



DIAMON
TRAFFIC IMPACT ANALYSIS

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Diamon Grand Storage

Traffic Impact Analysis

This report contains the traffic impact analysis for the proposed Diamon Grand Storage project. The project site is located west of Winchester Road (SR-74) and south of Newport Road in the County of Riverside.

The project site is proposed to be developed with an 81,432 square foot self-storage facility which includes a 1,247 square foot office and 20 spaces of recreational vehicle/trailer/boat parking and an eight (8) pump gas station with a 3,200 square foot convenience store and a 3,180 square foot drive-thru car wash.

From a traffic engineering point of view, the project site is proposed to be developed with a 16 fueling position Gasoline/Service Station with Convenience Market and 81,432 square feet of Mini-Warehouse land use.

The traffic report contains documentation of existing traffic conditions, traffic generated by the project, distribution of the project traffic to roads outside the project, and an analysis of future traffic conditions. Each of these topics is contained in a separate section of the report. The first section is "Findings", and subsequent sections expand upon the findings. In this way, information on any particular aspect of the study can be easily located by the reader.

Although this is a technical report, every effort has been made to write the report clearly and concisely. To assist the reader with those terms unique to transportation engineering, a glossary of terms is provided within Appendix A.

I. Findings

This section summarizes the existing traffic conditions, project traffic impacts, and the proposed mitigation measures.

A. Definition of Deficiency and Significant Impact

The following definitions of deficiencies and significant impacts have been developed in accordance with the County of Riverside requirements:

The definition of an intersection deficiency has been obtained from the County of Riverside General Plan. The General Plan states that peak hour intersection operations of Level of Service C or better are generally acceptable along all County maintained roads and conventional state highways. As an exception, Level of Service D may be allowed in Community Development areas, only at intersections of any combination of Secondary Highways, Major Highways, Arterial Highways, Urban Arterial Highways, Expressways, conventional state highways or freeway ramp intersections.

B. Existing Traffic Conditions

1. The project site is currently vacant and not generating significant traffic.
2. Existing roadways in the vicinity of the project Winchester Road (SR-79), Route 74, Simpson Road, Domenigoni Parkway, Newport Road, Scott Road, Washington Street, Whisper Heights, an Pourroy Road.
3. The study area intersections currently operate at acceptable Levels of Service during the peak hours for Existing traffic conditions, except for the following study area intersection that is project to operate at unacceptable Levels of Service during the peak hours:

Winchester Road (SR-79) (NS) at:
Domenigoni Parkway (EW) - #4

C. Traffic Impacts

1. The project site is proposed to be developed with a 16 fueling position Gasoline/Service Station with Convenience Market and 81,432 square feet if Mini-Warehouse land use.
2. The proposed development is projected to generate a total of approximately 2,829 daily vehicle trips, 285 of which will occur during the

morning peak hour and 319 of which will occur during the evening peak hour (see Table 2).

3. The delay and Level of Service for Existing Plus Project traffic conditions have been calculated and are shown in Table 3. The study area intersections are projected to operate at acceptable Levels of Service during the peak hours for Existing Plus project traffic conditions, except for the following study area intersection that is projected to operate at unacceptable Levels of Service during the peak hours:

Winchester Road (SR-79) (NS) at:
Domenigoni Parkway (EW) - #4

4. The delay and Level of Service for Existing Plus Ambient Growth Plus Project traffic conditions have been calculated and are shown in Table 4. The study area intersections are projected to operate at acceptable Levels of Service during the peak hours for Existing Plus Ambient Growth Plus Project traffic conditions, except for the following study area intersection that is projected to operate at unacceptable Levels of Service during the peak hours:

Winchester Road (SR-79) (NS) at:
Domenigoni Parkway (EW) - #4

D. Mitigation Measures

The following measures are recommended to mitigate the impact of the project on traffic circulation:

1. Site-specific circulation and access recommendations are depicted on Figure 13.
2. Construct Winchester Road (SR-74) from Newport Road to the south project boundary at its ultimate half-section width as an Expressway (220 foot right-of-way) including landscape and parkway improvements in conjunction with development.
3. Construct Newport Road from the west project boundary to Newport Road at its ultimate half-section width as a Major (118 foot right-of-way) including landscape and parkway improvements in conjunction with development.
4. Sufficient on-site parking should be provided to meet the County of Riverside parking code requirements.

5. Sight distance at the project accesses should be reviewed with respect to California Department of Transportation/County of Riverside standards in conjunction with the preparation of final grading, landscaping, and street improvement plans.
6. On-site traffic signing and striping should be implemented in conjunction with detailed construction plans for the project.
7. Participate in the phased construction of off-site traffic signals through payment of traffic signal mitigation fees. The traffic signals within the study area at buildout should specifically include an interconnect of the traffic signals to function in a coordinated system.
8. As is the case for any roadway design, the County of Riverside should periodically review traffic operations in the vicinity of the project once the project is constructed to assure that the traffic operations are satisfactory.
9. The following study area intersection improvements are required:

Winchester Road (SR-74) (NS) at:

Domenigoni Parkway (EW) - #4

- Construct an additional Northbound Right Turn Lane
- Construct an additional Eastbound Through Travel Lane

II. Project Description

This section discusses the project's location and proposed development. Figure 1 shows the project location map and Figure 2 illustrates the site plan.

A. Location

The project site is located west of Winchester Road (SR-74) and south of Newport Road in the County of Riverside.

B. Proposed Development

The project site is proposed to be developed with a 16 fueling position Gasoline/Service Station with Convenience Market and 81,432 square feet of Mini-Warehouse land use.

The following describes the proposed land uses from a traffic engineering viewpoint:

Mini-Warehouse: Mini-Warehouse land use will characteristically have only a couple employees per facility and only a few patrons visiting the site per day per acre. The vehicular traffic is spread out over the hours of operation.

Gasoline/Service Station with Convenience Market: Gasoline/Service Station with Convenience Market are characterized by a large number of short duration trips throughout the day that include a high percentage of pass-by trips and diverted link trips. The vehicular traffic is spread out over the entire day with peaks during the peak hours.

Figure 1
Project Location Map

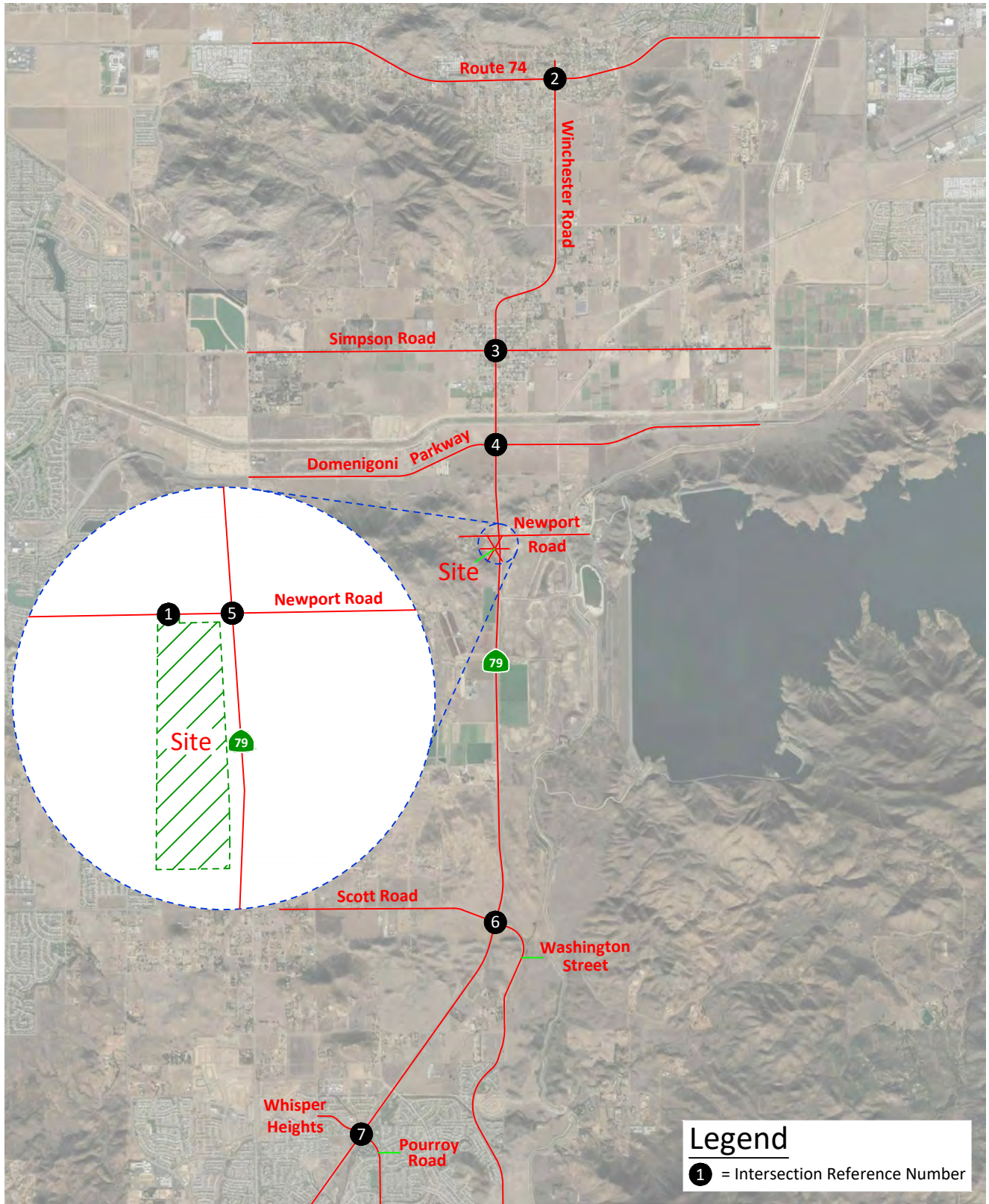
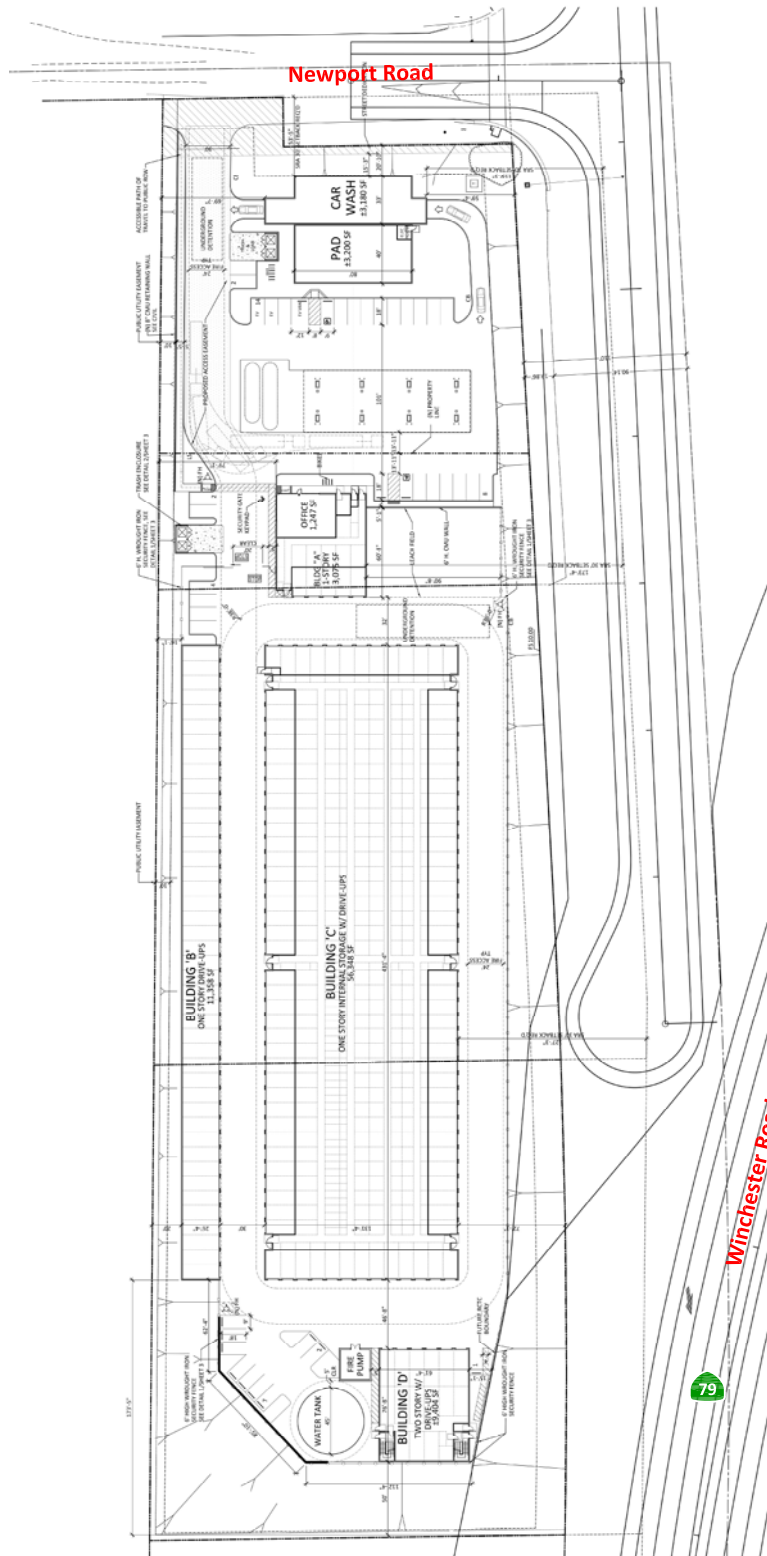


Figure 2
Site Plan



III. Existing Traffic Conditions

The traffic conditions as they exist today are discussed below and illustrated on Figures 3 to 6.

A. Study Area

Pursuant to the scoping agreement with County of Riverside staff, the study area includes the following intersections:

Project Access (NS) at:

Newport Road (EW) - #1

Winchester Road (SR-79) (NS) at:

Route 74 (EW) - #2

Simpson Road (EW) - #3

Domenigoni Parkway (EW) - #4

Newport Road (EW) - #5

Scott Road/Washington Street (EW) - #6

Whisper Heights/Pourroy Road (EW) - #7

B. Surrounding Street System

Existing roadways in the vicinity of the project Winchester Road (SR-79), Route 74, Simpson Road, Domenigoni Parkway, Newport Road, Scott Road, Washington Street, Whisper Heights, an Pourroy Road.

Winchester Road (SE-79): This north-south two lane undivided to five lane divided roadway is classified as Major (118 foot right-of-way) from north of Route 74 to Domenigoni Parkway and an Expressway (220 foot right-of-way) from Domenigoni Parkway south of Whisper Heights/Pourroy Road on the County of Riverside General Plan Circulation Element. It currently carries approximately 1,300 to 33,500 vehicles per day in the study area.

Route 74: This east-west four lane divided roadway is classified as an Expressway (220 foot right-of-way) on the County of Riverside General Plan Circulation Element. It currently carries approximately 29,500 to 33,500 vehicles per day in the study area.

Simpson Road: This east-west two lane undivided roadway is classified as a Major (118 foot right-of-way) on the County of Riverside General Plan Circulation Element. It currently carries approximately 7,400 to 7,500 vehicles per day in the study area.

Domenigoni Parkway: This east-west four lane divided to six lane divided roadway is classified as an Urban Arterial (152 foot right-of-way) on the County of Riverside General Plan Circulation Element. It currently carries approximately 26,500 to 40,200 vehicles per day in the study area.

Newport Road: This east-west two lane undivided roadway is classified as a Major (118 foot right-of-way) on the County of Riverside General Plan Circulation Element. It currently carries approximately 50 to 200 vehicles per day in the study area.

Scott Road: This east-west two lane undivided roadway is not classified on the County of Riverside General Plan Circulation Element. It currently carries approximately 8,300 vehicles per day in the study area.

Washington Street: This east-west and north-south two lane undivided roadway is classified as an Urban Arterial (152 foot right-of-way) on the County of Riverside General Plan Circulation Element. It currently carries approximately 6,700 vehicles per day in the study area.

Whisper Heights: This east-west two lane undivided roadway is not classified on the County of Riverside General Plan Circulation Element. It currently carries approximately 1,300 vehicles per day in the study area.

Pourroy Road: This east-west and north-south four lane divided roadway is classified as a Secondary (100 foot right-of-way) on the County of Riverside General Plan Circulation Element. It currently carries approximately 7,000 vehicles per day in the study area.

C. Existing Travel Lanes and Intersection Controls

Figure 3 identifies the existing roadway conditions for study area roadways. The number of through lanes for existing roadways and the existing intersection controls are identified.

D. Existing Average Daily Traffic Volumes

Figure 4 depicts the existing average daily traffic volumes. The existing average daily traffic volumes have been obtained from the 2019 Traffic Volumes on California State Highways by the California Department of Transportation, County of Riverside Transpiration Department Traffic Counts - 2020 by the County of Riverside, and factored from peak hour counts (see Appendix B) obtained by Kunzman Associates using the following formula for each intersection leg:

$$\text{PM Peak Hour (Approach Volume + Exit Volume)} \times 12 = \text{Leg Volume.}$$

This is a conservative estimate and may over estimate the average daily traffic volumes.

E. Existing Intersection Delay

The technique used to assess the capacity needs of an intersection is known as the intersection Delay Method (see Appendix C). To calculate delay, the volume of traffic using the intersection is compared with the capacity of the intersection.

The existing delay and Level of Service for intersections in the vicinity of the project are shown in Table 1. Existing delay is based upon manual peak hour intersection turning movement counts obtained by Kunzman Associates in January 2020. These traffic volumes were obtained before the COVID-19 Pandemic. Traffic count worksheets are provided in Appendix B.

There are two peak hours in a weekday. The morning peak hour is between 7:00 AM and 9:00 AM, and the evening peak hour is between 4:00 PM and 6:00 PM. The actual peak hour within the two hour interval is the four consecutive 15 minute periods with the highest total volume when all movements are added together. Thus, the evening peak hour at one intersection may be 4:45 PM to 5:45 PM if those four consecutive 15 minute periods have the highest combined volume.

The study area intersections currently operate at acceptable Levels of Service during the peak hours for Existing traffic conditions, except for the following study area intersection that is project to operate at unacceptable Levels of Service during the peak hours:

Winchester Road (SR-79) (NS) at:
Domenigoni Parkway (EW) - #4

Existing delay worksheets are provided in Appendix C.

F. Existing County of Riverside Circulation Plan

Figure 5 shows the current County of Riverside General Plan Circulation Element. Both existing and future roadways are included in the Circulation Element of the General Plan and are graphically depicted on Figure 5. This figure shows the nature and extent of arterial highways that are needed to adequately serve the ultimate development depicted by the land use element of the General Plan. The County of Riverside General Plan roadway cross-sections are illustrated on Figure 6.

G. Transit Service

The study area is currently served by the Riverside Transit Agency Routes 28, 74, and 79 along Winchester Road (SR-79), Domenigoni Parkway, Pourroy Road, and Router 74.

Table 1

Existing Intersection Delay and Level of Service

Intersection	Traffic Control ³	Intersection Approach Lanes ¹												Peak Hour Delay-LOS ²	
		Northbound			Southbound			Eastbound			Westbound			Morning	Evening
		L	T	R	L	T	R	L	T	R	L	T	R		
Winchester Road (SR-79) at:															
Route 74 (EW) - #2	TS	1	0.5	0.5	1	0.5	0.5	1	2	1	1	1.5	0.5	26.6-C	27.6-C
Simpson Road (EW) - #3	TS	1	2	d	1	2	d	1	1	1	1	1	1	16.9-B	16.3-B
Domenigoni Parkway (EW) - #4	TS	1	2	1	1	2	1	2	2	1	2	3	1	79.8-E	99.9-F
Newport Road (EW) - #5	TS	1	3	1	1	2	1	1	0.5	0.5	0	<1>	0	1.7-A	2.1-A
Scott Road/Washington Street (EW) - #6	TS	1	3	1	1	3	1	1	1	1	1	1	1	20.1-C	23.0-C
Whisper Heights/Pourroy Road (EW) - #7	TS	1	2	1	2	2	1	1	1	1	1	1	1	15.5-B	17.0-B

¹ When a right turn lane is designated, the lane can either be striped or unstriped. To function as a right turn lane there must be sufficient width for right turning vehicles to travel outside the through lanes. L = Left; T = Through; R = Right; <1> Shared Left/Through/Right; d = Defacto Right Turn Lane; > = Right Turn Overlap; >> = Free Right Turn; 1 = Improvement

² Delay and Level of Service has been calculated using the following analysis software: Vistro, Version 6.00-02. Per the Highway Capacity Manual, overall average intersection delay and Level of Service are shown for intersections with traffic signal or all way stop control. For intersections with cross street stop control, the delay and Level of Service for the worst individual movement (or movements sharing a single lane) are shown.

³ AWS = All Way Stop; CSS = Cross Street Stop; TS = Traffic Signal

Figure 3
Existing Through Travel Lanes and Intersection Controls

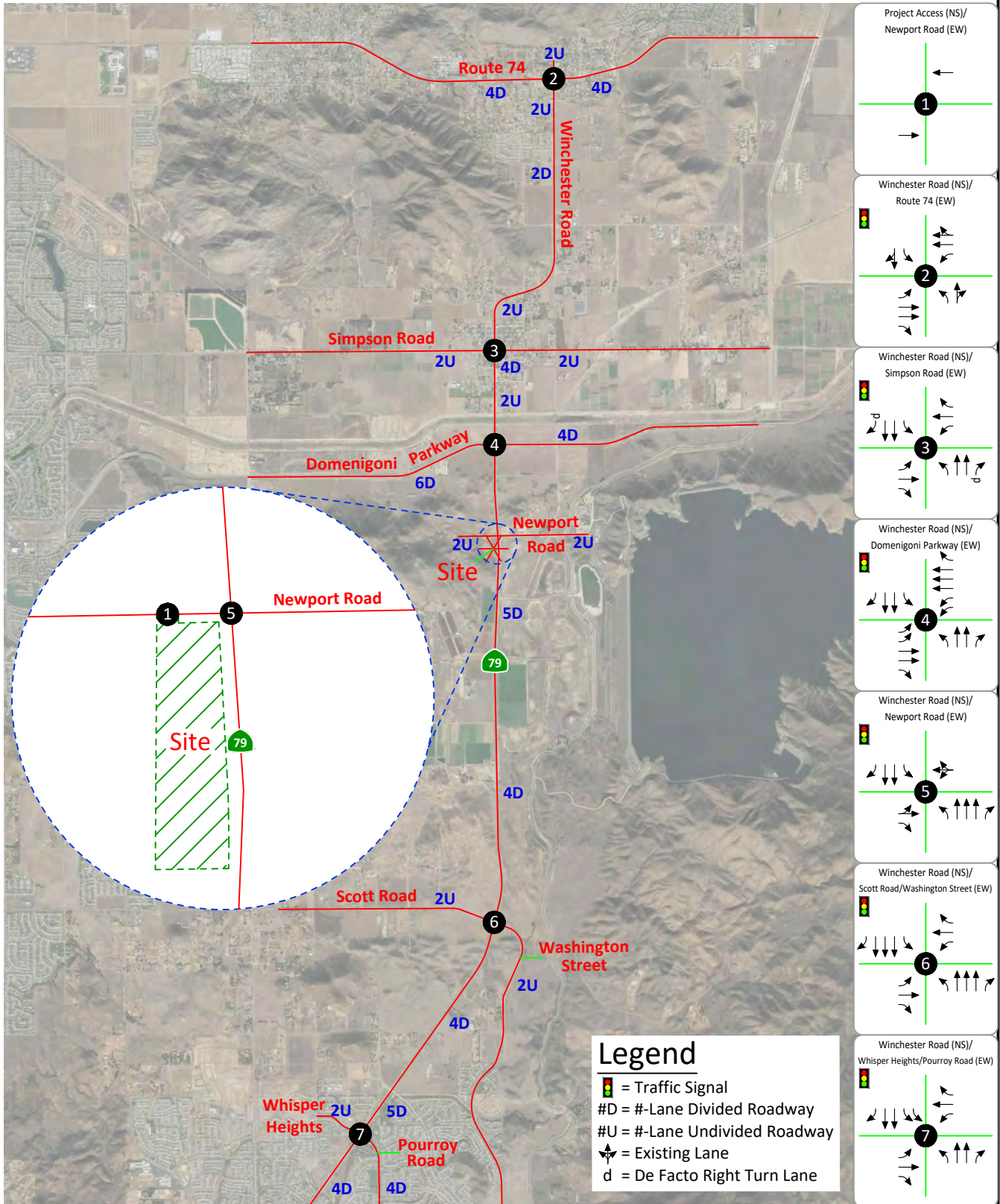


Figure 4
Existing Average Daily Traffic Volumes

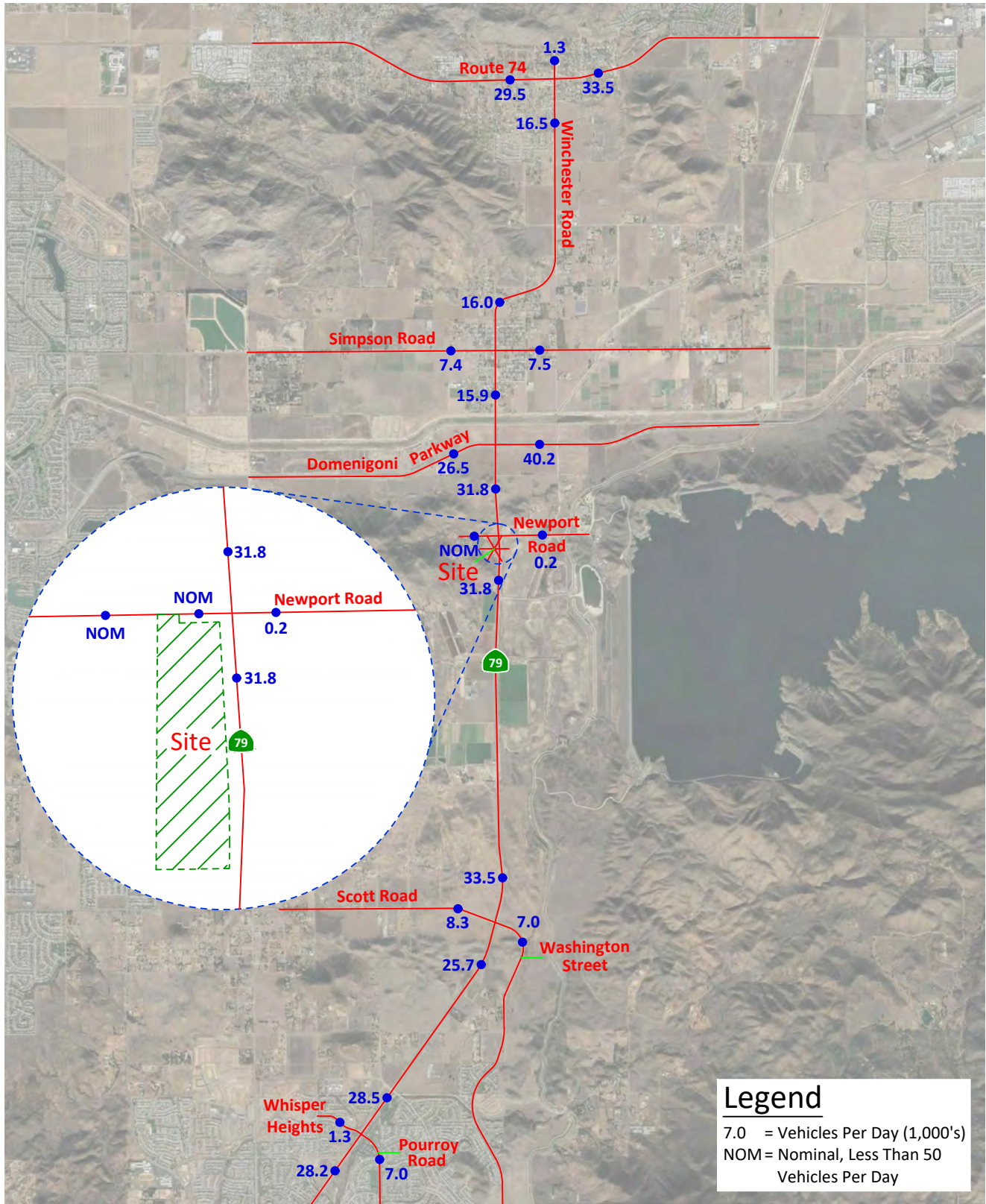
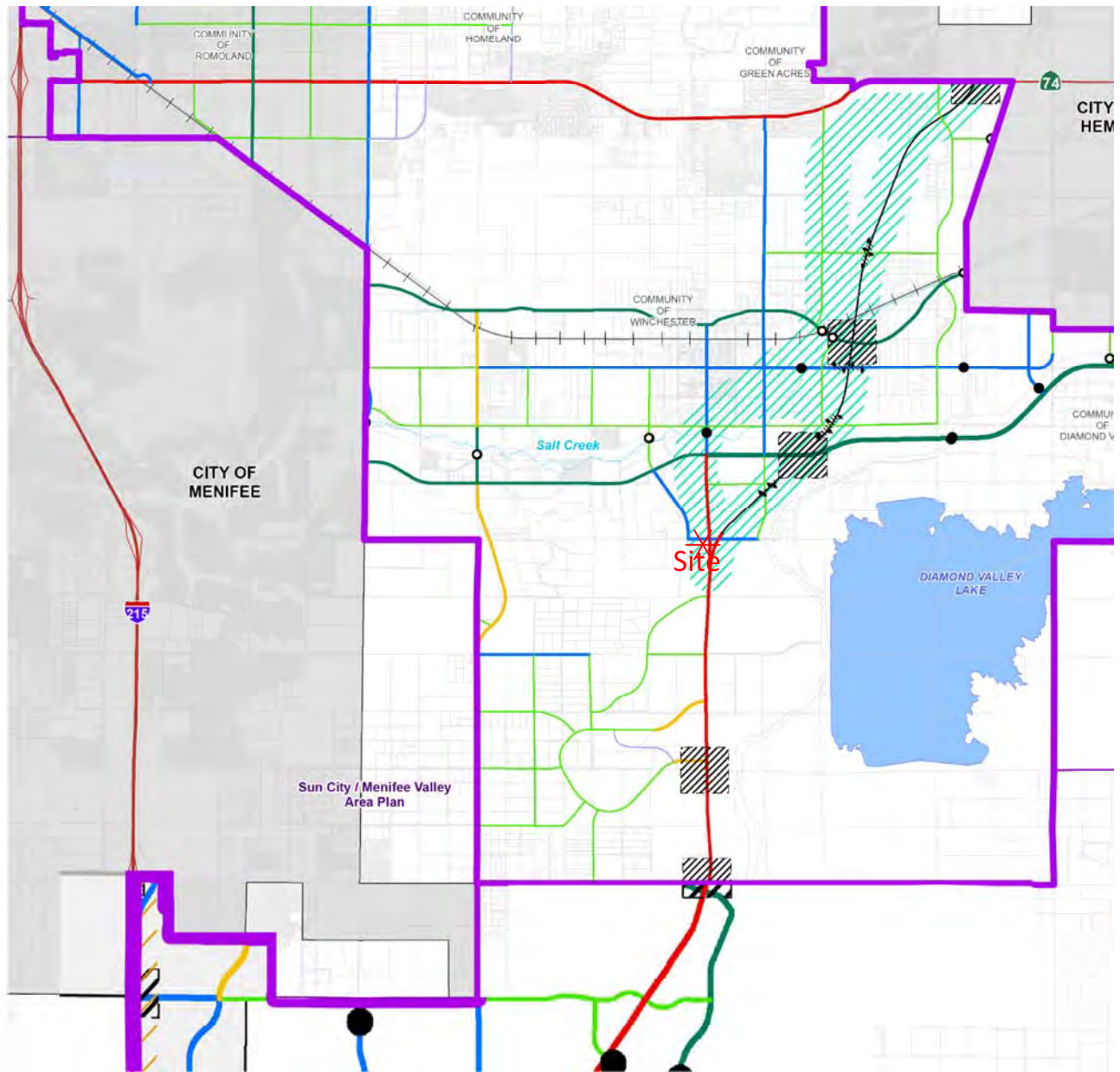


Figure 5
County of Riverside General Plan Circulation Element

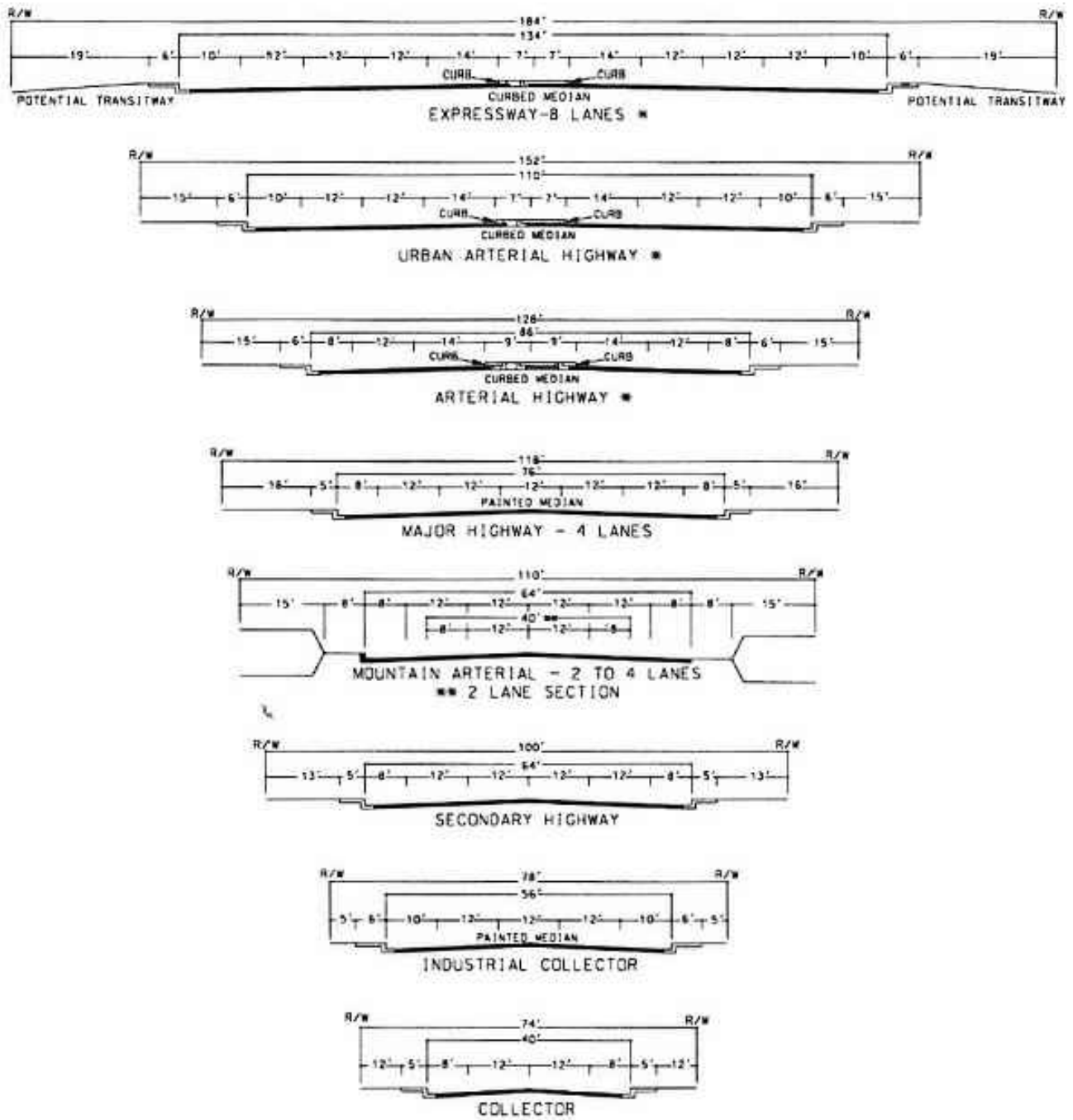


- | | | | |
|-------------------------------|-------------------------------|-----------------|--------------------|
| Freeway (Variable ROW) | Proposed Interchange | Existing Bridge | Highways |
| Expressway (128' to 220' ROW) | Proposed Overpass/Underpass | Proposed Bridge | Area Plan Boundary |
| Urban Arterial (152' ROW) | Railroads Amended | Waterbodies | City Boundary |
| Arterial (128' ROW) | SR-79 Re-alignment Study Area | | |
| Major (118' ROW) | | | |
| Secondary (100' ROW) | | | |
| Collector (74' ROW) | | | |

Source: County of Riverside



Figure 6
 County of Riverside General Plan Roadway Cross Sections



Source: County of Riverside

IV. Project Traffic

The project site is proposed to be developed with a 16 fueling position Gasoline/Service Station with Convenience Market and 81,432 square feet of Mini-Warehouse land use. The proposed project will have access to Newport Road.

A. Trip Generation

The trips generated by the project is determined by multiplying an appropriate trip generation rate by the quantity of land use. Trip generation rates are predicated on the assumption that energy costs, the availability of roadway capacity, the availability of vehicles to drive, and life styles remain similar to what are known today. A major change in these variables may affect trip generation rates.

Trip generation rates were determined for daily traffic, morning peak hour inbound and outbound traffic, and evening peak hour inbound and outbound traffic for the proposed land uses. By multiplying the trip generation rates by the land use quantities, the traffic volumes are determined. Table 2 exhibits the trip generation rates, project peak hour volumes, and project daily traffic volumes. The trip generation rates are from the Institute of Transportation Engineers, Trip Generation, 10th Edition, 2017.

The proposed development is projected to generate a total of approximately 2,829 daily vehicle trips, 285 of which will occur during the morning peak hour and 319 of which will occur during the evening peak hour (see Table 2).

Traffic volumes shown in Table 2 consist of the total trips generated for the project land uses. It should be noted that for the Gasoline/Service Station with Convenience Market, a portion of the traffic would come from pass-by trips, trips that are currently on the roadway system. In order to analyze a realistic scenario in terms of the assignment of traffic, the traffic volumes from the Gasoline/Service Station with Convenience Market portion of the project site have been reduced as a result of pass-by trips (see Appendix D).

B. Trip Distribution

Figures 7 to 9 contain the directional distributions of the project traffic for the proposed land uses.

To determine the trip distributions for the proposed project, peak hour traffic counts of the existing directional distribution of traffic for existing areas in the vicinity of the site, the previously prepared traffic impact analysis, and other additional information on future development and traffic impacts in the area were reviewed.

C. Trip Assignment

Based on the identified trip generation and distributions, project average daily traffic volumes have been calculated and shown on Figure 10. Morning and evening peak hour intersection turning movement volumes expected from the project are shown in Appendix C.

D. Modal Split

The traffic reducing potential of public transit has not been considered in this report. Essentially the traffic projections are conservative in that public transit might be able to reduce the traffic volumes.

Table 2
Project Trip Generation¹

Land Use	Quantity	Units ²	Peak Hour						Daily
			Morning			Evening			
			Inbound	Outbound	Total	Inbound	Outbound	Total	
<u>Trip Generation Rates</u>									
Gasoline/Service Station with Convenience Market	1	FP	10.14	10.13	20.27	11.18	11.18	22.36	198.16
Mini-Warehouse	1.000	TSF	0.06	0.05	0.11	0.1	0.09	0.19	1.65
<u>Trips Generated</u>									
Gasoline/Service Station with Convenience Market	16	FP	162	162	324	179	179	358	3,171
Pass-by ITE Land Use 945 (AM = 15% / PM = 15% / Daily = 15%) ³			-24	-24	-48	-27	-27	-54	-476
Mini-Warehouse	81.432	TSF	5	4	9	8	7	15	134
			143	142	285	160	159	319	2,829

¹ Source: Institute of Transportation Engineers, Trip Generation, 10th Edition, 2017, Land Use Categories 151 and 945

² FP = Fueling Positions; TSF = Thousand Square Feet

³ Source: Institute of Transportation Engineers, Trip Generation Handbook, 10th Edition, 2017, Land Use Category 945. Pass-by has been reduced from (AM = 62% / PM = 56% / Daily = 56%) to (AM = 15% / PM = 15% / Daily = 15%) based on CALTRANS preferences.

Figure 7
Project Trip Distribution - Gas Station

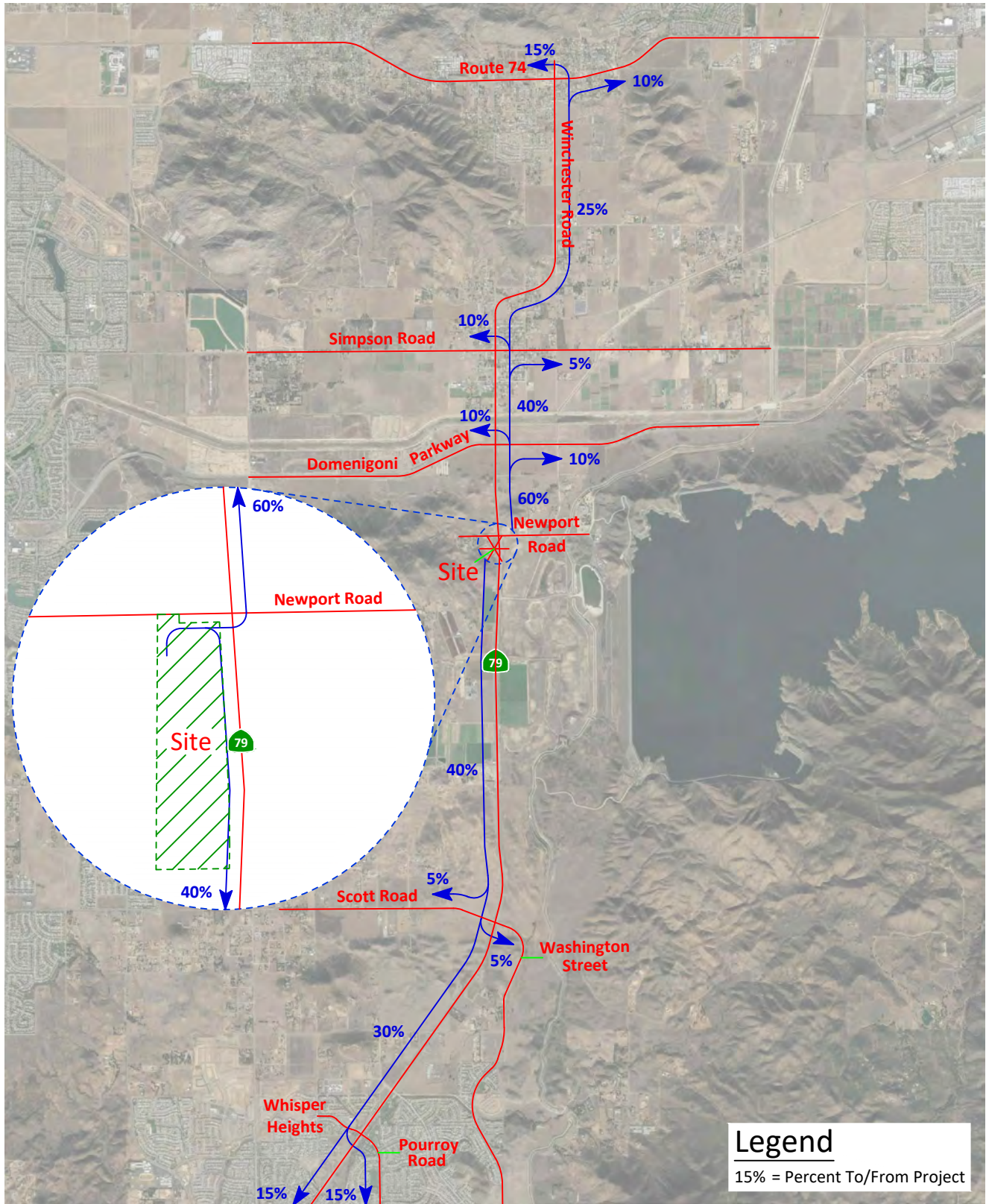


Figure 8
Project Trip Distribution - Gas Station - Pass-by

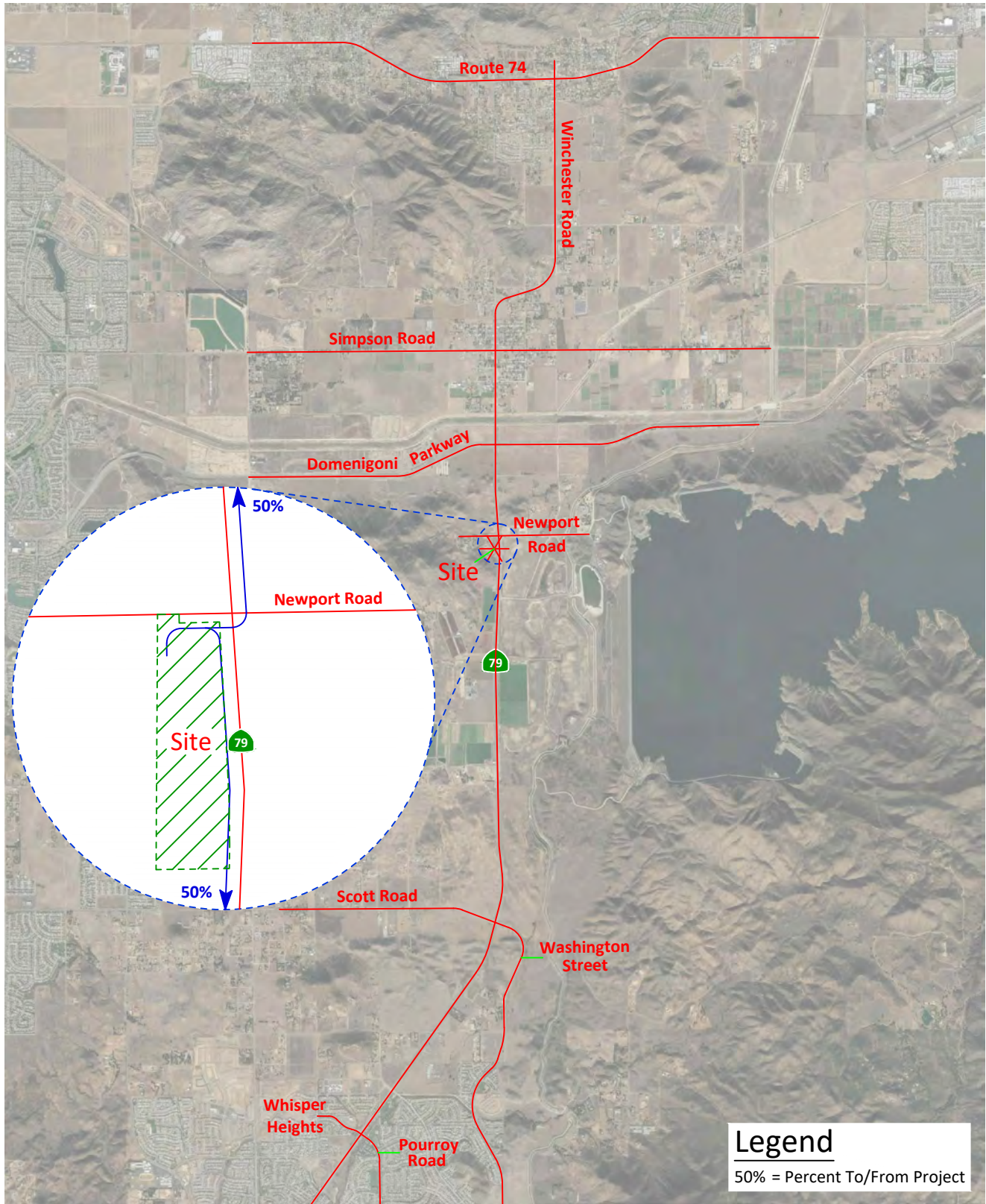


Figure 9
Project Trip Distribution - Storage

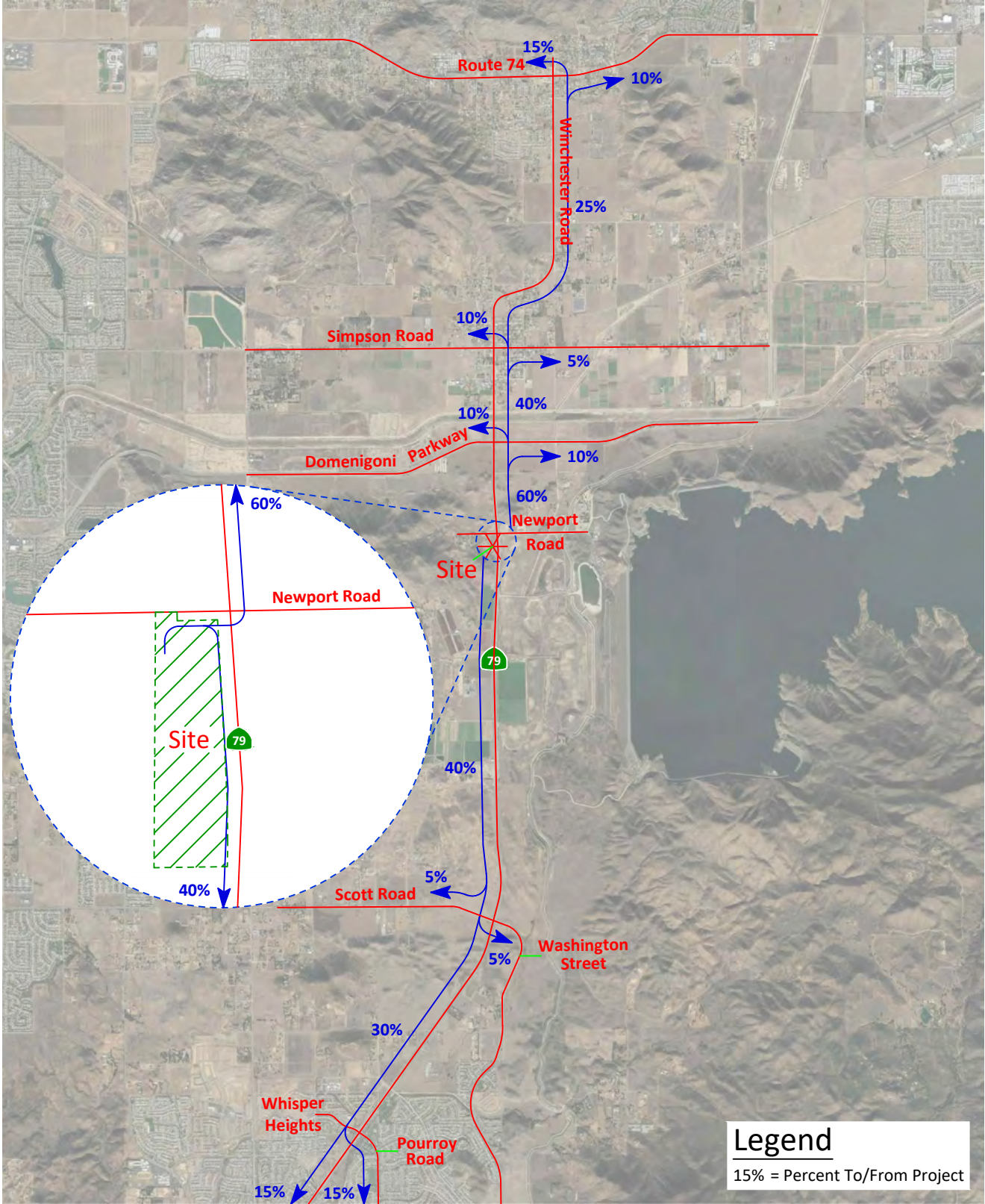
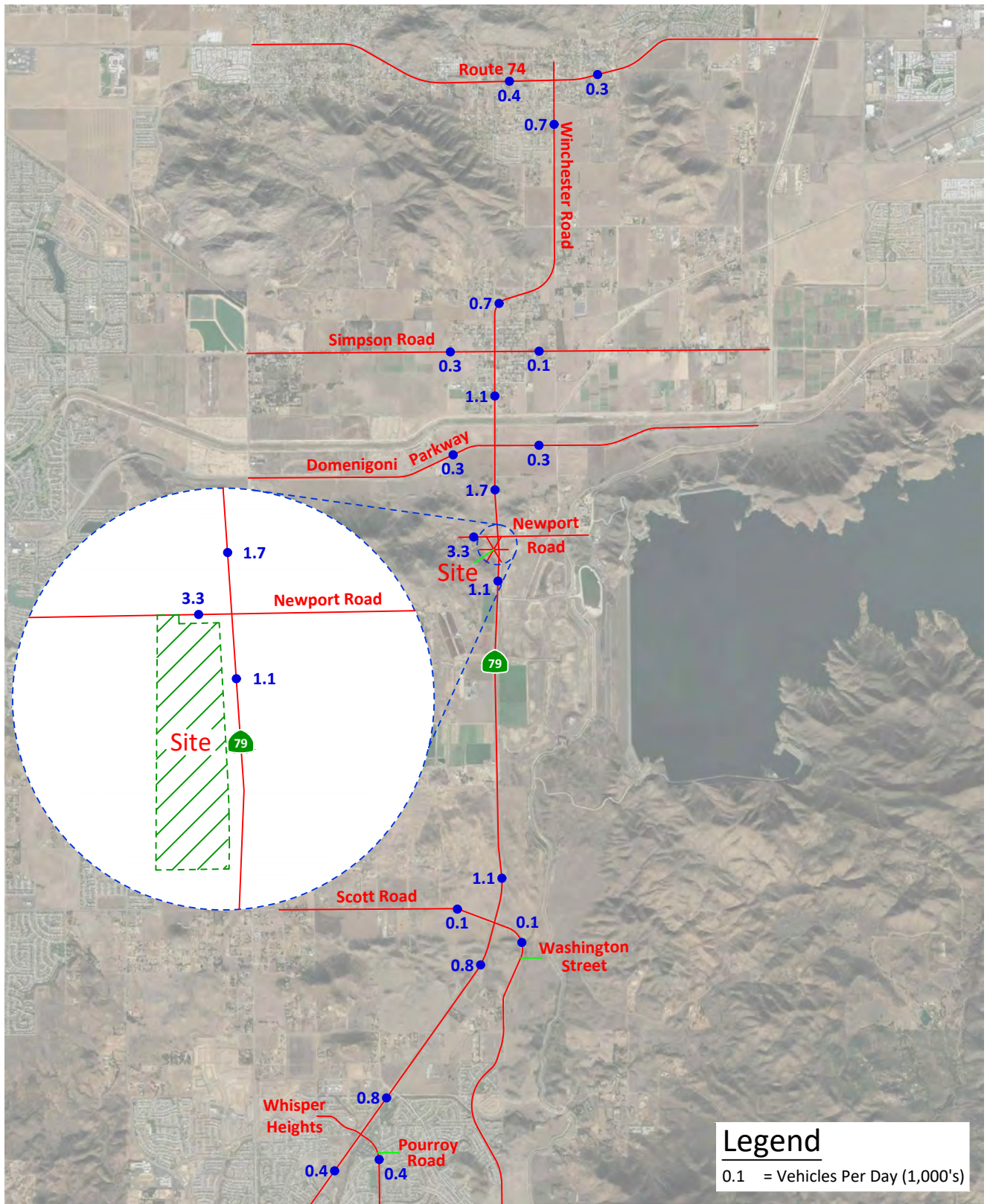


Figure 10
Project Average Daily Traffic Volumes



Legend
0.1 = Vehicles Per Day (1,000's)



V. Existing Plus Project Traffic Conditions

Once the project-related traffic is assigned to the existing street network and added to existing volumes, the traffic impact can be assessed. Figure 11 illustrates the Existing Plus Project traffic conditions.

A. Method of Projection

To assess Existing Plus Project traffic conditions, project traffic is combined with existing traffic.

B. Existing Plus Project Average Daily Traffic Volumes

Existing Plus Project average daily traffic volumes are as illustrated on Figure 11.

C. Existing Plus Project Intersection Delay

The technique used to assess the capacity needs of an intersection is known as the Intersection Delay Method (see Appendix C). To calculate delay, the volume of traffic using the intersection is compared with the capacity of the intersection.

The delay and Level of Service for Existing Plus Project traffic conditions have been calculated and are shown in Table 3. The study area intersections are projected to operate at acceptable Levels of Service during the peak hours for Existing Plus project traffic conditions, except for the following study area intersection that is projected to operate at unacceptable Levels of Service during the peak hours:

Winchester Road (SR-79) (NS) at:
Domenigoni Parkway (EW) - #4

The study area intersections are projected to operate at acceptable Levels of Service during the peak hours for Existing Plus Project traffic conditions, with improvements. Existing Plus Project delay worksheets are provided in Appendix C. Existing Project morning and evening peak hour intersection turning movement volumes are shown in Appendix C.

Table 3

Existing Plus Project Intersection Delay and Level of Service

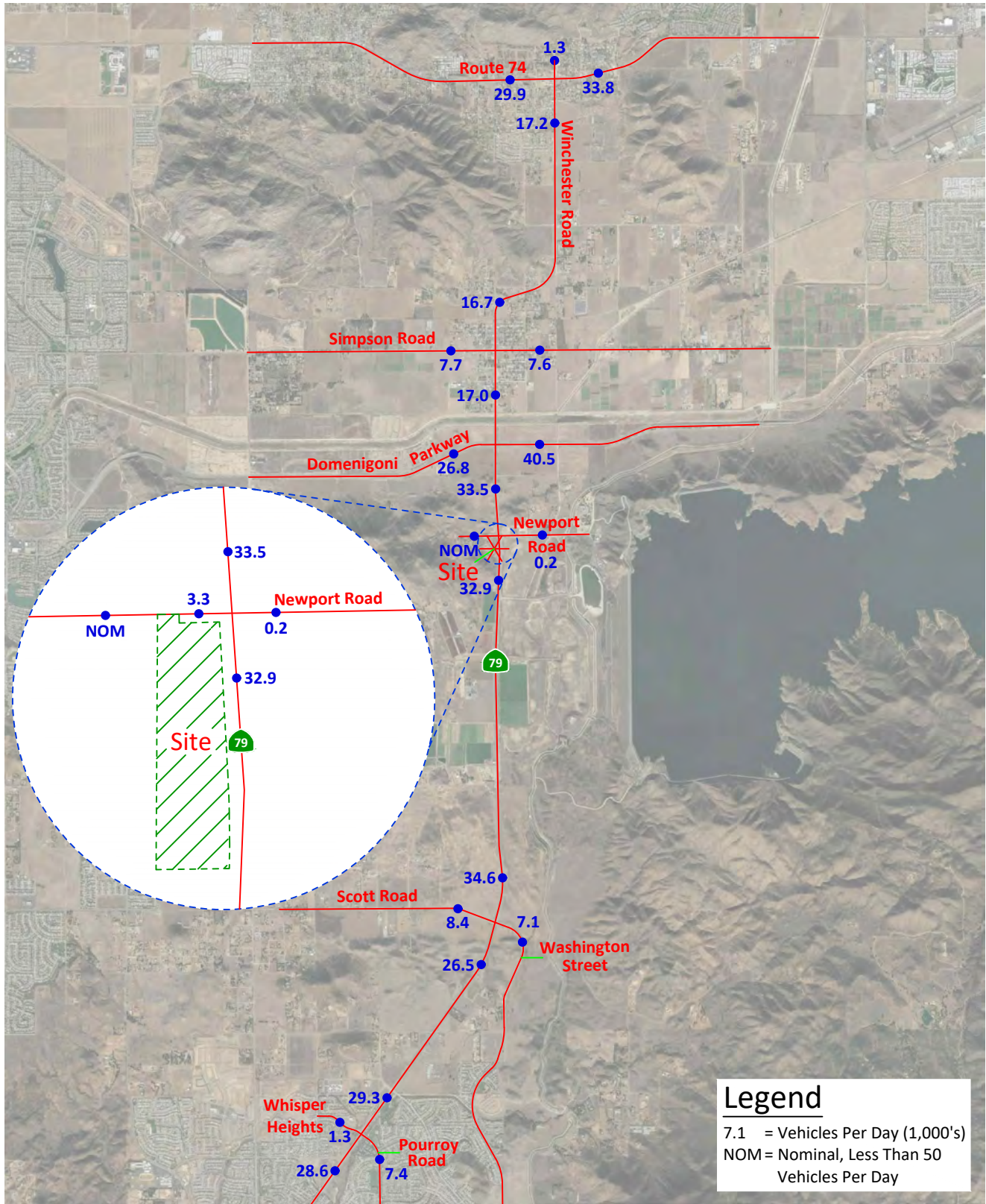
Intersection	Traffic Control ³	Intersection Approach Lanes ¹												Peak Hour Delay-LOS ²		
		Northbound			Southbound			Eastbound			Westbound			Morning	Evening	
		L	T	R	L	T	R	L	T	R	L	T	R			
Project Access (NS) at: Newport Road (EW) - #1	CSS	0	<1>	0	0	0	0	0	0	<1>	0	0	<1>	0	9.0-A	9.0-A
Winchester Road (SR-79) at: Route 74 (EW) - #2	TS	1	0.5	0.5	1	0.5	0.5	1	2	1	1	1.5	0.5	28.6-C	30.4-C	
Simpson Road (EW) - #3	TS	1	2	d	1	2	d	1	1	1	1	1	1	17.2-B	16.5-B	
Domenigoni Parkway (EW) - #4 - Without Improvements	TS	1	2	1	1	2	1	2	2	1	2	3	1	81.5-F	99.9-F	
- With Improvements	TS	1	2	<u>2</u>	1	2	1	2	<u>3</u>	1	2	3	1	32.9-C	33.1-C	
Newport Road (EW) - #5	TS	1	3	1	1	2	1	1	0.5	0.5	0	<1>	0	10.2-B	6.8-A	
Scott Road/Washington Street (EW) - #6	TS	1	3	1	1	3	1	1	1	1	1	1	1	20.6-C	24.0-C	
Whisper Heights/Pourroy Road (EW) - #7	TS	1	2	1	2	2	1	1	1	1	1	1	1	16.8-B	18.4-B	

¹ When a right turn lane is designated, the lane can either be striped or unstriped. To function as a right turn lane there must be sufficient width for right turning vehicles to travel outside the through lanes. L = Left; T = Through; R = Right; <1> Shared Left/Through/Right; d = Defacto Right Turn Lane; > = Right Turn Overlap; >> = Free Right Turn; 1 = Improvement

² Delay and Level of Service has been calculated using the following analysis software: Vistro, Version 6.00-02. Per the Highway Capacity Manual, overall average intersection delay and Level of Service are shown for intersections with traffic signal or all way stop control. For intersections with cross street stop control, the delay and Level of Service for the worst individual movement (or movements sharing a single lane) are shown.

³ AWS = All Way Stop; CSS = Cross Street Stop; TS = Traffic Signal

Figure 11
Existing Plus Project Average Daily Traffic Volumes



VI. Existing Plus Ambient Growth Plus Project Traffic Conditions

Once the project-related traffic is assigned to the existing street network and added to existing volumes and combined with areawide growth, the traffic impact can be assessed. Figure 12 illustrates the Existing Plus Project traffic conditions.

A. Method of Projection

To assess Existing Plus Ambient Growth Plus Project traffic conditions, project traffic is combined with existing traffic and areawide growth. The Opening Year for analysis purposes in this report is 2023.

To account for areawide growth on roadways, traffic volumes have been calculated based on a “conservative” 2.0 percent annual growth rate of existing traffic volumes over a three (3) year period.

B. Existing Plus Ambient Growth Plus Project Average Daily Traffic Volumes

Upon project completion and occupancy, the Existing Plus Ambient Growth Plus Project average daily traffic volumes are as illustrated on Figure 12.

C. Existing Plus Ambient Growth Plus Project Intersection Delay

The technique used to assess the capacity needs of an intersection is known as the Intersection Delay Method (see Appendix C). To calculate delay, the volume of traffic using the intersection is compared with the capacity of the intersection.

The delay and Level of Service for Existing Plus Ambient Growth Plus Project traffic conditions have been calculated and are shown in Table 3. The study area intersections are projected to operate at acceptable Levels of Service during the peak hours for Existing Plus Ambient Growth Plus Project traffic conditions, except for the following study area intersection that is projected to operate at unacceptable Levels of Service during the peak hours:

Winchester Road (SR-79) (NS) at:
Domenigoni Parkway (EW) - #4

Existing delay worksheets are provided in Appendix C. Existing Plus Ambient Growth Plus Project morning and evening peak hour intersection turning movement volumes are shown in Appendix C.

Table 4

Existing Plus Ambient Growth Plus Project Intersection Delay and Level of Service

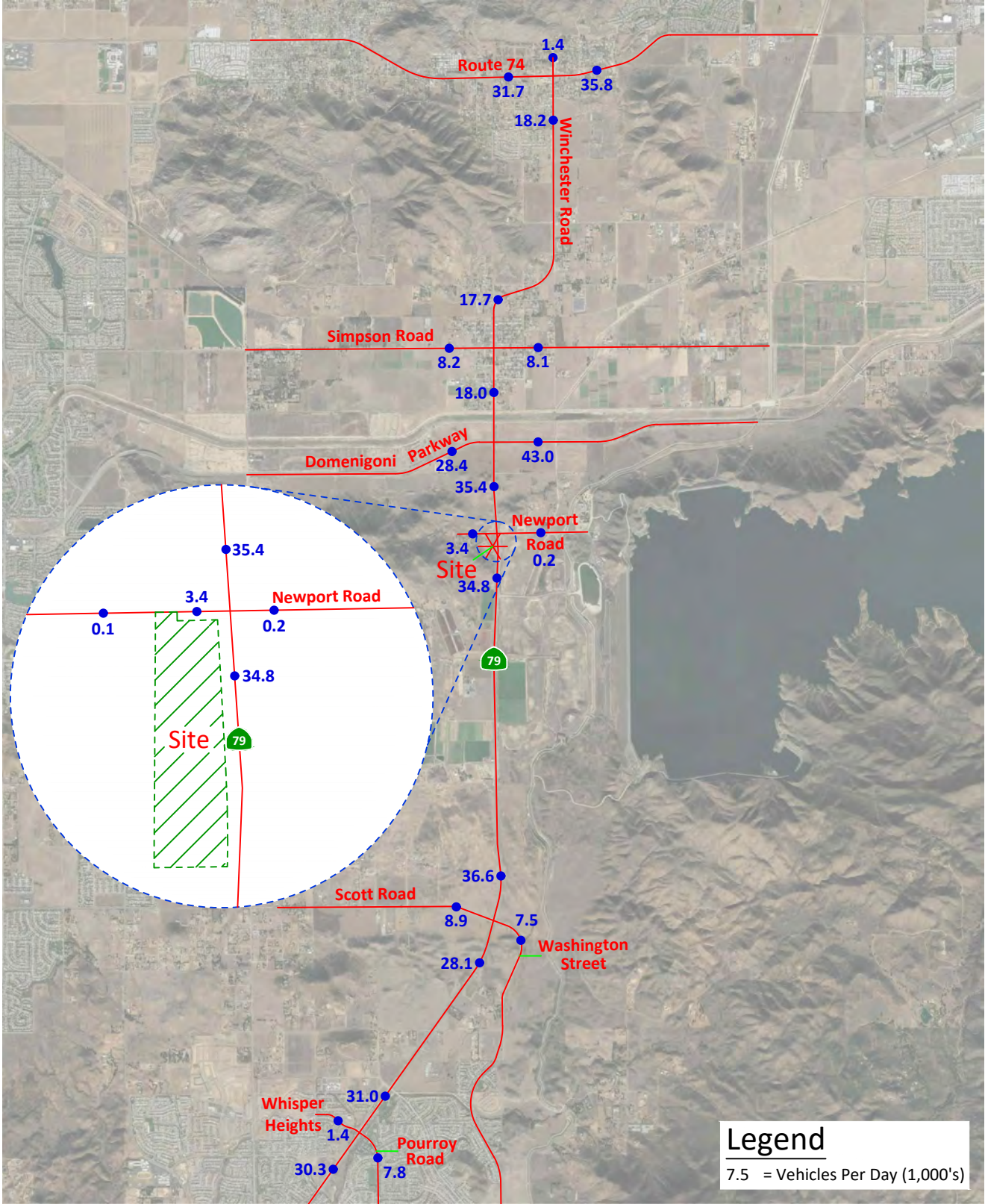
Intersection	Traffic Control ³	Intersection Approach Lanes ¹												Peak Hour Delay-LOS 2		
		Northbound			Southbound			Eastbound			Westbound			Morning	Evening	
		L	T	R	L	T	R	L	T	R	L	T	R			
Project Access (NS) at: Newport Road (EW) - #1	CSS	0	<1>	0	0	0	0	0	0	<1>	0	0	<1>	0	8.9-A	9.0-A
Winchester Road (SR-79) at:																
Route 74 (EW) - #2	TS	1	0.5	0.5	1	0.5	0.5	1	2	1	1	1.5	0.5	33.1-C	36.9-D	
Simpson Road (EW) - #3	TS	1	2	d	1	2	d	1	1	1	1	1	1	17.6-B	16.9-B	
Domenigoni Parkway (EW) - #4																
- Without Improvements	TS	1	2	1	1	2	1	2	2	1	2	3	1	96.9-F	99.9-F	
- With Improvements	TS	1	2	<u>2</u>	1	2	1	2	<u>3</u>	1	2	3	1	37.4-D	38.6-D	
Newport Road (EW) - #5	TS	1	3	1	1	2	1	1	0.5	0.5	0	<1>	0	9.8-A	6.9-A	
Scott Road/Washington Street (EW) - #6	TS	1	3	1	1	3	1	1	1	1	1	1	1	21.5-C	26.6-C	
Whisper Heights/Pourroy Road (EW) - #7	TS	1	2	1	2	2	1	1	1	1	1	1	1	16.9-B	20.0-B	

¹ When a right turn lane is designated, the lane can either be striped or unstriped. To function as a right turn lane there must be sufficient width for right turning vehicles to travel outside the through lanes. L = Left; T = Through; R = Right; <1> Shared Left/Through/Right; d = Defacto Right Turn Lane; > = Right Turn Overlap; >> = Free Right Turn; 1 = Improvement

² Delay and Level of Service has been calculated using the following analysis software: Vistro, Version 6.00-02. Per the Highway Capacity Manual, overall average intersection delay and Level of Service are shown for intersections with traffic signal or all way stop control. For intersections with cross street stop control, the delay and Level of Service for the worst individual movement (or movements sharing a single lane) are shown.

³ AWS = All Way Stop; CSS = Cross Street Stop; TS = Traffic Signal

Figure 12
 Existing Plus Ambient Growth Plus Project Average Daily Traffic Volumes



VII. Vehicle Miles of Travel

A. Screening Criteria

In the County of Riverside, any project that is local-serving, is presumed to cause a less-than-significant impact to the local vehicle miles of travel.

In the County of Riverside, any warehouse buildings less than 208,000 square feet, are presumed to cause a less-than-significant impact to the local vehicle miles of travel.

In order for a project to increase the local vehicle miles of travel it has to either generate or attract new trips that are greater than the average vehicle miles of travel for the average trip generator or attracter in the area.

In order for a trip generator to increase the local vehicle miles of travel, it must require that the vehicle trips emanating from it are greater in length than the average vehicle miles of travel for the average trip generator in the area. An example of a development that would increase the average local vehicle miles of travel is large housing developments miles outside of town.

In order for an attracter to increase the local vehicle miles of travel, it must draw trips in from outside the local area that are greater in length than the average vehicle miles of travel for the average trip attracter in the area. An example of a developments that would increase the average local vehicle miles of travel is a regional shopping center.

B. Proposed Project

The proposed project will be developed with a 16 fueling position Gasoline/Service Station with Convenience Market and a 81,432 square foot Mini-Warehouse.

This project site is considered an attractor. Both the Gasoline/Service Station with Convenience Market and Mini-Warehouse are local-serving.

A gas station is utilized by the local area. A majority of a gas stations vehicle trips come from vehicles passing by it. The remaining gas station vehicle trips are diverted link. A gas station will typically decrease the vehicle miles of travel within the study area.

A storage facility is utilized by the local area. A storage facility will typically decrease the vehicle miles of travel within the study area.

The proposed project is not projected to increase the vehicle miles of travel within the study area.

VIII. Project Mitigation

A. Required Improvements

Improvements that will eliminate all anticipated roadway operational deficiencies throughout the study area have been identified for future traffic conditions. The improvements were determined through the operations analysis of Section VI.

The approximate costs for the improvements have generally been estimated using cost guidelines in the latest Congestion Management Program Handbook (see Appendix E). A unit cost of \$400,000 for installation of a traffic signal has been substituted for the somewhat lower value cited in the Congestion Management Program materials. For adding a through lane, a unit cost of \$289,720 has been assumed. The needed improvements and resulting costs are summarized in Table 5 for study area intersections.

The total cost of needed and unfunded intersection improvements is \$60,000.

B. Project Contribution and Fair Share Costs

The project fair share contributions have also been calculated for improvement locations. The project share of cost has been based on the proportion of project peak hour traffic contributed to the improvement location relative to the total new peak hour traffic volumes.

Table 5 presents a summary of improvement cost and project cost shares at the intersection improvement location. The intersection fair share cost calculations are based on the peak hour traffic volumes. As shown in Table 6, the project's fair share of identified intersection costs is \$15,673.

The dollar figures are rough order of magnitude estimates only. They are intended only for the discussion purposes of this traffic impact analysis, and do not imply any legal responsibility or formula for contributions or mitigation.

As mitigation for the potential traffic impacts, the proposed project shall contribute on a fair share basis, through an adopted traffic impact fee program, in the implementation of the recommended intersection lane improvements or freeway improvements, or in dollar equivalent in lieu mitigation contributions, or in the implementation of additional capacity on parallel routes to offset potential impacts to study area intersections.

Table 5

Recommended Intersection Mitigation¹

Intersection	Proposed Mitigation ²	Total Cost ³
Winchester Road (SR-79) at: Domenigoni Parkway (EW) - #4	Construct an additional Northbound Right Turn Lane ⁴ Construct an additional Eastbound Through Travel Lane ⁵	\$50,000 \$10,000
Total		\$60,000

¹See Appendix C.

²See Tables 3 and 4.

³See Appendix E.

⁴Construct an additional northbound right turn lane so that the total storage area of both northbound right turn lanes totals 1,100 feet (two 550 foot northbound right turn lanes).

⁵Stripe an additional eastbound through travel lane along Domenigoni Parkway starting approximately 500 feet west of the southbound curb line extension of Winchester Road. Currently, three eastbound receiving lanes exist on the east side of the Winchester Road/Domenigoni Parkway intersection.

It should be noted that the County of Riverside and California Department of Transportation should make the ultimate decisions on all dimensions based on their engineering drawings for these improvements. It is likely that these improvements will not be built as suggested and that the jurisdiction will combine them with other improvements that are consistent with the ultimate design of these roadways.

Table 6

Project Fair Share Intersection Traffic Contribution

Intersection	Total Cost	Peak Hour	Existing Traffic	Future With Project Traffic	Project Traffic	Total New Traffic	Project % of New Traffic	Project Cost Share
Winchester Road (SR-79) at: Domenigoni Parkway (EW) - #4	\$ 60,000	Morning Evening	5,317 5,147	6,115 5,882	174 192	798 735	21.8% 26.1%	\$ 15,673
Total	\$ 60,000							\$ 15,673

IX. Recommendations

A. Site Access

The proposed project will have access Newport Road.

B. Cost Summary

Improvements that will eliminate all anticipated roadway operational deficiencies throughout the study area have been identified for future traffic conditions. The improvements were determined through the operations analysis of Section VI.

The total cost of needed and unfunded intersection improvements is \$60,000.

Table 5 presents a summary of improvement cost and project cost shares at the intersection improvement location. The intersection fair share cost calculations are based on the peak hour traffic volumes. As shown in Table 6, the project's fair share of identified intersection costs is \$15,673.

The dollar figures are rough order of magnitude estimates only. They are intended only for the discussion purposes of this traffic impact analysis, and do not imply any legal responsibility or formula for contributions or mitigation.

As mitigation for the potential traffic impacts, the proposed project shall contribute on a fair share basis, through an adopted traffic impact fee program, in the implementation of the recommended intersection lane improvements or freeway improvements, or in dollar equivalent in lieu mitigation contributions, or in the implementation of additional capacity on parallel routes to offset potential impacts to Congestion Management Program intersections and freeway segments.

C. Roadway Improvements

1. On- Site

Site-specific circulation and access recommendations are depicted on Figure 13.

Construct Winchester Road (SR-74) from Newport Road to the south project boundary at its ultimate half-section width as an Expressway (220 foot right-of-way) including landscape and parkway improvements in conjunction with development.

Construct Newport Road from the west project boundary to Newport Road at its ultimate half-section width as a Major (118 foot right-of-way) including landscape and parkway improvements in conjunction with development.

Sufficient on-site parking should be provided to meet the County of Riverside parking code requirements.

Sight distance at the project accesses should be reviewed with respect to California Department of Transportation/County of Riverside standards in conjunction with the preparation of final grading, landscaping, and street improvement plans.

On-site traffic signing and striping should be implemented in conjunction with detailed construction plans for the project.

2. Off-Site

Participate in the phased construction of off-site traffic signals through payment of traffic signal mitigation fees. The traffic signals within the study area at buildout should specifically include an interconnect of the traffic signals to function in a coordinated system.

As is the case for any roadway design, the County of Riverside should periodically review traffic operations in the vicinity of the project once the project is constructed to assure that the traffic operations are satisfactory.

3. Phasing

For the purposes of this traffic impact analysis, it is assumed that the project will be implemented in one phase and no additional phased improvements will be necessary.

4. Mitigation Measures

The following study area intersection improvements are required:

Winchester Road (SR-74) (NS) at:

Domenigoni Parkway (EW) - #4

- Construct an additional Northbound Right Turn Lane
- Construct an additional Eastbound Through Travel Lane

Figure 13
Circulation Recommendations

Construct Winchester Road (SR-74) from Newport Road to the south project boundary at its ultimate half-section width as an Expressway (220 foot right-of-way) including landscape and parkway improvements in conjunction with development.

Construct Newport Road from the west project boundary to Newport Road at its ultimate half-section width as a Major (118 foot right-of-way) including landscape and parkway improvements in conjunction with development.

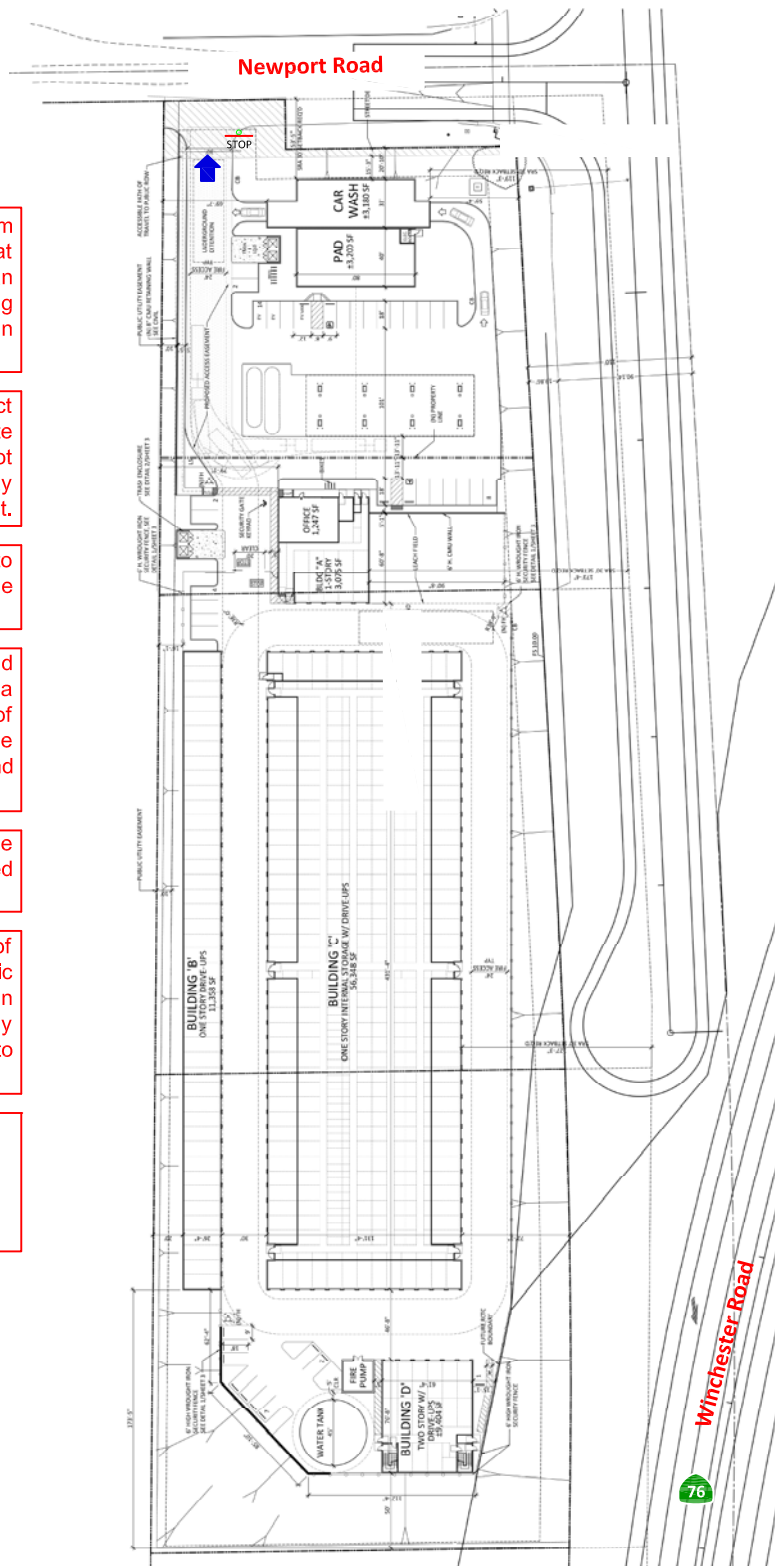
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Sight distance at the project accesses should be reviewed with respect to California Department of Transportation/County of Riverside standards in conjunction with the preparation of final grading, landscaping, and street improvement plans.

On-site traffic signing and striping should be implemented in conjunction with detailed construction plans for the project.

Participate in the phased construction of off-site traffic signals through payment of traffic signal mitigation fees. The traffic signals within the study area at buildout should specifically include an interconnect of the traffic signals to function in a coordinated system.

As is the case for any roadway design, the County of Riverside should periodically review traffic operations in the vicinity of the project once the project is constructed to assure that the traffic operations are satisfactory.



Legend

- = Stop Sign
- = Full Access Driveway



Appendices

Appendix A – Glossary of Transportation Terms

Appendix B – Traffic Count Worksheets

Appendix C – Explanation and Calculation of Intersection Delay

Appendix D – Pass-By Trips

Appendix E – Preliminary Construction Cost Estimates for Congestion Management Program

APPENDIX A

Glossary of Transportation Terms

GLOSSARY OF TRANSPORTATION TERMS

COMMON ABBREVIATIONS

AC:	Acres
ADT:	Average Daily Traffic
Caltrans:	California Department of Transportation
DU:	Dwelling Unit
ICU:	Intersection Capacity Utilization
LOS:	Level of Service
TSF:	Thousand Square Feet
V/C:	Volume/Capacity
VMT:	Vehicle Miles Traveled

TERMS

AVERAGE DAILY TRAFFIC: The total volume during a year divided by the number of days in a year. Usually only weekdays are included.

BANDWIDTH: The number of seconds of green time available for through traffic in a signal progression.

BOTTLENECK: A constriction along a travelway that limits the amount of traffic that can proceed downstream from its location.

CAPACITY: The maximum number of vehicles that can be reasonably expected to pass over a given section of a lane or a roadway in a given time period.

CHANNELIZATION: The separation or regulation of conflicting traffic movements into definite paths of travel by the use of pavement markings, raised islands, or other suitable means to facilitate the safe and orderly movements of both vehicles and pedestrians.

CLEARANCE INTERVAL: Nearly same as yellow time. If there is an all red interval after the end of a yellow, then that is also added into the clearance interval.

CORDON: An imaginary line around an area across which vehicles, persons, or other items are counted (in and out).

CYCLE LENGTH: The time period in seconds required for one complete signal cycle.

CUL-DE-SAC STREET: A local street open at one end only, and with special provisions for turning around.

DAILY CAPACITY: The daily volume of traffic that will result in a volume during the peak hour equal to the capacity of the roadway.

DELAY: The time consumed while traffic is impeded in its movement by some element over which it has no control, usually expressed in seconds per vehicle.

DEMAND RESPONSIVE SIGNAL: Same as traffic-actuated signal.

DENSITY: The number of vehicles occupying in a unit length of the through traffic lanes of a roadway at any given instant. Usually expressed in vehicles per mile.

DETECTOR: A device that responds to a physical stimulus and transmits a resulting impulse to the signal controller.

DESIGN SPEED: A speed selected for purposes of design. Features of a highway, such as curvature, superelevation, and sight distance (upon which the safe operation of vehicles is dependent) are correlated to design speed.

DIRECTIONAL SPLIT: The percent of traffic in the peak direction at any point in time.

DIVERSION: The rerouting of peak hour traffic to avoid congestion.

FORCED FLOW: Opposite of free flow.

FREE FLOW: Volumes are well below capacity. Vehicles can maneuver freely and travel is unimpeded by other traffic.

GAP: Time or distance between successive vehicles in a traffic stream, rear bumper to front bumper.

HEADWAY: Time or distance spacing between successive vehicles in a traffic stream, front bumper to front bumper.

INTERCONNECTED SIGNAL SYSTEM: A number of intersections that are connected to achieve signal progression.

LEVEL OF SERVICE: A qualitative measure of a number of factors, which include speed and travel time, traffic interruptions, freedom to maneuver, safety, driving comfort and convenience, and operating costs.

LOOP DETECTOR: A vehicle detector consisting of a loop of wire embedded in the roadway, energized by alternating current and producing an output circuit closure when passed over by a vehicle.

MINIMUM ACCEPTABLE GAP: Smallest time headway between successive vehicles in a traffic stream into which another vehicle is willing and able to cross or merge.

MULTI-MODAL: More than one mode; such as automobile, bus transit, rail rapid transit, and bicycle transportation modes.

OFFSET: The time interval in seconds between the beginning of green at one intersection and the beginning of green at an adjacent intersection.

PLATOON: A closely grouped component of traffic that is composed of several vehicles moving, or standing ready to move, with clear spaces ahead and behind.

ORIGIN-DESTINATION SURVEY: A survey to determine the point of origin and the point of destination for a given vehicle trip.

PASSENGER CAR EQUIVALENTS (PCE): One car is one Passenger Car Equivalent. A truck is equal to 2 or 3 Passenger Car Equivalents in that a truck requires longer to start, goes slower, and accelerates slower. Loaded trucks have a higher Passenger Car Equivalent than empty trucks.

PEAK HOUR: The 60 consecutive minutes with the highest number of vehicles.

PRETIMED SIGNAL: A type of traffic signal that directs traffic to stop and go on a predetermined time schedule without regard to traffic conditions. Also, fixed time signal.

PROGRESSION: A term used to describe the progressive movement of traffic through several signalized intersections.

SCREEN-LINE: An imaginary line or physical feature across which all trips are counted, normally to verify the validity of mathematical traffic models.

SIGNAL CYCLE: The time period in seconds required for one complete sequence of signal indications.

SIGNAL PHASE: The part of the signal cycle allocated to one or more traffic movements.

STARTING DELAY: The delay experienced in initiating the movement of queued traffic from a stop to an average running speed through a signalized intersection.

TRAFFIC-ACTUATED SIGNAL: A type of traffic signal that directs traffic to stop and go in accordance with the demands of traffic, as registered by the actuation of detectors.

TRIP: The movement of a person or vehicle from one location (origin) to another (destination). For example, from home to store to home is two trips, not one.

TRIP-END: One end of a trip at either the origin or destination; i.e. each trip has two trip-ends. A trip-end occurs when a person, object, or message is transferred to or from a vehicle.

TRIP GENERATION RATE: The quantity of trips produced and/or attracted by a specific land use stated in terms of units such as per dwelling, per acre, and per 1,000 square feet of floor space.

TRUCK: A vehicle having dual tires on one or more axles, or having more than two axles.

UNBALANCED FLOW: Heavier traffic flow in one direction than the other. On a daily basis, most facilities have balanced flow. During the peak hours, flow is seldom balanced in an urban area.

VEHICLE MILES OF TRAVEL: A measure of the amount of usage of a section of highway, obtained by multiplying the average daily traffic by length of facility in miles.

APPENDIX B

Traffic Count Worksheets

County of Riverside
 N/S: Vista Place/SR-79 (Winchester Road)
 E/W: SR-74
 Weather: Clear

File Name : 01_CRV_SR-79_SR-74 AM
 Site Code : 07520022
 Start Date : 1/14/2020
 Page No : 1

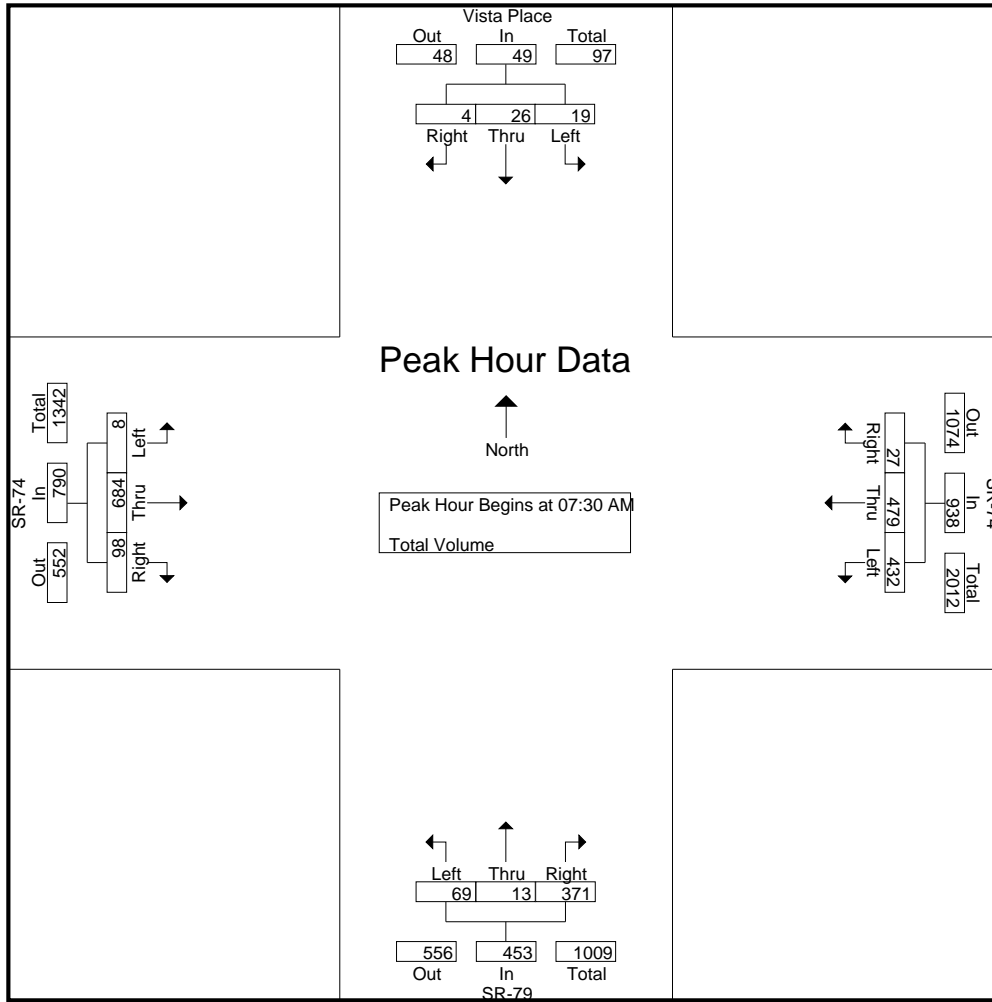
Groups Printed- Total Volume

Start Time	Vista Place Southbound				SR-74 Westbound				SR-79 Northbound				SR-74 Eastbound				Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	
07:00 AM	6	5	0	11	100	141	8	249	24	2	80	106	2	139	19	160	526
07:15 AM	3	10	0	13	79	148	11	238	24	3	105	132	4	121	26	151	534
07:30 AM	8	6	0	14	122	140	10	272	27	3	112	142	4	168	33	205	633
07:45 AM	2	11	0	13	94	91	5	190	9	3	112	124	1	161	22	184	511
Total	19	32	0	51	395	520	34	949	84	11	409	504	11	589	100	700	2204
08:00 AM	7	4	2	13	127	120	6	253	22	3	61	86	2	172	20	194	546
08:15 AM	2	5	2	9	89	128	6	223	11	4	86	101	1	183	23	207	540
08:30 AM	0	3	0	3	79	117	3	199	13	7	77	97	2	155	18	175	474
08:45 AM	7	4	0	11	78	102	5	185	14	3	55	72	2	174	24	200	468
Total	16	16	4	36	373	467	20	860	60	17	279	356	7	684	85	776	2028
Grand Total	35	48	4	87	768	987	54	1809	144	28	688	860	18	1273	185	1476	4232
Apprch %	40.2	55.2	4.6		42.5	54.6	3		16.7	3.3	80		1.2	86.2	12.5		
Total %	0.8	1.1	0.1	2.1	18.1	23.3	1.3	42.7	3.4	0.7	16.3	20.3	0.4	30.1	4.4	34.9	

Start Time	Vista Place Southbound				SR-74 Westbound				SR-79 Northbound				SR-74 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 Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:30 AM																	
07:30 AM	8	6	0	14	122	140	10	272	27	3	112	142	4	168	33	205	633
07:45 AM	2	11	0	13	94	91	5	190	9	3	112	124	1	161	22	184	511
08:00 AM	7	4	2	13	127	120	6	253	22	3	61	86	2	172	20	194	546
08:15 AM	2	5	2	9	89	128	6	223	11	4	86	101	1	183	23	207	540
Total Volume	19	26	4	49	432	479	27	938	69	13	371	453	8	684	98	790	2230
% App. Total	38.8	53.1	8.2		46.1	51.1	2.9		15.2	2.9	81.9		1	86.6	12.4		
PHF	.594	.591	.500	.875	.850	.855	.675	.862	.639	.813	.828	.798	.500	.934	.742	.954	.881

County of Riverside
 N/S: Vista Place/SR-79 (Winchester Road)
 E/W: SR-74
 Weather: Clear

File Name : 01_CRV_SR-79_SR-74 AM
 Site Code : 07520022
 Start Date : 1/14/2020
 Page No : 2



Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1
 Peak Hour for Each Approach Begins at:

	07:15 AM				07:15 AM				07:00 AM				07:30 AM			
+0 mins.	3	10	0	13	79	148	11	238	24	2	80	106	4	168	33	205
+15 mins.	8	6	0	14	122	140	10	272	24	3	105	132	1	161	22	184
+30 mins.	2	11	0	13	94	91	5	190	27	3	112	142	2	172	20	194
+45 mins.	7	4	2	13	127	120	6	253	9	3	112	124	1	183	23	207
Total Volume	20	31	2	53	422	499	32	953	84	11	409	504	8	684	98	790
% App. Total	37.7	58.5	3.8		44.3	52.4	3.4		16.7	2.2	81.2		1	86.6	12.4	
PHF	.625	.705	.250	.946	.831	.843	.727	.876	.778	.917	.913	.887	.500	.934	.742	.954

County of Riverside
 N/S: Vista Place/SR-79 (Winchester Road)
 E/W: SR-74
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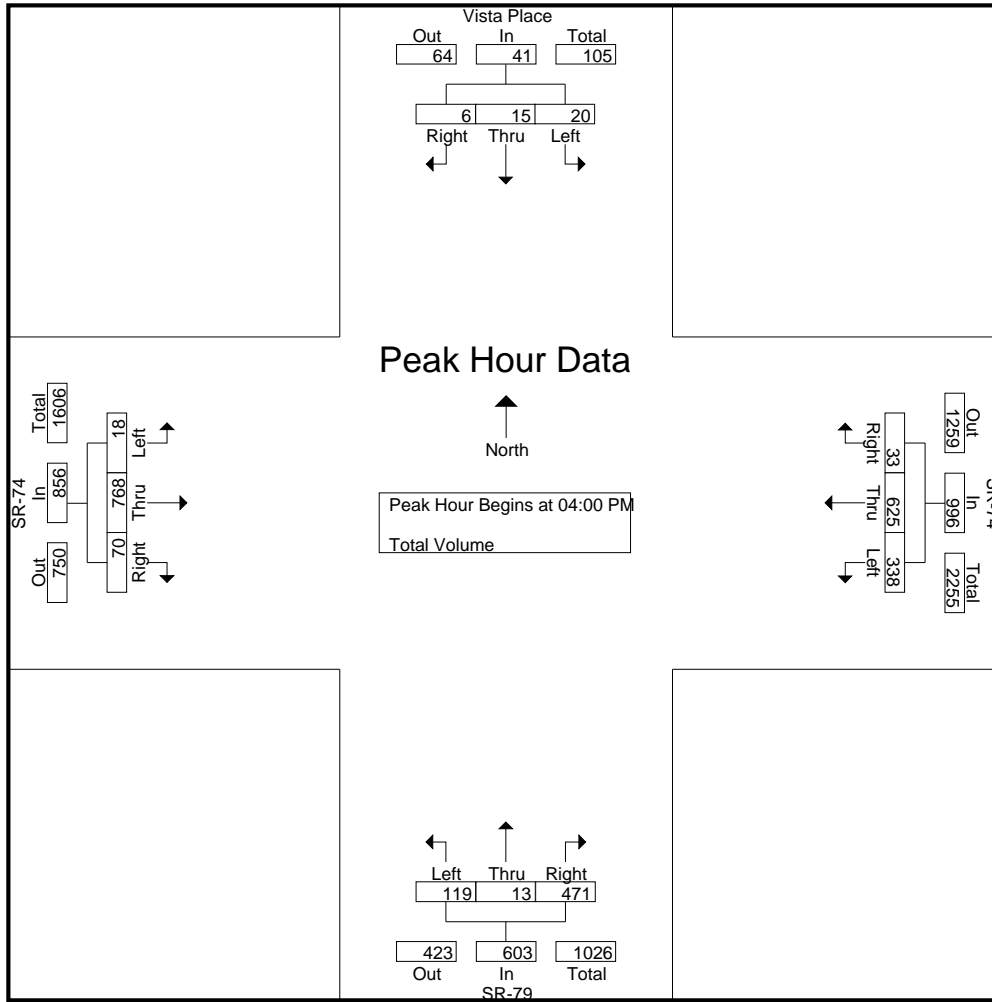
Groups Printed- Total Volume

Start Time	Vista Place Southbound				SR-74 Westbound				SR-79 Northbound				SR-74 Eastbound				Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	
04:00 PM	6	4	2	12	82	153	8	243	25	4	104	133	5	198	17	220	608
04:15 PM	5	3	4	12	97	165	10	272	35	2	131	168	4	207	18	229	681
04:30 PM	2	4	0	6	86	163	7	256	23	5	120	148	4	195	19	218	628
04:45 PM	7	4	0	11	73	144	8	225	36	2	116	154	5	168	16	189	579
Total	20	15	6	41	338	625	33	996	119	13	471	603	18	768	70	856	2496
05:00 PM	7	1	2	10	85	168	7	260	20	6	92	118	4	179	17	200	588
05:15 PM	7	7	0	14	79	199	10	288	34	6	120	160	1	193	10	204	666
05:30 PM	3	5	1	9	91	177	5	273	21	1	92	114	2	172	19	193	589
05:45 PM	9	2	2	13	87	169	3	259	25	6	100	131	1	151	16	168	571
Total	26	15	5	46	342	713	25	1080	100	19	404	523	8	695	62	765	2414
Grand Total	46	30	11	87	680	1338	58	2076	219	32	875	1126	26	1463	132	1621	4910
Apprch %	52.9	34.5	12.6		32.8	64.5	2.8		19.4	2.8	77.7		1.6	90.3	8.1		
Total %	0.9	0.6	0.2	1.8	13.8	27.3	1.2	42.3	4.5	0.7	17.8	22.9	0.5	29.8	2.7	33	

Start Time	Vista Place Southbound				SR-74 Westbound				SR-79 Northbound				SR-74 Eastbound				Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	
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04:45 PM	7	4	0	11	73	144	8	225	36	2	116	154	5	168	16	189	579
Total Volume	20	15	6	41	338	625	33	996	119	13	471	603	18	768	70	856	2496
% App. Total	48.8	36.6	14.6		33.9	62.8	3.3		19.7	2.2	78.1		2.1	89.7	8.2		
PHF	.714	.938	.375	.854	.871	.947	.825	.915	.826	.650	.899	.897	.900	.928	.921	.934	.916

County of Riverside
 N/S: Vista Place/SR-79 (Winchester Road)
 E/W: SR-74
 Weather: Clear

File Name : 01_CRV_SR-79_SR-74 PM
 Site Code : 07520022
 Start Date : 1/14/2020
 Page No : 2



Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1
 Peak Hour for Each Approach Begins at:

	05:00 PM				05:00 PM				04:00 PM				04:00 PM			
+0 mins.	7	1	2	10	85	168	7	260	25	4	104	133	5	198	17	220
+15 mins.	7	7	0	14	79	199	10	288	35	2	131	168	4	207	18	229
+30 mins.	3	5	1	9	91	177	5	273	23	5	120	148	4	195	19	218
+45 mins.	9	2	2	13	87	169	3	259	36	2	116	154	5	168	16	189
Total Volume	26	15	5	46	342	713	25	1080	119	13	471	603	18	768	70	856
% App. Total	56.5	32.6	10.9		31.7	66	2.3		19.7	2.2	78.1		2.1	89.7	8.2	
PHF	.722	.536	.625	.821	.940	.896	.625	.938	.826	.650	.899	.897	.900	.928	.921	.934

County of Riverside
 N/S: SR-79 (Winchester Road)
 E/W: Simpson Road
 Weather: Clear

File Name : 02_CRV_SR-79_Simpson AM
 Site Code : 07520022
 Start Date : 1/14/2020
 Page No : 1

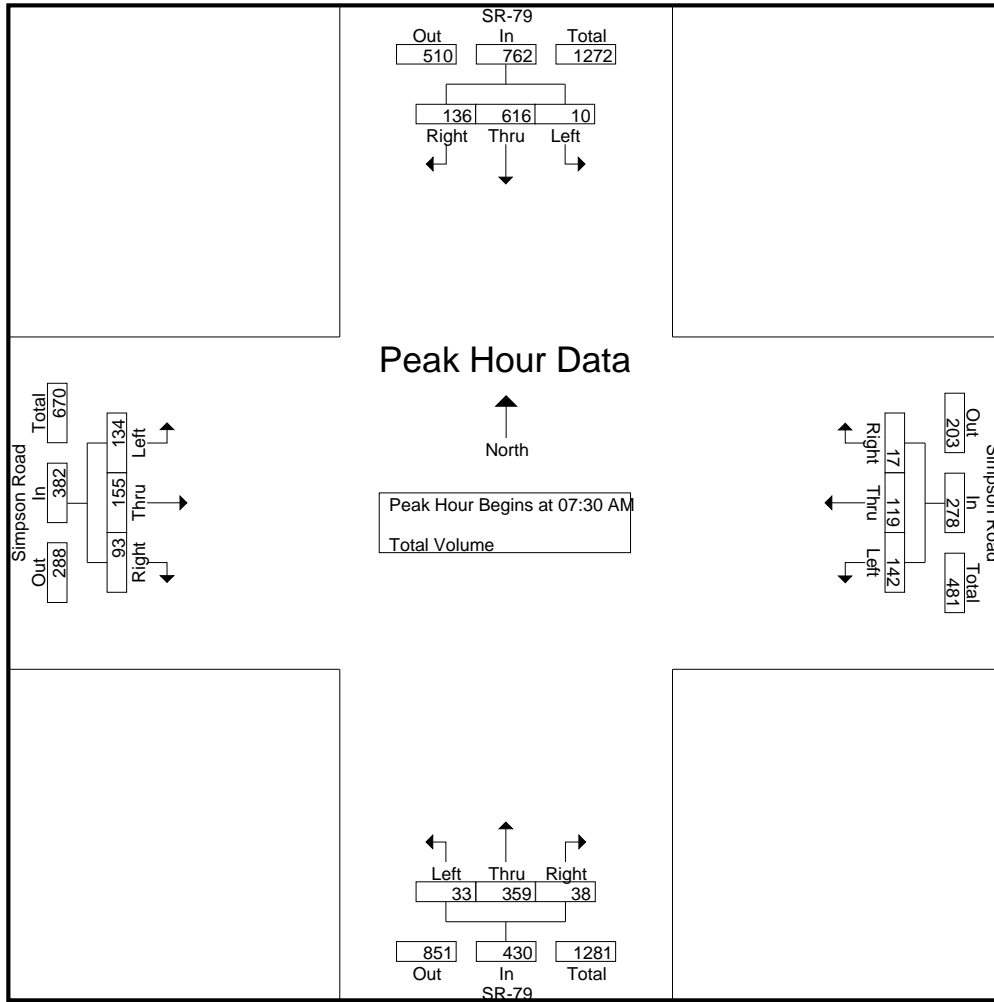
Groups Printed- Total Volume

Start Time	SR-79 Southbound				Simpson Road Westbound				SR-79 Northbound				Simpson Road Eastbound				Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	
07:00 AM	3	152	20	175	27	35	4	66	10	82	8	100	19	24	21	64	405
07:15 AM	0	108	20	128	36	35	3	74	14	120	7	141	30	39	27	96	439
07:30 AM	1	158	29	188	45	33	4	82	11	94	14	119	34	40	36	110	499
07:45 AM	3	159	33	195	40	28	5	73	4	103	3	110	29	46	18	93	471
Total	7	577	102	686	148	131	16	295	39	399	32	470	112	149	102	363	1814
08:00 AM	1	155	30	186	28	24	2	54	6	90	15	111	24	31	23	78	429
08:15 AM	5	144	44	193	29	34	6	69	12	72	6	90	47	38	16	101	453
08:30 AM	4	104	16	124	15	26	3	44	7	80	9	96	26	27	15	68	332
08:45 AM	4	111	18	133	15	19	5	39	13	72	8	93	11	15	16	42	307
Total	14	514	108	636	87	103	16	206	38	314	38	390	108	111	70	289	1521
Grand Total	21	1091	210	1322	235	234	32	501	77	713	70	860	220	260	172	652	3335
Apprch %	1.6	82.5	15.9		46.9	46.7	6.4		9	82.9	8.1		33.7	39.9	26.4		
Total %	0.6	32.7	6.3	39.6	7	7	1	15	2.3	21.4	2.1	25.8	6.6	7.8	5.2	19.6	

Start Time	SR-79 Southbound				Simpson Road Westbound				SR-79 Northbound				Simpson Road 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 Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:30 AM																	
07:30 AM	1	158	29	188	45	33	4	82	11	94	14	119	34	40	36	110	499
07:45 AM	3	159	33	195	40	28	5	73	4	103	3	110	29	46	18	93	471
08:00 AM	1	155	30	186	28	24	2	54	6	90	15	111	24	31	23	78	429
08:15 AM	5	144	44	193	29	34	6	69	12	72	6	90	47	38	16	101	453
Total Volume	10	616	136	762	142	119	17	278	33	359	38	430	134	155	93	382	1852
% App. Total	1.3	80.8	17.8		51.1	42.8	6.1		7.7	83.5	8.8		35.1	40.6	24.3		
PHF	.500	.969	.773	.977	.789	.875	.708	.848	.688	.871	.633	.903	.713	.842	.646	.868	.928

County of Riverside
 N/S: SR-79 (Winchester Road)
 E/W: Simpson Road
 Weather: Clear

File Name : 02_CRV_SR-79_Simpson AM
 Site Code : 07520022
 Start Date : 1/14/2020
 Page No : 2



Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1
 Peak Hour for Each Approach Begins at:

	07:30 AM				07:00 AM				07:15 AM				07:30 AM			
+0 mins.	1	158	29	188	27	35	4	66	14	120	7	141	34	40	36	110
+15 mins.	3	159	33	195	36	35	3	74	11	94	14	119	29	46	18	93
+30 mins.	1	155	30	186	45	33	4	82	4	103	3	110	24	31	23	78
+45 mins.	5	144	44	193	40	28	5	73	6	90	15	111	47	38	16	101
Total Volume	10	616	136	762	148	131	16	295	35	407	39	481	134	155	93	382
% App. Total	1.3	80.8	17.8		50.2	44.4	5.4		7.3	84.6	8.1		35.1	40.6	24.3	
PHF	.500	.969	.773	.977	.822	.936	.800	.899	.625	.848	.650	.853	.713	.842	.646	.868

County of Riverside
 N/S: SR-79 (Winchester Road)
 E/W: Simpson Road
 Weather: Clear

File Name : 02_CRV_SR-79_Simpson PM
 Site Code : 07520022
 Start Date : 1/14/2020
 Page No : 1

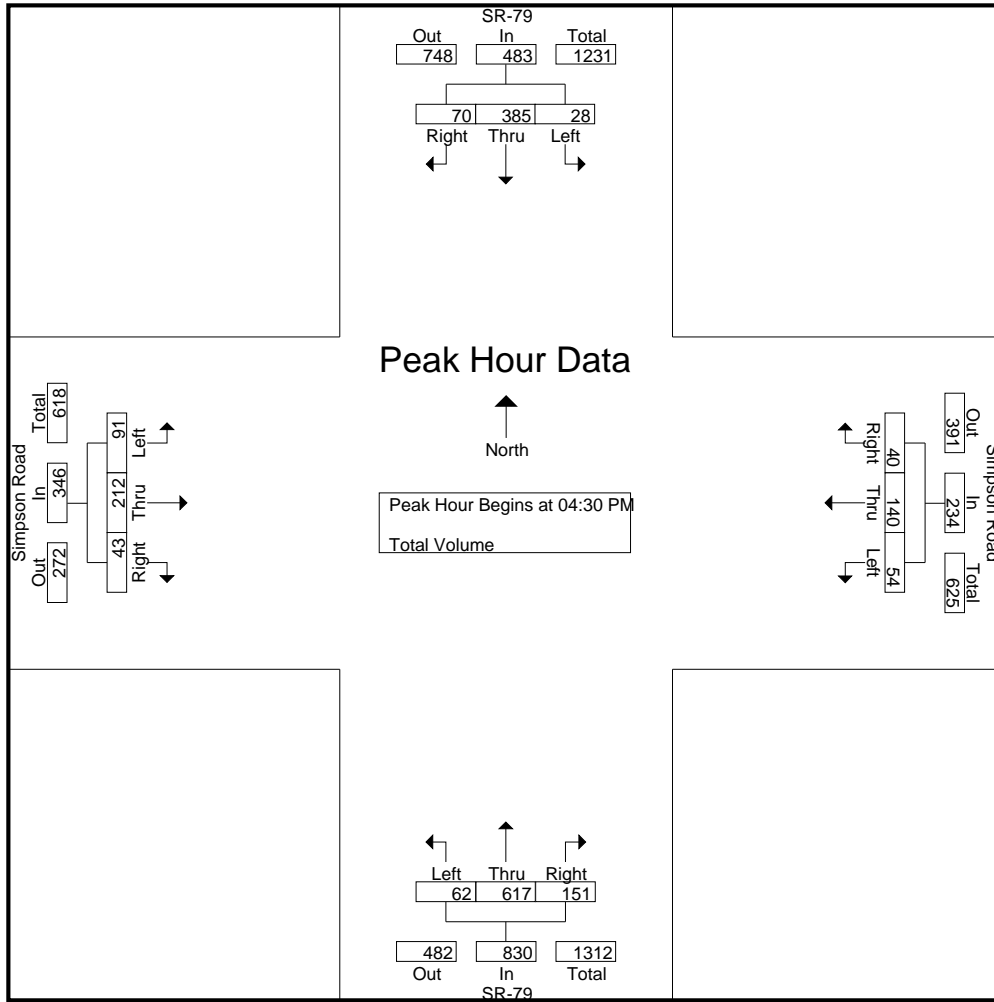
Groups Printed- Total Volume

Start Time	SR-79 Southbound				Simpson Road Westbound				SR-79 Northbound				Simpson Road Eastbound				Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	
04:00 PM	5	84	16	105	14	36	10	60	12	150	23	185	23	56	13	92	442
04:15 PM	3	104	22	129	15	28	5	48	22	167	37	226	16	45	15	76	479
04:30 PM	2	113	16	131	11	35	11	57	11	140	34	185	34	62	8	104	477
04:45 PM	8	78	14	100	13	33	6	52	11	159	42	212	25	44	11	80	444
Total	18	379	68	465	53	132	32	217	56	616	136	808	98	207	47	352	1842
05:00 PM	12	91	24	127	17	34	13	64	21	167	37	225	14	50	9	73	489
05:15 PM	6	103	16	125	13	38	10	61	19	151	38	208	18	56	15	89	483
05:30 PM	5	92	22	119	15	17	8	40	18	131	41	190	12	43	18	73	422
05:45 PM	8	78	13	99	14	33	12	59	15	133	45	193	25	43	17	85	436
Total	31	364	75	470	59	122	43	224	73	582	161	816	69	192	59	320	1830
Grand Total	49	743	143	935	112	254	75	441	129	1198	297	1624	167	399	106	672	3672
Apprch %	5.2	79.5	15.3		25.4	57.6	17		7.9	73.8	18.3		24.9	59.4	15.8		
Total %	1.3	20.2	3.9	25.5	3.1	6.9	2	12	3.5	32.6	8.1	44.2	4.5	10.9	2.9	18.3	

Start Time	SR-79 Southbound				Simpson Road Westbound				SR-79 Northbound				Simpson Road 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 Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:30 PM																	
04:30 PM	2	113	16	131	11	35	11	57	11	140	34	185	34	62	8	104	477
04:45 PM	8	78	14	100	13	33	6	52	11	159	42	212	25	44	11	80	444
05:00 PM	12	91	24	127	17	34	13	64	21	167	37	225	14	50	9	73	489
05:15 PM	6	103	16	125	13	38	10	61	19	151	38	208	18	56	15	89	483
Total Volume	28	385	70	483	54	140	40	234	62	617	151	830	91	212	43	346	1893
% App. Total	5.8	79.7	14.5		23.1	59.8	17.1		7.5	74.3	18.2		26.3	61.3	12.4		
PHF	.583	.852	.729	.922	.794	.921	.769	.914	.738	.924	.899	.922	.669	.855	.717	.832	.968

County of Riverside
 N/S: SR-79 (Winchester Road)
 E/W: Simpson Road
 Weather: Clear

File Name : 02_CRV_SR-79_Simpson PM
 Site Code : 07520022
 Start Date : 1/14/2020
 Page No : 2



Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1
 Peak Hour for Each Approach Begins at:

	04:15 PM				04:30 PM				04:15 PM				04:00 PM			
+0 mins.	3	104	22	129	11	35	11	57	22	167	37	226	23	56	13	92
+15 mins.	2	113	16	131	13	33	6	52	11	140	34	185	16	45	15	76
+30 mins.	8	78	14	100	17	34	13	64	11	159	42	212	34	62	8	104
+45 mins.	12	91	24	127	13	38	10	61	21	167	37	225	25	44	11	80
Total Volume	25	386	76	487	54	140	40	234	65	633	150	848	98	207	47	352
% App. Total	5.1	79.3	15.6		23.1	59.8	17.1		7.7	74.6	17.7		27.8	58.8	13.4	
PHF	.521	.854	.792	.929	.794	.921	.769	.914	.739	.948	.893	.938	.721	.835	.783	.846

County of Riverside
 N/S: SR-79 (Winchester Road)
 E/W: Domenigoni Parkway
 Weather: Clear

File Name : 03_CRV_SR-79_Domenigoni AM
 Site Code : 07520022
 Start Date : 1/14/2020
 Page No : 1

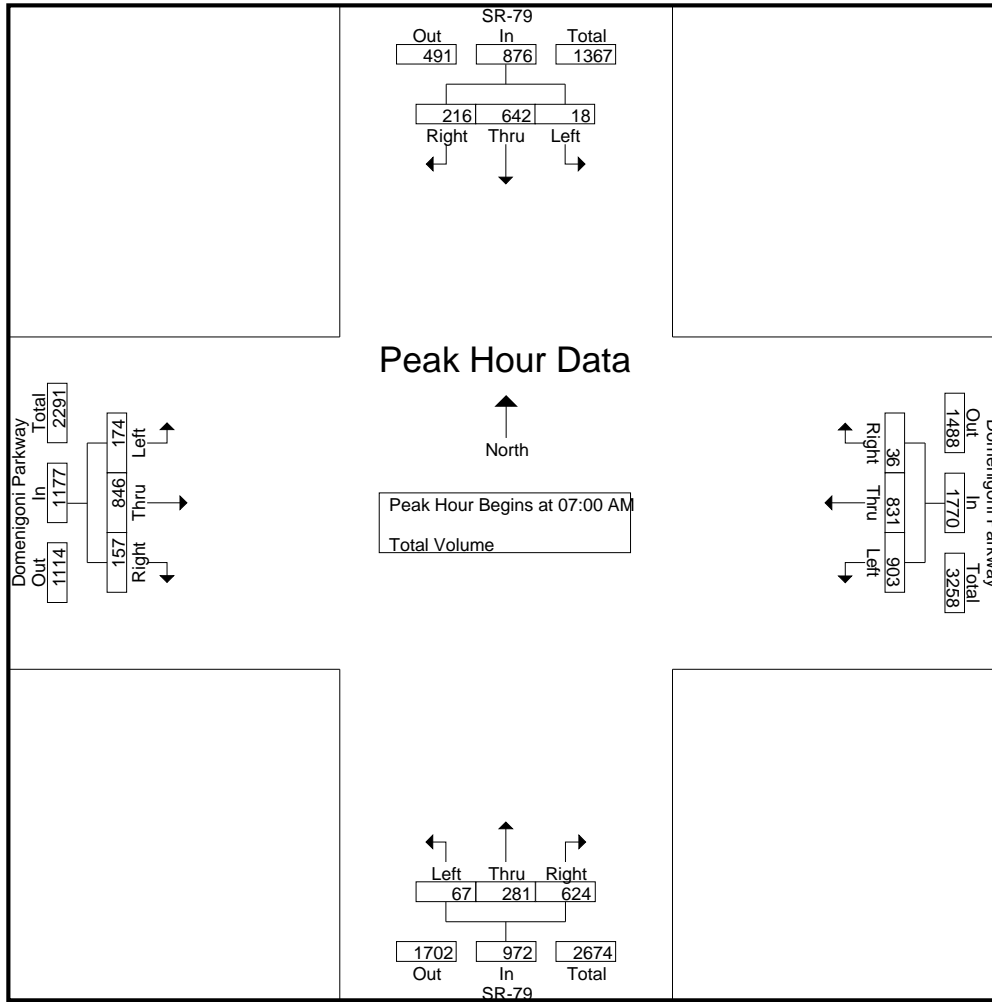
Groups Printed- Total Volume

Start Time	SR-79 Southbound				Domenigoni Parkway Westbound				SR-79 Northbound				Domenigoni Parkway Eastbound				Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	
07:00 AM	3	123	70	196	236	212	4	452	16	55	135	206	43	195	41	279	1133
07:15 AM	7	150	33	190	241	214	9	464	22	89	169	280	41	173	36	250	1184
07:30 AM	6	203	52	261	205	213	14	432	17	78	167	262	41	249	39	329	1284
07:45 AM	2	166	61	229	221	192	9	422	12	59	153	224	49	229	41	319	1194
Total	18	642	216	876	903	831	36	1770	67	281	624	972	174	846	157	1177	4795
08:00 AM	6	145	39	190	213	139	11	363	24	61	83	168	40	181	35	256	977
08:15 AM	6	125	49	180	224	172	15	411	13	49	103	165	34	240	26	300	1056
08:30 AM	7	97	24	128	212	162	3	377	16	52	116	184	38	168	27	233	922
08:45 AM	6	95	34	135	163	140	5	308	15	51	117	183	37	127	18	182	808
Total	25	462	146	633	812	613	34	1459	68	213	419	700	149	716	106	971	3763
Grand Total	43	1104	362	1509	1715	1444	70	3229	135	494	1043	1672	323	1562	263	2148	8558
Apprch %	2.8	73.2	24		53.1	44.7	2.2		8.1	29.5	62.4		15	72.7	12.2		
Total %	0.5	12.9	4.2	17.6	20	16.9	0.8	37.7	1.6	5.8	12.2	19.5	3.8	18.3	3.1	25.1	

Start Time	SR-79 Southbound				Domenigoni Parkway Westbound				SR-79 Northbound				Domenigoni Parkway 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 Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:00 AM																	
07:00 AM	3	123	70	196	236	212	4	452	16	55	135	206	43	195	41	279	1133
07:15 AM	7	150	33	190	241	214	9	464	22	89	169	280	41	173	36	250	1184
07:30 AM	6	203	52	261	205	213	14	432	17	78	167	262	41	249	39	329	1284
07:45 AM	2	166	61	229	221	192	9	422	12	59	153	224	49	229	41	319	1194
Total Volume	18	642	216	876	903	831	36	1770	67	281	624	972	174	846	157	1177	4795
% App. Total	2.1	73.3	24.7		51	46.9	2		6.9	28.9	64.2		14.8	71.9	13.3		
PHF	.643	.791	.771	.839	.937	.971	.643	.954	.761	.789	.923	.868	.888	.849	.957	.894	.934

County of Riverside
 N/S: SR-79 (Winchester Road)
 E/W: Domenigoni Parkway
 Weather: Clear

File Name : 03_CRV_SR-79_Domenigoni AM
 Site Code : 07520022
 Start Date : 1/14/2020
 Page No : 2



Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1
 Peak Hour for Each Approach Begins at:

	07:00 AM				07:00 AM				07:00 AM				07:30 AM			
+0 mins.	3	123	70	196	236	212	4	452	16	55	135	206	41	249	39	329
+15 mins.	7	150	33	190	241	214	9	464	22	89	169	280	49	229	41	319
+30 mins.	6	203	52	261	205	213	14	432	17	78	167	262	40	181	35	256
+45 mins.	2	166	61	229	221	192	9	422	12	59	153	224	34	240	26	300
Total Volume	18	642	216	876	903	831	36	1770	67	281	624	972	164	899	141	1204
% App. Total	2.1	73.3	24.7		51	46.9	2		6.9	28.9	64.2		13.6	74.7	11.7	
PHF	.643	.791	.771	.839	.937	.971	.643	.954	.761	.789	.923	.868	.837	.903	.860	.915

County of Riverside
 N/S: SR-79 (Winchester Road)
 E/W: Domenigoni Parkway
 Weather: Clear

File Name : 03_CRV_SR-79_Domenigoni PM
 Site Code : 07520022
 Start Date : 1/14/2020
 Page No : 1

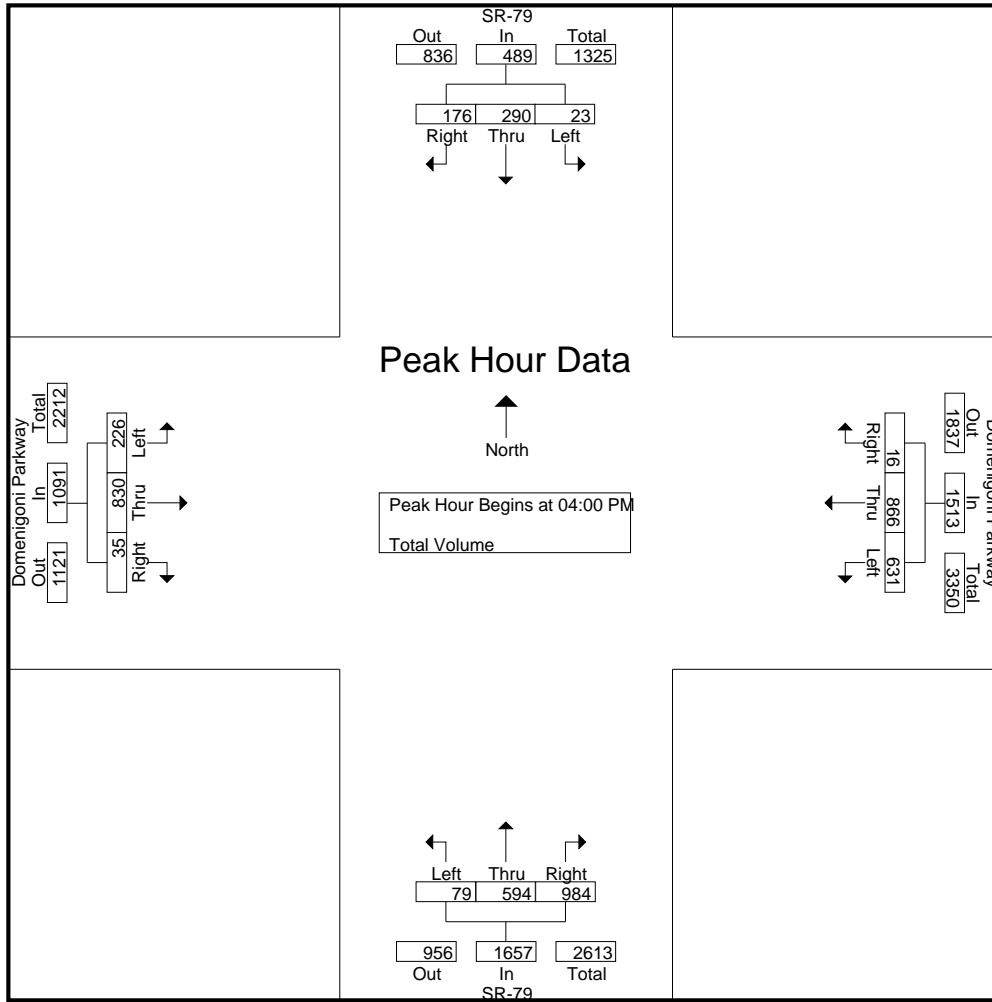
Groups Printed- Total Volume

Start Time	SR-79 Southbound				Domenigoni Parkway Westbound				SR-79 Northbound				Domenigoni Parkway Eastbound				Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	
04:00 PM	10	69	41	120	154	230	5	389	13	126	244	383	65	200	12	277	1169
04:15 PM	4	76	47	127	184	221	4	409	21	177	245	443	58	204	8	270	1249
04:30 PM	5	71	49	125	150	215	5	370	28	133	237	398	50	205	7	262	1155
04:45 PM	4	74	39	117	143	200	2	345	17	158	258	433	53	221	8	282	1177
Total	23	290	176	489	631	866	16	1513	79	594	984	1657	226	830	35	1091	4750
05:00 PM	3	76	32	111	150	169	2	321	13	174	264	451	61	201	19	281	1164
05:15 PM	5	72	31	108	192	229	2	423	19	150	239	408	38	188	9	235	1174
05:30 PM	6	75	32	113	167	192	3	362	26	133	248	407	57	239	10	306	1188
05:45 PM	7	68	32	107	120	141	1	262	25	149	246	420	26	166	14	206	995
Total	21	291	127	439	629	731	8	1368	83	606	997	1686	182	794	52	1028	4521
Grand Total	44	581	303	928	1260	1597	24	2881	162	1200	1981	3343	408	1624	87	2119	9271
Apprch %	4.7	62.6	32.7		43.7	55.4	0.8		4.8	35.9	59.3		19.3	76.6	4.1		
Total %	0.5	6.3	3.3	10	13.6	17.2	0.3	31.1	1.7	12.9	21.4	36.1	4.4	17.5	0.9	22.9	

Start Time	SR-79 Southbound				Domenigoni Parkway Westbound				SR-79 Northbound				Domenigoni Parkway 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 Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:00 PM																	
04:00 PM	10	69	41	120	154	230	5	389	13	126	244	383	65	200	12	277	1169
04:15 PM	4	76	47	127	184	221	4	409	21	177	245	443	58	204	8	270	1249
04:30 PM	5	71	49	125	150	215	5	370	28	133	237	398	50	205	7	262	1155
04:45 PM	4	74	39	117	143	200	2	345	17	158	258	433	53	221	8	282	1177
Total Volume	23	290	176	489	631	866	16	1513	79	594	984	1657	226	830	35	1091	4750
% App. Total	4.7	59.3	36		41.7	57.2	1.1		4.8	35.8	59.4		20.7	76.1	3.2		
PHF	.575	.954	.898	.963	.857	.941	.800	.925	.705	.839	.953	.935	.869	.939	.729	.967	.951

County of Riverside
 N/S: SR-79 (Winchester Road)
 E/W: Domenigoni Parkway
 Weather: Clear

File Name : 03_CRV_SR-79_Domenigoni PM
 Site Code : 07520022
 Start Date : 1/14/2020
 Page No : 2



Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1
 Peak Hour for Each Approach Begins at:

	04:00 PM				04:00 PM				04:15 PM				04:45 PM			
+0 mins.	10	69	41	120	154	230	5	389	21	177	245	443	53	221	8	282
+15 mins.	4	76	47	127	184	221	4	409	28	133	237	398	61	201	19	281
+30 mins.	5	71	49	125	150	215	5	370	17	158	258	433	38	188	9	235
+45 mins.	4	74	39	117	143	200	2	345	13	174	264	451	57	239	10	306
Total Volume	23	290	176	489	631	866	16	1513	79	642	1004	1725	209	849	46	1104
% App. Total	4.7	59.3	36		41.7	57.2	1.1		4.6	37.2	58.2		18.9	76.9	4.2	
PHF	.575	.954	.898	.963	.857	.941	.800	.925	.705	.907	.951	.956	.857	.888	.605	.902

County of Riverside
 N/S: SR-79 (Winchester Road)
 E/W: Newport Road
 Weather: Clear

File Name : 04_CRV_SR-79_Newport AM
 Site Code : 07520022
 Start Date : 1/14/2020
 Page No : 1

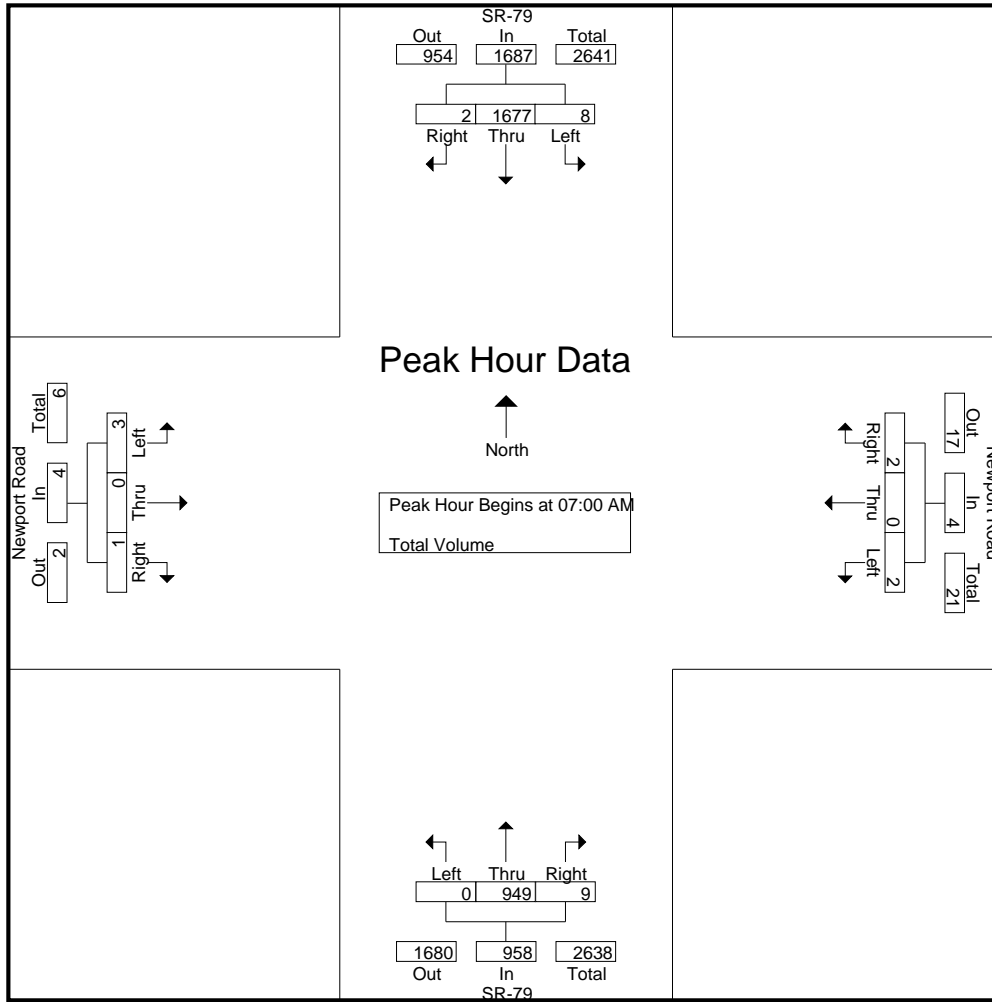
Groups Printed- Total Volume

Start Time	SR-79 Southbound				Newport Road Westbound				SR-79 Northbound				Newport Road Eastbound				Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	
07:00 AM	4	377	1	382	1	0	0	1	0	205	4	209	1	0	0	1	593
07:15 AM	2	425	1	428	0	0	2	2	0	267	1	268	0	0	1	1	699
07:30 AM	2	465	0	467	0	0	0	0	0	269	1	270	1	0	0	1	738
07:45 AM	0	410	0	410	1	0	0	1	0	208	3	211	1	0	0	1	623
Total	8	1677	2	1687	2	0	2	4	0	949	9	958	3	0	1	4	2653
08:00 AM	4	393	0	397	0	0	1	1	0	170	0	170	0	0	0	0	568
08:15 AM	4	383	3	390	0	0	3	3	0	165	1	166	1	0	0	1	560
08:30 AM	3	313	0	316	0	0	2	2	0	194	1	195	1	0	0	1	514
08:45 AM	2	288	0	290	1	0	1	2	0	171	0	171	0	0	0	0	463
Total	13	1377	3	1393	1	0	7	8	0	700	2	702	2	0	0	2	2105
Grand Total	21	3054	5	3080	3	0	9	12	0	1649	11	1660	5	0	1	6	4758
Apprch %	0.7	99.2	0.2		25	0	75		0	99.3	0.7		83.3	0	16.7		
Total %	0.4	64.2	0.1	64.7	0.1	0	0.2	0.3	0	34.7	0.2	34.9	0.1	0	0	0.1	

Start Time	SR-79 Southbound				Newport Road Westbound				SR-79 Northbound				Newport Road 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 Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:00 AM																	
07:00 AM	4	377	1	382	1	0	0	1	0	205	4	209	1	0	0	1	593
07:15 AM	2	425	1	428	0	0	2	2	0	267	1	268	0	0	1	1	699
07:30 AM	2	465	0	467	0	0	0	0	0	269	1	270	1	0	0	1	738
07:45 AM	0	410	0	410	1	0	0	1	0	208	3	211	1	0	0	1	623
Total Volume	8	1677	2	1687	2	0	2	4	0	949	9	958	3	0	1	4	2653
% App. Total	0.5	99.4	0.1		50	0	50		0	99.1	0.9		75	0	25		
PHF	.500	.902	.500	.903	.500	.000	.250	.500	.000	.882	.563	.887	.750	.000	.250	1.00	.899

County of Riverside
 N/S: SR-79 (Winchester Road)
 E/W: Newport Road
 Weather: Clear

File Name : 04_CRV_SR-79_Newport AM
 Site Code : 07520022
 Start Date : 1/14/2020
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Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1
 Peak Hour for Each Approach Begins at:

	07:15 AM				08:00 AM				07:00 AM				07:00 AM			
+0 mins.	2	425	1	428	0	0	1	1	0	205	4	209	1	0	0	1
+15 mins.	2	465	0	467	0	0	3	3	0	267	1	268	0	0	1	1
+30 mins.	0	410	0	410	0	0	2	2	0	269	1	270	1	0	0	1
+45 mins.	4	393	0	397	1	0	1	2	0	208	3	211	1	0	0	1
Total Volume	8	1693	1	1702	1	0	7	8	0	949	9	958	3	0	1	4
% App. Total	0.5	99.5	0.1		12.5	0	87.5		0	99.1	0.9		75	0	25	
PHF	.500	.910	.250	.911	.250	.000	.583	.667	.000	.882	.563	.887	.750	.000	.250	1.000

County of Riverside
 N/S: SR-79 (Winchester Road)
 E/W: Newport Road
 Weather: Clear

File Name : 04_CRV_SR-79_Newport PM
 Site Code : 07520022
 Start Date : 1/14/2020
 Page No : 1

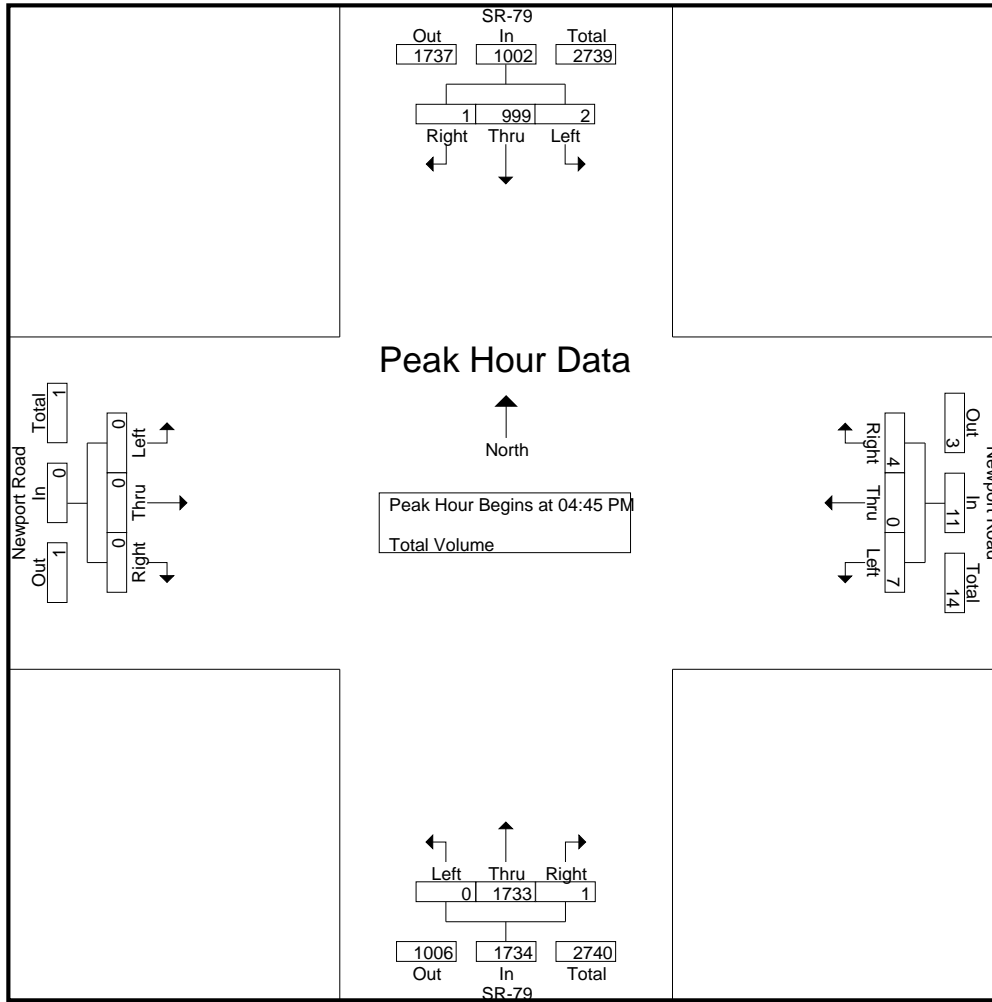
Groups Printed- Total Volume

Start Time	SR-79 Southbound				Newport Road Westbound				SR-79 Northbound				Newport Road Eastbound				Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	
04:00 PM	2	246	1	249	1	0	1	2	0	395	0	395	0	0	1	1	647
04:15 PM	2	255	1	258	3	0	3	6	0	430	1	431	0	0	0	0	695
04:30 PM	1	229	0	230	11	0	12	23	1	402	0	403	0	0	1	1	657
04:45 PM	0	248	0	248	3	0	3	6	0	446	1	447	0	0	0	0	701
Total	5	978	2	985	18	0	19	37	1	1673	2	1676	0	0	2	2	2700
05:00 PM	2	228	0	230	3	0	1	4	0	433	0	433	0	0	0	0	667
05:15 PM	0	275	0	275	0	0	0	0	0	429	0	429	0	0	0	0	704
05:30 PM	0	248	1	249	1	0	0	1	0	425	0	425	0	0	0	0	675
05:45 PM	2	201	0	203	0	0	2	2	0	401	3	404	0	0	0	0	609
Total	4	952	1	957	4	0	3	7	0	1688	3	1691	0	0	0	0	2655
Grand Total	9	1930	3	1942	22	0	22	44	1	3361	5	3367	0	0	2	2	5355
Apprch %	0.5	99.4	0.2		50	0	50		0	99.8	0.1		0	0	100		
Total %	0.2	36	0.1	36.3	0.4	0	0.4	0.8	0	62.8	0.1	62.9	0	0	0	0	

Start Time	SR-79 Southbound				Newport Road Westbound				SR-79 Northbound				Newport Road 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 Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:45 PM																	
04:45 PM	0	248	0	248	3	0	3	6	0	446	1	447	0	0	0	0	701
05:00 PM	2	228	0	230	3	0	1	4	0	433	0	433	0	0	0	0	667
05:15 PM	0	275	0	275	0	0	0	0	0	429	0	429	0	0	0	0	704
05:30 PM	0	248	1	249	1	0	0	1	0	425	0	425	0	0	0	0	675
Total Volume	2	999	1	1002	7	0	4	11	0	1733	1	1734	0	0	0	0	2747
% App. Total	0.2	99.7	0.1		63.6	0	36.4		0	99.9	0.1		0	0	0		
PHF	.250	.908	.250	.911	.583	.000	.333	.458	.000	.971	.250	.970	.000	.000	.000	.000	.975

County of Riverside
 N/S: SR-79 (Winchester Road)
 E/W: Newport Road
 Weather: Clear

File Name : 04_CRV_SR-79_Newport PM
 Site Code : 07520022
 Start Date : 1/14/2020
 Page No : 2



Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1
 Peak Hour for Each Approach Begins at:

	04:45 PM				04:15 PM				04:45 PM				04:00 PM			
+0 mins.	0	248	0	248	3	0	3	6	0	446	1	447	0	0	1	1
+15 mins.	2	228	0	230	11	0	12	23	0	433	0	433	0	0	0	0
+30 mins.	0	275	0	275	3	0	3	6	0	429	0	429	0	0	1	1
+45 mins.	0	248	1	249	3	0	1	4	0	425	0	425	0	0	0	0
Total Volume	2	999	1	1002	20	0	19	39	0	1733	1	1734	0	0	2	2
% App. Total	0.2	99.7	0.1		51.3	0	48.7		0	99.9	0.1		0	0	100	
PHF	.250	.908	.250	.911	.455	.000	.396	.424	.000	.971	.250	.970	.000	.000	.500	.500

County of Riverside
 N/S: SR-79 (Winchester Road)
 E/W: Scott Road/Washington Street
 Weather: Clear

File Name : 05_CRV_SR-79_Scott AM
 Site Code : 07520022
 Start Date : 1/14/2020
 Page No : 1

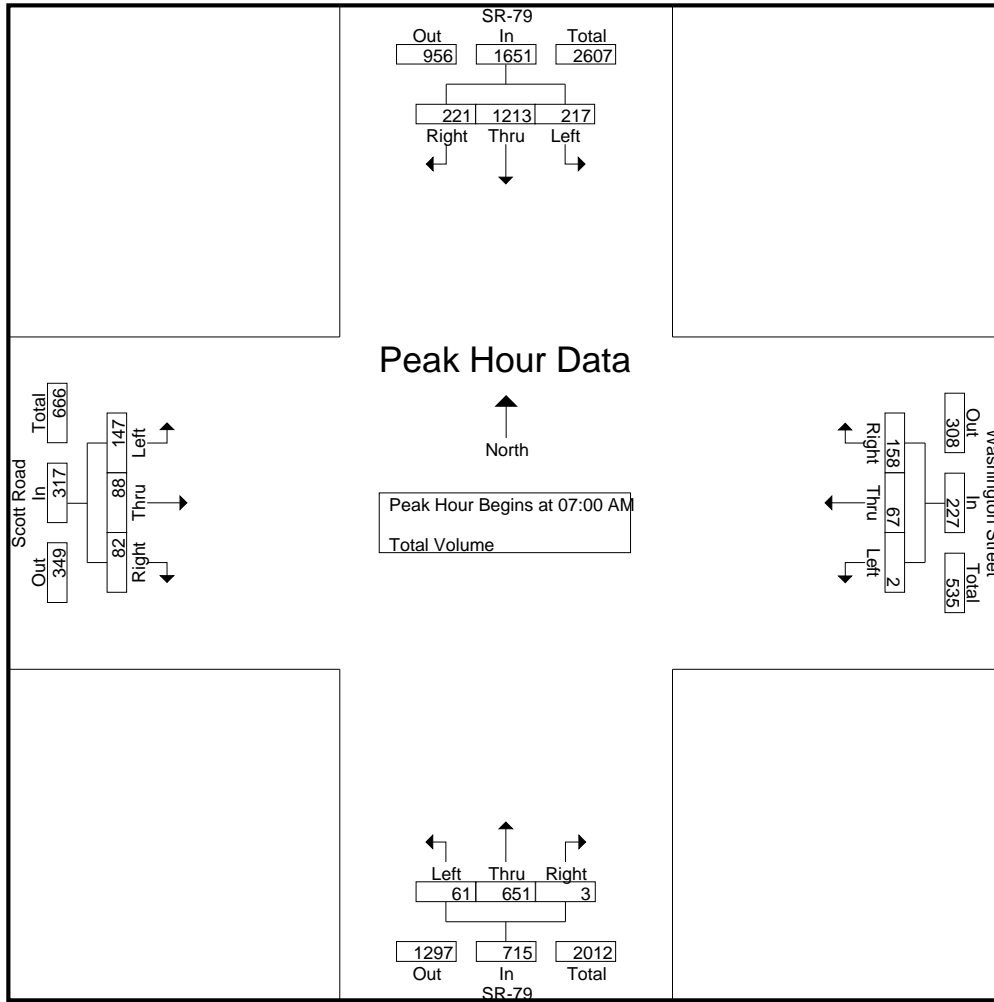
Groups Printed- Total Volume

Start Time	SR-79 Southbound				Washington Street Westbound				SR-79 Northbound				Scott Road Eastbound				Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	
07:00 AM	48	277	50	375	0	17	42	59	22	144	0	166	35	29	34	98	698
07:15 AM	57	305	49	411	0	17	46	63	17	199	1	217	49	19	7	75	766
07:30 AM	66	339	62	467	0	20	36	56	11	181	1	193	36	17	26	79	795
07:45 AM	46	292	60	398	2	13	34	49	11	127	1	139	27	23	15	65	651
Total	217	1213	221	1651	2	67	158	227	61	651	3	715	147	88	82	317	2910
08:00 AM	59	295	63	417	2	20	24	46	13	134	0	147	21	11	15	47	657
08:15 AM	45	308	50	403	1	10	14	25	32	147	0	179	25	11	8	44	651
08:30 AM	48	220	53	321	1	11	36	48	21	118	0	139	24	13	7	44	552
08:45 AM	35	228	44	307	0	15	15	30	27	142	1	170	20	10	11	41	548
Total	187	1051	210	1448	4	56	89	149	93	541	1	635	90	45	41	176	2408
Grand Total	404	2264	431	3099	6	123	247	376	154	1192	4	1350	237	133	123	493	5318
Apprch %	13	73.1	13.9		1.6	32.7	65.7		11.4	88.3	0.3		48.1	27	24.9		
Total %	7.6	42.6	8.1	58.3	0.1	2.3	4.6	7.1	2.9	22.4	0.1	25.4	4.5	2.5	2.3	9.3	

Start Time	SR-79 Southbound				Washington Street Westbound				SR-79 Northbound				Scott Road 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 Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:00 AM																	
07:00 AM	48	277	50	375	0	17	42	59	22	144	0	166	35	29	34	98	698
07:15 AM	57	305	49	411	0	17	46	63	17	199	1	217	49	19	7	75	766
07:30 AM	66	339	62	467	0	20	36	56	11	181	1	193	36	17	26	79	795
07:45 AM	46	292	60	398	2	13	34	49	11	127	1	139	27	23	15	65	651
Total Volume	217	1213	221	1651	2	67	158	227	61	651	3	715	147	88	82	317	2910
% App. Total	13.1	73.5	13.4		0.9	29.5	69.6		8.5	91	0.4		46.4	27.8	25.9		
PHF	.822	.895	.891	.884	.250	.838	.859	.901	.693	.818	.750	.824	.750	.759	.603	.809	.915

County of Riverside
 N/S: SR-79 (Winchester Road)
 E/W: Scott Road/Washington Street
 Weather: Clear

File Name : 05_CRV_SR-79_Scott AM
 Site Code : 07520022
 Start Date : 1/14/2020
 Page No : 2



Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1
 Peak Hour for Each Approach Begins at:

	07:15 AM				07:00 AM				07:00 AM				07:00 AM			
+0 mins.	57	305	49	411	0	17	42	59	22	144	0	166	35	29	34	98
+15 mins.	66	339	62	467	0	17	46	63	17	199	1	217	49	19	7	75
+30 mins.	46	292	60	398	0	20	36	56	11	181	1	193	36	17	26	79
+45 mins.	59	295	63	417	2	13	34	49	11	127	1	139	27	23	15	65
Total Volume	228	1231	234	1693	2	67	158	227	61	651	3	715	147	88	82	317
% App. Total	13.5	72.7	13.8		0.9	29.5	69.6		8.5	91	0.4		46.4	27.8	25.9	
PHF	.864	.908	.929	.906	.250	.838	.859	.901	.693	.818	.750	.824	.750	.759	.603	.809

County of Riverside
 N/S: SR-79 (Winchester Road)
 E/W: Scott Road/Washington Street
 Weather: Clear

File Name : 05_CRV_SR-79_Scott PM
 Site Code : 07520022
 Start Date : 1/14/2020
 Page No : 1

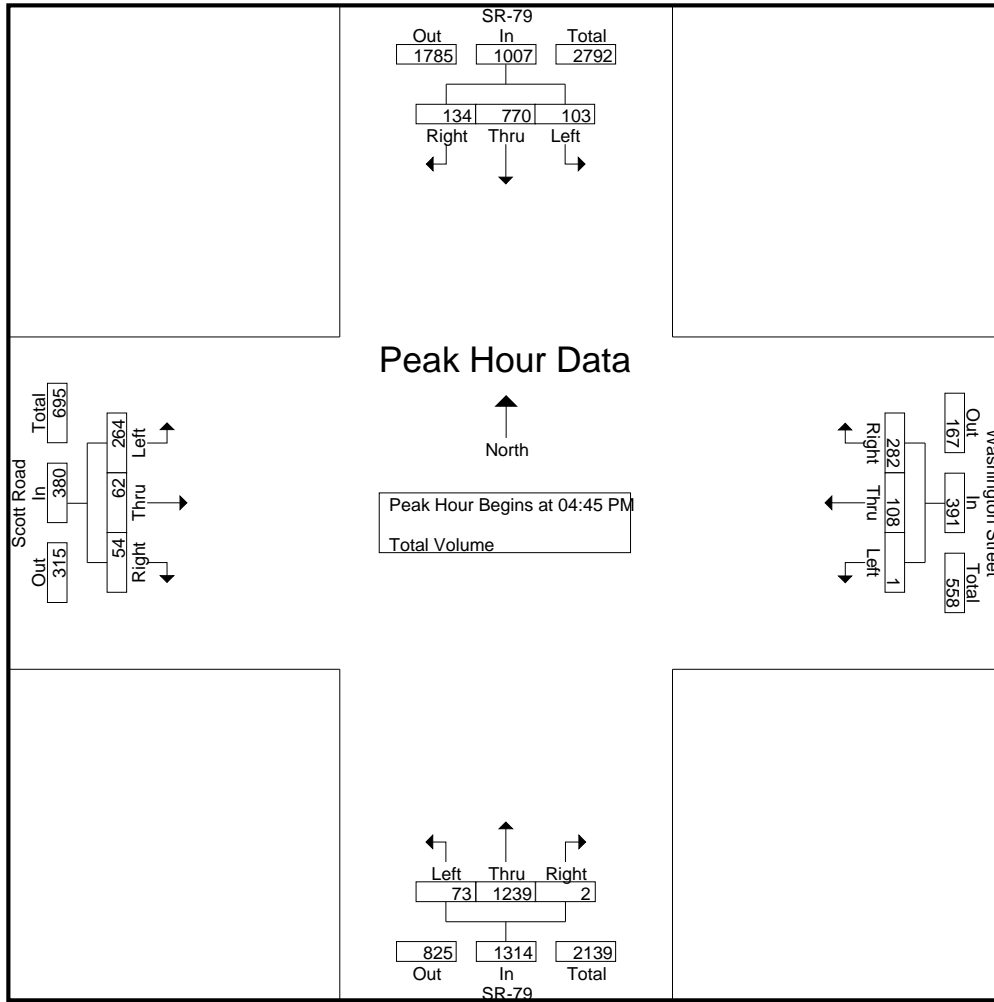
Groups Printed- Total Volume

Start Time	SR-79 Southbound				Washington Street Westbound				SR-79 Northbound				Scott Road Eastbound				Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	
04:00 PM	24	183	28	235	0	28	76	104	24	252	0	276	73	15	10	98	713
04:15 PM	28	194	36	258	1	26	69	96	19	287	2	308	58	10	14	82	744
04:30 PM	29	182	24	235	1	25	58	84	19	299	0	318	71	17	18	106	743
04:45 PM	27	174	44	245	0	24	67	91	20	312	1	333	71	10	15	96	765
Total	108	733	132	973	2	103	270	375	82	1150	3	1235	273	52	57	382	2965
05:00 PM	33	188	29	250	0	31	78	109	12	307	1	320	57	20	12	89	768
05:15 PM	21	208	26	255	0	26	61	87	21	307	0	328	69	17	17	103	773
05:30 PM	22	200	35	257	1	27	76	104	20	313	0	333	67	15	10	92	786
05:45 PM	18	172	17	207	0	27	53	80	9	256	1	266	58	15	12	85	638
Total	94	768	107	969	1	111	268	380	62	1183	2	1247	251	67	51	369	2965
Grand Total	202	1501	239	1942	3	214	538	755	144	2333	5	2482	524	119	108	751	5930
Apprch %	10.4	77.3	12.3		0.4	28.3	71.3		5.8	94	0.2		69.8	15.8	14.4		
Total %	3.4	25.3	4	32.7	0.1	3.6	9.1	12.7	2.4	39.3	0.1	41.9	8.8	2	1.8	12.7	

Start Time	SR-79 Southbound				Washington Street Westbound				SR-79 Northbound				Scott Road 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 Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:45 PM																	
04:45 PM	27	174	44	245	0	24	67	91	20	312	1	333	71	10	15	96	765
05:00 PM	33	188	29	250	0	31	78	109	12	307	1	320	57	20	12	89	768
05:15 PM	21	208	26	255	0	26	61	87	21	307	0	328	69	17	17	103	773
05:30 PM	22	200	35	257	1	27	76	104	20	313	0	333	67	15	10	92	786
Total Volume	103	770	134	1007	1	108	282	391	73	1239	2	1314	264	62	54	380	3092
% App. Total	10.2	76.5	13.3		0.3	27.6	72.1		5.6	94.3	0.2		69.5	16.3	14.2		
PHF	.780	.925	.761	.980	.250	.871	.904	.897	.869	.990	.500	.986	.930	.775	.794	.922	.983

County of Riverside
 N/S: SR-79 (Winchester Road)
 E/W: Scott Road/Washington Street
 Weather: Clear

File Name : 05_CRV_SR-79_Scott PM
 Site Code : 07520022
 Start Date : 1/14/2020
 Page No : 2



Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1
 Peak Hour for Each Approach Begins at:

	04:45 PM				04:45 PM				04:45 PM				04:30 PM			
+0 mins.	27	174	44	245	0	24	67	91	20	312	1	333	71	17	18	106
+15 mins.	33	188	29	250	0	31	78	109	12	307	1	320	71	10	15	96
+30 mins.	21	208	26	255	0	26	61	87	21	307	0	328	57	20	12	89
+45 mins.	22	200	35	257	1	27	76	104	20	313	0	333	69	17	17	103
Total Volume	103	770	134	1007	1	108	282	391	73	1239	2	1314	268	64	62	394
% App. Total	10.2	76.5	13.3		0.3	27.6	72.1		5.6	94.3	0.2		68	16.2	15.7	
PHF	.780	.925	.761	.980	.250	.871	.904	.897	.869	.990	.500	.986	.944	.800	.861	.929

County of Riverside
 N/S: SR-79 (Winchester Road)
 E/W: Whisper Heights Pkwy/Pourroy Road
 Weather: Clear

File Name : 06_CRV_SR-79_Whisper AM
 Site Code : 07520022
 Start Date : 1/14/2020
 Page No : 1

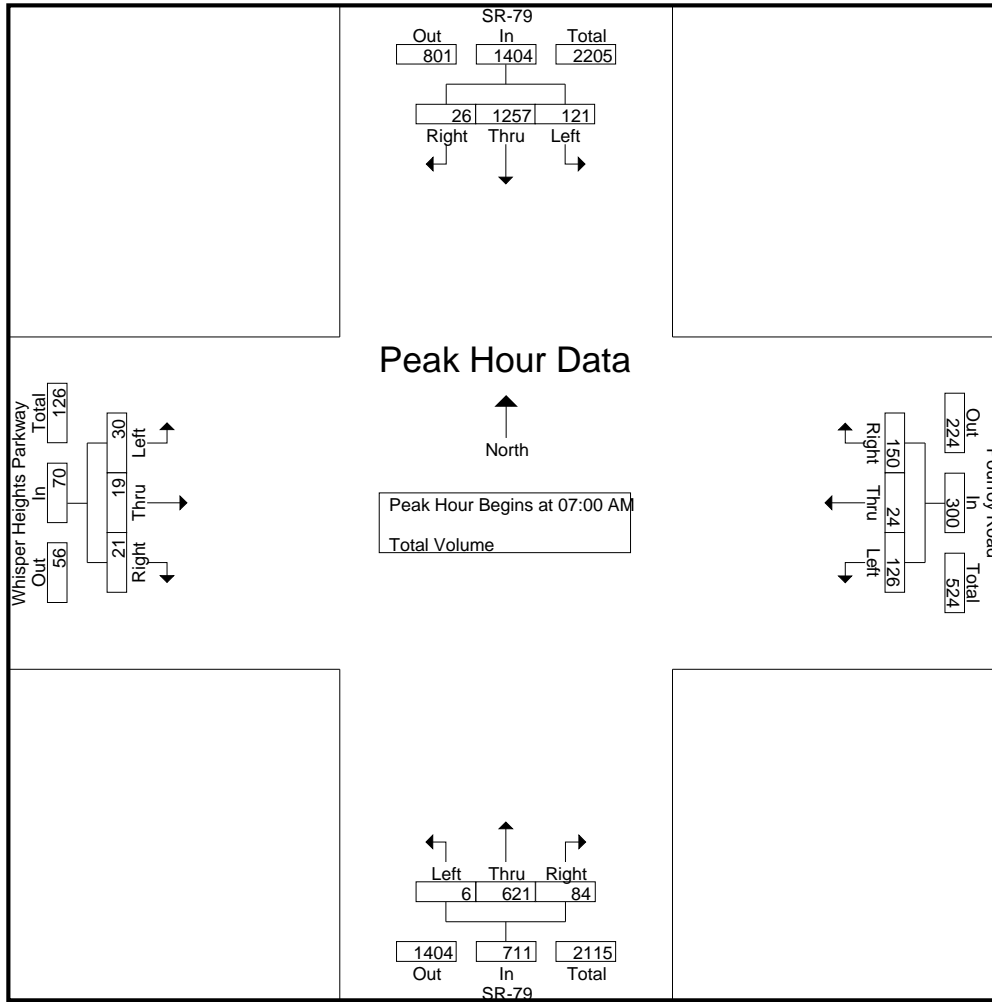
Groups Printed- Total Volume

Start Time	SR-79 Southbound				Pourroy Road Westbound				SR-79 Northbound				Whisper Heights Parkway Eastbound				Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	
07:00 AM	29	273	5	307	28	7	45	80	1	141	19	161	4	6	6	16	564
07:15 AM	30	310	6	346	33	9	48	90	3	196	21	220	5	5	2	12	668
07:30 AM	35	344	6	385	35	4	38	77	2	165	24	191	8	3	9	20	673
07:45 AM	27	330	9	366	30	4	19	53	0	119	20	139	13	5	4	22	580
Total	121	1257	26	1404	126	24	150	300	6	621	84	711	30	19	21	70	2485
08:00 AM	29	271	15	315	31	4	32	67	0	125	14	139	10	11	15	36	557
08:15 AM	28	325	4	357	18	3	38	59	0	130	14	144	1	2	2	5	565
08:30 AM	30	255	3	288	32	7	31	70	1	112	15	128	2	5	5	12	498
08:45 AM	27	247	3	277	30	4	42	76	3	149	16	168	0	1	3	4	525
Total	114	1098	25	1237	111	18	143	272	4	516	59	579	13	19	25	57	2145
Grand Total	235	2355	51	2641	237	42	293	572	10	1137	143	1290	43	38	46	127	4630
Apprch %	8.9	89.2	1.9		41.4	7.3	51.2		0.8	88.1	11.1		33.9	29.9	36.2		
Total %	5.1	50.9	1.1	57	5.1	0.9	6.3	12.4	0.2	24.6	3.1	27.9	0.9	0.8	1	2.7	

Start Time	SR-79 Southbound				Pourroy Road Westbound				SR-79 Northbound				Whisper Heights Parkway 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 Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:00 AM																	
07:00 AM	29	273	5	307	28	7	45	80	1	141	19	161	4	6	6	16	564
07:15 AM	30	310	6	346	33	9	48	90	3	196	21	220	5	5	2	12	668
07:30 AM	35	344	6	385	35	4	38	77	2	165	24	191	8	3	9	20	673
07:45 AM	27	330	9	366	30	4	19	53	0	119	20	139	13	5	4	22	580
Total Volume	121	1257	26	1404	126	24	150	300	6	621	84	711	30	19	21	70	2485
% App. Total	8.6	89.5	1.9		42	8	50		0.8	87.3	11.8		42.9	27.1	30		
PHF	.864	.914	.722	.912	.900	.667	.781	.833	.500	.792	.875	.808	.577	.792	.583	.795	.923

County of Riverside
 N/S: SR-79 (Winchester Road)
 E/W: Whisper Heights Pkwy/Pourroy Road
 Weather: Clear

File Name : 06_CRV_SR-79_Whisper AM
 Site Code : 07520022
 Start Date : 1/14/2020
 Page No : 2



Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1
 Peak Hour for Each Approach Begins at:

	07:30 AM				07:00 AM				07:00 AM				07:15 AM			
+0 mins.	35	344	6	385	28	7	45	80	1	141	19	161	5	5	2	12
+15 mins.	27	330	9	366	33	9	48	90	3	196	21	220	8	3	9	20
+30 mins.	29	271	15	315	35	4	38	77	2	165	24	191	13	5	4	22
+45 mins.	28	325	4	357	30	4	19	53	0	119	20	139	10	11	15	36
Total Volume	119	1270	34	1423	126	24	150	300	6	621	84	711	36	24	30	90
% App. Total	8.4	89.2	2.4		42	8	50		0.8	87.3	11.8		40	26.7	33.3	
PHF	.850	.923	.567	.924	.900	.667	.781	.833	.500	.792	.875	.808	.692	.545	.500	.625

County of Riverside
 N/S: SR-79 (Winchester Road)
 E/W: Whisper Heights Pkwy/Pourroy Road
 Weather: Clear

File Name : 06_CRV_SR-79_Whisper PM
 Site Code : 07520022
 Start Date : 1/14/2020
 Page No : 1

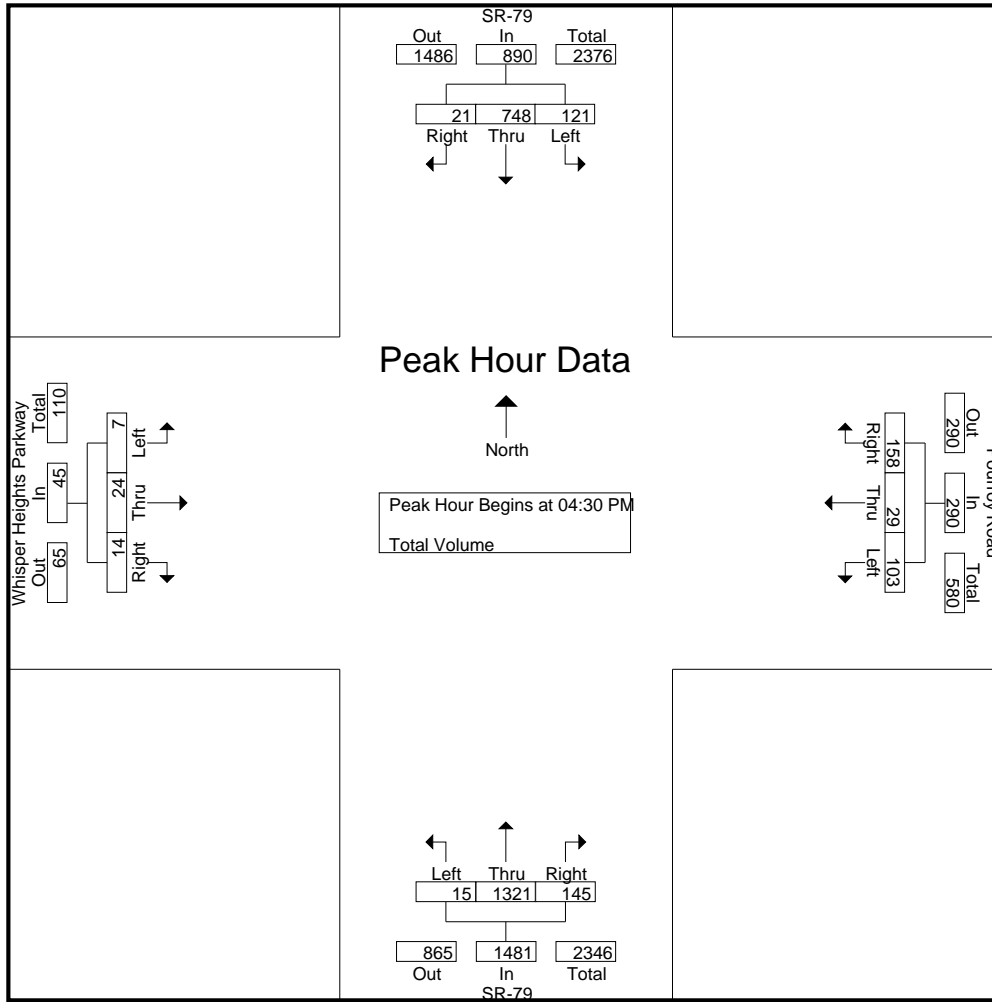
Groups Printed- Total Volume

Start Time	SR-79 Southbound				Pourroy Road Westbound				SR-79 Northbound				Whisper Heights Parkway Eastbound				Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	
04:00 PM	29	176	3	208	28	4	38	70	4	288	33	325	2	5	1	8	611
04:15 PM	22	169	11	202	29	13	24	66	7	285	27	319	2	2	0	4	591
04:30 PM	34	207	7	248	28	9	40	77	7	346	27	380	4	10	6	20	725
04:45 PM	21	175	3	199	22	8	38	68	4	329	35	368	1	5	5	11	646
Total	106	727	24	857	107	34	140	281	22	1248	122	1392	9	22	12	43	2573
05:00 PM	29	176	3	208	28	2	41	71	2	299	35	336	2	5	1	8	623
05:15 PM	37	190	8	235	25	10	39	74	2	347	48	397	0	4	2	6	712
05:30 PM	41	192	5	238	36	14	46	96	7	296	37	340	1	1	2	4	678
05:45 PM	30	167	2	199	17	7	28	52	6	289	32	327	6	14	12	32	610
Total	137	725	18	880	106	33	154	293	17	1231	152	1400	9	24	17	50	2623
Grand Total	243	1452	42	1737	213	67	294	574	39	2479	274	2792	18	46	29	93	5196
Apprch %	14	83.6	2.4		37.1	11.7	51.2		1.4	88.8	9.8		19.4	49.5	31.2		
Total %	4.7	27.9	0.8	33.4	4.1	1.3	5.7	11	0.8	47.7	5.3	53.7	0.3	0.9	0.6	1.8	

Start Time	SR-79 Southbound				Pourroy Road Westbound				SR-79 Northbound				Whisper Heights Parkway 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 Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:30 PM																	
04:30 PM	34	207	7	248	28	9	40	77	7	346	27	380	4	10	6	20	725
04:45 PM	21	175	3	199	22	8	38	68	4	329	35	368	1	5	5	11	646
05:00 PM	29	176	3	208	28	2	41	71	2	299	35	336	2	5	1	8	623
05:15 PM	37	190	8	235	25	10	39	74	2	347	48	397	0	4	2	6	712
Total Volume	121	748	21	890	103	29	158	290	15	1321	145	1481	7	24	14	45	2706
% App. Total	13.6	84	2.4		35.5	10	54.5		1	89.2	9.8		15.6	53.3	31.1		
PHF	.818	.903	.656	.897	.920	.725	.963	.942	.536	.952	.755	.933	.438	.600	.583	.563	.933

County of Riverside
 N/S: SR-79 (Winchester Road)
 E/W: Whisper Heights Pkwy/Pourroy Road
 Weather: Clear

File Name : 06_CRV_SR-79_Whisper PM
 Site Code : 07520022
 Start Date : 1/14/2020
 Page No : 2



Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1
 Peak Hour for Each Approach Begins at:

	04:30 PM				04:45 PM				04:30 PM				05:00 PM			
+0 mins.	34	207	7	248	22	8	38	68	7	346	27	380	2	5	1	8
+15 mins.	21	175	3	199	28	2	41	71	4	329	35	368	0	4	2	6
+30 mins.	29	176	3	208	25	10	39	74	2	299	35	336	1	1	2	4
+45 mins.	37	190	8	235	36	14	46	96	2	347	48	397	6	14	12	32
Total Volume	121	748	21	890	111	34	164	309	15	1321	145	1481	9	24	17	50
% App. Total	13.6	84	2.4		35.9	11	53.1		1	89.2	9.8		18	48	34	
PHF	.818	.903	.656	.897	.771	.607	.891	.805	.536	.952	.755	.933	.375	.429	.354	.391

APPENDIX C

Explanation and Calculation of Intersection Delay

EXPLANATION AND CALCULATION OF INTERSECTION LEVEL OF SERVICE USING DELAY METHODOLOGY

The levels of service at the unsignalized and signalized intersections are calculated using the delay methodology in the Highway Capacity Manual. This methodology views an intersection as consisting of several lane groups. A lane group is a set of lanes serving a movement. If there are two northbound left turn lanes, then the lane group serving the northbound left turn movement has two lanes. Similarly, there may be three lanes in the lane group serving the northbound through movement, one lane in the lane group serving the northbound right turn movement, and so forth. It is also possible for one lane to serve two lane groups. A shared lane might result in there being 1.5 lanes in the northbound left turn lane group and 2.5 lanes in the northbound through lane group.

For each lane group, there is a capacity. That capacity is calculated by multiplying the number of lanes in the lane group times a theoretical maximum lane capacity per lane times 12 adjustment factors.

Each of the 12 adjustment factors has a value of approximately 1.00. A value less than 1.00 is generally assigned when a less than desirable condition occurs.

The 12 adjustment factors are as follows:

1. Peak hour factor (to account for peaking within the peak hour)
2. Lane utilization factor (to account for not all lanes loading equally)
3. Lane width
4. Percent of heavy trucks
5. Approach grade
6. Parking
7. Bus stops at intersections

8. Area type (CBD or other)
9. Right turns
10. Left turns
11. Pedestrian activity
12. Signal progression

The maximum theoretical lane capacity and the 12 adjustment factors for it are all unknowns for which approximate estimates have been recommended in the Highway Capacity Manual. For the most part, the recommended values are not based on statistical analysis but rather on educated estimates. However, it is possible to use the delay method and get reasonable results as will be discussed below.

Once the lane group volume is known and the lane group capacity is known, a volume to capacity ratio can be calculated for the lane group.

With a volume to capacity ratio calculated, average delay per vehicle in a lane group can be estimated. The average delay per vehicle in a lane group is calculated using a complex formula provided by the Highway Capacity Manual, which can be simplified and described as follows:

Delay per vehicle in a lane group is a function of the following:

1. Cycle length
2. Amount of red time faced by a lane group
3. Amount of yellow time for that lane group
4. The volume to capacity ratio of the lane group

The average delay per vehicle for each lane group is calculated, and eventually an overall average delay for all vehicles entering the intersection is calculated. This average delay per vehicle is then used to judge Level of Service. The Level of Services are defined in the table that follows this discussion.

Experience has shown that when a maximum lane capacity of 1,900 vehicles per hour is used (as recommended in the Highway Capacity Manual), little or no yellow time penalty is used, and none of the 12 penalty factors are applied, calculated delay is realistic. The delay calculation for instance assumes that yellow time is totally unused. Yet experience shows that most of the yellow time is used.

An idiosyncrasy of the delay methodology is that it is possible to add traffic to an intersection and reduce the average total delay per vehicle. If the average total delay is 30 seconds per vehicle for all vehicles traveling through an intersection, and traffic is added to a movement that has an average total delay of 15 seconds per vehicle, then the overall average total delay is reduced.

The delay calculation for a lane group is based on a concept that the delay is a function of the amount of unused capacity available. As the volume approaches capacity and there is no more unused capacity available, then the delay rapidly increases. Delay is not proportional to volume, but rather increases rapidly as the unused capacity approaches zero.

Because delay is not linearly related to volumes, the delay does not reflect how close an intersection is to overloading. If an intersection is operating at Level of Service C and has an average total delay of 18 seconds per vehicle, you know very little as to what percent the traffic can increase before Level of Service is reached.

LEVEL OF SERVICE DESCRIPTION¹

Level Of Service	Description	Average Total Delay Per Vehicle (Seconds)	
		Signalized	Unsignalized
A	Level of Service A occurs when progression is extremely favorable and most vehicles arrive during the green phase. Most vehicles do not stop at all. Short cycle lengths may also contribute to low delay.	0 to 10.00	0 to 10.00
B	Level of Service B generally occurs with good progression and/or short cycle lengths. More vehicles stop than for Level of Service A, causing higher levels of average total delay.	10.01 to 20.00	10.01 to 15.00
C	Level of Service C generally results when there is fair progression and/or longer cycle lengths. Individual cycle failures may begin to appear in this level. The number of vehicles stopping is significant at this level, although many still pass through the intersection without stopping.	20.01 to 35.00	15.01 to 25.00
D	Level of Service D generally results in noticeable congestion. Longer delays may result from some combination of unfavorable progression, long cycle lengths, or high volume to capacity ratios. Many vehicles stop, and the proportion of vehicles not stopping declines. Individual cycle failures are noticeable.	35.01 to 55.00	25.01 to 35.00
E	Level of Service E is considered to be the limit of acceptable delay. These high delay values generally indicate poor progression, long cycle lengths, and high volume to capacity ratios. Individual cycle failures are frequent occurrences.	55.01 to 80.00	35.01 to 50.00
F	Level of Service F is considered to be unacceptable to most drivers. This condition often occurs with oversaturation, i.e., when arrival flow rates exceed the capacity of the intersection. It may also occur at high volume to capacity ratios below 1.00 with many individual cycle failures. Poor progression and long cycle lengths may also be major contributing causes to such delay levels.	80.01 and up	50.01 and up

¹ Source: Highway Capacity Manual Special Report 209, Transportation Research Board, National Research Council, Washington, D.C., 2000.

Existing

Diamon Gas & Storage

Vistro File: C:\...\IAM.vistro
Report File: C:\...\IAM E.pdf

Scenario 1 Existing
1/12/2021

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
2	Winchester Road (SR-79) (NS) at Route 74 (EW)	Signalized	HCM 2010	WB Left	0.831	26.6	C
3	Winchester Road (SR-79) (NS) at Simpson Road (EW)	Signalized	HCM 2010	SB Left	0.412	16.9	B
4	Winchester Road (SR-79) (NS) at Domenigoni Parkway (EW)	Signalized	HCM 2010	NB Right	1.071	79.8	E
5	Winchester Road (SR-79) (NS) at Newport Road (EW)	Signalized	HCM 2010	SB Left	0.589	1.7	A
6	Winchester Road (SR-79) (NS) at Scott Road/Washington Street (EW)	Signalized	HCM 2010	WB Left	0.591	20.1	C
7	Winchester Road (SR-79) (NS) at Whisper Heights/Pourroy Road (EW)	Signalized	HCM 2010	NB Left	0.606	15.5	B

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. For all other control types, they are taken for the whole intersection.

Intersection Level Of Service Report

Intersection 2: Winchester Road (SR-79) (NS) at Route 74 (EW)

Control Type:	Signalized	Delay (sec / veh):	26.6
Analysis Method:	HCM 2010	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.831

Intersection Setup

Name	Northbound			Southbound			Eastbound			Westbound		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration	↵↵			↵↵			↵↵↵			↵↵		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	0	1	0	0	1	0	1	1	0	0
Pocket Length [ft]	180.00	100.00	100.00	50.00	100.00	100.00	150.00	100.00	300.00	100.00	100.00	100.00
Speed [mph]	45.00			45.00			50.00			50.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			No			Yes			No		

Volumes

Name	Northbound			Southbound			Eastbound			Westbound		
Base Volume Input [veh/h]	78	15	417	20	27	4	8	720	103	491	544	31
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	78	15	417	20	27	4	8	720	103	491	544	31
Peak Hour Factor	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	21	4	110	5	7	1	2	189	27	129	143	8
Total Analysis Volume [veh/h]	82	16	439	21	28	4	8	758	108	517	573	33
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	60
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	4.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal group	0	2	0	0	6	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	0	7	0	0	7	0	7	7	0	7	7	0
Maximum Green [s]	0	30	0	0	30	0	30	30	0	30	30	0
Amber [s]	0.0	3.0	0.0	0.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Split [s]	0	20	0	0	20	0	27	20	0	20	13	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	10	0	0	10	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	1.0	0.0	0.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Minimum Recall		No			No		No	No		No	No	
Maximum Recall		No			No		No	No		No	No	
Pedestrian Recall		No			No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	L	C	L	C	R	L	C	C
C, Cycle Length [s]	60	60	60	60	60	60	60	60	60	60
L, Total Lost Time per Cycle [s]	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00
l1_p, Permitted Start-Up Lost Time [s]	2.00	0.00	2.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
g_i, Effective Green Time [s]	19	19	19	19	1	15	15	17	31	31
g / C, Green / Cycle	0.32	0.32	0.32	0.32	0.02	0.25	0.25	0.28	0.52	0.52
(v / s)_i Volume / Saturation Flow Rate	0.06	0.28	0.02	0.02	0.00	0.21	0.07	0.29	0.16	0.16
s, saturation flow rate [veh/h]	1399	1624	951	1859	1810	3618	1615	1810	1900	1864
c, Capacity [veh/h]	511	519	143	594	30	895	399	513	977	958
d1, Uniform Delay [s]	16.58	19.35	29.24	14.17	29.21	21.55	18.26	21.55	8.46	8.46
k, delay calibration	0.50	0.50	0.50	0.50	0.11	0.11	0.11	0.15	0.11	0.11
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.67	18.52	2.14	0.17	4.60	2.33	0.36	23.76	0.18	0.18
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.16	0.88	0.15	0.05	0.27	0.85	0.27	1.01	0.31	0.31
d, Delay for Lane Group [s/veh]	17.26	37.87	31.38	14.34	33.81	23.89	18.62	45.31	8.64	8.65
Lane Group LOS	B	D	C	B	C	C	B	F	A	A
Critical Lane Group	No	Yes	No	No	No	Yes	No	Yes	No	No
50th-Percentile Queue Length [veh/ln]	0.83	7.59	0.36	0.28	0.14	4.49	1.05	9.23	1.62	1.59
50th-Percentile Queue Length [ft/ln]	20.81	189.87	8.96	7.05	3.50	112.34	26.37	230.77	40.41	39.69
95th-Percentile Queue Length [veh/ln]	1.50	12.11	0.64	0.51	0.25	7.97	1.90	14.28	2.91	2.86
95th-Percentile Queue Length [ft/ln]	37.46	302.86	16.12	12.70	6.30	199.25	47.47	356.95	72.74	71.44

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	17.26	37.87	37.87	31.38	14.34	14.34	33.81	23.89	18.62	45.31	8.65	8.65
Movement LOS	B	D	D	C	B	B	C	C	B	F	A	A
d_A, Approach Delay [s/veh]	34.72			21.09			23.33			25.53		
Approach LOS	C			C			C			C		
d_I, Intersection Delay [s/veh]	26.60											
Intersection LOS	C											
Intersection V/C	0.831											

Sequence

Ring 1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report

Intersection 3: Winchester Road (SR-79) (NS) at Simpson Road (EW)

Control Type:	Signalized	Delay (sec / veh):	16.9
Analysis Method:	HCM 2010	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.412

Intersection Setup

Name	Northbound			Southbound			Eastbound			Westbound		
Approach	[Diagram]			[Diagram]			[Diagram]			[Diagram]		
Lane Configuration	[Diagram]			[Diagram]			[Diagram]			[Diagram]		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	0	1	0	0	1	0	1	1	0	1
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	150.00	100.00	150.00	100.00	100.00	100.00
Speed [mph]	50.00			50.00			50.00			50.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Northbound			Southbound			Eastbound			Westbound		
Base Volume Input [veh/h]	39	422	45	10	629	139	154	178	107	158	132	19
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	39	422	45	10	629	139	154	178	107	158	132	19
Peak Hour Factor	0.9800	0.9800	0.9800	0.9800	0.9800	0.9800	0.9800	0.9800	0.9800	0.9800	0.9800	0.9800
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	10	108	11	3	160	35	39	45	27	40	34	5
Total Analysis Volume [veh/h]	40	431	46	10	642	142	157	182	109	161	135	19
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	60
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	4.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal group	5	2	0	1	6	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	7	7	0	7	7	0	7	7	0	7	7	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Split [s]	10	20	0	10	20	0	10	20	0	10	20	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	10	0	0	10	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	R	L	C	R
C, Cycle Length [s]	60	60	60	60	60	60	60	60	60	60	60	60
L, Total Lost Time per Cycle [s]	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
g_i, Effective Green Time [s]	4	32	32	1	30	30	7	8	8	7	8	8
g / C, Green / Cycle	0.06	0.54	0.54	0.02	0.50	0.50	0.11	0.13	0.13	0.11	0.14	0.14
(v / s)_i Volume / Saturation Flow Rate	0.02	0.12	0.03	0.01	0.18	0.09	0.09	0.10	0.07	0.09	0.07	0.01
s, saturation flow rate [veh/h]	1810	3618	1615	1810	3618	1615	1810	1900	1615	1810	1900	1615
c, Capacity [veh/h]	108	1927	860	37	1785	797	203	254	216	207	259	220
d1, Uniform Delay [s]	27.27	7.48	6.78	29.09	9.41	8.48	26.03	25.01	24.25	25.95	24.21	22.76
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.11
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	2.12	0.27	0.12	3.94	0.57	0.49	6.23	3.74	1.82	6.21	1.63	0.17
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

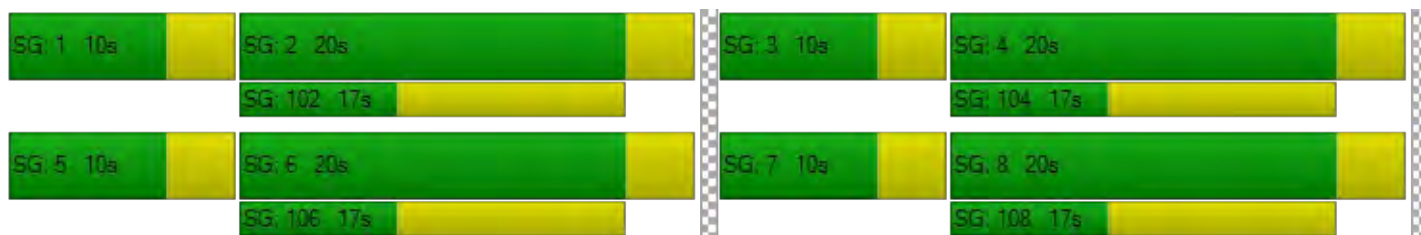
X, volume / capacity	0.37	0.22	0.05	0.27	0.36	0.18	0.78	0.72	0.50	0.78	0.52	0.09
d, Delay for Lane Group [s/veh]	29.39	7.75	6.90	33.04	9.97	8.97	32.26	28.75	26.07	32.16	25.84	22.92
Lane Group LOS	C	A	A	C	A	A	C	C	C	C	C	C
Critical Lane Group	Yes	No	No	No	Yes	No	No	Yes	No	Yes	No	No
50th-Percentile Queue Length [veh/ln]	0.55	1.04	0.22	0.17	1.95	0.83	2.25	2.42	1.36	2.30	1.66	0.21
50th-Percentile Queue Length [ft/ln]	13.80	26.10	5.41	4.17	48.65	20.72	56.31	60.41	33.97	57.61	41.62	5.37
95th-Percentile Queue Length [veh/ln]	0.99	1.88	0.39	0.30	3.50	1.49	4.05	4.35	2.45	4.15	3.00	0.39
95th-Percentile Queue Length [ft/ln]	24.83	46.99	9.74	7.50	87.56	37.29	101.36	108.73	61.14	103.70	74.91	9.67

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	29.39	7.75	6.90	33.04	9.97	8.97	32.26	28.75	26.07	32.16	25.84	22.92
Movement LOS	C	A	A	C	A	A	C	C	C	C	C	C
d_A, Approach Delay [s/veh]	9.34			10.08			29.33			28.89		
Approach LOS	A			B			C			C		
d_I, Intersection Delay [s/veh]	16.91											
Intersection LOS	B											
Intersection V/C	0.412											

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 4: Winchester Road (SR-79) (NS) at Domenigoni Parkway (EW)

Control Type:	Signalized	Delay (sec / veh):	79.8
Analysis Method:	HCM 2010	Level Of Service:	E
Analysis Period:	15 minutes	Volume to Capacity (v/c):	1.071

Intersection Setup

Name	Northbound			Southbound			Eastbound			Westbound		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration	T T T			T T T			T T T			T T T		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	1	1	0	1	2	0	1	2	0	1
Pocket Length [ft]	350.00	100.00	525.00	220.00	100.00	240.00	380.00	100.00	380.00	300.00	100.00	280.00
Speed [mph]	45.00			55.00			55.00			55.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Northbound			Southbound			Eastbound			Westbound		
Base Volume Input [veh/h]	77	323	717	21	764	257	191	930	173	951	875	38
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	77	323	717	21	764	257	191	930	173	951	875	38
Peak Hour Factor	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	20	85	189	6	201	68	50	245	46	250	230	10
Total Analysis Volume [veh/h]	81	340	755	22	804	271	201	979	182	1001	921	40
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	4.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal group	5	2	0	1	6	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	7	7	0	7	7	0	7	7	0	7	7	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Split [s]	10	47	0	10	47	0	16	31	0	32	47	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	10	0	0	10	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	R	L	C	R
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
g_i, Effective Green Time [s]	7	47	47	4	44	44	9	28	28	29	48	48
g / C, Green / Cycle	0.06	0.39	0.39	0.03	0.37	0.37	0.07	0.23	0.23	0.24	0.40	0.40
(v / s)_i Volume / Saturation Flow Rate	0.04	0.09	0.47	0.01	0.22	0.17	0.06	0.27	0.11	0.28	0.18	0.02
s, saturation flow rate [veh/h]	1810	3618	1615	1810	3618	1615	3514	3618	1615	3514	5176	1615
c, Capacity [veh/h]	104	1426	637	56	1331	594	263	843	376	849	2069	646
d1, Uniform Delay [s]	55.83	24.32	36.36	57.03	30.83	28.81	54.48	46.04	39.79	45.52	26.31	22.18
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.13	0.11	0.15	0.11	0.11
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	11.81	0.39	98.96	4.32	2.04	2.51	4.58	76.26	0.96	84.50	0.15	0.04
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

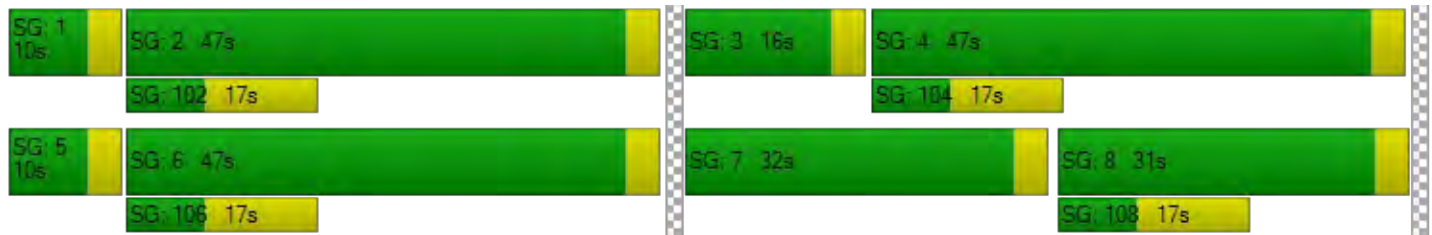
X, volume / capacity	0.78	0.24	1.19	0.39	0.60	0.46	0.76	1.16	0.48	1.18	0.45	0.06
d, Delay for Lane Group [s/veh]	67.64	24.71	135.32	61.35	32.87	31.33	59.06	122.30	40.75	130.02	26.46	22.22
Lane Group LOS	E	C	F	E	C	C	E	F	D	F	C	C
Critical Lane Group	No	No	Yes	Yes	No	No	No	Yes	No	Yes	No	No
50th-Percentile Queue Length [veh/ln]	2.70	3.20	34.97	0.70	9.19	5.97	3.03	20.77	4.52	21.87	6.00	0.66
50th-Percentile Queue Length [ft/ln]	67.61	79.94	874.17	17.45	229.70	149.15	75.69	519.29	113.00	546.66	149.89	16.56
95th-Percentile Queue Length [veh/ln]	4.87	5.76	50.06	1.26	14.16	9.97	5.45	30.64	8.01	32.32	10.01	1.19
95th-Percentile Queue Length [ft/ln]	121.70	143.89	1251.60	31.41	353.97	249.29	136.23	765.97	200.17	807.94	250.28	29.81

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	67.64	24.71	135.32	61.35	32.87	31.33	59.06	122.30	40.75	130.02	26.46	22.22
Movement LOS	E	C	F	E	C	C	E	F	D	F	C	C
d_A, Approach Delay [s/veh]	98.68			33.06			102.07			79.21		
Approach LOS	F			C			F			E		
d_I, Intersection Delay [s/veh]	79.82											
Intersection LOS	E											
Intersection V/C	1.071											

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report

Intersection 5: Winchester Road (SR-79) (NS) at Newport Road (EW)

Control Type:	Signalized	Delay (sec / veh):	1.7
Analysis Method:	HCM 2010	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.589

Intersection Setup

Name	Northbound			Southbound			Eastbound			Westbound		
Approach												
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	1	1	0	1	0	0	1	0	0	0
Pocket Length [ft]	225.00	100.00	550.00	550.00	100.00	550.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	65.00			65.00			55.00			45.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			Yes			Yes			Yes		

Volumes

Name	Northbound			Southbound			Eastbound			Westbound		
Base Volume Input [veh/h]	0	1066	10	9	1843	2	3	0	1	3	0	3
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	1066	10	9	1843	2	3	0	1	3	0	3
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	267	3	2	461	1	1	0	0	1	0	1
Total Analysis Volume [veh/h]	0	1066	10	9	1843	2	3	0	1	3	0	3
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	4.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal group	5	2	0	1	6	0	0	8	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	-	-	-	-	-	-
Minimum Green [s]	7	7	0	7	7	0	0	7	0	0	7	0
Maximum Green [s]	30	30	0	30	30	0	0	30	0	0	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
All red [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Split [s]	10	89	0	11	90	0	0	20	0	0	20	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	10	0	0	10	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	1.0	1.0	0.0	1.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0
Minimum Recall	No	No		No	No			No			No	
Maximum Recall	No	No		No	No			No			No	
Pedestrian Recall	No	No		No	No			No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	C	R	C
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	2.00	0.00	2.00
l2, Clearance Lost Time [s]	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
g_i, Effective Green Time [s]	0	108	108	2	110	110	1	1	1
g / C, Green / Cycle	0.00	0.90	0.90	0.02	0.91	0.91	0.01	0.01	0.01
(v / s)_i Volume / Saturation Flow Rate	0.00	0.21	0.01	0.00	0.51	0.00	0.00	0.00	0.06
s, saturation flow rate [veh/h]	1810	5176	1615	1810	3618	1615	1870	1615	101
c, Capacity [veh/h]	1	4650	1451	28	3305	1475	81	18	46
d1, Uniform Delay [s]	0.00	0.78	0.62	58.42	0.92	0.45	58.76	58.70	59.97
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.00	0.12	0.01	6.37	0.68	0.00	0.19	1.30	1.26
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.00	0.23	0.01	0.32	0.56	0.00	0.04	0.06	0.13
d, Delay for Lane Group [s/veh]	0.00	0.89	0.63	64.79	1.60	0.45	58.94	60.00	61.23
Lane Group LOS	A	A	A	E	A	A	E	E	E
Critical Lane Group	No	No	No	No	Yes	No	No	No	Yes
50th-Percentile Queue Length [veh/ln]	0.00	0.05	0.00	0.31	0.31	0.00	0.09	0.04	0.20
50th-Percentile Queue Length [ft/ln]	0.00	1.24	0.09	7.65	7.85	0.02	2.28	0.88	4.88
95th-Percentile Queue Length [veh/ln]	0.00	0.09	0.01	0.55	0.57	0.00	0.16	0.06	0.35
95th-Percentile Queue Length [ft/ln]	0.00	2.23	0.16	13.77	14.14	0.03	4.10	1.59	8.79

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	0.00	0.89	0.63	64.79	1.60	0.45	58.94	58.94	60.00	61.23	61.23	61.23
Movement LOS	A	A	A	E	A	A	E	E	E	E	E	E
d_A, Approach Delay [s/veh]	0.89			1.91			59.21			61.23		
Approach LOS	A			A			E			E		
d_I, Intersection Delay [s/veh]	1.73											
Intersection LOS	A											
Intersection V/C	0.589											

Sequence

Ring 1	1	2	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report

Intersection 6: Winchester Road (SR-79) (NS) at Scott Road/Washington Street (EW)

Control Type:	Signalized	Delay (sec / veh):	20.1
Analysis Method:	HCM 2010	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.591

Intersection Setup

Name	Northbound			Southbound			Eastbound			Westbound		
Approach												
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	65.00			65.00			45.00			55.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			No			Yes			Yes		

Volumes

Name	Northbound			Southbound			Eastbound			Westbound		
Base Volume Input [veh/h]	74	794	4	238	1333	243	181	109	101	2	74	176
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	74	794	4	238	1333	243	181	109	101	2	74	176
Peak Hour Factor	0.9100	0.9100	0.9100	0.9100	0.9100	0.9100	0.9100	0.9100	0.9100	0.9100	0.9100	0.9100
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	20	218	1	65	366	67	50	30	28	1	20	48
Total Analysis Volume [veh/h]	81	873	4	262	1465	267	199	120	111	2	81	193
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	70
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	4.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal group	5	2	0	1	6	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	7	7	0	7	7	0	7	7	0	7	7	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Split [s]	11	20	0	19	28	0	13	20	0	11	18	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	10	0	0	10	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	R	L	C	R
C, Cycle Length [s]	70	70	70	70	70	70	70	70	70	70	70	70
L, Total Lost Time per Cycle [s]	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
g_i, Effective Green Time [s]	6	26	26	12	33	33	9	20	20	0	10	10
g / C, Green / Cycle	0.08	0.37	0.37	0.17	0.47	0.47	0.13	0.28	0.28	0.00	0.15	0.15
(v / s)_i Volume / Saturation Flow Rate	0.04	0.17	0.00	0.14	0.28	0.17	0.11	0.06	0.07	0.00	0.04	0.12
s, saturation flow rate [veh/h]	1810	5176	1615	1810	5176	1615	1810	1900	1615	1810	1900	1615
c, Capacity [veh/h]	147	1923	600	314	2401	749	245	529	450	10	283	241
d1, Uniform Delay [s]	31.04	16.68	13.90	28.06	14.08	12.10	29.51	19.51	19.62	34.77	26.56	28.88
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.11
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	3.21	0.78	0.02	5.83	1.17	1.32	6.44	0.22	0.28	9.41	0.55	6.12
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.55	0.45	0.01	0.84	0.61	0.36	0.81	0.23	0.25	0.20	0.29	0.80
d, Delay for Lane Group [s/veh]	34.26	17.46	13.92	33.89	15.25	13.42	35.95	19.72	19.90	44.18	27.11	35.00
Lane Group LOS	C	B	B	C	B	B	D	B	B	D	C	D
Critical Lane Group	Yes	No	No	No	Yes	No	Yes	No	No	No	No	Yes
50th-Percentile Queue Length [veh/ln]	1.27	2.84	0.03	4.07	4.30	2.17	3.41	1.38	1.29	0.06	1.11	3.16
50th-Percentile Queue Length [ft/ln]	31.76	71.04	0.86	101.87	107.47	54.32	85.27	34.39	32.15	1.42	27.65	79.06
95th-Percentile Queue Length [veh/ln]	2.29	5.12	0.06	7.33	7.70	3.91	6.14	2.48	2.31	0.10	1.99	5.69
95th-Percentile Queue Length [ft/ln]	57.17	127.88	1.54	183.37	192.47	97.77	153.49	61.91	57.87	2.56	49.77	142.30

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	34.26	17.46	13.92	33.89	15.25	13.42	35.95	19.72	19.90	44.18	27.11	35.00
Movement LOS	C	B	B	C	B	B	D	B	B	D	C	D
d_A, Approach Delay [s/veh]	18.87			17.45			27.28			32.75		
Approach LOS	B			B			C			C		
d_I, Intersection Delay [s/veh]	20.13											
Intersection LOS	C											
Intersection V/C	0.591											

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report

Intersection 7: Winchester Road (SR-79) (NS) at Whisper Heights/Pourroy Road (EW)

Control Type:	Signalized	Delay (sec / veh):	15.5
Analysis Method:	HCM 2010	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.606

Intersection Setup

Name	Northbound			Southbound			Eastbound			Westbound		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration	TTL			TTL			TTL			TTL		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	1	2	0	0	1	0	1	1	0	0
Pocket Length [ft]	250.00	100.00	330.00	340.00	100.00	100.00	150.00	100.00	150.00	170.00	100.00	100.00
Speed [mph]	55.00			55.00			45.00			45.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			Yes			Yes			Yes		

Volumes

Name	Northbound			Southbound			Eastbound			Westbound		
Base Volume Input [veh/h]	7	767	104	132	1366	28	48	30	33	152	29	181
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	7	767	104	132	1366	28	48	30	33	152	29	181
Peak Hour Factor	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	2	208	28	36	371	8	13	8	9	41	8	49
Total Analysis Volume [veh/h]	8	834	113	143	1485	30	52	33	36	165	32	197
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	60
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	4.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal group	5	2	0	1	6	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	7	7	0	7	7	0	7	7	0	7	7	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Split [s]	10	20	0	10	20	0	10	10	0	20	20	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	10	0	0	10	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	R	L	C	R
C, Cycle Length [s]	60	60	60	60	60	60	60	60	60	60	60	60
L, Total Lost Time per Cycle [s]	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
g_i, Effective Green Time [s]	1	28	28	6	34	34	4	6	6	7	9	9
g / C, Green / Cycle	0.02	0.47	0.47	0.11	0.56	0.56	0.07	0.10	0.10	0.12	0.15	0.15
(v / s)_i Volume / Saturation Flow Rate	0.00	0.23	0.07	0.04	0.41	0.02	0.03	0.02	0.02	0.09	0.02	0.12
s, saturation flow rate [veh/h]	1810	3618	1615	3514	3618	1615	1810	1900	1615	1810	1900	1615
c, Capacity [veh/h]	28	1697	757	375	2026	905	125	200	170	216	296	251
d1, Uniform Delay [s]	29.26	11.02	9.12	25.01	9.87	5.93	26.83	24.49	24.61	25.67	21.81	24.42
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.11
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	5.26	1.02	0.42	0.64	2.39	0.07	2.20	0.38	0.61	5.58	0.16	5.33
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

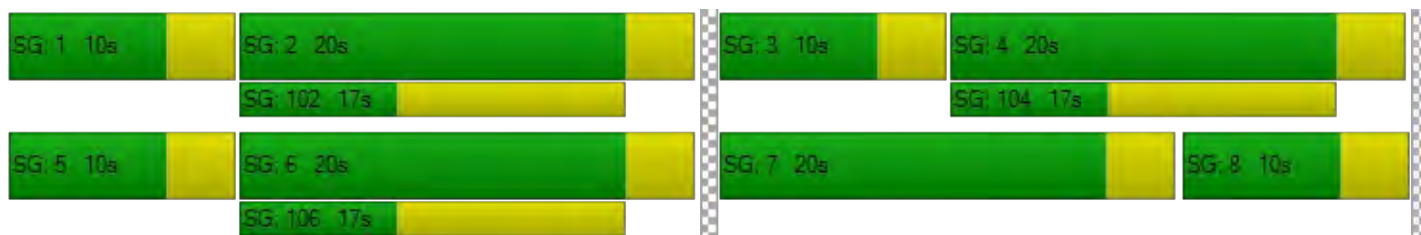
X, volume / capacity	0.28	0.49	0.15	0.38	0.73	0.03	0.42	0.16	0.21	0.77	0.11	0.78
d, Delay for Lane Group [s/veh]	34.52	12.04	9.53	25.64	12.26	6.00	29.03	24.87	25.22	31.26	21.97	29.75
Lane Group LOS	C	B	A	C	B	A	C	C	C	C	C	C
Critical Lane Group	Yes	No	No	No	Yes	No	Yes	No	No	No	No	Yes
50th-Percentile Queue Length [veh/ln]	0.14	2.85	0.67	0.84	4.82	0.12	0.72	0.40	0.45	2.36	0.36	2.74
50th-Percentile Queue Length [ft/ln]	3.53	71.25	16.81	21.12	120.47	2.94	17.94	10.08	11.19	58.95	8.90	68.40
95th-Percentile Queue Length [veh/ln]	0.25	5.13	1.21	1.52	8.42	0.21	1.29	0.73	0.81	4.24	0.64	4.92
95th-Percentile Queue Length [ft/ln]	6.36	128.24	30.26	38.02	210.48	5.30	32.30	18.14	20.14	106.11	16.02	123.12

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	34.52	12.04	9.53	25.64	12.26	6.00	29.03	24.87	25.22	31.26	21.97	29.75
Movement LOS	C	B	A	C	B	A	C	C	C	C	C	C
d_A, Approach Delay [s/veh]	11.93			13.30			26.76			29.75		
Approach LOS	B			B			C			C		
d_I, Intersection Delay [s/veh]	15.47											
Intersection LOS	B											
Intersection V/C	0.606											

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



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Vistro File: C:\...IAM.vistro

Scenario 1 Existing

Report File: C:\...IAM E.pdf

1/12/2021

Turning Movement Volume: Detail

ID	Intersection Name	Volume Type	Northbound			Southbound			Eastbound			Westbound			Total Volume	
			Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right		
2	Winchester Road (SR-79) (NS) at Route 74 (EW)	Final Base	78	15	417	20	27	4	8	720	103	491	544	31	2458	
		Growth Factor	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	-
		In Process	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		Net New Trips	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		Other	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		Future Total	78	15	417	20	27	4	8	720	103	491	544	31	2458	

ID	Intersection Name	Volume Type	Northbound			Southbound			Eastbound			Westbound			Total Volume	
			Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right		
3	Winchester Road (SR-79) (NS) at Simpson Road (EW)	Final Base	39	422	45	10	629	139	154	178	107	158	132	19	2032	
		Growth Factor	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	-
		In Process	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		Net New Trips	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		Other	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		Future Total	39	422	45	10	629	139	154	178	107	158	132	19	2032	

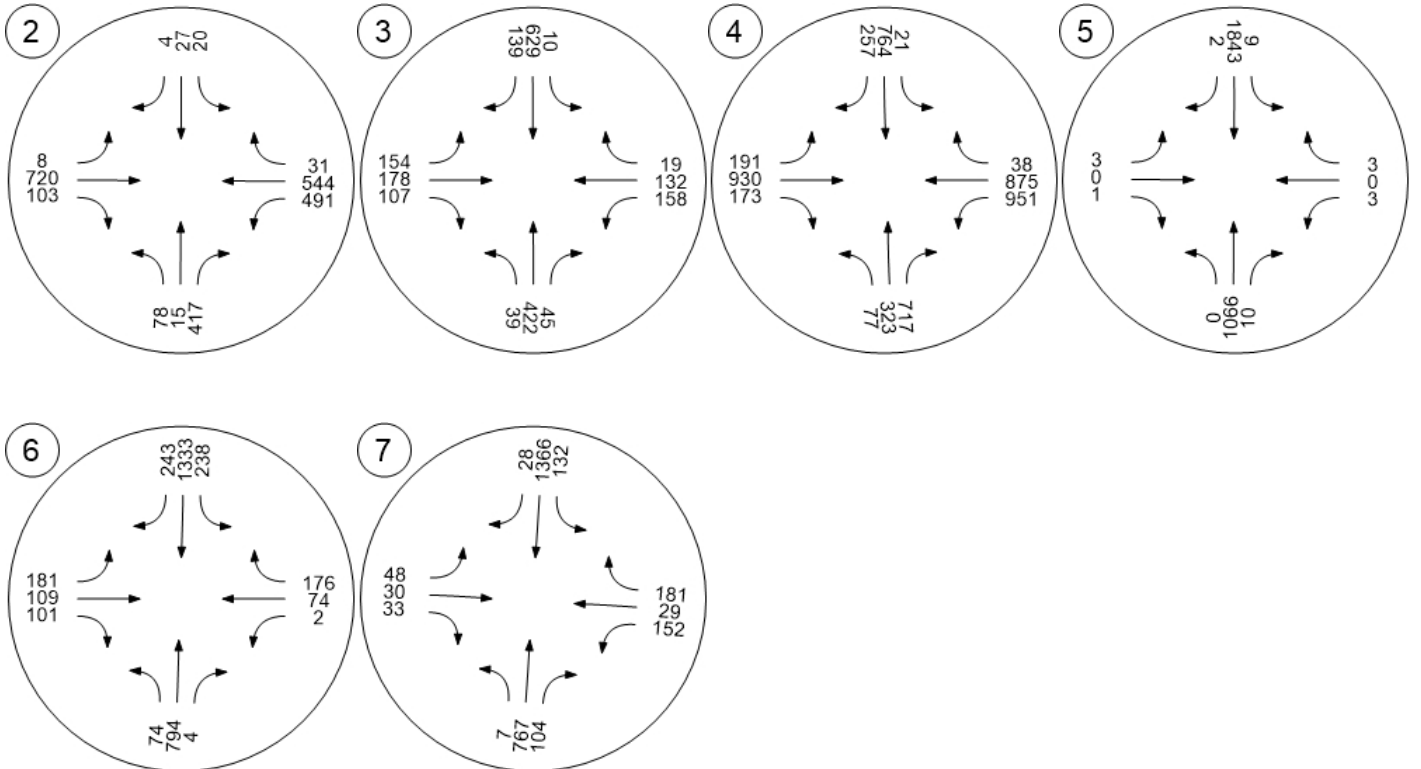
ID	Intersection Name	Volume Type	Northbound			Southbound			Eastbound			Westbound			Total Volume	
			Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right		
4	Winchester Road (SR-79) (NS) at Domenigoni Parkway (EW)	Final Base	77	323	717	21	764	257	191	930	173	951	875	38	5317	
		Growth Factor	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	-
		In Process	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		Net New Trips	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		Other	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		Future Total	77	323	717	21	764	257	191	930	173	951	875	38	5317	

ID	Intersection Name	Volume Type	Northbound			Southbound			Eastbound			Westbound			Total Volume	
			Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right		
5	Winchester Road (SR-79) (NS) at Newport Road (EW)	Final Base	0	1066	10	9	1843	2	3	0	1	3	0	3	2940	
		Growth Factor	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	-
		In Process	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		Net New Trips	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		Other	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		Future Total	0	1066	10	9	1843	2	3	0	1	3	0	3	2940	

ID	Intersection Name	Volume Type	Northbound			Southbound			Eastbound			Westbound			Total Volume	
			Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right		
6	Winchester Road (SR-79) (NS) at Scott Road/Washington Street (EW)	Final Base	74	794	4	238	1333	243	181	109	101	2	74	176	3329	
		Growth Factor	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	-
		In Process	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		Net New Trips	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		Other	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		Future Total	74	794	4	238	1333	243	181	109	101	2	74	176	3329	

ID	Intersection Name	Volume Type	Northbound			Southbound			Eastbound			Westbound			Total Volume	
			Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right		
7	Winchester Road (SR-79) (NS) at Whisper Heights/Pourroy Road (EW)	Final Base	7	767	104	132	1366	28	48	30	33	152	29	181	2877	
		Growth Factor	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	-
		In Process	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		Net New Trips	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		Other	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		Future Total	7	767	104	132	1366	28	48	30	33	152	29	181	2877	

Traffic Volume - Future Total Volume



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Vistro File: C:\...\IPM.vistro
Report File: C:\...\IPM E.pdf

Scenario 1 Existing
1/12/2021

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
2	Winchester Road (SR-79) (NS) at Route 74 (EW)	Signalized	HCM 2010	NB Right	0.864	27.6	C
3	Winchester Road (SR-79) (NS) at Simpson Road (EW)	Signalized	HCM 2010	SB Left	0.412	16.3	B
4	Winchester Road (SR-79) (NS) at Domenigoni Parkway (EW)	Signalized	HCM 2010	NB Right	1.190	109.7	F
5	Winchester Road (SR-79) (NS) at Newport Road (EW)	Signalized	HCM 2010	SB Left	0.399	2.1	A
6	Winchester Road (SR-79) (NS) at Scott Road/Washington Street (EW)	Signalized	HCM 2010	WB Left	0.704	23.0	C
7	Winchester Road (SR-79) (NS) at Whisper Heights/Pourroy Road (EW)	Signalized	HCM 2010	WB Left	0.642	17.0	B

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. For all other control types, they are taken for the whole intersection.

Intersection Level Of Service Report

Intersection 2: Winchester Road (SR-79) (NS) at Route 74 (EW)

Control Type:	Signalized	Delay (sec / veh):	27.6
Analysis Method:	HCM 2010	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.864

Intersection Setup

Name	Northbound			Southbound			Eastbound			Westbound		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration	↔			↔			↔↔↔			↔↔		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	0	1	0	0	1	0	1	1	0	0
Pocket Length [ft]	180.00	100.00	100.00	50.00	100.00	100.00	150.00	100.00	300.00	100.00	100.00	100.00
Speed [mph]	45.00			45.00			50.00			50.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			No			Yes			No		

Volumes

Name	Northbound			Southbound			Eastbound			Westbound		
Base Volume Input [veh/h]	132	14	523	24	18	7	19	826	75	360	665	35
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	132	14	523	24	18	7	19	826	75	360	665	35
Peak Hour Factor	0.9400	0.9400	0.9400	0.9400	0.9400	0.9400	0.9400	0.9400	0.9400	0.9400	0.9400	0.9400
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	35	4	139	6	5	2	5	220	20	96	177	9
Total Analysis Volume [veh/h]	140	15	556	26	19	7	20	879	80	383	707	37
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	60
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	4.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal group	0	2	0	0	6	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	0	7	0	0	7	0	7	7	0	7	7	0
Maximum Green [s]	0	30	0	0	30	0	30	30	0	30	30	0
Amber [s]	0.0	3.0	0.0	0.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Split [s]	0	24	0	0	24	0	21	20	0	16	15	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	10	0	0	10	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	1.0	0.0	0.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Minimum Recall		No			No		No	No		No	No	
Maximum Recall		No			No		No	No		No	No	
Pedestrian Recall		No			No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	L	C	L	C	R	L	C	C
C, Cycle Length [s]	60	60	60	60	60	60	60	60	60	60
L, Total Lost Time per Cycle [s]	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00
l1_p, Permitted Start-Up Lost Time [s]	2.00	0.00	2.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
g_i, Effective Green Time [s]	22	22	22	22	2	16	16	13	27	27
g / C, Green / Cycle	0.36	0.36	0.36	0.36	0.03	0.27	0.27	0.22	0.46	0.46
(v / s)_i Volume / Saturation Flow Rate	0.10	0.35	0.03	0.01	0.01	0.24	0.05	0.21	0.20	0.20
s, saturation flow rate [veh/h]	1407	1621	854	1814	1810	3618	1615	1810	1900	1867
c, Capacity [veh/h]	578	586	124	655	62	983	439	393	864	849
d1, Uniform Delay [s]	15.16	18.91	30.02	12.43	28.33	21.04	16.76	23.36	11.13	11.14
k, delay calibration	0.50	0.50	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.11
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.99	31.41	3.82	0.11	2.97	3.12	0.20	16.08	0.35	0.35
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

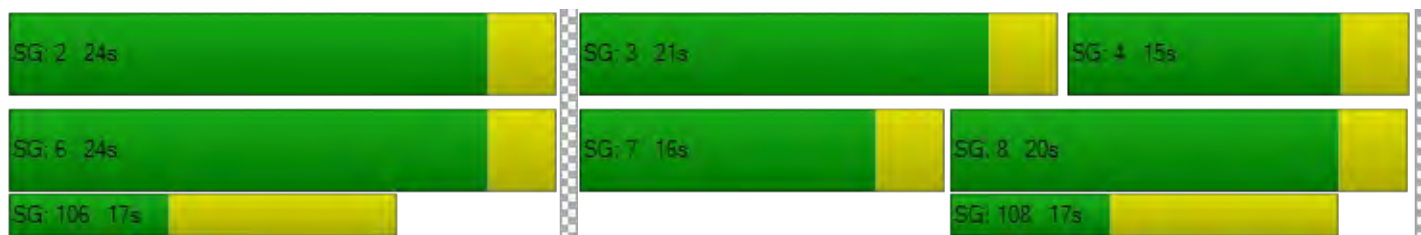
X, volume / capacity	0.24	0.97	0.21	0.04	0.32	0.89	0.18	0.98	0.43	0.43
d, Delay for Lane Group [s/veh]	16.15	50.32	33.84	12.54	31.30	24.16	16.95	39.44	11.48	11.49
Lane Group LOS	B	D	C	B	C	C	B	D	B	B
Critical Lane Group	No	Yes	No	No	No	Yes	No	Yes	No	No
50th-Percentile Queue Length [veh/ln]	1.35	11.37	0.47	0.21	0.30	5.27	0.73	6.26	2.55	2.51
50th-Percentile Queue Length [ft/ln]	33.87	284.17	11.81	5.20	7.51	131.70	18.15	156.41	63.84	62.80
95th-Percentile Queue Length [veh/ln]	2.44	16.90	0.85	0.37	0.54	9.03	1.31	10.36	4.60	4.52
95th-Percentile Queue Length [ft/ln]	60.97	422.40	21.26	9.35	13.51	225.80	32.67	258.97	114.91	113.03

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	16.15	50.32	50.32	33.84	12.54	12.54	31.30	24.16	16.95	39.44	11.48	11.49
Movement LOS	B	D	D	C	B	B	C	C	B	D	B	B
d_A, Approach Delay [s/veh]	43.59			23.19			23.72			20.99		
Approach LOS	D			C			C			C		
d_I, Intersection Delay [s/veh]	27.56											
Intersection LOS	C											
Intersection V/C	0.864											

Sequence

Ring 1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report

Intersection 3: Winchester Road (SR-79) (NS) at Simpson Road (EW)

Control Type:	Signalized	Delay (sec / veh):	16.3
Analysis Method:	HCM 2010	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.412

Intersection Setup

Name	Northbound			Southbound			Eastbound			Westbound		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	0	1	0	0	1	0	1	1	0	1
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	150.00	100.00	150.00	100.00	100.00	100.00
Speed [mph]	50.00			50.00			50.00			50.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Northbound			Southbound			Eastbound			Westbound		
Base Volume Input [veh/h]	66	656	161	30	414	75	107	249	51	59	154	44
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	66	656	161	30	414	75	107	249	51	59	154	44
Peak Hour Factor	0.9400	0.9400	0.9400	0.9400	0.9400	0.9400	0.9400	0.9400	0.9400	0.9400	0.9400	0.9400
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	18	174	43	8	110	20	28	66	14	16	41	12
Total Analysis Volume [veh/h]	70	698	171	32	440	80	114	265	54	63	164	47
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	60
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	4.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal group	5	2	0	1	6	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	7	7	0	7	7	0	7	7	0	7	7	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Split [s]	10	20	0	10	20	0	10	20	0	10	20	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	10	0	0	10	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	R	L	C	R
C, Cycle Length [s]	60	60	60	60	60	60	60	60	60	60	60	60
L, Total Lost Time per Cycle [s]	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
g_i, Effective Green Time [s]	5	30	30	3	28	28	6	11	11	5	9	9
g / C, Green / Cycle	0.08	0.50	0.50	0.05	0.47	0.47	0.10	0.18	0.18	0.08	0.15	0.15
(v / s)_i Volume / Saturation Flow Rate	0.04	0.19	0.11	0.02	0.12	0.05	0.06	0.14	0.03	0.03	0.09	0.03
s, saturation flow rate [veh/h]	1810	3618	1615	1810	3618	1615	1810	1900	1615	1810	1900	1615
c, Capacity [veh/h]	148	1801	804	90	1685	752	182	334	284	140	290	246
d1, Uniform Delay [s]	26.38	9.39	8.48	27.65	9.77	9.03	25.98	23.74	21.14	26.53	23.63	22.24
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.11
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	2.34	0.63	0.60	2.38	0.38	0.28	3.54	4.28	0.32	2.26	1.73	0.37
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

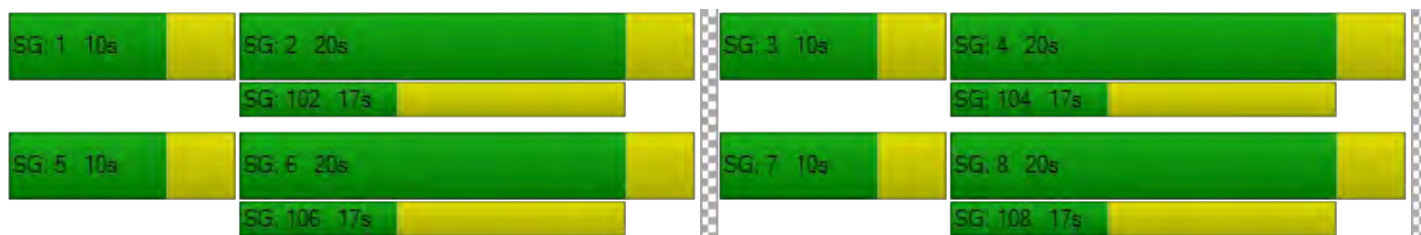
X, volume / capacity	0.47	0.39	0.21	0.36	0.26	0.11	0.63	0.79	0.19	0.45	0.57	0.19
d, Delay for Lane Group [s/veh]	28.72	10.03	9.08	30.02	10.15	9.31	29.52	28.03	21.46	28.79	25.36	22.61
Lane Group LOS	C	B	A	C	B	A	C	C	C	C	C	C
Critical Lane Group	No	Yes	No	Yes	No	No	No	Yes	No	Yes	No	No
50th-Percentile Queue Length [veh/ln]	0.94	2.13	1.01	0.45	1.36	0.49	1.54	3.47	0.58	0.85	2.00	0.53
50th-Percentile Queue Length [ft/ln]	23.41	53.24	25.17	11.32	34.11	12.21	38.61	86.69	14.56	21.15	49.96	13.17
95th-Percentile Queue Length [veh/ln]	1.69	3.83	1.81	0.81	2.46	0.88	2.78	6.24	1.05	1.52	3.60	0.95
95th-Percentile Queue Length [ft/ln]	42.15	95.83	45.31	20.37	61.39	21.97	69.51	156.04	26.21	38.07	89.93	23.71

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	28.72	10.03	9.08	30.02	10.15	9.31	29.52	28.03	21.46	28.79	25.36	22.61
Movement LOS	C	B	A	C	B	A	C	C	C	C	C	C
d_A, Approach Delay [s/veh]	11.25			11.18			27.60			25.68		
Approach LOS	B			B			C			C		
d_I, Intersection Delay [s/veh]	16.25											
Intersection LOS	B											
Intersection V/C	0.412											

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 4: Winchester Road (SR-79) (NS) at Domenigoni Parkway (EW)

Control Type:	Signalized	Delay (sec / veh):	109.7
Analysis Method:	HCM 2010	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	1.190

Intersection Setup

Name	Northbound			Southbound			Eastbound			Westbound		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration	T T T			T T T			T T T			T T T		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	1	1	0	1	2	0	1	2	0	1
Pocket Length [ft]	350.00	100.00	525.00	220.00	100.00	240.00	380.00	100.00	380.00	300.00	100.00	280.00
Speed [mph]	45.00			65.00			65.00			65.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Northbound			Southbound			Eastbound			Westbound		
Base Volume Input [veh/h]	82	619	1025	24	302	183	251	922	39	709	973	18
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	82	619	1025	24	302	183	251	922	39	709	973	18
Peak Hour Factor	0.9600	0.9600	0.9600	0.9600	0.9600	0.9600	0.9600	0.9600	0.9600	0.9600	0.9600	0.9600
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	21	161	267	6	79	48	65	240	10	185	253	5
Total Analysis Volume [veh/h]	85	645	1068	25	315	191	261	960	41	739	1014	19
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	4.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal group	5	2	0	1	6	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	7	7	0	7	7	0	7	7	0	7	7	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Split [s]	49	59	0	10	20	0	15	28	0	23	36	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	10	0	0	10	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	R	L	C	R
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
g_i, Effective Green Time [s]	7	59	59	4	56	56	11	25	25	20	34	34
g / C, Green / Cycle	0.06	0.49	0.49	0.03	0.46	0.46	0.09	0.21	0.21	0.17	0.28	0.28
(v / s)_i Volume / Saturation Flow Rate	0.05	0.18	0.66	0.01	0.09	0.12	0.07	0.27	0.03	0.21	0.20	0.01
s, saturation flow rate [veh/h]	1810	3618	1615	1810	3618	1615	3514	3618	1615	3514	5176	1615
c, Capacity [veh/h]	110	1783	796	60	1684	752	319	749	334	586	1465	457
d1, Uniform Delay [s]	55.53	18.78	30.43	56.85	18.79	19.45	53.60	47.59	38.73	50.00	38.36	31.21
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.12	0.11	0.11	0.11	0.11
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	10.77	0.57	162.18	4.45	0.25	0.81	5.20	129.68	0.16	120.48	0.59	0.04
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

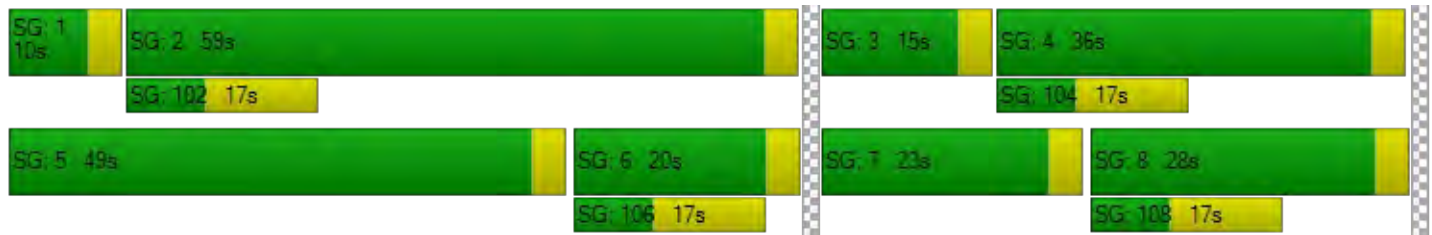
X, volume / capacity	0.77	0.36	1.34	0.41	0.19	0.25	0.82	1.28	0.12	1.26	0.69	0.04
d, Delay for Lane Group [s/veh]	66.30	19.35	192.62	61.30	19.03	20.26	58.80	177.28	38.89	170.48	38.96	31.25
Lane Group LOS	E	B	F	E	B	C	E	F	D	F	D	C
Critical Lane Group	No	No	Yes	Yes	No	No	No	Yes	No	Yes	No	No
50th-Percentile Queue Length [veh/ln]	2.80	5.38	56.82	0.78	2.36	3.06	3.87	23.84	0.94	18.00	8.24	0.38
50th-Percentile Queue Length [ft/ln]	70.11	134.55	1420.49	19.46	59.05	76.59	96.82	595.89	23.45	450.10	205.89	9.44
95th-Percentile Queue Length [veh/ln]	5.05	9.19	84.23	1.40	4.25	5.51	6.97	35.98	1.69	27.70	12.94	0.68
95th-Percentile Queue Length [ft/ln]	126.20	229.66	2105.68	35.03	106.29	137.86	174.28	899.50	42.21	692.50	323.56	17.00

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	66.30	19.35	192.62	61.30	19.03	20.26	58.80	177.28	38.89	170.48	38.96	31.25
Movement LOS	E	B	F	E	B	C	E	F	D	F	D	C
d_A, Approach Delay [s/veh]	124.49			21.47			148.28			93.73		
Approach LOS	F			C			F			F		
d_I, Intersection Delay [s/veh]	109.72											
Intersection LOS	F											
Intersection V/C	1.190											

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report

Intersection 5: Winchester Road (SR-79) (NS) at Newport Road (EW)

Control Type:	Signalized	Delay (sec / veh):	2.1
Analysis Method:	HCM 2010	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.399

Intersection Setup

Name	Northbound			Southbound			Eastbound			Westbound		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	1	1	0	1	0	0	1	0	0	0
Pocket Length [ft]	225.00	100.00	550.00	550.00	100.00	550.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	65.00			65.00			55.00			45.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			Yes			Yes			Yes		

Volumes

Name	Northbound			Southbound			Eastbound			Westbound		
Base Volume Input [veh/h]	0	1787	1	2	1098	1	0	0	0	17	0	10
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	1787	1	2	1098	1	0	0	0	17	0	10
Peak Hour Factor	0.9700	0.9700	0.9700	0.9700	0.9700	0.9700	0.9700	0.9700	0.9700	0.9700	0.9700	0.9700
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	461	0	1	283	0	0	0	0	4	0	3
Total Analysis Volume [veh/h]	0	1842	1	2	1132	1	0	0	0	18	0	10
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	4.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal group	5	2	0	1	6	0	0	8	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	-	-	-	-	-	-
Minimum Green [s]	7	7	0	7	7	0	0	7	0	0	7	0
Maximum Green [s]	30	30	0	30	30	0	0	30	0	0	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
All red [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Split [s]	10	89	0	11	90	0	0	20	0	0	20	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	10	0	0	10	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	1.0	1.0	0.0	1.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0
Minimum Recall	No	No		No	No			No			No	
Maximum Recall	No	No		No	No			No			No	
Pedestrian Recall	No	No		No	No			No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	C	R	C
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	2.00	0.00	2.00
l2, Clearance Lost Time [s]	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
g_i, Effective Green Time [s]	0	106	106	0	107	107	4	4	4
g / C, Green / Cycle	0.00	0.89	0.89	0.00	0.89	0.89	0.04	0.04	0.04
(v / s)_i Volume / Saturation Flow Rate	0.00	0.36	0.00	0.00	0.31	0.00	0.00	0.00	0.03
s, saturation flow rate [veh/h]	1810	5176	1615	1810	3618	1615	1102	1615	985
c, Capacity [veh/h]	1	4580	1429	8	3215	1435	69	58	85
d1, Uniform Delay [s]	0.00	1.23	0.79	59.54	1.08	0.74	0.00	0.00	58.04
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.00	0.26	0.00	17.05	0.30	0.00	0.00	0.00	2.26
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.00	0.40	0.00	0.26	0.35	0.00	0.00	0.00	0.33
d, Delay for Lane Group [s/veh]	0.00	1.50	0.79	76.59	1.38	0.74	0.00	0.00	60.30
Lane Group LOS	A	A	A	E	A	A	A	A	E
Critical Lane Group	No	Yes	No	Yes	No	No	No	No	Yes
50th-Percentile Queue Length [veh/ln]	0.00	0.11	0.00	0.09	0.14	0.00	0.00	0.00	0.88
50th-Percentile Queue Length [ft/ln]	0.00	2.80	0.01	2.34	3.39	0.01	0.00	0.00	22.00
95th-Percentile Queue Length [veh/ln]	0.00	0.20	0.00	0.17	0.24	0.00	0.00	0.00	1.58
95th-Percentile Queue Length [ft/ln]	0.00	5.04	0.02	4.22	6.11	0.02	0.00	0.00	39.61

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	0.00	1.50	0.79	76.59	1.38	0.74	0.00	0.00	0.00	60.30	60.30	60.30
Movement LOS	A	A	A	E	A	A	A	A	A	E	E	E
d_A, Approach Delay [s/veh]	1.50			1.52			0.00			60.30		
Approach LOS	A			A			A			E		
d_I, Intersection Delay [s/veh]	2.05											
Intersection LOS	A											
Intersection V/C	0.399											

Sequence

Ring 1	1	2	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-







Intersection Level Of Service Report

Intersection 6: Winchester Road (SR-79) (NS) at Scott Road/Washington Street (EW)

Control Type:	Signalized	Delay (sec / veh):	23.0
Analysis Method:	HCM 2010	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.704

Intersection Setup

Name	Northbound			Southbound			Eastbound			Westbound		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	65.00			65.00			45.00			55.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			No			Yes			Yes		

Volumes

Name	Northbound			Southbound			Eastbound			Westbound		
Base Volume Input [veh/h]	74	1252	2	105	786	137	284	67	58	1	120	313
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	74	1252	2	105	786	137	284	67	58	1	120	313
Peak Hour Factor	0.9900	0.9900	0.9900	0.9900	0.9900	0.9900	0.9900	0.9900	0.9900	0.9900	0.9900	0.9900
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	19	316	1	27	198	35	72	17	15	0	30	79
Total Analysis Volume [veh/h]	75	1265	2	106	794	138	287	68	59	1	121	316
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	60
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	4.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal group	5	2	0	1	6	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	7	7	0	7	7	0	7	7	0	7	7	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Split [s]	10	20	0	10	20	0	14	20	0	10	16	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	10	0	0	10	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	R	L	C	R
C, Cycle Length [s]	60	60	60	60	60	60	60	60	60	60	60	60
L, Total Lost Time per Cycle [s]	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
g_i, Effective Green Time [s]	5	18	18	6	19	19	11	24	24	0	13	13
g / C, Green / Cycle	0.08	0.30	0.30	0.10	0.32	0.32	0.18	0.40	0.40	0.00	0.22	0.22
(v / s)_i Volume / Saturation Flow Rate	0.04	0.24	0.00	0.06	0.15	0.09	0.16	0.04	0.04	0.00	0.06	0.20
s, saturation flow rate [veh/h]	1810	5176	1615	1810	5176	1615	1810	1900	1615	1810	1900	1615
c, Capacity [veh/h]	152	1583	494	176	1652	515	332	750	637	4	406	345
d1, Uniform Delay [s]	26.29	19.16	14.49	26.00	16.44	15.22	23.80	11.41	11.42	29.91	19.83	23.09
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.11
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	2.47	4.32	0.01	3.28	1.00	1.27	6.74	0.05	0.06	24.29	0.41	9.74
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

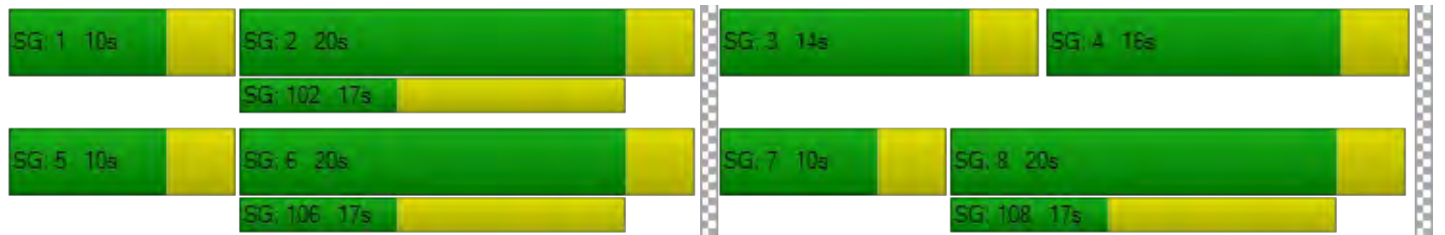
X, volume / capacity	0.49	0.80	0.00	0.60	0.48	0.27	0.86	0.09	0.09	0.23	0.30	0.92
d, Delay for Lane Group [s/veh]	28.76	23.48	14.51	29.27	17.45	16.49	30.54	11.47	11.49	54.19	20.24	32.83
Lane Group LOS	C	C	B	C	B	B	C	B	B	D	C	C
Critical Lane Group	No	Yes	No	Yes	No	No	Yes	No	No	No	No	Yes
50th-Percentile Queue Length [veh/ln]	0.95	4.61	0.02	1.35	2.31	1.22	4.05	0.47	0.41	0.04	1.22	4.50
50th-Percentile Queue Length [ft/ln]	23.74	115.15	0.41	33.79	57.72	30.56	101.27	11.74	10.23	1.06	30.45	112.43
95th-Percentile Queue Length [veh/ln]	1.71	8.13	0.03	2.43	4.16	2.20	7.29	0.85	0.74	0.08	2.19	7.98
95th-Percentile Queue Length [ft/ln]	42.73	203.14	0.73	60.82	103.90	55.01	182.28	21.13	18.42	1.90	54.81	199.38

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	28.76	23.48	14.51	29.27	17.45	16.49	30.54	11.47	11.49	54.19	20.24	32.83
Movement LOS	C	C	B	C	B	B	C	B	B	D	C	C
d_A, Approach Delay [s/veh]	23.76			18.53			24.69			29.40		
Approach LOS	C			B			C			C		
d_I, Intersection Delay [s/veh]	22.96											
Intersection LOS	C											
Intersection V/C	0.704											

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report

Intersection 7: Winchester Road (SR-79) (NS) at Whisper Heights/Pourroy Road (EW)

Control Type:	Signalized	Delay (sec / veh):	17.0
Analysis Method:	HCM 2010	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.642

Intersection Setup

Name	Northbound			Southbound			Eastbound			Westbound		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration	T T T			T T T			T T T			T T T		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	1	2	0	0	1	0	1	1	0	0
Pocket Length [ft]	250.00	100.00	330.00	340.00	100.00	100.00	150.00	100.00	150.00	170.00	100.00	100.00
Speed [mph]	55.00			55.00			45.00			45.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			Yes			Yes			Yes		

Volumes

Name	Northbound			Southbound			Eastbound			Westbound		
Base Volume Input [veh/h]	16	1420	156	134	831	23	18	62	36	129	36	198
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	16	1420	156	134	831	23	18	62	36	129	36	198
Peak Hour Factor	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	4	382	42	36	223	6	5	17	10	35	10	53
Total Analysis Volume [veh/h]	17	1527	168	144	894	25	19	67	39	139	39	213
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	70
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	4.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal group	5	2	0	1	6	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	7	7	0	7	7	0	7	7	0	7	7	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Split [s]	10	29	0	10	29	0	10	10	0	21	21	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	10	0	0	10	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	R	L	C	R
C, Cycle Length [s]	70	70	70	70	70	70	70	70	70	70	70	70
L, Total Lost Time per Cycle [s]	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
g_i, Effective Green Time [s]	2	38	38	7	42	42	2	7	7	7	11	11
g / C, Green / Cycle	0.03	0.54	0.54	0.09	0.61	0.61	0.03	0.09	0.09	0.10	0.16	0.16
(v / s)_i Volume / Saturation Flow Rate	0.01	0.42	0.10	0.04	0.25	0.02	0.01	0.04	0.02	0.08	0.02	0.13
s, saturation flow rate [veh/h]	1810	3618	1615	3514	3618	1615	1810	1900	1615	1810	1900	1615
c, Capacity [veh/h]	55	1945	868	335	2180	973	60	181	154	183	311	264
d1, Uniform Delay [s]	33.35	13.00	8.38	29.98	7.37	5.63	33.19	29.81	29.47	30.73	25.09	28.31
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.11
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	3.19	3.27	0.50	0.87	0.57	0.05	3.02	1.26	0.86	6.30	0.18	5.78
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

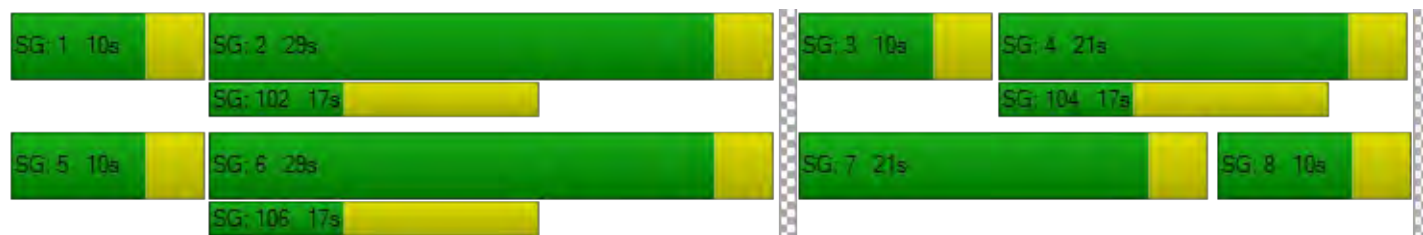
X, volume / capacity	0.31	0.79	0.19	0.43	0.41	0.03	0.32	0.37	0.25	0.76	0.13	0.81
d, Delay for Lane Group [s/veh]	36.54	16.27	8.88	30.85	7.94	5.68	36.22	31.07	30.33	37.02	25.27	34.09
Lane Group LOS	D	B	A	C	A	A	D	C	C	D	C	C
Critical Lane Group	No	Yes	No	Yes	No	No	Yes	No	No	No	No	Yes
50th-Percentile Queue Length [veh/ln]	0.30	7.42	1.05	1.06	2.35	0.11	0.34	1.04	0.60	2.42	0.52	3.55
50th-Percentile Queue Length [ft/ln]	7.60	185.45	26.18	26.57	58.83	2.66	8.59	26.02	14.98	60.56	13.08	88.77
95th-Percentile Queue Length [veh/ln]	0.55	11.88	1.88	1.91	4.24	0.19	0.62	1.87	1.08	4.36	0.94	6.39
95th-Percentile Queue Length [ft/ln]	13.67	297.11	47.12	47.82	105.89	4.79	15.47	46.84	26.97	109.01	23.54	159.78

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	36.54	16.27	8.88	30.85	7.94	5.68	36.22	31.07	30.33	37.02	25.27	34.09
Movement LOS	D	B	A	C	A	A	D	C	C	D	C	C
d_A, Approach Delay [s/veh]	15.75			10.99			31.62			34.25		
Approach LOS	B			B			C			C		
d_I, Intersection Delay [s/veh]	17.01											
Intersection LOS	B											
Intersection V/C	0.642											

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



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Scenario 1 Existing

Report File: C:\...\IPM E.pdf

1/12/2021

Turning Movement Volume: Detail

ID	Intersection Name	Volume Type	Northbound			Southbound			Eastbound			Westbound			Total Volume
			Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
2	Winchester Road (SR-79) (NS) at Route 74 (EW)	Final Base	132	14	523	24	18	7	19	826	75	360	665	35	2698
		Growth Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	-
		In Process	0	0	0	0	0	0	0	0	0	0	0	0	0
		Net New Trips	0	0	0	0	0	0	0	0	0	0	0	0	0
		Other	0	0	0	0	0	0	0	0	0	0	0	0	0
		Future Total	132	14	523	24	18	7	19	826	75	360	665	35	2698

ID	Intersection Name	Volume Type	Northbound			Southbound			Eastbound			Westbound			Total Volume
			Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
3	Winchester Road (SR-79) (NS) at Simpson Road (EW)	Final Base	66	656	161	30	414	75	107	249	51	59	154	44	2066
		Growth Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	-
		In Process	0	0	0	0	0	0	0	0	0	0	0	0	0
		Net New Trips	0	0	0	0	0	0	0	0	0	0	0	0	0
		Other	0	0	0	0	0	0	0	0	0	0	0	0	0
		Future Total	66	656	161	30	414	75	107	249	51	59	154	44	2066

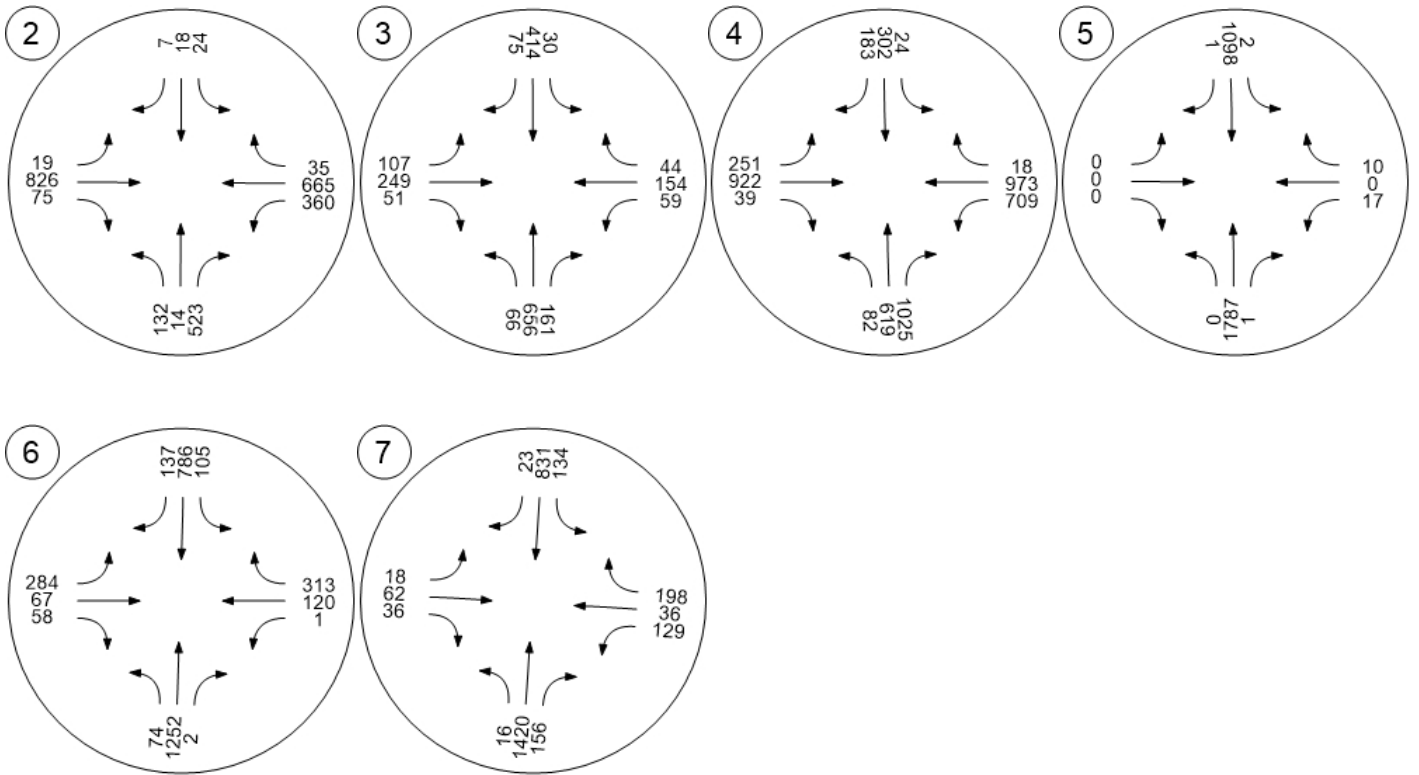
ID	Intersection Name	Volume Type	Northbound			Southbound			Eastbound			Westbound			Total Volume
			Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
4	Winchester Road (SR-79) (NS) at Domenigoni Parkway (EW)	Final Base	82	619	1025	24	302	183	251	922	39	709	973	18	5147
		Growth Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	-
		In Process	0	0	0	0	0	0	0	0	0	0	0	0	0
		Net New Trips	0	0	0	0	0	0	0	0	0	0	0	0	0
		Other	0	0	0	0	0	0	0	0	0	0	0	0	0
		Future Total	82	619	1025	24	302	183	251	922	39	709	973	18	5147

ID	Intersection Name	Volume Type	Northbound			Southbound			Eastbound			Westbound			Total Volume
			Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
5	Winchester Road (SR-79) (NS) at Newport Road (EW)	Final Base	0	1787	1	2	1098	1	0	0	0	17	0	10	2916
		Growth Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	-
		In Process	0	0	0	0	0	0	0	0	0	0	0	0	0
		Net New Trips	0	0	0	0	0	0	0	0	0	0	0	0	0
		Other	0	0	0	0	0	0	0	0	0	0	0	0	0
		Future Total	0	1787	1	2	1098	1	0	0	0	0	17	0	10

ID	Intersection Name	Volume Type	Northbound			Southbound			Eastbound			Westbound			Total Volume
			Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
6	Winchester Road (SR-79) (NS) at Scott Road/Washington Street (EW)	Final Base	74	1252	2	105	786	137	284	67	58	1	120	313	3199
		Growth Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	-
		In Process	0	0	0	0	0	0	0	0	0	0	0	0	0
		Net New Trips	0	0	0	0	0	0	0	0	0	0	0	0	0
		Other	0	0	0	0	0	0	0	0	0	0	0	0	0
		Future Total	74	1252	2	105	786	137	284	67	58	1	120	313	3199

ID	Intersection Name	Volume Type	Northbound			Southbound			Eastbound			Westbound			Total Volume
			Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
7	Winchester Road (SR-79) (NS) at Whisper Heights/Pourroy Road (EW)	Final Base	16	1420	156	134	831	23	18	62	36	129	36	198	3059
		Growth Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	-
		In Process	0	0	0	0	0	0	0	0	0	0	0	0	0
		Net New Trips	0	0	0	0	0	0	0	0	0	0	0	0	0
		Other	0	0	0	0	0	0	0	0	0	0	0	0	0
		Future Total	16	1420	156	134	831	23	18	62	36	129	36	198	3059

Traffic Volume - Future Total Volume



Existing Plus Project

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Report File: C:\...\IAM Ep.pdf

Scenario 2 Existing Plus Project
1/12/2021

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
1	Project Access (NS) at Newport Road (EW)	Two-way stop	HCM 2010	NB Right	0.183	9.0	A
2	Winchester Road (SR-79) (NS) at Route 74 (EW)	Signalized	HCM 2010	NB Right	0.844	28.6	C
3	Winchester Road (SR-79) (NS) at Simpson Road (EW)	Signalized	HCM 2010	SB Left	0.439	17.2	B
4	Winchester Road (SR-79) (NS) at Domenigoni Parkway (EW)	Signalized	HCM 2010	NB Right	1.095	81.5	F
5	Winchester Road (SR-79) (NS) at Newport Road (EW)	Signalized	HCM 2010	SB Left	0.701	10.2	B
6	Winchester Road (SR-79) (NS) at Scott Road/Washington Street (EW)	Signalized	HCM 2010	WB Left	0.614	20.6	C
7	Winchester Road (SR-79) (NS) at Whisper Heights/Pourroy Road (EW)	Signalized	HCM 2010	NB Left	0.633	16.8	B

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. For all other control types, they are taken for the whole intersection.

**Intersection Level Of Service Report
Intersection 1: Project Access (NS) at Newport Road (EW)**

Control Type:	Two-way stop	Delay (sec / veh):	9.0
Analysis Method:	HCM 2010	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.183

Intersection Setup

Name	Northbound		Eastbound		Westbound	
Approach						
Lane Configuration	↵↵		↑		↵	
Turning Movement	Left	Right	Thru	Right	Left	Thru
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	45.00		45.00		45.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		No	

Volumes

Name	Northbound		Eastbound		Westbound	
Base Volume Input [veh/h]	0	0	0	0	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	166	0	0	167	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	24	0	0	24	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	190	0	0	191	0
Peak Hour Factor	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	50	0	0	50	0
Total Analysis Volume [veh/h]	0	200	0	0	201	0
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Stop	Free	Free
Flared Lane			
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance	No		
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.18	0.00	0.00	0.12	0.00
d_M, Delay for Movement [s/veh]	11.75	9.04	0.00	0.00	7.51	0.00
Movement LOS	B	A	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.00	0.67	0.00	0.00	0.40	0.40
95th-Percentile Queue Length [ft/ln]	0.00	16.74	0.00	0.00	9.89	9.89
d_A, Approach Delay [s/veh]	9.04		0.00		7.51	
Approach LOS	A		A		A	
d_I, Intersection Delay [s/veh]	8.27					
Intersection LOS	A					

Intersection Level Of Service Report

Intersection 2: Winchester Road (SR-79) (NS) at Route 74 (EW)

Control Type:	Signalized	Delay (sec / veh):	28.6
Analysis Method:	HCM 2010	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.844

Intersection Setup

Name	Northbound			Southbound			Eastbound			Westbound		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration	↔			↔			↔↔↔			↔↔		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	0	1	0	0	1	0	1	1	0	0
Pocket Length [ft]	180.00	100.00	100.00	50.00	100.00	100.00	150.00	100.00	300.00	100.00	100.00	100.00
Speed [mph]	45.00			45.00			50.00			50.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			No			Yes			No		

Volumes

Name	Northbound			Southbound			Eastbound			Westbound		
Base Volume Input [veh/h]	78	15	417	20	27	4	8	720	103	491	544	31
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	25	0	16	0	0	0	0	0	25	17	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	103	15	433	20	27	4	8	720	128	508	544	31
Peak Hour Factor	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	27	4	114	5	7	1	2	189	34	134	143	8
Total Analysis Volume [veh/h]	108	16	456	21	28	4	8	758	135	535	573	33
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	70
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	4.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal group	0	2	0	0	6	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	0	7	0	0	7	0	7	7	0	7	7	0
Maximum Green [s]	0	30	0	0	30	0	30	30	0	30	30	0
Amber [s]	0.0	3.0	0.0	0.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Split [s]	0	25	0	0	25	0	29	20	0	25	16	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	10	0	0	10	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	1.0	0.0	0.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Minimum Recall		No			No		No	No		No	No	
Maximum Recall		No			No		No	No		No	No	
Pedestrian Recall		No			No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	L	C	L	C	R	L	C	C
C, Cycle Length [s]	70	70	70	70	70	70	70	70	70	70
L, Total Lost Time per Cycle [s]	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00
l1_p, Permitted Start-Up Lost Time [s]	2.00	0.00	2.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
g_i, Effective Green Time [s]	23	23	23	23	1	16	16	22	37	37
g / C, Green / Cycle	0.32	0.32	0.32	0.32	0.02	0.24	0.24	0.31	0.53	0.53
(v / s)_i Volume / Saturation Flow Rate	0.08	0.29	0.02	0.02	0.00	0.21	0.08	0.30	0.16	0.16
s, saturation flow rate [veh/h]	1399	1623	936	1859	1810	3618	1615	1810	1900	1864
c, Capacity [veh/h]	503	523	122	599	29	850	379	569	1013	993
d1, Uniform Delay [s]	19.34	22.69	34.42	16.37	34.08	25.96	22.39	23.41	9.11	9.11
k, delay calibration	0.50	0.50	0.50	0.50	0.11	0.11	0.11	0.24	0.11	0.11
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.97	21.29	3.06	0.17	4.94	3.52	0.57	15.36	0.17	0.17
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.21	0.90	0.17	0.05	0.27	0.89	0.36	0.94	0.30	0.30
d, Delay for Lane Group [s/veh]	20.32	43.98	37.48	16.54	39.03	29.48	22.96	38.76	9.28	9.28
Lane Group LOS	C	D	D	B	D	C	C	D	A	A
Critical Lane Group	No	Yes	No	No	No	Yes	No	Yes	No	No
50th-Percentile Queue Length [veh/ln]	1.35	9.50	0.44	0.34	0.16	5.73	1.69	9.68	1.97	1.93
50th-Percentile Queue Length [ft/ln]	33.63	237.57	10.92	8.54	4.09	143.33	42.33	242.02	49.22	48.33
95th-Percentile Queue Length [veh/ln]	2.42	14.56	0.79	0.61	0.29	9.66	3.05	14.78	3.54	3.48
95th-Percentile Queue Length [ft/ln]	60.53	363.96	19.65	15.37	7.36	241.50	76.20	369.59	88.59	87.00

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	20.32	43.98	43.98	37.48	16.54	16.54	39.03	29.48	22.96	38.76	9.28	9.28
Movement LOS	C	D	D	D	B	B	D	C	C	D	A	A
d_A, Approach Delay [s/veh]	39.58			24.84			28.59			23.10		
Approach LOS	D			C			C			C		
d_I, Intersection Delay [s/veh]	28.56											
Intersection LOS	C											
Intersection V/C	0.844											

Sequence

Ring 1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report

Intersection 3: Winchester Road (SR-79) (NS) at Simpson Road (EW)

Control Type:	Signalized	Delay (sec / veh):	17.2
Analysis Method:	HCM 2010	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.439

Intersection Setup

Name	Northbound			Southbound			Eastbound			Westbound		
Approach	[Diagram]			[Diagram]			[Diagram]			[Diagram]		
Lane Configuration	[Diagram]			[Diagram]			[Diagram]			[Diagram]		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	0	1	0	0	1	0	1	1	0	1
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	150.00	100.00	150.00	100.00	100.00	100.00
Speed [mph]	50.00			50.00			50.00			50.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Northbound			Southbound			Eastbound			Westbound		
Base Volume Input [veh/h]	39	422	45	10	629	139	154	178	107	158	132	19
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	16	41	8	0	42	0	0	0	17	8	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	55	463	53	10	671	139	154	178	124	166	132	19
Peak Hour Factor	0.9800	0.9800	0.9800	0.9800	0.9800	0.9800	0.9800	0.9800	0.9800	0.9800	0.9800	0.9800
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	14	118	14	3	171	35	39	45	32	42	34	5
Total Analysis Volume [veh/h]	56	472	54	10	685	142	157	182	127	169	135	19
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	60
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	4.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal group	5	2	0	1	6	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	7	7	0	7	7	0	7	7	0	7	7	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Split [s]	10	20	0	10	20	0	10	20	0	10	20	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	10	0	0	10	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	R	L	C	R
C, Cycle Length [s]	60	60	60	60	60	60	60	60	60	60	60	60
L, Total Lost Time per Cycle [s]	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
g_i, Effective Green Time [s]	4	32	32	1	29	29	7	8	8	7	8	8
g / C, Green / Cycle	0.07	0.53	0.53	0.02	0.48	0.48	0.11	0.13	0.13	0.12	0.14	0.14
(v / s)_i Volume / Saturation Flow Rate	0.03	0.13	0.03	0.01	0.19	0.09	0.09	0.10	0.08	0.09	0.07	0.01
s, saturation flow rate [veh/h]	1810	3618	1615	1810	3618	1615	1810	1900	1615	1810	1900	1615
c, Capacity [veh/h]	133	1912	854	37	1720	768	203	256	217	213	266	226
d1, Uniform Delay [s]	26.70	7.71	6.93	29.09	10.24	9.10	26.03	24.97	24.50	25.89	23.98	22.55
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.11
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	2.12	0.31	0.14	3.94	0.69	0.53	6.23	3.65	2.48	6.58	1.49	0.16
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

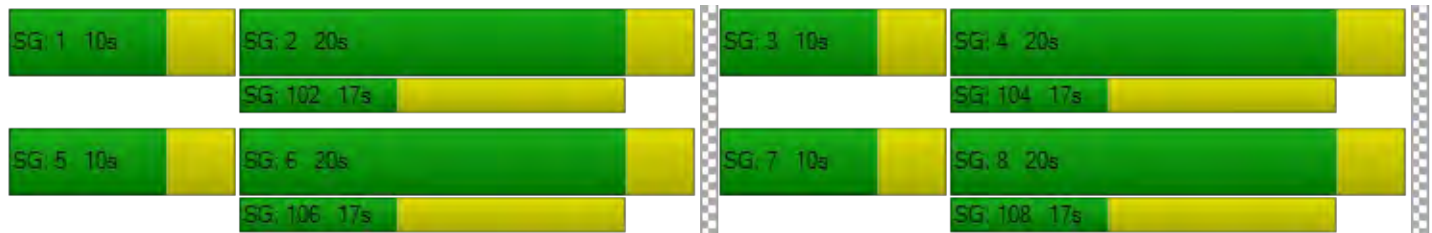
X, volume / capacity	0.42	0.25	0.06	0.27	0.40	0.18	0.78	0.71	0.58	0.79	0.51	0.08
d, Delay for Lane Group [s/veh]	28.82	8.01	7.07	33.04	10.93	9.63	32.26	28.62	26.98	32.47	25.47	22.70
Lane Group LOS	C	A	A	C	B	A	C	C	C	C	C	C
Critical Lane Group	Yes	No	No	No	Yes	No	No	Yes	No	Yes	No	No
50th-Percentile Queue Length [veh/ln]	0.75	1.18	0.26	0.17	2.25	0.88	2.25	2.41	1.62	2.43	1.65	0.21
50th-Percentile Queue Length [ft/ln]	18.86	29.54	6.50	4.17	56.29	22.06	56.31	60.22	40.54	60.78	41.16	5.33
95th-Percentile Queue Length [veh/ln]	1.36	2.13	0.47	0.30	4.05	1.59	4.05	4.34	2.92	4.38	2.96	0.38
95th-Percentile Queue Length [ft/ln]	33.96	53.17	11.71	7.50	101.33	39.70	101.36	108.40	72.98	109.41	74.09	9.59

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	28.82	8.01	7.07	33.04	10.93	9.63	32.26	28.62	26.98	32.47	25.47	22.70
Movement LOS	C	A	A	C	B	A	C	C	C	C	C	C
d_A, Approach Delay [s/veh]	9.93			10.97			29.40			28.97		
Approach LOS	A			B			C			C		
d_I, Intersection Delay [s/veh]	17.22											
Intersection LOS	B											
Intersection V/C	0.439											

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 4: Winchester Road (SR-79) (NS) at Domenigoni Parkway (EW)

Control Type:	Signalized	Delay (sec / veh):	81.5
Analysis Method:	HCM 2010	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	1.095

Intersection Setup

Name	Northbound			Southbound			Eastbound			Westbound		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration	T T T			T T T			T T T			T T T		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	1	1	0	1	2	0	1	2	0	1
Pocket Length [ft]	350.00	100.00	525.00	220.00	100.00	240.00	380.00	100.00	380.00	300.00	100.00	280.00
Speed [mph]	45.00			55.00			55.00			55.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Northbound			Southbound			Eastbound			Westbound		
Base Volume Input [veh/h]	77	323	717	21	764	257	191	930	173	951	875	38
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	16	65	16	0	67	0	0	0	17	17	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	93	388	733	21	831	257	191	930	190	968	875	38
Peak Hour Factor	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	24	102	193	6	219	68	50	245	50	255	230	10
Total Analysis Volume [veh/h]	98	408	772	22	875	271	201	979	200	1019	921	40
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	100
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	4.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal group	5	2	0	1	6	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	7	7	0	7	7	0	7	7	0	7	7	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Split [s]	11	37	0	10	36	0	11	26	0	27	42	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	10	0	0	10	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	R	L	C	R
C, Cycle Length [s]	100	100	100	100	100	100	100	100	100	100	100	100
L, Total Lost Time per Cycle [s]	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
g_i, Effective Green Time [s]	7	38	38	3	34	34	8	23	23	24	39	39
g / C, Green / Cycle	0.07	0.38	0.38	0.03	0.34	0.34	0.08	0.23	0.23	0.24	0.39	0.39
(v / s)_i Volume / Saturation Flow Rate	0.05	0.11	0.48	0.01	0.24	0.17	0.06	0.27	0.12	0.29	0.18	0.02
s, saturation flow rate [veh/h]	1810	3618	1615	1810	3618	1615	3514	3618	1615	3514	5176	1615
c, Capacity [veh/h]	125	1369	611	59	1237	552	269	828	370	843	2031	634
d1, Uniform Delay [s]	45.84	21.78	31.09	47.40	28.57	26.03	45.26	38.58	33.95	38.03	22.46	18.94
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.11
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	10.19	0.56	131.02	3.86	3.42	3.10	4.15	84.87	1.23	96.38	0.16	0.04
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

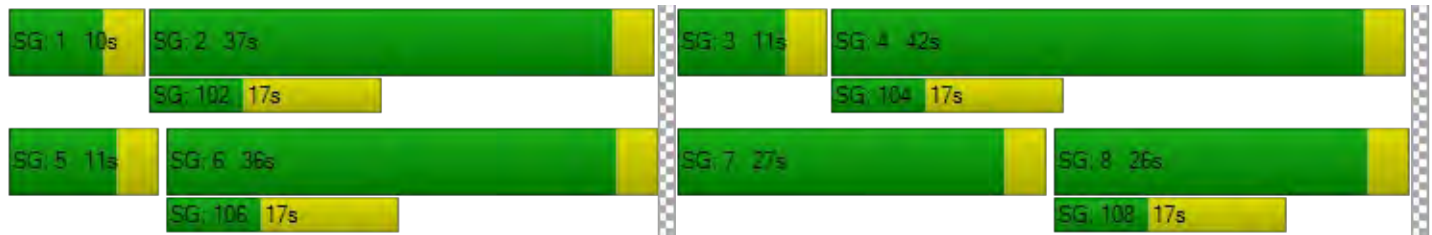
X, volume / capacity	0.78	0.30	1.26	0.37	0.71	0.49	0.75	1.18	0.54	1.21	0.45	0.06
d, Delay for Lane Group [s/veh]	56.02	22.34	162.11	51.26	31.99	29.12	49.41	123.45	35.18	134.40	22.62	18.98
Lane Group LOS	E	C	F	D	C	C	D	F	D	F	C	B
Critical Lane Group	No	No	Yes	Yes	No	No	No	Yes	No	Yes	No	No
50th-Percentile Queue Length [veh/ln]	2.67	3.26	35.74	0.57	8.82	5.12	2.46	19.10	4.10	20.77	4.83	0.53
50th-Percentile Queue Length [ft/ln]	66.63	81.45	893.41	14.31	220.57	128.04	61.56	477.58	102.41	519.32	120.63	13.35
95th-Percentile Queue Length [veh/ln]	4.80	5.86	52.70	1.03	13.69	8.83	4.43	28.69	7.37	31.23	8.43	0.96
95th-Percentile Queue Length [ft/ln]	119.94	146.61	1317.54	25.77	342.35	220.83	110.81	717.36	184.34	780.86	210.70	24.03

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	56.02	22.34	162.11	51.26	31.99	29.12	49.41	123.45	35.18	134.40	22.62	18.98
Movement LOS	E	C	F	D	C	C	D	F	D	F	C	B
d_A, Approach Delay [s/veh]	109.35			31.69			99.87			80.08		
Approach LOS	F			C			F			F		
d_I, Intersection Delay [s/veh]	81.49											
Intersection LOS	F											
Intersection V/C	1.095											

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report

Intersection 5: Winchester Road (SR-79) (NS) at Newport Road (EW)

Control Type:	Signalized	Delay (sec / veh):	10.2
Analysis Method:	HCM 2010	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.701

Intersection Setup

Name	Northbound			Southbound			Eastbound			Westbound		
Approach												
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	1	1	0	1	0	0	1	0	0	0
Pocket Length [ft]	225.00	100.00	550.00	550.00	100.00	550.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	65.00			65.00			55.00			45.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			Yes			Yes			Yes		

Volumes

Name	Northbound			Southbound			Eastbound			Westbound		
Base Volume Input [veh/h]	0	1066	10	9	1843	2	3	0	1	3	0	3
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	66	0	0	0	0	101	97	0	69	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	12	-12	0	0	-12	12	12	0	12	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	78	1054	10	9	1831	115	112	0	82	3	0	3
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	20	264	3	2	458	29	28	0	21	1	0	1
Total Analysis Volume [veh/h]	78	1054	10	9	1831	115	112	0	82	3	0	3
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	70
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	4.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal group	5	2	0	1	6	0	0	8	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	-	-	-	-	-	-
Minimum Green [s]	7	7	0	7	7	0	0	7	0	0	7	0
Maximum Green [s]	30	30	0	30	30	0	0	30	0	0	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
All red [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Split [s]	10	36	0	14	40	0	0	20	0	0	20	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	10	0	0	10	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	1.0	1.0	0.0	1.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0
Minimum Recall	No	No		No	No			No			No	
Maximum Recall	No	No		No	No			No			No	
Pedestrian Recall	No	No		No	No			No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	C	R	C
C, Cycle Length [s]	70	70	70	70	70	70	70	70	70
L, Total Lost Time per Cycle [s]	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	2.00	0.00	2.00
l2, Clearance Lost Time [s]	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
g_i, Effective Green Time [s]	6	50	50	1	46	46	10	10	10
g / C, Green / Cycle	0.08	0.72	0.72	0.02	0.65	0.65	0.14	0.14	0.14
(v / s)_i Volume / Saturation Flow Rate	0.04	0.20	0.01	0.00	0.51	0.07	0.11	0.05	0.02
s, saturation flow rate [veh/h]	1810	5176	1615	1810	3618	1615	1005	1615	393
c, Capacity [veh/h]	144	3709	1157	32	2369	1058	241	222	131
d1, Uniform Delay [s]	31.03	3.53	2.83	33.99	8.46	4.50	29.43	27.50	26.58
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	3.13	0.19	0.01	4.61	2.52	0.21	1.40	1.03	0.14
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.54	0.28	0.01	0.28	0.77	0.11	0.47	0.37	0.05
d, Delay for Lane Group [s/veh]	34.17	3.73	2.85	38.60	10.98	4.70	30.83	28.52	26.73
Lane Group LOS	C	A	A	D	B	A	C	C	C
Critical Lane Group	Yes	No	No	No	Yes	No	Yes	No	No
50th-Percentile Queue Length [veh/ln]	1.22	0.53	0.01	0.17	5.01	0.34	1.70	1.16	0.08
50th-Percentile Queue Length [ft/ln]	30.54	13.25	0.37	4.35	125.34	8.51	42.57	29.10	2.12
95th-Percentile Queue Length [veh/ln]	2.20	0.95	0.03	0.31	8.69	0.61	3.06	2.09	0.15
95th-Percentile Queue Length [ft/ln]	54.97	23.84	0.67	7.82	217.15	15.32	76.62	52.37	3.81

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	34.17	3.73	2.85	38.60	10.98	4.70	30.83	30.83	28.52	26.73	26.73	26.73
Movement LOS	C	A	A	D	B	A	C	C	C	C	C	C
d_A, Approach Delay [s/veh]	5.80			10.74			29.86			26.73		
Approach LOS	A			B			C			C		
d_I, Intersection Delay [s/veh]	10.18											
Intersection LOS	B											
Intersection V/C	0.701											

Sequence





Ring 1	1	2	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 6: Winchester Road (SR-79) (NS) at Scott Road/Washington Street (EW)

Control Type:	Signalized	Delay (sec / veh):	20.6
Analysis Method:	HCM 2010	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.614

Intersection Setup

Name	Northbound			Southbound			Eastbound			Westbound		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	65.00			65.00			45.00			55.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			No			Yes			Yes		

Volumes

Name	Northbound			Southbound			Eastbound			Westbound		
Base Volume Input [veh/h]	74	794	4	238	1333	243	181	109	101	2	74	176
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	50	0	8	53	8	8	0	0	0	0	8
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	74	844	4	246	1386	251	189	109	101	2	74	184
Peak Hour Factor	0.9100	0.9100	0.9100	0.9100	0.9100	0.9100	0.9100	0.9100	0.9100	0.9100	0.9100	0.9100
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	20	232	1	68	381	69	52	30	28	1	20	51
Total Analysis Volume [veh/h]	81	927	4	270	1523	276	208	120	111	2	81	202
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	70
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	4.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal group	5	2	0	1	6	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	7	7	0	7	7	0	7	7	0	7	7	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Split [s]	10	20	0	19	29	0	12	20	0	11	19	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	10	0	0	10	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	R	L	C	R
C, Cycle Length [s]	70	70	70	70	70	70	70	70	70	70	70	70
L, Total Lost Time per Cycle [s]	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
g_i, Effective Green Time [s]	6	26	26	12	33	33	9	20	20	0	11	11
g / C, Green / Cycle	0.08	0.37	0.37	0.18	0.47	0.47	0.13	0.28	0.28	0.00	0.15	0.15
(v / s)_i Volume / Saturation Flow Rate	0.04	0.18	0.00	0.15	0.29	0.17	0.11	0.06	0.07	0.00	0.04	0.13
s, saturation flow rate [veh/h]	1810	5176	1615	1810	5176	1615	1810	1900	1615	1810	1900	1615
c, Capacity [veh/h]	147	1901	593	322	2401	749	234	529	450	10	294	250
d1, Uniform Delay [s]	31.04	17.13	14.09	27.91	14.30	12.17	30.08	19.51	19.63	34.77	26.20	28.67
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.11
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	3.21	0.90	0.02	5.85	1.29	1.39	10.93	0.22	0.28	9.41	0.50	6.11
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.55	0.49	0.01	0.84	0.63	0.37	0.89	0.23	0.25	0.20	0.28	0.81
d, Delay for Lane Group [s/veh]	34.26	18.02	14.11	33.77	15.59	13.57	41.01	19.73	19.91	44.18	26.71	34.78
Lane Group LOS	C	B	B	C	B	B	D	B	B	D	C	C
Critical Lane Group	Yes	No	No	No	Yes	No	Yes	No	No	No	No	Yes
50th-Percentile Queue Length [veh/ln]	1.27	3.10	0.03	4.19	4.56	2.27	3.86	1.37	1.29	0.06	1.09	3.30
50th-Percentile Queue Length [ft/ln]	31.76	77.51	0.87	104.78	113.97	56.68	96.49	34.37	32.13	1.42	27.36	82.46
95th-Percentile Queue Length [veh/ln]	2.29	5.58	0.06	7.54	8.06	4.08	6.95	2.47	2.31	0.10	1.97	5.94
95th-Percentile Queue Length [ft/ln]	57.17	139.51	1.56	188.61	201.51	102.02	173.68	61.86	57.83	2.56	49.24	148.43

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	34.26	18.02	14.11	33.77	15.59	13.57	41.01	19.73	19.91	44.18	26.71	34.78
Movement LOS	C	B	B	C	B	B	D	B	B	D	C	C
d_A, Approach Delay [s/veh]	19.31			17.69			29.86			32.55		
Approach LOS	B			B			C			C		
d_I, Intersection Delay [s/veh]	20.64											
Intersection LOS	C											
Intersection V/C	0.614											

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 7: Winchester Road (SR-79) (NS) at Whisper Heights/Pourroy Road (EW)

Control Type:	Signalized	Delay (sec / veh):	16.8
Analysis Method:	HCM 2010	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.633

Intersection Setup

Name	Northbound			Southbound			Eastbound			Westbound		
Approach	T			T			T			T		
Lane Configuration	T			T			T			T		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	1	2	0	0	1	0	1	1	0	0
Pocket Length [ft]	250.00	100.00	330.00	340.00	100.00	100.00	150.00	100.00	150.00	170.00	100.00	100.00
Speed [mph]	55.00			55.00			45.00			45.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			Yes			Yes			Yes		

Volumes

Name	Northbound			Southbound			Eastbound			Westbound		
Base Volume Input [veh/h]	7	767	104	132	1366	28	48	30	33	152	29	181
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	25	0	25	28	0	0	0	0	0	0	25
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	7	792	104	157	1394	28	48	30	33	152	29	206
Peak Hour Factor	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	2	215	28	43	379	8	13	8	9	41	8	56
Total Analysis Volume [veh/h]	8	861	113	171	1515	30	52	33	36	165	32	224
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	60
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	4.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal group	5	2	0	1	6	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	7	7	0	7	7	0	7	7	0	7	7	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Split [s]	10	20	0	10	20	0	10	15	0	15	20	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	10	0	0	10	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	R	L	C	R
C, Cycle Length [s]	60	60	60	60	60	60	60	60	60	60	60	60
L, Total Lost Time per Cycle [s]	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
g_i, Effective Green Time [s]	1	27	27	7	33	33	4	7	7	7	10	10
g / C, Green / Cycle	0.02	0.45	0.45	0.11	0.54	0.54	0.07	0.12	0.12	0.12	0.17	0.17
(v / s)_i Volume / Saturation Flow Rate	0.00	0.24	0.07	0.05	0.42	0.02	0.03	0.02	0.02	0.09	0.02	0.14
s, saturation flow rate [veh/h]	1810	3618	1615	3514	3618	1615	1810	1900	1615	1810	1900	1615
c, Capacity [veh/h]	30	1610	719	392	1952	872	127	238	202	216	331	281
d1, Uniform Delay [s]	29.26	12.18	9.98	25.01	10.99	6.51	26.82	23.47	23.59	25.73	20.91	23.86
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.11
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	4.49	1.28	0.47	0.77	3.10	0.07	2.10	0.26	0.42	5.56	0.13	5.12
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

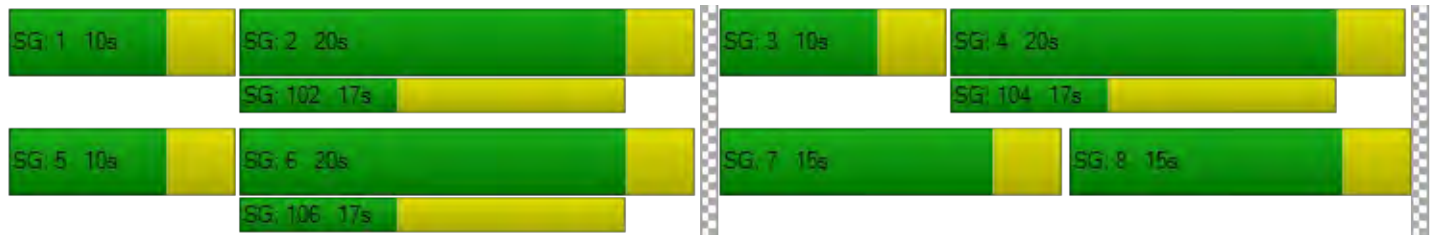
X, volume / capacity	0.26	0.53	0.16	0.44	0.78	0.03	0.41	0.14	0.18	0.76	0.10	0.80
d, Delay for Lane Group [s/veh]	33.76	13.46	10.45	25.78	14.09	6.58	28.92	23.74	24.01	31.29	21.03	28.98
Lane Group LOS	C	B	B	C	B	A	C	C	C	C	C	C
Critical Lane Group	Yes	No	No	No	Yes	No	Yes	No	No	No	No	Yes
50th-Percentile Queue Length [veh/ln]	0.14	3.23	0.73	1.02	5.56	0.13	0.72	0.39	0.43	2.36	0.35	3.07
50th-Percentile Queue Length [ft/ln]	3.45	80.70	18.15	25.39	139.00	3.21	17.90	9.72	10.77	59.04	8.63	76.63
95th-Percentile Queue Length [veh/ln]	0.25	5.81	1.31	1.83	9.43	0.23	1.29	0.70	0.78	4.25	0.62	5.52
95th-Percentile Queue Length [ft/ln]	6.20	145.27	32.67	45.70	235.68	5.78	32.22	17.50	19.38	106.27	15.53	137.93

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	33.76	13.46	10.45	25.78	14.09	6.58	28.92	23.74	24.01	31.29	21.03	28.98
Movement LOS	C	B	B	C	B	A	C	C	C	C	C	C
d_A, Approach Delay [s/veh]	13.28			15.12			26.05			29.28		
Approach LOS	B			B			C			C		
d_I, Intersection Delay [s/veh]	16.81											
Intersection LOS	B											
Intersection V/C	0.633											

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



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Scenario 2 Existing Plus Project

Report File: C:\...\IAM Ep.pdf

1/12/2021

Turning Movement Volume: Detail

ID	Intersection Name	Volume Type	Northbound		Eastbound		Westbound		Total Volume
			Left	Right	Thru	Right	Left	Thru	
1	Project Access (NS) at Newport Road (EW)	Final Base	0	0	0	0	0	0	0
		Growth Factor	1.00	1.00	1.00	1.00	1.00	1.00	-
		In Process	0	0	0	0	0	0	0
		Net New Trips	0	190	0	0	191	0	381
		Other	0	0	0	0	0	0	0
		Future Total	0	190	0	0	191	0	381

ID	Intersection Name	Volume Type	Northbound			Southbound			Eastbound			Westbound			Total Volume
			Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
2	Winchester Road (SR-79) (NS) at Route 74 (EW)	Final Base	78	15	417	20	27	4	8	720	103	491	544	31	2458
		Growth Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	-
		In Process	0	0	0	0	0	0	0	0	0	0	0	0	0
		Net New Trips	25	0	16	0	0	0	0	0	25	17	0	0	83
		Other	0	0	0	0	0	0	0	0	0	0	0	0	0
		Future Total	103	15	433	20	27	4	8	720	128	508	544	31	2541

ID	Intersection Name	Volume Type	Northbound			Southbound			Eastbound			Westbound			Total Volume
			Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
3	Winchester Road (SR-79) (NS) at Simpson Road (EW)	Final Base	39	422	45	10	629	139	154	178	107	158	132	19	2032
		Growth Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	-
		In Process	0	0	0	0	0	0	0	0	0	0	0	0	0
		Net New Trips	16	41	8	0	42	0	0	0	17	8	0	0	132
		Other	0	0	0	0	0	0	0	0	0	0	0	0	0
		Future Total	55	463	53	10	671	139	154	178	124	166	132	19	2164

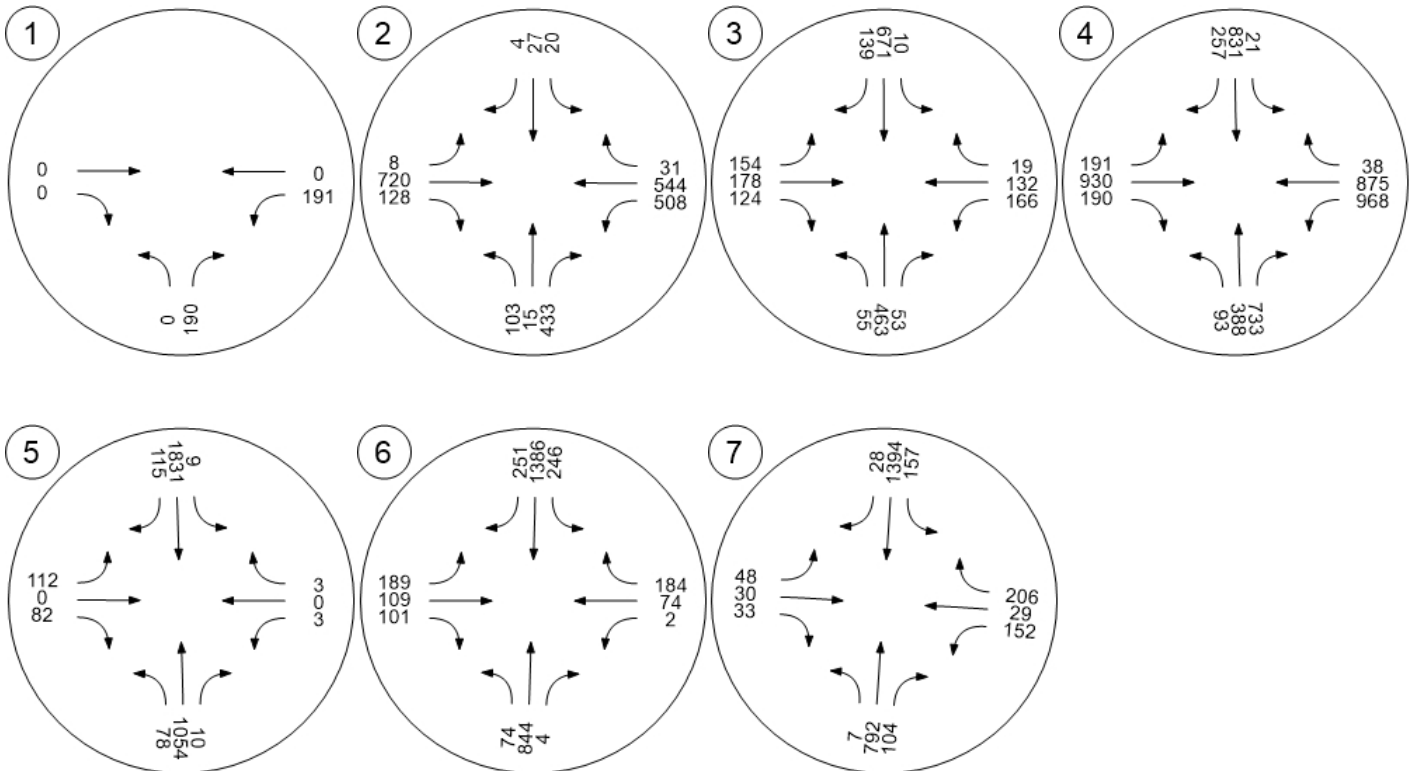
ID	Intersection Name	Volume Type	Northbound			Southbound			Eastbound			Westbound			Total Volume
			Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
4	Winchester Road (SR-79) (NS) at Domenigoni Parkway (EW)	Final Base	77	323	717	21	764	257	191	930	173	951	875	38	5317
		Growth Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	-
		In Process	0	0	0	0	0	0	0	0	0	0	0	0	0
		Net New Trips	16	65	16	0	67	0	0	0	17	17	0	0	198
		Other	0	0	0	0	0	0	0	0	0	0	0	0	0
		Future Total	93	388	733	21	831	257	191	930	190	968	875	38	5515

ID	Intersection Name	Volume Type	Northbound			Southbound			Eastbound			Westbound			Total Volume
			Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
5	Winchester Road (SR-79) (NS) at Newport Road (EW)	Final Base	0	1066	10	9	1843	2	3	0	1	3	0	3	2940
		Growth Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	-
		In Process	0	0	0	0	0	0	0	0	0	0	0	0	0
		Net New Trips	78	-12	0	0	-12	113	109	0	81	0	0	0	357
		Other	0	0	0	0	0	0	0	0	0	0	0	0	0
		Future Total	78	1054	10	9	1831	115	112	0	82	3	0	3	3297

ID	Intersection Name	Volume Type	Northbound			Southbound			Eastbound			Westbound			Total Volume
			Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
6	Winchester Road (SR-79) (NS) at Scott Road/Washington Street (EW)	Final Base	74	794	4	238	1333	243	181	109	101	2	74	176	3329
		Growth Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	-
		In Process	0	0	0	0	0	0	0	0	0	0	0	0	0
		Net New Trips	0	50	0	8	53	8	8	0	0	0	0	8	135
		Other	0	0	0	0	0	0	0	0	0	0	0	0	0
		Future Total	74	844	4	246	1386	251	189	109	101	2	74	184	3464

ID	Intersection Name	Volume Type	Northbound			Southbound			Eastbound			Westbound			Total Volume
			Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
7	Winchester Road (SR-79) (NS) at Whisper Heights/Pourroy Road (EW)	Final Base	7	767	104	132	1366	28	48	30	33	152	29	181	2877
		Growth Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	-
		In Process	0	0	0	0	0	0	0	0	0	0	0	0	0
		Net New Trips	0	25	0	25	28	0	0	0	0	0	0	25	103
		Other	0	0	0	0	0	0	0	0	0	0	0	0	0
		Future Total	7	792	104	157	1394	28	48	30	33	152	29	206	2980

Traffic Volume - Future Total Volume



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Scenario 2 Existing Plus Project

Report File: C:\...\IPM Ep.pdf

1/12/2021

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
1	Project Access (NS) at Newport Road (EW)	Two-way stop	HCM 2010	NB Right	0.180	9.0	A
2	Winchester Road (SR-79) (NS) at Route 74 (EW)	Signalized	HCM 2010	NB Right	0.886	30.4	C
3	Winchester Road (SR-79) (NS) at Simpson Road (EW)	Signalized	HCM 2010	SB Left	0.430	16.5	B
4	Winchester Road (SR-79) (NS) at Domenigoni Parkway (EW)	Signalized	HCM 2010	NB Right	1.205	111.2	F
5	Winchester Road (SR-79) (NS) at Newport Road (EW)	Signalized	HCM 2010	SB Left	0.475	6.8	A
6	Winchester Road (SR-79) (NS) at Scott Road/Washington Street (EW)	Signalized	HCM 2010	WB Left	0.729	24.0	C
7	Winchester Road (SR-79) (NS) at Whisper Heights/Pourroy Road (EW)	Signalized	HCM 2010	WB Left	0.675	18.4	B

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. For all other control types, they are taken for the whole intersection.

Intersection Level Of Service Report
Intersection 1: Project Access (NS) at Newport Road (EW)

Control Type:	Two-way stop	Delay (sec / veh):	9.0
Analysis Method:	HCM 2010	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.180

Intersection Setup

Name	Northbound		Eastbound		Westbound	
Approach						
Lane Configuration	↵↵		↑		↵	
Turning Movement	Left	Right	Thru	Right	Left	Thru
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	45.00		45.00		45.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		No	

Volumes

Name	Northbound		Eastbound		Westbound	
Base Volume Input [veh/h]	0	0	0	0	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	159	0	0	160	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	27	0	0	27	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	186	0	0	187	0
Peak Hour Factor	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	49	0	0	49	0
Total Analysis Volume [veh/h]	0	196	0	0	197	0
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Stop	Free	Free
Flared Lane			
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance	No		
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.18	0.00	0.00	0.12	0.00
d_M, Delay for Movement [s/veh]	11.66	9.02	0.00	0.00	7.50	0.00
Movement LOS	B	A	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.00	0.65	0.00	0.00	0.39	0.39
95th-Percentile Queue Length [ft/ln]	0.00	16.33	0.00	0.00	9.66	9.66
d_A, Approach Delay [s/veh]	9.02		0.00		7.50	
Approach LOS	A		A		A	
d_I, Intersection Delay [s/veh]	8.26					
Intersection LOS	A					

Intersection Level Of Service Report

Intersection 2: Winchester Road (SR-79) (NS) at Route 74 (EW)

Control Type:	Signalized	Delay (sec / veh):	30.4
Analysis Method:	HCM 2010	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.886

Intersection Setup

Name	Northbound			Southbound			Eastbound			Westbound		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration	↵			↵			↵↵↵			↵↵		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	0	1	0	0	1	0	1	1	0	0
Pocket Length [ft]	180.00	100.00	100.00	50.00	100.00	100.00	150.00	100.00	300.00	100.00	100.00	100.00
Speed [mph]	45.00			45.00			50.00			50.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			No			Yes			No		

Volumes

Name	Northbound			Southbound			Eastbound			Westbound		
Base Volume Input [veh/h]	132	14	523	24	18	7	19	826	75	360	665	35
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	24	0	16	0	0	0	0	0	24	16	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	156	14	539	24	18	7	19	826	99	376	665	35
Peak Hour Factor	0.9400	0.9400	0.9400	0.9400	0.9400	0.9400	0.9400	0.9400	0.9400	0.9400	0.9400	0.9400
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	41	4	143	6	5	2	5	220	26	100	177	9
Total Analysis Volume [veh/h]	166	15	573	26	19	7	20	879	105	400	707	37
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	60
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	4.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal group	0	2	0	0	6	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	0	7	0	0	7	0	7	7	0	7	7	0
Maximum Green [s]	0	30	0	0	30	0	30	30	0	30	30	0
Amber [s]	0.0	3.0	0.0	0.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Split [s]	0	24	0	0	24	0	21	20	0	16	15	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	10	0	0	10	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	1.0	0.0	0.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Minimum Recall		No			No		No	No		No	No	
Maximum Recall		No			No		No	No		No	No	
Pedestrian Recall		No			No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	L	C	L	C	R	L	C	C
C, Cycle Length [s]	60	60	60	60	60	60	60	60	60	60
L, Total Lost Time per Cycle [s]	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00
l1_p, Permitted Start-Up Lost Time [s]	2.00	0.00	2.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
g_i, Effective Green Time [s]	22	22	22	22	2	16	16	13	27	27
g / C, Green / Cycle	0.36	0.36	0.36	0.36	0.03	0.27	0.27	0.22	0.46	0.46
(v / s)_i Volume / Saturation Flow Rate	0.12	0.36	0.03	0.01	0.01	0.24	0.07	0.22	0.20	0.20
s, saturation flow rate [veh/h]	1407	1621	841	1814	1810	3618	1615	1810	1900	1867
c, Capacity [veh/h]	578	586	122	655	62	984	439	393	864	849
d1, Uniform Delay [s]	15.48	19.19	30.03	12.43	28.33	21.03	17.03	23.52	11.13	11.13
k, delay calibration	0.50	0.50	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.11
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	1.25	38.15	3.93	0.11	2.97	3.11	0.28	26.00	0.35	0.35
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.29	1.00	0.21	0.04	0.32	0.89	0.24	1.02	0.43	0.43
d, Delay for Lane Group [s/veh]	16.73	57.33	33.96	12.55	31.30	24.14	17.31	49.52	11.48	11.48
Lane Group LOS	B	F	C	B	C	C	B	F	B	B
Critical Lane Group	No	Yes	No	No	No	Yes	No	Yes	No	No
50th-Percentile Queue Length [veh/ln]	1.65	12.72	0.47	0.21	0.30	5.27	0.97	7.48	2.55	2.51
50th-Percentile Queue Length [ft/ln]	41.20	317.89	11.86	5.20	7.51	131.64	24.25	187.03	63.81	62.78
95th-Percentile Queue Length [veh/ln]	2.97	18.61	0.85	0.37	0.54	9.03	1.75	12.08	4.59	4.52
95th-Percentile Queue Length [ft/ln]	74.17	465.28	21.35	9.35	13.51	225.72	43.66	302.01	114.86	113.00

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	16.73	57.33	57.33	33.96	12.55	12.55	31.30	24.14	17.31	49.52	11.48	11.48
Movement LOS	B	E	E	C	B	B	C	C	B	F	B	B
d_A, Approach Delay [s/veh]	48.39			23.25			23.57			24.78		
Approach LOS	D			C			C			C		
d_I, Intersection Delay [s/veh]	30.37											
Intersection LOS	C											
Intersection V/C	0.886											

Sequence

Ring 1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report

Intersection 3: Winchester Road (SR-79) (NS) at Simpson Road (EW)

Control Type:	Signalized	Delay (sec / veh):	16.5
Analysis Method:	HCM 2010	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.430

Intersection Setup

Name	Northbound			Southbound			Eastbound			Westbound		
Approach	[Diagram]			[Diagram]			[Diagram]			[Diagram]		
Lane Configuration	[Diagram]			[Diagram]			[Diagram]			[Diagram]		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	0	1	0	0	1	0	1	1	0	1
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	150.00	100.00	150.00	100.00	100.00	100.00
Speed [mph]	50.00			50.00			50.00			50.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Northbound			Southbound			Eastbound			Westbound		
Base Volume Input [veh/h]	66	656	161	30	414	75	107	249	51	59	154	44
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	16	40	8	0	40	0	0	0	16	8	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	82	696	169	30	454	75	107	249	67	67	154	44
Peak Hour Factor	0.9400	0.9400	0.9400	0.9400	0.9400	0.9400	0.9400	0.9400	0.9400	0.9400	0.9400	0.9400
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	22	185	45	8	121	20	28	66	18	18	41	12
Total Analysis Volume [veh/h]	87	740	180	32	483	80	114	265	71	71	164	47
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	60
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	4.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal group	5	2	0	1	6	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	7	7	0	7	7	0	7	7	0	7	7	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Split [s]	10	20	0	10	20	0	10	20	0	10	20	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	10	0	0	10	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	R	L	C	R
C, Cycle Length [s]	60	60	60	60	60	60	60	60	60	60	60	60
L, Total Lost Time per Cycle [s]	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
g_i, Effective Green Time [s]	5	30	30	3	27	27	6	11	11	5	10	10
g / C, Green / Cycle	0.09	0.49	0.49	0.05	0.45	0.45	0.10	0.18	0.18	0.08	0.16	0.16
(v / s)_i Volume / Saturation Flow Rate	0.05	0.20	0.11	0.02	0.13	0.05	0.06	0.14	0.04	0.04	0.09	0.03
s, saturation flow rate [veh/h]	1810	3618	1615	1810	3618	1615	1810	1900	1615	1810	1900	1615
c, Capacity [veh/h]	166	1771	791	92	1623	725	183	336	286	151	303	257
d1, Uniform Delay [s]	26.13	9.88	8.84	27.64	10.57	9.64	25.98	23.72	21.35	26.35	23.32	21.94
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.11
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	2.56	0.73	0.67	2.23	0.47	0.31	3.42	4.11	0.45	2.26	1.51	0.34
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

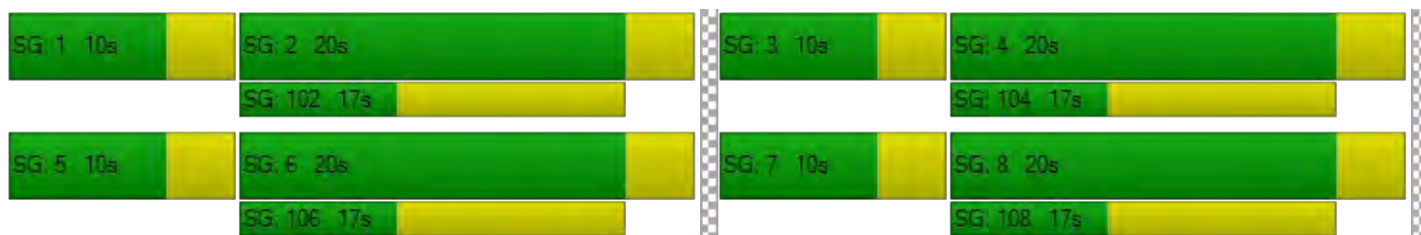
X, volume / capacity	0.52	0.42	0.23	0.35	0.30	0.11	0.62	0.79	0.25	0.47	0.54	0.18
d, Delay for Lane Group [s/veh]	28.68	10.60	9.51	29.87	11.04	9.94	29.40	27.83	21.80	28.62	24.83	22.28
Lane Group LOS	C	B	A	C	B	A	C	C	C	C	C	C
Critical Lane Group	No	Yes	No	Yes	No	No	No	Yes	No	Yes	No	No
50th-Percentile Queue Length [veh/ln]	1.16	2.36	1.10	0.45	1.60	0.51	1.54	3.45	0.78	0.95	1.97	0.52
50th-Percentile Queue Length [ft/ln]	28.99	59.01	27.43	11.27	40.08	12.86	38.53	86.34	19.40	23.69	49.26	13.03
95th-Percentile Queue Length [veh/ln]	2.09	4.25	1.97	0.81	2.89	0.93	2.77	6.22	1.40	1.71	3.55	0.94
95th-Percentile Queue Length [ft/ln]	52.19	106.21	49.37	20.28	72.14	23.14	69.36	155.42	34.92	42.64	88.66	23.46

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	28.68	10.60	9.51	29.87	11.04	9.94	29.40	27.83	21.80	28.62	24.83	22.28
Movement LOS	C	B	A	C	B	A	C	C	C	C	C	C
d_A, Approach Delay [s/veh]	11.97			11.90			27.28			25.36		
Approach LOS	B			B			C			C		
d_I, Intersection Delay [s/veh]	16.52											
Intersection LOS	B											
Intersection V/C	0.430											

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 4: Winchester Road (SR-79) (NS) at Domenigoni Parkway (EW)

Control Type:	Signalized	Delay (sec / veh):	111.2
Analysis Method:	HCM 2010	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	1.205

Intersection Setup

Name	Northbound			Southbound			Eastbound			Westbound		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration	[Diagram]			[Diagram]			[Diagram]			[Diagram]		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	1	1	0	1	2	0	1	2	0	1
Pocket Length [ft]	350.00	100.00	525.00	220.00	100.00	240.00	380.00	100.00	380.00	300.00	100.00	280.00
Speed [mph]	45.00			65.00			65.00			65.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Northbound			Southbound			Eastbound			Westbound		
Base Volume Input [veh/h]	82	619	1025	24	302	183	251	922	39	709	973	18
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	16	64	16	0	64	0	0	0	16	16	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	98	683	1041	24	366	183	251	922	55	725	973	18
Peak Hour Factor	0.9600	0.9600	0.9600	0.9600	0.9600	0.9600	0.9600	0.9600	0.9600	0.9600	0.9600	0.9600
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	26	178	271	6	95	48	65	240	14	189	253	5
Total Analysis Volume [veh/h]	102	711	1084	25	381	191	261	960	57	755	1014	19
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	4.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal group	5	2	0	1	6	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	7	7	0	7	7	0	7	7	0	7	7	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Split [s]	49	59	0	10	20	0	15	28	0	23	36	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	10	0	0	10	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	R	L	C	R
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
g_i, Effective Green Time [s]	9	59	59	4	55	55	11	25	25	20	34	34
g / C, Green / Cycle	0.07	0.49	0.49	0.03	0.45	0.45	0.09	0.21	0.21	0.17	0.28	0.28
(v / s)_i Volume / Saturation Flow Rate	0.06	0.20	0.67	0.01	0.11	0.12	0.07	0.27	0.04	0.21	0.20	0.01
s, saturation flow rate [veh/h]	1810	3618	1615	1810	3618	1615	3514	3618	1615	3514	5176	1615
c, Capacity [veh/h]	130	1783	796	60	1645	734	319	749	334	586	1465	457
d1, Uniform Delay [s]	54.81	19.21	30.43	56.85	19.95	20.24	53.60	47.59	39.13	50.00	38.36	31.21
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.12	0.11	0.11	0.11	0.11
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	10.00	0.67	170.92	4.45	0.33	0.86	5.20	129.68	0.24	132.54	0.59	0.04
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

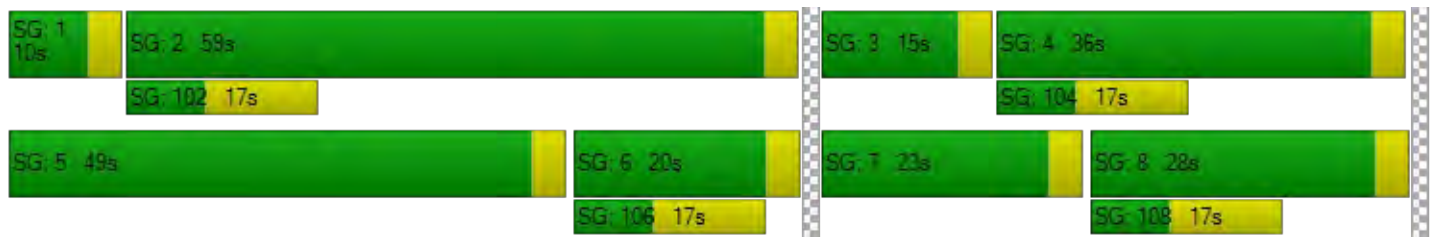
X, volume / capacity	0.79	0.40	1.36	0.41	0.23	0.26	0.82	1.28	0.17	1.29	0.69	0.04
d, Delay for Lane Group [s/veh]	64.81	19.88	201.35	61.30	20.28	21.10	58.80	177.28	39.37	182.54	38.96	31.25
Lane Group LOS	E	B	F	E	C	C	E	F	D	F	D	C
Critical Lane Group	No	No	Yes	Yes	No	No	No	Yes	No	Yes	No	No
50th-Percentile Queue Length [veh/ln]	3.32	6.07	58.75	0.78	3.00	3.15	3.87	23.84	1.32	18.99	8.24	0.38
50th-Percentile Queue Length [ft/ln]	83.02	151.83	1468.77	19.46	74.90	78.67	96.82	595.89	32.96	474.64	205.89	9.44
95th-Percentile Queue Length [veh/ln]	5.98	10.11	87.50	1.40	5.39	5.66	6.97	35.98	2.37	29.24	12.94	0.68
95th-Percentile Queue Length [ft/ln]	149.43	252.87	2187.59	35.03	134.83	141.61	174.28	899.50	59.34	731.06	323.56	17.00

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	64.81	19.88	201.35	61.30	20.28	21.10	58.80	177.28	39.37	182.54	38.96	31.25
Movement LOS	E	B	F	E	C	C	E	F	D	F	D	C
d_A, Approach Delay [s/veh]	125.99			22.26			146.93			99.51		
Approach LOS	F			C			F			F		
d_I, Intersection Delay [s/veh]	111.15											
Intersection LOS	F											
Intersection V/C	1.205											

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report

Intersection 5: Winchester Road (SR-79) (NS) at Newport Road (EW)

Control Type:	Signalized	Delay (sec / veh):	6.8
Analysis Method:	HCM 2010	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.475

Intersection Setup

Name	Northbound			Southbound			Eastbound			Westbound		
Approach												
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	1	1	0	1	0	0	1	0	0	0
Pocket Length [ft]	225.00	100.00	550.00	550.00	100.00	550.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	65.00			65.00			55.00			45.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			Yes			Yes			Yes		

Volumes

Name	Northbound			Southbound			Eastbound			Westbound		
Base Volume Input [veh/h]	0	1787	1	2	1098	1	0	0	0	17	0	10
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	64	0	0	0	0	96	96	0	63	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	14	-14	0	0	-14	14	14	0	14	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	78	1773	1	2	1084	111	110	0	77	17	0	10
Peak Hour Factor	0.9700	0.9700	0.9700	0.9700	0.9700	0.9700	0.9700	0.9700	0.9700	0.9700	0.9700	0.9700
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	20	457	0	1	279	29	28	0	20	4	0	3
Total Analysis Volume [veh/h]	80	1828	1	2	1118	114	113	0	79	18	0	10
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	60
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	4.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal group	5	2	0	1	6	0	0	8	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	-	-	-	-	-	-
Minimum Green [s]	7	7	0	7	7	0	0	7	0	0	7	0
Maximum Green [s]	30	30	0	30	30	0	0	30	0	0	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
All red [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Split [s]	10	29	0	11	30	0	0	20	0	0	20	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	10	0	0	10	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	1.0	1.0	0.0	1.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0
Minimum Recall	No	No		No	No			No			No	
Maximum Recall	No	No		No	No			No			No	
Pedestrian Recall	No	No		No	No			No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	C	R	C
C, Cycle Length [s]	60	60	60	60	60	60	60	60	60
L, Total Lost Time per Cycle [s]	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	2.00	0.00	2.00
l2, Clearance Lost Time [s]	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
g_i, Effective Green Time [s]	5	44	44	0	39	39	7	7	7
g / C, Green / Cycle	0.09	0.73	0.73	0.00	0.64	0.64	0.12	0.12	0.12
(v / s)_i Volume / Saturation Flow Rate	0.04	0.35	0.00	0.00	0.31	0.07	0.09	0.05	0.08
s, saturation flow rate [veh/h]	1810	5176	1615	1810	3618	1615	1265	1615	344
c, Capacity [veh/h]	159	3749	1170	11	2323	1037	272	194	140
d1, Uniform Delay [s]	26.17	3.53	2.29	29.76	5.57	4.14	25.58	24.48	23.93
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	2.44	0.46	0.00	8.48	0.72	0.21	1.01	1.37	0.70
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

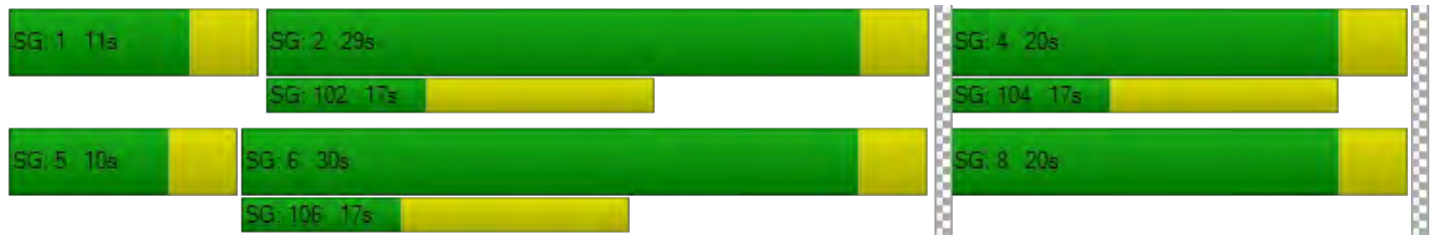
X, volume / capacity	0.50	0.49	0.00	0.19	0.48	0.11	0.42	0.41	0.20
d, Delay for Lane Group [s/veh]	28.61	3.99	2.29	38.24	6.29	4.36	26.59	25.85	24.63
Lane Group LOS	C	A	A	D	A	A	C	C	C
Critical Lane Group	No	Yes	No	Yes	No	No	Yes	No	No
50th-Percentile Queue Length [veh/ln]	1.01	0.26	0.00	0.05	1.43	0.24	1.40	0.96	0.34
50th-Percentile Queue Length [ft/ln]	25.21	6.58	0.01	1.23	35.77	6.09	35.00	23.98	8.58
95th-Percentile Queue Length [veh/ln]	1.82	0.47	0.00	0.09	2.58	0.44	2.52	1.73	0.62
95th-Percentile Queue Length [ft/ln]	45.38	11.84	0.02	2.21	64.38	10.96	63.00	43.16	15.44

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	28.61	3.99	2.29	38.24	6.29	4.36	26.59	26.59	25.85	24.63	24.63	24.63
Movement LOS	C	A	A	D	A	A	C	C	C	C	C	C
d_A, Approach Delay [s/veh]	5.02			6.16			26.29			24.63		
Approach LOS	A			A			C			C		
d_I, Intersection Delay [s/veh]	6.82											
Intersection LOS	A											
Intersection V/C	0.475											

Sequence

Ring 1	1	2	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 6: Winchester Road (SR-79) (NS) at Scott Road/Washington Street (EW)

Control Type:	Signalized	Delay (sec / veh):	24.0
Analysis Method:	HCM 2010	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.729

Intersection Setup

Name	Northbound			Southbound			Eastbound			Westbound		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration	[Diagram]			[Diagram]			[Diagram]			[Diagram]		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	65.00			65.00			45.00			55.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			No			Yes			Yes		

Volumes

Name	Northbound			Southbound			Eastbound			Westbound		
Base Volume Input [veh/h]	74	1252	2	105	786	137	284	67	58	1	120	313
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	48	0	8	47	8	8	0	0	0	0	8
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	74	1300	2	113	833	145	292	67	58	1	120	321
Peak Hour Factor	0.9900	0.9900	0.9900	0.9900	0.9900	0.9900	0.9900	0.9900	0.9900	0.9900	0.9900	0.9900
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	19	328	1	29	210	37	74	17	15	0	30	81
Total Analysis Volume [veh/h]	75	1313	2	114	841	146	295	68	59	1	121	324
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	60
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	4.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal group	5	2	0	1	6	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	7	7	0	7	7	0	7	7	0	7	7	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Split [s]	10	20	0	10	20	0	14	20	0	10	16	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	10	0	0	10	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	R	L	C	R
C, Cycle Length [s]	60	60	60	60	60	60	60	60	60	60	60	60
L, Total Lost Time per Cycle [s]	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
g_i, Effective Green Time [s]	5	18	18	6	19	19	11	24	24	0	13	13
g / C, Green / Cycle	0.08	0.30	0.30	0.10	0.32	0.32	0.18	0.40	0.40	0.00	0.22	0.22
(v / s)_i Volume / Saturation Flow Rate	0.04	0.25	0.00	0.06	0.16	0.09	0.16	0.04	0.04	0.00	0.06	0.20
s, saturation flow rate [veh/h]	1810	5176	1615	1810	5176	1615	1810	1900	1615	1810	1900	1615
c, Capacity [veh/h]	152	1570	490	181	1652	515	332	750	637	4	406	345
d1, Uniform Delay [s]	26.29	19.53	14.60	25.97	16.62	15.31	23.93	11.41	11.42	29.91	19.83	23.23
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.11
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	2.47	5.46	0.02	3.61	1.12	1.37	8.06	0.05	0.06	24.29	0.41	12.05
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

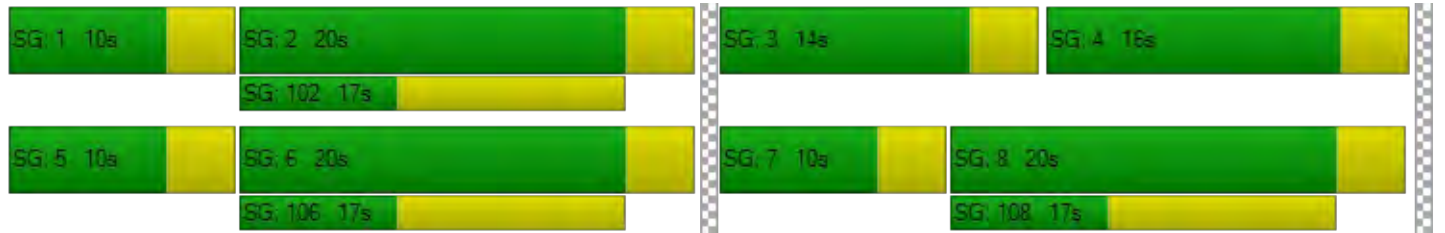
X, volume / capacity	0.49	0.84	0.00	0.63	0.51	0.28	0.89	0.09	0.09	0.23	0.30	0.94
d, Delay for Lane Group [s/veh]	28.76	24.99	14.61	29.58	17.75	16.68	31.99	11.47	11.49	54.19	20.24	35.28
Lane Group LOS	C	C	B	C	B	B	C	B	B	D	C	D
Critical Lane Group	No	Yes	No	Yes	No	No	Yes	No	No	No	No	Yes
50th-Percentile Queue Length [veh/ln]	0.95	4.99	0.02	1.46	2.48	1.30	4.29	0.47	0.41	0.04	1.22	4.83
50th-Percentile Queue Length [ft/ln]	23.74	124.79	0.41	36.58	61.99	32.58	107.17	11.74	10.23	1.06	30.45	120.77
95th-Percentile Queue Length [veh/ln]	1.71	8.66	0.03	2.63	4.46	2.35	7.68	0.85	0.74	0.08	2.19	8.44
95th-Percentile Queue Length [ft/ln]	42.73	216.40	0.74	65.84	111.58	58.65	192.06	21.13	18.42	1.90	54.81	210.89

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	28.76	24.99	14.61	29.58	17.75	16.68	31.99	11.47	11.49	54.19	20.24	35.28
Movement LOS	C	C	B	C	B	B	C	B	B	D	C	D
d_A, Approach Delay [s/veh]	25.18			18.83			25.82			31.24		
Approach LOS	C			B			C			C		
d_I, Intersection Delay [s/veh]	23.98											
Intersection LOS	C											
Intersection V/C	0.729											

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 7: Winchester Road (SR-79) (NS) at Whisper Heights/Pourroy Road (EW)

Control Type:	Signalized	Delay (sec / veh):	18.4
Analysis Method:	HCM 2010	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.675

Intersection Setup

Name	Northbound			Southbound			Eastbound			Westbound		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration	T T T			T T T			T T T			T T T		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	1	2	0	0	1	0	1	1	0	0
Pocket Length [ft]	250.00	100.00	330.00	340.00	100.00	100.00	150.00	100.00	150.00	170.00	100.00	100.00
Speed [mph]	55.00			55.00			45.00			45.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			Yes			Yes			Yes		

Volumes

Name	Northbound			Southbound			Eastbound			Westbound		
Base Volume Input [veh/h]	16	1420	156	134	831	23	18	62	36	129	36	198
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	24	0	24	23	0	0	0	0	0	0	24
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	16	1444	156	158	854	23	18	62	36	129	36	222
Peak Hour Factor	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	4	388	42	42	230	6	5	17	10	35	10	60
Total Analysis Volume [veh/h]	17	1553	168	170	918	25	19	67	39	139	39	239
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	70
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	4.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal group	5	2	0	1	6	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	7	7	0	7	7	0	7	7	0	7	7	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Split [s]	10	29	0	10	29	0	10	10	0	21	21	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	10	0	0	10	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	R	L	C	R
C, Cycle Length [s]	70	70	70	70	70	70	70	70	70	70	70	70
L, Total Lost Time per Cycle [s]	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
g_i, Effective Green Time [s]	2	37	37	7	41	41	2	8	8	7	13	13
g / C, Green / Cycle	0.03	0.52	0.52	0.10	0.59	0.59	0.03	0.11	0.11	0.10	0.18	0.18
(v / s)_i Volume / Saturation Flow Rate	0.01	0.43	0.10	0.05	0.25	0.02	0.01	0.04	0.02	0.08	0.02	0.15
s, saturation flow rate [veh/h]	1810	3618	1615	3514	3618	1615	1810	1900	1615	1810	1900	1615
c, Capacity [veh/h]	55	1877	838	343	2121	947	60	212	180	183	342	290
d1, Uniform Delay [s]	33.35	14.24	9.07	30.06	8.06	6.11	33.19	28.74	28.42	30.73	24.12	27.73
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.11
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	3.19	4.35	0.54	1.11	0.65	0.05	3.02	0.85	0.60	6.30	0.15	5.81
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.31	0.83	0.20	0.50	0.43	0.03	0.32	0.32	0.22	0.76	0.11	0.82
d, Delay for Lane Group [s/veh]	36.54	18.59	9.61	31.17	8.70	6.16	36.22	29.59	29.01	37.02	24.27	33.54
Lane Group LOS	D	B	A	C	A	A	D	C	C	D	C	C
Critical Lane Group	No	Yes	No	Yes	No	No	Yes	No	No	No	No	Yes
50th-Percentile Queue Length [veh/ln]	0.30	8.36	1.12	1.26	2.64	0.11	0.34	1.01	0.58	2.42	0.51	3.95
50th-Percentile Queue Length [ft/ln]	7.60	208.98	28.02	31.62	66.12	2.87	8.59	25.13	14.49	60.56	12.72	98.86
95th-Percentile Queue Length [veh/ln]	0.55	13.10	2.02	2.28	4.76	0.21	0.62	1.81	1.04	4.36	0.92	7.12
95th-Percentile Queue Length [ft/ln]	13.67	327.52	50.44	56.92	119.01	5.17	15.47	45.24	26.08	109.01	22.89	177.94

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	36.54	18.59	9.61	31.17	8.70	6.16	36.22	29.59	29.01	37.02	24.27	33.54
Movement LOS	D	B	A	C	A	A	D	C	C	D	C	C
d_A, Approach Delay [s/veh]	17.90			12.08			30.42			33.83		
Approach LOS	B			B			C			C		
d_I, Intersection Delay [s/veh]	18.41											
Intersection LOS	B											
Intersection V/C	0.675											

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Diamon Gas & Storage

Vistro File: C:\...\IPM.vistro

Scenario 2 Existing Plus Project

Report File: C:\...\IPM Ep.pdf

1/12/2021

Turning Movement Volume: Detail

ID	Intersection Name	Volume Type	Northbound		Eastbound		Westbound		Total Volume
			Left	Right	Thru	Right	Left	Thru	
1	Project Access (NS) at Newport Road (EW)	Final Base	0	0	0	0	0	0	0
		Growth Factor	1.00	1.00	1.00	1.00	1.00	1.00	-
		In Process	0	0	0	0	0	0	0
		Net New Trips	0	186	0	0	187	0	373
		Other	0	0	0	0	0	0	0
		Future Total	0	186	0	0	187	0	373

ID	Intersection Name	Volume Type	Northbound			Southbound			Eastbound			Westbound			Total Volume
			Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
2	Winchester Road (SR-79) (NS) at Route 74 (EW)	Final Base	132	14	523	24	18	7	19	826	75	360	665	35	2698
		Growth Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	-
		In Process	0	0	0	0	0	0	0	0	0	0	0	0	0
		Net New Trips	24	0	16	0	0	0	0	0	24	16	0	0	80
		Other	0	0	0	0	0	0	0	0	0	0	0	0	0
		Future Total	156	14	539	24	18	7	19	826	99	376	665	35	2778

ID	Intersection Name	Volume Type	Northbound			Southbound			Eastbound			Westbound			Total Volume
			Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
3	Winchester Road (SR-79) (NS) at Simpson Road (EW)	Final Base	66	656	161	30	414	75	107	249	51	59	154	44	2066
		Growth Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	-
		In Process	0	0	0	0	0	0	0	0	0	0	0	0	0
		Net New Trips	16	40	8	0	40	0	0	0	16	8	0	0	128
		Other	0	0	0	0	0	0	0	0	0	0	0	0	0
		Future Total	82	696	169	30	454	75	107	249	67	67	154	44	2194

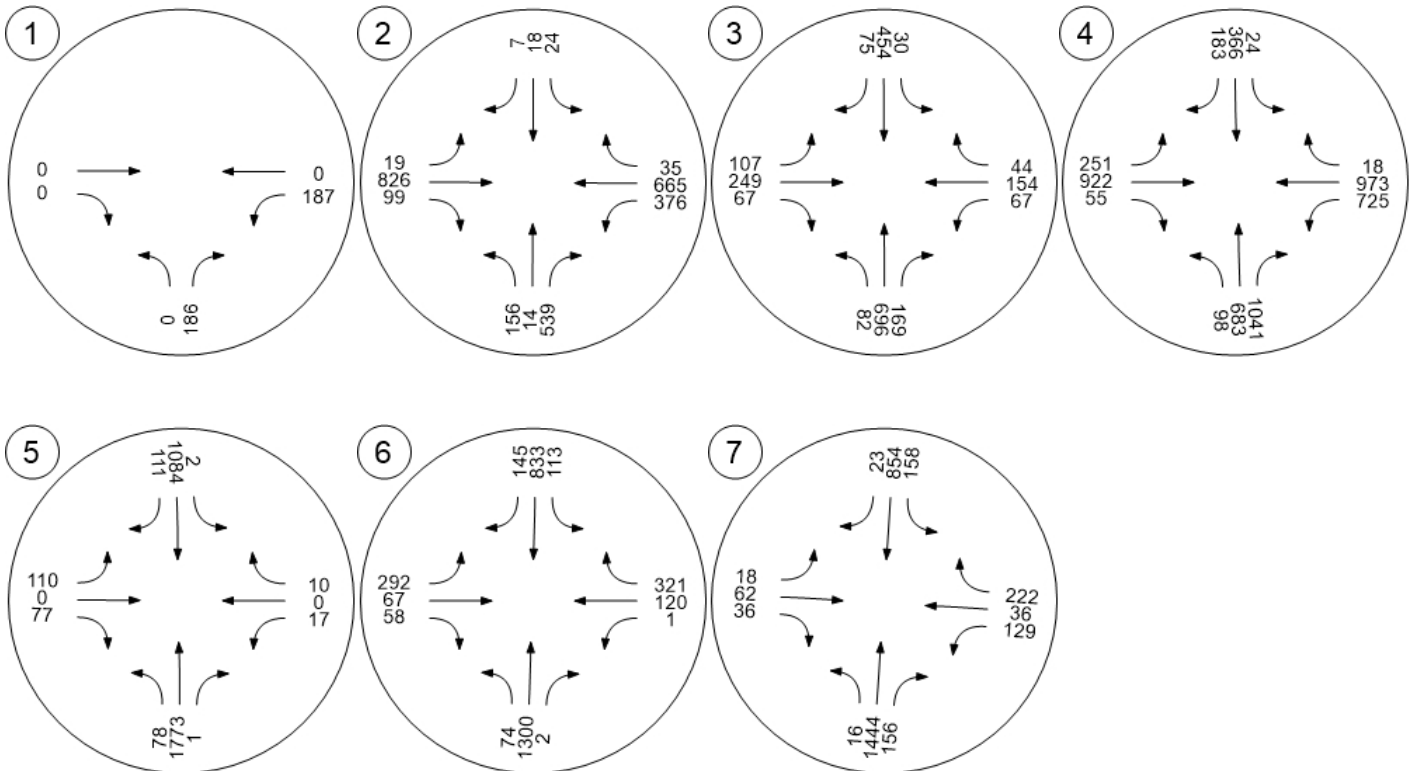
ID	Intersection Name	Volume Type	Northbound			Southbound			Eastbound			Westbound			Total Volume
			Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
4	Winchester Road (SR-79) (NS) at Domenigoni Parkway (EW)	Final Base	82	619	1025	24	302	183	251	922	39	709	973	18	5147
		Growth Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	-
		In Process	0	0	0	0	0	0	0	0	0	0	0	0	0
		Net New Trips	16	64	16	0	64	0	0	0	16	16	0	0	192
		Other	0	0	0	0	0	0	0	0	0	0	0	0	0
		Future Total	98	683	1041	24	366	183	251	922	55	725	973	18	5339

ID	Intersection Name	Volume Type	Northbound			Southbound			Eastbound			Westbound			Total Volume
			Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
5	Winchester Road (SR-79) (NS) at Newport Road (EW)	Final Base	0	1787	1	2	1098	1	0	0	0	17	0	10	2916
		Growth Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	-
		In Process	0	0	0	0	0	0	0	0	0	0	0	0	0
		Net New Trips	78	-14	0	0	-14	110	110	0	77	0	0	0	347
		Other	0	0	0	0	0	0	0	0	0	0	0	0	0
		Future Total	78	1773	1	2	1084	111	110	0	77	17	0	10	3263

ID	Intersection Name	Volume Type	Northbound			Southbound			Eastbound			Westbound			Total Volume
			Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
6	Winchester Road (SR-79) (NS) at Scott Road/Washington Street (EW)	Final Base	74	1252	2	105	786	137	284	67	58	1	120	313	3199
		Growth Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	-
		In Process	0	0	0	0	0	0	0	0	0	0	0	0	0
		Net New Trips	0	48	0	8	47	8	8	0	0	0	0	8	127
		Other	0	0	0	0	0	0	0	0	0	0	0	0	0
		Future Total	74	1300	2	113	833	145	292	67	58	1	120	321	3326

ID	Intersection Name	Volume Type	Northbound			Southbound			Eastbound			Westbound			Total Volume
			Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
7	Winchester Road (SR-79) (NS) at Whisper Heights/Pourroy Road (EW)	Final Base	16	1420	156	134	831	23	18	62	36	129	36	198	3059
		Growth Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	-
		In Process	0	0	0	0	0	0	0	0	0	0	0	0	0
		Net New Trips	0	24	0	24	23	0	0	0	0	0	0	24	95
		Other	0	0	0	0	0	0	0	0	0	0	0	0	0
		Future Total	16	1444	156	158	854	23	18	62	36	129	36	222	3154

Traffic Volume - Future Total Volume



Diamon Gas & Storage

Vistro File: C:\...\IAM.vistro

Scenario 5 Existing Plus Project - Improvements

Report File: C:\...\IAM Ep_Improvements.pdf

1/12/2021

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
1	Project Access (NS) at Newport Road (EW)	Two-way stop	HCM 2010	NB Right	0.183	9.0	A
2	Winchester Road (SR-79) (NS) at Route 74 (EW)	Signalized	HCM 2010	NB Right	0.844	28.6	C
3	Winchester Road (SR-79) (NS) at Simpson Road (EW)	Signalized	HCM 2010	SB Left	0.439	17.2	B
4	Winchester Road (SR-79) (NS) at Domenigoni Parkway (EW)	Signalized	HCM 2010	SB Thru	0.816	32.9	C
5	Winchester Road (SR-79) (NS) at Newport Road (EW)	Signalized	HCM 2010	SB Left	0.701	10.2	B
6	Winchester Road (SR-79) (NS) at Scott Road/Washington Street (EW)	Signalized	HCM 2010	WB Left	0.614	20.6	C
7	Winchester Road (SR-79) (NS) at Whisper Heights/Pourroy Road (EW)	Signalized	HCM 2010	NB Left	0.633	16.8	B

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. For all other control types, they are taken for the whole intersection.

**Intersection Level Of Service Report
Intersection 1: Project Access (NS) at Newport Road (EW)**

Control Type:	Two-way stop	Delay (sec / veh):	9.0
Analysis Method:	HCM 2010	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.183

Intersection Setup

Name	Northbound		Eastbound		Westbound	
Approach						
Lane Configuration	↵↵		↑		↵	
Turning Movement	Left	Right	Thru	Right	Left	Thru
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	45.00		45.00		45.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		No	

Volumes

Name	Northbound		Eastbound		Westbound	
Base Volume Input [veh/h]	0	0	0	0	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	166	0	0	167	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	24	0	0	24	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	190	0	0	191	0
Peak Hour Factor	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	50	0	0	50	0
Total Analysis Volume [veh/h]	0	200	0	0	201	0
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Stop	Free	Free
Flared Lane			
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance	No		
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.18	0.00	0.00	0.12	0.00
d_M, Delay for Movement [s/veh]	11.75	9.04	0.00	0.00	7.51	0.00
Movement LOS	B	A	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.00	0.67	0.00	0.00	0.40	0.40
95th-Percentile Queue Length [ft/ln]	0.00	16.74	0.00	0.00	9.89	9.89
d_A, Approach Delay [s/veh]	9.04		0.00		7.51	
Approach LOS	A		A		A	
d_I, Intersection Delay [s/veh]	8.27					
Intersection LOS	A					

Intersection Level Of Service Report

Intersection 2: Winchester Road (SR-79) (NS) at Route 74 (EW)

Control Type:	Signalized	Delay (sec / veh):	28.6
Analysis Method:	HCM 2010	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.844

Intersection Setup

Name	Northbound			Southbound			Eastbound			Westbound		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration	↔			↔			↔↔↔			↔↔		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	0	1	0	0	1	0	1	1	0	0
Pocket Length [ft]	180.00	100.00	100.00	50.00	100.00	100.00	150.00	100.00	300.00	100.00	100.00	100.00
Speed [mph]	45.00			45.00			50.00			50.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			No			Yes			No		

Volumes

Name	Northbound			Southbound			Eastbound			Westbound		
Base Volume Input [veh/h]	78	15	417	20	27	4	8	720	103	491	544	31
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	25	0	16	0	0	0	0	0	25	17	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	103	15	433	20	27	4	8	720	128	508	544	31
Peak Hour Factor	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	27	4	114	5	7	1	2	189	34	134	143	8
Total Analysis Volume [veh/h]	108	16	456	21	28	4	8	758	135	535	573	33
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	70
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	4.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal group	0	2	0	0	6	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	0	7	0	0	7	0	7	7	0	7	7	0
Maximum Green [s]	0	30	0	0	30	0	30	30	0	30	30	0
Amber [s]	0.0	3.0	0.0	0.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Split [s]	0	25	0	0	25	0	29	20	0	25	16	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	10	0	0	10	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	1.0	0.0	0.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Minimum Recall		No			No		No	No		No	No	
Maximum Recall		No			No		No	No		No	No	
Pedestrian Recall		No			No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	L	C	L	C	R	L	C	C
C, Cycle Length [s]	70	70	70	70	70	70	70	70	70	70
L, Total Lost Time per Cycle [s]	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00
l1_p, Permitted Start-Up Lost Time [s]	2.00	0.00	2.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
g_i, Effective Green Time [s]	23	23	23	23	1	16	16	22	37	37
g / C, Green / Cycle	0.32	0.32	0.32	0.32	0.02	0.24	0.24	0.31	0.53	0.53
(v / s)_i Volume / Saturation Flow Rate	0.08	0.29	0.02	0.02	0.00	0.21	0.08	0.30	0.16	0.16
s, saturation flow rate [veh/h]	1399	1623	936	1859	1810	3618	1615	1810	1900	1864
c, Capacity [veh/h]	503	523	122	599	29	850	379	569	1013	993
d1, Uniform Delay [s]	19.34	22.69	34.42	16.37	34.08	25.96	22.39	23.41	9.11	9.11
k, delay calibration	0.50	0.50	0.50	0.50	0.11	0.11	0.11	0.24	0.11	0.11
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.97	21.29	3.06	0.17	4.94	3.52	0.57	15.36	0.17	0.17
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.21	0.90	0.17	0.05	0.27	0.89	0.36	0.94	0.30	0.30
d, Delay for Lane Group [s/veh]	20.32	43.98	37.48	16.54	39.03	29.48	22.96	38.76	9.28	9.28
Lane Group LOS	C	D	D	B	D	C	C	D	A	A
Critical Lane Group	No	Yes	No	No	No	Yes	No	Yes	No	No
50th-Percentile Queue Length [veh/ln]	1.35	9.50	0.44	0.34	0.16	5.73	1.69	9.68	1.97	1.93
50th-Percentile Queue Length [ft/ln]	33.63	237.57	10.92	8.54	4.09	143.33	42.33	242.02	49.22	48.33
95th-Percentile Queue Length [veh/ln]	2.42	14.56	0.79	0.61	0.29	9.66	3.05	14.78	3.54	3.48
95th-Percentile Queue Length [ft/ln]	60.53	363.96	19.65	15.37	7.36	241.50	76.20	369.59	88.59	87.00

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	20.32	43.98	43.98	37.48	16.54	16.54	39.03	29.48	22.96	38.76	9.28	9.28
Movement LOS	C	D	D	D	B	B	D	C	C	D	A	A
d_A, Approach Delay [s/veh]	39.58			24.84			28.59			23.10		
Approach LOS	D			C			C			C		
d_I, Intersection Delay [s/veh]	28.56											
Intersection LOS	C											
Intersection V/C	0.844											

Sequence

Ring 1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 3: Winchester Road (SR-79) (NS) at Simpson Road (EW)

Control Type:	Signalized	Delay (sec / veh):	17.2
Analysis Method:	HCM 2010	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.439

Intersection Setup

Name	Northbound			Southbound			Eastbound			Westbound		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration	[Diagram]			[Diagram]			[Diagram]			[Diagram]		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	0	1	0	0	1	0	1	1	0	1
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	150.00	100.00	150.00	100.00	100.00	100.00
Speed [mph]	50.00			50.00			50.00			50.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Northbound			Southbound			Eastbound			Westbound		
Base Volume Input [veh/h]	39	422	45	10	629	139	154	178	107	158	132	19
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	16	41	8	0	42	0	0	0	17	8	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	55	463	53	10	671	139	154	178	124	166	132	19
Peak Hour Factor	0.9800	0.9800	0.9800	0.9800	0.9800	0.9800	0.9800	0.9800	0.9800	0.9800	0.9800	0.9800
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	14	118	14	3	171	35	39	45	32	42	34	5
Total Analysis Volume [veh/h]	56	472	54	10	685	142	157	182	127	169	135	19
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	60
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	4.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal group	5	2	0	1	6	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	7	7	0	7	7	0	7	7	0	7	7	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Split [s]	10	20	0	10	20	0	10	20	0	10	20	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	10	0	0	10	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	R	L	C	R
C, Cycle Length [s]	60	60	60	60	60	60	60	60	60	60	60	60
L, Total Lost Time per Cycle [s]	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
g_i, Effective Green Time [s]	4	32	32	1	29	29	7	8	8	7	8	8
g / C, Green / Cycle	0.07	0.53	0.53	0.02	0.48	0.48	0.11	0.13	0.13	0.12	0.14	0.14
(v / s)_i Volume / Saturation Flow Rate	0.03	0.13	0.03	0.01	0.19	0.09	0.09	0.10	0.08	0.09	0.07	0.01
s, saturation flow rate [veh/h]	1810	3618	1615	1810	3618	1615	1810	1900	1615	1810	1900	1615
c, Capacity [veh/h]	133	1912	854	37	1720	768	203	256	217	213	266	226
d1, Uniform Delay [s]	26.70	7.71	6.93	29.09	10.24	9.10	26.03	24.97	24.50	25.89	23.98	22.55
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.11
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	2.12	0.31	0.14	3.94	0.69	0.53	6.23	3.65	2.48	6.58	1.49	0.16
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

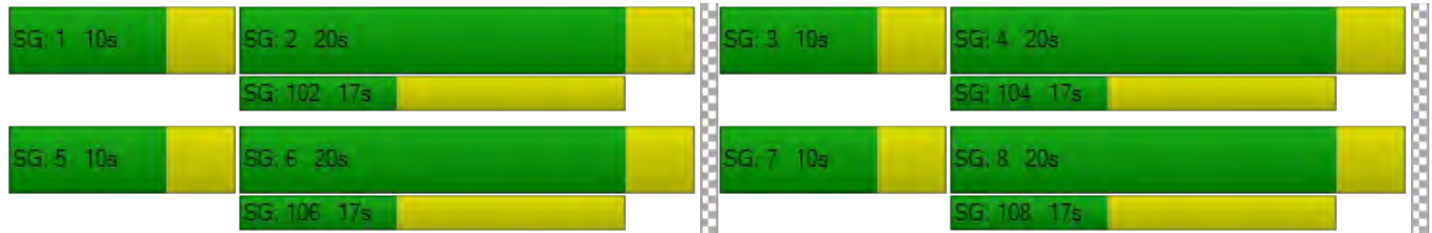
X, volume / capacity	0.42	0.25	0.06	0.27	0.40	0.18	0.78	0.71	0.58	0.79	0.51	0.08
d, Delay for Lane Group [s/veh]	28.82	8.01	7.07	33.04	10.93	9.63	32.26	28.62	26.98	32.47	25.47	22.70
Lane Group LOS	C	A	A	C	B	A	C	C	C	C	C	C
Critical Lane Group	Yes	No	No	No	Yes	No	No	Yes	No	Yes	No	No
50th-Percentile Queue Length [veh/ln]	0.75	1.18	0.26	0.17	2.25	0.88	2.25	2.41	1.62	2.43	1.65	0.21
50th-Percentile Queue Length [ft/ln]	18.86	29.54	6.50	4.17	56.29	22.06	56.31	60.22	40.54	60.78	41.16	5.33
95th-Percentile Queue Length [veh/ln]	1.36	2.13	0.47	0.30	4.05	1.59	4.05	4.34	2.92	4.38	2.96	0.38
95th-Percentile Queue Length [ft/ln]	33.96	53.17	11.71	7.50	101.33	39.70	101.36	108.40	72.98	109.41	74.09	9.59

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	28.82	8.01	7.07	33.04	10.93	9.63	32.26	28.62	26.98	32.47	25.47	22.70
Movement LOS	C	A	A	C	B	A	C	C	C	C	C	C
d_A, Approach Delay [s/veh]	9.93			10.97			29.40			28.97		
Approach LOS	A			B			C			C		
d_I, Intersection Delay [s/veh]	17.22											
Intersection LOS	B											
Intersection V/C	0.439											

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 4: Winchester Road (SR-79) (NS) at Domenigoni Parkway (EW)

Control Type:	Signalized	Delay (sec / veh):	32.9
Analysis Method:	HCM 2010	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.816

Intersection Setup

Name	Northbound			Southbound			Eastbound			Westbound		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration	[Diagram]			[Diagram]			[Diagram]			[Diagram]		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	2	1	0	1	2	0	1	2	0	1
Pocket Length [ft]	350.00	100.00	525.00	220.00	100.00	240.00	380.00	100.00	380.00	300.00	100.00	280.00
Speed [mph]	45.00			55.00			55.00			55.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Northbound			Southbound			Eastbound			Westbound		
Base Volume Input [veh/h]	77	323	717	21	764	257	191	930	173	951	875	38
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	16	65	16	0	67	0	0	0	17	17	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	93	388	733	21	831	257	191	930	190	968	875	38
Peak Hour Factor	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	24	102	193	6	219	68	50	245	50	255	230	10
Total Analysis Volume [veh/h]	98	408	772	22	875	271	201	979	200	1019	921	40
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	80
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	4.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal group	5	2	0	1	6	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	7	7	0	7	7	0	7	7	0	7	7	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Split [s]	10	23	0	10	23	0	10	20	0	27	37	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	10	0	0	10	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	R	L	C	R
C, Cycle Length [s]	80	80	80	80	80	80	80	80	80	80	80	80
L, Total Lost Time per Cycle [s]	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
g_i, Effective Green Time [s]	6	24	24	3	21	21	7	17	17	24	34	34
g / C, Green / Cycle	0.08	0.31	0.31	0.03	0.26	0.26	0.09	0.21	0.21	0.30	0.42	0.42
(v / s)_i Volume / Saturation Flow Rate	0.05	0.11	0.27	0.01	0.24	0.17	0.06	0.19	0.12	0.29	0.18	0.02
s, saturation flow rate [veh/h]	1810	3618	2859	1810	3618	1615	3514	5176	1615	3514	5176	1615
c, Capacity [veh/h]	143	1105	873	64	948	423	307	1087	339	1053	2184	682
d1, Uniform Delay [s]	35.97	21.81	26.51	37.76	28.81	26.24	35.42	30.87	28.57	27.71	16.30	13.74
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.11
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	5.73	0.95	12.68	3.11	15.69	7.25	2.36	3.05	1.64	7.40	0.13	0.04
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

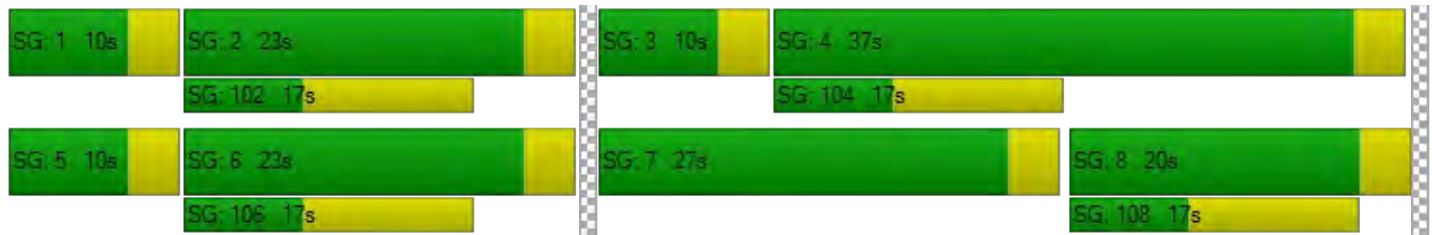
X, volume / capacity	0.69	0.37	0.88	0.34	0.92	0.64	0.65	0.90	0.59	0.97	0.42	0.06
d, Delay for Lane Group [s/veh]	41.70	22.76	39.19	40.87	44.50	33.50	37.77	33.92	30.20	35.11	16.43	13.77
Lane Group LOS	D	C	D	D	D	C	D	C	C	D	B	B
Critical Lane Group	Yes	No	No	No	Yes	No	No	Yes	No	Yes	No	No
50th-Percentile Queue Length [veh/ln]	1.98	2.88	7.83	0.44	9.23	4.89	1.84	5.76	3.25	9.38	3.32	0.37
50th-Percentile Queue Length [ft/ln]	49.57	72.02	195.68	11.11	230.65	122.32	45.94	143.96	81.15	234.42	82.93	9.20
95th-Percentile Queue Length [veh/ln]	3.57	5.19	12.42	0.80	14.21	8.52	3.31	9.69	5.84	14.40	5.97	0.66
95th-Percentile Queue Length [ft/ln]	89.23	129.64	310.39	20.00	355.18	213.01	82.69	242.35	146.08	359.96	149.27	16.57

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	41.70	22.76	39.19	40.87	44.50	33.50	37.77	33.92	30.20	35.11	16.43	13.77
Movement LOS	D	C	D	D	D	C	D	C	C	D	B	B
d_A, Approach Delay [s/veh]	34.14			41.88			33.94			25.99		
Approach LOS	C			D			C			C		
d_I, Intersection Delay [s/veh]	32.87											
Intersection LOS	C											
Intersection V/C	0.816											

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report

Intersection 5: Winchester Road (SR-79) (NS) at Newport Road (EW)

Control Type:	Signalized	Delay (sec / veh):	10.2
Analysis Method:	HCM 2010	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.701

Intersection Setup

Name	Northbound			Southbound			Eastbound			Westbound		
Approach												
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	1	1	0	1	0	0	1	0	0	0
Pocket Length [ft]	225.00	100.00	550.00	550.00	100.00	550.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	65.00			65.00			55.00			45.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			Yes			Yes			Yes		

Volumes

Name	Northbound			Southbound			Eastbound			Westbound		
Base Volume Input [veh/h]	0	1066	10	9	1843	2	3	0	1	3	0	3
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	66	0	0	0	0	101	97	0	69	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	12	-12	0	0	-12	12	12	0	12	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	78	1054	10	9	1831	115	112	0	82	3	0	3
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	20	264	3	2	458	29	28	0	21	1	0	1
Total Analysis Volume [veh/h]	78	1054	10	9	1831	115	112	0	82	3	0	3
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	70
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	4.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal group	5	2	0	1	6	0	0	8	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	-	-	-	-	-	-
Minimum Green [s]	7	7	0	7	7	0	0	7	0	0	7	0
Maximum Green [s]	30	30	0	30	30	0	0	30	0	0	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
All red [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Split [s]	10	36	0	14	40	0	0	20	0	0	20	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	10	0	0	10	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	1.0	1.0	0.0	1.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0
Minimum Recall	No	No		No	No			No			No	
Maximum Recall	No	No		No	No			No			No	
Pedestrian Recall	No	No		No	No			No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	C	R	C
C, Cycle Length [s]	70	70	70	70	70	70	70	70	70
L, Total Lost Time per Cycle [s]	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	2.00	0.00	2.00
l2, Clearance Lost Time [s]	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
g_i, Effective Green Time [s]	6	50	50	1	46	46	10	10	10
g / C, Green / Cycle	0.08	0.72	0.72	0.02	0.65	0.65	0.14	0.14	0.14
(v / s)_i Volume / Saturation Flow Rate	0.04	0.20	0.01	0.00	0.51	0.07	0.11	0.05	0.02
s, saturation flow rate [veh/h]	1810	5176	1615	1810	3618	1615	1005	1615	393
c, Capacity [veh/h]	144	3709	1157	32	2369	1058	241	222	131
d1, Uniform Delay [s]	31.03	3.53	2.83	33.99	8.46	4.50	29.43	27.50	26.58
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	3.13	0.19	0.01	4.61	2.52	0.21	1.40	1.03	0.14
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.54	0.28	0.01	0.28	0.77	0.11	0.47	0.37	0.05
d, Delay for Lane Group [s/veh]	34.17	3.73	2.85	38.60	10.98	4.70	30.83	28.52	26.73
Lane Group LOS	C	A	A	D	B	A	C	C	C
Critical Lane Group	Yes	No	No	No	Yes	No	Yes	No	No
50th-Percentile Queue Length [veh/ln]	1.22	0.53	0.01	0.17	5.01	0.34	1.70	1.16	0.08
50th-Percentile Queue Length [ft/ln]	30.54	13.25	0.37	4.35	125.34	8.51	42.57	29.10	2.12
95th-Percentile Queue Length [veh/ln]	2.20	0.95	0.03	0.31	8.69	0.61	3.06	2.09	0.15
95th-Percentile Queue Length [ft/ln]	54.97	23.84	0.67	7.82	217.15	15.32	76.62	52.37	3.81

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	34.17	3.73	2.85	38.60	10.98	4.70	30.83	30.83	28.52	26.73	26.73	26.73
Movement LOS	C	A	A	D	B	A	C	C	C	C	C	C
d_A, Approach Delay [s/veh]	5.80			10.74			29.86			26.73		
Approach LOS	A			B			C			C		
d_I, Intersection Delay [s/veh]	10.18											
Intersection LOS	B											
Intersection V/C	0.701											

Sequence

Ring 1	1	2	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 6: Winchester Road (SR-79) (NS) at Scott Road/Washington Street (EW)

Control Type:	Signalized	Delay (sec / veh):	20.6
Analysis Method:	HCM 2010	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.614

Intersection Setup

Name	Northbound			Southbound			Eastbound			Westbound		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration	[Diagram]			[Diagram]			[Diagram]			[Diagram]		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	65.00			65.00			45.00			55.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			No			Yes			Yes		

Volumes

Name	Northbound			Southbound			Eastbound			Westbound		
Base Volume Input [veh/h]	74	794	4	238	1333	243	181	109	101	2	74	176
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	50	0	8	53	8	8	0	0	0	0	8
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	74	844	4	246	1386	251	189	109	101	2	74	184
Peak Hour Factor	0.9100	0.9100	0.9100	0.9100	0.9100	0.9100	0.9100	0.9100	0.9100	0.9100	0.9100	0.9100
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	20	232	1	68	381	69	52	30	28	1	20	51
Total Analysis Volume [veh/h]	81	927	4	270	1523	276	208	120	111	2	81	202
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	70
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	4.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal group	5	2	0	1	6	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	7	7	0	7	7	0	7	7	0	7	7	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Split [s]	10	20	0	19	29	0	12	20	0	11	19	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	10	0	0	10	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	R	L	C	R
C, Cycle Length [s]	70	70	70	70	70	70	70	70	70	70	70	70
L, Total Lost Time per Cycle [s]	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
g_i, Effective Green Time [s]	6	26	26	12	33	33	9	20	20	0	11	11
g / C, Green / Cycle	0.08	0.37	0.37	0.18	0.47	0.47	0.13	0.28	0.28	0.00	0.15	0.15
(v / s)_i Volume / Saturation Flow Rate	0.04	0.18	0.00	0.15	0.29	0.17	0.11	0.06	0.07	0.00	0.04	0.13
s, saturation flow rate [veh/h]	1810	5176	1615	1810	5176	1615	1810	1900	1615	1810	1900	1615
c, Capacity [veh/h]	147	1901	593	322	2401	749	234	529	450	10	294	250
d1, Uniform Delay [s]	31.04	17.13	14.09	27.91	14.30	12.17	30.08	19.51	19.63	34.77	26.20	28.67
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.11
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	3.21	0.90	0.02	5.85	1.29	1.39	10.93	0.22	0.28	9.41	0.50	6.11
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.55	0.49	0.01	0.84	0.63	0.37	0.89	0.23	0.25	0.20	0.28	0.81
d, Delay for Lane Group [s/veh]	34.26	18.02	14.11	33.77	15.59	13.57	41.01	19.73	19.91	44.18	26.71	34.78
Lane Group LOS	C	B	B	C	B	B	D	B	B	D	C	C
Critical Lane Group	Yes	No	No	No	Yes	No	Yes	No	No	No	No	Yes
50th-Percentile Queue Length [veh/ln]	1.27	3.10	0.03	4.19	4.56	2.27	3.86	1.37	1.29	0.06	1.09	3.30
50th-Percentile Queue Length [ft/ln]	31.76	77.51	0.87	104.78	113.97	56.68	96.49	34.37	32.13	1.42	27.36	82.46
95th-Percentile Queue Length [veh/ln]	2.29	5.58	0.06	7.54	8.06	4.08	6.95	2.47	2.31	0.10	1.97	5.94
95th-Percentile Queue Length [ft/ln]	57.17	139.51	1.56	188.61	201.51	102.02	173.68	61.86	57.83	2.56	49.24	148.43

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	34.26	18.02	14.11	33.77	15.59	13.57	41.01	19.73	19.91	44.18	26.71	34.78
Movement LOS	C	B	B	C	B	B	D	B	B	D	C	C
d_A, Approach Delay [s/veh]	19.31			17.69			29.86			32.55		
Approach LOS	B			B			C			C		
d_I, Intersection Delay [s/veh]	20.64											
Intersection LOS	C											
Intersection V/C	0.614											

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 7: Winchester Road (SR-79) (NS) at Whisper Heights/Pourroy Road (EW)

Control Type:	Signalized	Delay (sec / veh):	16.8
Analysis Method:	HCM 2010	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.633

Intersection Setup

Name	Northbound			Southbound			Eastbound			Westbound		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration	T T T			T T T			T T T			T T T		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	1	2	0	0	1	0	1	1	0	0
Pocket Length [ft]	250.00	100.00	330.00	340.00	100.00	100.00	150.00	100.00	150.00	170.00	100.00	100.00
Speed [mph]	55.00			55.00			45.00			45.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			Yes			Yes			Yes		

Volumes

Name	Northbound			Southbound			Eastbound			Westbound		
Base Volume Input [veh/h]	7	767	104	132	1366	28	48	30	33	152	29	181
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	25	0	25	28	0	0	0	0	0	0	25
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	7	792	104	157	1394	28	48	30	33	152	29	206
Peak Hour Factor	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	2	215	28	43	379	8	13	8	9	41	8	56
Total Analysis Volume [veh/h]	8	861	113	171	1515	30	52	33	36	165	32	224
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	60
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	4.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal group	5	2	0	1	6	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	7	7	0	7	7	0	7	7	0	7	7	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Split [s]	10	20	0	10	20	0	10	15	0	15	20	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	10	0	0	10	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	R	L	C	R
C, Cycle Length [s]	60	60	60	60	60	60	60	60	60	60	60	60
L, Total Lost Time per Cycle [s]	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
g_i, Effective Green Time [s]	1	27	27	7	33	33	4	7	7	7	10	10
g / C, Green / Cycle	0.02	0.45	0.45	0.11	0.54	0.54	0.07	0.12	0.12	0.12	0.17	0.17
(v / s)_i Volume / Saturation Flow Rate	0.00	0.24	0.07	0.05	0.42	0.02	0.03	0.02	0.02	0.09	0.02	0.14
s, saturation flow rate [veh/h]	1810	3618	1615	3514	3618	1615	1810	1900	1615	1810	1900	1615
c, Capacity [veh/h]	30	1610	719	392	1952	872	127	238	202	216	331	281
d1, Uniform Delay [s]	29.26	12.18	9.98	25.01	10.99	6.51	26.82	23.47	23.59	25.73	20.91	23.86
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.11
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	4.49	1.28	0.47	0.77	3.10	0.07	2.10	0.26	0.42	5.56	0.13	5.12
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

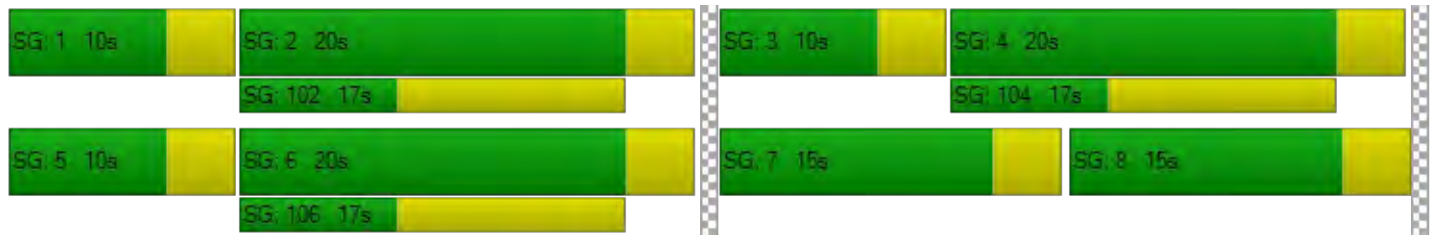
X, volume / capacity	0.26	0.53	0.16	0.44	0.78	0.03	0.41	0.14	0.18	0.76	0.10	0.80
d, Delay for Lane Group [s/veh]	33.76	13.46	10.45	25.78	14.09	6.58	28.92	23.74	24.01	31.29	21.03	28.98
Lane Group LOS	C	B	B	C	B	A	C	C	C	C	C	C
Critical Lane Group	Yes	No	No	No	Yes	No	Yes	No	No	No	No	Yes
50th-Percentile Queue Length [veh/ln]	0.14	3.23	0.73	1.02	5.56	0.13	0.72	0.39	0.43	2.36	0.35	3.07
50th-Percentile Queue Length [ft/ln]	3.45	80.70	18.15	25.39	139.00	3.21	17.90	9.72	10.77	59.04	8.63	76.63
95th-Percentile Queue Length [veh/ln]	0.25	5.81	1.31	1.83	9.43	0.23	1.29	0.70	0.78	4.25	0.62	5.52
95th-Percentile Queue Length [ft/ln]	6.20	145.27	32.67	45.70	235.68	5.78	32.22	17.50	19.38	106.27	15.53	137.93

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	33.76	13.46	10.45	25.78	14.09	6.58	28.92	23.74	24.01	31.29	21.03	28.98
Movement LOS	C	B	B	C	B	A	C	C	C	C	C	C
d_A, Approach Delay [s/veh]	13.28			15.12			26.05			29.28		
Approach LOS	B			B			C			C		
d_I, Intersection Delay [s/veh]	16.81											
Intersection LOS	B											
Intersection V/C	0.633											

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



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Scenario 5 Existing Plus Project - Improvements

Report File: C:\...IAM Ep_Improvements.pdf

1/12/2021

Turning Movement Volume: Detail

ID	Intersection Name	Volume Type	Northbound		Eastbound		Westbound		Total Volume
			Left	Right	Thru	Right	Left	Thru	
1	Project Access (NS) at Newport Road (EW)	Final Base	0	0	0	0	0	0	0
		Growth Factor	1.00	1.00	1.00	1.00	1.00	1.00	-
		In Process	0	0	0	0	0	0	0
		Net New Trips	0	190	0	0	191	0	381
		Other	0	0	0	0	0	0	0
		Future Total	0	190	0	0	191	0	381

ID	Intersection Name	Volume Type	Northbound			Southbound			Eastbound			Westbound			Total Volume	
			Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right		
2	Winchester Road (SR-79) (NS) at Route 74 (EW)	Final Base	78	15	417	20	27	4	8	720	103	491	544	31	2458	
		Growth Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	-	
		In Process	0	0	0	0	0	0	0	0	0	0	0	0	0	
		Net New Trips	25	0	16	0	0	0	0	0	0	25	17	0	0	83
		Other	0	0	0	0	0	0	0	0	0	0	0	0	0	
		Future Total	103	15	433	20	27	4	8	720	128	508	544	31	2541	

ID	Intersection Name	Volume Type	Northbound			Southbound			Eastbound			Westbound			Total Volume	
			Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right		
3	Winchester Road (SR-79) (NS) at Simpson Road (EW)	Final Base	39	422	45	10	629	139	154	178	107	158	132	19	2032	
		Growth Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	-	
		In Process	0	0	0	0	0	0	0	0	0	0	0	0	0	
		Net New Trips	16	41	8	0	42	0	0	0	0	17	8	0	0	132
		Other	0	0	0	0	0	0	0	0	0	0	0	0	0	
		Future Total	55	463	53	10	671	139	154	178	124	166	132	19	2164	

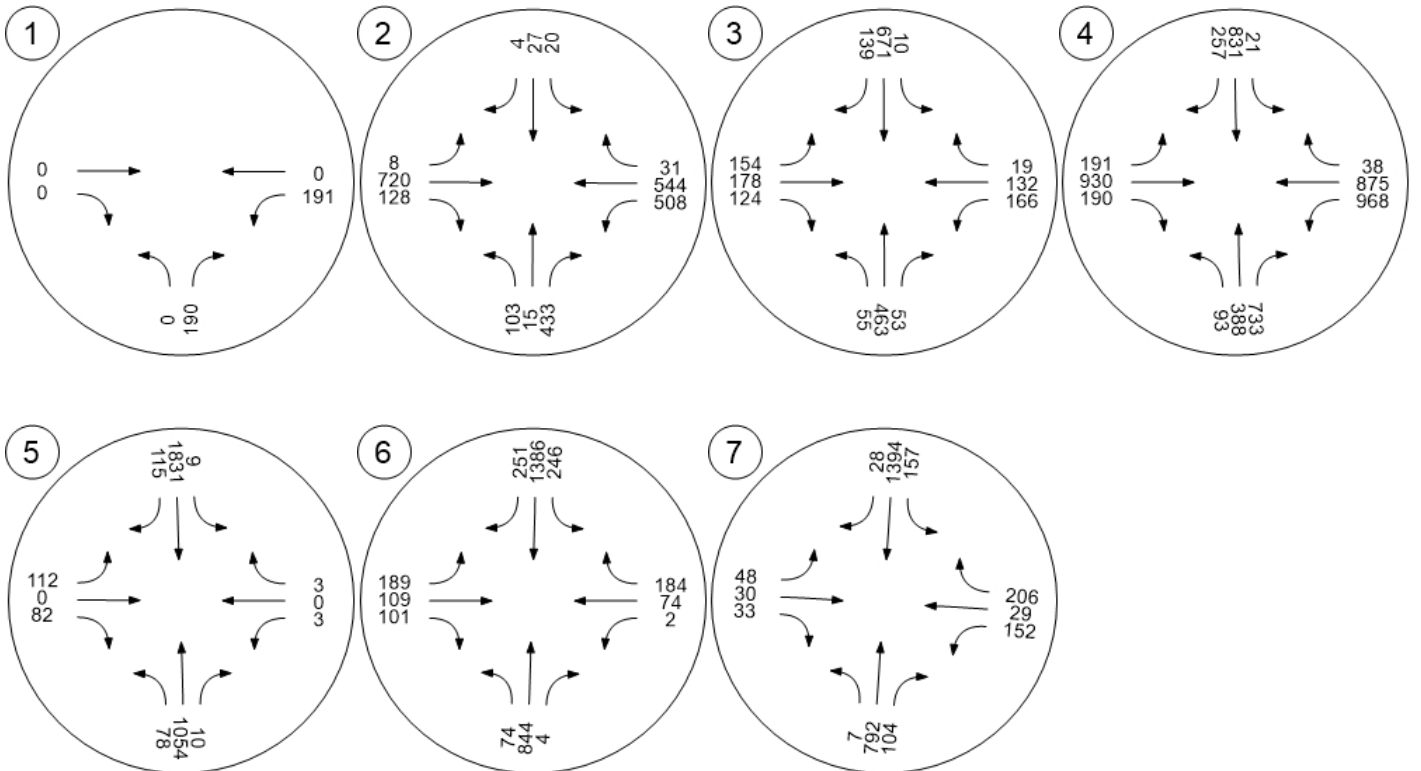
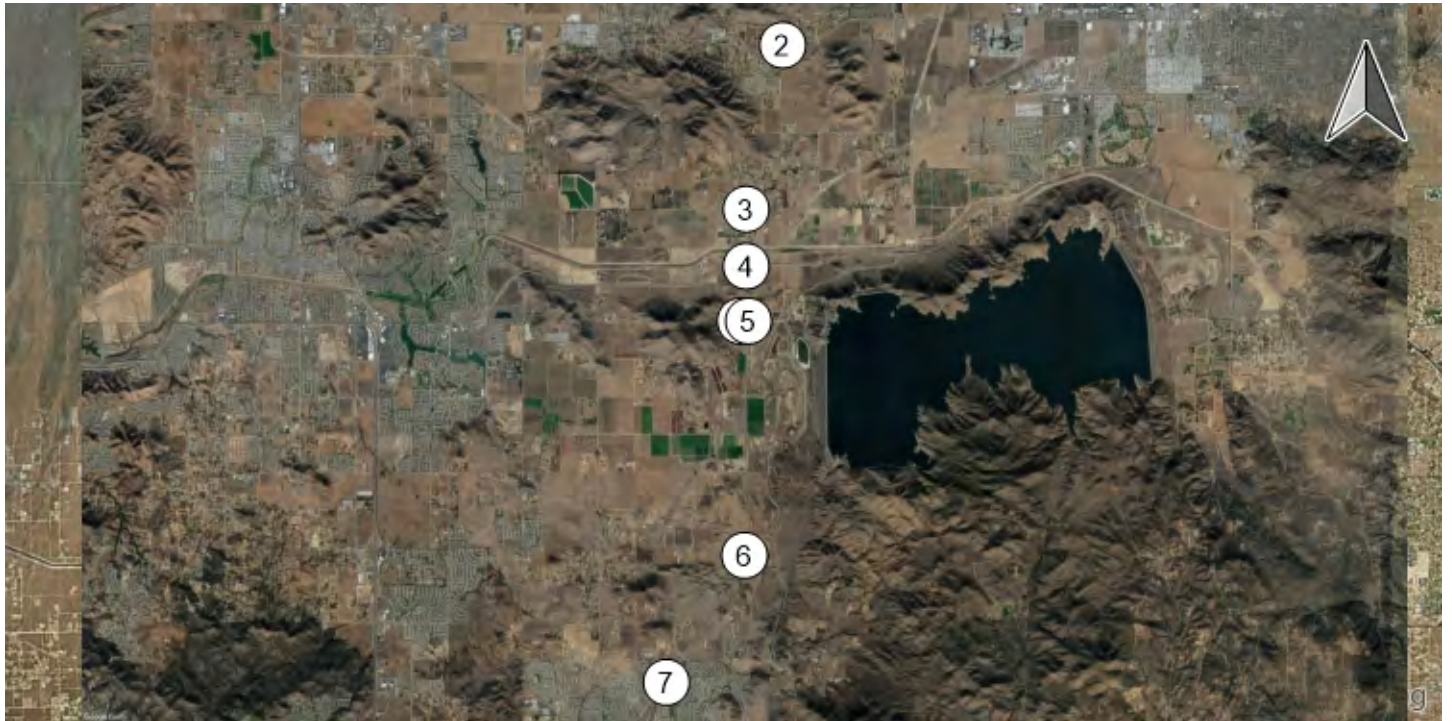
ID	Intersection Name	Volume Type	Northbound			Southbound			Eastbound			Westbound			Total Volume	
			Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right		
4	Winchester Road (SR-79) (NS) at Domenigoni Parkway (EW)	Final Base	77	323	717	21	764	257	191	930	173	951	875	38	5317	
		Growth Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	-	
		In Process	0	0	0	0	0	0	0	0	0	0	0	0	0	
		Net New Trips	16	65	16	0	67	0	0	0	0	17	17	0	0	198
		Other	0	0	0	0	0	0	0	0	0	0	0	0	0	
		Future Total	93	388	733	21	831	257	191	930	190	968	875	38	5515	

ID	Intersection Name	Volume Type	Northbound			Southbound			Eastbound			Westbound			Total Volume
			Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
5	Winchester Road (SR-79) (NS) at Newport Road (EW)	Final Base	0	1066	10	9	1843	2	3	0	1	3	0	3	2940
		Growth Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	-
		In Process	0	0	0	0	0	0	0	0	0	0	0	0	0
		Net New Trips	78	-12	0	0	-12	113	109	0	81	0	0	0	357
		Other	0	0	0	0	0	0	0	0	0	0	0	0	0
		Future Total	78	1054	10	9	1831	115	112	0	82	3	0	3	3297

ID	Intersection Name	Volume Type	Northbound			Southbound			Eastbound			Westbound			Total Volume
			Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
6	Winchester Road (SR-79) (NS) at Scott Road/Washington Street (EW)	Final Base	74	794	4	238	1333	243	181	109	101	2	74	176	3329
		Growth Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	-
		In Process	0	0	0	0	0	0	0	0	0	0	0	0	0
		Net New Trips	0	50	0	8	53	8	8	0	0	0	0	8	135
		Other	0	0	0	0	0	0	0	0	0	0	0	0	0
		Future Total	74	844	4	246	1386	251	189	109	101	2	74	184	3464

ID	Intersection Name	Volume Type	Northbound			Southbound			Eastbound			Westbound			Total Volume
			Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
7	Winchester Road (SR-79) (NS) at Whisper Heights/Pourroy Road (EW)	Final Base	7	767	104	132	1366	28	48	30	33	152	29	181	2877
		Growth Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	-
		In Process	0	0	0	0	0	0	0	0	0	0	0	0	0
		Net New Trips	0	25	0	25	28	0	0	0	0	0	0	25	103
		Other	0	0	0	0	0	0	0	0	0	0	0	0	0
		Future Total	7	792	104	157	1394	28	48	30	33	152	29	206	2980

Traffic Volume - Future Total Volume



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Scenario 4 Existing Plus Project - Improvements

Report File: C:\...\IPM Ep_Improvements.pdf

1/12/2021

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
1	Project Access (NS) at Newport Road (EW)	Two-way stop	HCM 2010	NB Right	0.180	9.0	A
2	Winchester Road (SR-79) (NS) at Route 74 (EW)	Signalized	HCM 2010	NB Right	0.886	30.4	C
3	Winchester Road (SR-79) (NS) at Simpson Road (EW)	Signalized	HCM 2010	SB Left	0.430	16.5	B
4	Winchester Road (SR-79) (NS) at Domenigoni Parkway (EW)	Signalized	HCM 2010	WB Left	0.835	33.1	C
5	Winchester Road (SR-79) (NS) at Newport Road (EW)	Signalized	HCM 2010	SB Left	0.475	6.8	A
6	Winchester Road (SR-79) (NS) at Scott Road/Washington Street (EW)	Signalized	HCM 2010	WB Left	0.729	24.0	C
7	Winchester Road (SR-79) (NS) at Whisper Heights/Pourroy Road (EW)	Signalized	HCM 2010	WB Left	0.675	18.4	B

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. For all other control types, they are taken for the whole intersection.

Intersection Level Of Service Report
Intersection 1: Project Access (NS) at Newport Road (EW)

Control Type:	Two-way stop	Delay (sec / veh):	9.0
Analysis Method:	HCM 2010	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.180

Intersection Setup

Name	Northbound		Eastbound		Westbound	
Approach						
Lane Configuration	↵↵		↑		↵	
Turning Movement	Left	Right	Thru	Right	Left	Thru
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	45.00		45.00		45.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		No	

Volumes

Name	Northbound		Eastbound		Westbound	
Base Volume Input [veh/h]	0	0	0	0	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	159	0	0	160	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	27	0	0	27	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	186	0	0	187	0
Peak Hour Factor	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	49	0	0	49	0
Total Analysis Volume [veh/h]	0	196	0	0	197	0
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Stop	Free	Free
Flared Lane			
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance	No		
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.18	0.00	0.00	0.12	0.00
d_M, Delay for Movement [s/veh]	11.66	9.02	0.00	0.00	7.50	0.00
Movement LOS	B	A	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.00	0.65	0.00	0.00	0.39	0.39
95th-Percentile Queue Length [ft/ln]	0.00	16.33	0.00	0.00	9.66	9.66
d_A, Approach Delay [s/veh]	9.02		0.00		7.50	
Approach LOS	A		A		A	
d_I, Intersection Delay [s/veh]	8.26					
Intersection LOS	A					

Intersection Level Of Service Report

Intersection 2: Winchester Road (SR-79) (NS) at Route 74 (EW)

Control Type:	Signalized	Delay (sec / veh):	30.4
Analysis Method:	HCM 2010	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.886

Intersection Setup

Name	Northbound			Southbound			Eastbound			Westbound		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration	↔			↔			↔↔↔			↔↔		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	0	1	0	0	1	0	1	1	0	0
Pocket Length [ft]	180.00	100.00	100.00	50.00	100.00	100.00	150.00	100.00	300.00	100.00	100.00	100.00
Speed [mph]	45.00			45.00			50.00			50.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			No			Yes			No		

Volumes

Name	Northbound			Southbound			Eastbound			Westbound		
Base Volume Input [veh/h]	132	14	523	24	18	7	19	826	75	360	665	35
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	24	0	16	0	0	0	0	0	24	16	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	156	14	539	24	18	7	19	826	99	376	665	35
Peak Hour Factor	0.9400	0.9400	0.9400	0.9400	0.9400	0.9400	0.9400	0.9400	0.9400	0.9400	0.9400	0.9400
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	41	4	143	6	5	2	5	220	26	100	177	9
Total Analysis Volume [veh/h]	166	15	573	26	19	7	20	879	105	400	707	37
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	60
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	4.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal group	0	2	0	0	6	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	0	7	0	0	7	0	7	7	0	7	7	0
Maximum Green [s]	0	30	0	0	30	0	30	30	0	30	30	0
Amber [s]	0.0	3.0	0.0	0.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Split [s]	0	24	0	0	24	0	21	20	0	16	15	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	10	0	0	10	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	1.0	0.0	0.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Minimum Recall		No			No		No	No		No	No	
Maximum Recall		No			No		No	No		No	No	
Pedestrian Recall		No			No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	L	C	L	C	R	L	C	C
C, Cycle Length [s]	60	60	60	60	60	60	60	60	60	60
L, Total Lost Time per Cycle [s]	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00
l1_p, Permitted Start-Up Lost Time [s]	2.00	0.00	2.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
g_i, Effective Green Time [s]	22	22	22	22	2	16	16	13	27	27
g / C, Green / Cycle	0.36	0.36	0.36	0.36	0.03	0.27	0.27	0.22	0.46	0.46
(v / s)_i Volume / Saturation Flow Rate	0.12	0.36	0.03	0.01	0.01	0.24	0.07	0.22	0.20	0.20
s, saturation flow rate [veh/h]	1407	1621	841	1814	1810	3618	1615	1810	1900	1867
c, Capacity [veh/h]	578	586	122	655	62	984	439	393	864	849
d1, Uniform Delay [s]	15.48	19.19	30.03	12.43	28.33	21.03	17.03	23.52	11.13	11.13
k, delay calibration	0.50	0.50	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.11
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	1.25	38.15	3.93	0.11	2.97	3.11	0.28	26.00	0.35	0.35
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

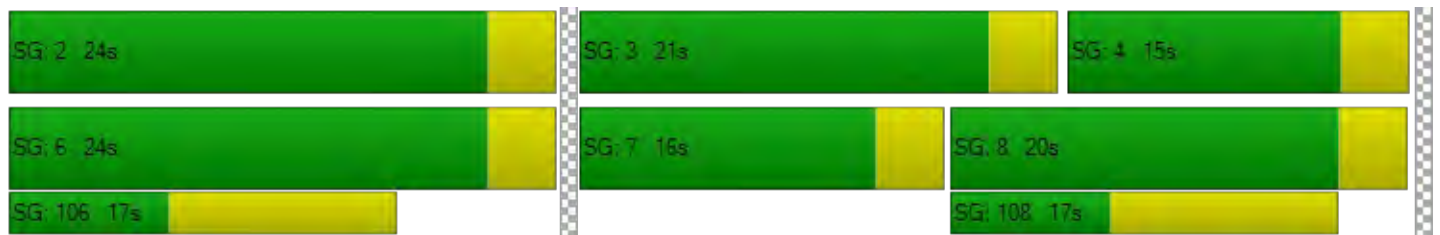
X, volume / capacity	0.29	1.00	0.21	0.04	0.32	0.89	0.24	1.02	0.43	0.43
d, Delay for Lane Group [s/veh]	16.73	57.33	33.96	12.55	31.30	24.14	17.31	49.52	11.48	11.48
Lane Group LOS	B	F	C	B	C	C	B	F	B	B
Critical Lane Group	No	Yes	No	No	No	Yes	No	Yes	No	No
50th-Percentile Queue Length [veh/ln]	1.65	12.72	0.47	0.21	0.30	5.27	0.97	7.48	2.55	2.51
50th-Percentile Queue Length [ft/ln]	41.20	317.89	11.86	5.20	7.51	131.64	24.25	187.03	63.81	62.78
95th-Percentile Queue Length [veh/ln]	2.97	18.61	0.85	0.37	0.54	9.03	1.75	12.08	4.59	4.52
95th-Percentile Queue Length [ft/ln]	74.17	465.28	21.35	9.35	13.51	225.72	43.66	302.01	114.86	113.00

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	16.73	57.33	57.33	33.96	12.55	12.55	31.30	24.14	17.31	49.52	11.48	11.48
Movement LOS	B	E	E	C	B	B	C	C	B	F	B	B
d_A, Approach Delay [s/veh]	48.39			23.25			23.57			24.78		
Approach LOS	D			C			C			C		
d_I, Intersection Delay [s/veh]	30.37											
Intersection LOS	C											
Intersection V/C	0.886											

Sequence

Ring 1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report

Intersection 3: Winchester Road (SR-79) (NS) at Simpson Road (EW)

Control Type:	Signalized	Delay (sec / veh):	16.5
Analysis Method:	HCM 2010	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.430

Intersection Setup

Name	Northbound			Southbound			Eastbound			Westbound		
Approach	[Diagram]			[Diagram]			[Diagram]			[Diagram]		
Lane Configuration	[Diagram]			[Diagram]			[Diagram]			[Diagram]		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	0	1	0	0	1	0	1	1	0	1
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	150.00	100.00	150.00	100.00	100.00	100.00
Speed [mph]	50.00			50.00			50.00			50.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Northbound			Southbound			Eastbound			Westbound		
Base Volume Input [veh/h]	66	656	161	30	414	75	107	249	51	59	154	44
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	16	40	8	0	40	0	0	0	16	8	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	82	696	169	30	454	75	107	249	67	67	154	44
Peak Hour Factor	0.9400	0.9400	0.9400	0.9400	0.9400	0.9400	0.9400	0.9400	0.9400	0.9400	0.9400	0.9400
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	22	185	45	8	121	20	28	66	18	18	41	12
Total Analysis Volume [veh/h]	87	740	180	32	483	80	114	265	71	71	164	47
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	60
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	4.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal group	5	2	0	1	6	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	7	7	0	7	7	0	7	7	0	7	7	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Split [s]	10	20	0	10	20	0	10	20	0	10	20	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	10	0	0	10	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	R	L	C	R
C, Cycle Length [s]	60	60	60	60	60	60	60	60	60	60	60	60
L, Total Lost Time per Cycle [s]	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
g_i, Effective Green Time [s]	5	30	30	3	27	27	6	11	11	5	10	10
g / C, Green / Cycle	0.09	0.49	0.49	0.05	0.45	0.45	0.10	0.18	0.18	0.08	0.16	0.16
(v / s)_i Volume / Saturation Flow Rate	0.05	0.20	0.11	0.02	0.13	0.05	0.06	0.14	0.04	0.04	0.09	0.03
s, saturation flow rate [veh/h]	1810	3618	1615	1810	3618	1615	1810	1900	1615	1810	1900	1615
c, Capacity [veh/h]	166	1771	791	92	1623	725	183	336	286	151	303	257
d1, Uniform Delay [s]	26.13	9.88	8.84	27.64	10.57	9.64	25.98	23.72	21.35	26.35	23.32	21.94
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.11
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	2.56	0.73	0.67	2.23	0.47	0.31	3.42	4.11	0.45	2.26	1.51	0.34
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

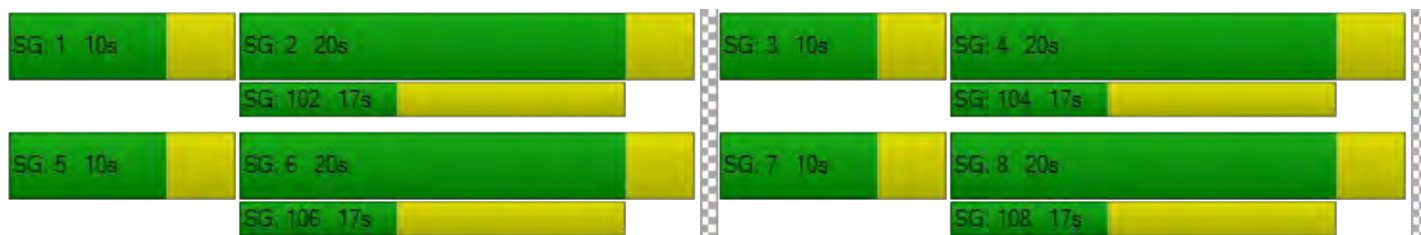
X, volume / capacity	0.52	0.42	0.23	0.35	0.30	0.11	0.62	0.79	0.25	0.47	0.54	0.18
d, Delay for Lane Group [s/veh]	28.68	10.60	9.51	29.87	11.04	9.94	29.40	27.83	21.80	28.62	24.83	22.28
Lane Group LOS	C	B	A	C	B	A	C	C	C	C	C	C
Critical Lane Group	No	Yes	No	Yes	No	No	No	Yes	No	Yes	No	No
50th-Percentile Queue Length [veh/ln]	1.16	2.36	1.10	0.45	1.60	0.51	1.54	3.45	0.78	0.95	1.97	0.52
50th-Percentile Queue Length [ft/ln]	28.99	59.01	27.43	11.27	40.08	12.86	38.53	86.34	19.40	23.69	49.26	13.03
95th-Percentile Queue Length [veh/ln]	2.09	4.25	1.97	0.81	2.89	0.93	2.77	6.22	1.40	1.71	3.55	0.94
95th-Percentile Queue Length [ft/ln]	52.19	106.21	49.37	20.28	72.14	23.14	69.36	155.42	34.92	42.64	88.66	23.46

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	28.68	10.60	9.51	29.87	11.04	9.94	29.40	27.83	21.80	28.62	24.83	22.28
Movement LOS	C	B	A	C	B	A	C	C	C	C	C	C
d_A, Approach Delay [s/veh]	11.97			11.90			27.28			25.36		
Approach LOS	B			B			C			C		
d_I, Intersection Delay [s/veh]	16.52											
Intersection LOS	B											
Intersection V/C	0.430											

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 4: Winchester Road (SR-79) (NS) at Domenigoni Parkway (EW)

Control Type:	Signalized	Delay (sec / veh):	33.1
Analysis Method:	HCM 2010	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.835

Intersection Setup

Name	Northbound			Southbound			Eastbound			Westbound		
Approach	[Diagram]			[Diagram]			[Diagram]			[Diagram]		
Lane Configuration	[Diagram]			[Diagram]			[Diagram]			[Diagram]		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	2	1	0	1	2	0	1	2	0	1
Pocket Length [ft]	350.00	100.00	525.00	220.00	100.00	240.00	380.00	100.00	380.00	300.00	100.00	280.00
Speed [mph]	45.00			65.00			65.00			65.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Northbound			Southbound			Eastbound			Westbound		
Base Volume Input [veh/h]	82	619	1025	24	302	183	251	922	39	709	973	18
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	16	64	16	0	64	0	0	0	16	16	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	98	683	1041	24	366	183	251	922	55	725	973	18
Peak Hour Factor	0.9600	0.9600	0.9600	0.9600	0.9600	0.9600	0.9600	0.9600	0.9600	0.9600	0.9600	0.9600
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	26	178	271	6	95	48	65	240	14	189	253	5
Total Analysis Volume [veh/h]	102	711	1084	25	381	191	261	960	57	755	1014	19
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	80
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	4.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal group	5	2	0	1	6	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	7	7	0	7	7	0	7	7	0	7	7	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Split [s]	20	30	0	10	20	0	13	20	0	20	27	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	10	0	0	10	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	R	L	C	R
C, Cycle Length [s]	80	80	80	80	80	80	80	80	80	80	80	80
L, Total Lost Time per Cycle [s]	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
g_i, Effective Green Time [s]	6	31	31	3	28	28	8	17	17	17	26	26
g / C, Green / Cycle	0.08	0.39	0.39	0.04	0.35	0.35	0.10	0.21	0.21	0.21	0.32	0.32
(v / s)_i Volume / Saturation Flow Rate	0.06	0.20	0.38	0.01	0.11	0.12	0.07	0.19	0.04	0.21	0.20	0.01
s, saturation flow rate [veh/h]	1810	3618	2859	1810	3618	1615	3514	5176	1615	3514	5176	1615
c, Capacity [veh/h]	143	1418	1120	69	1270	567	351	1074	335	747	1658	517
d1, Uniform Delay [s]	35.99	18.43	23.86	37.57	18.86	19.13	35.06	30.88	26.07	31.54	23.01	18.72
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.11
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	6.41	1.27	20.15	3.16	0.61	1.61	3.15	2.87	0.24	18.02	0.37	0.03
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

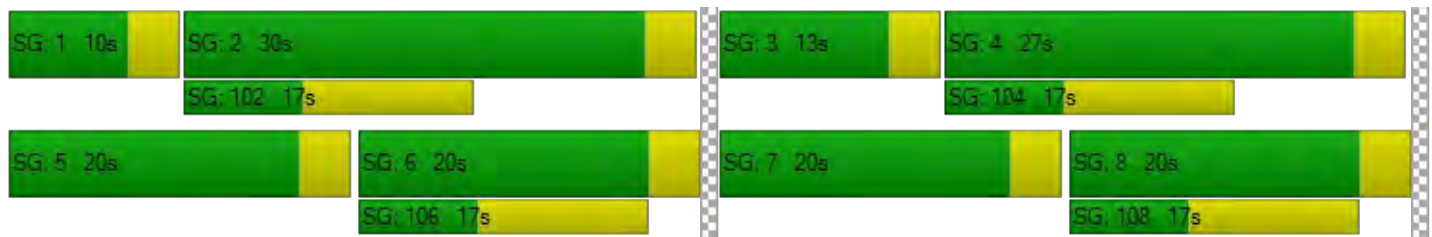
X, volume / capacity	0.71	0.50	0.97	0.36	0.30	0.34	0.74	0.89	0.17	1.01	0.61	0.04
d, Delay for Lane Group [s/veh]	42.41	19.70	44.01	40.73	19.46	20.74	38.21	33.75	26.31	49.56	23.38	18.75
Lane Group LOS	D	B	D	D	B	C	D	C	C	F	C	B
Critical Lane Group	No	No	Yes	Yes	No	No	No	Yes	No	Yes	No	No
50th-Percentile Queue Length [veh/ln]	2.08	4.66	11.83	0.49	2.23	2.41	2.35	5.44	0.80	8.05	4.52	0.21
50th-Percentile Queue Length [ft/ln]	52.10	116.43	295.80	12.24	55.70	60.26	58.63	136.12	19.95	201.26	112.98	5.21
95th-Percentile Queue Length [veh/ln]	3.75	8.20	17.47	0.88	4.01	4.34	4.22	9.27	1.44	12.77	8.01	0.37
95th-Percentile Queue Length [ft/ln]	93.78	204.91	436.83	22.03	100.25	108.47	105.53	231.79	35.91	319.33	200.14	9.37

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	42.41	19.70	44.01	40.73	19.46	20.74	38.21	33.75	26.31	49.56	23.38	18.75
Movement LOS	D	B	D	D	B	C	D	C	C	F	C	B
d_A, Approach Delay [s/veh]	34.81			20.76			34.33			34.38		
Approach LOS	C			C			C			C		
d_I, Intersection Delay [s/veh]	33.05											
Intersection LOS	C											
Intersection V/C	0.835											

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-





Intersection Level Of Service Report

Intersection 5: Winchester Road (SR-79) (NS) at Newport Road (EW)

Control Type:	Signalized	Delay (sec / veh):	6.8
Analysis Method:	HCM 2010	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.475

Intersection Setup

Name	Northbound			Southbound			Eastbound			Westbound		
Approach												
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	1	1	0	1	0	0	1	0	0	0
Pocket Length [ft]	225.00	100.00	550.00	550.00	100.00	550.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	65.00			65.00			55.00			45.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			Yes			Yes			Yes		

Volumes

Name	Northbound			Southbound			Eastbound			Westbound		
Base Volume Input [veh/h]	0	1787	1	2	1098	1	0	0	0	17	0	10
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	64	0	0	0	0	96	96	0	63	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	14	-14	0	0	-14	14	14	0	14	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	78	1773	1	2	1084	111	110	0	77	17	0	10
Peak Hour Factor	0.9700	0.9700	0.9700	0.9700	0.9700	0.9700	0.9700	0.9700	0.9700	0.9700	0.9700	0.9700
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	20	457	0	1	279	29	28	0	20	4	0	3
Total Analysis Volume [veh/h]	80	1828	1	2	1118	114	113	0	79	18	0	10
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	60
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	4.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal group	5	2	0	1	6	0	0	8	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	-	-	-	-	-	-
Minimum Green [s]	7	7	0	7	7	0	0	7	0	0	7	0
Maximum Green [s]	30	30	0	30	30	0	0	30	0	0	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
All red [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Split [s]	10	29	0	11	30	0	0	20	0	0	20	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	10	0	0	10	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	1.0	1.0	0.0	1.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0
Minimum Recall	No	No		No	No			No			No	
Maximum Recall	No	No		No	No			No			No	
Pedestrian Recall	No	No		No	No			No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	C	R	C
C, Cycle Length [s]	60	60	60	60	60	60	60	60	60
L, Total Lost Time per Cycle [s]	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	2.00	0.00	2.00
l2, Clearance Lost Time [s]	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
g_i, Effective Green Time [s]	5	44	44	0	39	39	7	7	7
g / C, Green / Cycle	0.09	0.73	0.73	0.00	0.64	0.64	0.12	0.12	0.12
(v / s)_i Volume / Saturation Flow Rate	0.04	0.35	0.00	0.00	0.31	0.07	0.09	0.05	0.08
s, saturation flow rate [veh/h]	1810	5176	1615	1810	3618	1615	1265	1615	344
c, Capacity [veh/h]	159	3749	1170	11	2323	1037	272	194	140
d1, Uniform Delay [s]	26.17	3.53	2.29	29.76	5.57	4.14	25.58	24.48	23.93
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	2.44	0.46	0.00	8.48	0.72	0.21	1.01	1.37	0.70
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.50	0.49	0.00	0.19	0.48	0.11	0.42	0.41	0.20
d, Delay for Lane Group [s/veh]	28.61	3.99	2.29	38.24	6.29	4.36	26.59	25.85	24.63
Lane Group LOS	C	A	A	D	A	A	C	C	C
Critical Lane Group	No	Yes	No	Yes	No	No	Yes	No	No
50th-Percentile Queue Length [veh/ln]	1.01	0.26	0.00	0.05	1.43	0.24	1.40	0.96	0.34
50th-Percentile Queue Length [ft/ln]	25.21	6.58	0.01	1.23	35.77	6.09	35.00	23.98	8.58
95th-Percentile Queue Length [veh/ln]	1.82	0.47	0.00	0.09	2.58	0.44	2.52	1.73	0.62
95th-Percentile Queue Length [ft/ln]	45.38	11.84	0.02	2.21	64.38	10.96	63.00	43.16	15.44

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	28.61	3.99	2.29	38.24	6.29	4.36	26.59	26.59	25.85	24.63	24.63	24.63
Movement LOS	C	A	A	D	A	A	C	C	C	C	C	C
d_A, Approach Delay [s/veh]	5.02			6.16			26.29			24.63		
Approach LOS	A			A			C			C		
d_I, Intersection Delay [s/veh]	6.82											
Intersection LOS	A											
Intersection V/C	0.475											

Sequence

Ring 1	1	2	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 6: Winchester Road (SR-79) (NS) at Scott Road/Washington Street (EW)

Control Type:	Signalized	Delay (sec / veh):	24.0
Analysis Method:	HCM 2010	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.729

Intersection Setup

Name	Northbound			Southbound			Eastbound			Westbound		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration	[Diagram]			[Diagram]			[Diagram]			[Diagram]		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	65.00			65.00			45.00			55.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			No			Yes			Yes		

Volumes

Name	Northbound			Southbound			Eastbound			Westbound		
Base Volume Input [veh/h]	74	1252	2	105	786	137	284	67	58	1	120	313
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	48	0	8	47	8	8	0	0	0	0	8
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	74	1300	2	113	833	145	292	67	58	1	120	321
Peak Hour Factor	0.9900	0.9900	0.9900	0.9900	0.9900	0.9900	0.9900	0.9900	0.9900	0.9900	0.9900	0.9900
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	19	328	1	29	210	37	74	17	15	0	30	81
Total Analysis Volume [veh/h]	75	1313	2	114	841	146	295	68	59	1	121	324
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	60
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	4.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal group	5	2	0	1	6	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	7	7	0	7	7	0	7	7	0	7	7	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Split [s]	10	20	0	10	20	0	14	20	0	10	16	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	10	0	0	10	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	R	L	C	R
C, Cycle Length [s]	60	60	60	60	60	60	60	60	60	60	60	60
L, Total Lost Time per Cycle [s]	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
g_i, Effective Green Time [s]	5	18	18	6	19	19	11	24	24	0	13	13
g / C, Green / Cycle	0.08	0.30	0.30	0.10	0.32	0.32	0.18	0.40	0.40	0.00	0.22	0.22
(v / s)_i Volume / Saturation Flow Rate	0.04	0.25	0.00	0.06	0.16	0.09	0.16	0.04	0.04	0.00	0.06	0.20
s, saturation flow rate [veh/h]	1810	5176	1615	1810	5176	1615	1810	1900	1615	1810	1900	1615
c, Capacity [veh/h]	152	1570	490	181	1652	515	332	750	637	4	406	345
d1, Uniform Delay [s]	26.29	19.53	14.60	25.97	16.62	15.31	23.93	11.41	11.42	29.91	19.83	23.23
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.11
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	2.47	5.46	0.02	3.61	1.12	1.37	8.06	0.05	0.06	24.29	0.41	12.05
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.49	0.84	0.00	0.63	0.51	0.28	0.89	0.09	0.09	0.23	0.30	0.94
d, Delay for Lane Group [s/veh]	28.76	24.99	14.61	29.58	17.75	16.68	31.99	11.47	11.49	54.19	20.24	35.28
Lane Group LOS	C	C	B	C	B	B	C	B	B	D	C	D
Critical Lane Group	No	Yes	No	Yes	No	No	Yes	No	No	No	No	Yes
50th-Percentile Queue Length [veh/ln]	0.95	4.99	0.02	1.46	2.48	1.30	4.29	0.47	0.41	0.04	1.22	4.83
50th-Percentile Queue Length [ft/ln]	23.74	124.79	0.41	36.58	61.99	32.58	107.17	11.74	10.23	1.06	30.45	120.77
95th-Percentile Queue Length [veh/ln]	1.71	8.66	0.03	2.63	4.46	2.35	7.68	0.85	0.74	0.08	2.19	8.44
95th-Percentile Queue Length [ft/ln]	42.73	216.40	0.74	65.84	111.58	58.65	192.06	21.13	18.42	1.90	54.81	210.89

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	28.76	24.99	14.61	29.58	17.75	16.68	31.99	11.47	11.49	54.19	20.24	35.28
Movement LOS	C	C	B	C	B	B	C	B	B	D	C	D
d_A, Approach Delay [s/veh]	25.18			18.83			25.82			31.24		
Approach LOS	C			B			C			C		
d_I, Intersection Delay [s/veh]	23.98											
Intersection LOS	C											
Intersection V/C	0.729											

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 7: Winchester Road (SR-79) (NS) at Whisper Heights/Pourroy Road (EW)

Control Type:	Signalized	Delay (sec / veh):	18.4
Analysis Method:	HCM 2010	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.675

Intersection Setup

Name	Northbound			Southbound			Eastbound			Westbound		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration	T T T			T T T			T T T			T T T		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	1	2	0	0	1	0	1	1	0	0
Pocket Length [ft]	250.00	100.00	330.00	340.00	100.00	100.00	150.00	100.00	150.00	170.00	100.00	100.00
Speed [mph]	55.00			55.00			45.00			45.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			Yes			Yes			Yes		

Volumes

Name	Northbound			Southbound			Eastbound			Westbound		
Base Volume Input [veh/h]	16	1420	156	134	831	23	18	62	36	129	36	198
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	24	0	24	23	0	0	0	0	0	0	24
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	16	1444	156	158	854	23	18	62	36	129	36	222
Peak Hour Factor	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	4	388	42	42	230	6	5	17	10	35	10	60
Total Analysis Volume [veh/h]	17	1553	168	170	918	25	19	67	39	139	39	239
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	70
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	4.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal group	5	2	0	1	6	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	7	7	0	7	7	0	7	7	0	7	7	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Split [s]	10	29	0	10	29	0	10	10	0	21	21	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	10	0	0	10	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	R	L	C	R
C, Cycle Length [s]	70	70	70	70	70	70	70	70	70	70	70	70
L, Total Lost Time per Cycle [s]	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
g_i, Effective Green Time [s]	2	37	37	7	41	41	2	8	8	7	13	13
g / C, Green / Cycle	0.03	0.52	0.52	0.10	0.59	0.59	0.03	0.11	0.11	0.10	0.18	0.18
(v / s)_i Volume / Saturation Flow Rate	0.01	0.43	0.10	0.05	0.25	0.02	0.01	0.04	0.02	0.08	0.02	0.15
s, saturation flow rate [veh/h]	1810	3618	1615	3514	3618	1615	1810	1900	1615	1810	1900	1615
c, Capacity [veh/h]	55	1877	838	343	2121	947	60	212	180	183	342	290
d1, Uniform Delay [s]	33.35	14.24	9.07	30.06	8.06	6.11	33.19	28.74	28.42	30.73	24.12	27.73
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.11
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	3.19	4.35	0.54	1.11	0.65	0.05	3.02	0.85	0.60	6.30	0.15	5.81
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

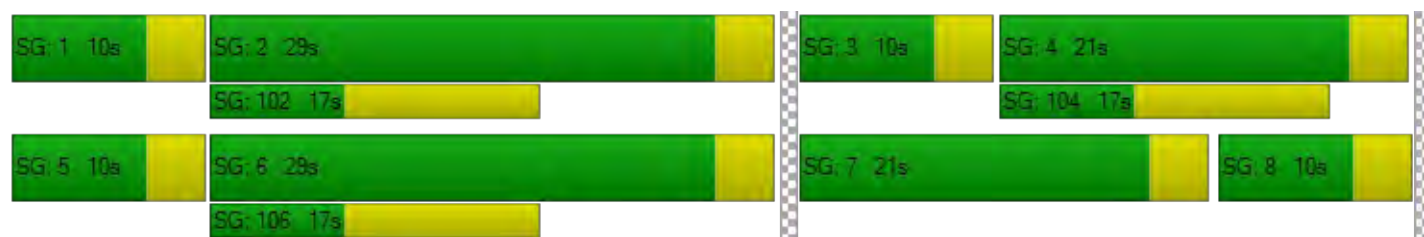
X, volume / capacity	0.31	0.83	0.20	0.50	0.43	0.03	0.32	0.32	0.22	0.76	0.11	0.82
d, Delay for Lane Group [s/veh]	36.54	18.59	9.61	31.17	8.70	6.16	36.22	29.59	29.01	37.02	24.27	33.54
Lane Group LOS	D	B	A	C	A	A	D	C	C	D	C	C
Critical Lane Group	No	Yes	No	Yes	No	No	Yes	No	No	No	No	Yes
50th-Percentile Queue Length [veh/ln]	0.30	8.36	1.12	1.26	2.64	0.11	0.34	1.01	0.58	2.42	0.51	3.95
50th-Percentile Queue Length [ft/ln]	7.60	208.98	28.02	31.62	66.12	2.87	8.59	25.13	14.49	60.56	12.72	98.86
95th-Percentile Queue Length [veh/ln]	0.55	13.10	2.02	2.28	4.76	0.21	0.62	1.81	1.04	4.36	0.92	7.12
95th-Percentile Queue Length [ft/ln]	13.67	327.52	50.44	56.92	119.01	5.17	15.47	45.24	26.08	109.01	22.89	177.94

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	36.54	18.59	9.61	31.17	8.70	6.16	36.22	29.59	29.01	37.02	24.27	33.54
Movement LOS	D	B	A	C	A	A	D	C	C	D	C	C
d_A, Approach Delay [s/veh]	17.90			12.08			30.42			33.83		
Approach LOS	B			B			C			C		
d_I, Intersection Delay [s/veh]	18.41											
Intersection LOS	B											
Intersection V/C	0.675											

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



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Scenario 4 Existing Plus Project - Improvements

Report File: C:\...\IPM Ep_Improvements.pdf

1/12/2021

Turning Movement Volume: Detail

ID	Intersection Name	Volume Type	Northbound		Eastbound		Westbound		Total Volume
			Left	Right	Thru	Right	Left	Thru	
1	Project Access (NS) at Newport Road (EW)	Final Base	0	0	0	0	0	0	0
		Growth Factor	1.00	1.00	1.00	1.00	1.00	1.00	-
		In Process	0	0	0	0	0	0	0
		Net New Trips	0	186	0	0	187	0	373
		Other	0	0	0	0	0	0	0
		Future Total	0	186	0	0	187	0	373

ID	Intersection Name	Volume Type	Northbound			Southbound			Eastbound			Westbound			Total Volume
			Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
2	Winchester Road (SR-79) (NS) at Route 74 (EW)	Final Base	132	14	523	24	18	7	19	826	75	360	665	35	2698
		Growth Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	-
		In Process	0	0	0	0	0	0	0	0	0	0	0	0	0
		Net New Trips	24	0	16	0	0	0	0	0	24	16	0	0	80
		Other	0	0	0	0	0	0	0	0	0	0	0	0	0
		Future Total	156	14	539	24	18	7	19	826	99	376	665	35	2778

ID	Intersection Name	Volume Type	Northbound			Southbound			Eastbound			Westbound			Total Volume
			Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
3	Winchester Road (SR-79) (NS) at Simpson Road (EW)	Final Base	66	656	161	30	414	75	107	249	51	59	154	44	2066
		Growth Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	-
		In Process	0	0	0	0	0	0	0	0	0	0	0	0	0
		Net New Trips	16	40	8	0	40	0	0	0	16	8	0	0	128
		Other	0	0	0	0	0	0	0	0	0	0	0	0	0
		Future Total	82	696	169	30	454	75	107	249	67	67	154	44	2194

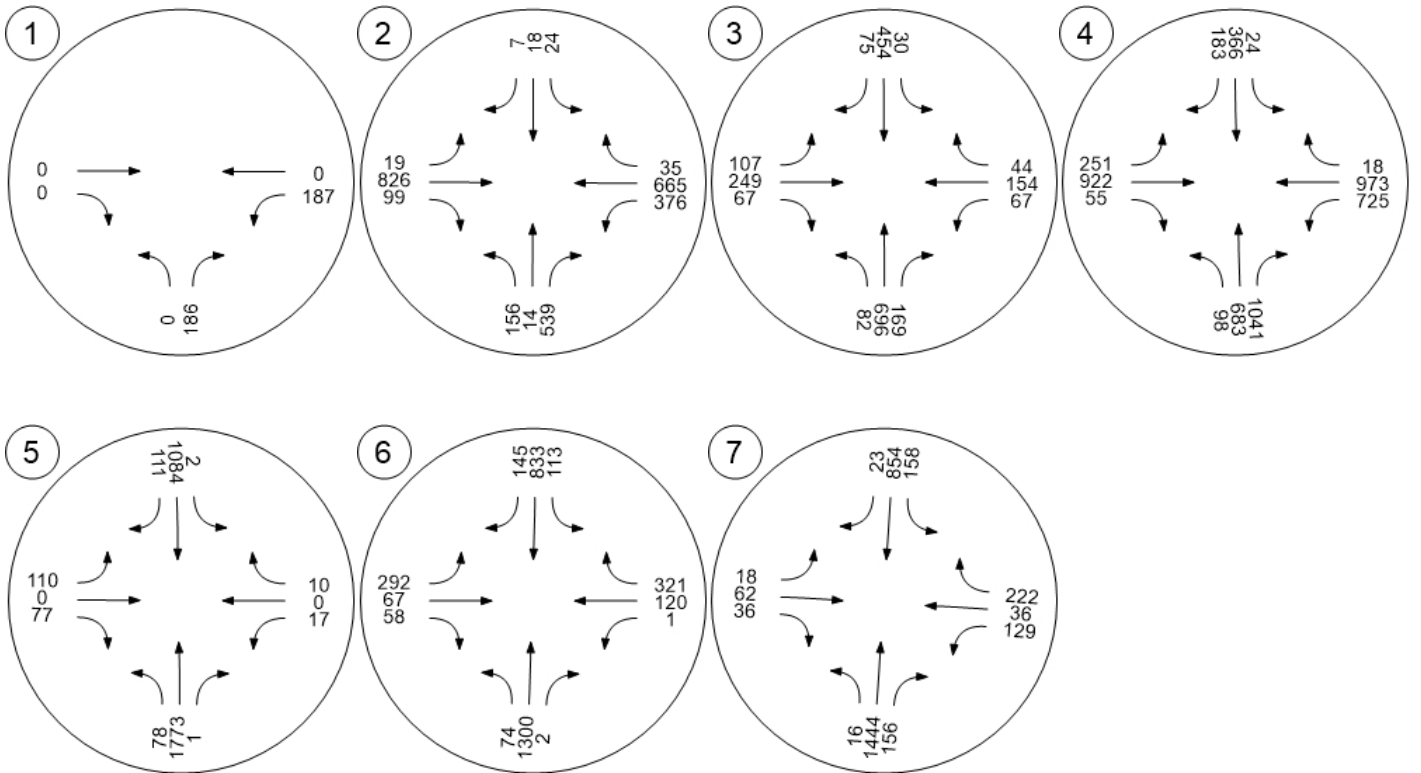
ID	Intersection Name	Volume Type	Northbound			Southbound			Eastbound			Westbound			Total Volume
			Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
4	Winchester Road (SR-79) (NS) at Domenigoni Parkway (EW)	Final Base	82	619	1025	24	302	183	251	922	39	709	973	18	5147
		Growth Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	-
		In Process	0	0	0	0	0	0	0	0	0	0	0	0	0
		Net New Trips	16	64	16	0	64	0	0	0	16	16	0	0	192
		Other	0	0	0	0	0	0	0	0	0	0	0	0	0
		Future Total	98	683	1041	24	366	183	251	922	55	725	973	18	5339

ID	Intersection Name	Volume Type	Northbound			Southbound			Eastbound			Westbound			Total Volume
			Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
5	Winchester Road (SR-79) (NS) at Newport Road (EW)	Final Base	0	1787	1	2	1098	1	0	0	0	17	0	10	2916
		Growth Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	-
		In Process	0	0	0	0	0	0	0	0	0	0	0	0	0
		Net New Trips	78	-14	0	0	-14	110	110	0	77	0	0	0	347
		Other	0	0	0	0	0	0	0	0	0	0	0	0	0
		Future Total	78	1773	1	2	1084	111	110	0	77	17	0	10	3263

ID	Intersection Name	Volume Type	Northbound			Southbound			Eastbound			Westbound			Total Volume
			Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
6	Winchester Road (SR-79) (NS) at Scott Road/Washington Street (EW)	Final Base	74	1252	2	105	786	137	284	67	58	1	120	313	3199
		Growth Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	-
		In Process	0	0	0	0	0	0	0	0	0	0	0	0	0
		Net New Trips	0	48	0	8	47	8	8	0	0	0	0	8	127
		Other	0	0	0	0	0	0	0	0	0	0	0	0	0
		Future Total	74	1300	2	113	833	145	292	67	58	1	120	321	3326

ID	Intersection Name	Volume Type	Northbound			Southbound			Eastbound			Westbound			Total Volume
			Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
7	Winchester Road (SR-79) (NS) at Whisper Heights/Pourroy Road (EW)	Final Base	16	1420	156	134	831	23	18	62	36	129	36	198	3059
		Growth Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	-
		In Process	0	0	0	0	0	0	0	0	0	0	0	0	0
		Net New Trips	0	24	0	24	23	0	0	0	0	0	0	24	95
		Other	0	0	0	0	0	0	0	0	0	0	0	0	0
		Future Total	16	1444	156	158	854	23	18	62	36	129	36	222	3154

Traffic Volume - Future Total Volume



Existing Plus Ambient Growth Plus Project

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Scenario 4 Existing Plus Ambient Growth Plus Project

Report File: C:\...\IAM OYp.pdf

1/21/2021

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
1	Project Access (NS) at Newport Road (EW)	Two-way stop	HCM 2010	NB Right	0.160	8.9	A
2	Winchester Road (SR-79) (NS) at Route 74 (EW)	Signalized	HCM 2010	NB Right	0.890	33.1	C
3	Winchester Road (SR-79) (NS) at Simpson Road (EW)	Signalized	HCM 2010	WB Left	0.460	17.6	B
4	Winchester Road (SR-79) (NS) at Domenigoni Parkway (EW)	Signalized	HCM 2010	NB Right	1.157	96.9	F
5	Winchester Road (SR-79) (NS) at Newport Road (EW)	Signalized	HCM 2010	SB Left	0.715	9.8	A
6	Winchester Road (SR-79) (NS) at Scott Road/Washington Street (EW)	Signalized	HCM 2010	WB Left	0.646	21.8	C
7	Winchester Road (SR-79) (NS) at Whisper Heights/Pourroy Road (EW)	Signalized	HCM 2010	NB Left	0.643	16.9	B

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. For all other control types, they are taken for the whole intersection.

**Intersection Level Of Service Report
Intersection 1: Project Access (NS) at Newport Road (EW)**

Control Type:	Two-way stop	Delay (sec / veh):	8.9
Analysis Method:	HCM 2010	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.160

Intersection Setup

Name	Northbound		Eastbound		Westbound	
Approach						
Lane Configuration	↵↵		↑		↵	
Turning Movement	Left	Right	Thru	Right	Left	Thru
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	45.00		45.00		45.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		No	

Volumes

Name	Northbound		Eastbound		Westbound	
Base Volume Input [veh/h]	0	0	0	0	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.06	1.06	1.06	1.06	1.06	1.06
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	142	0	0	147	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	24	0	0	24	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	166	0	0	171	0
Peak Hour Factor	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	44	0	0	45	0
Total Analysis Volume [veh/h]	0	175	0	0	180	0
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Stop	Free	Free
Flared Lane			
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance	No		
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.16	0.00	0.00	0.11	0.00
d_M, Delay for Movement [s/veh]	11.29	8.93	0.00	0.00	7.47	0.00
Movement LOS	B	A	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.00	0.57	0.00	0.00	0.35	0.35
95th-Percentile Queue Length [ft/ln]	0.00	14.26	0.00	0.00	8.74	8.74
d_A, Approach Delay [s/veh]	8.93		0.00		7.47	
Approach LOS	A		A		A	
d_I, Intersection Delay [s/veh]	8.19					
Intersection LOS	A					

Intersection Level Of Service Report

Intersection 2: Winchester Road (SR-79) (NS) at Route 74 (EW)

Control Type:	Signalized	Delay (sec / veh):	33.1
Analysis Method:	HCM 2010	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.890

Intersection Setup

Name	Northbound			Southbound			Eastbound			Westbound		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration	↔			↔			↔↔↔			↔↔		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	0	1	0	0	1	0	1	1	0	0
Pocket Length [ft]	180.00	100.00	100.00	50.00	100.00	100.00	150.00	100.00	300.00	100.00	100.00	100.00
Speed [mph]	45.00			45.00			50.00			50.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			No			Yes			No		

Volumes

Name	Northbound			Southbound			Eastbound			Westbound		
Base Volume Input [veh/h]	78	15	417	20	27	4	8	720	103	491	544	31
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	22	0	14	0	0	0	0	0	22	15	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	105	16	456	21	29	4	8	763	131	535	577	33
Peak Hour Factor	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	28	4	120	6	8	1	2	201	34	141	152	9
Total Analysis Volume [veh/h]	111	17	480	22	31	4	8	803	138	563	607	35
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	70
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	4.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal group	0	2	0	0	6	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	0	7	0	0	7	0	7	7	0	7	7	0
Maximum Green [s]	0	30	0	0	30	0	30	30	0	30	30	0
Amber [s]	0.0	3.0	0.0	0.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Split [s]	0	25	0	0	25	0	29	20	0	25	16	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	10	0	0	10	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	1.0	0.0	0.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Minimum Recall		No			No		No	No		No	No	
Maximum Recall		No			No		No	No		No	No	
Pedestrian Recall		No			No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	L	C	L	C	R	L	C	C
C, Cycle Length [s]	70	70	70	70	70	70	70	70	70	70
L, Total Lost Time per Cycle [s]	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00
l1_p, Permitted Start-Up Lost Time [s]	2.00	0.00	2.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
g_i, Effective Green Time [s]	22	22	22	22	1	17	17	22	38	38
g / C, Green / Cycle	0.32	0.32	0.32	0.32	0.01	0.24	0.24	0.31	0.54	0.54
(v / s)_i Volume / Saturation Flow Rate	0.08	0.31	0.02	0.02	0.00	0.22	0.09	0.31	0.17	0.17
s, saturation flow rate [veh/h]	1395	1623	915	1862	1810	3618	1615	1810	1900	1864
c, Capacity [veh/h]	491	513	104	589	28	872	389	569	1026	1006
d1, Uniform Delay [s]	19.81	23.60	35.03	16.69	34.12	25.94	22.06	23.91	8.94	8.94
k, delay calibration	0.50	0.50	0.50	0.50	0.11	0.11	0.11	0.27	0.11	0.11
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	1.07	32.55	4.60	0.19	5.62	4.60	0.55	25.31	0.17	0.18
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.23	0.97	0.21	0.06	0.29	0.92	0.35	0.99	0.32	0.32
d, Delay for Lane Group [s/veh]	20.88	56.15	39.62	16.88	39.74	30.54	22.61	49.22	9.11	9.12
Lane Group LOS	C	E	D	B	D	C	C	D	A	A
Critical Lane Group	No	Yes	No	No	No	Yes	No	Yes	No	No
50th-Percentile Queue Length [veh/ln]	1.41	11.63	0.48	0.38	0.17	6.21	1.71	11.80	2.05	2.02
50th-Percentile Queue Length [ft/ln]	35.26	290.69	12.05	9.49	4.17	155.27	42.81	295.00	51.34	50.45
95th-Percentile Queue Length [veh/ln]	2.54	17.22	0.87	0.68	0.30	10.30	3.08	17.43	3.70	3.63
95th-Percentile Queue Length [ft/ln]	63.46	430.50	21.70	17.07	7.50	257.45	77.06	435.84	92.40	90.81

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	20.88	56.15	56.15	39.62	16.88	16.88	39.74	30.54	22.61	49.22	9.11	9.12
Movement LOS	C	E	E	D	B	B	D	C	C	D	A	A
d_A, Approach Delay [s/veh]	49.71			25.66			29.46			27.85		
Approach LOS	D			C			C			C		
d_I, Intersection Delay [s/veh]	33.07											
Intersection LOS	C											
Intersection V/C	0.890											

Sequence

Ring 1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report

Intersection 3: Winchester Road (SR-79) (NS) at Simpson Road (EW)

Control Type:	Signalized	Delay (sec / veh):	17.6
Analysis Method:	HCM 2010	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.460

Intersection Setup

Name	Northbound			Southbound			Eastbound			Westbound		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration	[Diagram]			[Diagram]			[Diagram]			[Diagram]		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	0	1	0	0	1	0	1	1	0	1
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	150.00	100.00	150.00	100.00	100.00	100.00
Speed [mph]	50.00			50.00			50.00			50.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Northbound			Southbound			Eastbound			Westbound		
Base Volume Input [veh/h]	39	422	45	10	629	139	154	178	107	158	132	19
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	14	36	7	0	37	0	0	0	15	7	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	55	483	55	11	704	147	163	189	128	174	140	20
Peak Hour Factor	0.9800	0.9800	0.9800	0.9800	0.9800	0.9800	0.9800	0.9800	0.9800	0.9800	0.9800	0.9800
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	14	123	14	3	180	38	42	48	33	44	36	5
Total Analysis Volume [veh/h]	56	493	56	11	718	150	166	193	131	178	143	20
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	60
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	4.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal group	5	2	0	1	6	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	7	7	0	7	7	0	7	7	0	7	7	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Split [s]	10	20	0	10	20	0	10	20	0	10	20	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	10	0	0	10	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	R	L	C	R
C, Cycle Length [s]	60	60	60	60	60	60	60	60	60	60	60	60
L, Total Lost Time per Cycle [s]	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
g_i, Effective Green Time [s]	4	31	31	1	28	28	7	8	8	7	8	8
g / C, Green / Cycle	0.07	0.52	0.52	0.02	0.47	0.47	0.12	0.14	0.14	0.12	0.14	0.14
(v / s)_i Volume / Saturation Flow Rate	0.03	0.14	0.03	0.01	0.20	0.09	0.09	0.10	0.08	0.10	0.08	0.01
s, saturation flow rate [veh/h]	1810	3618	1615	1810	3618	1615	1810	1900	1615	1810	1900	1615
c, Capacity [veh/h]	133	1884	841	40	1698	758	212	267	227	213	268	228
d1, Uniform Delay [s]	26.70	8.01	7.17	29.01	10.59	9.36	25.87	24.78	24.23	26.03	24.05	22.51
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.11
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	2.12	0.34	0.15	3.73	0.77	0.58	6.25	3.69	2.31	8.39	1.65	0.16
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

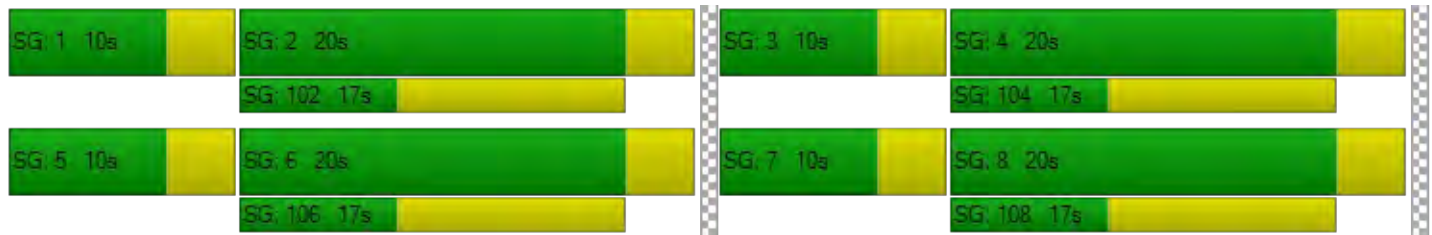
X, volume / capacity	0.42	0.26	0.07	0.28	0.42	0.20	0.78	0.72	0.58	0.84	0.53	0.09
d, Delay for Lane Group [s/veh]	28.82	8.35	7.32	32.74	11.36	9.94	32.12	28.47	26.54	34.41	25.69	22.68
Lane Group LOS	C	A	A	C	B	A	C	C	C	C	C	C
Critical Lane Group	Yes	No	No	No	Yes	No	No	Yes	No	Yes	No	No
50th-Percentile Queue Length [veh/ln]	0.75	1.28	0.28	0.18	2.44	0.96	2.37	2.55	1.65	2.66	1.76	0.22
50th-Percentile Queue Length [ft/ln]	18.86	32.03	6.95	4.50	60.99	23.91	59.33	63.65	41.34	66.47	43.90	5.61
95th-Percentile Queue Length [veh/ln]	1.36	2.31	0.50	0.32	4.39	1.72	4.27	4.58	2.98	4.79	3.16	0.40
95th-Percentile Queue Length [ft/ln]	33.96	57.65	12.51	8.11	109.77	43.03	106.79	114.57	74.42	119.64	79.01	10.09

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	28.82	8.35	7.32	32.74	11.36	9.94	32.12	28.47	26.54	34.41	25.69	22.68
Movement LOS	C	A	A	C	B	A	C	C	C	C	C	C
d_A, Approach Delay [s/veh]	10.15			11.39			29.19			30.07		
Approach LOS	B			B			C			C		
d_I, Intersection Delay [s/veh]	17.58											
Intersection LOS	B											
Intersection V/C	0.460											

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 4: Winchester Road (SR-79) (NS) at Domenigoni Parkway (EW)

Control Type:	Signalized	Delay (sec / veh):	96.9
Analysis Method:	HCM 2010	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	1.157

Intersection Setup

Name	Northbound			Southbound			Eastbound			Westbound		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration	T T T			T T T			T T T			T T T		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	1	1	0	1	2	0	1	2	0	1
Pocket Length [ft]	350.00	100.00	525.00	220.00	100.00	240.00	380.00	100.00	380.00	300.00	100.00	280.00
Speed [mph]	45.00			55.00			55.00			55.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Northbound			Southbound			Eastbound			Westbound		
Base Volume Input [veh/h]	77	323	717	21	764	257	191	930	173	951	875	38
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	14	57	14	0	59	0	0	0	15	15	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	96	399	774	22	869	272	202	986	198	1023	928	40
Peak Hour Factor	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	25	105	204	6	229	72	53	259	52	269	244	11
Total Analysis Volume [veh/h]	101	420	815	23	915	286	213	1038	208	1077	977	42
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	100
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	4.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal group	5	2	0	1	6	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	7	7	0	7	7	0	7	7	0	7	7	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Split [s]	11	37	0	10	36	0	11	26	0	27	42	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	10	0	0	10	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	R	L	C	R
C, Cycle Length [s]	100	100	100	100	100	100	100	100	100	100	100	100
L, Total Lost Time per Cycle [s]	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
g_i, Effective Green Time [s]	7	38	38	3	34	34	8	23	23	24	39	39
g / C, Green / Cycle	0.07	0.38	0.38	0.03	0.34	0.34	0.08	0.23	0.23	0.24	0.39	0.39
(v / s)_i Volume / Saturation Flow Rate	0.06	0.12	0.50	0.01	0.25	0.18	0.06	0.29	0.13	0.31	0.19	0.03
s, saturation flow rate [veh/h]	1810	3618	1615	1810	3618	1615	3514	3618	1615	3514	5176	1615
c, Capacity [veh/h]	128	1366	610	61	1231	549	280	828	370	843	2014	629
d1, Uniform Delay [s]	45.73	21.93	31.14	47.32	29.16	26.47	45.11	38.58	34.14	38.03	23.01	19.16
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.11
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	10.07	0.58	162.49	3.82	4.10	3.50	4.25	116.27	1.34	126.82	0.18	0.04
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

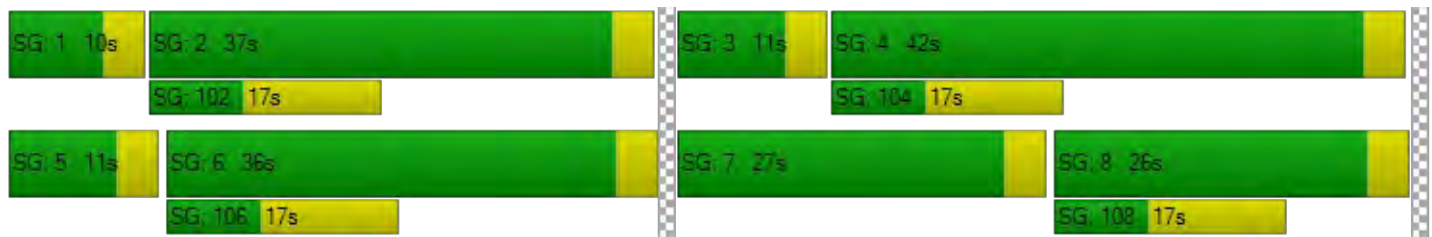
X, volume / capacity	0.79	0.31	1.34	0.38	0.74	0.52	0.76	1.25	0.56	1.28	0.48	0.07
d, Delay for Lane Group [s/veh]	55.80	22.52	193.63	51.14	33.25	29.97	49.36	154.84	35.49	164.84	23.19	19.21
Lane Group LOS	E	C	F	D	C	C	D	F	D	F	C	B
Critical Lane Group	No	No	Yes	Yes	No	No	No	Yes	No	Yes	No	No
50th-Percentile Queue Length [veh/ln]	2.74	3.37	40.97	0.60	9.47	5.51	2.61	22.71	4.29	24.34	5.22	0.57
50th-Percentile Queue Length [ft/ln]	68.50	84.37	1024.32	14.92	236.76	137.79	65.23	567.85	107.25	608.45	130.62	14.13
95th-Percentile Queue Length [veh/ln]	4.93	6.07	61.31	1.07	14.52	9.36	4.70	34.28	7.69	36.80	8.97	1.02
95th-Percentile Queue Length [ft/ln]	123.30	151.86	1532.65	26.85	362.93	234.05	117.41	857.06	192.17	919.95	224.34	25.44

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	55.80	22.52	193.63	51.14	33.25	29.97	49.36	154.84	35.49	164.84	23.19	19.21
Movement LOS	E	C	F	D	C	C	D	F	D	F	C	B
d_A, Approach Delay [s/veh]	129.42			32.82			122.43			95.90		
Approach LOS	F			C			F			F		
d_I, Intersection Delay [s/veh]	96.93											
Intersection LOS	F											
Intersection V/C	1.157											

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report

Intersection 5: Winchester Road (SR-79) (NS) at Newport Road (EW)

Control Type:	Signalized	Delay (sec / veh):	9.8
Analysis Method:	HCM 2010	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.715

Intersection Setup

Name	Northbound			Southbound			Eastbound			Westbound		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	1	1	0	1	0	0	1	0	0	0
Pocket Length [ft]	225.00	100.00	550.00	550.00	100.00	550.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	65.00			65.00			55.00			45.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			Yes			Yes			Yes		

Volumes

Name	Northbound			Southbound			Eastbound			Westbound		
Base Volume Input [veh/h]	0	1066	10	9	1843	2	3	0	1	3	0	3
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	58	0	0	0	0	89	85	0	57	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	12	-12	0	0	-12	12	12	0	12	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	70	1118	11	10	1942	103	100	0	70	3	0	3
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	18	280	3	3	486	26	25	0	18	1	0	1
Total Analysis Volume [veh/h]	70	1118	11	10	1942	103	100	0	70	3	0	3
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	70
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	4.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal group	5	2	0	1	6	0	0	8	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	-	-	-	-	-	-
Minimum Green [s]	7	7	0	7	7	0	0	7	0	0	7	0
Maximum Green [s]	30	30	0	30	30	0	0	30	0	0	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
All red [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Split [s]	10	39	0	11	40	0	0	20	0	0	20	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	10	0	0	10	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	1.0	1.0	0.0	1.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0
Minimum Recall	No	No		No	No			No			No	
Maximum Recall	No	No		No	No			No			No	
Pedestrian Recall	No	No		No	No			No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	C	R	C
C, Cycle Length [s]	70	70	70	70	70	70	70	70	70
L, Total Lost Time per Cycle [s]	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	2.00	0.00	2.00
l2, Clearance Lost Time [s]	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
g_i, Effective Green Time [s]	5	51	51	1	47	47	9	9	9
g / C, Green / Cycle	0.07	0.73	0.73	0.02	0.67	0.67	0.12	0.12	0.12
(v / s)_i Volume / Saturation Flow Rate	0.04	0.22	0.01	0.01	0.54	0.06	0.10	0.04	0.01
s, saturation flow rate [veh/h]	1810	5176	1615	1810	3618	1615	1013	1615	410
c, Capacity [veh/h]	136	3779	1179	34	2437	1088	227	198	127
d1, Uniform Delay [s]	31.16	3.25	2.57	33.93	8.06	3.99	29.94	28.18	27.36
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	2.99	0.20	0.01	4.84	2.81	0.17	1.34	1.07	0.15
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.51	0.30	0.01	0.30	0.80	0.09	0.44	0.35	0.05
d, Delay for Lane Group [s/veh]	34.15	3.45	2.58	38.76	10.87	4.16	31.28	29.24	27.51
Lane Group LOS	C	A	A	D	B	A	C	C	C
Critical Lane Group	Yes	No	No	No	Yes	No	Yes	No	No
50th-Percentile Queue Length [veh/ln]	1.10	0.44	0.01	0.19	4.91	0.26	1.53	1.01	0.09
50th-Percentile Queue Length [ft/ln]	27.43	11.09	0.34	4.80	122.80	6.50	38.26	25.29	2.16
95th-Percentile Queue Length [veh/ln]	1.98	0.80	0.02	0.35	8.55	0.47	2.76	1.82	0.16
95th-Percentile Queue Length [ft/ln]	49.38	19.97	0.60	8.65	213.67	11.70	68.88	45.51	3.89

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	34.15	3.45	2.58	38.76	10.87	4.16	31.28	31.28	29.24	27.51	27.51	27.51
Movement LOS	C	A	A	D	B	A	C	C	C	C	C	C
d_A, Approach Delay [s/veh]	5.24			10.67			30.44			27.51		
Approach LOS	A			B			C			C		
d_I, Intersection Delay [s/veh]	9.78											
Intersection LOS	A											
Intersection V/C	0.715											

Sequence

Ring 1	1	2	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 6: Winchester Road (SR-79) (NS) at Scott Road/Washington Street (EW)

Control Type:	Signalized	Delay (sec / veh):	21.8
Analysis Method:	HCM 2010	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.646

Intersection Setup

Name	Northbound			Southbound			Eastbound			Westbound		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration	[Diagram]			[Diagram]			[Diagram]			[Diagram]		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	65.00			65.00			45.00			55.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			No			Yes			Yes		

Volumes

Name	Northbound			Southbound			Eastbound			Westbound		
Base Volume Input [veh/h]	74	794	4	238	1333	243	181	109	101	2	74	176
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	44	0	7	43	7	7	0	0	0	0	7
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	78	886	4	259	1456	265	199	116	107	2	78	194
Peak Hour Factor	0.9100	0.9100	0.9100	0.9100	0.9100	0.9100	0.9100	0.9100	0.9100	0.9100	0.9100	0.9100
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	21	243	1	71	400	73	55	32	29	1	21	53
Total Analysis Volume [veh/h]	86	974	4	285	1600	291	219	127	118	2	86	213
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	70
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	4.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal group	5	2	0	1	6	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	7	7	0	7	7	0	7	7	0	7	7	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Split [s]	10	21	0	18	29	0	13	20	0	11	18	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	10	0	0	10	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	R	L	C	R
C, Cycle Length [s]	70	70	70	70	70	70	70	70	70	70	70	70
L, Total Lost Time per Cycle [s]	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
g_i, Effective Green Time [s]	6	24	24	13	31	31	10	21	21	0	11	11
g / C, Green / Cycle	0.08	0.34	0.34	0.18	0.44	0.44	0.14	0.30	0.30	0.00	0.16	0.16
(v / s)_i Volume / Saturation Flow Rate	0.05	0.19	0.00	0.16	0.31	0.18	0.12	0.07	0.07	0.00	0.05	0.13
s, saturation flow rate [veh/h]	1810	5176	1615	1810	5176	1615	1810	1900	1615	1810	1900	1615
c, Capacity [veh/h]	150	1759	549	335	2288	714	260	567	482	10	305	260
d1, Uniform Delay [s]	31.01	18.85	15.34	27.69	15.83	13.34	29.31	18.51	18.64	34.77	25.91	28.50
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.11
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	3.41	1.26	0.02	6.08	1.81	1.72	7.32	0.20	0.26	9.41	0.50	6.36
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.57	0.55	0.01	0.85	0.70	0.41	0.84	0.22	0.24	0.20	0.28	0.82
d, Delay for Lane Group [s/veh]	34.42	20.11	15.36	33.77	17.63	15.06	36.63	18.71	18.90	44.18	26.41	34.86
Lane Group LOS	C	C	B	C	B	B	D	B	B	D	C	C
Critical Lane Group	Yes	No	No	No	Yes	No	Yes	No	No	No	No	Yes
50th-Percentile Queue Length [veh/ln]	1.35	3.55	0.04	4.43	5.30	2.60	3.80	1.40	1.32	0.06	1.15	3.48
50th-Percentile Queue Length [ft/ln]	33.81	88.67	0.93	110.69	132.50	65.07	94.94	35.11	32.99	1.42	28.83	87.11
95th-Percentile Queue Length [veh/ln]	2.43	6.38	0.07	7.88	9.08	4.69	6.84	2.53	2.38	0.10	2.08	6.27
95th-Percentile Queue Length [ft/ln]	60.85	159.60	1.67	196.96	226.89	117.13	170.89	63.20	59.38	2.56	51.89	156.80

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	34.42	20.11	15.36	33.77	17.63	15.06	36.63	18.71	18.90	44.18	26.41	34.86
Movement LOS	C	C	B	C	B	B	D	B	B	D	C	C
d_A, Approach Delay [s/veh]	21.25			19.40			27.22			32.51		
Approach LOS	C			B			C			C		
d_I, Intersection Delay [s/veh]	21.78											
Intersection LOS	C											
Intersection V/C	0.646											

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 7: Winchester Road (SR-79) (NS) at Whisper Heights/Pourroy Road (EW)

Control Type:	Signalized	Delay (sec / veh):	16.9
Analysis Method:	HCM 2010	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.643

Intersection Setup

Name	Northbound			Southbound			Eastbound			Westbound		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration	T T T			T T T			T T T			T T T		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	1	2	0	0	1	0	1	1	0	0
Pocket Length [ft]	250.00	100.00	330.00	340.00	100.00	100.00	150.00	100.00	150.00	170.00	100.00	100.00
Speed [mph]	55.00			55.00			45.00			45.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			Yes			Yes			Yes		

Volumes

Name	Northbound			Southbound			Eastbound			Westbound		
Base Volume Input [veh/h]	7	767	104	132	1366	28	48	30	33	152	29	181
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	22	0	22	21	0	0	0	0	0	0	22
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	7	835	110	162	1469	30	51	32	35	161	31	214
Peak Hour Factor	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	2	220	29	43	387	8	13	8	9	42	8	56
Total Analysis Volume [veh/h]	7	879	116	171	1546	32	54	34	37	169	33	225
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	60
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	4.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal group	5	2	0	1	6	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	7	7	0	7	7	0	7	7	0	7	7	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Split [s]	10	20	0	10	20	0	10	10	0	20	20	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	10	0	0	10	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	R	L	C	R
C, Cycle Length [s]	60	60	60	60	60	60	60	60	60	60	60	60
L, Total Lost Time per Cycle [s]	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
g_i, Effective Green Time [s]	1	27	27	7	33	33	4	7	7	7	10	10
g / C, Green / Cycle	0.01	0.45	0.45	0.11	0.54	0.54	0.07	0.12	0.12	0.12	0.17	0.17
(v / s)_i Volume / Saturation Flow Rate	0.00	0.24	0.07	0.05	0.43	0.02	0.03	0.02	0.02	0.09	0.02	0.14
s, saturation flow rate [veh/h]	1810	3618	1615	3514	3618	1615	1810	1900	1615	1810	1900	1615
c, Capacity [veh/h]	25	1611	719	389	1961	875	128	233	198	220	330	281
d1, Uniform Delay [s]	29.35	12.22	9.97	25.00	11.01	6.43	26.77	23.56	23.69	25.58	20.89	23.85
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.11
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	5.77	1.33	0.48	0.78	3.31	0.08	2.20	0.28	0.45	5.53	0.13	5.29
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

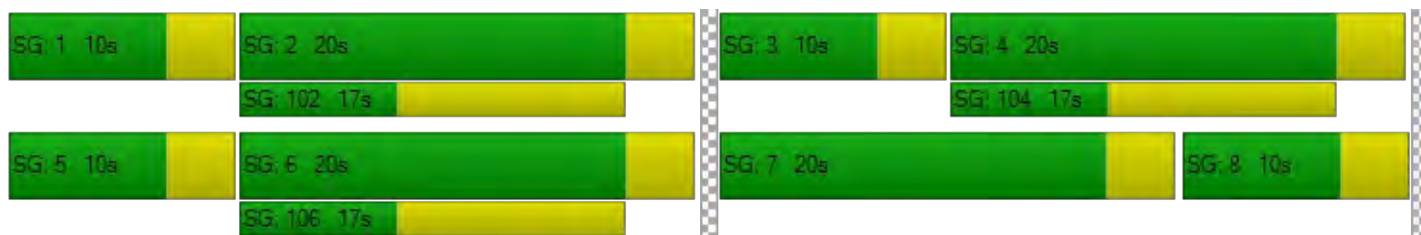
X, volume / capacity	0.28	0.55	0.16	0.44	0.79	0.04	0.42	0.15	0.19	0.77	0.10	0.80
d, Delay for Lane Group [s/veh]	35.12	13.56	10.45	25.78	14.32	6.51	28.97	23.85	24.14	31.11	21.02	29.13
Lane Group LOS	D	B	B	C	B	A	C	C	C	C	C	C
Critical Lane Group	Yes	No	No	No	Yes	No	Yes	No	No	No	No	Yes
50th-Percentile Queue Length [veh/ln]	0.13	3.32	0.75	1.02	5.75	0.14	0.74	0.40	0.44	2.41	0.36	3.09
50th-Percentile Queue Length [ft/ln]	3.20	83.10	18.69	25.38	143.83	3.41	18.59	10.05	11.11	60.19	8.89	77.17
95th-Percentile Queue Length [veh/ln]	0.23	5.98	1.35	1.83	9.69	0.25	1.34	0.72	0.80	4.33	0.64	5.56
95th-Percentile Queue Length [ft/ln]	5.76	149.59	33.63	45.68	242.17	6.13	33.46	18.09	20.00	108.35	16.00	138.90

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	35.12	13.56	10.45	25.78	14.32	6.51	28.97	23.85	24.14	31.11	21.02	29.13
Movement LOS	D	B	B	C	B	A	C	C	C	C	C	C
d_A, Approach Delay [s/veh]	13.35			15.30			26.15			29.29		
Approach LOS	B			B			C			C		
d_I, Intersection Delay [s/veh]	16.93											
Intersection LOS	B											
Intersection V/C	0.643											

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Diamon Gas & Storage

Vistro File: C:\...\IAM.vistro

Scenario 4 Existing Plus Ambient Growth Plus Project

Report File: C:\...\IAM OYp.pdf

1/21/2021

Turning Movement Volume: Detail

ID	Intersection Name	Volume Type	Northbound		Eastbound		Westbound		Total Volume
			Left	Right	Thru	Right	Left	Thru	
1	Project Access (NS) at Newport Road (EW)	Final Base	0	0	0	0	0	0	0
		Growth Factor	1.06	1.06	1.06	1.06	1.06	1.06	-
		In Process	0	0	0	0	0	0	0
		Net New Trips	0	166	0	0	171	0	337
		Other	0	0	0	0	0	0	0
		Future Total	0	166	0	0	171	0	337

ID	Intersection Name	Volume Type	Northbound			Southbound			Eastbound			Westbound			Total Volume
			Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
2	Winchester Road (SR-79) (NS) at Route 74 (EW)	Final Base	78	15	417	20	27	4	8	720	103	491	544	31	2458
		Growth Factor	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	-
		In Process	0	0	0	0	0	0	0	0	0	0	0	0	0
		Net New Trips	22	0	14	0	0	0	0	0	22	15	0	0	73
		Other	0	0	0	0	0	0	0	0	0	0	0	0	0
		Future Total	105	16	456	21	29	4	8	763	131	535	577	33	2678

ID	Intersection Name	Volume Type	Northbound			Southbound			Eastbound			Westbound			Total Volume	
			Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right		
3	Winchester Road (SR-79) (NS) at Simpson Road (EW)	Final Base	39	422	45	10	629	139	154	178	107	158	132	19	2032	
		Growth Factor	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	-	
		In Process	0	0	0	0	0	0	0	0	0	0	0	0	0	
		Net New Trips	14	36	7	0	37	0	0	0	0	15	7	0	0	116
		Other	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		Future Total	55	483	55	11	704	147	163	189	128	174	140	20	2269	

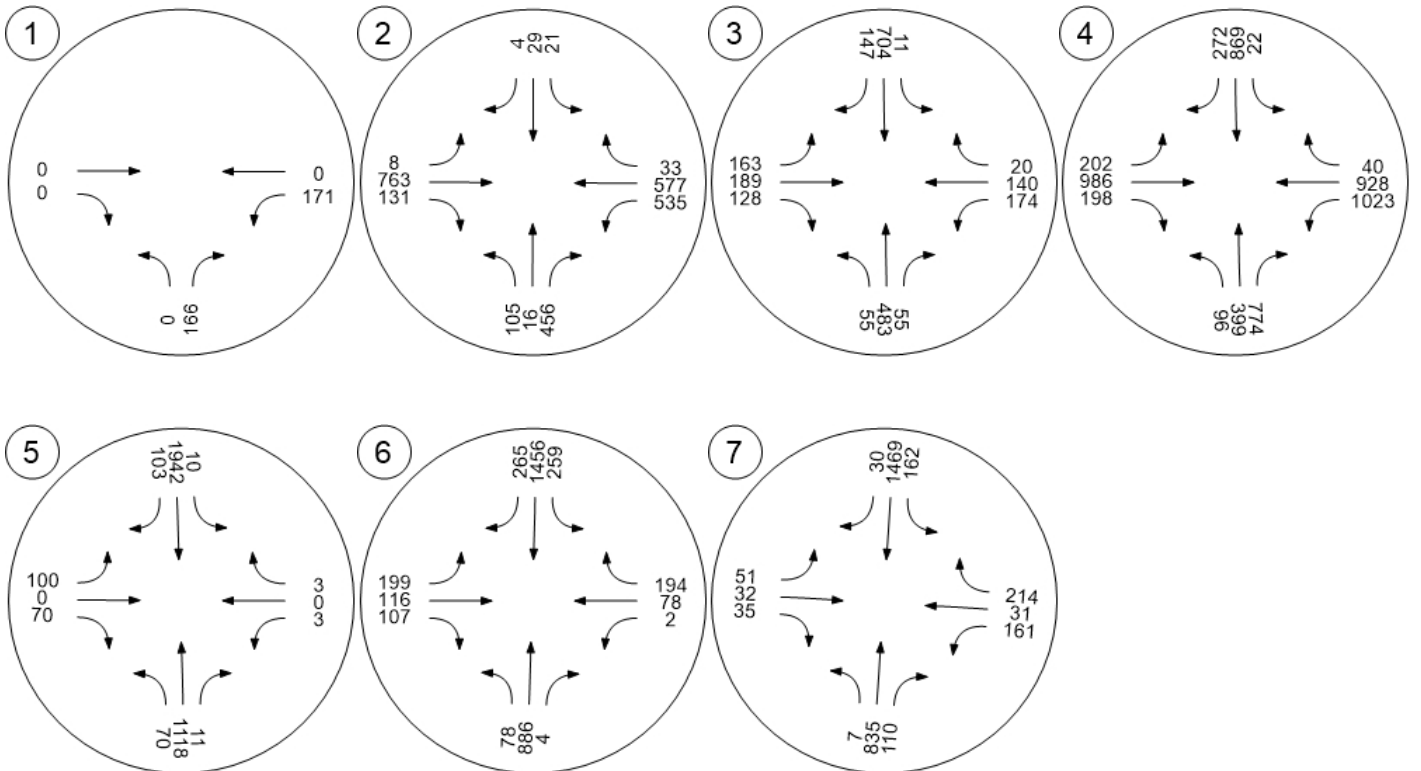
ID	Intersection Name	Volume Type	Northbound			Southbound			Eastbound			Westbound			Total Volume	
			Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right		
4	Winchester Road (SR-79) (NS) at Domenigoni Parkway (EW)	Final Base	77	323	717	21	764	257	191	930	173	951	875	38	5317	
		Growth Factor	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	-	
		In Process	0	0	0	0	0	0	0	0	0	0	0	0	0	
		Net New Trips	14	57	14	0	59	0	0	0	0	15	15	0	0	174
		Other	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		Future Total	96	399	774	22	869	272	202	986	198	1023	928	40	5809	

ID	Intersection Name	Volume Type	Northbound			Southbound			Eastbound			Westbound			Total Volume
			Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
5	Winchester Road (SR-79) (NS) at Newport Road (EW)	Final Base	0	1066	10	9	1843	2	3	0	1	3	0	3	2940
		Growth Factor	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	-
		In Process	0	0	0	0	0	0	0	0	0	0	0	0	0
		Net New Trips	70	-12	0	0	-12	101	97	0	69	0	0	0	313
		Other	0	0	0	0	0	0	0	0	0	0	0	0	0
		Future Total	70	1118	11	10	1942	103	100	0	70	3	0	3	3430

ID	Intersection Name	Volume Type	Northbound			Southbound			Eastbound			Westbound			Total Volume
			Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
6	Winchester Road (SR-79) (NS) at Scott Road/Washington Street (EW)	Final Base	74	794	4	238	1333	243	181	109	101	2	74	176	3329
		Growth Factor	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	-
		In Process	0	0	0	0	0	0	0	0	0	0	0	0	0
		Net New Trips	0	44	0	7	43	7	7	0	0	0	0	7	115
		Other	0	0	0	0	0	0	0	0	0	0	0	0	0
		Future Total	78	886	4	259	1456	265	199	116	107	2	78	194	3644

ID	Intersection Name	Volume Type	Northbound			Southbound			Eastbound			Westbound			Total Volume
			Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
7	Winchester Road (SR-79) (NS) at Whisper Heights/Pourroy Road (EW)	Final Base	7	767	104	132	1366	28	48	30	33	152	29	181	2877
		Growth Factor	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	-
		In Process	0	0	0	0	0	0	0	0	0	0	0	0	0
		Net New Trips	0	22	0	22	21	0	0	0	0	0	0	22	87
		Other	0	0	0	0	0	0	0	0	0	0	0	0	0
		Future Total	7	835	110	162	1469	30	51	32	35	161	31	214	3137

Traffic Volume - Future Total Volume



Diamon Gas & Storage

Vistro File: C:\...\IPM.vistro

Scenario 3 Existing Plus Ambient Growth Plus Project

Report File: C:\...\IPM OYp.pdf

1/21/2021

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
1	Project Access (NS) at Newport Road (EW)	Two-way stop	HCM 2010	NB Right	0.180	9.0	A
2	Winchester Road (SR-79) (NS) at Route 74 (EW)	Signalized	HCM 2010	WB Left	0.928	36.9	D
3	Winchester Road (SR-79) (NS) at Simpson Road (EW)	Signalized	HCM 2010	SB Left	0.455	16.9	B
4	Winchester Road (SR-79) (NS) at Domenigoni Parkway (EW)	Signalized	HCM 2010	EB Thru	1.277	131.9	F
5	Winchester Road (SR-79) (NS) at Newport Road (EW)	Signalized	HCM 2010	SB Left	0.498	6.9	A
6	Winchester Road (SR-79) (NS) at Scott Road/Washington Street (EW)	Signalized	HCM 2010	WB Left	0.771	26.6	C
7	Winchester Road (SR-79) (NS) at Whisper Heights/Pourroy Road (EW)	Signalized	HCM 2010	WB Left	0.708	20.0	B

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. For all other control types, they are taken for the whole intersection.

**Intersection Level Of Service Report
Intersection 1: Project Access (NS) at Newport Road (EW)**

Control Type:	Two-way stop	Delay (sec / veh):	9.0
Analysis Method:	HCM 2010	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.180

Intersection Setup

Name	Northbound		Eastbound		Westbound	
Approach						
Lane Configuration	↵↵		↑		↵	
Turning Movement	Left	Right	Thru	Right	Left	Thru
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	45.00		45.00		45.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		No	

Volumes

Name	Northbound		Eastbound		Westbound	
Base Volume Input [veh/h]	0	0	0	0	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.06	1.06	1.06	1.06	1.06	1.06
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	159	0	0	160	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	27	0	0	27	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	186	0	0	187	0
Peak Hour Factor	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	49	0	0	49	0
Total Analysis Volume [veh/h]	0	196	0	0	197	0
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Stop	Free	Free
Flared Lane			
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance	No		
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.18	0.00	0.00	0.12	0.00
d_M, Delay for Movement [s/veh]	11.66	9.02	0.00	0.00	7.50	0.00
Movement LOS	B	A	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.00	0.65	0.00	0.00	0.39	0.39
95th-Percentile Queue Length [ft/ln]	0.00	16.33	0.00	0.00	9.66	9.66
d_A, Approach Delay [s/veh]	9.02		0.00		7.50	
Approach LOS	A		A		A	
d_I, Intersection Delay [s/veh]	8.26					
Intersection LOS	A					

Intersection Level Of Service Report

Intersection 2: Winchester Road (SR-79) (NS) at Route 74 (EW)

Control Type:	Signalized	Delay (sec / veh):	36.9
Analysis Method:	HCM 2010	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.928

Intersection Setup

Name	Northbound			Southbound			Eastbound			Westbound		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration	↔			↔			↔↔↔			↔↔		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	0	1	0	0	1	0	1	1	0	0
Pocket Length [ft]	180.00	100.00	100.00	50.00	100.00	100.00	150.00	100.00	300.00	100.00	100.00	100.00
Speed [mph]	45.00			45.00			50.00			50.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			No			Yes			No		

Volumes

Name	Northbound			Southbound			Eastbound			Westbound		
Base Volume Input [veh/h]	132	14	523	24	18	7	19	826	75	360	665	35
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	24	0	16	0	0	0	0	0	24	16	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	164	15	570	25	19	7	20	876	104	398	705	37
Peak Hour Factor	0.9400	0.9400	0.9400	0.9400	0.9400	0.9400	0.9400	0.9400	0.9400	0.9400	0.9400	0.9400
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	44	4	152	7	5	2	5	233	28	106	188	10
Total Analysis Volume [veh/h]	174	16	606	27	20	7	21	932	111	423	750	39
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	70
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	4.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal group	0	2	0	0	6	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	0	7	0	0	7	0	7	7	0	7	7	0
Maximum Green [s]	0	30	0	0	30	0	30	30	0	30	30	0
Amber [s]	0.0	3.0	0.0	0.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Split [s]	0	30	0	0	30	0	22	21	0	19	18	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	10	0	0	10	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	1.0	0.0	0.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Minimum Recall		No			No		No	No		No	No	
Maximum Recall		No			No		No	No		No	No	
Pedestrian Recall		No			No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	L	C	L	C	R	L	C	C
C, Cycle Length [s]	70	70	70	70	70	70	70	70	70	70
L, Total Lost Time per Cycle [s]	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00
l1_p, Permitted Start-Up Lost Time [s]	2.00	0.00	2.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
g_i, Effective Green Time [s]	27	27	27	27	2	18	18	16	32	32
g / C, Green / Cycle	0.39	0.39	0.39	0.39	0.03	0.26	0.26	0.23	0.45	0.45
(v / s)_i Volume / Saturation Flow Rate	0.12	0.38	0.03	0.01	0.01	0.26	0.07	0.23	0.21	0.21
s, saturation flow rate [veh/h]	1405	1621	815	1817	1810	3618	1615	1810	1900	1867
c, Capacity [veh/h]	599	628	104	704	62	923	412	414	855	840
d1, Uniform Delay [s]	16.71	21.31	35.01	13.33	33.06	26.08	20.85	27.01	13.40	13.40
k, delay calibration	0.50	0.50	0.50	0.50	0.11	0.11	0.11	0.13	0.11	0.11
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	1.22	33.53	5.97	0.10	3.24	16.08	0.35	28.36	0.40	0.40
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

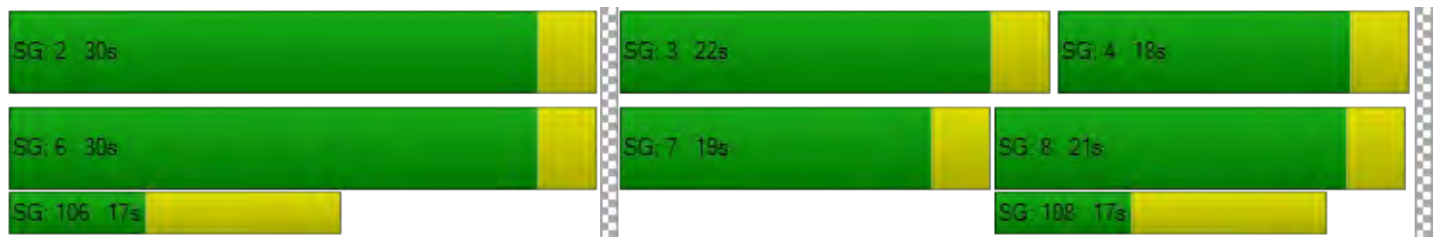
X, volume / capacity	0.29	0.99	0.26	0.04	0.34	1.01	0.27	1.02	0.47	0.47
d, Delay for Lane Group [s/veh]	17.93	54.84	40.99	13.43	36.30	42.16	21.20	55.37	13.79	13.81
Lane Group LOS	B	D	D	B	D	F	C	F	B	B
Critical Lane Group	No	Yes	No	No	No	Yes	No	Yes	No	No
50th-Percentile Queue Length [veh/ln]	2.00	14.29	0.60	0.25	0.37	8.68	1.31	9.27	3.56	3.50
50th-Percentile Queue Length [ft/ln]	49.91	357.28	15.03	6.23	9.35	217.01	32.80	231.84	88.93	87.55
95th-Percentile Queue Length [veh/ln]	3.59	20.49	1.08	0.45	0.67	13.58	2.36	14.44	6.40	6.30
95th-Percentile Queue Length [ft/ln]	89.83	512.27	27.06	11.21	16.83	339.53	59.05	360.88	160.08	157.60

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	17.93	54.84	54.84	40.99	13.43	13.43	36.30	42.16	21.20	55.37	13.80	13.81
Movement LOS	B	D	D	D	B	B	D	F	C	F	B	B
d_A, Approach Delay [s/veh]	46.77			27.21			39.86			28.31		
Approach LOS	D			C			D			C		
d_I, Intersection Delay [s/veh]	36.92											
Intersection LOS	D											
Intersection V/C	0.928											

Sequence

Ring 1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report

Intersection 3: Winchester Road (SR-79) (NS) at Simpson Road (EW)

Control Type:	Signalized	Delay (sec / veh):	16.9
Analysis Method:	HCM 2010	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.455

Intersection Setup

Name	Northbound			Southbound			Eastbound			Westbound		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration	[Diagram]			[Diagram]			[Diagram]			[Diagram]		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	0	1	0	0	1	0	1	1	0	1
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	150.00	100.00	150.00	100.00	100.00	100.00
Speed [mph]	50.00			50.00			50.00			50.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Northbound			Southbound			Eastbound			Westbound		
Base Volume Input [veh/h]	66	656	161	30	414	75	107	249	51	59	154	44
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	16	40	8	0	40	0	0	0	16	8	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	86	735	179	32	479	80	113	264	70	71	163	47
Peak Hour Factor	0.9400	0.9400	0.9400	0.9400	0.9400	0.9400	0.9400	0.9400	0.9400	0.9400	0.9400	0.9400
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	23	195	48	9	127	21	30	70	19	19	43	13
Total Analysis Volume [veh/h]	91	782	190	34	510	85	120	281	74	76	173	50
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	60
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	4.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal group	5	2	0	1	6	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	7	7	0	7	7	0	7	7	0	7	7	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Split [s]	10	20	0	10	20	0	10	20	0	10	20	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	10	0	0	10	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	R	L	C	R
C, Cycle Length [s]	60	60	60	60	60	60	60	60	60	60	60	60
L, Total Lost Time per Cycle [s]	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
g_i, Effective Green Time [s]	6	29	29	3	26	26	6	11	11	5	10	10
g / C, Green / Cycle	0.09	0.48	0.48	0.05	0.44	0.44	0.10	0.18	0.18	0.09	0.17	0.17
(v / s)_i Volume / Saturation Flow Rate	0.05	0.22	0.12	0.02	0.14	0.05	0.07	0.15	0.05	0.04	0.09	0.03
s, saturation flow rate [veh/h]	1810	3618	1615	1810	3618	1615	1810	1900	1615	1810	1900	1615
c, Capacity [veh/h]	169	1722	769	96	1577	704	186	352	299	156	321	273
d1, Uniform Delay [s]	26.09	10.55	9.38	27.54	11.17	10.12	25.98	23.47	20.96	26.27	22.91	21.49
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.11
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	2.65	0.87	0.77	2.19	0.54	0.35	3.70	4.16	0.43	2.34	1.41	0.32
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

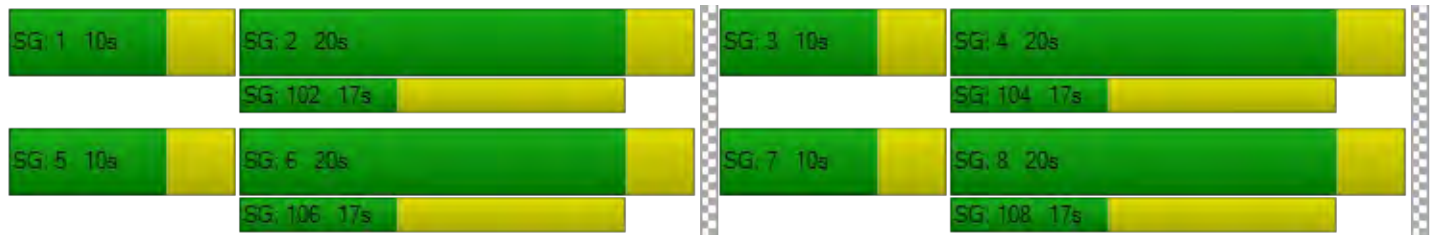
X, volume / capacity	0.54	0.45	0.25	0.35	0.32	0.12	0.64	0.80	0.25	0.49	0.54	0.18
d, Delay for Lane Group [s/veh]	28.74	11.42	10.14	29.73	11.71	10.48	29.68	27.63	21.39	28.61	24.32	21.81
Lane Group LOS	C	B	B	C	B	B	C	C	C	C	C	C
Critical Lane Group	No	Yes	No	Yes	No	No	No	Yes	No	Yes	No	No
50th-Percentile Queue Length [veh/ln]	1.21	2.66	1.22	0.48	1.78	0.57	1.63	3.65	0.80	1.01	2.05	0.55
50th-Percentile Queue Length [ft/ln]	30.35	66.47	30.55	11.90	44.46	14.25	40.80	91.20	19.94	25.33	51.24	13.65
95th-Percentile Queue Length [veh/ln]	2.19	4.79	2.20	0.86	3.20	1.03	2.94	6.57	1.44	1.82	3.69	0.98
95th-Percentile Queue Length [ft/ln]	54.63	119.64	54.99	21.42	80.03	25.65	73.45	164.16	35.89	45.59	92.24	24.56

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	28.74	11.42	10.14	29.73	11.71	10.48	29.68	27.63	21.39	28.61	24.32	21.81
Movement LOS	C	B	B	C	B	B	C	C	C	C	C	C
d_A, Approach Delay [s/veh]	12.67			12.52			27.18			24.99		
Approach LOS	B			B			C			C		
d_I, Intersection Delay [s/veh]	16.92											
Intersection LOS	B											
Intersection V/C	0.455											

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 4: Winchester Road (SR-79) (NS) at Domenigoni Parkway (EW)

Control Type:	Signalized	Delay (sec / veh):	131.9
Analysis Method:	HCM 2010	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	1.277

Intersection Setup

Name	Northbound			Southbound			Eastbound			Westbound		
Approach	[Diagram]			[Diagram]			[Diagram]			[Diagram]		
Lane Configuration	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Turning Movement												
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	1	1	0	1	2	0	1	2	0	1
Pocket Length [ft]	350.00	100.00	525.00	220.00	100.00	240.00	380.00	100.00	380.00	300.00	100.00	280.00
Speed [mph]	45.00			65.00			65.00			65.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Northbound			Southbound			Eastbound			Westbound		
Base Volume Input [veh/h]	82	619	1025	24	302	183	251	922	39	709	973	18
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	16	64	16	0	64	0	0	0	16	16	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	103	720	1103	25	384	194	266	977	57	768	1031	19
Peak Hour Factor	0.9600	0.9600	0.9600	0.9600	0.9600	0.9600	0.9600	0.9600	0.9600	0.9600	0.9600	0.9600
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	27	188	287	7	100	51	69	254	15	200	268	5
Total Analysis Volume [veh/h]	107	750	1149	26	400	202	277	1018	59	800	1074	20
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	4.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal group	5	2	0	1	6	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	7	7	0	7	7	0	7	7	0	7	7	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Split [s]	49	60	0	10	21	0	15	27	0	23	35	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	10	0	0	10	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	R	L	C	R
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
g_i, Effective Green Time [s]	9	60	60	4	55	55	11	24	24	20	33	33
g / C, Green / Cycle	0.07	0.50	0.50	0.03	0.46	0.46	0.09	0.20	0.20	0.17	0.27	0.27
(v / s)_i Volume / Saturation Flow Rate	0.06	0.21	0.71	0.01	0.11	0.13	0.08	0.28	0.04	0.23	0.21	0.01
s, saturation flow rate [veh/h]	1810	3618	1615	1810	3618	1615	3514	3618	1615	3514	5176	1615
c, Capacity [veh/h]	135	1810	808	62	1664	743	333	718	321	586	1400	437
d1, Uniform Delay [s]	54.60	18.90	29.98	56.79	19.68	20.01	53.37	48.09	40.00	50.00	40.30	32.33
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.14	0.11	0.11	0.11	0.11
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	9.85	0.70	197.07	4.45	0.34	0.90	5.36	190.04	0.27	166.63	0.91	0.04
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

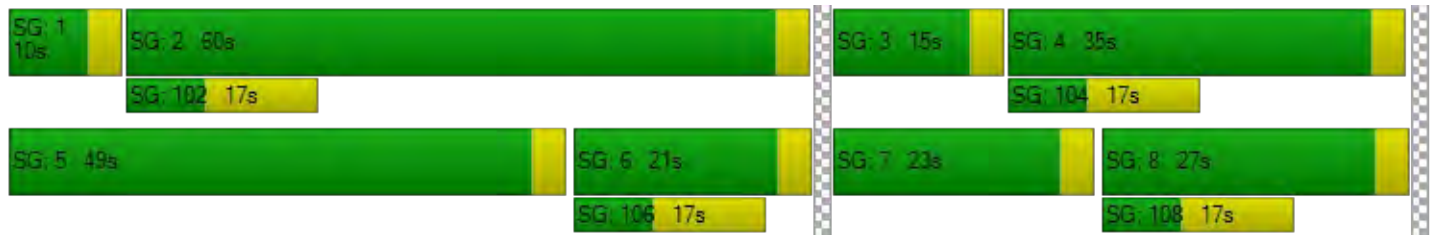
X, volume / capacity	0.79	0.41	1.42	0.42	0.24	0.27	0.83	1.42	0.18	1.36	0.77	0.05
d, Delay for Lane Group [s/veh]	64.45	19.60	227.06	61.24	20.03	20.91	58.73	238.14	40.28	216.64	41.20	32.38
Lane Group LOS	E	B	F	E	C	C	E	F	D	F	D	C
Critical Lane Group	No	No	Yes	Yes	No	No	No	Yes	No	Yes	No	No
50th-Percentile Queue Length [veh/ln]	3.47	6.37	65.43	0.81	3.12	3.31	4.11	28.92	1.38	21.76	9.07	0.41
50th-Percentile Queue Length [ft/ln]	86.82	159.37	1635.71	20.20	78.11	82.83	102.80	723.05	34.62	544.03	226.76	10.16
95th-Percentile Queue Length [veh/ln]	6.25	10.52	98.74	1.45	5.62	5.96	7.40	44.23	2.49	33.63	14.01	0.73
95th-Percentile Queue Length [ft/ln]	156.28	262.89	2468.40	36.36	140.60	149.09	185.04	1105.80	62.32	840.70	350.24	18.29

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	64.45	19.60	227.06	61.24	20.03	20.91	58.73	238.14	40.28	216.64	41.20	32.38
Movement LOS	E	B	F	E	C	C	E	F	D	F	D	C
d_A, Approach Delay [s/veh]	140.82			22.02			192.81			115.21		
Approach LOS	F			C			F			F		
d_I, Intersection Delay [s/veh]	131.86											
Intersection LOS	F											
Intersection V/C	1.277											

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report

Intersection 5: Winchester Road (SR-79) (NS) at Newport Road (EW)

Control Type:	Signalized	Delay (sec / veh):	6.9
Analysis Method:	HCM 2010	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.498

Intersection Setup

Name	Northbound			Southbound			Eastbound			Westbound		
Approach												
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	1	1	0	1	0	0	1	0	0	0
Pocket Length [ft]	225.00	100.00	550.00	550.00	100.00	550.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	65.00			65.00			55.00			45.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			Yes			Yes			Yes		

Volumes

Name	Northbound			Southbound			Eastbound			Westbound		
Base Volume Input [veh/h]	0	1787	1	2	1098	1	0	0	0	17	0	10
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	64	0	0	0	0	96	96	0	63	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	14	-14	0	0	-14	14	14	0	14	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	78	1880	1	2	1150	111	110	0	77	18	0	11
Peak Hour Factor	0.9700	0.9700	0.9700	0.9700	0.9700	0.9700	0.9700	0.9700	0.9700	0.9700	0.9700	0.9700
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	20	485	0	1	296	29	28	0	20	5	0	3
Total Analysis Volume [veh/h]	80	1938	1	2	1186	114	113	0	79	19	0	11
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	60
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	4.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal group	5	2	0	1	6	0	0	8	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	-	-	-	-	-	-
Minimum Green [s]	7	7	0	7	7	0	0	7	0	0	7	0
Maximum Green [s]	30	30	0	30	30	0	0	30	0	0	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
All red [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Split [s]	10	23	0	11	24	0	0	26	0	0	26	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	10	0	0	10	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	1.0	1.0	0.0	1.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0
Minimum Recall	No	No		No	No			No			No	
Maximum Recall	No	No		No	No			No			No	
Pedestrian Recall	No	No		No	No			No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	C	R	C
C, Cycle Length [s]	60	60	60	60	60	60	60	60	60
L, Total Lost Time per Cycle [s]	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	2.00	0.00	2.00
l2, Clearance Lost Time [s]	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
g_i, Effective Green Time [s]	5	44	44	0	39	39	7	7	7
g / C, Green / Cycle	0.09	0.72	0.72	0.00	0.64	0.64	0.12	0.12	0.12
(v / s)_i Volume / Saturation Flow Rate	0.04	0.37	0.00	0.00	0.33	0.07	0.09	0.05	0.08
s, saturation flow rate [veh/h]	1810	5176	1615	1810	3618	1615	1262	1615	376
c, Capacity [veh/h]	159	3752	1171	11	2325	1038	271	193	143
d1, Uniform Delay [s]	26.17	3.64	2.28	29.76	5.71	4.13	25.63	24.51	23.97
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	2.44	0.51	0.00	8.48	0.80	0.21	1.03	1.38	0.72
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

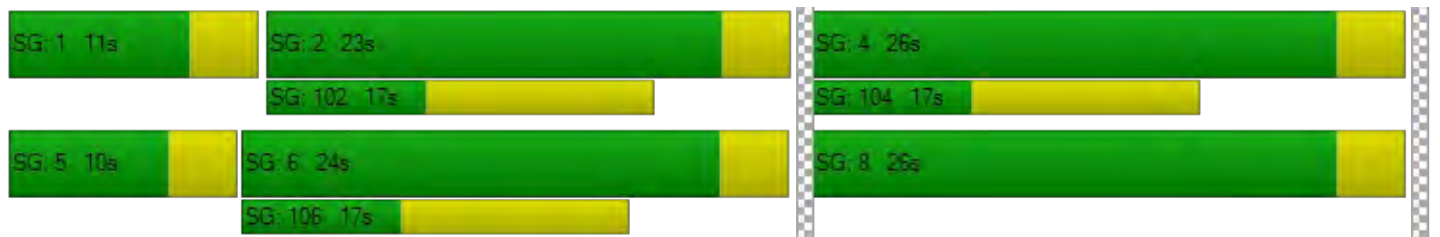
X, volume / capacity	0.50	0.52	0.00	0.19	0.51	0.11	0.42	0.41	0.21
d, Delay for Lane Group [s/veh]	28.61	4.15	2.28	38.24	6.52	4.35	26.65	25.89	24.70
Lane Group LOS	C	A	A	D	A	A	C	C	C
Critical Lane Group	No	Yes	No	Yes	No	No	Yes	No	No
50th-Percentile Queue Length [veh/ln]	1.01	0.31	0.00	0.05	1.58	0.25	1.40	0.96	0.37
50th-Percentile Queue Length [ft/ln]	25.21	7.66	0.01	1.23	39.48	6.13	35.00	23.96	9.19
95th-Percentile Queue Length [veh/ln]	1.82	0.55	0.00	0.09	2.84	0.44	2.52	1.73	0.66
95th-Percentile Queue Length [ft/ln]	45.38	13.79	0.02	2.21	71.07	11.03	62.99	43.13	16.53

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	28.61	4.15	2.28	38.24	6.52	4.35	26.65	26.65	25.89	24.70	24.70	24.70
Movement LOS	C	A	A	D	A	A	C	C	C	C	C	C
d_A, Approach Delay [s/veh]	5.12			6.37			26.34			24.70		
Approach LOS	A			A			C			C		
d_I, Intersection Delay [s/veh]	6.90											
Intersection LOS	A											
Intersection V/C	0.498											

Sequence

Ring 1	1	2	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 6: Winchester Road (SR-79) (NS) at Scott Road/Washington Street (EW)

Control Type:	Signalized	Delay (sec / veh):	26.6
Analysis Method:	HCM 2010	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.771

Intersection Setup

Name	Northbound			Southbound			Eastbound			Westbound		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration	[Diagram]			[Diagram]			[Diagram]			[Diagram]		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	65.00			65.00			45.00			55.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			No			Yes			Yes		

Volumes

Name	Northbound			Southbound			Eastbound			Westbound		
Base Volume Input [veh/h]	74	1252	2	105	786	137	284	67	58	1	120	313
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	48	0	8	47	8	8	0	0	0	0	8
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	78	1375	2	119	880	153	309	71	61	1	127	340
Peak Hour Factor	0.9900	0.9900	0.9900	0.9900	0.9900	0.9900	0.9900	0.9900	0.9900	0.9900	0.9900	0.9900
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	20	347	1	30	222	39	78	18	15	0	32	86
Total Analysis Volume [veh/h]	79	1389	2	120	889	155	312	72	62	1	128	343
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	60
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	4.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal group	5	2	0	1	6	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	7	7	0	7	7	0	7	7	0	7	7	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Split [s]	10	20	0	10	20	0	14	20	0	10	16	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	10	0	0	10	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	R	L	C	R
C, Cycle Length [s]	60	60	60	60	60	60	60	60	60	60	60	60
L, Total Lost Time per Cycle [s]	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
g_i, Effective Green Time [s]	5	18	18	6	19	19	11	24	24	0	13	13
g / C, Green / Cycle	0.09	0.30	0.30	0.10	0.32	0.32	0.18	0.40	0.40	0.00	0.22	0.22
(v / s)_i Volume / Saturation Flow Rate	0.04	0.27	0.00	0.07	0.17	0.10	0.17	0.04	0.04	0.00	0.07	0.21
s, saturation flow rate [veh/h]	1810	5176	1615	1810	5176	1615	1810	1900	1615	1810	1900	1615
c, Capacity [veh/h]	156	1561	487	184	1641	512	332	750	637	4	406	345
d1, Uniform Delay [s]	26.23	20.02	14.66	25.97	16.92	15.50	24.20	11.44	11.45	29.91	19.91	23.58
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.11
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	2.54	8.00	0.02	3.90	1.29	1.52	12.54	0.06	0.07	24.29	0.44	21.14
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.51	0.89	0.00	0.65	0.54	0.30	0.94	0.10	0.10	0.23	0.32	0.99
d, Delay for Lane Group [s/veh]	28.77	28.02	14.68	29.87	18.20	17.02	36.74	11.49	11.51	54.19	20.35	44.72
Lane Group LOS	C	C	B	C	B	B	D	B	B	D	C	D
Critical Lane Group	No	Yes	No	Yes	No	No	Yes	No	No	No	No	Yes
50th-Percentile Queue Length [veh/ln]	1.00	5.70	0.02	1.55	2.68	1.40	4.95	0.50	0.43	0.04	1.29	5.98
50th-Percentile Queue Length [ft/ln]	24.99	142.62	0.41	38.75	66.88	35.11	123.65	12.46	10.77	1.06	32.36	149.40
95th-Percentile Queue Length [veh/ln]	1.80	9.62	0.03	2.79	4.82	2.53	8.59	0.90	0.78	0.08	2.33	9.99
95th-Percentile Queue Length [ft/ln]	44.97	240.55	0.74	69.74	120.39	63.19	214.83	22.42	19.39	1.90	58.25	249.63

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	28.77	28.02	14.68	29.87	18.20	17.02	36.74	11.49	11.51	54.19	20.35	44.72
Movement LOS	C	C	B	C	B	B	D	B	B	D	C	D
d_A, Approach Delay [s/veh]	28.04			19.25			29.15			38.13		
Approach LOS	C			B			C			D		
d_I, Intersection Delay [s/veh]	26.64											
Intersection LOS	C											
Intersection V/C	0.771											

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 7: Winchester Road (SR-79) (NS) at Whisper Heights/Pourroy Road (EW)

Control Type:	Signalized	Delay (sec / veh):	20.0
Analysis Method:	HCM 2010	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.708

Intersection Setup

Name	Northbound			Southbound			Eastbound			Westbound		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration	TTL			TTL			TTL			TTL		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	1	2	0	0	1	0	1	1	0	0
Pocket Length [ft]	250.00	100.00	330.00	340.00	100.00	100.00	150.00	100.00	150.00	170.00	100.00	100.00
Speed [mph]	55.00			55.00			45.00			45.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			Yes			Yes			Yes		

Volumes

Name	Northbound			Southbound			Eastbound			Westbound		
Base Volume Input [veh/h]	16	1420	156	134	831	23	18	62	36	129	36	198
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	24	0	24	23	0	0	0	0	0	0	24
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	17	1529	165	166	904	24	19	66	38	137	38	234
Peak Hour Factor	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	5	411	44	45	243	6	5	18	10	37	10	63
Total Analysis Volume [veh/h]	18	1644	177	178	972	26	20	71	41	147	41	252
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	80
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	4.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal group	5	2	0	1	6	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	7	7	0	7	7	0	7	7	0	7	7	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Split [s]	10	34	0	10	34	0	15	10	0	26	21	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	10	0	0	10	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	R	L	C	R
C, Cycle Length [s]	80	80	80	80	80	80	80	80	80	80	80	80
L, Total Lost Time per Cycle [s]	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
g_i, Effective Green Time [s]	2	44	44	7	48	48	3	9	9	8	15	15
g / C, Green / Cycle	0.03	0.55	0.55	0.09	0.60	0.60	0.03	0.11	0.11	0.10	0.18	0.18
(v / s)_i Volume / Saturation Flow Rate	0.01	0.45	0.11	0.05	0.27	0.02	0.01	0.04	0.03	0.08	0.02	0.16
s, saturation flow rate [veh/h]	1810	3618	1615	3514	3618	1615	1810	1900	1615	1810	1900	1615
c, Capacity [veh/h]	55	1974	881	305	2178	972	60	215	182	190	351	298
d1, Uniform Delay [s]	38.07	15.17	9.29	35.22	8.68	6.45	37.91	32.78	32.38	34.98	27.25	31.59
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.11
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	3.36	4.29	0.51	1.77	0.66	0.05	3.22	0.89	0.62	6.63	0.15	6.50
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

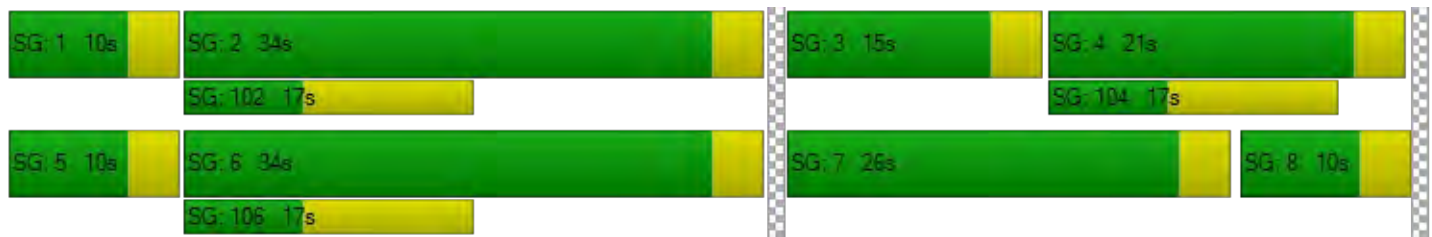
X, volume / capacity	0.33	0.83	0.20	0.58	0.45	0.03	0.33	0.33	0.22	0.78	0.12	0.84
d, Delay for Lane Group [s/veh]	41.43	19.46	9.80	36.99	9.35	6.50	41.13	33.67	32.99	41.61	27.39	38.09
Lane Group LOS	D	B	A	D	A	A	D	C	C	D	C	D
Critical Lane Group	No	Yes	No	Yes	No	No	Yes	No	No	No	No	Yes
50th-Percentile Queue Length [veh/ln]	0.37	10.29	1.33	1.60	3.38	0.14	0.42	1.25	0.71	2.97	0.63	4.89
50th-Percentile Queue Length [ft/ln]	9.28	257.25	33.19	40.10	84.58	3.51	10.42	31.18	17.80	74.22	15.64	122.37
95th-Percentile Queue Length [veh/ln]	0.67	15.55	2.39	2.89	6.09	0.25	0.75	2.24	1.28	5.34	1.13	8.52
95th-Percentile Queue Length [ft/ln]	16.70	388.77	59.75	72.17	152.25	6.31	18.76	56.12	32.05	133.59	28.15	213.07

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	41.43	19.46	9.80	36.99	9.35	6.50	41.13	33.67	32.99	41.61	27.39	38.09
Movement LOS	D	B	A	D	A	A	D	C	C	D	C	D
d_A, Approach Delay [s/veh]	18.74			13.47			34.59			38.27		
Approach LOS	B			B			C			D		
d_I, Intersection Delay [s/veh]	19.99											
Intersection LOS	B											
Intersection V/C	0.708											

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



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Scenario 3 Existing Plus Ambient Growth Plus Project

Report File: C:\...\IPM OYp.pdf

1/21/2021

Turning Movement Volume: Detail

ID	Intersection Name	Volume Type	Northbound		Eastbound		Westbound		Total Volume
			Left	Right	Thru	Right	Left	Thru	
1	Project Access (NS) at Newport Road (EW)	Final Base	0	0	0	0	0	0	0
		Growth Factor	1.06	1.06	1.06	1.06	1.06	1.06	-
		In Process	0	0	0	0	0	0	0
		Net New Trips	0	186	0	0	187	0	373
		Other	0	0	0	0	0	0	0
		Future Total	0	186	0	0	187	0	373

ID	Intersection Name	Volume Type	Northbound			Southbound			Eastbound			Westbound			Total Volume
			Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
2	Winchester Road (SR-79) (NS) at Route 74 (EW)	Final Base	132	14	523	24	18	7	19	826	75	360	665	35	2698
		Growth Factor	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	-
		In Process	0	0	0	0	0	0	0	0	0	0	0	0	0
		Net New Trips	24	0	16	0	0	0	0	0	24	16	0	0	80
		Other	0	0	0	0	0	0	0	0	0	0	0	0	0
		Future Total	164	15	570	25	19	7	20	876	104	398	705	37	2940

ID	Intersection Name	Volume Type	Northbound			Southbound			Eastbound			Westbound			Total Volume
			Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
3	Winchester Road (SR-79) (NS) at Simpson Road (EW)	Final Base	66	656	161	30	414	75	107	249	51	59	154	44	2066
		Growth Factor	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	-
		In Process	0	0	0	0	0	0	0	0	0	0	0	0	0
		Net New Trips	16	40	8	0	40	0	0	0	16	8	0	0	128
		Other	0	0	0	0	0	0	0	0	0	0	0	0	0
		Future Total	86	735	179	32	479	80	113	264	70	71	163	47	2319

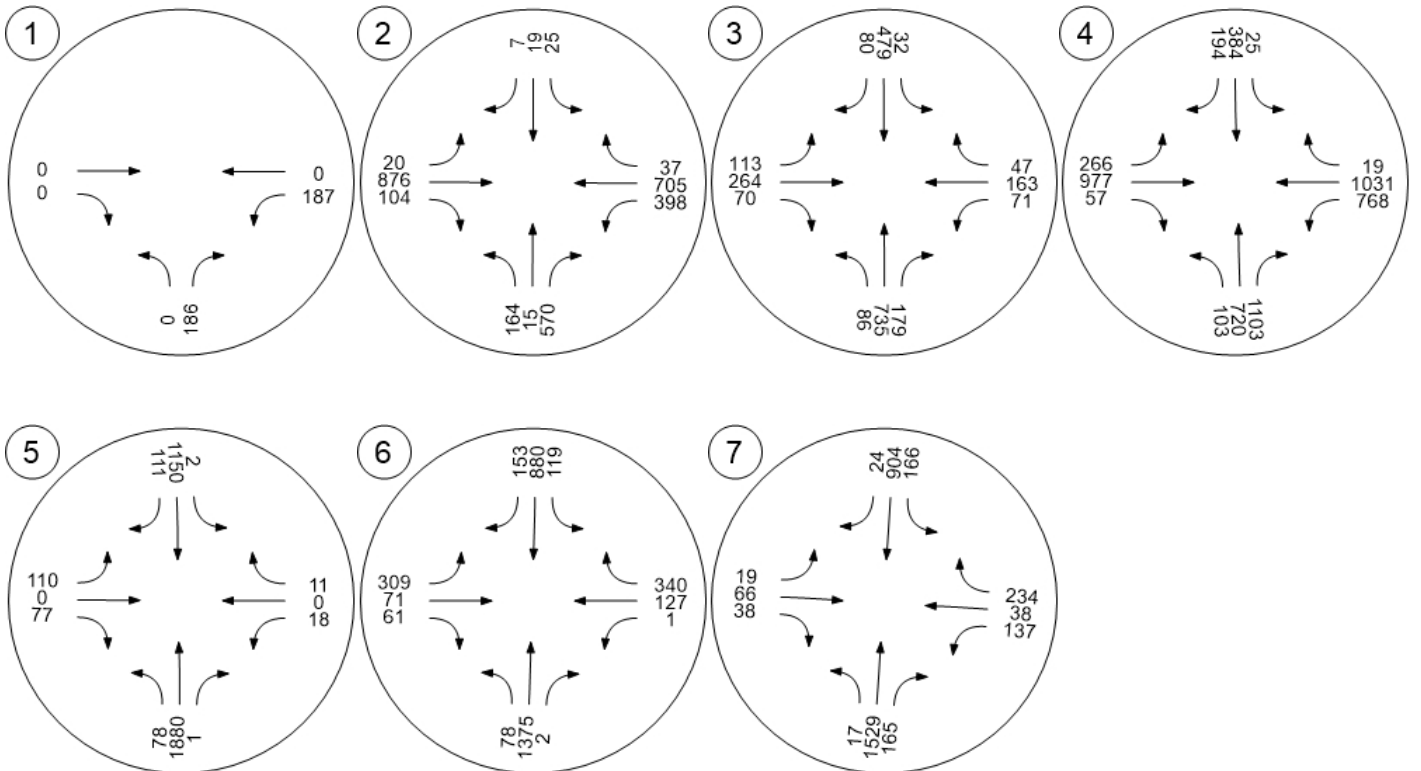
ID	Intersection Name	Volume Type	Northbound			Southbound			Eastbound			Westbound			Total Volume
			Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
4	Winchester Road (SR-79) (NS) at Domenigoni Parkway (EW)	Final Base	82	619	1025	24	302	183	251	922	39	709	973	18	5147
		Growth Factor	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	-
		In Process	0	0	0	0	0	0	0	0	0	0	0	0	0
		Net New Trips	16	64	16	0	64	0	0	0	16	16	0	0	192
		Other	0	0	0	0	0	0	0	0	0	0	0	0	0
		Future Total	103	720	1103	25	384	194	266	977	57	768	1031	19	5647

ID	Intersection Name	Volume Type	Northbound			Southbound			Eastbound			Westbound			Total Volume
			Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
5	Winchester Road (SR-79) (NS) at Newport Road (EW)	Final Base	0	1787	1	2	1098	1	0	0	0	17	0	10	2916
		Growth Factor	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	-
		In Process	0	0	0	0	0	0	0	0	0	0	0	0	0
		Net New Trips	78	-14	0	0	-14	110	110	0	77	0	0	0	347
		Other	0	0	0	0	0	0	0	0	0	0	0	0	0
		Future Total	78	1880	1	2	1150	111	110	0	77	18	0	11	3438

ID	Intersection Name	Volume Type	Northbound			Southbound			Eastbound			Westbound			Total Volume
			Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
6	Winchester Road (SR-79) (NS) at Scott Road/Washington Street (EW)	Final Base	74	1252	2	105	786	137	284	67	58	1	120	313	3199
		Growth Factor	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	-
		In Process	0	0	0	0	0	0	0	0	0	0	0	0	0
		Net New Trips	0	48	0	8	47	8	8	0	0	0	0	8	127
		Other	0	0	0	0	0	0	0	0	0	0	0	0	0
		Future Total	78	1375	2	119	880	153	309	71	61	1	127	340	3516

ID	Intersection Name	Volume Type	Northbound			Southbound			Eastbound			Westbound			Total Volume
			Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
7	Winchester Road (SR-79) (NS) at Whisper Heights/Pourroy Road (EW)	Final Base	16	1420	156	134	831	23	18	62	36	129	36	198	3059
		Growth Factor	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	-
		In Process	0	0	0	0	0	0	0	0	0	0	0	0	0
		Net New Trips	0	24	0	24	23	0	0	0	0	0	0	24	95
		Other	0	0	0	0	0	0	0	0	0	0	0	0	0
		Future Total	17	1529	165	166	904	24	19	66	38	137	38	234	3337

Traffic Volume - Future Total Volume



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Scenario 6 Existing Plus Ambient Growth Plus Project -
Improvements

Report File: C:\...\IAM OYp_Improvements.pdf

1/21/2021

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
1	Project Access (NS) at Newport Road (EW)	Two-way stop	HCM 2010	NB Right	0.160	8.9	A
2	Winchester Road (SR-79) (NS) at Route 74 (EW)	Signalized	HCM 2010	NB Right	0.890	33.1	C
3	Winchester Road (SR-79) (NS) at Simpson Road (EW)	Signalized	HCM 2010	WB Left	0.460	17.6	B
4	Winchester Road (SR-79) (NS) at Domenigoni Parkway (EW)	Signalized	HCM 2010	NB Left	0.854	37.4	D
5	Winchester Road (SR-79) (NS) at Newport Road (EW)	Signalized	HCM 2010	SB Left	0.715	9.8	A
6	Winchester Road (SR-79) (NS) at Scott Road/Washington Street (EW)	Signalized	HCM 2010	WB Left	0.646	21.8	C
7	Winchester Road (SR-79) (NS) at Whisper Heights/Pourroy Road (EW)	Signalized	HCM 2010	NB Left	0.643	16.9	B

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. For all other control types, they are taken for the whole intersection.

Intersection Level Of Service Report
Intersection 1: Project Access (NS) at Newport Road (EW)

Control Type:	Two-way stop	Delay (sec / veh):	8.9
Analysis Method:	HCM 2010	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.160

Intersection Setup

Name	Northbound		Eastbound		Westbound	
Approach						
Lane Configuration	↵↵		↑		↵	
Turning Movement	Left	Right	Thru	Right	Left	Thru
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	45.00		45.00		45.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		No	

Volumes

Name	Northbound		Eastbound		Westbound	
Base Volume Input [veh/h]	0	0	0	0	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.06	1.06	1.06	1.06	1.06	1.06
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	142	0	0	147	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	24	0	0	24	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	166	0	0	171	0
Peak Hour Factor	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	44	0	0	45	0
Total Analysis Volume [veh/h]	0	175	0	0	180	0
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Stop	Free	Free
Flared Lane			
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance	No		
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.16	0.00	0.00	0.11	0.00
d_M, Delay for Movement [s/veh]	11.29	8.93	0.00	0.00	7.47	0.00
Movement LOS	B	A	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.00	0.57	0.00	0.00	0.35	0.35
95th-Percentile Queue Length [ft/ln]	0.00	14.26	0.00	0.00	8.74	8.74
d_A, Approach Delay [s/veh]	8.93		0.00		7.47	
Approach LOS	A		A		A	
d_I, Intersection Delay [s/veh]	8.19					
Intersection LOS	A					

Intersection Level Of Service Report

Intersection 2: Winchester Road (SR-79) (NS) at Route 74 (EW)

Control Type:	Signalized	Delay (sec / veh):	33.1
Analysis Method:	HCM 2010	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.890

Intersection Setup

Name	Northbound			Southbound			Eastbound			Westbound		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration	↵			↵			↵↵↵			↵↵		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	0	1	0	0	1	0	1	1	0	0
Pocket Length [ft]	180.00	100.00	100.00	50.00	100.00	100.00	150.00	100.00	300.00	100.00	100.00	100.00
Speed [mph]	45.00			45.00			50.00			50.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			No			Yes			No		

Volumes

Name	Northbound			Southbound			Eastbound			Westbound		
Base Volume Input [veh/h]	78	15	417	20	27	4	8	720	103	491	544	31
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	22	0	14	0	0	0	0	0	22	15	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	105	16	456	21	29	4	8	763	131	535	577	33
Peak Hour Factor	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	28	4	120	6	8	1	2	201	34	141	152	9
Total Analysis Volume [veh/h]	111	17	480	22	31	4	8	803	138	563	607	35
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	70
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	4.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal group	0	2	0	0	6	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	0	7	0	0	7	0	7	7	0	7	7	0
Maximum Green [s]	0	30	0	0	30	0	30	30	0	30	30	0
Amber [s]	0.0	3.0	0.0	0.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Split [s]	0	25	0	0	25	0	29	20	0	25	16	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	10	0	0	10	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	1.0	0.0	0.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Minimum Recall		No			No		No	No		No	No	
Maximum Recall		No			No		No	No		No	No	
Pedestrian Recall		No			No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	L	C	L	C	R	L	C	C
C, Cycle Length [s]	70	70	70	70	70	70	70	70	70	70
L, Total Lost Time per Cycle [s]	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00
l1_p, Permitted Start-Up Lost Time [s]	2.00	0.00	2.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
g_i, Effective Green Time [s]	22	22	22	22	1	17	17	22	38	38
g / C, Green / Cycle	0.32	0.32	0.32	0.32	0.01	0.24	0.24	0.31	0.54	0.54
(v / s)_i Volume / Saturation Flow Rate	0.08	0.31	0.02	0.02	0.00	0.22	0.09	0.31	0.17	0.17
s, saturation flow rate [veh/h]	1395	1623	915	1862	1810	3618	1615	1810	1900	1864
c, Capacity [veh/h]	491	513	104	589	28	872	389	569	1026	1006
d1, Uniform Delay [s]	19.81	23.60	35.03	16.69	34.12	25.94	22.06	23.91	8.94	8.94
k, delay calibration	0.50	0.50	0.50	0.50	0.11	0.11	0.11	0.27	0.11	0.11
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	1.07	32.55	4.60	0.19	5.62	4.60	0.55	25.31	0.17	0.18
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.23	0.97	0.21	0.06	0.29	0.92	0.35	0.99	0.32	0.32
d, Delay for Lane Group [s/veh]	20.88	56.15	39.62	16.88	39.74	30.54	22.61	49.22	9.11	9.12
Lane Group LOS	C	E	D	B	D	C	C	D	A	A
Critical Lane Group	No	Yes	No	No	No	Yes	No	Yes	No	No
50th-Percentile Queue Length [veh/ln]	1.41	11.63	0.48	0.38	0.17	6.21	1.71	11.80	2.05	2.02
50th-Percentile Queue Length [ft/ln]	35.26	290.69	12.05	9.49	4.17	155.27	42.81	295.00	51.34	50.45
95th-Percentile Queue Length [veh/ln]	2.54	17.22	0.87	0.68	0.30	10.30	3.08	17.43	3.70	3.63
95th-Percentile Queue Length [ft/ln]	63.46	430.50	21.70	17.07	7.50	257.45	77.06	435.84	92.40	90.81

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	20.88	56.15	56.15	39.62	16.88	16.88	39.74	30.54	22.61	49.22	9.11	9.12
Movement LOS	C	E	E	D	B	B	D	C	C	D	A	A
d_A, Approach Delay [s/veh]	49.71			25.66			29.46			27.85		
Approach LOS	D			C			C			C		
d_I, Intersection Delay [s/veh]	33.07											
Intersection LOS	C											
Intersection V/C	0.890											

Sequence

Ring 1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report

Intersection 3: Winchester Road (SR-79) (NS) at Simpson Road (EW)

Control Type:	Signalized	Delay (sec / veh):	17.6
Analysis Method:	HCM 2010	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.460

Intersection Setup

Name	Northbound			Southbound			Eastbound			Westbound		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration	[Diagram]			[Diagram]			[Diagram]			[Diagram]		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	0	1	0	0	1	0	1	1	0	1
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	150.00	100.00	150.00	100.00	100.00	100.00
Speed [mph]	50.00			50.00			50.00			50.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Northbound			Southbound			Eastbound			Westbound		
Base Volume Input [veh/h]	39	422	45	10	629	139	154	178	107	158	132	19
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	14	36	7	0	37	0	0	0	15	7	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	55	483	55	11	704	147	163	189	128	174	140	20
Peak Hour Factor	0.9800	0.9800	0.9800	0.9800	0.9800	0.9800	0.9800	0.9800	0.9800	0.9800	0.9800	0.9800
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	14	123	14	3	180	38	42	48	33	44	36	5
Total Analysis Volume [veh/h]	56	493	56	11	718	150	166	193	131	178	143	20
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	60
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	4.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal group	5	2	0	1	6	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	7	7	0	7	7	0	7	7	0	7	7	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Split [s]	10	20	0	10	20	0	10	20	0	10	20	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	10	0	0	10	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	R	L	C	R
C, Cycle Length [s]	60	60	60	60	60	60	60	60	60	60	60	60
L, Total Lost Time per Cycle [s]	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
g_i, Effective Green Time [s]	4	31	31	1	28	28	7	8	8	7	8	8
g / C, Green / Cycle	0.07	0.52	0.52	0.02	0.47	0.47	0.12	0.14	0.14	0.12	0.14	0.14
(v / s)_i Volume / Saturation Flow Rate	0.03	0.14	0.03	0.01	0.20	0.09	0.09	0.10	0.08	0.10	0.08	0.01
s, saturation flow rate [veh/h]	1810	3618	1615	1810	3618	1615	1810	1900	1615	1810	1900	1615
c, Capacity [veh/h]	133	1884	841	40	1698	758	212	267	227	213	268	228
d1, Uniform Delay [s]	26.70	8.01	7.17	29.01	10.59	9.36	25.87	24.78	24.23	26.03	24.05	22.51
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.11
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	2.12	0.34	0.15	3.73	0.77	0.58	6.25	3.69	2.31	8.39	1.65	0.16
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

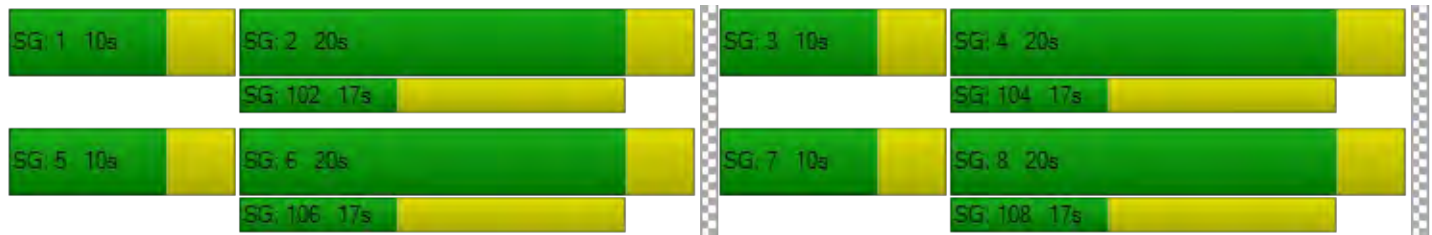
X, volume / capacity	0.42	0.26	0.07	0.28	0.42	0.20	0.78	0.72	0.58	0.84	0.53	0.09
d, Delay for Lane Group [s/veh]	28.82	8.35	7.32	32.74	11.36	9.94	32.12	28.47	26.54	34.41	25.69	22.68
Lane Group LOS	C	A	A	C	B	A	C	C	C	C	C	C
Critical Lane Group	Yes	No	No	No	Yes	No	No	Yes	No	Yes	No	No
50th-Percentile Queue Length [veh/ln]	0.75	1.28	0.28	0.18	2.44	0.96	2.37	2.55	1.65	2.66	1.76	0.22
50th-Percentile Queue Length [ft/ln]	18.86	32.03	6.95	4.50	60.99	23.91	59.33	63.65	41.34	66.47	43.90	5.61
95th-Percentile Queue Length [veh/ln]	1.36	2.31	0.50	0.32	4.39	1.72	4.27	4.58	2.98	4.79	3.16	0.40
95th-Percentile Queue Length [ft/ln]	33.96	57.65	12.51	8.11	109.77	43.03	106.79	114.57	74.42	119.64	79.01	10.09

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	28.82	8.35	7.32	32.74	11.36	9.94	32.12	28.47	26.54	34.41	25.69	22.68
Movement LOS	C	A	A	C	B	A	C	C	C	C	C	C
d_A, Approach Delay [s/veh]	10.15			11.39			29.19			30.07		
Approach LOS	B			B			C			C		
d_I, Intersection Delay [s/veh]	17.58											
Intersection LOS	B											
Intersection V/C	0.460											

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 4: Winchester Road (SR-79) (NS) at Domenigoni Parkway (EW)

Control Type:	Signalized	Delay (sec / veh):	37.4
Analysis Method:	HCM 2010	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.854

Intersection Setup

Name	Northbound			Southbound			Eastbound			Westbound		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration	[Diagram]			[Diagram]			[Diagram]			[Diagram]		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	2	1	0	1	2	0	1	2	0	1
Pocket Length [ft]	350.00	100.00	525.00	220.00	100.00	240.00	380.00	100.00	380.00	300.00	100.00	280.00
Speed [mph]	45.00			55.00			55.00			55.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Northbound			Southbound			Eastbound			Westbound		
Base Volume Input [veh/h]	77	323	717	21	764	257	191	930	173	951	875	38
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	14	57	14	0	59	0	0	0	15	15	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	96	399	774	22	869	272	202	986	198	1023	928	40
Peak Hour Factor	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	25	105	204	6	229	72	53	259	52	269	244	11
Total Analysis Volume [veh/h]	101	420	815	23	915	286	213	1038	208	1077	977	42
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	90
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	4.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal group	5	2	0	1	6	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	7	7	0	7	7	0	7	7	0	7	7	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Split [s]	17	23	0	14	20	0	11	22	0	31	42	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	10	0	0	10	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	R	L	C	R
C, Cycle Length [s]	90	90	90	90	90	90	90	90	90	90	90	90
L, Total Lost Time per Cycle [s]	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
g_i, Effective Green Time [s]	7	28	28	3	25	25	7	19	19	28	40	40
g / C, Green / Cycle	0.07	0.31	0.31	0.03	0.27	0.27	0.08	0.21	0.21	0.31	0.44	0.44
(v / s)_i Volume / Saturation Flow Rate	0.06	0.12	0.29	0.01	0.25	0.18	0.06	0.20	0.13	0.31	0.19	0.03
s, saturation flow rate [veh/h]	1810	3618	2859	1810	3618	1615	3514	5176	1615	3514	5176	1615
c, Capacity [veh/h]	132	1123	887	64	986	440	291	1090	340	1092	2269	708
d1, Uniform Delay [s]	41.02	24.26	29.99	42.48	31.93	28.98	40.38	35.15	32.25	30.89	17.52	14.59
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.11
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	8.75	0.96	15.96	3.35	15.77	7.24	3.57	5.68	1.78	9.92	0.13	0.03
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

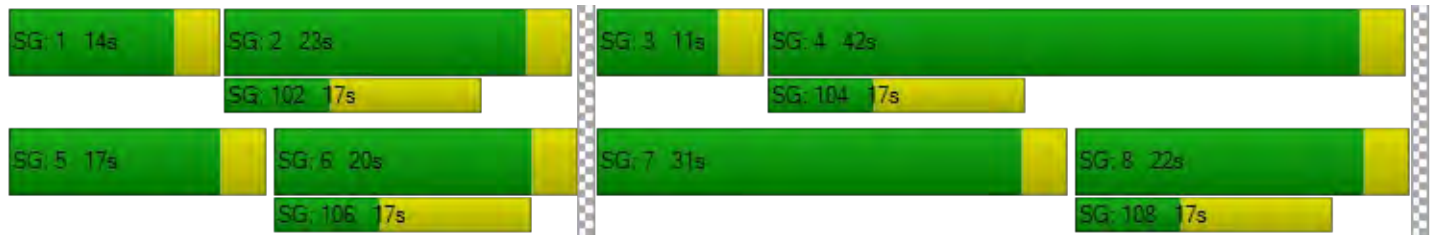
X, volume / capacity	0.76	0.37	0.92	0.36	0.93	0.65	0.73	0.95	0.61	0.99	0.43	0.06
d, Delay for Lane Group [s/veh]	49.77	25.21	45.96	45.84	47.70	36.23	43.96	40.83	34.04	40.82	17.65	14.63
Lane Group LOS	D	C	D	D	D	D	D	D	C	D	B	B
Critical Lane Group	Yes	No	No	No	Yes	No	No	Yes	No	Yes	No	No
50th-Percentile Queue Length [veh/ln]	2.42	3.40	9.77	0.53	10.84	5.81	2.29	7.38	3.92	11.77	4.04	0.44
50th-Percentile Queue Length [ft/ln]	60.58	85.04	244.27	13.22	271.11	145.35	57.30	184.50	98.09	294.30	101.08	10.95
95th-Percentile Queue Length [veh/ln]	4.36	6.12	14.90	0.95	16.24	9.77	4.13	11.84	7.06	17.40	7.28	0.79
95th-Percentile Queue Length [ft/ln]	109.04	153.07	372.43	23.79	406.12	244.21	103.15	295.88	176.56	434.97	181.95	19.72

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	49.77	25.21	45.96	45.84	47.70	36.23	43.96	40.83	34.04	40.82	17.65	14.63
Movement LOS	D	C	D	D	D	D	D	D	C	D	B	B
d_A, Approach Delay [s/veh]	39.73			44.98			40.32			29.49		
Approach LOS	D			D			D			C		
d_I, Intersection Delay [s/veh]	37.41											
Intersection LOS	D											
Intersection V/C	0.854											

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report

Intersection 5: Winchester Road (SR-79) (NS) at Newport Road (EW)

Control Type:	Signalized	Delay (sec / veh):	9.8
Analysis Method:	HCM 2010	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.715

Intersection Setup

Name	Northbound			Southbound			Eastbound			Westbound		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	1	1	0	1	0	0	1	0	0	0
Pocket Length [ft]	225.00	100.00	550.00	550.00	100.00	550.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	65.00			65.00			55.00			45.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			Yes			Yes			Yes		

Volumes

Name	Northbound			Southbound			Eastbound			Westbound		
Base Volume Input [veh/h]	0	1066	10	9	1843	2	3	0	1	3	0	3
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	58	0	0	0	0	89	85	0	57	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	12	-12	0	0	-12	12	12	0	12	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	70	1118	11	10	1942	103	100	0	70	3	0	3
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	18	280	3	3	486	26	25	0	18	1	0	1
Total Analysis Volume [veh/h]	70	1118	11	10	1942	103	100	0	70	3	0	3
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	70
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	4.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal group	5	2	0	1	6	0	0	8	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	-	-	-	-	-	-
Minimum Green [s]	7	7	0	7	7	0	0	7	0	0	7	0
Maximum Green [s]	30	30	0	30	30	0	0	30	0	0	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
All red [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Split [s]	10	39	0	11	40	0	0	20	0	0	20	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	10	0	0	10	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	1.0	1.0	0.0	1.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0
Minimum Recall	No	No		No	No			No			No	
Maximum Recall	No	No		No	No			No			No	
Pedestrian Recall	No	No		No	No			No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	C	R	C
C, Cycle Length [s]	70	70	70	70	70	70	70	70	70
L, Total Lost Time per Cycle [s]	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	2.00	0.00	2.00
l2, Clearance Lost Time [s]	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
g_i, Effective Green Time [s]	5	51	51	1	47	47	9	9	9
g / C, Green / Cycle	0.07	0.73	0.73	0.02	0.67	0.67	0.12	0.12	0.12
(v / s)_i Volume / Saturation Flow Rate	0.04	0.22	0.01	0.01	0.54	0.06	0.10	0.04	0.01
s, saturation flow rate [veh/h]	1810	5176	1615	1810	3618	1615	1013	1615	410
c, Capacity [veh/h]	136	3779	1179	34	2437	1088	227	198	127
d1, Uniform Delay [s]	31.16	3.25	2.57	33.93	8.06	3.99	29.94	28.18	27.36
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	2.99	0.20	0.01	4.84	2.81	0.17	1.34	1.07	0.15
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.51	0.30	0.01	0.30	0.80	0.09	0.44	0.35	0.05
d, Delay for Lane Group [s/veh]	34.15	3.45	2.58	38.76	10.87	4.16	31.28	29.24	27.51
Lane Group LOS	C	A	A	D	B	A	C	C	C
Critical Lane Group	Yes	No	No	No	Yes	No	Yes	No	No
50th-Percentile Queue Length [veh/ln]	1.10	0.44	0.01	0.19	4.91	0.26	1.53	1.01	0.09
50th-Percentile Queue Length [ft/ln]	27.43	11.09	0.34	4.80	122.80	6.50	38.26	25.29	2.16
95th-Percentile Queue Length [veh/ln]	1.98	0.80	0.02	0.35	8.55	0.47	2.76	1.82	0.16
95th-Percentile Queue Length [ft/ln]	49.38	19.97	0.60	8.65	213.67	11.70	68.88	45.51	3.89

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	34.15	3.45	2.58	38.76	10.87	4.16	31.28	31.28	29.24	27.51	27.51	27.51
Movement LOS	C	A	A	D	B	A	C	C	C	C	C	C
d_A, Approach Delay [s/veh]	5.24			10.67			30.44			27.51		
Approach LOS	A			B			C			C		
d_I, Intersection Delay [s/veh]	9.78											
Intersection LOS	A											
Intersection V/C	0.715											

Sequence

Ring 1	1	2	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 6: Winchester Road (SR-79) (NS) at Scott Road/Washington Street (EW)

Control Type:	Signalized	Delay (sec / veh):	21.8
Analysis Method:	HCM 2010	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.646

Intersection Setup

Name	Northbound			Southbound			Eastbound			Westbound		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration	[Diagram]			[Diagram]			[Diagram]			[Diagram]		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	65.00			65.00			45.00			55.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			No			Yes			Yes		

Volumes

Name	Northbound			Southbound			Eastbound			Westbound		
Base Volume Input [veh/h]	74	794	4	238	1333	243	181	109	101	2	74	176
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	44	0	7	43	7	7	0	0	0	0	7
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	78	886	4	259	1456	265	199	116	107	2	78	194
Peak Hour Factor	0.9100	0.9100	0.9100	0.9100	0.9100	0.9100	0.9100	0.9100	0.9100	0.9100	0.9100	0.9100
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	21	243	1	71	400	73	55	32	29	1	21	53
Total Analysis Volume [veh/h]	86	974	4	285	1600	291	219	127	118	2	86	213
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	70
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	4.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal group	5	2	0	1	6	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	7	7	0	7	7	0	7	7	0	7	7	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Split [s]	10	21	0	18	29	0	13	20	0	11	18	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	10	0	0	10	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	R	L	C	R
C, Cycle Length [s]	70	70	70	70	70	70	70	70	70	70	70	70
L, Total Lost Time per Cycle [s]	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
g_i, Effective Green Time [s]	6	24	24	13	31	31	10	21	21	0	11	11
g / C, Green / Cycle	0.08	0.34	0.34	0.18	0.44	0.44	0.14	0.30	0.30	0.00	0.16	0.16
(v / s)_i Volume / Saturation Flow Rate	0.05	0.19	0.00	0.16	0.31	0.18	0.12	0.07	0.07	0.00	0.05	0.13
s, saturation flow rate [veh/h]	1810	5176	1615	1810	5176	1615	1810	1900	1615	1810	1900	1615
c, Capacity [veh/h]	150	1759	549	335	2288	714	260	567	482	10	305	260
d1, Uniform Delay [s]	31.01	18.85	15.34	27.69	15.83	13.34	29.31	18.51	18.64	34.77	25.91	28.50
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.11
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	3.41	1.26	0.02	6.08	1.81	1.72	7.32	0.20	0.26	9.41	0.50	6.36
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

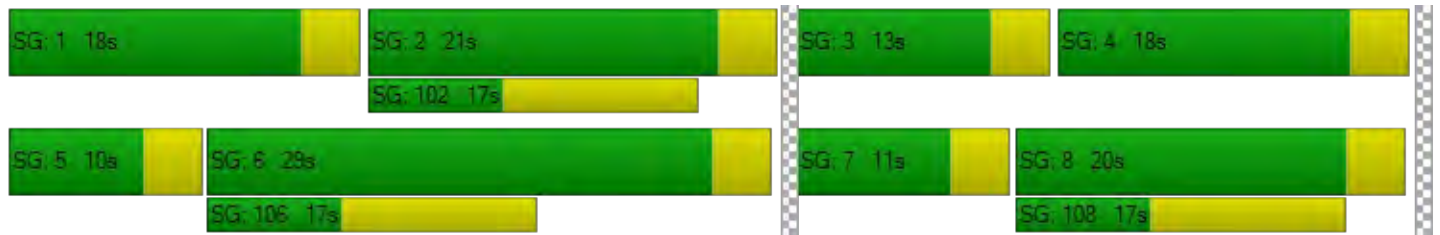
X, volume / capacity	0.57	0.55	0.01	0.85	0.70	0.41	0.84	0.22	0.24	0.20	0.28	0.82
d, Delay for Lane Group [s/veh]	34.42	20.11	15.36	33.77	17.63	15.06	36.63	18.71	18.90	44.18	26.41	34.86
Lane Group LOS	C	C	B	C	B	B	D	B	B	D	C	C
Critical Lane Group	Yes	No	No	No	Yes	No	Yes	No	No	No	No	Yes
50th-Percentile Queue Length [veh/ln]	1.35	3.55	0.04	4.43	5.30	2.60	3.80	1.40	1.32	0.06	1.15	3.48
50th-Percentile Queue Length [ft/ln]	33.81	88.67	0.93	110.69	132.50	65.07	94.94	35.11	32.99	1.42	28.83	87.11
95th-Percentile Queue Length [veh/ln]	2.43	6.38	0.07	7.88	9.08	4.69	6.84	2.53	2.38	0.10	2.08	6.27
95th-Percentile Queue Length [ft/ln]	60.85	159.60	1.67	196.96	226.89	117.13	170.89	63.20	59.38	2.56	51.89	156.80

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	34.42	20.11	15.36	33.77	17.63	15.06	36.63	18.71	18.90	44.18	26.41	34.86
Movement LOS	C	C	B	C	B	B	D	B	B	D	C	C
d_A, Approach Delay [s/veh]	21.25			19.40			27.22			32.51		
Approach LOS	C			B			C			C		
d_I, Intersection Delay [s/veh]	21.78											
Intersection LOS	C											
Intersection V/C	0.646											

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 7: Winchester Road (SR-79) (NS) at Whisper Heights/Pourroy Road (EW)

Control Type:	Signalized	Delay (sec / veh):	16.9
Analysis Method:	HCM 2010	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.643

Intersection Setup

Name	Northbound			Southbound			Eastbound			Westbound		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration	T T T			T T T			T T T			T T T		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	1	2	0	0	1	0	1	1	0	0
Pocket Length [ft]	250.00	100.00	330.00	340.00	100.00	100.00	150.00	100.00	150.00	170.00	100.00	100.00
Speed [mph]	55.00			55.00			45.00			45.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			Yes			Yes			Yes		

Volumes

Name	Northbound			Southbound			Eastbound			Westbound		
Base Volume Input [veh/h]	7	767	104	132	1366	28	48	30	33	152	29	181
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	22	0	22	21	0	0	0	0	0	0	22
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	7	835	110	162	1469	30	51	32	35	161	31	214
Peak Hour Factor	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	2	220	29	43	387	8	13	8	9	42	8	56
Total Analysis Volume [veh/h]	7	879	116	171	1546	32	54	34	37	169	33	225
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	60
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	4.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal group	5	2	0	1	6	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	7	7	0	7	7	0	7	7	0	7	7	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Split [s]	10	20	0	10	20	0	10	10	0	20	20	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	10	0	0	10	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	R	L	C	R
C, Cycle Length [s]	60	60	60	60	60	60	60	60	60	60	60	60
L, Total Lost Time per Cycle [s]	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
g_i, Effective Green Time [s]	1	27	27	7	33	33	4	7	7	7	10	10
g / C, Green / Cycle	0.01	0.45	0.45	0.11	0.54	0.54	0.07	0.12	0.12	0.12	0.17	0.17
(v / s)_i Volume / Saturation Flow Rate	0.00	0.24	0.07	0.05	0.43	0.02	0.03	0.02	0.02	0.09	0.02	0.14
s, saturation flow rate [veh/h]	1810	3618	1615	3514	3618	1615	1810	1900	1615	1810	1900	1615
c, Capacity [veh/h]	25	1611	719	389	1961	875	128	233	198	220	330	281
d1, Uniform Delay [s]	29.35	12.22	9.97	25.00	11.01	6.43	26.77	23.56	23.69	25.58	20.89	23.85
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.11
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	5.77	1.33	0.48	0.78	3.31	0.08	2.20	0.28	0.45	5.53	0.13	5.29
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

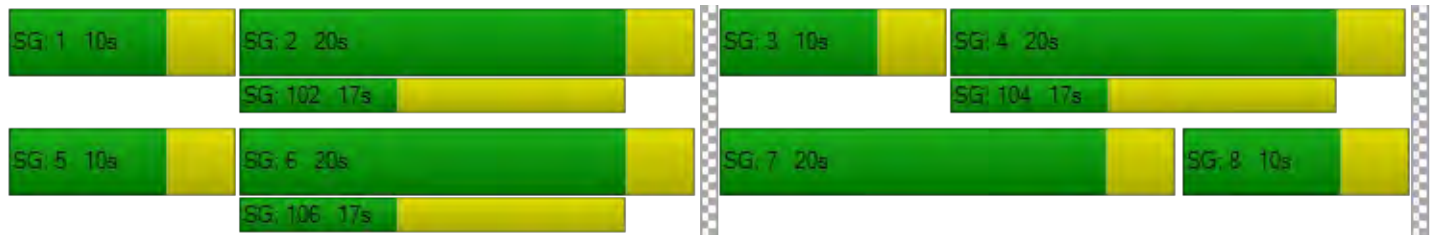
X, volume / capacity	0.28	0.55	0.16	0.44	0.79	0.04	0.42	0.15	0.19	0.77	0.10	0.80
d, Delay for Lane Group [s/veh]	35.12	13.56	10.45	25.78	14.32	6.51	28.97	23.85	24.14	31.11	21.02	29.13
Lane Group LOS	D	B	B	C	B	A	C	C	C	C	C	C
Critical Lane Group	Yes	No	No	No	Yes	No	Yes	No	No	No	No	Yes
50th-Percentile Queue Length [veh/ln]	0.13	3.32	0.75	1.02	5.75	0.14	0.74	0.40	0.44	2.41	0.36	3.09
50th-Percentile Queue Length [ft/ln]	3.20	83.10	18.69	25.38	143.83	3.41	18.59	10.05	11.11	60.19	8.89	77.17
95th-Percentile Queue Length [veh/ln]	0.23	5.98	1.35	1.83	9.69	0.25	1.34	0.72	0.80	4.33	0.64	5.56
95th-Percentile Queue Length [ft/ln]	5.76	149.59	33.63	45.68	242.17	6.13	33.46	18.09	20.00	108.35	16.00	138.90

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	35.12	13.56	10.45	25.78	14.32	6.51	28.97	23.85	24.14	31.11	21.02	29.13
Movement LOS	D	B	B	C	B	A	C	C	C	C	C	C
d_A, Approach Delay [s/veh]	13.35			15.30			26.15			29.29		
Approach LOS	B			B			C			C		
d_I, Intersection Delay [s/veh]	16.93											
Intersection LOS	B											
Intersection V/C	0.643											

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



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Scenario 6 Existing Plus Ambient Growth Plus Project - Improvements

Report File: C:\...\IAM OYp_Improvements.pdf

1/21/2021

Turning Movement Volume: Detail

ID	Intersection Name	Volume Type	Northbound		Eastbound		Westbound		Total Volume
			Left	Right	Thru	Right	Left	Thru	
1	Project Access (NS) at Newport Road (EW)	Final Base	0	0	0	0	0	0	0
		Growth Factor	1.06	1.06	1.06	1.06	1.06	1.06	-
		In Process	0	0	0	0	0	0	0
		Net New Trips	0	166	0	0	171	0	337
		Other	0	0	0	0	0	0	0
		Future Total	0	166	0	0	171	0	337

ID	Intersection Name	Volume Type	Northbound			Southbound			Eastbound			Westbound			Total Volume	
			Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right		
2	Winchester Road (SR-79) (NS) at Route 74 (EW)	Final Base	78	15	417	20	27	4	8	720	103	491	544	31	2458	
		Growth Factor	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	-	
		In Process	0	0	0	0	0	0	0	0	0	0	0	0	0	
		Net New Trips	22	0	14	0	0	0	0	0	0	22	15	0	0	73
		Other	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		Future Total	105	16	456	21	29	4	8	763	131	535	577	33	2678	

ID	Intersection Name	Volume Type	Northbound			Southbound			Eastbound			Westbound			Total Volume	
			Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right		
3	Winchester Road (SR-79) (NS) at Simpson Road (EW)	Final Base	39	422	45	10	629	139	154	178	107	158	132	19	2032	
		Growth Factor	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	-	
		In Process	0	0	0	0	0	0	0	0	0	0	0	0	0	
		Net New Trips	14	36	7	0	37	0	0	0	0	15	7	0	0	116
		Other	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		Future Total	55	483	55	11	704	147	163	189	128	174	140	20	2269	

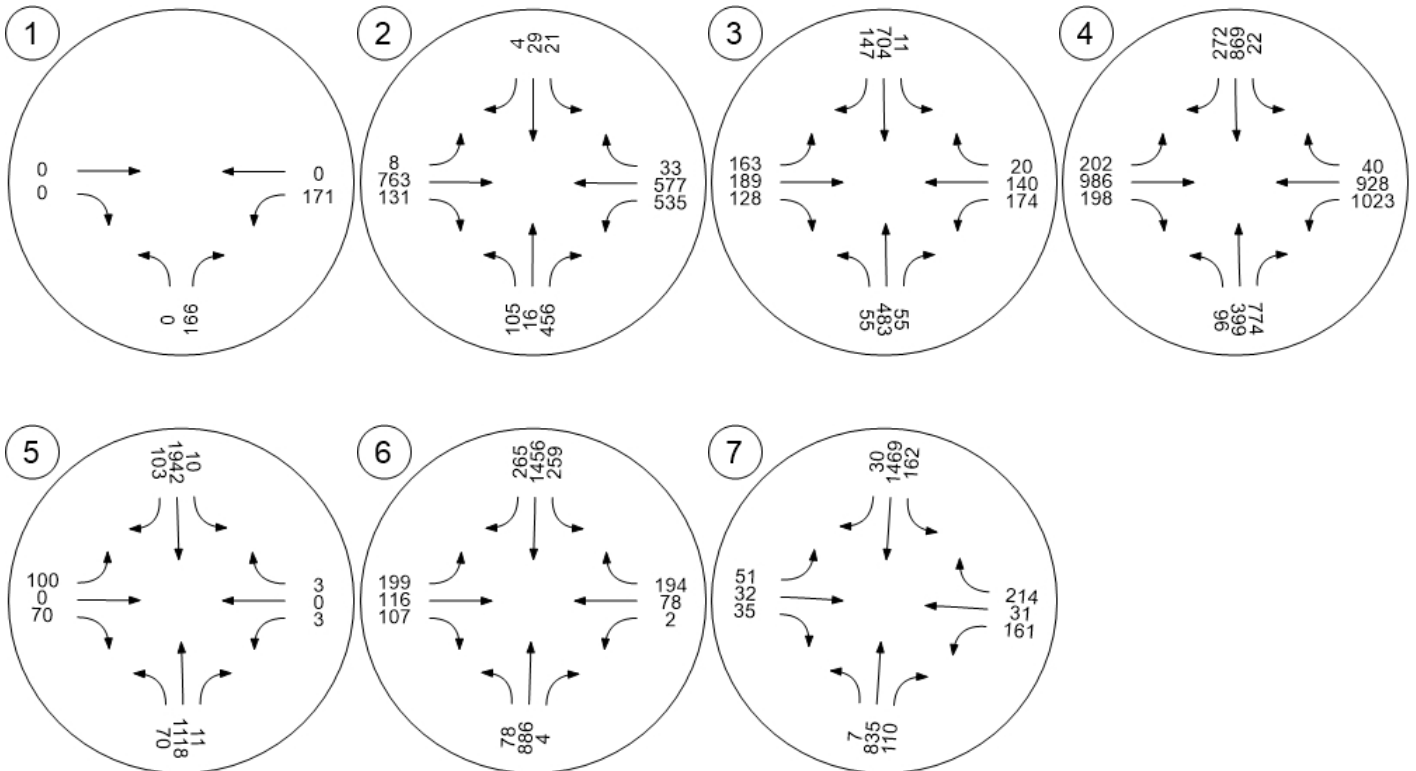
ID	Intersection Name	Volume Type	Northbound			Southbound			Eastbound			Westbound			Total Volume	
			Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right		
4	Winchester Road (SR-79) (NS) at Domenigoni Parkway (EW)	Final Base	77	323	717	21	764	257	191	930	173	951	875	38	5317	
		Growth Factor	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	-	
		In Process	0	0	0	0	0	0	0	0	0	0	0	0	0	
		Net New Trips	14	57	14	0	59	0	0	0	0	15	15	0	0	174
		Other	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		Future Total	96	399	774	22	869	272	202	986	198	1023	928	40	5809	

ID	Intersection Name	Volume Type	Northbound			Southbound			Eastbound			Westbound			Total Volume
			Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
5	Winchester Road (SR-79) (NS) at Newport Road (EW)	Final Base	0	1066	10	9	1843	2	3	0	1	3	0	3	2940
		Growth Factor	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	-
		In Process	0	0	0	0	0	0	0	0	0	0	0	0	0
		Net New Trips	70	-12	0	0	-12	101	97	0	69	0	0	0	313
		Other	0	0	0	0	0	0	0	0	0	0	0	0	0
		Future Total	70	1118	11	10	1942	103	100	0	70	3	0	3	3430

ID	Intersection Name	Volume Type	Northbound			Southbound			Eastbound			Westbound			Total Volume
			Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
6	Winchester Road (SR-79) (NS) at Scott Road/Washington Street (EW)	Final Base	74	794	4	238	1333	243	181	109	101	2	74	176	3329
		Growth Factor	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	-
		In Process	0	0	0	0	0	0	0	0	0	0	0	0	0
		Net New Trips	0	44	0	7	43	7	7	0	0	0	0	7	115
		Other	0	0	0	0	0	0	0	0	0	0	0	0	0
		Future Total	78	886	4	259	1456	265	199	116	107	2	78	194	3644

ID	Intersection Name	Volume Type	Northbound			Southbound			Eastbound			Westbound			Total Volume
			Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
7	Winchester Road (SR-79) (NS) at Whisper Heights/Pourroy Road (EW)	Final Base	7	767	104	132	1366	28	48	30	33	152	29	181	2877
		Growth Factor	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	-
		In Process	0	0	0	0	0	0	0	0	0	0	0	0	0
		Net New Trips	0	22	0	22	21	0	0	0	0	0	0	22	87
		Other	0	0	0	0	0	0	0	0	0	0	0	0	0
		Future Total	7	835	110	162	1469	30	51	32	35	161	31	214	3137

Traffic Volume - Future Total Volume



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Scenario 5 Existing Plus Ambient Growth Plus Project -
Improvements

Report File: C:\...\IPM OYp_Improvements.pdf

1/21/2021

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
1	Project Access (NS) at Newport Road (EW)	Two-way stop	HCM 2010	NB Right	0.180	9.0	A
2	Winchester Road (SR-79) (NS) at Route 74 (EW)	Signalized	HCM 2010	WB Left	0.928	36.9	D
3	Winchester Road (SR-79) (NS) at Simpson Road (EW)	Signalized	HCM 2010	SB Left	0.455	16.9	B
4	Winchester Road (SR-79) (NS) at Domenigoni Parkway (EW)	Signalized	HCM 2010	NB Right	0.880	38.6	D
5	Winchester Road (SR-79) (NS) at Newport Road (EW)	Signalized	HCM 2010	SB Left	0.498	6.9	A
6	Winchester Road (SR-79) (NS) at Scott Road/Washington Street (EW)	Signalized	HCM 2010	WB Left	0.771	26.6	C
7	Winchester Road (SR-79) (NS) at Whisper Heights/Pourroy Road (EW)	Signalized	HCM 2010	WB Left	0.708	20.0	B

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. For all other control types, they are taken for the whole intersection.

Intersection Level Of Service Report
Intersection 1: Project Access (NS) at Newport Road (EW)

Control Type:	Two-way stop	Delay (sec / veh):	9.0
Analysis Method:	HCM 2010	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.180

Intersection Setup

Name	Northbound		Eastbound		Westbound	
Approach						
Lane Configuration	↵↵		↑		↵	
Turning Movement	Left	Right	Thru	Right	Left	Thru
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	45.00		45.00		45.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		No	

Volumes

Name	Northbound		Eastbound		Westbound	
Base Volume Input [veh/h]	0	0	0	0	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.06	1.06	1.06	1.06	1.06	1.06
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	159	0	0	160	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	27	0	0	27	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	186	0	0	187	0
Peak Hour Factor	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	49	0	0	49	0
Total Analysis Volume [veh/h]	0	196	0	0	197	0
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Stop	Free	Free
Flared Lane			
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance	No		
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.18	0.00	0.00	0.12	0.00
d_M, Delay for Movement [s/veh]	11.66	9.02	0.00	0.00	7.50	0.00
Movement LOS	B	A	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.00	0.65	0.00	0.00	0.39	0.39
95th-Percentile Queue Length [ft/ln]	0.00	16.33	0.00	0.00	9.66	9.66
d_A, Approach Delay [s/veh]	9.02		0.00		7.50	
Approach LOS	A		A		A	
d_I, Intersection Delay [s/veh]	8.26					
Intersection LOS	A					

Intersection Level Of Service Report

Intersection 2: Winchester Road (SR-79) (NS) at Route 74 (EW)

Control Type:	Signalized	Delay (sec / veh):	36.9
Analysis Method:	HCM 2010	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.928

Intersection Setup

Name	Northbound			Southbound			Eastbound			Westbound		
Approach	↔			↔			↔↔↔			↔↔		
Lane Configuration	↔			↔			↔↔↔			↔↔		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	0	1	0	0	1	0	1	1	0	0
Pocket Length [ft]	180.00	100.00	100.00	50.00	100.00	100.00	150.00	100.00	300.00	100.00	100.00	100.00
Speed [mph]	45.00			45.00			50.00			50.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			No			Yes			No		

Volumes

Name	Northbound			Southbound			Eastbound			Westbound		
Base Volume Input [veh/h]	132	14	523	24	18	7	19	826	75	360	665	35
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	24	0	16	0	0	0	0	0	24	16	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	164	15	570	25	19	7	20	876	104	398	705	37
Peak Hour Factor	0.9400	0.9400	0.9400	0.9400	0.9400	0.9400	0.9400	0.9400	0.9400	0.9400	0.9400	0.9400
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	44	4	152	7	5	2	5	233	28	106	188	10
Total Analysis Volume [veh/h]	174	16	606	27	20	7	21	932	111	423	750	39
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	70
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	4.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal group	0	2	0	0	6	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	0	7	0	0	7	0	7	7	0	7	7	0
Maximum Green [s]	0	30	0	0	30	0	30	30	0	30	30	0
Amber [s]	0.0	3.0	0.0	0.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Split [s]	0	30	0	0	30	0	22	21	0	19	18	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	10	0	0	10	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	1.0	0.0	0.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Minimum Recall		No			No		No	No		No	No	
Maximum Recall		No			No		No	No		No	No	
Pedestrian Recall		No			No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	L	C	L	C	R	L	C	C
C, Cycle Length [s]	70	70	70	70	70	70	70	70	70	70
L, Total Lost Time per Cycle [s]	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00
l1_p, Permitted Start-Up Lost Time [s]	2.00	0.00	2.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
g_i, Effective Green Time [s]	27	27	27	27	2	18	18	16	32	32
g / C, Green / Cycle	0.39	0.39	0.39	0.39	0.03	0.26	0.26	0.23	0.45	0.45
(v / s)_i Volume / Saturation Flow Rate	0.12	0.38	0.03	0.01	0.01	0.26	0.07	0.23	0.21	0.21
s, saturation flow rate [veh/h]	1405	1621	815	1817	1810	3618	1615	1810	1900	1867
c, Capacity [veh/h]	599	628	104	704	62	923	412	414	855	840
d1, Uniform Delay [s]	16.71	21.31	35.01	13.33	33.06	26.08	20.85	27.01	13.40	13.40
k, delay calibration	0.50	0.50	0.50	0.50	0.11	0.11	0.11	0.13	0.11	0.11
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	1.22	33.53	5.97	0.10	3.24	16.08	0.35	28.36	0.40	0.40
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

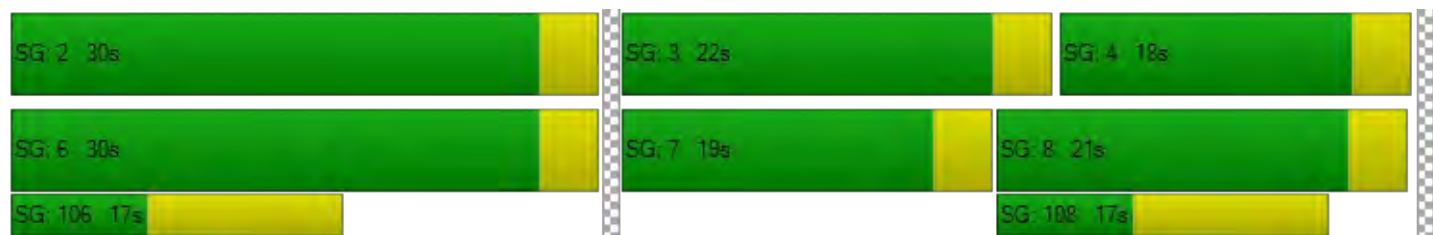
X, volume / capacity	0.29	0.99	0.26	0.04	0.34	1.01	0.27	1.02	0.47	0.47
d, Delay for Lane Group [s/veh]	17.93	54.84	40.99	13.43	36.30	42.16	21.20	55.37	13.79	13.81
Lane Group LOS	B	D	D	B	D	F	C	F	B	B
Critical Lane Group	No	Yes	No	No	No	Yes	No	Yes	No	No
50th-Percentile Queue Length [veh/ln]	2.00	14.29	0.60	0.25	0.37	8.68	1.31	9.27	3.56	3.50
50th-Percentile Queue Length [ft/ln]	49.91	357.28	15.03	6.23	9.35	217.01	32.80	231.84	88.93	87.55
95th-Percentile Queue Length [veh/ln]	3.59	20.49	1.08	0.45	0.67	13.58	2.36	14.44	6.40	6.30
95th-Percentile Queue Length [ft/ln]	89.83	512.27	27.06	11.21	16.83	339.53	59.05	360.88	160.08	157.60

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	17.93	54.84	54.84	40.99	13.43	13.43	36.30	42.16	21.20	55.37	13.80	13.81
Movement LOS	B	D	D	D	B	B	D	F	C	F	B	B
d_A, Approach Delay [s/veh]	46.77			27.21			39.86			28.31		
Approach LOS	D			C			D			C		
d_I, Intersection Delay [s/veh]	36.92											
Intersection LOS	D											
Intersection V/C	0.928											

Sequence

Ring 1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report

Intersection 3: Winchester Road (SR-79) (NS) at Simpson Road (EW)

Control Type:	Signalized	Delay (sec / veh):	16.9
Analysis Method:	HCM 2010	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.455

Intersection Setup

Name	Northbound			Southbound			Eastbound			Westbound		
Approach	[Diagram]			[Diagram]			[Diagram]			[Diagram]		
Lane Configuration	[Diagram]			[Diagram]			[Diagram]			[Diagram]		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	0	1	0	0	1	0	1	1	0	1
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	150.00	100.00	150.00	100.00	100.00	100.00
Speed [mph]	50.00			50.00			50.00			50.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Northbound			Southbound			Eastbound			Westbound		
Base Volume Input [veh/h]	66	656	161	30	414	75	107	249	51	59	154	44
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	16	40	8	0	40	0	0	0	16	8	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	86	735	179	32	479	80	113	264	70	71	163	47
Peak Hour Factor	0.9400	0.9400	0.9400	0.9400	0.9400	0.9400	0.9400	0.9400	0.9400	0.9400	0.9400	0.9400
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	23	195	48	9	127	21	30	70	19	19	43	13
Total Analysis Volume [veh/h]	91	782	190	34	510	85	120	281	74	76	173	50
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	60
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	4.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal group	5	2	0	1	6	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	7	7	0	7	7	0	7	7	0	7	7	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Split [s]	10	20	0	10	20	0	10	20	0	10	20	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	10	0	0	10	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	R	L	C	R
C, Cycle Length [s]	60	60	60	60	60	60	60	60	60	60	60	60
L, Total Lost Time per Cycle [s]	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
g_i, Effective Green Time [s]	6	29	29	3	26	26	6	11	11	5	10	10
g / C, Green / Cycle	0.09	0.48	0.48	0.05	0.44	0.44	0.10	0.18	0.18	0.09	0.17	0.17
(v / s)_i Volume / Saturation Flow Rate	0.05	0.22	0.12	0.02	0.14	0.05	0.07	0.15	0.05	0.04	0.09	0.03
s, saturation flow rate [veh/h]	1810	3618	1615	1810	3618	1615	1810	1900	1615	1810	1900	1615
c, Capacity [veh/h]	169	1722	769	96	1577	704	186	352	299	156	321	273
d1, Uniform Delay [s]	26.09	10.55	9.38	27.54	11.17	10.12	25.98	23.47	20.96	26.27	22.91	21.49
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.11
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	2.65	0.87	0.77	2.19	0.54	0.35	3.70	4.16	0.43	2.34	1.41	0.32
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

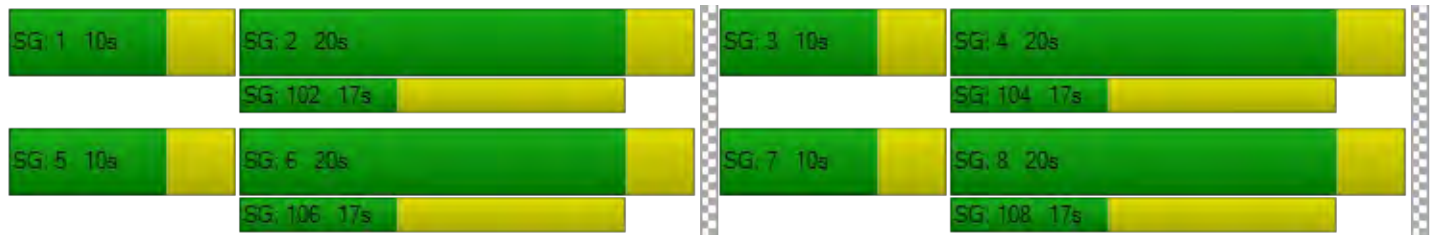
X, volume / capacity	0.54	0.45	0.25	0.35	0.32	0.12	0.64	0.80	0.25	0.49	0.54	0.18
d, Delay for Lane Group [s/veh]	28.74	11.42	10.14	29.73	11.71	10.48	29.68	27.63	21.39	28.61	24.32	21.81
Lane Group LOS	C	B	B	C	B	B	C	C	C	C	C	C
Critical Lane Group	No	Yes	No	Yes	No	No	No	Yes	No	Yes	No	No
50th-Percentile Queue Length [veh/ln]	1.21	2.66	1.22	0.48	1.78	0.57	1.63	3.65	0.80	1.01	2.05	0.55
50th-Percentile Queue Length [ft/ln]	30.35	66.47	30.55	11.90	44.46	14.25	40.80	91.20	19.94	25.33	51.24	13.65
95th-Percentile Queue Length [veh/ln]	2.19	4.79	2.20	0.86	3.20	1.03	2.94	6.57	1.44	1.82	3.69	0.98
95th-Percentile Queue Length [ft/ln]	54.63	119.64	54.99	21.42	80.03	25.65	73.45	164.16	35.89	45.59	92.24	24.56

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	28.74	11.42	10.14	29.73	11.71	10.48	29.68	27.63	21.39	28.61	24.32	21.81
Movement LOS	C	B	B	C	B	B	C	C	C	C	C	C
d_A, Approach Delay [s/veh]	12.67			12.52			27.18			24.99		
Approach LOS	B			B			C			C		
d_I, Intersection Delay [s/veh]	16.92											
Intersection LOS	B											
Intersection V/C	0.455											

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 4: Winchester Road (SR-79) (NS) at Domenigoni Parkway (EW)

Control Type:	Signalized	Delay (sec / veh):	38.6
Analysis Method:	HCM 2010	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.880

Intersection Setup

Name	Northbound			Southbound			Eastbound			Westbound		
Approach	[Diagram]			[Diagram]			[Diagram]			[Diagram]		
Lane Configuration	[Diagram]			[Diagram]			[Diagram]			[Diagram]		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	2	1	0	1	2	0	1	2	0	1
Pocket Length [ft]	350.00	100.00	525.00	220.00	100.00	240.00	380.00	100.00	380.00	300.00	100.00	280.00
Speed [mph]	45.00			65.00			65.00			65.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Northbound			Southbound			Eastbound			Westbound		
Base Volume Input [veh/h]	82	619	1025	24	302	183	251	922	39	709	973	18
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	16	64	16	0	64	0	0	0	16	16	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	103	720	1103	25	384	194	266	977	57	768	1031	19
Peak Hour Factor	0.9600	0.9600	0.9600	0.9600	0.9600	0.9600	0.9600	0.9600	0.9600	0.9600	0.9600	0.9600
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	27	188	287	7	100	51	69	254	15	200	268	5
Total Analysis Volume [veh/h]	107	750	1149	26	400	202	277	1018	59	800	1074	20
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	90
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	4.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal group	5	2	0	1	6	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	7	7	0	7	7	0	7	7	0	7	7	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Split [s]	25	35	0	10	20	0	14	21	0	24	31	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	10	0	0	10	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	R	L	C	R
C, Cycle Length [s]	90	90	90	90	90	90	90	90	90	90	90	90
L, Total Lost Time per Cycle [s]	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
g_i, Effective Green Time [s]	7	36	36	3	32	32	9	18	18	21	30	30
g / C, Green / Cycle	0.08	0.40	0.40	0.04	0.36	0.36	0.10	0.20	0.20	0.23	0.33	0.33
(v / s)_i Volume / Saturation Flow Rate	0.06	0.21	0.40	0.01	0.11	0.13	0.08	0.20	0.04	0.23	0.21	0.01
s, saturation flow rate [veh/h]	1810	3618	2859	1810	3618	1615	3514	5176	1615	3514	5176	1615
c, Capacity [veh/h]	139	1437	1136	69	1296	578	357	1026	320	820	1709	533
d1, Uniform Delay [s]	40.78	20.64	27.15	42.30	20.86	21.21	39.47	36.04	30.04	34.28	25.50	20.46
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.11
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	8.52	1.36	29.66	3.42	0.62	1.66	3.66	11.29	0.27	9.97	0.38	0.03
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

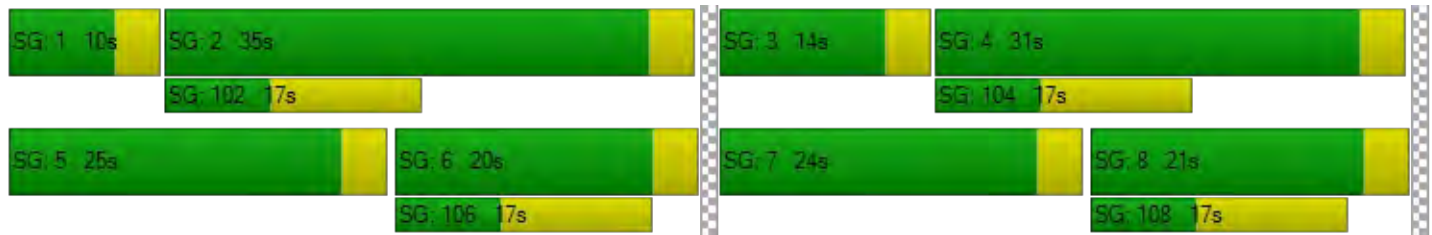
X, volume / capacity	0.77	0.52	1.01	0.38	0.31	0.35	0.78	0.99	0.18	0.98	0.63	0.04
d, Delay for Lane Group [s/veh]	49.30	22.00	56.81	45.72	21.48	22.87	43.14	47.32	30.32	44.25	25.89	20.49
Lane Group LOS	D	C	F	D	C	C	D	D	C	D	C	C
Critical Lane Group	No	No	Yes	Yes	No	No	No	Yes	No	Yes	No	No
50th-Percentile Queue Length [veh/ln]	2.55	5.72	15.53	0.58	2.72	2.94	2.89	7.64	0.98	8.75	5.59	0.25
50th-Percentile Queue Length [ft/ln]	63.77	143.05	388.30	14.55	67.94	73.56	72.20	191.08	24.42	218.69	139.87	6.31
95th-Percentile Queue Length [veh/ln]	4.59	9.65	22.18	1.05	4.89	5.30	5.20	12.18	1.76	13.60	9.47	0.45
95th-Percentile Queue Length [ft/ln]	114.78	241.13	554.41	26.19	122.28	132.41	129.96	304.44	43.96	339.95	236.85	11.35

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	49.30	22.00	56.81	45.72	21.48	22.87	43.14	47.32	30.32	44.25	25.89	20.49
Movement LOS	D	C	F	D	C	C	D	D	C	D	C	C
d_A, Approach Delay [s/veh]	43.40			22.93			45.72			33.59		
Approach LOS	D			C			D			C		
d_I, Intersection Delay [s/veh]	38.59											
Intersection LOS	D											
Intersection V/C	0.880											

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report

Intersection 5: Winchester Road (SR-79) (NS) at Newport Road (EW)

Control Type:	Signalized	Delay (sec / veh):	6.9
Analysis Method:	HCM 2010	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.498

Intersection Setup

Name	Northbound			Southbound			Eastbound			Westbound		
Approach												
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	1	1	0	1	0	0	1	0	0	0
Pocket Length [ft]	225.00	100.00	550.00	550.00	100.00	550.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	65.00			65.00			55.00			45.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			Yes			Yes			Yes		

Volumes

Name	Northbound			Southbound			Eastbound			Westbound		
Base Volume Input [veh/h]	0	1787	1	2	1098	1	0	0	0	17	0	10
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	64	0	0	0	0	96	96	0	63	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	14	-14	0	0	-14	14	14	0	14	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	78	1880	1	2	1150	111	110	0	77	18	0	11
Peak Hour Factor	0.9700	0.9700	0.9700	0.9700	0.9700	0.9700	0.9700	0.9700	0.9700	0.9700	0.9700	0.9700
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	20	485	0	1	296	29	28	0	20	5	0	3
Total Analysis Volume [veh/h]	80	1938	1	2	1186	114	113	0	79	19	0	11
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	60
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	4.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal group	5	2	0	1	6	0	0	8	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	-	-	-	-	-	-
Minimum Green [s]	7	7	0	7	7	0	0	7	0	0	7	0
Maximum Green [s]	30	30	0	30	30	0	0	30	0	0	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
All red [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Split [s]	10	23	0	11	24	0	0	26	0	0	26	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	10	0	0	10	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	1.0	1.0	0.0	1.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0
Minimum Recall	No	No		No	No			No			No	
Maximum Recall	No	No		No	No			No			No	
Pedestrian Recall	No	No		No	No			No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	C	R	C
C, Cycle Length [s]	60	60	60	60	60	60	60	60	60
L, Total Lost Time per Cycle [s]	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	2.00	0.00	2.00
l2, Clearance Lost Time [s]	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
g_i, Effective Green Time [s]	5	44	44	0	39	39	7	7	7
g / C, Green / Cycle	0.09	0.72	0.72	0.00	0.64	0.64	0.12	0.12	0.12
(v / s)_i Volume / Saturation Flow Rate	0.04	0.37	0.00	0.00	0.33	0.07	0.09	0.05	0.08
s, saturation flow rate [veh/h]	1810	5176	1615	1810	3618	1615	1262	1615	376
c, Capacity [veh/h]	159	3752	1171	11	2325	1038	271	193	143
d1, Uniform Delay [s]	26.17	3.64	2.28	29.76	5.71	4.13	25.63	24.51	23.97
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	2.44	0.51	0.00	8.48	0.80	0.21	1.03	1.38	0.72
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

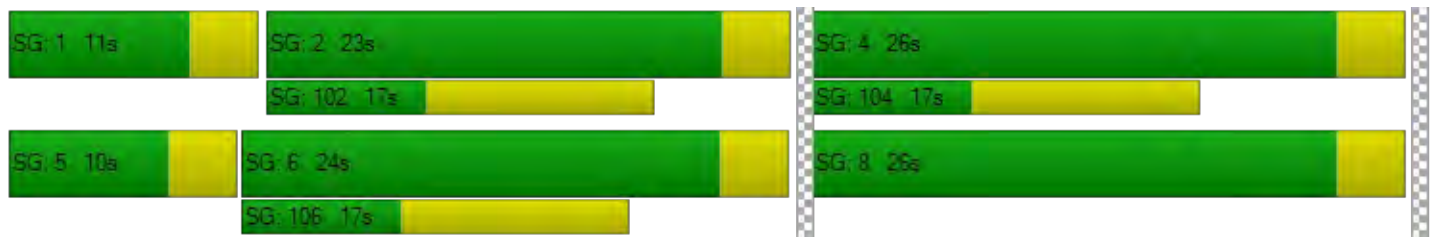
X, volume / capacity	0.50	0.52	0.00	0.19	0.51	0.11	0.42	0.41	0.21
d, Delay for Lane Group [s/veh]	28.61	4.15	2.28	38.24	6.52	4.35	26.65	25.89	24.70
Lane Group LOS	C	A	A	D	A	A	C	C	C
Critical Lane Group	No	Yes	No	Yes	No	No	Yes	No	No
50th-Percentile Queue Length [veh/ln]	1.01	0.31	0.00	0.05	1.58	0.25	1.40	0.96	0.37
50th-Percentile Queue Length [ft/ln]	25.21	7.66	0.01	1.23	39.48	6.13	35.00	23.96	9.19
95th-Percentile Queue Length [veh/ln]	1.82	0.55	0.00	0.09	2.84	0.44	2.52	1.73	0.66
95th-Percentile Queue Length [ft/ln]	45.38	13.79	0.02	2.21	71.07	11.03	62.99	43.13	16.53

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	28.61	4.15	2.28	38.24	6.52	4.35	26.65	26.65	25.89	24.70	24.70	24.70
Movement LOS	C	A	A	D	A	A	C	C	C	C	C	C
d_A, Approach Delay [s/veh]	5.12			6.37			26.34			24.70		
Approach LOS	A			A			C			C		
d_I, Intersection Delay [s/veh]	6.90											
Intersection LOS	A											
Intersection V/C	0.498											

Sequence





Ring 1	1	2	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 6: Winchester Road (SR-79) (NS) at Scott Road/Washington Street (EW)

Control Type:	Signalized	Delay (sec / veh):	26.6
Analysis Method:	HCM 2010	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.771

Intersection Setup

Name	Northbound			Southbound			Eastbound			Westbound		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	65.00			65.00			45.00			55.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			No			Yes			Yes		

Volumes

Name	Northbound			Southbound			Eastbound			Westbound		
Base Volume Input [veh/h]	74	1252	2	105	786	137	284	67	58	1	120	313
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	48	0	8	47	8	8	0	0	0	0	8
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	78	1375	2	119	880	153	309	71	61	1	127	340
Peak Hour Factor	0.9900	0.9900	0.9900	0.9900	0.9900	0.9900	0.9900	0.9900	0.9900	0.9900	0.9900	0.9900
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	20	347	1	30	222	39	78	18	15	0	32	86
Total Analysis Volume [veh/h]	79	1389	2	120	889	155	312	72	62	1	128	343
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	60
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	4.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal group	5	2	0	1	6	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	7	7	0	7	7	0	7	7	0	7	7	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Split [s]	10	20	0	10	20	0	14	20	0	10	16	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	10	0	0	10	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	R	L	C	R
C, Cycle Length [s]	60	60	60	60	60	60	60	60	60	60	60	60
L, Total Lost Time per Cycle [s]	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
g_i, Effective Green Time [s]	5	18	18	6	19	19	11	24	24	0	13	13
g / C, Green / Cycle	0.09	0.30	0.30	0.10	0.32	0.32	0.18	0.40	0.40	0.00	0.22	0.22
(v / s)_i Volume / Saturation Flow Rate	0.04	0.27	0.00	0.07	0.17	0.10	0.17	0.04	0.04	0.00	0.07	0.21
s, saturation flow rate [veh/h]	1810	5176	1615	1810	5176	1615	1810	1900	1615	1810	1900	1615
c, Capacity [veh/h]	156	1561	487	184	1641	512	332	750	637	4	406	345
d1, Uniform Delay [s]	26.23	20.02	14.66	25.97	16.92	15.50	24.20	11.44	11.45	29.91	19.91	23.58
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.11
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	2.54	8.00	0.02	3.90	1.29	1.52	12.54	0.06	0.07	24.29	0.44	21.14
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

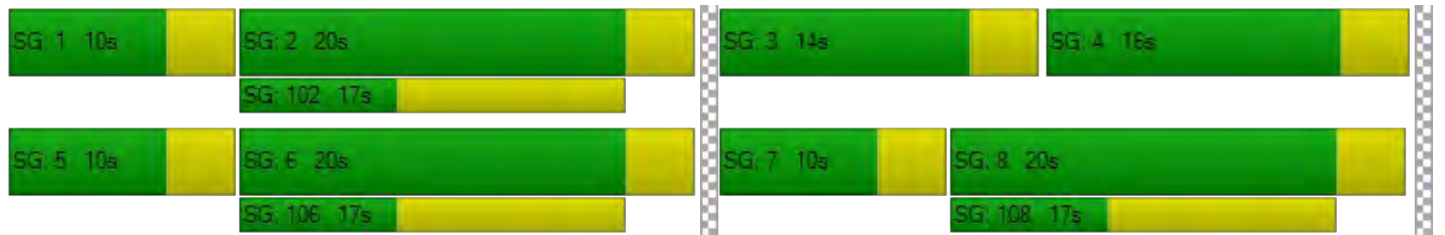
X, volume / capacity	0.51	0.89	0.00	0.65	0.54	0.30	0.94	0.10	0.10	0.23	0.32	0.99
d, Delay for Lane Group [s/veh]	28.77	28.02	14.68	29.87	18.20	17.02	36.74	11.49	11.51	54.19	20.35	44.72
Lane Group LOS	C	C	B	C	B	B	D	B	B	D	C	D
Critical Lane Group	No	Yes	No	Yes	No	No	Yes	No	No	No	No	Yes
50th-Percentile Queue Length [veh/ln]	1.00	5.70	0.02	1.55	2.68	1.40	4.95	0.50	0.43	0.04	1.29	5.98
50th-Percentile Queue Length [ft/ln]	24.99	142.62	0.41	38.75	66.88	35.11	123.65	12.46	10.77	1.06	32.36	149.40
95th-Percentile Queue Length [veh/ln]	1.80	9.62	0.03	2.79	4.82	2.53	8.59	0.90	0.78	0.08	2.33	9.99
95th-Percentile Queue Length [ft/ln]	44.97	240.55	0.74	69.74	120.39	63.19	214.83	22.42	19.39	1.90	58.25	249.63

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	28.77	28.02	14.68	29.87	18.20	17.02	36.74	11.49	11.51	54.19	20.35	44.72
Movement LOS	C	C	B	C	B	B	D	B	B	D	C	D
d_A, Approach Delay [s/veh]	28.04			19.25			29.15			38.13		
Approach LOS	C			B			C			D		
d_I, Intersection Delay [s/veh]	26.64											
Intersection LOS	C											
Intersection V/C	0.771											

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 7: Winchester Road (SR-79) (NS) at Whisper Heights/Pourroy Road (EW)

Control Type:	Signalized	Delay (sec / veh):	20.0
Analysis Method:	HCM 2010	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.708

Intersection Setup

Name	Northbound			Southbound			Eastbound			Westbound		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration	T T T			T T T			T T T			T T T		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	1	2	0	0	1	0	1	1	0	0
Pocket Length [ft]	250.00	100.00	330.00	340.00	100.00	100.00	150.00	100.00	150.00	170.00	100.00	100.00
Speed [mph]	55.00			55.00			45.00			45.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			Yes			Yes			Yes		

Volumes

Name	Northbound			Southbound			Eastbound			Westbound		
Base Volume Input [veh/h]	16	1420	156	134	831	23	18	62	36	129	36	198
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	24	0	24	23	0	0	0	0	0	0	24
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	17	1529	165	166	904	24	19	66	38	137	38	234
Peak Hour Factor	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	5	411	44	45	243	6	5	18	10	37	10	63
Total Analysis Volume [veh/h]	18	1644	177	178	972	26	20	71	41	147	41	252
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	80
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	4.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal group	5	2	0	1	6	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	7	7	0	7	7	0	7	7	0	7	7	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Split [s]	10	34	0	10	34	0	15	10	0	26	21	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	10	0	0	10	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	R	L	C	R
C, Cycle Length [s]	80	80	80	80	80	80	80	80	80	80	80	80
L, Total Lost Time per Cycle [s]	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
g_i, Effective Green Time [s]	2	44	44	7	48	48	3	9	9	8	15	15
g / C, Green / Cycle	0.03	0.55	0.55	0.09	0.60	0.60	0.03	0.11	0.11	0.10	0.18	0.18
(v / s)_i Volume / Saturation Flow Rate	0.01	0.45	0.11	0.05	0.27	0.02	0.01	0.04	0.03	0.08	0.02	0.16
s, saturation flow rate [veh/h]	1810	3618	1615	3514	3618	1615	1810	1900	1615	1810	1900	1615
c, Capacity [veh/h]	55	1974	881	305	2178	972	60	215	182	190	351	298
d1, Uniform Delay [s]	38.07	15.17	9.29	35.22	8.68	6.45	37.91	32.78	32.38	34.98	27.25	31.59
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.11
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	3.36	4.29	0.51	1.77	0.66	0.05	3.22	0.89	0.62	6.63	0.15	6.50
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

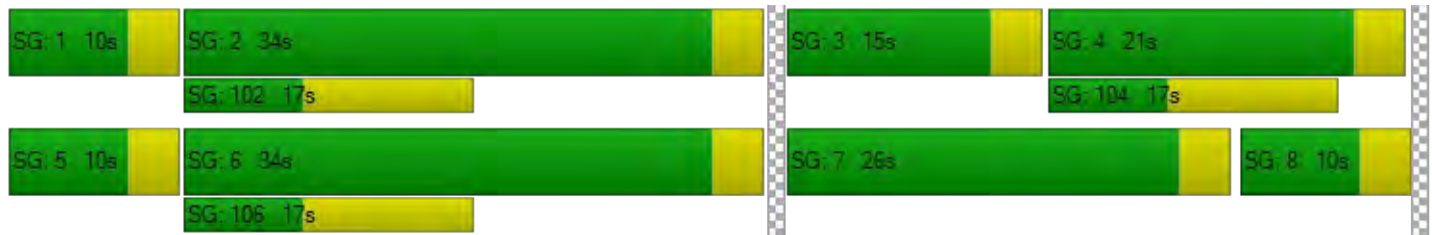
X, volume / capacity	0.33	0.83	0.20	0.58	0.45	0.03	0.33	0.33	0.22	0.78	0.12	0.84
d, Delay for Lane Group [s/veh]	41.43	19.46	9.80	36.99	9.35	6.50	41.13	33.67	32.99	41.61	27.39	38.09
Lane Group LOS	D	B	A	D	A	A	D	C	C	D	C	D
Critical Lane Group	No	Yes	No	Yes	No	No	Yes	No	No	No	No	Yes
50th-Percentile Queue Length [veh/ln]	0.37	10.29	1.33	1.60	3.38	0.14	0.42	1.25	0.71	2.97	0.63	4.89
50th-Percentile Queue Length [ft/ln]	9.28	257.25	33.19	40.10	84.58	3.51	10.42	31.18	17.80	74.22	15.64	122.37
95th-Percentile Queue Length [veh/ln]	0.67	15.55	2.39	2.89	6.09	0.25	0.75	2.24	1.28	5.34	1.13	8.52
95th-Percentile Queue Length [ft/ln]	16.70	388.77	59.75	72.17	152.25	6.31	18.76	56.12	32.05	133.59	28.15	213.07

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	41.43	19.46	9.80	36.99	9.35	6.50	41.13	33.67	32.99	41.61	27.39	38.09
Movement LOS	D	B	A	D	A	A	D	C	C	D	C	D
d_A, Approach Delay [s/veh]	18.74			13.47			34.59			38.27		
Approach LOS	B			B			C			D		
d_I, Intersection Delay [s/veh]	19.99											
Intersection LOS	B											
Intersection V/C	0.708											

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Diamon Gas & Storage

Vistro File: C:\...\IPM.vistro

Scenario 5 Existing Plus Ambient Growth Plus Project - Improvements

Report File: C:\...\IPM OYp_Improvements.pdf

1/21/2021

Turning Movement Volume: Detail

ID	Intersection Name	Volume Type	Northbound		Eastbound		Westbound		Total Volume
			Left	Right	Thru	Right	Left	Thru	
1	Project Access (NS) at Newport Road (EW)	Final Base	0	0	0	0	0	0	0
		Growth Factor	1.06	1.06	1.06	1.06	1.06	1.06	-
		In Process	0	0	0	0	0	0	0
		Net New Trips	0	186	0	0	187	0	373
		Other	0	0	0	0	0	0	0
		Future Total	0	186	0	0	187	0	373

ID	Intersection Name	Volume Type	Northbound			Southbound			Eastbound			Westbound			Total Volume	
			Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right		
2	Winchester Road (SR-79) (NS) at Route 74 (EW)	Final Base	132	14	523	24	18	7	19	826	75	360	665	35	2698	
		Growth Factor	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	-	
		In Process	0	0	0	0	0	0	0	0	0	0	0	0	0	
		Net New Trips	24	0	16	0	0	0	0	0	0	24	16	0	0	80
		Other	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		Future Total	164	15	570	25	19	7	20	876	104	398	705	37	2940	

ID	Intersection Name	Volume Type	Northbound			Southbound			Eastbound			Westbound			Total Volume	
			Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right		
3	Winchester Road (SR-79) (NS) at Simpson Road (EW)	Final Base	66	656	161	30	414	75	107	249	51	59	154	44	2066	
		Growth Factor	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	-	
		In Process	0	0	0	0	0	0	0	0	0	0	0	0	0	
		Net New Trips	16	40	8	0	40	0	0	0	0	16	8	0	0	128
		Other	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		Future Total	86	735	179	32	479	80	113	264	70	71	163	47	2319	

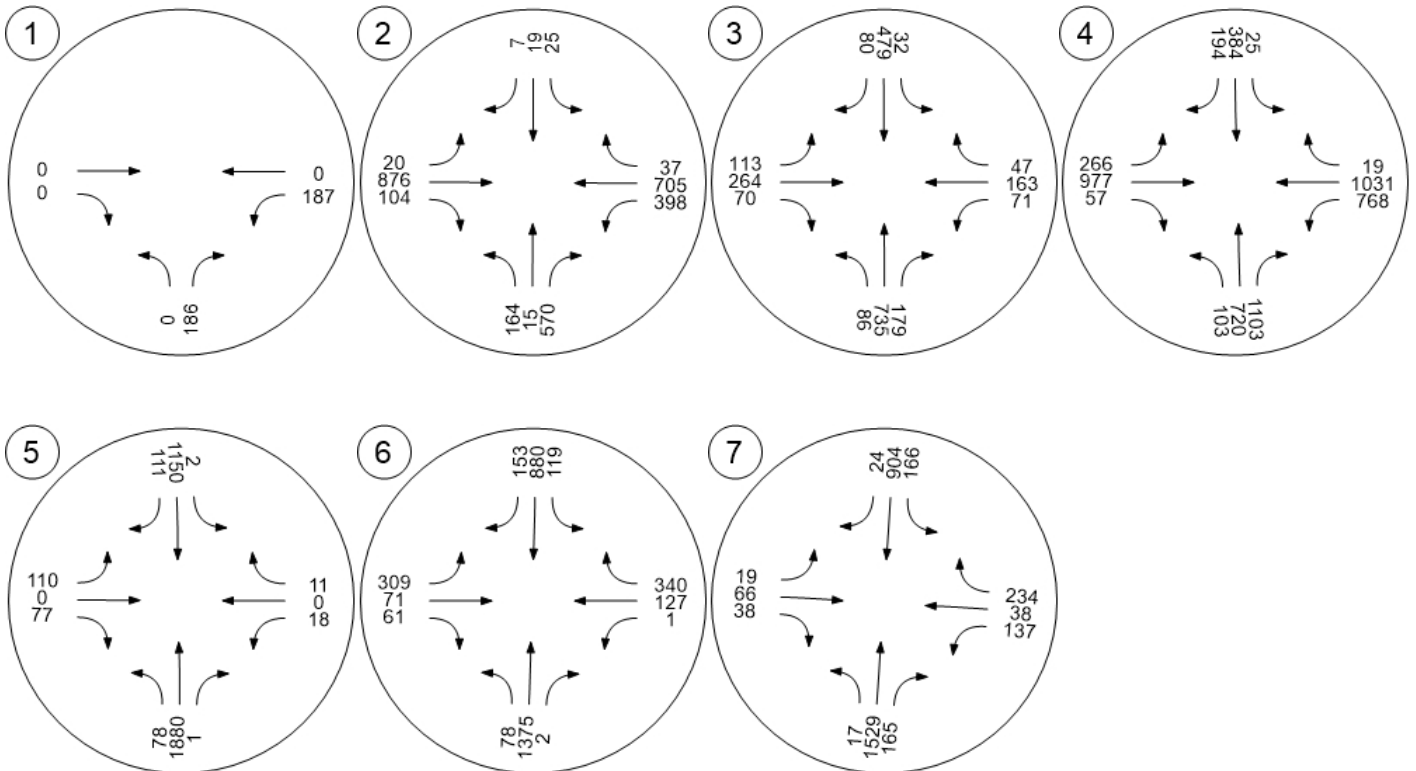
ID	Intersection Name	Volume Type	Northbound			Southbound			Eastbound			Westbound			Total Volume	
			Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right		
4	Winchester Road (SR-79) (NS) at Domenigoni Parkway (EW)	Final Base	82	619	1025	24	302	183	251	922	39	709	973	18	5147	
		Growth Factor	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	-	
		In Process	0	0	0	0	0	0	0	0	0	0	0	0	0	
		Net New Trips	16	64	16	0	64	0	0	0	0	16	16	0	0	192
		Other	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		Future Total	103	720	1103	25	384	194	266	977	57	768	1031	19	5647	

ID	Intersection Name	Volume Type	Northbound			Southbound			Eastbound			Westbound			Total Volume
			Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
5	Winchester Road (SR-79) (NS) at Newport Road (EW)	Final Base	0	1787	1	2	1098	1	0	0	0	17	0	10	2916
		Growth Factor	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	-
		In Process	0	0	0	0	0	0	0	0	0	0	0	0	0
		Net New Trips	78	-14	0	0	-14	110	110	0	77	0	0	0	347
		Other	0	0	0	0	0	0	0	0	0	0	0	0	0
		Future Total	78	1880	1	2	1150	111	110	0	77	18	0	11	3438

ID	Intersection Name	Volume Type	Northbound			Southbound			Eastbound			Westbound			Total Volume
			Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
6	Winchester Road (SR-79) (NS) at Scott Road/Washington Street (EW)	Final Base	74	1252	2	105	786	137	284	67	58	1	120	313	3199
		Growth Factor	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	-
		In Process	0	0	0	0	0	0	0	0	0	0	0	0	0
		Net New Trips	0	48	0	8	47	8	8	0	0	0	0	8	127
		Other	0	0	0	0	0	0	0	0	0	0	0	0	0
		Future Total	78	1375	2	119	880	153	309	71	61	1	127	340	3516

ID	Intersection Name	Volume Type	Northbound			Southbound			Eastbound			Westbound			Total Volume
			Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
7	Winchester Road (SR-79) (NS) at Whisper Heights/Pourroy Road (EW)	Final Base	16	1420	156	134	831	23	18	62	36	129	36	198	3059
		Growth Factor	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	-
		In Process	0	0	0	0	0	0	0	0	0	0	0	0	0
		Net New Trips	0	24	0	24	23	0	0	0	0	0	0	24	95
		Other	0	0	0	0	0	0	0	0	0	0	0	0	0
		Future Total	17	1529	165	166	904	24	19	66	38	137	38	234	3337

Traffic Volume - Future Total Volume



APPENDIX D

Pass-By Trips

Pass-by, Primary, and Diverted Linked Trips

5.1 Background

The trip generation rates and equations contained in *Trip Generation* are derived from actual measurements of traffic generated by individual sites. These rates and equations represent vehicles entering and exiting a site at its driveways. Therefore, these volumes are appropriate for determining the total traffic to be accommodated by site driveways.

The pass-by trip-making phenomenon, if estimated to be significant, should be recognized when examining the traffic impact of a development on the adjacent street system.

There are instances, however, when the total number of trips generated by a site is different from the amount of new traffic **added** to the street system by the generator. For example, retail-oriented developments such as shopping centers, discount stores, restaurants, banks, service stations, and convenience markets often locate adjacent to busy streets in order to attract the motorists already on the street. These sites attract a portion of their trips from traffic passing the site on the way from an origin to an ultimate destination. These retail trips **may not add new traffic** to the adjacent street system.

Trip-making can be broken down into two major categories: **pass-by trips** and **non-pass-by trips**. In some traffic impact study applications, it is necessary to further subdivide non-pass-by trips into **primary trips** and **diverted linked trips**. These trip types are illustrated in figure 5.1 and are defined below.

Types of Trips Generated by a Site

- Pass-By Trips
- Non-Pass-By Trips
 - Primary Trips
 - Diverted Linked Trips

Pass-by trips are made as intermediate stops *on the way* from an origin to a primary trip destination without a route diversion. Pass-by trips are attracted from traffic passing the site *on an adjacent street* or roadway that offers direct access to the generator. **Pass-by trips are not diverted from another roadway.**

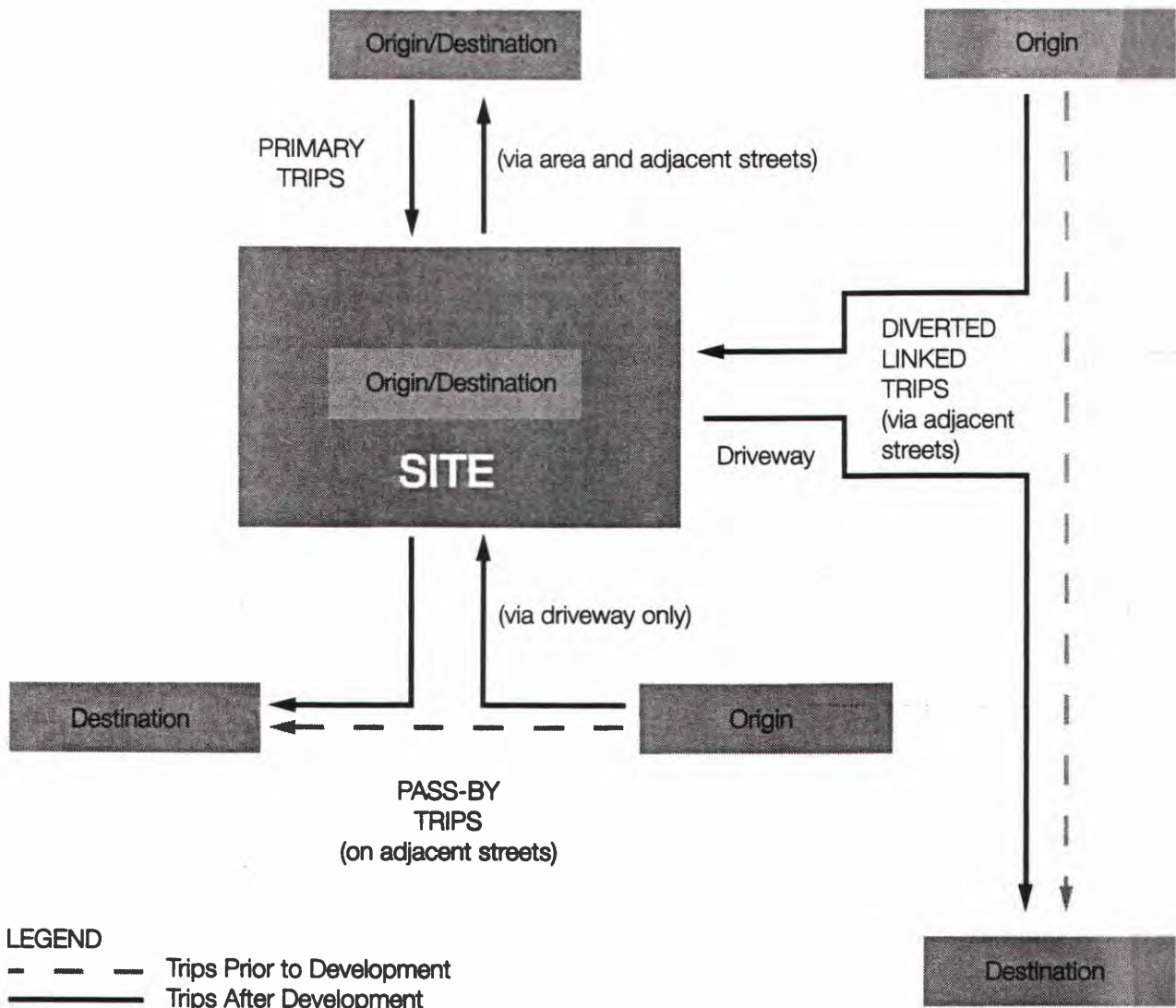
Pass-by trips do not involve a route diversion to enter the site driveway.

Non-pass-by trips are simply all trips generated by a site that are not pass-by trips. This term is sometimes used when diverted linked trips are not tabulated separately from primary trips.

Primary trips are trips made for the specific purpose of visiting the generator. The stop at the generator is the primary reason for the trip. The trip typically goes from origin to generator and then returns to the origin. For example, a home-to-shopping-to-home combination of trips is a primary trip set.

Diverted linked trips are trips that are attracted from the traffic volume on roadways within the vicinity of the generator but that require a diversion from that roadway to another roadway to gain access to the site. These trips could travel on highways or freeways adjacent to a generator, but without access to the generator. **Diverted linked trips add traffic to streets adjacent to a site, but may not add traffic to the area's major travel routes** (see figure 5.1). Both pass-by and diverted linked trips may be part of a multiple-stop chain of trips.

Figure 5.1 Types of Trips



5.2 Sample Application of Pass-By Trip Assignment Process

In this example, the objectives are to (1) estimate the number of new trips added to the adjacent street traffic volume with the development of a shopping center with 580,000 square feet of gross leasable area, and (2) determine the turn movements at the shopping center driveway. The forecasted two-way evening peak hour traffic on a street adjacent to the proposed shopping center is 1,200 vehicles, as shown in figure 5.2(A)—1,000 traveling west and 200 traveling east.

Objective of Assignment Process:

Determine (1) turn movements at a shopping center driveway and (2) trips added to the adjacent street traffic volume.

The shopping center is estimated to generate 2,000 evening peak hour trips (based on the fitted curve equation given for Land Use Code 820 on page 1,339 of *Trip Generation*, Sixth Edition). An assessment of the shopping center parking configuration and access points indicates that an estimated 20 percent of the site-generated traffic will use the driveway being analyzed in this example. Thus, the driveway volume is estimated to be 400 evening peak hour trips (i.e., 20 percent of 2,000 trips). For this

example, 50 percent enter and 50 percent exit the shopping center (as shown in figure 5.2(B)).

From data collected at other shopping centers, it is estimated (in this example) that about 15 percent of the driveway volume is pass-by (figure 5.2(B)). Therefore, 30 of the inbound vehicles (i.e., 15 percent of 200 vehicles) and 30 of the outbound vehicles are considered pass-by trips.

The assumed trip distribution for the non-pass-by trips is shown in figure 5.2(C). These values are based on local knowledge of expected trip patterns for primary and diverted linked trips to and from the shopping center (based on existing travel patterns, surrounding land uses, etc.). For example, 80 percent of the non-pass-by trips are expected to arrive from the east and to return to the east after the trip to the shopping center.

The distribution of the pass-by trips is based on the volume of traffic passing the driveway, as shown in figure 5.2(D). Because 83 percent of the traffic passing by the site comes from the east (i.e., 1,000 of the 1,200 shown previously in figure 5.2(A)), it is assumed that 83 percent of the pass-by trips will likewise arrive from the east and will depart toward the west.

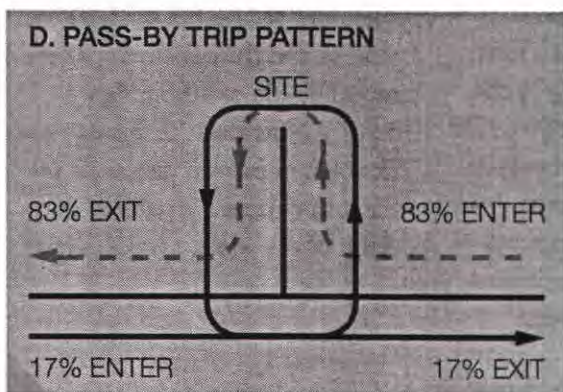
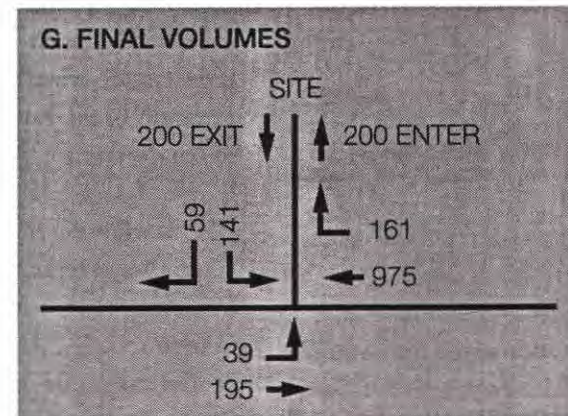
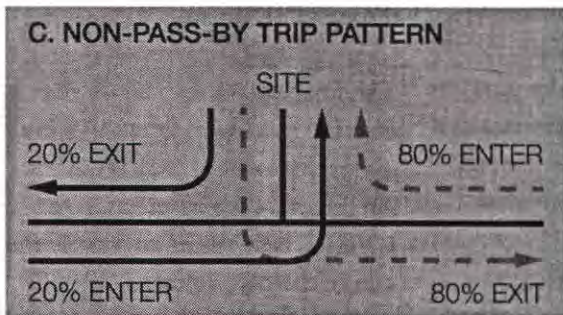
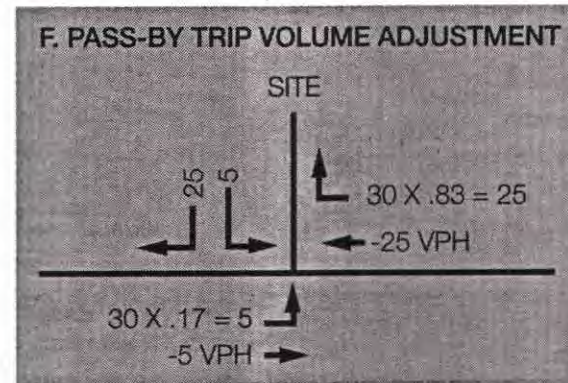
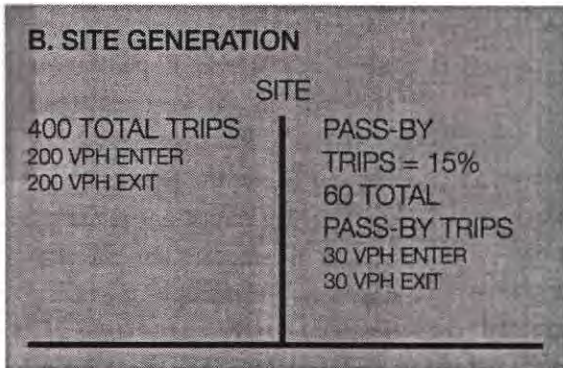
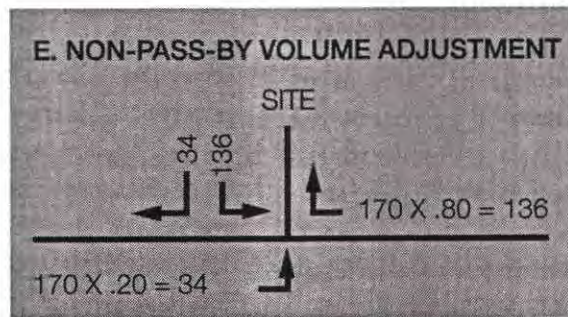
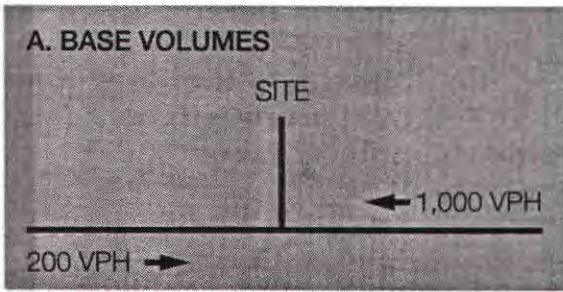
The assignment of the non-pass-by trips generated by the site is shown in figure 5.2(E). The total number

of non-pass-by trips destined to the site is 170 (the 200 total trips minus the 30 inbound pass-by trips shown earlier in figure 5.2(B)). Eighty percent (or 136) are expected to arrive from the east and to return to the east.

The assignment of the pass-by trips is shown in figure 5.2(F). Of the 30 pass-by trips, 83 percent (or 25) arrive from the east and depart to the west. Likewise, 17 percent (or 5) arrive from the west and depart to the east. Note that the calculation also shows the expected through-trip reductions as the trips passing the site turn into the new driveway. For example, the new westbound right-turn volume of 25 causes a reduction in the westbound through movement.

The final assignment of all trips entering and leaving the shopping center driveway, as well as passing the driveway, is shown in figure 5.2(G). These values are simply the sum of the base volumes (from figure 5.2(A)), the non-pass-by trips generated by the site (from figure 5.2(E)), and the pass-by trips generated by the site (from figure 5.2(F)). Note that the through-traffic volumes in both directions on the major street are reduced as a result of the pass-by trip analysis.

Figure 5.2 Application of Pass-By Trips



LEGEND
 VPH = Vehicles per hour

5.3 Cautions

Statistical analysis and correlation of the pass-by data collected by the profession continue to evolve. However, due to the limited amount of pass-by data available and the inherent variability in surveyed site characteristics, it has still proven difficult to obtain high correlation indices.

Pass-by trips are closely linked to the size of the development and to the volume of traffic on the adjacent street that can deliver the pass-by trip. However, predictive mathematical relationships have been elusive.

Traditional pass-by trip analyses have attempted to correlate pass-by trip percentages (i.e., percent of the total number of trips generated by a site) with units of occupied site development (such as gross leasable area, gross floor area, seats in a restaurant, or fueling positions at a gas/service station). Limited results for some land uses show that this correlation can be enhanced further

by including the magnitude of the traffic passing the site on the adjacent roadways.

The analyst should exercise caution in the use of pass-by and diverted linked data presented in this chapter to ensure that the following aspects of pass-by trip characteristics are handled appropriately in the analysis process.

Diverted linked trips are clearly different from pass-by trips.

Diverted linked trips add trips to the adjacent roads at a proposed or expanded site, but may not add trips to nearby major highways or freeways.

Diverted linked trips are often difficult to identify. Therefore, **diverted linked trips should be treated similarly to primary trips, unless:** (1) all three (primary, pass-by, and diverted linked) categories are being analyzed and processed separately, and (2) the travel routes for diverted linked trips can be clearly established.

Pass-by trips are drawn from the passing traffic stream, **but are always included in the site driveway movements.** In traffic analyses, summation of driveway

volumes must equal the total external site generation (i.e., the sum of primary, pass-by, and diverted linked trips). Pass-by trips are not included in (and thus, subtracted from) the through-volumes passing a given site access point on an adjacent road. Standard methodologies for assessing the traffic impacts of site development typically require that diverted linked trips be included as additional trips within the confines of local impact assessment studies.

In a multi-use development, it is likely that there will be trips internal to the site (refer to chapter 7 for guidance). Before applying the pass-by reduction, the internal trips should be removed from the total number of trips generated by the multi-use site. **Pass-by trips are only applicable to trips that enter or exit the site, not internal trips.**

Overall, diverted linked trips represent a change in local area travel patterns but constitute no new increase on a *macroscopic* scale. Within the immediate study area, diverted linked trips do represent additional traffic on individual streets and should be analyzed that way.

5.4 Data Base on Pass-By, Primary, and Diverted Linked Trips

Listed in table 5.1 are 19 land uses for which ITE has received and compiled pass-by and diverted linked trip data. The table denotes whether the data are presented in this handbook in a table or a figure (in a data plot similar to those presented in *Trip Generation* for trip end data). Table 5.1 also identifies the time periods for which the data have been reported.

Tables 5.2 through 5.26 present the values for percentage of site generation that is accounted for by pass-by, non-pass-by, primary, and diverted linked trips.

Figures 5.3 through 5.15 plot the average *pass-by* trip percentages associated with the various land uses. No plots are provided for *diverted linked* trips. These figures are provided to enable the user to visualize the data scatter provided in tables 5.2 through 5.26.

Data plots are provided for each land use where nine or more data points are available for a specific independent variable.

For all land uses except shopping centers, data are plotted for only one independent variable. For shopping centers, data are plotted for GLA and peak hour traffic on adjacent streets for the weekday evening peak period; GLA is also used as the independent variable for shopping centers during the midday Saturday time period.

A regression equation is shown on the data plot if there are more than 10 points and the R^2 is greater than 0.25 (which only occurs on two of the Land Use Code 820 data plots). Note that this threshold is less than the 0.5 threshold for R^2 used for data plots in *Trip Generation*.

Recommended guidelines for using the data presented in these figures and tables are provided in section 5.5 of this chapter. In particular, the guidelines recommend when to use the data and how to select a pass-by percentage.

Users of the data are cautioned that the number and geographic distribution of sites are limited. Little or no data on adjacent street traffic volumes have been collected for uses other than shopping centers. The actual pass-by and diverted

The pass-by data listed in table 5.1 were collected during peak periods. These pass-by relationships may differ from those during the peak hour.

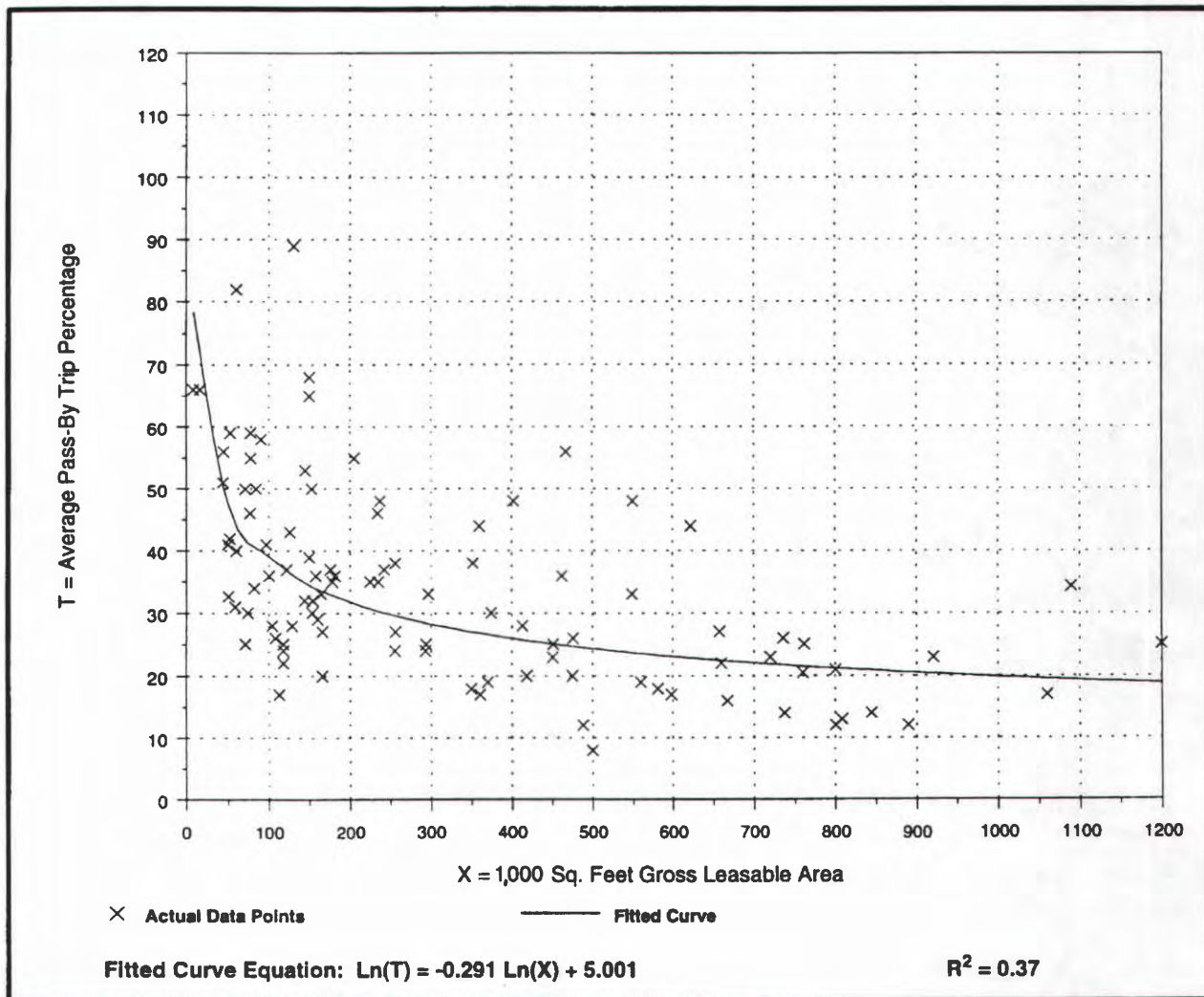
linked trip percentages may vary by site due to the specific influences of the characteristics of passing traffic, area roadway network patterns, specific businesses in the site being analyzed, other nearby development, and so forth. Surveys of similar developments near the analysis site are encouraged.

Because data are limited for many of the land uses, the analyst is encouraged to collect pass-by trip data and transmit the data to ITE. Section 5.6 of this chapter describes how to collect the appropriate data and provides sample forms to use.

Figure 5.5 Shopping Center (820)

Average Pass-By Trip Percentage vs: 1,000 Sq. Feet Gross Leasable Area
On a: Weekday, P.M. Peak Period
Number of Studies: 100
Average 1,000 Sq. Feet GLA: 329

Data Plot



APPENDIX E

**Preliminary Construction Cost Estimates for
Congestion Management Program**

**PRELIMINARY CONSTRUCTION COST ESTIMATES
FOR
CONGESTION MANAGEMENT PLAN**

Add One Lane Each Direction on Freeway			
Asphalt Concrete Pavement	\$2,300,000 Per Mile		
Portland Cement Concrete Pavement	\$2,800,000 Per Mile		
Includes: Excavation Paving Section Barrier Shoulder Upgrade Drainage System Traffic Control Mobilization @10% Design @11% Construction Mgt. @12.5%	Excludes: Environmental Costs Right of Way Widening of Bridge Structures Added Retaining Walls Added Sound Walls		
Widen Existing UC Structures			
Total Cost =	\$160 Per Square Foot		
Includes: Structure Mobilization @10% Design @11% Construction Mgt. @12.5%	Excludes: Environmental Costs Right of Way Traffic Control Ramp Modifications Signal/Lighting Up Grades Drainage Upgrades Added Retaining Walls Added Sound Walls		
Diamond Interchanges			
\$10,000,000	EACH	NEW IC	Minimal Row/Environmental
\$15,000,000	EACH	NEW IC	Includes Row/Environmental
\$20,000,000	EACH	EXISTING	Minimal Row/Environmental
\$25,000,000	EACH	EXISTING	Includes Row/ Environmental
Includes: Structure Retaining Walls Soil Nail Walls Drainage System Ramps Mobilization @ 10% Design @ 11% Construction Mgt. @ 12.5%		Excludes: As listed	

Retaining Walls			
Height Feet	Structure Cost \$/LF	Mobilization Design Constr. Mgt. \$/LF	Total \$/LF
4	\$190	\$70	\$260
6	\$260	\$90	\$350
8	\$380	\$140	\$520
10	\$430	\$150	\$580
12	\$480	\$170	\$650
14	\$590	\$210	\$800
16	\$660	\$240	\$900
	Excludes: Environmental Costs Right of Way		
12' High Sound Walls (Masonry Block on Footing)			
	Structure Cost \$/Mile	Mobilization Design Constr. Mgt. \$/Mile	Total \$/Mile
	\$800,000	\$300,000	\$1,100,000
Widen Conventional Highway			
1.	Add one outside lane (Work includes earthwork, modify existing drainage system and construct AC shoulder section.) Asphalt Concrete Pavement		\$1,000,000/Mile
2.	Add one outside lane each direction (Work includes earthwork, modify existing drainage system and construct AC shoulder section) Asphalt Concrete Pavement With Median Concrete Barrier With Median Double Thrie Beam Barrier		\$2,000,000/Mile \$2,200,000/Mile \$2,300,000/Mile
Local Interchange Improvements			
1.	New Interchange		
	Urban Interchange		\$10,000,000 to \$17,000,000
	Partial – Cloverleaf Interchange (Work includes new OC structure, earthwork, signal)		\$6,000,000
	Diamond Interchange (Work includes new OC structure, earthwork, signal)		\$5,000,000

Local Interchange Improvements CONT...		
2.	Reconstruct Existing Interchange	
	Realign and widen existing ramps (to 2 lanes)	\$750,000/Each Ramp
	Construct Loop on – ramps (Does not include realigning existing ramp)	\$700,000/Each Ramp
	Upgrade existing Diamond IC to Partial – Cloverleaf	\$6,000,000
3.	Improve Existing Interchange	
	Widen ramps (From one to two lanes)	\$350,000/Each Ramp
	Widen existing OC structure	\$110/Sq. Ft.
	Signalize ramp intersection	\$90,000/Location
	Upgrade existing signal at ramp terminal	\$75,000/Intersection
	Upgrade existing signal at ramp terminal (Add lights only)	\$25,000/Each
4.	Ramp Metering System	\$60,000/Each location
Intersection Improvements		
1.	Signalization of local intersection (with some roadwork)	\$250,000
2.	Upgrade existing intersection signalization	\$75,000
3.	Upgrade existing Traffic Controller/Assembles	\$40,000/Each
4.	Install new signal	\$90,000/location
5.	Add signal heads	\$25,000/Intersection
6.	Construct left – turn lane (240' long)	\$50,000/Each Location
7.	Street widening (12' wide) (Pavement only)	\$180,000/Mile
8.	Curb and gutter (Type A2-8)	\$15/LF

Other Improvements

1.	Construct new OC structure (Does not include roadway work)	\$100/Sq. Ft.
2.	Construct Retaining Walls (Type 1)	\$285/LF (H=8') \$360/LF (H=10') \$460/LF (H=12') \$560/LF (H=14')
3.	Construct Soundwall	\$1,000,000/Mile (H=12')
4.	Traffic Management Plan	10% of total construction costs

NOTE: This cost estimate does not include the following items:

1. R/W engineering, appraisal, acquisition and utilities relocation costs.
2. Minor items and supplemental work (10%).
3. Mobilization (10%).
4. Contingencies (25%).
5. Landscaping costs.

General Note: When adding a through lane, the minimum distance is 600' approach and 600' departure to the next intersection.