.00 0.01 0.00 0.40 0.00 0.00 0.00
Crit Moves: ****
Green/Cycle: 0.00 0.28 0.28 0.20 0.48 0.00 0.52 0.00 0.52 0.00 0.00 0.00
Volume/Cap: 0.00 0.77 0.77 0.77 0.57 0.00 0.02 0.00 0.77 0.00 0.00 0.00
Delay/Veh: 0.0 35.4 35.4 44.0 19.0 0.0 11.6 0.0 23.7 0.0 0.0 0.0
User DelAdj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
AdjDel/Veh: 0.0 35.4 35.4 44.0 19.0 0.0 11.6 0.0 23.7 0.0 0.0 0.0
LOS by Move: A D D D B A B A C A A A
HCM2kAvgQ: 0 13 13 10 12 0 0 0 17 0 0 0

Note: Queue reported is the number of cars per lane.

Ontario New Model - Rich Haven External Intersections
2015 PM Peak w/o Project (Fut Base)
Meyer, Mohaddes Associates

Level Of Service Computation Report

2000 HCM Operations Method (Future Volume Alternative)

Intersection #11 Haven Avenue/Riverside Drive

Cycle (sec): 100 Critical Vol./Cap.(X): 0.952
Loss Time (sec): 0 (Y+R=4.0 sec) Average Delay (sec/veh): 31.6
Optimal Cycle: 180 Level Of Service: C

Approach: North Bound South Bound East Bound West Bound
Movement: L - T - R L - T - R L - T - R L - T - R

Control: Permitted Permitted Protected Protected
Rights: Include Include Include Include
Min. Green: 0 0 0 0 0 0 0 0 0 0 0 0
Lanes: 1 0 1 1 0 1 0 1 1 0 1 0 1 1 0

Volume Module:

Base Vol: 40 645 188 324 1114 109 79 398 64 189 616 126
Growth Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
Initial Bse: 40 645 188 324 1114 109 79 398 64 189 616 126
Added Vol: 0 0 0 0 0 0 0 0 0 0 0 0
PasserByVol: 0 0 0 0 0 0 0 0 0 0 0 0
Initial Fut: 40 645 188 324 1114 109 79 398 64 189 616 126
User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
PHF Adj: 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95
PHF Volume: 42 679 198 341 1173 115 83 419 67 199 648 133
Reduced Vol: 0 0 0 0 0 0 0 0 0 0 0 0
Reduced Vol: 42 679 198 341 1173 115 83 419 67 199 648 133
PCE Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
MLF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
Final Vol.: 42 679 198 341 1173 115 83 419 67 199 648 133

Saturation Flow Module:

Sat/Lane: 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900
Adjustment: 0.16 0.92 0.92 0.26 0.94 0.94 0.90 0.93 0.93 0.90 0.93 0.93
Lanes: 1.00 1.55 0.45 1.00 1.82 0.18 1.00 1.72 0.28 1.00 1.66 0.34
Final Sat.: 295 2700 787 500 3246 318 1710 3045 490 1710 2922 598

Capacity Analysis Module:

Vol/Sat: 0.14 0.25 0.25 0.68 0.36 0.36 0.05 0.14 0.14 0.12 0.22 0.22
Crit Moves: ****
Green/Cycle: 0.72 0.72 0.72 0.72 0.72 0.72 0.05 0.15 0.15 0.13 0.23 0.23
Volume/Cap: 0.20 0.35 0.35 0.95 0.50 0.50 0.95 0.89 0.89 0.89 0.95 0.95
Delay/Veh: 5.2 5.5 5.5 47.8 6.5 6.5 127.5 58.5 58.5 76.1 58.4 58.4
User DelAdj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
AdjDel/Veh: 5.2 5.5 5.5 47.8 6.5 6.5 127.5 58.5 58.5 76.1 58.4 58.4
LOS by Move: A A A D A A F E E E E
HCM2kAvgQ: 1 5 5 15 9 9 5 11 11 10 17 17

Note: Queue reported is the number of cars per lane.

Ontario New Model - Rich Haven External Intersections
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Meyer, Mohaddes Associates

Level Of Service Computation Report

2000 HCM Operations Method (Future Volume Alternative)

Intersection #12 Haven Avenue at Chino Avenue

Cycle (sec): 100 Critical Vol./Cap.(X): 0.462
Loss Time (sec): 0 (Y+R=4.0 sec) Average Delay (sec/veh): 5.8
Optimal Cycle: 27 Level Of Service: A

Approach: North Bound South Bound East Bound West Bound
Movement: L - T - R L - T - R L - T - R L - T - R

Control: Permitted Permitted Permitted Permitted
Rights: Include Include Include Include
Min. Green: 0 0 0 0 0 0 0 0 0 0 0 0
Lanes: 1 0 1 1 0 1 0 1 1 0 1 0 1 1 0

Volume Module:

Base Vol: 36 769 65 15 1279 12 30 4 34 101 48 13
Growth Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
Initial Bse: 36 769 65 15 1279 12 30 4 34 101 48 13
Added Vol: 0 0 0 0 0 0 0 0 0 0 0 0
PasserByVol: 0 0 0 0 0 0 0 0 0 0 0 0
Initial Fut: 36 769 65 15 1279 12 30 4 34 101 48 13
User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
PHF Adj: 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95
PHF Volume: 38 809 68 16 1346 13 32 4 36 106 51 14
Reduc Vol: 0 0 0 0 0 0 0 0 0 0 0 0
Reduced Vol: 38 809 68 16 1346 13 32 4 36 106 51 14
PCE Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
MLF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
Final Vol.: 38 809 68 16 1346 13 32 4 36 106 51 14

Saturation Flow Module:

Sat/Lane: 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900
Adjustment: 0.16 0.94 0.94 0.28 0.95 0.95 0.62 0.82 0.82 0.66 0.92 0.92
Lanes: 1.00 1.84 0.16 1.00 1.98 0.02 1.00 1.00 1.00 1.00 1.57 0.43
Final Sat.: 306 3289 278 533 3573 34 1175 1563 1563 1251 2750 745

Capacity Analysis Module:

Vol/Sat: 0.12 0.25 0.25 0.03 0.38 0.03 0.00 0.02 0.08 0.02 0.02
Crit Moves: ****
Green/Cycle: 0.82 0.82 0.82 0.82 0.82 0.82 0.18 0.18 0.18 0.18 0.18 0.18
Volume/Cap: 0.15 0.30 0.30 0.04 0.46 0.46 0.15 0.01 0.12 0.46 0.10 0.10
Delay/Veh: 2.2 2.3 2.3 1.8 2.8 2.8 34.5 33.4 34.2 37.8 34.0 34.0
User DelAdj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
AdjDel/Veh: 2.2 2.3 2.3 1.8 2.8 2.8 34.5 33.4 34.2 37.8 34.0 34.0
LOS by Move: A A A A A A C C C D C C
HCM2kAvgQ: 0 4 4 0 7 7 1 0 1 4 1 1

Note: Queue reported is the number of cars per lane.

Ontario New Model - Rich Haven External Intersections
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Meyer, Mohaddes Associates

Level Of Service Computation Report

2000 HCM Operations Method (Future Volume Alternative)

Intersection #13 Haven Avenue at Edison Avenue

Cycle (sec): 100 Critical Vol./Cap.(X): 0.975
Loss Time (sec): 0 (Y+R=4.0 sec) Average Delay (sec/veh): 41.5
Optimal Cycle: 180 Level Of Service: D

Approach: North Bound South Bound East Bound West Bound
Movement: L - T - R L - T - R L - T - R L - T - R

Control: Permitted Permitted Protected Protected
Rights: Include Include Include Include
Min. Green: 0 0 0 0 0 0 0 0 0 0 0 0
Lanes: 1 0 1 1 0 1 0 1 1 0 1 0 3 1 0 1 0 3 1 0

Volume Module:

Base Vol: 160 498 178 248 860 175 248 1504 198 256 1456 158
Growth Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
Initial Bse: 160 498 178 248 860 175 248 1504 198 256 1456 158
Added Vol: 0 0 0 0 0 0 0 0 0 0 0 0
PasserByVol: 0 0 0 0 0 0 0 0 0 0 0 0
Initial Fut: 160 498 178 248 860 175 248 1504 198 256 1456 158
User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
PHF Adj: 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95
PHF Volume: 168 524 187 261 905 184 261 1583 208 269 1533 166
Reduc Vol: 0 0 0 0 0 0 0 0 0 0 0 0
Reduced Vol: 168 524 187 261 905 184 261 1583 208 269 1533 166
PCE Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
MLF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
Final Vol.: 168 524 187 261 905 184 261 1583 208 269 1533 166

Saturation Flow Module:

Sat/Lane: 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900
Adjustment: 0.16 0.91 0.91 0.28 0.93 0.93 0.90 0.89 0.89 0.90 0.90 0.90
Lanes: 1.00 1.47 0.53 1.00 1.66 0.34 1.00 3.53 0.47 1.00 3.61 0.39
Final Sat.: 304 2556 913 538 2925 595 1710 6008 791 1710 6145 667

Capacity Analysis Module:

Vol/Sat: 0.55 0.21 0.21 0.49 0.31 0.31 0.15 0.26 0.26 0.16 0.25 0.25
Crit Moves: ****
Green/Cycle: 0.57 0.57 0.57 0.57 0.57 0.57 0.16 0.27 0.27 0.16 0.27 0.27
Volume/Cap: 0.97 0.36 0.36 0.85 0.54 0.54 0.93 0.97 0.97 0.97 0.93 0.93
Delay/Veh: 81.7 11.9 11.9 38.3 13.8 13.8 76.9 51.5 51.5 88.7 44.8 44.8
User DelAdj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
AdjDel/Veh: 81.7 11.9 11.9 38.3 13.8 13.8 76.9 51.5 51.5 88.7 44.8 44.8
LOS by Move: F B B D B B E D D F D D
HCM2kAvgQ: 9 6 6 10 11 11 12 21 21 13 18 18

Note: Queue reported is the number of cars per lane.

Ontario New Model - Rich Haven External Intersections
2015 PM Peak w/o Project (Fut Base)
Meyer, Mohaddes Associates

Level Of Service Computation Report

2000 HCM Operations Method (Future Volume Alternative)

Intersection #14 Mill Creek Avenue/Riverside Drive

Cycle (sec): 100 Critical Vol./Cap.(X): 0.661
Loss Time (sec): 0 (Y+R=4.0 sec) Average Delay (sec/veh): 17.3
Optimal Cycle: 55 Level Of Service: B

Approach: North Bound South Bound East Bound West Bound
Movement: L - T - R L - T - R L - T - R L - T - R

Control: Permitted Permitted Protected Protected
Rights: Include Include Include Include
Min. Green: 0 0 0 0 0 0 0 0 0 0 0 0
Lanes: 1 0 1 0 1 1 0 0 1 1 0 1 0 1 1 0

Volume Module:

Base Vol: 21 18 1 118 14 181 270 805 10 0 1137 112
Growth Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
Initial Bse: 21 18 1 118 14 181 270 805 10 0 1137 112
Added Vol: 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
PasserByVol: 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
Initial Fut: 21 18 1 118 14 181 270 805 10 0 1137 112
User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
PHF Adj: 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95
PHF Volume: 22 19 1 124 15 191 284 847 11 0 1197 118
Reduced Vol: 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
Reduced Vol: 22 19 1 124 15 191 284 847 11 0 1197 118
PCE Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
MLF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
Final Vol.: 22 19 1 124 15 191 284 847 11 0 1197 118

Saturation Flow Module:

Sat/Lane: 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900
Adjustment: 0.27 1.00 0.85 0.68 0.86 0.86 0.90 0.95 0.95 0.95 0.94 0.94
Lanes: 1.00 1.00 1.00 1.00 0.07 0.93 1.00 1.98 0.02 1.00 1.82 0.18
Final Sat.: 506 1900 1615 1294 117 1518 1710 3559 44 1800 3244 320

Capacity Analysis Module:

Vol/Sat: 0.04 0.01 0.00 0.10 0.13 0.13 0.17 0.24 0.24 0.00 0.37 0.37
Crit Moves: ****
Green/Cycle: 0.19 0.19 0.19 0.19 0.19 0.19 0.25 0.81 0.81 0.00 0.56 0.56
Volume/Cap: 0.23 0.05 0.00 0.51 0.66 0.66 0.66 0.29 0.29 0.00 0.66 0.66
Delay/Veh: 35.5 33.2 32.8 38.0 42.7 42.7 37.4 2.4 2.4 0.0 16.3 16.3
User DelAdj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
AdjDel/Veh: 35.5 33.2 32.8 38.0 42.7 42.7 37.4 2.4 2.4 0.0 16.3 16.3
LOS by Move: D C C D D D D A A A B B
HCM2kAvgQ: 1 0 0 4 7 7 9 4 4 0 15 15

Note: Queue reported is the number of cars per lane.

Ontario New Model - Rich Haven External Intersections
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Meyer, Mohaddes Associates

Level Of Service Computation Report

2000 HCM Operations Method (Future Volume Alternative)

Intersection #15 Mill Creek Avenue at Chino Avenue

Cycle (sec): 100 Critical Vol./Cap.(X): 0.127
Loss Time (sec): 0 (Y+R=4.0 sec) Average Delay (sec/veh): 13.3
Optimal Cycle: 16 Level Of Service: B

Approach: North Bound South Bound East Bound West Bound
Movement: L - T - R L - T - R L - T - R L - T - R

Control: Permitted Permitted Permitted Permitted
Rights: Include Include Include Include
Min. Green: 0 0 0 0 0 0 0 0 0 0 0 0
Lanes: 1 0 1 1 0 1 0 0 1 0 1 0 1 0 1 1 0

Volume Module:

Base Vol: 14 4 0 15 10 96 69 0 13 0 49 19
Growth Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
Initial Bse: 14 4 0 15 10 96 69 0 13 0 49 19
Added Vol: 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
PasserByVol: 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
Initial Fut: 14 4 0 15 10 96 69 0 13 0 49 19
User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
PHF Adj: 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95
PHF Volume: 15 4 0 16 11 101 73 0 14 0 52 20
Reduced Vol: 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
Reduced Vol: 15 4 0 16 11 101 73 0 14 0 52 20
PCE Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
MLF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
Final Vol.: 15 4 0 16 11 101 73 0 14 0 52 20

Saturation Flow Module:

Sat/Lane: 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900
Adjustment: 0.60 0.95 0.95 0.72 0.86 0.86 0.65 0.95 0.81 0.95 0.91 0.91
Lanes: 1.00 2.00 0.00 1.00 0.09 0.91 1.00 1.00 1.00 1.00 1.44 0.56
Final Sat.: 1145 3610 0 1377 155 1487 1240 1805 1534 1800 2492 966

Capacity Analysis Module:

Vol/Sat: 0.01 0.00 0.00 0.01 0.07 0.07 0.06 0.00 0.01 0.00 0.02 0.02
Crit Moves: ****
Green/Cycle: 0.54 0.54 0.00 0.54 0.54 0.54 0.46 0.00 0.46 0.00 0.46 0.46
Volume/Cap: 0.02 0.00 0.00 0.02 0.13 0.13 0.13 0.00 0.02 0.00 0.04 0.04
Delay/Veh: 10.9 10.7 0.0 10.8 11.6 11.6 15.4 0.0 14.6 0.0 14.7 14.7
User DelAdj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
AdjDel/Veh: 10.9 10.7 0.0 10.8 11.6 11.6 15.4 0.0 14.6 0.0 14.7 14.7
LOS by Move: B B A B B B B A B A B B
HCM2kAvgQ: 0 0 0 0 2 2 1 0 0 0 1 1

Note: Queue reported is the number of cars per lane.

Ontario New Model - Rich Haven External Intersections
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Meyer, Mohaddes Associates

Level Of Service Computation Report

2000 HCM Operations Method (Future Volume Alternative)

Intersection #16 Mill Creek Avenue at Edison Avenue

Cycle (sec): 100 Critical Vol./Cap.(X): 0.397
Loss Time (sec): 0 (Y+R=4.0 sec) Average Delay (sec/veh): 3.4
Optimal Cycle: 24 Level Of Service: A

Approach: North Bound South Bound East Bound West Bound
Movement: L - T - R L - T - R L - T - R L - T - R

Control: Permitted Permitted Permitted Permitted
Rights: Include Include Include Include
Min. Green: 0 0 0 0 0 0 0 0 0 0 0 0
Lanes: 1 0 0 1 0 1 0 0 1 0 1 0

Volume Module:
Base Vol: 86 10 0 0 13 11 5 1924 186 0 2001 0
Growth Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
Initial Bse: 86 10 0 0 13 11 5 1924 186 0 2001 0
Added Vol: 0 0 0 0 0 0 0 0 0 0 0 0
PasserByVol: 0 0 0 0 0 0 0 0 0 0 0 0
Initial Fut: 86 10 0 0 13 11 5 1924 186 0 2001 0
User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
PHF Adj: 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95
PHF Volume: 91 11 0 0 14 12 5 2025 196 0 2106 0
Reduct Vol: 0 0 0 0 0 0 0 0 0 0 0 0
Reduced Vol: 91 11 0 0 14 12 5 2025 196 0 2106 0
PCE Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
MLF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
Final Vol.: 91 11 0 0 14 12 5 2025 196 0 2106 0

Saturation Flow Module:
Sat/Lane: 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900
Adjustment: 0.66 1.00 1.00 0.95 0.93 0.93 0.07 0.90 0.90 0.95 0.91 0.91
Lanes: 1.00 1.00 0.00 1.00 0.54 0.46 1.00 3.65 0.35 1.00 4.00 0.00
Final Sat.: 1260 1900 0 1800 958 811 137 6224 602 1800 6916 0

Capacity Analysis Module:
Vol/Sat: 0.07 0.01 0.00 0.00 0.01 0.01 0.04 0.33 0.33 0.00 0.30 0.00
Crit Moves: ****
Green/Cycle: 0.18 0.18 0.00 0.00 0.18 0.18 0.82 0.82 0.82 0.00 0.82 0.00
Volume/Cap: 0.40 0.03 0.00 0.00 0.08 0.08 0.05 0.40 0.40 0.00 0.37 0.00
Delay/Veh: 37.3 33.8 0.0 0.0 34.1 34.1 1.9 2.5 2.5 0.0 2.4 0.0
User DelAdj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
AdjDel/Veh: 37.3 33.8 0.0 0.0 34.1 34.1 1.9 2.5 2.5 0.0 2.4 0.0
LOS by Move: D C A A C C A A A A A A
HCM2kAvgQ: 3 0 0 0 1 1 0 5 5 0 5 0

Note: Queue reported is the number of cars per lane.

Ontario New Model - Rich Haven External Intersections
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Meyer, Mohaddes Associates

Level Of Service Computation Report

2000 HCM Operations Method (Future Volume Alternative)

Intersection #17 Milliken Avenue/SR-60 WB Ramps

Cycle (sec): 100 Critical Vol./Cap.(X): 1.110
Loss Time (sec): 0 (Y+R=4.0 sec) Average Delay (sec/veh): 73.3
Optimal Cycle: 180 Level Of Service: E

Approach: North Bound South Bound East Bound West Bound
Movement: L - T - R L - T - R L - T - R L - T - R

Control: Protected Permitted Split Phase Split Phase
Rights: Include Include Include Include
Min. Green: 0 0 0 0 0 0 0 0 0 0 0 0
Lanes: 1 0 2 0 0 0 0 2 0 1 0 0 0 0 0 1

Volume Module:
Base Vol: 694 635 0 0 1735 109 0 0 0 287 0 160
Growth Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
Initial Bse: 694 635 0 0 1735 109 0 0 0 287 0 160
Added Vol: 0 0 0 0 0 0 0 0 0 0 0 0
PasserByVol: 0 0 0 0 0 0 0 0 0 0 0 0
Initial Fut: 694 635 0 0 1735 109 0 0 0 287 0 160
User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
PHF Adj: 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95
PHF Volume: 731 668 0 0 1826 115 0 0 0 302 0 168
Reduct Vol: 0 0 0 0 0 0 0 0 0 0 0 0
Reduced Vol: 731 668 0 0 1826 115 0 0 0 302 0 168
PCE Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
MLF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
Final Vol.: 731 668 0 0 1826 115 0 0 0 302 0 168

Saturation Flow Module:
Sat/Lane: 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900
Adjustment: 0.90 0.95 1.00 0.95 0.95 0.85 0.95 1.00 1.00 0.90 1.00 0.85
Lanes: 1.00 2.00 0.00 0.00 2.00 1.00 0.00 0.00 0.00 1.00 0.00 1.00
Final Sat.: 1710 3610 0 0 3610 1615 0 0 0 1710 0 1615

Capacity Analysis Module:
Vol/Sat: 0.43 0.19 0.00 0.00 0.51 0.07 0.00 0.00 0.00 0.18 0.00 0.10
Crit Moves: ****
Green/Cycle: 0.38 0.84 0.00 0.00 0.46 0.46 0.00 0.00 0.00 0.16 0.00 0.16
Volume/Cap: 1.11 0.22 0.00 0.00 1.11 0.16 0.00 0.00 0.00 1.11 0.00 0.66
Delay/Veh: 100.0 1.6 0.0 0.0 85.9 16.0 0.0 0.0 0.0 129.3 0.0 45.5
User DelAdj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
AdjDel/Veh: 100.0 1.6 0.0 0.0 85.9 16.0 0.0 0.0 0.0 129.3 0.0 45.5
LOS by Move: F A A A F B A A A F A D
HCM2kAvgQ: 37 2 0 0 45 2 0 0 0 17 0 6

Note: Queue reported is the number of cars per lane.

Ontario New Model - Rich Haven External Intersections
2015 PM Peak w/o Project (Fut Base)
Meyer, Mohaddes Associates

Level Of Service Computation Report

2000 HCM Operations Method (Future Volume Alternative)

Intersection #18 Milliken Avenue/SR-60 EB Ramps

Cycle (sec): 100 Critical Vol./Cap.(X): 1.038
Loss Time (sec): 0 (Y+R=4.0 sec) Average Delay (sec/veh): 161.4
Optimal Cycle: 180 Level Of Service: F

Approach: North Bound South Bound East Bound West Bound
Movement: L - T - R L - T - R L - T - R L - T - R

Control: Permitted Protected Split Phase Split Phase
Rights: Include Include Include Include
Min. Green: 0 0 0 0 0 0 0 0 0 0 0 0
Lanes: 0 0 1 1 0 1 0 2 0 0 1 0 1 0 0 0 0 0 0 0

Volume Module:
Base Vol: 0 1323 367 73 1949 0 6 0 718 0 0 0
Growth Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
Initial Bse: 0 1323 367 73 1949 0 6 0 718 0 0 0
Added Vol: 0 0 0 0 0 0 0 0 0 0 0 0
PasserByVol: 0 0 0 0 0 0 0 0 0 0 0 0
Initial Fut: 0 1323 367 73 1949 0 6 0 718 0 0 0
User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
PHF Adj: 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95
PHF Volume: 0 1393 386 77 2052 0 6 0 756 0 0 0
Reduced Vol: 0 0 0 0 0 0 0 0 0 0 0 0
Reduced Vol: 0 1393 386 77 2052 0 6 0 756 0 0 0
PCE Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
MLF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
Final Vol.: 0 1393 386 77 2052 0 6 0 756 0 0 0

Saturation Flow Module:
Sat/Lane: 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900
Adjustment: 0.95 0.92 0.92 0.90 0.95 1.00 0.81 1.00 0.85 0.95 1.00 1.00
Lanes: 0.00 1.57 0.43 1.00 2.00 0.00 1.00 0.00 1.00 0.00 0.00 0.00
Final Sat.: 0 2733 758 1710 3610 0 1539 0 1610 0 0 0

Capacity Analysis Module:
Vol/Sat: 0.00 0.51 0.51 0.04 0.57 0.00 0.00 0.00 0.47 0.00 0.00 0.00
Crit Moves: ****
Green/Cycle: 0.00 0.33 0.33 0.37 0.70 0.00 0.30 0.00 0.30 0.00 0.00 0.00
Volume/Cap: 0.00 1.55 1.55 0.12 0.82 0.00 0.01 0.00 1.55 0.00 0.00 0.00
Delay/Veh: 0.0 284 284.3 21.0 12.8 0.0 24.4 0.0 291.1 0.0 0.0 0.0
User DelAdj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
AdjDel/Veh: 0.0 284 284.3 21.0 12.8 0.0 24.4 0.0 291.1 0.0 0.0 0.0
LOS by Move: A F F C B A C A F A A A
HCM2kAvgQ: 0 70 70 2 25 0 0 0 57 0 0 0

Note: Queue reported is the number of cars per lane.

Ontario New Model - Rich Haven External Intersections
2015 PM Peak w/o Project (Fut Base)
Meyer, Mohaddes Associates

Level Of Service Computation Report

2000 HCM Operations Method (Future Volume Alternative)

Intersection #19 Milliken Avenue/Riverside Drive

Cycle (sec): 100 Critical Vol./Cap.(X): 1.216
Loss Time (sec): 0 (Y+R=4.0 sec) Average Delay (sec/veh): 101.7
Optimal Cycle: 180 Level Of Service: F

Approach: North Bound South Bound East Bound West Bound
Movement: L - T - R L - T - R L - T - R L - T - R

Control: Protected Protected Protected Protected
Rights: Include Include Include Include
Min. Green: 0 0 0 0 0 0 0 0 0 0 0 0
Lanes: 2 0 3 0 1 2 0 3 0 1 1 0 1 1 0 1 0 1 1 0

Volume Module:
Base Vol: 42 306 4 780 1365 522 692 320 62 88 663 691
Growth Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
Initial Bse: 42 306 4 780 1365 522 692 320 62 88 663 691
Added Vol: 0 0 0 0 0 0 0 0 0 0 0 0
PasserByVol: 0 0 0 0 0 0 0 0 0 0 0 0
Initial Fut: 42 306 4 780 1365 522 692 320 62 88 663 691
User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
PHF Adj: 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95
PHF Volume: 44 322 4 821 1437 549 728 337 65 93 698 727
Reduced Vol: 0 0 0 0 0 0 0 0 0 0 0 0
Reduced Vol: 44 322 4 821 1437 549 728 337 65 93 698 727
PCE Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
MLF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
Final Vol.: 44 322 4 821 1437 549 728 337 65 93 698 727

Saturation Flow Module:
Sat/Lane: 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900
Adjustment: 0.85 0.91 0.85 0.85 0.91 0.85 0.90 0.93 0.93 0.90 0.88 0.88
Lanes: 2.00 3.00 1.00 2.00 3.00 1.00 1.00 1.68 0.32 1.00 1.00 1.00
Final Sat.: 3230 5187 1615 3230 5187 1615 1710 2952 572 1710 1668 1668

Capacity Analysis Module:
Vol/Sat: 0.01 0.06 0.00 0.25 0.28 0.34 0.43 0.11 0.11 0.05 0.42 0.44
Crit Moves: ****
Green/Cycle: 0.01 0.06 0.06 0.23 0.28 0.28 0.35 0.48 0.48 0.23 0.36 0.36
Volume/Cap: 1.22 1.09 0.05 1.09 0.99 1.22 1.22 0.24 0.24 0.24 1.17 1.22
Delay/Veh: 269.7 125 44.8 97.1 57.1 152.0 144.4 15.3 15.3 31.8 116 137.3
User DelAdj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
AdjDel/Veh: 269.7 125 44.8 97.1 57.1 152.0 144.4 15.3 15.3 31.8 116 137.3
LOS by Move: F F D F E F F B B C F F
HCM2kAvgQ: 3 8 0 23 22 32 43 4 4 3 39 43

Note: Queue reported is the number of cars per lane.

Ontario New Model - Rich Haven External Intersections
2015 PM Peak w/o Project (Fut Base)
Meyer, Mohaddes Associates

Level Of Service Computation Report

2000 HCM Operations Method (Future Volume Alternative)

Intersection #20 Milliken Ave / Chino Ave

Cycle (sec): 100 Critical Vol./Cap.(X): 0.277
Loss Time (sec): 0 (Y+R=4.0 sec) Average Delay (sec/veh): 2.9
Optimal Cycle: 26 Level Of Service: A

Approach: North Bound South Bound East Bound West Bound
Movement: L - T - R L - T - R L - T - R L - T - R

Control: Protected Permitted Split Phase Split Phase
Rights: Include Include Include Include
Min. Green: 0 0 0 0 0 0 0 0 0 0 0 0
Lanes: 1 0 2 0 0 0 0 3 1 0 1 0 0 0 0 0

Volume Module:

Base Vol: 59 478 0 0 1506 9 1 0 15 0 0 0
Growth Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
Initial Bse: 59 478 0 0 1506 9 1 0 15 0 0 0
Added Vol: 0 0 0 0 0 0 0 0 0 0 0 0
PasserByVol: 0 0 0 0 0 0 0 0 0 0 0 0
Initial Fut: 59 478 0 0 1506 9 1 0 15 0 0 0
User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
PHF Adj: 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95
PHF Volume: 62 503 0 0 1585 9 1 0 16 0 0 0
Reduct Vol: 0 0 0 0 0 0 0 0 0 0 0 0
Reduced Vol: 62 503 0 0 1585 9 1 0 16 0 0 0
PCE Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
MLF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
Final Vol.: 62 503 0 0 1585 9 1 0 16 0 0 0

Saturation Flow Module:

Sat/Lane: 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900
Adjustment: 0.90 0.95 1.00 0.95 0.91 0.91 0.90 1.00 0.85 0.95 1.00 1.00
Lanes: 1.00 2.00 0.00 0.00 3.98 0.02 1.00 0.00 1.00 0.00 0.00 0.00
Final Sat.: 1710 3610 0 0 6868 41 1710 0 1615 0 0 0

Capacity Analysis Module:

Vol/Sat: 0.04 0.14 0.00 0.00 0.23 0.23 0.00 0.00 0.01 0.00 0.00 0.00
Crit Moves: ****
Green/Cycle: 0.13 0.96 0.00 0.00 0.83 0.83 0.04 0.00 0.04 0.00 0.00 0.00
Volume/Cap: 0.28 0.14 0.00 0.00 0.28 0.28 0.02 0.00 0.28 0.00 0.00 0.00
Delay/Veh: 39.8 0.1 0.0 0.0 1.8 1.8 46.7 0.0 49.6 0.0 0.0 0.0
User DelAdj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
AdjDel/Veh: 39.8 0.1 0.0 0.0 1.8 1.8 46.7 0.0 49.6 0.0 0.0 0.0
LOS by Move: D A A A A A D A D A A A
HCM2kAvgQ: 2 0 0 0 3 3 0 0 1 0 0 0

Note: Queue reported is the number of cars per lane.

Ontario New Model - Rich Haven External Intersections
2015 PM Peak w/o Project (Fut Base)
Meyer, Mohaddes Associates

Level Of Service Computation Report

2000 HCM Operations Method (Future Volume Alternative)

Intersection #21 Milliken Avenue/Edison Avenue

Cycle (sec): 100 Critical Vol./Cap.(X): 1.034
Loss Time (sec): 0 (Y+R=4.0 sec) Average Delay (sec/veh): 51.1
Optimal Cycle: 180 Level Of Service: D

Approach: North Bound South Bound East Bound West Bound
Movement: L - T - R L - T - R L - T - R L - T - R

Control: Protected Protected Protected Protected
Rights: Include Include Include Include
Min. Green: 0 0 0 0 0 0 0 0 0 0 0 0
Lanes: 1 0 1 1 0 1 0 1 1 0 1 0 3 1 0 1 0

Volume Module:

Base Vol: 77 273 292 276 1189 28 31 1845 49 554 1903 151
Growth Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
Initial Bse: 77 273 292 276 1189 28 31 1845 49 554 1903 151
Added Vol: 0 0 0 0 0 0 0 0 0 0 0 0
PasserByVol: 0 0 0 0 0 0 0 0 0 0 0 0
Initial Fut: 77 273 292 276 1189 28 31 1845 49 554 1903 151
User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
PHF Adj: 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95
PHF Volume: 81 287 307 291 1252 29 33 1942 52 583 2003 159
Reduct Vol: 0 0 0 0 0 0 0 0 0 0 0 0
Reduced Vol: 81 287 307 291 1252 29 33 1942 52 583 2003 159
PCE Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
MLF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
Final Vol.: 81 287 307 291 1252 29 33 1942 52 583 2003 159

Saturation Flow Module:

Sat/Lane: 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900
Adjustment: 0.90 0.88 0.88 0.90 0.95 0.95 0.90 0.91 0.91 0.90 0.90 0.90
Lanes: 1.00 1.00 1.00 1.00 1.95 0.05 1.00 3.90 0.10 1.00 3.71 0.29
Final Sat.: 1710 1664 1664 1710 3516 83 1710 6710 178 1710 6337 503

Capacity Analysis Module:

Vol/Sat: 0.05 0.17 0.18 0.17 0.36 0.36 0.02 0.29 0.29 0.34 0.32 0.32
Crit Moves: ****
Green/Cycle: 0.05 0.20 0.20 0.19 0.34 0.34 0.03 0.28 0.28 0.33 0.58 0.58
Volume/Cap: 1.03 0.85 0.91 0.91 1.03 1.03 0.55 1.03 1.03 1.03 0.55 0.55
Delay/Veh: 158.9 48.0 55.6 68.2 67.5 67.5 58.0 65.8 65.8 80.4 13.4 13.4
User DelAdj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
AdjDel/Veh: 158.9 48.0 55.6 68.2 67.5 67.5 58.0 65.8 65.8 80.4 13.4 13.4
LOS by Move: F D E E E E E E F B B
HCM2kAvgQ: 6 12 13 13 29 29 2 25 25 27 11 11

Note: Queue reported is the number of cars per lane.

Ontario New Model - Rich Haven External Intersections
2015 PM Peak w/o Project (Fut Base)
Meyer, Mohaddes Associates

Level Of Service Computation Report

2000 HCM Operations Method (Future Volume Alternative)

Intersection #550 Haven Avenue/Creekside Drive

Cycle (sec): 100 Critical Vol./Cap.(X): 0.000
Loss Time (sec): 0 (Y+R=4.0 sec) Average Delay (sec/veh): 0.0
Optimal Cycle: 0 Level Of Service:

Approach: North Bound South Bound East Bound West Bound
Movement: L - T - R L - T - R L - T - R L - T - R

Control: Protected Protected Prot+Permit Prot+Permit
Rights: Include Include Include Include
Min. Green: 0 0 0 0 0 0 0 0 0 0 0 0
Lanes: 1 0 1 1 0 1 0 1 1 0 1 1 0 1 0 1

Volume Module:
Base Vol: 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
Growth Adj: 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00
Initial Bse: 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
Added Vol: 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
PasserByVol: 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
Initial Fut: 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
User Adj: 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00
PHF Adj: 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00
PHF Volume: 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
Reduct Vol: 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
Reduced Vol: 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
PCE Adj: 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00
MLF Adj: 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00
Final Vol.: 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0

Saturation Flow Module:
Sat/Lane: 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
Adjustment: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
Lanes: 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00
Final Sat.: 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0

Capacity Analysis Module:
Vol/Sat: 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00
Crit Moves:
Green/Cycle: 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00
Volume/Cap: 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00
Delay/Veh: 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0
User DelAdj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
AdjDel/Veh: 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0
LOS by Move:
HCM2kAvgQ: 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0

Note: Queue reported is the number of cars per lane.

Ontario New Model - Rich Haven External Intersections
2015 PM Peak w/o Project (Fut Base)
Meyer, Mohaddes Associates

Lane Geometry Report

Number of approach lanes: (L) (LT) (T) (RT) (R) (LTR)

Table with 5 columns: Node Intersection, NB, SB, EB, WB. Lists 21 intersection nodes and their lane counts for Northbound, Southbound, Eastbound, and Westbound directions.

**APPENDIX
E
LOS CALCULATIONS
2015 FUTURE WITH
PROJECT**

 Ontario New Model - Rich Haven External Intersections
 2015 AM Peak
 Meyer, Mohaddes Associates

Scenario: 2015 AM (With Project) Scenario Report

Command: 2015 AM
 Volume: 2015 AM
 Geometry: Future Base
 Impact Fee: Default Impact Fee
 Trip Generation: None
 Trip Distribution: None
 Paths: Default Paths
 Routes: Default Routes
 Configuration: 2015 AM

 Ontario New Model - Rich Haven External Intersections
 2015 AM Peak
 Meyer, Mohaddes Associates

Intersection Volume Report
 Base Volume Alternative

Node Intersection	Northbound			Southbound			Eastbound			Westbound		
	L	T	R	L	T	R	L	T	R	L	T	R
1 Archibald Ave	184	1580	75	65	507	76	158	440	68	55	249	126
2 Archibald Ave	69	1666	36	63	608	1	1	36	40	59	22	177
3 Archibald Ave	14	1365	0	99	673	17	84	26	12	2	26	271
4 Archibald Ave	772	881	237	61	336	201	218	805	231	341	1384	123
5 Turner Avenue	0	5	103	94	3	79	29	623	0	35	363	44
6 Turner Avenue	23	32	19	5	13	34	24	104	7	2	76	5
7 Turner Avenue	0	0	0	17	0	3	1	125	0	0	295	15
8 Edison Avenue	0	0	0	136	0	6	8	1047	0	0	1635	302
9 Haven Avenue/	410	1433	0	0	426	22	0	0	0	100	0	803
10 Haven Avenue/	0	1768	285	91	437	0	75	0	217	0	0	0
11 Haven Avenue/	89	1289	216	128	435	44	140	632	79	125	304	145
12 Haven Avenue	22	1297	84	45	518	3	27	66	25	41	22	171
13 Haven Avenue	168	806	211	131	334	210	158	954	71	126	1563	130
14 Mill Creek Av	39	199	87	107	180	116	164	1332	19	32	505	28
15 Mill Creek Av	57	121	50	10	31	74	125	122	25	1	18	8
16 Mill Creek Av	117	22	6	40	9	8	10	1549	48	5	1800	38
17 Milliken Aven	493	986	0	0	605	2	0	0	0	245	0	272
18 Milliken Aven	0	1445	446	4	846	0	34	0	502	0	0	0
19 Milliken Aven	42	812	51	726	151	471	782	809	35	3	285	296
20 Milliken Ave	23	950	0	0	259	4	93	0	89	0	0	0
21 Milliken Aven	63	640	520	92	96	54	129	1925	38	201	1950	186
550 Haven Avenue/	0	0	0	0	0	0	0	0	0	0	0	0

Ontario New Model - Rich Haven External Intersections
 2015 AM Peak
 Meyer, Mohaddes Associates

Impact Analysis Report
 Level Of Service

Intersection		Base		Future		Change in	
		Del/ LOS Veh	V/ C	Del/ LOS Veh	V/ C		
# 1 Archibald Avenue/Riverside Dri	C	23.9	0.591	23.9	0.591	+ 0.000	D/V
# 2 Archibald Avenue/Chino Avenue	B	12.0	0.501	12.0	0.501	+ 0.000	D/V
# 3 Archibald Avenue/Schaefer Aven	B	16.5	0.521	16.5	0.521	+ 0.000	D/V
# 4 Archibald Avenue/Edison Avenue	C	29.7	0.684	29.7	0.684	+ 0.000	D/V
# 5 Turner Avenue/Riverside Drive	B	14.1	0.292	14.1	0.292	+ 0.000	D/V
# 6 Turner Avenue/Chino Avenue	A	8.1	0.084	8.1	0.084	+ 0.000	V/C
# 7 Turner Avenue at Schaefer Aven	A	2.3	0.099	2.3	0.099	+ 0.000	D/V
# 8 Edison Avenue at Schaefer Aven	A	2.9	0.347	2.9	0.347	+ 0.000	D/V
# 9 Haven Avenue/SR-60 WB Ramps	A	9.4	0.322	9.4	0.322	+ 0.000	D/V
# 10 Haven Avenue/SR-60 EB Ramps	B	11.0	0.597	11.0	0.597	+ 0.000	D/V
# 11 Haven Avenue/Riverside Drive	C	34.4	1.008	34.4	1.008	+ 0.000	D/V
# 12 Haven Avenue at Chino Avenue	A	8.4	0.521	8.4	0.521	+ 0.000	D/V
# 13 Haven Avenue at Edison Avenue	C	27.0	0.809	27.0	0.809	+ 0.000	D/V
# 14 Mill Creek Avenue/Riverside Dr	B	18.4	0.589	18.4	0.589	+ 0.000	D/V
# 15 Mill Creek Avenue at Chino Ave	B	14.3	0.164	14.3	0.164	+ 0.000	D/V
# 16 Mill Creek Avenue at Edison Av	A	5.7	0.374	5.7	0.374	+ 0.000	D/V
# 17 Milliken Avenue/SR-60 WB Ramps	C	21.1	0.657	21.1	0.657	+ 0.000	D/V
# 18 Milliken Avenue/SR-60 EB Ramps	C	23.2	0.910	23.2	0.910	+ 0.000	D/V
# 19 Milliken Avenue/Riverside Driv	E	66.9	1.070	66.9	1.070	+ 0.000	D/V
# 20 Milliken Ave / Chino Ave	B	14.0	0.335	14.0	0.335	+ 0.000	D/V
# 21 Milliken Avenue/Edison Avenue	C	33.1	0.843	33.1	0.843	+ 0.000	D/V
#550 Haven Avenue/Creekside Drive		0.0	0.000	0.0	0.000	+ 0.000	D/V

Ontario New Model - Rich Haven External Intersections
 2015 AM Peak
 Meyer, Mohaddes Associates

Level Of Service Computation Report
 2000 HCM Operations Method (Future Volume Alternative)

 Intersection #1 Archibald Avenue/Riverside Drive

Cycle (sec):	100	Critical Vol./Cap.(X):	0.591
Loss Time (sec):	0 (Y+R=4.0 sec)	Average Delay (sec/veh):	23.9
Optimal Cycle:	56	Level Of Service:	C

Approach:	North Bound	South Bound	East Bound	West Bound
Movement:	L - T - R	L - T - R	L - T - R	L - T - R

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Control:	Protected	Protected	Protected	Protected
Rights:	Include	Include	Include	Include
Min. Green:	0 0 0	0 0 0	0 0 0	0 0 0
Lanes:	1 0 2 1 0	1 0 2 1 0	1 0 1 1 0	1 0 1 1 0

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Volume Module:

Base Vol:	184 1580 75	65 507 76	158 440 68	55 249 126
Growth Adj:	1.00 1.00 1.00	1.00 1.00 1.00	1.00 1.00 1.00	1.00 1.00 1.00
Initial Bse:	184 1580 75	65 507 76	158 440 68	55 249 126
Added Vol:	0 0 0	0 0 0	0 0 0	0 0 0
PasserByVol:	0 0 0	0 0 0	0 0 0	0 0 0
Initial Fut:	184 1580 75	65 507 76	158 440 68	55 249 126
User Adj:	1.00 1.00 1.00	1.00 1.00 1.00	1.00 1.00 1.00	1.00 1.00 1.00
PHF Adj:	0.95 0.95 0.95	0.95 0.95 0.95	0.95 0.95 0.95	0.95 0.95 0.95
PHF Volume:	194 1663 79	68 534 80	166 463 72	58 262 133
Reduced Vol:	0 0 0	0 0 0	0 0 0	0 0 0
Reduced Vol:	194 1663 79	68 534 80	166 463 72	58 262 133
PCE Adj:	1.00 1.00 1.00	1.00 1.00 1.00	1.00 1.00 1.00	1.00 1.00 1.00
MLF Adj:	1.00 1.00 1.00	1.00 1.00 1.00	1.00 1.00 1.00	1.00 1.00 1.00
Final Vol.:	194 1663 79	68 534 80	166 463 72	58 262 133

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Saturation Flow Module:

Sat/Lane:	1900 1900 1900	1900 1900 1900	1900 1900 1900	1900 1900 1900
Adjustment:	0.90 0.90 0.90	0.90 0.89 0.89	0.90 0.93 0.93	0.90 0.90 0.90
Lanes:	1.00 2.86 0.14	1.00 2.61 0.39	1.00 1.73 0.27	1.00 1.33 0.67
Final Sat.:	1710 4917 233	1710 4425 663	1710 3064 474	1710 2277 1152

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Capacity Analysis Module:

Vol/Sat:	0.11 0.34 0.34	0.04 0.12 0.12	0.10 0.15 0.15	0.03 0.12 0.12
Crit Moves:	****	****	****	****
Green/Cycle:	0.31 0.57 0.57	0.07 0.33 0.33	0.16 0.29 0.29	0.07 0.19 0.19
Volume/Cap:	0.37 0.59 0.59	0.59 0.37 0.37	0.59 0.51 0.51	0.51 0.59 0.59
Delay/Veh:	27.3 14.1 14.1	53.1 25.6 25.6	42.0 29.8 29.8	49.2 38.0 38.0
User DelAdj:	1.00 1.00 1.00	1.00 1.00 1.00	1.00 1.00 1.00	1.00 1.00 1.00
AdjDel/Veh:	27.3 14.1 14.1	53.1 25.6 25.6	42.0 29.8 29.8	49.2 38.0 38.0
LOS by Move:	C B B	D C C	D C C	D D D
HCM2kAvgQ:	5 13 13	3 5 5	6 8 8	3 7 7

Note: Queue reported is the number of cars per lane.

Ontario New Model - Rich Haven External Intersections
 2015 AM Peak
 Meyer, Mohaddes Associates

Level Of Service Computation Report
 2000 HCM Operations Method (Future Volume Alternative)

 Intersection #2 Archibald Avenue/Chino Avenue

Cycle (sec): 90 Critical Vol./Cap.(X): 0.501
 Loss Time (sec): 0 (Y+R=4.0 sec) Average Delay (sec/veh): 12.0
 Optimal Cycle: 46 Level Of Service: B

Approach: North Bound South Bound East Bound West Bound
 Movement: L - T - R L - T - R L - T - R L - T - R

Control: Protected Protected Protected Protected
 Rights: Include Include Include Include
 Min. Green: 0 0 0 0 0 0 0 0 0 0 0 0
 Lanes: 1 0 2 1 0 1 0 2 1 0 1 0 1 0 1

Volume Module:
 Base Vol: 69 1666 36 63 608 1 1 36 40 59 22 177
 Growth Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
 Initial Bse: 69 1666 36 63 608 1 1 36 40 59 22 177
 Added Vol: 0 0 0 0 0 0 0 0 0 0 0 0
 PasserByVol: 0 0 0 0 0 0 0 0 0 0 0 0
 Initial Fut: 69 1666 36 63 608 1 1 36 40 59 22 177
 User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
 PHF Adj: 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95
 PHF Volume: 73 1754 38 66 640 1 1 38 42 62 23 186
 Reduct Vol: 0 0 0 0 0 0 0 0 0 0 0 0
 Reduced Vol: 73 1754 38 66 640 1 1 38 42 62 23 186
 PCE Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
 MLF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
 Final Vol.: 73 1754 38 66 640 1 1 38 42 62 23 186

Saturation Flow Module:
 Sat/Lane: 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900
 Adjustment: 0.90 0.91 0.91 0.90 0.91 0.91 0.90 0.92 0.92 0.90 1.00 0.85
 Lanes: 1.00 2.94 0.06 1.00 2.99 0.01 1.00 0.47 0.53 1.00 1.00 1.00
 Final Sat.: 1710 5062 109 1710 5178 9 1710 829 921 1710 1900 1615

Capacity Analysis Module:
 Vol/Sat: 0.04 0.35 0.35 0.04 0.12 0.12 0.00 0.05 0.05 0.04 0.01 0.12
 Crit Moves: ****
 Green/Cycle: 0.20 0.69 0.69 0.08 0.57 0.57 0.00 0.13 0.13 0.10 0.23 0.23
 Volume/Cap: 0.22 0.50 0.50 0.50 0.22 0.22 0.50 0.35 0.35 0.35 0.05 0.50
 Delay/Veh: 30.7 6.7 6.7 42.8 9.4 9.4 168.3 36.7 36.7 38.9 27.0 31.2
 User DelAdj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
 AdjDel/Veh: 30.7 6.7 6.7 42.8 9.4 9.4 168.3 36.7 36.7 38.9 27.0 31.2
 LOS by Move: C A A D A A F D D D C C
 HCM2kAvgQ: 2 9 9 3 3 3 0 2 2 2 1 5

Note: Queue reported is the number of cars per lane.

Ontario New Model - Rich Haven External Intersections
 2015 AM Peak
 Meyer, Mohaddes Associates

Level Of Service Computation Report
 2000 HCM Operations Method (Future Volume Alternative)

 Intersection #3 Archibald Avenue/Schaefer Avenue

Cycle (sec): 100 Critical Vol./Cap.(X): 0.521
 Loss Time (sec): 0 (Y+R=4.0 sec) Average Delay (sec/veh): 16.5
 Optimal Cycle: 39 Level Of Service: B

Approach: North Bound South Bound East Bound West Bound
 Movement: L - T - R L - T - R L - T - R L - T - R

Control: Protected Protected Permitted Permitted
 Rights: Include Include Include Include
 Min. Green: 0 0 0 0 0 0 0 0 0 0 0 0
 Lanes: 1 0 2 1 0 1 0 2 1 0 1 0 1 1 0

Volume Module:
 Base Vol: 14 1365 0 99 673 17 84 26 12 2 26 271
 Growth Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
 Initial Bse: 14 1365 0 99 673 17 84 26 12 2 26 271
 Added Vol: 0 0 0 0 0 0 0 0 0 0 0 0
 PasserByVol: 0 0 0 0 0 0 0 0 0 0 0 0
 Initial Fut: 14 1365 0 99 673 17 84 26 12 2 26 271
 User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
 PHF Adj: 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95
 PHF Volume: 15 1437 0 104 708 18 88 27 13 2 27 285
 Reduct Vol: 0 0 0 0 0 0 0 0 0 0 0 0
 Reduced Vol: 15 1437 0 104 708 18 88 27 13 2 27 285
 PCE Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
 MLF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
 Final Vol.: 15 1437 0 104 708 18 88 27 13 2 27 285

Saturation Flow Module:
 Sat/Lane: 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900
 Adjustment: 0.90 0.91 0.91 0.90 0.91 0.91 0.43 0.91 0.91 0.68 0.82 0.82
 Lanes: 1.00 3.00 0.00 1.00 2.93 0.07 1.00 1.37 0.63 1.00 1.00 1.00
 Final Sat.: 1710 5187 0 1710 5039 127 817 2354 1086 1292 1558 1558

Capacity Analysis Module:
 Vol/Sat: 0.01 0.28 0.00 0.06 0.14 0.14 0.11 0.01 0.01 0.00 0.02 0.18
 Crit Moves: ****
 Green/Cycle: 0.04 0.53 0.00 0.12 0.61 0.61 0.35 0.35 0.35 0.35 0.35 0.35
 Volume/Cap: 0.23 0.52 0.00 0.52 0.23 0.23 0.31 0.03 0.03 0.00 0.05 0.52
 Delay/Veh: 48.6 15.4 0.0 44.0 8.8 8.8 24.2 21.3 21.3 21.1 21.4 26.6
 User DelAdj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
 AdjDel/Veh: 48.6 15.4 0.0 44.0 8.8 8.8 24.2 21.3 21.3 21.1 21.4 26.6
 LOS by Move: D B A D A A C C C C C C
 HCM2kAvgQ: 1 11 0 4 4 4 2 0 0 0 1 8

Note: Queue reported is the number of cars per lane.

Ontario New Model - Rich Haven External Intersections
2015 AM Peak
Meyer, Mohaddes Associates

Level Of Service Computation Report
2000 HCM Operations Method (Future Volume Alternative)

Intersection #4 Archibald Avenue/Edison Avenue

Cycle (sec): 100 Critical Vol./Cap.(X): 0.684
Loss Time (sec): 0 (Y+R=4.0 sec) Average Delay (sec/veh): 29.7
Optimal Cycle: 72 Level Of Service: C

Approach: North Bound South Bound East Bound West Bound
Movement: L - T - R L - T - R L - T - R L - T - R

Control: Protected Protected Protected Protected
Rights: Include Include Include Include
Min. Green: 0 0 0 0 0 0 0 0 0 0 0 0
Lanes: 2 0 2 1 0 2 0 2 1 0 2 0 3 1 0 2 0 3 1 0

Volume Module:

Base Vol: 772 881 237 61 336 201 218 805 231 341 1384 123
Growth Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
Initial Bse: 772 881 237 61 336 201 218 805 231 341 1384 123
Added Vol: 0 0 0 0 0 0 0 0 0 0 0 0
PasserByVol: 0 0 0 0 0 0 0 0 0 0 0 0
Initial Fut: 772 881 237 61 336 201 218 805 231 341 1384 123
User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
PHF Adj: 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95
PHF Volume: 813 927 249 64 354 212 229 847 243 359 1457 129
Reduced Vol: 0 0 0 0 0 0 0 0 0 0 0 0
Reduced Vol: 813 927 249 64 354 212 229 847 243 359 1457 129
PCE Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
MLF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
Final Vol.: 813 927 249 64 354 212 229 847 243 359 1457 129

Saturation Flow Module:

Sat/Lane: 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900
Adjustment: 0.85 0.88 0.88 0.85 0.86 0.86 0.85 0.88 0.88 0.85 0.90 0.90
Lanes: 2.00 2.36 0.64 2.00 2.00 1.00 2.00 3.11 0.89 2.00 3.67 0.33
Final Sat.: 3230 3957 1064 3230 3264 1632 3230 5197 1491 3230 6275 558

Capacity Analysis Module:

Vol/Sat: 0.25 0.23 0.23 0.02 0.11 0.13 0.07 0.16 0.16 0.11 0.23 0.23
Crit Moves: ****
Green/Cycle: 0.37 0.51 0.51 0.04 0.19 0.19 0.10 0.26 0.26 0.18 0.34 0.34
Volume/Cap: 0.68 0.46 0.46 0.46 0.57 0.68 0.68 0.62 0.62 0.62 0.68 0.68
Delay/Veh: 28.4 15.6 15.6 49.0 37.7 40.1 49.0 33.1 33.1 39.9 29.3 29.3
User DelAdj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
AdjDel/Veh: 28.4 15.6 15.6 49.0 37.7 40.1 49.0 33.1 33.1 39.9 29.3 29.3
LOS by Move: C B B D D D D C C D C C
HCM2kAvgQ: 13 8 8 2 6 8 5 9 9 7 12 12

Note: Queue reported is the number of cars per lane.

Ontario New Model - Rich Haven External Intersections
2015 AM Peak
Meyer, Mohaddes Associates

Level Of Service Computation Report
2000 HCM Operations Method (Future Volume Alternative)

Intersection #5 Turner Avenue/Riverside Drive

Cycle (sec): 100 Critical Vol./Cap.(X): 0.292
Loss Time (sec): 0 (Y+R=4.0 sec) Average Delay (sec/veh): 14.1
Optimal Cycle: 26 Level Of Service: B

Approach: North Bound South Bound East Bound West Bound
Movement: L - T - R L - T - R L - T - R L - T - R

Control: Permitted Permitted Protected Protected
Rights: Include Include Include Include
Min. Green: 0 0 0 0 0 0 0 0 0 0 0 0
Lanes: 1 0 1 1 0 1 0 1 1 0 1 0 1 1 0 1 0 1 1 0

Volume Module:

Base Vol: 0 5 103 94 3 79 29 623 0 35 363 44
Growth Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
Initial Bse: 0 5 103 94 3 79 29 623 0 35 363 44
Added Vol: 0 0 0 0 0 0 0 0 0 0 0 0
PasserByVol: 0 0 0 0 0 0 0 0 0 0 0 0
Initial Fut: 0 5 103 94 3 79 29 623 0 35 363 44
User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
PHF Adj: 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95
PHF Volume: 0 5 108 99 3 83 31 656 0 37 382 46
Reduced Vol: 0 0 0 0 0 0 0 0 0 0 0 0
Reduced Vol: 0 5 108 99 3 83 31 656 0 37 382 46
PCE Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
MLF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
Final Vol.: 0 5 108 99 3 83 31 656 0 37 382 46

Saturation Flow Module:

Sat/Lane: 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900
Adjustment: 0.95 0.81 0.81 0.59 0.81 0.81 0.90 0.95 0.95 0.90 0.93 0.93
Lanes: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 2.00 0.00 1.00 1.78 0.22
Final Sat.: 1800 1547 1547 1120 1545 1545 1710 3610 0 1710 3168 384

Capacity Analysis Module:

Vol/Sat: 0.00 0.00 0.07 0.09 0.00 0.05 0.02 0.18 0.00 0.02 0.12 0.12
Crit Moves: ****
Green/Cycle: 0.00 0.30 0.30 0.30 0.30 0.30 0.09 0.62 0.00 0.07 0.61 0.61
Volume/Cap: 0.00 0.01 0.23 0.29 0.01 0.18 0.20 0.29 0.00 0.29 0.20 0.20
Delay/Veh: 0.0 24.4 26.4 27.1 24.3 25.8 42.8 8.8 0.0 45.1 8.8 8.8
User DelAdj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
AdjDel/Veh: 0.0 24.4 26.4 27.1 24.3 25.8 42.8 8.8 0.0 45.1 8.8 8.8
LOS by Move: A C C C C C D A A D A A
HCM2kAvgQ: 0 0 3 3 0 2 1 5 0 1 3 3

Note: Queue reported is the number of cars per lane.

Ontario New Model - Rich Haven External Intersections
 2015 AM Peak
 Meyer, Mohaddes Associates

 Level Of Service Computation Report
 2000 HCM 4-Way Stop Method (Future Volume Alternative)

 Intersection #6 Turner Avenue/Chino Avenue

 Cycle (sec): 100 Critical Vol./Cap.(X): 0.084
 Loss Time (sec): 0 (Y+R=4.0 sec) Average Delay (sec/veh): 8.1
 Optimal Cycle: 0 Level Of Service: A

 Approach: North Bound South Bound East Bound West Bound
 Movement: L - T - R L - T - R L - T - R L - T - R

 Control: Stop Sign Stop Sign Stop Sign Stop Sign
 Rights: Include Include Include Include
 Min. Green: 0 0 0 0 0 0 0 0 0 0 0 0
 Lanes: 1 0 1 1 0 1 0 1 1 0 1 0 1 1 0

 Volume Module:
 Base Vol: 23 32 19 5 13 34 24 104 7 2 76 5
 Growth Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
 Initial Bse: 23 32 19 5 13 34 24 104 7 2 76 5
 Added Vol: 0 0 0 0 0 0 0 0 0 0 0 0
 PasserByVol: 0 0 0 0 0 0 0 0 0 0 0 0
 Initial Fut: 23 32 19 5 13 34 24 104 7 2 76 5
 User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
 PHF Adj: 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95
 PHF Volume: 24 34 20 5 14 36 25 109 7 2 80 5
 Reduct Vol: 0 0 0 0 0 0 0 0 0 0 0 0
 Reduced Vol: 24 34 20 5 14 36 25 109 7 2 80 5
 PCE Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
 MLF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
 Final Vol.: 24 34 20 5 14 36 25 109 7 2 80 5

 Saturation Flow Module:
 Adjustment: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
 Lanes: 1.00 1.25 0.75 1.00 1.00 1.00 1.00 1.87 0.13 1.00 1.88 0.12
 Final Sat.: 602 842 540 595 649 743 630 1304 89 615 1271 84

 Capacity Analysis Module:
 Vol/Sat: 0.04 0.04 0.04 0.01 0.02 0.05 0.04 0.08 0.08 0.00 0.06 0.06
 Crit Moves: **** **** **** ****
 Delay/Veh: 8.7 8.0 7.6 8.5 8.1 7.5 8.5 8.1 8.1 8.4 8.1 8.1
 Delay Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
 AdjDel/Veh: 8.7 8.0 7.6 8.5 8.1 7.5 8.5 8.1 8.1 8.4 8.1 8.1
 LOS by Move: A A A A A A A A A A A A
 ApproachDel: 8.1 7.8 8.2 8.1
 Delay Adj: 1.00 1.00 1.00
 ApprAdjDel: 8.1 7.8 8.2 8.1
 LOS by Appr: A A A A
 AllWayAvgQ: 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.1 0.1 0.0 0.1 0.1

 Note: Queue reported is the number of cars per lane.

Ontario New Model - Rich Haven External Intersections
 2015 AM Peak
 Meyer, Mohaddes Associates

 Level Of Service Computation Report
 2000 HCM Operations Method (Future Volume Alternative)

 Intersection #7 Turner Avenue at Schaefer Avenue

 Cycle (sec): 100 Critical Vol./Cap.(X): 0.099
 Loss Time (sec): 0 (Y+R=4.0 sec) Average Delay (sec/veh): 2.3
 Optimal Cycle: 21 Level Of Service: A

 Approach: North Bound South Bound East Bound West Bound
 Movement: L - T - R L - T - R L - T - R L - T - R

 Control: Split Phase Split Phase Protected Permitted
 Rights: Include Include Include Include
 Min. Green: 0 0 0 0 0 0 0 0 0 0 0 0
 Lanes: 0 0 0 0 0 1 0 1 0 0 1 0 2 0 0 0 0 1 1 0

 Volume Module:
 Base Vol: 0 0 0 17 0 3 1 125 0 0 295 15
 Growth Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
 Initial Bse: 0 0 0 17 0 3 1 125 0 0 295 15
 Added Vol: 0 0 0 0 0 0 0 0 0 0 0 0
 PasserByVol: 0 0 0 0 0 0 0 0 0 0 0 0
 Initial Fut: 0 0 0 17 0 3 1 125 0 0 295 15
 User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
 PHF Adj: 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95
 PHF Volume: 0 0 0 18 0 3 1 132 0 0 311 16
 Reduct Vol: 0 0 0 0 0 0 0 0 0 0 0 0
 Reduced Vol: 0 0 0 18 0 3 1 132 0 0 311 16
 PCE Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
 MLF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
 Final Vol.: 0 0 0 18 0 3 1 132 0 0 311 16

 Saturation Flow Module:
 Sat/Lane: 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900
 Adjustment: 0.95 1.00 1.00 0.89 1.00 0.94 0.90 0.95 1.00 0.95 0.94 0.94
 Lanes: 0.00 0.00 0.00 1.75 0.00 0.25 1.00 2.00 0.00 0.00 1.90 0.10
 Final Sat.: 0 0 0 2953 0 447 1710 3610 0 0 3411 173

 Capacity Analysis Module:
 Vol/Sat: 0.00 0.00 0.00 0.01 0.00 0.01 0.00 0.04 0.00 0.00 0.09 0.09
 Crit Moves: **** ****
 Green/Cycle: 0.00 0.00 0.00 0.07 0.00 0.07 0.01 0.93 0.00 0.00 0.92 0.92
 Volume/Cap: 0.00 0.00 0.00 0.08 0.00 0.10 0.10 0.04 0.00 0.00 0.10 0.10
 Delay/Veh: 0.0 0.0 0.0 43.5 0.0 43.6 53.5 0.3 0.0 0.0 0.3 0.3
 User DelAdj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
 AdjDel/Veh: 0.0 0.0 0.0 43.5 0.0 43.6 53.5 0.3 0.0 0.0 0.3 0.3
 LOS by Move: A A A D A D D A A A A A
 HCM2kAvgQ: 0 0 0 0 0 0 0 0 0 0 0 1 1

 Note: Queue reported is the number of cars per lane.

Ontario New Model - Rich Haven External Intersections
 2015 AM Peak
 Meyer, Mohaddes Associates

Level Of Service Computation Report
 2000 HCM Operations Method (Future Volume Alternative)

 Intersection #8 Edison Avenue at Schaefer Avenue

Cycle (sec): 100 Critical Vol./Cap.(X): 0.347
 Loss Time (sec): 0 (Y+R=4.0 sec) Average Delay (sec/veh): 2.9
 Optimal Cycle: 28 Level Of Service: A

Approach: North Bound South Bound East Bound West Bound
 Movement: L - T - R L - T - R L - T - R L - T - R

Control: Split Phase Split Phase Permitted Permitted
 Rights: Include Include Include Include
 Min. Green: 0 0 0 0 0 0 0 0 0 0 0 0
 Lanes: 0 0 0 0 0 1 0 1 0 0 1 0 4 0 0 0 0 0 3 1 0

Volume Module:
 Base Vol: 0 0 0 136 0 6 8 1047 0 0 1635 302
 Growth Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
 Initial Bse: 0 0 0 136 0 6 8 1047 0 0 1635 302
 Added Vol: 0 0 0 0 0 0 0 0 0 0 0 0 0
 PasserByVol: 0 0 0 0 0 0 0 0 0 0 0 0 0
 Initial Fut: 0 0 0 136 0 6 8 1047 0 0 1635 302
 User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
 PHF Adj: 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95
 PHF Volume: 0 0 0 143 0 6 8 1102 0 0 1721 318
 Reduct Vol: 0 0 0 0 0 0 0 0 0 0 0 0
 Reduced Vol: 0 0 0 143 0 6 8 1102 0 0 1721 318
 PCE Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
 MLF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
 Final Vol.: 0 0 0 143 0 6 8 1102 0 0 1721 318

Saturation Flow Module:
 Sat/Lane: 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900
 Adjustment: 0.95 1.00 1.00 0.90 1.00 0.95 0.08 0.91 1.00 0.95 0.89 0.89
 Lanes: 0.00 0.00 0.00 1.92 0.00 0.08 1.00 4.00 0.00 0.00 3.38 0.62
 Final Sat.: 0 0 0 3282 0 139 153 6916 0 0 5703 1053

Capacity Analysis Module:
 Vol/Sat: 0.00 0.00 0.00 0.04 0.00 0.05 0.06 0.16 0.00 0.00 0.30 0.30
 Crit Moves: ****
 Green/Cycle: 0.00 0.00 0.00 0.13 0.00 0.13 0.87 0.87 0.00 0.00 0.87 0.87
 Volume/Cap: 0.00 0.00 0.00 0.33 0.00 0.35 0.06 0.18 0.00 0.00 0.35 0.35
 Delay/Veh: 0.0 0.0 0.0 39.9 0.0 40.1 1.1 1.0 0.0 0.0 1.3 1.3
 User DelAdj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
 AdjDel/Veh: 0.0 0.0 0.0 39.9 0.0 40.1 1.1 1.0 0.0 0.0 1.3 1.3
 LOS by Move: A A A D A D A A A A A A
 HCM2kAvgQ: 0 0 0 2 0 3 0 2 0 0 3 3

Note: Queue reported is the number of cars per lane.

Ontario New Model - Rich Haven External Intersections
 2015 AM Peak
 Meyer, Mohaddes Associates

Level Of Service Computation Report
 2000 HCM Operations Method (Future Volume Alternative)

 Intersection #9 Haven Avenue/SR-60 WB Ramps

Cycle (sec): 100 Critical Vol./Cap.(X): 0.322
 Loss Time (sec): 0 (Y+R=4.0 sec) Average Delay (sec/veh): 9.4
 Optimal Cycle: 31 Level Of Service: A

Approach: North Bound South Bound East Bound West Bound
 Movement: L - T - R L - T - R L - T - R L - T - R

Control: Protected Permitted Split Phase Split Phase
 Rights: Include Include Include Ignore
 Min. Green: 0 0 0 0 0 0 0 0 0 0 0 0
 Lanes: 2 0 3 0 0 0 0 3 0 1 0 0 0 0 0 1 1 1 0 0 1

Volume Module:
 Base Vol: 410 1433 0 0 426 22 0 0 0 100 0 803
 Growth Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
 Initial Bse: 410 1433 0 0 426 22 0 0 0 100 0 803
 Added Vol: 0 0 0 0 0 0 0 0 0 0 0 0
 PasserByVol: 0 0 0 0 0 0 0 0 0 0 0 0
 Initial Fut: 410 1433 0 0 426 22 0 0 0 100 0 803
 User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
 PHF Adj: 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95
 PHF Volume: 432 1508 0 0 448 23 0 0 0 105 0 0
 Reduct Vol: 0 0 0 0 0 0 0 0 0 0 0 0
 Reduced Vol: 432 1508 0 0 448 23 0 0 0 105 0 0
 PCE Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
 MLF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
 Final Vol.: 432 1508 0 0 448 23 0 0 0 105 0 0

Saturation Flow Module:
 Sat/Lane: 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900
 Adjustment: 0.85 0.91 1.00 0.95 0.91 0.85 0.95 1.00 1.00 0.90 1.00 1.00
 Lanes: 2.00 3.00 0.00 0.00 3.00 1.00 0.00 0.00 0.00 2.00 0.00 1.00
 Final Sat.: 3230 5187 0 0 5187 1615 0 0 0 3427 0 1900

Capacity Analysis Module:
 Vol/Sat: 0.13 0.29 0.00 0.00 0.09 0.01 0.00 0.00 0.00 0.03 0.00 0.00
 Crit Moves: ****
 Green/Cycle: 0.71 0.92 0.00 0.00 0.21 0.21 0.00 0.00 0.00 0.08 0.00 0.00
 Volume/Cap: 0.19 0.31 0.00 0.00 0.41 0.07 0.00 0.00 0.00 0.41 0.00 0.00
 Delay/Veh: 4.8 0.4 0.0 0.0 34.2 31.6 0.0 0.0 0.0 45.2 0.0 0.0
 User DelAdj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
 AdjDel/Veh: 4.8 0.4 0.0 0.0 34.2 31.6 0.0 0.0 0.0 45.2 0.0 0.0
 LOS by Move: A A A A C C A A A D A A
 HCM2kAvgQ: 2 2 0 0 5 1 0 0 0 2 0 0

Note: Queue reported is the number of cars per lane.

Ontario New Model - Rich Haven External Intersections
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Level Of Service Computation Report

2000 HCM Operations Method (Future Volume Alternative)

 Intersection #10 Haven Avenue/SR-60 EB Ramps

Cycle (sec): 100 Critical Vol./Cap.(X): 0.597
 Loss Time (sec): 0 (Y+R=4.0 sec) Average Delay (sec/veh): 11.0
 Optimal Cycle: 46 Level Of Service: B

Approach: North Bound South Bound East Bound West Bound
 Movement: L - T - R L - T - R L - T - R L - T - R

Control: Permitted Protected Split Phase Split Phase
 Rights: Include Include Include Include
 Min. Green: 0 0 0 0 0 0 0 0 0 0 0 0
 Lanes: 0 0 2 1 0 2 0 3 0 0 1 1 0 0 1 0 0 0 0 0

Volume Module:
 Base Vol: 0 1768 285 91 437 0 75 0 217 0 0 0
 Growth Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
 Initial Bse: 0 1768 285 91 437 0 75 0 217 0 0 0
 Added Vol: 0 0 0 0 0 0 0 0 0 0 0 0
 PasserByVol: 0 0 0 0 0 0 0 0 0 0 0 0
 Initial Fut: 0 1768 285 91 437 0 75 0 217 0 0 0
 User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
 PHF Adj: 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95
 PHF Volume: 0 1861 300 96 460 0 79 0 228 0 0 0
 Reduct Vol: 0 0 0 0 0 0 0 0 0 0 0 0
 Reduced Vol: 0 1861 300 96 460 0 79 0 228 0 0 0
 PCE Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
 MLF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
 Final Vol.: 0 1861 300 96 460 0 79 0 228 0 0 0

Saturation Flow Module:
 Sat/Lane: 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900
 Adjustment: 0.95 0.89 0.89 0.85 0.91 1.00 0.90 1.00 0.85 0.95 1.00 1.00
 Lanes: 0.00 2.58 0.42 2.00 3.00 0.00 2.00 0.00 1.00 0.00 0.00 0.00
 Final Sat.: 0 4373 705 3230 5187 0 3427 0 1615 0 0 0

Capacity Analysis Module:
 Vol/Sat: 0.00 0.43 0.43 0.03 0.09 0.00 0.02 0.00 0.14 0.00 0.00 0.00
 Crit Moves: ****
 Green/Cycle: 0.00 0.71 0.71 0.05 0.76 0.00 0.24 0.00 0.24 0.00 0.00 0.00
 Volume/Cap: 0.00 0.60 0.60 0.60 0.12 0.00 0.10 0.00 0.60 0.00 0.00 0.00
 Delay/Veh: 0.0 7.4 7.4 52.6 3.1 0.0 29.8 0.0 36.5 0.0 0.0 0.0
 User DelAdj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
 AdjDel/Veh: 0.0 7.4 7.4 52.6 3.1 0.0 29.8 0.0 36.5 0.0 0.0 0.0
 LOS by Move: A A A D A A C A D A A A
 HCM2kAvgQ: 0 12 12 3 1 0 1 0 7 0 0 0

Note: Queue reported is the number of cars per lane.

Ontario New Model - Rich Haven External Intersections
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Level Of Service Computation Report

2000 HCM Operations Method (Future Volume Alternative)

 Intersection #11 Haven Avenue/Riverside Drive

Cycle (sec): 100 Critical Vol./Cap.(X): 1.008
 Loss Time (sec): 0 (Y+R=4.0 sec) Average Delay (sec/veh): 34.4
 Optimal Cycle: 180 Level Of Service: C

Approach: North Bound South Bound East Bound West Bound
 Movement: L - T - R L - T - R L - T - R L - T - R

Control: Permitted Permitted Protected Protected
 Rights: Include Include Include Include
 Min. Green: 0 0 0 0 0 0 0 0 0 0 0 0
 Lanes: 1 0 1 1 0 1 0 1 1 0 1 0 1 1 0

Volume Module:
 Base Vol: 89 1289 216 128 435 44 140 632 79 125 304 145
 Growth Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
 Initial Bse: 89 1289 216 128 435 44 140 632 79 125 304 145
 Added Vol: 0 0 0 0 0 0 0 0 0 0 0 0
 PasserByVol: 0 0 0 0 0 0 0 0 0 0 0 0
 Initial Fut: 89 1289 216 128 435 44 140 632 79 125 304 145
 User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
 PHF Adj: 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95
 PHF Volume: 94 1357 227 135 458 46 147 665 83 132 320 153
 Reduct Vol: 0 0 0 0 0 0 0 0 0 0 0 0
 Reduced Vol: 94 1357 227 135 458 46 147 665 83 132 320 153
 PCE Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
 MLF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
 Final Vol.: 94 1357 227 135 458 46 147 665 83 132 320 153

Saturation Flow Module:
 Sat/Lane: 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900
 Adjustment: 0.41 0.93 0.93 0.10 0.94 0.94 0.90 0.93 0.93 0.90 0.90 0.90
 Lanes: 1.00 1.71 0.29 1.00 1.82 0.18 1.00 1.78 0.22 1.00 1.35 0.65
 Final Sat.: 776 3024 507 187 3232 327 1710 3154 394 1710 2327 1110

Capacity Analysis Module:
 Vol/Sat: 0.12 0.45 0.45 0.72 0.14 0.14 0.09 0.21 0.21 0.08 0.14 0.14
 Crit Moves: ****
 Green/Cycle: 0.71 0.71 0.71 0.71 0.71 0.71 0.11 0.21 0.21 0.08 0.18 0.18
 Volume/Cap: 0.17 0.63 0.63 1.01 0.20 0.20 0.78 1.01 1.01 1.01 0.78 0.78
 Delay/Veh: 4.8 7.9 7.9 94.1 4.8 4.8 62.3 74.4 74.4 127.0 46.0 46.0
 User DelAdj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
 AdjDel/Veh: 4.8 7.9 7.9 94.1 4.8 4.8 62.3 74.4 74.4 127.0 46.0 46.0
 LOS by Move: A A A F A A E E E F D D
 HCM2kAvgQ: 1 14 14 8 3 3 7 18 18 8 9 9

Note: Queue reported is the number of cars per lane.

Ontario New Model - Rich Haven External Intersections
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Level Of Service Computation Report
 2000 HCM Operations Method (Future Volume Alternative)

 Intersection #12 Haven Avenue at Chino Avenue

Cycle (sec): 100 Critical Vol./Cap.(X): 0.521
 Loss Time (sec): 0 (Y+R=4.0 sec) Average Delay (sec/veh): 8.4
 Optimal Cycle: 30 Level Of Service: A

Approach: North Bound South Bound East Bound West Bound
 Movement: L - T - R L - T - R L - T - R L - T - R

Control: Permitted Permitted Permitted Permitted
 Rights: Include Include Include Include
 Min. Green: 0 0 0 0 0 0 0 0 0 0 0 0
 Lanes: 1 0 1 1 0 1 0 1 1 0 1 0 1 1 0

Volume Module:
 Base Vol: 22 1297 84 45 518 3 27 66 25 41 22 171
 Growth Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
 Initial Bse: 22 1297 84 45 518 3 27 66 25 41 22 171
 Added Vol: 0 0 0 0 0 0 0 0 0 0 0 0
 PasserByVol: 0 0 0 0 0 0 0 0 0 0 0 0
 Initial Fut: 22 1297 84 45 518 3 27 66 25 41 22 171
 User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
 PHF Adj: 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95
 PHF Volume: 23 1365 88 47 545 3 28 69 26 43 23 180
 Reduct Vol: 0 0 0 0 0 0 0 0 0 0 0 0
 Reduced Vol: 23 1365 88 47 545 3 28 69 26 43 23 180
 PCE Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
 MLF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
 Final Vol.: 23 1365 88 47 545 3 28 69 26 43 23 180

Saturation Flow Module:
 Sat/Lane: 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900
 Adjustment: 0.40 0.94 0.94 0.14 0.95 0.95 0.45 0.91 0.91 0.59 0.82 0.82
 Lanes: 1.00 1.88 0.12 1.00 1.99 0.01 1.00 1.45 0.55 1.00 1.00 1.00
 Final Sat.: 756 3360 218 259 3586 21 862 2511 951 1114 1565 1565

Capacity Analysis Module:
 Vol/Sat: 0.03 0.41 0.41 0.18 0.15 0.15 0.03 0.03 0.03 0.04 0.01 0.12
 Crit Moves: ****
 Green/Cycle: 0.78 0.78 0.78 0.78 0.78 0.78 0.22 0.22 0.22 0.22 0.22 0.22
 Volume/Cap: 0.04 0.52 0.52 0.23 0.20 0.20 0.15 0.13 0.13 0.18 0.07 0.52
 Delay/Veh: 2.5 4.3 4.3 3.6 2.9 2.9 31.8 31.3 31.3 31.9 30.8 35.6
 User DelAdj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
 AdjDel/Veh: 2.5 4.3 4.3 3.6 2.9 2.9 31.8 31.3 31.3 31.9 30.8 35.6
 LOS by Move: A A A A A A C C C C C D
 HCM2kAvgQ: 0 9 9 1 2 2 1 1 1 1 1 6

Note: Queue reported is the number of cars per lane.

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Level Of Service Computation Report
 2000 HCM Operations Method (Future Volume Alternative)

 Intersection #13 Haven Avenue at Edison Avenue

Cycle (sec): 100 Critical Vol./Cap.(X): 0.809
 Loss Time (sec): 0 (Y+R=4.0 sec) Average Delay (sec/veh): 27.0
 Optimal Cycle: 97 Level Of Service: C

Approach: North Bound South Bound East Bound West Bound
 Movement: L - T - R L - T - R L - T - R L - T - R

Control: Permitted Permitted Protected Protected
 Rights: Include Include Include Include
 Min. Green: 0 0 0 0 0 0 0 0 0 0 0 0
 Lanes: 1 0 1 1 0 1 0 1 1 0 1 0 3 1 0 1 0 3 1 0

Volume Module:
 Base Vol: 168 806 211 131 334 210 158 954 71 126 1563 130
 Growth Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
 Initial Bse: 168 806 211 131 334 210 158 954 71 126 1563 130
 Added Vol: 0 0 0 0 0 0 0 0 0 0 0 0
 PasserByVol: 0 0 0 0 0 0 0 0 0 0 0 0
 Initial Fut: 168 806 211 131 334 210 158 954 71 126 1563 130
 User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
 PHF Adj: 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95
 PHF Volume: 177 848 222 138 352 221 166 1004 75 133 1645 137
 Reduct Vol: 0 0 0 0 0 0 0 0 0 0 0 0
 Reduced Vol: 177 848 222 138 352 221 166 1004 75 133 1645 137
 PCE Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
 MLF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
 Final Vol.: 177 848 222 138 352 221 166 1004 75 133 1645 137

Saturation Flow Module:
 Sat/Lane: 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900
 Adjustment: 0.34 0.92 0.92 0.16 0.89 0.89 0.90 0.90 0.90 0.90 0.90 0.90
 Lanes: 1.00 1.59 0.41 1.00 1.23 0.77 1.00 3.72 0.28 1.00 3.69 0.31
 Final Sat.: 655 2772 726 306 2088 1313 1710 6373 474 1710 6308 525

Capacity Analysis Module:
 Vol/Sat: 0.27 0.31 0.31 0.45 0.17 0.17 0.10 0.16 0.16 0.08 0.26 0.26
 Crit Moves: ****
 Green/Cycle: 0.56 0.56 0.56 0.56 0.56 0.56 0.12 0.30 0.30 0.15 0.32 0.32
 Volume/Cap: 0.48 0.55 0.55 0.81 0.30 0.30 0.81 0.53 0.53 0.53 0.81 0.81
 Delay/Veh: 14.4 14.5 14.5 42.0 11.9 11.9 63.6 29.6 29.6 41.7 33.4 33.4
 User DelAdj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
 AdjDel/Veh: 14.4 14.5 14.5 42.0 11.9 11.9 63.6 29.6 29.6 41.7 33.4 33.4
 LOS by Move: B B B D B B E C C D C C
 HCM2kAvgQ: 4 11 11 6 5 5 8 8 8 5 16 16

Note: Queue reported is the number of cars per lane.

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Level Of Service Computation Report
 2000 HCM Operations Method (Future Volume Alternative)

Intersection #14 Mill Creek Avenue/Riverside Drive

Cycle (sec): 100 Critical Vol./Cap.(X): 0.589
 Loss Time (sec): 0 (Y+R=4.0 sec) Average Delay (sec/veh): 18.4
 Optimal Cycle: 45 Level Of Service: B

Approach: North Bound South Bound East Bound West Bound
 Movement: L - T - R L - T - R L - T - R L - T - R

Control: Permitted Permitted Protected Protected
 Rights: Include Include Include Include
 Min. Green: 0 0 0 0 0 0 0 0 0 0 0 0
 Lanes: 1 0 1 0 1 1 0 0 1 1 0 1 0 1 1 0

Volume Module:
 Base Vol: 39 199 87 107 180 116 164 1332 19 32 505 28
 Growth Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
 Initial Bse: 39 199 87 107 180 116 164 1332 19 32 505 28
 Added Vol: 0 0 0 0 0 0 0 0 0 0 0 0
 PasserByVol: 0 0 0 0 0 0 0 0 0 0 0 0
 Initial Fut: 39 199 87 107 180 116 164 1332 19 32 505 28
 User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
 PHF Adj: 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95
 PHF Volume: 41 209 92 113 189 122 173 1402 20 34 532 29
 Reduced Vol: 0 0 0 0 0 0 0 0 0 0 0 0
 Reduced Vol: 41 209 92 113 189 122 173 1402 20 34 532 29
 PCE Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
 MLF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
 Final Vol.: 41 209 92 113 189 122 173 1402 20 34 532 29

Saturation Flow Module:
 Sat/Lane: 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900
 Adjustment: 0.27 1.00 0.85 0.40 0.94 0.94 0.90 0.95 0.95 0.90 0.94 0.94
 Lanes: 1.00 1.00 1.00 1.00 0.61 0.39 1.00 1.97 0.03 1.00 1.89 0.11
 Final Sat.: 511 1900 1615 767 1087 701 1710 3552 51 1710 3393 188

Capacity Analysis Module:
 Vol/Sat: 0.08 0.11 0.06 0.15 0.17 0.10 0.39 0.39 0.02 0.16 0.16
 Crit Moves: ****
 Green/Cycle: 0.30 0.30 0.30 0.30 0.30 0.28 0.67 0.67 0.03 0.43 0.43
 Volume/Cap: 0.27 0.37 0.19 0.50 0.59 0.59 0.37 0.59 0.59 0.59 0.37 0.37
 Delay/Veh: 27.9 28.3 26.5 30.8 31.8 31.8 29.6 9.4 9.4 62.7 19.5 19.5
 User DelAdj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
 AdjDel/Veh: 27.9 28.3 26.5 30.8 31.8 31.8 29.6 9.4 9.4 62.7 19.5 19.5
 LOS by Move: C C C C C C C A A E B B
 HCM2kAvgQ: 1 5 2 4 9 9 5 13 13 2 6 6

Note: Queue reported is the number of cars per lane.

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Level Of Service Computation Report
 2000 HCM Operations Method (Future Volume Alternative)

Intersection #15 Mill Creek Avenue at Chino Avenue

Cycle (sec): 100 Critical Vol./Cap.(X): 0.164
 Loss Time (sec): 0 (Y+R=4.0 sec) Average Delay (sec/veh): 14.3
 Optimal Cycle: 17 Level Of Service: B

Approach: North Bound South Bound East Bound West Bound
 Movement: L - T - R L - T - R L - T - R L - T - R

Control: Permitted Permitted Permitted Permitted
 Rights: Include Include Include Include
 Min. Green: 0 0 0 0 0 0 0 0 0 0 0 0
 Lanes: 1 0 1 1 0 1 0 0 1 0 1 0 1 0 1 1 0

Volume Module:
 Base Vol: 57 121 50 10 31 74 125 122 25 1 18 8
 Growth Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
 Initial Bse: 57 121 50 10 31 74 125 122 25 1 18 8
 Added Vol: 0 0 0 0 0 0 0 0 0 0 0 0
 PasserByVol: 0 0 0 0 0 0 0 0 0 0 0 0
 Initial Fut: 57 121 50 10 31 74 125 122 25 1 18 8
 User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
 PHF Adj: 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95
 PHF Volume: 60 127 53 11 33 78 132 128 26 1 19 8
 Reduced Vol: 0 0 0 0 0 0 0 0 0 0 0 0
 Reduced Vol: 60 127 53 11 33 78 132 128 26 1 19 8
 PCE Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
 MLF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
 Final Vol.: 60 127 53 11 33 78 132 128 26 1 19 8

Saturation Flow Module:
 Sat/Lane: 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900
 Adjustment: 0.57 0.91 0.91 0.56 0.89 0.89 0.70 0.93 0.93 0.59 0.91 0.91
 Lanes: 1.00 1.42 0.58 1.00 0.30 0.70 1.00 1.66 0.34 1.00 1.38 0.62
 Final Sat.: 1091 2442 1009 1055 501 1197 1334 2921 599 1129 2384 1060

Capacity Analysis Module:
 Vol/Sat: 0.06 0.05 0.05 0.01 0.07 0.07 0.10 0.04 0.04 0.00 0.01 0.01
 Crit Moves: ****
 Green/Cycle: 0.40 0.40 0.40 0.40 0.40 0.40 0.60 0.60 0.60 0.60 0.60 0.60
 Volume/Cap: 0.14 0.13 0.13 0.03 0.16 0.16 0.16 0.07 0.07 0.00 0.01 0.01
 Delay/Veh: 19.4 19.2 19.2 18.4 19.5 19.5 8.9 8.3 8.3 7.9 8.0 8.0
 User DelAdj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
 AdjDel/Veh: 19.4 19.2 19.2 18.4 19.5 19.5 8.9 8.3 8.3 7.9 8.0 8.0
 LOS by Move: B B B B B A A A A A A
 HCM2kAvgQ: 1 2 2 0 2 2 2 1 1 0 0 0

Note: Queue reported is the number of cars per lane.

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Level Of Service Computation Report
 2000 HCM Operations Method (Future Volume Alternative)

 Intersection #16 Mill Creek Avenue at Edison Avenue

Cycle (sec): 100 Critical Vol./Cap.(X): 0.374
 Loss Time (sec): 0 (Y+R=4.0 sec) Average Delay (sec/veh): 5.7
 Optimal Cycle: 23 Level Of Service: A

Approach: North Bound South Bound East Bound West Bound
 Movement: L - T - R L - T - R L - T - R L - T - R

Control: Permitted Permitted Permitted Permitted
 Rights: Include Include Include Include
 Min. Green: 0 0 0 0 0 0 0 0 0 0 0 0
 Lanes: 1 0 0 1 0 1 0 0 1 0 1 0

Volume Module:
 Base Vol: 117 22 6 40 9 8 10 1549 48 5 1800 38
 Growth Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
 Initial Bse: 117 22 6 40 9 8 10 1549 48 5 1800 38
 Added Vol: 0 0 0 0 0 0 0 0 0 0 0 0
 PasserByVol: 0 0 0 0 0 0 0 0 0 0 0 0
 Initial Fut: 117 22 6 40 9 8 10 1549 48 5 1800 38
 User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
 PHF Adj: 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95
 PHF Volume: 123 23 6 42 9 8 11 1631 51 5 1895 40
 Reduced Vol: 0 0 0 0 0 0 0 0 0 0 0 0
 Reduced Vol: 123 23 6 42 9 8 11 1631 51 5 1895 40
 PCE Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
 MLF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
 Final Vol.: 123 23 6 42 9 8 11 1631 51 5 1895 40

Saturation Flow Module:
 Sat/Lane: 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900
 Adjustment: 0.69 0.97 0.97 0.67 0.93 0.93 0.08 0.91 0.91 0.11 0.91 0.91
 Lanes: 1.00 0.79 0.21 1.00 0.53 0.47 1.00 3.88 0.12 1.00 3.92 0.08
 Final Sat.: 1316 1445 394 1274 934 831 157 6681 207 212 6753 143

Capacity Analysis Module:
 Vol/Sat: 0.09 0.02 0.02 0.03 0.01 0.01 0.07 0.24 0.24 0.02 0.28 0.28
 Crit Moves: ****
 Green/Cycle: 0.25 0.25 0.25 0.25 0.25 0.25 0.75 0.75 0.75 0.75 0.75 0.75
 Volume/Cap: 0.37 0.06 0.06 0.13 0.04 0.04 0.09 0.33 0.33 0.03 0.37 0.37
 Delay/Veh: 31.7 28.6 28.6 29.3 28.4 28.4 3.7 4.2 4.2 3.3 4.4 4.4
 User DelAdj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
 AdjDel/Veh: 31.7 28.6 28.6 29.3 28.4 28.4 3.7 4.2 4.2 3.3 4.4 4.4
 LOS by Move: C C C C C C A A A A A A
 HCM2kAvgQ: 4 1 1 1 0 0 5 5 0 6 6 6

Note: Queue reported is the number of cars per lane.

Ontario New Model - Rich Haven External Intersections
 2015 AM Peak
 Meyer, Mohaddes Associates

Level Of Service Computation Report
 2000 HCM Operations Method (Future Volume Alternative)

 Intersection #17 Milliken Avenue/SR-60 WB Ramps

Cycle (sec): 100 Critical Vol./Cap.(X): 0.657
 Loss Time (sec): 0 (Y+R=4.0 sec) Average Delay (sec/veh): 21.1
 Optimal Cycle: 54 Level Of Service: C

Approach: North Bound South Bound East Bound West Bound
 Movement: L - T - R L - T - R L - T - R L - T - R

Control: Protected Permitted Split Phase Split Phase
 Rights: Include Include Include Include
 Min. Green: 0 0 0 0 0 0 0 0 0 0 0 0
 Lanes: 1 0 2 0 0 0 0 2 0 1 0 0 0 0 1

Volume Module:
 Base Vol: 493 986 0 0 605 2 0 0 0 245 0 272
 Growth Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
 Initial Bse: 493 986 0 0 605 2 0 0 0 245 0 272
 Added Vol: 0 0 0 0 0 0 0 0 0 0 0 0
 PasserByVol: 0 0 0 0 0 0 0 0 0 0 0 0
 Initial Fut: 493 986 0 0 605 2 0 0 0 245 0 272
 User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
 PHF Adj: 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95
 PHF Volume: 519 1038 0 0 637 2 0 0 0 258 0 286
 Reduced Vol: 0 0 0 0 0 0 0 0 0 0 0 0
 Reduced Vol: 519 1038 0 0 637 2 0 0 0 258 0 286
 PCE Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
 MLF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
 Final Vol.: 519 1038 0 0 637 2 0 0 0 258 0 286

Saturation Flow Module:
 Sat/Lane: 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900
 Adjustment: 0.90 0.95 1.00 0.95 0.95 0.85 0.95 1.00 1.00 0.90 1.00 0.85
 Lanes: 1.00 2.00 0.00 0.00 2.00 1.00 0.00 0.00 0.00 1.00 0.00 1.00
 Final Sat.: 1710 3610 0 0 3610 1615 0 0 0 1710 0 1615

Capacity Analysis Module:
 Vol/Sat: 0.30 0.29 0.00 0.00 0.18 0.00 0.00 0.00 0.00 0.15 0.00 0.18
 Crit Moves: ****
 Green/Cycle: 0.46 0.73 0.00 0.00 0.27 0.27 0.00 0.00 0.00 0.27 0.00 0.27
 Volume/Cap: 0.66 0.39 0.00 0.00 0.66 0.00 0.00 0.00 0.00 0.56 0.00 0.66
 Delay/Veh: 22.8 5.2 0.0 0.0 34.2 26.8 0.0 0.0 0.0 32.9 0.0 36.0
 User DelAdj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
 AdjDel/Veh: 22.8 5.2 0.0 0.0 34.2 26.8 0.0 0.0 0.0 32.9 0.0 36.0
 LOS by Move: C A A A C C A A A C A D
 HCM2kAvgQ: 14 6 0 0 10 0 0 0 0 8 0 9

Note: Queue reported is the number of cars per lane.

Ontario New Model - Rich Haven External Intersections
2015 AM Peak
Meyer, Mohaddes Associates

Level Of Service Computation Report

2000 HCM Operations Method (Future Volume Alternative)

Intersection #18 Milliken Avenue/SR-60 EB Ramps

Cycle (sec): 100 Critical Vol./Cap.(X): 0.910
Loss Time (sec): 0 (Y+R=4.0 sec) Average Delay (sec/veh): 23.2
Optimal Cycle: 180 Level Of Service: C

Approach: North Bound South Bound East Bound West Bound
Movement: L - T - R L - T - R L - T - R L - T - R

Control: Permitted Protected Split Phase Split Phase
Rights: Include Include Include Include
Min. Green: 0 0 0 0 0 0 0 0 0 0 0 0
Lanes: 0 0 1 1 0 1 0 2 0 0 1 0 1 0 0 0 0 0 0 0

Volume Module:
Base Vol: 0 1445 446 4 846 0 34 0 502 0 0 0
Growth Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
Initial Bse: 0 1445 446 4 846 0 34 0 502 0 0 0
Added Vol: 0 0 0 0 0 0 0 0 0 0 0 0
PasserByVol: 0 0 0 0 0 0 0 0 0 0 0 0
Initial Fut: 0 1445 446 4 846 0 34 0 502 0 0 0
User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
PHF Adj: 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95
PHF Volume: 0 1521 469 4 891 0 36 0 528 0 0 0
Reduct Vol: 0 0 0 0 0 0 0 0 0 0 0 0
Reduced Vol: 0 1521 469 4 891 0 36 0 528 0 0 0
PCE Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
MLF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
Final Vol.: 0 1521 469 4 891 0 36 0 528 0 0 0

Saturation Flow Module:
Sat/Lane: 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900
Adjustment: 0.95 0.92 0.92 0.90 0.95 1.00 0.81 1.00 0.86 0.95 1.00 1.00
Lanes: 0.00 1.53 0.47 1.00 2.00 0.00 1.03 0.00 0.97 0.00 0.00 0.00
Final Sat.: 0 2662 822 1710 3610 0 1595 0 1571 0 0 0

Capacity Analysis Module:
Vol/Sat: 0.00 0.57 0.57 0.00 0.25 0.00 0.02 0.00 0.34 0.00 0.00 0.00
Crit Moves: ****
Green/Cycle: 0.00 0.63 0.63 0.00 0.63 0.00 0.37 0.00 0.37 0.00 0.00 0.00
Volume/Cap: 0.00 0.91 0.91 0.91 0.39 0.00 0.06 0.00 0.91 0.00 0.00 0.00
Delay/Veh: 0.0 22.4 22.4 401.3 9.2 0.0 20.3 0.0 47.5 0.0 0.0 0.0
User DelAdj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
AdjDel/Veh: 0.0 22.4 22.4 401.3 9.2 0.0 20.3 0.0 47.5 0.0 0.0 0.0
LOS by Move: A C C F A A C A D A A A
HCM2kAvgQ: 0 32 32 1 7 0 1 0 20 0 0 0

Note: Queue reported is the number of cars per lane.

Ontario New Model - Rich Haven External Intersections
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Meyer, Mohaddes Associates

Level Of Service Computation Report

2000 HCM Operations Method (Future Volume Alternative)

Intersection #19 Milliken Avenue/Riverside Drive

Cycle (sec): 100 Critical Vol./Cap.(X): 1.070
Loss Time (sec): 0 (Y+R=4.0 sec) Average Delay (sec/veh): 66.9
Optimal Cycle: 180 Level Of Service: E

Approach: North Bound South Bound East Bound West Bound
Movement: L - T - R L - T - R L - T - R L - T - R

Control: Protected Protected Protected Protected
Rights: Include Include Include Include
Min. Green: 0 0 0 0 0 0 0 0 0 0 0 0
Lanes: 2 0 3 0 1 2 0 3 0 1 1 0 1 1 0 1 0 1 1 0

Volume Module:
Base Vol: 42 812 51 726 151 471 782 809 35 3 285 296
Growth Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
Initial Bse: 42 812 51 726 151 471 782 809 35 3 285 296
Added Vol: 0 0 0 0 0 0 0 0 0 0 0 0
PasserByVol: 0 0 0 0 0 0 0 0 0 0 0 0
Initial Fut: 42 812 51 726 151 471 782 809 35 3 285 296
User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
PHF Adj: 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95
PHF Volume: 44 855 54 764 159 496 823 852 37 3 300 312
Reduct Vol: 0 0 0 0 0 0 0 0 0 0 0 0
Reduced Vol: 44 855 54 764 159 496 823 852 37 3 300 312
PCE Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
MLF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
Final Vol.: 44 855 54 764 159 496 823 852 37 3 300 312

Saturation Flow Module:
Sat/Lane: 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900
Adjustment: 0.85 0.91 0.85 0.85 0.91 0.85 0.90 0.94 0.94 0.90 0.88 0.88
Lanes: 2.00 3.00 1.00 2.00 3.00 1.00 1.00 1.92 0.08 1.00 1.00 1.00
Final Sat.: 3230 5187 1615 3230 5187 1615 1710 3440 149 1710 1668 1668

Capacity Analysis Module:
Vol/Sat: 0.01 0.16 0.03 0.24 0.03 0.31 0.48 0.25 0.25 0.00 0.18 0.19
Crit Moves: ****
Green/Cycle: 0.02 0.15 0.15 0.22 0.36 0.36 0.45 0.62 0.62 0.00 0.17 0.17
Volume/Cap: 0.85 1.07 0.22 1.07 0.09 0.85 1.07 0.40 0.40 0.40 1.03 1.07
Delay/Veh: 122.8 94.4 37.4 92.8 21.2 41.5 80.2 9.7 9.7 79.6 86.1 98.9
User DelAdj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
AdjDel/Veh: 122.8 94.4 37.4 92.8 21.2 41.5 80.2 9.7 9.7 79.6 86.1 98.9
LOS by Move: F F D F C D F A A E F F
HCM2kAvgQ: 2 16 2 21 1 17 39 7 7 0 16 17

Note: Queue reported is the number of cars per lane.

Ontario New Model - Rich Haven External Intersections
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 Meyer, Mohaddes Associates

Level Of Service Computation Report
 2000 HCM Operations Method (Future Volume Alternative)

 Intersection #20 Milliken Ave / Chino Ave

Cycle (sec): 100 Critical Vol./Cap.(X): 0.335
 Loss Time (sec): 0 (Y+R=4.0 sec) Average Delay (sec/veh): 14.0
 Optimal Cycle: 30 Level Of Service: B

Approach: North Bound South Bound East Bound West Bound
 Movement: L - T - R L - T - R L - T - R L - T - R

Control: Protected Permitted Split Phase Split Phase
 Rights: Include Include Include Include
 Min. Green: 0 0 0 0 0 0 0 0 0 0 0 0
 Lanes: 1 0 2 0 0 0 0 3 1 0 1 0 0 0 0 0

Volume Module:
 Base Vol: 23 950 0 0 259 4 93 0 89 0 0 0
 Growth Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
 Initial Bse: 23 950 0 0 259 4 93 0 89 0 0 0
 Added Vol: 0 0 0 0 0 0 0 0 0 0 0 0
 PasserByVol: 0 0 0 0 0 0 0 0 0 0 0 0
 Initial Fut: 23 950 0 0 259 4 93 0 89 0 0 0
 User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
 PHF Adj: 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95
 PHF Volume: 24 1000 0 0 273 4 98 0 94 0 0 0
 Reduct Vol: 0 0 0 0 0 0 0 0 0 0 0 0
 Reduced Vol: 24 1000 0 0 273 4 98 0 94 0 0 0
 PCE Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
 MLF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
 Final Vol.: 24 1000 0 0 273 4 98 0 94 0 0 0

Saturation Flow Module:
 Sat/Lane: 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900
 Adjustment: 0.90 0.95 1.00 0.95 0.91 0.91 0.90 1.00 0.85 0.95 1.00 1.00
 Lanes: 1.00 2.00 0.00 0.00 3.94 0.06 1.00 0.00 1.00 0.00 0.00 0.00
 Final Sat.: 1710 3610 0 0 6797 105 1710 0 1615 0 0 0

Capacity Analysis Module:
 Vol/Sat: 0.01 0.28 0.00 0.00 0.04 0.04 0.06 0.00 0.06 0.00 0.00 0.00
 Crit Moves: ****
 Green/Cycle: 0.74 0.85 0.00 0.00 0.11 0.11 0.15 0.00 0.15 0.00 0.00 0.00
 Volume/Cap: 0.02 0.33 0.00 0.00 0.38 0.38 0.37 0.00 0.38 0.00 0.00 0.00
 Delay/Veh: 3.5 1.7 0.0 0.0 41.9 41.9 38.8 0.0 38.9 0.0 0.0 0.0
 User DelAdj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
 AdjDel/Veh: 3.5 1.7 0.0 0.0 41.9 41.9 38.8 0.0 38.9 0.0 0.0 0.0
 LOS by Move: A A A A D D D A D A A A
 HCM2kAvgQ: 0 4 0 0 3 3 3 0 3 0 0 0

Note: Queue reported is the number of cars per lane.

Ontario New Model - Rich Haven External Intersections
 2015 AM Peak
 Meyer, Mohaddes Associates

Level Of Service Computation Report
 2000 HCM Operations Method (Future Volume Alternative)

 Intersection #21 Milliken Avenue/Edison Avenue

Cycle (sec): 100 Critical Vol./Cap.(X): 0.843
 Loss Time (sec): 0 (Y+R=4.0 sec) Average Delay (sec/veh): 33.1
 Optimal Cycle: 145 Level Of Service: C

Approach: North Bound South Bound East Bound West Bound
 Movement: L - T - R L - T - R L - T - R L - T - R

Control: Protected Protected Protected Protected
 Rights: Include Include Include Include
 Min. Green: 0 0 0 0 0 0 0 0 0 0 0 0
 Lanes: 1 0 1 1 0 1 0 1 1 0 1 0 3 1 0 1 0 3 1 0

Volume Module:
 Base Vol: 63 640 520 92 96 54 129 1925 38 201 1950 186
 Growth Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
 Initial Bse: 63 640 520 92 96 54 129 1925 38 201 1950 186
 Added Vol: 0 0 0 0 0 0 0 0 0 0 0 0
 PasserByVol: 0 0 0 0 0 0 0 0 0 0 0 0
 Initial Fut: 63 640 520 92 96 54 129 1925 38 201 1950 186
 User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
 PHF Adj: 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95
 PHF Volume: 66 674 547 97 101 57 136 2026 40 212 2053 196
 Reduct Vol: 0 0 0 0 0 0 0 0 0 0 0 0
 Reduced Vol: 66 674 547 97 101 57 136 2026 40 212 2053 196
 PCE Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
 MLF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
 Final Vol.: 66 674 547 97 101 57 136 2026 40 212 2053 196

Saturation Flow Module:
 Sat/Lane: 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900
 Adjustment: 0.90 0.89 0.89 0.90 0.90 0.90 0.90 0.91 0.91 0.90 0.90 0.90
 Lanes: 1.00 1.10 0.90 1.00 1.28 0.72 1.00 3.92 0.08 1.00 3.65 0.35
 Final Sat.: 1710 1858 1510 1710 2186 1229 1710 6762 133 1710 6232 594

Capacity Analysis Module:
 Vol/Sat: 0.04 0.36 0.36 0.06 0.05 0.05 0.08 0.30 0.30 0.12 0.33 0.33
 Crit Moves: ****
 Green/Cycle: 0.23 0.43 0.43 0.07 0.27 0.27 0.10 0.36 0.36 0.15 0.40 0.40
 Volume/Cap: 0.17 0.84 0.84 0.84 0.17 0.17 0.81 0.84 0.84 0.84 0.81 0.81
 Delay/Veh: 31.3 30.1 30.1 86.2 28.0 28.0 69.6 32.5 32.5 63.5 28.4 28.4
 User DelAdj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
 AdjDel/Veh: 31.3 30.1 30.1 86.2 28.0 28.0 69.6 32.5 32.5 63.5 28.4 28.4
 LOS by Move: C C C F C C E C C E C C
 HCM2kAvgQ: 2 20 20 5 2 2 7 19 19 9 19 19

Note: Queue reported is the number of cars per lane.

Ontario New Model - Rich Haven External Intersections
 2015 AM Peak
 Meyer, Mohaddes Associates

Level Of Service Computation Report
 2000 HCM Operations Method (Future Volume Alternative)

 Intersection #550 Haven Avenue/Creekside Drive

Cycle (sec): 100 Critical Vol./Cap.(X): 0.000
 Loss Time (sec): 0 (Y+R=4.0 sec) Average Delay (sec/veh): 0.0
 Optimal Cycle: 0 Level Of Service:

Approach: North Bound South Bound East Bound West Bound
 Movement: L - T - R L - T - R L - T - R L - T - R

Control: Protected Protected Prot+Permit Prot+Permit
 Rights: Include Include Include Include
 Min. Green: 0 0 0 0 0 0 0 0 0 0 0 0
 Lanes: 1 0 1 1 0 1 0 1 1 0 1 1 0 1 0 1

Volume Module:
 Base Vol: 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
 Growth Adj: 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00
 Initial Bse: 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
 Added Vol: 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
 PasserByVol: 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
 Initial Fut: 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
 User Adj: 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00
 PHF Adj: 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00
 PHF Volume: 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
 Reduct Vol: 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
 Reduced Vol: 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
 PCE Adj: 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00
 MLF Adj: 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00
 Final Vol.: 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0

Saturation Flow Module:
 Sat/Lane: 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
 Adjustment: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
 Lanes: 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00
 Final Sat.: 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0

Capacity Analysis Module:
 Vol/Sat: 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00
 Crit Moves:
 Green/Cycle: 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00
 Volume/Cap: 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00
 Delay/Veh: 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0
 User DelAdj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
 AdjDel/Veh: 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0
 LOS by Move:
 HCM2kAvgQ: 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0

Note: Queue reported is the number of cars per lane.

Ontario New Model - Rich Haven External Intersections
 2015 AM Peak
 Meyer, Mohaddes Associates

Lane Geometry Report

Number of approach lanes: (L) (LT) (T) (RT) (R) (LTR)

Node Intersection	NB	SB	EB	WB
1 Archibald Avenue/Riverside Drive	102100	102100	101100	101100
2 Archibald Avenue/Chino Avenue	102100	102100	100100	101010
3 Archibald Avenue/Schaefer Avenue	102100	102100	101100	101100
4 Archibald Avenue/Edison Avenue	202100	202100	203100	203100
5 Turner Avenue/Riverside Drive	101100	101100	101100	101100
6 Turner Avenue/Chino Avenue	101100	101100	101100	101100
7 Turner Avenue at Schaefer Avenue	000000	100001	102000	001100
8 Edison Avenue at Schaefer Avenue	000000	100001	104000	003100
9 Haven Avenue/SR-60 WB Ramps	203000	003010	000000	110010
10 Haven Avenue/SR-60 EB Ramps	002100	203000	110010	000000
11 Haven Avenue/Riverside Drive	101100	101100	101100	101100
12 Haven Avenue at Chino Avenue	101100	101100	101100	101100
13 Haven Avenue at Edison Avenue	101100	101100	103100	103100
14 Mill Creek Avenue/Riverside Drive	101010	100100	101100	101100
15 Mill Creek Avenue at Chino Avenue	101100	100100	101100	101100
16 Mill Creek Avenue at Edison Avenue	100100	100100	103100	103100
17 Milliken Avenue/SR-60 WB Ramps	102000	002010	000000	100010
18 Milliken Avenue/SR-60 EB Ramps	001100	102000	100001	000000
19 Milliken Avenue/Riverside Drive	203010	203010	101100	101100
20 Milliken Ave / Chino Ave	102000	003100	100010	000000
21 Milliken Avenue/Edison Avenue	101100	101100	103100	103100
550 Haven Avenue/Creekside Drive	101100	101100	101010	101010

 Ontario New Model - Rich Haven External Intersections
 2015 PM Peak
 Meyer, Mohaddes Associates

Scenario Report
 Scenario: 2015 PM (With Project)

Command: 2015 PM
 Volume: 2015 PM
 Geometry: Future Base
 Impact Fee: Default Impact Fee
 Trip Generation: None
 Trip Distribution: None
 Paths: Default Paths
 Routes: Default Routes
 Configuration: 2015 PM

 Ontario New Model - Rich Haven External Intersections
 2015 PM Peak
 Meyer, Mohaddes Associates

Intersection Volume Report
 Base Volume Alternative

Node Intersection	Northbound			Southbound			Eastbound			Westbound		
	L	T	R	L	T	R	L	T	R	L	T	R
1 Archibald Ave	196	1074	77	108	1712	184	109	373	249	62	453	124
2 Archibald Ave	74	1313	54	178	1850	1	1	38	89	56	44	116
3 Archibald Ave	17	1175	2	316	1595	70	48	46	17	1	37	297
4 Archibald Ave	458	642	420	145	1046	257	291	1613	1931	368	1366	98
5 Turner Avenue	0	6	31	83	6	52	69	531	0	104	648	95
6 Turner Avenue	15	4	21	6	39	27	26	112	17	14	125	7
7 Turner Avenue	0	0	0	17	0	3	6	359	0	0	332	29
8 Edison Avenue	0	0	0	372	0	4	17	1949	0	0	1727	344
9 Haven Avenue/	335	830	0	0	1916	124	0	0	0	213	0	443
10 Haven Avenue/	0	1136	250	471	1657	0	30	0	883	0	0	0
11 Haven Avenue/	105	963	188	327	1698	109	84	440	124	189	634	126
12 Haven Avenue	36	950	67	230	1576	13	31	45	35	125	82	174
13 Haven Avenue	163	568	209	254	948	199	265	1854	203	277	1710	206
14 Mill Creek Av	61	19	64	118	14	181	270	878	60	64	1261	112
15 Mill Creek Av	92	109	13	17	124	150	106	42	105	73	207	23
16 Mill Creek Av	92	23	15	69	26	12	11	2319	196	12	2580	78
17 Milliken Aven	734	742	0	0	1967	114	0	0	0	351	0	162
18 Milliken Aven	0	1471	434	73	2249	0	6	0	761	0	0	0
19 Milliken Aven	43	425	9	789	1625	596	783	364	67	128	784	696
20 Milliken Ave	115	583	0	0	1635	189	25	0	48	0	0	0
21 Milliken Aven	103	318	297	276	1189	184	110	2725	111	560	3067	157
550 Haven Avenue/	0	0	0	0	0	0	0	0	0	0	0	0

Ontario New Model - Rich Haven External Intersections
 2015 PM Peak
 Meyer, Mohaddes Associates

Impact Analysis Report
 Level Of Service

Intersection	Base LOS	V/ C	Future LOS	V/ C	Change in	D/V	
# 1 Archibald Avenue/Riverside Dri	C	26.7	0.752	C	26.7	0.752	+ 0.000 D/V
# 2 Archibald Avenue/Chino Avenue	B	13.0	0.534	B	13.0	0.534	+ 0.000 D/V
# 3 Archibald Avenue/Schaefer Aven	B	19.2	0.633	B	19.2	0.633	+ 0.000 D/V
# 4 Archibald Avenue/Edison Avenue	F	216.9	1.822	F	216.9	1.822	+ 0.000 D/V
# 5 Turner Avenue/Riverside Drive	B	14.5	0.332	B	14.5	0.332	+ 0.000 D/V
# 6 Turner Avenue/Chino Avenue	A	8.3	0.103	A	8.3	0.103	+ 0.000 V/C
# 7 Turner Avenue at Schaefer Aven	A	1.9	0.117	A	1.9	0.117	+ 0.000 D/V
# 8 Edison Avenue at Schaefer Aven	A	7.4	0.440	A	7.4	0.440	+ 0.000 D/V
# 9 Haven Avenue/SR-60 WB Ramps	B	11.3	0.563	B	11.3	0.563	+ 0.000 D/V
# 10 Haven Avenue/SR-60 EB Ramps	D	50.4	1.018	D	50.4	1.018	+ 0.000 D/V
# 11 Haven Avenue/Riverside Drive	E	72.4	1.267	E	72.4	1.267	+ 0.000 D/V
# 12 Haven Avenue at Chino Avenue	A	8.8	0.677	A	8.8	0.677	+ 0.000 D/V
# 13 Haven Avenue at Edison Avenue	F	80.4	1.164	F	80.4	1.164	+ 0.000 D/V
# 14 Mill Creek Avenue/Riverside Dr	B	19.5	0.697	B	19.5	0.697	+ 0.000 D/V
# 15 Mill Creek Avenue at Chino Ave	B	14.5	0.282	B	14.5	0.282	+ 0.000 D/V
# 16 Mill Creek Avenue at Edison Av	A	4.0	0.489	A	4.0	0.489	+ 0.000 D/V
# 17 Milliken Avenue/SR-60 WB Ramps	F	113.4	1.241	F	113.4	1.241	+ 0.000 D/V
# 18 Milliken Avenue/SR-60 EB Ramps	F	204.4	1.153	F	204.4	1.153	+ 0.000 D/V
# 19 Milliken Avenue/Riverside Driv	F	147.0	1.349	F	147.0	1.349	+ 0.000 D/V
# 20 Milliken Ave / Chino Ave	A	6.5	0.384	A	6.5	0.384	+ 0.000 D/V
# 21 Milliken Avenue/Edison Avenue	F	99.0	1.251	F	99.0	1.251	+ 0.000 D/V
#550 Haven Avenue/Creekside Drive		0.0	0.000		0.0	0.000	+ 0.000 D/V

Ontario New Model - Rich Haven External Intersections
 2015 PM Peak
 Meyer, Mohaddes Associates

Level Of Service Computation Report
 2000 HCM Operations Method (Future Volume Alternative)

 Intersection #1 Archibald Avenue/Riverside Drive

Cycle (sec):	100	Critical Vol./Cap.(X):	0.752
Loss Time (sec):	0 (Y+R=4.0 sec)	Average Delay (sec/veh):	26.7
Optimal Cycle:	92	Level Of Service:	C

Approach:	North Bound	South Bound	East Bound	West Bound
Movement:	L - T - R	L - T - R	L - T - R	L - T - R

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Control:	Protected	Protected	Protected	Protected
Rights:	Include	Include	Include	Include
Min. Green:	0 0 0	0 0 0	0 0 0	0 0 0
Lanes:	1 0 2 1 0	1 0 2 1 0	1 0 1 1 0	1 0 1 1 0

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Volume Module:

Base Vol:	196 1074 77	108 1712 184	109 373 249	62 453 124
Growth Adj:	1.00 1.00 1.00	1.00 1.00 1.00	1.00 1.00 1.00	1.00 1.00 1.00
Initial Bse:	196 1074 77	108 1712 184	109 373 249	62 453 124
Added Vol:	0 0 0	0 0 0	0 0 0	0 0 0
PasserByVol:	0 0 0	0 0 0	0 0 0	0 0 0
Initial Fut:	196 1074 77	108 1712 184	109 373 249	62 453 124
User Adj:	1.00 1.00 1.00	1.00 1.00 1.00	1.00 1.00 1.00	1.00 1.00 1.00
PHF Adj:	0.95 0.95 0.95	0.95 0.95 0.95	0.95 0.95 0.95	0.95 0.95 0.95
PHF Volume:	206 1131 81	114 1802 194	115 393 262	65 477 131
Reduced Vol:	0 0 0	0 0 0	0 0 0	0 0 0
Reduced Vol:	206 1131 81	114 1802 194	115 393 262	65 477 131
PCE Adj:	1.00 1.00 1.00	1.00 1.00 1.00	1.00 1.00 1.00	1.00 1.00 1.00
MLF Adj:	1.00 1.00 1.00	1.00 1.00 1.00	1.00 1.00 1.00	1.00 1.00 1.00
Final Vol.:	206 1131 81	114 1802 194	115 393 262	65 477 131

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Saturation Flow Module:

Sat/Lane:	1900 1900 1900	1900 1900 1900	1900 1900 1900	1900 1900 1900
Adjustment:	0.90 0.90 0.90	0.90 0.90 0.90	0.90 0.89 0.89	0.90 0.92 0.92
Lanes:	1.00 2.80 0.20	1.00 2.71 0.29	1.00 1.20 0.80	1.00 1.57 0.43
Final Sat.:	1710 4792 344	1710 4613 496	1710 2035 1358	1710 2743 751

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Capacity Analysis Module:

Vol/Sat:	0.12 0.24 0.24	0.07 0.39 0.39	0.07 0.19 0.19	0.04 0.17 0.17
Crit Moves:	****	****	****	****
Green/Cycle:	0.16 0.53 0.53	0.15 0.52 0.52	0.09 0.27 0.27	0.05 0.23 0.23
Volume/Cap:	0.75 0.44 0.44	0.44 0.75 0.75	0.75 0.72 0.72	0.72 0.75 0.75
Delay/Veh:	51.2 14.6 14.6	40.0 20.2 20.2	63.3 36.1 36.1	71.2 39.8 39.8
User DelAdj:	1.00 1.00 1.00	1.00 1.00 1.00	1.00 1.00 1.00	1.00 1.00 1.00
AdjDel/Veh:	51.2 14.6 14.6	40.0 20.2 20.2	63.3 36.1 36.1	71.2 39.8 39.8
LOS by Move:	D B B	D C C	E D D	E D D
HCM2kAvgQ:	8 8 8	4 19 19	5 11 11	4 11 11

Note: Queue reported is the number of cars per lane.

Ontario New Model - Rich Haven External Intersections
2015 PM Peak
Meyer, Mohaddes Associates

Level Of Service Computation Report

2000 HCM Operations Method (Future Volume Alternative)

Intersection #2 Archibald Avenue/Chino Avenue

Cycle (sec): 90 Critical Vol./Cap.(X): 0.534
Loss Time (sec): 0 (Y+R=4.0 sec) Average Delay (sec/veh): 13.0
Optimal Cycle: 49 Level Of Service: B

Approach: North Bound South Bound East Bound West Bound
Movement: L - T - R L - T - R L - T - R L - T - R

Control: Protected Protected Protected Protected
Rights: Include Include Include Include
Min. Green: 0 0 0 0 0 0 0 0 0 0 0 0
Lanes: 1 0 2 1 0 1 0 2 1 0 1 0 1 0 1

Volume Module:

Base Vol: 74 1313 54 178 1850 1 1 38 89 56 44 116
Growth Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
Initial Bse: 74 1313 54 178 1850 1 1 38 89 56 44 116
Added Vol: 0 0 0 0 0 0 0 0 0 0 0 0
PasserByVol: 0 0 0 0 0 0 0 0 0 0 0 0
Initial Fut: 74 1313 54 178 1850 1 1 38 89 56 44 116
User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
PHF Adj: 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95
PHF Volume: 78 1382 57 187 1947 1 1 40 94 59 46 122
Reduced Vol: 0 0 0 0 0 0 0 0 0 0 0 0
Reduced Vol: 78 1382 57 187 1947 1 1 40 94 59 46 122
PCE Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
MLF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
Final Vol.: 78 1382 57 187 1947 1 1 40 94 59 46 122

Saturation Flow Module:

Sat/Lane: 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900
Adjustment: 0.90 0.90 0.90 0.90 0.91 0.91 0.90 0.90 0.90 0.90 1.00 0.85
Lanes: 1.00 2.88 0.12 1.00 2.99 0.01 1.00 0.30 0.70 1.00 1.00 1.00
Final Sat.: 1710 4952 204 1710 5184 3 1710 509 1192 1710 1900 1615

Capacity Analysis Module:

Vol/Sat: 0.05 0.28 0.28 0.11 0.38 0.38 0.00 0.08 0.08 0.03 0.02 0.08
Crit Moves: ****
Green/Cycle: 0.09 0.57 0.57 0.22 0.70 0.70 0.00 0.15 0.15 0.06 0.21 0.21
Volume/Cap: 0.53 0.49 0.49 0.49 0.53 0.53 0.36 0.53 0.53 0.53 0.12 0.36
Delay/Veh: 43.3 11.9 11.9 31.6 6.5 6.5 107.5 37.8 37.8 45.8 28.9 31.0
User DelAdj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
AdjDel/Veh: 43.3 11.9 11.9 31.6 6.5 6.5 107.5 37.8 37.8 45.8 28.9 31.0
LOS by Move: D B B C A A F D D C C C
HCM2kAvgQ: 3 9 9 5 10 10 0 4 4 3 1 3

Note: Queue reported is the number of cars per lane.

Ontario New Model - Rich Haven External Intersections
2015 PM Peak
Meyer, Mohaddes Associates

Level Of Service Computation Report

2000 HCM Operations Method (Future Volume Alternative)

Intersection #3 Archibald Avenue/Schaefer Avenue

Cycle (sec): 100 Critical Vol./Cap.(X): 0.633
Loss Time (sec): 0 (Y+R=4.0 sec) Average Delay (sec/veh): 19.2
Optimal Cycle: 51 Level Of Service: B

Approach: North Bound South Bound East Bound West Bound
Movement: L - T - R L - T - R L - T - R L - T - R

Control: Protected Protected Permitted Permitted
Rights: Include Include Include Include
Min. Green: 0 0 0 0 0 0 0 0 0 0 0 0
Lanes: 1 0 2 1 0 1 0 2 1 0 1 0 1 1 0

Volume Module:

Base Vol: 17 1175 2 316 1595 70 48 46 17 1 37 297
Growth Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
Initial Bse: 17 1175 2 316 1595 70 48 46 17 1 37 297
Added Vol: 0 0 0 0 0 0 0 0 0 0 0 0
PasserByVol: 0 0 0 0 0 0 0 0 0 0 0 0
Initial Fut: 17 1175 2 316 1595 70 48 46 17 1 37 297
User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
PHF Adj: 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95
PHF Volume: 18 1237 2 333 1679 74 51 48 18 1 39 313
Reduced Vol: 0 0 0 0 0 0 0 0 0 0 0 0
Reduced Vol: 18 1237 2 333 1679 74 51 48 18 1 39 313
PCE Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
MLF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
Final Vol.: 18 1237 2 333 1679 74 51 48 18 1 39 313

Saturation Flow Module:

Sat/Lane: 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900
Adjustment: 0.90 0.91 0.91 0.90 0.90 0.90 0.38 0.91 0.91 0.65 0.82 0.82
Lanes: 1.00 2.99 0.01 1.00 2.87 0.13 1.00 1.46 0.54 1.00 1.00 1.00
Final Sat.: 1710 5178 9 1710 4939 217 729 2530 935 1228 1565 1565

Capacity Analysis Module:

Vol/Sat: 0.01 0.24 0.24 0.19 0.34 0.34 0.07 0.02 0.02 0.00 0.02 0.20
Crit Moves: ****
Green/Cycle: 0.02 0.38 0.38 0.31 0.66 0.66 0.32 0.32 0.32 0.32 0.32 0.32
Volume/Cap: 0.51 0.63 0.63 0.63 0.51 0.51 0.22 0.06 0.06 0.00 0.08 0.63
Delay/Veh: 60.7 26.2 26.2 32.3 8.7 8.7 25.7 23.9 23.9 23.4 24.0 31.7
User DelAdj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
AdjDel/Veh: 60.7 26.2 26.2 32.3 8.7 8.7 25.7 23.9 23.9 23.4 24.0 31.7
LOS by Move: E C C C A A C C C C C C
HCM2kAvgQ: 1 12 12 10 10 10 1 1 1 0 1 9

Note: Queue reported is the number of cars per lane.

Ontario New Model - Rich Haven External Intersections
 2015 PM Peak
 Meyer, Mohaddes Associates

Level Of Service Computation Report
 2000 HCM Operations Method (Future Volume Alternative)

 Intersection #4 Archibald Avenue/Edison Avenue

 Cycle (sec): 100 Critical Vol./Cap.(X): 1.822
 Loss Time (sec): 0 (Y+R=4.0 sec) Average Delay (sec/veh): 216.9
 Optimal Cycle: 180 Level Of Service: F

 Approach: North Bound South Bound East Bound West Bound
 Movement: L - T - R L - T - R L - T - R L - T - R
 Control: Protected Protected Protected Protected
 Rights: Include Include Include Include
 Min. Green: 0 0 0 0 0 0 0 0 0 0 0 0
 Lanes: 2 0 2 1 0 2 0 2 1 0 2 0 3 1 0 2 0 3 1 0
 Volume Module:
 Base Vol: 458 642 420 145 1046 257 291 1613 1931 368 1366 98
 Growth Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
 Initial Bse: 458 642 420 145 1046 257 291 1613 1931 368 1366 98
 Added Vol: 0 0 0 0 0 0 0 0 0 0 0 0
 PasserByVol: 0 0 0 0 0 0 0 0 0 0 0 0
 Initial Fut: 458 642 420 145 1046 257 291 1613 1931 368 1366 98
 User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
 PHF Adj: 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95
 PHF Volume: 482 676 442 153 1101 271 306 1698 2033 387 1438 103
 Reduct Vol: 0 0 0 0 0 0 0 0 0 0 0 0
 Reduced Vol: 482 676 442 153 1101 271 306 1698 2033 387 1438 103
 PCE Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
 MLF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
 Final Vol.: 482 676 442 153 1101 271 306 1698 2033 387 1438 103
 Saturation Flow Module:
 Sat/Lane: 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900
 Adjustment: 0.85 0.86 0.86 0.85 0.88 0.88 0.85 0.84 0.84 0.85 0.90 0.90
 Lanes: 2.00 2.00 1.00 2.00 2.41 0.59 2.00 3.00 1.00 2.00 3.73 0.27
 Final Sat.: 3230 3254 1627 3230 4039 992 3230 4762 1587 3230 6389 458
 Capacity Analysis Module:
 Vol/Sat: 0.15 0.21 0.27 0.05 0.27 0.27 0.09 0.36 1.28 0.12 0.23 0.23
 Crit Moves: ****
 Green/Cycle: 0.08 0.20 0.20 0.03 0.15 0.15 0.23 0.70 0.70 0.07 0.54 0.54
 Volume/Cap: 1.82 1.05 1.38 1.38 1.82 1.82 0.42 0.51 1.82 1.82 0.42 0.42
 Delay/Veh: 430.5 82.9 218.0 264.9 418 417.8 33.3 6.9 386.9 434.7 13.7 13.7
 User DelAdj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
 AdjDel/Veh: 430.5 82.9 218.0 264.9 418 417.8 33.3 6.9 386.9 434.7 13.7 13.7
 LOS by Move: F F F F F C A F B B B
 HCM2kAvgQ: 25 18 33 7 44 44 5 9 190 20 8 8

 Note: Queue reported is the number of cars per lane.

Ontario New Model - Rich Haven External Intersections
 2015 PM Peak
 Meyer, Mohaddes Associates

Level Of Service Computation Report
 2000 HCM Operations Method (Future Volume Alternative)

 Intersection #5 Turner Avenue/Riverside Drive

 Cycle (sec): 100 Critical Vol./Cap.(X): 0.332
 Loss Time (sec): 0 (Y+R=4.0 sec) Average Delay (sec/veh): 14.5
 Optimal Cycle: 28 Level Of Service: B

 Approach: North Bound South Bound East Bound West Bound
 Movement: L - T - R L - T - R L - T - R L - T - R
 Control: Permitted Permitted Protected Protected
 Rights: Include Include Include Include
 Min. Green: 0 0 0 0 0 0 0 0 0 0 0 0
 Lanes: 1 0 1 1 0 1 0 1 1 0 1 0 1 1 0 1 0 1 1 0
 Volume Module:
 Base Vol: 0 6 31 83 6 52 69 531 0 104 648 95
 Growth Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
 Initial Bse: 0 6 31 83 6 52 69 531 0 104 648 95
 Added Vol: 0 0 0 0 0 0 0 0 0 0 0 0
 PasserByVol: 0 0 0 0 0 0 0 0 0 0 0 0
 Initial Fut: 0 6 31 83 6 52 69 531 0 104 648 95
 User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
 PHF Adj: 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95
 PHF Volume: 0 6 33 87 6 55 73 559 0 109 682 100
 Reduct Vol: 0 0 0 0 0 0 0 0 0 0 0 0
 Reduced Vol: 0 6 33 87 6 55 73 559 0 109 682 100
 PCE Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
 MLF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
 Final Vol.: 0 6 33 87 6 55 73 559 0 109 682 100
 Saturation Flow Module:
 Sat/Lane: 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900
 Adjustment: 0.95 0.83 0.83 0.67 0.82 0.82 0.90 0.95 0.95 0.90 0.93 0.93
 Lanes: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 2.00 0.00 1.00 1.74 0.26
 Final Sat.: 1800 1578 1578 1264 1561 1561 1710 3610 0 1710 3089 453
 Capacity Analysis Module:
 Vol/Sat: 0.00 0.00 0.02 0.07 0.00 0.04 0.04 0.15 0.00 0.06 0.22 0.22
 Crit Moves: ****
 Green/Cycle: 0.00 0.21 0.21 0.21 0.21 0.21 0.13 0.56 0.00 0.23 0.66 0.66
 Volume/Cap: 0.00 0.02 0.10 0.33 0.02 0.17 0.33 0.28 0.00 0.28 0.33 0.33
 Delay/Veh: 0.0 31.5 32.1 34.4 31.5 32.7 40.6 11.5 0.0 31.9 7.3 7.3
 User DelAdj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
 AdjDel/Veh: 0.0 31.5 32.1 34.4 31.5 32.7 40.6 11.5 0.0 31.9 7.3 7.3
 LOS by Move: A C C C C C D B A C A A
 HCM2kAvgQ: 0 0 1 3 0 2 2 5 0 3 5 5

 Note: Queue reported is the number of cars per lane.

Ontario New Model - Rich Haven External Intersections
 2015 PM Peak
 Meyer, Mohaddes Associates

Level Of Service Computation Report
 2000 HCM 4-Way Stop Method (Future Volume Alternative)

 Intersection #6 Turner Avenue/Chino Avenue

Cycle (sec):	100	Critical Vol./Cap.(X):	0.103
Loss Time (sec):	0 (Y+R=4.0 sec)	Average Delay (sec/veh):	8.3
Optimal Cycle:	0	Level Of Service:	A

Approach:	North Bound	South Bound	East Bound	West Bound
Movement:	L - T - R	L - T - R	L - T - R	L - T - R

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Control:	Stop Sign	Stop Sign	Stop Sign	Stop Sign
Rights:	Include	Include	Include	Include
Min. Green:	0 0 0	0 0 0	0 0 0	0 0 0
Lanes:	1 0 1 1 0	1 0 1 1 0	1 0 1 1 0	1 0 1 1 0

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Volume Module:

Base Vol:	15	4	21	6	39	27	26	112	17	14	125	7
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	15	4	21	6	39	27	26	112	17	14	125	7
Added Vol:	0	0	0	0	0	0	0	0	0	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	15	4	21	6	39	27	26	112	17	14	125	7
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
PHF Volume:	16	4	22	6	41	28	27	118	18	15	132	7
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	16	4	22	6	41	28	27	118	18	15	132	7
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Final Vol.:	16	4	22	6	41	28	27	118	18	15	132	7

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Saturation Flow Module:

Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	1.00	1.00	1.00	1.00	1.18	0.82	1.00	1.74	0.26	1.00	1.89	0.11
Final Sat.:	567	615	699	575	752	569	617	1190	184	614	1281	72

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Capacity Analysis Module:

Vol/Sat:	0.03	0.01	0.03	0.01	0.05	0.05	0.04	0.10	0.10	0.02	0.10	0.10
Crit Moves:			****		****			****			****	
Delay/Veh:	8.9	8.2	7.7	8.7	8.3	7.8	8.6	8.3	8.2	8.5	8.4	8.4
Delay Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	8.9	8.2	7.7	8.7	8.3	7.8	8.6	8.3	8.2	8.5	8.4	8.4
LOS by Move:	A	A	A	A	A	A	A	A	A	A	A	A
ApproachDel:	8.2			8.2			8.3			8.4		
Delay Adj:	1.00			1.00			1.00			1.00		
ApprAdjDel:	8.2			8.2			8.3			8.4		
LOS by Appr:	A			A			A			A		
AllWayAvgQ:	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.1	0.1	0.0	0.1	0.1

Note: Queue reported is the number of cars per lane.

Ontario New Model - Rich Haven External Intersections
 2015 PM Peak
 Meyer, Mohaddes Associates

Level Of Service Computation Report
 2000 HCM Operations Method (Future Volume Alternative)

 Intersection #7 Turner Avenue at Schaefer Avenue

Cycle (sec):	100	Critical Vol./Cap.(X):	0.117
Loss Time (sec):	0 (Y+R=4.0 sec)	Average Delay (sec/veh):	1.9
Optimal Cycle:	21	Level Of Service:	A

Approach:	North Bound	South Bound	East Bound	West Bound
Movement:	L - T - R	L - T - R	L - T - R	L - T - R

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Control:	Split Phase	Split Phase	Protected	Permitted
Rights:	Include	Include	Include	Include
Min. Green:	0 0 0	0 0 0	0 0 0	0 0 0
Lanes:	0 0 0 0 0	1 0 1 0 0	1 0 2 0 0	0 0 1 1 0

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Volume Module:

Base Vol:	0	0	0	17	0	3	6	359	0	0	332	29
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	0	0	0	17	0	3	6	359	0	0	332	29
Added Vol:	0	0	0	0	0	0	0	0	0	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	0	0	0	17	0	3	6	359	0	0	332	29
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
PHF Volume:	0	0	0	18	0	3	6	378	0	0	349	31
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	0	0	0	18	0	3	6	378	0	0	349	31
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Final Vol.:	0	0	0	18	0	3	6	378	0	0	349	31

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Saturation Flow Module:

Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.95	1.00	1.00	0.89	1.00	0.94	0.90	0.95	1.00	0.95	0.94	0.94
Lanes:	0.00	0.00	0.00	1.75	0.00	0.25	1.00	2.00	0.00	0.00	1.84	0.16
Final Sat.:	0	0	0	2953	0	447	1710	3610	0	0	3280	287

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Capacity Analysis Module:

Vol/Sat:	0.00	0.00	0.00	0.01	0.00	0.01	0.00	0.10	0.00	0.00	0.11	0.11
Crit Moves:				****		****					****	
Green/Cycle:	0.00	0.00	0.00	0.06	0.00	0.06	0.03	0.94	0.00	0.00	0.91	0.91
Volume/Cap:	0.00	0.00	0.00	0.10	0.00	0.12	0.12	0.11	0.00	0.00	0.12	0.12
Delay/Veh:	0.0	0.0	0.0	44.6	0.0	44.8	48.0	0.2	0.0	0.0	0.5	0.5
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	0.0	0.0	0.0	44.6	0.0	44.8	48.0	0.2	0.0	0.0	0.5	0.5
LOS by Move:	A	A	A	D	A	D	D	A	A	A	A	A
HCM2kAvgQ:	0	0	0	0	0	0	0	0	0	0	1	1

Note: Queue reported is the number of cars per lane.

Ontario New Model - Rich Haven External Intersections
 2015 PM Peak
 Meyer, Mohaddes Associates

Level Of Service Computation Report
 2000 HCM Operations Method (Future Volume Alternative)

 Intersection #8 Edison Avenue at Schaefer Avenue

Cycle (sec): 100 Critical Vol./Cap.(X): 0.440
 Loss Time (sec): 0 (Y+R=4.0 sec) Average Delay (sec/veh): 7.4
 Optimal Cycle: 33 Level Of Service: A

Approach: North Bound South Bound East Bound West Bound
 Movement: L - T - R L - T - R L - T - R L - T - R

Control: Split Phase Split Phase Permitted Permitted
 Rights: Include Include Include Include
 Min. Green: 0 0 0 0 0 0 0 0 0 0 0 0
 Lanes: 0 0 0 0 0 1 0 1 0 0 1 0 4 0 0 0 0 0 3 1 0

Volume Module:
 Base Vol: 0 0 0 372 0 4 17 1949 0 0 1727 344
 Growth Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
 Initial Bse: 0 0 0 372 0 4 17 1949 0 0 1727 344
 Added Vol: 0 0 0 0 0 0 0 0 0 0 0 0
 PasserByVol: 0 0 0 0 0 0 0 0 0 0 0 0
 Initial Fut: 0 0 0 372 0 4 17 1949 0 0 1727 344
 User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
 PHF Adj: 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95
 PHF Volume: 0 0 0 392 0 4 18 2052 0 0 1818 362
 Reduct Vol: 0 0 0 0 0 0 0 0 0 0 0 0
 Reduced Vol: 0 0 0 392 0 4 18 2052 0 0 1818 362
 PCE Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
 MLF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
 Final Vol.: 0 0 0 392 0 4 18 2052 0 0 1818 362

Saturation Flow Module:
 Sat/Lane: 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900
 Adjustment: 0.95 1.00 1.00 0.90 1.00 0.95 0.06 0.91 1.00 0.95 0.89 0.89
 Lanes: 0.00 0.00 0.00 1.98 0.00 0.02 1.00 4.00 0.00 0.00 3.34 0.66
 Final Sat.: 0 0 0 3390 0 36 115 6916 0 0 5623 1120

Capacity Analysis Module:
 Vol/Sat: 0.00 0.00 0.00 0.12 0.00 0.12 0.16 0.30 0.00 0.00 0.32 0.32
 Crit Moves: ****
 Green/Cycle: 0.00 0.00 0.00 0.27 0.00 0.27 0.73 0.73 0.00 0.00 0.73 0.73
 Volume/Cap: 0.00 0.00 0.00 0.44 0.00 0.44 0.21 0.40 0.00 0.00 0.44 0.44
 Delay/Veh: 0.0 0.0 0.0 30.9 0.0 30.9 5.4 5.1 0.0 0.0 5.3 5.3
 User DelAdj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
 AdjDel/Veh: 0.0 0.0 0.0 30.9 0.0 30.9 5.4 5.1 0.0 0.0 5.3 5.3
 LOS by Move: A A A C A C A A A A A A
 HCM2kAvgQ: 0 0 0 6 0 6 0 7 0 0 7 7

Note: Queue reported is the number of cars per lane.

Ontario New Model - Rich Haven External Intersections
 2015 PM Peak
 Meyer, Mohaddes Associates

Level Of Service Computation Report
 2000 HCM Operations Method (Future Volume Alternative)

 Intersection #9 Haven Avenue/SR-60 WB Ramps

Cycle (sec): 100 Critical Vol./Cap.(X): 0.563
 Loss Time (sec): 0 (Y+R=4.0 sec) Average Delay (sec/veh): 11.3
 Optimal Cycle: 43 Level Of Service: B

Approach: North Bound South Bound East Bound West Bound
 Movement: L - T - R L - T - R L - T - R L - T - R

Control: Protected Permitted Split Phase Split Phase
 Rights: Include Include Include Ignore
 Min. Green: 0 0 0 0 0 0 0 0 0 0 0 0
 Lanes: 2 0 3 0 0 0 0 3 0 1 0 0 0 0 0 1 1 1 0 0 1

Volume Module:
 Base Vol: 335 830 0 0 1916 124 0 0 0 213 0 443
 Growth Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
 Initial Bse: 335 830 0 0 1916 124 0 0 0 213 0 443
 Added Vol: 0 0 0 0 0 0 0 0 0 0 0 0
 PasserByVol: 0 0 0 0 0 0 0 0 0 0 0 0
 Initial Fut: 335 830 0 0 1916 124 0 0 0 213 0 443
 User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
 PHF Adj: 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95
 PHF Volume: 353 874 0 0 2017 131 0 0 0 224 0 0
 Reduct Vol: 0 0 0 0 0 0 0 0 0 0 0 0
 Reduced Vol: 353 874 0 0 2017 131 0 0 0 224 0 0
 PCE Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
 MLF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
 Final Vol.: 353 874 0 0 2017 131 0 0 0 224 0 0

Saturation Flow Module:
 Sat/Lane: 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900
 Adjustment: 0.85 0.91 1.00 0.95 0.91 0.85 0.95 1.00 1.00 0.90 1.00 1.00
 Lanes: 2.00 3.00 0.00 0.00 3.00 1.00 0.00 0.00 0.00 2.00 0.00 1.00
 Final Sat.: 3230 5187 0 0 5187 1615 0 0 0 3427 0 1900

Capacity Analysis Module:
 Vol/Sat: 0.11 0.17 0.00 0.00 0.39 0.08 0.00 0.00 0.00 0.07 0.00 0.00
 Crit Moves: ****
 Green/Cycle: 0.19 0.88 0.00 0.00 0.69 0.69 0.00 0.00 0.00 0.12 0.00 0.00
 Volume/Cap: 0.56 0.19 0.00 0.00 0.56 0.12 0.00 0.00 0.00 0.56 0.00 0.00
 Delay/Veh: 37.7 0.8 0.0 0.0 8.1 5.3 0.0 0.0 0.0 43.7 0.0 0.0
 User DelAdj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
 AdjDel/Veh: 37.7 0.8 0.0 0.0 8.1 5.3 0.0 0.0 0.0 43.7 0.0 0.0
 LOS by Move: D A A A A A A A A D A A
 HCM2kAvgQ: 6 1 0 0 12 1 0 0 0 4 0 0

Note: Queue reported is the number of cars per lane.

Ontario New Model - Rich Haven External Intersections
 2015 PM Peak
 Meyer, Mohaddes Associates

Level Of Service Computation Report
 2000 HCM Operations Method (Future Volume Alternative)

 Intersection #10 Haven Avenue/SR-60 EB Ramps

Cycle (sec): 100 Critical Vol./Cap.(X): 1.018
 Loss Time (sec): 0 (Y+R=4.0 sec) Average Delay (sec/veh): 50.4
 Optimal Cycle: 180 Level Of Service: D

Approach: North Bound South Bound East Bound West Bound
 Movement: L - T - R L - T - R L - T - R L - T - R

Control: Permitted Protected Split Phase Split Phase
 Rights: Include Include Include Include
 Min. Green: 0 0 0 0 0 0 0 0 0 0 0 0
 Lanes: 0 0 2 1 0 2 0 3 0 0 1 1 0 0 1 0 0 0 0 0

Volume Module:

Base Vol:	0	1136	250	471	1657	0	30	0	883	0	0	0
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	0	1136	250	471	1657	0	30	0	883	0	0	0
Added Vol:	0	0	0	0	0	0	0	0	0	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	0	1136	250	471	1657	0	30	0	883	0	0	0
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
PHF Volume:	0	1196	263	496	1744	0	32	0	929	0	0	0
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	0	1196	263	496	1744	0	32	0	929	0	0	0
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Final Vol.:	0	1196	263	496	1744	0	32	0	929	0	0	0

Saturation Flow Module:

Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.95	0.89	0.89	0.85	0.91	1.00	0.90	1.00	0.85	0.95	1.00	1.00
Lanes:	0.00	2.46	0.54	2.00	3.00	0.00	2.00	0.00	1.00	0.00	0.00	0.00
Final Sat.:	0	4137	910	3230	5187	0	3427	0	1615	0	0	0

Capacity Analysis Module:

Vol/Sat:	0.00	0.29	0.29	0.15	0.34	0.00	0.01	0.00	0.58	0.00	0.00	0.00
Crit Moves:	****	****	****	****	****	****	****	****	****	****	****	****
Green/Cycle:	0.00	0.28	0.28	0.15	0.43	0.00	0.57	0.00	0.57	0.00	0.00	0.00
Volume/Cap:	0.00	1.02	1.02	1.02	0.77	0.00	0.02	0.00	1.02	0.00	0.00	0.00
Delay/Veh:	0.0	64.2	64.2	87.8	25.8	0.0	9.5	0.0	56.1	0.0	0.0	0.0
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	0.0	64.2	64.2	87.8	25.8	0.0	9.5	0.0	56.1	0.0	0.0	0.0
LOS by Move:	A	E	E	F	C	A	A	A	E	A	A	A
HCM2kAvgQ:	0	24	24	14	18	0	0	0	38	0	0	0

Note: Queue reported is the number of cars per lane.

Ontario New Model - Rich Haven External Intersections
 2015 PM Peak
 Meyer, Mohaddes Associates

Level Of Service Computation Report
 2000 HCM Operations Method (Future Volume Alternative)

 Intersection #11 Haven Avenue/Riverside Drive

Cycle (sec): 100 Critical Vol./Cap.(X): 1.267
 Loss Time (sec): 0 (Y+R=4.0 sec) Average Delay (sec/veh): 72.4
 Optimal Cycle: 180 Level Of Service: E

Approach: North Bound South Bound East Bound West Bound
 Movement: L - T - R L - T - R L - T - R L - T - R

Control: Permitted Permitted Protected Protected
 Rights: Include Include Include Include
 Min. Green: 0 0 0 0 0 0 0 0 0 0 0 0
 Lanes: 1 0 1 1 0 1 0 1 1 0 1 0 1 1 0

Volume Module:

Base Vol:	105	963	188	327	1698	109	84	440	124	189	634	126
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	105	963	188	327	1698	109	84	440	124	189	634	126
Added Vol:	0	0	0	0	0	0	0	0	0	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	105	963	188	327	1698	109	84	440	124	189	634	126
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
PHF Volume:	111	1014	198	344	1787	115	88	463	131	199	667	133
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	111	1014	198	344	1787	115	88	463	131	199	667	133
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Final Vol.:	111	1014	198	344	1787	115	88	463	131	199	667	133

Saturation Flow Module:

Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.07	0.93	0.93	0.18	0.94	0.94	0.90	0.92	0.92	0.90	0.93	0.93
Lanes:	1.00	1.67	0.33	1.00	1.88	0.12	1.00	1.56	0.44	1.00	1.67	0.33
Final Sat.:	131	2948	575	351	3362	216	1710	2723	767	1710	2936	584

Capacity Analysis Module:

Vol/Sat:	0.84	0.34	0.34	0.98	0.53	0.53	0.05	0.17	0.17	0.12	0.23	0.23
Crit Moves:	****	****	****	****	****	****	****	****	****	****	****	****
Green/Cycle:	0.77	0.77	0.77	0.77	0.77	0.77	0.04	0.13	0.13	0.09	0.18	0.18
Volume/Cap:	1.09	0.44	0.44	1.27	0.69	0.69	1.23	1.27	1.27	1.27	1.23	1.23
Delay/Veh:	125.9	4.0	4.0	157.4	6.2	6.2	230.0	180	179.5	206.2	159	159.2
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	125.9	4.0	4.0	157.4	6.2	6.2	230.0	180	179.5	206.2	159	159.2
LOS by Move:	F	A	A	F	A	A	F	F	F	F	F	F
HCM2kAvgQ:	8	7	7	23	16	16	7	20	20	14	25	25

Note: Queue reported is the number of cars per lane.

Ontario New Model - Rich Haven External Intersections
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Level Of Service Computation Report

2000 HCM Operations Method (Future Volume Alternative)

Intersection #12 Haven Avenue at Chino Avenue

Cycle (sec): 100 Critical Vol./Cap.(X): 0.677
Loss Time (sec): 0 (Y+R=4.0 sec) Average Delay (sec/veh): 8.8
Optimal Cycle: 45 Level Of Service: A

Approach: North Bound South Bound East Bound West Bound
Movement: L - T - R L - T - R L - T - R L - T - R

Control: Permitted Permitted Permitted Permitted
Rights: Include Include Include Include
Min. Green: 0 0 0 0 0 0 0 0 0 0 0 0
Lanes: 1 0 1 1 0 1 0 1 1 0 1 0 1 1 0

Volume Module:
Base Vol: 36 950 67 230 1576 13 31 45 35 125 82 174
Growth Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
Initial Bse: 36 950 67 230 1576 13 31 45 35 125 82 174
Added Vol: 0 0 0 0 0 0 0 0 0 0 0 0
PasserByVol: 0 0 0 0 0 0 0 0 0 0 0 0
Initial Fut: 36 950 67 230 1576 13 31 45 35 125 82 174
User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
PHF Adj: 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95
PHF Volume: 38 1000 71 242 1659 14 33 47 37 132 86 183
Reduct Vol: 0 0 0 0 0 0 0 0 0 0 0 0
Reduced Vol: 38 1000 71 242 1659 14 33 47 37 132 86 183
PCE Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
MLF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
Final Vol.: 38 1000 71 242 1659 14 33 47 37 132 86 183

Saturation Flow Module:
Sat/Lane: 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900
Adjustment: 0.11 0.94 0.94 0.23 0.95 0.95 0.33 0.89 0.89 0.58 0.85 0.85
Lanes: 1.00 1.87 0.13 1.00 1.98 0.02 1.00 1.12 0.88 1.00 1.00 1.00
Final Sat.: 209 3338 235 434 3577 30 625 1897 1475 1109 1621 1621

Capacity Analysis Module:
Vol/Sat: 0.18 0.30 0.30 0.56 0.46 0.46 0.05 0.02 0.02 0.12 0.05 0.11
Crit Moves: ****
Green/Cycle: 0.82 0.82 0.82 0.82 0.82 0.82 0.18 0.18 0.18 0.18 0.18 0.18
Volume/Cap: 0.22 0.36 0.36 0.68 0.56 0.56 0.30 0.14 0.14 0.68 0.30 0.64
Delay/Veh: 2.5 2.3 2.3 8.6 3.1 3.1 37.4 35.0 35.0 47.8 36.1 41.8
User DelAdj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
AdjDel/Veh: 2.5 2.3 2.3 8.6 3.1 3.1 37.4 35.0 35.0 47.8 36.1 41.8
LOS by Move: A A A A A A D C C D D D
HCM2kAvgQ: 1 4 4 5 9 9 1 1 1 5 3 7

Note: Queue reported is the number of cars per lane.

Ontario New Model - Rich Haven External Intersections
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Level Of Service Computation Report

2000 HCM Operations Method (Future Volume Alternative)

Intersection #13 Haven Avenue at Edison Avenue

Cycle (sec): 100 Critical Vol./Cap.(X): 1.164
Loss Time (sec): 0 (Y+R=4.0 sec) Average Delay (sec/veh): 80.4
Optimal Cycle: 180 Level Of Service: F

Approach: North Bound South Bound East Bound West Bound
Movement: L - T - R L - T - R L - T - R L - T - R

Control: Permitted Permitted Protected Protected
Rights: Include Include Include Include
Min. Green: 0 0 0 0 0 0 0 0 0 0 0 0
Lanes: 1 0 1 1 0 1 0 1 1 0 1 0 3 1 0 1 0 3 1 0

Volume Module:
Base Vol: 163 568 209 254 948 199 265 1854 203 277 1710 206
Growth Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
Initial Bse: 163 568 209 254 948 199 265 1854 203 277 1710 206
Added Vol: 0 0 0 0 0 0 0 0 0 0 0 0
PasserByVol: 0 0 0 0 0 0 0 0 0 0 0 0
Initial Fut: 163 568 209 254 948 199 265 1854 203 277 1710 206
User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
PHF Adj: 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95
PHF Volume: 172 598 220 267 998 209 279 1952 214 292 1800 217
Reduct Vol: 0 0 0 0 0 0 0 0 0 0 0 0
Reduced Vol: 172 598 220 267 998 209 279 1952 214 292 1800 217
PCE Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
MLF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
Final Vol.: 172 598 220 267 998 209 279 1952 214 292 1800 217

Saturation Flow Module:
Sat/Lane: 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900
Adjustment: 0.13 0.91 0.91 0.25 0.93 0.93 0.90 0.90 0.90 0.90 0.90 0.90
Lanes: 1.00 1.46 0.54 1.00 1.65 0.35 1.00 3.61 0.39 1.00 3.57 0.43
Final Sat.: 254 2533 932 472 2906 610 1710 6140 672 1710 6074 732

Capacity Analysis Module:
Vol/Sat: 0.68 0.24 0.24 0.57 0.34 0.34 0.16 0.32 0.32 0.17 0.30 0.30
Crit Moves: ****
Green/Cycle: 0.58 0.58 0.58 0.58 0.58 0.58 0.15 0.27 0.27 0.15 0.27 0.27
Volume/Cap: 1.16 0.41 0.41 0.98 0.59 0.59 1.10 1.16 1.16 1.16 1.10 1.10
Delay/Veh: 146.1 11.6 11.6 68.0 13.9 13.9 126.9 117 116.6 151.3 88.7 88.7
User DelAdj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
AdjDel/Veh: 146.1 11.6 11.6 68.0 13.9 13.9 126.9 117 116.6 151.3 88.7 88.7
LOS by Move: F B B E B B F F F F F F
HCM2kAvgQ: 12 7 7 13 13 13 16 32 32 18 27 27

Note: Queue reported is the number of cars per lane.

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Level Of Service Computation Report

2000 HCM Operations Method (Future Volume Alternative)

Intersection #14 Mill Creek Avenue/Riverside Drive

Cycle (sec): 100 Critical Vol./Cap.(X): 0.697
Loss Time (sec): 0 (Y+R=4.0 sec) Average Delay (sec/veh): 19.5
Optimal Cycle: 61 Level Of Service: B

Approach: North Bound South Bound East Bound West Bound
Movement: L - T - R L - T - R L - T - R L - T - R

Control: Permitted Permitted Protected Protected
Rights: Include Include Include Include
Min. Green: 0 0 0 0 0 0 0 0 0 0 0 0
Lanes: 1 0 1 0 1 1 0 0 1 1 0 1 0 1 1 0

Volume Module:

Base Vol: 61 19 64 118 14 181 270 878 60 64 1261 112
Growth Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
Initial Bse: 61 19 64 118 14 181 270 878 60 64 1261 112
Added Vol: 0 0 0 0 0 0 0 0 0 0 0 0
PasserByVol: 0 0 0 0 0 0 0 0 0 0 0 0
Initial Fut: 61 19 64 118 14 181 270 878 60 64 1261 112
User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
PHF Adj: 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95
PHF Volume: 64 20 67 124 15 191 284 924 63 67 1327 118
Reduce Vol: 0 0 0 0 0 0 0 0 0 0 0 0
Reduced Vol: 64 20 67 124 15 191 284 924 63 67 1327 118
PCE Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
MLF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
Final Vol.: 64 20 67 124 15 191 284 924 63 67 1327 118

Saturation Flow Module:

Sat/Lane: 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900
Adjustment: 0.28 1.00 0.85 0.68 0.86 0.86 0.90 0.94 0.94 0.90 0.94 0.94
Lanes: 1.00 1.00 1.00 1.00 0.07 0.93 1.00 1.87 0.13 1.00 1.84 0.16
Final Sat.: 526 1900 1615 1291 117 1518 1710 3345 229 1710 3276 291

Capacity Analysis Module:

Vol/Sat: 0.12 0.01 0.04 0.10 0.13 0.13 0.17 0.28 0.28 0.04 0.41 0.41
Crit Moves: ****
Green/Cycle: 0.18 0.18 0.18 0.18 0.18 0.18 0.24 0.72 0.72 0.10 0.58 0.58
Volume/Cap: 0.68 0.06 0.23 0.53 0.70 0.70 0.38 0.38 0.38 0.38 0.70 0.70
Delay/Veh: 56.3 34.0 35.5 39.6 45.6 45.6 40.0 5.6 5.6 43.4 15.8 15.8
User DelAdj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
AdjDel/Veh: 56.3 34.0 35.5 39.6 45.6 45.6 40.0 5.6 5.6 43.4 15.8 15.8
LOS by Move: E C D D D D D A A D B B
HCM2kAvgQ: 3 1 2 4 7 7 10 6 6 2 17 17

Note: Queue reported is the number of cars per lane.

Ontario New Model - Rich Haven External Intersections
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Level Of Service Computation Report

2000 HCM Operations Method (Future Volume Alternative)

Intersection #15 Mill Creek Avenue at Chino Avenue

Cycle (sec): 100 Critical Vol./Cap.(X): 0.282
Loss Time (sec): 0 (Y+R=4.0 sec) Average Delay (sec/veh): 14.5
Optimal Cycle: 20 Level Of Service: B

Approach: North Bound South Bound East Bound West Bound
Movement: L - T - R L - T - R L - T - R L - T - R

Control: Permitted Permitted Permitted Permitted
Rights: Include Include Include Include
Min. Green: 0 0 0 0 0 0 0 0 0 0 0 0
Lanes: 1 0 1 1 0 1 0 0 1 0 1 0 1 0 1 1 0

Volume Module:

Base Vol: 92 109 13 17 124 150 106 42 105 73 207 23
Growth Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
Initial Bse: 92 109 13 17 124 150 106 42 105 73 207 23
Added Vol: 0 0 0 0 0 0 0 0 0 0 0 0
PasserByVol: 0 0 0 0 0 0 0 0 0 0 0 0
Initial Fut: 92 109 13 17 124 150 106 42 105 73 207 23
User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
PHF Adj: 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95
PHF Volume: 97 115 14 18 131 158 112 44 111 77 218 24
Reduce Vol: 0 0 0 0 0 0 0 0 0 0 0 0
Reduced Vol: 97 115 14 18 131 158 112 44 111 77 218 24
PCE Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
MLF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
Final Vol.: 97 115 14 18 131 158 112 44 111 77 218 24

Saturation Flow Module:

Sat/Lane: 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900
Adjustment: 0.46 0.93 0.93 0.62 0.92 0.92 0.50 0.85 0.85 0.57 0.94 0.94
Lanes: 1.00 1.79 0.21 1.00 0.45 0.55 1.00 1.00 1.00 1.00 1.80 0.20
Final Sat.: 878 3174 379 1175 789 955 954 1612 1612 1087 3200 356

Capacity Analysis Module:

Vol/Sat: 0.11 0.04 0.04 0.02 0.17 0.17 0.12 0.03 0.07 0.07 0.07 0.07
Crit Moves: ****
Green/Cycle: 0.59 0.59 0.59 0.59 0.59 0.59 0.41 0.41 0.41 0.41 0.41 0.41
Volume/Cap: 0.19 0.06 0.06 0.03 0.28 0.28 0.28 0.07 0.17 0.17 0.16 0.16
Delay/Veh: 9.8 8.9 8.9 8.7 10.4 10.4 19.8 17.6 18.5 18.6 18.5 18.5
User DelAdj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
AdjDel/Veh: 9.8 8.9 8.9 8.7 10.4 10.4 19.8 17.6 18.5 18.6 18.5 18.5
LOS by Move: A A A A B B B B B B
HCM2kAvgQ: 2 1 1 0 4 4 3 1 2 2 2 2

Note: Queue reported is the number of cars per lane.

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Level Of Service Computation Report
 2000 HCM Operations Method (Future Volume Alternative)

 Intersection #16 Mill Creek Avenue at Edison Avenue

Cycle (sec): 100 Critical Vol./Cap.(X): 0.489
 Loss Time (sec): 0 (Y+R=4.0 sec) Average Delay (sec/veh): 4.0
 Optimal Cycle: 28 Level Of Service: A

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Permitted			Permitted			Permitted			Permitted		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	1	0	0	1	0	0	1	0	3	1	0	3

Volume Module:

Base Vol:	92	23	15	69	26	12	11	2319	196	12	2580	78
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	92	23	15	69	26	12	11	2319	196	12	2580	78
Added Vol:	0	0	0	0	0	0	0	0	0	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	92	23	15	69	26	12	11	2319	196	12	2580	78
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
PHF Volume:	97	24	16	73	27	13	12	2441	206	13	2716	82
Reduced Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	97	24	16	73	27	13	12	2441	206	13	2716	82
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Final Vol.:	97	24	16	73	27	13	12	2441	206	13	2716	82

Saturation Flow Module:

Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.62	0.94	0.94	0.62	0.95	0.95	0.05	0.90	0.90	0.05	0.91	0.91
Lanes:	1.00	0.61	0.39	1.00	0.68	0.32	1.00	3.69	0.31	1.00	3.88	0.12
Final Sat.:	1175	1082	706	1175	1239	572	86	6300	533	86	6686	202

Capacity Analysis Module:

Vol/Sat:	0.08	0.02	0.02	0.06	0.02	0.02	0.13	0.39	0.39	0.15	0.41	0.41
Crit Moves:	****									****		
Green/Cycle:	0.17	0.17	0.17	0.17	0.17	0.17	0.83	0.83	0.83	0.83	0.83	0.83
Volume/Cap:	0.49	0.13	0.13	0.37	0.13	0.13	0.16	0.47	0.47	0.18	0.49	0.49
Delay/Veh:	39.6	35.5	35.5	38.0	35.5	35.5	2.7	2.4	2.4	2.8	2.5	2.5
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	39.6	35.5	35.5	38.0	35.5	35.5	2.7	2.4	2.4	2.8	2.5	2.5
LOS by Move:	D	D	D	D	D	D	A	A	A	A	A	A
HCM2kAvgQ:	3	1	1	2	1	1	0	6	6	0	7	7

 Note: Queue reported is the number of cars per lane.

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Level Of Service Computation Report
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 Intersection #17 Milliken Avenue/SR-60 WB Ramps

Cycle (sec): 100 Critical Vol./Cap.(X): 1.241
 Loss Time (sec): 0 (Y+R=4.0 sec) Average Delay (sec/veh): 113.4
 Optimal Cycle: 180 Level Of Service: F

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Protected			Permitted			Split Phase			Split Phase		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	1	0	2	0	0	2	0	0	0	1	0	0

Volume Module:

Base Vol:	734	742	0	0	0	1967	114	0	0	0	351	0
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	734	742	0	0	0	1967	114	0	0	0	351	0
Added Vol:	0	0	0	0	0	0	0	0	0	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	734	742	0	0	0	1967	114	0	0	0	351	0
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
PHF Volume:	773	781	0	0	0	2071	120	0	0	0	369	0
Reduced Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	773	781	0	0	0	2071	120	0	0	0	369	0
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Final Vol.:	773	781	0	0	0	2071	120	0	0	0	369	0

Saturation Flow Module:

Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.90	0.95	1.00	0.95	0.95	0.85	0.95	1.00	1.00	0.90	1.00	0.85
Lanes:	1.00	2.00	0.00	0.00	2.00	1.00	0.00	0.00	0.00	1.00	0.00	1.00
Final Sat.:	1710	3610	0	0	3610	1615	0	0	0	1710	0	1615

Capacity Analysis Module:

Vol/Sat:	0.45	0.22	0.00	0.00	0.57	0.07	0.00	0.00	0.00	0.22	0.00	0.11
Crit Moves:	****				****					****		
Green/Cycle:	0.36	0.83	0.00	0.00	0.46	0.46	0.00	0.00	0.00	0.17	0.00	0.17
Volume/Cap:	1.24	0.26	0.00	0.00	1.24	0.16	0.00	0.00	0.00	1.24	0.00	0.61
Delay/Veh:	153.6	2.0	0.0	0.0	141	15.7	0.0	0.0	0.0	175.3	0.0	41.9
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	153.6	2.0	0.0	0.0	141	15.7	0.0	0.0	0.0	175.3	0.0	41.9
LOS by Move:	F	A	A	A	F	B	A	A	A	F	A	D
HCM2kAvgQ:	47	3	0	0	61	2	0	0	0	24	0	6

 Note: Queue reported is the number of cars per lane.

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 Level Of Service Computation Report
 2000 HCM Operations Method (Future Volume Alternative)

 Intersection #18 Milliken Avenue/SR-60 EB Ramps

 Cycle (sec): 100 Critical Vol./Cap.(X): 1.153
 Loss Time (sec): 0 (Y+R=4.0 sec) Average Delay (sec/veh): 204.4
 Optimal Cycle: 180 Level Of Service: F

 Approach: North Bound South Bound East Bound West Bound
 Movement: L - T - R L - T - R L - T - R L - T - R

 Control: Permitted Protected Split Phase Split Phase
 Rights: Include Include Include Include
 Min. Green: 0 0 0 0 0 0 0 0 0 0 0 0
 Lanes: 0 0 1 1 0 1 0 2 0 0 1 0 1 0 0 0 0 0 0 0

 Volume Module:
 Base Vol: 0 1471 434 73 2249 0 6 0 761 0 0 0
 Growth Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
 Initial Bse: 0 1471 434 73 2249 0 6 0 761 0 0 0
 Added Vol: 0 0 0 0 0 0 0 0 0 0 0 0
 PasserByVol: 0 0 0 0 0 0 0 0 0 0 0 0
 Initial Fut: 0 1471 434 73 2249 0 6 0 761 0 0 0
 User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
 PHF Adj: 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95
 PHF Volume: 0 1548 457 77 2367 0 6 0 801 0 0 0
 Reduced Vol: 0 0 0 0 0 0 0 0 0 0 0 0
 Reduced Vol: 0 1548 457 77 2367 0 6 0 801 0 0 0
 PCE Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
 MLF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
 Final Vol.: 0 1548 457 77 2367 0 6 0 801 0 0 0

 Saturation Flow Module:
 Sat/Lane: 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900
 Adjustment: 0.95 0.92 0.92 0.90 0.95 1.00 0.81 1.00 0.85 0.95 1.00 1.00
 Lanes: 0.00 1.54 0.46 1.00 2.00 0.00 1.00 0.00 1.00 0.00 0.00 0.00
 Final Sat.: 0 2693 794 1710 3610 0 1538 0 1610 0 0 0

 Capacity Analysis Module:
 Vol/Sat: 0.00 0.58 0.58 0.04 0.66 0.00 0.00 0.00 0.50 0.00 0.00 0.00
 Crit Moves: *****
 Green/Cycle: 0.00 0.33 0.33 0.38 0.71 0.00 0.29 0.00 0.29 0.00 0.00 0.00
 Volume/Cap: 0.00 1.73 1.73 0.12 0.92 0.00 0.01 0.00 1.73 0.00 0.00 0.00
 Delay/Veh: 0.0 365 364.8 20.2 18.1 0.0 25.5 0.0 372.4 0.0 0.0 0.0
 User DelAdj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
 AdjDel/Veh: 0.0 365 364.8 20.2 18.1 0.0 25.5 0.0 372.4 0.0 0.0 0.0
 LOS by Move: A F F C B A C A F A A A
 HCM2kAvgQ: 0 87 87 2 36 0 0 0 67 0 0 0

 Note: Queue reported is the number of cars per lane.

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 Level Of Service Computation Report
 2000 HCM Operations Method (Future Volume Alternative)

 Intersection #19 Milliken Avenue/Riverside Drive

 Cycle (sec): 100 Critical Vol./Cap.(X): 1.349
 Loss Time (sec): 0 (Y+R=4.0 sec) Average Delay (sec/veh): 147.0
 Optimal Cycle: 180 Level Of Service: F

 Approach: North Bound South Bound East Bound West Bound
 Movement: L - T - R L - T - R L - T - R L - T - R

 Control: Protected Protected Protected Protected
 Rights: Include Include Include Include
 Min. Green: 0 0 0 0 0 0 0 0 0 0 0 0
 Lanes: 2 0 3 0 1 2 0 3 0 1 1 0 1 1 0 1 0 1 1 0

 Volume Module:
 Base Vol: 43 425 9 789 1625 596 783 364 67 128 784 696
 Growth Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
 Initial Bse: 43 425 9 789 1625 596 783 364 67 128 784 696
 Added Vol: 0 0 0 0 0 0 0 0 0 0 0 0
 PasserByVol: 0 0 0 0 0 0 0 0 0 0 0 0
 Initial Fut: 43 425 9 789 1625 596 783 364 67 128 784 696
 User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
 PHF Adj: 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95
 PHF Volume: 45 447 9 831 1711 627 824 383 71 135 825 733
 Reduced Vol: 0 0 0 0 0 0 0 0 0 0 0 0
 Reduced Vol: 45 447 9 831 1711 627 824 383 71 135 825 733
 PCE Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
 MLF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
 Final Vol.: 45 447 9 831 1711 627 824 383 71 135 825 733

 Saturation Flow Module:
 Sat/Lane: 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900
 Adjustment: 0.85 0.91 0.85 0.85 0.91 0.85 0.90 0.93 0.93 0.90 0.88 0.88
 Lanes: 2.00 3.00 1.00 2.00 3.00 1.00 1.00 1.69 0.31 1.00 1.06 0.94
 Final Sat.: 3230 5187 1615 3230 5187 1615 1710 2979 548 1710 1778 1579

 Capacity Analysis Module:
 Vol/Sat: 0.01 0.09 0.01 0.26 0.33 0.39 0.48 0.13 0.13 0.08 0.46 0.46
 Crit Moves: *****
 Green/Cycle: 0.01 0.07 0.07 0.22 0.29 0.29 0.36 0.44 0.44 0.27 0.34 0.34
 Volume/Cap: 1.35 1.15 0.08 1.15 1.14 1.35 1.35 0.30 0.30 0.30 1.35 1.35
 Delay/Veh: 324.6 140 43.3 122.1 109 206.2 199.6 18.4 18.4 29.6 195 195.4
 User DelAdj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
 AdjDel/Veh: 324.6 140 43.3 122.1 109 206.2 199.6 18.4 18.4 29.6 195 195.4
 LOS by Move: F F D F F F F B B C F F
 HCM2kAvgQ: 3 11 0 25 32 41 56 5 5 4 53 53

 Note: Queue reported is the number of cars per lane.

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Level Of Service Computation Report
 2000 HCM Operations Method (Future Volume Alternative)

 Intersection #20 Milliken Ave / Chino Ave

Cycle (sec): 100 Critical Vol./Cap.(X): 0.384
 Loss Time (sec): 0 (Y+R=4.0 sec) Average Delay (sec/veh): 6.5
 Optimal Cycle: 30 Level Of Service: A

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Protected			Permitted			Split Phase			Split Phase		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	1	0	2	0	0	3	1	0	0	0	0	0

Volume Module:

Base Vol:	115	583	0	0	1635	189	25	0	48	0	0	0
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	115	583	0	0	1635	189	25	0	48	0	0	0
Added Vol:	0	0	0	0	0	0	0	0	0	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	115	583	0	0	1635	189	25	0	48	0	0	0
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
PHF Volume:	121	614	0	0	1721	199	26	0	51	0	0	0
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	121	614	0	0	1721	199	26	0	51	0	0	0
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Final Vol.:	121	614	0	0	1721	199	26	0	51	0	0	0

Saturation Flow Module:

Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.90	0.95	1.00	0.95	0.90	0.90	0.90	1.00	0.85	0.95	1.00	1.00
Lanes:	1.00	2.00	0.00	0.00	3.59	0.41	1.00	0.00	1.00	0.00	0.00	0.00
Final Sat.:	1710	3610	0	0	6100	705	1710	0	1615	0	0	0

Capacity Analysis Module:

Vol/Sat:	0.07	0.17	0.00	0.00	0.28	0.28	0.02	0.00	0.03	0.00	0.00	0.00
Crit Moves:	****			****			****			****		
Green/Cycle:	0.18	0.92	0.00	0.00	0.73	0.73	0.08	0.00	0.08	0.00	0.00	0.00
Volume/Cap:	0.38	0.19	0.00	0.00	0.38	0.38	0.19	0.00	0.38	0.00	0.00	0.00
Delay/Veh:	36.6	0.4	0.0	0.0	5.0	5.0	43.5	0.0	45.4	0.0	0.0	0.0
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	36.6	0.4	0.0	0.0	5.0	5.0	43.5	0.0	45.4	0.0	0.0	0.0
LOS by Move:	D	A	A	A	A	A	D	A	D	A	A	A
HCM2kAvgQ:	4	1	0	0	6	6	1	0	2	0	0	0

 Note: Queue reported is the number of cars per lane.

Ontario New Model - Rich Haven External Intersections
 2015 PM Peak
 Meyer, Mohaddes Associates

Level Of Service Computation Report
 2000 HCM Operations Method (Future Volume Alternative)

 Intersection #21 Milliken Avenue/Edison Avenue

Cycle (sec): 100 Critical Vol./Cap.(X): 1.251
 Loss Time (sec): 0 (Y+R=4.0 sec) Average Delay (sec/veh): 99.0
 Optimal Cycle: 180 Level Of Service: F

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Protected			Protected			Protected			Protected		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	1	0	1	1	0	1	1	0	3	1	0	3

Volume Module:

Base Vol:	103	318	297	276	1189	184	110	2725	111	560	3067	157
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	103	318	297	276	1189	184	110	2725	111	560	3067	157
Added Vol:	0	0	0	0	0	0	0	0	0	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	103	318	297	276	1189	184	110	2725	111	560	3067	157
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
PHF Volume:	108	335	313	291	1252	194	116	2868	117	589	3228	165
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	108	335	313	291	1252	194	116	2868	117	589	3228	165
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Final Vol.:	108	335	313	291	1252	194	116	2868	117	589	3228	165

Saturation Flow Module:

Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.90	0.88	0.88	0.90	0.93	0.93	0.90	0.90	0.90	0.90	0.90	0.90
Lanes:	1.00	1.03	0.97	1.00	1.73	0.27	1.00	3.84	0.16	1.00	3.81	0.19
Final Sat.:	1710	1732	1618	1710	3064	474	1710	6605	269	1710	6533	334

Capacity Analysis Module:

Vol/Sat:	0.06	0.19	0.19	0.17	0.41	0.41	0.07	0.43	0.43	0.34	0.49	0.49
Crit Moves:	****			****			****			****		
Green/Cycle:	0.05	0.20	0.20	0.18	0.33	0.33	0.08	0.35	0.35	0.28	0.55	0.55
Volume/Cap:	1.25	0.96	0.96	0.96	1.25	1.25	0.90	1.25	1.25	1.25	0.90	0.90
Delay/Veh:	225.9	65.2	65.2	82.4	154	153.9	96.6	149	149.2	165.7	23.7	23.7
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	225.9	65.2	65.2	82.4	154	153.9	96.6	149	149.2	165.7	23.7	23.7
LOS by Move:	F	E	E	F	F	F	F	F	F	F	C	C
HCM2kAvgQ:	9	15	15	14	44	44	7	47	47	37	29	29

 Note: Queue reported is the number of cars per lane.

Ontario New Model - Rich Haven External Intersections
 2015 PM Peak
 Meyer, Mohaddes Associates

Level Of Service Computation Report
 2000 HCM Operations Method (Future Volume Alternative)

 Intersection #550 Haven Avenue/Creekside Drive

 Cycle (sec): 100 Critical Vol./Cap.(X): 0.000
 Loss Time (sec): 0 (Y+R=4.0 sec) Average Delay (sec/veh): 0.0
 Optimal Cycle: 0 Level Of Service:

 Approach: North Bound South Bound East Bound West Bound
 Movement: L - T - R L - T - R L - T - R L - T - R
 -----|-----|-----|-----|
 Control: Protected Protected Prot+Permit Prot+Permit
 Rights: Include Include Include Include
 Min. Green: 0 0 0 0 0 0 0 0 0 0 0 0
 Lanes: 1 0 1 1 0 1 0 1 1 0 1 1 0 1 0 1
 -----|-----|-----|-----|
 Volume Module:
 Base Vol: 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
 Growth Adj: 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00
 Initial Bse: 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
 Added Vol: 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
 PasserByVol: 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
 Initial Fut: 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
 User Adj: 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00
 PHF Adj: 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00
 PHF Volume: 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
 Reduct Vol: 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
 Reduced Vol: 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
 PCE Adj: 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00
 MLF Adj: 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00
 Final Vol.: 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
 -----|-----|-----|-----|
 Saturation Flow Module:
 Sat/Lane: 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
 Adjustment: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
 Lanes: 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00
 Final Sat.: 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
 -----|-----|-----|-----|
 Capacity Analysis Module:
 Vol/Sat: 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00
 Crit Moves:
 Green/Cycle: 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00
 Volume/Cap: 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00
 Delay/Veh: 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0
 User DelAdj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
 AdjDel/Veh: 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0
 LOS by Move:
 HCM2kAvgQ: 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0

 Note: Queue reported is the number of cars per lane.

Ontario New Model - Rich Haven External Intersections
 2015 PM Peak
 Meyer, Mohaddes Associates

Lane Geometry Report

Number of approach lanes: (L) (LT) (T) (RT) (R) (LTR)

Node Intersection	NB	SB	EB	WB
1 Archibald Avenue/Riverside Drive	102100	102100	101100	101100
2 Archibald Avenue/Chino Avenue	102100	102100	100100	101010
3 Archibald Avenue/Schaefer Avenue	102100	102100	101100	101100
4 Archibald Avenue/Edison Avenue	202100	202100	203100	203100
5 Turner Avenue/Riverside Drive	101100	101100	101100	101100
6 Turner Avenue/Chino Avenue	101100	101100	101100	101100
7 Turner Avenue at Schaefer Avenue	000000	100001	102000	001100
8 Edison Avenue at Schaefer Avenue	000000	100001	104000	003100
9 Haven Avenue/SR-60 WB Ramps	203000	003010	000000	110010
10 Haven Avenue/SR-60 EB Ramps	002100	203000	110010	000000
11 Haven Avenue/Riverside Drive	101100	101100	101100	101100
12 Haven Avenue at Chino Avenue	101100	101100	101100	101100
13 Haven Avenue at Edison Avenue	101100	101100	103100	103100
14 Mill Creek Avenue/Riverside Drive	101010	100100	101100	101100
15 Mill Creek Avenue at Chino Avenue	101100	100100	101100	101100
16 Mill Creek Avenue at Edison Avenue	100100	100100	103100	103100
17 Milliken Avenue/SR-60 WB Ramps	102000	002010	000000	100010
18 Milliken Avenue/SR-60 EB Ramps	001100	102000	100001	000000
19 Milliken Avenue/Riverside Drive	203010	203010	101100	101100
20 Milliken Ave / Chino Ave	102000	003100	100010	000000
21 Milliken Avenue/Edison Avenue	101100	101100	103100	103100
550 Haven Avenue/Creekside Drive	101100	101100	101010	101010

**APPENDIX
F
LOS CALCULATIONS
PROJECT SITE PRIMARY
ACCESS**

 Ontario New Model - Rich Haven External Intersections
 2015 AM Peak - Internal
 Meyer, Mohaddes Associates

Scenario Report
 Scenario: 2015 AM
 Command: 2015 AM
 Volume: Fut Base AM
 Geometry: Future Base
 Impact Fee: Default Impact Fee
 Trip Generation: AM Future
 Trip Distribution: AM
 Paths: Future
 Routes: Default Routes
 Configuration: 2015 AM

 Ontario New Model - Rich Haven External Intersections
 2015 AM Peak - Internal
 Meyer, Mohaddes Associates

Impact Analysis Report
 Level Of Service

Intersection	Base		Future		Change in
	LOS	Del/ Veh	LOS	Del/ Veh	
#101 A1	A	0.0 0.000	D	32.5 0.000	+32.540 D/V
#102 A2	A	0.0 0.000	F	51.8 0.000	+51.816 D/V
#103 A3	A	0.0 0.000	F	58.5 0.000	+58.531 D/V
#104 A4	A	0.0 0.000	B	13.2 0.000	+13.188 D/V
#105 A5	A	0.0 0.000	A	9.5 0.000	+ 9.453 D/V
#106 A6	A	0.0 0.000	A	0.0 0.000	+ 0.000 D/V
#107 A7	A	0.0 0.000	A	9.9 0.000	+ 9.914 D/V
#201 B1	A	0.0 0.000	C	17.2 0.000	+17.182 D/V
#202 B2	A	9.2 0.000	B	13.3 0.000	+ 4.176 D/V
#203 B3	A	0.0 0.000	F	116.1 0.000	+116.115 D/V
#204 B4	A	9.2 0.000	B	13.2 0.000	+ 4.021 D/V
#301 C1	A	0.0 0.000	F	85.5 0.000	+85.457 D/V
#302 C2	A	0.0 0.000	F	OVRFL 0.000	+1237.839 D/
#401 D1	A	0.0 0.000	C	17.8 0.000	+17.782 D/V
#402 D2	A	0.0 0.000	F	OVRFL 0.000	+16464.455 D
#501 E1	A	0.0 0.000	F	OVRFL 0.000	+1791.504 D/
#502 E2	A	0.0 0.000	A	9.6 0.000	+ 9.557 D/V
#503 E3	A	0.0 0.000	D	29.3 0.000	+29.290 D/V

Ontario New Model - Rich Haven External Intersections
2015 AM Peak - Internal
Meyer, Mohaddes Associates

Signal Warrant Summary Report

Intersection	Base Met [Del / Vol]	Future Met [Del / Vol]
#101 A1	???	No / No
#102 A2	???	No / No
#103 A3	???	No / No
#104 A4	???	No / No
#105 A5	???	No / No
#106 A6	???	No / No
#107 A7	???	No / No
#201 B1	???	No / No
#202 B2	???	No / No
#203 B3	???	No / No
#204 B4	???	No / No
#301 C1	???	No / No
#302 C2	???	No / No
#401 D1	???	No / No
#402 D2	???	Yes / Yes
#501 E1	???	Yes / Yes
#502 E2	???	No / No
#503 E3	???	No / No

Ontario New Model - Rich Haven External Intersections
2015 AM Peak - Internal
Meyer, Mohaddes Associates

Peak Hour Delay Signal Warrant Report

```

*****
Intersection #101 A1
*****
Future Volume Alternative: Peak Hour Warrant NOT Met
-----|-----|-----|-----|
Approach: North Bound South Bound East Bound West Bound
Movement: L - T - R L - T - R L - T - R L - T - R
-----|-----|-----|-----|
Control: Stop Sign Stop Sign Uncontrolled Uncontrolled
Lanes: 1 0 0 0 1 0 0 0 0 0 0 0 1 1 0 1 0 2 0 0
Final Vol.: 7 0 17 0 0 0 0 0 0 1528 2 5 716 0
ApproachDel: 32.5 xxxxxx xxxxxx xxxxxx
-----|-----|-----|-----|
Approach[northbound][lanes=2][control=Stop]
Signal Warrant Rule #1: [vehicle-hours=0.2]
FAIL - Vehicle-hours less than 5 for two or more lane approach.
Signal Warrant Rule #2: [approach volume=24]
FAIL - Approach volume less than 150 for two or more lane approach.
Signal Warrant Rule #3: [approach count=3][total volume=2276]
SUCCEED - Total volume greater than or equal to 650 for intersection
with less than four approaches.

```


Ontario New Model - Rich Haven External Intersections
 2015 AM Peak - Internal
 Meyer, Mohaddes Associates

Peak Hour Volume Signal Warrant Report [Urban]

 Intersection #101 A1

Future Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound	South Bound	East Bound	West Bound
Movement:	L - T - R	L - T - R	L - T - R	L - T - R
Control:	Stop Sign	Stop Sign	Uncontrolled	Uncontrolled
Lanes:	1 0 0 0 1	0 0 0 0 0	0 0 1 1 0	1 0 2 0 0
Final Vol.:	7 0 17	0 0 0	0 1528 2	5 716 0

Major Street Volume: 2252
 Minor Approach Volume: 24
 Minor Approach Volume Threshold: 25 [less than minimum of 150]

Ontario New Model - Rich Haven External Intersections
 2015 AM Peak - Internal
 Meyer, Mohaddes Associates

Peak Hour Delay Signal Warrant Report

 Intersection #102 A2

Future Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound	South Bound	East Bound	West Bound
Movement:	L - T - R	L - T - R	L - T - R	L - T - R
Control:	Uncontrolled	Uncontrolled	Stop Sign	Stop Sign
Lanes:	0 0 1 1 0	1 0 2 0 0	0 0 0 0 0	1 0 0 0 1
Final Vol.:	0 1451 7	4 638 0	0 0 0	22 0 13
ApproachDel:	xxxxxx	xxxxxx	xxxxxx	51.8

Approach[westbound][lanes=2][control=Stop]
 Signal Warrant Rule #1: [vehicle-hours=0.5]
 FAIL - Vehicle-hours less than 5 for two or more lane approach.
 Signal Warrant Rule #2: [approach volume=35]
 FAIL - Approach volume less than 150 for two or more lane approach.
 Signal Warrant Rule #3: [approach count=3][total volume=2135]
 SUCCEED - Total volume greater than or equal to 650 for intersection
 with less than four approaches.

Ontario New Model - Rich Haven External Intersections
 2015 AM Peak - Internal
 Meyer, Mohaddes Associates

Peak Hour Volume Signal Warrant Report [Urban]

 Intersection #102 A2

Future Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound	South Bound	East Bound	West Bound
Movement:	L - T - R	L - T - R	L - T - R	L - T - R
Control:	Uncontrolled	Uncontrolled	Stop Sign	Stop Sign
Lanes:	0 0 1 1 0	1 0 2 0 0	0 0 0 0 0	1 0 0 0 1
Final Vol.:	0 1451 7	4 638 0	0 0 0 0	22 0 13

Major Street Volume: 2100
 Minor Approach Volume: 35
 Minor Approach Volume Threshold: 55 [less than minimum of 150]

Ontario New Model - Rich Haven External Intersections
 2015 AM Peak - Internal
 Meyer, Mohaddes Associates

Peak Hour Delay Signal Warrant Report

 Intersection #103 A3

Future Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound	South Bound	East Bound	West Bound
Movement:	L - T - R	L - T - R	L - T - R	L - T - R
Control:	Uncontrolled	Uncontrolled	Stop Sign	Stop Sign
Lanes:	0 0 1 1 0	1 0 2 0 0	0 0 0 0 0	1 0 0 0 1
Final Vol.:	0 1436 11	7 654 0	0 0 0 0	33 0 22
ApproachDel:	xxxxxx	xxxxxx	xxxxxx	58.5

Approach[westbound][lanes=2][control=Stop]
 Signal Warrant Rule #1: [vehicle-hours=0.9]
 FAIL - Vehicle-hours less than 5 for two or more lane approach.
 Signal Warrant Rule #2: [approach volume=55]
 FAIL - Approach volume less than 150 for two or more lane approach.
 Signal Warrant Rule #3: [approach count=3][total volume=2162]
 SUCCEED - Total volume greater than or equal to 650 for intersection
 with less than four approaches.

Ontario New Model - Rich Haven External Intersections
2015 AM Peak - Internal
Meyer, Mohaddes Associates

Peak Hour Volume Signal Warrant Report [Urban]

Intersection #103 A3

Future Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound	South Bound	East Bound	West Bound
Movement:	L - T - R	L - T - R	L - T - R	L - T - R
Control:	Uncontrolled	Uncontrolled	Stop Sign	Stop Sign
Lanes:	0 0 1 1 0	1 0 2 0 0	0 0 0 0 0	1 0 0 0 1
Final Vol.:	0 1436 11	7 654 0	0 0 0 0	33 0 22

Major Street Volume: 2107
Minor Approach Volume: 55
Minor Approach Volume Threshold: 54 [less than minimum of 150]

Ontario New Model - Rich Haven External Intersections
2015 AM Peak - Internal
Meyer, Mohaddes Associates

Peak Hour Delay Signal Warrant Report

Intersection #104 A4

Future Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound	South Bound	East Bound	West Bound
Movement:	L - T - R	L - T - R	L - T - R	L - T - R
Control:	Uncontrolled	Uncontrolled	Stop Sign	Stop Sign
Lanes:	1 0 1 0 0	0 0 0 1 0	1 0 0 0 1	0 0 0 0 0
Final Vol.:	9 434 0	0 336 11	29 0 28	0 0 0 0
ApproachDel:	xxxxxx	xxxxxx	13.2	xxxxxx

Approach[eastbound][lanes=2][control=Stop]
Signal Warrant Rule #1: [vehicle-hours=0.2]
FAIL - Vehicle-hours less than 5 for two or more lane approach.
Signal Warrant Rule #2: [approach volume=58]
FAIL - Approach volume less than 150 for two or more lane approach.
Signal Warrant Rule #3: [approach count=3][total volume=847]
SUCCEED - Total volume greater than or equal to 650 for intersection with less than four approaches.

Ontario New Model - Rich Haven External Intersections
 2015 AM Peak - Internal
 Meyer, Mohaddes Associates

Peak Hour Volume Signal Warrant Report [Urban]

 Intersection #104 A4

Future Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound	South Bound	East Bound	West Bound
Movement:	L - T - R	L - T - R	L - T - R	L - T - R
Control:	Uncontrolled	Uncontrolled	Stop Sign	Stop Sign
Lanes:	1 0 1 0 0	0 0 0 1 0	1 0 0 0 1	0 0 0 0 0
Final Vol.:	9 434 0	0 336 11	29 0 28	0 0 0 0

Major Street Volume: 789
 Minor Approach Volume: 58
 Minor Approach Volume Threshold: 476

Ontario New Model - Rich Haven External Intersections
 2015 AM Peak - Internal
 Meyer, Mohaddes Associates

Peak Hour Delay Signal Warrant Report

 Intersection #105 A5

Future Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound	South Bound	East Bound	West Bound
Movement:	L - T - R	L - T - R	L - T - R	L - T - R
Control:	Stop Sign	Stop Sign	Uncontrolled	Uncontrolled
Lanes:	0 0 0 0 0	1 0 0 0 1	1 0 2 0 0	0 0 1 1 0
Final Vol.:	0 0 0 0 0	42 0 31	11 178 0	0 94 14
ApproachDel:	xxxxxx	9.5	xxxxxx	xxxxxx

Approach[southbound][lanes=2][control=Stop]
 Signal Warrant Rule #1: [vehicle-hours=0.2]
 FAIL - Vehicle-hours less than 5 for two or more lane approach.
 Signal Warrant Rule #2: [approach volume=73]
 FAIL - Approach volume less than 150 for two or more lane approach.
 Signal Warrant Rule #3: [approach count=3][total volume=368]
 FAIL - Total volume less than 650 for intersection
 with less than four approaches.

Ontario New Model - Rich Haven External Intersections
2015 AM Peak - Internal
Meyer, Mohaddes Associates

Peak Hour Volume Signal Warrant Report [Urban]

Intersection #105 A5

Future Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound				South Bound				East Bound				West Bound			
Movement:	L	T	R		L	T	R		L	T	R		L	T	R	
Control:	Stop Sign				Stop Sign				Uncontrolled				Uncontrolled			
Lanes:	0	0	0	0	1	0	0	0	1	0	2	0	0	0	1	1
Final Vol.:	0	0	0	0	42	0	0	31	11	178	0	0	0	94	14	0

Major Street Volume: 296
Minor Approach Volume: 73
Minor Approach Volume Threshold: 898

Ontario New Model - Rich Haven External Intersections
2015 AM Peak - Internal
Meyer, Mohaddes Associates

Peak Hour Delay Signal Warrant Report

Intersection #106 A6

Future Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound				South Bound				East Bound				West Bound			
Movement:	L	T	R		L	T	R		L	T	R		L	T	R	
Control:	Stop Sign				Stop Sign				Uncontrolled				Uncontrolled			
Lanes:	0	0	0	0	1	0	0	0	1	0	2	0	0	0	1	1
Final Vol.:	0	0	0	0	0	0	0	0	0	220	0	0	0	107	0	0
ApproachDel:	xxxxxx				xxxxxx				xxxxxx				xxxxxx			

Ontario New Model - Rich Haven External Intersections
2015 AM Peak - Internal
Meyer, Mohaddes Associates

Peak Hour Volume Signal Warrant Report [Urban]

Intersection #106 A6

Future Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound	South Bound	East Bound	West Bound
Movement:	L - T - R	L - T - R	L - T - R	L - T - R
Control:	Stop Sign	Stop Sign	Uncontrolled	Uncontrolled
Lanes:	0 0 0 0 0	1 0 0 0 1	1 0 2 0 0	0 0 1 1 0
Final Vol.:	0 0 0 0	0 0 0 0	0 220 0	0 107 0

Major Street Volume: 327
Minor Approach Volume: 0
Minor Approach Volume Threshold: 670

Ontario New Model - Rich Haven External Intersections
2015 AM Peak - Internal
Meyer, Mohaddes Associates

Peak Hour Delay Signal Warrant Report

Intersection #107 A7

Future Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound	South Bound	East Bound	West Bound
Movement:	L - T - R	L - T - R	L - T - R	L - T - R
Control:	Stop Sign	Stop Sign	Uncontrolled	Uncontrolled
Lanes:	0 0 0 0 0	1 0 0 0 1	1 0 2 0 0	0 0 1 1 0
Final Vol.:	0 0 0 0	48 0 7	2 217 0	0 100 16
ApproachDel:	xxxxxx	9.9	xxxxxx	xxxxxx

Approach[southbound][lanes=2][control=Stop]
Signal Warrant Rule #1: [vehicle-hours=0.2]
FAIL - Vehicle-hours less than 5 for two or more lane approach.
Signal Warrant Rule #2: [approach volume=56]
FAIL - Approach volume less than 150 for two or more lane approach.
Signal Warrant Rule #3: [approach count=3][total volume=391]
FAIL - Total volume less than 650 for intersection
with less than four approaches.

Ontario New Model - Rich Haven External Intersections
 2015 AM Peak - Internal
 Meyer, Mohaddes Associates

Peak Hour Volume Signal Warrant Report [Urban]

 Intersection #107 A7

Future Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound	South Bound	East Bound	West Bound
Movement:	L - T - R	L - T - R	L - T - R	L - T - R
Control:	Stop Sign	Stop Sign	Uncontrolled	Uncontrolled
Lanes:	0 0 0 0 0	1 0 0 0 1	1 0 2 0 0	0 0 1 1 0
Final Vol.:	0 0 0 0	48 0 7	2 217 0	0 100 16

Major Street Volume: 335
 Minor Approach Volume: 56
 Minor Approach Volume Threshold: 845

Ontario New Model - Rich Haven External Intersections
 2015 AM Peak - Internal
 Meyer, Mohaddes Associates

Peak Hour Delay Signal Warrant Report

 Intersection #201 B1

Future Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound	South Bound	East Bound	West Bound
Movement:	L - T - R	L - T - R	L - T - R	L - T - R
Control:	Uncontrolled	Uncontrolled	Stop Sign	Stop Sign
Lanes:	0 0 1 1 0	1 0 2 0 0	0 0 0 0 0	1 0 0 0 1
Final Vol.:	0 1443 0	20 760 0	0 0 0	0 0 79
ApproachDel:	xxxxxx	xxxxxx	xxxxxx	17.2

Approach[westbound][lanes=2][control=Stop]
 Signal Warrant Rule #1: [vehicle-hours=0.4]
 FAIL - Vehicle-hours less than 5 for two or more lane approach.
 Signal Warrant Rule #2: [approach volume=79]
 FAIL - Approach volume less than 150 for two or more lane approach.
 Signal Warrant Rule #3: [approach count=3][total volume=2302]
 SUCCEED - Total volume greater than or equal to 650 for intersection
 with less than four approaches.

Ontario New Model - Rich Haven External Intersections
2015 AM Peak - Internal
Meyer, Mohaddes Associates

Peak Hour Volume Signal Warrant Report [Urban]

Intersection #201 B1

Future Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound	South Bound	East Bound	West Bound
Movement:	L - T - R	L - T - R	L - T - R	L - T - R
Control:	Uncontrolled	Uncontrolled	Stop Sign	Stop Sign
Lanes:	0 0 1 1 0	1 0 2 0 0	0 0 0 0 0	1 0 0 0 1
Final Vol.:	0 1443 0	20 760 0	0 0 0 0	0 0 79

Major Street Volume: 2223
Minor Approach Volume: 79
Minor Approach Volume Threshold: 31 [less than minimum of 150]

Ontario New Model - Rich Haven External Intersections
2015 AM Peak - Internal
Meyer, Mohaddes Associates

Peak Hour Delay Signal Warrant Report

Intersection #202 B2

Future Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound	South Bound	East Bound	West Bound
Movement:	L - T - R	L - T - R	L - T - R	L - T - R
Control:	Stop Sign	Stop Sign	Uncontrolled	Uncontrolled
Lanes:	1 0 1 0 0	0 0 0 1 0	1 0 0 0 1	0 0 0 0 0
Final Vol.:	0 331 0	0 296 12	46 0 0	0 0 0 0
ApproachDel:	13.3	12.8	xxxxxx	xxxxxx

Approach[northbound][lanes=2][control=Stop]
Signal Warrant Rule #1: [vehicle-hours=1.2]
FAIL - Vehicle-hours less than 5 for two or more lane approach.
Signal Warrant Rule #2: [approach volume=331]
SUCCEED - Approach volume >= 150 for two or more lane approach.
Signal Warrant Rule #3: [approach count=3][total volume=684]
SUCCEED - Total volume greater than or equal to 650 for intersection with less than four approaches.

Approach[southbound][lanes=1][control=Stop]
Signal Warrant Rule #1: [vehicle-hours=1.1]
FAIL - Vehicle-hours less than 4 for one lane approach.
Signal Warrant Rule #2: [approach volume=307]
SUCCEED - Approach volume greater than or equal to 100 for one lane approach.
Signal Warrant Rule #3: [approach count=3][total volume=684]
SUCCEED - Total volume greater than or equal to 650 for intersection with less than four approaches.

Ontario New Model - Rich Haven External Intersections
 2015 AM Peak - Internal
 Meyer, Mohaddes Associates

Peak Hour Volume Signal Warrant Report [Urban]

 Intersection #202 B2

Future Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound				South Bound				East Bound				West Bound			
Movement:	L	T	R		L	T	R		L	T	R		L	T	R	
Control:	Stop Sign				Stop Sign				Uncontrolled				Uncontrolled			
Lanes:	1	0	1	0	0	0	0	1	1	0	0	0	1	0	0	0
Final Vol.:	0	331	0	0	0	296	12	46	0	0	0	0	0	0	0	0

Major Street Volume: 46
 Minor Approach Volume: 331
 Minor Approach Volume Threshold: 1695

Ontario New Model - Rich Haven External Intersections
 2015 AM Peak - Internal
 Meyer, Mohaddes Associates

Peak Hour Delay Signal Warrant Report

 Intersection #203 B3

Future Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound				South Bound				East Bound				West Bound			
Movement:	L	T	R		L	T	R		L	T	R		L	T	R	
Control:	Uncontrolled				Uncontrolled				Stop Sign				Stop Sign			
Lanes:	0	0	1	1	0	2	0	0	0	0	0	0	1	0	0	1
Final Vol.:	0	1443	11	0	0	760	0	0	0	0	0	0	42	0	0	0
ApproachDel:	xxxxxx				xxxxxx				xxxxxx				116.1			

Approach[westbound][lanes=2][control=Stop]
 Signal Warrant Rule #1: [vehicle-hours=1.4]
 FAIL - Vehicle-hours less than 5 for two or more lane approach.
 Signal Warrant Rule #2: [approach volume=42]
 FAIL - Approach volume less than 150 for two or more lane approach.
 Signal Warrant Rule #3: [approach count=3][total volume=2256]
 SUCCEED - Total volume greater than or equal to 650 for intersection
 with less than four approaches.

Ontario New Model - Rich Haven External Intersections
2015 AM Peak - Internal
Meyer, Mohaddes Associates

Peak Hour Volume Signal Warrant Report [Urban]

Intersection #203 B3

Future Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound	South Bound	East Bound	West Bound
Movement:	L - T - R	L - T - R	L - T - R	L - T - R
Control:	Uncontrolled	Uncontrolled	Stop Sign	Stop Sign
Lanes:	0 0 1 1 0	1 0 2 0 0	0 0 0 0 0	1 0 0 0 1
Final Vol.:	0 1443 11	0 760 0	0 0 0 0	42 0 0 0

Major Street Volume: 2214
Minor Approach Volume: 42
Minor Approach Volume Threshold: 32 [less than minimum of 150]

Ontario New Model - Rich Haven External Intersections
2015 AM Peak - Internal
Meyer, Mohaddes Associates

Peak Hour Delay Signal Warrant Report

Intersection #204 B4

Future Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound	South Bound	East Bound	West Bound
Movement:	L - T - R	L - T - R	L - T - R	L - T - R
Control:	Stop Sign	Stop Sign	Uncontrolled	Uncontrolled
Lanes:	1 0 1 0 0	0 0 1 0 0	1 0 0 0 1	0 0 0 0 0
Final Vol.:	40 331 0	0 296 0	0 0 0 162	0 0 0 0
ApproachDel:	11.4	13.2	xxxxxx	xxxxxx

Approach[northbound][lanes=2][control=Stop]
Signal Warrant Rule #1: [vehicle-hours=1.2]
FAIL - Vehicle-hours less than 5 for two or more lane approach.
Signal Warrant Rule #2: [approach volume=371]
SUCCEED - Approach volume >= 150 for two or more lane approach.
Signal Warrant Rule #3: [approach count=3][total volume=828]
SUCCEED - Total volume greater than or equal to 650 for intersection
with less than four approaches.

Approach[southbound][lanes=1][control=Stop]
Signal Warrant Rule #1: [vehicle-hours=1.1]
FAIL - Vehicle-hours less than 4 for one lane approach.
Signal Warrant Rule #2: [approach volume=296]
SUCCEED - Approach volume greater than or equal to 100 for one lane approach.
Signal Warrant Rule #3: [approach count=3][total volume=828]
SUCCEED - Total volume greater than or equal to 650 for intersection
with less than four approaches.

Ontario New Model - Rich Haven External Intersections
2015 AM Peak - Internal
Meyer, Mohaddes Associates

Peak Hour Volume Signal Warrant Report [Urban]

Intersection #204 B4

Future Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound	South Bound	East Bound	West Bound
Movement:	L - T - R	L - T - R	L - T - R	L - T - R
Control:	Stop Sign	Stop Sign	Uncontrolled	Uncontrolled
Lanes:	1 0 1 0 0	0 0 1 0 0	1 0 0 0 1	0 0 0 0 0
Final Vol.:	40 331 0	0 296 0	0 0 162	0 0 0

Major Street Volume: 162
Minor Approach Volume: 371
Minor Approach Volume Threshold: 1157

Ontario New Model - Rich Haven External Intersections
2015 AM Peak - Internal
Meyer, Mohaddes Associates

Peak Hour Delay Signal Warrant Report

Intersection #301 C1

Future Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound	South Bound	East Bound	West Bound
Movement:	L - T - R	L - T - R	L - T - R	L - T - R
Control:	Uncontrolled	Uncontrolled	Stop Sign	Stop Sign
Lanes:	0 0 1 1 0	1 0 2 0 0	0 0 0 0 0	1 0 0 0 1
Final Vol.:	0 1389 14	16 786 0	0 0 0	57 0 64
ApproachDel:	xxxxxx	xxxxxx	xxxxxx	85.5

Approach[westbound][lanes=2][control=Stop]
Signal Warrant Rule #1: [vehicle-hours=2.9]
FAIL - Vehicle-hours less than 5 for two or more lane approach.
Signal Warrant Rule #2: [approach volume=121]
FAIL - Approach volume less than 150 for two or more lane approach.
Signal Warrant Rule #3: [approach count=3][total volume=2326]
SUCCEED - Total volume greater than or equal to 650 for intersection
with less than four approaches.

Ontario New Model - Rich Haven External Intersections
2015 AM Peak - Internal
Meyer, Mohaddes Associates

Peak Hour Volume Signal Warrant Report [Urban]

Intersection #301 C1

Future Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound	South Bound	East Bound	West Bound
Movement:	L - T - R	L - T - R	L - T - R	L - T - R
Control:	Uncontrolled	Uncontrolled	Stop Sign	Stop Sign
Lanes:	0 0 1 1 0	1 0 2 0 0	0 0 0 0 0	1 0 0 0 1
Final Vol.:	0 1389 14	16 786 0	0 0 0 0	57 0 64

Major Street Volume: 2205
Minor Approach Volume: 121
Minor Approach Volume Threshold: 34 [less than minimum of 150]

Ontario New Model - Rich Haven External Intersections
2015 AM Peak - Internal
Meyer, Mohaddes Associates

Peak Hour Delay Signal Warrant Report

Intersection #302 C2

Future Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound	South Bound	East Bound	West Bound
Movement:	L - T - R	L - T - R	L - T - R	L - T - R
Control:	Stop Sign	Stop Sign	Uncontrolled	Uncontrolled
Lanes:	0 0 0 0 0	1 0 0 0 1	1 0 4 0 0	0 0 3 1 0
Final Vol.:	0 0 0 0	71 0 36	8 1751 0	0 2242 18
ApproachDel:	xxxxxx	1237.8	xxxxxx	xxxxxx

Approach[southbound][lanes=2][control=Stop]
Signal Warrant Rule #1: [vehicle-hours=36.6]
SUCCEED - Vehicle-hours >= 5 for two or more lane approach.
Signal Warrant Rule #2: [approach volume=106]
FAIL - Approach volume less than 150 for two or more lane approach.
Signal Warrant Rule #3: [approach count=3][total volume=4125]
SUCCEED - Total volume greater than or equal to 650 for intersection
with less than four approaches.

Ontario New Model - Rich Haven External Intersections
 2015 AM Peak - Internal
 Meyer, Mohaddes Associates

Peak Hour Volume Signal Warrant Report [Urban]

 Intersection #302 C2

Future Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound	South Bound	East Bound	West Bound
Movement:	L - T - R	L - T - R	L - T - R	L - T - R
Control:	Stop Sign	Stop Sign	Uncontrolled	Uncontrolled
Lanes:	0 0 0 0 0	1 0 0 0 1	1 0 4 0 0	0 0 3 1 0
Final Vol.:	0 0 0 0	71 0 36	8 1751 0	0 2242 18

Major Street Volume: 4019
 Minor Approach Volume: 106
 Minor Approach Volume Threshold: -224 [less than minimum of 150]

Ontario New Model - Rich Haven External Intersections
 2015 AM Peak - Internal
 Meyer, Mohaddes Associates

Peak Hour Delay Signal Warrant Report

 Intersection #401 D1

Future Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound	South Bound	East Bound	West Bound
Movement:	L - T - R	L - T - R	L - T - R	L - T - R
Control:	Uncontrolled	Uncontrolled	Stop Sign	Stop Sign
Lanes:	1 0 1 0 0	0 0 1 0 0	1 0 0 0 1	0 0 0 0 1
Final Vol.:	7 253 0	56 388 14	55 0 32	0 0 63
ApproachDel:	xxxxxx	xxxxxx	17.8	9.9

Approach[eastbound][lanes=2][control=Stop]
 Signal Warrant Rule #1: [vehicle-hours=0.4]
 FAIL - Vehicle-hours less than 5 for two or more lane approach.
 Signal Warrant Rule #2: [approach volume=86]
 FAIL - Approach volume less than 150 for two or more lane approach.
 Signal Warrant Rule #3: [approach count=4][total volume=867]
 SUCCEED - Total volume greater than or equal to 800 for intersection
 with four or more approaches.

Approach[westbound][lanes=1][control=Stop]
 Signal Warrant Rule #1: [vehicle-hours=0.2]
 FAIL - Vehicle-hours less than 4 for one lane approach.
 Signal Warrant Rule #2: [approach volume=63]
 FAIL - Approach volume less than 100 for one lane approach.
 Signal Warrant Rule #3: [approach count=4][total volume=867]
 SUCCEED - Total volume greater than or equal to 800 for intersection
 with four or more approaches.

Ontario New Model - Rich Haven External Intersections
2015 AM Peak - Internal
Meyer, Mohaddes Associates

Peak Hour Volume Signal Warrant Report [Urban]

Intersection #401 D1

Future Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound	South Bound	East Bound	West Bound
Movement:	L - T - R	L - T - R	L - T - R	L - T - R
Control:	Uncontrolled	Uncontrolled	Stop Sign	Stop Sign
Lanes:	1 0 1 0 0	0 0 1 0 0	1 0 0 0 1	0 0 0 0 1
Final Vol.:	7 253 0	56 388 14	55 0 32	0 0 63

Major Street Volume: 718
Minor Approach Volume: 86
Minor Approach Volume Threshold: 517

Ontario New Model - Rich Haven External Intersections
2015 AM Peak - Internal
Meyer, Mohaddes Associates

Peak Hour Delay Signal Warrant Report

Intersection #402 D2

Future Volume Alternative: Peak Hour Warrant Met

Approach:	North Bound	South Bound	East Bound	West Bound
Movement:	L - T - R	L - T - R	L - T - R	L - T - R
Control:	Stop Sign	Stop Sign	Uncontrolled	Uncontrolled
Lanes:	1 0 0 1 0	1 0 0 1 0	1 0 3 1 0	1 0 3 1 0
Final Vol.:	118 0 0	74 0 151	133 2265 81	0 1587 64
ApproachDel:	xxxxxxx	963.2	xxxxxxx	xxxxxxx

Approach[northbound][lanes=2][control=Stop]
Signal Warrant Rule #1: [vehicle-hours=539.2]
SUCCEED - Vehicle-hours >= 5 for two or more lane approach.
Signal Warrant Rule #2: [approach volume=118]
FAIL - Approach volume less than 150 for two or more lane approach.
Signal Warrant Rule #3: [approach count=4][total volume=4473]
SUCCEED - Total volume greater than or equal to 800 for intersection
with four or more approaches.

Approach[southbound][lanes=2][control=Stop]
Signal Warrant Rule #1: [vehicle-hours=60.0]
SUCCEED - Vehicle-hours >= 5 for two or more lane approach.
Signal Warrant Rule #2: [approach volume=224]
SUCCEED - Approach volume >= 150 for two or more lane approach.
Signal Warrant Rule #3: [approach count=4][total volume=4473]
SUCCEED - Total volume greater than or equal to 800 for intersection
with four or more approaches.

Ontario New Model - Rich Haven External Intersections
 2015 AM Peak - Internal
 Meyer, Mohaddes Associates

Peak Hour Volume Signal Warrant Report [Urban]

 Intersection #402 D2

Future Volume Alternative: Peak Hour Warrant Met

Approach:	North Bound	South Bound	East Bound	West Bound
Movement:	L - T - R	L - T - R	L - T - R	L - T - R
Control:	Stop Sign	Stop Sign	Uncontrolled	Uncontrolled
Lanes:	1 0 0 1 0	1 0 0 1 0	1 0 3 1 0	1 0 3 1 0
Final Vol.:	118 0 0	74 0 151	133 2265 81	0 1587 64

Major Street Volume: 4131
 Minor Approach Volume: 224
 Minor Approach Volume Threshold: -236 [less than minimum of 150]

Ontario New Model - Rich Haven External Intersections
 2015 AM Peak - Internal
 Meyer, Mohaddes Associates

Peak Hour Delay Signal Warrant Report

 Intersection #501 E1

Future Volume Alternative: Peak Hour Warrant Met

Approach:	North Bound	South Bound	East Bound	West Bound
Movement:	L - T - R	L - T - R	L - T - R	L - T - R
Control:	Stop Sign	Stop Sign	Uncontrolled	Uncontrolled
Lanes:	1 0 0 1 0	1 0 0 1 0	1 0 3 1 0	1 0 3 1 0
Final Vol.:	29 0 100	74 0 95	83 2235 20	68 1528 64
ApproachDel:	1099.9	1791.5	xxxxxx	xxxxxx

Approach[northbound][lanes=2][control=Stop]
 Signal Warrant Rule #1: [vehicle-hours=39.6]
 SUCCEED - Vehicle-hours >= 5 for two or more lane approach.
 Signal Warrant Rule #2: [approach volume=129]
 FAIL - Approach volume less than 150 for two or more lane approach.
 Signal Warrant Rule #3: [approach count=4][total volume=4297]
 SUCCEED - Total volume greater than or equal to 800 for intersection
 with four or more approaches.

Approach[southbound][lanes=2][control=Stop]
 Signal Warrant Rule #1: [vehicle-hours=83.8]
 SUCCEED - Vehicle-hours >= 5 for two or more lane approach.
 Signal Warrant Rule #2: [approach volume=168]
 SUCCEED - Approach volume >= 150 for two or more lane approach.
 Signal Warrant Rule #3: [approach count=4][total volume=4297]
 SUCCEED - Total volume greater than or equal to 800 for intersection
 with four or more approaches.

Ontario New Model - Rich Haven External Intersections
 2015 AM Peak - Internal
 Meyer, Mohaddes Associates

Peak Hour Volume Signal Warrant Report [Urban]

 Intersection #501 E1

Future Volume Alternative: Peak Hour Warrant Met

Approach:	North Bound				South Bound				East Bound				West Bound							
Movement:	L	T	R		L	T	R		L	T	R		L	T	R					
Control:	Stop Sign				Stop Sign				Uncontrolled				Uncontrolled							
Lanes:	1	0	0	1	0	1	0	0	1	0	1	0	3	1	0	1	0	3	1	0
Final Vol.:	29	0	100		74	0	95		83	2235	20		68	1528	64					

Major Street Volume: 3999
 Minor Approach Volume: 168
 Minor Approach Volume Threshold: -222 [less than minimum of 150]

Ontario New Model - Rich Haven External Intersections
 2015 AM Peak - Internal
 Meyer, Mohaddes Associates

Peak Hour Delay Signal Warrant Report

 Intersection #502 E2

Future Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound				South Bound				East Bound				West Bound							
Movement:	L	T	R		L	T	R		L	T	R		L	T	R					
Control:	Uncontrolled				Uncontrolled				Stop Sign				Stop Sign							
Lanes:	0	0	0	1	0	1	0	1	0	0	0	0	0	0	0	1	0	0	0	1
Final Vol.:	0	140	6		67	79	0		0	0	0		9	0	97					
ApproachDel:	xxxxxx				xxxxxx				xxxxxx				9.6							

Approach[westbound][lanes=2][control=Stop]
 Signal Warrant Rule #1: [vehicle-hours=0.3]
 FAIL - Vehicle-hours less than 5 for two or more lane approach.
 Signal Warrant Rule #2: [approach volume=106]
 FAIL - Approach volume less than 150 for two or more lane approach.
 Signal Warrant Rule #3: [approach count=3][total volume=399]
 FAIL - Total volume less than 650 for intersection
 with less than four approaches.

Ontario New Model - Rich Haven External Intersections
 2015 AM Peak - Internal
 Meyer, Mohaddes Associates

Peak Hour Volume Signal Warrant Report [Urban]

 Intersection #502 E2

Future Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound	South Bound	East Bound	West Bound
Movement:	L - T - R	L - T - R	L - T - R	L - T - R
Control:	Uncontrolled	Uncontrolled	Stop Sign	Stop Sign
Lanes:	0 0 0 1 0	1 0 1 0 0	0 0 0 0 0	1 0 0 0 1
Final Vol.:	0 140 6	67 79 0	0 0 0 0	9 0 97

Major Street Volume: 293
 Minor Approach Volume: 106
 Minor Approach Volume Threshold: 903

Ontario New Model - Rich Haven External Intersections
 2015 AM Peak - Internal
 Meyer, Mohaddes Associates

Peak Hour Delay Signal Warrant Report

 Intersection #503 E3

Future Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound	South Bound	East Bound	West Bound
Movement:	L - T - R	L - T - R	L - T - R	L - T - R
Control:	Uncontrolled	Uncontrolled	Stop Sign	Stop Sign
Lanes:	1 0 1 1 0	1 0 1 1 0	1 0 0 1 0	1 0 0 1 0
Final Vol.:	0 1263 0	0 326 68	100 0 0	0 0 0 0
ApproachDel:	xxxxxx	xxxxxx	29.3	xxxxxx

Approach[eastbound][lanes=2][control=Stop]
 Signal Warrant Rule #1: [vehicle-hours=0.8]
 FAIL - Vehicle-hours less than 5 for two or more lane approach.
 Signal Warrant Rule #2: [approach volume=100]
 FAIL - Approach volume less than 150 for two or more lane approach.
 Signal Warrant Rule #3: [approach count=3][total volume=1758]
 SUCCEED - Total volume greater than or equal to 650 for intersection
 with less than four approaches.

Ontario New Model - Rich Haven External Intersections
2015 AM Peak - Internal
Meyer, Mohaddes Associates

Peak Hour Volume Signal Warrant Report [Urban]

Intersection #503 E3

Future Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound	South Bound	East Bound	West Bound
Movement:	L - T - R	L - T - R	L - T - R	L - T - R
Control:	Uncontrolled	Uncontrolled	Stop Sign	Stop Sign
Lanes:	1 0 1 1 0	1 0 1 1 0	1 0 0 1 0	1 0 0 1 0
Final Vol.:	0 1263 0	0 326 68	100 0 0	0 0 0

Major Street Volume: 1658
Minor Approach Volume: 100
Minor Approach Volume Threshold: 157

Ontario New Model - Rich Haven External Intersections
2015 AM Peak - Internal
Meyer, Mohaddes Associates

Level Of Service Computation Report
2000 HCM Unsignalized Method (Future Volume Alternative)

Intersection #101 A1

Average Delay (sec/veh): 0.4 Worst Case Level Of Service: D [32.5]

Approach:	North Bound	South Bound	East Bound	West Bound
Movement:	L - T - R	L - T - R	L - T - R	L - T - R
Control:	Stop Sign	Stop Sign	Uncontrolled	Uncontrolled
Rights:	Include	Include	Include	Include
Lanes:	1 0 0 0 1	0 0 0 0 0	0 0 1 1 0	1 0 2 0 0

Volume Module:

Base Vol:	0	0	0	0	0	0	0	1383	0	0	581	0
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	0	0	0	0	0	0	0	1383	0	0	581	0
Added Vol:	7	0	16	0	0	0	0	69	2	5	99	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	7	0	16	0	0	0	0	1452	2	5	680	0
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
PHF Volume:	7	0	17	0	0	0	0	1528	2	5	716	0
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Final Vol.:	7	0	17	0	0	0	0	1528	2	5	716	0

Critical Gap Module:

Critical Gp:	6.8	xxxx	6.9	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	4.1	xxxx	xxxx
FollowUpTim:	3.5	xxxx	3.3	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	2.2	xxxx	xxxx

Capacity Module:

Cnflct Vol:	1898	xxxx	765	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	1531	xxxx	xxxx
Potent Cap.:	63	xxxx	350	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	441	xxxx	xxxx
Move Cap.:	62	xxxx	350	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	441	xxxx	xxxx
Volume/Cap:	0.12	xxxx	0.05	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	0.01	xxxx	xxxx

Level Of Service Module:

Queue:	0.4	xxxx	0.2	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	0.0	xxxx	xxxx
Stopped Del:	70.8	xxxx	15.8	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	13.3	xxxx	xxxx
LOS by Move:	F	*	C	*	*	*	*	*	*	B	*	*
Movement:	LT - LTR - RT	LT - LTR - RT	LT - LTR - RT	LT - LTR - RT	LT - LTR - RT	LT - LTR - RT	LT - LTR - RT	LT - LTR - RT	LT - LTR - RT	LT - LTR - RT	LT - LTR - RT	LT - LTR - RT
Shared Cap.:	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx
SharedQueue:	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx
Shrd StpDel:	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx
Shared LOS:	*	*	*	*	*	*	*	*	*	*	*	*
ApproachDel:	32.5			xxxxxx			xxxxxx		xxxxxx		xxxxxx	
ApproachLOS:	D			*			*		*		*	

Ontario New Model - Rich Haven External Intersections
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Level Of Service Computation Report
2000 HCM Unsignalized Method (Future Volume Alternative)

Intersection #102 A2
Average Delay (sec/veh): 0.9 Worst Case Level Of Service: F[51.8]
Approach: North Bound South Bound East Bound West Bound
Movement: L - T - R L - T - R L - T - R L - T - R
Control: Uncontrolled Uncontrolled Stop Sign Stop Sign
Rights: Include Include Include Include
Lanes: 0 0 1 1 0 1 0 2 0 0 0 0 0 0 0 1 0 0 0 1
Volume Module:
Base Vol: 0 1135 0 0 0 501 0 0 0 0 0 0 0 0
Growth Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
Initial Bse: 0 1135 0 0 0 501 0 0 0 0 0 0 0 0
Added Vol: 0 243 7 4 105 0 0 0 0 21 0 0 12
PasserByVol: 0 0 0 0 0 0 0 0 0 0 0 0 0
Initial Fut: 0 1378 7 4 606 0 0 0 0 21 0 0 12
User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
PHF Adj: 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95
PHF Volume: 0 1451 7 4 638 0 0 0 0 22 0 0 13
Reduct Vol: 0 0 0 0 0 0 0 0 0 0 0 0 0
Final Vol.: 0 1451 7 4 638 0 0 0 0 22 0 0 13
Critical Gap Module:
Critical Gp:xxxxx xxxx xxxxx 4.1 xxxx xxxxxx xxxxx xxxx xxxxxx 6.8 xxxx 6.9
FollowUpTim:xxxxx xxxx xxxxxx 2.2 xxxx xxxxxx xxxxxx xxxxx xxxxxx 3.5 xxxx 3.3
Capacity Module:
Cnflct Vol: xxxxx xxxx xxxxxx 1458 xxxx xxxxxx xxxxx xxxx xxxxxx 1782 xxxxx 729
Potent Cap.: xxxxx xxxx xxxxxx 470 xxxxx xxxxxx xxxxx xxxx xxxxxx 75 xxxxx 370
Move Cap.: xxxxx xxxx xxxxxx 470 xxxxx xxxxxx xxxxx xxxx xxxxxx 74 xxxxx 370
Volume/Cap: xxxxx xxxx xxxxx 0.01 xxxxx xxxxx xxxxx xxxx xxxxxx 0.30 xxxxx 0.03
Level Of Service Module:
Queue: xxxxxx xxxx xxxxxx 0.0 xxxxx xxxxxx xxxxxx xxxx xxxxxx 1.1 xxxxx 0.1
Stopped Del:xxxxx xxxx xxxxxx 12.7 xxxxx xxxxxx xxxxxx xxxx xxxxxx 72.8 xxxxx 15.1
LOS by Move: * * * B * * * * * F * * C
Movement: LT - LTR - RT LT - LTR - RT LT - LTR - RT LT - LTR - RT
Shared Cap.: xxxxx xxxx xxxxxx xxxxx xxxx xxxxxx xxxxx xxxx xxxxxx xxxxx xxxx xxxxxx
SharedQueue:xxxxx xxxx xxxxxx xxxxxx xxxx xxxxxx xxxxxx xxxx xxxxxx xxxxxx xxxx xxxxxx
Shrd StpDel:xxxxx xxxx xxxxxx xxxxxx xxxx xxxxxx xxxxxx xxxx xxxxxx xxxxxx xxxx xxxxxx
Shared LOS: *
ApproachDel: xxxxxxx xxxxxxx xxxxxxx 51.8
ApproachLOS: * * * * F

Ontario New Model - Rich Haven External Intersections
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Level Of Service Computation Report
2000 HCM Unsignalized Method (Future Volume Alternative)

Intersection #103 A3
Average Delay (sec/veh): 1.5 Worst Case Level Of Service: F[58.5]
Approach: North Bound South Bound East Bound West Bound
Movement: L - T - R L - T - R L - T - R L - T - R
Control: Uncontrolled Uncontrolled Stop Sign Stop Sign
Rights: Include Include Include Include
Lanes: 0 0 1 1 0 1 0 2 0 0 0 0 0 0 0 1 0 0 0 1
Volume Module:
Base Vol: 0 1135 0 0 0 501 0 0 0 0 0 0 0 0
Growth Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
Initial Bse: 0 1135 0 0 0 501 0 0 0 0 0 0 0 0
Added Vol: 0 229 10 7 120 0 0 0 0 0 0 0 31 0 21
PasserByVol: 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
Initial Fut: 0 1364 10 7 621 0 0 0 0 0 0 0 31 0 21
User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
PHF Adj: 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95
PHF Volume: 0 1436 11 7 654 0 0 0 0 33 0 0 22
Reduct Vol: 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
Final Vol.: 0 1436 11 7 654 0 0 0 0 33 0 0 22
Critical Gap Module:
Critical Gp:xxxxx xxxx xxxxxx 4.1 xxxx xxxxxx xxxxx xxxx xxxxxx 6.8 xxxxx 6.9
FollowUpTim:xxxxx xxxx xxxxxx 2.2 xxxx xxxxxx xxxxxx xxxxx xxxxxx 3.5 xxxxx 3.3
Capacity Module:
Cnflct Vol: xxxxx xxxx xxxxxx 1446 xxxx xxxxxx xxxxx xxxx xxxxxx 1783 xxxxx 723
Potent Cap.: xxxxx xxxx xxxxxx 475 xxxxx xxxxxx xxxxx xxxx xxxxxx 75 xxxxx 373
Move Cap.: xxxxx xxxx xxxxxx 475 xxxxx xxxxxx xxxxx xxxx xxxxxx 74 xxxxx 373
Volume/Cap: xxxxx xxxx xxxxx 0.02 xxxxx xxxxx xxxxx xxxx xxxxxx 0.44 xxxxx 0.06
Level Of Service Module:
Queue: xxxxxx xxxx xxxxxx 0.0 xxxxx xxxxxx xxxxxx xxxx xxxxxx 1.8 xxxxx 0.2
Stopped Del:xxxxx xxxx xxxxxx 12.7 xxxxx xxxxxx xxxxxx xxxx xxxxxx 87.8 xxxxx 15.3
LOS by Move: * * * B * * * * * F * * C
Movement: LT - LTR - RT LT - LTR - RT LT - LTR - RT LT - LTR - RT
Shared Cap.: xxxxx xxxx xxxxxx xxxxx xxxx xxxxxx xxxxx xxxx xxxxxx xxxxx xxxx xxxxxx
SharedQueue:xxxxx xxxx xxxxxx xxxxxx xxxx xxxxxx xxxxxx xxxx xxxxxx xxxxxx xxxx xxxxxx
Shrd StpDel:xxxxx xxxx xxxxxx xxxxxx xxxx xxxxxx xxxxxx xxxx xxxxxx xxxxxx xxxx xxxxxx
Shared LOS: *
ApproachDel: xxxxxxx xxxxxxx xxxxxxx 58.5
ApproachLOS: * * * * F

Ontario New Model - Rich Haven External Intersections
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Level Of Service Computation Report
2000 HCM Unsignalized Method (Future Volume Alternative)

Intersection #104 A4
Average Delay (sec/veh): 1.0 Worst Case Level Of Service: B[13.2]
Approach: North Bound South Bound East Bound West Bound
Movement: L - T - R L - T - R L - T - R L - T - R
Control: Uncontrolled Uncontrolled Stop Sign Stop Sign
Rights: Include Include Include Include
Lanes: 1 0 1 0 0 0 0 1 0 1 0 0 0 0 0 0
Volume Module:
Base Vol: 0 207 0 0 189 0 0 0 0 0 0 0 0
Growth Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
Initial Bse: 0 207 0 0 189 0 0 0 0 0 0 0 0
Added Vol: 9 205 0 0 130 10 28 0 27 0 0 0 0
PasserByVol: 0 0 0 0 0 0 0 0 0 0 0 0 0
Initial Fut: 9 412 0 0 319 10 28 0 27 0 0 0 0
User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
PHF Adj: 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95
PHF Volume: 9 434 0 0 336 11 29 0 28 0 0 0 0
Reduct Vol: 0 0 0 0 0 0 0 0 0 0 0 0 0
Final Vol: 9 434 0 0 336 11 29 0 28 0 0 0 0
Critical Gap Module:
Critical Gp: 4.1 xxxxx xxxxx xxxxx xxxxx xxxxx 6.4 xxxxx 6.2 xxxxx xxxxx xxxxx
FollowUpTim: 2.2 xxxxx xxxxx xxxxx xxxxx xxxxx 3.5 xxxxx 3.3 xxxxx xxxxx xxxxx
Capacity Module:
Cnflct Vol: 346 xxxxx xxxxx xxxxx xxxxx xxxxx 794 xxxxx 341 xxxxx xxxxx xxxxx
Potent Cap.: 1224 xxxxx xxxxx xxxxx xxxxx xxxxx 360 xxxxx 706 xxxxx xxxxx xxxxx
Move Cap.: 1224 xxxxx xxxxx xxxxx xxxxx xxxxx 358 xxxxx 706 xxxxx xxxxx xxxxx
Volume/Cap: 0.01 xxxxx xxxxx xxxxx xxxxx xxxxx 0.08 xxxxx 0.04 xxxxx xxxxx xxxxx
Level Of Service Module:
Queue: 0.0 xxxxx xxxxx xxxxx xxxxx xxxxx 0.3 xxxxx 0.1 xxxxx xxxxx xxxxx
Stopped Del: 8.0 xxxxx xxxxx xxxxx xxxxx xxxxx 16.0 xxxxx 10.3 xxxxx xxxxx xxxxx
LOS by Move: A * * * * * C * B * * *
Movement: LT - LTR - RT LT - LTR - RT LT - LTR - RT LT - LTR - RT
Shared Cap.: xxxxx xxxxx xxxxx xxxxx xxxxx xxxxx xxxxx xxxxx xxxxx xxxxx xxxxx xxxxx
SharedQueue: xxxxx xxxxx xxxxx xxxxx xxxxx xxxxx xxxxx xxxxx xxxxx xxxxx xxxxx xxxxx
Shrd StpDel: xxxxx xxxxx xxxxx xxxxx xxxxx xxxxx xxxxx xxxxx xxxxx xxxxx xxxxx xxxxx
Shared LOS: * * * * * * * * * * * * * * *
ApproachDel: xxxxxxx xxxxxxx 13.2 xxxxxxx
ApproachLOS: * * B *

Ontario New Model - Rich Haven External Intersections
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Level Of Service Computation Report
2000 HCM Unsignalized Method (Future Volume Alternative)

Intersection #105 A5
Average Delay (sec/veh): 2.1 Worst Case Level Of Service: A[9.5]
Approach: North Bound South Bound East Bound West Bound
Movement: L - T - R L - T - R L - T - R L - T - R
Control: Stop Sign Stop Sign Uncontrolled Uncontrolled
Rights: Include Include Include Include
Lanes: 0 0 0 0 0 1 0 0 0 1 1 0 2 0 0 0 0 0 1 1 0
Volume Module:
Base Vol: 0 0 0 0 0 0 0 0 137 0 0 0 47 0 0
Growth Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
Initial Bse: 0 0 0 0 0 0 0 0 137 0 0 0 47 0 0
Added Vol: 0 0 0 0 40 0 29 10 32 0 0 0 42 13 0
PasserByVol: 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
Initial Fut: 0 0 0 0 40 0 29 10 169 0 0 0 89 13 0
User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
PHF Adj: 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95
PHF Volume: 0 0 0 0 42 0 31 11 178 0 0 0 94 14 0
Reduct Vol: 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
Final Vol: 0 0 0 0 42 0 31 11 178 0 0 0 94 14 0
Critical Gap Module:
Critical Gp: xxxxx xxxxx xxxxx 6.8 xxxxx 6.9 4.1 xxxxx xxxxx xxxxx xxxxx xxxxx
FollowUpTim: xxxxx xxxxx xxxxx 3.5 xxxxx 3.3 2.2 xxxxx xxxxx xxxxx xxxxx xxxxx
Capacity Module:
Cnflct Vol: xxxxx xxxxx xxxxx 211 xxxxx 54 107 xxxxx xxxxx xxxxx xxxxx xxxxx
Potent Cap.: xxxxx xxxxx xxxxx 764 xxxxx 1009 1496 xxxxx xxxxx xxxxx xxxxx xxxxx
Move Cap.: xxxxx xxxxx xxxxx 760 xxxxx 1009 1496 xxxxx xxxxx xxxxx xxxxx xxxxx
Volume/Cap: xxxxx xxxxx xxxxx 0.06 xxxxx 0.03 0.01 xxxxx xxxxx xxxxx xxxxx xxxxx
Level Of Service Module:
Queue: xxxxx xxxxx xxxxx 0.2 xxxxx 0.1 0.0 xxxxx xxxxx xxxxx xxxxx xxxxx
Stopped Del: xxxxx xxxxx xxxxx 10.0 xxxxx 8.7 7.4 xxxxx xxxxx xxxxx xxxxx xxxxx
LOS by Move: * * * * * B * A * * * * *
Movement: LT - LTR - RT LT - LTR - RT LT - LTR - RT LT - LTR - RT
Shared Cap.: xxxxx xxxxx xxxxx xxxxx xxxxx xxxxx xxxxx xxxxx xxxxx xxxxx xxxxx xxxxx
SharedQueue: xxxxx xxxxx xxxxx xxxxx xxxxx xxxxx xxxxx xxxxx xxxxx xxxxx xxxxx xxxxx
Shrd StpDel: xxxxx xxxxx xxxxx xxxxx xxxxx xxxxx xxxxx xxxxx xxxxx xxxxx xxxxx xxxxx
Shared LOS: * * * * * * * * * * * * * * *
ApproachDel: xxxxxxx 9.5 xxxxxxx xxxxxxx
ApproachLOS: * A * *

Ontario New Model - Rich Haven External Intersections
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Level Of Service Computation Report
2000 HCM Unsignalized Method (Future Volume Alternative)

Intersection #106 A6
Average Delay (sec/veh): 0.0 Worst Case Level Of Service: A[0.0]
Approach: North Bound South Bound East Bound West Bound
Movement: L - T - R L - T - R L - T - R L - T - R
Control: Stop Sign Stop Sign Uncontrolled Uncontrolled
Rights: Include Include Include Include
Lanes: 0 0 0 0 1 0 0 0 1 1 0 2 0 0 0 1 1 0
Volume Module:
Base Vol: 0 0 0 0 0 0 0 0 137 0 0 0 47 0
Growth Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
Initial Bse: 0 0 0 0 0 0 0 0 137 0 0 0 47 0
Added Vol: 0 0 0 0 0 0 0 0 72 0 0 0 55 0
PasserByVol: 0 0 0 0 0 0 0 0 0 0 0 0 0 0
Initial Fut: 0 0 0 0 0 0 0 0 209 0 0 0 102 0
User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
PHF Adj: 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95
PHF Volume: 0 0 0 0 0 0 0 0 220 0 0 0 107 0
Reduct Vol: 0 0 0 0 0 0 0 0 0 0 0 0 0 0
Final Vol.: 0 0 0 0 0 0 0 0 220 0 0 0 107 0
Critical Gap Module:
Critical Gp:xxxxx xxxx xxxxx xxxxx xxxxx xxxxx xxxxx xxxxx xxxxx xxxxx xxxxx xxxxx
FollowUpTim:xxxxx xxxx xxxxx xxxxx xxxxx xxxxx xxxxx xxxxx xxxxx xxxxx xxxxx xxxxx
Capacity Module:
Cnflct Vol: xxxxx xxxx xxxxx xxxxx xxxxx xxxxx xxxxx xxxxx xxxxx xxxxx xxxxx xxxxx
Potent Cap.: xxxxx xxxx xxxxx xxxxx xxxxx xxxxx xxxxx xxxxx xxxxx xxxxx xxxxx xxxxx
Move Cap.: xxxxx xxxx xxxxx xxxxx xxxxx xxxxx xxxxx xxxxx xxxxx xxxxx xxxxx xxxxx
Volume/Cap: xxxxx xxxx xxxxx xxxxx xxxxx xxxxx xxxxx xxxxx xxxxx xxxxx xxxxx xxxxx
Level Of Service Module:
Queue: xxxxx xxxx xxxxx xxxxx xxxxx xxxxx xxxxx xxxxx xxxxx xxxxx xxxxx xxxxx
Stopped Del:xxxxx xxxx xxxxx xxxxx xxxxx xxxxx xxxxx xxxxx xxxxx xxxxx xxxxx xxxxx
LOS by Move: *
Movement: LT - LTR - RT LT - LTR - RT LT - LTR - RT LT - LTR - RT
Shared Cap.: xxxxx xxxx xxxxx xxxxx xxxxx xxxxx xxxxx xxxxx xxxxx xxxxx xxxxx xxxxx
SharedQueue:xxxxx xxxx xxxxx xxxxx xxxxx xxxxx xxxxx xxxxx xxxxx xxxxx xxxxx xxxxx
Shrd StpDel:xxxxx xxxx xxxxx xxxxx xxxxx xxxxx xxxxx xxxxx xxxxx xxxxx xxxxx xxxxx
Shared LOS: *
ApproachDel: xxxxxx xxxxxx xxxxxx xxxxxx
ApproachLOS: * * * *

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Level Of Service Computation Report
2000 HCM Unsignalized Method (Future Volume Alternative)

Intersection #107 A7
Average Delay (sec/veh): 1.5 Worst Case Level Of Service: A[9.9]
Approach: North Bound South Bound East Bound West Bound
Movement: L - T - R L - T - R L - T - R L - T - R
Control: Stop Sign Stop Sign Uncontrolled Uncontrolled
Rights: Include Include Include Include
Lanes: 0 0 0 0 1 0 0 0 1 1 0 2 0 0 0 0 0 1 1 0
Volume Module:
Base Vol: 0 0 0 0 0 0 0 0 137 0 0 0 47 0
Growth Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
Initial Bse: 0 0 0 0 0 0 0 0 137 0 0 0 47 0
Added Vol: 0 0 0 0 46 0 7 2 69 0 0 0 48 15
PasserByVol: 0 0 0 0 0 0 0 0 0 0 0 0 0 0
Initial Fut: 0 0 0 0 46 0 7 2 206 0 0 0 95 15
User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
PHF Adj: 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95
PHF Volume: 0 0 0 0 48 0 7 2 217 0 0 0 100 16
Reduct Vol: 0 0 0 0 0 0 0 0 0 0 0 0 0 0
Final Vol.: 0 0 0 0 48 0 7 2 217 0 0 0 100 16
Critical Gap Module:
Critical Gp:xxxxx xxxx xxxxx 6.8 xxxx 6.9 4.1 xxxx xxxxx xxxxx xxxxx xxxxx
FollowUpTim:xxxxx xxxx xxxxx 3.5 xxxx 3.3 2.2 xxxx xxxxx xxxxx xxxxx xxxxx
Capacity Module:
Cnflct Vol: xxxxx xxxx xxxxx 221 xxxx 58 116 xxxx xxxxx xxxxx xxxxx xxxxx
Potent Cap.: xxxxx xxxx xxxxx 753 xxxx 1002 1486 xxxx xxxxx xxxxx xxxxx xxxxx
Move Cap.: xxxxx xxxx xxxxx 753 xxxx 1002 1486 xxxx xxxxx xxxxx xxxxx xxxxx
Volume/Cap: xxxxx xxxx xxxxx 0.06 xxxx 0.01 0.00 xxxx xxxxx xxxxx xxxxx xxxxx
Level Of Service Module:
Queue: xxxxx xxxx xxxxx 0.2 xxxx 0.0 0.0 xxxx xxxxx xxxxx xxxxx xxxxx
Stopped Del:xxxxx xxxx xxxxx 10.1 xxxx 8.6 7.4 xxxx xxxxx xxxxx xxxxx xxxxx
LOS by Move: * * * * * B * A * * * * *
Movement: LT - LTR - RT LT - LTR - RT LT - LTR - RT LT - LTR - RT
Shared Cap.: xxxxx xxxx xxxxx xxxxx xxxxx xxxxx xxxxx xxxxx xxxxx xxxxx xxxxx xxxxx
SharedQueue:xxxxx xxxx xxxxx xxxxx xxxxx xxxxx xxxxx xxxxx xxxxx xxxxx xxxxx xxxxx
Shrd StpDel:xxxxx xxxx xxxxx xxxxx xxxxx xxxxx xxxxx xxxxx xxxxx xxxxx xxxxx xxxxx
Shared LOS: *
ApproachDel: xxxxxx 9.9 xxxxxx xxxxxx
ApproachLOS: * A * *

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Level Of Service Computation Report
2000 HCM Unsignalized Method (Future Volume Alternative)

Intersection #201 B1
Average Delay (sec/veh): 0.7 Worst Case Level Of Service: C[17.2]
Approach: North Bound South Bound East Bound West Bound
Movement: L - T - R L - T - R L - T - R L - T - R
Control: Uncontrolled Uncontrolled Stop Sign Stop Sign
Rights: Include Include Include Include
Lanes: 0 0 1 1 0 1 0 2 0 0 0 0 0 0 0 1 0 0 0 1
Volume Module:
Base Vol: 0 1197 0 0 0 568 0 0 0 0 0 0 0 0 0 0 0 0
Growth Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
Initial Bse: 0 1197 0 0 0 568 0 0 0 0 0 0 0 0 0 0 0 0 0
Added Vol: 0 174 0 0 19 154 0 0 0 0 0 0 0 0 0 0 0 0 75
PasserByVol: 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
Initial Fut: 0 1371 0 0 19 722 0 0 0 0 0 0 0 0 0 0 0 0 0 75
User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
PHF Adj: 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95
PHF Volume: 0 1443 0 0 20 760 0 0 0 0 0 0 0 0 0 0 0 0 0 79
Reduct Vol: 0
Final Vol.: 0 1443 0 0 20 760 0 0 0 0 0 0 0 0 0 0 0 0 0 79
Critical Gap Module:
Critical Gp:xxxxx xxxx xxxxx 4.1 xxxx xxxxxx xxxxx xxxx xxxxxx xxxxxx xxxxx 6.9
FollowUpTim:xxxxx xxxx xxxxxx 2.2 xxxxx xxxxxx xxxxxx xxxxx xxxxxx xxxxxx xxxxx 3.3
Capacity Module:
Cnflct Vol: xxxxx xxxx xxxxxx 1443 xxxx xxxxxx xxxxx xxxx xxxxxx xxxxx xxxxx 722
Potent Cap.: xxxxx xxxx xxxxxx 476 xxxxx xxxxxx xxxxx xxxxx xxxxxx xxxxx xxxxx 374
Move Cap.: xxxxx xxxx xxxxxx 476 xxxxx xxxxxx xxxxx xxxxx xxxxxx xxxxx xxxxx 374
Volume/Cap: xxxxx xxxx xxxxx 0.04 xxxxx xxxxx xxxxx xxxxx xxxxx xxxxx xxxxx 0.21
Level Of Service Module:
Queue: xxxxxx xxxx xxxxxx 0.1 xxxx xxxxxx xxxxxx xxxxx xxxxxx xxxxxx xxxxx 0.8
Stopped Del:xxxxx xxxx xxxxxx 12.9 xxxxx xxxxxx xxxxxx xxxxx xxxxxx xxxxxx xxxxx 17.2
LOS by Move: * * * B * * * * * * * * * * C
Movement: LT - LTR - RT LT - LTR - RT LT - LTR - RT LT - LTR - RT
Shared Cap.: xxxxx xxxx xxxxxx xxxxx xxxxx xxxxxx xxxxx xxxxx xxxxxx xxxxx xxxxx xxxxxx
SharedQueue:xxxxx xxxx xxxxxx xxxxxx xxxxx xxxxxx xxxxxx xxxxx xxxxxx xxxxxx xxxxx xxxxx xxxxxx
Shrd StpDel:xxxxx xxxx xxxxxx xxxxxx xxxxx xxxxxx xxxxxx xxxxx xxxxxx xxxxxx xxxxx xxxxx xxxxxx
Shared LOS: *
ApproachDel: xxxxxxx xxxxxxx xxxxxxx 17.2
ApproachLOS: * * * C

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Level Of Service Computation Report
2000 HCM Unsignalized Method (Future Volume Alternative)

Intersection #202 B2
Average Delay (sec/veh): 12.8 Worst Case Level Of Service: B[13.3]
Approach: North Bound South Bound East Bound West Bound
Movement: L - T - R L - T - R L - T - R L - T - R
Control: Stop Sign Stop Sign Uncontrolled Uncontrolled
Rights: Include Include Include Include
Lanes: 1 0 1 0 0 0 0 0 1 0 1 0 0 0 0 1 0 0 0 0 0 0
Volume Module:
Base Vol: 0 32 0 0 0 13 0 0 0 0 0 0 0 0 0 0 0 0 0 0
Growth Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
Initial Bse: 0 32 0 0 0 13 0 0 0 0 0 0 0 0 0 0 0 0 0 0
Added Vol: 0 282 0 0 0 268 11 44 0 0 0 0 0 0 0 0 0 0 0 0
PasserByVol: 0
Initial Fut: 0 314 0 0 0 281 11 44 0 0 0 0 0 0 0 0 0 0 0 0
User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
PHF Adj: 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95
PHF Volume: 0 331 0 0 0 296 12 46 0 0 0 0 0 0 0 0 0 0 0 0
Reduct Vol: 0
Final Vol.: 0 331 0 0 0 296 12 46 0 0 0 0 0 0 0 0 0 0 0 0
Critical Gap Module:
Critical Gp:xxxxx 6.5 xxxxx xxxxxx 6.5 6.2 4.1 xxxx xxxxxx xxxxxx xxxxx xxxxx
FollowUpTim:xxxxx 4.0 xxxxxx xxxxxx 4.0 3.3 2.2 xxxxx xxxxxx xxxxxx xxxxx xxxxxx
Capacity Module:
Cnflct Vol: xxxxx 93 xxxxx xxxxx 93 0 0 xxxx xxxxxx xxxxx xxxxx xxxxxx
Potent Cap.: xxxxx 801 xxxxxx xxxxx 801 900 900 xxxxx xxxxxx xxxxx xxxxx xxxxxx
Move Cap.: xxxxx 760 xxxxxx xxxxx 760 900 900 xxxxx xxxxxx xxxxx xxxxx xxxxxx
Volume/Cap: xxxxx 0.43 xxxxx xxxxx 0.39 0.01 0.05 xxxxx xxxxx xxxxx xxxxx xxxxx
Level Of Service Module:
Queue: xxxxxx 2.2 xxxxxx xxxxx xxxxx xxxxxx 0.2 xxxx xxxxxx xxxxxx xxxxx xxxxxx
Stopped Del:xxxxx 13.3 xxxxxx xxxxxx xxxxx xxxxxx 9.2 xxxxx xxxxxx xxxxxx xxxxx xxxxxx
LOS by Move: * B * * * * * A * * * * *
Movement: LT - LTR - RT LT - LTR - RT LT - LTR - RT LT - LTR - RT
Shared Cap.: xxxxx xxxx xxxxxx xxxxx xxxxx 764 xxxxx xxxxx xxxxxx xxxxx xxxxx xxxxxx
SharedQueue:xxxxx xxxx xxxxxx xxxxxx xxxxx 2.0 xxxxxx xxxxx xxxxxx xxxxxx xxxxx xxxxxx
Shrd StpDel:xxxxx xxxx xxxxxx xxxxxx xxxxx 12.8 xxxxxx xxxxx xxxxxx xxxxxx xxxxx xxxxxx
Shared LOS: * * * * * * * B * * * * * * * * * *
ApproachDel: 13.3 12.8 xxxxxxx xxxxxxx
ApproachLOS: B B * *

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Level Of Service Computation Report
2000 HCM Unsignalized Method (Future Volume Alternative)

Intersection #301 C1
Average Delay (sec/veh): 4.5 Worst Case Level Of Service: F[85.5]
Approach: North Bound South Bound East Bound West Bound
Movement: L - T - R L - T - R L - T - R L - T - R
Control: Uncontrolled Uncontrolled Stop Sign Stop Sign
Rights: Include Include Include Include
Lanes: 0 0 1 1 0 1 0 2 0 0 0 0 0 0 0 1 0 0 0 1
Volume Module:
Base Vol: 0 1197 0 0 0 568 0 0 0 0 0 0 0 0
Growth Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
Initial Bse: 0 1197 0 0 0 568 0 0 0 0 0 0 0 0
Added Vol: 0 123 13 15 179 0 0 0 0 54 0 0 61
PasserByVol: 0 0 0 0 0 0 0 0 0 0 0 0 0
Initial Fut: 0 1320 13 15 747 0 0 0 0 54 0 0 61
User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
PHF Adj: 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95
PHF Volume: 0 1389 14 16 786 0 0 0 0 57 0 0 64
Reduct Vol: 0 0 0 0 0 0 0 0 0 0 0 0 0
Final Vol.: 0 1389 14 16 786 0 0 0 0 57 0 0 64
Critical Gap Module:
Critical Gp:xxxxx xxxx xxxxx 4.1 xxxx xxxxx xxxxx xxxx xxxxx 6.8 xxxx 6.9
FollowUpTim:xxxxx xxxx xxxxx 2.2 xxxx xxxxx xxxxx xxxx xxxxx 3.5 xxxx 3.3
Capacity Module:
Cnflct Vol: xxxxx xxxx xxxxx 1403 xxxx xxxxx xxxx xxxx xxxxx 1821 xxxx 702
Potent Cap.: xxxxx xxxx xxxxx 493 xxxx xxxxx xxxx xxxx xxxxx 70 xxxx 385
Move Cap.: xxxxx xxxx xxxxx 493 xxxx xxxxx xxxx xxxx xxxxx 69 xxxx 385
Volume/Cap: xxxxx xxxx xxxxx 0.03 xxxx xxxxx xxxx xxxx xxxxx 0.83 xxxx 0.17
Level Of Service Module:
Queue: xxxxx xxxx xxxxx 0.1 xxxx xxxxx xxxxx xxxx xxxxx 3.9 xxxx 0.6
Stopped Del:xxxxx xxxx xxxxx 12.5 xxxx xxxxx xxxxx xxxx xxxxx 163.7 xxxx 16.2
LOS by Move: * * * B * * * * * F * * C
Movement: LT - LTR - RT LT - LTR - RT LT - LTR - RT LT - LTR - RT
Shared Cap.: xxxxx xxxx xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx
SharedQueue:xxxxx xxxx xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx
Shrd StpDel:xxxxx xxxx xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx
Shared LOS: *
ApproachDel: xxxxxxx xxxxxxx xxxxxxx 85.5
ApproachLOS: * * * * F

Ontario New Model - Rich Haven External Intersections
2015 AM Peak - Internal
Meyer, Mohaddes Associates

Level Of Service Computation Report
2000 HCM Unsignalized Method (Future Volume Alternative)

Intersection #302 C2
Average Delay (sec/veh): 31.9 Worst Case Level Of Service: F[1237.8]
Approach: North Bound South Bound East Bound West Bound
Movement: L - T - R L - T - R L - T - R L - T - R
Control: Stop Sign Stop Sign Uncontrolled Uncontrolled
Rights: Include Include Include Include
Lanes: 0 0 0 0 0 1 0 0 0 1 1 0 4 0 0 0 0 0 3 1 0
Volume Module:
Base Vol: 0 0 0 0 0 0 0 0 1333 0 0 1777 0
Growth Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
Initial Bse: 0 0 0 0 0 0 0 0 1333 0 0 1777 0
Added Vol: 0 0 0 0 67 0 34 8 330 0 0 353 17
PasserByVol: 0 0 0 0 0 0 0 0 0 0 0 0 0
Initial Fut: 0 0 0 0 67 0 34 8 1663 0 0 2130 17
User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
PHF Adj: 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95
PHF Volume: 0 0 0 0 71 0 36 8 1751 0 0 2242 18
Reduct Vol: 0 0 0 0 0 0 0 0 0 0 0 0 0
Final Vol.: 0 0 0 0 71 0 36 8 1751 0 0 2242 18
Critical Gap Module:
Critical Gp:xxxxx xxxx xxxxx 6.8 xxxx 6.9 4.1 xxxx xxxxx xxxxx xxxx xxxxx
FollowUpTim:xxxxx xxxx xxxxx 3.5 xxxx 3.3 2.2 xxxx xxxxx xxxxx xxxx xxxxx
Capacity Module:
Cnflct Vol: xxxxx xxxx xxxxx 2706 xxxx 569 2260 xxxx xxxxx xxxx xxxx xxxxx
Potent Cap.: xxxxx xxxx xxxxx 18 xxxxx 470 230 xxxx xxxxx xxxx xxxx xxxxx
Move Cap.: xxxxx xxxx xxxxx 17 xxxxx 470 230 xxxx xxxxx xxxx xxxx xxxxx
Volume/Cap: xxxxx xxxx xxxxx 4.12 xxxx 0.08 0.04 xxxx xxxxx xxxxx xxxx xxxxx
Level Of Service Module:
Queue: xxxxx xxxx xxxxx 9.5 xxxx 0.2 0.1 xxxx xxxxx xxxxx xxxx xxxxx
Stopped Del:xxxxx xxxx xxxxx 1859 xxxx 13.3 21.2 xxxx xxxxx xxxxx xxxx xxxxx
LOS by Move: * * * F * B C * * * * *
Movement: LT - LTR - RT LT - LTR - RT LT - LTR - RT LT - LTR - RT
Shared Cap.: xxxxx xxxx xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx
SharedQueue:xxxxx xxxx xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx
Shrd StpDel:xxxxx xxxx xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx
Shared LOS: *
ApproachDel: xxxxxxx 1237.8 xxxxxxx xxxxxxx
ApproachLOS: * F * * *

Ontario New Model - Rich Haven External Intersections
2015 AM Peak - Internal
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Level Of Service Computation Report
2000 HCM Unsignalized Method (Future Volume Alternative)

Intersection #401 D1
Average Delay (sec/veh): 3.1 Worst Case Level Of Service: C[17.8]
Approach: North Bound South Bound East Bound West Bound
Movement: L - T - R L - T - R L - T - R L - T - R
Control: Uncontrolled Uncontrolled Stop Sign Stop Sign
Rights: Include Include Include Include
Lanes: 1 0 1 0 0 0 0 1 1 0 0 1 0 0 0 0 1
Volume Module:
Base Vol: 0 32 0 0 13 0 0 0 0 0 0 0
Growth Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
Initial Bse: 0 32 0 0 13 0 0 0 0 0 0 0
Added Vol: 7 208 0 53 356 13 52 0 30 0 0 60
PasserByVol: 0 0 0 0 0 0 0 0 0 0 0 0
Initial Fut: 7 240 0 53 369 13 52 0 30 0 0 60
User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
PHF Adj: 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95
PHF Volume: 7 253 0 56 388 14 55 0 32 0 0 63
Reduct Vol: 0 0 0 0 0 0 0 0 0 0 0 0
Final Vol.: 7 253 0 56 388 14 55 0 32 0 0 63
Critical Gap Module:
Critical Gap: 4.1 xxxxx xxxxx 4.1 xxxxx xxxxx 7.1 xxxxx 6.2 xxxxx xxxxx 6.2
FollowUpTim: 2.2 xxxxx xxxxx 2.2 xxxxx xxxxx 3.5 xxxxx 3.3 xxxxx xxxxx 3.3
Capacity Module:
Cnflct Vol: 402 xxxxx xxxxx 253 xxxxx xxxxx 806 xxxxx 395 xxxxx xxxxx 253
Potent Cap.: 1168 xxxxx xxxxx 1324 xxxxx xxxxx 303 xxxxx 658 xxxxx xxxxx 791
Move Cap.: 1168 xxxxx xxxxx 1324 xxxxx xxxxx 268 xxxxx 658 xxxxx xxxxx 791
Volume/Cap: 0.01 xxxxx xxxxx 0.04 xxxxx xxxxx 0.20 xxxxx 0.05 xxxxx xxxxx 0.08
Level Of Service Module:
Queue: 0.0 xxxxx xxxxx 0.1 xxxxx xxxxx 0.7 xxxxx 0.2 xxxxx xxxxx 0.3
Stopped Del: 8.1 xxxxx xxxxx 7.8 xxxxx xxxxx 21.8 xxxxx 10.7 xxxxx xxxxx 9.9
LOS by Move: A * * A * * C * B * * A
Movement: LT - LTR - RT LT - LTR - RT LT - LTR - RT LT - LTR - RT
Shared Cap.: xxxxx xxxxx xxxxx xxxxx xxxxx xxxxx xxxxx xxxxx xxxxx xxxxx xxxxx
SharedQueue: xxxxx xxxxx xxxxx xxxxx xxxxx xxxxx xxxxx xxxxx xxxxx xxxxx xxxxx
Shrd StpDel: xxxxx xxxxx xxxxx xxxxx xxxxx xxxxx xxxxx xxxxx xxxxx xxxxx xxxxx
Shared LOS: *
ApproachDel: xxxxxxx xxxxxxx 17.8 9.9
ApproachLOS: * * C A

Ontario New Model - Rich Haven External Intersections
2015 AM Peak - Internal
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Level Of Service Computation Report
2000 HCM Unsignalized Method (Future Volume Alternative)

Intersection #402 D2
Average Delay (sec/veh): 482.8 Worst Case Level Of Service: F[16464.5]
Approach: North Bound South Bound East Bound West Bound
Movement: L - T - R L - T - R L - T - R L - T - R
Control: Stop Sign Stop Sign Uncontrolled Uncontrolled
Rights: Include Include Include Include
Lanes: 1 0 0 1 0 1 0 0 1 0 1 0 3 1 0 1 0 3 1 0
Volume Module:
Base Vol: 0 0 0 0 0 0 0 0 1660 0 0 1282 0
Growth Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
Initial Bse: 0 0 0 0 0 0 0 0 1660 0 0 1282 0
Added Vol: 112 0 0 70 0 143 126 492 77 0 226 61
PasserByVol: 0 0 0 0 0 0 0 0 0 0 0 0 0
Initial Fut: 112 0 0 70 0 143 126 2152 77 0 1508 61
User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
PHF Adj: 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95
PHF Volume: 118 0 0 74 0 151 133 2265 81 0 1587 64
Reduct Vol: 0 0 0 0 0 0 0 0 0 0 0 0 0
Final Vol.: 118 0 0 74 0 151 133 2265 81 0 1587 64
Critical Gap Module:
Critical Gap: 7.5 xxxxx xxxxx 7.5 xxxxx 6.9 4.1 xxxxx xxxxx xxxxx xxxxx xxxxx
FollowUpTim: 3.5 xxxxx xxxxx 3.5 xxxxx 3.3 2.2 xxxxx xxxxx xxxxx xxxxx xxxxx
Capacity Module:
Cnflct Vol: 2968 xxxxx xxxxx 2451 xxxxx 429 1652 xxxxx xxxxx xxxxx xxxxx xxxxx
Potent Cap.: 6 xxxxx xxxxx 16 xxxxx 580 396 xxxxx xxxxx xxxxx xxxxx xxxxx
Move Cap.: 4 xxxxx xxxxx 12 xxxxx 580 396 xxxxx xxxxx xxxxx xxxxx xxxxx
Volume/Cap: 33.15 xxxxx xxxxx 6.08 xxxxx 0.26 0.33 xxxxx xxxxx xxxxx xxxxx xxxxx
Level Of Service Module:
Queue: 16.9 xxxxx xxxxx 10.4 xxxxx xxxxx 1.4 xxxxx xxxxx xxxxx xxxxx xxxxx
Stopped Del: 16464 xxxxx xxxxx 2903 xxxxx xxxxx 18.6 xxxxx xxxxx xxxxx xxxxx xxxxx
LOS by Move: F * * F * * C * * * * *
Movement: LT - LTR - RT LT - LTR - RT LT - LTR - RT LT - LTR - RT
Shared Cap.: xxxxx xxxxx 0 xxxxx xxxxx 580 xxxxx xxxxx xxxxx xxxxx xxxxx xxxxx
SharedQueue: xxxxx xxxxx xxxxx xxxxx xxxxx 1.0 xxxxx xxxxx xxxxx xxxxx xxxxx xxxxx
Shrd StpDel: xxxxx xxxxx xxxxx xxxxx xxxxx 13.4 xxxxx xxxxx xxxxx xxxxx xxxxx xxxxx
Shared LOS: * * * * * B * * * * *
ApproachDel: xxxxxxx 963.2 xxxxxxx xxxxxxx
ApproachLOS: F F * *

Ontario New Model - Rich Haven External Intersections
2015 AM Peak - Internal
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Level Of Service Computation Report
2000 HCM Unsignalized Method (Future Volume Alternative)

Intersection #501 E1

Average Delay (sec/veh): 104.1 Worst Case Level Of Service: F[1791.5]

Table with 4 columns: North Bound, South Bound, East Bound, West Bound. Rows include Approach, Movement, Control, Rights, Lanes.

Volume Module table with 10 columns and 10 rows including Base Vol, Growth Adj, Initial Bse, Added Vol, PasserByVol, Initial Fut, User Adj, PHF Adj, PHF Volume, Reduct Vol, Final Vol.

Critical Gap Module table with 10 columns and 3 rows including Critical Gap, FollowUpTim.

Capacity Module table with 10 columns and 5 rows including Cnflct Vol, Potent Cap, Move Cap, Volume/Cap.

Level Of Service Module table with 10 columns and 10 rows including Queue, Stopped Del, LOS by Move, Movement, Shared Cap, Shared Queue, Shrd StpDel, Shared LOS, ApproachDel, ApproachLOS.

Ontario New Model - Rich Haven External Intersections
2015 AM Peak - Internal
Meyer, Mohaddes Associates

Level Of Service Computation Report
2000 HCM Unsignalized Method (Future Volume Alternative)

Intersection #502 E2

Average Delay (sec/veh): 3.8 Worst Case Level Of Service: A[9.6]

Table with 4 columns: North Bound, South Bound, East Bound, West Bound. Rows include Approach, Movement, Control, Rights, Lanes.

Volume Module table with 10 columns and 10 rows including Base Vol, Growth Adj, Initial Bse, Added Vol, PasserByVol, Initial Fut, User Adj, PHF Adj, PHF Volume, Reduct Vol, Final Vol.

Critical Gap Module table with 10 columns and 3 rows including Critical Gap, FollowUpTim.

Capacity Module table with 10 columns and 5 rows including Cnflct Vol, Potent Cap, Move Cap, Volume/Cap.

Level Of Service Module table with 10 columns and 10 rows including Queue, Stopped Del, LOS by Move, Movement, Shared Cap, Shared Queue, Shrd StpDel, Shared LOS, ApproachDel, ApproachLOS.

Ontario New Model - Rich Haven External Intersections
2015 AM Peak - Internal
Meyer, Mohaddes Associates

Level Of Service Computation Report
2000 HCM Unsignalized Method (Future Volume Alternative)

Intersection #503 E3
Average Delay (sec/veh): 1.7 Worst Case Level Of Service: D[29.3]
Approach: North Bound South Bound East Bound West Bound
Movement: L - T - R L - T - R L - T - R L - T - R
Control: Uncontrolled Uncontrolled Stop Sign Stop Sign
Rights: Include Include Include Include
Lanes: 1 0 1 1 0 1 0 1 1 0 1 0 0 1 0 1 0 0 1 0
Volume Module:
Base Vol: 0 1200 0 0 0 310 0 0 0 0 0 0 0 0 0 0 0 0
Growth Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
Initial Bse: 0 1200 0 0 0 310 0 0 0 0 0 0 0 0 0 0 0 0
Added Vol: 0 0 0 0 0 0 65 95 0 0 0 0 0 0 0 0 0 0
PasserByVol: 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
Initial Fut: 0 1200 0 0 0 310 65 95 0 0 0 0 0 0 0 0 0 0
User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
PHF Adj: 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95
PHF Volume: 0 1263 0 0 0 326 68 100 0 0 0 0 0 0 0 0 0 0
Reduct Vol: 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
Final Vol.: 0 1263 0 0 0 326 68 100 0 0 0 0 0 0 0 0 0 0
Critical Gap Module:
Critical Gp:xxxxx xxxx xxxx xxxx xxxx xxxx 6.8 xxxx xxxxx xxxxx xxxx xxxxx
FollowUpTim:xxxxx xxxx xxxxx xxxxx xxxx xxxxx 3.5 xxxx xxxxx xxxxx xxxx xxxxx
Capacity Module:
Cnflct Vol: xxxx xxxx xxxxx xxxx xxxx xxxxx 992 xxxx xxxxx xxxx xxxx xxxxx
Potent Cap.: xxxx xxxx xxxxx xxxx xxxx xxxxx 246 xxxx xxxxx xxxx xxxx xxxxx
Move Cap.: xxxx xxxx xxxxx xxxx xxxx xxxxx 246 xxxx xxxxx xxxx xxxx xxxxx
Volume/Cap: xxxx xxxx xxxx xxxx xxxx xxxx 0.41 xxxx xxxx xxxx xxxx xxxx
Level Of Service Module:
Queue: xxxxx xxxx xxxxx xxxxx xxxx xxxxx 1.9 xxxx xxxxx xxxxx xxxx xxxxx
Stopped Del:xxxxx xxxx xxxxx xxxxx xxxx xxxxx 29.3 xxxx xxxxx xxxxx xxxx xxxxx
LOS by Move: *
Movement: LT - LTR - RT LT - LTR - RT LT - LTR - RT LT - LTR - RT
Shared Cap.: xxxx xxxx xxxxx xxxx xxxx xxxxx xxxx xxxx 0 xxxx xxxx 0
SharedQueue:xxxxx xxxx xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx xxxx xxxx xxxxx
Shrd StpDel:xxxxx xxxx xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx xxxx xxxx xxxxx
Shared LOS: *
ApproachDel: xxxxxxx xxxxxxx 29.3 xxxxxxx
ApproachLOS: * * * * *

 Ontario New Model - Rich Haven External Intersections
 2015 PM Peak - Internal
 Meyer, Mohaddes Associates

Scenario Report
 Scenario: 2015 PM
 Command: 2015 PM
 Volume: Fut Base PM
 Geometry: Future Base
 Impact Fee: Default Impact Fee
 Trip Generation: PM Future
 Trip Distribution: PM
 Paths: Future
 Routes: Default Routes
 Configuration: 2015 PM

 Ontario New Model - Rich Haven External Intersections
 2015 PM Peak - Internal
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Impact Analysis Report
 Level Of Service

Intersection	Base		Future		Change in
	LOS	Del/ Veh C	LOS	Del/ Veh C	
#101 A1	A	0.0 0.000	E	38.6 0.000	+38.630 D/V
#102 A2	A	0.0 0.000	F	74.9 0.000	+74.944 D/V
#103 A3	A	0.0 0.000	F	91.9 0.000	+91.888 D/V
#104 A4	A	0.0 0.000	B	13.6 0.000	+13.582 D/V
#105 A5	A	0.0 0.000	B	10.5 0.000	+10.478 D/V
#106 A6	A	0.0 0.000	B	10.7 0.000	+10.734 D/V
#107 A7	A	0.0 0.000	B	11.2 0.000	+11.173 D/V
#201 B1	A	0.0 0.000	B	13.8 0.000	+13.754 D/V
#202 B2	A	9.1 0.000	B	14.9 0.000	+ 5.811 D/V
#203 B3	A	0.0 0.000	F	141.8 0.000	+141.788 D/V
#204 B4	A	9.1 0.000	B	14.9 0.000	+ 5.821 D/V
#301 C1	A	0.0 0.000	F	154.2 0.000	+154.201 D/V
#302 C2	A	0.0 0.000	F	OVRFL 0.000	+5236.877 D/
#401 D1	A	0.0 0.000	D	30.2 0.000	+30.202 D/V
#402 D2	A	0.0 0.000	F	OVRFL 0.000	+ 3.4E+0038
#501 E1	A	0.0 0.000	F	OVRFL 0.000	+ 1.6E+0038
#502 E2	A	0.0 0.000	A	9.6 0.000	+ 9.585 D/V
#503 E3	A	0.0 0.000	F	OVRFL 0.000	+1719.415 D/

Ontario New Model - Rich Haven External Intersections
2015 PM Peak - Internal
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Signal Warrant Summary Report

Intersection	Base Met [Del / Vol]	Future Met [Del / Vol]
#101 A1	???	No / No
#102 A2	???	No / No
#103 A3	???	No / No
#104 A4	???	No / No
#105 A5	???	No / No
#106 A6	???	No / No
#107 A7	???	No / No
#201 B1	???	No / No
#202 B2	???	No / No
#203 B3	???	No / No
#204 B4	???	No / No
#301 C1	???	No / No
#302 C2	???	No / No
#401 D1	???	No / No
#402 D2	???	Yes / Yes
#501 E1	???	Yes / Yes
#502 E2	???	No / No
#503 E3	???	No / No

Ontario New Model - Rich Haven External Intersections
2015 PM Peak - Internal
Meyer, Mohaddes Associates

Peak Hour Delay Signal Warrant Report

```

*****
Intersection #101 A1
*****
Future Volume Alternative: Peak Hour Warrant NOT Met
-----|-----|-----|-----|
Approach:      North Bound      South Bound      East Bound      West Bound
Movement:      L - T - R      L - T - R      L - T - R      L - T - R
-----|-----|-----|-----|
Control:        Stop Sign      Stop Sign      Uncontrolled      Uncontrolled
Lanes:          1 0 0 0 1      0 0 0 0 0      0 0 1 1 0      1 0 2 0 0
Final Vol.:     4 0 0 9      0 0 0 0      0 1295 8      17 1540 0
ApproachDel:    38.6      xxxxxx      xxxxxx      xxxxxx
-----|-----|-----|-----|
Approach[northbound][lanes=2][control=Stop]
Signal Warrant Rule #1: [vehicle-hours=0.1]
      FAIL - Vehicle-hours less than 5 for two or more lane approach.
Signal Warrant Rule #2: [approach volume=14]
      FAIL - Approach volume less than 150 for two or more lane approach.
Signal Warrant Rule #3: [approach count=3][total volume=2874]
      SUCCEED - Total volume greater than or equal to 650 for intersection
                    with less than four approaches.

```

Ontario New Model - Rich Haven External Intersections
2015 PM Peak - Internal
Meyer, Mohaddes Associates

Peak Hour Volume Signal Warrant Report [Urban]

Intersection #101 A1

Future Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Stop Sign			Stop Sign			Uncontrolled			Uncontrolled		
Lanes:	1	0	0	0	0	0	0	0	1	1	0	0
Final Vol.:	4	0	9	0	0	0	0	1295	8	17	1540	0

Major Street Volume: 2860
Minor Approach Volume: 14
Minor Approach Volume Threshold: -78 [less than minimum of 150]

Ontario New Model - Rich Haven External Intersections
2015 PM Peak - Internal
Meyer, Mohaddes Associates

Peak Hour Delay Signal Warrant Report

Intersection #102 A2

Future Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Uncontrolled			Uncontrolled			Stop Sign			Stop Sign		
Lanes:	0	0	1	1	0	2	0	0	0	1	0	0
Final Vol.:	0	1128	26	14	1737	0	0	0	0	15	0	7
ApproachDel:	xxxxxx			xxxxxx			xxxxxx			74.9		

Approach[westbound][lanes=2][control=Stop]
Signal Warrant Rule #1: [vehicle-hours=0.5]
FAIL - Vehicle-hours less than 5 for two or more lane approach.
Signal Warrant Rule #2: [approach volume=22]
FAIL - Approach volume less than 150 for two or more lane approach.
Signal Warrant Rule #3: [approach count=3][total volume=2927]
SUCCEED - Total volume greater than or equal to 650 for intersection with less than four approaches.

Ontario New Model - Rich Haven External Intersections
2015 PM Peak - Internal
Meyer, Mohaddes Associates

Peak Hour Volume Signal Warrant Report [Urban]

Intersection #102 A2

Future Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound	South Bound	East Bound	West Bound
Movement:	L - T - R	L - T - R	L - T - R	L - T - R
Control:	Uncontrolled	Uncontrolled	Stop Sign	Stop Sign
Lanes:	0 0 1 1 0	1 0 2 0 0	0 0 0 0 0	1 0 0 0 1
Final Vol.:	0 1128 26	14 1737 0	0 0 0 0	15 0 7

Major Street Volume: 2905
Minor Approach Volume: 22
Minor Approach Volume Threshold: -85 [less than minimum of 150]

Ontario New Model - Rich Haven External Intersections
2015 PM Peak - Internal
Meyer, Mohaddes Associates

Peak Hour Delay Signal Warrant Report

Intersection #103 A3

Future Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound	South Bound	East Bound	West Bound
Movement:	L - T - R	L - T - R	L - T - R	L - T - R
Control:	Uncontrolled	Uncontrolled	Stop Sign	Stop Sign
Lanes:	0 0 1 1 0	1 0 2 0 0	0 0 0 0 0	1 0 0 0 1
Final Vol.:	0 1142 39	24 1727 0	0 0 0 0	22 0 14
ApproachDel:	xxxxxx	xxxxxx	xxxxxx	91.9

Approach[westbound][lanes=2][control=Stop]
Signal Warrant Rule #1: [vehicle-hours=0.9]
FAIL - Vehicle-hours less than 5 for two or more lane approach.
Signal Warrant Rule #2: [approach volume=36]
FAIL - Approach volume less than 150 for two or more lane approach.
Signal Warrant Rule #3: [approach count=3][total volume=2968]
SUCCEED - Total volume greater than or equal to 650 for intersection with less than four approaches.

Ontario New Model - Rich Haven External Intersections
2015 PM Peak - Internal
Meyer, Mohaddes Associates

Peak Hour Volume Signal Warrant Report [Urban]

Intersection #103 A3

Future Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound	South Bound	East Bound	West Bound
Movement:	L - T - R	L - T - R	L - T - R	L - T - R
Control:	Uncontrolled	Uncontrolled	Stop Sign	Stop Sign
Lanes:	0 0 1 1 0	1 0 2 0 0	0 0 0 0 0	1 0 0 0 1
Final Vol.:	0 1142 39	24 1727 0	0 0 0 0	22 0 14

Major Street Volume: 2933
Minor Approach Volume: 36
Minor Approach Volume Threshold: -89 [less than minimum of 150]

Ontario New Model - Rich Haven External Intersections
2015 PM Peak - Internal
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Peak Hour Delay Signal Warrant Report

Intersection #104 A4

Future Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound	South Bound	East Bound	West Bound
Movement:	L - T - R	L - T - R	L - T - R	L - T - R
Control:	Uncontrolled	Uncontrolled	Stop Sign	Stop Sign
Lanes:	1 0 1 0 0	0 0 0 1 0	1 0 0 0 1	0 0 0 0 0
Final Vol.:	34 337 0	0 414 33	18 0 19	0 0 0 0
ApproachDel:	xxxxxx	xxxxxx	13.6	xxxxxx

Approach[eastbound][lanes=2][control=Stop]
Signal Warrant Rule #1: [vehicle-hours=0.1]
FAIL - Vehicle-hours less than 5 for two or more lane approach.
Signal Warrant Rule #2: [approach volume=37]
FAIL - Approach volume less than 150 for two or more lane approach.
Signal Warrant Rule #3: [approach count=3][total volume=854]
SUCCEED - Total volume greater than or equal to 650 for intersection with less than four approaches.

Ontario New Model - Rich Haven External Intersections
2015 PM Peak - Internal
Meyer, Mohaddes Associates

Peak Hour Volume Signal Warrant Report [Urban]

Intersection #104 A4

Future Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound	South Bound	East Bound	West Bound
Movement:	L - T - R	L - T - R	L - T - R	L - T - R
Control:	Uncontrolled	Uncontrolled	Stop Sign	Stop Sign
Lanes:	1 0 1 0 0	0 0 0 1 0	1 0 0 0 1	0 0 0 0 0
Final Vol.:	34 337 0	0 414 33	18 0 19	0 0 0

Major Street Volume: 817
Minor Approach Volume: 37
Minor Approach Volume Threshold: 461

Ontario New Model - Rich Haven External Intersections
2015 PM Peak - Internal
Meyer, Mohaddes Associates

Peak Hour Delay Signal Warrant Report

Intersection #105 A5

Future Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound	South Bound	East Bound	West Bound
Movement:	L - T - R	L - T - R	L - T - R	L - T - R
Control:	Stop Sign	Stop Sign	Uncontrolled	Uncontrolled
Lanes:	0 0 0 0 0	1 0 0 0 1	1 0 2 0 0	0 0 1 1 0
Final Vol.:	0 0 0 0	28 0 18	33 136 0	0 214 52
ApproachDel:	xxxxxx	10.5	xxxxxx	xxxxxx

Approach[southbound][lanes=2][control=Stop]
Signal Warrant Rule #1: [vehicle-hours=0.1]
FAIL - Vehicle-hours less than 5 for two or more lane approach.
Signal Warrant Rule #2: [approach volume=46]
FAIL - Approach volume less than 150 for two or more lane approach.
Signal Warrant Rule #3: [approach count=3][total volume=480]
FAIL - Total volume less than 650 for intersection
with less than four approaches.

Ontario New Model - Rich Haven External Intersections
2015 PM Peak - Internal
Meyer, Mohaddes Associates

Peak Hour Volume Signal Warrant Report [Urban]

Intersection #105 A5

Future Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound	South Bound	East Bound	West Bound
Movement:	L - T - R	L - T - R	L - T - R	L - T - R
Control:	Stop Sign	Stop Sign	Uncontrolled	Uncontrolled
Lanes:	0 0 0 0 0	1 0 0 0 1	1 0 2 0 0	0 0 1 1 0
Final Vol.:	0 0 0 0	28 0 18	33 136 0	0 214 52

Major Street Volume: 434
Minor Approach Volume: 46
Minor Approach Volume Threshold: 733

Ontario New Model - Rich Haven External Intersections
2015 PM Peak - Internal
Meyer, Mohaddes Associates

Peak Hour Delay Signal Warrant Report

Intersection #106 A6

Future Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound	South Bound	East Bound	West Bound
Movement:	L - T - R	L - T - R	L - T - R	L - T - R
Control:	Stop Sign	Stop Sign	Uncontrolled	Uncontrolled
Lanes:	0 0 0 0 0	1 0 0 0 1	1 0 2 0 0	0 0 1 1 0
Final Vol.:	0 0 0 0	1 0 0 0	0 164 0	0 265 0
ApproachDel:	xxxxxx	10.7	xxxxxx	xxxxxx

Approach[southbound][lanes=2][control=Stop]
Signal Warrant Rule #1: [vehicle-hours=0.0]
FAIL - Vehicle-hours less than 5 for two or more lane approach.
Signal Warrant Rule #2: [approach volume=1]
FAIL - Approach volume less than 150 for two or more lane approach.
Signal Warrant Rule #3: [approach count=3][total volume=431]
FAIL - Total volume less than 650 for intersection
with less than four approaches.

Ontario New Model - Rich Haven External Intersections
 2015 PM Peak - Internal
 Meyer, Mohaddes Associates

Peak Hour Volume Signal Warrant Report [Urban]

 Intersection #106 A6

Future Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound	South Bound	East Bound	West Bound
Movement:	L - T - R	L - T - R	L - T - R	L - T - R
Control:	Stop Sign	Stop Sign	Uncontrolled	Uncontrolled
Lanes:	0 0 0 0 0	1 0 0 0 1	1 0 2 0 0	0 0 1 1 0
Final Vol.:	0 0 0 0	1 0 0 0	0 164 0	0 265 0

Major Street Volume: 429
 Minor Approach Volume: 1
 Minor Approach Volume Threshold: 738

Ontario New Model - Rich Haven External Intersections
 2015 PM Peak - Internal
 Meyer, Mohaddes Associates

Peak Hour Delay Signal Warrant Report

 Intersection #107 A7

Future Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound	South Bound	East Bound	West Bound
Movement:	L - T - R	L - T - R	L - T - R	L - T - R
Control:	Stop Sign	Stop Sign	Uncontrolled	Uncontrolled
Lanes:	0 0 0 0 0	1 0 0 0 1	1 0 2 0 0	0 0 1 1 0
Final Vol.:	0 0 0 0	33 0 4	8 158 0	0 260 59
ApproachDel:	xxxxxx	11.2	xxxxxx	xxxxxx

Approach[southbound][lanes=2][control=Stop]
 Signal Warrant Rule #1: [vehicle-hours=0.1]
 FAIL - Vehicle-hours less than 5 for two or more lane approach.
 Signal Warrant Rule #2: [approach volume=37]
 FAIL - Approach volume less than 150 for two or more lane approach.
 Signal Warrant Rule #3: [approach count=3][total volume=522]
 FAIL - Total volume less than 650 for intersection
 with less than four approaches.

Ontario New Model - Rich Haven External Intersections
 2015 PM Peak - Internal
 Meyer, Mohaddes Associates

Peak Hour Volume Signal Warrant Report [Urban]

 Intersection #107 A7

Future Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound	South Bound	East Bound	West Bound
Movement:	L - T - R	L - T - R	L - T - R	L - T - R
Control:	Stop Sign	Stop Sign	Uncontrolled	Uncontrolled
Lanes:	0 0 0 0 0	1 0 0 0 1	1 0 2 0 0	0 0 1 1 0
Final Vol.:	0 0 0 0	33 0 4	8 158 0	0 260 59

Major Street Volume: 485
 Minor Approach Volume: 37
 Minor Approach Volume Threshold: 685

Ontario New Model - Rich Haven External Intersections
 2015 PM Peak - Internal
 Meyer, Mohaddes Associates

Peak Hour Delay Signal Warrant Report

 Intersection #201 B1

Future Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound	South Bound	East Bound	West Bound
Movement:	L - T - R	L - T - R	L - T - R	L - T - R
Control:	Uncontrolled	Uncontrolled	Stop Sign	Stop Sign
Lanes:	0 0 1 1 0	1 0 2 0 0	0 0 0 0 0	1 0 0 0 1
Final Vol.:	0 1197 0	72 1735 0	0 0 0	0 0 39
ApproachDel:	xxxxxx	xxxxxx	xxxxxx	13.8

Approach[westbound][lanes=2][control=Stop]
 Signal Warrant Rule #1: [vehicle-hours=0.1]
 FAIL - Vehicle-hours less than 5 for two or more lane approach.
 Signal Warrant Rule #2: [approach volume=39]
 FAIL - Approach volume less than 150 for two or more lane approach.
 Signal Warrant Rule #3: [approach count=3][total volume=3042]
 SUCCEED - Total volume greater than or equal to 650 for intersection
 with less than four approaches.

Ontario New Model - Rich Haven External Intersections
2015 PM Peak - Internal
Meyer, Mohaddes Associates

Peak Hour Volume Signal Warrant Report [Urban]

Intersection #201 B1

Future Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound	South Bound	East Bound	West Bound
Movement:	L - T - R	L - T - R	L - T - R	L - T - R
Control:	Uncontrolled	Uncontrolled	Stop Sign	Stop Sign
Lanes:	0 0 1 1 0	1 0 2 0 0	0 0 0 0 0	1 0 0 0 1
Final Vol.:	0 1197 0	72 1735 0	0 0 0 0	0 0 39

Major Street Volume: 3003
Minor Approach Volume: 39
Minor Approach Volume Threshold: -99 [less than minimum of 150]

Ontario New Model - Rich Haven External Intersections
2015 PM Peak - Internal
Meyer, Mohaddes Associates

Peak Hour Delay Signal Warrant Report

Intersection #202 B2

Future Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound	South Bound	East Bound	West Bound
Movement:	L - T - R	L - T - R	L - T - R	L - T - R
Control:	Stop Sign	Stop Sign	Uncontrolled	Uncontrolled
Lanes:	1 0 1 0 0	0 0 0 1 0	1 0 0 0 1	0 0 0 0 0
Final Vol.:	0 447 0	0 443 39	21 0 0 0	0 0 0 0
ApproachDel:	14.2	14.9	xxxxxx	xxxxxx

Approach[northbound][lanes=2][control=Stop]
Signal Warrant Rule #1: [vehicle-hours=1.8]
FAIL - Vehicle-hours less than 5 for two or more lane approach.
Signal Warrant Rule #2: [approach volume=447]
SUCCEED - Approach volume >= 150 for two or more lane approach.
Signal Warrant Rule #3: [approach count=3][total volume=951]
SUCCEED - Total volume greater than or equal to 650 for intersection with less than four approaches.

Approach[southbound][lanes=1][control=Stop]
Signal Warrant Rule #1: [vehicle-hours=2.0]
FAIL - Vehicle-hours less than 4 for one lane approach.
Signal Warrant Rule #2: [approach volume=482]
SUCCEED - Approach volume greater than or equal to 100 for one lane approach.
Signal Warrant Rule #3: [approach count=3][total volume=951]
SUCCEED - Total volume greater than or equal to 650 for intersection with less than four approaches.

Ontario New Model - Rich Haven External Intersections
 2015 PM Peak - Internal
 Meyer, Mohaddes Associates

Peak Hour Volume Signal Warrant Report [Urban]

 Intersection #202 B2

Future Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound	South Bound	East Bound	West Bound
Movement:	L - T - R	L - T - R	L - T - R	L - T - R
Control:	Stop Sign	Stop Sign	Uncontrolled	Uncontrolled
Lanes:	1 0 1 0 0	0 0 0 1 0	1 0 0 0 1	0 0 0 0 0
Final Vol.:	0 447 0	0 443 39	21 0 0	0 0 0 0

Major Street Volume: 21
 Minor Approach Volume: 482
 Minor Approach Volume Threshold: 1615

Ontario New Model - Rich Haven External Intersections
 2015 PM Peak - Internal
 Meyer, Mohaddes Associates

Peak Hour Delay Signal Warrant Report

 Intersection #203 B3

Future Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound	South Bound	East Bound	West Bound
Movement:	L - T - R	L - T - R	L - T - R	L - T - R
Control:	Uncontrolled	Uncontrolled	Stop Sign	Stop Sign
Lanes:	0 0 1 1 0	1 0 2 0 0	0 0 0 0 0	1 0 0 0 1
Final Vol.:	0 1197 42	0 1735 0	0 0 0	23 0 0
ApproachDel:	xxxxxx	xxxxxx	xxxxxx	141.8

Approach[westbound][lanes=2][control=Stop]
 Signal Warrant Rule #1: [vehicle-hours=0.9]
 FAIL - Vehicle-hours less than 5 for two or more lane approach.
 Signal Warrant Rule #2: [approach volume=23]
 FAIL - Approach volume less than 150 for two or more lane approach.
 Signal Warrant Rule #3: [approach count=3][total volume=2997]
 SUCCEED - Total volume greater than or equal to 650 for intersection
 with less than four approaches.

Ontario New Model - Rich Haven External Intersections
2015 PM Peak - Internal
Meyer, Mohaddes Associates

Peak Hour Volume Signal Warrant Report [Urban]

Intersection #203 B3

Future Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound	South Bound	East Bound	West Bound
Movement:	L - T - R	L - T - R	L - T - R	L - T - R
Control:	Uncontrolled	Uncontrolled	Stop Sign	Stop Sign
Lanes:	0 0 1 1 0	1 0 2 0 0	0 0 0 0 0	1 0 0 0 1
Final Vol.:	0 1197 42	0 1735 0	0 0 0 0	23 0 0 0

Major Street Volume: 2974
Minor Approach Volume: 23
Minor Approach Volume Threshold: -95 [less than minimum of 150]

Ontario New Model - Rich Haven External Intersections
2015 PM Peak - Internal
Meyer, Mohaddes Associates

Peak Hour Delay Signal Warrant Report

Intersection #204 B4

Future Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound	South Bound	East Bound	West Bound
Movement:	L - T - R	L - T - R	L - T - R	L - T - R
Control:	Stop Sign	Stop Sign	Uncontrolled	Uncontrolled
Lanes:	1 0 1 0 0	0 0 1 0 0	1 0 0 0 1	0 0 0 0 0
Final Vol.:	174 447 0	0 443 0	0 0 94	0 0 0 0
ApproachDel:	14.8	14.9	xxxxxx	xxxxxx

Approach[northbound][lanes=2][control=Stop]
Signal Warrant Rule #1: [vehicle-hours=2.6]
FAIL - Vehicle-hours less than 5 for two or more lane approach.
Signal Warrant Rule #2: [approach volume=621]
SUCCEED - Approach volume >= 150 for two or more lane approach.
Signal Warrant Rule #3: [approach count=3][total volume=1158]
SUCCEED - Total volume greater than or equal to 650 for intersection with less than four approaches.

Approach[southbound][lanes=1][control=Stop]
Signal Warrant Rule #1: [vehicle-hours=1.8]
FAIL - Vehicle-hours less than 4 for one lane approach.
Signal Warrant Rule #2: [approach volume=443]
SUCCEED - Approach volume greater than or equal to 100 for one lane approach.
Signal Warrant Rule #3: [approach count=3][total volume=1158]
SUCCEED - Total volume greater than or equal to 650 for intersection with less than four approaches.

Ontario New Model - Rich Haven External Intersections
2015 PM Peak - Internal
Meyer, Mohaddes Associates

Peak Hour Volume Signal Warrant Report [Urban]

Intersection #204 B4

Future Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound			South Bound			East Bound			West Bound					
Movement:	L	T	R	L	T	R	L	T	R	L	T	R			
Control:	Stop Sign			Stop Sign			Uncontrolled			Uncontrolled					
Lanes:	1	0	1	0	0	1	0	0	0	1	0	0	0	0	0
Final Vol.:	174	447	0	0	0	443	0	0	94	0	0	0	0	0	0

Major Street Volume: 94
Minor Approach Volume: 621
Minor Approach Volume Threshold: 1392

Ontario New Model - Rich Haven External Intersections
2015 PM Peak - Internal
Meyer, Mohaddes Associates

Peak Hour Delay Signal Warrant Report

Intersection #301 C1

Future Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound			South Bound			East Bound			West Bound					
Movement:	L	T	R	L	T	R	L	T	R	L	T	R			
Control:	Uncontrolled			Uncontrolled			Stop Sign			Stop Sign					
Lanes:	0	0	1	1	0	2	0	0	0	0	0	0	1	0	0
Final Vol.:	0	0	1207	60	58	1700	0	0	0	0	0	0	33	0	32
ApproachDel:	xxxxxxx			xxxxxxx			xxxxxxx			154.2					

Approach[westbound][lanes=2][control=Stop]
Signal Warrant Rule #1: [vehicle-hours=2.8]
FAIL - Vehicle-hours less than 5 for two or more lane approach.
Signal Warrant Rule #2: [approach volume=64]
FAIL - Approach volume less than 150 for two or more lane approach.
Signal Warrant Rule #3: [approach count=3][total volume=3089]
SUCCEED - Total volume greater than or equal to 650 for intersection with less than four approaches.

Ontario New Model - Rich Haven External Intersections
2015 PM Peak - Internal
Meyer, Mohaddes Associates

Peak Hour Volume Signal Warrant Report [Urban]

Intersection #301 C1

Future Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound	South Bound	East Bound	West Bound
Movement:	L - T - R	L - T - R	L - T - R	L - T - R
Control:	Uncontrolled	Uncontrolled	Stop Sign	Stop Sign
Lanes:	0 0 1 1 0	1 0 2 0 0	0 0 0 0 0	1 0 0 0 1
Final Vol.:	0 1207 60	58 1700 0	0 0 0 0	33 0 32

Major Street Volume: 3025
Minor Approach Volume: 64
Minor Approach Volume Threshold: -102 [less than minimum of 150]

Ontario New Model - Rich Haven External Intersections
2015 PM Peak - Internal
Meyer, Mohaddes Associates

Peak Hour Delay Signal Warrant Report

Intersection #302 C2

Future Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound	South Bound	East Bound	West Bound
Movement:	L - T - R	L - T - R	L - T - R	L - T - R
Control:	Stop Sign	Stop Sign	Uncontrolled	Uncontrolled
Lanes:	0 0 0 0 0	1 0 0 0 1	1 0 4 0 0	0 0 3 1 0
Final Vol.:	0 0 0 0 0	41 0 19	35 2859 0	0 2806 77
ApproachDel:	xxxxxxx	5236.9	xxxxxxx	xxxxxxx

Approach[southbound][lanes=2][control=Stop]
Signal Warrant Rule #1: [vehicle-hours=87.3]
SUCCEED - Vehicle-hours >= 5 for two or more lane approach.
Signal Warrant Rule #2: [approach volume=60]
FAIL - Approach volume less than 150 for two or more lane approach.
Signal Warrant Rule #3: [approach count=3][total volume=5837]
SUCCEED - Total volume greater than or equal to 650 for intersection with less than four approaches.

Ontario New Model - Rich Haven External Intersections
 2015 PM Peak - Internal
 Meyer, Mohaddes Associates

Peak Hour Volume Signal Warrant Report [Urban]

 Intersection #302 C2

Future Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound	South Bound	East Bound	West Bound
Movement:	L - T - R	L - T - R	L - T - R	L - T - R
Control:	Stop Sign	Stop Sign	Uncontrolled	Uncontrolled
Lanes:	0 0 0 0 0	1 0 0 0 1	1 0 4 0 0	0 0 3 1 0
Final Vol.:	0 0 0 0	41 0 19	35 2859 0	0 2806 77

Major Street Volume: 5777
 Minor Approach Volume: 60
 Minor Approach Volume Threshold: -380 [less than minimum of 150]

Ontario New Model - Rich Haven External Intersections
 2015 PM Peak - Internal
 Meyer, Mohaddes Associates

Peak Hour Delay Signal Warrant Report

 Intersection #401 D1

Future Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound	South Bound	East Bound	West Bound
Movement:	L - T - R	L - T - R	L - T - R	L - T - R
Control:	Uncontrolled	Uncontrolled	Stop Sign	Stop Sign
Lanes:	1 0 1 0 0	0 0 1 0 0	1 0 0 0 1	0 0 0 0 1
Final Vol.:	33 501 0	104 385 47	25 0 18	0 0 95
ApproachDel:	xxxxxx	xxxxxx	30.2	12.5

Approach[eastbound][lanes=2][control=Stop]
 Signal Warrant Rule #1: [vehicle-hours=0.4]
 FAIL - Vehicle-hours less than 5 for two or more lane approach.
 Signal Warrant Rule #2: [approach volume=43]
 FAIL - Approach volume less than 150 for two or more lane approach.
 Signal Warrant Rule #3: [approach count=4][total volume=1208]
 SUCCEED - Total volume greater than or equal to 800 for intersection
 with four or more approaches.

Approach[westbound][lanes=1][control=Stop]
 Signal Warrant Rule #1: [vehicle-hours=0.3]
 FAIL - Vehicle-hours less than 4 for one lane approach.
 Signal Warrant Rule #2: [approach volume=95]
 FAIL - Approach volume less than 100 for one lane approach.
 Signal Warrant Rule #3: [approach count=4][total volume=1208]
 SUCCEED - Total volume greater than or equal to 800 for intersection
 with four or more approaches.

Ontario New Model - Rich Haven External Intersections
2015 PM Peak - Internal
Meyer, Mohaddes Associates

Peak Hour Volume Signal Warrant Report [Urban]

Intersection #401 D1

Future Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound	South Bound	East Bound	West Bound
Movement:	L - T - R	L - T - R	L - T - R	L - T - R
Control:	Uncontrolled	Uncontrolled	Stop Sign	Stop Sign
Lanes:	1 0 1 0 0	0 0 1 0 0	1 0 0 0 1	0 0 0 0 1
Final Vol.:	33 501 0	104 385 47	25 0 18	0 0 95

Major Street Volume: 1071
Minor Approach Volume: 95
Minor Approach Volume Threshold: 261

Ontario New Model - Rich Haven External Intersections
2015 PM Peak - Internal
Meyer, Mohaddes Associates

Peak Hour Delay Signal Warrant Report

Intersection #402 D2

Future Volume Alternative: Peak Hour Warrant Met

Approach:	North Bound	South Bound	East Bound	West Bound
Movement:	L - T - R	L - T - R	L - T - R	L - T - R
Control:	Stop Sign	Stop Sign	Uncontrolled	Uncontrolled
Lanes:	1 0 0 1 0	1 0 0 1 0	1 0 3 1 0	1 0 3 1 0
Final Vol.:	140 0 0	137 0 243	267 2586 157	0 2697 151
ApproachDel:	xxxxxxx	xxxxxxx	xxxxxxx	xxxxxxx

Approach[northbound][lanes=2][control=Stop]
Signal Warrant Rule #1: [vehicle-hours=OVERFLOW]
SUCCEED - Vehicle-hours >= 5 for two or more lane approach.
Signal Warrant Rule #2: [approach volume=140]
FAIL - Approach volume less than 150 for two or more lane approach.
Signal Warrant Rule #3: [approach count=4][total volume=6378]
SUCCEED - Total volume greater than or equal to 800 for intersection with four or more approaches.

Approach[southbound][lanes=2][control=Stop]
Signal Warrant Rule #1: [vehicle-hours=OVERFLOW]
SUCCEED - Vehicle-hours >= 5 for two or more lane approach.
Signal Warrant Rule #2: [approach volume=380]
SUCCEED - Approach volume >= 150 for two or more lane approach.
Signal Warrant Rule #3: [approach count=4][total volume=6378]
SUCCEED - Total volume greater than or equal to 800 for intersection with four or more approaches.

Ontario New Model - Rich Haven External Intersections
 2015 PM Peak - Internal
 Meyer, Mohaddes Associates

Peak Hour Volume Signal Warrant Report [Urban]

 Intersection #402 D2

Future Volume Alternative: Peak Hour Warrant Met

Approach:	North Bound	South Bound	East Bound	West Bound
Movement:	L - T - R	L - T - R	L - T - R	L - T - R
Control:	Stop Sign	Stop Sign	Uncontrolled	Uncontrolled
Lanes:	1 0 0 1 0	1 0 0 1 0	1 0 3 1 0	1 0 3 1 0
Final Vol.:	140 0 0	137 0 243	267 2586 157	0 2697 151

Major Street Volume: 5858
 Minor Approach Volume: 380
 Minor Approach Volume Threshold: -386 [less than minimum of 150]

Ontario New Model - Rich Haven External Intersections
 2015 PM Peak - Internal
 Meyer, Mohaddes Associates

Peak Hour Delay Signal Warrant Report

 Intersection #501 E1

Future Volume Alternative: Peak Hour Warrant Met

Approach:	North Bound	South Bound	East Bound	West Bound
Movement:	L - T - R	L - T - R	L - T - R	L - T - R
Control:	Stop Sign	Stop Sign	Uncontrolled	Uncontrolled
Lanes:	1 0 0 1 0	1 0 0 1 0	1 0 3 1 0	1 0 3 1 0
Final Vol.:	37 0 142	137 0 154	168 2515 41	160 2658 151
ApproachDel:	xxxxxx	xxxxxx	xxxxxx	xxxxxx

Approach[northbound][lanes=2][control=Stop]
 Signal Warrant Rule #1: [vehicle-hours=OVERFLOW]
 SUCCEED - Vehicle-hours >= 5 for two or more lane approach.
 Signal Warrant Rule #2: [approach volume=179]
 SUCCEED - Approach volume >= 150 for two or more lane approach.
 Signal Warrant Rule #3: [approach count=4][total volume=6162]
 SUCCEED - Total volume greater than or equal to 800 for intersection
 with four or more approaches.

Approach[southbound][lanes=2][control=Stop]
 Signal Warrant Rule #1: [vehicle-hours=OVERFLOW]
 SUCCEED - Vehicle-hours >= 5 for two or more lane approach.
 Signal Warrant Rule #2: [approach volume=291]
 SUCCEED - Approach volume >= 150 for two or more lane approach.
 Signal Warrant Rule #3: [approach count=4][total volume=6162]
 SUCCEED - Total volume greater than or equal to 800 for intersection
 with four or more approaches.

Ontario New Model - Rich Haven External Intersections
 2015 PM Peak - Internal
 Meyer, Mohaddes Associates

Peak Hour Volume Signal Warrant Report [Urban]

 Intersection #501 E1

Future Volume Alternative: Peak Hour Warrant Met

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Stop Sign			Stop Sign			Uncontrolled			Uncontrolled		
Lanes:	1	0	0	1	0	0	1	0	3	1	0	3
Final Vol.:	37	0	142	137	0	154	168	2515	41	160	2658	151

Major Street Volume: 5693
 Minor Approach Volume: 291
 Minor Approach Volume Threshold: -374 [less than minimum of 150]

Ontario New Model - Rich Haven External Intersections
 2015 PM Peak - Internal
 Meyer, Mohaddes Associates

Peak Hour Delay Signal Warrant Report

 Intersection #502 E2

Future Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Uncontrolled			Uncontrolled			Stop Sign			Stop Sign		
Lanes:	0	0	0	1	0	1	0	0	0	1	0	0
Final Vol.:	0	117	6	128	220	0	0	0	0	6	0	115
ApproachDel:	xxxxxx			xxxxxx			xxxxxx			9.6		

Approach[westbound][lanes=2][control=Stop]
 Signal Warrant Rule #1: [vehicle-hours=0.3]
 FAIL - Vehicle-hours less than 5 for two or more lane approach.
 Signal Warrant Rule #2: [approach volume=121]
 FAIL - Approach volume less than 150 for two or more lane approach.
 Signal Warrant Rule #3: [approach count=3][total volume=593]
 FAIL - Total volume less than 650 for intersection
 with less than four approaches.

Ontario New Model - Rich Haven External Intersections
 2015 PM Peak - Internal
 Meyer, Mohaddes Associates

Peak Hour Volume Signal Warrant Report [Urban]

 Intersection #502 E2

Future Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound	South Bound	East Bound	West Bound
Movement:	L - T - R	L - T - R	L - T - R	L - T - R
Control:	Uncontrolled	Uncontrolled	Stop Sign	Stop Sign
Lanes:	0 0 0 1 0	1 0 1 0 0	0 0 0 0 0	1 0 0 0 1
Final Vol.:	0 117 6	128 220 0	0 0 0 0	6 0 115

Major Street Volume: 472
 Minor Approach Volume: 121
 Minor Approach Volume Threshold: 697

Ontario New Model - Rich Haven External Intersections
 2015 PM Peak - Internal
 Meyer, Mohaddes Associates

Peak Hour Delay Signal Warrant Report

 Intersection #503 E3

Future Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound	South Bound	East Bound	West Bound
Movement:	L - T - R	L - T - R	L - T - R	L - T - R
Control:	Uncontrolled	Uncontrolled	Stop Sign	Stop Sign
Lanes:	1 0 1 1 0	1 0 1 1 0	1 0 0 1 0	1 0 0 1 0
Final Vol.:	0 676 0	0 1886 160	142 0 0	0 0 0 0
ApproachDel:	xxxxxx	xxxxxx	1719.4	xxxxxx

Approach[eastbound][lanes=2][control=Stop]
 Signal Warrant Rule #1: [vehicle-hours=67.9]
 SUCCEED - Vehicle-hours >= 5 for two or more lane approach.
 Signal Warrant Rule #2: [approach volume=142]
 FAIL - Approach volume less than 150 for two or more lane approach.
 Signal Warrant Rule #3: [approach count=3][total volume=2864]
 SUCCEED - Total volume greater than or equal to 650 for intersection
 with less than four approaches.

Ontario New Model - Rich Haven External Intersections
2015 PM Peak - Internal
Meyer, Mohaddes Associates

Peak Hour Volume Signal Warrant Report [Urban]

Intersection #503 E3

Future Volume Alternative: Peak Hour Warrant NOT Met
-----|-----|-----|-----|
Approach: North Bound South Bound East Bound West Bound
Movement: L - T - R L - T - R L - T - R L - T - R
-----|-----|-----|-----|
Control: Uncontrolled Uncontrolled Stop Sign Stop Sign
Lanes: 1 0 1 1 0 1 0 1 1 0 1 0 0 1 0 1 0 0 1 0
Final Vol.: 0 676 0 0 1886 160 142 0 0 0 0 0 0
-----|-----|-----|-----|
Major Street Volume: 2722
Minor Approach Volume: 142
Minor Approach Volume Threshold: -57 [less than minimum of 150]

Ontario New Model - Rich Haven External Intersections
2015 PM Peak - Internal
Meyer, Mohaddes Associates

Level Of Service Computation Report
2000 HCM Unsignalized Method (Future Volume Alternative)

Intersection #101 A1

Average Delay (sec/veh): 0.3 Worst Case Level Of Service: E[38.6]

Approach: North Bound South Bound East Bound West Bound
Movement: L - T - R L - T - R L - T - R L - T - R
-----|-----|-----|-----|
Control: Stop Sign Stop Sign Uncontrolled Uncontrolled
Rights: Include Include Include Include
Lanes: 1 0 0 0 1 0 0 0 0 0 0 0 1 1 0 1 0 2 0 0
-----|-----|-----|-----|
Volume Module:
Base Vol: 0 0 0 0 0 0 0 0 1085 0 0 1339 0
Growth Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
Initial Bse: 0 0 0 0 0 0 0 0 1085 0 0 1339 0
Added Vol: 4 0 9 0 0 0 0 0 145 8 16 124 0
PasserByVol: 0 0 0 0 0 0 0 0 0 0 0 0 0
Initial Fut: 4 0 9 0 0 0 0 0 1230 8 16 1463 0
User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
PHF Adj: 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95
PHF Volume: 4 0 9 0 0 0 0 0 1295 8 17 1540 0
Reduct Vol: 0 0 0 0 0 0 0 0 0 0 0 0 0
Final Vol.: 4 0 9 0 0 0 0 0 1295 8 17 1540 0
Critical Gap Module:
Critical Gp: 6.8 xxxx 6.9 xxxxx xxxx xxxxx xxxxx xxxx xxxxx 4.1 xxxx xxxxx
FollowUpTim: 3.5 xxxxx 3.3 xxxxx xxxx xxxxx xxxxx xxxxx xxxxx 2.2 xxxx xxxxx
-----|-----|-----|-----|
Capacity Module:
Cnflct Vol: 2103 xxxx 652 xxxx xxxx xxxxx xxxx xxxx xxxxx 1303 xxxx xxxxx
Potent Cap.: 46 xxxx 416 xxxx xxxx xxxxx xxxx xxxx xxxxx 538 xxxx xxxxx
Move Cap.: 44 xxxx 416 xxxx xxxx xxxxx xxxx xxxx xxxxx 538 xxxx xxxxx
Volume/Cap: 0.09 xxxx 0.02 xxxx xxxx xxxxx xxxx xxxx xxxxx 0.03 xxxx xxxxx
-----|-----|-----|-----|
Level Of Service Module:
Queue: 0.3 xxxx 0.1 xxxxx xxxx xxxxx xxxxx xxxx xxxxx 0.1 xxxx xxxxx
Stopped Del: 94.4 xxxx 13.9 xxxxx xxxx xxxxx xxxxx xxxx xxxxx 11.9 xxxx xxxxx
LOS by Move: F * B * * * * * * * * * * B * * *
Movement: LT - LTR - RT LT - LTR - RT LT - LTR - RT LT - LTR - RT
Shared Cap.: xxxx xxxx xxxxx xxxx xxxx xxxxx xxxx xxxx xxxxx xxxx xxxx xxxxx
SharedQueue:xxxxx xxxx xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx
Shrd StpDel:xxxxx xxxx xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx
Shared LOS: *
ApproachDel: 38.6 xxxxxxx xxxxxxx xxxxxxx
ApproachLOS: E * * *

Ontario New Model - Rich Haven External Intersections
2015 PM Peak - Internal
Meyer, Mohaddes Associates

Level Of Service Computation Report
2000 HCM Unsignalized Method (Future Volume Alternative)

Intersection #102 A2
Average Delay (sec/veh): 0.6 Worst Case Level Of Service: F[74.9]
Approach: North Bound South Bound East Bound West Bound
Movement: L - T - R L - T - R L - T - R L - T - R
Control: Uncontrolled Uncontrolled Stop Sign Stop Sign
Rights: Include Include Include Include
Lanes: 0 0 1 1 0 1 0 2 0 0 0 0 0 0 0 1 0 0 0 1
Volume Module:
Base Vol: 0 873 0 0 1367 0 0 0 0 0 0 0 0
Growth Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
Initial Bse: 0 873 0 0 1367 0 0 0 0 0 0 0 0
Added Vol: 0 199 25 13 283 0 0 0 0 14 0 0 7
PasserByVol: 0 0 0 0 0 0 0 0 0 0 0 0 0
Initial Fut: 0 1072 25 13 1650 0 0 0 0 14 0 0 7
User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
PHF Adj: 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95
PHF Volume: 0 1128 26 14 1737 0 0 0 0 15 0 0 7
Reduct Vol: 0 0 0 0 0 0 0 0 0 0 0 0 0
Final Vol.: 0 1128 26 14 1737 0 0 0 0 15 0 0 7
Critical Gap Module:
Critical Gp:xxxxx xxxx xxxxx 4.1 xxxx xxxxx xxxxx xxxx xxxxx 6.8 xxxx 6.9
FollowUpTim:xxxxx xxxx xxxxx 2.2 xxxx xxxxx xxxxx xxxx xxxxx 3.5 xxxx 3.3
Capacity Module:
Cnflct Vol: xxxx xxxx xxxxx 1155 xxxx xxxxx xxxx xxxx xxxxx 2037 xxxx 577
Potent Cap.: xxxx xxxx xxxxx 612 xxxx xxxxx xxxx xxxx xxxxx 50 xxxx 465
Move Cap.: xxxx xxxx xxxxx 612 xxxx xxxxx xxxx xxxx xxxxx 50 xxxx 465
Volume/Cap: xxxx xxxx xxxxx 0.02 xxxx xxxxx xxxx xxxx xxxxx 0.30 xxxx 0.02
Level Of Service Module:
Queue: xxxxx xxxx xxxxx 0.1 xxxx xxxxx xxxxx xxxx xxxxx 1.0 xxxx 0.0
Stopped Del:xxxxx xxxx xxxxx 11.0 xxxx xxxxx xxxxx xxxx xxxxx 106.0 xxxx 12.9
LOS by Move: * * * B * * * * * F * * B
Movement: LT - LTR - RT LT - LTR - RT LT - LTR - RT LT - LTR - RT
Shared Cap.: xxxx xxxx xxxxx xxxx xxxx xxxxx xxxx xxxx xxxxx xxxx xxxx xxxxx
SharedQueue:xxxxx xxxx xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx
Shrd StpDel:xxxxx xxxx xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx
Shared LOS: *
ApproachDel: xxxxxxx xxxxxxx xxxxxxx 74.9
ApproachLOS: * * * F

Ontario New Model - Rich Haven External Intersections
2015 PM Peak - Internal
Meyer, Mohaddes Associates

Level Of Service Computation Report
2000 HCM Unsignalized Method (Future Volume Alternative)

Intersection #103 A3
Average Delay (sec/veh): 1.2 Worst Case Level Of Service: F[91.9]
Approach: North Bound South Bound East Bound West Bound
Movement: L - T - R L - T - R L - T - R L - T - R
Control: Uncontrolled Uncontrolled Stop Sign Stop Sign
Rights: Include Include Include Include
Lanes: 0 0 1 1 0 1 0 2 0 0 0 0 0 0 0 1 0 0 0 1
Volume Module:
Base Vol: 0 873 0 0 1367 0 0 0 0 0 0 0 0
Growth Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
Initial Bse: 0 873 0 0 1367 0 0 0 0 0 0 0 0
Added Vol: 0 212 37 23 274 0 0 0 0 21 0 0 13
PasserByVol: 0 0 0 0 0 0 0 0 0 0 0 0 0
Initial Fut: 0 1085 37 23 1641 0 0 0 0 21 0 0 13
User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
PHF Adj: 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95
PHF Volume: 0 1142 39 24 1727 0 0 0 0 22 0 0 14
Reduct Vol: 0 0 0 0 0 0 0 0 0 0 0 0 0
Final Vol.: 0 1142 39 24 1727 0 0 0 0 22 0 0 14
Critical Gap Module:
Critical Gp:xxxxx xxxx xxxxx 4.1 xxxx xxxxx xxxxx xxxx xxxxx 6.8 xxxx 6.9
FollowUpTim:xxxxx xxxx xxxxx 2.2 xxxx xxxxx xxxxx xxxx xxxxx 3.5 xxxx 3.3
Capacity Module:
Cnflct Vol: xxxx xxxx xxxxx 1181 xxxx xxxxx xxxx xxxx xxxxx 2074 xxxx 591
Potent Cap.: xxxx xxxx xxxxx 598 xxxx xxxxx xxxx xxxx xxxxx 48 xxxx 456
Move Cap.: xxxx xxxx xxxxx 598 xxxx xxxxx xxxx xxxx xxxxx 46 xxxx 456
Volume/Cap: xxxx xxxx xxxxx 0.04 xxxx xxxxx xxxx xxxx xxxxx 0.48 xxxx 0.03
Level Of Service Module:
Queue: xxxxx xxxx xxxxx 0.1 xxxx xxxxx xxxxx xxxx xxxxx 1.7 xxxx 0.1
Stopped Del:xxxxx xxxx xxxxx 11.3 xxxx xxxxx xxxxx xxxx xxxxx 140.6 xxxx 13.1
LOS by Move: * * * B * * * * * F * * B
Movement: LT - LTR - RT LT - LTR - RT LT - LTR - RT LT - LTR - RT
Shared Cap.: xxxx xxxx xxxxx xxxx xxxx xxxxx xxxx xxxx xxxxx xxxx xxxx xxxxx
SharedQueue:xxxxx xxxx xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx
Shrd StpDel:xxxxx xxxx xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx
Shared LOS: *
ApproachDel: xxxxxxx xxxxxxx xxxxxxx 91.9
ApproachLOS: * * * F

Ontario New Model - Rich Haven External Intersections
2015 PM Peak - Internal
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Level Of Service Computation Report
2000 HCM Unsignalized Method (Future Volume Alternative)

Intersection #104 A4
Average Delay (sec/veh): 0.9 Worst Case Level Of Service: B[13.6]
Approach: North Bound South Bound East Bound West Bound
Movement: L - T - R L - T - R L - T - R L - T - R
Control: Uncontrolled Uncontrolled Stop Sign Stop Sign
Rights: Include Include Include Include
Lanes: 1 0 1 0 0 0 0 1 0 1 0 0 0 0 0 0
Volume Module:
Base Vol: 0 92 0 0 121 0 0 0 0 0 0 0
Growth Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
Initial Bse: 0 92 0 0 121 0 0 0 0 0 0 0
Added Vol: 32 228 0 0 272 31 17 0 18 0 0 0
PasserByVol: 0 0 0 0 0 0 0 0 0 0 0 0
Initial Fut: 32 320 0 0 393 31 17 0 18 0 0 0
User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
PHF Adj: 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95
PHF Volume: 34 337 0 0 414 33 18 0 19 0 0 0
Reduct Vol: 0 0 0 0 0 0 0 0 0 0 0 0
Final Vol.: 34 337 0 0 414 33 18 0 19 0 0 0
Critical Gap Module:
Critical Gp: 4.1 xxxxx xxxxx xxxxx xxxxx xxxxx 6.4 xxxxx 6.2 xxxxx xxxxx xxxxx
FollowUpTim: 2.2 xxxxx xxxxx xxxxx xxxxx xxxxx 3.5 xxxxx 3.3 xxxxx xxxxx xxxxx
Capacity Module:
Cnflct Vol: 446 xxxxx xxxxx xxxxx xxxxx xxxxx 834 xxxxx 430 xxxxx xxxxx xxxxx
Potent Cap.: 1125 xxxxx xxxxx xxxxx xxxxx xxxxx 341 xxxxx 629 xxxxx xxxxx xxxxx
Move Cap.: 1125 xxxxx xxxxx xxxxx xxxxx xxxxx 333 xxxxx 629 xxxxx xxxxx xxxxx
Volume/Cap: 0.03 xxxxx xxxxx xxxxx xxxxx xxxxx 0.05 xxxxx 0.03 xxxxx xxxxx xxxxx
Level Of Service Module:
Queue: 0.1 xxxxx xxxxx xxxxx xxxxx xxxxx 0.2 xxxxx 0.1 xxxxx xxxxx xxxxx
Stopped Del: 8.3 xxxxx xxxxx xxxxx xxxxx xxxxx 16.4 xxxxx 10.9 xxxxx xxxxx xxxxx
LOS by Move: A * * * * * C * * * * *
Movement: LT - LTR - RT LT - LTR - RT LT - LTR - RT LT - LTR - RT
Shared Cap.: xxxxx xxxxx xxxxx xxxxx xxxxx xxxxx xxxxx xxxxx xxxxx xxxxx xxxxx xxxxx
SharedQueue: xxxxx xxxxx xxxxx xxxxx xxxxx xxxxx xxxxx xxxxx xxxxx xxxxx xxxxx xxxxx
Shrd StpDel: xxxxx xxxxx xxxxx xxxxx xxxxx xxxxx xxxxx xxxxx xxxxx xxxxx xxxxx xxxxx
Shared LOS: *
ApproachDel: xxxxxxx xxxxxxx 13.6 xxxxxxx
ApproachLOS: * * * * * B * * * * *

Ontario New Model - Rich Haven External Intersections
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Level Of Service Computation Report
2000 HCM Unsignalized Method (Future Volume Alternative)

Intersection #105 A5
Average Delay (sec/veh): 1.5 Worst Case Level Of Service: B[10.5]
Approach: North Bound South Bound East Bound West Bound
Movement: L - T - R L - T - R L - T - R L - T - R
Control: Stop Sign Stop Sign Uncontrolled Uncontrolled
Rights: Include Include Include Include
Lanes: 0 0 0 0 0 1 0 0 0 1 1 0 2 0 0 0 0 0 1 1 0
Volume Module:
Base Vol: 0 0 0 0 0 0 0 0 84 0 0 0 162 0
Growth Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
Initial Bse: 0 0 0 0 0 0 0 0 84 0 0 0 162 0
Added Vol: 0 0 0 0 27 0 17 31 45 0 0 0 41 49
PasserByVol: 0 0 0 0 0 0 0 0 0 0 0 0 0 0
Initial Fut: 0 0 0 0 27 0 17 31 129 0 0 0 203 49
User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
PHF Adj: 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95
PHF Volume: 0 0 0 0 28 0 18 33 136 0 0 0 214 52
Reduct Vol: 0 0 0 0 0 0 0 0 0 0 0 0 0 0
Final Vol.: 0 0 0 0 28 0 18 33 136 0 0 0 214 52
Critical Gap Module:
Critical Gp: xxxxx xxxxx xxxxx 6.8 xxxxx 6.9 4.1 xxxxx xxxxx xxxxx xxxxx xxxxx
FollowUpTim: xxxxx xxxxx xxxxx 3.5 xxxxx 3.3 2.2 xxxxx xxxxx xxxxx xxxxx xxxxx
Capacity Module:
Cnflct Vol: xxxxx xxxxx xxxxx 373 xxxxx 133 265 xxxxx xxxxx xxxxx xxxxx xxxxx
Potent Cap.: xxxxx xxxxx xxxxx 607 xxxxx 899 1310 xxxxx xxxxx xxxxx xxxxx xxxxx
Move Cap.: xxxxx xxxxx xxxxx 595 xxxxx 899 1310 xxxxx xxxxx xxxxx xxxxx xxxxx
Volume/Cap: xxxxx xxxxx xxxxx 0.05 xxxxx 0.02 0.02 xxxxx xxxxx xxxxx xxxxx xxxxx
Level Of Service Module:
Queue: xxxxx xxxxx xxxxx 0.2 xxxxx 0.1 0.1 xxxxx xxxxx xxxxx xxxxx xxxxx
Stopped Del: xxxxx xxxxx xxxxx 11.4 xxxxx 9.1 7.8 xxxxx xxxxx xxxxx xxxxx xxxxx
LOS by Move: * * * * * B * A A * * * * *
Movement: LT - LTR - RT LT - LTR - RT LT - LTR - RT LT - LTR - RT
Shared Cap.: xxxxx xxxxx xxxxx xxxxx xxxxx xxxxx xxxxx xxxxx xxxxx xxxxx xxxxx xxxxx
SharedQueue: xxxxx xxxxx xxxxx xxxxx xxxxx xxxxx xxxxx xxxxx xxxxx xxxxx xxxxx xxxxx
Shrd StpDel: xxxxx xxxxx xxxxx xxxxx xxxxx xxxxx xxxxx xxxxx xxxxx xxxxx xxxxx xxxxx
Shared LOS: *
ApproachDel: xxxxxxx 10.5 xxxxxxx xxxxxxx
ApproachLOS: * B * * * * *

Ontario New Model - Rich Haven External Intersections
2015 PM Peak - Internal
Meyer, Mohaddes Associates

Level Of Service Computation Report
2000 HCM Unsignalized Method (Future Volume Alternative)

Intersection #201 B1
Average Delay (sec/veh): 0.5 Worst Case Level Of Service: B[13.8]
Approach: North Bound South Bound East Bound West Bound
Movement: L - T - R L - T - R L - T - R L - T - R
Control: Uncontrolled Uncontrolled Stop Sign Stop Sign
Rights: Include Include Include Include
Lanes: 0 0 1 1 0 1 0 2 0 0 0 0 0 0 0 1 0 0 0 1
Volume Module:
Base Vol: 0 904 0 0 1414 0 0 0 0 0 0 0 0
Growth Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
Initial Bse: 0 904 0 0 1414 0 0 0 0 0 0 0 0
Added Vol: 0 233 0 68 234 0 0 0 0 0 0 0 37
PasserByVol: 0 0 0 0 0 0 0 0 0 0 0 0 0
Initial Fut: 0 1137 0 68 1648 0 0 0 0 0 0 0 37
User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
PHF Adj: 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95
PHF Volume: 0 1197 0 72 1735 0 0 0 0 0 0 0 39
Reduct Vol: 0 0 0 0 0 0 0 0 0 0 0 0 0
Final Vol.: 0 1197 0 72 1735 0 0 0 0 0 0 0 39
Critical Gap Module:
Critical Gp:xxxxx 4.1 xxxx xxxxxx xxxxx xxxx xxxxxx xxxxxx xxxxx 6.9
FollowUpTim:xxxxx 2.2 xxxx xxxxxx xxxxxx xxxxx xxxxxx xxxxxx xxxxx 3.3
Capacity Module:
Cnflct Vol: xxxxx 1197 xxxx xxxxxx xxxxx xxxx xxxxxx xxxxxx xxxxx 598
Potent Cap.: xxxxx 590 xxxx xxxxxx xxxxx xxxx xxxxxx xxxxxx xxxxx 450
Move Cap.: xxxxx 590 xxxx xxxxxx xxxxx xxxx xxxxxx xxxxxx xxxxx 450
Volume/Cap: xxxxx 0.12 xxxx xxxxx xxxxx xxxxx xxxxx xxxxx 0.09
Level Of Service Module:
Queue: xxxxxx 0.4 xxxx xxxxxx xxxxxx xxxxx xxxxxx xxxxxx xxxxx 0.3
Stopped Del:xxxxx 11.9 xxxx xxxxxx xxxxxx xxxxx xxxxxx xxxxxx xxxxx 13.8
LOS by Move: * * * B * * * * * * * * * * B
Movement: LT - LTR - RT LT - LTR - RT LT - LTR - RT LT - LTR - RT
Shared Cap.: xxxxx xxxxx xxxxxx xxxxx xxxxx xxxxxx xxxxxx xxxxx xxxxx xxxxx
SharedQueue:xxxxx xxxxx xxxxxx xxxxxx xxxxx xxxxxx xxxxxx xxxxx xxxxx xxxxx
Shrd StpDel:xxxxx xxxxx xxxxxx xxxxxx xxxxx xxxxxx xxxxxx xxxxx xxxxx xxxxx
Shared LOS: *
ApproachDel: xxxxxx xxxxxx xxxxxx 13.8
ApproachLOS: * * * B

Ontario New Model - Rich Haven External Intersections
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Level Of Service Computation Report
2000 HCM Unsignalized Method (Future Volume Alternative)

Intersection #202 B2
Average Delay (sec/veh): 14.5 Worst Case Level Of Service: B[14.9]
Approach: North Bound South Bound East Bound West Bound
Movement: L - T - R L - T - R L - T - R L - T - R
Control: Stop Sign Stop Sign Uncontrolled Uncontrolled
Rights: Include Include Include Include
Lanes: 1 0 1 0 0 0 0 0 1 0 1 0 0 0 0 1 0 0 0 0 0
Volume Module:
Base Vol: 0 18 0 0 24 0 0 0 0 0 0 0 0
Growth Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
Initial Bse: 0 18 0 0 24 0 0 0 0 0 0 0 0
Added Vol: 0 407 0 0 397 37 20 0 0 0 0 0 0
PasserByVol: 0 0 0 0 0 0 0 0 0 0 0 0 0
Initial Fut: 0 425 0 0 421 37 20 0 0 0 0 0 0
User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
PHF Adj: 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95
PHF Volume: 0 447 0 0 443 39 21 0 0 0 0 0 0
Reduct Vol: 0 0 0 0 0 0 0 0 0 0 0 0 0
Final Vol.: 0 447 0 0 443 39 21 0 0 0 0 0 0
Critical Gap Module:
Critical Gp:xxxxx 6.5 xxxxx xxxxxx 6.5 6.2 4.1 xxxx xxxxxx xxxxxx xxxxx xxxxx
FollowUpTim:xxxxx 4.0 xxxxx xxxxxx 4.0 3.3 2.2 xxxx xxxxxx xxxxxx xxxxx xxxxxx
Capacity Module:
Cnflct Vol: xxxxx 42 xxxxxx xxxxx 42 0 0 xxxx xxxxxx xxxxx xxxxx xxxxxx
Potent Cap.: xxxxx 854 xxxxxx xxxxx 854 900 900 xxxxx xxxxxx xxxxx xxxxx xxxxxx
Move Cap.: xxxxx 834 xxxxxx xxxxx 834 900 900 xxxxx xxxxxx xxxxx xxxxx xxxxxx
Volume/Cap: xxxxx 0.54 xxxxx xxxxx 0.53 0.04 0.02 xxxxx xxxxx xxxxx xxxxx xxxxx
Level Of Service Module:
Queue: xxxxxx 3.3 xxxxxx xxxxxx xxxxx xxxxxx 0.1 xxxxx xxxxxx xxxxxx xxxxx xxxxxx
Stopped Del:xxxxx 14.2 xxxxxx xxxxxx xxxxx xxxxxx 9.1 xxxxx xxxxxx xxxxxx xxxxx xxxxxx
LOS by Move: * B * * * * * A * * * * * * * * * *
Movement: LT - LTR - RT LT - LTR - RT LT - LTR - RT LT - LTR - RT
Shared Cap.: xxxxx xxxxx xxxxxx xxxxx xxxxx 839 xxxxx xxxxx xxxxxx xxxxx xxxxx xxxxxx
SharedQueue:xxxxx xxxxx xxxxxx xxxxxx xxxxx 3.7 xxxxxx xxxxx xxxxxx xxxxx xxxxx xxxxxx
Shrd StpDel:xxxxx xxxxx xxxxxx xxxxxx xxxxx 14.9 xxxxxx xxxxx xxxxxx xxxxx xxxxx xxxxxx
Shared LOS: * * * * * * * B * * * * * * * * * *
ApproachDel: 14.2 14.9 xxxxxxxx xxxxxxxx
ApproachLOS: B B * *

Ontario New Model - Rich Haven External Intersections
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Level Of Service Computation Report
2000 HCM Unsignalized Method (Future Volume Alternative)

Intersection #301 C1
Average Delay (sec/veh): 3.4 Worst Case Level Of Service: F[154.2]
Approach: North Bound South Bound East Bound West Bound
Movement: L - T - R L - T - R L - T - R L - T - R
Control: Uncontrolled Uncontrolled Stop Sign Stop Sign
Rights: Include Include Include Include
Lanes: 0 0 1 1 0 1 0 2 0 0 0 0 0 0 0 1 0 0 0 1
Volume Module:
Base Vol: 0 904 0 0 1414 0 0 0 0 0 0 0 0
Growth Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
Initial Bse: 0 904 0 0 1414 0 0 0 0 0 0 0 0
Added Vol: 0 243 57 55 201 0 0 0 0 31 0 30
PasserByVol: 0 0 0 0 0 0 0 0 0 0 0 0
Initial Fut: 0 1147 57 55 1615 0 0 0 0 31 0 30
User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
PHF Adj: 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95
PHF Volume: 0 1207 60 58 1700 0 0 0 0 33 0 32
Reduct Vol: 0 0 0 0 0 0 0 0 0 0 0 0
Final Vol.: 0 1207 60 58 1700 0 0 0 0 33 0 32
Critical Gap Module:
Critical Gp:xxxxx xxxx xxxxx 4.1 xxxx xxxxx xxxxx xxxx xxxxx 6.8 xxxx 6.9
FollowUpTim:xxxxx xxxx xxxxx 2.2 xxxx xxxxx xxxxx xxxx xxxxx 3.5 xxxx 3.3
Capacity Module:
Cnflct Vol: xxxxx xxxx xxxxx 1267 xxxx xxxxx xxxxx xxxx xxxxx 2203 xxxxx 634
Potent Cap.: xxxxx xxxx xxxxx 555 xxxxx xxxxx xxxxx xxxx xxxxx 39 xxxxx 427
Move Cap.: xxxxx xxxx xxxxx 555 xxxxx xxxxx xxxxx xxxx xxxxx 36 xxxxx 427
Volume/Cap: xxxxx xxxx xxxxx 0.10 xxxxx xxxxx xxxxx xxxx xxxxx 0.91 xxxxx 0.07
Level Of Service Module:
Queue: xxxxx xxxx xxxxx 0.3 xxxx xxxxx xxxxx xxxx xxxxx 3.3 xxxxx 0.2
Stopped Del:xxxxx xxxx xxxxx 12.2 xxxx xxxxx xxxxx xxxx xxxxx 289.8 xxxxx 14.1
LOS by Move: * * * B * * * * * F * * B
Movement: LT - LTR - RT LT - LTR - RT LT - LTR - RT LT - LTR - RT
Shared Cap.: xxxxx xxxx xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx
SharedQueue:xxxxx xxxx xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx
Shrd StpDel:xxxxx xxxx xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx
Shared LOS: * * * * * * * * * * * * * * * *
ApproachDel: xxxxxxx xxxxxxx xxxxxxx 154.2
ApproachLOS: * * * F

Ontario New Model - Rich Haven External Intersections
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Level Of Service Computation Report
2000 HCM Unsignalized Method (Future Volume Alternative)

Intersection #302 C2
Average Delay (sec/veh): 54.1 Worst Case Level Of Service: F[5236.9]
Approach: North Bound South Bound East Bound West Bound
Movement: L - T - R L - T - R L - T - R L - T - R
Control: Stop Sign Stop Sign Uncontrolled Uncontrolled
Rights: Include Include Include Include
Lanes: 0 0 0 0 0 1 0 0 0 1 1 0 4 0 0 0 0 3 1 0
Volume Module:
Base Vol: 0 0 0 0 0 0 0 0 2125 0 0 2098 0
Growth Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
Initial Bse: 0 0 0 0 0 0 0 0 2125 0 0 2098 0
Added Vol: 0 0 0 0 39 0 18 33 591 0 0 568 73
PasserByVol: 0 0 0 0 0 0 0 0 0 0 0 0 0
Initial Fut: 0 0 0 0 39 0 18 33 2716 0 0 2666 73
User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
PHF Adj: 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95
PHF Volume: 0 0 0 0 41 0 19 35 2859 0 0 2806 77
Reduct Vol: 0 0 0 0 0 0 0 0 0 0 0 0 0
Final Vol.: 0 0 0 0 41 0 19 35 2859 0 0 2806 77
Critical Gap Module:
Critical Gp:xxxxx xxxx xxxxx 6.8 xxxx 6.9 4.1 xxxx xxxxx xxxxx xxxx xxxxx
FollowUpTim:xxxxx xxxx xxxxx 3.5 xxxx 3.3 2.2 xxxx xxxxx xxxxx xxxx xxxxx
Capacity Module:
Cnflct Vol: xxxxx xxxx xxxxx 3629 xxxxx 740 2883 xxxxx xxxxx xxxxx xxxxx xxxxx
Potent Cap.: xxxxx xxxx xxxxx 4 xxxxx 364 131 xxxxx xxxxx xxxxx xxxxx xxxxx
Move Cap.: xxxxx xxxx xxxxx 3 xxxxx 364 131 xxxxx xxxxx xxxxx xxxxx xxxxx
Volume/Cap: xxxxx xxxx xxxxx 13.11 xxxxx 0.05 0.27 xxxxx xxxxx xxxxx xxxxx xxxxx
Level Of Service Module:
Queue: xxxxx xxxx xxxxx 7.0 xxxxx 0.2 1.0 xxxxx xxxxx xxxxx xxxxx xxxxx
Stopped Del:xxxxx xxxx xxxxx 7647 xxxxx 15.4 42.3 xxxxx xxxxx xxxxx xxxxx xxxxx
LOS by Move: * * * F * C E * * * * *
Movement: LT - LTR - RT LT - LTR - RT LT - LTR - RT LT - LTR - RT
Shared Cap.: xxxxx xxxx xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx
SharedQueue:xxxxx xxxx xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx
Shrd StpDel:xxxxx xxxx xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx
Shared LOS: * * * * * * * * * * * * * * * *
ApproachDel: xxxxxxx 5236.9 xxxxxxx xxxxxxx
ApproachLOS: * F * *

Ontario New Model - Rich Haven External Intersections
2015 PM Peak - Internal
Meyer, Mohaddes Associates

Level Of Service Computation Report
2000 HCM Unsignalized Method (Future Volume Alternative)

Intersection #401 D1
Average Delay (sec/veh): 3.0 Worst Case Level Of Service: D[30.2]
Approach: North Bound South Bound East Bound West Bound
Movement: L - T - R L - T - R L - T - R L - T - R
Control: Uncontrolled Uncontrolled Stop Sign Stop Sign
Rights: Include Include Include Include
Lanes: 1 0 1 0 0 0 0 1 1 0 0 1 0 0 0 0 1
Volume Module:
Base Vol: 0 18 0 0 24 0 0 0 0 0 0 0
Growth Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
Initial Bse: 0 18 0 0 24 0 0 0 0 0 0 0
Added Vol: 31 458 0 99 342 45 24 0 17 0 0 90
PasserByVol: 0 0 0 0 0 0 0 0 0 0 0 0
Initial Fut: 31 476 0 99 366 45 24 0 17 0 0 90
User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
PHF Adj: 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95
PHF Volume: 33 501 0 104 385 47 25 0 18 0 0 95
Reduct Vol: 0 0 0 0 0 0 0 0 0 0 0 0
Final Vol.: 33 501 0 104 385 47 25 0 18 0 0 95
Critical Gap Module:
Critical Gap: 4.1 xxxxx xxxxx 4.1 xxxxx xxxxx 7.1 xxxxx 6.2 xxxxx xxxxx 6.2
FollowUpTim: 2.2 xxxxx xxxxx 2.2 xxxxx xxxxx 3.5 xxxxx 3.3 xxxxx xxxxx 3.3
Capacity Module:
Cnflct Vol: 433 xxxxx xxxxx 501 xxxxx xxxxx 1231 xxxxx 409 xxxxx xxxxx 501
Potent Cap.: 1138 xxxxx xxxxx 1074 xxxxx xxxxx 156 xxxxx 647 xxxxx xxxxx 574
Move Cap.: 1138 xxxxx xxxxx 1074 xxxxx xxxxx 117 xxxxx 647 xxxxx xxxxx 574
Volume/Cap: 0.03 xxxxx xxxxx 0.10 xxxxx xxxxx 0.22 xxxxx 0.03 xxxxx xxxxx 0.17
Level Of Service Module:
Queue: 0.1 xxxxx xxxxx 0.3 xxxxx xxxxx 0.8 xxxxx 0.1 xxxxx xxxxx 0.6
Stopped Del: 8.3 xxxxx xxxxx 8.7 xxxxx xxxxx 44.0 xxxxx 10.7 xxxxx xxxxx 12.5
LOS by Move: A * * A * * E * * B * * B
Movement: LT - LTR - RT LT - LTR - RT LT - LTR - RT LT - LTR - RT
Shared Cap.: xxxxx xxxxx xxxxx xxxxx xxxxx xxxxx xxxxx xxxxx xxxxx xxxxx xxxxx
SharedQueue: xxxxx xxxxx xxxxx xxxxx xxxxx xxxxx xxxxx xxxxx xxxxx xxxxx xxxxx
Shrd StpDel: xxxxx xxxxx xxxxx xxxxx xxxxx xxxxx xxxxx xxxxx xxxxx xxxxx xxxxx
Shared LOS: * * * * * * * * * * * * * * * *
ApproachDel: xxxxxxx xxxxxxx 30.2 12.5
ApproachLOS: * * D B

Ontario New Model - Rich Haven External Intersections
2015 PM Peak - Internal
Meyer, Mohaddes Associates

Level Of Service Computation Report
2000 HCM Unsignalized Method (Future Volume Alternative)

Intersection #402 D2
Average Delay (sec/veh): OVERFLOW Worst Case Level Of Service: F[xxxxx]
Approach: North Bound South Bound East Bound West Bound
Movement: L - T - R L - T - R L - T - R L - T - R
Control: Stop Sign Stop Sign Uncontrolled Uncontrolled
Rights: Include Include Include Include
Lanes: 1 0 0 1 0 1 0 0 1 0 1 0 3 1 0 1 0 3 1 0
Volume Module:
Base Vol: 0 0 0 0 0 0 0 0 2008 0 0 1924 0
Growth Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
Initial Bse: 0 0 0 0 0 0 0 0 2008 0 0 1924 0
Added Vol: 133 0 0 130 0 231 254 449 149 0 638 143
PasserByVol: 0 0 0 0 0 0 0 0 0 0 0 0 0
Initial Fut: 133 0 0 130 0 231 254 2457 149 0 2562 143
User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
PHF Adj: 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95
PHF Volume: 140 0 0 137 0 243 267 2586 157 0 2697 151
Reduct Vol: 0 0 0 0 0 0 0 0 0 0 0 0 0
Final Vol.: 140 0 0 137 0 243 267 2586 157 0 2697 151
Critical Gap Module:
Critical Gap: 7.5 xxxxx xxxxx 7.5 xxxxx 6.9 4.1 xxxxx xxxxx xxxxx xxxxx xxxxx
FollowUpTim: 3.5 xxxxx xxxxx 3.5 xxxxx 3.3 2.2 xxxxx xxxxx xxxxx xxxxx xxxxx
Capacity Module:
Cnflct Vol: 3874 xxxxx xxxxx 3953 xxxxx 749 2847 xxxxx xxxxx xxxxx xxxxx xxxxx
Potent Cap.: 1 xxxxx xxxxx 1 xxxxx 359 135 xxxxx xxxxx xxxxx xxxxx xxxxx
Move Cap.: 0 xxxxx xxxxx 0 xxxxx 359 135 xxxxx xxxxx xxxxx xxxxx xxxxx
Volume/Cap: xxxxx xxxxx xxxxx xxxxx xxxxx 0.68 1.98 xxxxx xxxxx xxxxx xxxxx xxxxx
Level Of Service Module:
Queue: xxxxx xxxxx xxxxx xxxxx xxxxx 21.3 xxxxx xxxxx xxxxx xxxxx xxxxx
Stopped Del: xxxxx xxxxx xxxxx xxxxx xxxxx 522.3 xxxxx xxxxx xxxxx xxxxx xxxxx
LOS by Move: * * * * * * F * * * * *
Movement: LT - LTR - RT LT - LTR - RT LT - LTR - RT LT - LTR - RT
Shared Cap.: xxxxx xxxxx 0 xxxxx xxxxx 359 xxxxx xxxxx xxxxx xxxxx xxxxx xxxxx
SharedQueue: xxxxx xxxxx xxxxx xxxxx xxxxx 4.8 xxxxx xxxxx xxxxx xxxxx xxxxx xxxxx
Shrd StpDel: xxxxx xxxxx xxxxx xxxxx xxxxx 33.8 xxxxx xxxxx xxxxx xxxxx xxxxx xxxxx
Shared LOS: * * * * * * D * * * * *
ApproachDel: xxxxxxx xxxxxxx xxxxxxx
ApproachLOS: F F * *

Ontario New Model - Rich Haven External Intersections
2015 PM Peak - Internal
Meyer, Mohaddes Associates

Level Of Service Computation Report
2000 HCM Unsignalized Method (Future Volume Alternative)

Intersection #501 E1
Average Delay (sec/veh): OVERFLOW Worst Case Level Of Service: F[xxxxx]
Approach: North Bound South Bound East Bound West Bound
Movement: L - T - R L - T - R L - T - R L - T - R
Control: Stop Sign Stop Sign Uncontrolled Uncontrolled
Rights: Include Include Include Include
Lanes: 1 0 0 1 0 1 0 0 1 0 1 0 3 1 0 1 0 3 1 0
Volume Module:
Base Vol: 0 0 0 0 0 0 0 0 1924 0
Growth Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
Initial Bse: 0 0 0 0 0 0 0 0 1924 0
Added Vol: 35 0 135 130 0 146 160 381 39 152 601 143
PasserByVol: 0 0 0 0 0 0 0 0 0 0 0 0
Initial Fut: 35 0 135 130 0 146 160 2389 39 152 2525 143
User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
PHF Adj: 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95
PHF Volume: 37 0 142 137 0 154 168 2515 41 160 2658 151
Reduct Vol: 0 0 0 0 0 0 0 0 0 0 0 0
Final Vol.: 37 0 142 137 0 154 168 2515 41 160 2658 151
Critical Gap Module:
Critical Gp: 7.5 xxxxx 6.9 7.5 xxxxx 6.9 4.1 xxxxx xxxxx 4.1 xxxxx xxxxx
FollowUpTim: 3.5 xxxxx 3.3 3.5 xxxxx 3.3 2.2 xxxxx xxxxx 2.2 xxxxx xxxxx
Capacity Module:
Cnflct Vol: 3857 xxxxx 649 4019 xxxxx 740 2808 xxxxx xxxxx 2556 xxxxx xxxxx
Potent Cap.: 1 xxxxx 417 1 xxxxx 364 140 xxxxx xxxxx 176 xxxxx xxxxx
Move Cap.: 0 xxxxx 417 0 xxxxx 364 140 xxxxx xxxxx 176 xxxxx xxxxx
Volume/Cap: xxxxx xxxxx 0.34 xxxxx xxxxx 0.42 1.20 xxxxx xxxxx 0.91 xxxxx xxxxx
Level Of Service Module:
Queue: xxxxx xxxxx xxxxx xxxxx xxxxx xxxxx 9.9 xxxxx xxxxx 6.8 xxxxx xxxxx
Stopped Del: xxxxx xxxxx xxxxx xxxxx xxxxx xxxxx 203.7 xxxxx xxxxx 98.7 xxxxx xxxxx
LOS by Move: * * * * * F * * *
Movement: LT - LTR - RT LT - LTR - RT LT - LTR - RT LT - LTR - RT
Shared Cap.: xxxxx xxxxx 417 xxxxx xxxxx 364 xxxxx xxxxx xxxxx xxxxx xxxxx xxxxx
SharedQueue: xxxxx xxxxx 1.5 xxxxx xxxxx 2.0 xxxxx xxxxx xxxxx xxxxx xxxxx xxxxx
Shrd StpDel: xxxxx xxxxx 18.0 xxxxx xxxxx 21.9 xxxxx xxxxx xxxxx xxxxx xxxxx xxxxx
Shared LOS: * * C * * C * * * * *
ApproachDel: xxxxxxxx xxxxxxxx xxxxxxxx xxxxxxxx
ApproachLOS: F F * *

Ontario New Model - Rich Haven External Intersections
2015 PM Peak - Internal
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Level Of Service Computation Report
2000 HCM Unsignalized Method (Future Volume Alternative)

Intersection #502 E2
Average Delay (sec/veh): 3.6 Worst Case Level Of Service: A[9.6]
Approach: North Bound South Bound East Bound West Bound
Movement: L - T - R L - T - R L - T - R L - T - R
Control: Uncontrolled Uncontrolled Stop Sign Stop Sign
Rights: Include Include Include Include
Lanes: 0 0 0 1 0 1 0 1 0 0 0 0 0 0 0 1 0 0 0 1
Volume Module:
Base Vol: 0 96 0 0 0 199 0 0 0 0 0 0 0 0 0 0 0 0 0 0
Growth Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
Initial Bse: 0 96 0 0 0 199 0 0 0 0 0 0 0 0 0 0 0 0 0 0
Added Vol: 0 15 6 122 10 0 0 0 0 0 0 0 0 0 0 6 0 0 109
PasserByVol: 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
Initial Fut: 0 111 6 122 209 0 0 0 0 0 0 0 0 0 0 6 0 0 109
User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
PHF Adj: 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95
PHF Volume: 0 117 6 128 220 0 0 0 0 0 0 0 0 0 0 6 0 0 115
Reduct Vol: 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
Final Vol.: 0 117 6 128 220 0 0 0 0 0 0 0 0 0 0 6 0 0 115
Critical Gap Module:
Critical Gp: xxxxx xxxxx xxxxx 4.1 xxxxx xxxxx xxxxx xxxxx xxxxx 6.4 xxxxx 6.2
FollowUpTim: xxxxx xxxxx xxxxx 2.2 xxxxx xxxxx xxxxx xxxxx xxxxx 3.5 xxxxx 3.3
Capacity Module:
Cnflct Vol: xxxxx xxxxx xxxxx 123 xxxxx xxxxx xxxxx xxxxx xxxxx 597 xxxxx 120
Potent Cap.: xxxxx xxxxx xxxxx 1476 xxxxx xxxxx xxxxx xxxxx xxxxx 469 xxxxx 937
Move Cap.: xxxxx xxxxx xxxxx 1476 xxxxx xxxxx xxxxx xxxxx xxxxx 438 xxxxx 937
Volume/Cap: xxxxx xxxxx xxxxx 0.09 xxxxx xxxxx xxxxx xxxxx xxxxx 0.01 xxxxx 0.12
Level Of Service Module:
Queue: xxxxx xxxxx xxxxx 0.3 xxxxx xxxxx xxxxx xxxxx xxxxx 0.0 xxxxx 0.4
Stopped Del: xxxxx xxxxx xxxxx 7.7 xxxxx xxxxx xxxxx xxxxx xxxxx 13.3 xxxxx 9.4
LOS by Move: * * * * * A * * * * * B * * *
Movement: LT - LTR - RT LT - LTR - RT LT - LTR - RT LT - LTR - RT
Shared Cap.: xxxxx xxxxx xxxxx xxxxx xxxxx xxxxx xxxxx xxxxx xxxxx xxxxx xxxxx xxxxx
SharedQueue: xxxxx xxxxx xxxxx xxxxx xxxxx xxxxx xxxxx xxxxx xxxxx xxxxx xxxxx xxxxx
Shrd StpDel: xxxxx xxxxx xxxxx xxxxx xxxxx xxxxx xxxxx xxxxx xxxxx xxxxx xxxxx xxxxx
Shared LOS: * * * * * * * * * * * * * * *
ApproachDel: xxxxxxxx xxxxxxxx xxxxxxxx 9.6
ApproachLOS: * * * * * A

Ontario New Model - Rich Haven External Intersections
2015 PM Peak - Internal
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Level Of Service Computation Report
2000 HCM Unsignalized Method (Future Volume Alternative)

Intersection #503 E3
Average Delay (sec/veh): 85.3 Worst Case Level Of Service: F[1719.4]
Approach: North Bound South Bound East Bound West Bound
Movement: L - T - R L - T - R L - T - R L - T - R
Control: Uncontrolled Uncontrolled Stop Sign Stop Sign
Rights: Include Include Include Include
Lanes: 1 0 1 1 0 1 0 1 1 0 1 0 0 1 0 1 0 0 1 0
Volume Module:
Base Vol: 0 642 0 0 1792 0 0 0 0 0 0 0 0 0
Growth Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
Initial Bse: 0 642 0 0 1792 0 0 0 0 0 0 0 0 0
Added Vol: 0 0 0 0 0 152 135 0 0 0 0 0 0 0
PasserByVol: 0 0 0 0 0 0 0 0 0 0 0 0 0 0
Initial Fut: 0 642 0 0 1792 152 135 0 0 0 0 0 0 0
User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
PHF Adj: 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95
PHF Volume: 0 676 0 0 1886 160 142 0 0 0 0 0 0 0
Reduct Vol: 0 0 0 0 0 0 0 0 0 0 0 0 0 0
Final Vol.: 0 676 0 0 1886 160 142 0 0 0 0 0 0 0
Critical Gap Module:
Critical Gp:xxxxx xxxx xxxxx xxxxx xxxx xxxxx 6.8 xxxx xxxxx xxxxx xxxx xxxxx
FollowUpTim:xxxxx xxxx xxxxx xxxxx xxxx xxxxx 3.5 xxxx xxxxx xxxxx xxxx xxxxx
Capacity Module:
Cnflct Vol: xxxx xxxx xxxxx xxxx xxxx xxxxx 2304 xxxx xxxxx xxxx xxxx xxxxx
Potent Cap.: xxxx xxxx xxxxx xxxx xxxx xxxxx 33 xxxx xxxxx xxxx xxxx xxxxx
Move Cap.: xxxx xxxx xxxxx xxxx xxxx xxxxx 33 xxxx xxxxx xxxx xxxx xxxxx
Volume/Cap: xxxx xxxx xxxxx xxxx xxxx xxxxx 4.28 xxxx xxxxx xxxx xxxx xxxxx
Level Of Service Module:
Queue: xxxxx xxxx xxxxx xxxxx xxxx xxxxx 16.8 xxxx xxxxx xxxxx xxxx xxxxx
Stopped Del:xxxxx xxxx xxxxx xxxxx xxxx xxxxx 1719 xxxx xxxxx xxxxx xxxx xxxxx
LOS by Move: * * * * * F * * * * *
Movement: LT - LTR - RT LT - LTR - RT LT - LTR - RT LT - LTR - RT
Shared Cap.: xxxx xxxx xxxxx xxxx xxxx xxxxx xxxx xxxx 0 xxxx xxxxx 0
SharedQueue:xxxxx xxxx xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx xxxx xxxx xxxxx
Shrd StpDel:xxxxx xxxx xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx
Shared LOS: * * * * * * * * * * *
ApproachDel: xxxxxxx xxxxxxx 1719.4 xxxxxxx
ApproachLOS: * * * * *

**APPENDIX
G
LOS CALCULATIONS
2015 FUTURE PROJECT
WITH MITIGATIONS**

Ontario New Model - Rich Haven External Intersections
 2015 AM Peak with Project - Mitigations
 Meyer, Mohaddes Associates

Scenario: 2015 AM with Proj Scenario Report

Command: 2015 AM
 Volume: 2015 AM
 Geometry: Future Base
 Impact Fee: Default Impact Fee
 Trip Generation: None
 Trip Distribution: None
 Paths: Default Paths
 Routes: Default Routes
 Configuration: 2015 AM

Ontario New Model - Rich Haven External Intersections
 2015 AM Peak with Project - Mitigations
 Meyer, Mohaddes Associates

Intersection Volume Report
 Base Volume Alternative

Node Intersection	Northbound			Southbound			Eastbound			Westbound		
	L	T	R	L	T	R	L	T	R	L	T	R
1 Archibald Ave	184	1580	75	65	507	76	158	440	68	55	249	126
2 Archibald Ave	69	1666	36	63	608	1	1	36	40	59	22	177
3 Archibald Ave	14	1365	0	99	673	17	84	26	12	2	26	271
4 Archibald Ave	772	881	237	61	336	201	218	805	231	341	1384	123
5 Turner Avenue	0	5	103	94	3	79	29	623	0	35	363	44
6 Turner Avenue	23	32	19	5	13	34	24	104	7	2	76	5
7 Turner Avenue	0	0	0	17	0	3	1	125	0	0	295	15
8 Edison Avenue	0	0	0	136	0	6	8	1047	0	0	1635	302
9 Haven Avenue/	410	1433	0	0	426	22	0	0	0	100	0	803
10 Haven Avenue/	0	1768	285	91	437	0	75	0	217	0	0	0
11 Haven Avenue/	89	1289	216	128	435	44	140	632	79	125	304	145
12 Haven Avenue	22	1297	84	45	518	3	27	66	25	41	22	171
13 Haven Avenue	168	806	211	131	334	210	158	954	71	126	1563	130
14 Mill Creek Av	39	199	87	107	180	116	164	1332	19	32	505	28
15 Mill Creek Av	57	121	50	10	31	74	125	122	25	1	18	8
16 Mill Creek Av	117	22	6	40	9	8	10	1549	48	5	1800	38
17 Milliken Aven	493	986	0	0	605	2	0	0	0	245	0	272
18 Milliken Aven	0	1445	446	4	846	0	34	0	502	0	0	0
19 Milliken Aven	42	812	51	726	151	471	782	809	35	3	285	296
20 Milliken Ave	23	950	0	0	259	4	93	0	89	0	0	0
21 Milliken Aven	63	640	520	92	96	54	129	1925	38	201	1950	186
550 Haven Avenue/	0	0	0	0	0	0	0	0	0	0	0	0

Ontario New Model - Rich Haven External Intersections
 2015 AM Peak with Project - Mitigations
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Impact Analysis Report
 Level Of Service

Intersection	Base LOS	V/ C	Future LOS	V/ C	Change in	
# 1 Archibald Avenue/Riverside Dri	C	23.9	C	23.9	+ 0.000	D/V
# 2 Archibald Avenue/Chino Avenue	B	12.0	B	12.0	+ 0.000	D/V
# 3 Archibald Avenue/Schaefer Aven	B	16.5	B	16.5	+ 0.000	D/V
# 4 Archibald Avenue/Edison Avenue	C	29.4	C	29.4	+ 0.000	D/V
# 5 Turner Avenue/Riverside Drive	B	14.1	B	14.1	+ 0.000	D/V
# 6 Turner Avenue/Chino Avenue	A	8.1	A	8.1	+ 0.000	V/C
# 7 Turner Avenue at Schaefer Aven	A	2.3	A	2.3	+ 0.000	D/V
# 8 Edison Avenue at Schaefer Aven	A	2.9	A	2.9	+ 0.000	D/V
# 9 Haven Avenue/SR-60 WB Ramps	A	9.4	A	9.4	+ 0.000	D/V
# 10 Haven Avenue/SR-60 EB Ramps	A	8.6	A	8.6	+ 0.000	D/V
# 11 Haven Avenue/Riverside Drive	C	31.1	C	31.1	+ 0.000	D/V
# 12 Haven Avenue at Chino Avenue	A	8.4	A	8.4	+ 0.000	D/V
# 13 Haven Avenue at Edison Avenue	C	30.7	C	30.7	+ 0.000	D/V
# 14 Mill Creek Avenue/Riverside Dr	B	18.4	B	18.4	+ 0.000	D/V
# 15 Mill Creek Avenue at Chino Ave	B	14.3	B	14.3	+ 0.000	D/V
# 16 Mill Creek Avenue at Edison Av	A	5.7	A	5.7	+ 0.000	D/V
# 17 Milliken Avenue/SR-60 WB Ramps	B	18.0	B	18.0	+ 0.000	D/V
# 18 Milliken Avenue/SR-60 EB Ramps	A	1.3	A	1.3	+ 0.000	D/V
# 19 Milliken Avenue/Riverside Driv	C	29.6	C	29.6	+ 0.000	D/V
# 20 Milliken Ave / Chino Ave	B	14.0	B	14.0	+ 0.000	D/V
# 21 Milliken Avenue/Edison Avenue	C	30.8	C	30.8	+ 0.000	D/V
#550 Haven Avenue/Creekside Drive		0.0		0.0	+ 0.000	D/V

Ontario New Model - Rich Haven External Intersections
 2015 AM Peak with Project - Mitigations
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Level Of Service Computation Report
 2000 HCM Operations Method (Future Volume Alternative)

 Intersection #1 Archibald Avenue/Riverside Drive

Cycle (sec):	100	Critical Vol./Cap.(X):	0.591
Loss Time (sec):	0 (Y+R=4.0 sec)	Average Delay (sec/veh):	23.9
Optimal Cycle:	56	Level Of Service:	C

Approach:	North Bound	South Bound	East Bound	West Bound
Movement:	L - T - R	L - T - R	L - T - R	L - T - R

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Control:	Protected	Protected	Protected	Protected
Rights:	Include	Include	Include	Include
Min. Green:	0 0 0	0 0 0	0 0 0	0 0 0
Lanes:	1 0 2 1 0	1 0 2 1 0	1 0 1 1 0	1 0 1 1 0

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Volume Module:

Base Vol:	184 1580	75	65 507	76	158 440	68	55 249	126
Growth Adj:	1.00 1.00	1.00	1.00 1.00	1.00	1.00 1.00	1.00	1.00 1.00	1.00
Initial Bse:	184 1580	75	65 507	76	158 440	68	55 249	126
Added Vol:	0 0 0	0	0 0 0	0	0 0 0	0	0 0 0	0
PasserByVol:	0 0 0	0	0 0 0	0	0 0 0	0	0 0 0	0
Initial Fut:	184 1580	75	65 507	76	158 440	68	55 249	126
User Adj:	1.00 1.00	1.00	1.00 1.00	1.00	1.00 1.00	1.00	1.00 1.00	1.00
PHF Adj:	0.95 0.95	0.95	0.95 0.95	0.95	0.95 0.95	0.95	0.95 0.95	0.95
PHF Volume:	194 1663	79	68 534	80	166 463	72	58 262	133
Reduced Vol:	0 0 0	0	0 0 0	0	0 0 0	0	0 0 0	0
Reduced Vol:	194 1663	79	68 534	80	166 463	72	58 262	133
PCE Adj:	1.00 1.00	1.00	1.00 1.00	1.00	1.00 1.00	1.00	1.00 1.00	1.00
MLF Adj:	1.00 1.00	1.00	1.00 1.00	1.00	1.00 1.00	1.00	1.00 1.00	1.00
Final Vol.:	194 1663	79	68 534	80	166 463	72	58 262	133

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Saturation Flow Module:

Sat/Lane:	1900 1900	1900	1900 1900	1900	1900 1900	1900	1900 1900	1900
Adjustment:	0.90 0.90	0.90	0.90 0.89	0.89	0.90 0.93	0.93	0.90 0.90	0.90
Lanes:	1.00 2.86	0.14	1.00 2.61	0.39	1.00 1.73	0.27	1.00 1.33	0.67
Final Sat.:	1710 4917	233	1710 4425	663	1710 3064	474	1710 2277	1152

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Capacity Analysis Module:

Vol/Sat:	0.11 0.34	0.34	0.04 0.12	0.12	0.10 0.15	0.15	0.03 0.12	0.12
Crit Moves:	****		****		****		****	
Green/Cycle:	0.31 0.57	0.57	0.07 0.33	0.33	0.16 0.29	0.29	0.07 0.19	0.19
Volume/Cap:	0.37 0.59	0.59	0.59 0.37	0.37	0.59 0.51	0.51	0.51 0.59	0.59
Delay/Veh:	27.3 14.1	14.1	53.1 25.6	25.6	42.0 29.8	29.8	49.2 38.0	38.0
User DelAdj:	1.00 1.00	1.00	1.00 1.00	1.00	1.00 1.00	1.00	1.00 1.00	1.00
AdjDel/Veh:	27.3 14.1	14.1	53.1 25.6	25.6	42.0 29.8	29.8	49.2 38.0	38.0
LOS by Move:	C B	B	D C	C	D C	C	D D	D
HCM2kAvgQ:	5 13	13	3 5	5	6 8	8	3 7	7

Note: Queue reported is the number of cars per lane.

Ontario New Model - Rich Haven External Intersections
 2015 AM Peak with Project - Mitigations
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Level Of Service Computation Report
 2000 HCM Operations Method (Future Volume Alternative)

 Intersection #2 Archibald Avenue/Chino Avenue

Cycle (sec): 90 Critical Vol./Cap.(X): 0.501
 Loss Time (sec): 0 (Y+R=4.0 sec) Average Delay (sec/veh): 12.0
 Optimal Cycle: 46 Level Of Service: B

Approach: North Bound South Bound East Bound West Bound
 Movement: L - T - R L - T - R L - T - R L - T - R

Control: Protected Protected Protected Protected
 Rights: Include Include Include Include
 Min. Green: 0 0 0 0 0 0 0 0 0 0 0 0
 Lanes: 1 0 2 1 0 1 0 2 1 0 1 0 1 0 1

Volume Module:

Base Vol:	69	1666	36	63	608	1	1	36	40	59	22	177
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	69	1666	36	63	608	1	1	36	40	59	22	177
Added Vol:	0	0	0	0	0	0	0	0	0	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	69	1666	36	63	608	1	1	36	40	59	22	177
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
PHF Volume:	73	1754	38	66	640	1	1	38	42	62	23	186
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	73	1754	38	66	640	1	1	38	42	62	23	186
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Final Vol.:	73	1754	38	66	640	1	1	38	42	62	23	186

Saturation Flow Module:

Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.90	0.91	0.91	0.90	0.91	0.91	0.90	0.92	0.92	0.90	1.00	0.85
Lanes:	1.00	2.94	0.06	1.00	2.99	0.01	1.00	0.47	0.53	1.00	1.00	1.00
Final Sat.:	1710	5062	109	1710	5178	9	1710	829	921	1710	1900	1615

Capacity Analysis Module:

Vol/Sat:	0.04	0.35	0.35	0.04	0.12	0.12	0.00	0.05	0.05	0.04	0.01	0.12
Crit Moves:	****	****	****	****	****	****	****	****	****	****	****	****
Green/Cycle:	0.20	0.69	0.69	0.08	0.57	0.57	0.00	0.13	0.13	0.10	0.23	0.23
Volume/Cap:	0.22	0.50	0.50	0.50	0.22	0.22	0.50	0.35	0.35	0.35	0.05	0.50
Delay/Veh:	30.7	6.7	6.7	42.8	9.4	9.4	168.3	36.7	36.7	38.9	27.0	31.2
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	30.7	6.7	6.7	42.8	9.4	9.4	168.3	36.7	36.7	38.9	27.0	31.2
LOS by Move:	C	A	A	D	A	A	F	D	D	D	C	C
HCM2kAvgQ:	2	9	9	3	3	3	0	2	2	2	1	5

Note: Queue reported is the number of cars per lane.

Ontario New Model - Rich Haven External Intersections
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 Meyer, Mohaddes Associates

Level Of Service Computation Report
 2000 HCM Operations Method (Future Volume Alternative)

 Intersection #3 Archibald Avenue/Schaefer Avenue

Cycle (sec): 100 Critical Vol./Cap.(X): 0.521
 Loss Time (sec): 0 (Y+R=4.0 sec) Average Delay (sec/veh): 16.5
 Optimal Cycle: 39 Level Of Service: B

Approach: North Bound South Bound East Bound West Bound
 Movement: L - T - R L - T - R L - T - R L - T - R

Control: Protected Protected Permitted Permitted
 Rights: Include Include Include Include
 Min. Green: 0 0 0 0 0 0 0 0 0 0 0 0 0
 Lanes: 1 0 2 1 0 1 0 2 1 0 1 0 1 1 0

Volume Module:

Base Vol:	14	1365	0	99	673	17	84	26	12	2	26	271
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	14	1365	0	99	673	17	84	26	12	2	26	271
Added Vol:	0	0	0	0	0	0	0	0	0	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	14	1365	0	99	673	17	84	26	12	2	26	271
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
PHF Volume:	15	1437	0	104	708	18	88	27	13	2	27	285
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	15	1437	0	104	708	18	88	27	13	2	27	285
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Final Vol.:	15	1437	0	104	708	18	88	27	13	2	27	285

Saturation Flow Module:

Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.90	0.91	0.91	0.90	0.91	0.91	0.43	0.91	0.91	0.68	0.82	0.82
Lanes:	1.00	3.00	0.00	1.00	2.93	0.07	1.00	1.37	0.63	1.00	1.00	1.00
Final Sat.:	1710	5187	0	1710	5039	127	817	2354	1086	1292	1558	1558

Capacity Analysis Module:

Vol/Sat:	0.01	0.28	0.00	0.06	0.14	0.14	0.11	0.01	0.01	0.00	0.02	0.18
Crit Moves:	****	****	****	****	****	****	****	****	****	****	****	****
Green/Cycle:	0.04	0.53	0.00	0.12	0.61	0.61	0.35	0.35	0.35	0.35	0.35	0.35
Volume/Cap:	0.23	0.52	0.00	0.52	0.23	0.23	0.31	0.03	0.03	0.00	0.05	0.52
Delay/Veh:	48.6	15.4	0.0	44.0	8.8	8.8	24.2	21.3	21.3	21.1	21.4	26.6
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	48.6	15.4	0.0	44.0	8.8	8.8	24.2	21.3	21.3	21.1	21.4	26.6
LOS by Move:	D	B	A	D	A	A	C	C	C	C	C	C
HCM2kAvgQ:	1	11	0	4	4	4	2	0	0	0	1	8

Note: Queue reported is the number of cars per lane.

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Intersection #4 Archibald Avenue/Edison Avenue

Cycle (sec): 100 Critical Vol./Cap.(X): 0.684
Loss Time (sec): 0 (Y+R=4.0 sec) Average Delay (sec/veh): 29.4
Optimal Cycle: 72 Level Of Service: C

Approach: North Bound South Bound East Bound West Bound
Movement: L - T - R L - T - R L - T - R L - T - R

Control: Protected Protected Protected Protected
Rights: Include Include Ignore Include
Min. Green: 0 0 0 0 0 0 0 0 0 0 0 0
Lanes: 2 0 2 1 0 2 0 2 1 0 2 0 4 0 1 2 0 3 1 0

Volume Module:

Base Vol: 772 881 237 61 336 201 218 805 231 341 1384 123
Growth Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
Initial Bse: 772 881 237 61 336 201 218 805 231 341 1384 123
Added Vol: 0 0 0 0 0 0 0 0 0 0 0 0
PasserByVol: 0 0 0 0 0 0 0 0 0 0 0 0
Initial Fut: 772 881 237 61 336 201 218 805 231 341 1384 123
User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 0.00 1.00 1.00 1.00
PHF Adj: 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.00 0.95 0.95 0.95
PHF Volume: 813 927 249 64 354 212 229 847 0 359 1457 129
Reduced Vol: 0 0 0 0 0 0 0 0 0 0 0 0
Reduced Vol: 813 927 249 64 354 212 229 847 0 359 1457 129
PCE Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 0.00 1.00 1.00 1.00
MLF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 0.00 1.00 1.00 1.00
Final Vol.: 813 927 249 64 354 212 229 847 0 359 1457 129

Saturation Flow Module:

Sat/Lane: 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900
Adjustment: 0.85 0.88 0.88 0.85 0.86 0.86 0.85 0.91 1.00 0.85 0.90 0.90
Lanes: 2.00 2.36 0.64 2.00 2.00 1.00 2.00 4.00 1.00 2.00 3.67 0.33
Final Sat.: 3230 3957 1064 3230 3264 1632 3230 6916 1900 3230 6275 558

Capacity Analysis Module:

Vol/Sat: 0.25 0.23 0.23 0.02 0.11 0.13 0.07 0.12 0.00 0.11 0.23 0.23
Crit Moves: ****
Green/Cycle: 0.37 0.51 0.51 0.04 0.19 0.19 0.10 0.23 0.00 0.21 0.34 0.34
Volume/Cap: 0.68 0.46 0.46 0.46 0.57 0.68 0.68 0.53 0.00 0.53 0.68 0.68
Delay/Veh: 28.4 15.6 15.6 49.0 37.7 40.1 49.0 33.9 0.0 35.8 29.3 29.3
User DelAdj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
AdjDel/Veh: 28.4 15.6 15.6 49.0 37.7 40.1 49.0 33.9 0.0 35.8 29.3 29.3
LOS by Move: C B B D D D D C A D C C
HCM2kAvgQ: 13 8 8 2 6 8 5 7 0 6 12 12

Note: Queue reported is the number of cars per lane.

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Level Of Service Computation Report
2000 HCM Operations Method (Future Volume Alternative)

Intersection #5 Turner Avenue/Riverside Drive

Cycle (sec): 100 Critical Vol./Cap.(X): 0.292
Loss Time (sec): 0 (Y+R=4.0 sec) Average Delay (sec/veh): 14.1
Optimal Cycle: 26 Level Of Service: B

Approach: North Bound South Bound East Bound West Bound
Movement: L - T - R L - T - R L - T - R L - T - R

Control: Permitted Permitted Protected Protected
Rights: Include Include Include Include
Min. Green: 0 0 0 0 0 0 0 0 0 0 0 0
Lanes: 1 0 1 1 0 1 0 1 1 0 1 0 1 1 0

Volume Module:

Base Vol: 0 5 103 94 3 79 29 623 0 35 363 44
Growth Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
Initial Bse: 0 5 103 94 3 79 29 623 0 35 363 44
Added Vol: 0 0 0 0 0 0 0 0 0 0 0 0
PasserByVol: 0 0 0 0 0 0 0 0 0 0 0 0
Initial Fut: 0 5 103 94 3 79 29 623 0 35 363 44
User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
PHF Adj: 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95
PHF Volume: 0 5 108 99 3 83 31 656 0 37 382 46
Reduced Vol: 0 0 0 0 0 0 0 0 0 0 0 0
Reduced Vol: 0 5 108 99 3 83 31 656 0 37 382 46
PCE Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
MLF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
Final Vol.: 0 5 108 99 3 83 31 656 0 37 382 46

Saturation Flow Module:

Sat/Lane: 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900
Adjustment: 0.95 0.81 0.81 0.59 0.81 0.81 0.90 0.95 0.95 0.90 0.93 0.93
Lanes: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 2.00 0.00 1.00 1.78 0.22
Final Sat.: 1800 1547 1547 1120 1545 1545 1710 3610 0 1710 3168 384

Capacity Analysis Module:

Vol/Sat: 0.00 0.00 0.07 0.09 0.00 0.05 0.02 0.18 0.00 0.02 0.12 0.12
Crit Moves: ****
Green/Cycle: 0.00 0.30 0.30 0.30 0.30 0.30 0.09 0.62 0.00 0.07 0.61 0.61
Volume/Cap: 0.00 0.01 0.23 0.29 0.01 0.18 0.20 0.29 0.00 0.29 0.20 0.20
Delay/Veh: 0.0 24.4 26.4 27.1 24.3 25.8 42.8 8.8 0.0 45.1 8.8 8.8
User DelAdj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
AdjDel/Veh: 0.0 24.4 26.4 27.1 24.3 25.8 42.8 8.8 0.0 45.1 8.8 8.8
LOS by Move: A C C C C C D A A D A A
HCM2kAvgQ: 0 0 3 3 0 2 1 5 0 1 3 3

Note: Queue reported is the number of cars per lane.

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Level Of Service Computation Report

2000 HCM 4-Way Stop Method (Future Volume Alternative)

Intersection #6 Turner Avenue/Chino Avenue

Cycle (sec): 100 Critical Vol./Cap.(X): 0.084
Loss Time (sec): 0 (Y+R=4.0 sec) Average Delay (sec/veh): 8.1
Optimal Cycle: 0 Level Of Service: A

Approach: North Bound South Bound East Bound West Bound
Movement: L - T - R L - T - R L - T - R L - T - R

Control: Stop Sign Stop Sign Stop Sign Stop Sign
Rights: Include Include Include Include
Min. Green: 0 0 0 0 0 0 0 0 0 0 0 0
Lanes: 1 0 1 1 0 1 0 1 1 0 1 0 1 1 0

Volume Module:
Base Vol: 23 32 19 5 13 34 24 104 7 2 76 5
Growth Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
Initial Bse: 23 32 19 5 13 34 24 104 7 2 76 5
Added Vol: 0 0 0 0 0 0 0 0 0 0 0 0
PasserByVol: 0 0 0 0 0 0 0 0 0 0 0 0
Initial Fut: 23 32 19 5 13 34 24 104 7 2 76 5
User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
PHF Adj: 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95
PHF Volume: 24 34 20 5 14 36 25 109 7 2 80 5
Reduct Vol: 0 0 0 0 0 0 0 0 0 0 0 0
Reduced Vol: 24 34 20 5 14 36 25 109 7 2 80 5
PCE Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
MLF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
Final Vol.: 24 34 20 5 14 36 25 109 7 2 80 5

Saturation Flow Module:
Adjustment: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
Lanes: 1.00 1.25 0.75 1.00 1.00 1.00 1.00 1.87 0.13 1.00 1.88 0.12
Final Sat.: 602 842 540 595 649 743 630 1304 89 615 1271 84

Capacity Analysis Module:
Vol/Sat: 0.04 0.04 0.04 0.01 0.02 0.05 0.04 0.08 0.08 0.00 0.06 0.06
Crit Moves: **** **** **** ****
Delay/Veh: 8.7 8.0 7.6 8.5 8.1 7.5 8.5 8.1 8.1 8.4 8.1 8.1
Delay Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
AdjDel/Veh: 8.7 8.0 7.6 8.5 8.1 7.5 8.5 8.1 8.1 8.4 8.1 8.1
LOS by Move: A A A A A A A A A A A A
ApproachDel: 8.1 7.8 8.2 8.1
Delay Adj: 1.00 1.00 1.00 1.00
ApprAdjDel: 8.1 7.8 8.2 8.1
LOS by Appr: A A A A
AllWayAvgQ: 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.1 0.1 0.0 0.1 0.1

Note: Queue reported is the number of cars per lane.

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Level Of Service Computation Report

2000 HCM Operations Method (Future Volume Alternative)

Intersection #7 Turner Avenue at Schaefer Avenue

Cycle (sec): 100 Critical Vol./Cap.(X): 0.099
Loss Time (sec): 0 (Y+R=4.0 sec) Average Delay (sec/veh): 2.3
Optimal Cycle: 21 Level Of Service: A

Approach: North Bound South Bound East Bound West Bound
Movement: L - T - R L - T - R L - T - R L - T - R

Control: Split Phase Split Phase Protected Permitted
Rights: Include Include Include Include
Min. Green: 0 0 0 0 0 0 0 0 0 0 0 0
Lanes: 0 0 0 0 0 1 0 1 0 0 1 0 2 0 0 0 0 1 1 0

Volume Module:
Base Vol: 0 0 0 17 0 3 1 125 0 0 295 15
Growth Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
Initial Bse: 0 0 0 17 0 3 1 125 0 0 295 15
Added Vol: 0 0 0 0 0 0 0 0 0 0 0 0
PasserByVol: 0 0 0 0 0 0 0 0 0 0 0 0
Initial Fut: 0 0 0 17 0 3 1 125 0 0 295 15
User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
PHF Adj: 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95
PHF Volume: 0 0 0 18 0 3 1 132 0 0 311 16
Reduct Vol: 0 0 0 0 0 0 0 0 0 0 0 0
Reduced Vol: 0 0 0 18 0 3 1 132 0 0 311 16
PCE Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
MLF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
Final Vol.: 0 0 0 18 0 3 1 132 0 0 311 16

Saturation Flow Module:
Sat/Lane: 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900
Adjustment: 0.95 1.00 1.00 0.89 1.00 0.94 0.90 0.95 1.00 0.95 0.94 0.94
Lanes: 0.00 0.00 0.00 1.75 0.00 0.25 1.00 2.00 0.00 0.00 1.90 0.10
Final Sat.: 0 0 0 2953 0 447 1710 3610 0 0 3411 173

Capacity Analysis Module:
Vol/Sat: 0.00 0.00 0.00 0.01 0.00 0.01 0.00 0.04 0.00 0.00 0.09 0.09
Crit Moves: **** ****
Green/Cycle: 0.00 0.00 0.00 0.07 0.00 0.07 0.01 0.93 0.00 0.00 0.92 0.92
Volume/Cap: 0.00 0.00 0.00 0.08 0.00 0.10 0.10 0.04 0.00 0.00 0.10 0.10
Delay/Veh: 0.0 0.0 0.0 43.5 0.0 43.6 53.5 0.3 0.0 0.0 0.3 0.3
User DelAdj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
AdjDel/Veh: 0.0 0.0 0.0 43.5 0.0 43.6 53.5 0.3 0.0 0.0 0.3 0.3
LOS by Move: A A A D A D D A A A A A
HCM2kAvgQ: 0 0 0 0 0 0 0 0 0 0 0 1 1

Note: Queue reported is the number of cars per lane.

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 2000 HCM Operations Method (Future Volume Alternative)

 Intersection #8 Edison Avenue at Schaefer Avenue

Cycle (sec): 100 Critical Vol./Cap.(X): 0.347
 Loss Time (sec): 0 (Y+R=4.0 sec) Average Delay (sec/veh): 2.9
 Optimal Cycle: 28 Level Of Service: A

Approach: North Bound South Bound East Bound West Bound
 Movement: L - T - R L - T - R L - T - R L - T - R

Control: Split Phase Split Phase Permitted Permitted
 Rights: Include Include Include Include
 Min. Green: 0 0 0 0 0 0 0 0 0 0 0 0
 Lanes: 0 0 0 0 0 1 0 1 0 0 1 0 4 0 0 0 0 0 3 1 0

Volume Module:
 Base Vol: 0 0 0 136 0 6 8 1047 0 0 1635 302
 Growth Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
 Initial Bse: 0 0 0 136 0 6 8 1047 0 0 1635 302
 Added Vol: 0 0 0 0 0 0 0 0 0 0 0 0 0
 PasserByVol: 0 0 0 0 0 0 0 0 0 0 0 0 0
 Initial Fut: 0 0 0 136 0 6 8 1047 0 0 1635 302
 User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
 PHF Adj: 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95
 PHF Volume: 0 0 0 143 0 6 8 1102 0 0 1721 318
 Reduct Vol: 0 0 0 0 0 0 0 0 0 0 0 0 0
 Reduced Vol: 0 0 0 143 0 6 8 1102 0 0 1721 318
 PCE Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
 MLF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
 Final Vol.: 0 0 0 143 0 6 8 1102 0 0 1721 318

Saturation Flow Module:
 Sat/Lane: 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900
 Adjustment: 0.95 1.00 1.00 0.90 1.00 0.95 0.08 0.91 1.00 0.95 0.89 0.89
 Lanes: 0.00 0.00 0.00 1.92 0.00 0.08 1.00 4.00 0.00 0.00 3.38 0.62
 Final Sat.: 0 0 0 3282 0 139 153 6916 0 0 5703 1053

Capacity Analysis Module:
 Vol/Sat: 0.00 0.00 0.00 0.04 0.00 0.05 0.06 0.16 0.00 0.00 0.30 0.30
 Crit Moves: ****
 Green/Cycle: 0.00 0.00 0.00 0.13 0.00 0.13 0.87 0.87 0.00 0.00 0.87 0.87
 Volume/Cap: 0.00 0.00 0.00 0.33 0.00 0.35 0.06 0.18 0.00 0.00 0.35 0.35
 Delay/Veh: 0.0 0.0 0.0 39.9 0.0 40.1 1.1 1.0 0.0 0.0 1.3 1.3
 User DelAdj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
 AdjDel/Veh: 0.0 0.0 0.0 39.9 0.0 40.1 1.1 1.0 0.0 0.0 1.3 1.3
 LOS by Move: A A A D A D A A A A A A
 HCM2kAvgQ: 0 0 0 2 0 3 0 2 0 0 3 3

Note: Queue reported is the number of cars per lane.

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 Intersection #9 Haven Avenue/SR-60 WB Ramps

Cycle (sec): 100 Critical Vol./Cap.(X): 0.322
 Loss Time (sec): 0 (Y+R=4.0 sec) Average Delay (sec/veh): 9.4
 Optimal Cycle: 31 Level Of Service: A

Approach: North Bound South Bound East Bound West Bound
 Movement: L - T - R L - T - R L - T - R L - T - R

Control: Protected Permitted Split Phase Split Phase
 Rights: Include Include Include Ignore
 Min. Green: 0 0 0 0 0 0 0 0 0 0 0 0
 Lanes: 2 0 3 0 0 0 0 3 0 1 0 0 0 0 0 1 1 1 0 0 1

Volume Module:
 Base Vol: 410 1433 0 0 426 22 0 0 0 100 0 803
 Growth Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
 Initial Bse: 410 1433 0 0 426 22 0 0 0 100 0 803
 Added Vol: 0 0 0 0 0 0 0 0 0 0 0 0
 PasserByVol: 0 0 0 0 0 0 0 0 0 0 0 0
 Initial Fut: 410 1433 0 0 426 22 0 0 0 100 0 803
 User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
 PHF Adj: 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95
 PHF Volume: 432 1508 0 0 448 23 0 0 0 105 0 0
 Reduct Vol: 0 0 0 0 0 0 0 0 0 0 0 0
 Reduced Vol: 432 1508 0 0 448 23 0 0 0 105 0 0
 PCE Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
 MLF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
 Final Vol.: 432 1508 0 0 448 23 0 0 0 105 0 0

Saturation Flow Module:
 Sat/Lane: 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900
 Adjustment: 0.85 0.91 1.00 0.95 0.91 0.85 0.95 1.00 1.00 0.90 1.00 1.00
 Lanes: 2.00 3.00 0.00 0.00 3.00 1.00 0.00 0.00 0.00 2.00 0.00 1.00
 Final Sat.: 3230 5187 0 0 5187 1615 0 0 0 3427 0 1900

Capacity Analysis Module:
 Vol/Sat: 0.13 0.29 0.00 0.00 0.09 0.01 0.00 0.00 0.00 0.03 0.00 0.00
 Crit Moves: ****
 Green/Cycle: 0.71 0.92 0.00 0.00 0.21 0.21 0.00 0.00 0.00 0.08 0.00 0.00
 Volume/Cap: 0.19 0.31 0.00 0.00 0.41 0.07 0.00 0.00 0.00 0.41 0.00 0.00
 Delay/Veh: 4.8 0.4 0.0 0.0 34.2 31.6 0.0 0.0 0.0 45.2 0.0 0.0
 User DelAdj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
 AdjDel/Veh: 4.8 0.4 0.0 0.0 34.2 31.6 0.0 0.0 0.0 45.2 0.0 0.0
 LOS by Move: A A A A C C A A A D A A
 HCM2kAvgQ: 2 2 0 0 5 1 0 0 0 2 0 0

Note: Queue reported is the number of cars per lane.

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Level Of Service Computation Report

2000 HCM Operations Method (Future Volume Alternative)

 Intersection #10 Haven Avenue/SR-60 EB Ramps

Cycle (sec): 100 Critical Vol./Cap.(X): 0.624
 Loss Time (sec): 0 (Y+R=4.0 sec) Average Delay (sec/veh): 8.6
 Optimal Cycle: 50 Level Of Service: A

Approach: North Bound South Bound East Bound West Bound
 Movement: L - T - R L - T - R L - T - R L - T - R

Control: Permitted Protected Split Phase Split Phase
 Rights: Include Include Include Include
 Min. Green: 0 0 0 0 0 0 0 0 0 0 0 0
 Lanes: 0 0 2 0 1 2 0 3 0 0 1 0 1! 0 1 0 0 0 0 0

Volume Module:
 Base Vol: 0 1768 285 91 437 0 75 0 217 0 0 0
 Growth Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
 Initial Bse: 0 1768 285 91 437 0 75 0 217 0 0 0
 Added Vol: 0 0 0 0 0 0 0 0 0 0 0 0
 PasserByVol: 0 0 0 0 0 0 0 0 0 0 0 0
 Initial Fut: 0 1768 285 91 437 0 75 0 217 0 0 0
 User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
 PHF Adj: 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95
 PHF Volume: 0 1861 300 96 460 0 79 0 228 0 0 0
 Reduct Vol: 0 0 0 0 0 0 0 0 0 0 0 0
 Reduced Vol: 0 1861 300 96 460 0 79 0 228 0 0 0
 PCE Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
 MLF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
 Final Vol.: 0 1861 300 96 460 0 79 0 228 0 0 0

Saturation Flow Module:
 Sat/Lane: 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900
 Adjustment: 0.95 0.95 0.85 0.85 0.91 1.00 0.83 1.00 0.88 0.95 1.00 1.00
 Lanes: 0.00 2.00 1.00 2.00 3.00 0.00 1.27 0.00 1.73 0.00 0.00 0.00
 Final Sat.: 0 3610 1615 3230 5187 0 2002 0 2889 0 0 0

Capacity Analysis Module:
 Vol/Sat: 0.00 0.52 0.19 0.03 0.09 0.00 0.04 0.00 0.08 0.00 0.00 0.00
 Crit Moves: ****
 Green/Cycle: 0.00 0.83 0.83 0.05 0.87 0.00 0.13 0.00 0.13 0.00 0.00 0.00
 Volume/Cap: 0.00 0.62 0.22 0.62 0.10 0.00 0.31 0.00 0.62 0.00 0.00 0.00
 Delay/Veh: 0.0 3.6 1.9 54.6 0.9 0.0 39.9 0.0 43.9 0.0 0.0 0.0
 User DelAdj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
 AdjDel/Veh: 0.0 3.6 1.9 54.6 0.9 0.0 39.9 0.0 43.9 0.0 0.0 0.0
 LOS by Move: A A A D A A D A A A A
 HCM2kAvgQ: 0 11 2 3 1 0 2 0 5 0 0 0

Note: Queue reported is the number of cars per lane.

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Level Of Service Computation Report

2000 HCM Operations Method (Future Volume Alternative)

 Intersection #11 Haven Avenue/Riverside Drive

Cycle (sec): 100 Critical Vol./Cap.(X): 0.815
 Loss Time (sec): 0 (Y+R=4.0 sec) Average Delay (sec/veh): 31.1
 Optimal Cycle: 123 Level Of Service: C

Approach: North Bound South Bound East Bound West Bound
 Movement: L - T - R L - T - R L - T - R L - T - R

Control: Protected Protected Protected Protected
 Rights: Include Include Include Include
 Min. Green: 0 0 0 0 0 0 0 0 0 0 0 0
 Lanes: 1 0 1 1 0 1 0 1 1 0 1 0 1 1 0

Volume Module:
 Base Vol: 89 1289 216 128 435 44 140 632 79 125 304 145
 Growth Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
 Initial Bse: 89 1289 216 128 435 44 140 632 79 125 304 145
 Added Vol: 0 0 0 0 0 0 0 0 0 0 0 0
 PasserByVol: 0 0 0 0 0 0 0 0 0 0 0 0
 Initial Fut: 89 1289 216 128 435 44 140 632 79 125 304 145
 User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
 PHF Adj: 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95
 PHF Volume: 94 1357 227 135 458 46 147 665 83 132 320 153
 Reduct Vol: 0 0 0 0 0 0 0 0 0 0 0 0
 Reduced Vol: 94 1357 227 135 458 46 147 665 83 132 320 153
 PCE Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
 MLF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
 Final Vol.: 94 1357 227 135 458 46 147 665 83 132 320 153

Saturation Flow Module:
 Sat/Lane: 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900
 Adjustment: 0.90 0.93 0.93 0.90 0.94 0.94 0.90 0.93 0.93 0.90 0.90 0.90
 Lanes: 1.00 1.71 0.29 1.00 1.82 0.18 1.00 1.78 0.22 1.00 1.35 0.65
 Final Sat.: 1710 3024 507 1710 3232 327 1710 3154 394 1710 2327 1110

Capacity Analysis Module:
 Vol/Sat: 0.05 0.45 0.45 0.08 0.14 0.14 0.09 0.21 0.21 0.08 0.14 0.14
 Crit Moves: ****
 Green/Cycle: 0.18 0.55 0.55 0.10 0.47 0.47 0.14 0.26 0.26 0.09 0.22 0.22
 Volume/Cap: 0.30 0.82 0.82 0.82 0.30 0.30 0.63 0.82 0.82 0.82 0.63 0.63
 Delay/Veh: 36.1 21.1 21.1 70.1 16.7 16.7 46.5 40.5 40.5 70.8 37.3 37.3
 User DelAdj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
 AdjDel/Veh: 36.1 21.1 21.1 70.1 16.7 16.7 46.5 40.5 40.5 70.8 37.3 37.3
 LOS by Move: D C C E B B D D D E D D
 HCM2kAvgQ: 3 23 23 7 5 5 6 14 14 6 8 8

Note: Queue reported is the number of cars per lane.

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 2000 HCM Operations Method (Future Volume Alternative)

 Intersection #12 Haven Avenue at Chino Avenue

Cycle (sec): 100 Critical Vol./Cap.(X): 0.521
 Loss Time (sec): 0 (Y+R=4.0 sec) Average Delay (sec/veh): 8.4
 Optimal Cycle: 30 Level Of Service: A

Approach: North Bound South Bound East Bound West Bound
 Movement: L - T - R L - T - R L - T - R L - T - R

Control: Permitted Permitted Permitted Permitted
 Rights: Include Include Include Include
 Min. Green: 0 0 0 0 0 0 0 0 0 0 0 0
 Lanes: 1 0 1 1 0 1 0 1 1 0 1 0 1 1 0

Volume Module:
 Base Vol: 22 1297 84 45 518 3 27 66 25 41 22 171
 Growth Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
 Initial Bse: 22 1297 84 45 518 3 27 66 25 41 22 171
 Added Vol: 0 0 0 0 0 0 0 0 0 0 0 0
 PasserByVol: 0 0 0 0 0 0 0 0 0 0 0 0
 Initial Fut: 22 1297 84 45 518 3 27 66 25 41 22 171
 User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
 PHF Adj: 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95
 PHF Volume: 23 1365 88 47 545 3 28 69 26 43 23 180
 Reduct Vol: 0 0 0 0 0 0 0 0 0 0 0 0
 Reduced Vol: 23 1365 88 47 545 3 28 69 26 43 23 180
 PCE Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
 MLF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
 Final Vol.: 23 1365 88 47 545 3 28 69 26 43 23 180

Saturation Flow Module:
 Sat/Lane: 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900
 Adjustment: 0.40 0.94 0.94 0.14 0.95 0.95 0.45 0.91 0.91 0.59 0.82 0.82
 Lanes: 1.00 1.88 0.12 1.00 1.99 0.01 1.00 1.45 0.55 1.00 1.00 1.00
 Final Sat.: 756 3360 218 259 3586 21 862 2511 951 1114 1565 1565

Capacity Analysis Module:
 Vol/Sat: 0.03 0.41 0.41 0.18 0.15 0.15 0.03 0.03 0.03 0.04 0.01 0.12
 Crit Moves: ****
 Green/Cycle: 0.78 0.78 0.78 0.78 0.78 0.78 0.22 0.22 0.22 0.22 0.22 0.22
 Volume/Cap: 0.04 0.52 0.52 0.23 0.20 0.20 0.15 0.13 0.13 0.18 0.07 0.52
 Delay/Veh: 2.5 4.3 4.3 3.6 2.9 2.9 31.8 31.3 31.3 31.9 30.8 35.6
 User DelAdj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
 AdjDel/Veh: 2.5 4.3 4.3 3.6 2.9 2.9 31.8 31.3 31.3 31.9 30.8 35.6
 LOS by Move: A A A A A A C C C C C D
 HCM2kAvgQ: 0 9 9 1 2 2 1 1 1 1 1 6

Note: Queue reported is the number of cars per lane.

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 2000 HCM Operations Method (Future Volume Alternative)

 Intersection #13 Haven Avenue at Edison Avenue

Cycle (sec): 100 Critical Vol./Cap.(X): 0.745
 Loss Time (sec): 0 (Y+R=4.0 sec) Average Delay (sec/veh): 30.7
 Optimal Cycle: 89 Level Of Service: C

Approach: North Bound South Bound East Bound West Bound
 Movement: L - T - R L - T - R L - T - R L - T - R

Control: Protected Protected Protected Protected
 Rights: Include Include Include Include
 Min. Green: 0 0 0 0 0 0 0 0 0 0 0 0
 Lanes: 1 0 1 1 0 1 0 1 1 0 1 0 3 1 0

Volume Module:
 Base Vol: 168 806 211 131 334 210 158 954 71 126 1563 130
 Growth Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
 Initial Bse: 168 806 211 131 334 210 158 954 71 126 1563 130
 Added Vol: 0 0 0 0 0 0 0 0 0 0 0 0
 PasserByVol: 0 0 0 0 0 0 0 0 0 0 0 0
 Initial Fut: 168 806 211 131 334 210 158 954 71 126 1563 130
 User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
 PHF Adj: 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95
 PHF Volume: 177 848 222 138 352 221 166 1004 75 133 1645 137
 Reduct Vol: 0 0 0 0 0 0 0 0 0 0 0 0
 Reduced Vol: 177 848 222 138 352 221 166 1004 75 133 1645 137
 PCE Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
 MLF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
 Final Vol.: 177 848 222 138 352 221 166 1004 75 133 1645 137

Saturation Flow Module:
 Sat/Lane: 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900
 Adjustment: 0.90 0.92 0.92 0.90 0.89 0.89 0.90 0.90 0.90 0.90 0.90 0.90
 Lanes: 1.00 1.59 0.41 1.00 1.23 0.77 1.00 3.72 0.28 1.00 3.69 0.31
 Final Sat.: 1710 2772 726 1710 2088 1313 1710 6373 474 1710 6308 525

Capacity Analysis Module:
 Vol/Sat: 0.10 0.31 0.31 0.08 0.17 0.17 0.10 0.16 0.16 0.08 0.26 0.26
 Crit Moves: ****
 Green/Cycle: 0.20 0.41 0.41 0.11 0.32 0.32 0.13 0.32 0.32 0.16 0.35 0.35
 Volume/Cap: 0.52 0.74 0.74 0.74 0.52 0.52 0.74 0.49 0.49 0.49 0.74 0.74
 Delay/Veh: 37.4 27.2 27.2 58.4 28.1 28.1 54.6 27.4 27.4 39.8 29.9 29.9
 User DelAdj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
 AdjDel/Veh: 37.4 27.2 27.2 58.4 28.1 28.1 54.6 27.4 27.4 39.8 29.9 29.9
 LOS by Move: D C C E C C D C C D C C
 HCM2kAvgQ: 6 16 16 6 8 8 7 8 8 4 15 15

Note: Queue reported is the number of cars per lane.

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Level Of Service Computation Report
 2000 HCM Operations Method (Future Volume Alternative)

 Intersection #14 Mill Creek Avenue/Riverside Drive

Cycle (sec):	100	Critical Vol./Cap.(X):	0.589
Loss Time (sec):	0 (Y+R=4.0 sec)	Average Delay (sec/veh):	18.4
Optimal Cycle:	45	Level Of Service:	B

Approach:	North Bound	South Bound	East Bound	West Bound
Movement:	L - T - R	L - T - R	L - T - R	L - T - R

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Control:	Permitted	Permitted	Protected	Protected
Rights:	Include	Include	Include	Include
Min. Green:	0 0 0	0 0 0	0 0 0	0 0 0
Lanes:	1 0 1 0 1	1 0 0 1 0	1 0 1 1 0	1 0 1 1 0

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Volume Module:

Base Vol:	39 199 87	107 180 116	164 1332 19	32 505 28
Growth Adj:	1.00 1.00 1.00	1.00 1.00 1.00	1.00 1.00 1.00	1.00 1.00 1.00
Initial Bse:	39 199 87	107 180 116	164 1332 19	32 505 28
Added Vol:	0 0 0	0 0 0	0 0 0	0 0 0
PasserByVol:	0 0 0	0 0 0	0 0 0	0 0 0
Initial Fut:	39 199 87	107 180 116	164 1332 19	32 505 28
User Adj:	1.00 1.00 1.00	1.00 1.00 1.00	1.00 1.00 1.00	1.00 1.00 1.00
PHF Adj:	0.95 0.95 0.95	0.95 0.95 0.95	0.95 0.95 0.95	0.95 0.95 0.95
PHF Volume:	41 209 92	113 189 122	173 1402 20	34 532 29
Reduced Vol:	0 0 0	0 0 0	0 0 0	0 0 0
Reduced Vol:	41 209 92	113 189 122	173 1402 20	34 532 29
PCE Adj:	1.00 1.00 1.00	1.00 1.00 1.00	1.00 1.00 1.00	1.00 1.00 1.00
MLF Adj:	1.00 1.00 1.00	1.00 1.00 1.00	1.00 1.00 1.00	1.00 1.00 1.00
Final Vol.:	41 209 92	113 189 122	173 1402 20	34 532 29

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Saturation Flow Module:

Sat/Lane:	1900 1900 1900	1900 1900 1900	1900 1900 1900	1900 1900 1900
Adjustment:	0.27 1.00 0.85	0.40 0.94 0.94	0.90 0.95 0.95	0.90 0.94 0.94
Lanes:	1.00 1.00 1.00	1.00 0.61 0.39	1.00 1.97 0.03	1.00 1.89 0.11
Final Sat.:	511 1900 1615	767 1087 701	1710 3552 51	1710 3393 188

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Capacity Analysis Module:

Vol/Sat:	0.08 0.11 0.06	0.15 0.17 0.17	0.10 0.39 0.39	0.02 0.16 0.16
Crit Moves:	****	****	****	****
Green/Cycle:	0.30 0.30 0.30	0.30 0.30 0.30	0.28 0.67 0.67	0.03 0.43 0.43
Volume/Cap:	0.27 0.37 0.19	0.50 0.59 0.59	0.37 0.59 0.59	0.59 0.37 0.37
Delay/Veh:	27.9 28.3 26.5	30.8 31.8 31.8	29.6 9.4 9.4	62.7 19.5 19.5
User DelAdj:	1.00 1.00 1.00	1.00 1.00 1.00	1.00 1.00 1.00	1.00 1.00 1.00
AdjDel/Veh:	27.9 28.3 26.5	30.8 31.8 31.8	29.6 9.4 9.4	62.7 19.5 19.5
LOS by Move:	C C C	C C C	C A A	E B B
HCM2kAvgQ:	1 5 2	4 9 9	5 13 13	2 6 6

Note: Queue reported is the number of cars per lane.

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 2000 HCM Operations Method (Future Volume Alternative)

 Intersection #15 Mill Creek Avenue at Chino Avenue

Cycle (sec):	100	Critical Vol./Cap.(X):	0.164
Loss Time (sec):	0 (Y+R=4.0 sec)	Average Delay (sec/veh):	14.3
Optimal Cycle:	17	Level Of Service:	B

Approach:	North Bound	South Bound	East Bound	West Bound
Movement:	L - T - R	L - T - R	L - T - R	L - T - R

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Control:	Permitted	Permitted	Permitted	Permitted
Rights:	Include	Include	Include	Include
Min. Green:	0 0 0	0 0 0	0 0 0	0 0 0
Lanes:	1 0 1 1 0	1 0 0 1 0	1 0 1 1 0	1 0 1 1 0

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Volume Module:

Base Vol:	57 121 50	10 31 74	125 122 25	1 18 8
Growth Adj:	1.00 1.00 1.00	1.00 1.00 1.00	1.00 1.00 1.00	1.00 1.00 1.00
Initial Bse:	57 121 50	10 31 74	125 122 25	1 18 8
Added Vol:	0 0 0	0 0 0	0 0 0	0 0 0
PasserByVol:	0 0 0	0 0 0	0 0 0	0 0 0
Initial Fut:	57 121 50	10 31 74	125 122 25	1 18 8
User Adj:	1.00 1.00 1.00	1.00 1.00 1.00	1.00 1.00 1.00	1.00 1.00 1.00
PHF Adj:	0.95 0.95 0.95	0.95 0.95 0.95	0.95 0.95 0.95	0.95 0.95 0.95
PHF Volume:	60 127 53	11 33 78	132 128 26	1 19 8
Reduced Vol:	0 0 0	0 0 0	0 0 0	0 0 0
Reduced Vol:	60 127 53	11 33 78	132 128 26	1 19 8
PCE Adj:	1.00 1.00 1.00	1.00 1.00 1.00	1.00 1.00 1.00	1.00 1.00 1.00
MLF Adj:	1.00 1.00 1.00	1.00 1.00 1.00	1.00 1.00 1.00	1.00 1.00 1.00
Final Vol.:	60 127 53	11 33 78	132 128 26	1 19 8

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Saturation Flow Module:

Sat/Lane:	1900 1900 1900	1900 1900 1900	1900 1900 1900	1900 1900 1900
Adjustment:	0.57 0.91 0.91	0.56 0.89 0.89	0.70 0.93 0.93	0.59 0.91 0.91
Lanes:	1.00 1.42 0.58	1.00 0.30 0.70	1.00 1.66 0.34	1.00 1.38 0.62
Final Sat.:	1091 2442 1009	1055 501 1197	1334 2921 599	1129 2384 1060

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Capacity Analysis Module:

Vol/Sat:	0.06 0.05 0.05	0.01 0.07 0.07	0.10 0.04 0.04	0.00 0.01 0.01
Crit Moves:	****	****	****	****
Green/Cycle:	0.40 0.40 0.40	0.40 0.40 0.40	0.60 0.60 0.60	0.60 0.60 0.60
Volume/Cap:	0.14 0.13 0.13	0.03 0.16 0.16	0.16 0.07 0.07	0.00 0.01 0.01
Delay/Veh:	19.4 19.2 19.2	18.4 19.5 19.5	8.9 8.3 8.3	7.9 8.0 8.0
User DelAdj:	1.00 1.00 1.00	1.00 1.00 1.00	1.00 1.00 1.00	1.00 1.00 1.00
AdjDel/Veh:	19.4 19.2 19.2	18.4 19.5 19.5	8.9 8.3 8.3	7.9 8.0 8.0
LOS by Move:	B B B	B B B	A A A	A A A
HCM2kAvgQ:	1 2 2	0 2 2	2 1 1	0 0 0

Note: Queue reported is the number of cars per lane.

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 2000 HCM Operations Method (Future Volume Alternative)

 Intersection #16 Mill Creek Avenue at Edison Avenue

 Cycle (sec): 100 Critical Vol./Cap.(X): 0.374
 Loss Time (sec): 0 (Y+R=4.0 sec) Average Delay (sec/veh): 5.7
 Optimal Cycle: 23 Level Of Service: A

 Approach: North Bound South Bound East Bound West Bound
 Movement: L - T - R L - T - R L - T - R L - T - R

 Control: Permitted Permitted Permitted Permitted
 Rights: Include Include Include Include
 Min. Green: 0 0 0 0 0 0 0 0 0 0 0 0
 Lanes: 1 0 0 1 0 1 0 0 3 1 0 1 0 3 1 0

 Volume Module:
 Base Vol: 117 22 6 40 9 8 10 1549 48 5 1800 38
 Growth Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
 Initial Bse: 117 22 6 40 9 8 10 1549 48 5 1800 38
 Added Vol: 0 0 0 0 0 0 0 0 0 0 0 0
 PasserByVol: 0 0 0 0 0 0 0 0 0 0 0 0
 Initial Fut: 117 22 6 40 9 8 10 1549 48 5 1800 38
 User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
 PHF Adj: 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95
 PHF Volume: 123 23 6 42 9 8 11 1631 51 5 1895 40
 Reduced Vol: 0 0 0 0 0 0 0 0 0 0 0 0
 Reduced Vol: 123 23 6 42 9 8 11 1631 51 5 1895 40
 PCE Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
 MLF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
 Final Vol.: 123 23 6 42 9 8 11 1631 51 5 1895 40

 Saturation Flow Module:
 Sat/Lane: 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900
 Adjustment: 0.69 0.97 0.97 0.67 0.93 0.93 0.08 0.91 0.91 0.11 0.91 0.91
 Lanes: 1.00 0.79 0.21 1.00 0.53 0.47 1.00 3.88 0.12 1.00 3.92 0.08
 Final Sat.: 1316 1445 394 1274 934 831 157 6681 207 212 6753 143

 Capacity Analysis Module:
 Vol/Sat: 0.09 0.02 0.02 0.03 0.01 0.01 0.07 0.24 0.24 0.02 0.28 0.28
 Crit Moves: ****
 Green/Cycle: 0.25 0.25 0.25 0.25 0.25 0.25 0.75 0.75 0.75 0.75 0.75 0.75
 Volume/Cap: 0.37 0.06 0.06 0.13 0.04 0.04 0.09 0.33 0.33 0.03 0.37 0.37
 Delay/Veh: 31.7 28.6 28.6 29.3 28.4 28.4 3.7 4.2 4.2 3.3 4.4 4.4
 User DelAdj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
 AdjDel/Veh: 31.7 28.6 28.6 29.3 28.4 28.4 3.7 4.2 4.2 3.3 4.4 4.4
 LOS by Move: C C C C C C A A A A A A
 HCM2kAvgQ: 4 1 1 1 0 0 5 5 0 6 6 6

 Note: Queue reported is the number of cars per lane.

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 Level Of Service Computation Report
 2000 HCM Operations Method (Future Volume Alternative)

 Intersection #17 Milliken Avenue/SR-60 WB Ramps

 Cycle (sec): 100 Critical Vol./Cap.(X): 0.448
 Loss Time (sec): 0 (Y+R=4.0 sec) Average Delay (sec/veh): 18.0
 Optimal Cycle: 34 Level Of Service: B

 Approach: North Bound South Bound East Bound West Bound
 Movement: L - T - R L - T - R L - T - R L - T - R

 Control: Protected Permitted Split Phase Split Phase
 Rights: Include Include Include Include
 Min. Green: 0 0 0 0 0 0 0 0 0 0 0 0
 Lanes: 2 0 2 0 0 0 0 2 0 1 0 0 0 0 0 1 0 1 0 1

 Volume Module:
 Base Vol: 493 986 0 0 605 2 0 0 0 245 0 272
 Growth Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
 Initial Bse: 493 986 0 0 605 2 0 0 0 245 0 272
 Added Vol: 0 0 0 0 0 0 0 0 0 0 0 0
 PasserByVol: 0 0 0 0 0 0 0 0 0 0 0 0
 Initial Fut: 493 986 0 0 605 2 0 0 0 245 0 272
 User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
 PHF Adj: 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95
 PHF Volume: 519 1038 0 0 637 2 0 0 0 258 0 286
 Reduced Vol: 0 0 0 0 0 0 0 0 0 0 0 0
 Reduced Vol: 519 1038 0 0 637 2 0 0 0 258 0 286
 PCE Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
 MLF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
 Final Vol.: 519 1038 0 0 637 2 0 0 0 258 0 286

 Saturation Flow Module:
 Sat/Lane: 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900
 Adjustment: 0.85 0.95 1.00 0.95 0.95 0.85 0.95 1.00 1.00 0.85 1.00 0.90
 Lanes: 2.00 2.00 0.00 0.00 2.00 1.00 0.00 0.00 0.00 1.49 0.00 1.51
 Final Sat.: 3230 3610 0 0 3610 1615 0 0 0 2409 0 2586

 Capacity Analysis Module:
 Vol/Sat: 0.16 0.29 0.00 0.00 0.18 0.00 0.00 0.00 0.00 0.11 0.00 0.11
 Crit Moves: ****
 Green/Cycle: 0.36 0.75 0.00 0.00 0.39 0.39 0.00 0.00 0.00 0.25 0.00 0.25
 Volume/Cap: 0.45 0.38 0.00 0.00 0.45 0.00 0.00 0.00 0.00 0.43 0.00 0.45
 Delay/Veh: 24.8 4.4 0.0 0.0 22.5 18.4 0.0 0.0 0.0 32.0 0.0 32.1
 User DelAdj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
 AdjDel/Veh: 24.8 4.4 0.0 0.0 22.5 18.4 0.0 0.0 0.0 32.0 0.0 32.1
 LOS by Move: C A A A C B A A A C A C
 HCM2kAvgQ: 7 6 0 0 8 0 0 0 0 5 0 5

 Note: Queue reported is the number of cars per lane.

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Level Of Service Computation Report

2000 HCM Operations Method (Future Volume Alternative)

Intersection #18 Milliken Avenue/SR-60 EB Ramps

Cycle (sec): 100 Critical Vol./Cap.(X): 0.595
Loss Time (sec): 0 (Y+R=4.0 sec) Average Delay (sec/veh): 1.3
Optimal Cycle: 56 Level Of Service: A

Approach: North Bound South Bound East Bound West Bound
Movement: L - T - R L - T - R L - T - R L - T - R

Control: Protected Protected Split Phase Split Phase
Rights: Include Include Ignore Include
Min. Green: 0 0 0 0 0 0 0 0 0 0 0 0
Lanes: 0 0 1 1 0 1 0 2 0 0 1 0 0 0 0 0

Volume Module:
Base Vol: 0 1445 446 4 846 0 34 0 502 0 0 0
Growth Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
Initial Bse: 0 1445 446 4 846 0 34 0 502 0 0 0
Added Vol: 0 0 0 0 0 0 0 0 0 0 0 0
PasserByVol: 0 0 0 0 0 0 0 0 0 0 0 0
Initial Fut: 0 1445 446 4 846 0 34 0 502 0 0 0
User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
PHF Adj: 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95
PHF Volume: 0 1521 469 4 891 0 36 0 0 0 0 0
Reduct Vol: 0 0 0 0 0 0 0 0 0 0 0 0
Reduced Vol: 0 1521 469 4 891 0 36 0 0 0 0 0
PCE Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
MLF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
Final Vol.: 0 1521 469 4 891 0 36 0 0 0 0 0

Saturation Flow Module:
Sat/Lane: 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900
Adjustment: 0.95 0.92 0.92 0.90 0.95 1.00 0.90 1.00 1.00 0.95 1.00 1.00
Lanes: 0.00 1.53 0.47 1.00 2.00 0.00 1.00 0.00 1.00 0.00 0.00 0.00
Final Sat.: 0 2662 822 1710 3610 0 1710 0 1900 0 0 0

Capacity Analysis Module:
Vol/Sat: 0.00 0.57 0.57 0.00 0.25 0.00 0.02 0.00 0.00 0.00 0.00 0.00
Crit Moves: ****
Green/Cycle: 0.00 0.96 0.96 0.00 0.96 0.00 0.04 0.00 0.00 0.00 0.00 0.00
Volume/Cap: 0.00 0.59 0.59 0.59 0.26 0.00 0.59 0.00 0.00 0.00 0.00 0.00
Delay/Veh: 0.0 0.5 0.5 141.9 0.1 0.0 62.6 0.0 0.0 0.0 0.0 0.0
User DelAdj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
AdjDel/Veh: 0.0 0.5 0.5 141.9 0.1 0.0 62.6 0.0 0.0 0.0 0.0 0.0
LOS by Move: A A A F A A E A A A A A
HCM2kAvgQ: 0 4 4 1 1 0 2 0 0 0 0 0

Note: Queue reported is the number of cars per lane.

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Level Of Service Computation Report

2000 HCM Operations Method (Future Volume Alternative)

Intersection #19 Milliken Avenue/Riverside Drive

Cycle (sec): 100 Critical Vol./Cap.(X): 0.739
Loss Time (sec): 0 (Y+R=4.0 sec) Average Delay (sec/veh): 29.6
Optimal Cycle: 87 Level Of Service: C

Approach: North Bound South Bound East Bound West Bound
Movement: L - T - R L - T - R L - T - R L - T - R

Control: Protected Protected Protected Protected
Rights: Include Include Include Ovl
Min. Green: 0 0 0 0 0 0 0 0 0 0 0 0
Lanes: 2 0 3 0 1 2 0 3 0 1 2 0 1 1 0 1 0 2 0 1

Volume Module:
Base Vol: 42 812 51 726 151 471 782 809 35 3 285 296
Growth Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
Initial Bse: 42 812 51 726 151 471 782 809 35 3 285 296
Added Vol: 0 0 0 0 0 0 0 0 0 0 0 0
PasserByVol: 0 0 0 0 0 0 0 0 0 0 0 0
Initial Fut: 42 812 51 726 151 471 782 809 35 3 285 296
User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
PHF Adj: 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95
PHF Volume: 44 855 54 764 159 496 823 852 37 3 300 312
Reduct Vol: 0 0 0 0 0 0 0 0 0 0 0 0
Reduced Vol: 44 855 54 764 159 496 823 852 37 3 300 312
PCE Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
MLF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
Final Vol.: 44 855 54 764 159 496 823 852 37 3 300 312

Saturation Flow Module:
Sat/Lane: 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900
Adjustment: 0.85 0.91 0.85 0.85 0.91 0.85 0.85 0.94 0.94 0.90 0.95 0.85
Lanes: 2.00 3.00 1.00 2.00 3.00 1.00 2.00 1.92 0.08 1.00 2.00 1.00
Final Sat.: 3230 5187 1615 3230 5187 1615 3230 3440 149 1710 3610 1615

Capacity Analysis Module:
Vol/Sat: 0.01 0.16 0.03 0.24 0.03 0.31 0.25 0.25 0.25 0.00 0.08 0.19
Crit Moves: ****
Green/Cycle: 0.02 0.22 0.22 0.32 0.52 0.52 0.34 0.45 0.45 0.00 0.11 0.43
Volume/Cap: 0.59 0.74 0.15 0.74 0.06 0.59 0.74 0.55 0.55 0.55 0.74 0.45
Delay/Veh: 60.3 38.7 31.4 33.2 11.9 17.8 31.5 20.2 20.2 128.7 50.0 20.4
User DelAdj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
AdjDel/Veh: 60.3 38.7 31.4 33.2 11.9 17.8 31.5 20.2 20.2 128.7 50.0 20.4
LOS by Move: E D C C B B C C C F D C
HCM2kAvgQ: 2 11 1 13 1 11 14 11 11 1 6 7

Note: Queue reported is the number of cars per lane.

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Level Of Service Computation Report

2000 HCM Operations Method (Future Volume Alternative)

Intersection #20 Milliken Ave / Chino Ave

Cycle (sec): 100 Critical Vol./Cap.(X): 0.335
Loss Time (sec): 0 (Y+R=4.0 sec) Average Delay (sec/veh): 14.0
Optimal Cycle: 30 Level Of Service: B

Approach: North Bound South Bound East Bound West Bound
Movement: L - T - R L - T - R L - T - R L - T - R

Control: Protected Permitted Split Phase Split Phase
Rights: Include Include Include Include
Min. Green: 0 0 0 0 0 0 0 0 0 0 0 0
Lanes: 1 0 2 0 0 0 0 3 1 0 1 0 0 0 0 0

Volume Module:
Base Vol: 23 950 0 0 259 4 93 0 89 0 0 0
Growth Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
Initial Bse: 23 950 0 0 259 4 93 0 89 0 0 0
Added Vol: 0 0 0 0 0 0 0 0 0 0 0 0
PasserByVol: 0 0 0 0 0 0 0 0 0 0 0 0
Initial Fut: 23 950 0 0 259 4 93 0 89 0 0 0
User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
PHF Adj: 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95
PHF Volume: 24 1000 0 0 273 4 98 0 94 0 0 0
Reduct Vol: 0 0 0 0 0 0 0 0 0 0 0 0
Reduced Vol: 24 1000 0 0 273 4 98 0 94 0 0 0
PCE Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
MLF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
Final Vol.: 24 1000 0 0 273 4 98 0 94 0 0 0

Saturation Flow Module:
Sat/Lane: 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900
Adjustment: 0.90 0.95 1.00 0.95 0.91 0.91 0.90 1.00 0.85 0.95 1.00 1.00
Lanes: 1.00 2.00 0.00 0.00 3.94 0.06 1.00 0.00 1.00 0.00 0.00 0.00
Final Sat.: 1710 3610 0 0 6797 105 1710 0 1615 0 0 0

Capacity Analysis Module:
Vol/Sat: 0.01 0.28 0.00 0.00 0.04 0.04 0.06 0.00 0.06 0.00 0.00 0.00
Crit Moves: ****
Green/Cycle: 0.74 0.85 0.00 0.00 0.11 0.11 0.15 0.00 0.15 0.00 0.00 0.00
Volume/Cap: 0.02 0.33 0.00 0.00 0.38 0.38 0.37 0.00 0.38 0.00 0.00 0.00
Delay/Veh: 3.5 1.7 0.0 0.0 41.9 41.9 38.8 0.0 38.9 0.0 0.0 0.0
User DelAdj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
AdjDel/Veh: 3.5 1.7 0.0 0.0 41.9 41.9 38.8 0.0 38.9 0.0 0.0 0.0
LOS by Move: A A A A D D D A D A A A
HCM2kAvgQ: 0 4 0 0 3 3 3 0 3 0 0 0

Note: Queue reported is the number of cars per lane.

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Level Of Service Computation Report

2000 HCM Operations Method (Future Volume Alternative)

Intersection #21 Milliken Avenue/Edison Avenue

Cycle (sec): 100 Critical Vol./Cap.(X): 0.828
Loss Time (sec): 0 (Y+R=4.0 sec) Average Delay (sec/veh): 30.8
Optimal Cycle: 133 Level Of Service: C

Approach: North Bound South Bound East Bound West Bound
Movement: L - T - R L - T - R L - T - R L - T - R

Control: Protected Protected Protected Protected
Rights: Include Include Include Include
Min. Green: 0 0 0 0 0 0 0 0 0 0 0 0
Lanes: 1 0 1 1 0 1 0 2 1 0 1 0 3 1 0 2 0 3 1 0

Volume Module:
Base Vol: 63 640 520 92 96 54 129 1925 38 201 1950 186
Growth Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
Initial Bse: 63 640 520 92 96 54 129 1925 38 201 1950 186
Added Vol: 0 0 0 0 0 0 0 0 0 0 0 0
PasserByVol: 0 0 0 0 0 0 0 0 0 0 0 0
Initial Fut: 63 640 520 92 96 54 129 1925 38 201 1950 186
User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
PHF Adj: 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95
PHF Volume: 66 674 547 97 101 57 136 2026 40 212 2053 196
Reduct Vol: 0 0 0 0 0 0 0 0 0 0 0 0
Reduced Vol: 66 674 547 97 101 57 136 2026 40 212 2053 196
PCE Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
MLF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
Final Vol.: 66 674 547 97 101 57 136 2026 40 212 2053 196

Saturation Flow Module:
Sat/Lane: 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900
Adjustment: 0.90 0.89 0.89 0.90 0.86 0.86 0.90 0.91 0.91 0.85 0.90 0.90
Lanes: 1.00 1.10 0.90 1.00 2.00 1.00 1.00 3.92 0.08 2.00 3.65 0.35
Final Sat.: 1710 1858 1510 1710 3271 1636 1710 6762 133 3230 6232 594

Capacity Analysis Module:
Vol/Sat: 0.04 0.36 0.36 0.06 0.03 0.03 0.08 0.30 0.30 0.07 0.33 0.33
Crit Moves: ****
Green/Cycle: 0.27 0.44 0.44 0.07 0.24 0.24 0.10 0.41 0.41 0.09 0.40 0.40
Volume/Cap: 0.15 0.83 0.83 0.83 0.13 0.15 0.83 0.74 0.74 0.74 0.83 0.83
Delay/Veh: 28.1 28.8 28.8 82.5 29.9 30.0 72.5 26.3 26.3 54.3 29.3 29.3
User DelAdj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
AdjDel/Veh: 28.1 28.8 28.8 82.5 29.9 30.0 72.5 26.3 26.3 54.3 29.3 29.3
LOS by Move: C C C F C C E C C D C C
HCM2kAvgQ: 2 20 20 5 1 2 7 16 16 5 19 19

Note: Queue reported is the number of cars per lane.

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Level Of Service Computation Report
 2000 HCM Operations Method (Future Volume Alternative)

 Intersection #550 Haven Avenue/Creekside Drive

 Cycle (sec): 100 Critical Vol./Cap.(X): 0.000
 Loss Time (sec): 0 (Y+R=4.0 sec) Average Delay (sec/veh): 0.0
 Optimal Cycle: 0 Level Of Service:

 Approach: North Bound South Bound East Bound West Bound
 Movement: L - T - R L - T - R L - T - R L - T - R
 -----|-----|-----|-----|
 Control: Protected Protected Prot+Permit Prot+Permit
 Rights: Include Include Include Include
 Min. Green: 0 0 0 0 0 0 0 0 0 0 0 0
 Lanes: 1 0 1 1 0 1 0 1 1 0 1 1 0 1 0 1
 -----|-----|-----|-----|
 Volume Module:
 Base Vol: 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
 Growth Adj: 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00
 Initial Bse: 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
 Added Vol: 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
 PasserByVol: 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
 Initial Fut: 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
 User Adj: 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00
 PHF Adj: 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00
 PHF Volume: 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
 Reduct Vol: 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
 Reduced Vol: 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
 PCE Adj: 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00
 MLF Adj: 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00
 Final Vol.: 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
 -----|-----|-----|-----|
 Saturation Flow Module:
 Sat/Lane: 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
 Adjustment: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
 Lanes: 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00
 Final Sat.: 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
 -----|-----|-----|-----|
 Capacity Analysis Module:
 Vol/Sat: 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00
 Crit Moves:
 Green/Cycle: 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00
 Volume/Cap: 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00
 Delay/Veh: 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0
 User DelAdj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
 AdjDel/Veh: 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0
 LOS by Move:
 HCM2kAvgQ: 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0

 Note: Queue reported is the number of cars per lane.

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Lane Geometry Report

Number of approach lanes: (L) (LT) (T) (RT) (R) (LTR)

Node Intersection	NB	SB	EB	WB
1 Archibald Avenue/Riverside Drive	102100	102100	101100	101100
2 Archibald Avenue/Chino Avenue	102100	102100	100100	101010
3 Archibald Avenue/Schaefer Avenue	102100	102100	101100	101100
4 Archibald Avenue/Edison Avenue	202100	202100	204010	203100
5 Turner Avenue/Riverside Drive	101100	101100	101100	101100
6 Turner Avenue/Chino Avenue	101100	101100	101100	101100
7 Turner Avenue at Schaefer Avenue	000000	100001	102000	001100
8 Edison Avenue at Schaefer Avenue	000000	100001	104000	003100
9 Haven Avenue/SR-60 WB Ramps	203000	003010	000000	110010
10 Haven Avenue/SR-60 EB Ramps	002010	203000	100011	000000
11 Haven Avenue/Riverside Drive	101100	101100	101100	101100
12 Haven Avenue at Chino Avenue	101100	101100	101100	101100
13 Haven Avenue at Edison Avenue	101100	101100	103100	103100
14 Mill Creek Avenue/Riverside Drive	101010	100100	101100	101100
15 Mill Creek Avenue at Chino Avenue	101100	100100	101100	101100
16 Mill Creek Avenue at Edison Avenue	100100	100100	103100	103100
17 Milliken Avenue/SR-60 WB Ramps	202000	002010	000000	100011
18 Milliken Avenue/SR-60 EB Ramps	001100	102000	100010	000000
19 Milliken Avenue/Riverside Drive	203010	203010	201100	102010
20 Milliken Ave / Chino Ave	102000	003100	100010	000000
21 Milliken Avenue/Edison Avenue	101100	102100	103100	203100
550 Haven Avenue/Creekside Drive	101100	101100	101010	101010

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 Meyer, Mohaddes Associates

Scenario Report
 Scenario: 2015 PM with Proj

Command: 2015 PM
 Volume: 2015 PM
 Geometry: Future Base
 Impact Fee: Default Impact Fee
 Trip Generation: None
 Trip Distribution: None
 Paths: Default Paths
 Routes: Default Routes
 Configuration: 2015 PM

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 Meyer, Mohaddes Associates

Intersection Volume Report
 Base Volume Alternative

Node Intersection	Northbound			Southbound			Eastbound			Westbound		
	L	T	R	L	T	R	L	T	R	L	T	R
1 Archibald Ave	196	1074	77	108	1712	184	109	373	249	62	453	124
2 Archibald Ave	74	1313	54	178	1850	1	1	38	89	56	44	116
3 Archibald Ave	17	1175	2	316	1595	70	48	46	17	1	37	297
4 Archibald Ave	458	642	420	145	1046	257	291	1613	1931	368	1366	98
5 Turner Avenue	0	6	31	83	6	52	69	531	0	104	648	95
6 Turner Avenue	15	4	21	6	39	27	26	112	17	14	125	7
7 Turner Avenue	0	0	0	17	0	3	6	359	0	0	332	29
8 Edison Avenue	0	0	0	372	0	4	17	1949	0	0	1727	344
9 Haven Avenue/	335	830	0	0	1916	124	0	0	0	213	0	443
10 Haven Avenue/	0	1136	250	471	1657	0	30	0	883	0	0	0
11 Haven Avenue/	105	963	188	327	1698	109	84	440	124	189	634	126
12 Haven Avenue	36	950	67	230	1576	13	31	45	35	125	82	174
13 Haven Avenue	163	568	209	254	948	199	265	1854	203	277	1710	206
14 Mill Creek Av	61	19	64	118	14	181	270	878	60	64	1261	112
15 Mill Creek Av	92	109	13	17	124	150	106	42	105	73	207	23
16 Mill Creek Av	92	23	15	69	26	12	11	2319	196	12	2580	78
17 Milliken Aven	734	742	0	0	1967	114	0	0	0	351	0	162
18 Milliken Aven	0	1471	434	73	2249	0	6	0	761	0	0	0
19 Milliken Aven	43	425	9	789	1625	596	783	364	67	128	784	696
20 Milliken Ave	115	583	0	0	1635	189	25	0	48	0	0	0
21 Milliken Aven	103	318	297	276	1189	184	110	2725	111	560	3067	157
550 Haven Avenue/	0	0	0	0	0	0	0	0	0	0	0	0

Ontario New Model - Rich Haven External Intersections
 2015 PM Peak with Project- Mitigations
 Meyer, Mohaddes Associates

Impact Analysis Report
 Level Of Service

Intersection	Base LOS	V/ C	Future LOS	V/ C	Change in		
						Del/	Del/
# 1 Archibald Avenue/Riverside Dri	C	26.7	0.752	C	26.7	0.752	+ 0.000 D/V
# 2 Archibald Avenue/Chino Avenue	B	13.0	0.534	B	13.0	0.534	+ 0.000 D/V
# 3 Archibald Avenue/Schaefer Aven	B	19.2	0.633	B	19.2	0.633	+ 0.000 D/V
# 4 Archibald Avenue/Edison Avenue	C	32.7	0.787	C	32.7	0.787	+ 0.000 D/V
# 5 Turner Avenue/Riverside Drive	B	14.5	0.332	B	14.5	0.332	+ 0.000 D/V
# 6 Turner Avenue/Chino Avenue	A	8.3	0.103	A	8.3	0.103	+ 0.000 V/C
# 7 Turner Avenue at Schaefer Aven	A	1.9	0.117	A	1.9	0.117	+ 0.000 D/V
# 8 Edison Avenue at Schaefer Aven	A	7.4	0.440	A	7.4	0.440	+ 0.000 D/V
# 9 Haven Avenue/SR-60 WB Ramps	B	11.3	0.563	B	11.3	0.563	+ 0.000 D/V
# 10 Haven Avenue/SR-60 EB Ramps	C	23.1	0.776	C	23.1	0.776	+ 0.000 D/V
# 11 Haven Avenue/Riverside Drive	D	36.2	0.883	D	36.2	0.883	+ 0.000 D/V
# 12 Haven Avenue at Chino Avenue	A	8.8	0.677	A	8.8	0.677	+ 0.000 D/V
# 13 Haven Avenue at Edison Avenue	D	42.8	0.932	D	42.8	0.932	+ 0.000 D/V
# 14 Mill Creek Avenue/Riverside Dr	B	19.5	0.697	B	19.5	0.697	+ 0.000 D/V
# 15 Mill Creek Avenue at Chino Ave	B	14.5	0.282	B	14.5	0.282	+ 0.000 D/V
# 16 Mill Creek Avenue at Edison Av	A	4.0	0.489	A	4.0	0.489	+ 0.000 D/V
# 17 Milliken Avenue/SR-60 WB Ramps	C	31.1	0.944	C	31.1	0.944	+ 0.000 D/V
# 18 Milliken Avenue/SR-60 EB Ramps	A	1.9	0.659	A	1.9	0.659	+ 0.000 D/V
# 19 Milliken Avenue/Riverside Driv	C	34.0	0.886	C	34.0	0.886	+ 0.000 D/V
# 20 Milliken Ave / Chino Ave	A	6.5	0.384	A	6.5	0.384	+ 0.000 D/V
# 21 Milliken Avenue/Edison Avenue	D	41.4	0.980	D	41.4	0.980	+ 0.000 D/V
#550 Haven Avenue/Creekside Drive		0.0	0.000		0.0	0.000	+ 0.000 D/V

Ontario New Model - Rich Haven External Intersections
 2015 PM Peak with Project- Mitigations
 Meyer, Mohaddes Associates

Level Of Service Computation Report
 2000 HCM Operations Method (Future Volume Alternative)

 Intersection #1 Archibald Avenue/Riverside Drive

Cycle (sec):	100	Critical Vol./Cap.(X):	0.752
Loss Time (sec):	0 (Y+R=4.0 sec)	Average Delay (sec/veh):	26.7
Optimal Cycle:	92	Level Of Service:	C

Approach:	North Bound	South Bound	East Bound	West Bound
Movement:	L - T - R	L - T - R	L - T - R	L - T - R

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Control:	Protected	Protected	Protected	Protected
Rights:	Include	Include	Include	Include
Min. Green:	0 0 0	0 0 0	0 0 0	0 0 0
Lanes:	1 0 2 1 0	1 0 2 1 0	1 0 1 1 0	1 0 1 1 0

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Volume Module:

Base Vol:	196 1074	77	108 1712	184	109 373	249	62 453	124
Growth Adj:	1.00 1.00	1.00	1.00 1.00	1.00	1.00 1.00	1.00	1.00 1.00	1.00
Initial Bse:	196 1074	77	108 1712	184	109 373	249	62 453	124
Added Vol:	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0
PasserByVol:	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0
Initial Fut:	196 1074	77	108 1712	184	109 373	249	62 453	124
User Adj:	1.00 1.00	1.00	1.00 1.00	1.00	1.00 1.00	1.00	1.00 1.00	1.00
PHF Adj:	0.95 0.95	0.95	0.95 0.95	0.95	0.95 0.95	0.95	0.95 0.95	0.95
PHF Volume:	206 1131	81	114 1802	194	115 393	262	65 477	131
Reduced Vol:	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0
Reduced Vol:	206 1131	81	114 1802	194	115 393	262	65 477	131
PCE Adj:	1.00 1.00	1.00	1.00 1.00	1.00	1.00 1.00	1.00	1.00 1.00	1.00
MLF Adj:	1.00 1.00	1.00	1.00 1.00	1.00	1.00 1.00	1.00	1.00 1.00	1.00
Final Vol.:	206 1131	81	114 1802	194	115 393	262	65 477	131

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Saturation Flow Module:

Sat/Lane:	1900 1900	1900	1900 1900	1900	1900 1900	1900	1900 1900	1900
Adjustment:	0.90 0.90	0.90	0.90 0.90	0.90	0.90 0.89	0.89	0.90 0.92	0.92
Lanes:	1.00 2.80	0.20	1.00 2.71	0.29	1.00 1.20	0.80	1.00 1.57	0.43
Final Sat.:	1710 4792	344	1710 4613	496	1710 2035	1358	1710 2743	751

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Capacity Analysis Module:

Vol/Sat:	0.12 0.24	0.24	0.07 0.39	0.39	0.07 0.19	0.19	0.04 0.17	0.17
Crit Moves:	****		****		****		****	
Green/Cycle:	0.16 0.53	0.53	0.15 0.52	0.52	0.09 0.27	0.27	0.05 0.23	0.23
Volume/Cap:	0.75 0.44	0.44	0.44 0.75	0.75	0.75 0.72	0.72	0.72 0.75	0.75
Delay/Veh:	51.2 14.6	14.6	40.0 20.2	20.2	63.3 36.1	36.1	71.2 39.8	39.8
User DelAdj:	1.00 1.00	1.00	1.00 1.00	1.00	1.00 1.00	1.00	1.00 1.00	1.00
AdjDel/Veh:	51.2 14.6	14.6	40.0 20.2	20.2	63.3 36.1	36.1	71.2 39.8	39.8
LOS by Move:	D B	B	D C	C	E D	D	E D	D
HCM2kAvgQ:	8 8	8	4 19	19	5 11	11	4 11	11

Note: Queue reported is the number of cars per lane.

Ontario New Model - Rich Haven External Intersections
 2015 PM Peak with Project- Mitigations
 Meyer, Mohaddes Associates

Level Of Service Computation Report
 2000 HCM Operations Method (Future Volume Alternative)

 Intersection #2 Archibald Avenue/Chino Avenue

Cycle (sec): 90 Critical Vol./Cap.(X): 0.534
 Loss Time (sec): 0 (Y+R=4.0 sec) Average Delay (sec/veh): 13.0
 Optimal Cycle: 49 Level Of Service: B

Approach: North Bound South Bound East Bound West Bound
 Movement: L - T - R L - T - R L - T - R L - T - R

Control: Protected Protected Protected Protected
 Rights: Include Include Include Include
 Min. Green: 0 0 0 0 0 0 0 0 0 0 0 0
 Lanes: 1 0 2 1 0 1 0 2 1 0 1 0 1 0 1

Volume Module:
 Base Vol: 74 1313 54 178 1850 1 1 38 89 56 44 116
 Growth Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
 Initial Bse: 74 1313 54 178 1850 1 1 38 89 56 44 116
 Added Vol: 0 0 0 0 0 0 0 0 0 0 0 0
 PasserByVol: 0 0 0 0 0 0 0 0 0 0 0 0
 Initial Fut: 74 1313 54 178 1850 1 1 38 89 56 44 116
 User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
 PHF Adj: 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95
 PHF Volume: 78 1382 57 187 1947 1 1 40 94 59 46 122
 Reduct Vol: 0 0 0 0 0 0 0 0 0 0 0 0
 Reduced Vol: 78 1382 57 187 1947 1 1 40 94 59 46 122
 PCE Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
 MLF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
 Final Vol.: 78 1382 57 187 1947 1 1 40 94 59 46 122

Saturation Flow Module:
 Sat/Lane: 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900
 Adjustment: 0.90 0.90 0.90 0.90 0.91 0.91 0.90 0.90 0.90 0.90 1.00 0.85
 Lanes: 1.00 2.88 0.12 1.00 2.99 0.01 1.00 0.30 0.70 1.00 1.00 1.00
 Final Sat.: 1710 4952 204 1710 5184 3 1710 509 1192 1710 1900 1615

Capacity Analysis Module:
 Vol/Sat: 0.05 0.28 0.28 0.11 0.38 0.38 0.00 0.08 0.08 0.03 0.02 0.08
 Crit Moves: ****
 Green/Cycle: 0.09 0.57 0.57 0.22 0.70 0.70 0.00 0.15 0.15 0.06 0.21 0.21
 Volume/Cap: 0.53 0.49 0.49 0.49 0.53 0.53 0.36 0.53 0.53 0.53 0.12 0.36
 Delay/Veh: 43.3 11.9 11.9 31.6 6.5 6.5 107.5 37.8 37.8 45.8 28.9 31.0
 User DelAdj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
 AdjDel/Veh: 43.3 11.9 11.9 31.6 6.5 6.5 107.5 37.8 37.8 45.8 28.9 31.0
 LOS by Move: D B B C A A F D D C C C
 HCM2kAvgQ: 3 9 9 5 10 10 0 4 4 3 1 3

Note: Queue reported is the number of cars per lane.

Ontario New Model - Rich Haven External Intersections
 2015 PM Peak with Project- Mitigations
 Meyer, Mohaddes Associates

Level Of Service Computation Report
 2000 HCM Operations Method (Future Volume Alternative)

 Intersection #3 Archibald Avenue/Schaefer Avenue

Cycle (sec): 100 Critical Vol./Cap.(X): 0.633
 Loss Time (sec): 0 (Y+R=4.0 sec) Average Delay (sec/veh): 19.2
 Optimal Cycle: 51 Level Of Service: B

Approach: North Bound South Bound East Bound West Bound
 Movement: L - T - R L - T - R L - T - R L - T - R

Control: Protected Protected Permitted Permitted
 Rights: Include Include Include Include
 Min. Green: 0 0 0 0 0 0 0 0 0 0 0 0
 Lanes: 1 0 2 1 0 1 0 2 1 0 1 0 1 0 1

Volume Module:
 Base Vol: 17 1175 2 316 1595 70 48 46 17 1 37 297
 Growth Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
 Initial Bse: 17 1175 2 316 1595 70 48 46 17 1 37 297
 Added Vol: 0 0 0 0 0 0 0 0 0 0 0 0
 PasserByVol: 0 0 0 0 0 0 0 0 0 0 0 0
 Initial Fut: 17 1175 2 316 1595 70 48 46 17 1 37 297
 User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
 PHF Adj: 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95
 PHF Volume: 18 1237 2 333 1679 74 51 48 18 1 39 313
 Reduct Vol: 0 0 0 0 0 0 0 0 0 0 0 0
 Reduced Vol: 18 1237 2 333 1679 74 51 48 18 1 39 313
 PCE Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
 MLF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
 Final Vol.: 18 1237 2 333 1679 74 51 48 18 1 39 313

Saturation Flow Module:
 Sat/Lane: 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900
 Adjustment: 0.90 0.91 0.91 0.90 0.90 0.90 0.38 0.91 0.91 0.65 0.82 0.82
 Lanes: 1.00 2.99 0.01 1.00 2.87 0.13 1.00 1.46 0.54 1.00 1.00 1.00
 Final Sat.: 1710 5178 9 1710 4939 217 729 2530 935 1228 1565 1565

Capacity Analysis Module:
 Vol/Sat: 0.01 0.24 0.24 0.19 0.34 0.34 0.07 0.02 0.02 0.00 0.02 0.20
 Crit Moves: ****
 Green/Cycle: 0.02 0.38 0.38 0.31 0.66 0.66 0.32 0.32 0.32 0.32 0.32 0.32
 Volume/Cap: 0.51 0.63 0.63 0.63 0.51 0.51 0.22 0.06 0.06 0.00 0.08 0.63
 Delay/Veh: 60.7 26.2 26.2 32.3 8.7 8.7 25.7 23.9 23.9 23.4 24.0 31.7
 User DelAdj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
 AdjDel/Veh: 60.7 26.2 26.2 32.3 8.7 8.7 25.7 23.9 23.9 23.4 24.0 31.7
 LOS by Move: E C C C A A C C C C C C
 HCM2kAvgQ: 1 12 12 10 10 10 1 1 1 0 1 9

Note: Queue reported is the number of cars per lane.

Ontario New Model - Rich Haven External Intersections
2015 PM Peak with Project- Mitigations
Meyer, Mohaddes Associates

Level Of Service Computation Report

2000 HCM Operations Method (Future Volume Alternative)

Intersection #4 Archibald Avenue/Edison Avenue

Cycle (sec): 100 Critical Vol./Cap.(X): 0.787
Loss Time (sec): 0 (Y+R=4.0 sec) Average Delay (sec/veh): 32.7
Optimal Cycle: 107 Level Of Service: C

Approach: North Bound South Bound East Bound West Bound
Movement: L - T - R L - T - R L - T - R L - T - R

Control: Protected Protected Protected Protected
Rights: Include Include Ignore Include
Min. Green: 0 0 0 0 0 0 0 0 0 0 0 0
Lanes: 2 0 2 1 0 2 0 2 1 0 2 0 4 0 1 2 0 3 1 0

Volume Module:

Base Vol: 458 642 420 145 1046 257 291 1613 1931 368 1366 98
Growth Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
Initial Bse: 458 642 420 145 1046 257 291 1613 1931 368 1366 98
Added Vol: 0 0 0 0 0 0 0 0 0 0 0 0
PasserByVol: 0 0 0 0 0 0 0 0 0 0 0 0
Initial Fut: 458 642 420 145 1046 257 291 1613 1931 368 1366 98
User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
PHF Adj: 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95
PHF Volume: 482 676 442 153 1101 271 306 1698 0 387 1438 103
Reduct Vol: 0 0 0 0 0 0 0 0 0 0 0 0
Reduced Vol: 482 676 442 153 1101 271 306 1698 0 387 1438 103
PCE Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 0.00 1.00 1.00 1.00
MLF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 0.00 1.00 1.00 1.00
Final Vol.: 482 676 442 153 1101 271 306 1698 0 387 1438 103

Saturation Flow Module:

Sat/Lane: 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900
Adjustment: 0.85 0.86 0.86 0.85 0.88 0.88 0.85 0.91 1.00 0.85 0.90 0.90
Lanes: 2.00 2.00 1.00 2.00 2.41 0.59 2.00 4.00 1.00 2.00 3.73 0.27
Final Sat.: 3230 3254 1627 3230 4039 992 3230 6916 1900 3230 6389 458

Capacity Analysis Module:

Vol/Sat: 0.15 0.21 0.27 0.05 0.27 0.27 0.09 0.25 0.00 0.12 0.23 0.23
Crit Moves: ****
Green/Cycle: 0.19 0.46 0.46 0.08 0.35 0.35 0.14 0.31 0.00 0.15 0.33 0.33
Volume/Cap: 0.79 0.45 0.60 0.60 0.79 0.79 0.69 0.79 0.00 0.79 0.69 0.69
Delay/Veh: 45.3 18.8 20.8 48.2 31.8 31.8 45.6 33.4 0.0 49.1 30.2 30.2
User DelAdj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
AdjDel/Veh: 45.3 18.8 20.8 48.2 31.8 31.8 45.6 33.4 0.0 49.1 30.2 30.2
LOS by Move: D B C D C C D C A D C C
HCM2kAvgQ: 10 8 11 4 16 16 6 15 0 8 12 12

Note: Queue reported is the number of cars per lane.

Ontario New Model - Rich Haven External Intersections
2015 PM Peak with Project- Mitigations
Meyer, Mohaddes Associates

Level Of Service Computation Report

2000 HCM Operations Method (Future Volume Alternative)

Intersection #5 Turner Avenue/Riverside Drive

Cycle (sec): 100 Critical Vol./Cap.(X): 0.332
Loss Time (sec): 0 (Y+R=4.0 sec) Average Delay (sec/veh): 14.5
Optimal Cycle: 28 Level Of Service: B

Approach: North Bound South Bound East Bound West Bound
Movement: L - T - R L - T - R L - T - R L - T - R

Control: Permitted Permitted Protected Protected
Rights: Include Include Include Include
Min. Green: 0 0 0 0 0 0 0 0 0 0 0 0
Lanes: 1 0 1 1 0 1 0 1 1 0 1 0 1 1 0

Volume Module:

Base Vol: 0 6 31 83 6 52 69 531 0 104 648 95
Growth Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
Initial Bse: 0 6 31 83 6 52 69 531 0 104 648 95
Added Vol: 0 0 0 0 0 0 0 0 0 0 0 0
PasserByVol: 0 0 0 0 0 0 0 0 0 0 0 0
Initial Fut: 0 6 31 83 6 52 69 531 0 104 648 95
User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
PHF Adj: 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95
PHF Volume: 0 6 33 87 6 55 73 559 0 109 682 100
Reduct Vol: 0 0 0 0 0 0 0 0 0 0 0 0
Reduced Vol: 0 6 33 87 6 55 73 559 0 109 682 100
PCE Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
MLF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
Final Vol.: 0 6 33 87 6 55 73 559 0 109 682 100

Saturation Flow Module:

Sat/Lane: 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900
Adjustment: 0.95 0.83 0.83 0.67 0.82 0.82 0.90 0.95 0.95 0.90 0.93 0.93
Lanes: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 2.00 0.00 1.00 1.74 0.26
Final Sat.: 1800 1578 1578 1264 1561 1561 1710 3610 0 1710 3089 453

Capacity Analysis Module:

Vol/Sat: 0.00 0.00 0.02 0.07 0.00 0.04 0.04 0.15 0.00 0.06 0.22 0.22
Crit Moves: ****
Green/Cycle: 0.00 0.21 0.21 0.21 0.21 0.21 0.13 0.56 0.00 0.23 0.66 0.66
Volume/Cap: 0.00 0.02 0.10 0.33 0.02 0.17 0.33 0.28 0.00 0.28 0.33 0.33
Delay/Veh: 0.0 31.5 32.1 34.4 31.5 32.7 40.6 11.5 0.0 31.9 7.3 7.3
User DelAdj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
AdjDel/Veh: 0.0 31.5 32.1 34.4 31.5 32.7 40.6 11.5 0.0 31.9 7.3 7.3
LOS by Move: A C C C C C D B A C A A
HCM2kAvgQ: 0 0 1 3 0 2 2 5 0 3 5 5

Note: Queue reported is the number of cars per lane.

Ontario New Model - Rich Haven External Intersections
 2015 PM Peak with Project- Mitigations
 Meyer, Mohaddes Associates

Level Of Service Computation Report
 2000 HCM 4-Way Stop Method (Future Volume Alternative)

 Intersection #6 Turner Avenue/Chino Avenue

Cycle (sec): 100 Critical Vol./Cap.(X): 0.103
 Loss Time (sec): 0 (Y+R=4.0 sec) Average Delay (sec/veh): 8.3
 Optimal Cycle: 0 Level Of Service: A

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Stop Sign			Stop Sign			Stop Sign			Stop Sign		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	1	0	1	1	0	1	1	0	1	1	0	1

Volume Module:

Base Vol:	15	4	21	6	39	27	26	112	17	14	125	7
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	15	4	21	6	39	27	26	112	17	14	125	7
Added Vol:	0	0	0	0	0	0	0	0	0	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	15	4	21	6	39	27	26	112	17	14	125	7
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
PHF Volume:	16	4	22	6	41	28	27	118	18	15	132	7
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	16	4	22	6	41	28	27	118	18	15	132	7
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Final Vol.:	16	4	22	6	41	28	27	118	18	15	132	7

Saturation Flow Module:

Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	1.00	1.00	1.00	1.00	1.18	0.82	1.00	1.74	0.26	1.00	1.89	0.11
Final Sat.:	567	615	699	575	752	569	617	1190	184	614	1281	72

Capacity Analysis Module:

Vol/Sat:	0.03	0.01	0.03	0.01	0.05	0.05	0.04	0.10	0.10	0.02	0.10	0.10
Crit Moves:	****			****			****			****		
Delay/Veh:	8.9	8.2	7.7	8.7	8.3	7.8	8.6	8.3	8.2	8.5	8.4	8.4
Delay Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	8.9	8.2	7.7	8.7	8.3	7.8	8.6	8.3	8.2	8.5	8.4	8.4
LOS by Move:	A	A	A	A	A	A	A	A	A	A	A	A
ApproachDel:	8.2			8.2			8.3			8.4		
Delay Adj:	1.00			1.00			1.00			1.00		
ApprAdjDel:	8.2			8.2			8.3			8.4		
LOS by Appr:	A			A			A			A		
AllWayAvgQ:	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.1	0.1	0.0	0.1	0.1

 Note: Queue reported is the number of cars per lane.

Ontario New Model - Rich Haven External Intersections
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 Meyer, Mohaddes Associates

Level Of Service Computation Report
 2000 HCM Operations Method (Future Volume Alternative)

 Intersection #7 Turner Avenue at Schaefer Avenue

Cycle (sec): 100 Critical Vol./Cap.(X): 0.117
 Loss Time (sec): 0 (Y+R=4.0 sec) Average Delay (sec/veh): 1.9
 Optimal Cycle: 21 Level Of Service: A

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Split Phase			Split Phase			Protected			Permitted		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	0	0	0	1	0	1	1	0	2	0	0	1

Volume Module:

Base Vol:	0	0	0	17	0	3	6	359	0	0	332	29
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	0	0	0	17	0	3	6	359	0	0	332	29
Added Vol:	0	0	0	0	0	0	0	0	0	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	0	0	0	17	0	3	6	359	0	0	332	29
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
PHF Volume:	0	0	0	18	0	3	6	378	0	0	349	31
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	0	0	0	18	0	3	6	378	0	0	349	31
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Final Vol.:	0	0	0	18	0	3	6	378	0	0	349	31

Saturation Flow Module:

Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.95	1.00	1.00	0.89	1.00	0.94	0.90	0.95	1.00	0.95	0.94	0.94
Lanes:	0.00	0.00	0.00	1.75	0.00	0.25	1.00	2.00	0.00	0.00	1.84	0.16
Final Sat.:	0	0	0	2953	0	447	1710	3610	0	0	3280	287

Capacity Analysis Module:

Vol/Sat:	0.00	0.00	0.00	0.01	0.00	0.01	0.00	0.10	0.00	0.00	0.11	0.11
Crit Moves:	****			****			****			****		
Green/Cycle:	0.00	0.00	0.00	0.06	0.00	0.06	0.03	0.94	0.00	0.00	0.91	0.91
Volume/Cap:	0.00	0.00	0.00	0.10	0.00	0.12	0.12	0.11	0.00	0.00	0.12	0.12
Delay/Veh:	0.0	0.0	0.0	44.6	0.0	44.8	48.0	0.2	0.0	0.0	0.5	0.5
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	0.0	0.0	0.0	44.6	0.0	44.8	48.0	0.2	0.0	0.0	0.5	0.5
LOS by Move:	A	A	A	D	A	D	D	A	A	A	A	A
HCM2kAvgQ:	0	0	0	0	0	0	0	0	0	0	1	1

 Note: Queue reported is the number of cars per lane.

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Level Of Service Computation Report
 2000 HCM Operations Method (Future Volume Alternative)

Intersection #8 Edison Avenue at Schaefer Avenue

Cycle (sec): 100 Critical Vol./Cap.(X): 0.440
 Loss Time (sec): 0 (Y+R=4.0 sec) Average Delay (sec/veh): 7.4
 Optimal Cycle: 33 Level Of Service: A

Approach: North Bound South Bound East Bound West Bound
 Movement: L - T - R L - T - R L - T - R L - T - R

Control: Split Phase Split Phase Permitted Permitted
 Rights: Include Include Include Include
 Min. Green: 0 0 0 0 0 0 0 0 0 0 0 0
 Lanes: 0 0 0 0 0 1 0 1 0 0 1 0 4 0 0 0 0 0 3 1 0

Volume Module:
 Base Vol: 0 0 0 372 0 4 17 1949 0 0 1727 344
 Growth Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
 Initial Bse: 0 0 0 372 0 4 17 1949 0 0 1727 344
 Added Vol: 0 0 0 0 0 0 0 0 0 0 0 0
 PasserByVol: 0 0 0 0 0 0 0 0 0 0 0 0
 Initial Fut: 0 0 0 372 0 4 17 1949 0 0 1727 344
 User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
 PHF Adj: 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95
 PHF Volume: 0 0 0 392 0 4 18 2052 0 0 1818 362
 Reduct Vol: 0 0 0 0 0 0 0 0 0 0 0 0
 Reduced Vol: 0 0 0 392 0 4 18 2052 0 0 1818 362
 PCE Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
 MLF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
 Final Vol.: 0 0 0 392 0 4 18 2052 0 0 1818 362

Saturation Flow Module:
 Sat/Lane: 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900
 Adjustment: 0.95 1.00 1.00 0.90 1.00 0.95 0.06 0.91 1.00 0.95 0.89 0.89
 Lanes: 0.00 0.00 0.00 1.98 0.00 0.02 1.00 4.00 0.00 0.00 3.34 0.66
 Final Sat.: 0 0 0 3390 0 36 115 6916 0 0 5623 1120

Capacity Analysis Module:
 Vol/Sat: 0.00 0.00 0.00 0.12 0.00 0.12 0.16 0.30 0.00 0.00 0.32 0.32
 Crit Moves: ****
 Green/Cycle: 0.00 0.00 0.00 0.27 0.00 0.27 0.73 0.73 0.00 0.00 0.73 0.73
 Volume/Cap: 0.00 0.00 0.00 0.44 0.00 0.44 0.21 0.40 0.00 0.00 0.44 0.44
 Delay/Veh: 0.0 0.0 0.0 30.9 0.0 30.9 5.4 5.1 0.0 0.0 5.3 5.3
 User DelAdj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
 AdjDel/Veh: 0.0 0.0 0.0 30.9 0.0 30.9 5.4 5.1 0.0 0.0 5.3 5.3
 LOS by Move: A A A C A C A A A A A A
 HCM2kAvgQ: 0 0 0 6 0 6 0 7 0 0 7 7

Note: Queue reported is the number of cars per lane.

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Level Of Service Computation Report
 2000 HCM Operations Method (Future Volume Alternative)

Intersection #9 Haven Avenue/SR-60 WB Ramps

Cycle (sec): 100 Critical Vol./Cap.(X): 0.563
 Loss Time (sec): 0 (Y+R=4.0 sec) Average Delay (sec/veh): 11.3
 Optimal Cycle: 43 Level Of Service: B

Approach: North Bound South Bound East Bound West Bound
 Movement: L - T - R L - T - R L - T - R L - T - R

Control: Protected Permitted Split Phase Split Phase
 Rights: Include Include Include Ignore
 Min. Green: 0 0 0 0 0 0 0 0 0 0 0 0
 Lanes: 2 0 3 0 0 0 0 3 0 1 0 0 0 0 0 1 1 1 0 0 1

Volume Module:
 Base Vol: 335 830 0 0 1916 124 0 0 0 213 0 443
 Growth Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
 Initial Bse: 335 830 0 0 1916 124 0 0 0 213 0 443
 Added Vol: 0 0 0 0 0 0 0 0 0 0 0 0
 PasserByVol: 0 0 0 0 0 0 0 0 0 0 0 0
 Initial Fut: 335 830 0 0 1916 124 0 0 0 213 0 443
 User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
 PHF Adj: 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95
 PHF Volume: 353 874 0 0 2017 131 0 0 0 224 0 0
 Reduct Vol: 0 0 0 0 0 0 0 0 0 0 0 0
 Reduced Vol: 353 874 0 0 2017 131 0 0 0 224 0 0
 PCE Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
 MLF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
 Final Vol.: 353 874 0 0 2017 131 0 0 0 224 0 0

Saturation Flow Module:
 Sat/Lane: 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900
 Adjustment: 0.85 0.91 1.00 0.95 0.91 0.85 0.95 1.00 1.00 0.90 1.00 1.00
 Lanes: 2.00 3.00 0.00 0.00 3.00 1.00 0.00 0.00 0.00 2.00 0.00 1.00
 Final Sat.: 3230 5187 0 0 5187 1615 0 0 0 3427 0 1900

Capacity Analysis Module:
 Vol/Sat: 0.11 0.17 0.00 0.00 0.39 0.08 0.00 0.00 0.00 0.07 0.00 0.00
 Crit Moves: ****
 Green/Cycle: 0.19 0.88 0.00 0.00 0.69 0.69 0.00 0.00 0.00 0.12 0.00 0.00
 Volume/Cap: 0.56 0.19 0.00 0.00 0.56 0.12 0.00 0.00 0.00 0.56 0.00 0.00
 Delay/Veh: 37.7 0.8 0.0 0.0 8.1 5.3 0.0 0.0 0.0 43.7 0.0 0.0
 User DelAdj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
 AdjDel/Veh: 37.7 0.8 0.0 0.0 8.1 5.3 0.0 0.0 0.0 43.7 0.0 0.0
 LOS by Move: D A A A A A A A A D A A
 HCM2kAvgQ: 6 1 0 0 12 1 0 0 0 4 0 0

Note: Queue reported is the number of cars per lane.

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Level Of Service Computation Report

2000 HCM Operations Method (Future Volume Alternative)

 Intersection #10 Haven Avenue/SR-60 EB Ramps

Cycle (sec): 100 Critical Vol./Cap.(X): 0.776
 Loss Time (sec): 0 (Y+R=4.0 sec) Average Delay (sec/veh): 23.1
 Optimal Cycle: 83 Level Of Service: C

Approach: North Bound South Bound East Bound West Bound
 Movement: L - T - R L - T - R L - T - R L - T - R

Control: Permitted South Bound East Bound West Bound
 Rights: Include Include Include Include
 Min. Green: 0 0 0 0 0 0 0 0 0 0 0 0
 Lanes: 0 0 2 0 1 2 0 3 0 0 1 0 1 0 0 0 0 0

Volume Module:

Base Vol:	0	1136	250	471	1657	0	30	0	883	0	0	0
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	0	1136	250	471	1657	0	30	0	883	0	0	0
Added Vol:	0	0	0	0	0	0	0	0	0	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	0	1136	250	471	1657	0	30	0	883	0	0	0
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
PHF Volume:	0	1196	263	496	1744	0	32	0	929	0	0	0
Reduced Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	0	1196	263	496	1744	0	32	0	929	0	0	0
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Final Vol.:	0	1196	263	496	1744	0	32	0	929	0	0	0

Saturation Flow Module:

Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.95	0.95	0.85	0.85	0.91	1.00	0.81	1.00	0.85	0.95	1.00	1.00
Lanes:	0.00	2.00	1.00	2.00	3.00	0.00	1.03	0.00	1.97	0.00	0.00	0.00
Final Sat.:	0	3610	1615	3230	5187	0	1589	0	3186	0	0	0

Capacity Analysis Module:

Vol/Sat:	0.00	0.33	0.16	0.15	0.34	0.00	0.02	0.00	0.29	0.00	0.00	0.00
Crit Moves:	****	****	****	****	****	****	****	****	****	****	****	****
Green/Cycle:	0.00	0.43	0.43	0.20	0.62	0.00	0.38	0.00	0.38	0.00	0.00	0.00
Volume/Cap:	0.00	0.78	0.38	0.78	0.54	0.00	0.05	0.00	0.78	0.00	0.00	0.00
Delay/Veh:	0.0	27.1	20.0	44.0	10.8	0.0	19.9	0.0	30.7	0.0	0.0	0.0
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	0.0	27.1	20.0	44.0	10.8	0.0	19.9	0.0	30.7	0.0	0.0	0.0
LOS by Move:	A	C	B	D	B	A	B	A	C	A	A	A
HCM2kAvgQ:	0	18	6	10	11	0	1	0	15	0	0	0

Note: Queue reported is the number of cars per lane.

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Level Of Service Computation Report

2000 HCM Operations Method (Future Volume Alternative)

 Intersection #11 Haven Avenue/Riverside Drive

Cycle (sec): 100 Critical Vol./Cap.(X): 0.883
 Loss Time (sec): 0 (Y+R=4.0 sec) Average Delay (sec/veh): 36.2
 Optimal Cycle: 180 Level Of Service: D

Approach: North Bound South Bound East Bound West Bound
 Movement: L - T - R L - T - R L - T - R L - T - R

Control: Protected South Bound East Bound West Bound
 Rights: Include Include Include Include
 Min. Green: 0 0 0 0 0 0 0 0 0 0 0 0
 Lanes: 1 0 1 1 0 1 0 1 1 0 1 0 1 1 0

Volume Module:

Base Vol:	105	963	188	327	1698	109	84	440	124	189	634	126
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	105	963	188	327	1698	109	84	440	124	189	634	126
Added Vol:	0	0	0	0	0	0	0	0	0	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	105	963	188	327	1698	109	84	440	124	189	634	126
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
PHF Volume:	111	1014	198	344	1787	115	88	463	131	199	667	133
Reduced Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	111	1014	198	344	1787	115	88	463	131	199	667	133
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Final Vol.:	111	1014	198	344	1787	115	88	463	131	199	667	133

Saturation Flow Module:

Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.90	0.93	0.93	0.90	0.94	0.94	0.90	0.92	0.92	0.90	0.93	0.93
Lanes:	1.00	1.67	0.33	1.00	1.88	0.12	1.00	1.56	0.44	1.00	1.67	0.33
Final Sat.:	1710	2948	575	1710	3362	216	1710	2723	767	1710	2936	584

Capacity Analysis Module:

Vol/Sat:	0.06	0.34	0.34	0.20	0.53	0.53	0.05	0.17	0.17	0.12	0.23	0.23
Crit Moves:	****	****	****	****	****	****	****	****	****	****	****	****
Green/Cycle:	0.07	0.43	0.43	0.25	0.60	0.60	0.06	0.19	0.19	0.13	0.26	0.26
Volume/Cap:	0.88	0.81	0.81	0.81	0.88	0.88	0.86	0.88	0.88	0.88	0.86	0.86
Delay/Veh:	92.6	28.4	28.4	46.1	21.6	21.6	94.1	52.4	52.4	73.5	43.2	43.2
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	92.6	28.4	28.4	46.1	21.6	21.6	94.1	52.4	52.4	73.5	43.2	43.2
LOS by Move:	F	C	C	D	C	C	F	D	D	E	D	D
HCM2kAvgQ:	6	19	19	13	29	29	5	13	13	9	15	15

Note: Queue reported is the number of cars per lane.

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2000 HCM Operations Method (Future Volume Alternative)

 Intersection #12 Haven Avenue at Chino Avenue

Cycle (sec): 100 Critical Vol./Cap.(X): 0.677
 Loss Time (sec): 0 (Y+R=4.0 sec) Average Delay (sec/veh): 8.8
 Optimal Cycle: 45 Level Of Service: A

Approach: North Bound South Bound East Bound West Bound
 Movement: L - T - R L - T - R L - T - R L - T - R

Control: Permitted Permitted Permitted Permitted
 Rights: Include Include Include Include
 Min. Green: 0 0 0 0 0 0 0 0 0 0 0 0
 Lanes: 1 0 1 1 0 1 0 1 1 0 1 0 1 1 0

Volume Module:
 Base Vol: 36 950 67 230 1576 13 31 45 35 125 82 174
 Growth Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
 Initial Bse: 36 950 67 230 1576 13 31 45 35 125 82 174
 Added Vol: 0 0 0 0 0 0 0 0 0 0 0 0
 PasserByVol: 0 0 0 0 0 0 0 0 0 0 0 0
 Initial Fut: 36 950 67 230 1576 13 31 45 35 125 82 174
 User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
 PHF Adj: 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95
 PHF Volume: 38 1000 71 242 1659 14 33 47 37 132 86 183
 Reduce Vol: 0 0 0 0 0 0 0 0 0 0 0 0
 Reduced Vol: 38 1000 71 242 1659 14 33 47 37 132 86 183
 PCE Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
 MLF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
 Final Vol.: 38 1000 71 242 1659 14 33 47 37 132 86 183

Saturation Flow Module:
 Sat/Lane: 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900
 Adjustment: 0.11 0.94 0.94 0.23 0.95 0.95 0.33 0.89 0.89 0.58 0.85 0.85
 Lanes: 1.00 1.87 0.13 1.00 1.98 0.02 1.00 1.12 0.88 1.00 1.00 1.00
 Final Sat.: 209 3338 235 434 3577 30 625 1897 1475 1109 1621 1621

Capacity Analysis Module:
 Vol/Sat: 0.18 0.30 0.30 0.56 0.46 0.46 0.05 0.02 0.02 0.12 0.05 0.11
 Crit Moves: ****
 Green/Cycle: 0.82 0.82 0.82 0.82 0.82 0.82 0.18 0.18 0.18 0.18 0.18 0.18
 Volume/Cap: 0.22 0.36 0.36 0.68 0.56 0.56 0.30 0.14 0.14 0.68 0.30 0.64
 Delay/Veh: 2.5 2.3 2.3 8.6 3.1 3.1 37.4 35.0 35.0 47.8 36.1 41.8
 User DelAdj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
 AdjDel/Veh: 2.5 2.3 2.3 8.6 3.1 3.1 37.4 35.0 35.0 47.8 36.1 41.8
 LOS by Move: A A A A A A D C C D D D
 HCM2kAvgQ: 1 4 4 5 9 9 1 1 1 5 3 7

Note: Queue reported is the number of cars per lane.

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2000 HCM Operations Method (Future Volume Alternative)

 Intersection #13 Haven Avenue at Edison Avenue

Cycle (sec): 100 Critical Vol./Cap.(X): 0.932
 Loss Time (sec): 0 (Y+R=4.0 sec) Average Delay (sec/veh): 42.8
 Optimal Cycle: 180 Level Of Service: D

Approach: North Bound South Bound East Bound West Bound
 Movement: L - T - R L - T - R L - T - R L - T - R

Control: Protected Protected Protected Protected
 Rights: Include Include Include Include
 Min. Green: 0 0 0 0 0 0 0 0 0 0 0 0
 Lanes: 1 0 1 1 0 1 0 1 1 0 1 0 3 1 0

Volume Module:
 Base Vol: 163 568 209 254 948 199 265 1854 203 277 1710 206
 Growth Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
 Initial Bse: 163 568 209 254 948 199 265 1854 203 277 1710 206
 Added Vol: 0 0 0 0 0 0 0 0 0 0 0 0
 PasserByVol: 0 0 0 0 0 0 0 0 0 0 0 0
 Initial Fut: 163 568 209 254 948 199 265 1854 203 277 1710 206
 User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
 PHF Adj: 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95
 PHF Volume: 172 598 220 267 998 209 279 1952 214 292 1800 217
 Reduce Vol: 0 0 0 0 0 0 0 0 0 0 0 0
 Reduced Vol: 172 598 220 267 998 209 279 1952 214 292 1800 217
 PCE Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
 MLF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
 Final Vol.: 172 598 220 267 998 209 279 1952 214 292 1800 217

Saturation Flow Module:
 Sat/Lane: 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900
 Adjustment: 0.90 0.91 0.91 0.90 0.93 0.93 0.90 0.90 0.90 0.90 0.90 0.90
 Lanes: 1.00 1.46 0.54 1.00 1.65 0.35 1.00 3.61 0.39 1.00 3.57 0.43
 Final Sat.: 1710 2533 932 1710 2906 610 1710 6140 672 1710 6074 732

Capacity Analysis Module:
 Vol/Sat: 0.10 0.24 0.24 0.16 0.34 0.34 0.16 0.32 0.32 0.17 0.30 0.30
 Crit Moves: ****
 Green/Cycle: 0.11 0.29 0.29 0.19 0.37 0.37 0.19 0.34 0.34 0.18 0.34 0.34
 Volume/Cap: 0.93 0.82 0.82 0.82 0.93 0.93 0.88 0.93 0.93 0.93 0.88 0.88
 Delay/Veh: 91.3 39.0 39.0 54.5 42.5 42.5 62.5 39.4 39.4 73.8 35.3 35.3
 User DelAdj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
 AdjDel/Veh: 91.3 39.0 39.0 54.5 42.5 42.5 62.5 39.4 39.4 73.8 35.3 35.3
 LOS by Move: F D D D D E D D E D D
 HCM2kAvgQ: 9 15 15 11 23 23 12 22 22 13 19 19

Note: Queue reported is the number of cars per lane.

Ontario New Model - Rich Haven External Intersections
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 Meyer, Mohaddes Associates

Level Of Service Computation Report

2000 HCM Operations Method (Future Volume Alternative)

 Intersection #14 Mill Creek Avenue/Riverside Drive

Cycle (sec): 100 Critical Vol./Cap.(X): 0.697
 Loss Time (sec): 0 (Y+R=4.0 sec) Average Delay (sec/veh): 19.5
 Optimal Cycle: 61 Level Of Service: B

Approach: North Bound South Bound East Bound West Bound
 Movement: L - T - R L - T - R L - T - R L - T - R

Control: Permitted Permitted Protected Protected
 Rights: Include Include Include Include
 Min. Green: 0 0 0 0 0 0 0 0 0 0 0 0
 Lanes: 1 0 1 0 1 1 0 0 1 1 0 1 0 1 1 0

Volume Module:

Base Vol:	61	19	64	118	14	181	270	878	60	64	1261	112
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	61	19	64	118	14	181	270	878	60	64	1261	112
Added Vol:	0	0	0	0	0	0	0	0	0	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	61	19	64	118	14	181	270	878	60	64	1261	112
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
PHF Volume:	64	20	67	124	15	191	284	924	63	67	1327	118
Reduce Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	64	20	67	124	15	191	284	924	63	67	1327	118
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Final Vol.:	64	20	67	124	15	191	284	924	63	67	1327	118

Saturation Flow Module:

Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.28	1.00	0.85	0.68	0.86	0.86	0.90	0.94	0.94	0.90	0.94	0.94
Lanes:	1.00	1.00	1.00	1.00	0.07	0.93	1.00	1.87	0.13	1.00	1.84	0.16
Final Sat.:	526	1900	1615	1291	117	1518	1710	3345	229	1710	3276	291

Capacity Analysis Module:

Vol/Sat:	0.12	0.01	0.04	0.10	0.13	0.13	0.17	0.28	0.28	0.04	0.41	0.41
Crit Moves:				****				****				****
Green/Cycle:	0.18	0.18	0.18	0.18	0.18	0.18	0.24	0.72	0.72	0.10	0.58	0.58
Volume/Cap:	0.68	0.06	0.23	0.53	0.70	0.70	0.70	0.38	0.38	0.38	0.70	0.70
Delay/Veh:	56.3	34.0	35.5	39.6	45.6	45.6	40.0	5.6	5.6	43.4	15.8	15.8
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	56.3	34.0	35.5	39.6	45.6	45.6	40.0	5.6	5.6	43.4	15.8	15.8
LOS by Move:	E	C	D	D	D	D	D	A	A	D	B	B
HCM2kAvgQ:	3	1	2	4	7	7	10	6	6	2	17	17

Note: Queue reported is the number of cars per lane.

Ontario New Model - Rich Haven External Intersections
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 Meyer, Mohaddes Associates

Level Of Service Computation Report

2000 HCM Operations Method (Future Volume Alternative)

 Intersection #15 Mill Creek Avenue at Chino Avenue

Cycle (sec): 100 Critical Vol./Cap.(X): 0.282
 Loss Time (sec): 0 (Y+R=4.0 sec) Average Delay (sec/veh): 14.5
 Optimal Cycle: 20 Level Of Service: B

Approach: North Bound South Bound East Bound West Bound
 Movement: L - T - R L - T - R L - T - R L - T - R

Control: Permitted Permitted Permitted Permitted
 Rights: Include Include Include Include
 Min. Green: 0 0 0 0 0 0 0 0 0 0 0 0
 Lanes: 1 0 1 1 0 1 0 0 1 0 1 0 1 0 1 1 0

Volume Module:

Base Vol:	92	109	13	17	124	150	106	42	105	73	207	23
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	92	109	13	17	124	150	106	42	105	73	207	23
Added Vol:	0	0	0	0	0	0	0	0	0	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	92	109	13	17	124	150	106	42	105	73	207	23
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
PHF Volume:	97	115	14	18	131	158	112	44	111	77	218	24
Reduce Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	97	115	14	18	131	158	112	44	111	77	218	24
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Final Vol.:	97	115	14	18	131	158	112	44	111	77	218	24

Saturation Flow Module:

Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.46	0.93	0.93	0.62	0.92	0.92	0.50	0.85	0.85	0.57	0.94	0.94
Lanes:	1.00	1.79	0.21	1.00	0.45	0.55	1.00	1.00	1.00	1.00	1.80	0.20
Final Sat.:	878	3174	379	1175	789	955	954	1612	1612	1087	3200	356

Capacity Analysis Module:

Vol/Sat:	0.11	0.04	0.04	0.02	0.17	0.17	0.12	0.03	0.07	0.07	0.07	0.07
Crit Moves:				****				****				****
Green/Cycle:	0.59	0.59	0.59	0.59	0.59	0.59	0.41	0.41	0.41	0.41	0.41	0.41
Volume/Cap:	0.19	0.06	0.06	0.03	0.28	0.28	0.28	0.07	0.17	0.17	0.16	0.16
Delay/Veh:	9.8	8.9	8.9	8.7	10.4	10.4	19.8	17.6	18.5	18.6	18.5	18.5
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	9.8	8.9	8.9	8.7	10.4	10.4	19.8	17.6	18.5	18.6	18.5	18.5
LOS by Move:	A	A	A	A	B	B	B	B	B	B	B	B
HCM2kAvgQ:	2	1	1	0	4	4	3	1	2	2	2	2

Note: Queue reported is the number of cars per lane.

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 Level Of Service Computation Report
 2000 HCM Operations Method (Future Volume Alternative)

 Intersection #16 Mill Creek Avenue at Edison Avenue

 Cycle (sec): 100 Critical Vol./Cap.(X): 0.489
 Loss Time (sec): 0 (Y+R=4.0 sec) Average Delay (sec/veh): 4.0
 Optimal Cycle: 28 Level Of Service: A

 Approach: North Bound South Bound East Bound West Bound
 Movement: L - T - R L - T - R L - T - R L - T - R

 Control: Permitted Permitted Permitted Permitted
 Rights: Include Include Include Include
 Min. Green: 0 0 0 0 0 0 0 0 0 0 0 0
 Lanes: 1 0 0 1 0 1 0 0 1 0 1 0

 Volume Module:
 Base Vol: 92 23 15 69 26 12 11 2319 196 12 2580 78
 Growth Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
 Initial Bse: 92 23 15 69 26 12 11 2319 196 12 2580 78
 Added Vol: 0 0 0 0 0 0 0 0 0 0 0 0
 PasserByVol: 0 0 0 0 0 0 0 0 0 0 0 0
 Initial Fut: 92 23 15 69 26 12 11 2319 196 12 2580 78
 User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
 PHF Adj: 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95
 PHF Volume: 97 24 16 73 27 13 12 2441 206 13 2716 82
 Reduced Vol: 0 0 0 0 0 0 0 0 0 0 0 0
 PCE Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
 MLF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
 Final Vol.: 97 24 16 73 27 13 12 2441 206 13 2716 82

 Saturation Flow Module:
 Sat/Lane: 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900
 Adjustment: 0.62 0.94 0.94 0.62 0.95 0.95 0.05 0.90 0.90 0.05 0.91 0.91
 Lanes: 1.00 0.61 0.39 1.00 0.68 0.32 1.00 3.69 0.31 1.00 3.88 0.12
 Final Sat.: 1175 1082 706 1175 1239 572 86 6300 533 86 6686 202

 Capacity Analysis Module:
 Vol/Sat: 0.08 0.02 0.02 0.06 0.02 0.02 0.13 0.39 0.39 0.15 0.41 0.41
 Crit Moves: **** *
 Green/Cycle: 0.17 0.17 0.17 0.17 0.17 0.17 0.83 0.83 0.83 0.83 0.83 0.83
 Volume/Cap: 0.49 0.13 0.13 0.37 0.13 0.13 0.16 0.47 0.47 0.18 0.49 0.49
 Delay/Veh: 39.6 35.5 35.5 38.0 35.5 35.5 2.7 2.4 2.4 2.8 2.5 2.5
 User DelAdj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
 AdjDel/Veh: 39.6 35.5 35.5 38.0 35.5 35.5 2.7 2.4 2.4 2.8 2.5 2.5
 LOS by Move: D D D D D A A A A A A
 HCM2kAvgQ: 3 1 1 2 1 1 0 6 6 0 7 7

 Note: Queue reported is the number of cars per lane.

Ontario New Model - Rich Haven External Intersections
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 Level Of Service Computation Report
 2000 HCM Operations Method (Future Volume Alternative)

 Intersection #17 Milliken Avenue/SR-60 WB Ramps

 Cycle (sec): 100 Critical Vol./Cap.(X): 0.944
 Loss Time (sec): 0 (Y+R=4.0 sec) Average Delay (sec/veh): 31.1
 Optimal Cycle: 180 Level Of Service: C

 Approach: North Bound South Bound East Bound West Bound
 Movement: L - T - R L - T - R L - T - R L - T - R

 Control: Protected Permitted Split Phase Split Phase
 Rights: Include Include Include Include
 Min. Green: 0 0 0 0 0 0 0 0 0 0 0 0
 Lanes: 2 0 2 0 0 0 0 2 0 1 0 0 0 0 0 1 0 1 0 1

 Volume Module:
 Base Vol: 734 742 0 0 1967 114 0 0 0 351 0 162
 Growth Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
 Initial Bse: 734 742 0 0 1967 114 0 0 0 351 0 162
 Added Vol: 0 0 0 0 0 0 0 0 0 0 0 0
 PasserByVol: 0 0 0 0 0 0 0 0 0 0 0 0
 Initial Fut: 734 742 0 0 1967 114 0 0 0 351 0 162
 User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
 PHF Adj: 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95
 PHF Volume: 773 781 0 0 2071 120 0 0 0 369 0 171
 Reduced Vol: 0 0 0 0 0 0 0 0 0 0 0 0
 PCE Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
 MLF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
 Final Vol.: 773 781 0 0 2071 120 0 0 0 369 0 171

 Saturation Flow Module:
 Sat/Lane: 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900
 Adjustment: 0.85 0.95 1.00 0.95 0.95 0.85 0.95 1.00 1.00 0.87 1.00 0.92
 Lanes: 2.00 2.00 0.00 0.00 2.00 1.00 0.00 0.00 0.00 1.70 0.00 1.30
 Final Sat.: 3230 3610 0 0 3610 1615 0 0 0 2813 0 2284

 Capacity Analysis Module:
 Vol/Sat: 0.24 0.22 0.00 0.00 0.57 0.07 0.00 0.00 0.00 0.13 0.00 0.07
 Crit Moves: **** *
 Green/Cycle: 0.25 0.86 0.00 0.00 0.61 0.61 0.00 0.00 0.00 0.14 0.00 0.14
 Volume/Cap: 0.94 0.25 0.00 0.00 0.94 0.12 0.00 0.00 0.00 0.94 0.00 0.54
 Delay/Veh: 55.8 1.3 0.0 0.0 27.3 8.4 0.0 0.0 0.0 67.2 0.0 40.6
 User DelAdj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
 AdjDel/Veh: 55.8 1.3 0.0 0.0 27.3 8.4 0.0 0.0 0.0 67.2 0.0 40.6
 LOS by Move: E A A A C A A A A E A D
 HCM2kAvgQ: 18 2 0 0 36 2 0 0 0 11 0 4

 Note: Queue reported is the number of cars per lane.

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Level Of Service Computation Report

2000 HCM Operations Method (Future Volume Alternative)

Intersection #18 Milliken Avenue/SR-60 EB Ramps

Cycle (sec): 100 Critical Vol./Cap.(X): 0.659
Loss Time (sec): 0 (Y+R=4.0 sec) Average Delay (sec/veh): 1.9
Optimal Cycle: 67 Level Of Service: A

Approach: North Bound South Bound East Bound West Bound
Movement: L - T - R L - T - R L - T - R L - T - R

Control: Protected Protected Split Phase Split Phase
Rights: Include Include Ignore Include
Min. Green: 0 0 0 0 0 0 0 0 0 0 0 0
Lanes: 0 0 1 1 0 1 0 2 0 0 1 0 0 0 0 0

Volume Module:

Base Vol: 0 1471 434 73 2249 0 6 0 761 0 0 0
Growth Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
Initial Bse: 0 1471 434 73 2249 0 6 0 761 0 0 0
Added Vol: 0 0 0 0 0 0 0 0 0 0 0 0
PasserByVol: 0 0 0 0 0 0 0 0 0 0 0 0
Initial Fut: 0 1471 434 73 2249 0 6 0 761 0 0 0
User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 0.00 1.00 1.00 1.00
PHF Adj: 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95
PHF Volume: 0 1548 457 77 2367 0 6 0 0 0 0 0
Reduced Vol: 0 0 0 0 0 0 0 0 0 0 0 0
Reduced Vol: 0 1548 457 77 2367 0 6 0 0 0 0 0
PCE Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 0.00 1.00 1.00 1.00
MLF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 0.00 1.00 1.00 1.00
Final Vol.: 0 1548 457 77 2367 0 6 0 0 0 0 0

Saturation Flow Module:

Sat/Lane: 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900
Adjustment: 0.95 0.92 0.92 0.90 0.95 1.00 0.90 1.00 1.00 0.95 1.00 1.00
Lanes: 0.00 1.54 0.46 1.00 2.00 0.00 1.00 0.00 1.00 0.00 0.00 0.00
Final Sat.: 0 2693 794 1710 3610 0 1710 0 1900 0 0 0

Capacity Analysis Module:

Vol/Sat: 0.00 0.58 0.58 0.04 0.66 0.00 0.00 0.00 0.00 0.00 0.00 0.00
Crit Moves: ****
Green/Cycle: 0.00 0.92 0.92 0.07 0.99 0.00 0.01 0.00 0.00 0.00 0.00 0.00
Volume/Cap: 0.00 0.62 0.62 0.62 0.66 0.00 0.66 0.00 0.00 0.00 0.00 0.00
Delay/Veh: 0.0 1.1 1.1 54.6 0.5 0.0 152.9 0.0 0.0 0.0 0.0 0.0
User DelAdj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
AdjDel/Veh: 0.0 1.1 1.1 54.6 0.5 0.0 152.9 0.0 0.0 0.0 0.0 0.0
LOS by Move: A A A D A A F A A A A A
HCM2kAvgQ: 0 7 7 4 2 0 1 0 0 0 0 0

Note: Queue reported is the number of cars per lane.

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Level Of Service Computation Report

2000 HCM Operations Method (Future Volume Alternative)

Intersection #19 Milliken Avenue/Riverside Drive

Cycle (sec): 100 Critical Vol./Cap.(X): 0.886
Loss Time (sec): 0 (Y+R=4.0 sec) Average Delay (sec/veh): 34.0
Optimal Cycle: 180 Level Of Service: C

Approach: North Bound South Bound East Bound West Bound
Movement: L - T - R L - T - R L - T - R L - T - R

Control: Protected Protected Protected Protected
Rights: Include Include Include Ovl
Min. Green: 0 0 0 0 0 0 0 0 0 0 0 0
Lanes: 2 0 3 0 1 2 0 3 0 1 2 0 1 1 0 1 0 2 0 1

Volume Module:

Base Vol: 43 425 9 789 1625 596 783 364 67 128 784 696
Growth Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
Initial Bse: 43 425 9 789 1625 596 783 364 67 128 784 696
Added Vol: 0 0 0 0 0 0 0 0 0 0 0 0
PasserByVol: 0 0 0 0 0 0 0 0 0 0 0 0
Initial Fut: 43 425 9 789 1625 596 783 364 67 128 784 696
User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
PHF Adj: 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95
PHF Volume: 45 447 9 831 1711 627 824 383 71 135 825 733
Reduced Vol: 0 0 0 0 0 0 0 0 0 0 0 0
Reduced Vol: 45 447 9 831 1711 627 824 383 71 135 825 733
PCE Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
MLF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
Final Vol.: 45 447 9 831 1711 627 824 383 71 135 825 733

Saturation Flow Module:

Sat/Lane: 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900
Adjustment: 0.85 0.91 0.85 0.85 0.91 0.85 0.85 0.93 0.93 0.90 0.95 0.85
Lanes: 2.00 3.00 1.00 2.00 3.00 1.00 2.00 1.69 0.31 1.00 2.00 1.00
Final Sat.: 3230 5187 1615 3230 5187 1615 3230 2979 548 1710 3610 1615

Capacity Analysis Module:

Vol/Sat: 0.01 0.09 0.01 0.26 0.33 0.39 0.26 0.13 0.13 0.08 0.23 0.45
Crit Moves: ****
Green/Cycle: 0.02 0.11 0.11 0.34 0.44 0.44 0.29 0.34 0.34 0.21 0.26 0.60
Volume/Cap: 0.89 0.76 0.05 0.76 0.75 0.89 0.89 0.38 0.38 0.38 0.89 0.76
Delay/Veh: 133.8 48.5 39.6 32.4 25.0 38.7 44.3 25.3 25.3 34.8 46.0 18.3
User DelAdj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
AdjDel/Veh: 133.8 48.5 39.6 32.4 25.0 38.7 44.3 25.3 25.3 34.8 46.0 18.3
LOS by Move: F D D C C D D C C D B
HCM2kAvgQ: 2 7 0 14 17 21 17 6 6 4 16 18

Note: Queue reported is the number of cars per lane.

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 Level Of Service Computation Report
 2000 HCM Operations Method (Future Volume Alternative)

 Intersection #20 Milliken Ave / Chino Ave

 Cycle (sec): 100 Critical Vol./Cap.(X): 0.384
 Loss Time (sec): 0 (Y+R=4.0 sec) Average Delay (sec/veh): 6.5
 Optimal Cycle: 30 Level Of Service: A

 Approach: North Bound South Bound East Bound West Bound
 Movement: L - T - R L - T - R L - T - R L - T - R

 Control: Protected Permitted Split Phase Split Phase
 Rights: Include Include Include Include
 Min. Green: 0 0 0 0 0 0 0 0 0 0 0 0
 Lanes: 1 0 2 0 0 0 0 3 1 0 1 0 0 0 0 0

 Volume Module:
 Base Vol: 115 583 0 0 1635 189 25 0 48 0 0 0
 Growth Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
 Initial Bse: 115 583 0 0 1635 189 25 0 48 0 0 0
 Added Vol: 0 0 0 0 0 0 0 0 0 0 0 0
 PasserByVol: 0 0 0 0 0 0 0 0 0 0 0 0
 Initial Fut: 115 583 0 0 1635 189 25 0 48 0 0 0
 User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
 PHF Adj: 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95
 PHF Volume: 121 614 0 0 1721 199 26 0 51 0 0 0
 Reduct Vol: 0 0 0 0 0 0 0 0 0 0 0 0
 Reduced Vol: 121 614 0 0 1721 199 26 0 51 0 0 0
 PCE Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
 MLF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
 Final Vol.: 121 614 0 0 1721 199 26 0 51 0 0 0

 Saturation Flow Module:
 Sat/Lane: 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900
 Adjustment: 0.90 0.95 1.00 0.95 0.90 0.90 0.90 1.00 0.85 0.95 1.00 1.00
 Lanes: 1.00 2.00 0.00 0.00 3.59 0.41 1.00 0.00 1.00 0.00 0.00 0.00
 Final Sat.: 1710 3610 0 0 6100 705 1710 0 1615 0 0 0

 Capacity Analysis Module:
 Vol/Sat: 0.07 0.17 0.00 0.00 0.28 0.28 0.02 0.00 0.03 0.00 0.00 0.00
 Crit Moves: **** **
 Green/Cycle: 0.18 0.92 0.00 0.00 0.73 0.73 0.08 0.00 0.08 0.00 0.00 0.00
 Volume/Cap: 0.38 0.19 0.00 0.00 0.38 0.38 0.19 0.00 0.38 0.00 0.00 0.00
 Delay/Veh: 36.6 0.4 0.0 0.0 5.0 5.0 43.5 0.0 45.4 0.0 0.0 0.0
 User DelAdj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
 AdjDel/Veh: 36.6 0.4 0.0 0.0 5.0 5.0 43.5 0.0 45.4 0.0 0.0 0.0
 LOS by Move: D A A A A A D A D A A A
 HCM2kAvgQ: 4 1 0 0 6 6 1 0 2 0 0 0

 Note: Queue reported is the number of cars per lane.

Ontario New Model - Rich Haven External Intersections
 2015 PM Peak with Project- Mitigations
 Meyer, Mohaddes Associates

 Level Of Service Computation Report
 2000 HCM Operations Method (Future Volume Alternative)

 Intersection #21 Milliken Avenue/Edison Avenue

 Cycle (sec): 100 Critical Vol./Cap.(X): 0.980
 Loss Time (sec): 0 (Y+R=4.0 sec) Average Delay (sec/veh): 41.4
 Optimal Cycle: 180 Level Of Service: D

 Approach: North Bound South Bound East Bound West Bound
 Movement: L - T - R L - T - R L - T - R L - T - R

 Control: Protected Protected Protected Protected
 Rights: Include Include Include Include
 Min. Green: 0 0 0 0 0 0 0 0 0 0 0 0
 Lanes: 1 0 1 1 0 1 0 2 1 0 1 0 3 1 0 2 0 3 1 0

 Volume Module:
 Base Vol: 103 318 297 276 1189 184 110 2725 111 560 3067 157
 Growth Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
 Initial Bse: 103 318 297 276 1189 184 110 2725 111 560 3067 157
 Added Vol: 0 0 0 0 0 0 0 0 0 0 0 0
 PasserByVol: 0 0 0 0 0 0 0 0 0 0 0 0
 Initial Fut: 103 318 297 276 1189 184 110 2725 111 560 3067 157
 User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
 PHF Adj: 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95
 PHF Volume: 108 335 313 291 1252 194 116 2868 117 589 3228 165
 Reduct Vol: 0 0 0 0 0 0 0 0 0 0 0 0
 Reduced Vol: 108 335 313 291 1252 194 116 2868 117 589 3228 165
 PCE Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
 MLF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
 Final Vol.: 108 335 313 291 1252 194 116 2868 117 589 3228 165

 Saturation Flow Module:
 Sat/Lane: 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900
 Adjustment: 0.90 0.88 0.88 0.90 0.89 0.89 0.90 0.90 0.90 0.85 0.90 0.90
 Lanes: 1.00 1.03 0.97 1.00 2.60 0.40 1.00 3.84 0.16 2.00 3.81 0.19
 Final Sat.: 1710 1732 1618 1710 4402 681 1710 6605 269 3230 6533 334

 Capacity Analysis Module:
 Vol/Sat: 0.06 0.19 0.19 0.17 0.28 0.28 0.07 0.43 0.43 0.18 0.49 0.49
 Crit Moves: **** **
 Green/Cycle: 0.07 0.20 0.20 0.17 0.30 0.30 0.08 0.44 0.44 0.19 0.55 0.55
 Volume/Cap: 0.94 0.98 0.98 0.98 0.94 0.94 0.89 0.98 0.98 0.98 0.89 0.89
 Delay/Veh: 110.8 69.8 69.8 87.7 45.3 45.3 93.8 39.4 39.4 72.0 22.8 22.8
 User DelAdj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
 AdjDel/Veh: 110.8 69.8 69.8 87.7 45.3 45.3 93.8 39.4 39.4 72.0 22.8 22.8
 LOS by Move: F E E F D D F D D E C C
 HCM2kAvgQ: 7 16 16 14 21 21 6 32 32 15 29 29

 Note: Queue reported is the number of cars per lane.

Ontario New Model - Rich Haven External Intersections
 2015 PM Peak with Project- Mitigations
 Meyer, Mohaddes Associates

Level Of Service Computation Report
 2000 HCM Operations Method (Future Volume Alternative)

 Intersection #550 Haven Avenue/Creekside Drive

Cycle (sec): 100 Critical Vol./Cap.(X): 0.000
 Loss Time (sec): 0 (Y+R=4.0 sec) Average Delay (sec/veh): 0.0
 Optimal Cycle: 0 Level Of Service:

Approach: North Bound South Bound East Bound West Bound
 Movement: L - T - R L - T - R L - T - R L - T - R

Control: Protected Protected Prot+Permit Prot+Permit
 Rights: Include Include Include Include
 Min. Green: 0 0 0 0 0 0 0 0 0 0 0 0
 Lanes: 1 0 1 1 0 1 0 1 1 0 1 1 0 1 0 1

Volume Module:
 Base Vol: 0 0 0 0 0 0 0 0 0 0 0 0
 Growth Adj: 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00
 Initial Bse: 0 0 0 0 0 0 0 0 0 0 0 0
 Added Vol: 0 0 0 0 0 0 0 0 0 0 0 0
 PasserByVol: 0 0 0 0 0 0 0 0 0 0 0 0
 Initial Fut: 0 0 0 0 0 0 0 0 0 0 0 0
 User Adj: 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00
 PHF Adj: 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00
 PHF Volume: 0 0 0 0 0 0 0 0 0 0 0 0
 Reduct Vol: 0 0 0 0 0 0 0 0 0 0 0 0
 Reduced Vol: 0 0 0 0 0 0 0 0 0 0 0 0
 PCE Adj: 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00
 MLF Adj: 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00
 Final Vol.: 0 0 0 0 0 0 0 0 0 0 0 0

Saturation Flow Module:
 Sat/Lane: 0 0 0 0 0 0 0 0 0 0 0 0
 Adjustment: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
 Lanes: 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00
 Final Sat.: 0 0 0 0 0 0 0 0 0 0 0 0

Capacity Analysis Module:
 Vol/Sat: 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00
 Crit Moves:
 Green/Cycle: 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00
 Volume/Cap: 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00
 Delay/Veh: 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0
 User DelAdj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
 AdjDel/Veh: 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0
 LOS by Move:
 HCM2kAvgQ: 0 0 0 0 0 0 0 0 0 0 0 0

Note: Queue reported is the number of cars per lane.

Ontario New Model - Rich Haven External Intersections
 2015 PM Peak with Project- Mitigations
 Meyer, Mohaddes Associates

Lane Geometry Report

Number of approach lanes: (L) (LT) (T) (RT) (R) (LTR)

Node Intersection	NB	SB	EB	WB
1 Archibald Avenue/Riverside Drive	102100	102100	101100	101100
2 Archibald Avenue/Chino Avenue	102100	102100	100100	101010
3 Archibald Avenue/Schaefer Avenue	102100	102100	101100	101100
4 Archibald Avenue/Edison Avenue	202100	202100	204010	203100
5 Turner Avenue/Riverside Drive	101100	101100	101100	101100
6 Turner Avenue/Chino Avenue	101100	101100	101100	101100
7 Turner Avenue at Schaefer Avenue	000000	100001	102000	001100
8 Edison Avenue at Schaefer Avenue	000000	100001	104000	003100
9 Haven Avenue/SR-60 WB Ramps	203000	003010	000000	110010
10 Haven Avenue/SR-60 EB Ramps	002010	203000	100011	000000
11 Haven Avenue/Riverside Drive	101100	101100	101100	101100
12 Haven Avenue at Chino Avenue	101100	101100	101100	101100
13 Haven Avenue at Edison Avenue	101100	101100	103100	103100
14 Mill Creek Avenue/Riverside Drive	101010	100100	101100	101100
15 Mill Creek Avenue at Chino Avenue	101100	100100	101100	101100
16 Mill Creek Avenue at Edison Avenue	100100	100100	103100	103100
17 Milliken Avenue/SR-60 WB Ramps	202000	002010	000000	100011
18 Milliken Avenue/SR-60 EB Ramps	001100	102000	100010	000000
19 Milliken Avenue/Riverside Drive	203010	203010	201100	102010
20 Milliken Ave / Chino Ave	102000	003100	100010	000000
21 Milliken Avenue/Edison Avenue	101100	102100	103100	203100
550 Haven Avenue/Creekside Drive	101100	101100	101010	101010

**APPENDIX
H
LOS CALCULATIONS
2015 FUTURE WITH
PROJECT
(BASELINE CONDITIONS)**

Ontario New Model - Rich Haven External Intersections
 2015 AM Peak (Base Scenario Trip Generation)
 Meyer, Mohaddes Associates

Scenario: 2015 AM (With Project + Base Scenario Trip Gen)

Command: 2015 AM
 Volume: 2015 AM
 Geometry: Future Base
 Impact Fee: Default Impact Fee
 Trip Generation: None
 Trip Distribution: None
 Paths: Default Paths
 Routes: Default Routes
 Configuration: 2015 AM

Scenario Report

Ontario New Model - Rich Haven External Intersections
 2015 AM Peak (Base Scenario Trip Generation)
 Meyer, Mohaddes Associates

Intersection Volume Report
 Base Volume Alternative

Node Intersection	Northbound			Southbound			Eastbound			Westbound		
	L	T	R	L	T	R	L	T	R	L	T	R
1 Archibald Ave	177	1573	81	62	486	65	154	440	66	52	239	119
2 Archibald Ave	65	1658	38	55	598	1	1	25	36	58	25	168
3 Archibald Ave	15	1368	0	98	665	16	84	25	12	2	26	253
4 Archibald Ave	772	885	233	62	332	195	215	792	229	312	1309	120
5 Turner Avenue	0	5	102	95	2	74	29	628	0	35	346	39
6 Turner Avenue	23	32	19	4	13	35	18	100	3	1	72	3
7 Turner Avenue	0	0	0	16	0	3	2	122	0	0	277	13
8 Edison Avenue	0	0	0	133	0	6	7	1031	0	0	1531	283
9 Haven Avenue/	365	1336	0	0	428	21	0	0	0	96	0	803
10 Haven Avenue/	0	1626	286	93	431	0	74	0	215	0	0	0
11 Haven Avenue/	70	1162	215	129	429	40	141	644	72	121	300	128
12 Haven Avenue	23	1295	85	30	536	3	27	59	25	40	15	32
13 Haven Avenue	165	806	207	125	332	203	157	936	71	107	1447	124
14 Mill Creek Av	15	184	82	103	174	112	151	1316	19	33	485	26
15 Mill Creek Av	38	122	44	5	63	41	83	58	38	11	14	2
16 Mill Creek Av	115	22	8	36	9	8	10	1442	43	3	1685	42
17 Milliken Aven	466	923	0	0	579	2	0	0	0	244	0	271
18 Milliken Aven	0	1356	416	3	820	0	33	0	489	0	0	0
19 Milliken Aven	41	697	14	722	127	458	783	796	37	3	279	293
20 Milliken Ave	18	874	0	0	232	9	27	0	81	0	0	0
21 Milliken Aven	66	637	520	89	95	27	56	1525	29	200	1897	181
550 Haven Avenue/	0	0	0	0	0	0	0	0	0	0	0	0

Ontario New Model - Rich Haven External Intersections
 2015 AM Peak (Base Scenario Trip Generation)
 Meyer, Mohaddes Associates

Impact Analysis Report
 Level Of Service

Intersection	Base		Future		Change in	
	Del/ LOS Veh	V/ C	Del/ LOS Veh	V/ C		
# 1 Archibald Avenue/Riverside Dri	C	23.4 0.581	C	23.4 0.581	+ 0.000	D/V
# 2 Archibald Avenue/Chino Avenue	B	11.2 0.489	B	11.2 0.489	+ 0.000	D/V
# 3 Archibald Avenue/Schaefer Aven	B	15.9 0.509	B	15.9 0.509	+ 0.000	D/V
# 4 Archibald Avenue/Edison Avenue	C	29.3 0.668	C	29.3 0.668	+ 0.000	D/V
# 5 Turner Avenue/Riverside Drive	B	14.1 0.294	B	14.1 0.294	+ 0.000	D/V
# 6 Turner Avenue/Chino Avenue	A	8.0 0.078	A	8.0 0.078	+ 0.000	V/C
# 7 Turner Avenue at Schaefer Aven	A	2.5 0.093	A	2.5 0.093	+ 0.000	D/V
# 8 Edison Avenue at Schaefer Aven	A	3.0 0.327	A	3.0 0.327	+ 0.000	D/V
# 9 Haven Avenue/SR-60 WB Ramps	A	9.6 0.301	A	9.6 0.301	+ 0.000	D/V
# 10 Haven Avenue/SR-60 EB Ramps	B	11.2 0.567	B	11.2 0.567	+ 0.000	D/V
# 11 Haven Avenue/Riverside Drive	C	27.9 0.910	C	27.9 0.910	+ 0.000	D/V
# 12 Haven Avenue at Chino Avenue	A	4.7 0.450	A	4.7 0.450	+ 0.000	D/V
# 13 Haven Avenue at Edison Avenue	C	25.8 0.764	C	25.8 0.764	+ 0.000	D/V
# 14 Mill Creek Avenue/Riverside Dr	B	17.9 0.579	B	17.9 0.579	+ 0.000	D/V
# 15 Mill Creek Avenue at Chino Ave	B	13.3 0.126	B	13.3 0.126	+ 0.000	D/V
# 16 Mill Creek Avenue at Edison Av	A	5.9 0.356	A	5.9 0.356	+ 0.000	D/V
# 17 Milliken Avenue/SR-60 WB Ramps	C	21.0 0.632	C	21.0 0.632	+ 0.000	D/V
# 18 Milliken Avenue/SR-60 EB Ramps	C	20.6 0.865	C	20.6 0.865	+ 0.000	D/V
# 19 Milliken Avenue/Riverside Driv	E	61.8 1.044	E	61.8 1.044	+ 0.000	D/V
# 20 Milliken Ave / Chino Ave	B	12.6 0.308	B	12.6 0.308	+ 0.000	D/V
# 21 Milliken Avenue/Edison Avenue	C	30.5 0.777	C	30.5 0.777	+ 0.000	D/V
#550 Haven Avenue/Creekside Drive		0.0 0.000		0.0 0.000	+ 0.000	D/V

Ontario New Model - Rich Haven External Intersections
 2015 AM Peak (Base Scenario Trip Generation)
 Meyer, Mohaddes Associates

Level Of Service Computation Report
 2000 HCM Operations Method (Future Volume Alternative)

Intersection #1 Archibald Avenue/Riverside Drive

Cycle (sec): 100 Critical Vol./Cap.(X): 0.581
 Loss Time (sec): 0 (Y+R=4.0 sec) Average Delay (sec/veh): 23.4
 Optimal Cycle: 54 Level Of Service: C

Approach:	North Bound			South Bound			East Bound			West Bound		
	L	T	R	L	T	R	L	T	R	L	T	R
Movement:												
Control:	Protected			Protected			Protected			Protected		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	1	0	2	1	0	2	1	0	1	1	0	1

Volume Module:
 Base Vol: 177 1573 81 62 486 65 154 440 66 52 239 119
 Growth Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
 Initial Bse: 177 1573 81 62 486 65 154 440 66 52 239 119
 Added Vol: 0 0 0 0 0 0 0 0 0 0 0 0
 PasserByVol: 0 0 0 0 0 0 0 0 0 0 0 0
 Initial Fut: 177 1573 81 62 486 65 154 440 66 52 239 119
 User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
 PHF Adj: 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95
 PHF Volume: 186 1656 85 65 512 68 162 463 69 55 252 125
 Reduced Vol: 0 0 0 0 0 0 0 0 0 0 0 0
 Reduced Vol: 186 1656 85 65 512 68 162 463 69 55 252 125
 PCE Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
 MLF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
 Final Vol.: 186 1656 85 65 512 68 162 463 69 55 252 125

Saturation Flow Module:
 Sat/Lane: 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900
 Adjustment: 0.90 0.90 0.90 0.90 0.89 0.89 0.90 0.93 0.93 0.90 0.90 0.90
 Lanes: 1.00 2.85 0.15 1.00 2.65 0.35 1.00 1.74 0.26 1.00 1.34 0.66
 Final Sat.: 1710 4898 252 1710 4493 601 1710 3079 462 1710 2290 1140

Capacity Analysis Module:
 Vol/Sat: 0.11 0.34 0.34 0.04 0.11 0.11 0.09 0.15 0.15 0.03 0.11 0.11
 Crit Moves: **** *
 Green/Cycle: 0.32 0.58 0.58 0.07 0.33 0.33 0.16 0.29 0.29 0.06 0.19 0.19
 Volume/Cap: 0.34 0.58 0.58 0.58 0.34 0.34 0.58 0.52 0.52 0.52 0.58 0.58
 Delay/Veh: 26.6 13.5 13.5 52.8 25.4 25.4 41.8 30.1 30.1 49.9 38.3 38.3
 User DelAdj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
 AdjDel/Veh: 26.6 13.5 13.5 52.8 25.4 25.4 41.8 30.1 30.1 49.9 38.3 38.3
 LOS by Move: C B B D C C D C C D D D
 HCM2kAvgQ: 5 13 13 3 5 5 6 8 8 2 6 6

Note: Queue reported is the number of cars per lane.

Ontario New Model - Rich Haven External Intersections
2015 AM Peak (Base Scenario Trip Generation)
Meyer, Mohaddes Associates

Level Of Service Computation Report

2000 HCM Operations Method (Future Volume Alternative)

Intersection #2 Archibald Avenue/Chino Avenue

Cycle (sec): 90 Critical Vol./Cap.(X): 0.489
Loss Time (sec): 0 (Y+R=4.0 sec) Average Delay (sec/veh): 11.2
Optimal Cycle: 45 Level Of Service: B

Approach: North Bound South Bound East Bound West Bound
Movement: L - T - R L - T - R L - T - R L - T - R

Control: Protected Protected Protected Protected
Rights: Include Include Include Include
Min. Green: 0 0 0 0 0 0 0 0 0 0 0 0
Lanes: 1 0 2 1 0 1 0 2 1 0 1 0 1 0 1

Volume Module:

Base Vol: 65 1658 38 55 598 1 1 25 36 58 25 168
Growth Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
Initial Bse: 65 1658 38 55 598 1 1 25 36 58 25 168
Added Vol: 0 0 0 0 0 0 0 0 0 0 0 0 0
PasserByVol: 0 0 0 0 0 0 0 0 0 0 0 0 0
Initial Fut: 65 1658 38 55 598 1 1 25 36 58 25 168
User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
PHF Adj: 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95
PHF Volume: 68 1745 40 58 629 1 1 26 38 61 26 177
Reduced Vol: 0 0 0 0 0 0 0 0 0 0 0 0 0
Reduced Vol: 68 1745 40 58 629 1 1 26 38 61 26 177
PCE Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
MLF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
Final Vol.: 68 1745 40 58 629 1 1 26 38 61 26 177

Saturation Flow Module:

Sat/Lane: 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900
Adjustment: 0.90 0.91 0.91 0.90 0.91 0.91 0.90 0.91 0.91 0.90 1.00 0.85
Lanes: 1.00 2.93 0.07 1.00 2.99 0.01 1.00 0.41 0.59 1.00 1.00 1.00
Final Sat.: 1710 5056 116 1710 5178 9 1710 710 1023 1710 1900 1615

Capacity Analysis Module:

Vol/Sat: 0.04 0.35 0.35 0.03 0.12 0.12 0.00 0.04 0.04 0.04 0.01 0.11
Crit Moves: ****
Green/Cycle: 0.19 0.71 0.71 0.07 0.58 0.58 0.00 0.11 0.11 0.11 0.22 0.22
Volume/Cap: 0.21 0.49 0.49 0.49 0.21 0.21 0.49 0.32 0.32 0.32 0.06 0.49
Delay/Veh: 30.9 6.1 6.1 43.5 8.9 8.9 161.8 37.6 37.6 37.9 27.6 31.5
User DelAdj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
AdjDel/Veh: 30.9 6.1 6.1 43.5 8.9 8.9 161.8 37.6 37.9 27.6 31.5
LOS by Move: C A A D A A F D D D C C
HCM2kAvgQ: 2 8 8 2 3 3 0 2 2 2 1 5

Note: Queue reported is the number of cars per lane.

Ontario New Model - Rich Haven External Intersections
2015 AM Peak (Base Scenario Trip Generation)
Meyer, Mohaddes Associates

Level Of Service Computation Report

2000 HCM Operations Method (Future Volume Alternative)

Intersection #3 Archibald Avenue/Schaefer Avenue

Cycle (sec): 100 Critical Vol./Cap.(X): 0.509
Loss Time (sec): 0 (Y+R=4.0 sec) Average Delay (sec/veh): 15.9
Optimal Cycle: 38 Level Of Service: B

Approach: North Bound South Bound East Bound West Bound
Movement: L - T - R L - T - R L - T - R L - T - R

Control: Protected Protected Permitted Permitted
Rights: Include Include Include Include
Min. Green: 0 0 0 0 0 0 0 0 0 0 0 0
Lanes: 1 0 2 1 0 1 0 2 1 0 1 0 1 0

Volume Module:

Base Vol: 15 1368 0 98 665 16 84 25 12 2 26 253
Growth Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
Initial Bse: 15 1368 0 98 665 16 84 25 12 2 26 253
Added Vol: 0 0 0 0 0 0 0 0 0 0 0 0 0
PasserByVol: 0 0 0 0 0 0 0 0 0 0 0 0 0
Initial Fut: 15 1368 0 98 665 16 84 25 12 2 26 253
User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
PHF Adj: 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95
PHF Volume: 16 1440 0 103 700 17 88 26 13 2 27 266
Reduced Vol: 0 0 0 0 0 0 0 0 0 0 0 0 0
Reduced Vol: 16 1440 0 103 700 17 88 26 13 2 27 266
PCE Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
MLF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
Final Vol.: 16 1440 0 103 700 17 88 26 13 2 27 266

Saturation Flow Module:

Sat/Lane: 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900
Adjustment: 0.90 0.91 0.91 0.90 0.91 0.91 0.44 0.90 0.90 0.68 0.82 0.82
Lanes: 1.00 3.00 0.00 1.00 2.93 0.07 1.00 1.35 0.65 1.00 1.00 1.00
Final Sat.: 1710 5187 0 1710 5050 122 830 2320 1113 1292 1560 1560

Capacity Analysis Module:

Vol/Sat: 0.01 0.28 0.00 0.06 0.14 0.14 0.11 0.01 0.01 0.00 0.02 0.17
Crit Moves: ****
Green/Cycle: 0.04 0.55 0.00 0.12 0.62 0.62 0.34 0.34 0.34 0.34 0.34 0.34
Volume/Cap: 0.22 0.51 0.00 0.51 0.22 0.22 0.32 0.03 0.03 0.00 0.05 0.51
Delay/Veh: 48.0 14.4 0.0 43.5 8.3 8.3 25.4 22.3 22.3 22.1 22.5 27.4
User DelAdj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
AdjDel/Veh: 48.0 14.4 0.0 43.5 8.3 8.3 25.4 22.3 22.3 22.1 22.5 27.4
LOS by Move: D B A D A A C C C C C C
HCM2kAvgQ: 1 10 0 4 3 3 2 0 0 0 1 7

Note: Queue reported is the number of cars per lane.

Ontario New Model - Rich Haven External Intersections
2015 AM Peak (Base Scenario Trip Generation)
Meyer, Mohaddes Associates

Level Of Service Computation Report

2000 HCM Operations Method (Future Volume Alternative)

Intersection #4 Archibald Avenue/Edison Avenue

Cycle (sec): 100 Critical Vol./Cap.(X): 0.668
Loss Time (sec): 0 (Y+R=4.0 sec) Average Delay (sec/veh): 29.3
Optimal Cycle: 69 Level Of Service: C

Approach: North Bound South Bound East Bound West Bound
Movement: L - T - R L - T - R L - T - R L - T - R

Control: Protected Protected Protected Protected
Rights: Include Include Include Include
Min. Green: 0 0 0 0 0 0 0 0 0 0 0 0
Lanes: 2 0 2 1 0 2 0 2 1 0 2 0 3 1 0 2 0 3 1 0

Volume Module:

Base Vol: 772 885 233 62 332 195 215 792 229 312 1309 120
Growth Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
Initial Bse: 772 885 233 62 332 195 215 792 229 312 1309 120
Added Vol: 0 0 0 0 0 0 0 0 0 0 0 0
PasserByVol: 0 0 0 0 0 0 0 0 0 0 0 0
Initial Fut: 772 885 233 62 332 195 215 792 229 312 1309 120
User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
PHF Adj: 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95
PHF Volume: 813 932 245 65 349 205 226 834 241 328 1378 126
Reduced Vol: 0 0 0 0 0 0 0 0 0 0 0 0
Reduced Vol: 813 932 245 65 349 205 226 834 241 328 1378 126
PCE Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
MLF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
Final Vol.: 813 932 245 65 349 205 226 834 241 328 1378 126

Saturation Flow Module:

Sat/Lane: 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900
Adjustment: 0.85 0.88 0.88 0.85 0.86 0.86 0.85 0.88 0.88 0.85 0.90 0.90
Lanes: 2.00 2.37 0.63 2.00 2.00 1.00 2.00 3.10 0.90 2.00 3.66 0.34
Final Sat.: 3230 3979 1048 3230 3268 1634 3230 5182 1498 3230 6253 573

Capacity Analysis Module:

Vol/Sat: 0.25 0.23 0.23 0.02 0.11 0.13 0.07 0.16 0.16 0.10 0.22 0.22
Crit Moves: ****
Green/Cycle: 0.38 0.52 0.52 0.04 0.19 0.19 0.10 0.27 0.27 0.17 0.33 0.33
Volume/Cap: 0.67 0.45 0.45 0.45 0.57 0.67 0.67 0.60 0.60 0.60 0.67 0.67
Delay/Veh: 27.4 15.2 15.2 48.8 37.7 39.8 48.1 32.6 32.6 40.4 29.6 29.6
User DelAdj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
AdjDel/Veh: 27.4 15.2 15.2 48.8 37.7 39.8 48.1 32.6 32.6 40.4 29.6 29.6
LOS by Move: C B B D D D D C C D C C
HCM2kAvgQ: 12 8 8 2 6 8 5 9 9 6 12 12

Note: Queue reported is the number of cars per lane.

Ontario New Model - Rich Haven External Intersections
2015 AM Peak (Base Scenario Trip Generation)
Meyer, Mohaddes Associates

Level Of Service Computation Report

2000 HCM Operations Method (Future Volume Alternative)

Intersection #5 Turner Avenue/Riverside Drive

Cycle (sec): 100 Critical Vol./Cap.(X): 0.294
Loss Time (sec): 0 (Y+R=4.0 sec) Average Delay (sec/veh): 14.1
Optimal Cycle: 26 Level Of Service: B

Approach: North Bound South Bound East Bound West Bound
Movement: L - T - R L - T - R L - T - R L - T - R

Control: Permitted Permitted Protected Protected
Rights: Include Include Include Include
Min. Green: 0 0 0 0 0 0 0 0 0 0 0 0
Lanes: 1 0 1 1 0 1 0 1 1 0 1 0 1 1 0 1 0 1 1 0

Volume Module:

Base Vol: 0 5 102 95 2 74 29 628 0 35 346 39
Growth Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
Initial Bse: 0 5 102 95 2 74 29 628 0 35 346 39
Added Vol: 0 0 0 0 0 0 0 0 0 0 0 0
PasserByVol: 0 0 0 0 0 0 0 0 0 0 0 0
Initial Fut: 0 5 102 95 2 74 29 628 0 35 346 39
User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
PHF Adj: 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95
PHF Volume: 0 5 107 100 2 78 31 661 0 37 364 41
Reduced Vol: 0 0 0 0 0 0 0 0 0 0 0 0
Reduced Vol: 0 5 107 100 2 78 31 661 0 37 364 41
PCE Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
MLF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
Final Vol.: 0 5 107 100 2 78 31 661 0 37 364 41

Saturation Flow Module:

Sat/Lane: 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900
Adjustment: 0.95 0.81 0.81 0.59 0.81 0.81 0.90 0.95 0.95 0.90 0.94 0.94
Lanes: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 2.00 0.00 1.00 1.80 0.20
Final Sat.: 1800 1547 1547 1121 1541 1541 1710 3610 0 1710 3196 360

Capacity Analysis Module:

Vol/Sat: 0.00 0.00 0.07 0.09 0.00 0.05 0.02 0.18 0.00 0.02 0.11 0.11
Crit Moves: ****
Green/Cycle: 0.00 0.30 0.30 0.30 0.30 0.30 0.09 0.62 0.00 0.07 0.60 0.60
Volume/Cap: 0.00 0.01 0.23 0.29 0.00 0.17 0.19 0.29 0.00 0.29 0.19 0.19
Delay/Veh: 0.0 24.3 26.3 27.1 24.3 25.7 42.3 8.8 0.0 45.2 9.0 9.0
User DelAdj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
AdjDel/Veh: 0.0 24.3 26.3 27.1 24.3 25.7 42.3 8.8 0.0 45.2 9.0 9.0
LOS by Move: A C C C C C D A A D A A
HCM2kAvgQ: 0 0 3 3 0 2 1 5 0 1 3 3

Note: Queue reported is the number of cars per lane.

Ontario New Model - Rich Haven External Intersections
2015 AM Peak (Base Scenario Trip Generation)
Meyer, Mohaddes Associates

Level Of Service Computation Report

2000 HCM 4-Way Stop Method (Future Volume Alternative)

Intersection #6 Turner Avenue/Chino Avenue

Cycle (sec): 100 Critical Vol./Cap.(X): 0.078
Loss Time (sec): 0 (Y+R=4.0 sec) Average Delay (sec/veh): 8.0
Optimal Cycle: 0 Level Of Service: A

Approach: North Bound South Bound East Bound West Bound
Movement: L - T - R L - T - R L - T - R L - T - R

Control: Stop Sign Stop Sign Stop Sign Stop Sign
Rights: Include Include Include Include
Min. Green: 0 0 0 0 0 0 0 0 0 0 0 0
Lanes: 1 0 1 1 0 1 0 1 1 0 1 0 1 1 0

Volume Module:
Base Vol: 23 32 19 4 13 35 18 100 3 1 72 3
Growth Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
Initial Bse: 23 32 19 4 13 35 18 100 3 1 72 3
Added Vol: 0 0 0 0 0 0 0 0 0 0 0 0 0
PasserByVol: 0 0 0 0 0 0 0 0 0 0 0 0 0
Initial Fut: 23 32 19 4 13 35 18 100 3 1 72 3
User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
PHF Adj: 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95
PHF Volume: 24 34 20 4 14 37 19 105 3 1 76 3
Reduct Vol: 0 0 0 0 0 0 0 0 0 0 0 0 0
Reduced Vol: 24 34 20 4 14 37 19 105 3 1 76 3
PCE Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
MLF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
Final Vol.: 24 34 20 4 14 37 19 105 3 1 76 3

Saturation Flow Module:
Adjustment: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
Lanes: 1.00 1.25 0.75 1.00 1.00 1.00 1.00 1.94 0.06 1.00 1.92 0.08
Final Sat.: 610 854 550 602 657 754 632 1351 41 618 1308 55

Capacity Analysis Module:
Vol/Sat: 0.04 0.04 0.04 0.01 0.02 0.05 0.03 0.08 0.08 0.00 0.06 0.06
Crit Moves: **** **** ****
Delay/Veh: 8.6 8.0 7.5 8.5 8.0 7.4 8.4 8.1 8.1 8.3 8.1 8.1
Delay Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
AdjDel/Veh: 8.6 8.0 7.5 8.5 8.0 7.4 8.4 8.1 8.1 8.3 8.1 8.1
LOS by Move: A A A A A A A A A A A A
ApproachDel: 8.0 7.7 8.2 8.1
Delay Adj: 1.00 1.00 1.00 1.00
ApprAdjDel: 8.0 7.7 8.2 8.1
LOS by Appr: A A A A
AllWayAvgQ: 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.1 0.1 0.0 0.1 0.1

Note: Queue reported is the number of cars per lane.

Ontario New Model - Rich Haven External Intersections
2015 AM Peak (Base Scenario Trip Generation)
Meyer, Mohaddes Associates

Level Of Service Computation Report

2000 HCM Operations Method (Future Volume Alternative)

Intersection #7 Turner Avenue at Schaefer Avenue

Cycle (sec): 100 Critical Vol./Cap.(X): 0.093
Loss Time (sec): 0 (Y+R=4.0 sec) Average Delay (sec/veh): 2.5
Optimal Cycle: 21 Level Of Service: A

Approach: North Bound South Bound East Bound West Bound
Movement: L - T - R L - T - R L - T - R L - T - R

Control: Split Phase Split Phase Protected Permitted
Rights: Include Include Include Include
Min. Green: 0 0 0 0 0 0 0 0 0 0 0 0
Lanes: 0 0 0 0 0 1 0 1 0 0 1 0 2 0 0 0 0 1 1 0

Volume Module:
Base Vol: 0 0 0 16 0 3 2 122 0 0 277 13
Growth Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
Initial Bse: 0 0 0 16 0 3 2 122 0 0 277 13
Added Vol: 0 0 0 0 0 0 0 0 0 0 0 0 0
PasserByVol: 0 0 0 0 0 0 0 0 0 0 0 0 0
Initial Fut: 0 0 0 16 0 3 2 122 0 0 277 13
User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
PHF Adj: 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95
PHF Volume: 0 0 0 17 0 3 2 128 0 0 292 14
Reduct Vol: 0 0 0 0 0 0 0 0 0 0 0 0 0
Reduced Vol: 0 0 0 17 0 3 2 128 0 0 292 14
PCE Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
MLF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
Final Vol.: 0 0 0 17 0 3 2 128 0 0 292 14

Saturation Flow Module:
Sat/Lane: 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900
Adjustment: 0.95 1.00 1.00 0.89 1.00 0.94 0.90 0.95 1.00 0.95 0.94 0.94
Lanes: 0.00 0.00 0.00 1.74 0.00 0.26 1.00 2.00 0.00 0.00 1.91 0.09
Final Sat.: 0 0 0 2931 0 467 1710 3610 0 0 3424 161

Capacity Analysis Module:
Vol/Sat: 0.00 0.00 0.00 0.01 0.00 0.01 0.00 0.04 0.00 0.00 0.09 0.09
Crit Moves: **** ****
Green/Cycle: 0.00 0.00 0.00 0.07 0.00 0.07 0.01 0.93 0.00 0.00 0.91 0.91
Volume/Cap: 0.00 0.00 0.00 0.08 0.00 0.09 0.09 0.04 0.00 0.00 0.09 0.09
Delay/Veh: 0.0 0.0 0.0 43.4 0.0 43.5 50.5 0.3 0.0 0.0 0.4 0.4
User DelAdj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
AdjDel/Veh: 0.0 0.0 0.0 43.4 0.0 43.5 50.5 0.3 0.0 0.0 0.4 0.4
LOS by Move: A A A D A D D A A A A A
HCM2kAvgQ: 0 0 0 0 0 0 0 0 0 0 0 1 1

Note: Queue reported is the number of cars per lane.

Ontario New Model - Rich Haven External Intersections
2015 AM Peak (Base Scenario Trip Generation)
Meyer, Mohaddes Associates

Level Of Service Computation Report

2000 HCM Operations Method (Future Volume Alternative)

Intersection #8 Edison Avenue at Schaefer Avenue

Cycle (sec): 100 Critical Vol./Cap.(X): 0.327
Loss Time (sec): 0 (Y+R=4.0 sec) Average Delay (sec/veh): 3.0
Optimal Cycle: 28 Level Of Service: A

Approach: North Bound South Bound East Bound West Bound
Movement: L - T - R L - T - R L - T - R L - T - R

Control: Split Phase Split Phase Permitted Permitted
Rights: Include Include Include Include
Min. Green: 0 0 0 0 0 0 0 0 0 0 0 0
Lanes: 0 0 0 0 0 1 0 1 0 0 1 0 4 0 0 0 0 0 3 1 0

Volume Module:
Base Vol: 0 0 0 133 0 6 7 1031 0 0 1531 283
Growth Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
Initial Bse: 0 0 0 133 0 6 7 1031 0 0 1531 283
Added Vol: 0 0 0 0 0 0 0 0 0 0 0 0 0
PasserByVol: 0 0 0 0 0 0 0 0 0 0 0 0 0
Initial Fut: 0 0 0 133 0 6 7 1031 0 0 1531 283
User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
PHF Adj: 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95
PHF Volume: 0 0 0 140 0 6 7 1085 0 0 1612 298
Reduced Vol: 0 0 0 0 0 0 0 0 0 0 0 0 0
Reduced Vol: 0 0 0 140 0 6 7 1085 0 0 1612 298
PCE Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
MLF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
Final Vol.: 0 0 0 140 0 6 7 1085 0 0 1612 298

Saturation Flow Module:
Sat/Lane: 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900
Adjustment: 0.95 1.00 1.00 0.90 1.00 0.95 0.09 0.91 1.00 0.95 0.89 0.89
Lanes: 0.00 0.00 0.00 1.92 0.00 0.08 1.00 4.00 0.00 0.00 3.38 0.62
Final Sat.: 0 0 0 3279 0 142 176 6916 0 0 5703 1054

Capacity Analysis Module:
Vol/Sat: 0.00 0.00 0.00 0.04 0.00 0.04 0.04 0.16 0.00 0.00 0.28 0.28
Crit Moves: ****
Green/Cycle: 0.00 0.00 0.00 0.14 0.00 0.14 0.86 0.86 0.00 0.00 0.86 0.86
Volume/Cap: 0.00 0.00 0.00 0.31 0.00 0.33 0.05 0.18 0.00 0.00 0.33 0.33
Delay/Veh: 0.0 0.0 0.0 39.4 0.0 39.5 1.1 1.1 0.0 0.0 1.3 1.3
User DelAdj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
AdjDel/Veh: 0.0 0.0 0.0 39.4 0.0 39.5 1.1 1.1 0.0 0.0 1.3 1.3
LOS by Move: A A A D A D A A A A A A
HCM2kAvgQ: 0 0 0 2 0 2 0 2 0 0 3 3

Note: Queue reported is the number of cars per lane.

Ontario New Model - Rich Haven External Intersections
2015 AM Peak (Base Scenario Trip Generation)
Meyer, Mohaddes Associates

Level Of Service Computation Report

2000 HCM Operations Method (Future Volume Alternative)

Intersection #9 Haven Avenue/SR-60 WB Ramps

Cycle (sec): 100 Critical Vol./Cap.(X): 0.301
Loss Time (sec): 0 (Y+R=4.0 sec) Average Delay (sec/veh): 9.6
Optimal Cycle: 30 Level Of Service: A

Approach: North Bound South Bound East Bound West Bound
Movement: L - T - R L - T - R L - T - R L - T - R

Control: Protected Permitted Split Phase Split Phase
Rights: Include Include Include Ignore
Min. Green: 0 0 0 0 0 0 0 0 0 0 0 0
Lanes: 2 0 3 0 0 0 0 3 0 1 0 0 0 0 0 1 1 0 0 1

Volume Module:
Base Vol: 365 1336 0 0 428 21 0 0 0 96 0 803
Growth Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
Initial Bse: 365 1336 0 0 428 21 0 0 0 96 0 803
Added Vol: 0 0 0 0 0 0 0 0 0 0 0 0
PasserByVol: 0 0 0 0 0 0 0 0 0 0 0 0
Initial Fut: 365 1336 0 0 428 21 0 0 0 96 0 803
User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
PHF Adj: 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95
PHF Volume: 384 1406 0 0 451 22 0 0 0 101 0 0
Reduced Vol: 0 0 0 0 0 0 0 0 0 0 0 0
Reduced Vol: 384 1406 0 0 451 22 0 0 0 101 0 0
PCE Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
MLF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
Final Vol.: 384 1406 0 0 451 22 0 0 0 101 0 0

Saturation Flow Module:
Sat/Lane: 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900
Adjustment: 0.85 0.91 1.00 0.95 0.91 0.85 0.95 1.00 1.00 0.90 1.00 1.00
Lanes: 2.00 3.00 0.00 0.00 3.00 1.00 0.00 0.00 0.00 2.00 0.00 1.00
Final Sat.: 3230 5187 0 0 5187 1615 0 0 0 3427 0 1900

Capacity Analysis Module:
Vol/Sat: 0.12 0.27 0.00 0.00 0.09 0.01 0.00 0.00 0.00 0.03 0.00 0.00
Crit Moves: ****
Green/Cycle: 0.70 0.92 0.00 0.00 0.22 0.22 0.00 0.00 0.00 0.08 0.00 0.00
Volume/Cap: 0.17 0.29 0.00 0.00 0.39 0.06 0.00 0.00 0.00 0.39 0.00 0.00
Delay/Veh: 5.2 0.4 0.0 0.0 33.2 30.6 0.0 0.0 0.0 44.9 0.0 0.0
User DelAdj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
AdjDel/Veh: 5.2 0.4 0.0 0.0 33.2 30.6 0.0 0.0 0.0 44.9 0.0 0.0
LOS by Move: A A A A C C A A A D A A
HCM2kAvgQ: 2 2 0 0 5 1 0 0 0 2 0 0

Note: Queue reported is the number of cars per lane.

Ontario New Model - Rich Haven External Intersections
2015 AM Peak (Base Scenario Trip Generation)
Meyer, Mohaddes Associates

Level Of Service Computation Report

2000 HCM Operations Method (Future Volume Alternative)

Intersection #10 Haven Avenue/SR-60 EB Ramps

Cycle (sec): 100 Critical Vol./Cap.(X): 0.567
Loss Time (sec): 0 (Y+R=4.0 sec) Average Delay (sec/veh): 11.2
Optimal Cycle: 43 Level Of Service: B

Approach: North Bound South Bound East Bound West Bound
Movement: L - T - R L - T - R L - T - R L - T - R

Control: Permitted Protected Split Phase Split Phase
Rights: Include Include Include Include
Min. Green: 0 0 0 0 0 0 0 0 0 0 0 0
Lanes: 0 0 2 1 0 2 0 3 0 0 1 1 0 0 1 0 0 0 0 0

Volume Module:

Base Vol: 0 1626 286 93 431 0 74 0 215 0 0 0
Growth Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
Initial Bse: 0 1626 286 93 431 0 74 0 215 0 0 0
Added Vol: 0 0 0 0 0 0 0 0 0 0 0 0
PasserByVol: 0 0 0 0 0 0 0 0 0 0 0 0
Initial Fut: 0 1626 286 93 431 0 74 0 215 0 0 0
User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
PHF Adj: 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95
PHF Volume: 0 1712 301 98 454 0 78 0 226 0 0 0
Reduced Vol: 0 0 0 0 0 0 0 0 0 0 0 0
Reduced Vol: 0 1712 301 98 454 0 78 0 226 0 0 0
PCE Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
MLF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
Final Vol.: 0 1712 301 98 454 0 78 0 226 0 0 0

Saturation Flow Module:

Sat/Lane: 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900
Adjustment: 0.95 0.89 0.89 0.85 0.91 1.00 0.90 1.00 0.85 0.95 1.00 1.00
Lanes: 0.00 2.55 0.45 2.00 3.00 0.00 2.00 0.00 1.00 0.00 0.00 0.00
Final Sat.: 0 4314 759 3230 5187 0 3427 0 1615 0 0 0

Capacity Analysis Module:

Vol/Sat: 0.00 0.40 0.40 0.03 0.09 0.00 0.02 0.00 0.14 0.00 0.00 0.00
Crit Moves: ****
Green/Cycle: 0.00 0.70 0.70 0.05 0.75 0.00 0.25 0.00 0.25 0.00 0.00 0.00
Volume/Cap: 0.00 0.57 0.57 0.57 0.12 0.00 0.09 0.00 0.57 0.00 0.00 0.00
Delay/Veh: 0.0 7.7 7.7 50.6 3.4 0.0 29.0 0.0 34.9 0.0 0.0 0.0
User DelAdj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
AdjDel/Veh: 0.0 7.7 7.7 50.6 3.4 0.0 29.0 0.0 34.9 0.0 0.0 0.0
LOS by Move: A A A D A A C A C A A A
HCM2kAvgQ: 0 11 11 3 1 0 1 0 7 0 0 0

Note: Queue reported is the number of cars per lane.

Ontario New Model - Rich Haven External Intersections
2015 AM Peak (Base Scenario Trip Generation)
Meyer, Mohaddes Associates

Level Of Service Computation Report

2000 HCM Operations Method (Future Volume Alternative)

Intersection #11 Haven Avenue/Riverside Drive

Cycle (sec): 100 Critical Vol./Cap.(X): 0.910
Loss Time (sec): 0 (Y+R=4.0 sec) Average Delay (sec/veh): 27.9
Optimal Cycle: 180 Level Of Service: C

Approach: North Bound South Bound East Bound West Bound
Movement: L - T - R L - T - R L - T - R L - T - R

Control: Permitted Permitted Protected Protected
Rights: Include Include Include Include
Min. Green: 0 0 0 0 0 0 0 0 0 0 0 0
Lanes: 1 0 1 1 0 1 0 1 1 0 1 0 1 1 0

Volume Module:

Base Vol: 70 1162 215 129 429 40 141 644 72 121 300 128
Growth Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
Initial Bse: 70 1162 215 129 429 40 141 644 72 121 300 128
Added Vol: 0 0 0 0 0 0 0 0 0 0 0 0
PasserByVol: 0 0 0 0 0 0 0 0 0 0 0 0
Initial Fut: 70 1162 215 129 429 40 141 644 72 121 300 128
User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
PHF Adj: 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95
PHF Volume: 74 1223 226 136 452 42 148 678 76 127 316 135
Reduced Vol: 0 0 0 0 0 0 0 0 0 0 0 0
Reduced Vol: 74 1223 226 136 452 42 148 678 76 127 316 135
PCE Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
MLF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
Final Vol.: 74 1223 226 136 452 42 148 678 76 127 316 135

Saturation Flow Module:

Sat/Lane: 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900
Adjustment: 0.41 0.93 0.93 0.11 0.94 0.94 0.90 0.94 0.94 0.90 0.91 0.91
Lanes: 1.00 1.69 0.31 1.00 1.83 0.17 1.00 1.80 0.20 1.00 1.40 0.60
Final Sat.: 776 2976 551 218 3259 304 1710 3198 358 1710 2417 1031

Capacity Analysis Module:

Vol/Sat: 0.09 0.41 0.41 0.62 0.14 0.14 0.09 0.21 0.21 0.07 0.13 0.13
Crit Moves: ****
Green/Cycle: 0.69 0.69 0.69 0.69 0.69 0.69 0.13 0.23 0.23 0.08 0.19 0.19
Volume/Cap: 0.14 0.60 0.60 0.91 0.20 0.20 0.69 0.91 0.91 0.91 0.69 0.69
Delay/Veh: 5.6 8.8 8.8 61.0 5.8 5.8 51.1 51.3 51.3 95.4 41.0 41.0
User DelAdj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
AdjDel/Veh: 5.6 8.8 8.8 61.0 5.8 5.8 51.1 51.3 51.3 95.4 41.0 41.0
LOS by Move: A A A E A A D D D F D D
HCM2kAvgQ: 1 13 13 7 3 3 6 16 16 7 8 8

Note: Queue reported is the number of cars per lane.

Ontario New Model - Rich Haven External Intersections
2015 AM Peak (Base Scenario Trip Generation)
Meyer, Mohaddes Associates

Level Of Service Computation Report

2000 HCM Operations Method (Future Volume Alternative)

Intersection #12 Haven Avenue at Chino Avenue

Cycle (sec): 100 Critical Vol./Cap.(X): 0.450
Loss Time (sec): 0 (Y+R=4.0 sec) Average Delay (sec/veh): 4.7
Optimal Cycle: 26 Level Of Service: A

Approach: North Bound South Bound East Bound West Bound
Movement: L - T - R L - T - R L - T - R L - T - R

Control: Permitted Permitted Permitted Permitted
Rights: Include Include Include Include
Min. Green: 0 0 0 0 0 0 0 0 0 0 0 0
Lanes: 1 0 1 1 0 1 0 1 1 0 1 0 1 1 0

Volume Module:

Base Vol: 23 1295 85 30 536 3 27 59 25 40 15 32
Growth Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
Initial Bse: 23 1295 85 30 536 3 27 59 25 40 15 32
Added Vol: 0 0 0 0 0 0 0 0 0 0 0 0
PasserByVol: 0 0 0 0 0 0 0 0 0 0 0 0
Initial Fut: 23 1295 85 30 536 3 27 59 25 40 15 32
User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
PHF Adj: 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95
PHF Volume: 24 1363 89 32 564 3 28 62 26 42 16 34
Reduct Vol: 0 0 0 0 0 0 0 0 0 0 0 0
Reduced Vol: 24 1363 89 32 564 3 28 62 26 42 16 34
PCE Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
MLF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
Final Vol.: 24 1363 89 32 564 3 28 62 26 42 16 34

Saturation Flow Module:

Sat/Lane: 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900
Adjustment: 0.40 0.94 0.94 0.16 0.95 0.95 0.60 0.91 0.91 0.50 0.85 0.85
Lanes: 1.00 1.88 0.12 1.00 1.99 0.01 1.00 1.40 0.60 1.00 1.00 1.00
Final Sat.: 767 3357 220 301 3586 20 1132 2421 1026 949 1621 1621

Capacity Analysis Module:

Vol/Sat: 0.03 0.41 0.41 0.11 0.16 0.16 0.03 0.03 0.03 0.04 0.01 0.02
Crit Moves: ****
Green/Cycle: 0.90 0.90 0.90 0.90 0.90 0.90 0.10 0.10 0.10 0.10 0.10 0.10
Volume/Cap: 0.04 0.45 0.45 0.12 0.17 0.17 0.25 0.26 0.26 0.45 0.10 0.21
Delay/Veh: 0.5 0.9 0.9 0.7 0.6 0.6 42.9 42.1 42.1 45.9 41.1 41.9
User DelAdj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
AdjDel/Veh: 0.5 0.9 0.9 0.7 0.6 0.6 42.9 42.1 42.1 45.9 41.1 41.9
LOS by Move: A A A A A A D D D D D D
HCM2kAvgQ: 0 4 4 0 1 1 1 2 2 2 2 1 1

Note: Queue reported is the number of cars per lane.

Ontario New Model - Rich Haven External Intersections
2015 AM Peak (Base Scenario Trip Generation)
Meyer, Mohaddes Associates

Level Of Service Computation Report

2000 HCM Operations Method (Future Volume Alternative)

Intersection #13 Haven Avenue at Edison Avenue

Cycle (sec): 100 Critical Vol./Cap.(X): 0.764
Loss Time (sec): 0 (Y+R=4.0 sec) Average Delay (sec/veh): 25.8
Optimal Cycle: 79 Level Of Service: C

Approach: North Bound South Bound East Bound West Bound
Movement: L - T - R L - T - R L - T - R L - T - R

Control: Permitted Permitted Protected Protected
Rights: Include Include Include Include
Min. Green: 0 0 0 0 0 0 0 0 0 0 0 0
Lanes: 1 0 1 1 0 1 0 1 1 0 1 0 3 1 0

Volume Module:

Base Vol: 165 806 207 125 332 203 157 936 71 107 1447 124
Growth Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
Initial Bse: 165 806 207 125 332 203 157 936 71 107 1447 124
Added Vol: 0 0 0 0 0 0 0 0 0 0 0 0
PasserByVol: 0 0 0 0 0 0 0 0 0 0 0 0
Initial Fut: 165 806 207 125 332 203 157 936 71 107 1447 124
User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
PHF Adj: 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95
PHF Volume: 174 848 218 132 349 214 165 985 75 113 1523 131
Reduct Vol: 0 0 0 0 0 0 0 0 0 0 0 0
Reduced Vol: 174 848 218 132 349 214 165 985 75 113 1523 131
PCE Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
MLF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
Final Vol.: 174 848 218 132 349 214 165 985 75 113 1523 131

Saturation Flow Module:

Sat/Lane: 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900
Adjustment: 0.35 0.92 0.92 0.16 0.90 0.90 0.90 0.90 0.90 0.90 0.90 0.90
Lanes: 1.00 1.59 0.41 1.00 1.24 0.76 1.00 3.72 0.28 1.00 3.68 0.32
Final Sat.: 664 2783 715 310 2113 1292 1710 6358 482 1710 6294 539

Capacity Analysis Module:

Vol/Sat: 0.26 0.30 0.30 0.42 0.17 0.17 0.10 0.15 0.15 0.07 0.24 0.24
Crit Moves: ****
Green/Cycle: 0.56 0.56 0.56 0.56 0.56 0.56 0.13 0.31 0.31 0.13 0.32 0.32
Volume/Cap: 0.47 0.55 0.55 0.76 0.30 0.30 0.76 0.50 0.50 0.50 0.76 0.76
Delay/Veh: 14.3 14.5 14.5 35.2 11.9 11.9 57.1 28.3 28.3 42.0 32.4 32.4
User DelAdj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
AdjDel/Veh: 14.3 14.5 14.5 35.2 11.9 11.9 57.1 28.3 28.3 42.0 32.4 32.4
LOS by Move: B B B D B B E C C D C C
HCM2kAvgQ: 4 11 11 5 5 5 7 8 8 4 14 14

Note: Queue reported is the number of cars per lane.

Ontario New Model - Rich Haven External Intersections
2015 AM Peak (Base Scenario Trip Generation)
Meyer, Mohaddes Associates

Level Of Service Computation Report

2000 HCM Operations Method (Future Volume Alternative)

Intersection #14 Mill Creek Avenue/Riverside Drive

Cycle (sec): 100 Critical Vol./Cap.(X): 0.579
Loss Time (sec): 0 (Y+R=4.0 sec) Average Delay (sec/veh): 17.9
Optimal Cycle: 44 Level Of Service: B

Approach: North Bound South Bound East Bound West Bound
Movement: L - T - R L - T - R L - T - R L - T - R

Control: Permitted Permitted Protected Protected
Rights: Include Include Include Include
Min. Green: 0 0 0 0 0 0 0 0 0 0 0 0
Lanes: 1 0 1 0 1 1 0 0 1 1 0 1 0 1 1 0

Volume Module:
Base Vol: 15 184 82 103 174 112 151 1316 19 33 485 26
Growth Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
Initial Bse: 15 184 82 103 174 112 151 1316 19 33 485 26
Added Vol: 0 0 0 0 0 0 0 0 0 0 0 0
PasserByVol: 0 0 0 0 0 0 0 0 0 0 0 0
Initial Fut: 15 184 82 103 174 112 151 1316 19 33 485 26
User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
PHF Adj: 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95
PHF Volume: 16 194 86 108 183 118 159 1385 20 35 511 27
Reduced Vol: 0 0 0 0 0 0 0 0 0 0 0 0
Reduced Vol: 16 194 86 108 183 118 159 1385 20 35 511 27
PCE Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
MLF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
Final Vol.: 16 194 86 108 183 118 159 1385 20 35 511 27

Saturation Flow Module:
Sat/Lane: 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900
Adjustment: 0.28 1.00 0.85 0.42 0.94 0.94 0.90 0.95 0.95 0.90 0.94 0.94
Lanes: 1.00 1.00 1.00 1.00 0.61 0.39 1.00 1.97 0.03 1.00 1.90 0.10
Final Sat.: 524 1900 1615 797 1088 700 1710 3552 51 1710 3399 182

Capacity Analysis Module:
Vol/Sat: 0.03 0.10 0.05 0.14 0.17 0.09 0.39 0.39 0.02 0.15 0.15
Crit Moves: ****
Green/Cycle: 0.29 0.29 0.29 0.29 0.29 0.29 0.27 0.67 0.67 0.04 0.44 0.44
Volume/Cap: 0.10 0.35 0.18 0.47 0.58 0.58 0.34 0.58 0.58 0.58 0.34 0.34
Delay/Veh: 26.2 28.4 26.7 30.6 31.9 31.9 29.7 9.1 9.1 60.8 18.7 18.7
User DelAdj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
AdjDel/Veh: 26.2 28.4 26.7 30.6 31.9 31.9 29.7 9.1 9.1 60.8 18.7 18.7
LOS by Move: C C C C C C C A A E B B B
HCM2kAvgQ: 0 5 2 3 8 8 4 12 12 2 6 6

Note: Queue reported is the number of cars per lane.

Ontario New Model - Rich Haven External Intersections
2015 AM Peak (Base Scenario Trip Generation)
Meyer, Mohaddes Associates

Level Of Service Computation Report

2000 HCM Operations Method (Future Volume Alternative)

Intersection #15 Mill Creek Avenue at Chino Avenue

Cycle (sec): 100 Critical Vol./Cap.(X): 0.126
Loss Time (sec): 0 (Y+R=4.0 sec) Average Delay (sec/veh): 13.3
Optimal Cycle: 16 Level Of Service: B

Approach: North Bound South Bound East Bound West Bound
Movement: L - T - R L - T - R L - T - R L - T - R

Control: Permitted Permitted Permitted Permitted
Rights: Include Include Include Include
Min. Green: 0 0 0 0 0 0 0 0 0 0 0 0
Lanes: 1 0 1 1 0 1 0 0 1 0 1 0 1 0 1 1 0

Volume Module:
Base Vol: 38 122 44 5 63 41 83 58 38 11 14 2
Growth Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
Initial Bse: 38 122 44 5 63 41 83 58 38 11 14 2
Added Vol: 0 0 0 0 0 0 0 0 0 0 0 0
PasserByVol: 0 0 0 0 0 0 0 0 0 0 0 0
Initial Fut: 38 122 44 5 63 41 83 58 38 11 14 2
User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
PHF Adj: 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95
PHF Volume: 40 128 46 5 66 43 87 61 40 12 15 2
Reduced Vol: 0 0 0 0 0 0 0 0 0 0 0 0
Reduced Vol: 40 128 46 5 66 43 87 61 40 12 15 2
PCE Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
MLF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
Final Vol.: 40 128 46 5 66 43 87 61 40 12 15 2

Saturation Flow Module:
Sat/Lane: 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900
Adjustment: 0.60 0.91 0.91 0.57 0.94 0.94 0.71 0.89 0.89 0.63 0.93 0.93
Lanes: 1.00 1.47 0.53 1.00 0.61 0.39 1.00 1.21 0.79 1.00 1.75 0.25
Final Sat.: 1134 2547 919 1089 1083 705 1350 2052 1345 1199 3099 443

Capacity Analysis Module:
Vol/Sat: 0.04 0.05 0.05 0.00 0.06 0.06 0.06 0.03 0.03 0.01 0.00 0.00
Crit Moves: ****
Green/Cycle: 0.49 0.49 0.49 0.49 0.49 0.49 0.51 0.51 0.51 0.51 0.51 0.51
Volume/Cap: 0.07 0.10 0.10 0.01 0.13 0.13 0.13 0.06 0.06 0.02 0.01 0.01
Delay/Veh: 13.7 13.9 13.9 13.3 14.1 14.1 12.7 12.2 12.2 11.9 11.9 11.9
User DelAdj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
AdjDel/Veh: 13.7 13.9 13.9 13.3 14.1 14.1 12.7 12.2 12.2 11.9 11.9 11.9
LOS by Move: B B B B B B B B B B B B
HCM2kAvgQ: 1 1 1 0 2 2 1 1 1 0 0 0

Note: Queue reported is the number of cars per lane.

Ontario New Model - Rich Haven External Intersections
2015 AM Peak (Base Scenario Trip Generation)
Meyer, Mohaddes Associates

Level Of Service Computation Report

2000 HCM Operations Method (Future Volume Alternative)

Intersection #16 Mill Creek Avenue at Edison Avenue

Cycle (sec): 100 Critical Vol./Cap.(X): 0.356
Loss Time (sec): 0 (Y+R=4.0 sec) Average Delay (sec/veh): 5.9
Optimal Cycle: 22 Level Of Service: A

Approach: North Bound South Bound East Bound West Bound
Movement: L - T - R L - T - R L - T - R L - T - R

Control: Permitted Permitted Permitted Permitted
Rights: Include Include Include Include
Min. Green: 0 0 0 0 0 0 0 0 0 0 0 0
Lanes: 1 0 0 1 0 1 0 0 1 0 1 0

Volume Module:
Base Vol: 115 22 8 36 9 8 10 1442 43 3 1685 42
Growth Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
Initial Bse: 115 22 8 36 9 8 10 1442 43 3 1685 42
Added Vol: 0 0 0 0 0 0 0 0 0 0 0 0
PasserByVol: 0 0 0 0 0 0 0 0 0 0 0 0
Initial Fut: 115 22 8 36 9 8 10 1442 43 3 1685 42
User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
PHF Adj: 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95
PHF Volume: 121 23 8 38 9 8 11 1518 45 3 1774 44
Reduct Vol: 0 0 0 0 0 0 0 0 0 0 0 0
Reduced Vol: 121 23 8 38 9 8 11 1518 45 3 1774 44
PCE Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
MLF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
Final Vol.: 121 23 8 38 9 8 11 1518 45 3 1774 44

Saturation Flow Module:
Sat/Lane: 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900
Adjustment: 0.69 0.96 0.96 0.67 0.93 0.93 0.09 0.91 0.91 0.13 0.91 0.91
Lanes: 1.00 0.73 0.27 1.00 0.53 0.47 1.00 3.88 0.12 1.00 3.90 0.10
Final Sat.: 1318 1338 486 1265 934 831 180 6689 199 243 6721 168

Capacity Analysis Module:
Vol/Sat: 0.09 0.02 0.02 0.03 0.01 0.01 0.06 0.23 0.23 0.01 0.26 0.26
Crit Moves: ****
Green/Cycle: 0.26 0.26 0.26 0.26 0.26 0.26 0.74 0.74 0.74 0.74 0.74 0.74
Volume/Cap: 0.36 0.07 0.07 0.12 0.04 0.04 0.08 0.31 0.31 0.02 0.36 0.36
Delay/Veh: 30.9 28.1 28.1 28.5 27.8 27.8 3.8 4.3 4.3 3.4 4.6 4.6
User DelAdj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
AdjDel/Veh: 30.9 28.1 28.1 28.5 27.8 27.8 3.8 4.3 4.3 3.4 4.6 4.6
LOS by Move: C C C C C C A A A A A A
HCM2kAvgQ: 3 1 1 1 0 0 4 4 4 0 5 5

Note: Queue reported is the number of cars per lane.

Ontario New Model - Rich Haven External Intersections
2015 AM Peak (Base Scenario Trip Generation)
Meyer, Mohaddes Associates

Level Of Service Computation Report

2000 HCM Operations Method (Future Volume Alternative)

Intersection #17 Milliken Avenue/SR-60 WB Ramps

Cycle (sec): 100 Critical Vol./Cap.(X): 0.632
Loss Time (sec): 0 (Y+R=4.0 sec) Average Delay (sec/veh): 21.0
Optimal Cycle: 51 Level Of Service: C

Approach: North Bound South Bound East Bound West Bound
Movement: L - T - R L - T - R L - T - R L - T - R

Control: Protected Permitted Split Phase Split Phase
Rights: Include Include Include Include
Min. Green: 0 0 0 0 0 0 0 0 0 0 0 0
Lanes: 1 0 2 0 0 0 0 2 0 1 0 0 0 0 1

Volume Module:
Base Vol: 466 923 0 0 579 2 0 0 0 244 0 271
Growth Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
Initial Bse: 466 923 0 0 579 2 0 0 0 244 0 271
Added Vol: 0 0 0 0 0 0 0 0 0 0 0 0
PasserByVol: 0 0 0 0 0 0 0 0 0 0 0 0
Initial Fut: 466 923 0 0 579 2 0 0 0 244 0 271
User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
PHF Adj: 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95
PHF Volume: 491 972 0 0 609 2 0 0 0 257 0 285
Reduct Vol: 0 0 0 0 0 0 0 0 0 0 0 0
Reduced Vol: 491 972 0 0 609 2 0 0 0 257 0 285
PCE Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
MLF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
Final Vol.: 491 972 0 0 609 2 0 0 0 257 0 285

Saturation Flow Module:
Sat/Lane: 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900
Adjustment: 0.90 0.95 1.00 0.95 0.95 0.85 0.95 1.00 1.00 0.90 1.00 0.85
Lanes: 1.00 2.00 0.00 0.00 2.00 1.00 0.00 0.00 0.00 1.00 0.00 1.00
Final Sat.: 1710 3610 0 0 3610 1615 0 0 0 1710 0 1615

Capacity Analysis Module:
Vol/Sat: 0.29 0.27 0.00 0.00 0.17 0.00 0.00 0.00 0.00 0.15 0.00 0.18
Crit Moves: ****
Green/Cycle: 0.45 0.72 0.00 0.00 0.27 0.27 0.00 0.00 0.00 0.28 0.00 0.28
Volume/Cap: 0.63 0.37 0.00 0.00 0.63 0.00 0.00 0.00 0.00 0.54 0.00 0.63
Delay/Veh: 22.6 5.4 0.0 0.0 33.7 26.9 0.0 0.0 0.0 31.8 0.0 34.5
User DelAdj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
AdjDel/Veh: 22.6 5.4 0.0 0.0 33.7 26.9 0.0 0.0 0.0 31.8 0.0 34.5
LOS by Move: C A A A C C A A A C
HCM2kAvgQ: 13 6 0 0 9 0 0 0 0 8 0 9

Note: Queue reported is the number of cars per lane.

Ontario New Model - Rich Haven External Intersections
2015 AM Peak (Base Scenario Trip Generation)
Meyer, Mohaddes Associates

Level Of Service Computation Report

2000 HCM Operations Method (Future Volume Alternative)

Intersection #18 Milliken Avenue/SR-60 EB Ramps

Cycle (sec): 100 Critical Vol./Cap.(X): 0.865
Loss Time (sec): 0 (Y+R=4.0 sec) Average Delay (sec/veh): 20.6
Optimal Cycle: 138 Level Of Service: C

Approach: North Bound South Bound East Bound West Bound
Movement: L - T - R L - T - R L - T - R L - T - R

Control: Permitted Protected Split Phase Split Phase
Rights: Include Include Include Include
Min. Green: 0 0 0 0 0 0 0 0 0 0 0 0
Lanes: 0 0 1 1 0 1 0 2 0 0 1 0 1 0 0 0 0 0 0 0

Volume Module:
Base Vol: 0 1356 416 3 820 0 33 0 489 0 0 0
Growth Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
Initial Bse: 0 1356 416 3 820 0 33 0 489 0 0 0
Added Vol: 0 0 0 0 0 0 0 0 0 0 0 0
PasserByVol: 0 0 0 0 0 0 0 0 0 0 0 0
Initial Fut: 0 1356 416 3 820 0 33 0 489 0 0 0
User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
PHF Adj: 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95
PHF Volume: 0 1427 438 3 863 0 35 0 515 0 0 0
Reduct Vol: 0 0 0 0 0 0 0 0 0 0 0 0
Reduced Vol: 0 1427 438 3 863 0 35 0 515 0 0 0
PCE Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
MLF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
Final Vol.: 0 1427 438 3 863 0 35 0 515 0 0 0

Saturation Flow Module:
Sat/Lane: 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900
Adjustment: 0.95 0.92 0.92 0.90 0.95 1.00 0.81 1.00 0.86 0.95 1.00 1.00
Lanes: 0.00 1.53 0.47 1.00 2.00 0.00 1.03 0.00 0.97 0.00 0.00 0.00
Final Sat.: 0 2666 818 1710 3610 0 1595 0 1571 0 0 0

Capacity Analysis Module:
Vol/Sat: 0.00 0.54 0.54 0.00 0.24 0.00 0.02 0.00 0.33 0.00 0.00 0.00
Crit Moves: ****
Green/Cycle: 0.00 0.62 0.62 0.00 0.62 0.00 0.38 0.00 0.38 0.00 0.00 0.00
Volume/Cap: 0.00 0.86 0.86 0.88 0.38 0.00 0.06 0.00 0.86 0.00 0.00 0.00
Delay/Veh: 0.0 19.5 19.5 423.8 9.5 0.0 19.7 0.0 40.6 0.0 0.0 0.0
User DelAdj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
AdjDel/Veh: 0.0 19.5 19.5 423.8 9.5 0.0 19.7 0.0 40.6 0.0 0.0 0.0
LOS by Move: A B B F A A B A D A A A
HCM2kAvgQ: 0 27 27 1 7 0 1 0 18 0 0 0

Note: Queue reported is the number of cars per lane.

Ontario New Model - Rich Haven External Intersections
2015 AM Peak (Base Scenario Trip Generation)
Meyer, Mohaddes Associates

Level Of Service Computation Report

2000 HCM Operations Method (Future Volume Alternative)

Intersection #19 Milliken Avenue/Riverside Drive

Cycle (sec): 100 Critical Vol./Cap.(X): 1.044
Loss Time (sec): 0 (Y+R=4.0 sec) Average Delay (sec/veh): 61.8
Optimal Cycle: 180 Level Of Service: E

Approach: North Bound South Bound East Bound West Bound
Movement: L - T - R L - T - R L - T - R L - T - R

Control: Protected Protected Protected Protected
Rights: Include Include Include Include
Min. Green: 0 0 0 0 0 0 0 0 0 0 0 0
Lanes: 2 0 3 0 1 2 0 3 0 1 1 0 1 1 0 1 0 1 1 0

Volume Module:
Base Vol: 41 697 14 722 127 458 783 796 37 3 279 293
Growth Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
Initial Bse: 41 697 14 722 127 458 783 796 37 3 279 293
Added Vol: 0 0 0 0 0 0 0 0 0 0 0 0
PasserByVol: 0 0 0 0 0 0 0 0 0 0 0 0
Initial Fut: 41 697 14 722 127 458 783 796 37 3 279 293
User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
PHF Adj: 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95
PHF Volume: 43 734 15 760 134 482 824 838 39 3 294 308
Reduct Vol: 0 0 0 0 0 0 0 0 0 0 0 0
Reduced Vol: 43 734 15 760 134 482 824 838 39 3 294 308
PCE Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
MLF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
Final Vol.: 43 734 15 760 134 482 824 838 39 3 294 308

Saturation Flow Module:
Sat/Lane: 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900
Adjustment: 0.85 0.91 0.85 0.85 0.91 0.85 0.90 0.94 0.94 0.90 0.88 0.88
Lanes: 2.00 3.00 1.00 2.00 3.00 1.00 1.00 1.91 0.09 1.00 1.00 1.00
Final Sat.: 3230 5187 1615 3230 5187 1615 1710 3426 159 1710 1666 1666

Capacity Analysis Module:
Vol/Sat: 0.01 0.14 0.01 0.24 0.03 0.30 0.48 0.24 0.24 0.00 0.18 0.19
Crit Moves: ****
Green/Cycle: 0.02 0.14 0.14 0.23 0.35 0.35 0.46 0.63 0.63 0.00 0.18 0.18
Volume/Cap: 0.86 1.04 0.07 1.04 0.07 0.86 1.04 0.39 0.39 0.39 0.99 1.04
Delay/Veh: 127.7 89.2 37.8 84.1 22.0 43.7 71.0 9.0 9.0 77.2 76.0 90.5
User DelAdj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
AdjDel/Veh: 127.7 89.2 37.8 84.1 22.0 43.7 71.0 9.0 9.0 77.2 76.0 90.5
LOS by Move: F F D F C D E A A E E F
HCM2kAvgQ: 2 14 0 20 1 17 37 7 7 0 15 16

Note: Queue reported is the number of cars per lane.

Ontario New Model - Rich Haven External Intersections
2015 AM Peak (Base Scenario Trip Generation)
Meyer, Mohaddes Associates

Level Of Service Computation Report

2000 HCM Operations Method (Future Volume Alternative)

Intersection #20 Milliken Ave / Chino Ave

Cycle (sec): 100 Critical Vol./Cap.(X): 0.308
Loss Time (sec): 0 (Y+R=4.0 sec) Average Delay (sec/veh): 12.6
Optimal Cycle: 28 Level Of Service: B

Approach: North Bound South Bound East Bound West Bound
Movement: L - T - R L - T - R L - T - R L - T - R

Control: Protected Permitted Split Phase Split Phase
Rights: Include Include Include Include
Min. Green: 0 0 0 0 0 0 0 0 0 0 0 0
Lanes: 1 0 2 0 0 0 0 3 1 0 1 0 0 0 0 0

Volume Module:

Base Vol: 18 874 0 0 232 9 27 0 81 0 0 0
Growth Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
Initial Bse: 18 874 0 0 232 9 27 0 81 0 0 0
Added Vol: 0 0 0 0 0 0 0 0 0 0 0 0
PasserByVol: 0 0 0 0 0 0 0 0 0 0 0 0
Initial Fut: 18 874 0 0 232 9 27 0 81 0 0 0
User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
PHF Adj: 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95
PHF Volume: 19 920 0 0 244 9 28 0 85 0 0 0
Reduct Vol: 0 0 0 0 0 0 0 0 0 0 0 0
Reduced Vol: 19 920 0 0 244 9 28 0 85 0 0 0
PCE Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
MLF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
Final Vol.: 19 920 0 0 244 9 28 0 85 0 0 0

Saturation Flow Module:

Sat/Lane: 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900
Adjustment: 0.90 0.95 1.00 0.95 0.90 0.90 0.90 1.00 0.85 0.95 1.00 1.00
Lanes: 1.00 2.00 0.00 0.00 3.85 0.15 1.00 0.00 1.00 0.00 0.00 0.00
Final Sat.: 1710 3610 0 0 6618 257 1710 0 1615 0 0 0

Capacity Analysis Module:

Vol/Sat: 0.01 0.25 0.00 0.00 0.04 0.04 0.02 0.00 0.05 0.00 0.00 0.00
Crit Moves: ****
Green/Cycle: 0.74 0.85 0.00 0.00 0.11 0.11 0.15 0.00 0.15 0.00 0.00 0.00
Volume/Cap: 0.01 0.30 0.00 0.00 0.34 0.34 0.11 0.00 0.34 0.00 0.00 0.00
Delay/Veh: 3.4 1.6 0.0 0.0 41.7 41.7 36.6 0.0 38.7 0.0 0.0 0.0
User DelAdj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
AdjDel/Veh: 3.4 1.6 0.0 0.0 41.7 41.7 36.6 0.0 38.7 0.0 0.0 0.0
LOS by Move: A A A A D D D A D A A A
HCM2kAvgQ: 0 3 0 0 2 2 1 0 3 0 0 0

Note: Queue reported is the number of cars per lane.

Ontario New Model - Rich Haven External Intersections
2015 AM Peak (Base Scenario Trip Generation)
Meyer, Mohaddes Associates

Level Of Service Computation Report

2000 HCM Operations Method (Future Volume Alternative)

Intersection #21 Milliken Avenue/Edison Avenue

Cycle (sec): 100 Critical Vol./Cap.(X): 0.777
Loss Time (sec): 0 (Y+R=4.0 sec) Average Delay (sec/veh): 30.5
Optimal Cycle: 102 Level Of Service: C

Approach: North Bound South Bound East Bound West Bound
Movement: L - T - R L - T - R L - T - R L - T - R

Control: Protected Protected Protected Protected
Rights: Include Include Include Include
Min. Green: 0 0 0 0 0 0 0 0 0 0 0 0
Lanes: 1 0 1 1 0 1 0 1 1 0 1 0 3 1 0 1 0

Volume Module:

Base Vol: 66 637 520 89 95 27 56 1525 29 200 1897 181
Growth Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
Initial Bse: 66 637 520 89 95 27 56 1525 29 200 1897 181
Added Vol: 0 0 0 0 0 0 0 0 0 0 0 0
PasserByVol: 0 0 0 0 0 0 0 0 0 0 0 0
Initial Fut: 66 637 520 89 95 27 56 1525 29 200 1897 181
User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
PHF Adj: 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95
PHF Volume: 69 671 547 94 100 28 59 1605 31 211 1997 191
Reduct Vol: 0 0 0 0 0 0 0 0 0 0 0 0
Reduced Vol: 69 671 547 94 100 28 59 1605 31 211 1997 191
PCE Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
MLF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
Final Vol.: 69 671 547 94 100 28 59 1605 31 211 1997 191

Saturation Flow Module:

Sat/Lane: 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900
Adjustment: 0.90 0.89 0.89 0.90 0.92 0.92 0.90 0.91 0.91 0.90 0.90 0.90
Lanes: 1.00 1.10 0.90 1.00 1.56 0.44 1.00 3.93 0.07 1.00 3.65 0.35
Final Sat.: 1710 1854 1514 1710 2718 773 1710 6767 129 1710 6232 595

Capacity Analysis Module:

Vol/Sat: 0.04 0.36 0.36 0.05 0.04 0.04 0.03 0.24 0.24 0.12 0.32 0.32
Crit Moves: ****
Green/Cycle: 0.28 0.47 0.47 0.07 0.25 0.25 0.05 0.31 0.31 0.16 0.42 0.42
Volume/Cap: 0.14 0.78 0.78 0.78 0.14 0.14 0.77 0.78 0.78 0.78 0.77 0.77
Delay/Veh: 27.1 24.9 24.9 72.3 28.9 28.9 83.1 33.5 33.5 53.6 26.1 26.1
User DelAdj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
AdjDel/Veh: 27.1 24.9 24.9 72.3 28.9 28.9 83.1 33.5 33.5 53.6 26.1 26.1
LOS by Move: C C C E C C F C D C
HCM2kAvgQ: 2 18 18 5 2 2 4 14 14 9 17 17

Note: Queue reported is the number of cars per lane.

Ontario New Model - Rich Haven External Intersections
2015 AM Peak (Base Scenario Trip Generation)
Meyer, Mohaddes Associates

Level Of Service Computation Report

2000 HCM Operations Method (Future Volume Alternative)

Intersection #550 Haven Avenue/Creekside Drive

Cycle (sec): 100 Critical Vol./Cap.(X): 0.000
Loss Time (sec): 0 (Y+R=4.0 sec) Average Delay (sec/veh): 0.0
Optimal Cycle: 0 Level Of Service:

Approach: North Bound South Bound East Bound West Bound
Movement: L - T - R L - T - R L - T - R L - T - R

Control: Protected Protected Prot+Permit Prot+Permit
Rights: Include Include Include Include
Min. Green: 0 0 0 0 0 0 0 0 0 0 0 0
Lanes: 1 0 1 1 0 1 0 1 1 0 1 1 0 1 0 1

Volume Module:
Base Vol: 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
Growth Adj: 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00
Initial Bse: 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
Added Vol: 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
PasserByVol: 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
Initial Fut: 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
User Adj: 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00
PHF Adj: 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00
PHF Volume: 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
Reduct Vol: 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
Reduced Vol: 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
PCE Adj: 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00
MLF Adj: 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00
Final Vol.: 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0

Saturation Flow Module:
Sat/Lane: 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
Adjustment: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
Lanes: 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00
Final Sat.: 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0

Capacity Analysis Module:
Vol/Sat: 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00
Crit Moves:
Green/Cycle: 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00
Volume/Cap: 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00
Delay/Veh: 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0
User DelAdj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
AdjDel/Veh: 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0
LOS by Move:
HCM2kAvgQ: 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0

Note: Queue reported is the number of cars per lane.

Ontario New Model - Rich Haven External Intersections
2015 AM Peak (Base Scenario Trip Generation)
Meyer, Mohaddes Associates

Lane Geometry Report

Number of approach lanes: (L) (LT) (T) (RT) (R) (LTR)

Table with 5 columns: Node Intersection, NB, SB, EB, WB. Lists 21 intersection nodes and their lane counts for Northbound, Southbound, Eastbound, and Westbound directions.

Ontario New Model - Rich Haven External Intersections
 2015 PM Peak (Base Scenario Trip Generation)
 Meyer, Mohaddes Associates

Scenario: 2015 PM (With Project + Base Scenario Trip Gen)

Command: 2015 PM
 Volume: 2015 PM
 Geometry: Future Base
 Impact Fee: Default Impact Fee
 Trip Generation: None
 Trip Distribution: None
 Paths: Default Paths
 Routes: Default Routes
 Configuration: 2015 PM

Ontario New Model - Rich Haven External Intersections
 2015 PM Peak (Base Scenario Trip Generation)
 Meyer, Mohaddes Associates

Intersection Volume Report
 Base Volume Alternative

Node Intersection	Northbound			Southbound			Eastbound			Westbound		
	L	T	R	L	T	R	L	T	R	L	T	R
1 Archibald Ave	199	1072	80	100	1700	176	116	359	245	63	453	119
2 Archibald Ave	72	1313	51	178	1837	1	1	34	90	57	41	117
3 Archibald Ave	16	1175	2	309	1586	73	45	43	18	1	38	295
4 Archibald Ave	459	639	395	148	1035	253	291	1554	1954	363	1354	97
5 Turner Avenue	0	4	31	80	6	48	69	510	0	102	652	93
6 Turner Avenue	13	3	20	6	35	28	23	98	12	15	123	7
7 Turner Avenue	0	0	0	16	0	3	5	348	0	0	331	30
8 Edison Avenue	0	0	0	359	0	5	17	1867	0	0	1708	344
9 Haven Avenue/	326	640	0	0	1787	123	0	0	0	206	0	423
10 Haven Avenue/	0	1089	246	469	1524	0	29	0	782	0	0	0
11 Haven Avenue/	88	900	183	330	1470	103	85	443	90	192	651	136
12 Haven Avenue	34	967	67	91	1527	13	30	36	32	107	75	97
13 Haven Avenue	157	568	191	253	949	193	249	1777	200	281	1703	211
14 Mill Creek Av	75	18	39	116	14	177	270	853	63	42	1252	112
15 Mill Creek Av	118	131	18	10	142	100	69	22	111	104	72	13
16 Mill Creek Av	88	21	17	73	25	12	11	2225	186	16	2388	72
17 Milliken Aven	735	732	0	0	1936	116	0	0	0	344	0	164
18 Milliken Aven	0	1462	409	71	2209	0	6	0	754	0	0	0
19 Milliken Aven	43	430	5	773	1614	576	747	353	65	81	774	693
20 Milliken Ave	92	598	0	0	1670	97	13	0	37	0	0	0
21 Milliken Aven	94	316	295	272	1217	183	125	2824	121	557	2859	148
550 Haven Avenue/	0	0	0	0	0	0	0	0	0	0	0	0

Ontario New Model - Rich Haven External Intersections
 2015 PM Peak (Base Scenario Trip Generation)
 Meyer, Mohaddes Associates

Impact Analysis Report
 Level Of Service

Intersection	Base LOS	V/ C	Future LOS	V/ C	Change in		
							Del/
# 1 Archibald Avenue/Riverside Dri	C	26.6	0.752	C	26.6	0.752	+ 0.000 D/V
# 2 Archibald Avenue/Chino Avenue	B	12.9	0.530	B	12.9	0.530	+ 0.000 D/V
# 3 Archibald Avenue/Schaefer Aven	B	19.0	0.627	B	19.0	0.627	+ 0.000 D/V
# 4 Archibald Avenue/Edison Avenue	F	220.7	1.836	F	220.7	1.836	+ 0.000 D/V
# 5 Turner Avenue/Riverside Drive	B	14.3	0.330	B	14.3	0.330	+ 0.000 D/V
# 6 Turner Avenue/Chino Avenue	A	8.2	0.099	A	8.2	0.099	+ 0.000 V/C
# 7 Turner Avenue at Schaefer Aven	A	1.8	0.116	A	1.8	0.116	+ 0.000 D/V
# 8 Edison Avenue at Schaefer Aven	A	7.2	0.434	A	7.2	0.434	+ 0.000 D/V
# 9 Haven Avenue/SR-60 WB Ramps	B	11.8	0.532	B	11.8	0.532	+ 0.000 D/V
# 10 Haven Avenue/SR-60 EB Ramps	D	38.1	0.941	D	38.1	0.941	+ 0.000 D/V
# 11 Haven Avenue/Riverside Drive	E	63.0	1.203	E	63.0	1.203	+ 0.000 D/V
# 12 Haven Avenue at Chino Avenue	A	7.0	0.548	A	7.0	0.548	+ 0.000 D/V
# 13 Haven Avenue at Edison Avenue	E	70.7	1.130	E	70.7	1.130	+ 0.000 D/V
# 14 Mill Creek Avenue/Riverside Dr	B	18.9	0.692	B	18.9	0.692	+ 0.000 D/V
# 15 Mill Creek Avenue at Chino Ave	B	13.5	0.242	B	13.5	0.242	+ 0.000 D/V
# 16 Mill Creek Avenue at Edison Av	A	4.0	0.454	A	4.0	0.454	+ 0.000 D/V
# 17 Milliken Avenue/SR-60 WB Ramps	F	109.3	1.229	F	109.3	1.229	+ 0.000 D/V
# 18 Milliken Avenue/SR-60 EB Ramps	F	197.7	1.137	F	197.7	1.137	+ 0.000 D/V
# 19 Milliken Avenue/Riverside Driv	F	138.9	1.310	F	138.9	1.310	+ 0.000 D/V
# 20 Milliken Ave / Chino Ave	A	5.0	0.352	A	5.0	0.352	+ 0.000 D/V
# 21 Milliken Avenue/Edison Avenue	F	104.7	1.268	F	104.7	1.268	+ 0.000 D/V
#550 Haven Avenue/Creekside Drive		0.0	0.000		0.0	0.000	+ 0.000 D/V

Ontario New Model - Rich Haven External Intersections
 2015 PM Peak (Base Scenario Trip Generation)
 Meyer, Mohaddes Associates

Level Of Service Computation Report
 2000 HCM Operations Method (Future Volume Alternative)

Intersection #1 Archibald Avenue/Riverside Drive

Cycle (sec): 100 Critical Vol./Cap.(X): 0.752
 Loss Time (sec): 0 (Y+R=4.0 sec) Average Delay (sec/veh): 26.6
 Optimal Cycle: 92 Level Of Service: C

Approach:	North Bound	South Bound	East Bound	West Bound
Movement:	L - T - R	L - T - R	L - T - R	L - T - R
Control:	Protected	Protected	Protected	Protected
Rights:	Include	Include	Include	Include
Min. Green:	0 0 0	0 0 0	0 0 0	0 0 0
Lanes:	1 0 2 1 0	1 0 2 1 0	1 0 1 1 0	1 0 1 1 0

Volume Module:

Base Vol:	199	1072	80	100	1700	176	116	359	245	63	453	119
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	199	1072	80	100	1700	176	116	359	245	63	453	119
Added Vol:	0	0	0	0	0	0	0	0	0	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	199	1072	80	100	1700	176	116	359	245	63	453	119
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
PHF Volume:	209	1128	84	105	1789	185	122	378	258	66	477	125
Reduced Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	209	1128	84	105	1789	185	122	378	258	66	477	125
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Final Vol.:	209	1128	84	105	1789	185	122	378	258	66	477	125

Saturation Flow Module:

Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.89	0.89	0.90	0.92	0.92
Lanes:	1.00	2.79	0.21	1.00	2.72	0.28	1.00	1.19	0.81	1.00	1.58	0.42
Final Sat.:	1710	4779	357	1710	4635	480	1710	2015	1375	1710	2770	728

Capacity Analysis Module:

Vol/Sat:	0.12	0.24	0.24	0.06	0.39	0.39	0.07	0.19	0.19	0.04	0.17	0.17
Crit Moves:	****			****			****			****		
Green/Cycle:	0.16	0.54	0.54	0.14	0.51	0.51	0.09	0.27	0.27	0.06	0.23	0.23
Volume/Cap:	0.75	0.44	0.44	0.44	0.75	0.75	0.75	0.70	0.70	0.70	0.75	0.75
Delay/Veh:	50.9	14.2	14.2	40.7	20.6	20.6	61.9	35.4	35.4	67.0	40.0	40.0
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	50.9	14.2	14.2	40.7	20.6	20.6	61.9	35.4	35.4	67.0	40.0	40.0
LOS by Move:	D	B	B	D	C	C	E	D	D	E	D	D
HCM2kAvgQ:	8	8	8	4	19	19	6	10	10	4	11	11

Note: Queue reported is the number of cars per lane.

Ontario New Model - Rich Haven External Intersections
2015 PM Peak (Base Scenario Trip Generation)
Meyer, Mohaddes Associates

Level Of Service Computation Report

2000 HCM Operations Method (Future Volume Alternative)

Intersection #2 Archibald Avenue/Chino Avenue

Cycle (sec): 90 Critical Vol./Cap.(X): 0.530
Loss Time (sec): 0 (Y+R=4.0 sec) Average Delay (sec/veh): 12.9
Optimal Cycle: 48 Level Of Service: B

Approach: North Bound South Bound East Bound West Bound
Movement: L - T - R L - T - R L - T - R L - T - R

Control: Protected Protected Protected Protected
Rights: Include Include Include Include
Min. Green: 0 0 0 0 0 0 0 0 0 0 0 0
Lanes: 1 0 2 1 0 1 0 2 1 0 1 0 1 0 1

Volume Module:

Base Vol: 72 1313 51 178 1837 1 1 34 90 57 41 117
Growth Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
Initial Bse: 72 1313 51 178 1837 1 1 34 90 57 41 117
Added Vol: 0 0 0 0 0 0 0 0 0 0 0 0 0
PasserByVol: 0 0 0 0 0 0 0 0 0 0 0 0 0
Initial Fut: 72 1313 51 178 1837 1 1 34 90 57 41 117
User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
PHF Adj: 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95
PHF Volume: 76 1382 54 187 1934 1 1 36 95 60 43 123
Reduced Vol: 0 0 0 0 0 0 0 0 0 0 0 0 0
Reduced Vol: 76 1382 54 187 1934 1 1 36 95 60 43 123
PCE Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
MLF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
Final Vol.: 76 1382 54 187 1934 1 1 36 95 60 43 123

Saturation Flow Module:

Sat/Lane: 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900
Adjustment: 0.90 0.90 0.90 0.90 0.91 0.91 0.90 0.89 0.89 0.90 1.00 0.85
Lanes: 1.00 2.89 0.11 1.00 2.99 0.01 1.00 0.27 0.73 1.00 1.00 1.00
Final Sat.: 1710 4963 193 1710 5184 3 1710 464 1229 1710 1900 1615

Capacity Analysis Module:

Vol/Sat: 0.04 0.28 0.28 0.11 0.37 0.37 0.00 0.08 0.08 0.04 0.02 0.08
Crit Moves: ****
Green/Cycle: 0.08 0.57 0.57 0.22 0.70 0.70 0.00 0.15 0.15 0.07 0.21 0.21
Volume/Cap: 0.53 0.49 0.49 0.49 0.53 0.53 0.36 0.53 0.53 0.53 0.11 0.36
Delay/Veh: 43.3 11.9 11.9 31.6 6.4 6.4 108.5 37.8 37.8 45.3 28.8 31.1
User DelAdj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
AdjDel/Veh: 43.3 11.9 11.9 31.6 6.4 6.4 108.5 37.8 37.8 45.3 28.8 31.1
LOS by Move: D B B C A A F D D C C C
HCM2kAvgQ: 3 9 9 5 9 9 0 4 4 3 1 3

Note: Queue reported is the number of cars per lane.

Ontario New Model - Rich Haven External Intersections
2015 PM Peak (Base Scenario Trip Generation)
Meyer, Mohaddes Associates

Level Of Service Computation Report

2000 HCM Operations Method (Future Volume Alternative)

Intersection #3 Archibald Avenue/Schaefer Avenue

Cycle (sec): 100 Critical Vol./Cap.(X): 0.627
Loss Time (sec): 0 (Y+R=4.0 sec) Average Delay (sec/veh): 19.0
Optimal Cycle: 50 Level Of Service: B

Approach: North Bound South Bound East Bound West Bound
Movement: L - T - R L - T - R L - T - R L - T - R

Control: Protected Protected Permitted Permitted
Rights: Include Include Include Include
Min. Green: 0 0 0 0 0 0 0 0 0 0 0 0
Lanes: 1 0 2 1 0 1 0 2 1 0 1 0 1 0 1

Volume Module:

Base Vol: 16 1175 2 309 1586 73 45 43 18 1 38 295
Growth Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
Initial Bse: 16 1175 2 309 1586 73 45 43 18 1 38 295
Added Vol: 0 0 0 0 0 0 0 0 0 0 0 0 0
PasserByVol: 0 0 0 0 0 0 0 0 0 0 0 0 0
Initial Fut: 16 1175 2 309 1586 73 45 43 18 1 38 295
User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
PHF Adj: 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95
PHF Volume: 17 1237 2 325 1669 77 47 45 19 1 40 311
Reduced Vol: 0 0 0 0 0 0 0 0 0 0 0 0 0
Reduced Vol: 17 1237 2 325 1669 77 47 45 19 1 40 311
PCE Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
MLF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
Final Vol.: 17 1237 2 325 1669 77 47 45 19 1 40 311

Saturation Flow Module:

Sat/Lane: 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900
Adjustment: 0.90 0.91 0.91 0.90 0.90 0.90 0.38 0.91 0.91 0.65 0.82 0.82
Lanes: 1.00 2.99 0.01 1.00 2.87 0.13 1.00 1.41 0.59 1.00 1.00 1.00
Final Sat.: 1710 5178 9 1710 4924 227 731 2433 1018 1233 1565 1565

Capacity Analysis Module:

Vol/Sat: 0.01 0.24 0.24 0.19 0.34 0.34 0.06 0.02 0.02 0.00 0.03 0.20
Crit Moves: ****
Green/Cycle: 0.02 0.38 0.38 0.30 0.66 0.66 0.32 0.32 0.32 0.32 0.32 0.32
Volume/Cap: 0.51 0.63 0.63 0.63 0.51 0.51 0.20 0.06 0.06 0.00 0.08 0.63
Delay/Veh: 61.3 25.8 25.8 32.4 8.6 8.6 25.4 23.8 23.8 23.4 24.0 31.4
User DelAdj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
AdjDel/Veh: 61.3 25.8 25.8 32.4 8.6 8.6 25.4 23.8 23.8 23.4 24.0 31.4
LOS by Move: E C C C A A C C C C C C
HCM2kAvgQ: 1 12 12 10 10 10 1 1 1 0 1 9

Note: Queue reported is the number of cars per lane.

Ontario New Model - Rich Haven External Intersections
2015 PM Peak (Base Scenario Trip Generation)
Meyer, Mohaddes Associates

Level Of Service Computation Report

2000 HCM Operations Method (Future Volume Alternative)

Intersection #4 Archibald Avenue/Edison Avenue

Cycle (sec): 100 Critical Vol./Cap.(X): 1.836
Loss Time (sec): 0 (Y+R=4.0 sec) Average Delay (sec/veh): 220.7
Optimal Cycle: 180 Level Of Service: F

Approach: North Bound South Bound East Bound West Bound
Movement: L - T - R L - T - R L - T - R L - T - R

Control: Protected Protected Protected Protected
Rights: Include Include Include Include
Min. Green: 0 0 0 0 0 0 0 0 0 0 0 0
Lanes: 2 0 2 1 0 2 0 2 1 0 2 0 3 1 0 2 0 3 1 0

Volume Module:

Base Vol: 459 639 395 148 1035 253 291 1554 1954 363 1354 97
Growth Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
Initial Bse: 459 639 395 148 1035 253 291 1554 1954 363 1354 97
Added Vol: 0 0 0 0 0 0 0 0 0 0 0 0
PasserByVol: 0 0 0 0 0 0 0 0 0 0 0 0
Initial Fut: 459 639 395 148 1035 253 291 1554 1954 363 1354 97
User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
PHF Adj: 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95
PHF Volume: 483 673 416 156 1089 266 306 1636 2057 382 1425 102
Reduc Vol: 0 0 0 0 0 0 0 0 0 0 0 0
Reduced Vol: 483 673 416 156 1089 266 306 1636 2057 382 1425 102
PCE Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
MLF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
Final Vol.: 483 673 416 156 1089 266 306 1636 2057 382 1425 102

Saturation Flow Module:

Sat/Lane: 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900
Adjustment: 0.85 0.86 0.86 0.85 0.88 0.88 0.85 0.83 0.83 0.85 0.90 0.90
Lanes: 2.00 2.00 1.00 2.00 2.41 0.59 2.00 3.00 1.00 2.00 3.73 0.27
Final Sat.: 3230 3261 1630 3230 4047 989 3230 4751 1584 3230 6389 458

Capacity Analysis Module:

Vol/Sat: 0.15 0.21 0.26 0.05 0.27 0.09 0.34 1.30 0.12 0.22 0.22
Crit Moves: ****
Green/Cycle: 0.08 0.19 0.19 0.04 0.15 0.15 0.23 0.71 0.71 0.06 0.54 0.54
Volume/Cap: 1.84 1.08 1.33 1.33 1.84 1.84 0.41 0.49 1.84 1.84 0.41 0.41
Delay/Veh: 436.5 91.2 197.0 243.4 424 424.0 33.1 6.6 392.7 441.0 13.6 13.6
User DelAdj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
AdjDel/Veh: 436.5 91.2 197.0 243.4 424 424.0 33.1 6.6 392.7 441.0 13.6 13.6
LOS by Move: F F F F F C A F B B B
HCM2kAvgQ: 25 19 30 7 44 44 5 8 194 20 8 8

Note: Queue reported is the number of cars per lane.

Ontario New Model - Rich Haven External Intersections
2015 PM Peak (Base Scenario Trip Generation)
Meyer, Mohaddes Associates

Level Of Service Computation Report

2000 HCM Operations Method (Future Volume Alternative)

Intersection #5 Turner Avenue/Riverside Drive

Cycle (sec): 100 Critical Vol./Cap.(X): 0.330
Loss Time (sec): 0 (Y+R=4.0 sec) Average Delay (sec/veh): 14.3
Optimal Cycle: 28 Level Of Service: B

Approach: North Bound South Bound East Bound West Bound
Movement: L - T - R L - T - R L - T - R L - T - R

Control: Permitted Permitted Protected Protected
Rights: Include Include Include Include
Min. Green: 0 0 0 0 0 0 0 0 0 0 0 0
Lanes: 1 0 1 1 0 1 0 1 1 0 1 0 1 1 0 1 0 1 1 0

Volume Module:

Base Vol: 0 4 31 80 6 48 69 510 0 102 652 93
Growth Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
Initial Bse: 0 4 31 80 6 48 69 510 0 102 652 93
Added Vol: 0 0 0 0 0 0 0 0 0 0 0 0
PasserByVol: 0 0 0 0 0 0 0 0 0 0 0 0
Initial Fut: 0 4 31 80 6 48 69 510 0 102 652 93
User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
PHF Adj: 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95
PHF Volume: 0 4 33 84 6 51 73 537 0 107 686 98
Reduc Vol: 0 0 0 0 0 0 0 0 0 0 0 0
Reduced Vol: 0 4 33 84 6 51 73 537 0 107 686 98
PCE Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
MLF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
Final Vol.: 0 4 33 84 6 51 73 537 0 107 686 98

Saturation Flow Module:

Sat/Lane: 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900
Adjustment: 0.95 0.82 0.82 0.67 0.82 0.82 0.90 0.95 0.95 0.90 0.93 0.93
Lanes: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 2.00 0.00 1.00 1.75 0.25
Final Sat.: 1800 1565 1565 1267 1565 1565 1710 3610 0 1710 3099 442

Capacity Analysis Module:

Vol/Sat: 0.00 0.00 0.02 0.07 0.00 0.03 0.04 0.15 0.00 0.06 0.22 0.22
Crit Moves: ****
Green/Cycle: 0.00 0.20 0.20 0.20 0.20 0.20 0.13 0.56 0.00 0.24 0.67 0.67
Volume/Cap: 0.00 0.01 0.10 0.33 0.02 0.16 0.33 0.26 0.00 0.26 0.33 0.33
Delay/Veh: 0.0 32.0 32.7 34.9 32.0 33.2 40.5 11.4 0.0 31.4 7.1 7.1
User DelAdj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
AdjDel/Veh: 0.0 32.0 32.7 34.9 32.0 33.2 40.5 11.4 0.0 31.4 7.1 7.1
LOS by Move: A C C C C C D B A C A A
HCM2kAvgQ: 0 0 1 3 0 1 2 4 0 3 5 5

Note: Queue reported is the number of cars per lane.

Ontario New Model - Rich Haven External Intersections
2015 PM Peak (Base Scenario Trip Generation)
Meyer, Mohaddes Associates

Level Of Service Computation Report

2000 HCM 4-Way Stop Method (Future Volume Alternative)

Intersection #6 Turner Avenue/Chino Avenue

Cycle (sec): 100 Critical Vol./Cap.(X): 0.099
Loss Time (sec): 0 (Y+R=4.0 sec) Average Delay (sec/veh): 8.2
Optimal Cycle: 0 Level Of Service: A

Approach: North Bound South Bound East Bound West Bound
Movement: L - T - R L - T - R L - T - R L - T - R

Control: Stop Sign Stop Sign Stop Sign Stop Sign
Rights: Include Include Include Include
Min. Green: 0 0 0 0 0 0 0 0 0 0 0 0
Lanes: 1 0 1 1 0 1 0 1 1 0 1 0 1 1 0

Volume Module:

Base Vol: 13 3 20 6 35 28 23 98 12 15 123 7
Growth Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
Initial Bse: 13 3 20 6 35 28 23 98 12 15 123 7
Added Vol: 0 0 0 0 0 0 0 0 0 0 0 0
PasserByVol: 0 0 0 0 0 0 0 0 0 0 0 0
Initial Fut: 13 3 20 6 35 28 23 98 12 15 123 7
User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
PHF Adj: 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95
PHF Volume: 14 3 21 6 37 29 24 103 13 16 129 7
Reduct Vol: 0 0 0 0 0 0 0 0 0 0 0 0
Reduced Vol: 14 3 21 6 37 29 24 103 13 16 129 7
PCE Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
MLF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
Final Vol.: 14 3 21 6 37 29 24 103 13 16 129 7

Saturation Flow Module:

Adjustment: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
Lanes: 1.00 1.00 1.00 1.00 1.11 0.89 1.00 1.78 0.22 1.00 1.89 0.11
Final Sat.: 575 625 711 584 715 635 620 1226 153 624 1303 75

Capacity Analysis Module:

Vol/Sat: 0.02 0.01 0.03 0.01 0.05 0.05 0.04 0.08 0.08 0.03 0.10 0.10
Crit Moves: ****
Delay/Veh: 8.8 8.2 7.6 8.6 8.3 7.7 8.5 8.2 8.1 8.4 8.3 8.3
Delay Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
AdjDel/Veh: 8.8 8.2 7.6 8.6 8.3 7.7 8.5 8.2 8.1 8.4 8.3 8.3
LOS by Move: A A A A A A A A A A A A
ApproachDel: 8.1 8.1 8.3 8.3
Delay Adj: 1.00 1.00 1.00 1.00
ApprAdjDel: 8.1 8.1 8.3 8.3
LOS by Appr: A A A A
AllWayAvgQ: 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.1 0.1 0.0 0.1 0.1

Note: Queue reported is the number of cars per lane.

Ontario New Model - Rich Haven External Intersections
2015 PM Peak (Base Scenario Trip Generation)
Meyer, Mohaddes Associates

Level Of Service Computation Report

2000 HCM Operations Method (Future Volume Alternative)

Intersection #7 Turner Avenue at Schaefer Avenue

Cycle (sec): 100 Critical Vol./Cap.(X): 0.116
Loss Time (sec): 0 (Y+R=4.0 sec) Average Delay (sec/veh): 1.8
Optimal Cycle: 21 Level Of Service: A

Approach: North Bound South Bound East Bound West Bound
Movement: L - T - R L - T - R L - T - R L - T - R

Control: Split Phase Split Phase Protected Permitted
Rights: Include Include Include Include
Min. Green: 0 0 0 0 0 0 0 0 0 0 0 0
Lanes: 0 0 0 0 0 1 0 1 0 0 1 0 2 0 0 0 0 1 1 0

Volume Module:

Base Vol: 0 0 0 16 0 3 5 348 0 0 331 30
Growth Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
Initial Bse: 0 0 0 16 0 3 5 348 0 0 331 30
Added Vol: 0 0 0 0 0 0 0 0 0 0 0 0
PasserByVol: 0 0 0 0 0 0 0 0 0 0 0 0
Initial Fut: 0 0 0 16 0 3 5 348 0 0 331 30
User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
PHF Adj: 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95
PHF Volume: 0 0 0 17 0 3 5 366 0 0 348 32
Reduct Vol: 0 0 0 0 0 0 0 0 0 0 0 0
Reduced Vol: 0 0 0 17 0 3 5 366 0 0 348 32
PCE Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
MLF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
Final Vol.: 0 0 0 17 0 3 5 366 0 0 348 32

Saturation Flow Module:

Sat/Lane: 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900
Adjustment: 0.95 1.00 1.00 0.89 1.00 0.94 0.90 0.95 1.00 0.95 0.94 0.94
Lanes: 0.00 0.00 0.00 1.74 0.00 0.26 1.00 2.00 0.00 0.00 1.83 0.17
Final Sat.: 0 0 0 2931 0 467 1710 3610 0 0 3270 296

Capacity Analysis Module:

Vol/Sat: 0.00 0.00 0.00 0.01 0.00 0.01 0.00 0.10 0.00 0.00 0.11 0.11
Crit Moves: ****
Green/Cycle: 0.00 0.00 0.00 0.06 0.00 0.06 0.03 0.94 0.00 0.00 0.92 0.92
Volume/Cap: 0.00 0.00 0.00 0.10 0.00 0.12 0.12 0.11 0.00 0.00 0.12 0.12
Delay/Veh: 0.0 0.0 0.0 44.8 0.0 45.0 48.7 0.2 0.0 0.0 0.4 0.4
User DelAdj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
AdjDel/Veh: 0.0 0.0 0.0 44.8 0.0 45.0 48.7 0.2 0.0 0.0 0.4 0.4
LOS by Move: A A A D A D D A A A A A
HCM2kAvgQ: 0 0 0 0 0 0 0 0 0 0 0 1 1

Note: Queue reported is the number of cars per lane.

Ontario New Model - Rich Haven External Intersections
2015 PM Peak (Base Scenario Trip Generation)
Meyer, Mohaddes Associates

Level Of Service Computation Report

2000 HCM Operations Method (Future Volume Alternative)

Intersection #8 Edison Avenue at Schaefer Avenue

Cycle (sec): 100 Critical Vol./Cap.(X): 0.434
Loss Time (sec): 0 (Y+R=4.0 sec) Average Delay (sec/veh): 7.2
Optimal Cycle: 33 Level Of Service: A

Approach: North Bound South Bound East Bound West Bound
Movement: L - T - R L - T - R L - T - R L - T - R

Control: Split Phase Split Phase Permitted Permitted
Rights: Include Include Include Include
Min. Green: 0 0 0 0 0 0 0 0 0 0 0 0
Lanes: 0 0 0 0 0 1 0 1 0 0 1 0 4 0 0 0 0 3 1 0

Volume Module:

Base Vol: 0 0 0 359 0 5 17 1867 0 0 1708 344
Growth Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
Initial Bse: 0 0 0 359 0 5 17 1867 0 0 1708 344
Added Vol: 0 0 0 0 0 0 0 0 0 0 0 0 0
PasserByVol: 0 0 0 0 0 0 0 0 0 0 0 0 0
Initial Fut: 0 0 0 359 0 5 17 1867 0 0 1708 344
User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
PHF Adj: 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95
PHF Volume: 0 0 0 378 0 5 18 1965 0 0 1798 362
Reduce Vol: 0 0 0 0 0 0 0 0 0 0 0 0 0
Reduced Vol: 0 0 0 378 0 5 18 1965 0 0 1798 362
PCE Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
MLF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
Final Vol.: 0 0 0 378 0 5 18 1965 0 0 1798 362

Saturation Flow Module:

Sat/Lane: 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900
Adjustment: 0.95 1.00 1.00 0.90 1.00 0.95 0.06 0.91 1.00 0.95 0.89 0.89
Lanes: 0.00 0.00 0.00 1.97 0.00 0.03 1.00 4.00 0.00 0.00 3.33 0.67
Final Sat.: 0 0 0 3380 0 46 119 6916 0 0 5613 1130

Capacity Analysis Module:

Vol/Sat: 0.00 0.00 0.00 0.11 0.00 0.11 0.15 0.28 0.00 0.00 0.32 0.32
Crit Moves: ****
Green/Cycle: 0.00 0.00 0.00 0.26 0.00 0.26 0.74 0.74 0.00 0.00 0.74 0.74
Volume/Cap: 0.00 0.00 0.00 0.43 0.00 0.43 0.20 0.38 0.00 0.00 0.43 0.43
Delay/Veh: 0.0 0.0 0.0 31.1 0.0 31.1 5.2 4.8 0.0 0.0 5.1 5.1
User DelAdj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
AdjDel/Veh: 0.0 0.0 0.0 31.1 0.0 31.1 5.2 4.8 0.0 0.0 5.1 5.1
LOS by Move: A A A C A C A A A A A A
HCM2kAvgQ: 0 0 0 5 0 5 0 6 0 0 7 7

Note: Queue reported is the number of cars per lane.

Ontario New Model - Rich Haven External Intersections
2015 PM Peak (Base Scenario Trip Generation)
Meyer, Mohaddes Associates

Level Of Service Computation Report

2000 HCM Operations Method (Future Volume Alternative)

Intersection #9 Haven Avenue/SR-60 WB Ramps

Cycle (sec): 100 Critical Vol./Cap.(X): 0.532
Loss Time (sec): 0 (Y+R=4.0 sec) Average Delay (sec/veh): 11.8
Optimal Cycle: 40 Level Of Service: B

Approach: North Bound South Bound East Bound West Bound
Movement: L - T - R L - T - R L - T - R L - T - R

Control: Protected Permitted Split Phase Split Phase
Rights: Include Include Include Ignore
Min. Green: 0 0 0 0 0 0 0 0 0 0 0 0
Lanes: 2 0 3 0 0 0 0 3 0 1 0 0 0 0 0 1 1 0 0 1

Volume Module:

Base Vol: 326 640 0 0 1787 123 0 0 0 206 0 423
Growth Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
Initial Bse: 326 640 0 0 1787 123 0 0 0 206 0 423
Added Vol: 0 0 0 0 0 0 0 0 0 0 0 0
PasserByVol: 0 0 0 0 0 0 0 0 0 0 0 0
Initial Fut: 326 640 0 0 1787 123 0 0 0 206 0 423
User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
PHF Adj: 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95
PHF Volume: 343 674 0 0 1881 129 0 0 0 217 0 0
Reduce Vol: 0 0 0 0 0 0 0 0 0 0 0 0
Reduced Vol: 343 674 0 0 1881 129 0 0 0 217 0 0
PCE Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
MLF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
Final Vol.: 343 674 0 0 1881 129 0 0 0 217 0 0

Saturation Flow Module:

Sat/Lane: 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900
Adjustment: 0.85 0.91 1.00 0.95 0.91 0.85 0.95 1.00 1.00 0.90 1.00 1.00
Lanes: 2.00 3.00 0.00 0.00 3.00 1.00 0.00 0.00 0.00 2.00 0.00 1.00
Final Sat.: 3230 5187 0 0 5187 1615 0 0 0 3427 0 1900

Capacity Analysis Module:

Vol/Sat: 0.11 0.13 0.00 0.00 0.36 0.08 0.00 0.00 0.00 0.06 0.00 0.00
Crit Moves: ****
Green/Cycle: 0.20 0.88 0.00 0.00 0.68 0.68 0.00 0.00 0.00 0.12 0.00 0.00
Volume/Cap: 0.53 0.15 0.00 0.00 0.53 0.12 0.00 0.00 0.00 0.53 0.00 0.00
Delay/Veh: 36.7 0.8 0.0 0.0 8.1 5.6 0.0 0.0 0.0 42.8 0.0 0.0
User DelAdj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
AdjDel/Veh: 36.7 0.8 0.0 0.0 8.1 5.6 0.0 0.0 0.0 42.8 0.0 0.0
LOS by Move: D A A A A A A A A D A A
HCM2kAvgQ: 6 1 0 0 11 1 0 0 0 4 0 0

Note: Queue reported is the number of cars per lane.

Ontario New Model - Rich Haven External Intersections
2015 PM Peak (Base Scenario Trip Generation)
Meyer, Mohaddes Associates

Level Of Service Computation Report

2000 HCM Operations Method (Future Volume Alternative)

Intersection #10 Haven Avenue/SR-60 EB Ramps

Cycle (sec): 100 Critical Vol./Cap.(X): 0.941
Loss Time (sec): 0 (Y+R=4.0 sec) Average Delay (sec/veh): 38.1
Optimal Cycle: 180 Level Of Service: D

Approach: North Bound South Bound East Bound West Bound
Movement: L - T - R L - T - R L - T - R L - T - R

Control: Permitted Protected Split Phase Split Phase
Rights: Include Include Include Include
Min. Green: 0 0 0 0 0 0 0 0 0 0 0 0
Lanes: 0 0 2 1 0 2 0 3 0 0 1 1 0 0 1 0 0 0 0 0

Volume Module:

Base Vol: 0 1089 246 469 1524 0 29 0 782 0 0 0
Growth Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
Initial Bse: 0 1089 246 469 1524 0 29 0 782 0 0 0
Added Vol: 0 0 0 0 0 0 0 0 0 0 0 0
PasserByVol: 0 0 0 0 0 0 0 0 0 0 0 0
Initial Fut: 0 1089 246 469 1524 0 29 0 782 0 0 0
User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
PHF Adj: 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95
PHF Volume: 0 1146 259 494 1604 0 31 0 823 0 0 0
Reduced Vol: 0 0 0 0 0 0 0 0 0 0 0 0
Reduced Vol: 0 1146 259 494 1604 0 31 0 823 0 0 0
PCE Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
MLF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
Final Vol.: 0 1146 259 494 1604 0 31 0 823 0 0 0

Saturation Flow Module:

Sat/Lane: 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900
Adjustment: 0.95 0.88 0.88 0.85 0.91 1.00 0.90 1.00 0.85 0.95 1.00 1.00
Lanes: 0.00 2.45 0.55 2.00 3.00 0.00 2.00 0.00 1.00 0.00 0.00 0.00
Final Sat.: 0 4113 929 3230 5187 0 3427 0 1615 0 0 0

Capacity Analysis Module:

Vol/Sat: 0.00 0.28 0.28 0.15 0.31 0.00 0.01 0.00 0.51 0.00 0.00 0.00
Crit Moves: ****
Green/Cycle: 0.00 0.30 0.30 0.16 0.46 0.00 0.54 0.00 0.54 0.00 0.00 0.00
Volume/Cap: 0.00 0.94 0.94 0.94 0.67 0.00 0.02 0.00 0.94 0.00 0.00 0.00
Delay/Veh: 0.0 46.4 46.4 66.8 22.0 0.0 10.6 0.0 39.3 0.0 0.0 0.0
User DelAdj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
AdjDel/Veh: 0.0 46.4 46.4 66.8 22.0 0.0 10.6 0.0 39.3 0.0 0.0 0.0
LOS by Move: A D D E C A B A D A A A
HCM2kAvgQ: 0 20 20 12 15 0 0 0 29 0 0 0

Note: Queue reported is the number of cars per lane.

Ontario New Model - Rich Haven External Intersections
2015 PM Peak (Base Scenario Trip Generation)
Meyer, Mohaddes Associates

Level Of Service Computation Report

2000 HCM Operations Method (Future Volume Alternative)

Intersection #11 Haven Avenue/Riverside Drive

Cycle (sec): 100 Critical Vol./Cap.(X): 1.203
Loss Time (sec): 0 (Y+R=4.0 sec) Average Delay (sec/veh): 63.0
Optimal Cycle: 180 Level Of Service: E

Approach: North Bound South Bound East Bound West Bound
Movement: L - T - R L - T - R L - T - R L - T - R

Control: Permitted Permitted Protected Protected
Rights: Include Include Include Include
Min. Green: 0 0 0 0 0 0 0 0 0 0 0 0
Lanes: 1 0 1 1 0 1 0 1 1 0 1 0 1 1 0

Volume Module:

Base Vol: 88 900 183 330 1470 103 85 443 90 192 651 136
Growth Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
Initial Bse: 88 900 183 330 1470 103 85 443 90 192 651 136
Added Vol: 0 0 0 0 0 0 0 0 0 0 0 0
PasserByVol: 0 0 0 0 0 0 0 0 0 0 0 0
Initial Fut: 88 900 183 330 1470 103 85 443 90 192 651 136
User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
PHF Adj: 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95
PHF Volume: 93 947 193 347 1547 108 89 466 95 202 685 143
Reduced Vol: 0 0 0 0 0 0 0 0 0 0 0 0
Reduced Vol: 93 947 193 347 1547 108 89 466 95 202 685 143
PCE Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
MLF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
Final Vol.: 93 947 193 347 1547 108 89 466 95 202 685 143

Saturation Flow Module:

Sat/Lane: 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900
Adjustment: 0.10 0.93 0.93 0.20 0.94 0.94 0.90 0.93 0.93 0.90 0.93 0.93
Lanes: 1.00 1.66 0.34 1.00 1.87 0.13 1.00 1.66 0.34 1.00 1.65 0.35
Final Sat.: 187 2925 595 380 3340 234 1710 2925 594 1710 2909 608

Capacity Analysis Module:

Vol/Sat: 0.49 0.32 0.32 0.91 0.46 0.46 0.05 0.16 0.16 0.12 0.24 0.24
Crit Moves: ****
Green/Cycle: 0.76 0.76 0.76 0.76 0.76 0.76 0.04 0.14 0.14 0.10 0.20 0.20
Volume/Cap: 0.65 0.43 0.43 1.20 0.61 0.61 1.20 1.16 1.16 1.16 1.20 1.20
Delay/Veh: 15.9 4.3 4.3 131.4 5.7 5.7 216.6 136 135.8 162.4 145 144.9
User DelAdj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
AdjDel/Veh: 15.9 4.3 4.3 131.4 5.7 5.7 216.6 136 135.8 162.4 145 144.9
LOS by Move: B A A F A A F F F F F
HCM2kAvgQ: 3 7 7 22 12 12 7 17 17 13 25 25

Note: Queue reported is the number of cars per lane.

Ontario New Model - Rich Haven External Intersections
2015 PM Peak (Base Scenario Trip Generation)
Meyer, Mohaddes Associates

Level Of Service Computation Report

2000 HCM Operations Method (Future Volume Alternative)

Intersection #12 Haven Avenue at Chino Avenue

Cycle (sec): 100 Critical Vol./Cap.(X): 0.548
Loss Time (sec): 0 (Y+R=4.0 sec) Average Delay (sec/veh): 7.0
Optimal Cycle: 32 Level Of Service: A

Approach: North Bound South Bound East Bound West Bound
Movement: L - T - R L - T - R L - T - R L - T - R

Control: Permitted Permitted Permitted Permitted
Rights: Include Include Include Include
Min. Green: 0 0 0 0 0 0 0 0 0 0 0 0
Lanes: 1 0 1 1 0 1 0 1 1 0 1 0 1 1 0

Volume Module:

Base Vol: 34 967 67 91 1527 13 30 36 32 107 75 97
Growth Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
Initial Bse: 34 967 67 91 1527 13 30 36 32 107 75 97
Added Vol: 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
PasserByVol: 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
Initial Fut: 34 967 67 91 1527 13 30 36 32 107 75 97
User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
PHF Adj: 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95
PHF Volume: 36 1018 71 96 1607 14 32 38 34 113 79 102
Reduc Vol: 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
Reduced Vol: 36 1018 71 96 1607 14 32 38 34 113 79 102
PCE Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
MLF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
Final Vol.: 36 1018 71 96 1607 14 32 38 34 113 79 102

Saturation Flow Module:

Sat/Lane: 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900
Adjustment: 0.12 0.94 0.94 0.22 0.95 0.95 0.44 0.88 0.88 0.60 0.87 0.87
Lanes: 1.00 1.87 0.13 1.00 1.98 0.02 1.00 1.06 0.94 1.00 1.00 1.00
Final Sat.: 221 3342 232 425 3576 30 844 1775 1578 1147 1652 1652

Capacity Analysis Module:

Vol/Sat: 0.16 0.30 0.30 0.23 0.45 0.04 0.02 0.02 0.10 0.05 0.06
Crit Moves: ****
Green/Cycle: 0.82 0.82 0.82 0.82 0.82 0.82 0.18 0.18 0.18 0.18 0.18 0.18
Volume/Cap: 0.20 0.37 0.37 0.27 0.55 0.55 0.21 0.12 0.12 0.55 0.27 0.34
Delay/Veh: 2.5 2.4 2.4 2.5 3.1 3.1 35.7 34.5 34.5 40.4 35.6 36.3
User DelAdj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
AdjDel/Veh: 2.5 2.4 2.4 2.5 3.1 3.1 35.7 34.5 34.5 40.4 35.6 36.3
LOS by Move: A A A A A A D C C D D D
HCM2kAvgQ: 0 5 5 1 9 9 1 1 1 1 4 2 3

Note: Queue reported is the number of cars per lane.

Ontario New Model - Rich Haven External Intersections
2015 PM Peak (Base Scenario Trip Generation)
Meyer, Mohaddes Associates

Level Of Service Computation Report

2000 HCM Operations Method (Future Volume Alternative)

Intersection #13 Haven Avenue at Edison Avenue

Cycle (sec): 100 Critical Vol./Cap.(X): 1.130
Loss Time (sec): 0 (Y+R=4.0 sec) Average Delay (sec/veh): 70.7
Optimal Cycle: 180 Level Of Service: E

Approach: North Bound South Bound East Bound West Bound
Movement: L - T - R L - T - R L - T - R L - T - R

Control: Permitted Permitted Protected Protected
Rights: Include Include Include Include
Min. Green: 0 0 0 0 0 0 0 0 0 0 0 0
Lanes: 1 0 1 1 0 1 0 1 1 0 1 0 3 1 0 1 0 3 1 0

Volume Module:

Base Vol: 157 568 191 253 949 193 249 1777 200 281 1703 211
Growth Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
Initial Bse: 157 568 191 253 949 193 249 1777 200 281 1703 211
Added Vol: 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
PasserByVol: 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
Initial Fut: 157 568 191 253 949 193 249 1777 200 281 1703 211
User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
PHF Adj: 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95
PHF Volume: 165 598 201 266 999 203 262 1871 211 296 1793 222
Reduc Vol: 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
Reduced Vol: 165 598 201 266 999 203 262 1871 211 296 1793 222
PCE Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
MLF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
Final Vol.: 165 598 201 266 999 203 262 1871 211 296 1793 222

Saturation Flow Module:

Sat/Lane: 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900
Adjustment: 0.13 0.91 0.91 0.25 0.93 0.93 0.90 0.90 0.90 0.90 0.90 0.90
Lanes: 1.00 1.50 0.50 1.00 1.66 0.34 1.00 3.60 0.40 1.00 3.56 0.44
Final Sat.: 254 2599 874 481 2925 595 1710 6123 689 1710 6055 750

Capacity Analysis Module:

Vol/Sat: 0.65 0.23 0.23 0.55 0.34 0.34 0.15 0.31 0.31 0.17 0.30 0.30
Crit Moves: ****
Green/Cycle: 0.58 0.58 0.58 0.58 0.58 0.58 0.14 0.27 0.27 0.15 0.28 0.28
Volume/Cap: 1.13 0.40 0.40 0.96 0.59 0.59 1.06 1.13 1.13 1.13 1.06 1.06
Delay/Veh: 134.6 11.8 11.8 63.5 14.1 14.1 117.0 102 102.3 137.4 75.0 75.0
User DelAdj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
AdjDel/Veh: 134.6 11.8 11.8 63.5 14.1 14.1 117.0 102 102.3 137.4 75.0 75.0
LOS by Move: F B B E B B F F F F E E
HCM2kAvgQ: 11 7 7 13 13 13 15 29 29 18 26 26

Note: Queue reported is the number of cars per lane.

Ontario New Model - Rich Haven External Intersections
2015 PM Peak (Base Scenario Trip Generation)
Meyer, Mohaddes Associates

Level Of Service Computation Report

2000 HCM Operations Method (Future Volume Alternative)

Intersection #14 Mill Creek Avenue/Riverside Drive

Cycle (sec): 100 Critical Vol./Cap.(X): 0.692
Loss Time (sec): 0 (Y+R=4.0 sec) Average Delay (sec/veh): 18.9
Optimal Cycle: 60 Level Of Service: B

Approach: North Bound South Bound East Bound West Bound
Movement: L - T - R L - T - R L - T - R L - T - R

Control: Permitted Permitted Protected Protected
Rights: Include Include Include Include
Min. Green: 0 0 0 0 0 0 0 0 0 0 0 0
Lanes: 1 0 1 0 1 1 0 0 1 1 0 1 0 1 1 0

Volume Module:

Base Vol: 75 18 39 116 14 177 270 853 63 42 1252 112
Growth Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
Initial Bse: 75 18 39 116 14 177 270 853 63 42 1252 112
Added Vol: 0 0 0 0 0 0 0 0 0 0 0 0
PasserByVol: 0 0 0 0 0 0 0 0 0 0 0 0
Initial Fut: 75 18 39 116 14 177 270 853 63 42 1252 112
User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
PHF Adj: 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95
PHF Volume: 79 19 41 122 15 186 284 898 66 44 1318 118
Reduct Vol: 0 0 0 0 0 0 0 0 0 0 0 0
Reduced Vol: 79 19 41 122 15 186 284 898 66 44 1318 118
PCE Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
MLF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
Final Vol.: 79 19 41 122 15 186 284 898 66 44 1318 118

Saturation Flow Module:

Sat/Lane: 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900
Adjustment: 0.34 1.00 0.85 0.69 0.86 0.86 0.90 0.94 0.94 0.90 0.94 0.94
Lanes: 1.00 1.00 1.00 1.00 0.07 0.93 1.00 1.86 0.14 1.00 1.84 0.16
Final Sat.: 646 1900 1615 1307 120 1516 1710 3328 246 1710 3274 293

Capacity Analysis Module:

Vol/Sat: 0.12 0.01 0.03 0.09 0.12 0.12 0.17 0.27 0.27 0.03 0.40 0.40
Crit Moves: ****
Green/Cycle: 0.18 0.18 0.18 0.18 0.18 0.18 0.24 0.75 0.75 0.07 0.58 0.58
Volume/Cap: 0.69 0.06 0.14 0.53 0.69 0.69 0.36 0.36 0.36 0.36 0.69 0.69
Delay/Veh: 54.6 34.2 34.9 39.5 45.5 45.5 39.6 4.3 4.3 46.0 15.6 15.6
User DelAdj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
AdjDel/Veh: 54.6 34.2 34.9 39.5 45.5 45.5 39.6 4.3 4.3 46.0 15.6 15.6
LOS by Move: D C C D D D D A A D B B
HCM2kAvgQ: 4 0 1 4 7 7 10 5 5 2 17 17

Note: Queue reported is the number of cars per lane.

Ontario New Model - Rich Haven External Intersections
2015 PM Peak (Base Scenario Trip Generation)
Meyer, Mohaddes Associates

Level Of Service Computation Report

2000 HCM Operations Method (Future Volume Alternative)

Intersection #15 Mill Creek Avenue at Chino Avenue

Cycle (sec): 100 Critical Vol./Cap.(X): 0.242
Loss Time (sec): 0 (Y+R=4.0 sec) Average Delay (sec/veh): 13.5
Optimal Cycle: 19 Level Of Service: B

Approach: North Bound South Bound East Bound West Bound
Movement: L - T - R L - T - R L - T - R L - T - R

Control: Permitted Permitted Permitted Permitted
Rights: Include Include Include Include
Min. Green: 0 0 0 0 0 0 0 0 0 0 0 0
Lanes: 1 0 1 1 0 1 0 0 1 0 1 0 1 0 1 1 0

Volume Module:

Base Vol: 118 131 18 10 142 100 69 22 111 104 72 13
Growth Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
Initial Bse: 118 131 18 10 142 100 69 22 111 104 72 13
Added Vol: 0 0 0 0 0 0 0 0 0 0 0 0
PasserByVol: 0 0 0 0 0 0 0 0 0 0 0 0
Initial Fut: 118 131 18 10 142 100 69 22 111 104 72 13
User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
PHF Adj: 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95
PHF Volume: 124 138 19 11 149 105 73 23 117 109 76 14
Reduct Vol: 0 0 0 0 0 0 0 0 0 0 0 0
Reduced Vol: 124 138 19 11 149 105 73 23 117 109 76 14
PCE Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
MLF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
Final Vol.: 124 138 19 11 149 105 73 23 117 109 76 14

Saturation Flow Module:

Sat/Lane: 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900
Adjustment: 0.49 0.93 0.93 0.60 0.94 0.94 0.63 0.83 0.83 0.58 0.93 0.93
Lanes: 1.00 1.76 0.24 1.00 0.59 0.41 1.00 1.00 1.00 1.00 1.69 0.31
Final Sat.: 931 3117 428 1136 1046 736 1201 1579 1579 1111 2988 539

Capacity Analysis Module:

Vol/Sat: 0.13 0.04 0.04 0.01 0.14 0.14 0.06 0.01 0.07 0.10 0.03 0.03
Crit Moves: ****
Green/Cycle: 0.59 0.59 0.59 0.59 0.59 0.59 0.41 0.41 0.41 0.41 0.41 0.41
Volume/Cap: 0.23 0.07 0.07 0.02 0.24 0.24 0.15 0.04 0.18 0.24 0.06 0.06
Delay/Veh: 9.8 8.7 8.7 8.4 9.8 9.8 18.8 17.8 19.0 19.7 18.0 18.0
User DelAdj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
AdjDel/Veh: 9.8 8.7 8.7 8.4 9.8 9.8 18.8 17.8 19.0 19.7 18.0 18.0
LOS by Move: A A A A A A B B B B B B
HCM2kAvgQ: 2 1 1 0 4 4 2 0 2 2 1 1

Note: Queue reported is the number of cars per lane.

Ontario New Model - Rich Haven External Intersections
2015 PM Peak (Base Scenario Trip Generation)
Meyer, Mohaddes Associates

Level Of Service Computation Report

2000 HCM Operations Method (Future Volume Alternative)

Intersection #16 Mill Creek Avenue at Edison Avenue

Cycle (sec): 100 Critical Vol./Cap.(X): 0.454
Loss Time (sec): 0 (Y+R=4.0 sec) Average Delay (sec/veh): 4.0
Optimal Cycle: 26 Level Of Service: A

Approach: North Bound South Bound East Bound West Bound
Movement: L - T - R L - T - R L - T - R L - T - R

Control: Permitted Permitted Permitted Permitted
Rights: Include Include Include Include
Min. Green: 0 0 0 0 0 0 0 0 0 0 0 0
Lanes: 1 0 0 1 0 1 0 0 1 0 1 0

Volume Module:
Base Vol: 88 21 17 73 25 12 11 2225 186 16 2388 72
Growth Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
Initial Bse: 88 21 17 73 25 12 11 2225 186 16 2388 72
Added Vol: 0 0 0 0 0 0 0 0 0 0 0 0
PasserByVol: 0 0 0 0 0 0 0 0 0 0 0 0
Initial Fut: 88 21 17 73 25 12 11 2225 186 16 2388 72
User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
PHF Adj: 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95
PHF Volume: 93 22 18 77 26 13 12 2342 196 17 2514 76
Reduced Vol: 0 0 0 0 0 0 0 0 0 0 0 0
Reduced Vol: 93 22 18 77 26 13 12 2342 196 17 2514 76
PCE Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
MLF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
Final Vol.: 93 22 18 77 26 13 12 2342 196 17 2514 76

Saturation Flow Module:
Sat/Lane: 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900
Adjustment: 0.62 0.93 0.93 0.62 0.95 0.95 0.05 0.90 0.90 0.05 0.91 0.91
Lanes: 1.00 0.55 0.45 1.00 0.68 0.32 1.00 3.69 0.31 1.00 3.88 0.12
Final Sat.: 1184 980 793 1179 1221 586 86 6306 527 86 6687 202

Capacity Analysis Module:
Vol/Sat: 0.08 0.02 0.02 0.07 0.02 0.02 0.13 0.37 0.37 0.19 0.38 0.38
Crit Moves: ****
Green/Cycle: 0.17 0.17 0.17 0.17 0.17 0.17 0.83 0.83 0.83 0.83 0.83 0.83
Volume/Cap: 0.45 0.13 0.13 0.38 0.13 0.13 0.16 0.45 0.45 0.23 0.45 0.45
Delay/Veh: 38.8 35.2 35.2 37.8 35.2 35.2 2.8 2.4 2.4 3.5 2.4 2.4
User DelAdj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
AdjDel/Veh: 38.8 35.2 35.2 37.8 35.2 35.2 2.8 2.4 2.4 3.5 2.4 2.4
LOS by Move: D D D D D A A A A A A
HCM2kAvgQ: 3 1 1 3 1 1 0 6 6 0 6 6

Note: Queue reported is the number of cars per lane.

Ontario New Model - Rich Haven External Intersections
2015 PM Peak (Base Scenario Trip Generation)
Meyer, Mohaddes Associates

Level Of Service Computation Report

2000 HCM Operations Method (Future Volume Alternative)

Intersection #17 Milliken Avenue/SR-60 WB Ramps

Cycle (sec): 100 Critical Vol./Cap.(X): 1.229
Loss Time (sec): 0 (Y+R=4.0 sec) Average Delay (sec/veh): 109.3
Optimal Cycle: 180 Level Of Service: F

Approach: North Bound South Bound East Bound West Bound
Movement: L - T - R L - T - R L - T - R L - T - R

Control: Protected Permitted Split Phase Split Phase
Rights: Include Include Include Include
Min. Green: 0 0 0 0 0 0 0 0 0 0 0 0
Lanes: 1 0 2 0 0 0 0 2 0 1 0 0 0 0 1

Volume Module:
Base Vol: 735 732 0 0 1936 116 0 0 0 344 0 164
Growth Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
Initial Bse: 735 732 0 0 1936 116 0 0 0 344 0 164
Added Vol: 0 0 0 0 0 0 0 0 0 0 0 0
PasserByVol: 0 0 0 0 0 0 0 0 0 0 0 0
Initial Fut: 735 732 0 0 1936 116 0 0 0 344 0 164
User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
PHF Adj: 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95
PHF Volume: 774 771 0 0 2038 122 0 0 0 362 0 173
Reduced Vol: 0 0 0 0 0 0 0 0 0 0 0 0
Reduced Vol: 774 771 0 0 2038 122 0 0 0 362 0 173
PCE Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
MLF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
Final Vol.: 774 771 0 0 2038 122 0 0 0 362 0 173

Saturation Flow Module:
Sat/Lane: 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900
Adjustment: 0.90 0.95 1.00 0.95 0.95 0.85 0.95 1.00 1.00 0.90 1.00 0.85
Lanes: 1.00 2.00 0.00 0.00 2.00 1.00 0.00 0.00 0.00 1.00 0.00 1.00
Final Sat.: 1710 3610 0 0 3610 1615 0 0 0 1710 0 1615

Capacity Analysis Module:
Vol/Sat: 0.45 0.21 0.00 0.00 0.56 0.08 0.00 0.00 0.00 0.21 0.00 0.11
Crit Moves: ****
Green/Cycle: 0.37 0.83 0.00 0.00 0.46 0.46 0.00 0.00 0.00 0.17 0.00 0.17
Volume/Cap: 1.23 0.26 0.00 0.00 1.23 0.16 0.00 0.00 0.00 1.23 0.00 0.62
Delay/Veh: 148.1 1.9 0.0 0.0 136 15.9 0.0 0.0 0.0 170.6 0.0 42.6
User DelAdj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
AdjDel/Veh: 148.1 1.9 0.0 0.0 136 15.9 0.0 0.0 0.0 170.6 0.0 42.6
LOS by Move: F A A A F B A A A F A D
HCM2kAvgQ: 46 3 0 0 59 2 0 0 0 23 0 6

Note: Queue reported is the number of cars per lane.

Ontario New Model - Rich Haven External Intersections
2015 PM Peak (Base Scenario Trip Generation)
Meyer, Mohaddes Associates

Level Of Service Computation Report

2000 HCM Operations Method (Future Volume Alternative)

Intersection #18 Milliken Avenue/SR-60 EB Ramps

Cycle (sec): 100 Critical Vol./Cap.(X): 1.137
Loss Time (sec): 0 (Y+R=4.0 sec) Average Delay (sec/veh): 197.7
Optimal Cycle: 180 Level Of Service: F

Approach: North Bound South Bound East Bound West Bound
Movement: L - T - R L - T - R L - T - R L - T - R

Control: Permitted Protected Split Phase Split Phase
Rights: Include Include Include Include
Min. Green: 0 0 0 0 0 0 0 0 0 0 0 0
Lanes: 0 0 1 1 0 1 0 2 0 0 1 0 1 0 0 0 0 0 0 0

Volume Module:
Base Vol: 0 1462 409 71 2209 0 6 0 754 0 0 0
Growth Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
Initial Bse: 0 1462 409 71 2209 0 6 0 754 0 0 0
Added Vol: 0 0 0 0 0 0 0 0 0 0 0 0
PasserByVol: 0 0 0 0 0 0 0 0 0 0 0 0
Initial Fut: 0 1462 409 71 2209 0 6 0 754 0 0 0
User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
PHF Adj: 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95
PHF Volume: 0 1539 431 75 2325 0 6 0 794 0 0 0
Reduced Vol: 0 0 0 0 0 0 0 0 0 0 0 0
Reduced Vol: 0 1539 431 75 2325 0 6 0 794 0 0 0
PCE Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
MLF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
Final Vol.: 0 1539 431 75 2325 0 6 0 794 0 0 0

Saturation Flow Module:
Sat/Lane: 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900
Adjustment: 0.95 0.92 0.92 0.90 0.95 1.00 0.81 1.00 0.85 0.95 1.00 1.00
Lanes: 0.00 1.56 0.44 1.00 2.00 0.00 1.00 0.00 1.00 0.00 0.00 0.00
Final Sat.: 0 2728 763 1710 3610 0 1538 0 1610 0 0 0

Capacity Analysis Module:
Vol/Sat: 0.00 0.56 0.56 0.04 0.64 0.00 0.00 0.00 0.49 0.00 0.00 0.00
Crit Moves: ****
Green/Cycle: 0.00 0.33 0.33 0.38 0.71 0.00 0.29 0.00 0.29 0.00 0.00 0.00
Volume/Cap: 0.00 1.70 1.70 0.12 0.91 0.00 0.01 0.00 1.70 0.00 0.00 0.00
Delay/Veh: 0.0 353 352.8 20.3 17.0 0.0 25.3 0.0 360.2 0.0 0.0 0.0
User DelAdj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
AdjDel/Veh: 0.0 353 352.8 20.3 17.0 0.0 25.3 0.0 360.2 0.0 0.0 0.0
LOS by Move: A F F C B A C A F A A A
HCM2kAvgQ: 0 85 85 2 34 0 0 0 66 0 0 0

Note: Queue reported is the number of cars per lane.

Ontario New Model - Rich Haven External Intersections
2015 PM Peak (Base Scenario Trip Generation)
Meyer, Mohaddes Associates

Level Of Service Computation Report

2000 HCM Operations Method (Future Volume Alternative)

Intersection #19 Milliken Avenue/Riverside Drive

Cycle (sec): 100 Critical Vol./Cap.(X): 1.310
Loss Time (sec): 0 (Y+R=4.0 sec) Average Delay (sec/veh): 138.9
Optimal Cycle: 180 Level Of Service: F

Approach: North Bound South Bound East Bound West Bound
Movement: L - T - R L - T - R L - T - R L - T - R

Control: Protected Protected Protected Protected
Rights: Include Include Include Include
Min. Green: 0 0 0 0 0 0 0 0 0 0 0 0
Lanes: 2 0 3 0 1 2 0 3 0 1 1 0 1 1 0 1 0 1 1 0

Volume Module:
Base Vol: 43 430 5 773 1614 576 747 353 65 81 774 693
Growth Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
Initial Bse: 43 430 5 773 1614 576 747 353 65 81 774 693
Added Vol: 0 0 0 0 0 0 0 0 0 0 0 0
PasserByVol: 0 0 0 0 0 0 0 0 0 0 0 0
Initial Fut: 43 430 5 773 1614 576 747 353 65 81 774 693
User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
PHF Adj: 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95
PHF Volume: 45 453 5 814 1699 606 786 372 68 85 815 729
Reduced Vol: 0 0 0 0 0 0 0 0 0 0 0 0
Reduced Vol: 45 453 5 814 1699 606 786 372 68 85 815 729
PCE Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
MLF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
Final Vol.: 45 453 5 814 1699 606 786 372 68 85 815 729

Saturation Flow Module:
Sat/Lane: 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900
Adjustment: 0.85 0.91 0.85 0.85 0.91 0.85 0.90 0.93 0.93 0.90 0.88 0.88
Lanes: 2.00 3.00 1.00 2.00 3.00 1.00 1.00 1.69 0.31 1.00 1.06 0.94
Final Sat.: 3230 5187 1615 3230 5187 1615 1710 2979 548 1710 1769 1584

Capacity Analysis Module:
Vol/Sat: 0.01 0.09 0.00 0.25 0.33 0.38 0.46 0.12 0.12 0.05 0.46 0.46
Crit Moves: ****
Green/Cycle: 0.01 0.08 0.08 0.22 0.29 0.29 0.35 0.50 0.50 0.20 0.35 0.35
Volume/Cap: 1.31 1.14 0.04 1.14 1.14 1.31 1.31 0.25 0.25 0.25 1.31 1.31
Delay/Veh: 307.7 136 42.9 118.5 108 189.9 183.5 14.2 14.2 34.0 178 178.0
User DelAdj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
AdjDel/Veh: 307.7 136 42.9 118.5 108 189.9 183.5 14.2 14.2 34.0 178 178.0
LOS by Move: F F D F F F F B B C F F
HCM2kAvgQ: 3 11 0 24 32 38 51 4 4 2 50 50

Note: Queue reported is the number of cars per lane.

Ontario New Model - Rich Haven External Intersections
2015 PM Peak (Base Scenario Trip Generation)
Meyer, Mohaddes Associates

Level Of Service Computation Report

2000 HCM Operations Method (Future Volume Alternative)

Intersection #20 Milliken Ave / Chino Ave

Cycle (sec): 100 Critical Vol./Cap.(X): 0.352
Loss Time (sec): 0 (Y+R=4.0 sec) Average Delay (sec/veh): 5.0
Optimal Cycle: 29 Level Of Service: A

Approach: North Bound South Bound East Bound West Bound
Movement: L - T - R L - T - R L - T - R L - T - R

Control: Protected Permitted Split Phase Split Phase
Rights: Include Include Include Include
Min. Green: 0 0 0 0 0 0 0 0 0 0 0 0
Lanes: 1 0 2 0 0 0 0 3 1 0 1 0 0 0 0 0

Volume Module:

Base Vol: 92 598 0 0 1670 97 13 0 37 0 0 0
Growth Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
Initial Bse: 92 598 0 0 1670 97 13 0 37 0 0 0
Added Vol: 0 0 0 0 0 0 0 0 0 0 0 0
PasserByVol: 0 0 0 0 0 0 0 0 0 0 0 0
Initial Fut: 92 598 0 0 1670 97 13 0 37 0 0 0
User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
PHF Adj: 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95
PHF Volume: 97 629 0 0 1758 102 14 0 39 0 0 0
Reduct Vol: 0 0 0 0 0 0 0 0 0 0 0 0
Reduced Vol: 97 629 0 0 1758 102 14 0 39 0 0 0
PCE Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
MLF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
Final Vol.: 97 629 0 0 1758 102 14 0 39 0 0 0

Saturation Flow Module:

Sat/Lane: 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900
Adjustment: 0.90 0.95 1.00 0.95 0.90 0.90 0.90 1.00 0.85 0.95 1.00 1.00
Lanes: 1.00 2.00 0.00 0.00 3.78 0.22 1.00 0.00 1.00 0.00 0.00 0.00
Final Sat.: 1710 3610 0 0 6484 377 1710 0 1615 0 0 0

Capacity Analysis Module:

Vol/Sat: 0.06 0.17 0.00 0.00 0.27 0.01 0.00 0.02 0.00 0.00 0.00 0.00
Crit Moves: ****
Green/Cycle: 0.16 0.93 0.00 0.00 0.77 0.77 0.07 0.00 0.07 0.00 0.00 0.00
Volume/Cap: 0.35 0.19 0.00 0.00 0.35 0.35 0.12 0.00 0.35 0.00 0.00 0.00
Delay/Veh: 38.1 0.3 0.0 0.0 3.7 3.7 44.2 0.0 46.4 0.0 0.0 0.0
User DelAdj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
AdjDel/Veh: 38.1 0.3 0.0 0.0 3.7 3.7 44.2 0.0 46.4 0.0 0.0 0.0
LOS by Move: D A A A A A D A D A A A
HCM2kAvgQ: 3 1 0 0 5 5 1 0 2 0 0 0

Note: Queue reported is the number of cars per lane.

Ontario New Model - Rich Haven External Intersections
2015 PM Peak (Base Scenario Trip Generation)
Meyer, Mohaddes Associates

Level Of Service Computation Report

2000 HCM Operations Method (Future Volume Alternative)

Intersection #21 Milliken Avenue/Edison Avenue

Cycle (sec): 100 Critical Vol./Cap.(X): 1.268
Loss Time (sec): 0 (Y+R=4.0 sec) Average Delay (sec/veh): 104.7
Optimal Cycle: 180 Level Of Service: F

Approach: North Bound South Bound East Bound West Bound
Movement: L - T - R L - T - R L - T - R L - T - R

Control: Protected Protected Protected Protected
Rights: Include Include Include Include
Min. Green: 0 0 0 0 0 0 0 0 0 0 0 0
Lanes: 1 0 1 1 0 1 0 1 1 0 1 0 3 1 0 1 0 3 1 0

Volume Module:

Base Vol: 94 316 295 272 1217 183 125 2824 121 557 2859 148
Growth Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
Initial Bse: 94 316 295 272 1217 183 125 2824 121 557 2859 148
Added Vol: 0 0 0 0 0 0 0 0 0 0 0 0
PasserByVol: 0 0 0 0 0 0 0 0 0 0 0 0
Initial Fut: 94 316 295 272 1217 183 125 2824 121 557 2859 148
User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
PHF Adj: 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95
PHF Volume: 99 333 311 286 1281 193 132 2973 127 586 3009 156
Reduct Vol: 0 0 0 0 0 0 0 0 0 0 0 0
Reduced Vol: 99 333 311 286 1281 193 132 2973 127 586 3009 156
PCE Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
MLF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
Final Vol.: 99 333 311 286 1281 193 132 2973 127 586 3009 156

Saturation Flow Module:

Sat/Lane: 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900
Adjustment: 0.90 0.88 0.88 0.90 0.93 0.93 0.90 0.90 0.90 0.90 0.90 0.90
Lanes: 1.00 1.03 0.97 1.00 1.74 0.26 1.00 3.84 0.16 1.00 3.80 0.20
Final Sat.: 1710 1733 1617 1710 3075 462 1710 6592 282 1710 6530 338

Capacity Analysis Module:

Vol/Sat: 0.06 0.19 0.19 0.17 0.42 0.42 0.08 0.45 0.45 0.34 0.46 0.46
Crit Moves: ****
Green/Cycle: 0.05 0.20 0.20 0.17 0.33 0.33 0.09 0.36 0.36 0.27 0.54 0.54
Volume/Cap: 1.27 0.96 0.96 0.96 1.27 1.27 0.86 1.27 1.27 1.27 0.86 0.86
Delay/Veh: 237.7 65.0 65.0 82.4 161 161.2 80.5 156 156.3 173.4 22.2 22.2
User DelAdj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
AdjDel/Veh: 237.7 65.0 65.0 82.4 161 161.2 80.5 156 156.3 173.4 22.2 22.2
LOS by Move: F E E F F F F F F C C
HCM2kAvgQ: 8 15 15 14 46 46 7 50 50 37 26 26

Note: Queue reported is the number of cars per lane.

Ontario New Model - Rich Haven External Intersections
 2015 PM Peak (Base Scenario Trip Generation)
 Meyer, Mohaddes Associates

Level Of Service Computation Report
 2000 HCM Operations Method (Future Volume Alternative)

 Intersection #550 Haven Avenue/Creekside Drive

 Cycle (sec): 100 Critical Vol./Cap.(X): 0.000
 Loss Time (sec): 0 (Y+R=4.0 sec) Average Delay (sec/veh): 0.0
 Optimal Cycle: 0 Level Of Service:

 Approach: North Bound South Bound East Bound West Bound
 Movement: L - T - R L - T - R L - T - R L - T - R
 -----|-----|-----|-----|
 Control: Protected Protected Prot+Permit Prot+Permit
 Rights: Include Include Include Include
 Min. Green: 0 0 0 0 0 0 0 0 0 0 0 0
 Lanes: 1 0 1 1 0 1 0 1 1 0 1 1 0 1 0 1
 -----|-----|-----|-----|
 Volume Module:
 Base Vol: 0 0 0 0 0 0 0 0 0 0 0 0
 Growth Adj: 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00
 Initial Bse: 0 0 0 0 0 0 0 0 0 0 0 0
 Added Vol: 0 0 0 0 0 0 0 0 0 0 0 0
 PasserByVol: 0 0 0 0 0 0 0 0 0 0 0 0
 Initial Fut: 0 0 0 0 0 0 0 0 0 0 0 0
 User Adj: 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00
 PHF Adj: 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00
 PHF Volume: 0 0 0 0 0 0 0 0 0 0 0 0
 Reduct Vol: 0 0 0 0 0 0 0 0 0 0 0 0
 Reduced Vol: 0 0 0 0 0 0 0 0 0 0 0 0
 PCE Adj: 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00
 MLF Adj: 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00
 Final Vol.: 0 0 0 0 0 0 0 0 0 0 0 0
 -----|-----|-----|-----|
 Saturation Flow Module:
 Sat/Lane: 0 0 0 0 0 0 0 0 0 0 0 0
 Adjustment: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
 Lanes: 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00
 Final Sat.: 0 0 0 0 0 0 0 0 0 0 0 0
 -----|-----|-----|-----|
 Capacity Analysis Module:
 Vol/Sat: 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00
 Crit Moves:
 Green/Cycle: 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00
 Volume/Cap: 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00
 Delay/Veh: 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0
 User DelAdj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
 AdjDel/Veh: 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0
 LOS by Move:
 HCM2kAvgQ: 0 0 0 0 0 0 0 0 0 0 0 0

 Note: Queue reported is the number of cars per lane.

Ontario New Model - Rich Haven External Intersections
 2015 PM Peak (Base Scenario Trip Generation)
 Meyer, Mohaddes Associates

Lane Geometry Report

Number of approach lanes: (L) (LT) (T) (RT) (R) (LTR)

Node Intersection	NB	SB	EB	WB
1 Archibald Avenue/Riverside Drive	102100	102100	101100	101100
2 Archibald Avenue/Chino Avenue	102100	102100	100100	101010
3 Archibald Avenue/Schaefer Avenue	102100	102100	101100	101100
4 Archibald Avenue/Edison Avenue	202100	202100	203100	203100
5 Turner Avenue/Riverside Drive	101100	101100	101100	101100
6 Turner Avenue/Chino Avenue	101100	101100	101100	101100
7 Turner Avenue at Schaefer Avenue	000000	100001	102000	001100
8 Edison Avenue at Schaefer Avenue	000000	100001	104000	003100
9 Haven Avenue/SR-60 WB Ramps	203000	003010	000000	110010
10 Haven Avenue/SR-60 EB Ramps	002100	203000	110010	000000
11 Haven Avenue/Riverside Drive	101100	101100	101100	101100
12 Haven Avenue at Chino Avenue	101100	101100	101100	101100
13 Haven Avenue at Edison Avenue	101100	101100	103100	103100
14 Mill Creek Avenue/Riverside Drive	101010	100100	101100	101100
15 Mill Creek Avenue at Chino Avenue	101100	100100	101100	101100
16 Mill Creek Avenue at Edison Avenue	100100	100100	103100	103100
17 Milliken Avenue/SR-60 WB Ramps	102000	002010	000000	100010
18 Milliken Avenue/SR-60 EB Ramps	001100	102000	100001	000000
19 Milliken Avenue/Riverside Drive	203010	203010	101100	101100
20 Milliken Ave / Chino Ave	102000	003100	100010	000000
21 Milliken Avenue/Edison Avenue	101100	101100	103100	103100
550 Haven Avenue/Creekside Drive	101100	101100	101010	101010

**APPENDIX
I
LOS CALCULATIONS
2015 FUTURE PROJECT
WITH MITIGATIONS
(BASELINE CONDITIONS)**

Ontario New Model - Rich Haven External Intersections
 2015 AM Peak - Mitigations (Base Scenario Trip Generation)
 Meyer, Mohaddes Associates

Scenario Report

Scenario: 2015 AM
 Command: 2015 AM
 Volume: 2015 AM
 Geometry: Future Base
 Impact Fee: Default Impact Fee
 Trip Generation: None
 Trip Distribution: None
 Paths: Default Paths
 Routes: Default Routes
 Configuration: 2015 AM

Ontario New Model - Rich Haven External Intersections
 2015 AM Peak - Mitigations (Base Scenario Trip Generation)
 Meyer, Mohaddes Associates

Intersection Volume Report
 Base Volume Alternative

Node Intersection	Northbound			Southbound			Eastbound			Westbound		
	L	T	R	L	T	R	L	T	R	L	T	R
1 Archibald Ave	177	1573	81	62	486	65	154	440	66	52	239	119
2 Archibald Ave	65	1658	38	55	598	1	1	25	36	58	25	168
3 Archibald Ave	15	1368	0	98	665	16	84	25	12	2	26	253
4 Archibald Ave	772	885	233	62	332	195	215	792	229	312	1309	120
5 Turner Avenue	0	5	102	95	2	74	29	628	0	35	346	39
6 Turner Avenue	23	32	19	4	13	35	18	100	3	1	72	3
7 Turner Avenue	0	0	0	16	0	3	2	122	0	0	277	13
8 Edison Avenue	0	0	0	133	0	6	7	1031	0	0	1531	283
9 Haven Avenue/	365	1336	0	0	428	21	0	0	0	96	0	803
10 Haven Avenue/	0	1626	286	93	431	0	74	0	215	0	0	0
11 Haven Avenue/	70	1162	215	129	429	40	141	644	72	121	300	128
12 Haven Avenue	23	1295	85	30	536	3	27	59	25	40	15	32
13 Haven Avenue	165	806	207	125	332	203	157	936	71	107	1447	124
14 Mill Creek Av	15	184	82	103	174	112	151	1316	19	33	485	26
15 Mill Creek Av	38	122	44	5	63	41	83	58	38	11	14	2
16 Mill Creek Av	115	22	8	36	9	8	10	1442	43	3	1685	42
17 Milliken Aven	466	923	0	0	579	2	0	0	0	244	0	271
18 Milliken Aven	0	1356	416	3	820	0	33	0	489	0	0	0
19 Milliken Aven	41	697	14	722	127	458	783	796	37	3	279	293
20 Milliken Ave	18	874	0	0	232	9	27	0	81	0	0	0
21 Milliken Aven	66	637	520	89	95	27	56	1525	29	200	1897	181
550 Haven Avenue/	0	0	0	0	0	0	0	0	0	0	0	0

Ontario New Model - Rich Haven External Intersections
 2015 AM Peak - Mitigations (Base Scenario Trip Generation)
 Meyer, Mohaddes Associates

Impact Analysis Report
 Level Of Service

Intersection	Base		Future		Change in	
	Del/ LOS	V/ Veh	Del/ LOS	V/ Veh		
# 1 Archibald Avenue/Riverside Dri	C	23.4 0.581	C	23.4 0.581	+ 0.000	D/V
# 2 Archibald Avenue/Chino Avenue	B	11.2 0.489	B	11.2 0.489	+ 0.000	D/V
# 3 Archibald Avenue/Schaefer Aven	B	15.9 0.509	B	15.9 0.509	+ 0.000	D/V
# 4 Archibald Avenue/Edison Avenue	C	29.0 0.668	C	29.0 0.668	+ 0.000	D/V
# 5 Turner Avenue/Riverside Drive	B	14.1 0.294	B	14.1 0.294	+ 0.000	D/V
# 6 Turner Avenue/Chino Avenue	A	8.0 0.078	A	8.0 0.078	+ 0.000	V/C
# 7 Turner Avenue at Schaefer Aven	A	2.5 0.093	A	2.5 0.093	+ 0.000	D/V
# 8 Edison Avenue at Schaefer Aven	A	3.0 0.327	A	3.0 0.327	+ 0.000	D/V
# 9 Haven Avenue/SR-60 WB Ramps	A	9.6 0.301	A	9.6 0.301	+ 0.000	D/V
# 10 Haven Avenue/SR-60 EB Ramps	B	11.2 0.567	B	11.2 0.567	+ 0.000	D/V
# 11 Haven Avenue/Riverside Drive	C	30.0 0.777	C	30.0 0.777	+ 0.000	D/V
# 12 Haven Avenue at Chino Avenue	A	4.7 0.450	A	4.7 0.450	+ 0.000	D/V
# 13 Haven Avenue at Edison Avenue	C	30.1 0.720	C	30.1 0.720	+ 0.000	D/V
# 14 Mill Creek Avenue/Riverside Dr	B	17.9 0.579	B	17.9 0.579	+ 0.000	D/V
# 15 Mill Creek Avenue at Chino Ave	B	13.3 0.126	B	13.3 0.126	+ 0.000	D/V
# 16 Mill Creek Avenue at Edison Av	A	5.9 0.356	A	5.9 0.356	+ 0.000	D/V
# 17 Milliken Avenue/SR-60 WB Ramps	B	18.1 0.431	B	18.1 0.431	+ 0.000	D/V
# 18 Milliken Avenue/SR-60 EB Ramps	A	1.2 0.558	A	1.2 0.558	+ 0.000	D/V
# 19 Milliken Avenue/Riverside Driv	C	28.8 0.713	C	28.8 0.713	+ 0.000	D/V
# 20 Milliken Ave / Chino Ave	B	12.6 0.308	B	12.6 0.308	+ 0.000	D/V
# 21 Milliken Avenue/Edison Avenue	C	28.6 0.771	C	28.6 0.771	+ 0.000	D/V
#550 Haven Avenue/Creekside Drive		0.0 0.000		0.0 0.000	+ 0.000	D/V

Ontario New Model - Rich Haven External Intersections
 2015 AM Peak - Mitigations (Base Scenario Trip Generation)
 Meyer, Mohaddes Associates

Level Of Service Computation Report
 2000 HCM Operations Method (Future Volume Alternative)

 Intersection #1 Archibald Avenue/Riverside Drive

Cycle (sec):	100	Critical Vol./Cap.(X):	0.581
Loss Time (sec):	0 (Y+R=4.0 sec)	Average Delay (sec/veh):	23.4
Optimal Cycle:	54	Level Of Service:	C

Approach:	North Bound	South Bound	East Bound	West Bound
Movement:	L - T - R	L - T - R	L - T - R	L - T - R

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Control:	Protected	Protected	Protected	Protected
Rights:	Include	Include	Include	Include
Min. Green:	0 0 0	0 0 0	0 0 0	0 0 0
Lanes:	1 0 2 1 0	1 0 2 1 0	1 0 1 1 0	1 0 1 1 0

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Volume Module:

Base Vol:	177 1573 81	62 486 65	154 440 66	52 239 119
Growth Adj:	1.00 1.00 1.00	1.00 1.00 1.00	1.00 1.00 1.00	1.00 1.00 1.00
Initial Bse:	177 1573 81	62 486 65	154 440 66	52 239 119
Added Vol:	0 0 0	0 0 0	0 0 0	0 0 0
PasserByVol:	0 0 0	0 0 0	0 0 0	0 0 0
Initial Fut:	177 1573 81	62 486 65	154 440 66	52 239 119
User Adj:	1.00 1.00 1.00	1.00 1.00 1.00	1.00 1.00 1.00	1.00 1.00 1.00
PHF Adj:	0.95 0.95 0.95	0.95 0.95 0.95	0.95 0.95 0.95	0.95 0.95 0.95
PHF Volume:	186 1656 85	65 512 68	162 463 69	55 252 125
Reduced Vol:	0 0 0	0 0 0	0 0 0	0 0 0
Reduced Vol:	186 1656 85	65 512 68	162 463 69	55 252 125
PCE Adj:	1.00 1.00 1.00	1.00 1.00 1.00	1.00 1.00 1.00	1.00 1.00 1.00
MLF Adj:	1.00 1.00 1.00	1.00 1.00 1.00	1.00 1.00 1.00	1.00 1.00 1.00
Final Vol.:	186 1656 85	65 512 68	162 463 69	55 252 125

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Saturation Flow Module:

Sat/Lane:	1900 1900 1900	1900 1900 1900	1900 1900 1900	1900 1900 1900
Adjustment:	0.90 0.90 0.90	0.90 0.89 0.89	0.90 0.93 0.93	0.90 0.90 0.90
Lanes:	1.00 2.85 0.15	1.00 2.65 0.35	1.00 1.74 0.26	1.00 1.34 0.66
Final Sat.:	1710 4898 252	1710 4493 601	1710 3079 462	1710 2290 1140

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Capacity Analysis Module:

Vol/Sat:	0.11 0.34 0.34	0.04 0.11 0.11	0.09 0.15 0.15	0.03 0.11 0.11
Crit Moves:	****	****	****	****
Green/Cycle:	0.32 0.58 0.58	0.07 0.33 0.33	0.16 0.29 0.29	0.06 0.19 0.19
Volume/Cap:	0.34 0.58 0.58	0.58 0.34 0.34	0.58 0.52 0.52	0.52 0.58 0.58
Delay/Veh:	26.6 13.5 13.5	52.8 25.4 25.4	41.8 30.1 30.1	49.9 38.3 38.3
User DelAdj:	1.00 1.00 1.00	1.00 1.00 1.00	1.00 1.00 1.00	1.00 1.00 1.00
AdjDel/Veh:	26.6 13.5 13.5	52.8 25.4 25.4	41.8 30.1 30.1	49.9 38.3 38.3
LOS by Move:	C B B	D C C	D C C	D D D
HCM2kAvgQ:	5 13 13	3 5 5	6 8 8	2 6 6

Note: Queue reported is the number of cars per lane.

Ontario New Model - Rich Haven External Intersections
 2015 AM Peak - Mitigations (Base Scenario Trip Generation)
 Meyer, Mohaddes Associates

 Level Of Service Computation Report
 2000 HCM Operations Method (Future Volume Alternative)

 Intersection #2 Archibald Avenue/Chino Avenue

 Cycle (sec): 90 Critical Vol./Cap.(X): 0.489
 Loss Time (sec): 0 (Y+R=4.0 sec) Average Delay (sec/veh): 11.2
 Optimal Cycle: 45 Level Of Service: B

 Approach: North Bound South Bound East Bound West Bound
 Movement: L - T - R L - T - R L - T - R L - T - R

 Control: Protected Protected Protected Protected
 Rights: Include Include Include Include
 Min. Green: 0 0 0 0 0 0 0 0 0 0 0 0
 Lanes: 1 0 2 1 0 1 0 2 1 0 1 0 1 0 1

 Volume Module:
 Base Vol: 65 1658 38 55 598 1 1 25 36 58 25 168
 Growth Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
 Initial Bse: 65 1658 38 55 598 1 1 25 36 58 25 168
 Added Vol: 0 0 0 0 0 0 0 0 0 0 0 0
 PasserByVol: 0 0 0 0 0 0 0 0 0 0 0 0
 Initial Fut: 65 1658 38 55 598 1 1 25 36 58 25 168
 User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
 PHF Adj: 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95
 PHF Volume: 68 1745 40 58 629 1 1 26 38 61 26 177
 Reduct Vol: 0 0 0 0 0 0 0 0 0 0 0 0
 Reduced Vol: 68 1745 40 58 629 1 1 26 38 61 26 177
 PCE Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
 MLF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
 Final Vol.: 68 1745 40 58 629 1 1 26 38 61 26 177

 Saturation Flow Module:
 Sat/Lane: 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900
 Adjustment: 0.90 0.91 0.91 0.90 0.91 0.91 0.90 0.91 0.91 0.90 1.00 0.85
 Lanes: 1.00 2.93 0.07 1.00 2.99 0.01 1.00 0.41 0.59 1.00 1.00 1.00
 Final Sat.: 1710 5056 116 1710 5178 9 1710 710 1023 1710 1900 1615

 Capacity Analysis Module:
 Vol/Sat: 0.04 0.35 0.35 0.03 0.12 0.12 0.00 0.04 0.04 0.04 0.01 0.11
 Crit Moves: ****
 Green/Cycle: 0.19 0.71 0.71 0.07 0.58 0.58 0.00 0.11 0.11 0.11 0.22 0.22
 Volume/Cap: 0.21 0.49 0.49 0.49 0.21 0.21 0.49 0.32 0.32 0.32 0.06 0.49
 Delay/Veh: 30.9 6.1 6.1 43.5 8.9 8.9 161.8 37.6 37.6 37.9 27.6 31.5
 User DelAdj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
 AdjDel/Veh: 30.9 6.1 6.1 43.5 8.9 8.9 161.8 37.6 37.6 37.9 27.6 31.5
 LOS by Move: C A A D A A F D D D C C
 HCM2kAvgQ: 2 8 8 2 3 3 0 2 2 2 1 5

 Note: Queue reported is the number of cars per lane.

Ontario New Model - Rich Haven External Intersections
 2015 AM Peak - Mitigations (Base Scenario Trip Generation)
 Meyer, Mohaddes Associates

 Level Of Service Computation Report
 2000 HCM Operations Method (Future Volume Alternative)

 Intersection #3 Archibald Avenue/Schaefer Avenue

 Cycle (sec): 100 Critical Vol./Cap.(X): 0.509
 Loss Time (sec): 0 (Y+R=4.0 sec) Average Delay (sec/veh): 15.9
 Optimal Cycle: 38 Level Of Service: B

 Approach: North Bound South Bound East Bound West Bound
 Movement: L - T - R L - T - R L - T - R L - T - R

 Control: Protected Protected Permitted Permitted
 Rights: Include Include Include Include
 Min. Green: 0 0 0 0 0 0 0 0 0 0 0 0
 Lanes: 1 0 2 1 0 1 0 2 1 0 1 0 1 1 0

 Volume Module:
 Base Vol: 15 1368 0 98 665 16 84 25 12 2 26 253
 Growth Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
 Initial Bse: 15 1368 0 98 665 16 84 25 12 2 26 253
 Added Vol: 0 0 0 0 0 0 0 0 0 0 0 0
 PasserByVol: 0 0 0 0 0 0 0 0 0 0 0 0
 Initial Fut: 15 1368 0 98 665 16 84 25 12 2 26 253
 User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
 PHF Adj: 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95
 PHF Volume: 16 1440 0 103 700 17 88 26 13 2 27 266
 Reduct Vol: 0 0 0 0 0 0 0 0 0 0 0 0
 Reduced Vol: 16 1440 0 103 700 17 88 26 13 2 27 266
 PCE Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
 MLF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
 Final Vol.: 16 1440 0 103 700 17 88 26 13 2 27 266

 Saturation Flow Module:
 Sat/Lane: 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900
 Adjustment: 0.90 0.91 0.91 0.90 0.91 0.91 0.44 0.90 0.90 0.68 0.82 0.82
 Lanes: 1.00 3.00 0.00 1.00 2.93 0.07 1.00 1.35 0.65 1.00 1.00 1.00
 Final Sat.: 1710 5187 0 1710 5050 122 830 2320 1113 1292 1560 1560

 Capacity Analysis Module:
 Vol/Sat: 0.01 0.28 0.00 0.06 0.14 0.14 0.11 0.01 0.01 0.00 0.02 0.17
 Crit Moves: ****
 Green/Cycle: 0.04 0.55 0.00 0.12 0.62 0.62 0.34 0.34 0.34 0.34 0.34 0.34
 Volume/Cap: 0.22 0.51 0.00 0.51 0.22 0.22 0.32 0.03 0.03 0.00 0.05 0.51
 Delay/Veh: 48.0 14.4 0.0 43.5 8.3 8.3 25.4 22.3 22.3 22.1 22.5 27.4
 User DelAdj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
 AdjDel/Veh: 48.0 14.4 0.0 43.5 8.3 8.3 25.4 22.3 22.3 22.1 22.5 27.4
 LOS by Move: D B A D A A C C C C C C
 HCM2kAvgQ: 1 10 0 4 3 3 2 0 0 0 1 7

 Note: Queue reported is the number of cars per lane.

Ontario New Model - Rich Haven External Intersections
2015 AM Peak - Mitigations (Base Scenario Trip Generation)
Meyer, Mohaddes Associates

Level Of Service Computation Report
2000 HCM Operations Method (Future Volume Alternative)

Intersection #4 Archibald Avenue/Edison Avenue

Cycle (sec): 100 Critical Vol./Cap.(X): 0.668
Loss Time (sec): 0 (Y+R=4.0 sec) Average Delay (sec/veh): 29.0
Optimal Cycle: 69 Level Of Service: C

Approach: North Bound South Bound East Bound West Bound
Movement: L - T - R L - T - R L - T - R L - T - R

Control: Protected Protected Protected Protected
Rights: Include Include Ignore Include
Min. Green: 0 0 0 0 0 0 0 0 0 0 0 0
Lanes: 2 0 2 1 0 2 0 2 1 0 2 0 4 0 1 2 0 3 1 0

Volume Module:

Base Vol: 772 885 233 62 332 195 215 792 229 312 1309 120
Growth Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
Initial Bse: 772 885 233 62 332 195 215 792 229 312 1309 120
Added Vol: 0 0 0 0 0 0 0 0 0 0 0 0
PasserByVol: 0 0 0 0 0 0 0 0 0 0 0 0
Initial Fut: 772 885 233 62 332 195 215 792 229 312 1309 120
User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 0.00 1.00 1.00 1.00
PHF Adj: 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.00 0.95 0.95 0.95
PHF Volume: 813 932 245 65 349 205 226 834 0 328 1378 126
Reduced Vol: 0 0 0 0 0 0 0 0 0 0 0 0
Reduced Vol: 813 932 245 65 349 205 226 834 0 328 1378 126
PCE Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 0.00 1.00 1.00 1.00
MLF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 0.00 1.00 1.00 1.00
Final Vol.: 813 932 245 65 349 205 226 834 0 328 1378 126

Saturation Flow Module:

Sat/Lane: 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900
Adjustment: 0.85 0.88 0.88 0.85 0.86 0.86 0.85 0.91 1.00 0.85 0.90 0.90
Lanes: 2.00 2.37 0.63 2.00 2.00 1.00 2.00 4.00 1.00 2.00 3.66 0.34
Final Sat.: 3230 3979 1048 3230 3268 1634 3230 6916 1900 3230 6253 573

Capacity Analysis Module:

Vol/Sat: 0.25 0.23 0.23 0.02 0.11 0.13 0.07 0.12 0.00 0.10 0.22 0.22
Crit Moves: ****
Green/Cycle: 0.38 0.52 0.52 0.04 0.19 0.19 0.10 0.24 0.00 0.20 0.33 0.33
Volume/Cap: 0.67 0.45 0.45 0.45 0.57 0.67 0.67 0.51 0.00 0.51 0.67 0.67
Delay/Veh: 27.4 15.2 15.2 48.8 37.7 39.8 48.1 33.5 0.0 36.4 29.6 29.6
User DelAdj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
AdjDel/Veh: 27.4 15.2 15.2 48.8 37.7 39.8 48.1 33.5 0.0 36.4 29.6 29.6
LOS by Move: C B B D D D D C A D C C
HCM2kAvgQ: 12 8 8 2 6 8 5 7 0 6 12 12

Note: Queue reported is the number of cars per lane.

Ontario New Model - Rich Haven External Intersections
2015 AM Peak - Mitigations (Base Scenario Trip Generation)
Meyer, Mohaddes Associates

Level Of Service Computation Report
2000 HCM Operations Method (Future Volume Alternative)

Intersection #5 Turner Avenue/Riverside Drive

Cycle (sec): 100 Critical Vol./Cap.(X): 0.294
Loss Time (sec): 0 (Y+R=4.0 sec) Average Delay (sec/veh): 14.1
Optimal Cycle: 26 Level Of Service: B

Approach: North Bound South Bound East Bound West Bound
Movement: L - T - R L - T - R L - T - R L - T - R

Control: Permitted Permitted Protected Protected
Rights: Include Include Include Include
Min. Green: 0 0 0 0 0 0 0 0 0 0 0 0
Lanes: 1 0 1 1 0 1 0 1 1 0 1 0 1 1 0

Volume Module:

Base Vol: 0 5 102 95 2 74 29 628 0 35 346 39
Growth Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
Initial Bse: 0 5 102 95 2 74 29 628 0 35 346 39
Added Vol: 0 0 0 0 0 0 0 0 0 0 0 0
PasserByVol: 0 0 0 0 0 0 0 0 0 0 0 0
Initial Fut: 0 5 102 95 2 74 29 628 0 35 346 39
User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
PHF Adj: 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95
PHF Volume: 0 5 107 100 2 78 31 661 0 37 364 41
Reduced Vol: 0 0 0 0 0 0 0 0 0 0 0 0
Reduced Vol: 0 5 107 100 2 78 31 661 0 37 364 41
PCE Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
MLF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
Final Vol.: 0 5 107 100 2 78 31 661 0 37 364 41

Saturation Flow Module:

Sat/Lane: 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900
Adjustment: 0.95 0.81 0.81 0.59 0.81 0.81 0.90 0.95 0.95 0.90 0.94 0.94
Lanes: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 2.00 0.00 1.00 1.80 0.20
Final Sat.: 1800 1547 1547 1121 1541 1541 1710 3610 0 1710 3196 360

Capacity Analysis Module:

Vol/Sat: 0.00 0.00 0.07 0.09 0.00 0.05 0.02 0.18 0.00 0.02 0.11 0.11
Crit Moves: ****
Green/Cycle: 0.00 0.30 0.30 0.30 0.30 0.30 0.09 0.62 0.00 0.07 0.60 0.60
Volume/Cap: 0.00 0.01 0.23 0.29 0.00 0.17 0.19 0.29 0.00 0.29 0.19 0.19
Delay/Veh: 0.0 24.3 26.3 27.1 24.3 25.7 42.3 8.8 0.0 45.2 9.0 9.0
User DelAdj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
AdjDel/Veh: 0.0 24.3 26.3 27.1 24.3 25.7 42.3 8.8 0.0 45.2 9.0 9.0
LOS by Move: A C C C C C D A A D A A
HCM2kAvgQ: 0 0 3 3 0 2 1 5 0 1 3 3

Note: Queue reported is the number of cars per lane.

Ontario New Model - Rich Haven External Intersections
 2015 AM Peak - Mitigations (Base Scenario Trip Generation)
 Meyer, Mohaddes Associates

Level Of Service Computation Report
 2000 HCM 4-Way Stop Method (Future Volume Alternative)

 Intersection #6 Turner Avenue/Chino Avenue

Cycle (sec): 100 Critical Vol./Cap.(X): 0.078
 Loss Time (sec): 0 (Y+R=4.0 sec) Average Delay (sec/veh): 8.0
 Optimal Cycle: 0 Level Of Service: A

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Stop Sign			Stop Sign			Stop Sign			Stop Sign		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	1	0	1	1	0	1	1	0	1	1	0	1

Volume Module:

Base Vol:	23	32	19	4	13	35	18	100	3	1	72	3
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	23	32	19	4	13	35	18	100	3	1	72	3
Added Vol:	0	0	0	0	0	0	0	0	0	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	23	32	19	4	13	35	18	100	3	1	72	3
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
PHF Volume:	24	34	20	4	14	37	19	105	3	1	76	3
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	24	34	20	4	14	37	19	105	3	1	76	3
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Final Vol.:	24	34	20	4	14	37	19	105	3	1	76	3

Saturation Flow Module:

Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	1.00	1.25	0.75	1.00	1.00	1.00	1.00	1.94	0.06	1.00	1.92	0.08
Final Sat.:	610	854	550	602	657	754	632	1351	41	618	1308	55

Capacity Analysis Module:

Vol/Sat:	0.04	0.04	0.04	0.01	0.02	0.05	0.03	0.08	0.08	0.00	0.06	0.06
Crit Moves:	****					****	****			****		
Delay/Veh:	8.6	8.0	7.5	8.5	8.0	7.4	8.4	8.1	8.1	8.3	8.1	8.1
Delay Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	8.6	8.0	7.5	8.5	8.0	7.4	8.4	8.1	8.1	8.3	8.1	8.1
LOS by Move:	A	A	A	A	A	A	A	A	A	A	A	A
ApproachDel:	8.0			7.7			8.2			8.1		
Delay Adj:	1.00			1.00			1.00			1.00		
ApprAdjDel:	8.0			7.7			8.2			8.1		
LOS by Appr:	A			A			A			A		
AllWayAvgQ:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.0	0.1	0.1

 Note: Queue reported is the number of cars per lane.

Ontario New Model - Rich Haven External Intersections
 2015 AM Peak - Mitigations (Base Scenario Trip Generation)
 Meyer, Mohaddes Associates

Level Of Service Computation Report
 2000 HCM Operations Method (Future Volume Alternative)

 Intersection #7 Turner Avenue at Schaefer Avenue

Cycle (sec): 100 Critical Vol./Cap.(X): 0.093
 Loss Time (sec): 0 (Y+R=4.0 sec) Average Delay (sec/veh): 2.5
 Optimal Cycle: 21 Level Of Service: A

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Split Phase			Split Phase			Protected			Permitted		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	0	0	0	1	0	1	1	0	2	0	0	1

Volume Module:

Base Vol:	0	0	0	16	0	3	2	122	0	0	277	13
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	0	0	0	16	0	3	2	122	0	0	277	13
Added Vol:	0	0	0	0	0	0	0	0	0	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	0	0	0	16	0	3	2	122	0	0	277	13
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
PHF Volume:	0	0	0	17	0	3	2	128	0	0	292	14
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	0	0	0	17	0	3	2	128	0	0	292	14
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Final Vol.:	0	0	0	17	0	3	2	128	0	0	292	14

Saturation Flow Module:

Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.95	1.00	1.00	0.89	1.00	0.94	0.90	0.95	1.00	0.95	0.94	0.94
Lanes:	0.00	0.00	0.00	1.74	0.00	0.26	1.00	2.00	0.00	0.00	1.91	0.09
Final Sat.:	0	0	0	2931	0	467	1710	3610	0	0	3424	161

Capacity Analysis Module:

Vol/Sat:	0.00	0.00	0.00	0.01	0.00	0.01	0.00	0.04	0.00	0.00	0.09	0.09
Crit Moves:	****			****	****	****	****			****		
Green/Cycle:	0.00	0.00	0.00	0.07	0.00	0.07	0.01	0.93	0.00	0.00	0.91	0.91
Volume/Cap:	0.00	0.00	0.00	0.08	0.00	0.09	0.09	0.04	0.00	0.00	0.09	0.09
Delay/Veh:	0.0	0.0	0.0	43.4	0.0	43.5	50.5	0.3	0.0	0.0	0.4	0.4
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	0.0	0.0	0.0	43.4	0.0	43.5	50.5	0.3	0.0	0.0	0.4	0.4
LOS by Move:	A	A	A	D	A	D	D	A	A	A	A	A
HCM2kAvgQ:	0	0	0	0	0	0	0	0	0	0	1	1

 Note: Queue reported is the number of cars per lane.

Ontario New Model - Rich Haven External Intersections
2015 AM Peak - Mitigations (Base Scenario Trip Generation)
Meyer, Mohaddes Associates

Level Of Service Computation Report

2000 HCM Operations Method (Future Volume Alternative)

Intersection #8 Edison Avenue at Schaefer Avenue

Cycle (sec): 100 Critical Vol./Cap.(X): 0.327
Loss Time (sec): 0 (Y+R=4.0 sec) Average Delay (sec/veh): 3.0
Optimal Cycle: 28 Level Of Service: A

Approach: North Bound South Bound East Bound West Bound
Movement: L - T - R L - T - R L - T - R L - T - R

Control: Split Phase Split Phase Permitted Permitted
Rights: Include Include Include Include
Min. Green: 0 0 0 0 0 0 0 0 0 0 0 0
Lanes: 0 0 0 0 0 1 0 1 0 0 1 0 4 0 0 0 0 3 1 0

Volume Module:
Base Vol: 0 0 0 133 0 6 7 1031 0 0 1531 283
Growth Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
Initial Bse: 0 0 0 133 0 6 7 1031 0 0 1531 283
Added Vol: 0 0 0 0 0 0 0 0 0 0 0 0 0
PasserByVol: 0 0 0 0 0 0 0 0 0 0 0 0 0
Initial Fut: 0 0 0 133 0 6 7 1031 0 0 1531 283
User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
PHF Adj: 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95
PHF Volume: 0 0 0 140 0 6 7 1085 0 0 1612 298
Reduced Vol: 0 0 0 0 0 0 0 0 0 0 0 0 0
Reduced Vol: 0 0 0 140 0 6 7 1085 0 0 1612 298
PCE Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
MLF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
Final Vol.: 0 0 0 140 0 6 7 1085 0 0 1612 298

Saturation Flow Module:
Sat/Lane: 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900
Adjustment: 0.95 1.00 1.00 0.90 1.00 0.95 0.09 0.91 1.00 0.95 0.89 0.89
Lanes: 0.00 0.00 0.00 1.92 0.00 0.08 1.00 4.00 0.00 0.00 3.38 0.62
Final Sat.: 0 0 0 3279 0 142 176 6916 0 0 5703 1054

Capacity Analysis Module:
Vol/Sat: 0.00 0.00 0.00 0.04 0.00 0.04 0.04 0.16 0.00 0.00 0.28 0.28
Crit Moves: ****
Green/Cycle: 0.00 0.00 0.00 0.14 0.00 0.14 0.86 0.86 0.00 0.00 0.86 0.86
Volume/Cap: 0.00 0.00 0.00 0.31 0.00 0.33 0.05 0.18 0.00 0.00 0.33 0.33
Delay/Veh: 0.0 0.0 0.0 39.4 0.0 39.5 1.1 1.1 0.0 0.0 1.3 1.3
User DelAdj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
AdjDel/Veh: 0.0 0.0 0.0 39.4 0.0 39.5 1.1 1.1 0.0 0.0 1.3 1.3
LOS by Move: A A A D A D A A A A A A
HCM2kAvgQ: 0 0 0 2 0 2 0 2 0 0 3 3

Note: Queue reported is the number of cars per lane.

Ontario New Model - Rich Haven External Intersections
2015 AM Peak - Mitigations (Base Scenario Trip Generation)
Meyer, Mohaddes Associates

Level Of Service Computation Report

2000 HCM Operations Method (Future Volume Alternative)

Intersection #9 Haven Avenue/SR-60 WB Ramps

Cycle (sec): 100 Critical Vol./Cap.(X): 0.301
Loss Time (sec): 0 (Y+R=4.0 sec) Average Delay (sec/veh): 9.6
Optimal Cycle: 30 Level Of Service: A

Approach: North Bound South Bound East Bound West Bound
Movement: L - T - R L - T - R L - T - R L - T - R

Control: Protected Permitted Split Phase Split Phase
Rights: Include Include Include Ignore
Min. Green: 0 0 0 0 0 0 0 0 0 0 0 0
Lanes: 2 0 3 0 0 0 0 3 0 1 0 0 0 0 0 1 1 1 0 0 1

Volume Module:
Base Vol: 365 1336 0 0 428 21 0 0 0 96 0 803
Growth Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
Initial Bse: 365 1336 0 0 428 21 0 0 0 96 0 803
Added Vol: 0 0 0 0 0 0 0 0 0 0 0 0
PasserByVol: 0 0 0 0 0 0 0 0 0 0 0 0
Initial Fut: 365 1336 0 0 428 21 0 0 0 96 0 803
User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
PHF Adj: 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95
PHF Volume: 384 1406 0 0 451 22 0 0 0 101 0 0
Reduced Vol: 0 0 0 0 0 0 0 0 0 0 0 0
Reduced Vol: 384 1406 0 0 451 22 0 0 0 101 0 0
PCE Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
MLF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
Final Vol.: 384 1406 0 0 451 22 0 0 0 101 0 0

Saturation Flow Module:
Sat/Lane: 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900
Adjustment: 0.85 0.91 1.00 0.95 0.91 0.85 0.95 1.00 1.00 0.90 1.00 1.00
Lanes: 2.00 3.00 0.00 0.00 3.00 1.00 0.00 0.00 0.00 2.00 0.00 1.00
Final Sat.: 3230 5187 0 0 5187 1615 0 0 0 3427 0 1900

Capacity Analysis Module:
Vol/Sat: 0.12 0.27 0.00 0.00 0.09 0.01 0.00 0.00 0.00 0.03 0.00 0.00
Crit Moves: ****
Green/Cycle: 0.70 0.92 0.00 0.00 0.22 0.22 0.00 0.00 0.00 0.08 0.00 0.00
Volume/Cap: 0.17 0.29 0.00 0.00 0.39 0.06 0.00 0.00 0.00 0.39 0.00 0.00
Delay/Veh: 5.2 0.4 0.0 0.0 33.2 30.6 0.0 0.0 0.0 44.9 0.0 0.0
User DelAdj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
AdjDel/Veh: 5.2 0.4 0.0 0.0 33.2 30.6 0.0 0.0 0.0 44.9 0.0 0.0
LOS by Move: A A A A C C A A A D A A
HCM2kAvgQ: 2 2 0 0 5 1 0 0 0 2 0 0

Note: Queue reported is the number of cars per lane.

Ontario New Model - Rich Haven External Intersections
2015 AM Peak - Mitigations (Base Scenario Trip Generation)
Meyer, Mohaddes Associates

Level Of Service Computation Report

2000 HCM Operations Method (Future Volume Alternative)

Intersection #10 Haven Avenue/SR-60 EB Ramps

Cycle (sec): 100 Critical Vol./Cap.(X): 0.567
Loss Time (sec): 0 (Y+R=4.0 sec) Average Delay (sec/veh): 11.2
Optimal Cycle: 43 Level Of Service: B

Approach: North Bound South Bound East Bound West Bound
Movement: L - T - R L - T - R L - T - R L - T - R

Control: Permitted Protected Split Phase Split Phase
Rights: Include Include Include Include
Min. Green: 0 0 0 0 0 0 0 0 0 0 0 0
Lanes: 0 0 2 1 0 2 0 3 0 0 1 1 0 0 1 0 0 0 0 0

Volume Module:
Base Vol: 0 1626 286 93 431 0 74 0 215 0 0 0
Growth Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
Initial Bse: 0 1626 286 93 431 0 74 0 215 0 0 0
Added Vol: 0 0 0 0 0 0 0 0 0 0 0 0
PasserByVol: 0 0 0 0 0 0 0 0 0 0 0 0
Initial Fut: 0 1626 286 93 431 0 74 0 215 0 0 0
User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
PHF Adj: 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95
PHF Volume: 0 1712 301 98 454 0 78 0 226 0 0 0
Reduced Vol: 0 0 0 0 0 0 0 0 0 0 0 0
Reduced Vol: 0 1712 301 98 454 0 78 0 226 0 0 0
PCE Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
MLF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
Final Vol.: 0 1712 301 98 454 0 78 0 226 0 0 0

Saturation Flow Module:
Sat/Lane: 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900
Adjustment: 0.95 0.89 0.89 0.85 0.91 1.00 0.90 1.00 0.85 0.95 1.00 1.00
Lanes: 0.00 2.55 0.45 2.00 3.00 0.00 2.00 0.00 1.00 0.00 0.00 0.00
Final Sat.: 0 4314 759 3230 5187 0 3427 0 1615 0 0 0

Capacity Analysis Module:
Vol/Sat: 0.00 0.40 0.40 0.03 0.09 0.00 0.02 0.00 0.14 0.00 0.00 0.00
Crit Moves: ****
Green/Cycle: 0.00 0.70 0.70 0.05 0.75 0.00 0.25 0.00 0.25 0.00 0.00 0.00
Volume/Cap: 0.00 0.57 0.57 0.57 0.12 0.00 0.09 0.00 0.57 0.00 0.00 0.00
Delay/Veh: 0.0 7.7 7.7 50.6 3.4 0.0 29.0 0.0 34.9 0.0 0.0 0.0
User DelAdj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
AdjDel/Veh: 0.0 7.7 7.7 50.6 3.4 0.0 29.0 0.0 34.9 0.0 0.0 0.0
LOS by Move: A A A D A A C A C A A A
HCM2kAvgQ: 0 11 11 3 1 0 1 0 7 0 0 0

Note: Queue reported is the number of cars per lane.

Ontario New Model - Rich Haven External Intersections
2015 AM Peak - Mitigations (Base Scenario Trip Generation)
Meyer, Mohaddes Associates

Level Of Service Computation Report

2000 HCM Operations Method (Future Volume Alternative)

Intersection #11 Haven Avenue/Riverside Drive

Cycle (sec): 100 Critical Vol./Cap.(X): 0.777
Loss Time (sec): 0 (Y+R=4.0 sec) Average Delay (sec/veh): 30.0
Optimal Cycle: 102 Level Of Service: C

Approach: North Bound South Bound East Bound West Bound
Movement: L - T - R L - T - R L - T - R L - T - R

Control: Protected Protected Protected Protected
Rights: Include Include Include Include
Min. Green: 0 0 0 0 0 0 0 0 0 0 0 0
Lanes: 1 0 1 1 0 1 0 1 1 0 1 0 1 1 0

Volume Module:
Base Vol: 70 1162 215 129 429 40 141 644 72 121 300 128
Growth Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
Initial Bse: 70 1162 215 129 429 40 141 644 72 121 300 128
Added Vol: 0 0 0 0 0 0 0 0 0 0 0 0
PasserByVol: 0 0 0 0 0 0 0 0 0 0 0 0
Initial Fut: 70 1162 215 129 429 40 141 644 72 121 300 128
User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
PHF Adj: 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95
PHF Volume: 74 1223 226 136 452 42 148 678 76 127 316 135
Reduced Vol: 0 0 0 0 0 0 0 0 0 0 0 0
Reduced Vol: 74 1223 226 136 452 42 148 678 76 127 316 135
PCE Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
MLF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
Final Vol.: 74 1223 226 136 452 42 148 678 76 127 316 135

Saturation Flow Module:
Sat/Lane: 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900
Adjustment: 0.90 0.93 0.93 0.90 0.94 0.94 0.90 0.94 0.94 0.90 0.91 0.91
Lanes: 1.00 1.69 0.31 1.00 1.83 0.17 1.00 1.80 0.20 1.00 1.40 0.60
Final Sat.: 1710 2976 551 1710 3259 304 1710 3198 358 1710 2417 1031

Capacity Analysis Module:
Vol/Sat: 0.04 0.41 0.41 0.08 0.14 0.14 0.09 0.21 0.21 0.07 0.13 0.13
Crit Moves: ****
Green/Cycle: 0.15 0.53 0.53 0.10 0.48 0.48 0.15 0.27 0.27 0.10 0.22 0.22
Volume/Cap: 0.29 0.78 0.78 0.78 0.29 0.29 0.59 0.78 0.78 0.78 0.59 0.59
Delay/Veh: 38.4 21.0 21.0 63.2 15.7 15.7 43.5 37.6 37.6 64.7 36.1 36.1
User DelAdj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
AdjDel/Veh: 38.4 21.0 21.0 63.2 15.7 15.7 43.5 37.6 37.6 64.7 36.1 36.1
LOS by Move: D C C E B B D D D E D D
HCM2kAvgQ: 2 20 20 6 5 5 5 13 13 6 7 7

Note: Queue reported is the number of cars per lane.

Ontario New Model - Rich Haven External Intersections
2015 AM Peak - Mitigations (Base Scenario Trip Generation)
Meyer, Mohaddes Associates

Level Of Service Computation Report

2000 HCM Operations Method (Future Volume Alternative)

Intersection #12 Haven Avenue at Chino Avenue

Cycle (sec): 100 Critical Vol./Cap.(X): 0.450
Loss Time (sec): 0 (Y+R=4.0 sec) Average Delay (sec/veh): 4.7
Optimal Cycle: 26 Level Of Service: A

Approach: North Bound South Bound East Bound West Bound
Movement: L - T - R L - T - R L - T - R L - T - R

Control: Permitted Permitted Permitted Permitted
Rights: Include Include Include Include
Min. Green: 0 0 0 0 0 0 0 0 0 0 0 0
Lanes: 1 0 1 1 0 1 0 1 1 0 1 0 1 1 0

Volume Module:
Base Vol: 23 1295 85 30 536 3 27 59 25 40 15 32
Growth Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
Initial Bse: 23 1295 85 30 536 3 27 59 25 40 15 32
Added Vol: 0 0 0 0 0 0 0 0 0 0 0 0
PasserByVol: 0 0 0 0 0 0 0 0 0 0 0 0
Initial Fut: 23 1295 85 30 536 3 27 59 25 40 15 32
User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
PHF Adj: 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95
PHF Volume: 24 1363 89 32 564 3 28 62 26 42 16 34
Reduct Vol: 0 0 0 0 0 0 0 0 0 0 0 0
Reduced Vol: 24 1363 89 32 564 3 28 62 26 42 16 34
PCE Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
MLF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
Final Vol.: 24 1363 89 32 564 3 28 62 26 42 16 34

Saturation Flow Module:
Sat/Lane: 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900
Adjustment: 0.40 0.94 0.94 0.16 0.95 0.95 0.60 0.91 0.91 0.50 0.85 0.85
Lanes: 1.00 1.88 0.12 1.00 1.99 0.01 1.00 1.40 0.60 1.00 1.00 1.00
Final Sat.: 767 3357 220 301 3586 20 1132 2421 1026 949 1621 1621

Capacity Analysis Module:
Vol/Sat: 0.03 0.41 0.41 0.11 0.16 0.16 0.03 0.03 0.03 0.04 0.01 0.02
Crit Moves: ****
Green/Cycle: 0.90 0.90 0.90 0.90 0.90 0.90 0.10 0.10 0.10 0.10 0.10 0.10
Volume/Cap: 0.04 0.45 0.45 0.12 0.17 0.17 0.25 0.26 0.26 0.45 0.10 0.21
Delay/Veh: 0.5 0.9 0.9 0.7 0.6 0.6 42.9 42.1 42.1 45.9 41.1 41.9
User DelAdj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
AdjDel/Veh: 0.5 0.9 0.9 0.7 0.6 0.6 42.9 42.1 42.1 45.9 41.1 41.9
LOS by Move: A A A A A A D D D D D D
HCM2kAvgQ: 0 4 4 0 1 1 1 2 2 2 2 1 1

Note: Queue reported is the number of cars per lane.

Ontario New Model - Rich Haven External Intersections
2015 AM Peak - Mitigations (Base Scenario Trip Generation)
Meyer, Mohaddes Associates

Level Of Service Computation Report

2000 HCM Operations Method (Future Volume Alternative)

Intersection #13 Haven Avenue at Edison Avenue

Cycle (sec): 100 Critical Vol./Cap.(X): 0.720
Loss Time (sec): 0 (Y+R=4.0 sec) Average Delay (sec/veh): 30.1
Optimal Cycle: 82 Level Of Service: C

Approach: North Bound South Bound East Bound West Bound
Movement: L - T - R L - T - R L - T - R L - T - R

Control: Protected Protected Protected Protected
Rights: Include Include Include Include
Min. Green: 0 0 0 0 0 0 0 0 0 0 0 0
Lanes: 1 0 1 1 0 1 0 1 1 0 1 0 3 1 0

Volume Module:
Base Vol: 165 806 207 125 332 203 157 936 71 107 1447 124
Growth Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
Initial Bse: 165 806 207 125 332 203 157 936 71 107 1447 124
Added Vol: 0 0 0 0 0 0 0 0 0 0 0 0
PasserByVol: 0 0 0 0 0 0 0 0 0 0 0 0
Initial Fut: 165 806 207 125 332 203 157 936 71 107 1447 124
User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
PHF Adj: 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95
PHF Volume: 174 848 218 132 349 214 165 985 75 113 1523 131
Reduct Vol: 0 0 0 0 0 0 0 0 0 0 0 0
Reduced Vol: 174 848 218 132 349 214 165 985 75 113 1523 131
PCE Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
MLF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
Final Vol.: 174 848 218 132 349 214 165 985 75 113 1523 131

Saturation Flow Module:
Sat/Lane: 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900
Adjustment: 0.90 0.92 0.92 0.90 0.90 0.90 0.90 0.90 0.90 0.90 0.90 0.90
Lanes: 1.00 1.59 0.41 1.00 1.24 0.76 1.00 3.72 0.28 1.00 3.68 0.32
Final Sat.: 1710 2783 715 1710 2113 1292 1710 6358 482 1710 6294 539

Capacity Analysis Module:
Vol/Sat: 0.10 0.30 0.30 0.08 0.17 0.17 0.10 0.15 0.15 0.07 0.24 0.24
Crit Moves: ****
Green/Cycle: 0.20 0.42 0.42 0.11 0.33 0.33 0.13 0.33 0.33 0.14 0.34 0.34
Volume/Cap: 0.50 0.72 0.72 0.72 0.50 0.50 0.72 0.47 0.47 0.47 0.72 0.72
Delay/Veh: 36.7 25.7 25.7 56.3 27.4 27.4 52.1 26.7 26.7 41.0 30.2 30.2
User DelAdj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
AdjDel/Veh: 36.7 25.7 25.7 56.3 27.4 27.4 52.1 26.7 26.7 41.0 30.2 30.2
LOS by Move: D C C E C C D C C D C C
HCM2kAvgQ: 5 15 15 6 8 8 7 7 7 4 13 13

Note: Queue reported is the number of cars per lane.

Ontario New Model - Rich Haven External Intersections
2015 AM Peak - Mitigations (Base Scenario Trip Generation)
Meyer, Mohaddes Associates

Level Of Service Computation Report

2000 HCM Operations Method (Future Volume Alternative)

Intersection #14 Mill Creek Avenue/Riverside Drive

Cycle (sec): 100 Critical Vol./Cap.(X): 0.579
Loss Time (sec): 0 (Y+R=4.0 sec) Average Delay (sec/veh): 17.9
Optimal Cycle: 44 Level Of Service: B

Approach: North Bound South Bound East Bound West Bound
Movement: L - T - R L - T - R L - T - R L - T - R

Control: Permitted Permitted Protected Protected
Rights: Include Include Include Include
Min. Green: 0 0 0 0 0 0 0 0 0 0 0 0
Lanes: 1 0 1 0 1 1 0 0 1 1 0 1 0 1 1 0

Volume Module:
Base Vol: 15 184 82 103 174 112 151 1316 19 33 485 26
Growth Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
Initial Bse: 15 184 82 103 174 112 151 1316 19 33 485 26
Added Vol: 0 0 0 0 0 0 0 0 0 0 0 0
PasserByVol: 0 0 0 0 0 0 0 0 0 0 0 0
Initial Fut: 15 184 82 103 174 112 151 1316 19 33 485 26
User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
PHF Adj: 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95
PHF Volume: 16 194 86 108 183 118 159 1385 20 35 511 27
Reduced Vol: 0 0 0 0 0 0 0 0 0 0 0 0
Reduced Vol: 16 194 86 108 183 118 159 1385 20 35 511 27
PCE Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
MLF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
Final Vol.: 16 194 86 108 183 118 159 1385 20 35 511 27

Saturation Flow Module:
Sat/Lane: 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900
Adjustment: 0.28 1.00 0.85 0.42 0.94 0.94 0.90 0.95 0.95 0.90 0.94 0.94
Lanes: 1.00 1.00 1.00 1.00 0.61 0.39 1.00 1.97 0.03 1.00 1.90 0.10
Final Sat.: 524 1900 1615 797 1088 700 1710 3552 51 1710 3399 182

Capacity Analysis Module:
Vol/Sat: 0.03 0.10 0.05 0.14 0.17 0.09 0.39 0.39 0.02 0.15 0.15
Crit Moves: ****
Green/Cycle: 0.29 0.29 0.29 0.29 0.29 0.29 0.27 0.67 0.67 0.04 0.44 0.44
Volume/Cap: 0.10 0.35 0.18 0.47 0.58 0.58 0.34 0.58 0.58 0.58 0.34 0.34
Delay/Veh: 26.2 28.4 26.7 30.6 31.9 31.9 29.7 9.1 9.1 60.8 18.7 18.7
User DelAdj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
AdjDel/Veh: 26.2 28.4 26.7 30.6 31.9 31.9 29.7 9.1 9.1 60.8 18.7 18.7
LOS by Move: C C C C C C C A A E B B
HCM2kAvgQ: 0 5 2 3 8 8 4 12 12 2 6 6

Note: Queue reported is the number of cars per lane.

Ontario New Model - Rich Haven External Intersections
2015 AM Peak - Mitigations (Base Scenario Trip Generation)
Meyer, Mohaddes Associates

Level Of Service Computation Report

2000 HCM Operations Method (Future Volume Alternative)

Intersection #15 Mill Creek Avenue at Chino Avenue

Cycle (sec): 100 Critical Vol./Cap.(X): 0.126
Loss Time (sec): 0 (Y+R=4.0 sec) Average Delay (sec/veh): 13.3
Optimal Cycle: 16 Level Of Service: B

Approach: North Bound South Bound East Bound West Bound
Movement: L - T - R L - T - R L - T - R L - T - R

Control: Permitted Permitted Permitted Permitted
Rights: Include Include Include Include
Min. Green: 0 0 0 0 0 0 0 0 0 0 0 0
Lanes: 1 0 1 1 0 1 0 0 1 0 1 0 1 0 1 1 0

Volume Module:
Base Vol: 38 122 44 5 63 41 83 58 38 11 14 2
Growth Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
Initial Bse: 38 122 44 5 63 41 83 58 38 11 14 2
Added Vol: 0 0 0 0 0 0 0 0 0 0 0 0
PasserByVol: 0 0 0 0 0 0 0 0 0 0 0 0
Initial Fut: 38 122 44 5 63 41 83 58 38 11 14 2
User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
PHF Adj: 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95
PHF Volume: 40 128 46 5 66 43 87 61 40 12 15 2
Reduced Vol: 0 0 0 0 0 0 0 0 0 0 0 0
Reduced Vol: 40 128 46 5 66 43 87 61 40 12 15 2
PCE Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
MLF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
Final Vol.: 40 128 46 5 66 43 87 61 40 12 15 2

Saturation Flow Module:
Sat/Lane: 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900
Adjustment: 0.60 0.91 0.91 0.57 0.94 0.94 0.71 0.89 0.89 0.63 0.93 0.93
Lanes: 1.00 1.47 0.53 1.00 0.61 0.39 1.00 1.21 0.79 1.00 1.75 0.25
Final Sat.: 1134 2547 919 1089 1083 705 1350 2052 1345 1199 3099 443

Capacity Analysis Module:
Vol/Sat: 0.04 0.05 0.05 0.00 0.06 0.06 0.06 0.03 0.03 0.01 0.00 0.00
Crit Moves: ****
Green/Cycle: 0.49 0.49 0.49 0.49 0.49 0.49 0.51 0.51 0.51 0.51 0.51 0.51
Volume/Cap: 0.07 0.10 0.10 0.01 0.13 0.13 0.13 0.06 0.06 0.02 0.01 0.01
Delay/Veh: 13.7 13.9 13.9 13.3 14.1 14.1 12.7 12.2 12.2 11.9 11.9 11.9
User DelAdj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
AdjDel/Veh: 13.7 13.9 13.9 13.3 14.1 14.1 12.7 12.2 12.2 11.9 11.9 11.9
LOS by Move: B B B B B B B B B B B
HCM2kAvgQ: 1 1 1 0 2 2 1 1 1 0 0 0

Note: Queue reported is the number of cars per lane.

Ontario New Model - Rich Haven External Intersections
 2015 AM Peak - Mitigations (Base Scenario Trip Generation)
 Meyer, Mohaddes Associates

Level Of Service Computation Report

2000 HCM Operations Method (Future Volume Alternative)

 Intersection #16 Mill Creek Avenue at Edison Avenue

Cycle (sec): 100 Critical Vol./Cap.(X): 0.356
 Loss Time (sec): 0 (Y+R=4.0 sec) Average Delay (sec/veh): 5.9
 Optimal Cycle: 22 Level Of Service: A

Approach: North Bound South Bound East Bound West Bound
 Movement: L - T - R L - T - R L - T - R L - T - R

Control: Permitted Permitted Permitted Permitted
 Rights: Include Include Include Include
 Min. Green: 0 0 0 0 0 0 0 0 0 0 0 0
 Lanes: 1 0 0 1 0 1 0 0 1 0 1 0

Volume Module:
 Base Vol: 115 22 8 36 9 8 10 1442 43 3 1685 42
 Growth Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
 Initial Bse: 115 22 8 36 9 8 10 1442 43 3 1685 42
 Added Vol: 0 0 0 0 0 0 0 0 0 0 0 0
 PasserByVol: 0 0 0 0 0 0 0 0 0 0 0 0
 Initial Fut: 115 22 8 36 9 8 10 1442 43 3 1685 42
 User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
 PHF Adj: 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95
 PHF Volume: 121 23 8 38 9 8 11 1518 45 3 1774 44
 Reduct Vol: 0 0 0 0 0 0 0 0 0 0 0 0
 Reduced Vol: 121 23 8 38 9 8 11 1518 45 3 1774 44
 PCE Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
 MLF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
 Final Vol.: 121 23 8 38 9 8 11 1518 45 3 1774 44

Saturation Flow Module:
 Sat/Lane: 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900
 Adjustment: 0.69 0.96 0.96 0.67 0.93 0.93 0.09 0.91 0.91 0.13 0.91 0.91
 Lanes: 1.00 0.73 0.27 1.00 0.53 0.47 1.00 3.88 0.12 1.00 3.90 0.10
 Final Sat.: 1318 1338 486 1265 934 831 180 6689 199 243 6721 168

Capacity Analysis Module:
 Vol/Sat: 0.09 0.02 0.02 0.03 0.01 0.01 0.06 0.23 0.23 0.01 0.26 0.26
 Crit Moves: ****
 Green/Cycle: 0.26 0.26 0.26 0.26 0.26 0.26 0.74 0.74 0.74 0.74 0.74 0.74
 Volume/Cap: 0.36 0.07 0.07 0.12 0.04 0.04 0.08 0.31 0.31 0.02 0.36 0.36
 Delay/Veh: 30.9 28.1 28.1 28.5 27.8 27.8 3.8 4.3 4.3 3.4 4.6 4.6
 User DelAdj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
 AdjDel/Veh: 30.9 28.1 28.1 28.5 27.8 27.8 3.8 4.3 4.3 3.4 4.6 4.6
 LOS by Move: C C C C C C A A A A A A
 HCM2kAvgQ: 3 1 1 1 0 0 4 4 4 0 5 5

Note: Queue reported is the number of cars per lane.

Ontario New Model - Rich Haven External Intersections
 2015 AM Peak - Mitigations (Base Scenario Trip Generation)
 Meyer, Mohaddes Associates

Level Of Service Computation Report

2000 HCM Operations Method (Future Volume Alternative)

 Intersection #17 Milliken Avenue/SR-60 WB Ramps

Cycle (sec): 100 Critical Vol./Cap.(X): 0.431
 Loss Time (sec): 0 (Y+R=4.0 sec) Average Delay (sec/veh): 18.1
 Optimal Cycle: 33 Level Of Service: B

Approach: North Bound South Bound East Bound West Bound
 Movement: L - T - R L - T - R L - T - R L - T - R

Control: Protected Permitted Split Phase Split Phase
 Rights: Include Include Include Include
 Min. Green: 0 0 0 0 0 0 0 0 0 0 0 0
 Lanes: 2 0 2 0 0 0 0 2 0 1 0 0 0 0 0 1

Volume Module:
 Base Vol: 466 923 0 0 579 2 0 0 0 244 0 271
 Growth Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
 Initial Bse: 466 923 0 0 579 2 0 0 0 244 0 271
 Added Vol: 0 0 0 0 0 0 0 0 0 0 0 0
 PasserByVol: 0 0 0 0 0 0 0 0 0 0 0 0
 Initial Fut: 466 923 0 0 579 2 0 0 0 244 0 271
 User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
 PHF Adj: 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95
 PHF Volume: 491 972 0 0 609 2 0 0 0 257 0 285
 Reduct Vol: 0 0 0 0 0 0 0 0 0 0 0 0
 Reduced Vol: 491 972 0 0 609 2 0 0 0 257 0 285
 PCE Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
 MLF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
 Final Vol.: 491 972 0 0 609 2 0 0 0 257 0 285

Saturation Flow Module:
 Sat/Lane: 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900
 Adjustment: 0.85 0.95 1.00 0.95 0.95 0.85 0.95 1.00 1.00 0.85 1.00 0.90
 Lanes: 2.00 2.00 0.00 0.00 2.00 1.00 0.00 0.00 0.00 1.49 0.00 1.51
 Final Sat.: 3230 3610 0 0 3610 1615 0 0 0 2409 0 2586

Capacity Analysis Module:
 Vol/Sat: 0.15 0.27 0.00 0.00 0.17 0.00 0.00 0.00 0.00 0.11 0.00 0.11
 Crit Moves: ****
 Green/Cycle: 0.35 0.74 0.00 0.00 0.39 0.39 0.00 0.00 0.00 0.26 0.00 0.26
 Volume/Cap: 0.43 0.36 0.00 0.00 0.43 0.00 0.00 0.00 0.00 0.42 0.00 0.43
 Delay/Veh: 25.0 4.6 0.0 0.0 22.5 18.5 0.0 0.0 0.0 31.2 0.0 31.4
 User DelAdj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
 AdjDel/Veh: 25.0 4.6 0.0 0.0 22.5 18.5 0.0 0.0 0.0 31.2 0.0 31.4
 LOS by Move: C A A A C B A A A C A C
 HCM2kAvgQ: 7 6 0 0 7 0 0 0 0 5 0 5

Note: Queue reported is the number of cars per lane.

Ontario New Model - Rich Haven External Intersections
2015 AM Peak - Mitigations (Base Scenario Trip Generation)
Meyer, Mohaddes Associates

Level Of Service Computation Report

2000 HCM Operations Method (Future Volume Alternative)

Intersection #18 Milliken Avenue/SR-60 EB Ramps

Cycle (sec): 100 Critical Vol./Cap.(X): 0.558
Loss Time (sec): 0 (Y+R=4.0 sec) Average Delay (sec/veh): 1.2
Optimal Cycle: 52 Level Of Service: A

Approach: North Bound South Bound East Bound West Bound
Movement: L - T - R L - T - R L - T - R L - T - R

Control: Protected Protected Split Phase Split Phase
Rights: Include Include Ignore Include
Min. Green: 0 0 0 0 0 0 0 0 0 0 0 0
Lanes: 0 0 1 1 0 1 0 2 0 0 1 0 0 0 0 0

Volume Module:
Base Vol: 0 1356 416 3 820 0 33 0 489 0 0 0
Growth Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
Initial Bse: 0 1356 416 3 820 0 33 0 489 0 0 0
Added Vol: 0 0 0 0 0 0 0 0 0 0 0 0
PasserByVol: 0 0 0 0 0 0 0 0 0 0 0 0
Initial Fut: 0 1356 416 3 820 0 33 0 489 0 0 0
User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 0.00 1.00 1.00 1.00
PHF Adj: 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.00 0.95 0.95 0.95
PHF Volume: 0 1427 438 3 863 0 35 0 0 0 0 0
Reduct Vol: 0 0 0 0 0 0 0 0 0 0 0 0
Reduced Vol: 0 1427 438 3 863 0 35 0 0 0 0 0
PCE Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 0.00 1.00 1.00 1.00
MLF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 0.00 1.00 1.00 1.00
Final Vol.: 0 1427 438 3 863 0 35 0 0 0 0 0

Saturation Flow Module:
Sat/Lane: 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900
Adjustment: 0.95 0.92 0.92 0.90 0.95 1.00 0.90 1.00 1.00 0.95 1.00 1.00
Lanes: 0.00 1.53 0.47 1.00 2.00 0.00 1.00 0.00 1.00 0.00 0.00 0.00
Final Sat.: 0 2666 818 1710 3610 0 1710 0 1900 0 0 0

Capacity Analysis Module:
Vol/Sat: 0.00 0.54 0.54 0.00 0.24 0.00 0.02 0.00 0.00 0.00 0.00 0.00
Crit Moves: ****
Green/Cycle: 0.00 0.96 0.96 0.00 0.96 0.00 0.04 0.00 0.00 0.00 0.00 0.00
Volume/Cap: 0.00 0.56 0.56 0.56 0.25 0.00 0.56 0.00 0.00 0.00 0.00 0.00
Delay/Veh: 0.0 0.4 0.4 136.8 0.1 0.0 58.2 0.0 0.0 0.0 0.0 0.0
User DelAdj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
AdjDel/Veh: 0.0 0.4 0.4 136.8 0.1 0.0 58.2 0.0 0.0 0.0 0.0 0.0
LOS by Move: A A A F A A E A A A A A
HCM2kAvgQ: 0 4 4 1 1 0 2 0 0 0 0 0

Note: Queue reported is the number of cars per lane.

Ontario New Model - Rich Haven External Intersections
2015 AM Peak - Mitigations (Base Scenario Trip Generation)
Meyer, Mohaddes Associates

Level Of Service Computation Report

2000 HCM Operations Method (Future Volume Alternative)

Intersection #19 Milliken Avenue/Riverside Drive

Cycle (sec): 100 Critical Vol./Cap.(X): 0.713
Loss Time (sec): 0 (Y+R=4.0 sec) Average Delay (sec/veh): 28.8
Optimal Cycle: 80 Level Of Service: C

Approach: North Bound South Bound East Bound West Bound
Movement: L - T - R L - T - R L - T - R L - T - R

Control: Protected Protected Protected Protected
Rights: Include Include Include Ovl
Min. Green: 0 0 0 0 0 0 0 0 0 0 0 0
Lanes: 2 0 3 0 1 2 0 3 0 1 2 0 1 1 0 1 0 2 0 1

Volume Module:
Base Vol: 41 697 14 722 127 458 783 796 37 3 279 293
Growth Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
Initial Bse: 41 697 14 722 127 458 783 796 37 3 279 293
Added Vol: 0 0 0 0 0 0 0 0 0 0 0 0
PasserByVol: 0 0 0 0 0 0 0 0 0 0 0 0
Initial Fut: 41 697 14 722 127 458 783 796 37 3 279 293
User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
PHF Adj: 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95
PHF Volume: 43 734 15 760 134 482 824 838 39 3 294 308
Reduct Vol: 0 0 0 0 0 0 0 0 0 0 0 0
Reduced Vol: 43 734 15 760 134 482 824 838 39 3 294 308
PCE Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
MLF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
Final Vol.: 43 734 15 760 134 482 824 838 39 3 294 308

Saturation Flow Module:
Sat/Lane: 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900
Adjustment: 0.85 0.91 0.85 0.85 0.91 0.85 0.85 0.94 0.94 0.90 0.95 0.85
Lanes: 2.00 3.00 1.00 2.00 3.00 1.00 2.00 1.91 0.09 1.00 2.00 1.00
Final Sat.: 3230 5187 1615 3230 5187 1615 3230 3426 159 1710 3610 1615

Capacity Analysis Module:
Vol/Sat: 0.01 0.14 0.01 0.24 0.03 0.30 0.26 0.24 0.24 0.00 0.08 0.19
Crit Moves: ****
Green/Cycle: 0.02 0.20 0.20 0.33 0.51 0.51 0.36 0.47 0.47 0.00 0.11 0.44
Volume/Cap: 0.59 0.71 0.05 0.71 0.05 0.59 0.71 0.52 0.52 0.52 0.71 0.43
Delay/Veh: 60.6 39.8 32.5 31.7 12.6 18.6 29.8 19.0 19.0 113.9 48.5 19.5
User DelAdj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
AdjDel/Veh: 60.6 39.8 32.5 31.7 12.6 18.6 29.8 19.0 19.0 113.9 48.5 19.5
LOS by Move: E D C C B B C B B F D B
HCM2kAvgQ: 2 9 0 13 1 11 13 10 10 1 6 7

Note: Queue reported is the number of cars per lane.

Ontario New Model - Rich Haven External Intersections
 2015 AM Peak - Mitigations (Base Scenario Trip Generation)
 Meyer, Mohaddes Associates

Level Of Service Computation Report
 2000 HCM Operations Method (Future Volume Alternative)

 Intersection #20 Milliken Ave / Chino Ave

 Cycle (sec): 100 Critical Vol./Cap.(X): 0.308
 Loss Time (sec): 0 (Y+R=4.0 sec) Average Delay (sec/veh): 12.6
 Optimal Cycle: 28 Level Of Service: B

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Protected			Permitted			Split Phase			Split Phase		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	1	0	2	0	0	3	1	0	0	0	0	0

Volume Module:
 Base Vol: 18 874 0 0 0 232 9 27 0 81 0 0 0
 Growth Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
 Initial Bse: 18 874 0 0 0 232 9 27 0 81 0 0 0
 Added Vol: 0 0 0 0 0 0 0 0 0 0 0 0 0
 PasserByVol: 0 0 0 0 0 0 0 0 0 0 0 0 0
 Initial Fut: 18 874 0 0 0 232 9 27 0 81 0 0 0
 User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
 PHF Adj: 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95
 PHF Volume: 19 920 0 0 0 244 9 28 0 85 0 0 0
 Reduct Vol: 0 0 0 0 0 0 0 0 0 0 0 0 0
 Reduced Vol: 19 920 0 0 0 244 9 28 0 85 0 0 0
 PCE Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
 MLF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
 Final Vol.: 19 920 0 0 0 244 9 28 0 85 0 0 0

Saturation Flow Module:
 Sat/Lane: 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900
 Adjustment: 0.90 0.95 1.00 0.95 0.90 0.90 0.90 1.00 0.85 0.95 1.00 1.00
 Lanes: 1.00 2.00 0.00 0.00 3.85 0.15 1.00 0.00 1.00 0.00 0.00 0.00
 Final Sat.: 1710 3610 0 0 6618 257 1710 0 1615 0 0 0

Capacity Analysis Module:
 Vol/Sat: 0.01 0.25 0.00 0.00 0.04 0.04 0.02 0.00 0.05 0.00 0.00 0.00
 Crit Moves: ****
 Green/Cycle: 0.74 0.85 0.00 0.00 0.11 0.11 0.15 0.00 0.15 0.00 0.00 0.00
 Volume/Cap: 0.01 0.30 0.00 0.00 0.34 0.34 0.11 0.00 0.34 0.00 0.00 0.00
 Delay/Veh: 3.4 1.6 0.0 0.0 41.7 41.7 36.6 0.0 38.7 0.0 0.0 0.0
 User DelAdj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
 AdjDel/Veh: 3.4 1.6 0.0 0.0 41.7 41.7 36.6 0.0 38.7 0.0 0.0 0.0
 LOS by Move: A A A A D D D A D A A A
 HCM2kAvgQ: 0 3 0 0 2 2 1 0 3 0 0 0

Note: Queue reported is the number of cars per lane.

Ontario New Model - Rich Haven External Intersections
 2015 AM Peak - Mitigations (Base Scenario Trip Generation)
 Meyer, Mohaddes Associates

Level Of Service Computation Report
 2000 HCM Operations Method (Future Volume Alternative)

 Intersection #21 Milliken Avenue/Edison Avenue

 Cycle (sec): 100 Critical Vol./Cap.(X): 0.771
 Loss Time (sec): 0 (Y+R=4.0 sec) Average Delay (sec/veh): 28.6
 Optimal Cycle: 100 Level Of Service: C

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Protected			Protected			Protected			Protected		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	1	0	1	1	0	3	1	0	3	2	0	3

Volume Module:
 Base Vol: 66 637 520 89 95 27 56 1525 29 200 1897 181
 Growth Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
 Initial Bse: 66 637 520 89 95 27 56 1525 29 200 1897 181
 Added Vol: 0 0 0 0 0 0 0 0 0 0 0 0
 PasserByVol: 0 0 0 0 0 0 0 0 0 0 0 0
 Initial Fut: 66 637 520 89 95 27 56 1525 29 200 1897 181
 User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
 PHF Adj: 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95
 PHF Volume: 69 671 547 94 100 28 59 1605 31 211 1997 191
 Reduct Vol: 0 0 0 0 0 0 0 0 0 0 0 0
 Reduced Vol: 69 671 547 94 100 28 59 1605 31 211 1997 191
 PCE Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
 MLF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
 Final Vol.: 69 671 547 94 100 28 59 1605 31 211 1997 191

Saturation Flow Module:
 Sat/Lane: 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900
 Adjustment: 0.90 0.89 0.89 0.90 0.91 0.85 0.90 0.91 0.91 0.85 0.90 0.90
 Lanes: 1.00 1.10 0.90 1.00 3.00 1.00 1.00 3.93 0.07 2.00 3.65 0.35
 Final Sat.: 1710 1854 1514 1710 5187 1615 1710 6767 129 3230 6232 595

Capacity Analysis Module:
 Vol/Sat: 0.04 0.36 0.36 0.05 0.02 0.02 0.03 0.24 0.24 0.07 0.32 0.32
 Crit Moves: ****
 Green/Cycle: 0.37 0.47 0.47 0.07 0.17 0.17 0.04 0.36 0.36 0.10 0.42 0.42
 Volume/Cap: 0.11 0.77 0.77 0.77 0.11 0.10 0.77 0.66 0.66 0.66 0.77 0.77
 Delay/Veh: 21.0 24.5 24.5 71.3 34.9 34.9 84.6 27.4 27.4 48.3 26.5 26.5
 User DelAdj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
 AdjDel/Veh: 21.0 24.5 24.5 71.3 34.9 34.9 84.6 27.4 27.4 48.3 26.5 26.5
 LOS by Move: C C C E C C F C D C C
 HCM2kAvgQ: 1 18 18 5 1 1 4 12 12 5 17 17

Note: Queue reported is the number of cars per lane.

Ontario New Model - Rich Haven External Intersections
 2015 AM Peak - Mitigations (Base Scenario Trip Generation)
 Meyer, Mohaddes Associates

Level Of Service Computation Report
 2000 HCM Operations Method (Future Volume Alternative)

 Intersection #550 Haven Avenue/Creekside Drive

 Cycle (sec): 100 Critical Vol./Cap.(X): 0.000
 Loss Time (sec): 0 (Y+R=4.0 sec) Average Delay (sec/veh): 0.0
 Optimal Cycle: 0 Level Of Service:

 Approach: North Bound South Bound East Bound West Bound
 Movement: L - T - R L - T - R L - T - R L - T - R
 -----|-----|-----|-----|
 Control: Protected Protected Prot+Permit Prot+Permit
 Rights: Include Include Include Include
 Min. Green: 0 0 0 0 0 0 0 0 0 0 0 0
 Lanes: 1 0 1 1 0 1 0 1 1 0 1 1 0 1 0 1
 -----|-----|-----|-----|
 Volume Module:
 Base Vol: 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
 Growth Adj: 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00
 Initial Bse: 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
 Added Vol: 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
 PasserByVol: 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
 Initial Fut: 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
 User Adj: 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00
 PHF Adj: 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00
 PHF Volume: 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
 Reduct Vol: 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
 Reduced Vol: 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
 PCE Adj: 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00
 MLF Adj: 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00
 Final Vol.: 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
 -----|-----|-----|-----|
 Saturation Flow Module:
 Sat/Lane: 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
 Adjustment: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
 Lanes: 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00
 Final Sat.: 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
 -----|-----|-----|-----|
 Capacity Analysis Module:
 Vol/Sat: 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00
 Crit Moves:
 Green/Cycle: 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00
 Volume/Cap: 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00
 Delay/Veh: 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0
 User DelAdj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
 AdjDel/Veh: 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0
 LOS by Move:
 HCM2kAvgQ: 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0

 Note: Queue reported is the number of cars per lane.

Ontario New Model - Rich Haven External Intersections
 2015 AM Peak - Mitigations (Base Scenario Trip Generation)
 Meyer, Mohaddes Associates

Lane Geometry Report

Number of approach lanes: (L) (LT) (T) (RT) (R) (LTR)

Node Intersection	NB	SB	EB	WB
1 Archibald Avenue/Riverside Drive	102100	102100	101100	101100
2 Archibald Avenue/Chino Avenue	102100	102100	100100	101010
3 Archibald Avenue/Schaefer Avenue	102100	102100	101100	101100
4 Archibald Avenue/Edison Avenue	202100	202100	204010	203100
5 Turner Avenue/Riverside Drive	101100	101100	101100	101100
6 Turner Avenue/Chino Avenue	101100	101100	101100	101100
7 Turner Avenue at Schaefer Avenue	000000	100001	102000	001100
8 Edison Avenue at Schaefer Avenue	000000	100001	104000	003100
9 Haven Avenue/SR-60 WB Ramps	203000	003010	000000	110010
10 Haven Avenue/SR-60 EB Ramps	002100	203000	110010	000000
11 Haven Avenue/Riverside Drive	101100	101100	101100	101100
12 Haven Avenue at Chino Avenue	101100	101100	101100	101100
13 Haven Avenue at Edison Avenue	101100	101100	103100	103100
14 Mill Creek Avenue/Riverside Drive	101010	100100	101100	101100
15 Mill Creek Avenue at Chino Avenue	101100	100100	101100	101100
16 Mill Creek Avenue at Edison Avenue	100100	100100	103100	103100
17 Milliken Avenue/SR-60 WB Ramps	202000	002010	000000	100011
18 Milliken Avenue/SR-60 EB Ramps	001100	102000	100010	000000
19 Milliken Avenue/Riverside Drive	203010	203010	201100	102010
20 Milliken Ave / Chino Ave	102000	003100	100010	000000
21 Milliken Avenue/Edison Avenue	101100	103010	103100	203100
550 Haven Avenue/Creekside Drive	101100	101100	101010	101010

Ontario New Model - Rich Haven External Intersections
 2015 PM Peak - Mitigations (Base Scenario Trip Generation)
 Meyer, Mohaddes Associates

Scenario Report

Scenario: 2015 PM
 Command: 2015 PM
 Volume: 2015 PM
 Geometry: Future Base
 Impact Fee: Default Impact Fee
 Trip Generation: None
 Trip Distribution: None
 Paths: Default Paths
 Routes: Default Routes
 Configuration: 2015 PM

Ontario New Model - Rich Haven External Intersections
 2015 PM Peak - Mitigations (Base Scenario Trip Generation)
 Meyer, Mohaddes Associates

Intersection Volume Report
 Base Volume Alternative

Node Intersection	Northbound			Southbound			Eastbound			Westbound		
	L	T	R	L	T	R	L	T	R	L	T	R
1 Archibald Ave	199	1072	80	100	1700	176	116	359	245	63	453	119
2 Archibald Ave	72	1313	51	178	1837	1	1	34	90	57	41	117
3 Archibald Ave	16	1175	2	309	1586	73	45	43	18	1	38	295
4 Archibald Ave	459	639	395	148	1035	253	291	1554	1954	363	1354	97
5 Turner Avenue	0	4	31	80	6	48	69	510	0	102	652	93
6 Turner Avenue	13	3	20	6	35	28	23	98	12	15	123	7
7 Turner Avenue	0	0	0	16	0	3	5	348	0	0	331	30
8 Edison Avenue	0	0	0	359	0	5	17	1867	0	0	1708	344
9 Haven Avenue/	326	640	0	0	1787	123	0	0	0	206	0	423
10 Haven Avenue/	0	1089	246	469	1524	0	29	0	782	0	0	0
11 Haven Avenue/	88	900	183	330	1470	103	85	443	90	192	651	136
12 Haven Avenue	34	967	67	91	1527	13	30	36	32	107	75	97
13 Haven Avenue	157	568	191	253	949	193	249	1777	200	281	1703	211
14 Mill Creek Av	75	18	39	116	14	177	270	853	63	42	1252	112
15 Mill Creek Av	118	131	18	10	142	100	69	22	111	104	72	13
16 Mill Creek Av	88	21	17	73	25	12	11	2225	186	16	2388	72
17 Milliken Aven	735	732	0	0	1936	116	0	0	0	344	0	164
18 Milliken Aven	0	1462	409	71	2209	0	6	0	754	0	0	0
19 Milliken Aven	43	430	5	773	1614	576	747	353	65	81	774	693
20 Milliken Ave	92	598	0	0	1670	97	13	0	37	0	0	0
21 Milliken Aven	94	316	295	272	1217	183	125	2824	121	557	2859	148
550 Haven Avenue/	0	0	0	0	0	0	0	0	0	0	0	0

Ontario New Model - Rich Haven External Intersections
 2015 PM Peak - Mitigations (Base Scenario Trip Generation)
 Meyer, Mohaddes Associates

 Level Of Service Computation Report
 2000 HCM Operations Method (Future Volume Alternative)

 Intersection #2 Archibald Avenue/Chino Avenue

 Cycle (sec): 90 Critical Vol./Cap.(X): 0.530
 Loss Time (sec): 0 (Y+R=4.0 sec) Average Delay (sec/veh): 12.9
 Optimal Cycle: 48 Level Of Service: B

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Protected			Protected			Protected			Protected		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	1	0	2	1	0	2	1	0	0	1	0	1

 Volume Module:
 Base Vol: 72 1313 51 178 1837 1 1 34 90 57 41 117
 Growth Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
 Initial Bse: 72 1313 51 178 1837 1 1 34 90 57 41 117
 Added Vol: 0 0 0 0 0 0 0 0 0 0 0 0
 PasserByVol: 0 0 0 0 0 0 0 0 0 0 0 0
 Initial Fut: 72 1313 51 178 1837 1 1 34 90 57 41 117
 User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
 PHF Adj: 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95
 PHF Volume: 76 1382 54 187 1934 1 1 36 95 60 43 123
 Reduct Vol: 0 0 0 0 0 0 0 0 0 0 0 0
 Reduced Vol: 76 1382 54 187 1934 1 1 36 95 60 43 123
 PCE Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
 MLF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
 Final Vol.: 76 1382 54 187 1934 1 1 36 95 60 43 123

 Saturation Flow Module:
 Sat/Lane: 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900
 Adjustment: 0.90 0.90 0.90 0.90 0.91 0.91 0.90 0.89 0.89 0.90 1.00 0.85
 Lanes: 1.00 2.89 0.11 1.00 2.99 0.01 1.00 0.27 0.73 1.00 1.00 1.00
 Final Sat.: 1710 4963 193 1710 5184 3 1710 464 1229 1710 1900 1615

 Capacity Analysis Module:
 Vol/Sat: 0.04 0.28 0.28 0.11 0.37 0.37 0.00 0.08 0.08 0.04 0.02 0.08
 Crit Moves: **** **
 Green/Cycle: 0.08 0.57 0.57 0.22 0.70 0.70 0.00 0.15 0.15 0.07 0.21 0.21
 Volume/Cap: 0.53 0.49 0.49 0.49 0.53 0.53 0.36 0.53 0.53 0.53 0.11 0.36
 Delay/Veh: 43.3 11.9 11.9 31.6 6.4 6.4 108.5 37.8 37.8 45.3 28.8 31.1
 User DelAdj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
 AdjDel/Veh: 43.3 11.9 11.9 31.6 6.4 6.4 108.5 37.8 37.8 45.3 28.8 31.1
 LOS by Move: D B B C A A F D D C C C
 HCM2kAvgQ: 3 9 9 5 9 9 0 4 4 3 1 3

Note: Queue reported is the number of cars per lane.

Ontario New Model - Rich Haven External Intersections
 2015 PM Peak - Mitigations (Base Scenario Trip Generation)
 Meyer, Mohaddes Associates

 Level Of Service Computation Report
 2000 HCM Operations Method (Future Volume Alternative)

 Intersection #3 Archibald Avenue/Schaefer Avenue

 Cycle (sec): 100 Critical Vol./Cap.(X): 0.627
 Loss Time (sec): 0 (Y+R=4.0 sec) Average Delay (sec/veh): 19.0
 Optimal Cycle: 50 Level Of Service: B

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Protected			Protected			Permitted			Permitted		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	1	0	2	1	0	2	1	0	1	1	0	1

 Volume Module:
 Base Vol: 16 1175 2 309 1586 73 45 43 18 1 38 295
 Growth Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
 Initial Bse: 16 1175 2 309 1586 73 45 43 18 1 38 295
 Added Vol: 0 0 0 0 0 0 0 0 0 0 0 0
 PasserByVol: 0 0 0 0 0 0 0 0 0 0 0 0
 Initial Fut: 16 1175 2 309 1586 73 45 43 18 1 38 295
 User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
 PHF Adj: 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95
 PHF Volume: 17 1237 2 325 1669 77 47 45 19 1 40 311
 Reduct Vol: 0 0 0 0 0 0 0 0 0 0 0 0
 Reduced Vol: 17 1237 2 325 1669 77 47 45 19 1 40 311
 PCE Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
 MLF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
 Final Vol.: 17 1237 2 325 1669 77 47 45 19 1 40 311

 Saturation Flow Module:
 Sat/Lane: 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900
 Adjustment: 0.90 0.91 0.91 0.90 0.90 0.90 0.38 0.91 0.91 0.65 0.82 0.82
 Lanes: 1.00 2.99 0.01 1.00 2.87 0.13 1.00 1.41 0.59 1.00 1.00 1.00
 Final Sat.: 1710 5178 9 1710 4924 227 731 2433 1018 1233 1565 1565

 Capacity Analysis Module:
 Vol/Sat: 0.01 0.24 0.24 0.19 0.34 0.34 0.06 0.02 0.02 0.00 0.03 0.20
 Crit Moves: **** **
 Green/Cycle: 0.02 0.38 0.38 0.30 0.66 0.66 0.32 0.32 0.32 0.32 0.32 0.32
 Volume/Cap: 0.51 0.63 0.63 0.63 0.51 0.51 0.20 0.06 0.06 0.00 0.08 0.63
 Delay/Veh: 61.3 25.8 25.8 32.4 8.6 8.6 25.4 23.8 23.8 23.4 24.0 31.4
 User DelAdj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
 AdjDel/Veh: 61.3 25.8 25.8 32.4 8.6 8.6 25.4 23.8 23.8 23.4 24.0 31.4
 LOS by Move: E C C C A A C C C C C C
 HCM2kAvgQ: 1 12 12 10 10 10 1 1 1 0 1 9

Note: Queue reported is the number of cars per lane.

Ontario New Model - Rich Haven External Intersections
2015 PM Peak - Mitigations (Base Scenario Trip Generation)
Meyer, Mohaddes Associates

Level Of Service Computation Report

2000 HCM Operations Method (Future Volume Alternative)

Intersection #4 Archibald Avenue/Edison Avenue

Cycle (sec): 100 Critical Vol./Cap.(X): 0.774
Loss Time (sec): 0 (Y+R=4.0 sec) Average Delay (sec/veh): 32.6
Optimal Cycle: 101 Level Of Service: C

Approach: North Bound South Bound East Bound West Bound
Movement: L - T - R L - T - R L - T - R L - T - R

Control: Protected Protected Protected Protected
Rights: Include Include Ignore Include
Min. Green: 0 0 0 0 0 0 0 0 0 0 0 0
Lanes: 2 0 2 1 0 2 0 2 1 0 2 0 4 0 1 2 0 3 1 0

Volume Module:

Base Vol: 459 639 395 148 1035 253 291 1554 1954 363 1354 97
Growth Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
Initial Bse: 459 639 395 148 1035 253 291 1554 1954 363 1354 97
Added Vol: 0 0 0 0 0 0 0 0 0 0 0 0
PasserByVol: 0 0 0 0 0 0 0 0 0 0 0 0
Initial Fut: 459 639 395 148 1035 253 291 1554 1954 363 1354 97
User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
PHF Adj: 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95
PHF Volume: 483 673 416 156 1089 266 306 1636 0 382 1425 102
Reduced Vol: 0 0 0 0 0 0 0 0 0 0 0 0
Reduced Vol: 483 673 416 156 1089 266 306 1636 0 382 1425 102
PCE Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 0.00 1.00 1.00 1.00
MLF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 0.00 1.00 1.00 1.00
Final Vol.: 483 673 416 156 1089 266 306 1636 0 382 1425 102

Saturation Flow Module:

Sat/Lane: 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900
Adjustment: 0.85 0.86 0.86 0.85 0.88 0.88 0.85 0.91 1.00 0.85 0.90 0.90
Lanes: 2.00 2.00 1.00 2.00 2.41 0.59 2.00 4.00 1.00 2.00 3.73 0.27
Final Sat.: 3230 3261 1630 3230 4047 989 3230 6916 1900 3230 6389 458

Capacity Analysis Module:

Vol/Sat: 0.15 0.21 0.26 0.05 0.27 0.27 0.09 0.24 0.00 0.12 0.22 0.22
Crit Moves: ****
Green/Cycle: 0.19 0.46 0.46 0.09 0.35 0.35 0.14 0.31 0.00 0.15 0.32 0.32
Volume/Cap: 0.77 0.45 0.56 0.56 0.77 0.77 0.69 0.77 0.00 0.77 0.69 0.69
Delay/Veh: 44.2 18.8 20.3 46.5 31.3 31.3 45.9 33.4 0.0 48.2 30.6 30.6
User DelAdj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
AdjDel/Veh: 44.2 18.8 20.3 46.5 31.3 31.3 45.9 33.4 0.0 48.2 30.6 30.6
LOS by Move: D B C D C C D C A D C C
HCM2kAvgQ: 10 8 11 3 15 15 6 14 0 8 12 12

Note: Queue reported is the number of cars per lane.

Ontario New Model - Rich Haven External Intersections
2015 PM Peak - Mitigations (Base Scenario Trip Generation)
Meyer, Mohaddes Associates

Level Of Service Computation Report

2000 HCM Operations Method (Future Volume Alternative)

Intersection #5 Turner Avenue/Riverside Drive

Cycle (sec): 100 Critical Vol./Cap.(X): 0.330
Loss Time (sec): 0 (Y+R=4.0 sec) Average Delay (sec/veh): 14.3
Optimal Cycle: 28 Level Of Service: B

Approach: North Bound South Bound East Bound West Bound
Movement: L - T - R L - T - R L - T - R L - T - R

Control: Permitted Permitted Protected Protected
Rights: Include Include Include Include
Min. Green: 0 0 0 0 0 0 0 0 0 0 0 0
Lanes: 1 0 1 1 0 1 0 1 1 0 1 0 1 1 0

Volume Module:

Base Vol: 0 4 31 80 6 48 69 510 0 102 652 93
Growth Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
Initial Bse: 0 4 31 80 6 48 69 510 0 102 652 93
Added Vol: 0 0 0 0 0 0 0 0 0 0 0 0
PasserByVol: 0 0 0 0 0 0 0 0 0 0 0 0
Initial Fut: 0 4 31 80 6 48 69 510 0 102 652 93
User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
PHF Adj: 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95
PHF Volume: 0 4 33 84 6 51 73 537 0 107 686 98
Reduced Vol: 0 0 0 0 0 0 0 0 0 0 0 0
Reduced Vol: 0 4 33 84 6 51 73 537 0 107 686 98
PCE Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
MLF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
Final Vol.: 0 4 33 84 6 51 73 537 0 107 686 98

Saturation Flow Module:

Sat/Lane: 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900
Adjustment: 0.95 0.82 0.82 0.67 0.82 0.82 0.90 0.95 0.95 0.90 0.93 0.93
Lanes: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 2.00 0.00 1.00 1.75 0.25
Final Sat.: 1800 1565 1565 1267 1565 1565 1710 3610 0 1710 3099 442

Capacity Analysis Module:

Vol/Sat: 0.00 0.00 0.02 0.07 0.00 0.03 0.04 0.15 0.00 0.06 0.22 0.22
Crit Moves: ****
Green/Cycle: 0.00 0.20 0.20 0.20 0.20 0.20 0.13 0.56 0.00 0.24 0.67 0.67
Volume/Cap: 0.00 0.01 0.10 0.33 0.02 0.16 0.33 0.26 0.00 0.26 0.33 0.33
Delay/Veh: 0.0 32.0 32.7 34.9 32.0 33.2 40.5 11.4 0.0 31.4 7.1 7.1
User DelAdj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
AdjDel/Veh: 0.0 32.0 32.7 34.9 32.0 33.2 40.5 11.4 0.0 31.4 7.1 7.1
LOS by Move: A C C C C C D B A C A A
HCM2kAvgQ: 0 0 1 3 0 1 2 4 0 3 5 5

Note: Queue reported is the number of cars per lane.

Ontario New Model - Rich Haven External Intersections
 2015 PM Peak - Mitigations (Base Scenario Trip Generation)
 Meyer, Mohaddes Associates

Level Of Service Computation Report
 2000 HCM 4-Way Stop Method (Future Volume Alternative)

 Intersection #6 Turner Avenue/Chino Avenue

Cycle (sec): 100 Critical Vol./Cap.(X): 0.099
 Loss Time (sec): 0 (Y+R=4.0 sec) Average Delay (sec/veh): 8.2
 Optimal Cycle: 0 Level Of Service: A

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Stop Sign			Stop Sign			Stop Sign			Stop Sign		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	1	0	1	1	0	1	1	0	1	1	0	1

Volume Module:

Base Vol:	13	3	20	6	35	28	23	98	12	15	123	7
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	13	3	20	6	35	28	23	98	12	15	123	7
Added Vol:	0	0	0	0	0	0	0	0	0	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	13	3	20	6	35	28	23	98	12	15	123	7
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
PHF Volume:	14	3	21	6	37	29	24	103	13	16	129	7
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	14	3	21	6	37	29	24	103	13	16	129	7
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Final Vol.:	14	3	21	6	37	29	24	103	13	16	129	7

Saturation Flow Module:

Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	1.00	1.00	1.00	1.00	1.11	0.89	1.00	1.78	0.22	1.00	1.89	0.11
Final Sat.:	575	625	711	584	715	635	620	1226	153	624	1303	75

Capacity Analysis Module:

Vol/Sat:	0.02	0.01	0.03	0.01	0.05	0.05	0.04	0.08	0.08	0.03	0.10	0.10
Crit Moves:	****			****			****			****		
Delay/Veh:	8.8	8.2	7.6	8.6	8.3	7.7	8.5	8.2	8.1	8.4	8.3	8.3
Delay Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	8.8	8.2	7.6	8.6	8.3	7.7	8.5	8.2	8.1	8.4	8.3	8.3
LOS by Move:	A	A	A	A	A	A	A	A	A	A	A	A
ApproachDel:	8.1			8.1			8.3			8.3		
Delay Adj:	1.00			1.00			1.00			1.00		
ApprAdjDel:	8.1			8.1			8.3			8.3		
LOS by Appr:	A			A			A			A		
AllWayAvgQ:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.0	0.1	0.1

Note: Queue reported is the number of cars per lane.

Ontario New Model - Rich Haven External Intersections
 2015 PM Peak - Mitigations (Base Scenario Trip Generation)
 Meyer, Mohaddes Associates

Level Of Service Computation Report
 2000 HCM Operations Method (Future Volume Alternative)

 Intersection #7 Turner Avenue at Schaefer Avenue

Cycle (sec): 100 Critical Vol./Cap.(X): 0.116
 Loss Time (sec): 0 (Y+R=4.0 sec) Average Delay (sec/veh): 1.8
 Optimal Cycle: 21 Level Of Service: A

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Split Phase			Split Phase			Protected			Permitted		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	0	0	0	1	0	1	1	0	2	0	0	1

Volume Module:

Base Vol:	0	0	0	16	0	3	5	348	0	0	331	30
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	0	0	0	16	0	3	5	348	0	0	331	30
Added Vol:	0	0	0	0	0	0	0	0	0	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	0	0	0	16	0	3	5	348	0	0	331	30
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
PHF Volume:	0	0	0	17	0	3	5	366	0	0	348	32
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	0	0	0	17	0	3	5	366	0	0	348	32
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Final Vol.:	0	0	0	17	0	3	5	366	0	0	348	32

Saturation Flow Module:

Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.95	1.00	1.00	0.89	1.00	0.94	0.90	0.95	1.00	0.95	0.94	0.94
Lanes:	0.00	0.00	0.00	1.74	0.00	0.26	1.00	2.00	0.00	0.00	1.83	0.17
Final Sat.:	0	0	0	2931	0	467	1710	3610	0	0	3270	296

Capacity Analysis Module:

Vol/Sat:	0.00	0.00	0.00	0.01	0.00	0.01	0.00	0.10	0.00	0.00	0.11	0.11
Crit Moves:	****			****			****			****		
Green/Cycle:	0.00	0.00	0.00	0.06	0.00	0.06	0.03	0.94	0.00	0.00	0.92	0.92
Volume/Cap:	0.00	0.00	0.00	0.10	0.00	0.12	0.12	0.11	0.00	0.00	0.12	0.12
Delay/Veh:	0.0	0.0	0.0	44.8	0.0	45.0	48.7	0.2	0.0	0.0	0.4	0.4
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	0.0	0.0	0.0	44.8	0.0	45.0	48.7	0.2	0.0	0.0	0.4	0.4
LOS by Move:	A	A	A	D	A	D	D	A	A	A	A	A
HCM2kAvgQ:	0	0	0	0	0	0	0	0	0	0	1	1

Note: Queue reported is the number of cars per lane.

Ontario New Model - Rich Haven External Intersections
 2015 PM Peak - Mitigations (Base Scenario Trip Generation)
 Meyer, Mohaddes Associates

Level Of Service Computation Report
 2000 HCM Operations Method (Future Volume Alternative)

Intersection #8 Edison Avenue at Schaefer Avenue

Cycle (sec): 100 Critical Vol./Cap.(X): 0.434
 Loss Time (sec): 0 (Y+R=4.0 sec) Average Delay (sec/veh): 7.2
 Optimal Cycle: 33 Level Of Service: A

Approach: North Bound South Bound East Bound West Bound
 Movement: L - T - R L - T - R L - T - R L - T - R

Control: Split Phase Split Phase Permitted Permitted
 Rights: Include Include Include Include
 Min. Green: 0 0 0 0 0 0 0 0 0 0 0 0
 Lanes: 0 0 0 0 0 1 0 1 0 0 1 0 4 0 0 0 0 0 3 1 0

Volume Module:
 Base Vol: 0 0 0 359 0 5 17 1867 0 0 1708 344
 Growth Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
 Initial Bse: 0 0 0 359 0 5 17 1867 0 0 1708 344
 Added Vol: 0 0 0 0 0 0 0 0 0 0 0 0 0
 PasserByVol: 0 0 0 0 0 0 0 0 0 0 0 0 0
 Initial Fut: 0 0 0 359 0 5 17 1867 0 0 1708 344
 User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
 PHF Adj: 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95
 PHF Volume: 0 0 0 378 0 5 18 1965 0 0 1798 362
 Reduce Vol: 0 0 0 0 0 0 0 0 0 0 0 0 0
 Reduced Vol: 0 0 0 378 0 5 18 1965 0 0 1798 362
 PCE Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
 MLF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
 Final Vol.: 0 0 0 378 0 5 18 1965 0 0 1798 362

Saturation Flow Module:
 Sat/Lane: 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900
 Adjustment: 0.95 1.00 1.00 0.90 1.00 0.95 0.06 0.91 1.00 0.95 0.89 0.89
 Lanes: 0.00 0.00 0.00 1.97 0.00 0.03 1.00 4.00 0.00 0.00 3.33 0.67
 Final Sat.: 0 0 0 3380 0 46 119 6916 0 0 5613 1130

Capacity Analysis Module:
 Vol/Sat: 0.00 0.00 0.00 0.11 0.00 0.11 0.15 0.28 0.00 0.00 0.32 0.32
 Crit Moves: ****
 Green/Cycle: 0.00 0.00 0.00 0.26 0.00 0.26 0.74 0.74 0.00 0.00 0.74 0.74
 Volume/Cap: 0.00 0.00 0.00 0.43 0.00 0.43 0.20 0.38 0.00 0.00 0.43 0.43
 Delay/Veh: 0.0 0.0 0.0 31.1 0.0 31.1 5.2 4.8 0.0 0.0 5.1 5.1
 User DelAdj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
 AdjDel/Veh: 0.0 0.0 0.0 31.1 0.0 31.1 5.2 4.8 0.0 0.0 5.1 5.1
 LOS by Move: A A A C A C A A A A A A
 HCM2kAvgQ: 0 0 0 5 0 5 0 6 0 0 7 7

Note: Queue reported is the number of cars per lane.

Ontario New Model - Rich Haven External Intersections
 2015 PM Peak - Mitigations (Base Scenario Trip Generation)
 Meyer, Mohaddes Associates

Level Of Service Computation Report
 2000 HCM Operations Method (Future Volume Alternative)

Intersection #9 Haven Avenue/SR-60 WB Ramps

Cycle (sec): 100 Critical Vol./Cap.(X): 0.532
 Loss Time (sec): 0 (Y+R=4.0 sec) Average Delay (sec/veh): 11.8
 Optimal Cycle: 40 Level Of Service: B

Approach: North Bound South Bound East Bound West Bound
 Movement: L - T - R L - T - R L - T - R L - T - R

Control: Protected Permitted Split Phase Split Phase
 Rights: Include Include Include Ignore
 Min. Green: 0 0 0 0 0 0 0 0 0 0 0 0
 Lanes: 2 0 3 0 0 0 0 3 0 1 0 0 0 0 0 1 1 0 0 0 1

Volume Module:
 Base Vol: 326 640 0 0 1787 123 0 0 0 206 0 423
 Growth Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
 Initial Bse: 326 640 0 0 1787 123 0 0 0 206 0 423
 Added Vol: 0 0 0 0 0 0 0 0 0 0 0 0
 PasserByVol: 0 0 0 0 0 0 0 0 0 0 0 0
 Initial Fut: 326 640 0 0 1787 123 0 0 0 206 0 423
 User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
 PHF Adj: 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95
 PHF Volume: 343 674 0 0 1881 129 0 0 0 217 0 0
 Reduce Vol: 0 0 0 0 0 0 0 0 0 0 0 0
 Reduced Vol: 343 674 0 0 1881 129 0 0 0 217 0 0
 PCE Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
 MLF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
 Final Vol.: 343 674 0 0 1881 129 0 0 0 217 0 0

Saturation Flow Module:
 Sat/Lane: 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900
 Adjustment: 0.85 0.91 1.00 0.95 0.91 0.85 0.95 1.00 1.00 0.90 1.00 1.00
 Lanes: 2.00 3.00 0.00 0.00 3.00 1.00 0.00 0.00 0.00 2.00 0.00 1.00
 Final Sat.: 3230 5187 0 0 5187 1615 0 0 0 3427 0 1900

Capacity Analysis Module:
 Vol/Sat: 0.11 0.13 0.00 0.00 0.36 0.08 0.00 0.00 0.00 0.06 0.00 0.00
 Crit Moves: ****
 Green/Cycle: 0.20 0.88 0.00 0.00 0.68 0.68 0.00 0.00 0.00 0.12 0.00 0.00
 Volume/Cap: 0.53 0.15 0.00 0.00 0.53 0.12 0.00 0.00 0.00 0.53 0.00 0.00
 Delay/Veh: 36.7 0.8 0.0 0.0 8.1 5.6 0.0 0.0 0.0 42.8 0.0 0.0
 User DelAdj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
 AdjDel/Veh: 36.7 0.8 0.0 0.0 8.1 5.6 0.0 0.0 0.0 42.8 0.0 0.0
 LOS by Move: D A A A A A A A A D A A
 HCM2kAvgQ: 6 1 0 0 11 1 0 0 0 4 0 0

Note: Queue reported is the number of cars per lane.

Ontario New Model - Rich Haven External Intersections
 2015 PM Peak - Mitigations (Base Scenario Trip Generation)
 Meyer, Mohaddes Associates

Level Of Service Computation Report

2000 HCM Operations Method (Future Volume Alternative)

 Intersection #10 Haven Avenue/SR-60 EB Ramps

Cycle (sec): 100 Critical Vol./Cap.(X): 0.941
 Loss Time (sec): 0 (Y+R=4.0 sec) Average Delay (sec/veh): 38.1
 Optimal Cycle: 180 Level Of Service: D

Approach: North Bound South Bound East Bound West Bound
 Movement: L - T - R L - T - R L - T - R L - T - R

Control: Permitted Protected Split Phase Split Phase
 Rights: Include Include Include Include
 Min. Green: 0 0 0 0 0 0 0 0 0 0 0 0
 Lanes: 0 0 2 1 0 2 0 3 0 0 1 1 0 0 1 0 0 0 0 0

Volume Module:

Base Vol: 0 1089 246 469 1524 0 29 0 782 0 0 0
 Growth Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
 Initial Bse: 0 1089 246 469 1524 0 29 0 782 0 0 0
 Added Vol: 0 0 0 0 0 0 0 0 0 0 0 0
 PasserByVol: 0 0 0 0 0 0 0 0 0 0 0 0
 Initial Fut: 0 1089 246 469 1524 0 29 0 782 0 0 0
 User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
 PHF Adj: 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95
 PHF Volume: 0 1146 259 494 1604 0 31 0 823 0 0 0
 Reduced Vol: 0 0 0 0 0 0 0 0 0 0 0 0
 Reduced Vol: 0 1146 259 494 1604 0 31 0 823 0 0 0
 PCE Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
 MLF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
 Final Vol.: 0 1146 259 494 1604 0 31 0 823 0 0 0

Saturation Flow Module:

Sat/Lane: 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900
 Adjustment: 0.95 0.88 0.88 0.85 0.91 1.00 0.90 1.00 0.85 0.95 1.00 1.00
 Lanes: 0.00 2.45 0.55 2.00 3.00 0.00 2.00 0.00 1.00 0.00 0.00 0.00
 Final Sat.: 0 4113 929 3230 5187 0 3427 0 1615 0 0 0

Capacity Analysis Module:

Vol/Sat: 0.00 0.28 0.28 0.15 0.31 0.00 0.01 0.00 0.51 0.00 0.00 0.00
 Crit Moves: ****
 Green/Cycle: 0.00 0.30 0.30 0.16 0.46 0.00 0.54 0.00 0.54 0.00 0.00 0.00
 Volume/Cap: 0.00 0.94 0.94 0.94 0.67 0.00 0.02 0.00 0.94 0.00 0.00 0.00
 Delay/Veh: 0.0 46.4 46.4 66.8 22.0 0.0 10.6 0.0 39.3 0.0 0.0 0.0
 User DelAdj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
 AdjDel/Veh: 0.0 46.4 46.4 66.8 22.0 0.0 10.6 0.0 39.3 0.0 0.0 0.0
 LOS by Move: A D D E C A B A D A A A
 HCM2kAvgQ: 0 20 20 12 15 0 0 0 29 0 0 0

Note: Queue reported is the number of cars per lane.

Ontario New Model - Rich Haven External Intersections
 2015 PM Peak - Mitigations (Base Scenario Trip Generation)
 Meyer, Mohaddes Associates

Level Of Service Computation Report

2000 HCM Operations Method (Future Volume Alternative)

 Intersection #11 Haven Avenue/Riverside Drive

Cycle (sec): 100 Critical Vol./Cap.(X): 0.815
 Loss Time (sec): 0 (Y+R=4.0 sec) Average Delay (sec/veh): 33.4
 Optimal Cycle: 123 Level Of Service: C

Approach: North Bound South Bound East Bound West Bound
 Movement: L - T - R L - T - R L - T - R L - T - R

Control: Protected Protected Protected Protected
 Rights: Include Include Include Include
 Min. Green: 0 0 0 0 0 0 0 0 0 0 0 0
 Lanes: 1 0 1 1 0 1 0 1 1 0 1 0 1 1 0

Volume Module:

Base Vol: 88 900 183 330 1470 103 85 443 90 192 651 136
 Growth Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
 Initial Bse: 88 900 183 330 1470 103 85 443 90 192 651 136
 Added Vol: 0 0 0 0 0 0 0 0 0 0 0 0
 PasserByVol: 0 0 0 0 0 0 0 0 0 0 0 0
 Initial Fut: 88 900 183 330 1470 103 85 443 90 192 651 136
 User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
 PHF Adj: 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95
 PHF Volume: 93 947 193 347 1547 108 89 466 95 202 685 143
 Reduced Vol: 0 0 0 0 0 0 0 0 0 0 0 0
 Reduced Vol: 93 947 193 347 1547 108 89 466 95 202 685 143
 PCE Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
 MLF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
 Final Vol.: 93 947 193 347 1547 108 89 466 95 202 685 143

Saturation Flow Module:

Sat/Lane: 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900
 Adjustment: 0.90 0.93 0.93 0.90 0.94 0.94 0.90 0.93 0.93 0.90 0.93 0.93
 Lanes: 1.00 1.66 0.34 1.00 1.87 0.13 1.00 1.66 0.34 1.00 1.65 0.35
 Final Sat.: 1710 2925 595 1710 3340 234 1710 2925 594 1710 2909 608

Capacity Analysis Module:

Vol/Sat: 0.05 0.32 0.32 0.20 0.46 0.46 0.05 0.16 0.16 0.12 0.24 0.24
 Crit Moves: ****
 Green/Cycle: 0.07 0.40 0.40 0.25 0.58 0.58 0.06 0.20 0.20 0.15 0.29 0.29
 Volume/Cap: 0.80 0.81 0.81 0.81 0.80 0.80 0.81 0.79 0.79 0.79 0.81 0.81
 Delay/Veh: 77.3 30.7 30.7 46.9 18.8 18.8 81.8 43.6 43.6 55.6 38.2 38.2
 User DelAdj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
 AdjDel/Veh: 77.3 30.7 30.7 46.9 18.8 18.8 81.8 43.6 43.6 55.6 38.2 38.2
 LOS by Move: E C C D B B F D D E D D
 HCM2kAvgQ: 5 18 18 13 23 23 5 11 11 8 15 15

Note: Queue reported is the number of cars per lane.

Ontario New Model - Rich Haven External Intersections
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Meyer, Mohaddes Associates

Level Of Service Computation Report

2000 HCM Operations Method (Future Volume Alternative)

Intersection #12 Haven Avenue at Chino Avenue

Cycle (sec): 100 Critical Vol./Cap.(X): 0.548
Loss Time (sec): 0 (Y+R=4.0 sec) Average Delay (sec/veh): 7.0
Optimal Cycle: 32 Level Of Service: A

Approach: North Bound South Bound East Bound West Bound
Movement: L - T - R L - T - R L - T - R L - T - R

Control: Permitted Permitted Permitted Permitted
Rights: Include Include Include Include
Min. Green: 0 0 0 0 0 0 0 0 0 0 0 0
Lanes: 1 0 1 1 0 1 0 1 1 0 1 0 1 1 0

Volume Module:
Base Vol: 34 967 67 91 1527 13 30 36 32 107 75 97
Growth Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
Initial Bse: 34 967 67 91 1527 13 30 36 32 107 75 97
Added Vol: 0 0 0 0 0 0 0 0 0 0 0 0
PasserByVol: 0 0 0 0 0 0 0 0 0 0 0 0
Initial Fut: 34 967 67 91 1527 13 30 36 32 107 75 97
User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
PHF Adj: 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95
PHF Volume: 36 1018 71 96 1607 14 32 38 34 113 79 102
Reduced Vol: 0 0 0 0 0 0 0 0 0 0 0 0
Reduced Vol: 36 1018 71 96 1607 14 32 38 34 113 79 102
PCE Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
MLF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
Final Vol.: 36 1018 71 96 1607 14 32 38 34 113 79 102

Saturation Flow Module:
Sat/Lane: 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900
Adjustment: 0.12 0.94 0.94 0.22 0.95 0.95 0.44 0.88 0.88 0.60 0.87 0.87
Lanes: 1.00 1.87 0.13 1.00 1.98 0.02 1.00 1.06 0.94 1.00 1.00 1.00
Final Sat.: 221 3342 232 425 3576 30 844 1775 1578 1147 1652 1652

Capacity Analysis Module:
Vol/Sat: 0.16 0.30 0.30 0.23 0.45 0.04 0.02 0.02 0.10 0.05 0.06
Crit Moves: ****
Green/Cycle: 0.82 0.82 0.82 0.82 0.82 0.82 0.18 0.18 0.18 0.18 0.18 0.18
Volume/Cap: 0.20 0.37 0.37 0.27 0.55 0.55 0.21 0.12 0.12 0.55 0.27 0.34
Delay/Veh: 2.5 2.4 2.4 2.5 3.1 3.1 35.7 34.5 34.5 40.4 35.6 36.3
User DelAdj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
AdjDel/Veh: 2.5 2.4 2.4 2.5 3.1 3.1 35.7 34.5 34.5 40.4 35.6 36.3
LOS by Move: A A A A A A D C C D D D
HCM2kAvgQ: 0 5 5 1 9 9 1 1 1 1 4 2 3

Note: Queue reported is the number of cars per lane.

Ontario New Model - Rich Haven External Intersections
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Meyer, Mohaddes Associates

Level Of Service Computation Report

2000 HCM Operations Method (Future Volume Alternative)

Intersection #13 Haven Avenue at Edison Avenue

Cycle (sec): 100 Critical Vol./Cap.(X): 0.917
Loss Time (sec): 0 (Y+R=4.0 sec) Average Delay (sec/veh): 41.3
Optimal Cycle: 180 Level Of Service: D

Approach: North Bound South Bound East Bound West Bound
Movement: L - T - R L - T - R L - T - R L - T - R

Control: Protected Protected Protected Protected
Rights: Include Include Include Include
Min. Green: 0 0 0 0 0 0 0 0 0 0 0 0
Lanes: 1 0 1 1 0 1 0 1 1 0 1 0 3 1 0

Volume Module:
Base Vol: 157 568 191 253 949 193 249 1777 200 281 1703 211
Growth Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
Initial Bse: 157 568 191 253 949 193 249 1777 200 281 1703 211
Added Vol: 0 0 0 0 0 0 0 0 0 0 0 0
PasserByVol: 0 0 0 0 0 0 0 0 0 0 0 0
Initial Fut: 157 568 191 253 949 193 249 1777 200 281 1703 211
User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
PHF Adj: 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95
PHF Volume: 165 598 201 266 999 203 262 1871 211 296 1793 222
Reduced Vol: 0 0 0 0 0 0 0 0 0 0 0 0
Reduced Vol: 165 598 201 266 999 203 262 1871 211 296 1793 222
PCE Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
MLF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
Final Vol.: 165 598 201 266 999 203 262 1871 211 296 1793 222

Saturation Flow Module:
Sat/Lane: 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900
Adjustment: 0.90 0.91 0.91 0.90 0.93 0.93 0.90 0.90 0.90 0.90 0.90 0.90
Lanes: 1.00 1.50 0.50 1.00 1.66 0.34 1.00 3.60 0.40 1.00 3.56 0.44
Final Sat.: 1710 2599 874 1710 2925 595 1710 6123 689 1710 6055 750

Capacity Analysis Module:
Vol/Sat: 0.10 0.23 0.23 0.16 0.34 0.34 0.15 0.31 0.31 0.17 0.30 0.30
Crit Moves: ****
Green/Cycle: 0.11 0.29 0.29 0.19 0.37 0.37 0.18 0.33 0.33 0.19 0.34 0.34
Volume/Cap: 0.92 0.81 0.81 0.81 0.92 0.92 0.86 0.92 0.92 0.92 0.86 0.86
Delay/Veh: 88.2 38.2 38.2 52.2 40.2 40.2 61.1 38.5 38.5 69.5 34.1 34.1
User DelAdj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
AdjDel/Veh: 88.2 38.2 38.2 52.2 40.2 40.2 61.1 38.5 38.5 69.5 34.1 34.1
LOS by Move: F D D D D D E D D E C C
HCM2kAvgQ: 9 14 14 11 23 23 11 21 21 13 19 19

Note: Queue reported is the number of cars per lane.

Ontario New Model - Rich Haven External Intersections
 2015 PM Peak - Mitigations (Base Scenario Trip Generation)
 Meyer, Mohaddes Associates

Level Of Service Computation Report
 2000 HCM Operations Method (Future Volume Alternative)

 Intersection #14 Mill Creek Avenue/Riverside Drive

Cycle (sec): 100 Critical Vol./Cap.(X): 0.692
 Loss Time (sec): 0 (Y+R=4.0 sec) Average Delay (sec/veh): 18.9
 Optimal Cycle: 60 Level Of Service: B

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Permitted			Permitted			Protected			Protected		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	1	0	1	0	1	0	1	0	1	1	0	1

Volume Module:

Base Vol:	75	18	39	116	14	177	270	853	63	42	1252	112
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	75	18	39	116	14	177	270	853	63	42	1252	112
Added Vol:	0	0	0	0	0	0	0	0	0	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	75	18	39	116	14	177	270	853	63	42	1252	112
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
PHF Volume:	79	19	41	122	15	186	284	898	66	44	1318	118
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	79	19	41	122	15	186	284	898	66	44	1318	118
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Final Vol.:	79	19	41	122	15	186	284	898	66	44	1318	118

Saturation Flow Module:

Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.34	1.00	0.85	0.69	0.86	0.86	0.90	0.94	0.94	0.90	0.94	0.94
Lanes:	1.00	1.00	1.00	1.00	0.07	0.93	1.00	1.86	0.14	1.00	1.84	0.16
Final Sat.:	646	1900	1615	1307	120	1516	1710	3328	246	1710	3274	293

Capacity Analysis Module:

Vol/Sat:	0.12	0.01	0.03	0.09	0.12	0.12	0.17	0.27	0.27	0.03	0.40	0.40
Crit Moves:	****			****			****			****		
Green/Cycle:	0.18	0.18	0.18	0.18	0.18	0.18	0.24	0.75	0.75	0.07	0.58	0.58
Volume/Cap:	0.69	0.06	0.14	0.53	0.69	0.69	0.69	0.36	0.36	0.36	0.69	0.69
Delay/Veh:	54.6	34.2	34.9	39.5	45.5	45.5	39.6	4.3	4.3	46.0	15.6	15.6
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	54.6	34.2	34.9	39.5	45.5	45.5	39.6	4.3	4.3	46.0	15.6	15.6
LOS by Move:	D	C	C	D	D	D	D	A	A	D	B	B
HCM2kAvgQ:	4	0	1	4	7	7	10	5	5	2	17	17

 Note: Queue reported is the number of cars per lane.

Ontario New Model - Rich Haven External Intersections
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 Meyer, Mohaddes Associates

Level Of Service Computation Report
 2000 HCM Operations Method (Future Volume Alternative)

 Intersection #15 Mill Creek Avenue at Chino Avenue

Cycle (sec): 100 Critical Vol./Cap.(X): 0.242
 Loss Time (sec): 0 (Y+R=4.0 sec) Average Delay (sec/veh): 13.5
 Optimal Cycle: 19 Level Of Service: B

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Permitted			Permitted			Permitted			Permitted		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	1	0	1	1	0	1	1	0	1	1	0	1

Volume Module:

Base Vol:	118	131	18	10	142	100	69	22	111	104	72	13
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	118	131	18	10	142	100	69	22	111	104	72	13
Added Vol:	0	0	0	0	0	0	0	0	0	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	118	131	18	10	142	100	69	22	111	104	72	13
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
PHF Volume:	124	138	19	11	149	105	73	23	117	109	76	14
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	124	138	19	11	149	105	73	23	117	109	76	14
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Final Vol.:	124	138	19	11	149	105	73	23	117	109	76	14

Saturation Flow Module:

Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.49	0.93	0.93	0.60	0.94	0.94	0.63	0.83	0.83	0.58	0.93	0.93
Lanes:	1.00	1.76	0.24	1.00	0.59	0.41	1.00	1.00	1.00	1.00	1.69	0.31
Final Sat.:	931	3117	428	1136	1046	736	1201	1579	1579	1111	2988	539

Capacity Analysis Module:

Vol/Sat:	0.13	0.04	0.04	0.01	0.14	0.14	0.06	0.01	0.07	0.10	0.03	0.03
Crit Moves:	****			****			****			****		
Green/Cycle:	0.59	0.59	0.59	0.59	0.59	0.59	0.41	0.41	0.41	0.41	0.41	0.41
Volume/Cap:	0.23	0.07	0.07	0.02	0.24	0.24	0.15	0.04	0.18	0.24	0.06	0.06
Delay/Veh:	9.8	8.7	8.7	8.4	9.8	9.8	18.8	17.8	19.0	19.7	18.0	18.0
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	9.8	8.7	8.7	8.4	9.8	9.8	18.8	17.8	19.0	19.7	18.0	18.0
LOS by Move:	A	A	A	A	A	A	B	B	B	B	B	B
HCM2kAvgQ:	2	1	1	0	4	4	2	0	2	2	1	1

 Note: Queue reported is the number of cars per lane.

Ontario New Model - Rich Haven External Intersections
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Meyer, Mohaddes Associates

Level Of Service Computation Report

2000 HCM Operations Method (Future Volume Alternative)

Intersection #16 Mill Creek Avenue at Edison Avenue

Cycle (sec): 100 Critical Vol./Cap.(X): 0.454
Loss Time (sec): 0 (Y+R=4.0 sec) Average Delay (sec/veh): 4.0
Optimal Cycle: 26 Level Of Service: A

Approach: North Bound South Bound East Bound West Bound
Movement: L - T - R L - T - R L - T - R L - T - R

Control: Permitted Permitted Permitted Permitted
Rights: Include Include Include Include
Min. Green: 0 0 0 0 0 0 0 0 0 0 0 0
Lanes: 1 0 0 1 0 1 0 0 3 1 0 1 0 3 1 0

Volume Module:

Base Vol: 88 21 17 73 25 12 11 2225 186 16 2388 72
Growth Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
Initial Bse: 88 21 17 73 25 12 11 2225 186 16 2388 72
Added Vol: 0 0 0 0 0 0 0 0 0 0 0 0
PasserByVol: 0 0 0 0 0 0 0 0 0 0 0 0
Initial Fut: 88 21 17 73 25 12 11 2225 186 16 2388 72
User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
PHF Adj: 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95
PHF Volume: 93 22 18 77 26 13 12 2342 196 17 2514 76
Reduced Vol: 0 0 0 0 0 0 0 0 0 0 0 0
Reduced Vol: 93 22 18 77 26 13 12 2342 196 17 2514 76
PCE Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
MLF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
Final Vol.: 93 22 18 77 26 13 12 2342 196 17 2514 76

Saturation Flow Module:

Sat/Lane: 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900
Adjustment: 0.62 0.93 0.93 0.62 0.95 0.95 0.05 0.90 0.90 0.05 0.91 0.91
Lanes: 1.00 0.55 0.45 1.00 0.68 0.32 1.00 3.69 0.31 1.00 3.88 0.12
Final Sat.: 1184 980 793 1179 1221 586 86 6306 527 86 6687 202

Capacity Analysis Module:

Vol/Sat: 0.08 0.02 0.02 0.07 0.02 0.02 0.13 0.37 0.37 0.19 0.38 0.38
Crit Moves: ****
Green/Cycle: 0.17 0.17 0.17 0.17 0.17 0.17 0.83 0.83 0.83 0.83 0.83 0.83
Volume/Cap: 0.45 0.13 0.13 0.38 0.13 0.13 0.16 0.45 0.45 0.23 0.45 0.45
Delay/Veh: 38.8 35.2 35.2 37.8 35.2 35.2 2.8 2.4 2.4 3.5 2.4 2.4
User DelAdj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
AdjDel/Veh: 38.8 35.2 35.2 37.8 35.2 35.2 2.8 2.4 2.4 3.5 2.4 2.4
LOS by Move: D D D D D A A A A A A
HCM2kAvgQ: 3 1 1 3 1 1 0 6 6 0 6 6

Note: Queue reported is the number of cars per lane.

Ontario New Model - Rich Haven External Intersections
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Meyer, Mohaddes Associates

Level Of Service Computation Report

2000 HCM Operations Method (Future Volume Alternative)

Intersection #17 Milliken Avenue/SR-60 WB Ramps

Cycle (sec): 100 Critical Vol./Cap.(X): 0.933
Loss Time (sec): 0 (Y+R=4.0 sec) Average Delay (sec/veh): 30.0
Optimal Cycle: 180 Level Of Service: C

Approach: North Bound South Bound East Bound West Bound
Movement: L - T - R L - T - R L - T - R L - T - R

Control: Protected Permitted Split Phase Split Phase
Rights: Include Include Include Include
Min. Green: 0 0 0 0 0 0 0 0 0 0 0 0
Lanes: 2 0 2 0 0 0 0 2 0 1 0 0 0 0 0 1 0 1 0 1

Volume Module:

Base Vol: 735 732 0 0 1936 116 0 0 0 344 0 164
Growth Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
Initial Bse: 735 732 0 0 1936 116 0 0 0 344 0 164
Added Vol: 0 0 0 0 0 0 0 0 0 0 0 0
PasserByVol: 0 0 0 0 0 0 0 0 0 0 0 0
Initial Fut: 735 732 0 0 1936 116 0 0 0 344 0 164
User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
PHF Adj: 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95
PHF Volume: 774 771 0 0 2038 122 0 0 0 362 0 173
Reduced Vol: 0 0 0 0 0 0 0 0 0 0 0 0
Reduced Vol: 774 771 0 0 2038 122 0 0 0 362 0 173
PCE Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
MLF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
Final Vol.: 774 771 0 0 2038 122 0 0 0 362 0 173

Saturation Flow Module:

Sat/Lane: 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900
Adjustment: 0.85 0.95 1.00 0.95 0.95 0.85 0.95 1.00 1.00 0.87 1.00 0.92
Lanes: 2.00 2.00 0.00 0.00 2.00 1.00 0.00 0.00 0.00 1.69 0.00 1.31
Final Sat.: 3230 3610 0 0 3610 1615 0 0 0 2799 0 2293

Capacity Analysis Module:

Vol/Sat: 0.24 0.21 0.00 0.00 0.56 0.08 0.00 0.00 0.00 0.13 0.00 0.08
Crit Moves: ****
Green/Cycle: 0.26 0.86 0.00 0.00 0.60 0.60 0.00 0.00 0.00 0.14 0.00 0.14
Volume/Cap: 0.93 0.25 0.00 0.00 0.93 0.13 0.00 0.00 0.00 0.93 0.00 0.54
Delay/Veh: 53.6 1.3 0.0 0.0 26.1 8.5 0.0 0.0 0.0 65.1 0.0 40.7
User DelAdj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
AdjDel/Veh: 53.6 1.3 0.0 0.0 26.1 8.5 0.0 0.0 0.0 65.1 0.0 40.7
LOS by Move: D A A A C A A A A E A D
HCM2kAvgQ: 17 2 0 0 35 2 0 0 0 11 0 5

Note: Queue reported is the number of cars per lane.

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 Meyer, Mohaddes Associates

Level Of Service Computation Report

2000 HCM Operations Method (Future Volume Alternative)

 Intersection #18 Milliken Avenue/SR-60 EB Ramps

Cycle (sec): 100 Critical Vol./Cap.(X): 0.648
 Loss Time (sec): 0 (Y+R=4.0 sec) Average Delay (sec/veh): 1.8
 Optimal Cycle: 65 Level Of Service: A

Approach: North Bound South Bound East Bound West Bound
 Movement: L - T - R L - T - R L - T - R L - T - R

Control: Protected Protected Split Phase Split Phase
 Rights: Include Include Ignore Include
 Min. Green: 0 0 0 0 0 0 0 0 0 0 0 0
 Lanes: 0 0 1 1 0 1 0 2 0 0 1 0 0 0 0 0

Volume Module:
 Base Vol: 0 1462 409 71 2209 0 6 0 754 0 0 0
 Growth Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
 Initial Bse: 0 1462 409 71 2209 0 6 0 754 0 0 0
 Added Vol: 0 0 0 0 0 0 0 0 0 0 0 0
 PasserByVol: 0 0 0 0 0 0 0 0 0 0 0 0
 Initial Fut: 0 1462 409 71 2209 0 6 0 754 0 0 0
 User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 0.00 1.00 1.00 1.00
 PHF Adj: 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.00 0.95 0.95 0.95
 PHF Volume: 0 1539 431 75 2325 0 6 0 0 0 0 0
 Reduct Vol: 0 0 0 0 0 0 0 0 0 0 0 0
 Reduced Vol: 0 1539 431 75 2325 0 6 0 0 0 0 0
 PCE Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 0.00 1.00 1.00 1.00
 MLF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 0.00 1.00 1.00 1.00
 Final Vol.: 0 1539 431 75 2325 0 6 0 0 0 0 0

Saturation Flow Module:
 Sat/Lane: 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900
 Adjustment: 0.95 0.92 0.92 0.90 0.95 1.00 0.90 1.00 1.00 0.95 1.00 1.00
 Lanes: 0.00 1.56 0.44 1.00 2.00 0.00 1.00 0.00 1.00 0.00 0.00 0.00
 Final Sat.: 0 2728 763 1710 3610 0 1710 0 1900 0 0 0

Capacity Analysis Module:
 Vol/Sat: 0.00 0.56 0.56 0.04 0.64 0.00 0.00 0.00 0.00 0.00 0.00 0.00
 Crit Moves: **** *
 Green/Cycle: 0.00 0.92 0.92 0.07 0.99 0.00 0.01 0.00 0.00 0.00 0.00 0.00
 Volume/Cap: 0.00 0.61 0.61 0.61 0.65 0.00 0.65 0.00 0.00 0.00 0.00 0.00
 Delay/Veh: 0.0 1.0 1.0 53.9 0.4 0.0 146.0 0.0 0.0 0.0 0.0 0.0
 User DelAdj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
 AdjDel/Veh: 0.0 1.0 1.0 53.9 0.4 0.0 146.0 0.0 0.0 0.0 0.0 0.0
 LOS by Move: A A A D A A F A A A A A
 HCM2kAvgQ: 0 7 7 3 2 0 1 0 0 0 0 0

Note: Queue reported is the number of cars per lane.

Ontario New Model - Rich Haven External Intersections
 2015 PM Peak - Mitigations (Base Scenario Trip Generation)
 Meyer, Mohaddes Associates

Level Of Service Computation Report

2000 HCM Operations Method (Future Volume Alternative)

 Intersection #19 Milliken Avenue/Riverside Drive

Cycle (sec): 100 Critical Vol./Cap.(X): 0.859
 Loss Time (sec): 0 (Y+R=4.0 sec) Average Delay (sec/veh): 32.7
 Optimal Cycle: 161 Level Of Service: C

Approach: North Bound South Bound East Bound West Bound
 Movement: L - T - R L - T - R L - T - R L - T - R

Control: Protected Protected Protected Protected
 Rights: Include Include Include Ovl
 Min. Green: 0 0 0 0 0 0 0 0 0 0 0 0
 Lanes: 2 0 3 0 1 2 0 3 0 1 2 0 1 1 0 1 0 2 0 1

Volume Module:
 Base Vol: 43 430 5 773 1614 576 747 353 65 81 774 693
 Growth Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
 Initial Bse: 43 430 5 773 1614 576 747 353 65 81 774 693
 Added Vol: 0 0 0 0 0 0 0 0 0 0 0 0
 PasserByVol: 0 0 0 0 0 0 0 0 0 0 0 0
 Initial Fut: 43 430 5 773 1614 576 747 353 65 81 774 693
 User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
 PHF Adj: 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95
 PHF Volume: 45 453 5 814 1699 606 786 372 68 85 815 729
 Reduct Vol: 0 0 0 0 0 0 0 0 0 0 0 0
 Reduced Vol: 45 453 5 814 1699 606 786 372 68 85 815 729
 PCE Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
 MLF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
 Final Vol.: 45 453 5 814 1699 606 786 372 68 85 815 729

Saturation Flow Module:
 Sat/Lane: 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900
 Adjustment: 0.85 0.91 0.85 0.85 0.91 0.85 0.85 0.93 0.93 0.90 0.95 0.85
 Lanes: 2.00 3.00 1.00 2.00 3.00 1.00 2.00 1.69 0.31 1.00 2.00 1.00
 Final Sat.: 3230 5187 1615 3230 5187 1615 3230 2979 548 1710 3610 1615

Capacity Analysis Module:
 Vol/Sat: 0.01 0.09 0.00 0.25 0.33 0.38 0.24 0.12 0.12 0.05 0.23 0.45
 Crit Moves: **** *
 Green/Cycle: 0.02 0.12 0.12 0.34 0.44 0.44 0.28 0.39 0.39 0.16 0.26 0.60
 Volume/Cap: 0.86 0.75 0.03 0.75 0.75 0.86 0.86 0.32 0.32 0.32 0.86 0.75
 Delay/Veh: 123.2 47.9 39.2 32.3 25.0 35.7 42.1 21.4 21.4 38.2 43.0 18.0
 User DelAdj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
 AdjDel/Veh: 123.2 47.9 39.2 32.3 25.0 35.7 42.1 21.4 21.4 38.2 43.0 18.0
 LOS by Move: F D D C C D D C C D D B
 HCM2kAvgQ: 2 7 0 14 17 20 16 5 5 3 15 18

Note: Queue reported is the number of cars per lane.

Ontario New Model - Rich Haven External Intersections
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Meyer, Mohaddes Associates

Level Of Service Computation Report

2000 HCM Operations Method (Future Volume Alternative)

Intersection #20 Milliken Ave / Chino Ave

Cycle (sec): 100 Critical Vol./Cap.(X): 0.352
Loss Time (sec): 0 (Y+R=4.0 sec) Average Delay (sec/veh): 5.0
Optimal Cycle: 29 Level Of Service: A

Approach: North Bound South Bound East Bound West Bound
Movement: L - T - R L - T - R L - T - R L - T - R

Control: Protected Permitted Split Phase Split Phase
Rights: Include Include Include Include
Min. Green: 0 0 0 0 0 0 0 0 0 0 0 0
Lanes: 1 0 2 0 0 0 0 3 1 0 1 0 0 0 0 0

Volume Module:
Base Vol: 92 598 0 0 1670 97 13 0 37 0 0 0
Growth Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
Initial Bse: 92 598 0 0 1670 97 13 0 37 0 0 0
Added Vol: 0 0 0 0 0 0 0 0 0 0 0 0
PasserByVol: 0 0 0 0 0 0 0 0 0 0 0 0
Initial Fut: 92 598 0 0 1670 97 13 0 37 0 0 0
User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
PHF Adj: 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95
PHF Volume: 97 629 0 0 1758 102 14 0 39 0 0 0
Reduct Vol: 0 0 0 0 0 0 0 0 0 0 0 0
Reduced Vol: 97 629 0 0 1758 102 14 0 39 0 0 0
PCE Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
MLF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
Final Vol.: 97 629 0 0 1758 102 14 0 39 0 0 0

Saturation Flow Module:
Sat/Lane: 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900
Adjustment: 0.90 0.95 1.00 0.95 0.90 0.90 0.90 1.00 0.85 0.95 1.00 1.00
Lanes: 1.00 2.00 0.00 0.00 3.78 0.22 1.00 0.00 1.00 0.00 0.00 0.00
Final Sat.: 1710 3610 0 0 6484 377 1710 0 1615 0 0 0

Capacity Analysis Module:
Vol/Sat: 0.06 0.17 0.00 0.00 0.27 0.01 0.00 0.02 0.00 0.00 0.00
Crit Moves: ****
Green/Cycle: 0.16 0.93 0.00 0.00 0.77 0.77 0.07 0.00 0.07 0.00 0.00 0.00
Volume/Cap: 0.35 0.19 0.00 0.00 0.35 0.35 0.12 0.00 0.35 0.00 0.00 0.00
Delay/Veh: 38.1 0.3 0.0 0.0 3.7 3.7 44.2 0.0 46.4 0.0 0.0 0.0
User DelAdj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
AdjDel/Veh: 38.1 0.3 0.0 0.0 3.7 3.7 44.2 0.0 46.4 0.0 0.0 0.0
LOS by Move: D A A A A A D A D A A A
HCM2kAvgQ: 3 1 0 0 5 5 1 0 2 0 0 0

Note: Queue reported is the number of cars per lane.

Ontario New Model - Rich Haven External Intersections
2015 PM Peak - Mitigations (Base Scenario Trip Generation)
Meyer, Mohaddes Associates

Level Of Service Computation Report

2000 HCM Operations Method (Future Volume Alternative)

Intersection #21 Milliken Avenue/Edison Avenue

Cycle (sec): 100 Critical Vol./Cap.(X): 0.992
Loss Time (sec): 0 (Y+R=4.0 sec) Average Delay (sec/veh): 40.5
Optimal Cycle: 180 Level Of Service: D

Approach: North Bound South Bound East Bound West Bound
Movement: L - T - R L - T - R L - T - R L - T - R

Control: Protected Protected Protected Protected
Rights: Include Include Include Include
Min. Green: 0 0 0 0 0 0 0 0 0 0 0 0
Lanes: 1 0 1 1 0 1 0 3 0 1 1 0 3 1 0 2 0 3 1 0

Volume Module:
Base Vol: 94 316 295 272 1217 183 125 2824 121 557 2859 148
Growth Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
Initial Bse: 94 316 295 272 1217 183 125 2824 121 557 2859 148
Added Vol: 0 0 0 0 0 0 0 0 0 0 0 0
PasserByVol: 0 0 0 0 0 0 0 0 0 0 0 0
Initial Fut: 94 316 295 272 1217 183 125 2824 121 557 2859 148
User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
PHF Adj: 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95
PHF Volume: 99 333 311 286 1281 193 132 2973 127 586 3009 156
Reduct Vol: 0 0 0 0 0 0 0 0 0 0 0 0
Reduced Vol: 99 333 311 286 1281 193 132 2973 127 586 3009 156
PCE Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
MLF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
Final Vol.: 99 333 311 286 1281 193 132 2973 127 586 3009 156

Saturation Flow Module:
Sat/Lane: 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900
Adjustment: 0.90 0.88 0.88 0.90 0.91 0.85 0.90 0.90 0.90 0.85 0.90 0.90
Lanes: 1.00 1.03 0.97 1.00 3.00 1.00 1.00 3.84 0.16 2.00 3.80 0.20
Final Sat.: 1710 1733 1617 1710 5187 1615 1710 6592 282 3230 6530 338

Capacity Analysis Module:
Vol/Sat: 0.06 0.19 0.19 0.17 0.25 0.12 0.08 0.45 0.45 0.18 0.46 0.46
Crit Moves: ****
Green/Cycle: 0.07 0.19 0.19 0.17 0.29 0.29 0.09 0.45 0.45 0.18 0.55 0.55
Volume/Cap: 0.84 0.99 0.99 0.99 0.84 0.41 0.84 0.99 0.99 0.99 0.84 0.84
Delay/Veh: 85.1 73.4 73.4 92.1 37.5 28.9 76.8 41.3 41.3 75.6 21.0 21.0
User DelAdj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
AdjDel/Veh: 85.1 73.4 73.4 92.1 37.5 28.9 76.8 41.3 41.3 75.6 21.0 21.0
LOS by Move: F E E F D C E D D E C C
HCM2kAvgQ: 5 16 16 14 16 5 7 33 33 15 25 25

Note: Queue reported is the number of cars per lane.

Ontario New Model - Rich Haven External Intersections
 2015 PM Peak - Mitigations (Base Scenario Trip Generation)
 Meyer, Mohaddes Associates

Level Of Service Computation Report
 2000 HCM Operations Method (Future Volume Alternative)

 Intersection #550 Haven Avenue/Creekside Drive

 Cycle (sec): 100 Critical Vol./Cap.(X): 0.000
 Loss Time (sec): 0 (Y+R=4.0 sec) Average Delay (sec/veh): 0.0
 Optimal Cycle: 0 Level Of Service:

 Approach: North Bound South Bound East Bound West Bound
 Movement: L - T - R L - T - R L - T - R L - T - R
 -----|-----|-----|-----|
 Control: Protected Protected Prot+Permit Prot+Permit
 Rights: Include Include Include Include
 Min. Green: 0 0 0 0 0 0 0 0 0 0 0 0
 Lanes: 1 0 1 1 0 1 0 1 1 0 1 1 0 1 0 1
 -----|-----|-----|-----|
 Volume Module:
 Base Vol: 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
 Growth Adj: 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00
 Initial Bse: 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
 Added Vol: 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
 PasserByVol: 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
 Initial Fut: 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
 User Adj: 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00
 PHF Adj: 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00
 PHF Volume: 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
 Reduct Vol: 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
 Reduced Vol: 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
 PCE Adj: 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00
 MLF Adj: 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00
 Final Vol.: 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
 -----|-----|-----|-----|
 Saturation Flow Module:
 Sat/Lane: 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
 Adjustment: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
 Lanes: 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00
 Final Sat.: 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
 -----|-----|-----|-----|
 Capacity Analysis Module:
 Vol/Sat: 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00
 Crit Moves:
 Green/Cycle: 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00
 Volume/Cap: 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00
 Delay/Veh: 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0
 User DelAdj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
 AdjDel/Veh: 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0
 LOS by Move:
 HCM2kAvgQ: 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0

 Note: Queue reported is the number of cars per lane.

Ontario New Model - Rich Haven External Intersections
 2015 PM Peak - Mitigations (Base Scenario Trip Generation)
 Meyer, Mohaddes Associates

Lane Geometry Report

Number of approach lanes: (L) (LT) (T) (RT) (R) (LTR)

Node Intersection	NB	SB	EB	WB
1 Archibald Avenue/Riverside Drive	102100	102100	101100	101100
2 Archibald Avenue/Chino Avenue	102100	102100	100100	101010
3 Archibald Avenue/Schaefer Avenue	102100	102100	101100	101100
4 Archibald Avenue/Edison Avenue	202100	202100	204010	203100
5 Turner Avenue/Riverside Drive	101100	101100	101100	101100
6 Turner Avenue/Chino Avenue	101100	101100	101100	101100
7 Turner Avenue at Schaefer Avenue	000000	100001	102000	001100
8 Edison Avenue at Schaefer Avenue	000000	100001	104000	003100
9 Haven Avenue/SR-60 WB Ramps	203000	003010	000000	110010
10 Haven Avenue/SR-60 EB Ramps	002100	203000	110010	000000
11 Haven Avenue/Riverside Drive	101100	101100	101100	101100
12 Haven Avenue at Chino Avenue	101100	101100	101100	101100
13 Haven Avenue at Edison Avenue	101100	101100	103100	103100
14 Mill Creek Avenue/Riverside Drive	101010	100100	101100	101100
15 Mill Creek Avenue at Chino Avenue	101100	100100	101100	101100
16 Mill Creek Avenue at Edison Avenue	100100	100100	103100	103100
17 Milliken Avenue/SR-60 WB Ramps	202000	002010	000000	100011
18 Milliken Avenue/SR-60 EB Ramps	001100	102000	100010	000000
19 Milliken Avenue/Riverside Drive	203010	203010	201100	102010
20 Milliken Ave / Chino Ave	102000	003100	100010	000000
21 Milliken Avenue/Edison Avenue	101100	103010	103100	203100
550 Haven Avenue/Creekside Drive	101100	101100	101010	101010



MEMORANDUM

TO: Aaron Pfannenstiel, RBF Consulting

FROM: Viggen Davidian and Vamshi K. Akkinepally, MMA

RE: Ontario New Model Colony, Rich-Haven Specific Plan
Potential Traffic Implications of Alternative Land Uses in Subarea 12,
Planning Area 13

DATE: January 26, 2007

Introduction

The purpose of this memo is to describe in general the potential traffic implication with various alternative land uses within Planning Area (PA) 13 of the Subarea 12, of the New Model Colony Rich-Haven Specific Plan. The traffic study for Rich-Haven Environmental Impact Report (EIR) by Meyer, Mohaddes Associates (MMA) had assumed a 37.1 acre park site of which 24.8 acres were located in PA 13. The alternative land uses considered in this evaluation are as follow:

- 1. 24.8 acre park site (as analyzed in traffic study)
2. 24.8 acre middle school site with approximately 1350 students
3. 24.8 acre residential planning area at 4.6 du/acre with approximately 114 single family dwelling units

Land Use Alternatives and Trip Generation Description

Table 1 shows the differences in trip generation between the alternatives.

Table 1
Trip Generation for Alternative Land Uses

Table with 10 columns: Alt, Land Use, Size, Daily Trips, AM Peak Hour (In, Out, Total), PM Peak Hour (In, Out, Total). Rows include County Park, Middle School, and Single Family Residential.



Table 2 shows the assumed land use and trip generation used in the original EIR traffic study.

Table 2
Trip Generation for Original Land Uses for Subarea 12

Land Use	Size	Daily Trips	AM Peak Hour			PM Peak Hour		
			In	Out	Total	In	Out	Total
County Park	37.1 ac	85	0	0	0	1	1	2

The traffic study analyzed 21 study intersections. Planning Area 13 is adjacent to Haven Avenue and south of Chino Avenue. This generalized evaluation looks at the possible traffic implications of the alternative land uses and their associated trips on the study intersections along Haven and Chino avenues, as described below.

Land Use Alternative 1: 24.8 acre County Park

The traffic analysis assumed 37.1 acres of County Park in this portion of the Specific Plan. This land use alternative is consistent with the original EIR Traffic Study.

Land Use Alternative 2: Middle School

In the case of Alternative 2, the Middle School, there would be approximately **1,958** additional daily trips and 608 and 392 additional trips during the AM and PM peak hours, respectively. As noted above, due to the location of PA 13, we have identified 9 study area intersections along Chino and Haven Avenues that may possibly be affected by these additional trips, as follows:

- Archibald Avenue and Chino Avenue (#2)
- Turner Avenue and Chino Avenue (#6)
- Haven Avenue and Chino Avenue (#12)
- Mill Creek Avenue and Chino Avenue (#15)
- Milliken Avenue and Chino Avenue (#20)
- Haven Avenue and 60 WB Ramps (#9)
- Haven Avenue and 60 EB Ramps (#10)
- Haven Avenue and Riverside Drive (#11)
- Haven Avenue and Edison Avenue (#13)

A review of projected intersection operating conditions including volume/capacity ratios (V/C) and levels of service (LOS) reveals that six of the nine intersections should have adequate capacity to accommodate the additional trips. The V/C ratios at those six intersections, for 2015



With Project conditions (un-mitigated), are in the range of 0.08 to 0.56, within LOS A and B ranges. These intersections are:

- #2. Archibald/Chino
- #6. Turner/Chino
- #9. Haven/60 WB Ramps
- #12. Haven/Chino
- #15. Mill Creek/Chino
- #20. Milliken/Chino

The remaining three intersections had unacceptable levels of service for 2015 With Project conditions given the assumed base future geometrics and required additional improvements in the EIR traffic study. Various improvement measures were proposed in the EIR Traffic Study to bring these intersections to acceptable operating conditions (LOS D or better and V/C < 1.0). These intersections are:

- #10. Haven/60 EB Ramps
- #11. Haven/Riverside
- #13. Haven/Edison

Based on the project trip distribution patterns identified in the traffic study through the model runs, it is estimated that out of the total 608 and 392 trips during AM and PM peak hours respectively, only 6 to 10 percent would pass through these three intersections. Therefore the additional 25 to 60 peak hour trips from this alternative land use may result in worsening of operating conditions. After improvements, the V/C ratios at these intersections ranged from 0.62 to 0.93. It is possible that intersection #10 may have additional capacity to accommodate the increased trips. However, intersection #11 and especially #13 with the proposed improvements are close enough to unacceptable thresholds that it is possible that additional improvement measures may be required as a result of the Middle School alternative.

Land Use Alternative 3: Single Family Residential Units

For Alternative 3, approximately 1,092 additional daily trips and 86 and 115 additional trips during AM and PM peak hour trips, respectively, could be generated. Following the same methodology used for Alt 2, above, 6 to 10 percent of the total trips would result in approximately 5 to 12 additional trips at these intersections. Again, intersections 2, 6, 9, 12, 15, and 20 are expected to have ample capacity to handle the additional trips. It can also be concluded that intersections #10 and 11 may have adequate capacity to accommodate the additional trips. However, intersection #13, Haven at Edison is too close to the threshold and may require some additional improvements.



Conclusions

The generalized analysis of the alternative land uses for PA 13 in NMC Rich-Haven Specific Plan has shown that the County Park alternative is already covered in the traffic study and will not require any changes. The residential alternative is expected to have a total of about 1,092 daily trips and the Middle School alternative may generate approximately 1,958 daily trips. A generalized analysis of the related peak hour trips at the study intersections reveals that of the nine potentially affected study intersections, 6 will most likely have ample capacity as planned in the future to accommodate the additional trips that could be generated by these alternatives. Of the remaining three intersections, which required improvements in the EIR traffic study, one intersection (SR-60 eastbound ramps at Haven) may also have enough capacity with the proposed improvements to accommodate the additional trips from either alternative land use. However, the projected conditions at the remaining two interactions (Haven/Riverside, and especially Haven/Edison), even with the proposed improvements are too close to the threshold of unacceptable operating conditions that they may require additional improvements as a result of either of the alternative land uses. It is likely that the middle school alternative, which is expected to generate approximately twice as many trips as the residential alternative, may require a higher degree of improvements.

It should be emphasized that the above analysis was conducted using generalized observations and estimates based on the technical analysis conducted in the original Rich-Haven Specific Plan EIR traffic study. The exact extent of the further impacts and implications of what additional improvement may or may not be required due to the alternative land uses in PA 13 can not be determined without a full run of the traffic model with the alternative land uses, analysis of the affected intersections, and a revision to the EIR Traffic Study.