

Appendix A

Hanover County and VDOT Comments and Responses

To: Claudia Cheely (Hanover County)
From: Thomas Ruff, PE, PTOE, AICP (Timmons Group)
RE: Iron Horse Data Center – Response to Hanover County Comments
Date: 7/17/2024
Copy: Omar Kanaan, PE (Kimley-Horn); JoAnn Hunter (Hanover County)

Timmons Group prepared a Traffic Impact Analysis (TIA) dated February 29, 2024 for the Iron Horse Data Center development located in Hanover County, VA. Kimley-Horn (on behalf of Hanover County) provided the following comments (**shown in bold**) on May 23, 2024 regarding the Iron Horse Data Center TIA. As a result of the comments and responses, a revised TIA has been prepared and is submitted with these responses.

1. Coordination with VDOT is needed to ensure the project accounts for the STARS I-95 at Route 54 Alternatives Study and that the STARS study accounts for project traffic.

Timmons Group Response

Based on coordination with Hanover County and the Town of Ashland, any potential recommendations from the VDOT STARS study have not been submitted to any funding programs or have not already received funding. Therefore, the current TIA, or any future versions of the TIA will only account for funded transportation projects as set forth by the VDOT Traffic Operations and Safety Analysis Manual.

2. The proposed eastbound right-turn drop lane onto Mt Hermon Road is concerning as it requires vehicles arriving from northbound I-95 to traverse two lanes in a short distance to continue on eastbound Route 54.

Timmons Group Response

The eastbound direction of Route 54 would likely need to be modified between the bridge over I-95 and Mt. Hermon Rd. One of the two eastbound travel lanes would become a lane-drop for the eastbound left at the I-95 northbound ramp. Then the subject I-95 northbound ramp would have a free-flow transition directly to the lane which will become the eastbound right at Mt. Hermon Rd. This design would eliminate the need for merging traffic to traverse two lanes to continue traveling eastbound on Route 54 from I-95 north. The report text has been updated with this additional information.

Concept exhibits included with this report depict the proposed improvements at Route 54 and Mt. Hermon Rd. Further design of the improvements outside the intersection as described above will be required at a later date and is not shown by the concept exhibits.

- 3. An exhibit showing the proposed improvements to the intersection of Route 54 at Mt Hermon Road should be included to demonstrate that the proposed improvement is feasible. The exhibit should show, at a minimum, right of way impacts and merge, transition, and weaving distances.**

Timmons Group Response

An exhibit has been created showing the potential design for eastbound Route 54 as described in the answer above and is included in Appendix D.

- 4. 4. Section 1.4:**
- a. Clarify the Phase 1 improvement to “Construct eastbound and westbound left turn lanes” at Mt Hermon Road.**
 - b. Clarify the Phase 2 improvement to “Construct eastbound and westbound left turn lanes” at Site Entrance A.**

Timmons Group Response

These two statements have been modified to clarify the number of turn lanes recommended to be constructed.

- 5. Remove references to SIDRA as it was not used in the analysis.**

Timmons Group Response

References to SIDRA have been removed from the report.

- 6. Page 12-2: Clarify if a westbound left-turn lane is warranted at Entrance B.**

Timmons Group Response

Report text has been updated to clarify where turn lanes are warranted.

- 7. The analysis indicates that the site plan provided is intended for informational purposes only and is conceptual in nature. As such, an access management and spacing review will be required at the site plan approval stage.**

Timmons Group Response

Noted.

- 8. The pre-scope of work form indicates that a merge analysis will be prepared. A merge analysis was not included in the analysis.**

Timmons Group Response

Merge analysis was not performed as the proposed development intends to eliminate the short merge area from the I-95 northbound ramp to Route 54 eastbound. All other interchange ramps have free-flowing operations with adequate merge distances. Therefore, the merge analysis is not needed to investigate potential capacity deficiencies in the study area.

9. Update Table 8-1 to match proposed residential program.

Timmons Group Response

Trip generation has been updated to match the proposed development program.

10. Provide justification for not using the ITE Trip Generation Manual for the data center land use specifically because AWS may not be the ultimate user. It appears that ITE rates would result in higher trip generation.

Timmons Group Response

The ITE Trip Generation Manual was not used for the proposed data center development as the ITE has limited trip generation information on data centers, therefore the Bowman study is the best trip generation information available for this use. The Bowman study conducted counts at six (6) data center sites in Virginia and is approved by VDOT locally and at the Central Office. Regardless if the end user is AWS, the Bowman study presents data that is more accurate than the currently available ITE data.

11. Remove references to LUC 160 from Table 8-1 as the ITE Trip Generation Manual was not used for the data center calculations.

Timmons Group Response

Land Use Code 160 has been removed from Table 8-1.

12. Provide supporting data center calculations and the referenced AWS Data Center Trip Generation Assessment prepared by Bowman Consulting Group, March 2023.

Timmons Group Response

The Bowman AWS Data Center Trip Generation Assessment has been added to Appendix K.

13. Figure 8-4, Intersection 8: revise the westbound approach volumes to show exiting traffic in the westbound through lane not the left-lane.

Timmons Group Response

Figure 8-4 has been updated to show the traffic volumes corresponding to the correct lane.

14. The applied trip distribution does not match the distribution contained in the pre-scope of work form. Please clarify.

Timmons Group Response

The legend on trip distribution figures has been updated to reflect the proposed entering and exiting traffic. All trip distributions for the proposed residential and data center are assumed to be passenger cars. Therefore, the alternate trip distribution shown in the scoping documents for trucks was not used.

15. Provide supporting documentation for the assumed 1.5% growth rate. A review of VDOT's P4P growth rates shows growth rates are higher than 1.5% in the study area.

Timmons Group Response

The 1.5% growth rate was agreed to by VDOT, Hanover County, and the Town of Ashland during the scoping meeting on 1/7/2022. Note that as of the scoping meeting, the most current VDOT AADT available was for year 2020. Previous submittals for this parcel (Tradeport Ashland/Iron Horse Business Center) included trips from nearby background developments; however, those background developments were removed from this study based on recent coordination with Hanover County and the Town of Ashland.

16. Trips attributable to the data center must be included in the signal warrant analysis. Time of day assumptions should be developed and documented to include the data center trips in the analysis.

Timmons Group Response

The signal warrant analysis has been removed as the projected future traffic volumes do not meet the thresholds for Warrants #1-3.

17. Provide supporting documentation for applying Pagone's theorem (25% reduction) to the side street volumes.

Timmons Group Response

The signal warrant analysis has been removed as the projected future traffic volumes do not meet the thresholds for Warrants #1-3.

18. Mainline right-turn volumes should not be excluded from the analysis.

Timmons Group Response

The signal warrant analysis has been removed as the projected future traffic volumes do not meet the thresholds for Warrants #1-3.

19. Project traffic results in excessive delays (exceeding 180 and 470 seconds during the 2027 and 2032 PM peak hour, respectively) at the southbound approach of the Route 54 and the I-95 Southbound Ramp intersection. Mitigation measures should be considered.

Timmons Group Response

The results presented in the TIA indicate that during 2022 existing conditions, the southbound approach at this intersection experiences 62 and 98 seconds of delay during the AM and PM peak hours, respectively (LOS F). Once a movement is over capacity, any single additional vehicle causes an exponential increase in delay. This is an existing congestion and capacity issue in the roadway network. The VDOT STARS study for the Route 54 corridor which is currently underway will recommend potential mitigation for this intersection, and by extension the Route 54/I-95 interchange. Note that this TIA is not a Chapter 527 study as it is below 5,000 ADT proposed trips and is not required to recommend potential improvements outside the immediate area surrounding the project site.

20. The northbound approach at the intersection of Route 54 and Mt Hermon Road is expected to operate at LOS F in 2023. Mitigation measures should be considered.

Timmons Group Response

The results presented in the TIA indicate that the northbound approach delay gradually increases from a LOS C in 2027 background conditions to a LOS E in 2038 background conditions. Due to the low traffic volumes on the northbound approach, any increase in delay is most attributable to the growth of traffic volumes along mainline Route 54. With construction of the proposed development, in 2038 future conditions, the northbound approach is anticipated to experience maximum 118 seconds of delay (AM peak), less than two minutes, which is typical for a minor street stop-controlled approach at a busy arterial roadway (Route 54).

Improvements recommended by the report for this intersection are limited to Route 54 as the Applicant does not control any property at the Route 54/Mt. Hermon Rd. intersection. With the narrow existing right-of-way, improvements for the northbound approach would likely require right-of-way acquisition. Additionally, this intersection is being analyzed by the VDOT STARS study, which will include potential recommendations that will tie-in to any changes to the Route 54/I-95 interchange, which is approximately 850 feet west of the intersection.

21. Submitted Synchro files include Phases 1, 2, and 3 while the report only discusses two phases. Please Clarify.

Timmons Group Response

Synchro file names have been changed to match development phases for clarity.

22. Synchro models include the intersection of Route 54 and Mt Hermon Road (Intersection #8) as a signalized intersection. Please clarify.

Timmons Group Response

Synchro models have been updated to match proposed improvements and the proposed intersection control method.

23. Synchro operational analysis:

- a. Confirm minimum gaps coded correctly. Example: Intersection 1 (AM peak).**
- b. Confirm reference phases coded correctly. Example: Intersections 1,2, and 3.**
- c. Confirm storage lengths coded correctly. Example: Intersection 1 eastbound right-turn lane and Intersection 3 eastbound right-turn lane.**
- d. Confirm heavy vehicle percentage coded correctly. Example: Intersection 3 southbound left (PM peak). Additionally, maintain consistency in rounding.**
- e. Heavy vehicle data missing from appendix for Intersection 5.**
- f. Confirm coded speed limits.**
- g. Confirm volume inputs. Example: 2027 Phase 1 modeled volumes do not match Figure 9-1.**

Timmons Group Response

Synchro inputs described above have been checked and updated accordingly. Note that phase numbers were extracted from signal plans provided by VDOT. The signal plans have been added to the appendix for reference.

To: Claudia Cheely (Hanover County)
From: Thomas Ruff, PE, PTOE, AICP (Timmons Group)
RE: Iron Horse Data Center – Response to VDOT Comments
Date: 7/17/2024
Copy: Adam Moore, PE (VDOT); JoAnn Hunter (Hanover County); Nora Amos (Town of Ashland)

Timmons Group prepared a Traffic Impact Analysis (TIA) dated February 29, 2024 for the Iron Horse Data Center development located in Hanover County, VA. VDOT provided the following comments (**shown in bold**) on April 22, 2024 regarding the Iron Horse Data Center TIA. As a result of the comments and responses, a revised TIA has been prepared and is submitted with these responses.

- 1. All public roads to be maintained by VDOT must meet the standards set forth in the SSAR regulations, Appendix B(1) of the VDOT Road Design Manual (RDM), and all other applicable standards.**

Timmons Group Response

Noted.

- 2. All commercial entrances on routes maintained by VDOT must be designed in accordance with Appendix F of the RDM.**

Timmons Group Response

Noted.

- 3. All streets that are not intended to be extended must have cul-de-sacs of acceptable design geometry.**

Timmons Group Response

Noted.

- 4. The required spacing for commercial entrances on the VDOT-maintained portion of Route 54 can be found in Appendix F of the RDM. Route 54 is classified as a Minor Arterial.**

Timmons Group Response

Noted.

- 5. There are several mentions of SIDRA reports, but no SIDRA reports are in the Appendix, and it does not appear that any roundabouts were analyzed. Please remove references to SIDRA if it was not utilized in this analysis.**

Timmons Group Response

References to SIDRA have been removed from the report.

- 6. For each analysis year that has No Build vs. Build, the analysis results should be presented in a side by side format. The current format has them all being stand alone, which is unnecessary.**

Timmons Group Response

Level of Service tables have been updated to reflect the No Build vs. Build side by side format.

- 7. Please include the Amazon AWS Data Center Trip Generation Assessment memo in the Appendix.**

Timmons Group Response

The Bowman AWS Data Center Trip Generation Assessment has been added to the Appendix.

- 8. This signal warrant analysis doesn't appear to have been performed to standard. With low volumes on both right and left turns, the mainline should have 1 lane instead of 2 which was used in the analysis.**

Timmons Group Response

The signal warrant analysis has been removed as the projected future traffic volumes do not meet the thresholds for Warrants #1-3.

- 9. Please add to the study a statement regarding traffic operations during construction, particularly of the data center. The Department has recently found that the impacts during construction of data centers is often greater, sometimes greatly so, than the impacts expected once in operation. Will any improvements or temporary changes be necessary to ensure the safe and efficient flow of traffic during construction?**

Timmons Group Response

During the site plan process, the applicant will submit a Construction Traffic Management Plan (CTMP) for review and approval by VDOT, Hanover County, and the Town of Ashland to mitigate any traffic impacts caused by construction. This language has been added to the report.

- 10. Please provide a concept plan for all transportation improvements.**

Timmons Group Response

Concept exhibits have been developed and included in the report for all proposed improvements.

- 11. The lane designations on Route 54 should be displayed via an overhead sign directing traffic to Route 54 or Mt. Hermon Road.**

Timmons Group Response

Decisions regarding signs or engineering design of the proposed improvements will be handled during the site plan submittals to VDOT, Hanover County, and the Town of Ashland.

Appendix B

Scoping Agreement

PRE-SCOPE OF WORK MEETING FORM

Information on the Project Traffic Impact Analysis Base Assumptions

The applicant is responsible for entering the relevant information and submitting the form to VDOT and the locality no less than three (3) business days prior to the meeting. If a form is not received by this deadline, the scope of work meeting may be postponed.

Contact Information

Consultant Name:	Thomas Ruff / Scott Dunn
Tele:	804-200-6430 / 804-200-6955
E-mail:	thomas.ruff@timmons.com / scott.dunn@timmons.com
Developer/Owner Name:	Eric Wells - WestDulles Properties, Inc.
Tele:	703-906-5641
E-mail:	ericw@westdulles.com

Project Information

Project Name:	Tradeport 95 Business Center	Locality/County:	Town of Ashland Hanover County	
Project Location: (Attach regional and site specific location map)	The site is generally located west of Mt. Hermon Road, south of Route 54, and north of Mechumps Creek. The site is located in both the Town of Ashland and Hanover County. Figure 1 illustrates the site and the municipal boundary.			
Submission Type	Comp Plan ☐	Rezoning ☒	Site Plan ☐	Subd Plat ☐
Project Description: (Including details on the land use, acreage, phasing, access location, etc. Attach additional sheet if necessary)	The proposed rezoning will affect approximately 123 acres of existing planned unit development (PUD) within the Town of Ashland and approximately 73 acres of existing mixed use (MX) within Hanover County. The proposed development is anticipated to consist of 1,800,000 SF of Industrial Park, 25,000 SF Medical Office Building, 2,500 SF Drive-In Bank, 6,000 Fast-Food Restaurant with Drive-Thru, 12 VFP Gas Station, and 110 Townhomes. The possibility for other single-family residential units has been considered, with access via a separate entrance along Route 54. All commercial land uses are speculative. The conceptual site plan for the project is shown on Figure 2. The proposed rezoned sections will have access via entrances on Mt. Hermon Rd. and Route 54. The site is currently zoned as a mix of PUD and Mixed Use land uses. In order to accommodate the proposed land uses, the property will need to be rezoned to allow for the industrial, residential, and retail land uses. The proposed zoning is shown on Figure 3.			

It is important for the applicant to provide sufficient information to county and VDOT staff so that questions regarding geographic scope, alternate methodology, or other issues can be answered at the scoping meeting.

Proposed Use(s): (Check all that apply; attach additional pages as necessary)	Residential ☐	Commercial ☐	Mixed Use ☒	Other ☐
	Residential Uses(s) Number of Units: 110 ITE LU Code(s): 215 _____ _____ Commercial Use(s) ITE LU Code(s): _____ _____ _____ Square Ft or Other Variable: _____		130, 720 912, 934, 944 _____ Other Use(s) ITE LU Code(s): _____ _____ _____ Independent Variable(s): _____ _____ _____	
Total Peak Hour Trip Projection:	Less than 100 ☐	100 – 499 ☐	500 – 999 ☐	1,000 or more ☒
Traffic Impact Analysis Assumptions				
Study Period	Existing Year: 2022	Build-out Year: 2027/2032	Design Year: 2038	
Study Area Boundaries (Attach map)	North: Route 54		South: Mechumps Creek	
	East: Woodside Lane		West: US Route 1	
External Factors That Could Affect Project (Planned road improvements, other nearby developments)	- VDOT, the Town of Ashland, and Hanover County are currently evaluating potential improvements to the Route 54/I-95 interchange. Previous studies indicate that interchange improvements could be triggered by new development in the area. - Previous East Ashland proffers include roadway improvements along Route 54 including widening, intersection/interchange improvements, and potential signalization. - Hickory Grove residential development at Route 54 and Providence Church Rd. - Telcourt Road median break does not meet access management. The additional traffic and potential improvements from this project could impact the safety of the Telcourt Road intersection.			
Consistency With Comprehensive Plan (Land use, transportation plan)	Will be consistent with future land uses presented in the comprehensive plans for both Hanover County and the Town of Ashland.			
Available Traffic Data (Historical, forecasts)	I-95, S of Route 54 - 119,000, 13% HV / N of Route 54 - 112,000, 13% HV (2019) Route 54, W of I-95 - 25,000, 10% HV / E of I-95 - 6,000, 10% HV (2019) US 1, N of Route 54 - 16,000, 8% HV / S of Route 54 - 18,000, 5% HV (2019)			

It is important for the applicant to provide sufficient information to county and VDOT staff so that questions regarding geographic scope, alternate methodology, or other issues can be answered at the scoping meeting.

Trip Distribution (Attach sketch)	Road Name: I-95 NB - 30%		Road Name: US 1 NB/SB - 10%/10%	
	Road Name: I-95 SB - 40%		Road Name: Route 54 EB/WB - 5%/5%	
Annual Vehicle Trip Growth Rate:	1.5%	Peak Period for Study (check all that apply)	☒ AM ☒ PM ☐ SAT	
		Peak Hour of the Generator	N/A	
Study Intersections and/or Road Segments (Attach additional sheets as necessary)	1.US Route 1 and Route 54		6.Route 54 and Telcourt Road	
	2.Route 54 and Cottage Green Drive		7.Route 54 and Mt. Hermon Road	
	3.Route 54 and Hill Carter Parkway		8.Route 54 and Woodside Lane	
	4.Route 54 and I-95 SB ramps		9.Route 54 and Goddins Hill Road	
	5.Route 54 and I-95 NB ramps		10.Route 54 and Carter Road (N/S)	
Trip Adjustment Factors	Internal allowance: ☐ Yes ☒ No Reduction: 0% trips		Pass-by allowance: ☒ Yes ☐ No Reduction: Per VDOT guidelines% trips	
Software Methodology	☒ Synchro ☒ HCS (v.2000/+) ☒ aaSIDRA ☐ CORSIM ☐ Other _____			
Traffic Signal Proposed or Affected (Analysis software to be used, progression speed, cycle length)	Existing Signals: Route 54 and Hill Carter Parkway Route 54 and Cottage Green Drive Route 54 and US Route 1 Future/Proposed Signals: None, unless recommended after traffic analysis.			
Improvement(s) Assumed or to be Considered	No improvements are assumed to be required at this time. The traffic study will provide determination of necessary improvements.			
Background Traffic Studies Considered	I-95 Corridor Study and Hickory Grove development traffic study will be reviewed to determine any additional traffic volumes and other recommended improvements.			
Plan Submission	☐ Master Development Plan (MDP) ☒ Generalized Development Plan (GDP) ☒ Preliminary/Sketch Plan ☐ Other Plan type (Final Site, Subd. Plan)			
Additional Issues to be Addressed	☒ Queuing analysis ☐ Actuation/Coordination ☐ Weaving analysis ☒ Merge analysis ☐ Bike/Ped Accommodations ☒ Intersection(s) ☐ TDM Measures ☐ Other _____			

It is important for the applicant to provide sufficient information to county and VDOT staff so that questions regarding geographic scope, alternate methodology, or other issues can be answered at the scoping meeting.

NOTES on ASSUMPTIONS:

1. Zoning and land uses are subject to minor change dependent upon coordination with the Town of Ashland and Hanover County, as well as the client's development plan.
2. Trip distributions to be discussed after count data is reviewed.
3. Per discussion at scoping meeting on 1/7/2022, a growth rate of 1.5% was agreed upon.
4. Discuss potential COVID factor for collected traffic data after completion. Latest analysis of traffic data shows that most roadways are within 10% of pre-COVID traffic volumes.
5. If any traffic signals are recommended by the TIA or requested by the County or Town, a signal justification report (SJR) will need to be completed for VDOT review/approval.
6. The final number of proposed entrances has not been confirmed and a final development plan will be provided. The proposed entrance locations on Route 54 and Mt. Hermon Road will be reviewed with County, Town, and VDOT staff to ensure appropriate access management.
7. If analysis shows operational or queuing issues for the I-95 off ramps that significantly impacts ramp or mainline I-95 operations, a VDOT & FHWA IMR will be required. In addition, if specific improvements to the I-95 on/off ramps are significant, VDOT may request FHWA review and approval.

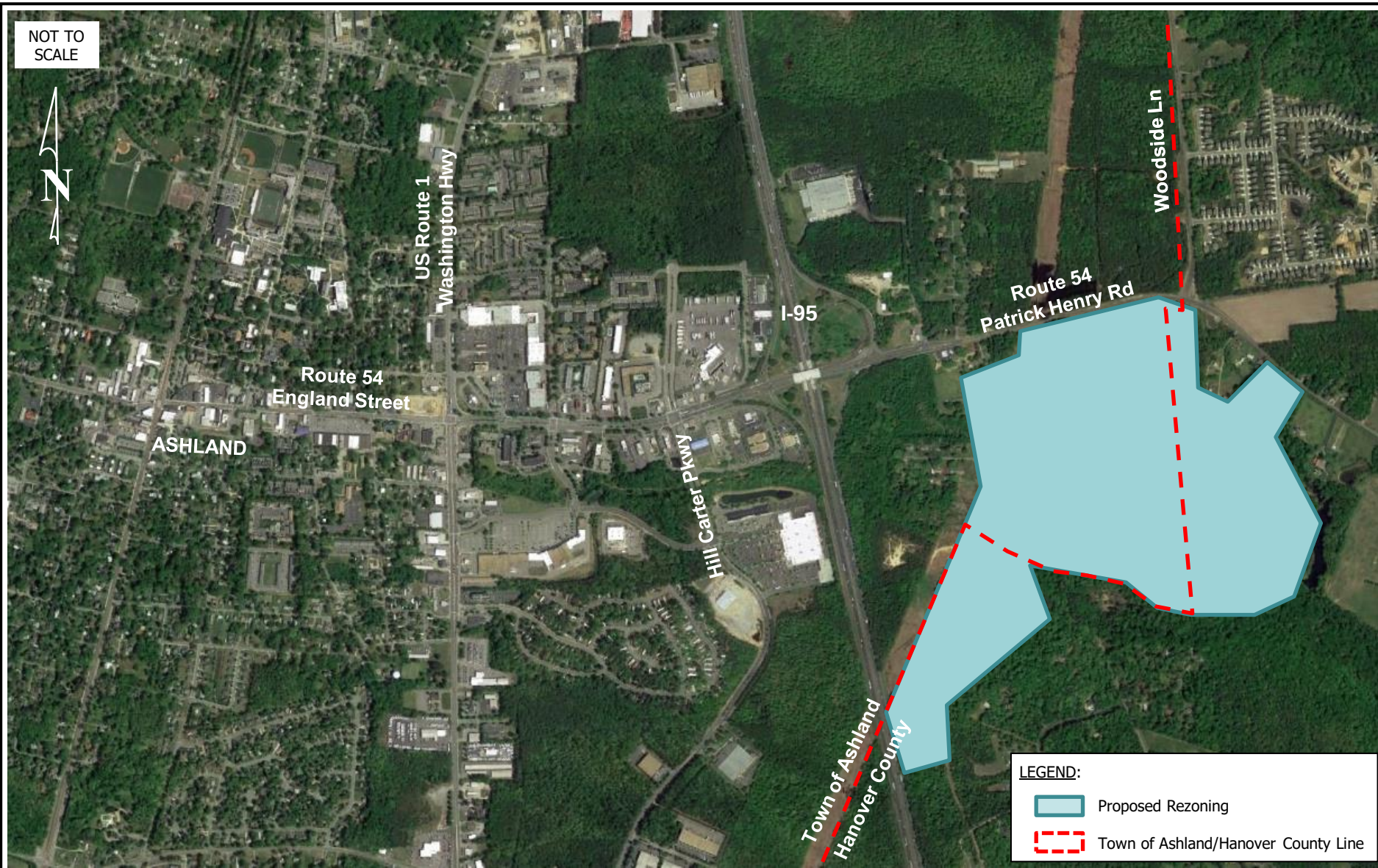
SIGNED: 
Applicant or Consultant

PRINT NAME: Thomas Ruff, PE
Applicant or Consultant

DATE: 04/08/2022

It is important for the applicant to provide sufficient information to county and VDOT staff so that questions regarding geographic scope, alternate methodology, or other issues can be answered at the scoping meeting.

NOT TO
SCALE



LEGEND:



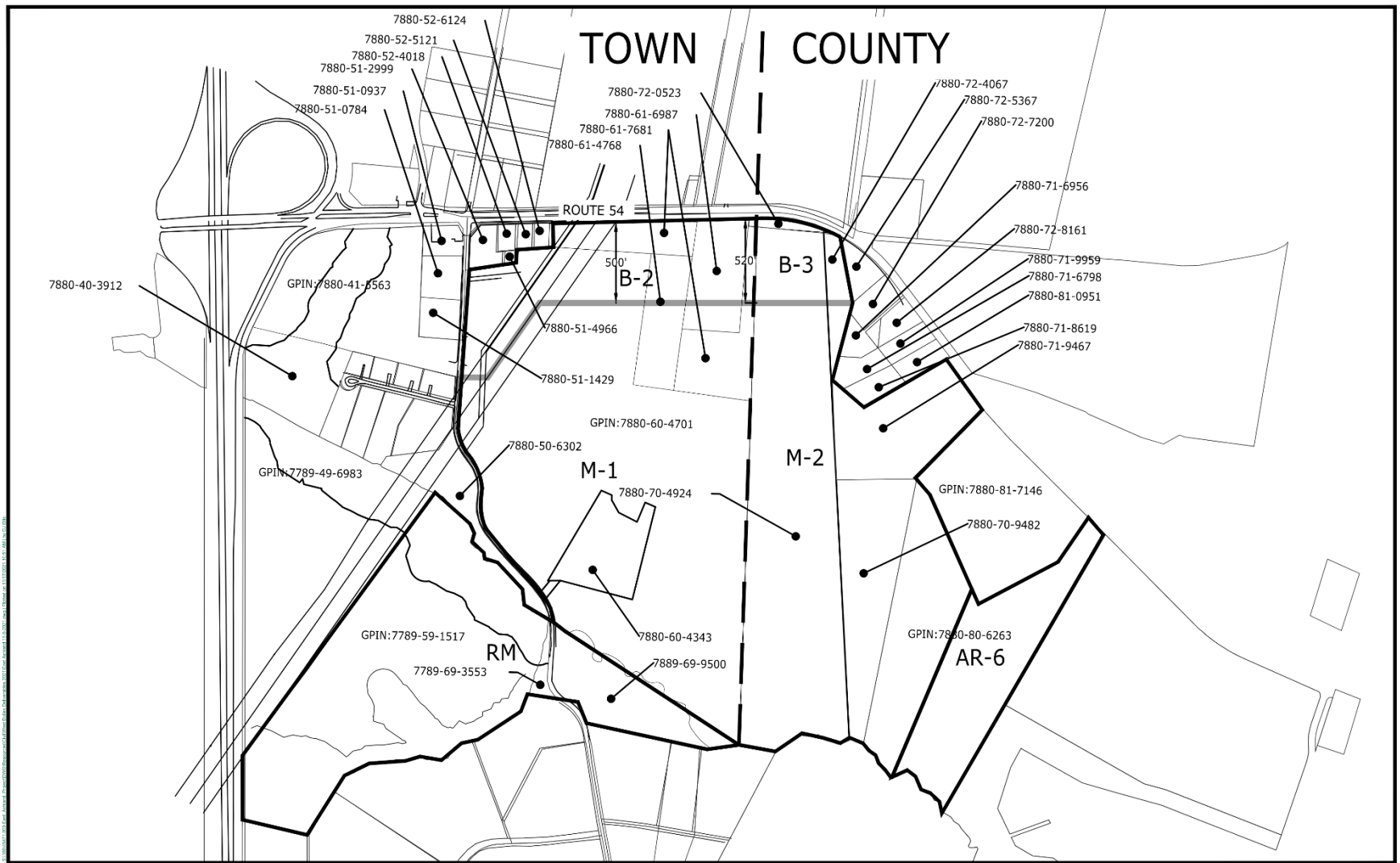
Proposed Rezoning



Town of Ashland/Hanover County Line



TRADEPORT 95 BUSINESS CENTER
ARCHITECTURE SITE PLAN - OPTION 3



ZONING MAP

TRADEPORT 95 ASHLAND
BUSINESS CENTER

LAND USE	ITE CODE	AMOUNT	UNITS	WEEKDAY						
				ADT	AM PEAK HOUR			PM PEAK HOUR		
					IN	OUT	TOTAL	IN	OUT	TOTAL
Industrial Park	130	1,800,000	SF (GFA)	4,220	496	116	612	135	477	612
Medical Office Building	720	25,000	SF (GFA)	966	55	14	69	30	69	99
Drive-In Bank	912	2,500	SF (GFA)	251	14	11	25	26	27	53
Fast-Food Restaurant with Drive-Thru	934	6,000	SF (GFA)	2,805	137	131	268	103	95	198
Gas Station	944	12	Fueling Pumps	2,064	62	61	123	84	83	167
Townhouses	215	110	Dwelling Units	788	16	36	52	35	27	62
TOTAL				11,094	780	369	1,149	412	778	1,190

SOURCE: Institute of Transportation Engineers' *Trip Generation Manual* 11th Edition (2021)

NOT TO
SCALE



ASHLAND

Route 54
England Street

US Route 1
Washington Hwy

I-95

Hill Carter Pkwy

Route 54
Patrick Henry Rd

Woodside Ln

Town of Ashland
Hanover County

Note:

Intersection #9 is shown only as a representation
for the Goddins Hill Road intersection, which is
located 2 miles to the east of the map.

LEGEND:



Proposed Rezoning



Town of Ashland/Hanover County Line





Evan Robohm

From: Thomas Ruff
Sent: Tuesday, February 21, 2023 5:21 PM
To: Evan Robohm
Subject: FW: Iron Horse Business Park

Thomas B. Ruff, PE, PTOE, AICP
Senior Project Manager – Transportation Planning, Analysis, & Design

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Your Vision Achieved Through Ours

To send me files greater than 20MB [click here](#).

From: Maloney, David P. <dpmaloney@hanovercounty.gov>
Sent: Thursday, February 9, 2023 10:16 AM
To: Andrew Condlin <acondlin@rothjackson.com>; Thomas Ruff <Thomas.Ruff@timmons.com>
Cc: Hunter, Jo Ann M. <JMHunter@hanovercounty.gov>; Biernot, Gretchen W. <gwbiernot@hanovercounty.gov>;
Cheely, Claudia <cdcheely@hanovercounty.gov>; Crews, Jessica R. <JRCrews@hanovercounty.gov>
Subject: Iron Horse Business Park

CAUTION: This email originated from outside of the organization. Do not click links or open attachments unless you recognize the sender and know the content is safe.

Good morning Andy and Thomas-
This email is a follow up to our discussion regarding the 527 Traffic Impact Analysis and the zoning application.

Traffic:

Thomas-
The January 11, 2023 memo prepared by Timmons does not include the residential component in Figure 3. The residential must be included in the overall TIA. The following phasing was agreed upon during our February 1, 2023 scoping discussion:
2027 Horizon year:
Phase I = 100 percent of the residential
Phase II = 50% commercial/OS buildout or buildout to a level that does not require improvements to the Rt. 54/I-95 interchange
2032 Horizon Year:
Phase III = Remainder of commercial/industrial development
2038 Horizon Year:
Project buildout plus six years

Zoning Application:

Andy-

The OS, Office Service district regulations contain very specific development standards which are outlined in Section 26-144 of the zoning ordinance. Furthermore Section 26-150 details specific requirements for the required sketch plan. I call these sections out because they are critical for completing the zoning application, but please be mindful of all requirements found within the OS, Office Service zoning district regulations.

Prior to resubmittal of the complete zoning application I recommend a formal pre-application meeting to review the draft application and the necessary submittal requirements. The pre-application meeting can be coordinated with Jessica Crews, who is copied on this email.

Please call or email if you have any questions regarding the TIA or the zoning application or OS district requirements.

David P. Maloney, AICP
Director of Planning
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Hanover County, VA 23069
(804) 365-6171
Email: dpmaloney@hanovercounty.gov
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Hanover : People, Tradition, Spirit
www.Envisionhanover.com

Appendix C

Traffic Counts

Data Collection Group

LSmith@DataCollectionGroup.net

File Name : Rte 54 and Rte 1

Site Code :

Start Date : 5/3/2022

Page No : 1

Groups Printed- Passenger Veh - Trucks

	Rte 1 From North					Rte 54 From East					Rte 1 From South					Rte 54 From West					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
07:00 AM	5	60	49	0	114	52	59	26	0	137	25	39	21	0	85	32	55	14	0	101	437
07:15 AM	12	80	59	0	151	70	77	37	0	184	26	44	31	0	101	45	72	13	0	130	566
07:30 AM	12	87	66	1	166	65	82	31	0	178	23	44	27	0	94	33	116	17	0	166	604
07:45 AM	22	99	54	1	176	91	94	48	0	233	33	44	34	0	111	45	87	22	0	154	674
Total	51	326	228	2	607	278	312	142	0	732	107	171	113	0	391	155	330	66	0	551	2281
08:00 AM	14	76	43	1	134	69	89	25	0	183	31	49	39	0	119	18	90	18	0	126	562
08:15 AM	23	59	54	0	136	79	114	35	0	228	29	46	42	0	117	40	75	16	0	131	612
08:30 AM	15	64	51	2	132	66	93	24	0	183	22	55	37	0	114	48	73	21	0	142	571
08:45 AM	11	69	43	0	123	50	65	37	1	153	29	37	39	0	105	43	99	15	1	158	539
Total	63	268	191	3	525	264	361	121	1	747	111	187	157	0	455	149	337	70	1	557	2284
04:00 PM	13	100	60	0	173	46	100	45	1	192	43	82	45	0	170	50	125	28	0	203	738
04:15 PM	18	92	67	0	177	44	94	42	0	180	39	84	55	1	179	34	87	24	0	145	681
04:30 PM	19	94	63	0	176	55	105	56	0	216	45	93	56	0	194	32	104	41	0	177	763
04:45 PM	24	92	64	1	181	53	90	48	0	191	53	88	59	0	200	26	102	31	0	159	731
Total	74	378	254	1	707	198	389	191	1	779	180	347	215	1	743	142	418	124	0	684	2913
05:00 PM	27	112	60	1	200	53	101	54	0	208	47	98	45	0	190	34	118	39	1	192	790
05:15 PM	22	108	63	3	196	66	118	46	0	230	58	126	71	0	255	26	86	22	0	134	815
05:30 PM	19	103	55	0	177	73	115	49	0	237	39	84	48	0	171	22	99	34	0	155	740
05:45 PM	25	86	60	2	173	66	105	30	0	201	42	91	41	0	174	21	64	26	0	111	659
Total	93	409	238	6	746	258	439	179	0	876	186	399	205	0	790	103	367	121	1	592	3004
Grand Total	281	1381	911	12	2585	998	1501	633	2	3134	584	1104	690	1	2379	549	1452	381	2	2384	10482
Apprch %	10.9	53.4	35.2	0.5		31.8	47.9	20.2	0.1		24.5	46.4	29	0		23	60.9	16	0.1		
Total %	2.7	13.2	8.7	0.1	24.7	9.5	14.3	6	0	29.9	5.6	10.5	6.6	0	22.7	5.2	13.9	3.6	0	22.7	
Passenger Veh	279	1321	838	12	2450	932	1464	606	2	3004	537	1046	668	1	2252	524	1409	363	2	2298	10004
% Passenger Veh	99.3	95.7	92	100	94.8	93.4	97.5	95.7	100	95.9	92	94.7	96.8	100	94.7	95.4	97	95.3	100	96.4	95.4
Trucks	2	60	73	0	135	66	37	27	0	130	47	58	22	0	127	25	43	18	0	86	478
% Trucks	0.7	4.3	8	0	5.2	6.6	2.5	4.3	0	4.1	8	5.3	3.2	0	5.3	4.6	3	4.7	0	3.6	4.6

Data Collection Group

LSmith@DataCollectionGroup.net

File Name : Rte 54 and Rte 1

Site Code :

Start Date : 5/3/2022

Page No : 2

	Rte 1 From North					Rte 54 From East					Rte 1 From South					Rte 54 From West					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 11:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:30 AM																					
07:30 AM	12	87	66	1	166	65	82	31	0	178	23	44	27	0	94	33	116	17	0	166	604
07:45 AM	22	99	54	1	176	91	94	48	0	233	33	44	34	0	111	45	87	22	0	154	674
08:00 AM	14	76	43	1	134	69	89	25	0	183	31	49	39	0	119	18	90	18	0	126	562
08:15 AM	23	59	54	0	136	79	114	35	0	228	29	46	42	0	117	40	75	16	0	131	612
Total Volume	71	321	217	3	612	304	379	139	0	822	116	183	142	0	441	136	368	73	0	577	2452
% App. Total	11.6	52.5	35.5	0.5		37	46.1	16.9	0		26.3	41.5	32.2	0		23.6	63.8	12.7	0		
PHF	.772	.811	.822	.750	.869	.835	.831	.724	.000	.882	.879	.934	.845	.000	.926	.756	.793	.830	.000	.869	.909
Passenger Veh	71	298	195	3	567	281	371	134	0	786	100	167	136	0	403	129	354	68	0	551	2307
% Passenger Veh	100	92.8	89.9	100	92.6	92.4	97.9	96.4	0	95.6	86.2	91.3	95.8	0	91.4	94.9	96.2	93.2	0	95.5	94.1
Trucks	0	23	22	0	45	23	8	5	0	36	16	16	6	0	38	7	14	5	0	26	145
% Trucks	0	7.2	10.1	0	7.4	7.6	2.1	3.6	0	4.4	13.8	8.7	4.2	0	8.6	5.1	3.8	6.8	0	4.5	5.9

Data Collection Group

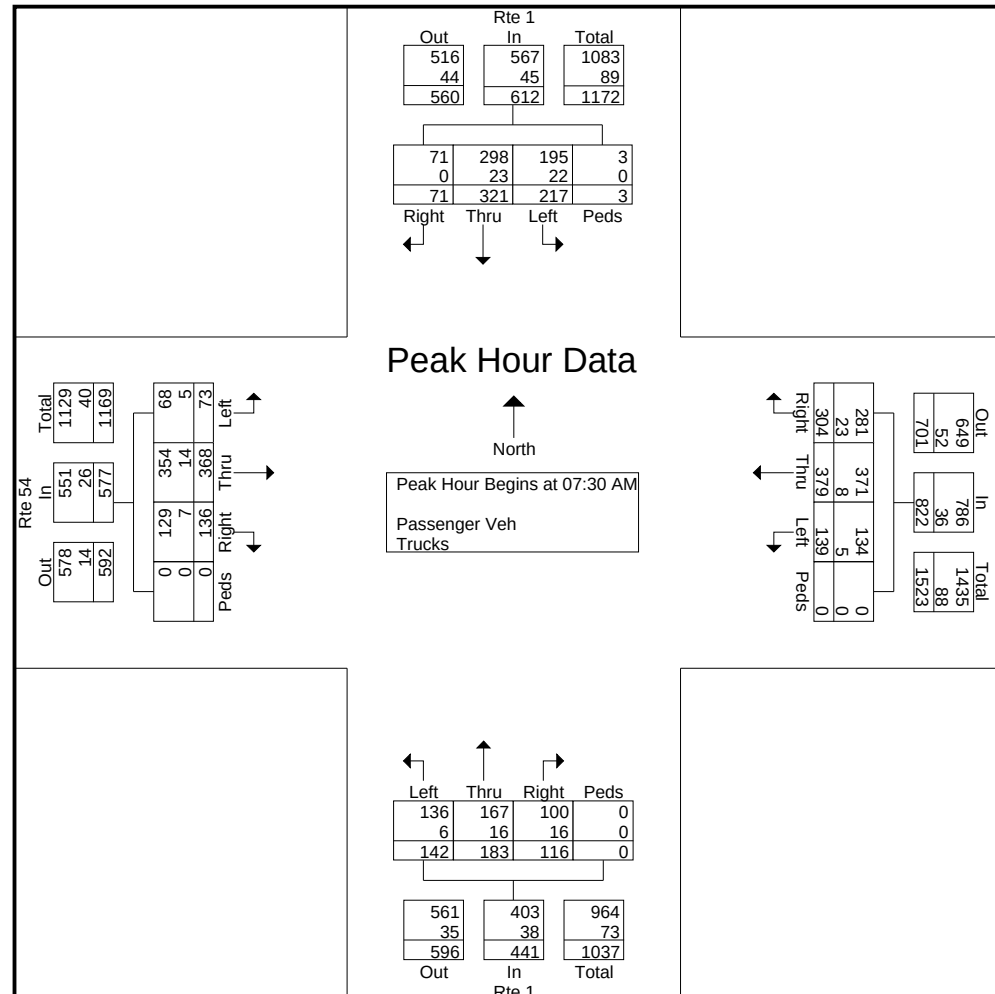
LSmith@DataCollectionGroup.net

File Name : Rte 54 and Rte 1

Site Code :

Start Date : 5/3/2022

Page No : 3



Data Collection Group

LSmith@DataCollectionGroup.net

File Name : Rte 54 and Rte 1

Site Code :

Start Date : 5/3/2022

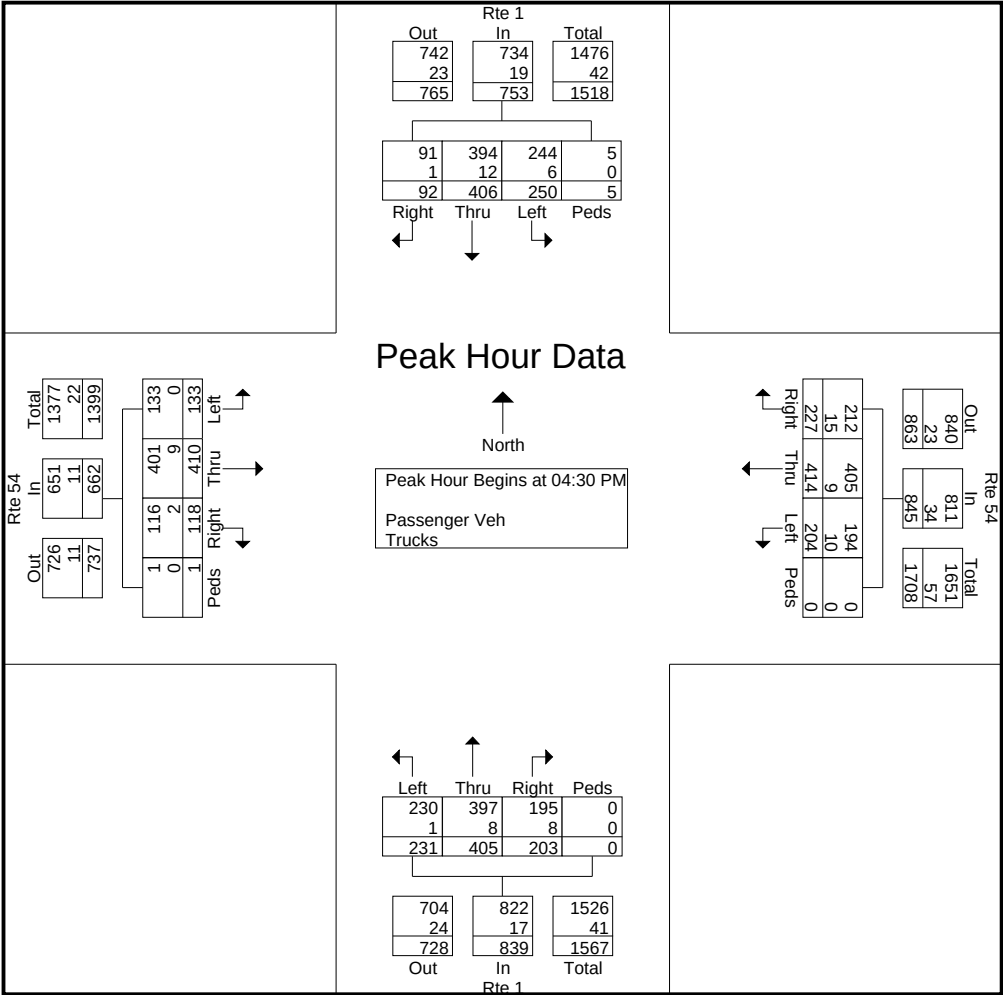
Page No : 4

	Rte 1 From North					Rte 54 From East					Rte 1 From South					Rte 54 From West					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Peak Hour Analysis From 12:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 04:30 PM																					
04:30 PM	19	94	63	0	176	55	105	56	0	216	45	93	56	0	194	32	104	41	0	177	763
04:45 PM	24	92	64	1	181	53	90	48	0	191	53	88	59	0	200	26	102	31	0	159	731
05:00 PM	27	112	60	1	200	53	101	54	0	208	47	98	45	0	190	34	118	39	1	192	790
05:15 PM	22	108	63	3	196	66	118	46	0	230	58	126	71	0	255	26	86	22	0	134	815
Total Volume	92	406	250	5	753	227	414	204	0	845	203	405	231	0	839	118	410	133	1	662	3099
% App. Total	12.2	53.9	33.2	0.7		26.9	49	24.1	0		24.2	48.3	27.5	0		17.8	61.9	20.1	0.2		
PHF	.852	.906	.977	.417	.941	.860	.877	.911	.000	.918	.875	.804	.813	.000	.823	.868	.869	.811	.250	.862	.951
Passenger Veh	91	394	244	5	734	212	405	194	0	811	195	397	230	0	822	116	401	133	1	651	3018
% Passenger Veh	98.9	97.0	97.6	100	97.5	93.4	97.8	95.1	0	96.0	96.1	98.0	99.6	0	98.0	98.3	97.8	100	100	98.3	97.4
Trucks	1	12	6	0	19	15	9	10	0	34	8	8	1	0	17	2	9	0	0	11	81
% Trucks	1.1	3.0	2.4	0	2.5	6.6	2.2	4.9	0	4.0	3.9	2.0	0.4	0	2.0	1.7	2.2	0	0	1.7	2.6

Data Collection Group

LSmith@DataCollectionGroup.net

File Name : Rte 54 and Rte 1
Site Code :
Start Date : 5/3/2022
Page No : 5



Data Collection Group

LSmith@DataCollectionGroup.net

File Name : Rte 54 and Carter

Site Code :

Start Date : 5/3/2022

Page No : 1

Groups Printed- Passenger Veh - Trucks

	Carter Rd From North					Rte 54 From East					Carter Rd From South					Rte 54 From West					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
07:00 AM	2	0	0	0	2	10	175	0	0	185	15	0	0	0	15	10	154	0	0	164	366
07:15 AM	10	0	0	0	10	4	233	0	0	237	12	0	0	0	12	16	198	0	0	214	473
07:30 AM	6	0	0	0	6	15	218	0	0	233	15	0	0	0	15	13	244	0	0	257	511
07:45 AM	7	0	0	0	7	15	272	0	0	287	16	0	0	0	16	9	187	0	0	196	506
Total	25	0	0	0	25	44	898	0	0	942	58	0	0	0	58	48	783	0	0	831	1856
08:00 AM	4	0	0	0	4	5	214	0	0	219	11	0	0	0	11	16	167	0	0	183	417
08:15 AM	1	0	0	1	2	13	243	0	0	256	17	0	0	0	17	18	205	0	0	223	498
08:30 AM	4	0	0	2	6	6	212	0	0	218	17	0	0	0	17	18	173	0	0	191	432
08:45 AM	4	0	0	0	4	13	189	0	0	202	10	0	0	0	10	17	174	0	0	191	407
Total	13	0	0	3	16	37	858	0	0	895	55	0	0	0	55	69	719	0	0	788	1754
04:00 PM	2	0	0	0	2	6	206	0	0	212	12	0	0	0	12	13	271	0	0	284	510
04:15 PM	0	0	0	0	0	10	207	0	0	217	6	0	0	0	6	8	234	0	0	242	465
04:30 PM	0	0	0	0	0	15	269	0	0	284	7	0	0	0	7	15	259	0	1	275	566
04:45 PM	3	0	0	0	3	12	211	0	0	223	8	0	0	1	9	7	286	0	0	293	528
Total	5	0	0	0	5	43	893	0	0	936	33	0	0	1	34	43	1050	0	1	1094	2069
05:00 PM	0	0	0	0	0	2	252	0	0	254	3	0	0	0	3	13	267	0	0	280	537
05:15 PM	2	0	0	0	2	8	272	0	1	281	14	0	0	0	14	16	296	0	0	312	609
05:30 PM	7	0	0	0	7	16	220	0	1	237	16	0	0	0	16	9	238	0	0	247	507
05:45 PM	5	0	0	0	5	19	217	0	0	236	12	0	0	0	12	6	218	0	0	224	477
Total	14	0	0	0	14	45	961	0	2	1008	45	0	0	0	45	44	1019	0	0	1063	2130
Grand Total	57	0	0	3	60	169	3610	0	2	3781	191	0	0	1	192	204	3571	0	1	3776	7809
Apprch %	95	0	0	5		4.5	95.5	0	0.1		99.5	0	0	0.5		5.4	94.6	0	0		
Total %	0.7	0	0	0	0.8	2.2	46.2	0	0	48.4	2.4	0	0	0	2.5	2.6	45.7	0	0	48.4	
Passenger Veh	46	0	0	3	49	84	3430	0	2	3516	184	0	0	1	185	199	3250	0	1	3450	7200
% Passenger Veh	80.7	0	0	100	81.7	49.7	95	0	100	93	96.3	0	0	100	96.4	97.5	91	0	100	91.4	92.2
Trucks	11	0	0	0	11	85	180	0	0	265	7	0	0	0	7	5	321	0	0	326	609
% Trucks	19.3	0	0	0	18.3	50.3	5	0	0	7	3.7	0	0	0	3.6	2.5	9	0	0	8.6	7.8

Data Collection Group

LSmith@DataCollectionGroup.net

File Name : Rte 54 and Carter

Site Code :

Start Date : 5/3/2022

Page No : 2

	Carter Rd From North					Rte 54 From East					Carter Rd From South					Rte 54 From West					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 11:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:30 AM																					
07:30 AM	6	0	0	0	6	15	218	0	0	233	15	0	0	0	15	13	244	0	0	257	511
07:45 AM	7	0	0	0	7	15	272	0	0	287	16	0	0	0	16	9	187	0	0	196	506
08:00 AM	4	0	0	0	4	5	214	0	0	219	11	0	0	0	11	16	167	0	0	183	417
08:15 AM	1	0	0	1	2	13	243	0	0	256	17	0	0	0	17	18	205	0	0	223	498
Total Volume	18	0	0	1	19	48	947	0	0	995	59	0	0	0	59	56	803	0	0	859	1932
% App. Total	94.7	0	0	5.3		4.8	95.2	0	0		100	0	0	0		6.5	93.5	0	0		
PHF	.643	.000	.000	.250	.679	.800	.870	.000	.000	.867	.868	.000	.000	.000	.868	.778	.823	.000	.000	.836	.945
Passenger Veh	16	0	0	1	17	22	916	0	0	938	58	0	0	0	58	56	699	0	0	755	1768
% Passenger Veh	88.9	0	0	100	89.5	45.8	96.7	0	0	94.3	98.3	0	0	0	98.3	100	87.0	0	0	87.9	91.5
Trucks	2	0	0	0	2	26	31	0	0	57	1	0	0	0	1	0	104	0	0	104	164
% Trucks	11.1	0	0	0	10.5	54.2	3.3	0	0	5.7	1.7	0	0	0	1.7	0	13.0	0	0	12.1	8.5

Data Collection Group

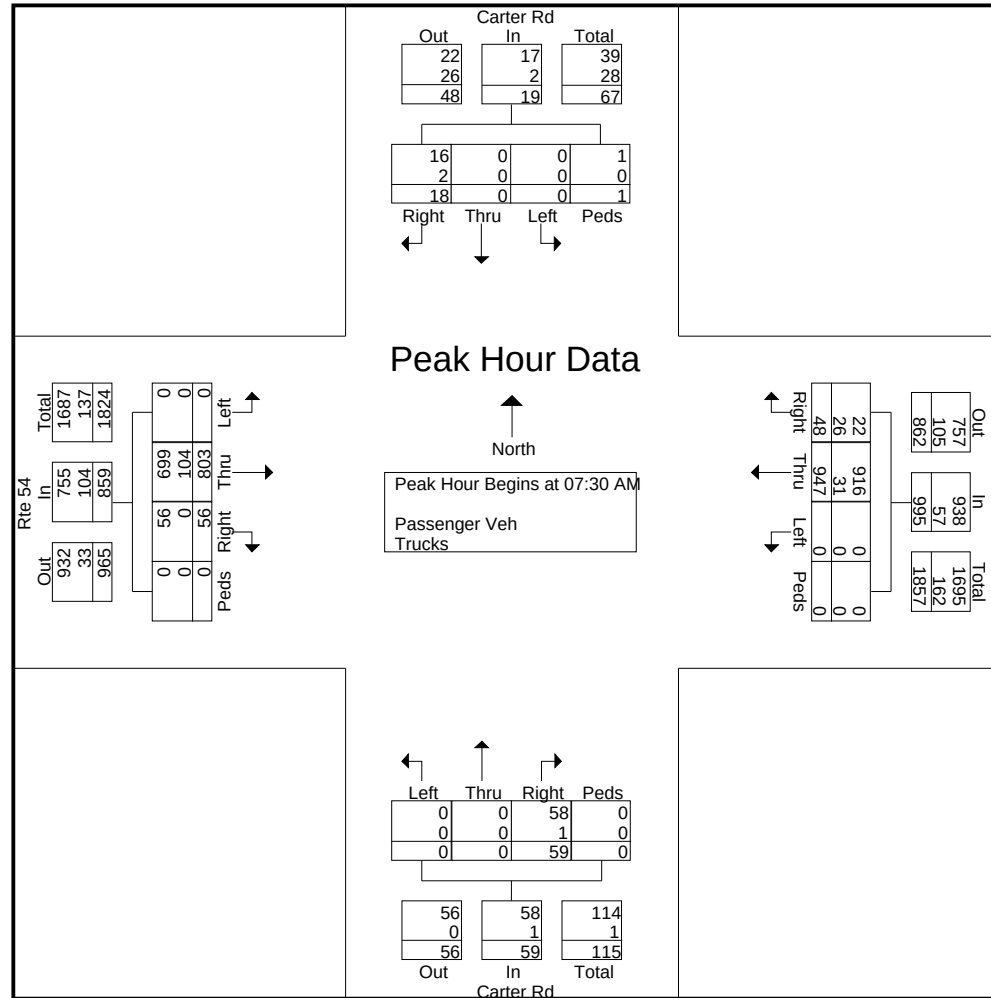
LSmith@DataCollectionGroup.net

File Name : Rte 54 and Carter

Site Code :

Start Date : 5/3/2022

Page No : 3



Data Collection Group

LSmith@DataCollectionGroup.net

File Name : Rte 54 and Carter

Site Code :

Start Date : 5/3/2022

Page No : 4

	Carter Rd From North					Rte 54 From East					Carter Rd From South					Rte 54 From West					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Peak Hour Analysis From 12:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 04:30 PM																					
04:30 PM	0	0	0	0	0	15	269	0	0	284	7	0	0	0	7	15	259	0	1	275	566
04:45 PM	3	0	0	0	3	12	211	0	0	223	8	0	0	1	9	7	286	0	0	293	528
05:00 PM	0	0	0	0	0	2	252	0	0	254	3	0	0	0	3	13	267	0	0	280	537
05:15 PM	2	0	0	0	2	8	272	0	1	281	14	0	0	0	14	16	296	0	0	312	609
Total Volume	5	0	0	0	5	37	1004	0	1	1042	32	0	0	1	33	51	1108	0	1	1160	2240
% App. Total	100	0	0	0		3.6	96.4	0	0.1		97	0	0	3		4.4	95.5	0	0.1		
PHF	.417	.000	.000	.000	.417	.617	.923	.000	.250	.917	.571	.000	.000	.250	.589	.797	.936	.000	.250	.929	.920
Passenger Veh	5	0	0	0	5	17	933	0	1	951	29	0	0	1	30	48	1057	0	1	1106	2092
% Passenger Veh	100	0	0	0	100	45.9	92.9	0	100	91.3	90.6	0	0	100	90.9	94.1	95.4	0	100	95.3	93.4
Trucks	0	0	0	0	0	20	71	0	0	91	3	0	0	0	3	3	51	0	0	54	148
% Trucks	0	0	0	0	0	54.1	7.1	0	0	8.7	9.4	0	0	0	9.1	5.9	4.6	0	0	4.7	6.6

Data Collection Group

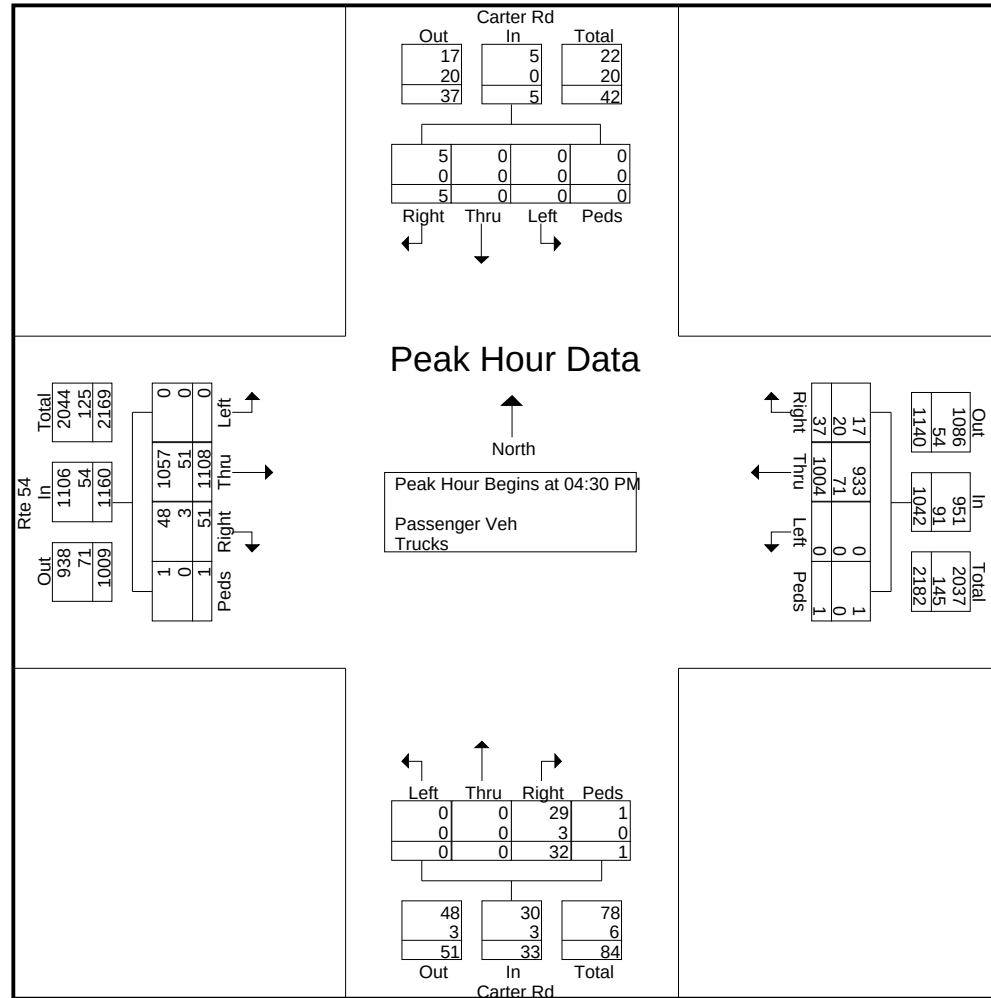
LSmith@DataCollectionGroup.net

File Name : Rte 54 and Carter

Site Code :

Start Date : 5/3/2022

Page No : 5



Data Collection Group

LSmith@DataCollectionGroup.net

File Name : Rte 54 and Cottage Green

Site Code : 00023467

Start Date : 5/3/2022

Page No : 1

Groups Printed- Passenger Veh - Trucks

	Cottage Green Dr From North					Rte 54 From East					Cottage Green Dr From South					Rte 54 From West					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
07:00 AM	3	1	20	1	25	5	126	7	0	138	2	2	5	0	9	0	129	1	0	130	302
07:15 AM	2	1	14	0	17	5	188	8	0	201	4	0	5	0	9	1	144	3	0	148	375
07:30 AM	7	4	19	0	30	9	186	1	0	196	5	2	6	0	13	5	197	1	0	203	442
07:45 AM	2	2	19	0	23	11	210	12	0	233	3	0	6	0	9	3	152	4	0	159	424
Total	14	8	72	1	95	30	710	28	0	768	14	4	22	0	40	9	622	9	0	640	1543
08:00 AM	6	4	19	0	29	8	177	12	0	197	2	1	3	0	6	8	140	1	0	149	381
08:15 AM	4	4	21	0	29	9	207	12	0	228	2	1	5	0	8	5	148	5	0	158	423
08:30 AM	6	5	26	0	37	9	178	8	0	195	9	1	5	0	15	7	131	4	0	142	389
08:45 AM	2	5	19	0	26	13	142	5	1	161	5	1	4	0	10	9	152	3	0	164	361
Total	18	18	85	0	121	39	704	37	1	781	18	4	17	0	39	29	571	13	0	613	1554
*** BREAK ***																					
04:00 PM	5	11	41	0	57	28	166	10	0	204	13	6	8	0	27	14	184	13	0	211	499
04:15 PM	5	9	37	0	51	24	167	9	0	200	8	5	5	1	19	6	143	11	0	160	430
04:30 PM	4	14	47	1	66	28	206	16	0	250	8	8	8	0	24	7	198	6	0	211	551
04:45 PM	6	15	49	0	70	35	135	13	0	183	15	16	15	0	46	9	176	8	0	193	492
Total	20	49	174	1	244	115	674	48	0	837	44	35	36	1	116	36	701	38	0	775	1972
05:00 PM	6	7	40	1	54	26	187	14	1	228	11	9	9	0	29	7	207	5	0	219	530
05:15 PM	9	13	48	0	70	30	194	15	0	239	13	15	14	0	42	5	179	10	0	194	545
05:30 PM	5	13	34	0	52	22	227	7	0	256	2	15	9	0	26	7	180	10	0	197	531
05:45 PM	7	16	39	0	62	25	158	11	0	194	11	9	13	0	33	6	122	9	0	137	426
Total	27	49	161	1	238	103	766	47	1	917	37	48	45	0	130	25	688	34	0	747	2032
Grand Total	79	124	492	3	698	287	2854	160	2	3303	113	91	120	1	325	99	2582	94	0	2775	7101
Apprch %	11.3	17.8	70.5	0.4		8.7	86.4	4.8	0.1		34.8	28	36.9	0.3		3.6	93	3.4	0		
Total %	1.1	1.7	6.9	0	9.8	4	40.2	2.3	0	46.5	1.6	1.3	1.7	0	4.6	1.4	36.4	1.3	0	39.1	
Passenger Veh	76	121	479	3	679	278	2728	140	2	3148	109	90	118	1	318	94	2430	87	0	2611	6756
% Passenger Veh	96.2	97.6	97.4	100	97.3	96.9	95.6	87.5	100	95.3	96.5	98.9	98.3	100	97.8	94.9	94.1	92.6	0	94.1	95.1
Trucks	3	3	13	0	19	9	126	20	0	155	4	1	2	0	7	5	152	7	0	164	345
% Trucks	3.8	2.4	2.6	0	2.7	3.1	4.4	12.5	0	4.7	3.5	1.1	1.7	0	2.2	5.1	5.9	7.4	0	5.9	4.9

Data Collection Group

LSmith@DataCollectionGroup.net

File Name : Rte 54 and Cottage Green

Site Code : 00023467

Start Date : 5/3/2022

Page No : 2

	Cottage Green Dr From North					Rte 54 From East					Cottage Green Dr From South					Rte 54 From West					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 11:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:30 AM																					
07:30 AM	7	4	19	0	30	9	186	1	0	196	5	2	6	0	13	5	197	1	0	203	442
07:45 AM	2	2	19	0	23	11	210	12	0	233	3	0	6	0	9	3	152	4	0	159	424
08:00 AM	6	4	19	0	29	8	177	12	0	197	2	1	3	0	6	8	140	1	0	149	381
08:15 AM	4	4	21	0	29	9	207	12	0	228	2	1	5	0	8	5	148	5	0	158	423
Total Volume	19	14	78	0	111	37	780	37	0	854	12	4	20	0	36	21	637	11	0	669	1670
% App. Total	17.1	12.6	70.3	0		4.3	91.3	4.3	0		33.3	11.1	55.6	0		3.1	95.2	1.6	0		
PHF	.679	.875	.929	.000	.925	.841	.929	.771	.000	.916	.600	.500	.833	.000	.692	.656	.808	.550	.000	.824	.945
Passenger Veh	18	13	75	0	106	32	747	33	0	812	12	3	18	0	33	17	588	10	0	615	1566
% Passenger Veh	94.7	92.9	96.2	0	95.5	86.5	95.8	89.2	0	95.1	100	75.0	90.0	0	91.7	81.0	92.3	90.9	0	91.9	93.8
Trucks	1	1	3	0	5	5	33	4	0	42	0	1	2	0	3	4	49	1	0	54	104
% Trucks	5.3	7.1	3.8	0	4.5	13.5	4.2	10.8	0	4.9	0	25.0	10.0	0	8.3	19.0	7.7	9.1	0	8.1	6.2

Data Collection Group

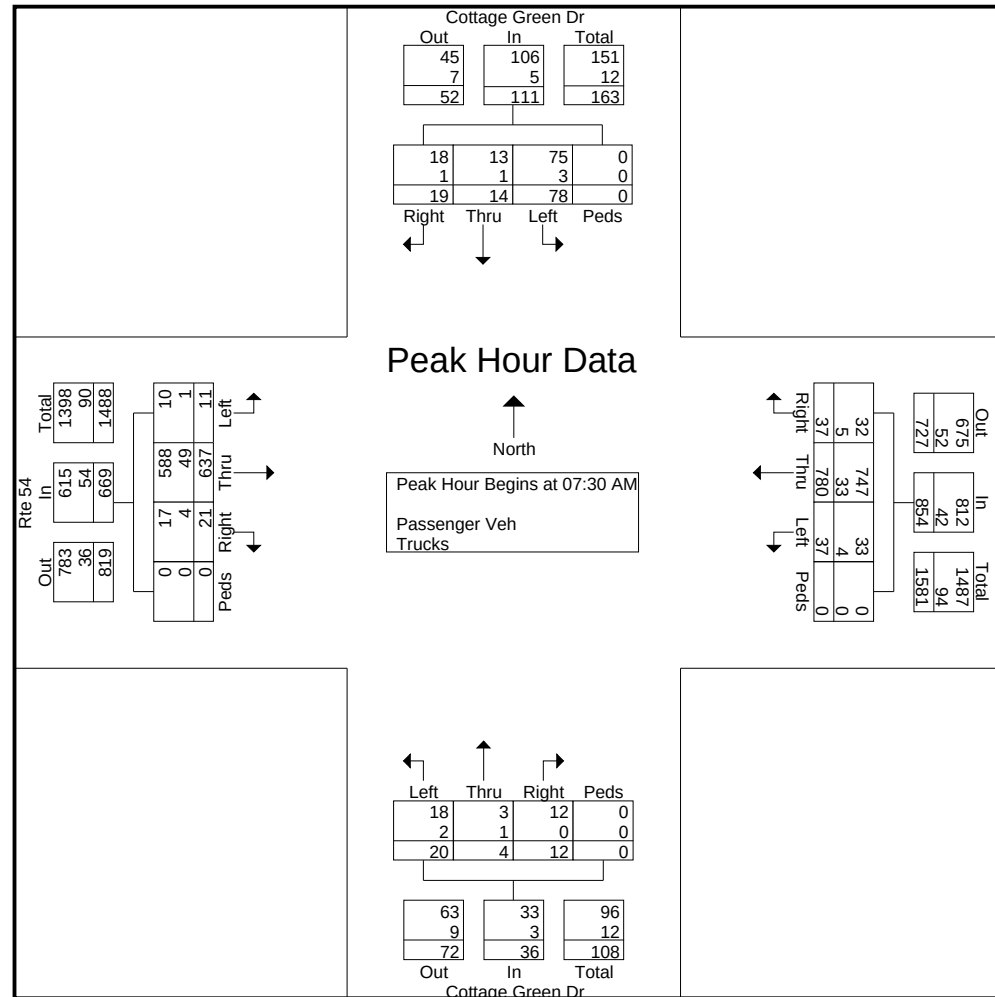
LSmith@DataCollectionGroup.net

File Name : Rte 54 and Cottage Green

Site Code : 00023467

Start Date : 5/3/2022

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Data Collection Group

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File Name : Rte 54 and Cottage Green

Site Code : 00023467

Start Date : 5/3/2022

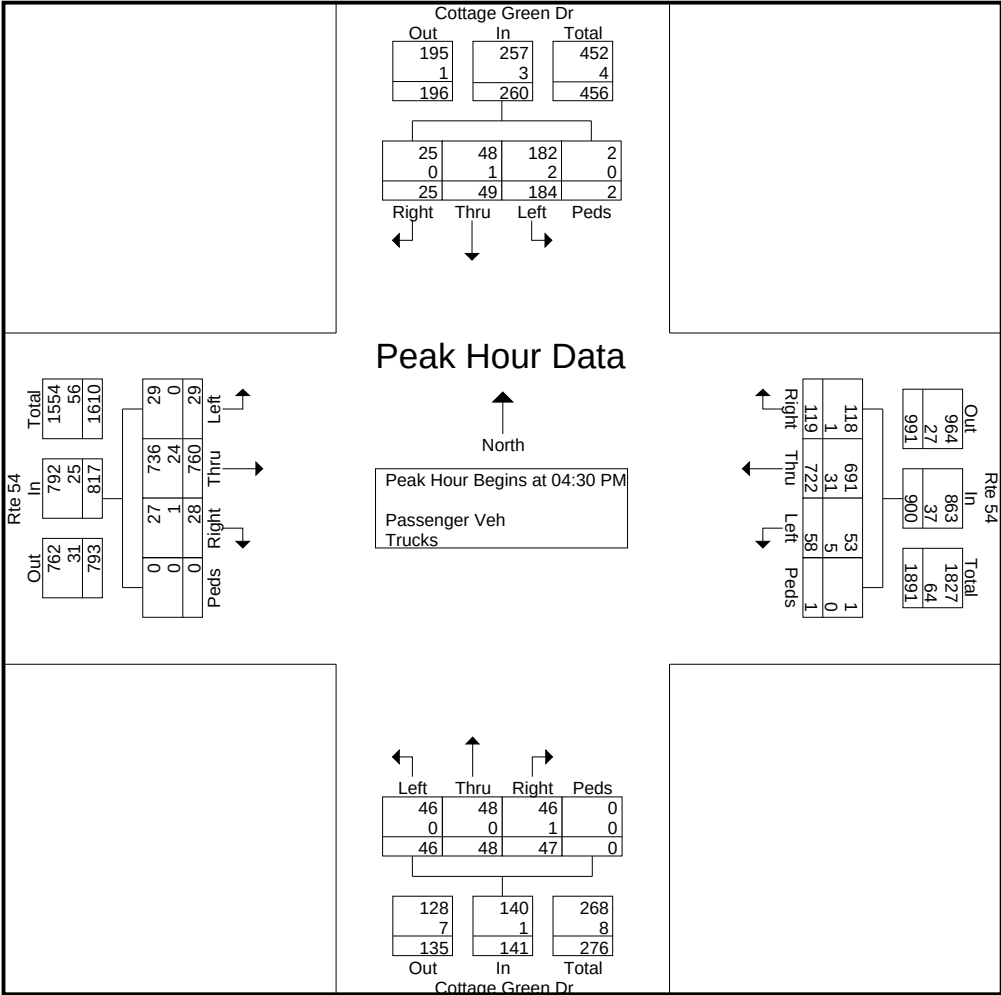
Page No : 4

	Cottage Green Dr From North					Rte 54 From East					Cottage Green Dr From South					Rte 54 From West					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Peak Hour Analysis From 12:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 04:30 PM																					
04:30 PM	4	14	47	1	66	28	206	16	0	250	8	8	8	0	24	7	198	6	0	211	551
04:45 PM	6	15	49	0	70	35	135	13	0	183	15	16	15	0	46	9	176	8	0	193	492
05:00 PM	6	7	40	1	54	26	187	14	1	228	11	9	9	0	29	7	207	5	0	219	530
05:15 PM	9	13	48	0	70	30	194	15	0	239	13	15	14	0	42	5	179	10	0	194	545
Total Volume	25	49	184	2	260	119	722	58	1	900	47	48	46	0	141	28	760	29	0	817	2118
% App. Total	9.6	18.8	70.8	0.8		13.2	80.2	6.4	0.1		33.3	34	32.6	0		3.4	93	3.5	0		
PHF	.694	.817	.939	.500	.929	.850	.876	.906	.250	.900	.783	.750	.767	.000	.766	.778	.918	.725	.000	.933	.961
Passenger Veh	25	48	182	2	257	118	691	53	1	863	46	48	46	0	140	27	736	29	0	792	2052
% Passenger Veh	100	98.0	98.9	100	98.8	99.2	95.7	91.4	100	95.9	97.9	100	100	0	99.3	96.4	96.8	100	0	96.9	96.9
Trucks	0	1	2	0	3	1	31	5	0	37	1	0	0	0	1	1	24	0	0	25	66
% Trucks	0	2.0	1.1	0	1.2	0.8	4.3	8.6	0	4.1	2.1	0	0	0	0.7	3.6	3.2	0	0	3.1	3.1

Data Collection Group

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File Name : Rte 54 and Cottage Green
Site Code : 00023467
Start Date : 5/3/2022
Page No : 5



Data Collection Group

LSmith@DataCollectionGroup.net

File Name : Rte 54 and Hill Carter

Site Code :

Start Date : 5/3/2022

Page No : 1

Groups Printed- Passenger Veh - Trucks

	Hill Carter Pkwy From North					Rte 54 From East					Hill Carter Pkwy From South					Rte 54 From West					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
07:00 AM	1	4	20	0	25	3	137	44	0	184	25	1	8	0	34	20	133	6	0	159	402
07:15 AM	3	3	29	0	35	4	192	49	0	245	31	1	15	0	47	20	158	4	0	182	509
07:30 AM	2	5	12	0	19	0	184	45	0	229	32	1	17	0	50	18	205	3	0	226	524
07:45 AM	6	2	19	0	27	2	225	50	0	277	30	2	17	0	49	21	147	8	0	176	529
Total	12	14	80	0	106	9	738	188	0	935	118	5	57	0	180	79	643	21	0	743	1964
08:00 AM	3	3	13	0	19	0	179	35	0	214	30	3	17	0	50	19	134	13	0	166	449
08:15 AM	3	6	32	0	41	2	198	48	0	248	37	2	20	0	59	22	148	10	2	182	530
08:30 AM	8	4	17	0	29	0	161	44	1	206	32	3	15	0	50	22	141	11	0	174	459
08:45 AM	5	3	15	1	24	2	134	53	0	189	24	3	16	0	43	32	148	9	0	189	445
Total	19	16	77	1	113	4	672	180	1	857	123	11	68	0	202	95	571	43	2	711	1883
04:00 PM	5	0	22	0	27	8	150	52	0	210	65	4	29	0	98	38	184	11	0	233	568
04:15 PM	2	4	9	0	15	7	161	39	0	207	50	5	47	0	102	25	183	5	0	213	537
04:30 PM	4	5	16	0	25	10	190	63	0	263	75	2	42	0	119	40	181	12	0	233	640
04:45 PM	3	5	10	0	18	4	147	50	1	202	48	5	39	0	92	29	230	11	0	270	582
Total	14	14	57	0	85	29	648	204	1	882	238	16	157	0	411	132	778	39	0	949	2327
05:00 PM	9	4	23	1	37	21	181	52	0	254	61	1	41	1	104	37	191	10	0	238	633
05:15 PM	4	3	19	0	26	11	209	45	2	267	71	2	52	3	128	28	218	14	0	260	681
05:30 PM	3	4	17	0	24	4	167	46	1	218	60	7	40	2	109	28	159	15	3	205	556
05:45 PM	6	5	15	0	26	8	180	42	0	230	40	7	34	0	81	20	170	7	1	198	535
Total	22	16	74	1	113	44	737	185	3	969	232	17	167	6	422	113	738	46	4	901	2405
Grand Total	67	60	288	2	417	86	2795	757	5	3643	711	49	449	6	1215	419	2730	149	6	3304	8579
Apprch %	16.1	14.4	69.1	0.5		2.4	76.7	20.8	0.1		58.5	4	37	0.5		12.7	82.6	4.5	0.2		
Total %	0.8	0.7	3.4	0	4.9	1	32.6	8.8	0.1	42.5	8.3	0.6	5.2	0.1	14.2	4.9	31.8	1.7	0.1	38.5	
Passenger Veh	56	51	162	2	271	44	2659	720	5	3428	667	42	443	6	1158	413	2566	133	6	3118	7975
% Passenger Veh	83.6	85	56.2	100	65	51.2	95.1	95.1	100	94.1	93.8	85.7	98.7	100	95.3	98.6	94	89.3	100	94.4	93
Trucks	11	9	126	0	146	42	136	37	0	215	44	7	6	0	57	6	164	16	0	186	604
% Trucks	16.4	15	43.8	0	35	48.8	4.9	4.9	0	5.9	6.2	14.3	1.3	0	4.7	1.4	6	10.7	0	5.6	7

Data Collection Group

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File Name : Rte 54 and Hill Carter

Site Code :

Start Date : 5/3/2022

Page No : 2

	Hill Carter Pkwy From North					Rte 54 From East					Hill Carter Pkwy From South					Rte 54 From West					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 11:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:30 AM																					
07:30 AM	2	5	12	0	19	0	184	45	0	229	32	1	17	0	50	18	205	3	0	226	524
07:45 AM	6	2	19	0	27	2	225	50	0	277	30	2	17	0	49	21	147	8	0	176	529
08:00 AM	3	3	13	0	19	0	179	35	0	214	30	3	17	0	50	19	134	13	0	166	449
08:15 AM	3	6	32	0	41	2	198	48	0	248	37	2	20	0	59	22	148	10	2	182	530
Total Volume	14	16	76	0	106	4	786	178	0	968	129	8	71	0	208	80	634	34	2	750	2032
% App. Total	13.2	15.1	71.7	0		0.4	81.2	18.4	0		62	3.8	34.1	0		10.7	84.5	4.5	0.3		
PHF	.583	.667	.594	.000	.646	.500	.873	.890	.000	.874	.872	.667	.888	.000	.881	.909	.773	.654	.250	.830	.958
Passenger Veh	11	12	38	0	61	3	746	170	0	919	110	6	70	0	186	79	584	27	2	692	1858
% Passenger Veh	78.6	75.0	50.0	0	57.5	75.0	94.9	95.5	0	94.9	85.3	75.0	98.6	0	89.4	98.8	92.1	79.4	100	92.3	91.4
Trucks	3	4	38	0	45	1	40	8	0	49	19	2	1	0	22	1	50	7	0	58	174
% Trucks	21.4	25.0	50.0	0	42.5	25.0	5.1	4.5	0	5.1	14.7	25.0	1.4	0	10.6	1.3	7.9	20.6	0	7.7	8.6

Data Collection Group

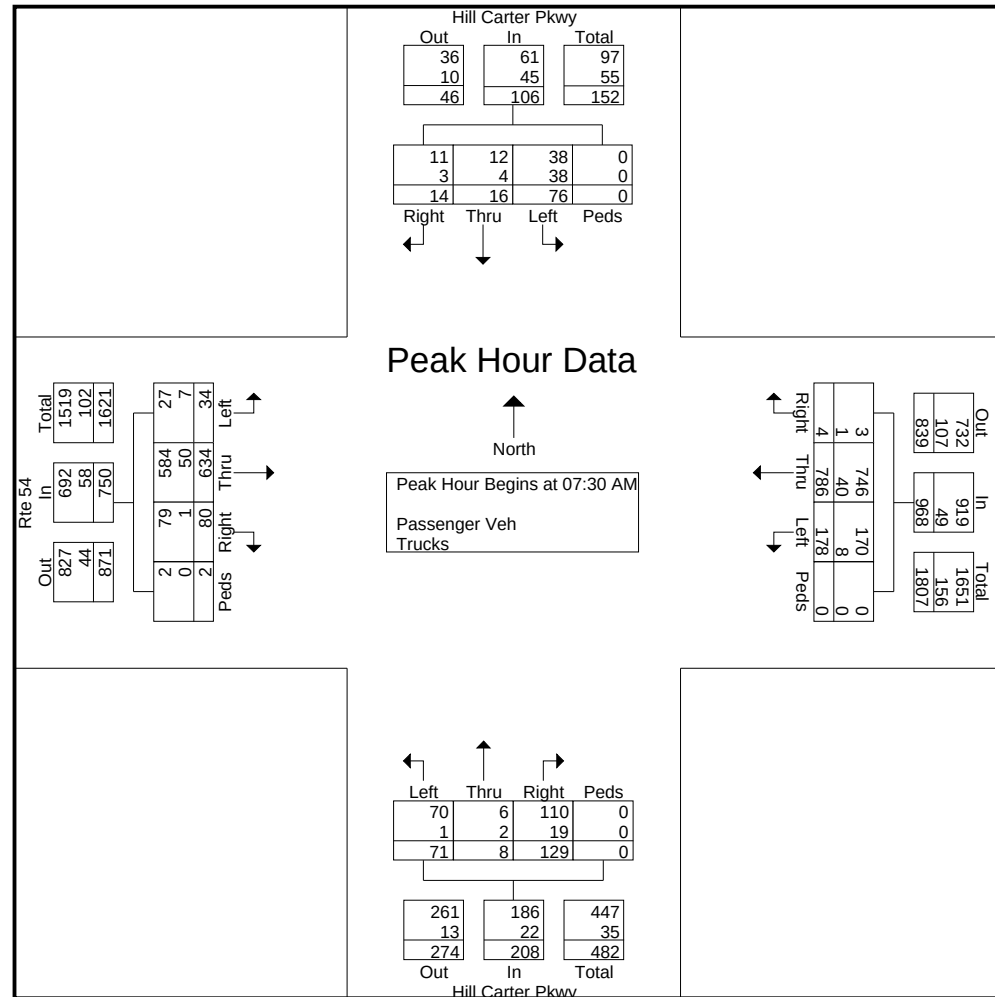
LSmith@DataCollectionGroup.net

File Name : Rte 54 and Hill Carter

Site Code :

Start Date : 5/3/2022

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Data Collection Group

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File Name : Rte 54 and Hill Carter

Site Code :

Start Date : 5/3/2022

Page No : 4

	Hill Carter Pkwy From North					Rte 54 From East					Hill Carter Pkwy From South					Rte 54 From West					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Peak Hour Analysis From 12:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 04:30 PM																					
04:30 PM	4	5	16	0	25	10	190	63	0	263	75	2	42	0	119	40	181	12	0	233	640
04:45 PM	3	5	10	0	18	4	147	50	1	202	48	5	39	0	92	29	230	11	0	270	582
05:00 PM	9	4	23	1	37	21	181	52	0	254	61	1	41	1	104	37	191	10	0	238	633
05:15 PM	4	3	19	0	26	11	209	45	2	267	71	2	52	3	128	28	218	14	0	260	681
Total Volume	20	17	68	1	106	46	727	210	3	986	255	10	174	4	443	134	820	47	0	1001	2536
% App. Total	18.9	16	64.2	0.9		4.7	73.7	21.3	0.3		57.6	2.3	39.3	0.9		13.4	81.9	4.7	0		
PHF	.556	.850	.739	.250	.716	.548	.870	.833	.375	.923	.850	.500	.837	.333	.865	.838	.891	.839	.000	.927	.931
Passenger Veh	20	16	44	1	81	20	694	202	3	919	252	9	171	4	436	133	792	46	0	971	2407
% Passenger Veh	100	94.1	64.7	100	76.4	43.5	95.5	96.2	100	93.2	98.8	90.0	98.3	100	98.4	99.3	96.6	97.9	0	97.0	94.9
Trucks	0	1	24	0	25	26	33	8	0	67	3	1	3	0	7	1	28	1	0	30	129
% Trucks	0	5.9	35.3	0	23.6	56.5	4.5	3.8	0	6.8	1.2	10.0	1.7	0	1.6	0.7	3.4	2.1	0	3.0	5.1

Data Collection Group

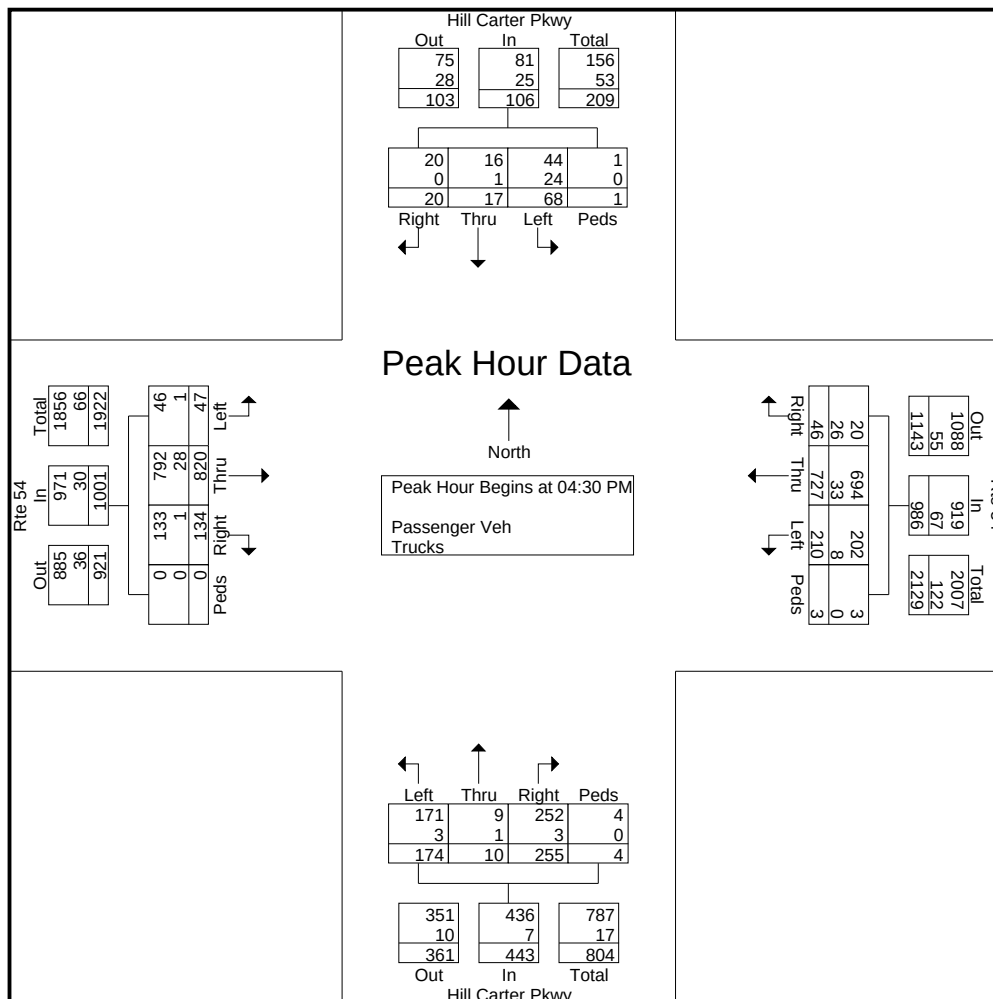
LSmith@DataCollectionGroup.net

File Name : Rte 54 and Hill Carter

Site Code :

Start Date : 5/3/2022

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Data Collection Group

LSmith@DataCollectionGroup.net

File Name : Rte 54 and I95N Ramp Junction

Site Code :

Start Date : 5/5/2022

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Groups Printed- Passenger Veh - Trucks

	I95 NB On and Off Ramp From North				Rte 54 From East				I95 NB Off Ramp From South					Rte 54 From West				
Start Time	Right	Left	Peds	App. Total	Right	Thru	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Thru	Left	Peds	App. Total	Int. Total
07:00 AM	113	0	0	113	7	89	0	96	19	0	0	0	19	18	29	0	47	275
07:15 AM	141	0	0	141	8	103	0	111	20	0	0	0	20	29	28	0	57	329
07:30 AM	155	0	0	155	7	117	0	124	20	0	0	0	20	30	40	0	70	369
07:45 AM	169	0	0	169	4	104	0	108	32	0	0	0	32	53	36	0	89	398
Total	578	0	0	578	26	413	0	439	91	0	0	0	91	130	133	0	263	1371
08:00 AM	148	0	0	148	4	87	0	91	33	0	0	0	33	53	31	0	84	356
08:15 AM	145	0	0	145	6	97	0	103	40	0	0	0	40	56	29	0	85	373
08:30 AM	155	0	0	155	6	78	0	84	31	0	0	0	31	39	45	0	84	354
08:45 AM	127	0	0	127	8	80	0	88	39	0	0	0	39	29	44	0	73	327
Total	575	0	0	575	24	342	0	366	143	0	0	0	143	177	149	0	326	1410
04:00 PM	123	0	0	123	14	92	0	106	42	0	0	0	42	67	34	0	101	372
04:15 PM	121	0	0	121	5	81	0	86	35	0	0	0	35	67	65	0	132	374
04:30 PM	160	0	0	160	6	140	0	146	32	0	0	0	32	63	34	0	97	435
04:45 PM	152	0	0	152	5	104	0	109	55	0	0	0	55	73	50	0	123	439
Total	556	0	0	556	30	417	0	447	164	0	0	0	164	270	183	0	453	1620
05:00 PM	140	0	0	140	11	116	0	127	53	0	0	0	53	93	54	0	147	467
05:15 PM	158	0	0	158	7	92	0	99	52	0	0	0	52	93	67	0	160	469
05:30 PM	166	0	0	166	4	80	0	84	51	0	0	0	51	74	50	0	124	425
05:45 PM	151	0	0	151	6	73	0	79	60	0	0	0	60	60	49	0	109	399
Total	615	0	0	615	28	361	0	389	216	0	0	0	216	320	220	0	540	1760
Grand Total	2324	0	0	2324	108	1533	0	1641	614	0	0	0	614	897	685	0	1582	6161
Apprch %	100	0	0		6.6	93.4	0		100	0	0	0		56.7	43.3	0		
Total %	37.7	0	0	37.7	1.8	24.9	0	26.6	10	0	0	0	10	14.6	11.1	0	25.7	
Passenger Veh	2158	0	0	2158	100	1488	0	1588	596	0	0	0	596	876	610	0	1486	5828
% Passenger Veh	92.9	0	0	92.9	92.6	97.1	0	96.8	97.1	0	0	0	97.1	97.7	89.1	0	93.9	94.6
Trucks	166	0	0	166	8	45	0	53	18	0	0	0	18	21	75	0	96	333
% Trucks	7.1	0	0	7.1	7.4	2.9	0	3.2	2.9	0	0	0	2.9	2.3	10.9	0	6.1	5.4

Data Collection Group

LSmith@DataCollectionGroup.net

File Name : Rte 54 and I95N Ramp Junction

Site Code :

Start Date : 5/5/2022

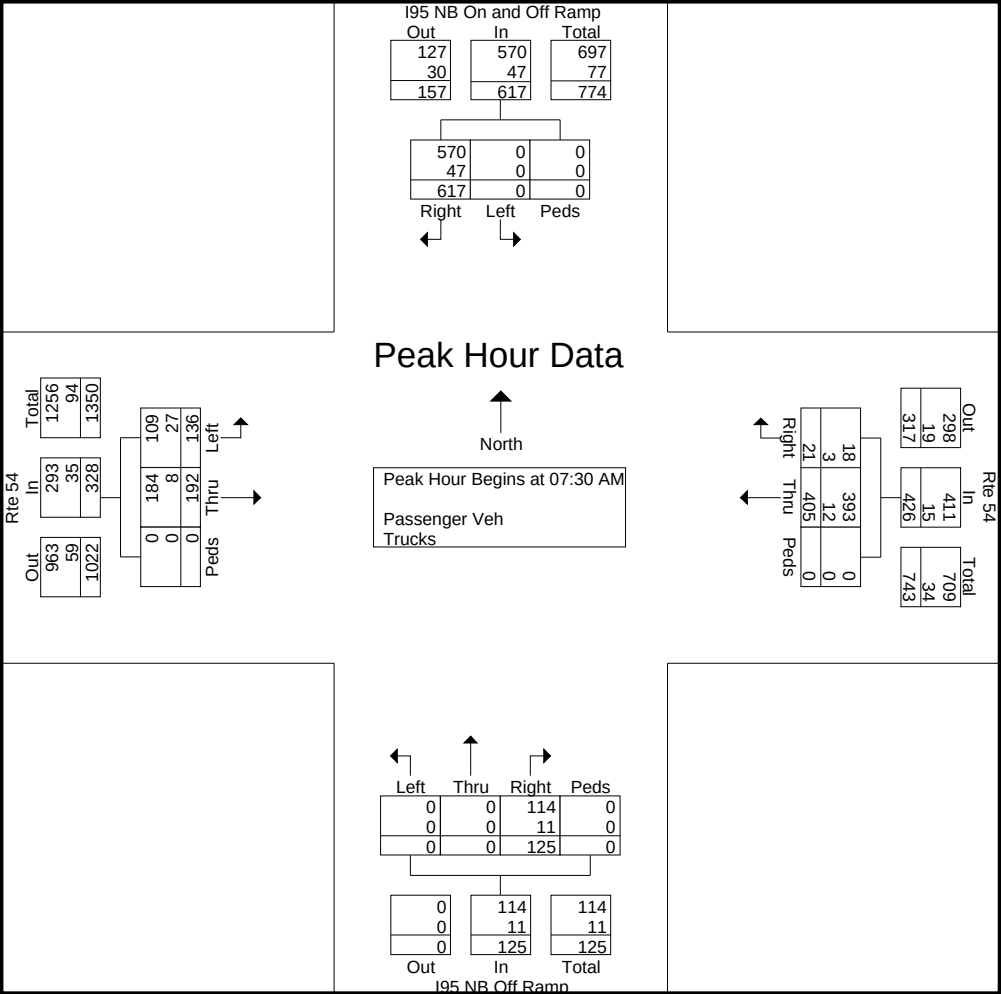
Page No : 2

	I95 NB On and Off Ramp From North				Rte 54 From East				I95 NB Off Ramp From South					Rte 54 From West				
Start Time	Right	Left	Peds	App. Total	Right	Thru	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Thru	Left	Peds	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 11:45 AM - Peak 1 of 1																		
Peak Hour for Entire Intersection Begins at 07:30 AM																		
07:30 AM	155	0	0	155	7	117	0	124	20	0	0	0	20	30	40	0	70	369
07:45 AM	169	0	0	169	4	104	0	108	32	0	0	0	32	53	36	0	89	398
08:00 AM	148	0	0	148	4	87	0	91	33	0	0	0	33	53	31	0	84	356
08:15 AM	145	0	0	145	6	97	0	103	40	0	0	0	40	56	29	0	85	373
Total Volume	617	0	0	617	21	405	0	426	125	0	0	0	125	192	136	0	328	1496
% App. Total	100	0	0		4.9	95.1	0		100	0	0	0		58.5	41.5	0		
PHF	.913	.000	.000	.913	.750	.865	.000	.859	.781	.000	.000	.000	.781	.857	.850	.000	.921	.940
Passenger Veh	570	0	0	570	18	393	0	411	114	0	0	0	114	184	109	0	293	1388
% Passenger Veh	92.4	0	0	92.4	85.7	97.0	0	96.5	91.2	0	0	0	91.2	95.8	80.1	0	89.3	92.8
Trucks	47	0	0	47	3	12	0	15	11	0	0	0	11	8	27	0	35	108
% Trucks	7.6	0	0	7.6	14.3	3.0	0	3.5	8.8	0	0	0	8.8	4.2	19.9	0	10.7	7.2

Data Collection Group

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File Name : Rte 54 and I95N Ramp Junction
Site Code :
Start Date : 5/5/2022
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Data Collection Group

LSmith@DataCollectionGroup.net

File Name : Rte 54 and I95N Ramp Junction

Site Code :

Start Date : 5/5/2022

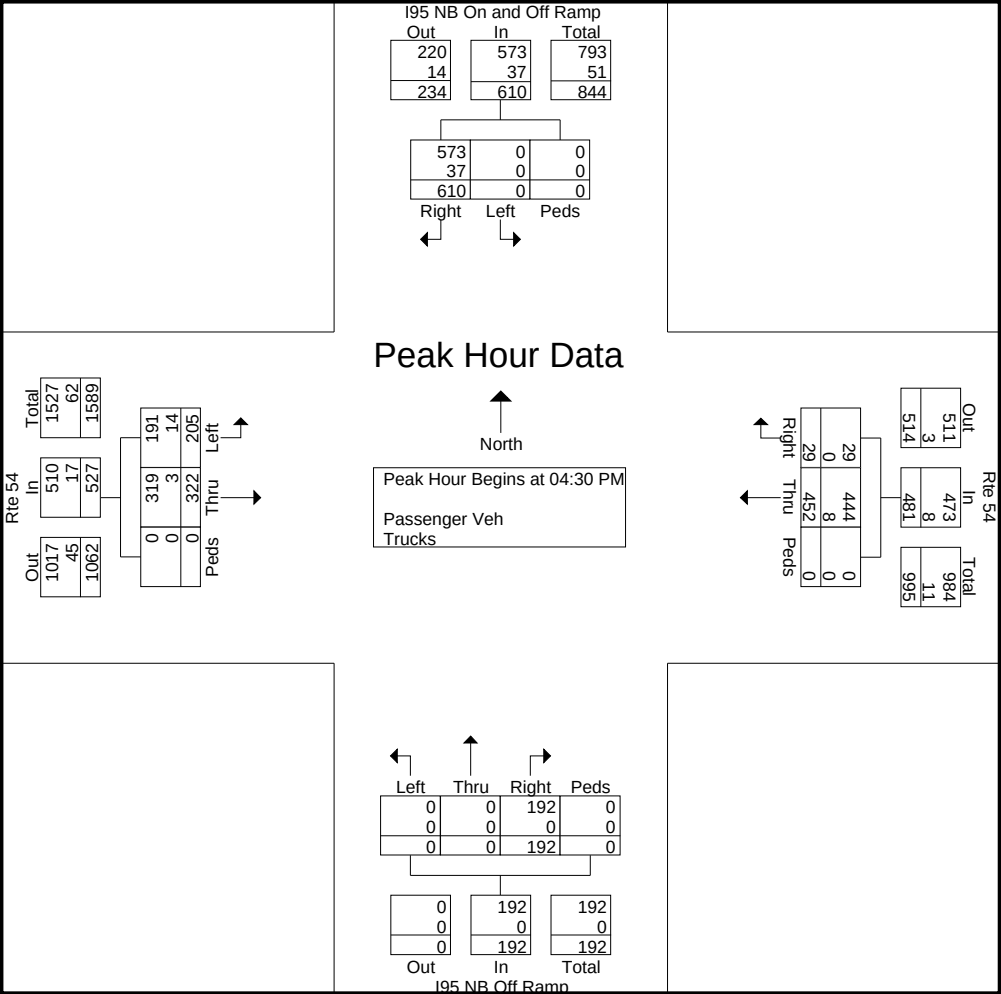
Page No : 4

	I95 NB On and Off Ramp From North				Rte 54 From East				I95 NB Off Ramp From South					Rte 54 From West				
Start Time	Right	Left	Peds	App. Total	Right	Thru	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Thru	Left	Peds	App. Total	Int. Total
Peak Hour Analysis From 12:00 PM to 05:45 PM - Peak 1 of 1																		
Peak Hour for Entire Intersection Begins at 04:30 PM																		
04:30 PM	160	0	0	160	6	140	0	146	32	0	0	0	32	63	34	0	97	435
04:45 PM	152	0	0	152	5	104	0	109	55	0	0	0	55	73	50	0	123	439
05:00 PM	140	0	0	140	11	116	0	127	53	0	0	0	53	93	54	0	147	467
05:15 PM	158	0	0	158	7	92	0	99	52	0	0	0	52	93	67	0	160	469
Total Volume	610	0	0	610	29	452	0	481	192	0	0	0	192	322	205	0	527	1810
% App. Total	100	0	0		6	94	0		100	0	0	0		61.1	38.9	0		
PHF	.953	.000	.000	.953	.659	.807	.000	.824	.873	.000	.000	.000	.873	.866	.765	.000	.823	.965
Passenger Veh	573	0	0	573	29	444	0	473	192	0	0	0	192	319	191	0	510	1748
% Passenger Veh	93.9	0	0	93.9	100	98.2	0	98.3	100	0	0	0	100	99.1	93.2	0	96.8	96.6
Trucks	37	0	0	37	0	8	0	8	0	0	0	0	0	3	14	0	17	62
% Trucks	6.1	0	0	6.1	0	1.8	0	1.7	0	0	0	0	0	0.9	6.8	0	3.2	3.4

Data Collection Group

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File Name : Rte 54 and I95N Ramp Junction
Site Code :
Start Date : 5/5/2022
Page No : 5



Data Collection Group

LSmith@DataCollectionGroup.net

File Name : Rte 54 and I95S Ramp Junction

Site Code :

Start Date : 5/5/2022

Page No : 1

Groups Printed- Passenger Veh - Trucks

	I95S Off Ramp From North					Rte 54 From East				I95S On Ramp From South		Rte 54 From West				
Start Time	Right	Thru	Left	Peds	App. Total	Thru	Left	Peds	App. Total	Peds	App. Total	Right	Thru	Peds	App. Total	Int. Total
07:00 AM	55	0	1	0	56	154	44	0	198	0	0	134	47	0	181	435
07:15 AM	47	3	4	0	54	179	59	0	238	0	0	152	55	0	207	499
07:30 AM	40	1	3	0	44	211	59	0	270	0	0	169	69	0	238	552
07:45 AM	64	2	0	0	66	231	49	0	280	0	0	176	86	0	262	608
Total	206	6	8	0	220	775	211	0	986	0	0	631	257	0	888	2094
08:00 AM	50	0	0	0	50	195	37	0	232	0	0	123	83	0	206	488
08:15 AM	45	0	0	0	45	191	46	0	237	0	0	132	86	0	218	500
08:30 AM	49	0	0	0	49	206	40	0	246	0	0	135	79	0	214	509
08:45 AM	51	0	0	0	51	188	19	0	207	0	0	132	76	0	208	466
Total	195	0	0	0	195	780	142	0	922	0	0	522	324	0	846	1963
04:00 PM	45	0	2	0	47	184	30	0	214	0	0	175	102	0	277	538
04:15 PM	49	0	6	0	55	180	21	0	201	0	0	169	122	0	291	547
04:30 PM	57	0	9	0	66	238	60	0	298	0	0	172	95	0	267	631
04:45 PM	44	1	7	0	52	209	46	0	255	0	0	190	111	0	301	608
Total	195	1	24	0	220	811	157	0	968	0	0	706	430	0	1136	2324
05:00 PM	56	0	2	0	58	212	42	0	254	0	0	184	146	0	330	642
05:15 PM	49	0	3	0	52	226	30	0	256	0	0	183	158	0	341	649
05:30 PM	46	0	5	0	51	219	24	0	243	0	0	136	116	0	252	546
05:45 PM	49	0	6	0	55	199	31	0	230	0	0	139	106	0	245	530
Total	200	0	16	0	216	856	127	0	983	0	0	642	526	0	1168	2367
Grand Total	796	7	48	0	851	3222	637	0	3859	0	0	2501	1537	0	4038	8748
Apprch %	93.5	0.8	5.6	0		83.5	16.5	0		0	0	61.9	38.1	0		
Total %	9.1	0.1	0.5	0	9.7	36.8	7.3	0	44.1	0	0	28.6	17.6	0	46.2	
Passenger Veh	685	7	42	0	734	3028	620	0	3648	0	0	2300	1434	0	3734	8116
% Passenger Veh	86.1	100	87.5	0	86.3	94	97.3	0	94.5	0	0	92	93.3	0	92.5	92.8
Trucks	111	0	6	0	117	194	17	0	211	0	0	201	103	0	304	632
% Trucks	13.9	0	12.5	0	13.7	6	2.7	0	5.5	0	0	8	6.7	0	7.5	7.2

Data Collection Group

LSmith@DataCollectionGroup.net

File Name : Rte 54 and I95S Ramp Junction

Site Code :

Start Date : 5/5/2022

Page No : 2

	I95S Off Ramp From North					Rte 54 From East				I95S On Ramp From South		Rte 54 From West				
Start Time	Right	Thru	Left	Peds	App. Total	Thru	Left	Peds	App. Total	Peds	App. Total	Right	Thru	Peds	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 11:45 AM - Peak 1 of 1																
Peak Hour for Entire Intersection Begins at 07:30 AM																
07:30 AM	40	1	3	0	44	211	59	0	270	0	0	169	69	0	238	552
07:45 AM	64	2	0	0	66	231	49	0	280	0	0	176	86	0	262	608
08:00 AM	50	0	0	0	50	195	37	0	232	0	0	123	83	0	206	488
08:15 AM	45	0	0	0	45	191	46	0	237	0	0	132	86	0	218	500
Total Volume	199	3	3	0	205	828	191	0	1019	0	0	600	324	0	924	2148
% App. Total	97.1	1.5	1.5	0		81.3	18.7	0		0		64.9	35.1	0		
PHF	.777	.375	.250	.000	.777	.896	.809	.000	.910	.000	.000	.852	.942	.000	.882	.883

Data Collection Group

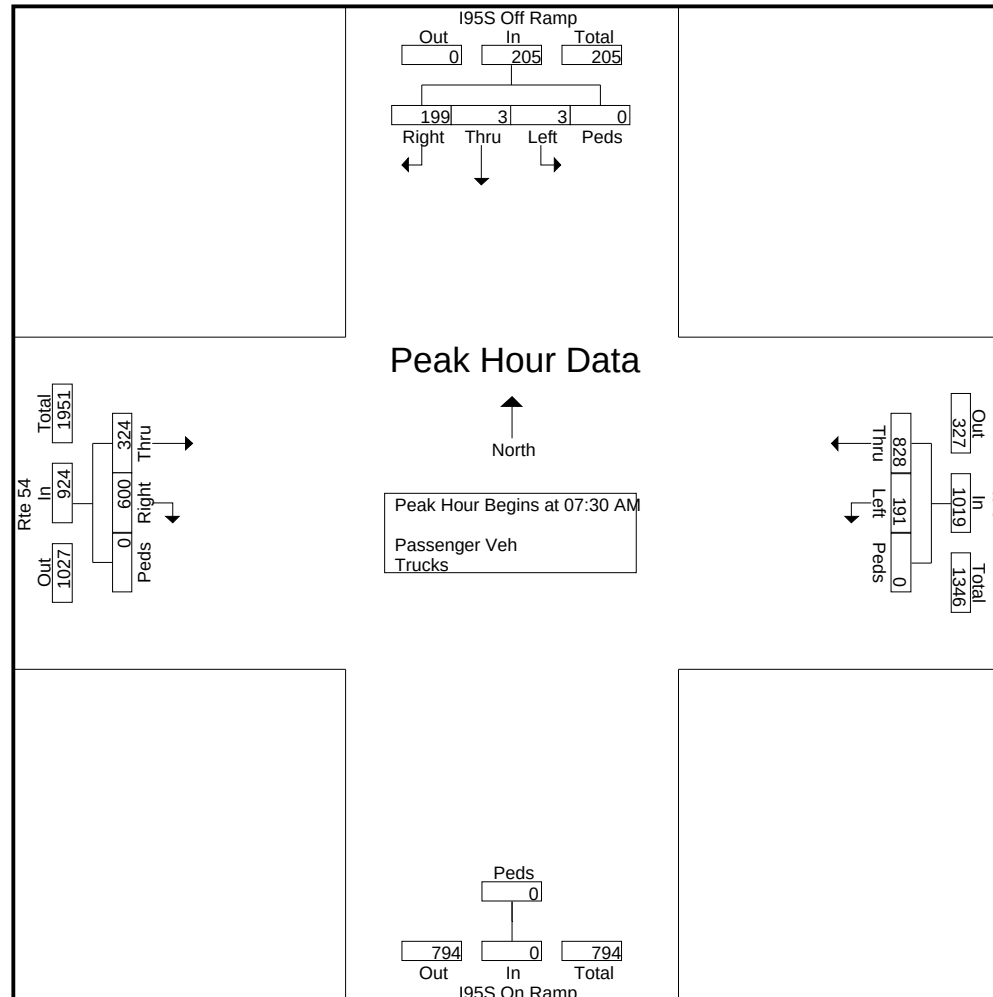
LSmith@DataCollectionGroup.net

File Name : Rte 54 and I95S Ramp Junction

Site Code :

Start Date : 5/5/2022

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Data Collection Group

LSmith@DataCollectionGroup.net

File Name : Rte 54 and I95S Ramp Junction

Site Code :

Start Date : 5/5/2022

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	I95S Off Ramp From North					Rte 54 From East				I95S On Ramp From South		Rte 54 From West				
Start Time	Right	Thru	Left	Peds	App. Total	Thru	Left	Peds	App. Total	Peds	App. Total	Right	Thru	Peds	App. Total	Int. Total
Peak Hour Analysis From 12:00 PM to 05:45 PM - Peak 1 of 1																
Peak Hour for Entire Intersection Begins at 04:30 PM																
04:30 PM	57	0	9	0	66	238	60	0	298	0	0	172	95	0	267	631
04:45 PM	44	1	7	0	52	209	46	0	255	0	0	190	111	0	301	608
05:00 PM	56	0	2	0	58	212	42	0	254	0	0	184	146	0	330	642
05:15 PM	49	0	3	0	52	226	30	0	256	0	0	183	158	0	341	649
Total Volume	206	1	21	0	228	885	178	0	1063	0	0	729	510	0	1239	2530
% App. Total	90.4	0.4	9.2	0		83.3	16.7	0		0		58.8	41.2	0		
PHF	.904	.250	.583	.000	.864	.930	.742	.000	.892	.000	.000	.959	.807	.000	.908	.975

Data Collection Group

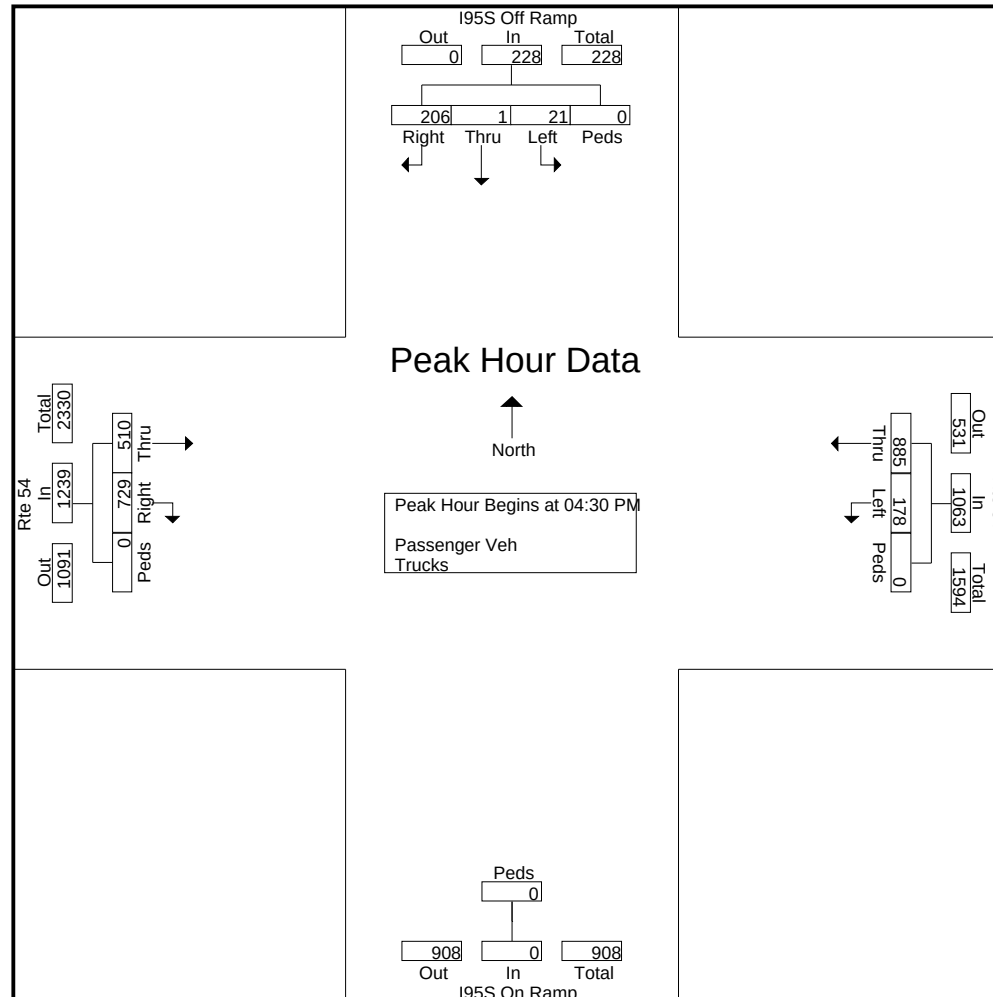
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File Name : Rte 54 and I95S Ramp Junction

Site Code :

Start Date : 5/5/2022

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Data Collection Group

LSmith@DataCollectionGroup.net

File Name : Rte 54 and Woodside

Site Code :

Start Date : 5/5/2022

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Groups Printed- Passenger Veh - Trucks

	Woodside Ln From North				Rte 54 From East				Rte 54 From West				
Start Time	Right	Left	Peds	App. Total	Right	Thru	Peds	App. Total	Thru	Left	Peds	App. Total	Int. Total
07:00 AM	34	8	0	42	2	48	0	50	18	11	0	29	121
07:15 AM	38	11	0	49	1	59	0	60	26	10	0	36	145
07:30 AM	43	20	0	63	4	73	0	77	36	9	0	45	185
07:45 AM	40	3	0	43	2	55	0	57	55	18	0	73	173
Total	155	42	0	197	9	235	0	244	135	48	0	183	624
08:00 AM	21	15	0	36	7	57	0	64	53	19	0	72	172
08:15 AM	27	16	0	43	4	60	0	64	59	15	0	74	181
08:30 AM	15	6	0	21	3	52	0	55	50	10	0	60	136
08:45 AM	23	3	0	26	2	51	0	53	46	14	0	60	139
Total	86	40	0	126	16	220	0	236	208	58	0	266	628
04:00 PM	20	2	0	22	11	57	0	68	61	30	0	91	181
04:15 PM	22	1	0	23	6	45	0	51	53	31	0	84	158
04:30 PM	35	6	0	41	1	94	0	95	52	30	0	82	218
04:45 PM	29	3	0	32	6	47	0	53	64	39	0	103	188
Total	106	12	0	118	24	243	0	267	230	130	0	360	745
05:00 PM	26	5	0	31	3	74	0	77	82	38	0	120	228
05:15 PM	27	12	0	39	4	41	0	45	89	36	0	125	209
05:30 PM	24	9	0	33	3	37	0	40	78	37	0	115	188
05:45 PM	26	4	0	30	7	39	0	46	49	46	0	95	171
Total	103	30	0	133	17	191	0	208	298	157	0	455	796
Grand Total	450	124	0	574	66	889	0	955	871	393	0	1264	2793
Apprch %	78.4	21.6	0		6.9	93.1	0		68.9	31.1	0		
Total %	16.1	4.4	0	20.6	2.4	31.8	0	34.2	31.2	14.1	0	45.3	
Passenger Veh	443	115	0	558	59	862	0	921	845	388	0	1233	2712
% Passenger Veh	98.4	92.7	0	97.2	89.4	97	0	96.4	97	98.7	0	97.5	97.1
Trucks	7	9	0	16	7	27	0	34	26	5	0	31	81
% Trucks	1.6	7.3	0	2.8	10.6	3	0	3.6	3	1.3	0	2.5	2.9

Data Collection Group

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File Name : Rte 54 and Woodside

Site Code :

Start Date : 5/5/2022

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	Woodside Ln From North				Rte 54 From East				Rte 54 From West				
Start Time	Right	Left	Peds	App. Total	Right	Thru	Peds	App. Total	Thru	Left	Peds	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 11:45 AM - Peak 1 of 1													
Peak Hour for Entire Intersection Begins at 07:30 AM													
07:30 AM	43	20	0	63	4	73	0	77	36	9	0	45	185
07:45 AM	40	3	0	43	2	55	0	57	55	18	0	73	173
08:00 AM	21	15	0	36	7	57	0	64	53	19	0	72	172
08:15 AM	27	16	0	43	4	60	0	64	59	15	0	74	181
Total Volume	131	54	0	185	17	245	0	262	203	61	0	264	711
% App. Total	70.8	29.2	0		6.5	93.5	0		76.9	23.1	0		
PHF	.762	.675	.000	.734	.607	.839	.000	.851	.860	.803	.000	.892	.961
Passenger Veh	130	50	0	180	14	239	0	253	189	59	0	248	681
% Passenger Veh	99.2	92.6	0	97.3	82.4	97.6	0	96.6	93.1	96.7	0	93.9	95.8
Trucks	1	4	0	5	3	6	0	9	14	2	0	16	30
% Trucks	0.8	7.4	0	2.7	17.6	2.4	0	3.4	6.9	3.3	0	6.1	4.2

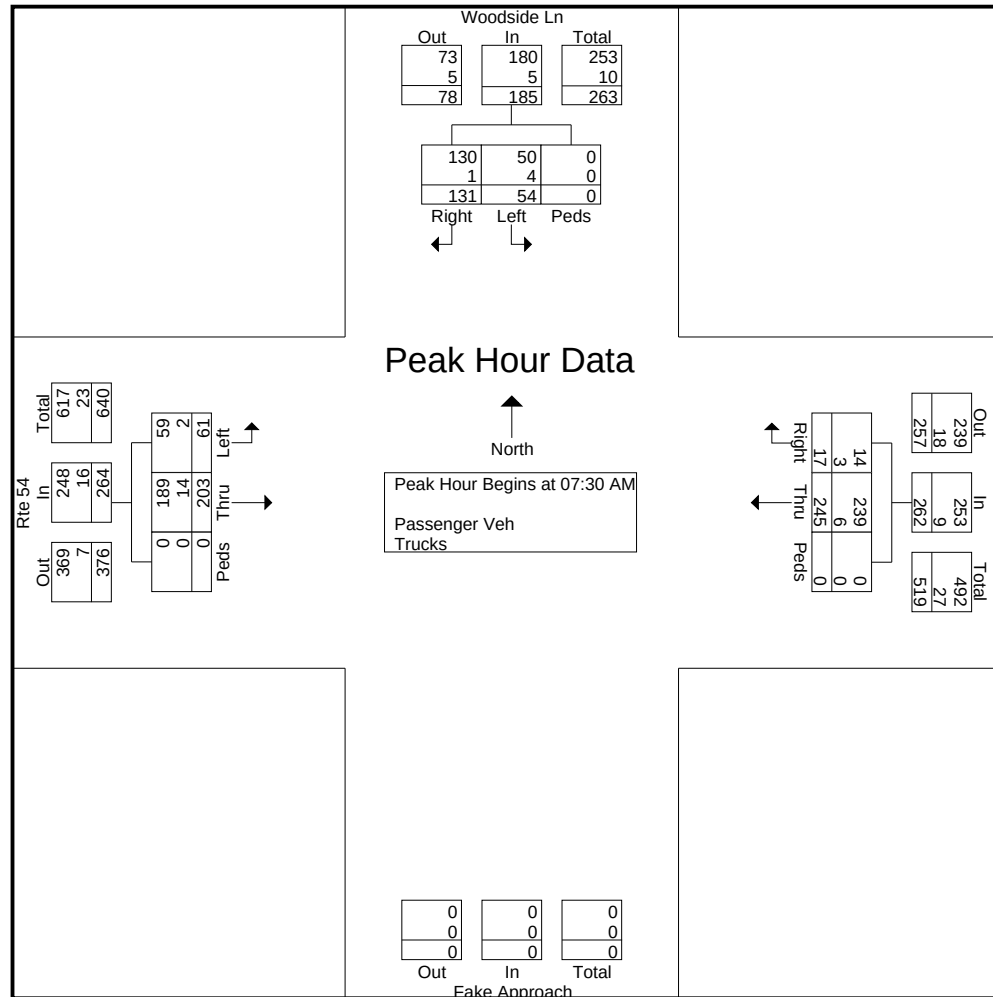
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File Name : Rte 54 and Woodside

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File Name : Rte 54 and Woodside

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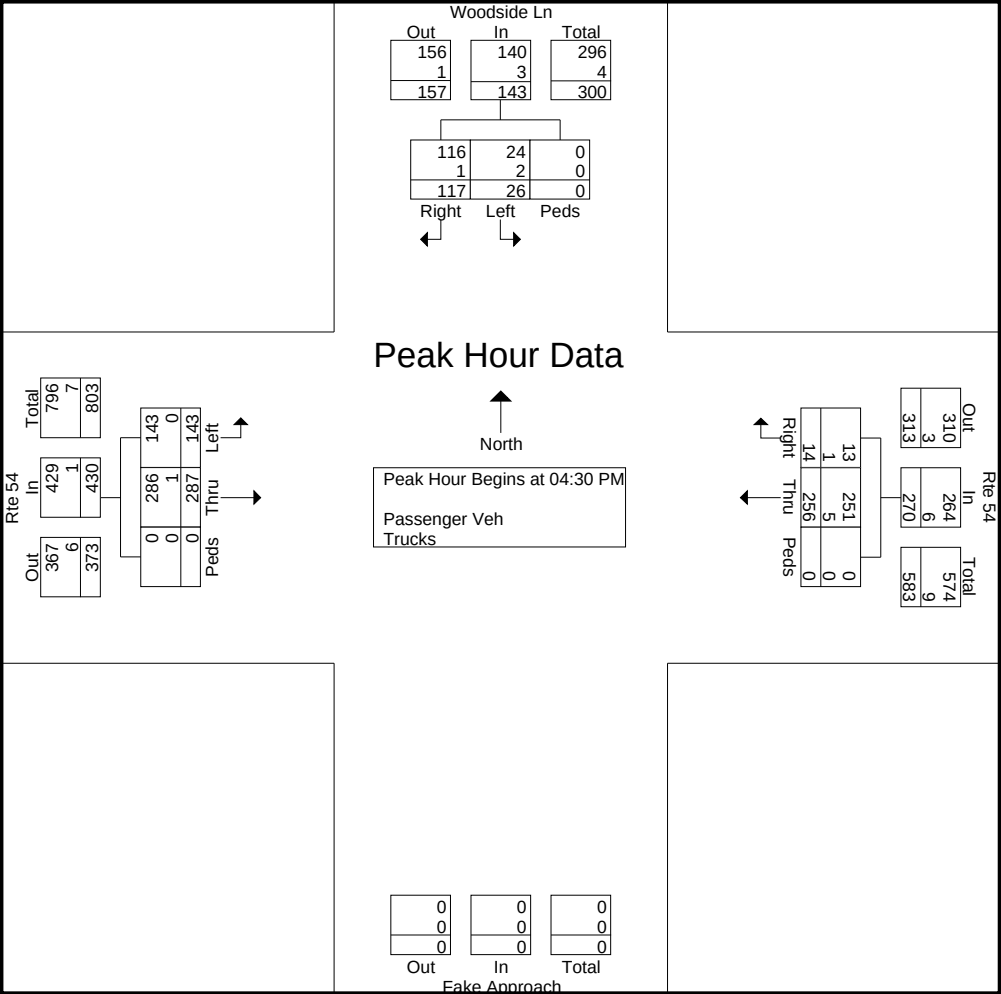
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	Woodside Ln From North				Rte 54 From East				Rte 54 From West				
Start Time	Right	Left	Peds	App. Total	Right	Thru	Peds	App. Total	Thru	Left	Peds	App. Total	Int. Total
Peak Hour Analysis From 12:00 PM to 05:45 PM - Peak 1 of 1													
Peak Hour for Entire Intersection Begins at 04:30 PM													
04:30 PM	35	6	0	41	1	94	0	95	52	30	0	82	218
04:45 PM	29	3	0	32	6	47	0	53	64	39	0	103	188
05:00 PM	26	5	0	31	3	74	0	77	82	38	0	120	228
05:15 PM	27	12	0	39	4	41	0	45	89	36	0	125	209
Total Volume	117	26	0	143	14	256	0	270	287	143	0	430	843
% App. Total	81.8	18.2	0		5.2	94.8	0		66.7	33.3	0		
PHF	.836	.542	.000	.872	.583	.681	.000	.711	.806	.917	.000	.860	.924
Passenger Veh	116	24	0	140	13	251	0	264	286	143	0	429	833
% Passenger Veh	99.1	92.3	0	97.9	92.9	98.0	0	97.8	99.7	100	0	99.8	98.8
Trucks	1	2	0	3	1	5	0	6	1	0	0	1	10
% Trucks	0.9	7.7	0	2.1	7.1	2.0	0	2.2	0.3	0	0	0.2	1.2

Data Collection Group

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File Name : Rte 54 and Woodside
Site Code :
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Data Collection Group

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File Name : Rte 54 and Goddins Hill

Site Code : 00050579

Start Date : 5/5/2022

Page No : 1

Groups Printed- Passenger Veh - Trucks

	From North					Rte 54 From East					Goddins Hill From South					Rte 54 From West					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
07:00 AM	0	0	0	0	0	0	41	9	0	50	5	0	1	0	6	3	19	0	0	22	78
07:15 AM	0	0	0	0	0	0	54	14	0	68	2	0	3	0	5	8	29	0	0	37	110
07:30 AM	0	0	0	0	0	0	62	18	0	80	5	0	2	0	7	19	29	0	0	48	135
07:45 AM	0	0	0	0	0	0	44	20	0	64	10	0	4	0	14	7	50	0	0	57	135
Total	0	0	0	0	0	0	201	61	0	262	22	0	10	0	32	37	127	0	0	164	458
08:00 AM	0	0	0	0	0	0	43	24	0	67	3	0	13	0	16	11	40	0	0	51	134
08:15 AM	0	0	0	0	0	0	50	21	0	71	5	0	7	1	13	18	59	0	0	77	161
08:30 AM	0	0	0	0	0	0	36	8	0	44	9	0	4	0	13	6	47	0	0	53	110
08:45 AM	0	0	0	0	0	0	44	8	0	52	7	0	5	0	12	7	35	0	0	42	106
Total	0	0	0	0	0	0	173	61	0	234	24	0	29	1	54	42	181	0	0	223	511
*** BREAK ***																					
04:00 PM	0	0	0	0	0	0	46	9	0	55	11	0	15	0	26	4	50	0	0	54	135
04:15 PM	0	0	0	0	0	0	43	6	0	49	11	0	5	0	16	6	44	0	0	50	115
04:30 PM	0	0	0	0	0	0	64	3	0	67	13	0	7	0	20	5	40	0	0	45	132
04:45 PM	0	0	0	0	0	0	44	7	0	51	10	0	6	0	16	8	64	0	0	72	139
Total	0	0	0	0	0	0	197	25	0	222	45	0	33	0	78	23	198	0	0	221	521
05:00 PM	0	0	0	0	0	0	62	7	0	69	21	0	6	0	27	4	71	0	0	75	171
05:15 PM	0	0	0	0	0	0	36	14	0	50	13	0	9	0	22	12	77	0	0	89	161
05:30 PM	0	0	0	0	0	0	33	9	0	42	11	0	8	0	19	16	60	0	0	76	137
05:45 PM	0	0	0	0	0	0	35	9	0	44	13	0	7	0	20	3	51	0	0	54	118
Total	0	0	0	0	0	0	166	39	0	205	58	0	30	0	88	35	259	0	0	294	587
Grand Total	0	0	0	0	0	0	737	186	0	923	149	0	102	1	252	137	765	0	0	902	2077
Apprch %	0	0	0	0	0	0	79.8	20.2	0		59.1	0	40.5	0.4		15.2	84.8	0	0		
Total %	0	0	0	0	0	0	35.5	9	0	44.4	7.2	0	4.9	0	12.1	6.6	36.8	0	0	43.4	
Passenger Veh	0	0	0	0	0	0	706	183	0	889	143	0	98	1	242	130	738	0	0	868	1999
% Passenger Veh	0	0	0	0	0	0	95.8	98.4	0	96.3	96	0	96.1	100	96	94.9	96.5	0	0	96.2	96.2
Trucks	0	0	0	0	0	0	31	3	0	34	6	0	4	0	10	7	27	0	0	34	78
% Trucks	0	0	0	0	0	0	4.2	1.6	0	3.7	4	0	3.9	0	4	5.1	3.5	0	0	3.8	3.8

Data Collection Group

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File Name : Rte 54 and Goddins Hill

Site Code : 00050579

Start Date : 5/5/2022

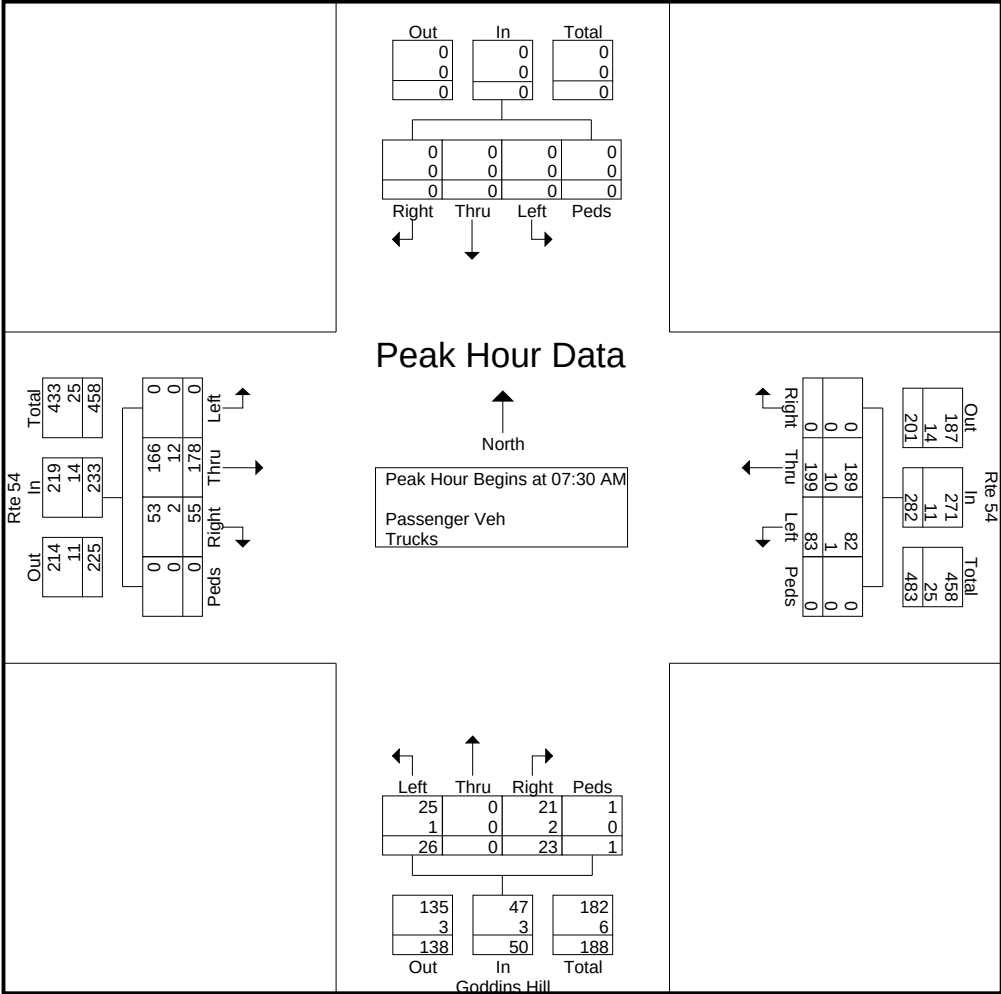
Page No : 2

	From North					Rte 54 From East					Goddins Hill From South					Rte 54 From West					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 11:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:30 AM																					
07:30 AM	0	0	0	0	0	0	62	18	0	80	5	0	2	0	7	19	29	0	0	48	135
07:45 AM	0	0	0	0	0	0	44	20	0	64	10	0	4	0	14	7	50	0	0	57	135
08:00 AM	0	0	0	0	0	0	43	24	0	67	3	0	13	0	16	11	40	0	0	51	134
08:15 AM	0	0	0	0	0	0	50	21	0	71	5	0	7	1	13	18	59	0	0	77	161
Total Volume	0	0	0	0	0	0	199	83	0	282	23	0	26	1	50	55	178	0	0	233	565
% App. Total	0	0	0	0	0	0	70.6	29.4	0		46	0	52	2		23.6	76.4	0	0		
PHF	.000	.000	.000	.000	.000	.000	.802	.865	.000	.881	.575	.000	.500	.250	.781	.724	.754	.000	.000	.756	.877
Passenger Veh	0	0	0	0	0	0	189	82	0	271	21	0	25	1	47	53	166	0	0	219	537
% Passenger Veh	0	0	0	0	0	0	95.0	98.8	0	96.1	91.3	0	96.2	100	94.0	96.4	93.3	0	0	94.0	95.0
Trucks	0	0	0	0	0	0	10	1	0	11	2	0	1	0	3	2	12	0	0	14	28
% Trucks	0	0	0	0	0	0	5.0	1.2	0	3.9	8.7	0	3.8	0	6.0	3.6	6.7	0	0	6.0	5.0

Data Collection Group

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File Name : Rte 54 and Goddins Hill
Site Code : 00050579
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File Name : Rte 54 and Goddins Hill

Site Code : 00050579

Start Date : 5/5/2022

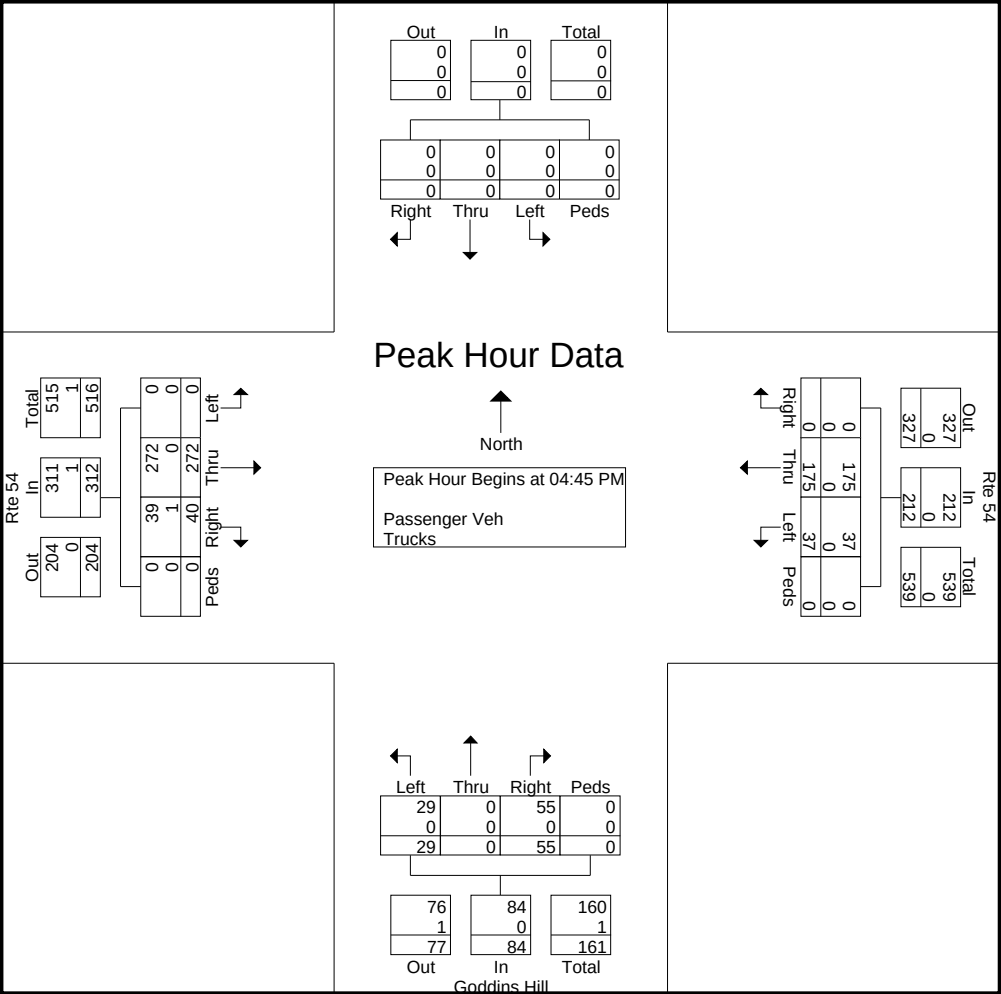
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	From North					Rte 54 From East					Goddins Hill From South					Rte 54 From West					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Peak Hour Analysis From 12:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 04:45 PM																					
04:45 PM	0	0	0	0	0	0	44	7	0	51	10	0	6	0	16	8	64	0	0	72	139
05:00 PM	0	0	0	0	0	0	62	7	0	69	21	0	6	0	27	4	71	0	0	75	171
05:15 PM	0	0	0	0	0	0	36	14	0	50	13	0	9	0	22	12	77	0	0	89	161
05:30 PM	0	0	0	0	0	0	33	9	0	42	11	0	8	0	19	16	60	0	0	76	137
Total Volume	0	0	0	0	0	0	175	37	0	212	55	0	29	0	84	40	272	0	0	312	608
% App. Total	0	0	0	0	0	0	82.5	17.5	0		65.5	0	34.5	0		12.8	87.2	0	0		
PHF	.000	.000	.000	.000	.000	.000	.706	.661	.000	.768	.655	.000	.806	.000	.778	.625	.883	.000	.000	.876	.889
Passenger Veh	0	0	0	0	0	0	175	37	0	212	55	0	29	0	84	39	272	0	0	311	607
% Passenger Veh	0	0	0	0	0	0	100	100	0	100	100	0	100	0	100	97.5	100	0	0	99.7	99.8
Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	1
% Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2.5	0	0	0	0.3	0.2

Data Collection Group

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File Name : Rte 54 and Goddins Hill
Site Code : 00050579
Start Date : 5/5/2022
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Data Collection Group

LSmith@DataCollectionGroup.net

File Name : Rte 54 and Mt Hermon

Site Code :

Start Date : 5/5/2022

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Groups Printed- Passenger Veh - Trucks

	Frances From North					Rte 54 From East					Mt Hermon From South					Rte 54 From West					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
07:00 AM	4	1	0	0	5	1	78	1	0	80	2	0	5	0	7	1	28	5	0	34	126
07:15 AM	3	0	0	0	3	2	94	5	0	101	0	0	8	0	8	2	39	4	0	45	157
07:30 AM	1	1	0	0	2	0	109	6	0	115	1	0	9	0	10	3	45	9	0	57	184
07:45 AM	16	0	2	0	18	3	91	2	0	96	2	0	7	0	9	3	67	16	0	86	209
Total	24	2	2	0	28	6	372	14	0	392	5	0	29	0	34	9	179	34	0	222	676
08:00 AM	11	3	1	0	15	4	73	2	0	79	1	1	4	0	6	3	74	13	0	90	190
08:15 AM	9	0	0	0	9	3	78	3	0	84	2	0	8	0	10	12	72	3	0	87	190
08:30 AM	4	1	0	0	5	2	67	0	0	69	0	0	5	0	5	1	63	3	0	67	146
08:45 AM	4	2	0	0	6	1	71	0	0	72	0	1	8	0	9	2	58	5	0	65	152
Total	28	6	1	0	35	10	289	5	0	304	3	2	25	0	30	18	267	24	0	309	678
09:00 AM	1	0	0	0	1	0	66	2	0	68	0	1	9	0	10	4	52	0	0	56	135
09:15 AM	0	0	0	0	0	1	65	0	0	66	3	0	4	0	7	4	32	1	0	37	110
09:30 AM	3	0	0	0	3	0	63	1	0	64	2	0	3	0	5	2	47	0	0	49	121
09:45 AM	1	0	0	0	1	0	56	3	0	59	1	0	4	0	5	4	41	2	0	47	112
Total	5	0	0	0	5	1	250	6	0	257	6	1	20	0	27	14	172	3	0	189	478
10:00 AM	3	1	0	0	4	0	61	2	0	63	0	0	4	0	4	5	39	2	0	46	117
10:15 AM	1	0	0	0	1	0	77	4	0	81	0	0	3	0	3	4	39	0	0	43	128
10:30 AM	2	0	0	0	2	0	52	1	0	53	0	0	3	0	3	2	52	2	0	56	114
10:45 AM	2	0	0	0	2	0	66	0	0	66	2	0	9	0	11	4	37	2	0	43	122
Total	8	1	0	0	9	0	256	7	0	263	2	0	19	0	21	15	167	6	0	188	481
11:00 AM	1	0	0	0	1	0	52	2	0	54	2	0	5	0	7	3	54	1	0	58	120
11:15 AM	1	0	0	0	1	0	66	2	0	68	0	0	5	0	5	7	65	1	0	73	147
11:30 AM	2	0	0	0	2	0	69	0	0	69	1	1	4	0	6	7	39	5	0	51	128
11:45 AM	1	2	0	0	3	0	60	1	0	61	1	0	6	0	7	2	50	3	0	55	126
Total	5	2	0	0	7	0	247	5	0	252	4	1	20	0	25	19	208	10	0	237	521
12:00 PM	4	1	0	0	5	0	72	0	0	72	2	1	3	0	6	4	56	5	0	65	148
12:15 PM	5	0	0	0	5	0	62	1	0	63	3	1	10	0	14	5	63	3	0	71	153
12:30 PM	2	0	0	0	2	0	41	2	0	43	1	0	6	0	7	6	82	3	0	91	143
12:45 PM	1	1	0	0	2	1	61	1	0	63	0	0	8	0	8	5	71	0	0	76	149
Total	12	2	0	0	14	1	236	4	0	241	6	2	27	0	35	20	272	11	0	303	593
01:00 PM	5	0	0	0	5	0	123	3	0	126	1	2	7	0	10	5	57	3	0	65	206
01:15 PM	0	0	1	0	1	0	108	4	0	112	2	0	7	0	9	6	58	2	0	66	188
01:30 PM	6	1	2	0	9	4	98	2	0	104	3	0	8	0	11	4	83	1	0	88	212

Data Collection Group

LSmith@DataCollectionGroup.net

File Name : Rte 54 and Mt Hermon

Site Code :

Start Date : 5/5/2022

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Groups Printed- Passenger Veh - Trucks

	Frances From North					Rte 54 From East					Mt Hermon From South					Rte 54 From West					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
01:45 PM	16	3	2	0	21	1	114	6	0	121	1	0	5	0	6	8	74	1	0	83	231
Total	27	4	5	0	36	5	443	15	0	463	7	2	27	0	36	23	272	7	0	302	837
02:00 PM	2	0	0	0	2	0	47	0	0	47	1	0	6	0	7	2	65	1	0	68	124
02:15 PM	0	0	0	0	0	0	50	2	0	52	3	0	7	0	10	1	60	3	0	64	126
02:30 PM	3	1	1	0	5	4	48	2	0	54	1	0	7	0	8	3	58	8	0	69	136
02:45 PM	12	1	2	0	15	0	52	3	0	55	3	2	4	0	9	4	66	7	0	77	156
Total	17	2	3	0	22	4	197	7	0	208	8	2	24	0	34	10	249	19	0	278	542
03:00 PM	9	0	1	0	10	2	44	2	0	48	3	0	6	0	9	1	72	5	0	78	145
03:15 PM	2	2	1	0	5	0	66	2	0	68	4	1	11	0	16	3	66	3	0	72	161
03:30 PM	2	2	1	0	5	1	56	1	0	58	0	1	6	0	7	6	71	1	0	78	148
03:45 PM	2	0	1	0	3	0	65	2	0	67	3	0	4	0	7	6	82	4	0	92	169
Total	15	4	4	0	23	3	231	7	0	241	10	2	27	0	39	16	291	13	0	320	623
04:00 PM	7	0	0	0	7	0	74	4	0	78	1	0	7	0	8	5	93	5	0	103	196
04:15 PM	3	0	1	0	4	1	63	4	0	68	3	0	9	0	12	6	84	5	0	95	179
04:30 PM	6	0	0	0	6	1	130	2	0	133	2	1	10	0	13	9	78	2	0	89	241
04:45 PM	6	1	1	0	8	2	71	0	0	73	3	1	12	0	16	3	99	8	0	110	207
Total	22	1	2	0	25	4	338	10	0	352	9	2	38	0	49	23	354	20	0	397	823
05:00 PM	9	0	0	0	9	0	95	4	0	99	5	0	9	0	14	7	121	5	0	133	255
05:15 PM	7	1	1	0	9	1	67	3	0	71	6	0	6	0	12	5	117	4	0	126	218
05:30 PM	3	0	1	0	4	0	62	0	0	62	1	0	8	0	9	7	105	3	0	115	190
05:45 PM	1	0	0	0	1	0	61	5	0	66	1	0	8	0	9	7	99	3	0	109	185
Total	20	1	2	0	23	1	285	12	0	298	13	0	31	0	44	26	442	15	0	483	848
06:00 PM	0	0	0	0	0	0	46	0	0	46	4	0	3	0	7	12	82	7	0	101	154
06:15 PM	2	1	0	0	3	0	48	2	0	50	3	1	5	0	9	5	73	1	0	79	141
06:30 PM	0	0	0	0	0	0	55	0	0	55	1	0	10	0	11	7	66	1	0	74	140
06:45 PM	1	1	0	0	2	0	52	1	0	53	3	0	6	0	9	5	62	1	0	68	132
Total	3	2	0	0	5	0	201	3	0	204	11	1	24	0	36	29	283	10	0	322	567
Grand Total	186	27	19	0	232	35	3345	95	0	3475	84	15	311	0	410	222	3156	172	0	3550	7667
Apprch %	80.2	11.6	8.2	0		1	96.3	2.7	0		20.5	3.7	75.9	0		6.3	88.9	4.8	0		
Total %	2.4	0.4	0.2	0	3	0.5	43.6	1.2	0	45.3	1.1	0.2	4.1	0	5.3	2.9	41.2	2.2	0	46.3	
Passenger Veh	186	27	19	0	232	35	3190	93	0	3318	78	14	302	0	394	212	3006	172	0	3390	7334
% Passenger Veh	100	100	100	0	100	100	95.4	97.9	0	95.5	92.9	93.3	97.1	0	96.1	95.5	95.2	100	0	95.5	95.7
Trucks	0	0	0	0	0	0	155	2	0	157	6	1	9	0	16	10	150	0	0	160	333
% Trucks	0	0	0	0	0	0	4.6	2.1	0	4.5	7.1	6.7	2.9	0	3.9	4.5	4.8	0	0	4.5	4.3

Data Collection Group

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File Name : Rte 54 and Mt Hermon

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	Frances From North					Rte 54 From East					Mt Hermon From South					Rte 54 From West					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 09:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:30 AM																					
07:30 AM	1	1	0	0	2	0	109	6	0	115	1	0	9	0	10	3	45	9	0	57	184
07:45 AM	16	0	2	0	18	3	91	2	0	96	2	0	7	0	9	3	67	16	0	86	209
08:00 AM	11	3	1	0	15	4	73	2	0	79	1	1	4	0	6	3	74	13	0	90	190
08:15 AM	9	0	0	0	9	3	78	3	0	84	2	0	8	0	10	12	72	3	0	87	190
Total Volume	37	4	3	0	44	10	351	13	0	374	6	1	28	0	35	21	258	41	0	320	773
% App. Total	84.1	9.1	6.8	0		2.7	93.9	3.5	0		17.1	2.9	80	0		6.6	80.6	12.8	0		
PHF	.578	.333	.375	.000	.611	.625	.805	.542	.000	.813	.750	.250	.778	.000	.875	.438	.872	.641	.000	.889	.925
Passenger Veh	37	4	3	0	44	10	342	13	0	365	6	1	25	0	32	15	237	41	0	293	734
% Passenger Veh	100	100	100	0	100	100	97.4	100	0	97.6	100	100	89.3	0	91.4	71.4	91.9	100	0	91.6	95.0
Trucks	0	0	0	0	0	0	9	0	0	9	0	0	3	0	3	6	21	0	0	27	39
% Trucks	0	0	0	0	0	0	2.6	0	0	2.4	0	0	10.7	0	8.6	28.6	8.1	0	0	8.4	5.0

Data Collection Group

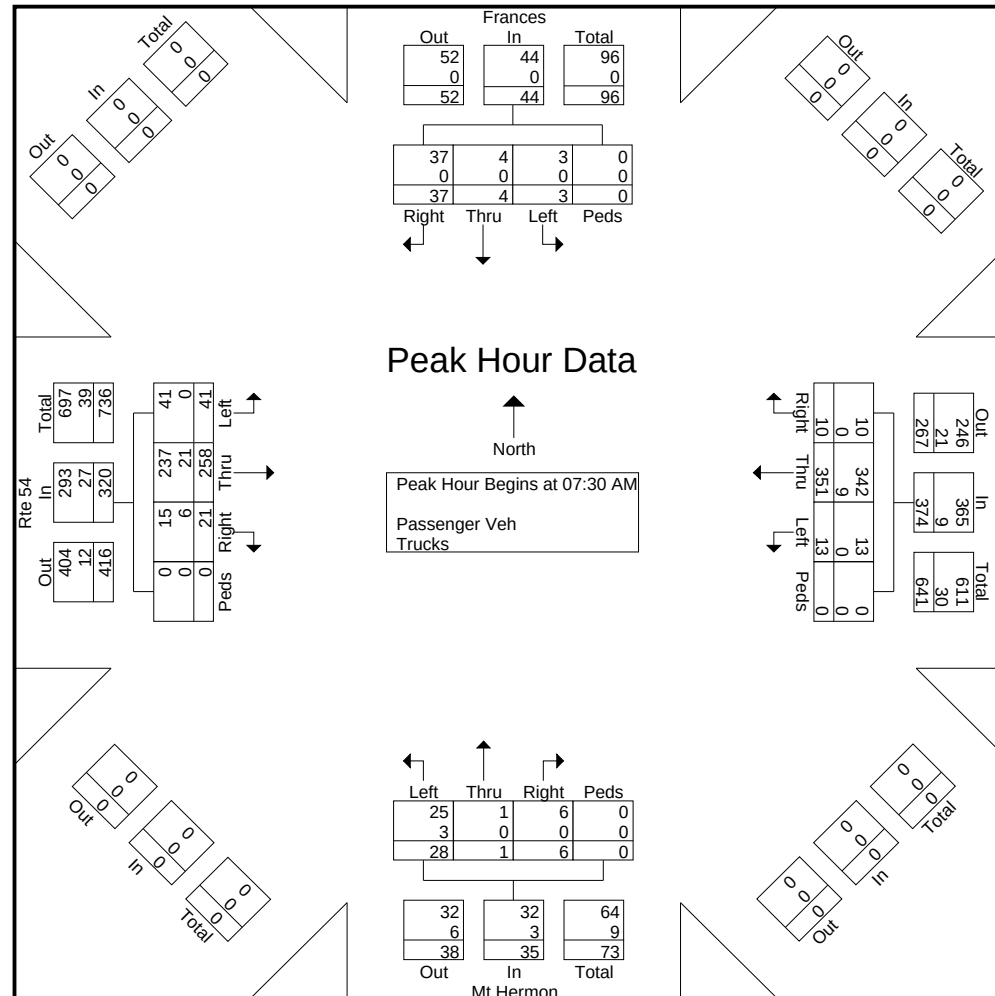
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File Name : Rte 54 and Mt Hermon

Site Code :

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Data Collection Group

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File Name : Rte 54 and Mt Hermon

Site Code :

Start Date : 5/5/2022

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	Frances From North					Rte 54 From East					Mt Hermon From South					Rte 54 From West					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Peak Hour Analysis From 10:00 AM to 01:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 01:00 PM																					
01:00 PM	5	0	0	0	5	0	123	3	0	126	1	2	7	0	10	5	57	3	0	65	206
01:15 PM	0	0	1	0	1	0	108	4	0	112	2	0	7	0	9	6	58	2	0	66	188
01:30 PM	6	1	2	0	9	4	98	2	0	104	3	0	8	0	11	4	83	1	0	88	212
01:45 PM	16	3	2	0	21	1	114	6	0	121	1	0	5	0	6	8	74	1	0	83	231
Total Volume	27	4	5	0	36	5	443	15	0	463	7	2	27	0	36	23	272	7	0	302	837
% App. Total	75	11.1	13.9	0		1.1	95.7	3.2	0		19.4	5.6	75	0		7.6	90.1	2.3	0		
PHF	.422	.333	.625	.000	.429	.313	.900	.625	.000	.919	.583	.250	.844	.000	.818	.719	.819	.583	.000	.858	.906
Passenger Veh	27	4	5	0	36	5	416	14	0	435	5	2	25	0	32	22	251	7	0	280	783
% Passenger Veh	100	100	100	0	100	100	93.9	93.3	0	94.0	71.4	100	92.6	0	88.9	95.7	92.3	100	0	92.7	93.5
Trucks	0	0	0	0	0	0	27	1	0	28	2	0	2	0	4	1	21	0	0	22	54
% Trucks	0	0	0	0	0	0	6.1	6.7	0	6.0	28.6	0	7.4	0	11.1	4.3	7.7	0	0	7.3	6.5

Data Collection Group

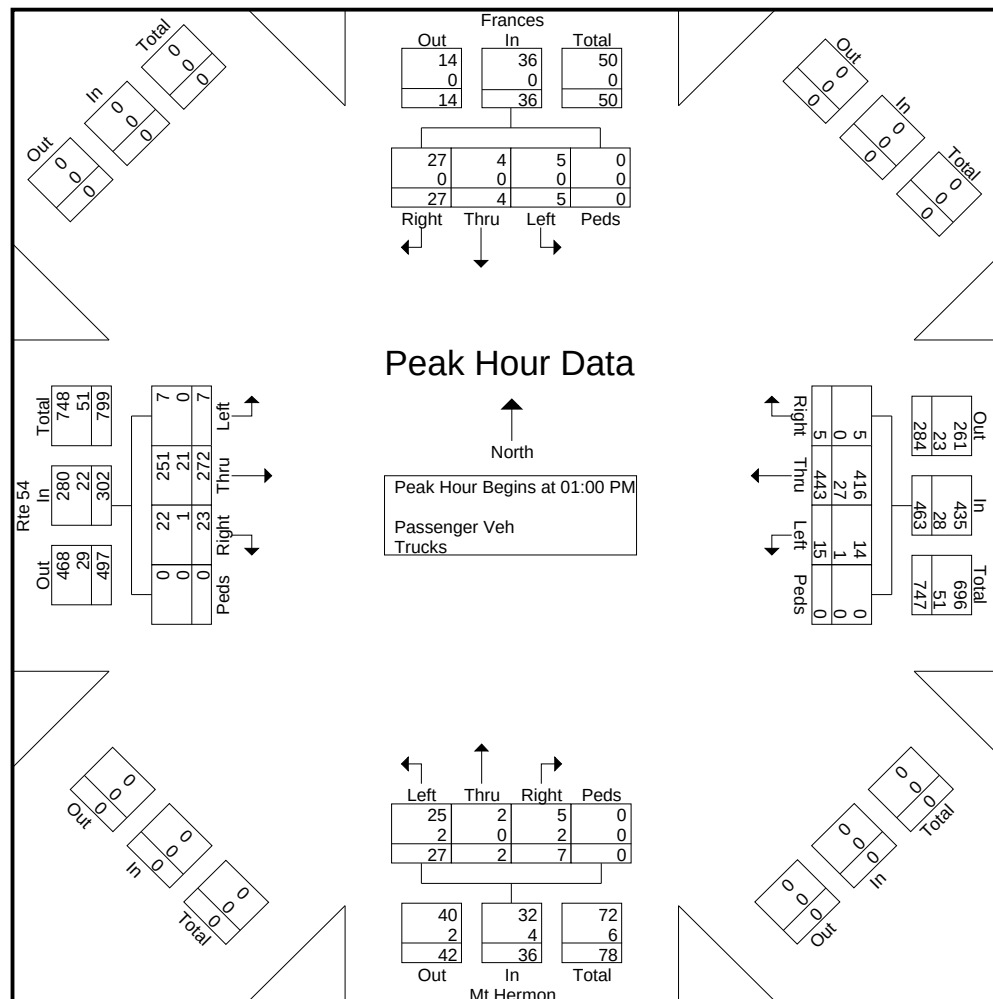
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File Name : Rte 54 and Mt Hermon

Site Code :

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File Name : Rte 54 and Mt Hermon

Site Code :

Start Date : 5/5/2022

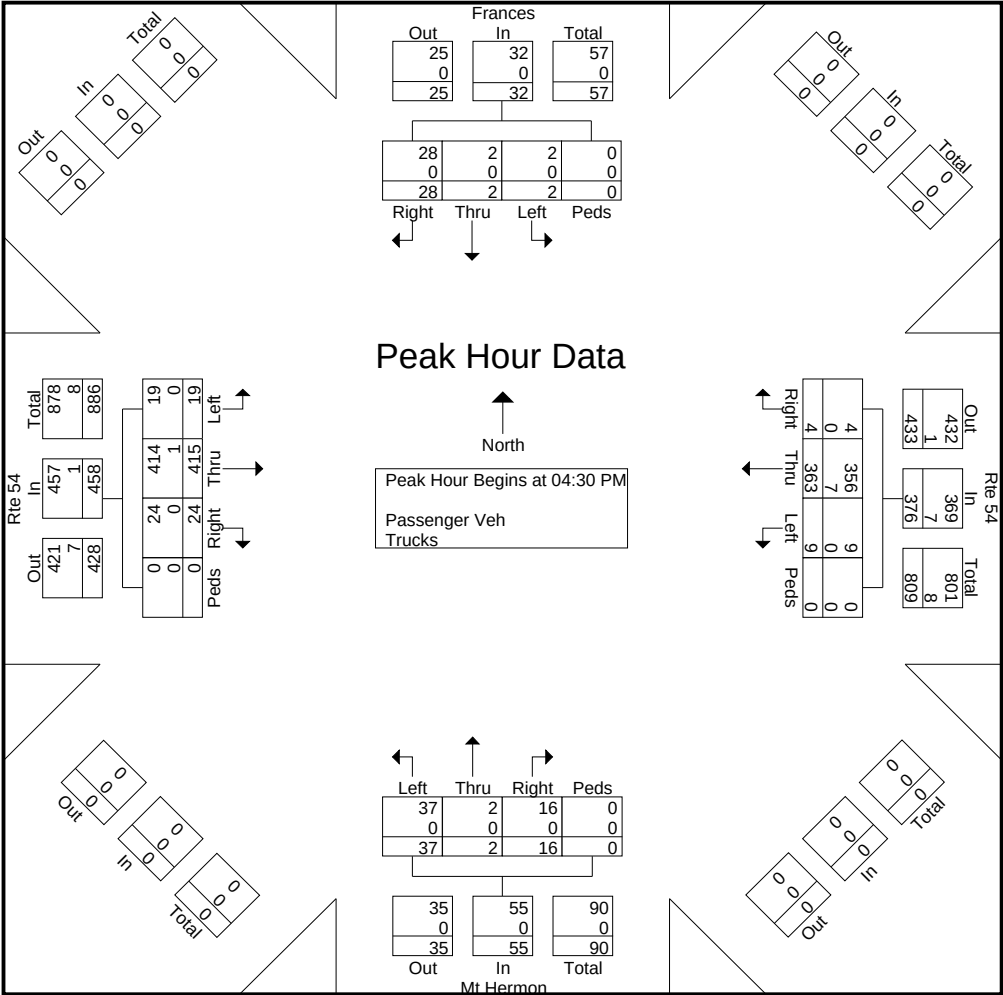
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	Frances From North					Rte 54 From East					Mt Hermon From South					Rte 54 From West					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Peak Hour Analysis From 02:00 PM to 06:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 04:30 PM																					
04:30 PM	6	0	0	0	6	1	130	2	0	133	2	1	10	0	13	9	78	2	0	89	241
04:45 PM	6	1	1	0	8	2	71	0	0	73	3	1	12	0	16	3	99	8	0	110	207
05:00 PM	9	0	0	0	9	0	95	4	0	99	5	0	9	0	14	7	121	5	0	133	255
05:15 PM	7	1	1	0	9	1	67	3	0	71	6	0	6	0	12	5	117	4	0	126	218
Total Volume	28	2	2	0	32	4	363	9	0	376	16	2	37	0	55	24	415	19	0	458	921
% App. Total	87.5	6.2	6.2	0		1.1	96.5	2.4	0		29.1	3.6	67.3	0		5.2	90.6	4.1	0		
PHF	.778	.500	.500	.000	.889	.500	.698	.563	.000	.707	.667	.500	.771	.000	.859	.667	.857	.594	.000	.861	.903
Passenger Veh	28	2	2	0	32	4	356	9	0	369	16	2	37	0	55	24	414	19	0	457	913
% Passenger Veh	100	100	100	0	100	100	98.1	100	0	98.1	100	100	100	0	100	100	99.8	100	0	99.8	99.1
Trucks	0	0	0	0	0	0	7	0	0	7	0	0	0	0	0	0	1	0	0	1	8
% Trucks	0	0	0	0	0	0	1.9	0	0	1.9	0	0	0	0	0	0	0.2	0	0	0.2	0.9

Data Collection Group

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File Name : Rte 54 and Mt Hermon
Site Code :
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Data Collection Group

LSmith@DataCollectionGroup.net

File Name : Rte 54 and Telcourt

Site Code :

Start Date : 5/5/2022

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Groups Printed- Passenger Veh - Trucks

	Telcourt Rd From North				Rte 54 From East				Rte 54 From West				
Start Time	Right	Left	Peds	App. Total	Right	Thru	Peds	App. Total	Thru	Left	Peds	App. Total	Int. Total
07:00 AM	6	0	0	6	2	84	0	86	33	7	0	40	132
07:15 AM	1	0	0	1	3	107	0	110	44	9	0	53	164
07:30 AM	1	1	0	2	2	117	0	119	57	9	0	66	187
07:45 AM	0	1	0	1	4	108	0	112	87	4	0	91	204
Total	8	2	0	10	11	416	0	427	221	29	0	250	687
08:00 AM	0	1	0	1	2	89	0	91	87	8	0	95	187
08:15 AM	4	1	0	5	1	93	0	94	86	12	0	98	197
08:30 AM	4	0	0	4	2	74	0	76	67	6	0	73	153
08:45 AM	5	1	0	6	2	80	0	82	68	6	0	74	162
Total	13	3	0	16	7	336	0	343	308	32	0	340	699
04:00 PM	6	1	0	7	2	90	0	92	103	6	0	109	208
04:15 PM	1	2	0	3	1	76	0	77	93	11	0	104	184
04:30 PM	3	0	0	3	6	132	0	138	92	6	0	98	239
04:45 PM	4	0	0	4	0	99	0	99	114	9	0	123	226
Total	14	3	0	17	9	397	0	406	402	32	0	434	857
05:00 PM	10	1	0	11	4	107	0	111	134	7	0	141	263
05:15 PM	7	1	0	8	0	84	0	84	130	8	0	138	230
05:30 PM	7	0	0	7	1	73	0	74	122	6	0	128	209
05:45 PM	3	0	0	3	0	72	0	72	106	8	0	114	189
Total	27	2	0	29	5	336	0	341	492	29	0	521	891
Grand Total	62	10	0	72	32	1485	0	1517	1423	122	0	1545	3134
Apprch %	86.1	13.9	0		2.1	97.9	0		92.1	7.9	0		
Total %	2	0.3	0	2.3	1	47.4	0	48.4	45.4	3.9	0	49.3	
Passenger Veh	56	9	0	65	31	1447	0	1478	1381	105	0	1486	3029
% Passenger Veh	90.3	90	0	90.3	96.9	97.4	0	97.4	97	86.1	0	96.2	96.6
Trucks	6	1	0	7	1	38	0	39	42	17	0	59	105
% Trucks	9.7	10	0	9.7	3.1	2.6	0	2.6	3	13.9	0	3.8	3.4

Data Collection Group

LSmith@DataCollectionGroup.net

File Name : Rte 54 and Telcourt

Site Code :

Start Date : 5/5/2022

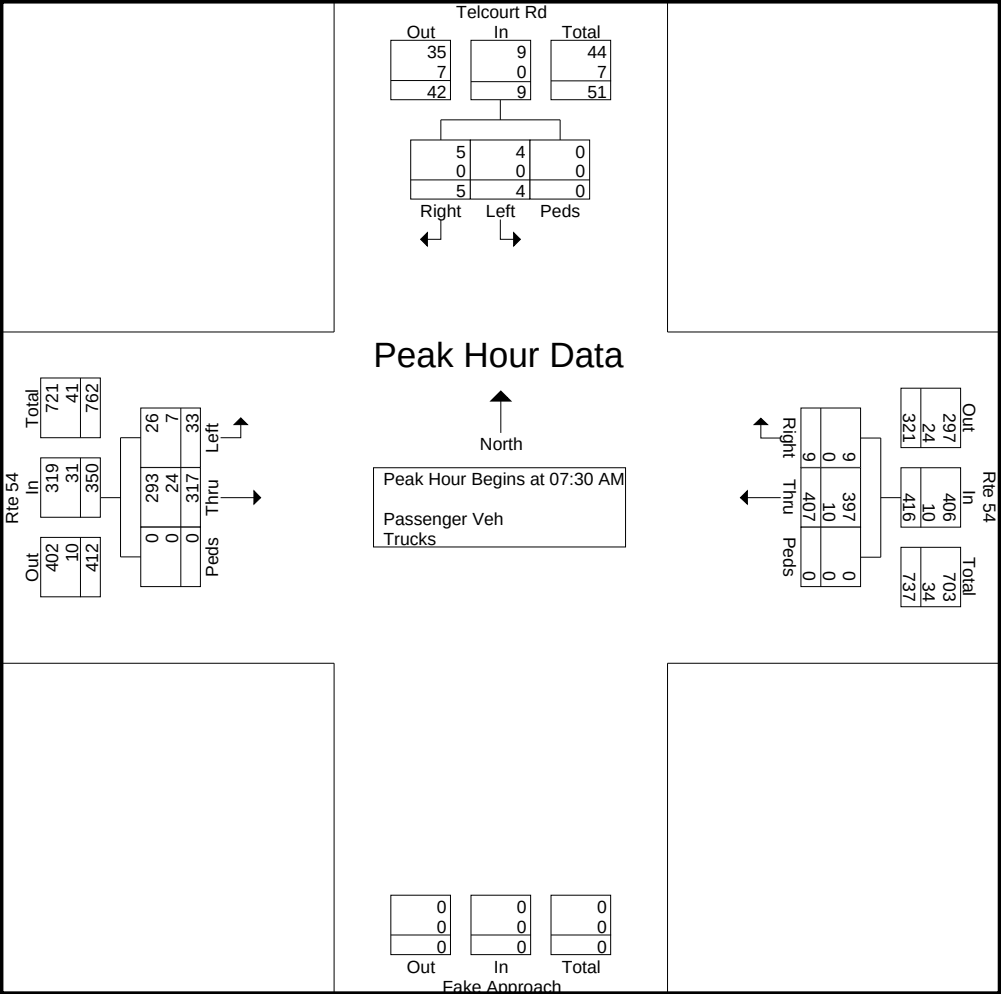
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	Telcourt Rd From North				Rte 54 From East				Rte 54 From West				
Start Time	Right	Left	Peds	App. Total	Right	Thru	Peds	App. Total	Thru	Left	Peds	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 11:45 AM - Peak 1 of 1													
Peak Hour for Entire Intersection Begins at 07:30 AM													
07:30 AM	1	1	0	2	2	117	0	119	57	9	0	66	187
07:45 AM	0	1	0	1	4	108	0	112	87	4	0	91	204
08:00 AM	0	1	0	1	2	89	0	91	87	8	0	95	187
08:15 AM	4	1	0	5	1	93	0	94	86	12	0	98	197
Total Volume	5	4	0	9	9	407	0	416	317	33	0	350	775
% App. Total	55.6	44.4	0		2.2	97.8	0		90.6	9.4	0		
PHF	.313	1.00	.000	.450	.563	.870	.000	.874	.911	.688	.000	.893	.950
Passenger Veh	5	4	0	9	9	397	0	406	293	26	0	319	734
% Passenger Veh	100	100	0	100	100	97.5	0	97.6	92.4	78.8	0	91.1	94.7
Trucks	0	0	0	0	0	10	0	10	24	7	0	31	41
% Trucks	0	0	0	0	0	2.5	0	2.4	7.6	21.2	0	8.9	5.3

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File Name : Rte 54 and Telcourt
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File Name : Rte 54 and Telcourt

Site Code :

Start Date : 5/5/2022

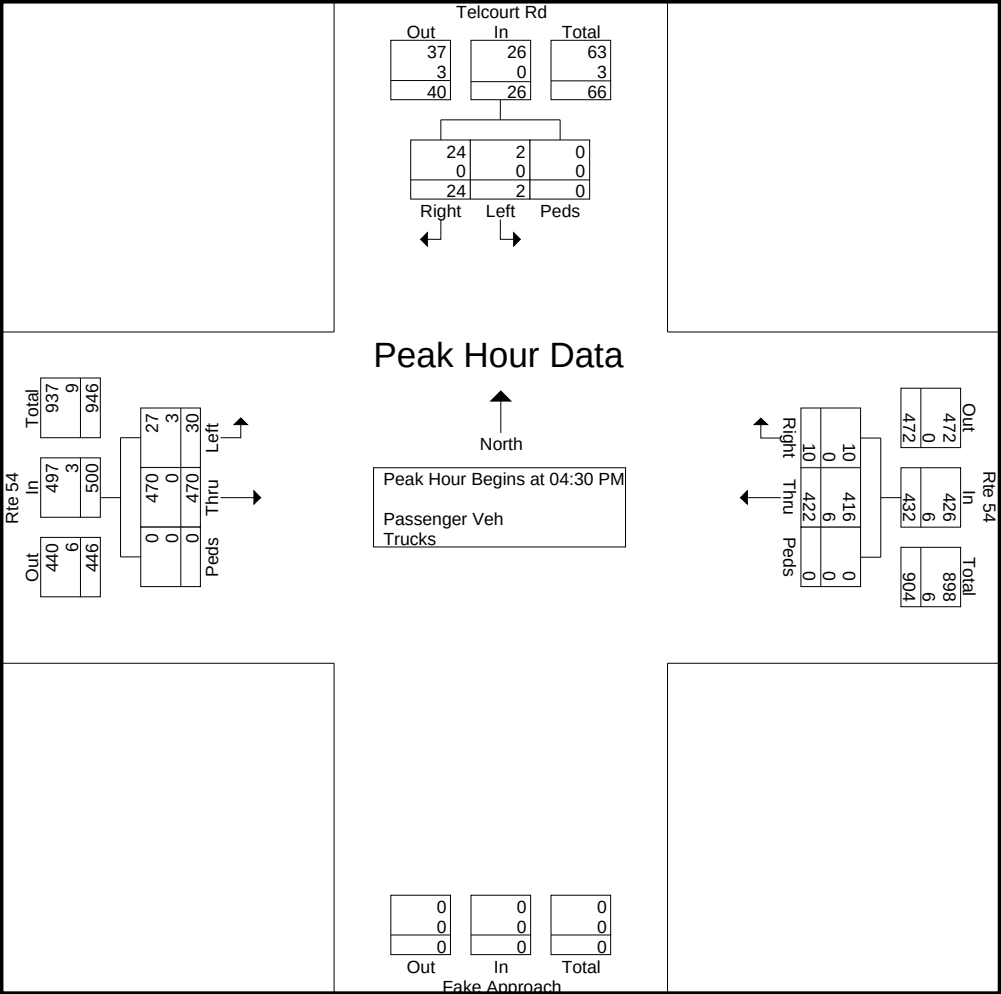
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	Telcourt Rd From North				Rte 54 From East				Rte 54 From West				
Start Time	Right	Left	Peds	App. Total	Right	Thru	Peds	App. Total	Thru	Left	Peds	App. Total	Int. Total
Peak Hour Analysis From 12:00 PM to 05:45 PM - Peak 1 of 1													
Peak Hour for Entire Intersection Begins at 04:30 PM													
04:30 PM	3	0	0	3	6	132	0	138	92	6	0	98	239
04:45 PM	4	0	0	4	0	99	0	99	114	9	0	123	226
05:00 PM	10	1	0	11	4	107	0	111	134	7	0	141	263
05:15 PM	7	1	0	8	0	84	0	84	130	8	0	138	230
Total Volume	24	2	0	26	10	422	0	432	470	30	0	500	958
% App. Total	92.3	7.7	0		2.3	97.7	0		94	6	0		
PHF	.600	.500	.000	.591	.417	.799	.000	.783	.877	.833	.000	.887	.911
Passenger Veh	24	2	0	26	10	416	0	426	470	27	0	497	949
% Passenger Veh	100	100	0	100	100	98.6	0	98.6	100	90.0	0	99.4	99.1
Trucks	0	0	0	0	0	6	0	6	0	3	0	3	9
% Trucks	0	0	0	0	0	1.4	0	1.4	0	10.0	0	0.6	0.9

Data Collection Group

LSmith@DataCollectionGroup.net

File Name : Rte 54 and Telcourt
Site Code :
Start Date : 5/5/2022
Page No : 5



Appendix D

Conceptual Drawings of Site Improvements



Ashland, VA - July 2024

Ashland, VA - July 2024

Appendix E

Existing Traffic Signal Timings and Signal Plans

PROJECT MANAGER: Janel Hedrick, P.E. (Richmond District) (804) 524-6146
SURVEYED BY: David Burch, L.S. (Richmond District) (804) 524-6157
DESIGN SUPERVISED BY: Paul Sarahan, P.E., (Central Office) (804) 786-4457
DESIGNED BY: Katie Montgomery, L.S. (Central Office) (804) 786-1202

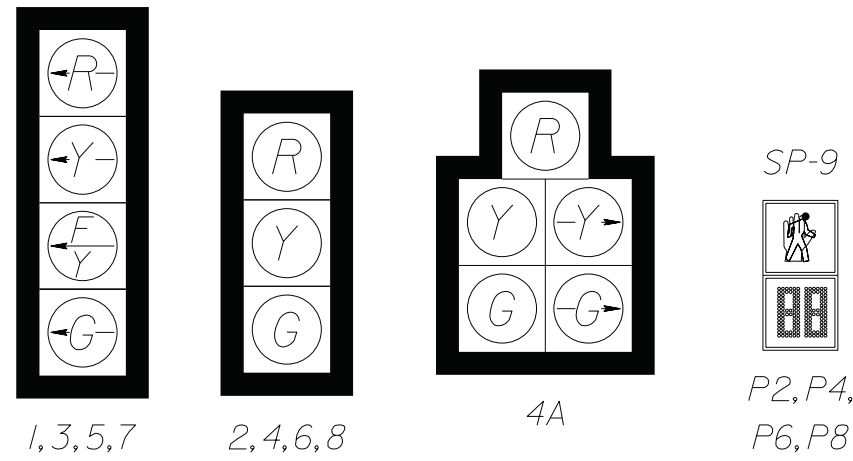
Signal Pole & Controller Legend

(ALL DIMENSIONS ARE TO CENTER OF POLE)

- (A) MAST ARM POLE (MP-I), TYPE III**
81.8' RT. of Rte. 1 Constr. @ Sta. 108+60
18' Luminaire Arm 307° Angle to Rte. 1 Constr. @
65' Arm 270° Angle to Rte. 1 Constr. @
Signal Placement: 35', 47', 59'
Sign Placement: 15', 63'
Video Detector: 4'
Antenna for Advanced Incident Management Detectors: 6'
Install Electrical Service, SE-3, Type B on Signal Pole.
Install Wireless Ethernet Antenna on Signal Pole.
Install Wireless Detector External Communication Antenna on Signal Pole.
- (B) MAST ARM POLE (MP-I), TYPE III**
80.7' RT. of Rte. 1 Constr. @ Sta. 107+64
18' Luminaire Arm 58° Angle to Rte. 1 Constr. @
50' Arm 4° Angle to Rte. 1 Constr. @
Signal Placement: 11', 20', 32', 44'
Sign Placement: 6', 48'
Video Detector: 26'
- (C) MAST ARM POLE (MP-I), TYPE I**
30.6' LT. of Rte. 1 Constr. @ Sta. 107+46
60' Arm 90° Angle to Rte. 1 Constr. @
Signal Placement: 29', 41', 53'
Sign Placement: 10', 57'
Video Detector: 35'
- (D) MAST ARM POLE (MP-I), TYPE III**
46.8' LT. of Rte. 1 Constr. @ Sta. 107+60
18' Luminaire Arm 58° Angle to Rte. 1 Constr. @
75' Arm 4° Angle to Rte. 1 Constr. @
Signal Placement: 58', 66', 74'
Sign Placement: 10', 22', 40', 54', 55'
Video Detector: 70'
- (E) PEDESTAL POLE (PF-2), 10'**
73.8' RT. of Rte. 1 Constr. @ Sta. 107+72
- (F) PEDESTRIAN ACTUATION (PA-3)**
64.5' RT. of Rte. 1 Constr. @ Sta. 107+60
- (G) PEDESTRIAN ACTUATION (PA-3)**
74.8' RT. of Rte. 1 Constr. @ Sta. 108+40
- (H) PEDESTRIAN ACTUATION (PA-3)**
59.8' RT. of Rte. 1 Constr. @ Sta. 108+50
- (J) PEDESTAL POLE (PF-2), 10'**
52.4' LT. of Rte. 1 Constr. @ Sta. 108+50
- (K) PEDESTAL POLE (PF-2), 10'**
25.4' LT. of Rte. 1 Constr. @ Sta. 108+66
- (L) CONTROLLER CABINET & FOUNDATION (CF-4)**
Cabinet door hinge located on left side of pad.
Install Uninterruptible Power Supply Cabinet.
Install Master Controller in cabinet.
- (M) CF-3 cabinet and foundation for future equipment.**

DigiModem is installed in Cabinet for communication

Proposed Signals



Note: 2'-6"x6" Loop Detectors are installed in SB Rte. 1 at Archie Cannon Dr. These are system loops for the incident management system. The system uses spread spectrum radio to transmit the loop detector data to the local controller.

Color Sequence Chart

SIGNAL	PHASES								COMBINATIONS								FLASH
	1	2	3	4	5	6	7	8	1-5	1-6	2-5	2-6	3-7	3-8	4-7	4-8	
1	→G								→G	→G	→FY						Y*
2		G									G	G					Y
3			→G										→G	→G		→FY	
4				G											G	G	
4A	→G			G					→G	→G					G	G	
5					→G				→G	→G	→FY						Y*
6						G				G	G						Y
7							→G						→G	→G		→FY	
8								G						G	G		
P2	DW	W	DW	DW	DW	DW	DW	DW	DW	DW	W	W	DW	DW	DW	DW	BLANK
P4	DW	DW	DW	W	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	W	W	BLANK
P6	DW	DW	DW	DW	DW	W	DW	DW	DW	W	DW	W	DW	DW	DW	DW	BLANK
P8	DW	DW	DW	DW	DW	DW	DW	W	DW	DW	DW	DW	DW	W	DW	W	BLANK

Empty box denotes RED indication (Red ball or red arrow as appropriate)

When operating, the FY indication shall operate in a flashing mode.

*The Y arrow signal face (second from the top) shall flash during FLASH operation. The FY arrow signal face (third from the top) shall be blank during FLASH operation.

DW denotes DON'T WALK indication.

W denotes WALK indication.

NOTES:

- The Intersection lighting design for N. & S. Washington St. (Rte. 1) & England St. (Rte. 54) is based on using a 250 Watt HPS luminaire located 28.5 feet above the roadway surface. The luminaire used for the lighting design shall produce an average illuminance of 1.8 or better on roadway surface, and an average-to-minimum uniformity ratio of 3:1 or better. A light loss factor of 0.65 was used.
- The luminaire used shall be a Type III Full Cutoff and shall be mounted on 18 foot arm unless noted otherwise on the plans.

CABLE AND CONDUIT LEGEND

- 2-1/4"/7c, 1-VDC
3" Conduit - 2-1/4"/7c, 2-1/4"/5c, 2-1/4"/2c, 2-8", 1-EGC(*)
2" Conduit - 1-VDC, 1-EGC(*)
3" Conduit - 2-1/4"/7c, 1-EGC(*)
Bored Conduit 2" - 2-VDC, 1-EGC(*)
Bored Conduit 3" (Spare) - 1-EGC(*)
2" Conduit - 1-1/4"/5c, 1-1/4"/2c, 1-EGC(*)
Bored Conduit 3" - 4-1/4"/7c, 2-1/4"/5c, 2-1/4"/2c, 2-8", 1-EGC(*)
2" Conduit - 4-VDC, 1-EGC(*)
2" Conduit - 1-1/4"/2c, 1-EGC(*)
2" Conduit - 2-1/4"/5c, 1-1/4"/2c, 1-EGC(*)
Bored Conduit 3" - 3-1/4"/7c, 2-1/4"/5c, 2-1/4"/2c, 2-8", 1-EGC(*)
- Bored Conduit 2" - 1-VDC, 1-EGC(*)
3" Conduit - 2-1/4"/7c, 2-1/4"/5c, 1-EGC(*)
Bored Conduit 3" - 4-1/4"/7c, 4-1/4"/5c, 4-1/4"/2c, 2-8", 1-EGC(*)
3" Conduit - 4-8", 1-EGC(*)
3" Conduit (Spare) - 1-EGC(*)
2" Conduit - 1-8"/3c, 1-EGC(*)
3" Conduit - 4-1/4"/5c, 4-1/4"/2c, 1-EGC(*)
3" Conduit - 3-1/4"/7c, 2-8", 1-EGC(*)
3-1/4"/7c, 1-VDC
2" Conduit - 1-Cat5 Cable, 1-HRMC, 1-WDC, 1-EGC(*)
2" Conduit (Spare) - 1-EGC(*)
3" Conduit - 9-1/4"/7c, 1-EGC(*)
2-1/4"/7c, 1-VDC, 1-HRMC
- VDC - Video Detection Cables per Special Provisions
EGC - Equipment Grounding Conductor
CAT5 - (HRMC - Incident Radio Management Cable)
CAT5 - WDC - Wireless Detection Cable
- 2-8" - Used for each Intersection Luminaire
* If required for a Bonded System (See General Notes)

SPEED LIMITS

ENGLAND ST (WEST OF INT.)	25 MPH
ENGLAND ST (EAST OF INT.)	35 MPH
N WASHINGTON ST	35 MPH
S WASHINGTON ST	35 MPH

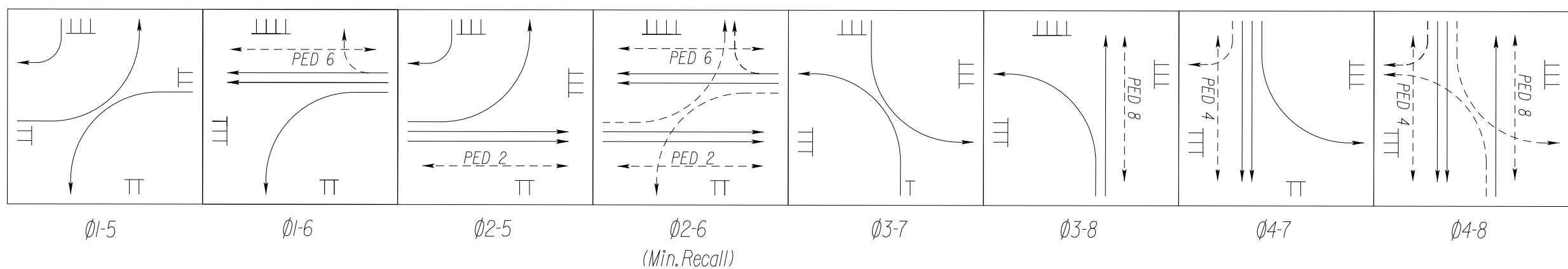
JUNCTION BOX LEGEND

All Junction Boxes shall conform to S1'd, JB-S2 unless otherwise noted on the plans.

③ Denotes S1'd, JB-S3

SCALE
0 25' 50'

Phasing Diagram



VDOT
LOCATION AND DESIGN DIVISION
TRAFFIC ENGINEERING

1401 E. BROAD STREET
RICHMOND, VA 23219

REFERENCES (PLAN AND DETAIL SHEETS)

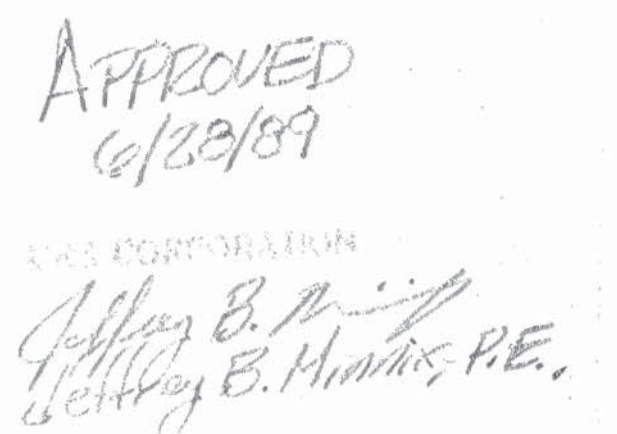
Roadway Plan Sheet	4
Signing and Pavement Marking Plan Sheet	10(4)

TRAFFIC CONTROL DEVICE PLANS

TRAFFIC SIGNAL PLAN

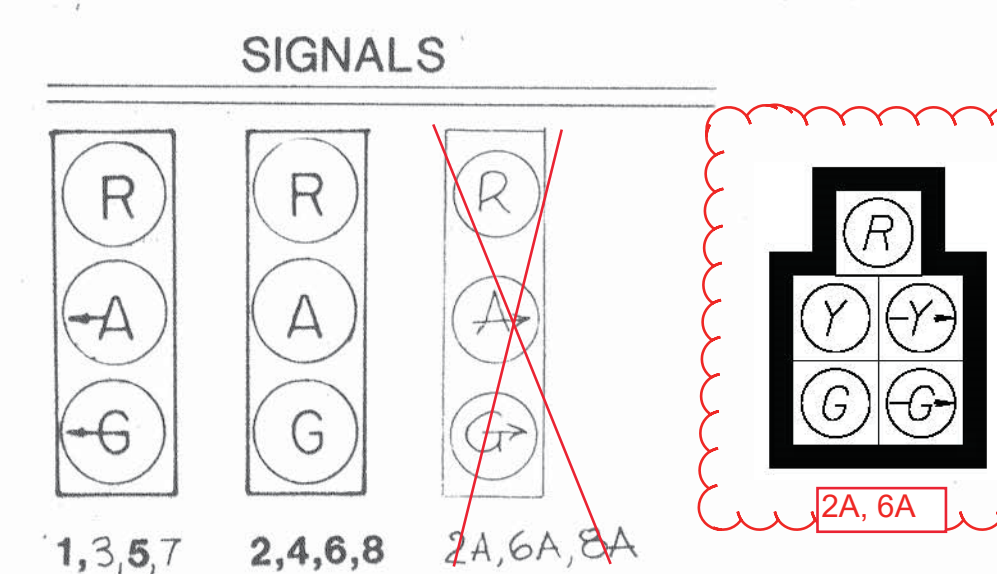
N. & S. WASHINGTON ST. (RTE. 1) &
ENGLAND ST. (RTE. 54)
TOWN OF ASHLAND

PROJECT 0001-166-V06	SHEET NO. 11(3)
-------------------------	--------------------

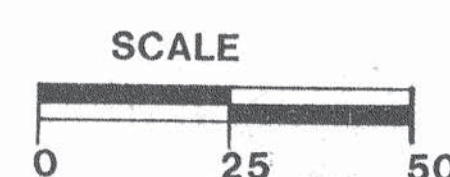


NOT TO SCALE

Note: All detection is Video



All sections 12"
All signals equipped with backplates
and tunnel visors



TRAFFIC SIGNAL INSTALLATION
INTERSECTION OF ROUTE
54/COTTAGE GREEN DRIVE
ASHLAND, VIRGINIA

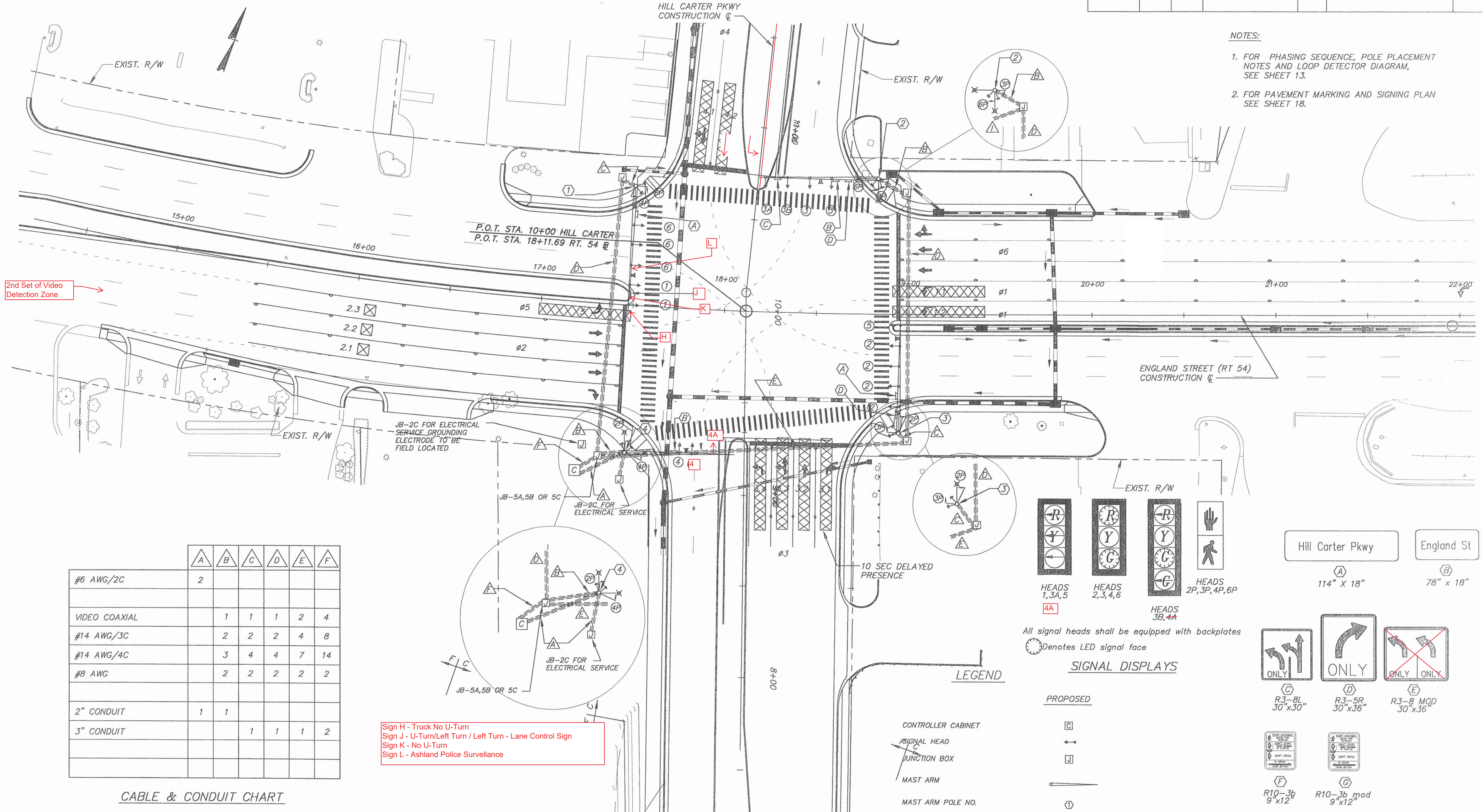


Communications Radio ID: 003

REVISED	FHWA REGION	STATE	FEDERAL AID PROJECT	ROUTE	STATE PROJECT	SHEET NO.
	3	VA.	STP-5166(003)		U000-166-V10	12

NOTES:

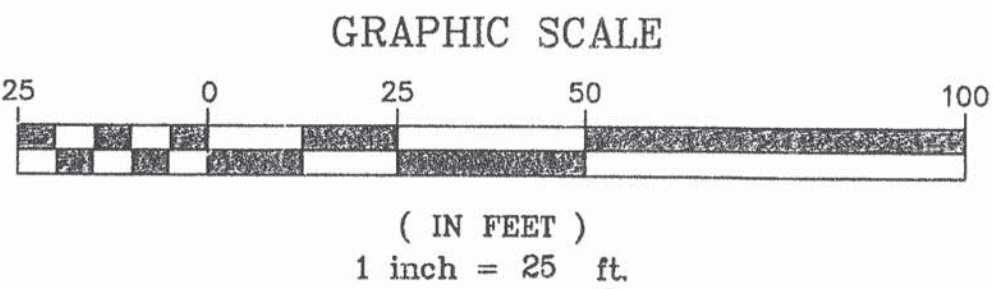
1. FOR PHASING SEQUENCE, POLE PLACEMENT NOTES AND LOOP DETECTOR DIAGRAM, SEE SHEET 13.
2. FOR PAVEMENT MARKING AND SIGNING PLAN SEE SHEET 18.



	A	B	C	D	E	F
#6 AWG/2C	2					
VIDEO COAXIAL		1	1	1	2	4
#14 AWG/3C		2	2	2	4	8
#14 AWG/4C		3	4	4	7	14
#8 AWG		2	2	2	2	2
2" CONDUIT	1	1				
3" CONDUIT			1	1	1	2

CABLE & CONDUIT CHART

Sign H - Truck No U-Turn
Sign J - U-Turn/Left Turn / Left Turn - Lane Control Sign
Sign K - No U-Turn
Sign L - Ashland Police Surveillance



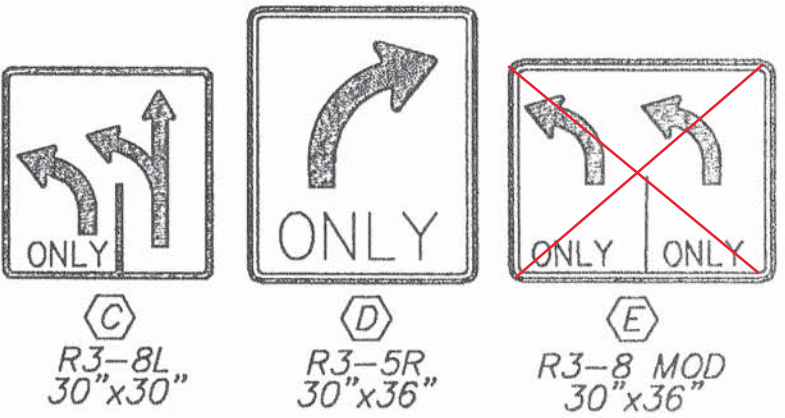
- LEGEND
- CONTROLLER CABINET
 - SIGNAL HEAD
 - JUNCTION BOX
 - MAST ARM
 - MAST ARM POLE NO.
 - CONDUIT W/ CABLE
 - ELECTRICAL SERVICE DISCONNECT
 - PEDESTRIAN PUSHBUTTONS
 - LUMINAIRE ARM W/LUMINAIRE
 - 6' X 6' VIDEO DETECTION ZONE
 - 6' X 50' VIDEO DETECTION ZONE
 - VIDEO DETECTION CAMERA

PROPOSED

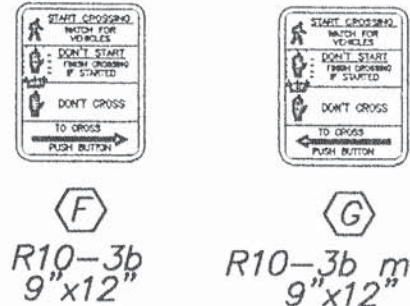
- CONTROLLER CABINET
- SIGNAL HEAD
- JUNCTION BOX
- MAST ARM
- MAST ARM POLE NO.
- CONDUIT W/ CABLE
- ELECTRICAL SERVICE DISCONNECT
- PEDESTRIAN PUSHBUTTONS
- LUMINAIRE ARM W/LUMINAIRE
- 6' X 6' VIDEO DETECTION ZONE
- 6' X 50' VIDEO DETECTION ZONE
- VIDEO DETECTION CAMERA

All signal heads shall be equipped with backplates
Denotes LED signal face

SIGNAL DISPLAYS



SIGNS

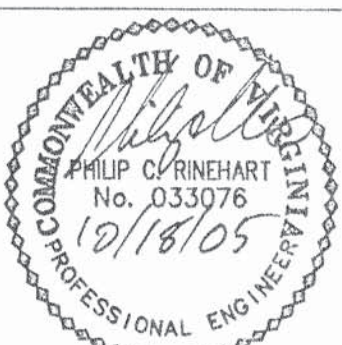


TOWN OF ASHLAND
DEPARTMENT OF PUBLIC WORKS

C.I.P. TR8
HILL CARTER PARKWAY

SIGNALIZATION PLAN
HILL CARTER PKWY & ENGLAND STREET

URS 277 BENDIX ROAD, SUITE 500
VIRGINIA BEACH, VA 23452
(757)499-4224



	BY	DATE
DESIGNED	RMG	
DRAWN	ARH	
CHECKED	JBM	

SEPAC ECOM All Data

5/9/2022
8:29:45AM

Intersection Name: **01 1 & 54 (M)**

Intersection Alias: **1_54**

Access Data

1 :1200/1312 Baud
3 :9600 Baud

Access Code: **9999**

Channel:

Address: **1**

Revision: **3.34h**

IP Address:

Phase Initialization Data

Phase	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Initial	1-Inact	4-Grn	1-Inact	1-Inact	1-Inact	4-Grn	1-Inact	1-Inact	0-None	0-None	0-None	0-None	0-None	0-None	0-None	0-None

PHASE DATA

Vehical Basic Timings							Misc Timings					Pedestrian Timings					Alt	Actuated	
Min						All	Green	Yellow	Walk	Offset	Bike	Bike	Ped	Alt	Ped	Flash	Ext	Rest in	
Phase	Green	Passage	Max1	Max2	Yellow	Red	Delay	Delay	Off	Mode	Green	Psg	Walk	Clr	Walk	Clr	Walk	Ped Clr	Walk
1	5	3.0	23	20	4.3	4.1	0	0	0	0-Advance	0	0.0	0	0	0	0	No	0	No
2	15	6.0	28	25	4.3	4.1	0	0	0	0-Advance	0	0.0	7	18	0	0	No	0	No
3	5	5.0	25	20	4.3	5.0	0	0	0	0-Advance	0	0.0	0	0	0	0	No	0	No
4	5	3.0	30	30	4.3	5.0	0	0	0	0-Advance	0	0.0	7	27	0	0	No	0	No
5	5	3.0	23	20	4.3	4.1	0	0	0	0-Advance	0	0.0	0	0	0	0	No	0	No
6	15	6.0	28	25	4.3	4.1	0	0	0	0-Advance	0	0.0	7	21	0	0	No	0	No
7	5	3.0	25	20	4.3	5.0	0	0	0	0-Advance	0	0.0	0	0	0	0	No	0	No
8	5	3.0	30	30	4.3	5.0	0	0	0	0-Advance	0	0.0	7	27	0	0	No	0	No
9	0	0.0	0	0	3.0	0.0	0	0	0	0-Advance	0	0.0	0	0	0	0	No	0	No
10	0	0.0	0	0	3.0	0.0	0	0	0	0-Advance	0	0.0	0	0	0	0	No	0	No
11	0	0.0	0	0	3.0	0.0	0	0	0	0-Advance	0	0.0	0	0	0	0	No	0	No
12	0	0.0	0	0	3.0	0.0	0	0	0	0-Advance	0	0.0	0	0	0	0	No	0	No
13	0	0.0	0	0	3.0	0.0	0	0	0	0-Advance	0	0.0	0	0	0	0	No	0	No
14	0	0.0	0	0	3.0	0.0	0	0	0	0-Advance	0	0.0	0	0	0	0	No	0	No
15	0	0.0	0	0	3.0	0.0	0	0	0	0-Advance	0	0.0	0	0	0	0	No	0	No
16	0	0.0	0	0	3.0	0.0	0	0	0	0-Advance	0	0.0	0	0	0	0	No	0	No

Vehicle Density Timings							General Control				Miscellaneous					Special Sequence		
Ph.	Added Initial	Max Initial	Time B4 Redu	Car B4 Redu	Time To Redu	Min Gap	Non-Act Response	Veh Recall	Ped Recall	Recall Delay	Non Lock	Dual Entry	Last Car Pass	Condit Service	No Simu Gap Out	Omit	Minus Yel	Omit Call
1	0.0	0	0	0	0	0.0	None	None	None	0	Yes	No	No	No	No	0	0	0
2	0.0	0	0	0	0	0.0	NonActI	Min	None	0	No	Yes	No	No	No	0	0	0
3	0.0	0	0	0	0	0.0	None	None	None	0	Yes	No	No	No	No	0	0	0
4	0.0	0	0	0	0	0.0	None	None	None	0	No	Yes	No	No	No	0	0	0
5	0.0	0	0	0	0	0.0	None	None	None	0	Yes	No	No	No	No	0	0	0
6	0.0	0	0	0	0	0.0	NonActI	Min	None	0	No	Yes	No	No	No	0	0	0
7	0.0	0	0	0	0	0.0	None	None	None	0	Yes	No	No	No	No	0	0	0
8	0.0	0	0	0	0	0.0	None	None	None	0	No	Yes	No	No	No	0	0	0
9	0.0	0	0	0	0	0.0	None	None	None	0	No	No	No	No	No	0	0	0
10	0.0	0	0	0	0	0.0	None	None	None	0	No	No	No	No	No	0	0	0
11	0.0	0	0	0	0	0.0	None	None	None	0	No	No	No	No	No	0	0	0
12	0.0	0	0	0	0	0.0	None	None	None	0	No	No	No	No	No	0	0	0
13	0.0	0	0	0	0	0.0	None	None	None	0	No	No	No	No	No	0	0	0
14	0.0	0	0	0	0	0.0	None	None	None	0	No	No	No	No	No	0	0	0
15	0.0	0	0	0	0	0.0	None	None	None	0	No	No	No	No	No	0	0	0
16	0.0	0	0	0	0	0.0	None	None	None	0	No	No	No	No	No	0	0	0

Vehical Detector Phase Assignment						Pedestrian Detector				Special Detector Phase Assignment					
Assign		Switch				Default Data				Assign		Switch			
Phase	Mode	Phase	Extend	Delay						Phase	Mode	Phase	Extend	Delay	
Default Data															
										:					

Unit Data

General Control					Remote Flash				
Startup Time:	0sec		Input	Output	Test A = Flash No				
Startup State:	Flash	Ring	Respons	Selection	Phase	Entry	Exit	Channel	Flash Color
Red Revert:	40sec	1	Ring 1	Ring 1	2	Yes	Yes	13	Red
Auto Ped Clr:	No	2	Ring 2	Ring 2	6	Yes	Yes	14	Red
Stop T Reset:	No	3	None	None				15	Red
Alt Sequence:	0	4	None	None				16	Red
Special Seq:	0-Standard								
I/O Modes:									
ABC Input(Entry) Modes: 0		D Input(Entry) Modes: 2							
ABC Output(O/STS) Modes: 0		D Output(O/STS) Modes: 2							

Overlaps																
Phase(s)																
A B C D E F G H I J K L M N O P																
Start Green																
Phase(s)																
A B C D E F G H I J K L M N O P																
Trail Green 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0																
Trail Yellow 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0																
Trail Red 2.0 2.0 2.0 2.0 2.0 2.0 2.0 2.0 2.0 2.0 2.0 2.0 2.0 2.0 2.0 2.0																
TG Preempt 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0																
Stop Grn/Yel Phase 1 3 5 7 0 0 0 0 0 0 0 0 0 0 0 0																

Ring																
Phase(s)																
Phase	Ring	Next Phase	Concurrent Phases	1	2	3	4	5	6	7	8	9	10	11	12	13
1	1	2		1	2	3	4	1	1	3	3	9	10	11	12	13
2	1	3		5	5	7	7	2	2	4	4					
3	1	4		6	6	8	8	5	6	7	8					
4	1	1														
5	2	6														
6	2	7														
7	2	8														
8	2	5														

Alternate Sequences				Port 1 Data			
No Alternate Sequences Programmed				BIU	Port	Basic	Message
				Addr	Status	Det	40
				Default Data			

Channel	Control	Hardware Pins
1	1 - Veh Phase 1	1 - Phase 1 RYG
2	2 - Veh Phase 2	2 - Phase 2 RYG
3	3 - Veh Phase 3	3 - Phase 3 RYG
4	4 - Veh Phase 4	4 - Phase 4 RYG
5	5 - Veh Phase 5	5 - Phase 5 RYG
6	6 - Veh Phase 6	6 - Phase 6 RYG
7	7 - Veh Phase 7	7 - Phase 7 RYG
8	8 - Veh Phase 8	8 - Phase 8 RYG
9	18 - Ped Phase 2	10 - Phase 2 DPW
10	20 - Ped Phase 4	12 - Phase 4 DPW
11	22 - Ped Phase 6	14 - Phase 6 DPW
12	24 - Ped Phase 8	16 - Phase 8 DPW
13	33 - Overlap A	17 - Overlap A RYG
14	34 - Overlap B	18 - Overlap B RYG
15	35 - Overlap C	19 - Overlap C RYG
16	36 - Overlap D	20 - Overlap D RYG
17	17 - Ped Phase 1	9 - Phase 1 DPW
18	19 - Ped Phase 3	11 - Phase 3 DPW
19	21 - Ped Phase 5	13 - Phase 5 DPW
20	23 - Ped Phase 7	15 - Phase 7 DPW

Coordination Data

General Coordination Data			Dial/Split	Cycle
Operation Mode: 1=Auto	Offset Mode: 0=Beg Grn	Manual Dial: 1	1/1	100
Coordination Mode: 2=Permissive Yield	Force Mode: 1=Cycle	Manual Split: 1	2/1	120
Maximun Mode: 0=Inhibit	Max Dwell Time: 0	Manual Offset: 1	3/1	130
Correction Mode: 2=Short Way	Yield Period: 0		3/3	130
			4/1	150
			4/2	130
			4/3	130

Split Times and Phase Mod											
Dial 1 / Split 1											
Ph.	Splits	Ph. Mode	Ph.	Splits	Ph. Mode	Ph.	Splits	Ph. Mode	Ph.	Splits	Ph. Mode
1	20	0=Actuated	2	25	7=Dual Coord	3	20	0=Actuated	4	35	1=Coordinate
5	20	0=Actuated	6	25	7=Dual Coord	7	20	0=Actuated	8	35	1=Coordinate
Dial 2 / Split 1											
Ph.	Splits	Ph. Mode	Ph.	Splits	Ph. Mode	Ph.	Splits	Ph. Mode	Ph.	Splits	Ph. Mode
1	26	0=Actuated	2	28	7=Dual Coord	3	24	0=Actuated	4	42	1=Coordinate
5	26	0=Actuated	6	28	7=Dual Coord	7	24	0=Actuated	8	42	1=Coordinate
Dial 3 / Split 1											
Ph.	Splits	Ph. Mode	Ph.	Splits	Ph. Mode	Ph.	Splits	Ph. Mode	Ph.	Splits	Ph. Mode
1	28	0=Actuated	2	44	7=Dual Coord	3	27	0=Actuated	4	31	1=Coordinate
5	24	0=Actuated	6	48	7=Dual Coord	7	27	0=Actuated	8	31	1=Coordinate
Dial 3 / Split 3											
Ph.	Splits	Ph. Mode	Ph.	Splits	Ph. Mode	Ph.	Splits	Ph. Mode	Ph.	Splits	Ph. Mode
1	26	0=Actuated	2	49	7=Dual Coord	3	30	0=Actuated	4	25	1=Coordinate
5	24	0=Actuated	6	51	7=Dual Coord	7	23	0=Actuated	8	32	1=Coordinate
Dial 4 / Split 1											
Ph.	Splits	Ph. Mode	Ph.	Splits	Ph. Mode	Ph.	Splits	Ph. Mode	Ph.	Splits	Ph. Mode
1	45	3=Max Recall	2	45	1=Coordinate	3	30	0=Actuated	4	30	0=Actuated
5	45	3=Max Recall	6	45	1=Coordinate	7	30	0=Actuated	8	30	0=Actuated
Dial 4 / Split 2											
Ph.	Splits	Ph. Mode	Ph.	Splits	Ph. Mode	Ph.	Splits	Ph. Mode	Ph.	Splits	Ph. Mode
1	14	0=Actuated	2	80	1=Coordinate	3	18	0=Actuated	4	18	0=Actuated
5	14	0=Actuated	6	80	1=Coordinate	7	18	0=Actuated	8	18	0=Actuated
Dial 4 / Split 3											
Ph.	Splits	Ph. Mode	Ph.	Splits	Ph. Mode	Ph.	Splits	Ph. Mode	Ph.	Splits	Ph. Mode
1	14	0=Actuated	2	40	1=Coordinate	3	58	3=Max Recall	4	18	0=Actuated
5	14	0=Actuated	6	40	1=Coordinate	7	18	0=Actuated	8	58	2=Min Recall

Traffic Plan Data					
Plan: 4/2/1	Offset Time: 89	Alternat Sequence: 0	Rg 2 Lag Time: 0	Rg 3 Lag Time: 0	Rg 4 Lag Time: 0
	Mode: 0=Normal	Special Function: 0	Correction Mode: 0=No		
Plan: 4/2/2	Offset Time: 89	Alternat Sequence: 0	Rg 2 Lag Time: 0	Rg 3 Lag Time: 0	Rg 4 Lag Time: 0
	Mode: 0=Normal	Special Function: 0	Correction Mode: 0=No		
Plan: 4/3/1	Offset Time: 89	Alternat Sequence: 0	Rg 2 Lag Time: 0	Rg 3 Lag Time: 0	Rg 4 Lag Time: 0
	Mode: 0=Normal	Special Function: 0	Correction Mode: 0=No		
Plan: 4/3/2	Offset Time: 89	Alternat Sequence: 0	Rg 2 Lag Time: 0	Rg 3 Lag Time: 0	Rg 4 Lag Time: 0
	Mode: 0=Normal	Special Function: 0	Correction Mode: 0=No		

Local TBC Data						Equate Days							
Start of Daylight Saving	Month: 3	Week: 2	Cycle Zero Reference	Hours: 0	Min: 1	Source Day	1	2	3	4	5	6	7
End of Daylight Saving	Month: 11	Week: 1				1	7	0	0	0	0	0	0
						2	3	4	5	6	0	0	0

Traffic Data				PHASE FUNCTION																
Event	Day	Time	D/S/O	flash	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
1	1	9:0	1/1/1		☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
2	1	20:30	0/0/4		☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
3	2	6:0	1/1/1		☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
4	2	15:30	2/1/1		☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
5	2	19:0	1/1/1		☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
6	2	20:30	0/0/4		☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐

AUX. Events																		
Event	Program		Min.	Aux Outputs			Det.	Det.	Det.	Dimming	Special Function Outputs							
	Day	Hour		1	2	3	Diag.	Rpt.	Mult100		1	2	3	4	5	6	7	8
1	1	6	0					X										
2	1	21	0															
3	2	0	0					X										
4	2	23	59															

Default Data - No Special Day(s) or Week(s) Programmed

Special Functions																	
Function	SF1	SF2	SF3	SF4	SF5	SF6	SF7	SF8	SF9	SF10	SF11	SF12	SF13	SF14	SF15	SF16	
Special Function 1	☒	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	
Special Function 2	☐	☒	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	
Special Function 3	☐	☐	☒	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	
Special Function 4	☐	☐	☐	☒	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	
Special Function 5	☐	☐	☐	☐	☒	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	
Special Function 6	☐	☐	☐	☐	☐	☒	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	
Special Function 7	☐	☐	☐	☐	☐	☐	☒	☐	☐	☐	☐	☐	☐	☐	☐	☐	
Special Function 8	☐	☐	☐	☐	☐	☐	☐	☒	☐	☐	☐	☐	☐	☐	☐	☐	

Phase Function																
	PF1	PF2	PF3	PF4	PF5	PF6	PF7	PF8	PF9	PF10	PF11	PF12	PF13	PF14	PF15	PF16
Phase 1 Max2	☒	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
Phase 2 Max2	☐	☒	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
Phase 3 Max2	☐	☐	☒	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
Phase 4 Max2	☐	☐	☐	☒	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
Phase 5 Max2	☐	☐	☐	☐	☒	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
Phase 6 Max2	☐	☐	☐	☐	☐	☒	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
Phase 7 Max2	☐	☐	☐	☐	☐	☐	☒	☐	☐	☐	☐	☐	☐	☐	☐	☐
Phase 8 Max2	☐	☐	☐	☐	☐	☐	☐	☒	☐	☐	☐	☐	☐	☐	☐	☐

	PF1	PF2	PF3	PF4	PF5	PF6	PF7	PF8	PF9	PF10	PF11	PF12	PF13	PF14	PF15	PF16
Phase 1 Phase Omit	☐	☐	☐	☐	☐	☐	☐	☐	X	☐	☐	☐	☐	☐	☐	☐
Phase 2 Phase Omit	☐	☐	☐	☐	☐	☐	☐	☐	☐	X	☐	☐	☐	☐	☐	☐
Phase 3 Phase Omit	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	X	☐	☐	☐	☐	☐
Phase 4 Phase Omit	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	X	☐	☐	☐	☐
Phase 5 Phase Omit	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	X	☐	☐	☐
Phase 6 Phase Omit	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	X	☐	☐
Phase 7 Phase Omit	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	X	☐
Phase 8 Phase Omit	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	X

	PF1	PF2	PF3	PF4	PF5	PF6	PF7	PF8	PF9	PF10	PF11	PF12	PF13	PF14	PF15	PF16
	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐

	PF1	PF2	PF3	PF4	PF5	PF6	PF7	PF8	PF9	PF10	PF11	PF12	PF13	PF14	PF15	PF16
	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐

Function Phase Recall	PF1	PF2	PF3	PF4	PF5	PF6	PF7	PF8	PF9	PF10	PF11	PF12	PF13	PF14	PF15	PF16
	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐

	PF1	PF2	PF3	PF4	PF5	PF6	PF7	PF8	PF9	PF10	PF11	PF12	PF13	PF14	PF15	PF16
	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐

	PF1	PF2	PF3	PF4	PF5	PF6	PF7	PF8	PF9	PF10	PF11	PF12	PF13	PF14	PF15	PF16
	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐

	PF1	PF2	PF3	PF4	PF5	PF6	PF7	PF8	PF9	PF10	PF11	PF12	PF13	PF14	PF15	PF16
	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐

Vehicle Function	PF1	PF2	PF3	PF4	PF5	PF6	PF7	PF8	PF9	PF10	PF11	PF12	PF13	PF14	PF15	PF16
	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐

	PF1	PF2	PF3	PF4	PF5	PF6	PF7	PF8	PF9	PF10	PF11	PF12	PF13	PF14	PF15	PF16
	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐

	PF1	PF2	PF3	PF4	PF5	PF6	PF7	PF8	PF9	PF10	PF11	PF12	PF13	PF14	PF15	PF16
	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐

Overlap Function	PF1	PF2	PF3	PF4	PF5	PF6	PF7	PF8	PF9	PF10	PF11	PF12	PF13	PF14	PF15	PF16
	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐

Dimming Data

Channel Red Yellow Green Alternate

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Default Data - No Dimming Programmed

Lane Definition

Lanes	Name	Green Inbound	Yellow Inbound	Red Inbound	Green Outbound	Yellow Outbound
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Default Data - Lane Definition

Preemption Data

General Preemption Data

Flash > Preempt 1 Preempt 2 = Preempt 3 Preempt 4 = Preempt 5
Preempt 1 > Preempt 2 Preempt 3 = Preempt 4 Preempt 5 = Preempt 6

Preempt	Preempt Timers											Gate ext end	Select			Track				Dwell Green	Return		
	Non- Locking	Link to Preempt	Delay	Ext end	Dura tion	Max Call	Lock- Out	Min Green	Min Walk	Debo unce	Ped Clear		Yel	Red	Grn	Ped	Yel	Red	Ped Clear		Yel	Red	
1	No	0	0	0	0	0	0	0	0	0	0	8	40	20	10	8	40	20	10	8	40	20	
2	No	0	0	0	0	0	0	0	0	0	0	8	40	20	10	8	40	20	10	8	40	20	
3	No	0	0	0	0	0	0	0	0	0	0	8	40	20	10	8	40	20	10	8	40	20	
4	No	0	0	0	0	0	0	0	0	0	0	8	40	20	10	8	40	20	10	8	40	20	
5	No	0	0	0	0	0	0	0	0	0	0	8	40	20	10	8	40	20	10	8	40	20	
6	No	0	0	0	0	0	0	0	0	0	0	8	40	20	10	8	40	20	10	8	40	20	

Preempt 1			Preempt 2			Preempt 3			Preempt 4			Preempt 5			Preempt 6		
Phase	Exit Phase	Exit Calls	Phase	Exit Phase	Exit Calls	Phase	Exit Phase	Exit Calls	Phase	Exit Phase	Exit Calls	Phase	Exit Phase	Exit Calls	Phase	Exit Phase	Exit Calls
1	No	Yes	1	No	Yes	1	No	Yes	1	No	Yes	1	No	Yes	1	No	Yes
2	No	Yes	2	No	Yes	2	No	Yes	2	No	Yes	2	No	Yes	2	No	Yes
3	No	Yes	3	No	Yes	3	No	Yes	3	No	Yes	3	No	Yes	3	No	Yes
4	No	Yes	4	No	Yes	4	No	Yes	4	No	Yes	4	No	Yes	4	No	Yes
5	No	Yes	5	No	Yes	5	No	Yes	5	No	Yes	5	No	Yes	5	No	Yes
6	No	Yes	6	No	Yes	6	No	Yes	6	No	Yes	6	No	Yes	6	No	Yes
7	No	Yes	7	No	Yes	7	No	Yes	7	No	Yes	7	No	Yes	7	No	Yes
8	No	Yes	8	No	Yes	8	No	Yes	8	No	Yes	8	No	Yes	8	No	Yes

Priority Timers

Prio rity	Non-Locking	Del ay	Ext end	Free Dial	Free Split	Min Green	No Lock out	Lock out A	Lock out B	Max Green	Pre-Green	Recall	Excl-co Phase Svc.	Transit Overlap	
														Signal Type	Blankout

Priority Name DetNum	Priority Name DetNum	Priority Name DetNum	Priority Name DetNum	Priority Name DetNum	Priority Name DetNum
Priority : Phase Co-Phase QJ-Phase	Priority : Phase Co-Phase QJ-Phase	Priority : Phase Co-Phase QJ-Phase	Priority : Phase Co-Phase QJ-Phase	Priority : Phase Co-Phase QJ-Phase	Priority : Phase Co-Phase QJ-Phase

Priority : Priority Bank : Level Partial Priority Alt Seq Alt Seq Enabled Min Walk Full Priority FPF Override Ped skip Force full Priority Frequency Force Full Priority Recovery Method Return PedWait PedOverride Pha Exit Ph- Ped Reco ses Call Omit Omit very	Priority : Priority Bank : Level Partial Priority Alt Seq Alt Seq Enabled Min Walk Full Priority FPF Override Ped skip Force full Priority Frequency Force Full Priority Recovery Method Return PedWait PedOverride Pha Exit Ph- Ped Reco ses Call Omit Omit very	Priority : Priority Bank : Level Partial Priority Alt Seq Alt Seq Enabled Min Walk Full Priority FPF Override Ped skip Force full Priority Frequency Force Full Priority Recovery Method Return PedWait PedOverride Pha Exit Ph- Ped Reco ses Call Omit Omit very	Priority : Priority Bank : Level Partial Priority Alt Seq Alt Seq Enabled Min Walk Full Priority FPF Override Ped skip Force full Priority Frequency Force Full Priority Recovery Method Return PedWait PedOverride Pha Exit Ph- Ped Reco ses Call Omit Omit very
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Priority : Priority Bank : Level Partial Priority Alt Seq Alt Seq Enabled Min Walk Full Priority FPF Override Ped skip Force full Priority Frequency Force Full Priority Recovery Method Return PedWait PedOverride Pha Exit Ph- Ped Reco ses Call Omit Omit very	Priority : Priority Bank : Level Partial Priority Alt Seq Alt Seq Enabled Min Walk Full Priority FPF Override Ped skip Force full Priority Frequency Force Full Priority Recovery Method Return PedWait PedOverride Pha Exit Ph- Ped Reco ses Call Omit Omit very	Priority : Priority Bank : Level Partial Priority Alt Seq Alt Seq Enabled Min Walk Full Priority FPF Override Ped skip Force full Priority Frequency Force Full Priority Recovery Method Return PedWait PedOverride Pha Exit Ph- Ped Reco ses Call Omit Omit very	Priority : Priority Bank : Level Partial Priority Alt Seq Alt Seq Enabled Min Walk Full Priority FPF Override Ped skip Force full Priority Frequency Force Full Priority Recovery Method Return PedWait PedOverride Pha Exit Ph- Ped Reco ses Call Omit Omit very
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Priority : Priority Bank : Level Partial Priority Alt Seq Alt Seq Enabled Min Walk Full Priority FPF Override Ped skip Force full Priority Frequency Force Full Priority Recovery Method Return PedWait PedOverride	Priority : Priority Bank : Level Partial Priority Alt Seq Alt Seq Enabled Min Walk Full Priority FPF Override Ped skip Force full Priority Frequency Force Full Priority Recovery Method Return PedWait PedOverride	Priority : Priority Bank : Level Partial Priority Alt Seq Alt Seq Enabled Min Walk Full Priority FPF Override Ped skip Force full Priority Frequency Force Full Priority Recovery Method Return PedWait PedOverride	Priority : Priority Bank : Level Partial Priority Alt Seq Alt Seq Enabled Min Walk Full Priority FPF Override Ped skip Force full Priority Frequency Force Full Priority Recovery Method Return PedWait PedOverride
Pha Exit Ph- Ped Reco ses Call Omit Omit very	Pha Exit Ph- Ped Reco ses Call Omit Omit very	Pha Exit Ph- Ped Reco ses Call Omit Omit very	Pha Exit Ph- Ped Reco ses Call Omit Omit very

Priority : Priority Bank : Level Partial Priority Alt Seq Alt Seq Enabled Min Walk Full Priority FPF Override Ped skip Force full Priority Frequency Force Full Priority Recovery Method Return PedWait PedOverride	Priority : Priority Bank : Level Partial Priority Alt Seq Alt Seq Enabled Min Walk Full Priority FPF Override Ped skip Force full Priority Frequency Force Full Priority Recovery Method Return PedWait PedOverride	Priority : Priority Bank : Level Partial Priority Alt Seq Alt Seq Enabled Min Walk Full Priority FPF Override Ped skip Force full Priority Frequency Force Full Priority Recovery Method Return PedWait PedOverride	Priority : Priority Bank : Level Partial Priority Alt Seq Alt Seq Enabled Min Walk Full Priority FPF Override Ped skip Force full Priority Frequency Force Full Priority Recovery Method Return PedWait PedOverride
Pha Exit Ph- Ped Reco ses Call Omit Omit very	Pha Exit Ph- Ped Reco ses Call Omit Omit very	Pha Exit Ph- Ped Reco ses Call Omit Omit very	Pha Exit Ph- Ped Reco ses Call Omit Omit very

Priority : Priority Bank :					Priority : Priority Bank :					Priority : Priority Bank :					Priority : Priority Bank :				
Level Partial Priority Alt Seq Alt Seq Enabled Min Walk Full Priority FPF Override Ped skip Force full Priority Frequency Force Full Priority Recovery Method Return PedWait PedOverride					Level Partial Priority Alt Seq Alt Seq Enabled Min Walk Full Priority FPF Override Ped skip Force full Priority Frequency Force Full Priority Recovery Method Return PedWait PedOverride					Level Partial Priority Alt Seq Alt Seq Enabled Min Walk Full Priority FPF Override Ped skip Force full Priority Frequency Force Full Priority Recovery Method Return PedWait PedOverride					Level Partial Priority Alt Seq Alt Seq Enabled Min Walk Full Priority FPF Override Ped skip Force full Priority Frequency Force Full Priority Recovery Method Return PedWait PedOverride				
Pha ses	Exit Call	Ph- Omit	Ped Omit	Reco very	Pha ses	Exit Call	Ph- Omit	Ped Omit	Reco very	Pha ses	Exit Call	Ph- Omit	Ped Omit	Reco very	Pha ses	Exit Call	Ph- Omit	Ped Omit	Reco very

Priority : Priority Bank :					Priority : Priority Bank :					Priority : Priority Bank :					Priority : Priority Bank :				
Level Partial Priority Alt Seq Alt Seq Enabled Min Walk Full Priority FPF Override Ped skip Force full Priority Frequency Force Full Priority Recovery Method Return PedWait PedOverride					Level Partial Priority Alt Seq Alt Seq Enabled Min Walk Full Priority FPF Override Ped skip Force full Priority Frequency Force Full Priority Recovery Method Return PedWait PedOverride					Level Partial Priority Alt Seq Alt Seq Enabled Min Walk Full Priority FPF Override Ped skip Force full Priority Frequency Force Full Priority Recovery Method Return PedWait PedOverride					Level Partial Priority Alt Seq Alt Seq Enabled Min Walk Full Priority FPF Override Ped skip Force full Priority Frequency Force Full Priority Recovery Method Return PedWait PedOverride				
Pha ses	Exit Call	Ph- Omit	Ped Omit	Reco very	Pha ses	Exit Call	Ph- Omit	Ped Omit	Reco very	Pha ses	Exit Call	Ph- Omit	Ped Omit	Reco very	Pha ses	Exit Call	Ph- Omit	Ped Omit	Reco very

Priority :		Priority :			Priority :			Priority :		Priority :			Priority :						
Priority Bank :		Priority Bank :			Priority Bank :			Priority Bank :		Priority Bank :			Priority Bank :						
Que ue	Ph- ase	Det ase	Time		Que ue	Ph- ase	Det ase	Time		Que ue	Ph- ase	Det ase	Time		Que ue	Ph- ase	Det ase	Time	
Default data		Default data			Default data			Default data		Default data			Default data						

Priority :										Priority :									
Bank										Bank									
Detector		PE		1A		2A		3A		4A		5A		6A		B			
Default Data										Default Data									

Priority :

Bank

DetectorPE1A2A3A4A5A6AB

Default Data

Priority :

Bank

DetectorPE1A2A3A4A5A6AB

Default Data

Priority :

Bank

DetectorPE1A2A3A4A5A6AB

Default Data

Priority :

Bank

DetectorPE1A2A3A4A5A6AB

Default Data

Preempt 1

Vehical Phases

Ph. TrackDwellCycle

Pedestrian Phases

Ph TrackDwellCycle

Overlaps

Ovlp TrackDwellCycle

Default Data

Default Data

Default Data

Preempt 2

Vehical Phases

Ph. TrackDwellCycle

Pedestrian Phases

Ph. TrackDwellCycle

Overlaps

Ovlp. TrackDwellCycle

Default Data

Default Data

Default Data

Preempt 3

Vehical Phases

Ph. TrackDwellCycle

Pedestrian Phases

Ph. TrackDwellCycle

Overlaps

Ovlp. TrackDwellCycle

Default Data

Default Data

Default Data

Preempt 4

Vehical Phases

Ph. TrackDwellCycle

Pedestrian Phases

Ph. TrackDwellCycle

Overlaps

Ovlp. TrackDwellCycle

Default Data

Default Data

Default Data

Preempt 5

Vehical Phases

Ph. TrackDwellCycle

Pedestrian Phases

Ph. TrackDwellCycle

Overlaps

Ovlp. TrackDwellCycle

Default Data

Default Data

Default Data

Preempt 6

Vehical Phases

Ph. TrackDwellCycle

Pedestrian Phases

Ph. TrackDwellCycle

Overlaps

Ovlp. TrackDwellCycle

Default Data

Default Data

Default Data

System/Detectors Data

Local Critical Alarms

Revert to Backup: 15

1st Phone:

Local Free: No

Cycle Failure: No

Coord Failure: No

Conflict Flash: No

Remote Flash: No

2nd Phone:

Local Fash: No

Cycle Fault: No

Coord Fault: No

Preemption: No

Voltage Monitor: No

Special Status 1: No

Special Status 2: No

Special Status 3: No

Special Status 4: No

Special Status 5: No

Special Status 6: No

Traffic Responsive

System	Detector		Veh/	Average	Occupancy	Min	Queue 1	System	Weight	Queue 2	System	Weight
Detector	Channel	Name	Hr	Time(mins)	Correction/10	Volume %	Detectors	Detectors	Factor	Detectors	Detectors	Factor

Default Data		Default Data		Default Data			
Sample Interval:	5	Queue: 1	Input Selection: 0=Average	Queue:			
Sample Interval:	10		Detector Failed Level : 0	Level	Enter	Leave	Dial / Split / Offset
Sample Interval:	15	Queue: 2	Input Selection: 0=Average				/ /
Sample Interval:	60		Detector Failed Level : 0	Default Data			

Vehical Detector				Vehical Detector				Special Detector			
Diagnostic Value 0				Diagnostic Value 1				Diagnostic Value 0			
	Max	No	Erratic		Max	No	Erratic		Max	No	Erratic
Detector	Presence	Activity	Count	Detector	Presence	Activity	Count	Detector	Presence	Activity	Count

Default Data - Diag 0 Values				Default Data - No Diag 1 Values				Default Data - No Diag 0 Valu			
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Pedestrian Detector				Pedestrian Detector				Special Detector			
Diagnostic Value 0				Diagnostic Value 1				Diagnostic Value 1			
	Max	No	Erratic		Max	No	Erratic		Max	No	Erratic
Detector	Presence	Activity	Count	Detector	Presence	Activity	Count	Detector	Presence	Activity	Count

Default Data - No Diag 0 Values				Default Data - No Diag 1 Values				Default Data - No Diag 1 Values			
---------------------------------	--	--	--	---------------------------------	--	--	--	---------------------------------	--	--	--

Speed Trap Data

Speed Trap:				Dial/Split/Offset		Speed Trap		Speed Trap	
				//		Low Treshold		High Treshold	
		Measurement:							
Detector 1	Detector_2	Distance :							

Default Data
Volume Detector Data

		Report Interval		0
Volume	Controller			
Detector	Detector			
Number	Channel			

Default Data

SEPAC ECOM All Data

5/9/2022
8:28:14AM

Intersection Name: **02 54 & Cottage Green**

Intersection Alias: **54_cottage**

Access Data

1 :1200/1312 Baud
3 :9600 Baud

Access Code: **9999**

Channel: 1

Address: **2**

Revision: **3.34h**

IP Address:

Phase Initialization Data

Phase	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Initial	1-Inact	4-Grn	1-Inact	1-Inact	1-Inact	4-Grn	0-None	0-None	0-None	0-None	0-None	0-None	0-None	0-None	0-None	0-None

PHASE DATA

Vehical Basic Timings							Misc Timings						Pedestrian Timings						Alt		Actuated	
Min						All	Green	Yellow	Walk	Offset	Bike	Bike	Ped	Alt	Ped	Flash	Ext		Rest in			
Phase	Green	Passage	Max1	Max2	Yellow	Red	Delay	Delay	Off	Mode	Green	Psg	Walk	Clr	Walk	Clr	Walk	Ped	Walk			
1	5	3.0	18	18	3.2	4.4	0	0	0	0-Advance	0	0.0	0	0	0	0	No	0	No			
2	15	8.0	60	60	3.9	1.0	0	0	0	0-Advance	0	0.0	7	23	0	0	No	0	No			
3	5	3.0	50	25	3.0	4.9	0	0	0	0-Advance	0	0.0	7	35	0	0	No	0	No			
4	5	3.0	54	25	3.4	4.1	0	0	0	0-Advance	0	0.0	7	34	0	0	No	0	No			
5	5	3.0	30	30	3.1	3.6	0	0	0	0-Advance	0	0.0	0	0	0	0	No	0	No			
6	15	8.0	60	60	4.1	1.0	0	0	0	0-Advance	0	0.0	7	20	0	0	No	0	No			
7	0	0.0	45	20	4.0	2.0	0	0	0	0-Advance	0	0.0	0	0	0	0	No	0	No			
8	0	0.0	45	20	4.0	2.0	0	0	0	0-Advance	0	0.0	0	0	0	0	No	0	No			
9	0	0.0	0	0	3.0	0.0	0	0	0	0-Advance	0	0.0	0	0	0	0	No	0	No			
10	0	0.0	0	0	3.0	0.0	0	0	0	0-Advance	0	0.0	0	0	0	0	No	0	No			
11	0	0.0	0	0	3.0	0.0	0	0	0	0-Advance	0	0.0	0	0	0	0	No	0	No			
12	0	0.0	0	0	3.0	0.0	0	0	0	0-Advance	0	0.0	0	0	0	0	No	0	No			
13	0	0.0	0	0	3.0	0.0	0	0	0	0-Advance	0	0.0	0	0	0	0	No	0	No			
14	0	0.0	0	0	3.0	0.0	0	0	0	0-Advance	0	0.0	0	0	0	0	No	0	No			
15	0	0.0	0	0	3.0	0.0	0	0	0	0-Advance	0	0.0	0	0	0	0	No	0	No			
16	0	0.0	0	0	3.0	0.0	0	0	0	0-Advance	0	0.0	0	0	0	0	No	0	No			

Vehicle Density Timings							General Control				Miscellaneous					Special Sequence		
Ph.	Added Initial	Max Initial	Time B4 Redu	Car B4 Redu	Time To Redu	Min Gap	Non-Act Response	Veh Recall	Ped Recall	Recall Delay	Non Lock	Dual Entry	Last Car Pass	Condit Service	No Simu Gap Out	Omit	Minus Yel	Omit Call
1	0.0	0	0	0	0	0.0	None	None	None	0	No	No	No	No	No	0	0	0
2	0.0	0	0	0	0	0.0	NonActI	Min	None	0	No	No	No	No	No	0	0	0
3	0.0	0	0	0	0	0.0	None	None	None	0	Yes	No	No	No	No	0	0	0
4	0.0	0	0	0	0	0.0	None	None	None	0	Yes	No	No	No	No	0	0	0
5	0.0	0	0	0	0	0.0	None	None	None	0	No	No	No	No	No	0	0	0
6	0.0	0	0	0	0	0.0	NonActI	Min	None	0	No	No	No	No	No	0	0	0
7	0.0	0	0	0	0	0.0	None	None	None	0	No	No	No	No	No	7	0	0
8	0.0	0	0	0	0	0.0	None	None	None	0	No	No	No	No	No	8	0	0
9	0.0	0	0	0	0	0.0	None	None	None	0	No	No	No	No	No	0	0	0
10	0.0	0	0	0	0	0.0	None	None	None	0	No	No	No	No	No	0	0	0
11	0.0	0	0	0	0	0.0	None	None	None	0	No	No	No	No	No	0	0	0
12	0.0	0	0	0	0	0.0	None	None	None	0	No	No	No	No	No	0	0	0
13	0.0	0	0	0	0	0.0	None	None	None	0	No	No	No	No	No	0	0	0
14	0.0	0	0	0	0	0.0	None	None	None	0	No	No	No	No	No	0	0	0
15	0.0	0	0	0	0	0.0	None	None	None	0	No	No	No	No	No	0	0	0
16	0.0	0	0	0	0	0.0	None	None	None	0	No	No	No	No	No	0	0	0

Vehical Detector Phase Assignment						Pedestrian Detector				Special Detector Phase Assignment					
Assign		Switch				Default Data				Assign		Switch			
Phase	Mode	Phase	Extend	Delay					Phase	Mode	Phase	Extend	Delay		
Default Data										:					

General Control			Remote Flash		
Startup Time:	0sec		Test A = Flash		
Startup State:	Flash		Phase	Entry	Exit
Red Revert:	40sec				
Auto Ped Clr:	No				
Stop T Reset:	No				
Alt Sequence:	0				
Special Seq:	0-Standard				
I/O Modes:			Default Data - No Flash		
ABC Input(Entry) Modes:	0		Default Data - No Flash		
ABC Output(O/STS) Modes:	0		Default Data - No Flash		

		Overlaps								Overlaps							
	Phase(s)	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P
Start Green																	
	Phase(s)	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P
		A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P
Trail Green		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Trail Yellow		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Trail Red		2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
TG Preempt		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Stop Grn/Yel Phase		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

[illegible]

		Alternate Sequences				
		1	2	3	4	5
Phase Pair(s)	1	1 2	3 4	1 2	5 6	1 2
	2	0 0	0 0	3 4	0 0	5 6

BIU Addr	Port Status	Basic Det	Message 40
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Channel	Control	Hardware Pins
1	1 - Veh Phase 1	1 - Phase 1 RYG
2	2 - Veh Phase 2	2 - Phase 2 RYG
3	3 - Veh Phase 3	3 - Phase 3 RYG
4	4 - Veh Phase 4	4 - Phase 4 RYG
5	5 - Veh Phase 5	5 - Phase 5 RYG
6	6 - Veh Phase 6	6 - Phase 6 RYG
7	7 - Veh Phase 7	7 - Phase 7 RYG
8	8 - Veh Phase 8	8 - Phase 8 RYG
9	18 - Ped Phase 2	10 - Phase 2 DPW
10	20 - Ped Phase 4	12 - Phase 4 DPW
11	22 - Ped Phase 6	14 - Phase 6 DPW
12	24 - Ped Phase 8	16 - Phase 8 DPW
13	33 - Overlap A	17 - Overlap A RYG
14	34 - Overlap B	18 - Overlap B RYG
15	35 - Overlap C	19 - Overlap C RYG
16	36 - Overlap D	20 - Overlap D RYG
17	17 - Ped Phase 1	9 - Phase 1 DPW
18	19 - Ped Phase 3	11 - Phase 3 DPW
19	21 - Ped Phase 5	13 - Phase 5 DPW
20	23 - Ped Phase 7	15 - Phase 7 DPW

Coordination Data			Dial/Split	Cycle
General Coordination Data			1/1	100
Operation Mode: 1=Auto	Offset Mode: 0=Beg Grn	Manual Dial: 1	2/1	120
Coordination Mode: 2=Permissive Yield	Force Mode: 1=Cycle	Manual Split: 1	3/1	130
Maximun Mode: 0=Inhibit	Max Dwell Time: 0	Manual Offset: 1	3/3	130
Correction Mode: 2=Short Way	Yield Period: 0		4/1	150
			4/2	130
			4/3	130

Split Times and Phase Mod											
Dial 1 / Split 1											
Ph.	Splits	Ph. Mode	Ph.	Splits	Ph. Mode	Ph.	Splits	Ph. Mode	Ph.	Splits	Ph. Mode
1	20	0=Actuated	2	46	1=Coordinate	3	17	0=Actuated	4	17	0=Actuated
5	21	0=Actuated	6	45	1=Coordinate						
Dial 2 / Split 1											
Ph.	Splits	Ph. Mode	Ph.	Splits	Ph. Mode	Ph.	Splits	Ph. Mode	Ph.	Splits	Ph. Mode
1	22	0=Actuated	2	55	1=Coordinate	3	20	0=Actuated	4	23	0=Actuated
5	23	0=Actuated	6	54	1=Coordinate						
Dial 3 / Split 1											
Ph.	Splits	Ph. Mode	Ph.	Splits	Ph. Mode	Ph.	Splits	Ph. Mode	Ph.	Splits	Ph. Mode
1	22	0=Actuated	2	59	1=Coordinate	3	21	0=Actuated	4	28	0=Actuated
5	27	0=Actuated	6	54	1=Coordinate						
Dial 3 / Split 3											
Ph.	Splits	Ph. Mode	Ph.	Splits	Ph. Mode	Ph.	Splits	Ph. Mode	Ph.	Splits	Ph. Mode
1	22	0=Actuated	2	59	1=Coordinate	3	21	0=Actuated	4	28	3=Max Recall
5	27	0=Actuated	6	54	1=Coordinate						
Dial 4 / Split 1											
Ph.	Splits	Ph. Mode	Ph.	Splits	Ph. Mode	Ph.	Splits	Ph. Mode	Ph.	Splits	Ph. Mode
1	30	0=Actuated	2	30	1=Coordinate	3	45	3=Max Recall	4	45	3=Max Recall
5	30	0=Actuated	6	30	1=Coordinate						
Dial 4 / Split 2											
Ph.	Splits	Ph. Mode	Ph.	Splits	Ph. Mode	Ph.	Splits	Ph. Mode	Ph.	Splits	Ph. Mode
1	22	0=Actuated	2	66	1=Coordinate	3	21	0=Actuated	4	21	0=Actuated
5	27	0=Actuated	6	61	1=Coordinate						
Dial 4 / Split 3											
Ph.	Splits	Ph. Mode	Ph.	Splits	Ph. Mode	Ph.	Splits	Ph. Mode	Ph.	Splits	Ph. Mode
1	22	0=Actuated	2	66	1=Coordinate	3	21	0=Actuated	4	21	0=Actuated
5	27	0=Actuated	6	61	1=Coordinate						

Traffic Plan Data					
Plan: 1/1/1	Offset Time: 88 Mode: 0=Normal	Alternat Sequence: 4 Special Function: 0	Rg 2 Lag Time: 0 Correction Mode: 0=No	Rg 3 Lag Time: 0	Rg 4 Lag Time: 0
Plan: 1/1/2	Offset Time: 88 Mode: 0=Normal	Alternat Sequence: 4 Special Function: 0	Rg 2 Lag Time: 0 Correction Mode: 0=No	Rg 3 Lag Time: 0	Rg 4 Lag Time: 0
Plan: 2/1/1	Offset Time: 104 Mode: 0=Normal	Alternat Sequence: 4 Special Function: 0	Rg 2 Lag Time: 0 Correction Mode: 0=No	Rg 3 Lag Time: 0	Rg 4 Lag Time: 0
Plan: 2/1/2	Offset Time: 104 Mode: 0=Normal	Alternat Sequence: 4 Special Function: 0	Rg 2 Lag Time: 0 Correction Mode: 0=No	Rg 3 Lag Time: 0	Rg 4 Lag Time: 0
Plan: 3/1/1	Offset Time: 105 Mode: 0=Normal	Alternat Sequence: 4 Special Function: 0	Rg 2 Lag Time: 0 Correction Mode: 0=No	Rg 3 Lag Time: 0	Rg 4 Lag Time: 0
Plan: 3/1/2	Offset Time: 105 Mode: 0=Normal	Alternat Sequence: 4 Special Function: 0	Rg 2 Lag Time: 0 Correction Mode: 0=No	Rg 3 Lag Time: 0	Rg 4 Lag Time: 0
Plan: 3/3/1	Offset Time: 118 Mode: 0=Normal	Alternat Sequence: 4 Special Function: 0	Rg 2 Lag Time: 0 Correction Mode: 0=No	Rg 3 Lag Time: 0	Rg 4 Lag Time: 0
Plan: 3/3/2	Offset Time: 118 Mode: 0=Normal	Alternat Sequence: 4 Special Function: 0	Rg 2 Lag Time: 0 Correction Mode: 0=No	Rg 3 Lag Time: 0	Rg 4 Lag Time: 0
Plan: 4/2/1	Offset Time: 22 Mode: 0=Normal	Alternat Sequence: 0 Special Function: 0	Rg 2 Lag Time: 0 Correction Mode: 0=No	Rg 3 Lag Time: 0	Rg 4 Lag Time: 0
Plan: 4/2/2	Offset Time: 22 Mode: 0=Normal	Alternat Sequence: 0 Special Function: 0	Rg 2 Lag Time: 0 Correction Mode: 0=No	Rg 3 Lag Time: 0	Rg 4 Lag Time: 0
Plan: 4/3/1	Offset Time: 22 Mode: 0=Normal	Alternat Sequence: 0 Special Function: 0	Rg 2 Lag Time: 0 Correction Mode: 0=No	Rg 3 Lag Time: 0	Rg 4 Lag Time: 0
Plan: 4/3/2	Offset Time: 22 Mode: 0=Normal	Alternat Sequence: 0 Special Function: 0	Rg 2 Lag Time: 0 Correction Mode: 0=No	Rg 3 Lag Time: 0	Rg 4 Lag Time: 0

Local TBC Data						<table><tr><th>Source</th><th colspan="7">Equate Days</th></tr><tr><th>Day</th><th>1</th><th>2</th><th>3</th><th>4</th><th>5</th><th>6</th><th>7</th></tr><tr><td>1</td><td>7</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td></tr><tr><td>2</td><td>3</td><td>4</td><td>5</td><td>6</td><td>0</td><td>0</td><td>0</td></tr></table>								Source	Equate Days							Day	1	2	3	4	5	6	7	1	7	0	0	0	0	0	0	2	3	4	5	6	0	0	0
Source	Equate Days																																												
Day	1	2	3	4	5	6	7																																						
1	7	0	0	0	0	0	0																																						
2	3	4	5	6	0	0	0																																						
Start of Daylight Saving	Month: 3	Week: 2	Cycle Zero Reference	Hours: 0	Min: 1																																								
End of Daylight Saving	Month: 11	Week: 1																																											

Traffic Data				PHASE FUNCTION 12345678910111213141516 119:01/1/1 2120:300/0/4 326:01/1/1 4215:302/1/1 5219:01/1/1 6220:300/0/4															
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AUX. Events																	
Program				Aux Ouputs			Det. Diag.	Det. Rpt.	Det. Mult100	Special Function Outputs							
Event	Day	Hour	Min.	1	2	3	D1	D2	D3	Dimming	1	2	3	4	5	6	7
1	1	6	0					X									
2	1	21	0														
3	2	6	0					X									
4	2	21	0														

Default Data - No Special Day(s) or Week(s) Programmed

Special Functions

Function	SF1	SF2	SF3	SF4	SF5	SF6	SF7	SF8	SF9	SF10	SF11	SF12	SF13	SF14	SF15	SF16
Special Function 1	X															
Special Function 2		X														
Special Function 3			X													
Special Function 4				X												
Special Function 5					X											
Special Function 6						X										
Special Function 7							X									
Special Function 8								X								

Phase Function

	PF1	PF2	PF3	PF4	PF5	PF6	PF7	PF8	PF9	PF10	PF11	PF12	PF13	PF14	PF15	PF16
Phase 1 Max2	X															
Phase 2 Max2		X														
Phase 3 Max2			X													
Phase 4 Max2				X												
Phase 5 Max2					X											
Phase 6 Max2						X										
Phase 7 Max2							X									
Phase 8 Max2								X								

	PF1	PF2	PF3	PF4	PF5	PF6	PF7	PF8	PF9	PF10	PF11	PF12	PF13	PF14	PF15	PF16
Phase 1 Phase Omit									X							
Phase 2 Phase Omit										X						
Phase 3 Phase Omit											X					
Phase 4 Phase Omit												X				
Phase 5 Phase Omit													X			
Phase 6 Phase Omit														X		
Phase 7 Phase Omit															X	
Phase 8 Phase Omit																X

	PF1	PF2	PF3	PF4	PF5	PF6	PF7	PF8	PF9	PF10	PF11	PF12	PF13	PF14	PF15	PF16

	PF1	PF2	PF3	PF4	PF5	PF6	PF7	PF8	PF9	PF10	PF11	PF12	PF13	PF14	PF15	PF16

Function Phase Recall

	PF1	PF2	PF3	PF4	PF5	PF6	PF7	PF8	PF9	PF10	PF11	PF12	PF13	PF14	PF15	PF16

	PF1	PF2	PF3	PF4	PF5	PF6	PF7	PF8	PF9	PF10	PF11	PF12	PF13	PF14	PF15	PF16
	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐

	PF1	PF2	PF3	PF4	PF5	PF6	PF7	PF8	PF9	PF10	PF11	PF12	PF13	PF14	PF15	PF16
	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐

	PF1	PF2	PF3	PF4	PF5	PF6	PF7	PF8	PF9	PF10	PF11	PF12	PF13	PF14	PF15	PF16
	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐

Vehicle Function																
	PF1	PF2	PF3	PF4	PF5	PF6	PF7	PF8	PF9	PF10	PF11	PF12	PF13	PF14	PF15	PF16
	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐

	PF1	PF2	PF3	PF4	PF5	PF6	PF7	PF8	PF9	PF10	PF11	PF12	PF13	PF14	PF15	PF16
	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐

	PF1	PF2	PF3	PF4	PF5	PF6	PF7	PF8	PF9	PF10	PF11	PF12	PF13	PF14	PF15	PF16
	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐

Overlap Function																
	PF1	PF2	PF3	PF4	PF5	PF6	PF7	PF8	PF9	PF10	PF11	PF12	PF13	PF14	PF15	PF16
	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐

Dimming Data				
Channel	Red	Yellow	Green	Alternate
	☐	☐	☐	☐
Default Data - No Dimming Programmed				

Lane Definition						
Lanes	Name	Green Inbound	Yellow Inbound	Red Inbound	Green Outbound	Yellow Outbound
Default Data - Lane Definition						

Preemption Data

General Preemption Data		
Flash > Preempt 1	Preempt 2 = Preempt 3	Preempt 4 = Preempt 5
Preempt 1 > Preempt 2	Preempt 3 = Preempt 4	Preempt 5 = Preempt 6

Preempt	Preempt Timers											Gate ext end	Select			Track				Dwell Green	Return		
	Non- Locking	Link to Preempt	Delay	Ext end	Dura tion	Max Call	Lock- Out	Min Green	Min Walk	Debo unce	Ped Clear		Yel	Red	Grn	Ped	Yel	Red	Ped Clear		Yel	Red	
1	No	0	0	0	0	0	0	0	0	0	0	8	40	20	10	8	40	20	10	8	40	20	
2	No	0	0	0	0	0	0	0	0	0	0	8	40	20	10	8	40	20	10	8	40	20	
3	No	0	0	0	0	0	0	0	0	0	0	8	40	20	10	8	40	20	10	8	40	20	
4	No	0	0	0	0	0	0	0	0	0	0	8	40	20	10	8	40	20	10	8	40	20	
5	No	0	0	0	0	0	0	0	0	0	0	8	40	20	10	8	40	20	10	8	40	20	
6	No	0	0	0	0	0	0	0	0	0	0	8	40	20	10	8	40	20	10	8	40	20	

Preempt 1			Preempt 2			Preempt 3			Preempt 4			Preempt 5			Preempt 6		
Phase	Exit Phase	Exit Calls	Phase	Exit Phase	Exit Calls	Phase	Exit Phase	Exit Calls	Phase	Exit Phase	Exit Calls	Phase	Exit Phase	Exit Calls	Phase	Exit Phase	Exit Calls
1	No	Yes	1	No	Yes	1	No	Yes	1	No	Yes	1	No	Yes	1	No	Yes
2	No	Yes	2	No	Yes	2	No	Yes	2	No	Yes	2	No	Yes	2	No	Yes
3	No	Yes	3	No	Yes	3	No	Yes	3	No	Yes	3	No	Yes	3	No	Yes
4	No	Yes	4	No	Yes	4	No	Yes	4	No	Yes	4	No	Yes	4	No	Yes
5	No	Yes	5	No	Yes	5	No	Yes	5	No	Yes	5	No	Yes	5	No	Yes
6	No	Yes	6	No	Yes	6	No	Yes	6	No	Yes	6	No	Yes	6	No	Yes
7	No	Yes	7	No	Yes	7	No	Yes	7	No	Yes	7	No	Yes	7	No	Yes
8	No	Yes	8	No	Yes	8	No	Yes	8	No	Yes	8	No	Yes	8	No	Yes

Priority Timers																						
Prio rity	Non- Locking	Del ay	Ext end	Free Dial	Free Split	Min Green	No Lock out	Lock out A	Lock out B	Max Green	Pre- Green	Recall	Excl-co Phase Svc.	Transit Overlap								
														Signal Type			Blankout					
Priority				Priority				Priority				Priority				Priority				Priority		
Name		DetNum		Name		DetNum		Name		DetNum		Name		DetNum		Name		DetNum		Name		DetNum
Priority :				Priority :				Priority :				Priority :				Priority :				Priority :		
Phase		Co- Phase		QJ- Phase		Phase		Co- Phase		QJ- Phase		Phase		Co- Phase		QJ- Phase		Phase		Co- Phase		QJ- Phase

Priority : Priority Bank : Level Partial Priority Alt Seq Alt Seq Enabled Min Walk Full Priority FPF Override Ped skip Force full Priority Frequency Force Full Priority Recovery Method Return PedWait PedOverride	Priority : Priority Bank : Level Partial Priority Alt Seq Alt Seq Enabled Min Walk Full Priority FPF Override Ped skip Force full Priority Frequency Force Full Priority Recovery Method Return PedWait PedOverride	Priority : Priority Bank : Level Partial Priority Alt Seq Alt Seq Enabled Min Walk Full Priority FPF Override Ped skip Force full Priority Frequency Force Full Priority Recovery Method Return PedWait PedOverride	Priority : Priority Bank : Level Partial Priority Alt Seq Alt Seq Enabled Min Walk Full Priority FPF Override Ped skip Force full Priority Frequency Force Full Priority Recovery Method Return PedWait PedOverride
Pha Exit Ph- Ped Reco ses Call Omit Omit very	Pha Exit Ph- Ped Reco ses Call Omit Omit very	Pha Exit Ph- Ped Reco ses Call Omit Omit very	Pha Exit Ph- Ped Reco ses Call Omit Omit very

Priority : Priority Bank : Level Partial Priority Alt Seq Alt Seq Enabled Min Walk Full Priority FPF Override Ped skip Force full Priority Frequency Force Full Priority Recovery Method Return PedWait PedOverride	Priority : Priority Bank : Level Partial Priority Alt Seq Alt Seq Enabled Min Walk Full Priority FPF Override Ped skip Force full Priority Frequency Force Full Priority Recovery Method Return PedWait PedOverride	Priority : Priority Bank : Level Partial Priority Alt Seq Alt Seq Enabled Min Walk Full Priority FPF Override Ped skip Force full Priority Frequency Force Full Priority Recovery Method Return PedWait PedOverride	Priority : Priority Bank : Level Partial Priority Alt Seq Alt Seq Enabled Min Walk Full Priority FPF Override Ped skip Force full Priority Frequency Force Full Priority Recovery Method Return PedWait PedOverride
Pha Exit Ph- Ped Reco ses Call Omit Omit very	Pha Exit Ph- Ped Reco ses Call Omit Omit very	Pha Exit Ph- Ped Reco ses Call Omit Omit very	Pha Exit Ph- Ped Reco ses Call Omit Omit very

Priority : Priority Bank :	Priority : Priority Bank :	Priority : Priority Bank :	Priority : Priority Bank :
Level Partial Priority Alt Seq Alt Seq Enabled Min Walk Full Priority FPF Override Ped skip Force full Priority Frequency Force Full Priority Recovery Method Return PedWait PedOverride	Level Partial Priority Alt Seq Alt Seq Enabled Min Walk Full Priority FPF Override Ped skip Force full Priority Frequency Force Full Priority Recovery Method Return PedWait PedOverride	Level Partial Priority Alt Seq Alt Seq Enabled Min Walk Full Priority FPF Override Ped skip Force full Priority Frequency Force Full Priority Recovery Method Return PedWait PedOverride	Level Partial Priority Alt Seq Alt Seq Enabled Min Walk Full Priority FPF Override Ped skip Force full Priority Frequency Force Full Priority Recovery Method Return PedWait PedOverride
Pha Exit Ph- Ped Reco ses Call Omit Omit very	Pha Exit Ph- Ped Reco ses Call Omit Omit very	Pha Exit Ph- Ped Reco ses Call Omit Omit very	Pha Exit Ph- Ped Reco ses Call Omit Omit very

Priority : Priority Bank :	Priority : Priority Bank :	Priority : Priority Bank :	Priority : Priority Bank :
Level Partial Priority Alt Seq Alt Seq Enabled Min Walk Full Priority FPF Override Ped skip Force full Priority Frequency Force Full Priority Recovery Method Return PedWait PedOverride	Level Partial Priority Alt Seq Alt Seq Enabled Min Walk Full Priority FPF Override Ped skip Force full Priority Frequency Force Full Priority Recovery Method Return PedWait PedOverride	Level Partial Priority Alt Seq Alt Seq Enabled Min Walk Full Priority FPF Override Ped skip Force full Priority Frequency Force Full Priority Recovery Method Return PedWait PedOverride	Level Partial Priority Alt Seq Alt Seq Enabled Min Walk Full Priority FPF Override Ped skip Force full Priority Frequency Force Full Priority Recovery Method Return PedWait PedOverride
Pha Exit Ph- Ped Reco ses Call Omit Omit very	Pha Exit Ph- Ped Reco ses Call Omit Omit very	Pha Exit Ph- Ped Reco ses Call Omit Omit very	Pha Exit Ph- Ped Reco ses Call Omit Omit very

Priority : Priority Bank :					Priority : Priority Bank :					Priority : Priority Bank :					Priority : Priority Bank :				
Level Partial Priority Alt Seq Alt Seq Enabled Min Walk Full Priority FPF Override Ped skip Force full Priority Frequency Force Full Priority Recovery Method Return PedWait PedOverride					Level Partial Priority Alt Seq Alt Seq Enabled Min Walk Full Priority FPF Override Ped skip Force full Priority Frequency Force Full Priority Recovery Method Return PedWait PedOverride					Level Partial Priority Alt Seq Alt Seq Enabled Min Walk Full Priority FPF Override Ped skip Force full Priority Frequency Force Full Priority Recovery Method Return PedWait PedOverride					Level Partial Priority Alt Seq Alt Seq Enabled Min Walk Full Priority FPF Override Ped skip Force full Priority Frequency Force Full Priority Recovery Method Return PedWait PedOverride				
Pha	Exit	Ph-	Ped	Reco	Pha	Exit	Ph-	Ped	Reco	Pha	Exit	Ph-	Ped	Reco	Pha	Exit	Ph-	Ped	Reco
ses	Call	Omit	Omit	very	ses	Call	Omit	Omit	very	ses	Call	Omit	Omit	very	ses	Call	Omit	Omit	very

Priority : Priority Bank :					Priority : Priority Bank :					Priority : Priority Bank :					Priority : Priority Bank :				
Level Partial Priority Alt Seq Alt Seq Enabled Min Walk Full Priority FPF Override Ped skip Force full Priority Frequency Force Full Priority Recovery Method Return PedWait PedOverride					Level Partial Priority Alt Seq Alt Seq Enabled Min Walk Full Priority FPF Override Ped skip Force full Priority Frequency Force Full Priority Recovery Method Return PedWait PedOverride					Level Partial Priority Alt Seq Alt Seq Enabled Min Walk Full Priority FPF Override Ped skip Force full Priority Frequency Force Full Priority Recovery Method Return PedWait PedOverride					Level Partial Priority Alt Seq Alt Seq Enabled Min Walk Full Priority FPF Override Ped skip Force full Priority Frequency Force Full Priority Recovery Method Return PedWait PedOverride				
Pha	Exit	Ph-	Ped	Reco	Pha	Exit	Ph-	Ped	Reco	Pha	Exit	Ph-	Ped	Reco	Pha	Exit	Ph-	Ped	Reco
ses	Call	Omit	Omit	very	ses	Call	Omit	Omit	very	ses	Call	Omit	Omit	very	ses	Call	Omit	Omit	very

Priority :		Priority :			Priority :			Priority :		Priority :			Priority :		
Priority Bank : Que Ph- Det Time ue ase		Priority Bank : Que Ph- Det Time ue ase			Priority Bank : Que Ph- Det Time ue ase			Priority Bank : Que Ph- Det Time ue ase		Priority Bank : Que Ph- Det Time ue ase			Priority Bank : Que Ph- Det Time ue ase		
Default data		Default data			Default data			Default data		Default data			Default data		

Priority : Bank DetectorPE1A2A3A4A5A6AB										Priority : Bank DetectorPE1A2A3A4A5A6AB									
Default Data										Default Data									

Priority :								
Bank								
Detector	PE	1A	2A	3A	4A	5A	6A	B
Default Data								

Priority :								
Bank								
Detector	PE	1A	2A	3A	4A	5A	6A	B
Default Data								

Priority :								
Bank								
Detector	PE	1A	2A	3A	4A	5A	6A	B
Default Data								

Priority :								
Bank								
Detector	PE	1A	2A	3A	4A	5A	6A	B
Default Data								

Preempt 1

Vehical Phases				Pedestrian Phases				Overlaps			
Ph.	Track	Dwell	Cycle	Ph	Track	Dwell	Cycle	Ovlp	Track	Dwell	Cycle

Default Data

Default Data

Default Data

Preempt 2

Vehical Phases				Pedestrian Phases				Overlaps			
Ph.	Track	Dwell	Cycle	Ph.	Track	Dwell	Cycle	Ovlp.	Track	Dwell	Cycle

Default Data

Default Data

Default Data

Preempt 3

Vehical Phases				Pedestrian Phases				Overlaps			
Ph.	Track	Dwell	Cycle	Ph.	Track	Dwell	Cycle	Ovlp.	Track	Dwell	Cycle

Default Data

Default Data

Default Data

Preempt 4

Vehical Phases				Pedestrian Phases				Overlaps			
Ph.	Track	Dwell	Cycle	Ph.	Track	Dwell	Cycle	Ovlp.	Track	Dwell	Cycle

Default Data

Default Data

Default Data

Preempt 5

Vehical Phases				Pedestrian Phases				Overlaps			
Ph.	Track	Dwell	Cycle	Ph.	Track	Dwell	Cycle	Ovlp.	Track	Dwell	Cycle

Default Data

Default Data

Default Data

Preempt 6

Vehical Phases				Pedestrian Phases				Overlaps			
Ph.	Track	Dwell	Cycle	Ph.	Track	Dwell	Cycle	Ovlp.	Track	Dwell	Cycle

Default Data

Default Data

Default Data

System/Detectors Data

Local Critical Alarms					Revert to Backup: 15	1st Phone:
Local Free: No	Cycle Failure: No	Coord Failure: No	Conflict Flash: No	Remote Flash: No	2nd Phone:	
Local Fash: No	Cycle Fault: No	Coord Fault: No	Preemption: No	Voltage Monitor: No		
Special Status 1: No	Special Status 2: No	Special Status 3: No	Special Status 4: No	Special Status 5: No	Special Status 6: No	

System Detector	Detector Channel	Veh/ Hr	Average Time(mins)	Occupancy Correction/10	Min Volume %	Queue 1 Detectors	System Detectors	Weight Factor	Queue 2 Detectors	System Detectors	Weight Factor
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Default Data		Default Data		Default Data			
Sample Interval:	15	Queue: 1	Input Selection: 0=Average	Queue:			
Sample Interval:	60		Detector Failed Level : 0		Level	Enter	Leave
		Queue: 2	Input Selection: 0=Average				/ /
			Detector Failed Level : 0	Default Data			

Vehical Detector				Vehical Detector				Special Detector			
Diagnostic Value 0				Diagnostic Value 1				Diagnostic Value 0			
	Max	No	Erratic		Max	No	Erratic		Max	No	Erratic
Detector	Presence	Activity	Count	Detector	Presence	Activity	Count	Detector	Presence	Activity	Count

Default Data - Diag 0 Values				Default Data - No Diag 1 Values				Default Data - No Diag 0 Valu			
Pedestrian Detector				Pedestrian Detector				Special Detector			
Diagnostic Value 0				Diagnostic Value 1				Diagnostic Value 1			
	Max	No	Erratic		Max	No	Erratic		Max	No	Erratic
Detector	Presence	Activity	Count	Detector	Presence	Activity	Count	Detector	Presence	Activity	Count

Default Data - No Diag 0 Values			Default Data - No Diag 1 Values		Default Data - No Diag 1 Values	
Speed Trap Data					Speed Trap	Speed Trap
Speed Trap:				Dial/Split/Offset	Low Treshold	High Treshold
Measurement:				//		
Detector 1	Detector 2	Distance :	Default Data			

Default Data		
Volume Detector Data		
	Report Interval	0
Volume	Controller	
Detector	Detector	
Number	Channel	

Default Data

SEPAC ECOM All Data

5/9/2022
8:26:35AM

Intersection Name: **03 54 & Hill Carter**

Intersection Alias: **54_hill**

Access Data

1 :1200/1312 Baud
3 :9600 Baud

Access Code: **9999**

Channel: 1

Address: **3**

Revision: **3.54**

IP Address:

Phase Initialization Data

Phase	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Initial	1-Inact	4-Grn	1-Inact	1-Inact	1-Inact	4-Grn	0-None	0-None	0-None	0-None	0-None	0-None	0-None	0-None	0-None	0-None

PHASE DATA

Vehical Basic Timings							Misc Timings						Pedestrian Timings						Alt		Actuated	
Min						All	Green	Yellow	Walk	Offset	Bike	Bike		Ped	Alt	Ped	Flash	Ext	Rest in			
Phase	Green	Passage	Max1	Max2	Yellow	Red	Delay	Delay	Off	Mode	Green	Psg	Walk	Clr	Walk	Clr	Walk	Ped Clr	Walk			
Phase Data Bank: 1																						
1	8	4.0	24	30	3.2	5.3	0	0	0	0-Advance	0	0.0	0	0	0	0	No	0	No			
2	15	8.0	55	50	4.0	1.7	0	0	0	0-Advance	0	0.0	7	34	0	0	No	0	No			
3	8	4.0	40	30	3.8	5.1	0	0	0	0-Advance	0	0.0	7	35	0	0	No	0	No			
4	8	5.0	40	50	4.1	4.8	0	0	0	0-Advance	0	0.0	7	37	0	0	No	0	No			
5	8	4.0	22	30	3.1	4.5	0	0	0	0-Advance	0	0.0	0	0	0	0	No	0	No			
6	15	8.0	55	50	4.1	1.7	0	0	0	0-Advance	0	0.0	7	37	0	0	No	0	No			
7	0	0.0	0	0	4.0	1.0	0	0	0	0-Advance	0	0.0	0	0	0	0	No	0	No			
8	0	0.0	0	0	4.0	1.0	0	0	0	0-Advance	0	0.0	0	0	0	0	No	0	No			
9	0	0.0	0	0	3.0	0.0	0	0	0	0-Advance	0	0.0	0	0	0	0	No	0	No			
10	0	0.0	0	0	3.0	0.0	0	0	0	0-Advance	0	0.0	0	0	0	0	No	0	No			
11	0	0.0	0	0	3.0	0.0	0	0	0	0-Advance	0	0.0	0	0	0	0	No	0	No			
12	0	0.0	0	0	3.0	0.0	0	0	0	0-Advance	0	0.0	0	0	0	0	No	0	No			
13	0	0.0	0	0	3.0	0.0	0	0	0	0-Advance	0	0.0	0	0	0	0	No	0	No			
14	0	0.0	0	0	3.0	0.0	0	0	0	0-Advance	0	0.0	0	0	0	0	No	0	No			
15	0	0.0	0	0	3.0	0.0	0	0	0	0-Advance	0	0.0	0	0	0	0	No	0	No			
16	0	0.0	0	0	3.0	0.0	0	0	0	0-Advance	0	0.0	0	0	0	0	No	0	No			

Vehicle Density Timings							General Control				Miscellaneous					Special Sequence		
Ph.	Added Initial	Max Initial	Time B4 Redu	Car B4 Redu	Time To Redu	Min Gap	Non-Act Response	Veh Recall	Ped Recall	Recall Delay	Non Lock	Dual Entry	Last Car Pass	Condit Service	No Simu Gap Out	Omit	Minus Yel	Omit Call
Phase Data Bank:				1														
1	0.0	0	0	0	0	0.0	None	None	None	0	Yes	No	No	No	No	0	0	0
2	0.0	0	0	0	0	0.0	NonActI	Min	None	0	Yes	No	No	No	No	0	0	0
3	0.0	0	0	0	0	0.0	None	None	None	0	Yes	No	No	No	No	0	0	0
4	0.0	0	0	0	0	0.0	None	None	None	0	Yes	No	No	No	No	0	0	0
5	0.0	0	0	0	0	0.0	None	None	None	0	Yes	No	No	No	No	0	0	0
6	0.0	0	0	0	0	0.0	NonActI	Min	None	0	Yes	No	No	No	No	0	0	0
7	0.0	0	0	0	0	0.0	None	None	None	0	No	No	No	No	No	0	0	0
8	0.0	0	0	0	0	0.0	None	None	None	0	No	No	No	No	No	0	0	0
9	0.0	0	0	0	0	0.0	None	None	None	0	No	No	No	No	No	0	0	0
10	0.0	0	0	0	0	0.0	None	None	None	0	No	No	No	No	No	0	0	0
11	0.0	0	0	0	0	0.0	None	None	None	0	No	No	No	No	No	0	0	0
12	0.0	0	0	0	0	0.0	None	None	None	0	No	No	No	No	No	0	0	0
13	0.0	0	0	0	0	0.0	None	None	None	0	No	No	No	No	No	0	0	0
14	0.0	0	0	0	0	0.0	None	None	None	0	No	No	No	No	No	0	0	0
15	0.0	0	0	0	0	0.0	None	None	None	0	No	No	No	No	No	0	0	0
16	0.0	0	0	0	0	0.0	None	None	None	0	No	No	No	No	No	0	0	0

Vehical Detector Phase Assignment						Pedestrian Detector				Special Detector Phase Assignment				
						Default Data								
	Assign Phase	Mode	Switch Phase	Extend	Delay					Assign Phase	Mode	Switch Phase	Extend	Delay
Veh Det:1	1	Veh	0	0.0	0									
Veh Det:2	2	Veh	0	0.0	0									
Veh Det:3	3	Veh	0	0.0	0									
Veh Det:4	4	Veh	0	5.0	0									
Veh Det:5	5	Veh	0	0.0	0									
Veh Det:6	6	Veh	0	0.0	0									
Veh Det:7	7	Veh	0	0.0	0									
Veh Det:8	8	Veh	0	0.0	0									

Unit Data

General Control				
Startup Time:	0sec		Input	Output
Startup State:	Flash	Ring	Respons	Selection
Red Revert:	40sec	1	Ring 1	Ring 1
Auto Ped Clr:	No	2	Ring 2	Ring 2
Stop T Reset:	No	3	None	None
Alt Sequence:	0	4	None	None
Special Seq:	0-Standard			
I/O Modes:				
ABC Input(Entry) Modes: 0		D Input(Entry) Modes: 2		
ABC Output(O/STS) Modes: 0		D Output(O/STS) Modes: 2		

Remote Flash					
Test A = Flash			Flash		Flash
Phase	Entry	Exit	Channel	Color	Alternat
Default Data - No Flash			Default Data - No Flash		

Overlaps																
Phase(s)	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P
Start Green																
Phase(s)	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P
Stop Green Yel																
Phase(s)	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P
	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P
Trail Green	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Trail Yellow	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Trail Red	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
TG Preempt	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Ring			Phase(s)																
		Next	Concurrent Phases	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Phase	Ring	Phase		1	2	3	4	1	1	3	3	9	10	11	12	13	14	15	16
1	1	2																	
2	1	3		5	5	7	7	2	2	4	4								
3	1	4		6	6	8	8	5	6	7	8								
4	1	1																	
5	2	6																	
6	2	7																	

Alternate Sequences						Port 1 Data			
Alternate Sequences						BIU	Port	Basic	Message
						Addr	Status	Det	40
Phase Pair(s)	1	1	3	1	5	Default Data			
		2	4	2	6				
	2	0	0	3	0				
		0	0	4	0				

Channel	Control	Hardware Pins
1	1 - Veh Phase 1	1 - Phase 1 RYG
2	2 - Veh Phase 2	2 - Phase 2 RYG
3	3 - Veh Phase 3	3 - Phase 3 RYG
4	4 - Veh Phase 4	4 - Phase 4 RYG
5	5 - Veh Phase 5	5 - Phase 5 RYG
6	6 - Veh Phase 6	6 - Phase 6 RYG
7	7 - Veh Phase 7	7 - Phase 7 RYG
8	8 - Veh Phase 8	8 - Phase 8 RYG
9	18 - Ped Phase 2	10 - Phase 2 DPW
10	20 - Ped Phase 4	12 - Phase 4 DPW
11	22 - Ped Phase 6	14 - Phase 6 DPW
12	24 - Ped Phase 8	16 - Phase 8 DPW
13	33 - Overlap A	17 - Overlap A RYG
14	34 - Overlap B	18 - Overlap B RYG
15	35 - Overlap C	19 - Overlap C RYG
16	36 - Overlap D	20 - Overlap D RYG
17	17 - Ped Phase 1	9 - Phase 1 DPW
18	19 - Ped Phase 3	11 - Phase 3 DPW
19	21 - Ped Phase 5	13 - Phase 5 DPW
20	23 - Ped Phase 7	15 - Phase 7 DPW

Coordination Data

General Coordination Data			Dial/Split	Cycle
Operation Mode: 1=Auto	Offset Mode: 0=Beg Grn	Manual Dial: 1	1/1	100
Coordination Mode: 2=Permissive Yield	Force Mode: 1=Cycle	Manual Split: 1	2/1	120
Maximun Mode: 0=Inhibit	Max Dwell Time: 0	Manual Offset: 1	3/1	130
Correction Mode: 2=Short Way	Yield Period: 0		3/3	130
			4/2	130
			4/3	130

Split Times and Phase Mod											
Dial 1 / Split 1											
Ph.	Splits	Ph. Mode	Ph.	Splits	Ph. Mode	Ph.	Splits	Ph. Mode	Ph.	Splits	Ph. Mode
1	19	0=Actuated	2	39	1=Coordinate	3	18	0=Actuated	4	24	0=Actuated
5	19	0=Actuated	6	39	1=Coordinate						
Dial 2 / Split 1											
Ph.	Splits	Ph. Mode	Ph.	Splits	Ph. Mode	Ph.	Splits	Ph. Mode	Ph.	Splits	Ph. Mode
1	25	0=Actuated	2	50	1=Coordinate	3	19	0=Actuated	4	26	0=Actuated
5	25	0=Actuated	6	50	1=Coordinate						
Dial 3 / Split 1											
Ph.	Splits	Ph. Mode	Ph.	Splits	Ph. Mode	Ph.	Splits	Ph. Mode	Ph.	Splits	Ph. Mode
1	27	0=Actuated	2	54	1=Coordinate	3	21	0=Actuated	4	28	0=Actuated
5	27	0=Actuated	6	54	1=Coordinate						
Dial 3 / Split 3											
Ph.	Splits	Ph. Mode	Ph.	Splits	Ph. Mode	Ph.	Splits	Ph. Mode	Ph.	Splits	Ph. Mode
1	27	0=Actuated	2	54	1=Coordinate	3	21	0=Actuated	4	28	0=Actuated
5	27	0=Actuated	6	54	1=Coordinate						
Dial 4 / Split 2											
Ph.	Splits	Ph. Mode	Ph.	Splits	Ph. Mode	Ph.	Splits	Ph. Mode	Ph.	Splits	Ph. Mode
1	27	0=Actuated	2	54	1=Coordinate	3	21	0=Actuated	4	28	0=Actuated
5	27	0=Actuated	6	54	1=Coordinate						
Dial 4 / Split 3											
Ph.	Splits	Ph. Mode	Ph.	Splits	Ph. Mode	Ph.	Splits	Ph. Mode	Ph.	Splits	Ph. Mode
1	27	0=Actuated	2	54	1=Coordinate	3	21	0=Actuated	4	28	0=Actuated
5	27	0=Actuated	6	54	1=Coordinate						

Traffic Plan Data					
Plan: 1/1/1	Offset Time: 43 Mode: 0=Normal	Alternat Sequence: 1 Special Function: 0	Rg 2 Lag Time: 0 Correction Mode: 0=No	Rg 3 Lag Time: 0	Rg 4 Lag Time: 0
Plan: 1/1/2	Offset Time: 43 Mode: 0=Normal	Alternat Sequence: 1 Special Function: 0	Rg 2 Lag Time: 0 Correction Mode: 0=No	Rg 3 Lag Time: 0	Rg 4 Lag Time: 0
Plan: 2/1/1	Offset Time: 53 Mode: 0=Normal	Alternat Sequence: 1 Special Function: 0	Rg 2 Lag Time: 0 Correction Mode: 0=No	Rg 3 Lag Time: 0	Rg 4 Lag Time: 0
Plan: 2/1/2	Offset Time: 53 Mode: 0=Normal	Alternat Sequence: 1 Special Function: 0	Rg 2 Lag Time: 0 Correction Mode: 0=No	Rg 3 Lag Time: 0	Rg 4 Lag Time: 0
Plan: 3/1/1	Offset Time: 50 Mode: 0=Normal	Alternat Sequence: 1 Special Function: 0	Rg 2 Lag Time: 0 Correction Mode: 0=No	Rg 3 Lag Time: 0	Rg 4 Lag Time: 0
Plan: 3/1/2	Offset Time: 50 Mode: 0=Normal	Alternat Sequence: 1 Special Function: 0	Rg 2 Lag Time: 0 Correction Mode: 0=No	Rg 3 Lag Time: 0	Rg 4 Lag Time: 0
Plan: 3/3/1	Offset Time: 59 Mode: 0=Normal	Alternat Sequence: 1 Special Function: 0	Rg 2 Lag Time: 0 Correction Mode: 0=No	Rg 3 Lag Time: 0	Rg 4 Lag Time: 0
Plan: 3/3/2	Offset Time: 59 Mode: 0=Normal	Alternat Sequence: 1 Special Function: 0	Rg 2 Lag Time: 0 Correction Mode: 0=No	Rg 3 Lag Time: 0	Rg 4 Lag Time: 0
Plan: 4/2/1	Offset Time: 22 Mode: 0=Normal	Alternat Sequence: 4 Special Function: 0	Rg 2 Lag Time: 0 Correction Mode: 0=No	Rg 3 Lag Time: 0	Rg 4 Lag Time: 0
Plan: 4/2/2	Offset Time: 22 Mode: 0=Normal	Alternat Sequence: 4 Special Function: 0	Rg 2 Lag Time: 0 Correction Mode: 0=No	Rg 3 Lag Time: 0	Rg 4 Lag Time: 0
Plan: 4/3/1	Offset Time: 22 Mode: 0=Normal	Alternat Sequence: 4 Special Function: 0	Rg 2 Lag Time: 0 Correction Mode: 0=No	Rg 3 Lag Time: 0	Rg 4 Lag Time: 0
Plan: 4/3/2	Offset Time: 22 Mode: 0=Normal	Alternat Sequence: 4 Special Function: 0	Rg 2 Lag Time: 0 Correction Mode: 0=No	Rg 3 Lag Time: 0	Rg 4 Lag Time: 0

Local TBC Data						<table><tr><th>Source</th><th colspan="7">Equate Days</th></tr><tr><th>Day</th><th>1</th><th>2</th><th>3</th><th>4</th><th>5</th><th>6</th><th>7</th></tr><tr><td>1</td><td>7</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td></tr><tr><td>2</td><td>3</td><td>4</td><td>5</td><td>6</td><td>0</td><td>0</td><td>0</td></tr></table>								Source	Equate Days							Day	1	2	3	4	5	6	7	1	7	0	0	0	0	0	0	2	3	4	5	6	0	0	0
Source	Equate Days																																												
Day	1	2	3	4	5	6	7																																						
1	7	0	0	0	0	0	0																																						
2	3	4	5	6	0	0	0																																						
Start of Daylight Saving	Month: 3	Week: 2	Cycle Zero Reference	Hours: 0	Min: 1																																								
End of Daylight Saving	Month: 11	Week: 1																																											

Traffic Data					PHASE FUNCTION															
Event	Day	Time	D/S/O	flash	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
1	1	9:0	1/1/1																	
2	1	20:30	0/0/4																	
3	2	6:0	1/1/1																	
4	2	15:30	2/1/1																	
5	2	19:0	1/1/1																	
6	2	20:30	0/0/4																	

AUX. Events																		
Program				Aux Ouputs			Det. Diag.	Det. Rpt.	Det. Mult100	Special Function Outputs								
Event	Day	Hour	Min.	1	2	3	D1	D2	D3	Dimming	1	2	3	4	5	6	7	8
1	1	0	1															
2	1	23	59															
3	2	0	1															
4	2	23	59															

Default Data - No Special Day(s) or Week(s) Programmed

Special Functions

Function	SF1	SF2	SF3	SF4	SF5	SF6	SF7	SF8	SF9	SF10	SF11	SF12	SF13	SF14	SF15	SF16
Special Function 1	X															
Special Function 2		X														
Special Function 3			X													
Special Function 4				X												
Special Function 5					X											
Special Function 6						X										
Special Function 7							X									
Special Function 8								X								

Phase Function

	PF1	PF2	PF3	PF4	PF5	PF6	PF7	PF8	PF9	PF10	PF11	PF12	PF13	PF14	PF15	PF16
Phase 1 Max2	X															
Phase 2 Max2		X														
Phase 3 Max2			X													
Phase 4 Max2				X												
Phase 5 Max2					X											
Phase 6 Max2						X										
Phase 7 Max2							X									
Phase 8 Max2								X								

	PF1	PF2	PF3	PF4	PF5	PF6	PF7	PF8	PF9	PF10	PF11	PF12	PF13	PF14	PF15	PF16
Phase 1 Phase Omit									X							
Phase 2 Phase Omit										X						
Phase 3 Phase Omit											X					
Phase 4 Phase Omit												X				
Phase 5 Phase Omit													X			
Phase 6 Phase Omit														X		
Phase 7 Phase Omit															X	
Phase 8 Phase Omit																X

	PF1	PF2	PF3	PF4	PF5	PF6	PF7	PF8	PF9	PF10	PF11	PF12	PF13	PF14	PF15	PF16

	PF1	PF2	PF3	PF4	PF5	PF6	PF7	PF8	PF9	PF10	PF11	PF12	PF13	PF14	PF15	PF16

Function Phase Recall

	PF1	PF2	PF3	PF4	PF5	PF6	PF7	PF8	PF9	PF10	PF11	PF12	PF13	PF14	PF15	PF16

	PF1	PF2	PF3	PF4	PF5	PF6	PF7	PF8	PF9	PF10	PF11	PF12	PF13	PF14	PF15	PF16
	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐

	PF1	PF2	PF3	PF4	PF5	PF6	PF7	PF8	PF9	PF10	PF11	PF12	PF13	PF14	PF15	PF16
	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐

	PF1	PF2	PF3	PF4	PF5	PF6	PF7	PF8	PF9	PF10	PF11	PF12	PF13	PF14	PF15	PF16
	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐

Vehicle Function																
	PF1	PF2	PF3	PF4	PF5	PF6	PF7	PF8	PF9	PF10	PF11	PF12	PF13	PF14	PF15	PF16
	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐

	PF1	PF2	PF3	PF4	PF5	PF6	PF7	PF8	PF9	PF10	PF11	PF12	PF13	PF14	PF15	PF16
	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐

	PF1	PF2	PF3	PF4	PF5	PF6	PF7	PF8	PF9	PF10	PF11	PF12	PF13	PF14	PF15	PF16
	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐

Overlap Function																
	PF1	PF2	PF3	PF4	PF5	PF6	PF7	PF8	PF9	PF10	PF11	PF12	PF13	PF14	PF15	PF16
	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐

Dimming Data				
Channel	Red	Yellow	Green	Alternate
	☐	☐	☐	☐
Default Data - No Dimming Programmed				

Lane Definition						
Lanes	Name	Green Inbound	Yellow Inbound	Red Inbound	Green Outbound	Yellow Outbound
Default Data - Lane Definition						

Preemption Data

General Preemption Data		
Flash > Preempt 1	Preempt 2 = Preempt 3	Preempt 4 = Preempt 5
Preempt 1 > Preempt 2	Preempt 3 = Preempt 4	Preempt 5 = Preempt 6

Preempt	Preempt Timers											Gate ext end	Select			Track				Dwell Green	Return		
	Non- Locking	Link to Preempt	Delay	Ext end	Dura tion	Max Call	Lock- Out	Min Green	Min Walk	Debo unce	Ped Clear		Yel	Red	Grn	Ped	Yel	Red	Ped Clear		Yel	Red	
1	No	0	0	0	0	0	0	0	0	0	0	8	40	20	10	8	40	20	10	8	40	20	
2	No	0	0	0	0	0	0	0	0	0	0	8	40	20	10	8	40	20	10	8	40	20	
3	No	0	0	0	0	0	0	0	0	0	0	8	40	20	10	8	40	20	10	8	40	20	
4	No	0	0	0	0	0	0	0	0	0	0	8	40	20	10	8	40	20	10	8	40	20	
5	No	0	0	0	0	0	0	0	0	0	0	8	40	20	10	8	40	20	10	8	40	20	
6	No	0	0	0	0	0	0	0	0	0	0	8	40	20	10	8	40	20	10	8	40	20	

Preempt 1			Preempt 2			Preempt 3			Preempt 4			Preempt 5			Preempt 6		
Phase	Exit Phase	Exit Calls	Phase	Exit Phase	Exit Calls	Phase	Exit Phase	Exit Calls	Phase	Exit Phase	Exit Calls	Phase	Exit Phase	Exit Calls	Phase	Exit Phase	Exit Calls
1	No	Yes	1	No	Yes	1	No	Yes	1	No	Yes	1	No	Yes	1	No	Yes
2	No	Yes	2	No	Yes	2	No	Yes	2	No	Yes	2	No	Yes	2	No	Yes
3	No	Yes	3	No	Yes	3	No	Yes	3	No	Yes	3	No	Yes	3	No	Yes
4	No	Yes	4	No	Yes	4	No	Yes	4	No	Yes	4	No	Yes	4	No	Yes
5	No	Yes	5	No	Yes	5	No	Yes	5	No	Yes	5	No	Yes	5	No	Yes
6	No	Yes	6	No	Yes	6	No	Yes	6	No	Yes	6	No	Yes	6	No	Yes
7	No	Yes	7	No	Yes	7	No	Yes	7	No	Yes	7	No	Yes	7	No	Yes
8	No	Yes	8	No	Yes	8	No	Yes	8	No	Yes	8	No	Yes	8	No	Yes

Priority Timers																						
Prio rity	Non- Locking	Del ay	Ext end	Free Dial	Free Split	Min Green	No Lock out	Lock out A	Lock out B	Max Green	Pre- Green	Recall	Excl-co Phase Svc.	Transit Overlap								
														Signal Type			Blankout					
Priority				Priority				Priority				Priority				Priority				Priority		
Name		DetNum		Name		DetNum		Name		DetNum		Name		DetNum		Name		DetNum		Name		DetNum
Priority :				Priority :				Priority :				Priority :				Priority :				Priority :		
Phase		Co- Phase		QJ- Phase		Phase		Co- Phase		QJ- Phase		Phase		Co- Phase		QJ- Phase		Phase		Co- Phase		QJ- Phase

Priority : Priority Bank : Level Partial Priority Alt Seq Alt Seq Enabled Min Walk Full Priority FPF Override Ped skip Force full Priority Frequency Force Full Priority Recovery Method Return PedWait PedOverride	Priority : Priority Bank : Level Partial Priority Alt Seq Alt Seq Enabled Min Walk Full Priority FPF Override Ped skip Force full Priority Frequency Force Full Priority Recovery Method Return PedWait PedOverride	Priority : Priority Bank : Level Partial Priority Alt Seq Alt Seq Enabled Min Walk Full Priority FPF Override Ped skip Force full Priority Frequency Force Full Priority Recovery Method Return PedWait PedOverride	Priority : Priority Bank : Level Partial Priority Alt Seq Alt Seq Enabled Min Walk Full Priority FPF Override Ped skip Force full Priority Frequency Force Full Priority Recovery Method Return PedWait PedOverride
Pha Exit Ph- Ped Reco ses Call Omit Omit very	Pha Exit Ph- Ped Reco ses Call Omit Omit very	Pha Exit Ph- Ped Reco ses Call Omit Omit very	Pha Exit Ph- Ped Reco ses Call Omit Omit very

Priority : Priority Bank : Level Partial Priority Alt Seq Alt Seq Enabled Min Walk Full Priority FPF Override Ped skip Force full Priority Frequency Force Full Priority Recovery Method Return PedWait PedOverride	Priority : Priority Bank : Level Partial Priority Alt Seq Alt Seq Enabled Min Walk Full Priority FPF Override Ped skip Force full Priority Frequency Force Full Priority Recovery Method Return PedWait PedOverride	Priority : Priority Bank : Level Partial Priority Alt Seq Alt Seq Enabled Min Walk Full Priority FPF Override Ped skip Force full Priority Frequency Force Full Priority Recovery Method Return PedWait PedOverride	Priority : Priority Bank : Level Partial Priority Alt Seq Alt Seq Enabled Min Walk Full Priority FPF Override Ped skip Force full Priority Frequency Force Full Priority Recovery Method Return PedWait PedOverride
Pha Exit Ph- Ped Reco ses Call Omit Omit very	Pha Exit Ph- Ped Reco ses Call Omit Omit very	Pha Exit Ph- Ped Reco ses Call Omit Omit very	Pha Exit Ph- Ped Reco ses Call Omit Omit very

Priority : Priority Bank :	Priority : Priority Bank :	Priority : Priority Bank :	Priority : Priority Bank :
Level Partial Priority Alt Seq Alt Seq Enabled Min Walk Full Priority FPF Override Ped skip Force full Priority Frequency Force Full Priority Recovery Method Return PedWait PedOverride	Level Partial Priority Alt Seq Alt Seq Enabled Min Walk Full Priority FPF Override Ped skip Force full Priority Frequency Force Full Priority Recovery Method Return PedWait PedOverride	Level Partial Priority Alt Seq Alt Seq Enabled Min Walk Full Priority FPF Override Ped skip Force full Priority Frequency Force Full Priority Recovery Method Return PedWait PedOverride	Level Partial Priority Alt Seq Alt Seq Enabled Min Walk Full Priority FPF Override Ped skip Force full Priority Frequency Force Full Priority Recovery Method Return PedWait PedOverride
Pha Exit Ph- Ped Reco ses Call Omit Omit very	Pha Exit Ph- Ped Reco ses Call Omit Omit very	Pha Exit Ph- Ped Reco ses Call Omit Omit very	Pha Exit Ph- Ped Reco ses Call Omit Omit very

Priority : Priority Bank :	Priority : Priority Bank :	Priority : Priority Bank :	Priority : Priority Bank :
Level Partial Priority Alt Seq Alt Seq Enabled Min Walk Full Priority FPF Override Ped skip Force full Priority Frequency Force Full Priority Recovery Method Return PedWait PedOverride	Level Partial Priority Alt Seq Alt Seq Enabled Min Walk Full Priority FPF Override Ped skip Force full Priority Frequency Force Full Priority Recovery Method Return PedWait PedOverride	Level Partial Priority Alt Seq Alt Seq Enabled Min Walk Full Priority FPF Override Ped skip Force full Priority Frequency Force Full Priority Recovery Method Return PedWait PedOverride	Level Partial Priority Alt Seq Alt Seq Enabled Min Walk Full Priority FPF Override Ped skip Force full Priority Frequency Force Full Priority Recovery Method Return PedWait PedOverride
Pha Exit Ph- Ped Reco ses Call Omit Omit very	Pha Exit Ph- Ped Reco ses Call Omit Omit very	Pha Exit Ph- Ped Reco ses Call Omit Omit very	Pha Exit Ph- Ped Reco ses Call Omit Omit very

Priority : Priority Bank :					Priority : Priority Bank :					Priority : Priority Bank :					Priority : Priority Bank :				
Level Partial Priority Alt Seq Alt Seq Enabled Min Walk Full Priority FPF Override Ped skip Force full Priority Frequency Force Full Priority Recovery Method Return PedWait PedOverride					Level Partial Priority Alt Seq Alt Seq Enabled Min Walk Full Priority FPF Override Ped skip Force full Priority Frequency Force Full Priority Recovery Method Return PedWait PedOverride					Level Partial Priority Alt Seq Alt Seq Enabled Min Walk Full Priority FPF Override Ped skip Force full Priority Frequency Force Full Priority Recovery Method Return PedWait PedOverride					Level Partial Priority Alt Seq Alt Seq Enabled Min Walk Full Priority FPF Override Ped skip Force full Priority Frequency Force Full Priority Recovery Method Return PedWait PedOverride				
Pha ses	Exit Call	Ph- Omit	Ped Omit	Reco very	Pha ses	Exit Call	Ph- Omit	Ped Omit	Reco very	Pha ses	Exit Call	Ph- Omit	Ped Omit	Reco very	Pha ses	Exit Call	Ph- Omit	Ped Omit	Reco very

Priority : Priority Bank :					Priority : Priority Bank :					Priority : Priority Bank :					Priority : Priority Bank :				
Level Partial Priority Alt Seq Alt Seq Enabled Min Walk Full Priority FPF Override Ped skip Force full Priority Frequency Force Full Priority Recovery Method Return PedWait PedOverride					Level Partial Priority Alt Seq Alt Seq Enabled Min Walk Full Priority FPF Override Ped skip Force full Priority Frequency Force Full Priority Recovery Method Return PedWait PedOverride					Level Partial Priority Alt Seq Alt Seq Enabled Min Walk Full Priority FPF Override Ped skip Force full Priority Frequency Force Full Priority Recovery Method Return PedWait PedOverride					Level Partial Priority Alt Seq Alt Seq Enabled Min Walk Full Priority FPF Override Ped skip Force full Priority Frequency Force Full Priority Recovery Method Return PedWait PedOverride				
Pha ses	Exit Call	Ph- Omit	Ped Omit	Reco very	Pha ses	Exit Call	Ph- Omit	Ped Omit	Reco very	Pha ses	Exit Call	Ph- Omit	Ped Omit	Reco very	Pha ses	Exit Call	Ph- Omit	Ped Omit	Reco very

Priority :		Priority :			Priority :			Priority :		Priority :			Priority :						
Priority Bank :		Priority Bank :			Priority Bank :			Priority Bank :		Priority Bank :			Priority Bank :						
Que ue	Ph- ase	Det ase	Time		Que ue	Ph- ase	Det ase	Time		Que ue	Ph- ase	Det ase	Time		Que ue	Ph- ase	Det ase	Time	
Default data		Default data			Default data			Default data		Default data			Default data						

Priority :										Priority :									
Bank										Bank									
Detector		PE		1A		2A		3A		4A		5A		6A		B			
Default Data										Default Data									

Priority :

Bank

DetectorPE1A2A3A4A5A6AB

Default Data

Priority :

Bank

DetectorPE1A2A3A4A5A6AB

Default Data

Priority :

Bank

DetectorPE1A2A3A4A5A6AB

Default Data

Priority :

Bank

DetectorPE1A2A3A4A5A6AB

Default Data

Preempt 1

Vehical Phases				Pedestrian Phases				Overlaps			
Ph.	Track	Dwell	Cycle	Ph	Track	Dwell	Cycle	Ovlp	Track	Dwell	Cycle

Default Data

Default Data

Default Data

Preempt 2

Vehical Phases				Pedestrian Phases				Overlaps			
Ph.	Track	Dwell	Cycle	Ph.	Track	Dwell	Cycle	Ovlp.	Track	Dwell	Cycle

Default Data

Default Data

Default Data

Preempt 3

Vehical Phases				Pedestrian Phases				Overlaps			
Ph.	Track	Dwell	Cycle	Ph.	Track	Dwell	Cycle	Ovlp.	Track	Dwell	Cycle

Default Data

Default Data

Default Data

Preempt 4

Vehical Phases				Pedestrian Phases				Overlaps			
Ph.	Track	Dwell	Cycle	Ph.	Track	Dwell	Cycle	Ovlp.	Track	Dwell	Cycle

Default Data

Default Data

Default Data

Preempt 5

Vehical Phases				Pedestrian Phases				Overlaps			
Ph.	Track	Dwell	Cycle	Ph.	Track	Dwell	Cycle	Ovlp.	Track	Dwell	Cycle

Default Data

Default Data

Default Data

Preempt 6

Vehical Phases				Pedestrian Phases				Overlaps			
Ph.	Track	Dwell	Cycle	Ph.	Track	Dwell	Cycle	Ovlp.	Track	Dwell	Cycle

Default Data

Default Data

Default Data

System/Detectors Data

Local Critical Alarms

Revert to Backup: 15

1st Phone:

Local Free: No

Cycle Failure: No

Coord Failure: No

Conflict Flash: No

Remote Flash: No

2nd Phone:

Local Fash: No

Cycle Fault: No

Coord Fault: No

Preemption: No

Voltage Monitor: No

Special Status 1: No

Special Status 2: No

Special Status 3: No

Special Status 4: No

Special Status 5: No

Special Status 6: No

Traffic Responsive

System	Detector		Veh/	Average	Occupancy	Min	Queue 1	System	Weight	Queue 2	System	Weight
Detector	Channel	Name	Hr	Time(mins)	Correction/10	Volume %	Detectors	Detectors	Factor	Detectors	Detectors	Factor

Default Data

Sample Interval:

Queue: 1

Input Selection: 0=Average

Queue:

Detector Failed Level : 0

Level Enter Leave Dial / Split / Offset

Queue: 2

Input Selection: 0=Average

/ /

Detector Failed Level : 0

Default Data

Vehical Detector

Diagnostic Value 0

	Max	No	Erratic
Detector	Presence	Activity	Count

Vehical Detector

Diagnostic Value 1

	Max	No	Erratic
Detector	Presence	Activity	Count

Special Detector

Diagnostic Value 0

	Max	No	Erratic
Detector	Presence	Activity	Count

Default Data - Diag 0 Values

Default Data - No Diag 1 Values

Default Data - No Diag 0 Valu

Pedestrian Detector

Diagnostic Value 0

	Max	No	Erratic
Detector	Presence	Activity	Count

Pedestrian Detector

Diagnostic Value 1

	Max	No	Erratic
Detector	Presence	Activity	Count

Special Detector

Diagnostic Value 1

	Max	No	Erratic
Detector	Presence	Activity	Count

Default Data - No Diag 0 Values

Default Data - No Diag 1 Values

Default Data - No Diag 1 Values

Speed Trap Data

Speed Trap:

Dial/Split/Offset

Speed Trap

Speed Trap

//

Low Treshold

High Treshold

Measurement:

Default Data

Detector 1 Detector_2 Distance :

Default Data

Volume Detector Data

Report Interval 0

Volume Controller

Detector Detector

Number Channel

Default Data

Appendix F

SYNCHRO Calibration Worksheets

	User Inputs
	Constants
	Outputs

Sample Size (N) = Number of Model Runs
 Sample Mean ($\bar{X}_s$) = $(1/N) (X_1 + X_2 + X_3 \dots + X_N)$
 Sample Standard Deviation (S_s) = $\sqrt{[\sum (X - \bar{X}_s)^2] / (N-1)}$
 Sampling Error = $Z (S_s / \sqrt{N})$
 Confidence Level = $\bar{X}_s \pm Z (S_s / \sqrt{N})$
 % of Sample Mean (E) = % Tolerance * $\bar{X}_s$
 Sample Size Needed = $[(Z)^2 * (S_s)^2] / (E)^2$

AM Peak Hour

Model Iterations

Measure of Effectiveness (MOE):
 Confidence Interval:
 Tolerance Error:
 Number of Model Runs:

Speed
95%
10%
10

Run Number Speed

1	28
2	28
3	28
4	28
5	27
6	28
7	28
8	27
9	28
10	28
11	
12	
13	
14	
15	
16	
17	
18	
19	
20	
21	
22	
23	
24	
25	
26	
27	
28	
29	
30	

Sample Size Outputs

N	=	10.0
$\bar{X}_s$	=	27.8
S_s	=	0.4
E	=	2.8
Z	=	1.96

Sampling Error	=	0.26	
95% Confidence Interval	=	27.5	to 28.1
Percentage of Mean	=	0.94%	Good
Sample Size Needed	=	10	

Z is the number of standard deviations away from the mean corresponding to the required confidence level in a normal distribution.

	User Inputs
	Constants
	Outputs

Sample Size (N) = Number of Model Runs
 Sample Mean ($\bar{X}_s$) = $(1/N) (X_1 + X_2 + X_3 \dots + X_N)$
 Sample Standard Deviation (S_s) = $\sqrt{[\sum (X - \bar{X}_s)^2] / (N-1)}$
 Sampling Error = $Z (S_s / \sqrt{N})$
 Confidence Level = $\bar{X}_s \pm Z (S_s / \sqrt{N})$
 % of Sample Mean (E) = % Tolerance * $\bar{X}_s$
 Sample Size Needed = $[(Z)^2 * (S_s)^2] / (E)^2$

PM Peak Hour

Model Iterations

Measure of Effectiveness (MOE):
 Confidence Interval:
 Tolerance Error:
 Number of Model Runs:

Speed
95%
10%
10

Run Number Speed

1	24
2	24
3	25
4	24
5	24
6	24
7	24
8	24
9	24
10	24
11	
12	
13	
14	
15	
16	
17	
18	
19	
20	
21	
22	
23	
24	
25	
26	
27	
28	
29	
30	

Sample Size Outputs

N	=	10.0
$\bar{X}_s$	=	24.1
S_s	=	0.3
E	=	2.4
Z	=	1.96

Sampling Error	=	0.20	
95% Confidence Interval	=	23.9	to 24.3
Percentage of Mean	=	0.81%	Good
Sample Size Needed	=	10	

Z is the number of standard deviations away from the mean corresponding to the required confidence level in a normal distribution.

Total Network Performance By Run

Run Number	1	2	3	4	5	6	7
Avg Speed (mph)	28	28	28	28	27	28	28
Density (ft/veh)							

Total Network Performance By Run

Run Number	8	9	10	Avg
Avg Speed (mph)	27	28	28	28
Density (ft/veh)				742

Total Network Performance By Run

Run Number	1	2	3	4	5	6	7
Avg Speed (mph)	24	24	25	24	24	24	24
Density (ft/veh)							

Total Network Performance By Run

Run Number	8	9	10	Avg
Avg Speed (mph)	24	24	24	24
Density (ft/veh)				535

Appendix G

Capacity Analysis Worksheets for Existing Conditions

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	80	404	149	153	416	334	156	201	127	238	353	78
v/c Ratio	0.26	0.42	0.25	0.36	0.70	0.22	0.46	0.39	0.09	0.66	0.62	0.16
Control Delay	18.1	31.9	1.0	11.9	25.7	1.2	27.8	40.0	0.1	35.2	44.1	0.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	18.1	31.9	1.0	11.9	25.7	1.2	27.8	40.0	0.1	35.2	44.1	0.7
Queue Length 50th (ft)	28	112	0	32	248	9	70	61	0	113	113	0
Queue Length 95th (ft)	56	160	0	23	#386	39	117	95	0	178	160	0
Internal Link Dist (ft)	1151			901			1233			1319		
Turn Bay Length (ft)	290			340			350			400	320	140
Base Capacity (vph)	349	954	605	440	596	1495	356	549	1417	365	577	493
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.23	0.42	0.25	0.35	0.70	0.22	0.44	0.37	0.09	0.65	0.61	0.16

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Iron Horse Data Center TIA
1: Washington Hwy & England St

2022 Existing - AM
HCM Signalized Intersection Capacity Analysis

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	73	368	136	139	379	304	142	183	116	217	321	71
Future Volume (vph)	73	368	136	139	379	304	142	183	116	217	321	71
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	9.3	9.3	9.3	9.3	9.3	4.0	8.4	8.4	4.0	8.4	8.4	8.4
Lane Util. Factor	1.00	0.95	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1687	3471	1538	1736	1863	1495	1736	3312	1417	1641	3374	1615
Flt Permitted	0.32	1.00	1.00	0.51	1.00	1.00	0.50	1.00	1.00	0.63	1.00	1.00
Satd. Flow (perm)	565	3471	1538	926	1863	1495	919	3312	1417	1081	3374	1615
Peak-hour factor, PHF	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Adj. Flow (vph)	80	404	149	153	416	334	156	201	127	238	353	78
RTOR Reduction (vph)	0	0	108	0	0	0	0	0	0	0	0	65
Lane Group Flow (vph)	80	404	41	153	416	334	156	201	127	238	353	13
Heavy Vehicles (%)	7%	4%	5%	4%	2%	8%	4%	9%	14%	10%	7%	0%
Turn Type	D.P+P	NA	Perm	D.P+P	NA	Free	D.P+P	NA	Free	D.P+P	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	8		4	4		Free	6		Free	2		6
Actuated Green, G (s)	37.2	27.5	27.5	37.2	30.2	100.0	27.4	15.8	100.0	27.4	16.9	16.9
Effective Green, g (s)	37.2	27.5	27.5	37.2	30.2	100.0	27.4	15.8	100.0	27.4	16.9	16.9
Actuated g/C Ratio	0.37	0.28	0.28	0.37	0.30	1.00	0.27	0.16	1.00	0.27	0.17	0.17
Clearance Time (s)	9.3	9.3	9.3	9.3	9.3		8.4	8.4		8.4	8.4	8.4
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	288	954	422	423	562	1495	337	523	1417	361	570	272
v/s Ratio Prot	0.02	0.12		0.04	c0.22		0.05	0.06		c0.08	c0.10	
v/s Ratio Perm	0.08		0.03	0.10		c0.22	0.08		0.09	0.10		0.01
v/c Ratio	0.28	0.42	0.10	0.36	0.74	0.22	0.46	0.38	0.09	0.66	0.62	0.05
Uniform Delay, d1	21.4	29.7	27.0	21.6	31.4	0.0	29.0	37.7	0.0	30.8	38.6	34.8
Progression Factor	1.00	1.00	1.00	0.57	0.54	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.5	1.4	0.5	0.5	8.4	0.3	1.0	0.5	0.1	4.3	2.0	0.1
Delay (s)	22.0	31.1	27.5	12.8	25.4	0.3	30.0	38.2	0.1	35.2	40.6	34.9
Level of Service	C	C	C	B	C	A	C	D	A	D	D	C
Approach Delay (s)		29.1			14.0			25.6			38.0	
Approach LOS		C			B			C			D	
Intersection Summary												
HCM 2000 Control Delay			25.6			HCM 2000 Level of Service				C		
HCM 2000 Volume to Capacity ratio			0.69									
Actuated Cycle Length (s)			100.0			Sum of lost time (s)			35.4			
Intersection Capacity Utilization			78.1%			ICU Level of Service			D			
Analysis Period (min)			15									
c Critical Lane Group												



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	12	700	39	869	21	4	13	83	35
v/c Ratio	0.11	0.23	0.18	0.26	0.19	0.04	0.04	0.47	0.19
Control Delay	59.2	20.0	74.7	2.1	47.1	43.2	0.2	50.6	25.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	59.2	20.0	74.7	2.1	47.1	43.2	0.2	50.6	25.5
Queue Length 50th (ft)	8	134	13	1	13	2	0	51	9
Queue Length 95th (ft)	m15	149	32	38	36	13	0	95	37
Internal Link Dist (ft)		901		1090		942			790
Turn Bay Length (ft)	235		260				170	155	
Base Capacity (vph)	236	2998	391	3405	149	138	378	190	197
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.05	0.23	0.10	0.26	0.14	0.03	0.03	0.44	0.18

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

Iron Horse Data Center TIA
2: Cottage Green Dr & England St

2022 Existing - AM
HCM Signalized Intersection Capacity Analysis

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	11	637	21	37	780	37	20	4	12	78	14	19
Future Volume (vph)	11	637	21	37	780	37	20	4	12	78	14	19
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.7	4.9		7.6	4.6		7.9	7.9	7.9	7.5	7.5	
Lane Util. Factor	1.00	0.91		0.97	0.91		1.00	1.00	1.00	1.00	1.00	
Frt	1.00	1.00		1.00	0.99		1.00	1.00	0.85	1.00	0.91	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1656	4765		3155	4933		1641	1520	1615	1736	1641	
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	1656	4765		3155	4933		1641	1520	1615	1736	1641	
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	12	678	22	39	830	39	21	4	13	83	15	20
RTOR Reduction (vph)	0	3	0	0	3	0	0	0	12	0	18	0
Lane Group Flow (vph)	12	697	0	39	866	0	21	4	1	83	17	0
Heavy Vehicles (%)	9%	8%	19%	11%	4%	14%	10%	25%	0%	4%	7%	5%
Turn Type	Prot	NA		Prot	NA		Split	NA	Perm	Split	NA	
Protected Phases	5	2		1	6		3	3		4	4	
Permitted Phases									3			
Actuated Green, G (s)	1.8	54.2		4.4	58.0		4.6	4.6	4.6	8.9	8.9	
Effective Green, g (s)	1.8	54.2		4.4	58.0		4.6	4.6	4.6	8.9	8.9	
Actuated g/C Ratio	0.02	0.54		0.04	0.58		0.05	0.05	0.05	0.09	0.09	
Clearance Time (s)	6.7	4.9		7.6	4.6		7.9	7.9	7.9	7.5	7.5	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	29	2582		138	2861		75	69	74	154	146	
v/s Ratio Prot	0.01	c0.15		0.01	c0.18		c0.01	0.00		c0.05	0.01	
v/s Ratio Perm									0.00			
v/c Ratio	0.41	0.27		0.28	0.30		0.28	0.06	0.01	0.54	0.11	
Uniform Delay, d1	48.6	12.3		46.3	10.7		46.1	45.6	45.5	43.6	41.9	
Progression Factor	1.32	1.54		1.67	0.20		1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	8.5	0.2		1.1	0.3		2.0	0.4	0.0	3.6	0.4	
Delay (s)	72.8	19.1		78.2	2.4		48.1	46.0	45.6	47.2	42.3	
Level of Service	E	B		E	A		D	D	D	D	D	
Approach Delay (s)		20.0			5.6			47.0			45.7	
Approach LOS		C			A			D			D	
Intersection Summary												
HCM 2000 Control Delay			15.0			HCM 2000 Level of Service			B			
HCM 2000 Volume to Capacity ratio			0.35									
Actuated Cycle Length (s)			100.0			Sum of lost time (s)			27.9			
Intersection Capacity Utilization			38.2%			ICU Level of Service			A			
Analysis Period (min)			15									
c Critical Lane Group												

										
Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	35	660	83	185	823	37	45	134	79	32
v/c Ratio	0.27	0.35	0.11	0.47	0.34	0.26	0.16	0.34	0.54	0.09
Control Delay	40.4	30.0	5.8	44.9	20.0	47.2	43.4	2.3	54.2	24.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	40.4	30.0	5.8	44.9	20.0	47.2	43.4	2.3	54.2	24.4
Queue Length 50th (ft)	24	139	11	57	132	25	14	0	48	5
Queue Length 95th (ft)	m48	205	33	90	201	58	32	0	91	18
Internal Link Dist (ft)		1090			235		916			977
Turn Bay Length (ft)	325		200	550		220		325	290	
Base Capacity (vph)	170	1933	795	400	2437	152	296	405	186	436
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.21	0.34	0.10	0.46	0.34	0.24	0.15	0.33	0.42	0.07
Intersection Summary										
m Volume for 95th percentile queue is metered by upstream signal.										

Iron Horse Data Center TIA
3: Hill Carter Pkwy & England St

2022 Existing - AM
HCM Signalized Intersection Capacity Analysis

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		  		 	  			 		 	 	
Traffic Volume (vph)	34	634	80	178	786	4	71	8	129	76	16	14
Future Volume (vph)	34	634	80	178	786	4	71	8	129	76	16	14
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.6	5.7	5.7	8.5	5.8		8.9	8.9	8.9	8.9	8.9	
Lane Util. Factor	1.00	0.91	1.00	0.97	0.91		0.91	0.91	1.00	1.00	0.95	
Frt	1.00	1.00	0.85	1.00	1.00		1.00	1.00	0.85	1.00	0.93	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	0.96	1.00	0.95	1.00	
Satd. Flow (prot)	1492	4803	1599	3367	4932		1626	3155	1404	1203	2726	
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	0.96	1.00	0.95	1.00	
Satd. Flow (perm)	1492	4803	1599	3367	4932		1626	3155	1404	1203	2726	
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	35	660	83	185	819	4	74	8	134	79	17	15
RTOR Reduction (vph)	0	0	55	0	1	0	0	0	122	0	13	0
Lane Group Flow (vph)	35	660	28	185	822	0	37	45	12	79	19	0
Heavy Vehicles (%)	21%	8%	1%	4%	5%	25%	1%	25%	15%	50%	25%	21%
Turn Type	Prot	NA	Perm	Prot	NA		Split	NA	Perm	Split	NA	
Protected Phases	5	2		1	6		3	3		4	4	
Permitted Phases			2						3			
Actuated Green, G (s)	5.5	33.8	33.8	14.9	44.0		8.7	8.7	8.7	10.6	10.6	
Effective Green, g (s)	5.5	33.8	33.8	14.9	44.0		8.7	8.7	8.7	10.6	10.6	
Actuated g/C Ratio	0.06	0.34	0.34	0.15	0.44		0.09	0.09	0.09	0.11	0.11	
Clearance Time (s)	7.6	5.7	5.7	8.5	5.8		8.9	8.9	8.9	8.9	8.9	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	82	1623	540	501	2170		141	274	122	127	288	
v/s Ratio Prot	0.02	c0.14		0.05	c0.17		c0.02	0.01		c0.07	0.01	
v/s Ratio Perm			0.02						0.01			
v/c Ratio	0.43	0.41	0.05	0.37	0.38		0.26	0.16	0.10	0.62	0.06	
Uniform Delay, d1	45.7	25.4	22.3	38.3	18.8		42.7	42.3	42.0	42.8	40.2	
Progression Factor	0.83	1.22	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	3.5	0.7	0.2	0.5	0.5		1.0	0.3	0.3	9.1	0.1	
Delay (s)	41.5	31.6	22.5	38.8	19.3		43.6	42.6	42.4	51.9	40.3	
Level of Service	D	C	C	D	B		D	D	D	D	D	
Approach Delay (s)		31.1			22.9			42.6			48.6	
Approach LOS		C			C			D			D	
Intersection Summary												
HCM 2000 Control Delay			29.3			HCM 2000 Level of Service			C			
HCM 2000 Volume to Capacity ratio			0.44									
Actuated Cycle Length (s)			100.0			Sum of lost time (s)			32.0			
Intersection Capacity Utilization			51.4%			ICU Level of Service			A			
Analysis Period (min)			15									
c Critical Lane Group												

Iron Horse Data Center TIA
4: S. Carter Rd/N. Carter Rd & England St

2022 Existing - AM
HCM Unsignalized Intersection Capacity Analysis

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↑			↑↑↑				↗			↗
Traffic Volume (veh/h)	0	803	56	0	947	48	0	0	59	0	0	18
Future Volume (Veh/h)	0	803	56	0	947	48	0	0	59	0	0	18
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.92	0.92	0.94	0.92	0.92	0.94
Hourly flow rate (vph)	0	854	60	0	1007	51	0	0	63	0	0	19
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type	None			None								
Median storage (veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	1058			914			1239	1942	315	1380	1946	361
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1058			914			1239	1942	315	1380	1946	361
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	7.3
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.5
p0 queue free %	100			100			100	100	91	100	100	97
cM capacity (veh/h)	666			754			130	66	681	96	65	592
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	NB 1	SB 1				
Volume Total	342	342	231	403	403	252	63	19				
Volume Left	0	0	0	0	0	0	0	0				
Volume Right	0	0	60	0	0	51	63	19				
cSH	1700	1700	1700	1700	1700	1700	681	592				
Volume to Capacity	0.20	0.20	0.14	0.24	0.24	0.15	0.09	0.03				
Queue Length 95th (ft)	0	0	0	0	0	0	8	2				
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	10.8	11.3				
Lane LOS							B	B				
Approach Delay (s)	0.0			0.0			10.8	11.3				
Approach LOS							B	B				
Intersection Summary												
Average Delay			0.4									
Intersection Capacity Utilization			29.4%	ICU Level of Service				A				
Analysis Period (min)			15									

Iron Horse Data Center TIA
5: I-95 SB Ramp & England St/Patrick Henry Hwy

2022 Existing - AM
HCM Unsignalized Intersection Capacity Analysis

																					
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR									
Lane Configurations		↑↑	↑	↑	↑↑						↩	↩									
Traffic Volume (veh/h)	0	324	600	191	828	0	0	0	0	3	3	199									
Future Volume (Veh/h)	0	324	600	191	828	0	0	0	0	3	3	199									
Sign Control		Free			Free			Stop			Stop										
Grade		0%			0%			0%			0%										
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88									
Hourly flow rate (vph)	0	368	682	217	941	0	0	0	0	3	3	226									
Pedestrians																					
Lane Width (ft)																					
Walking Speed (ft/s)																					
Percent Blockage																					
Right turn flare (veh)																					
Median type	None			None																	
Median storage (veh)																					
Upstream signal (ft)	976																				
pX, platoon unblocked																					
vC, conflicting volume	941			368			1274	1743	184	1559	1743	470									
vC1, stage 1 conf vol																					
vC2, stage 2 conf vol																					
vCu, unblocked vol	941			368			1274	1743	184	1559	1743	470									
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	7.2									
tC, 2 stage (s)																					
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.5									
p0 queue free %	100			82			100	100	100	96	96	55									
cM capacity (veh/h)	737			1187			58	72	833	67	72	501									
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	SB 1	SB 2													
Volume Total	184	184	682	217	470	470	6	226													
Volume Left	0	0	0	217	0	0	3	0													
Volume Right	0	0	682	0	0	0	0	226													
cSH	1700	1700	1700	1187	1700	1700	69	501													
Volume to Capacity	0.11	0.11	0.40	0.18	0.28	0.28	0.09	0.45													
Queue Length 95th (ft)	0	0	0	17	0	0	7	58													
Control Delay (s)	0.0	0.0	0.0	8.7	0.0	0.0	62.0	18.0													
Lane LOS				A			F		C												
Approach Delay (s)	0.0			1.6			19.1														
Approach LOS							C														
Intersection Summary																					
Average Delay				2.6																	
Intersection Capacity Utilization				61.1%			ICU Level of Service			B											
Analysis Period (min)				15																	

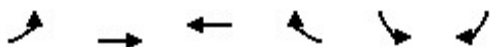
Iron Horse Data Center TIA
6: I-95 NB Ramp & Patrick Henry Hwy

2022 Existing - AM
HCM Unsignalized Intersection Capacity Analysis

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		 			 							
Traffic Volume (veh/h)	136	192	0	0	405	21	0	0	125	0	0	617
Future Volume (Veh/h)	136	192	0	0	405	21	0	0	125	0	0	617
Sign Control	Free				Free				Yield		Yield	
Grade	0%				0%				0%		0%	
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Hourly flow rate (vph)	145	204	0	0	431	22	0	0	133	0	0	656
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type	None				None							
Median storage (veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	431			204			710	925	102	823	925	216
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	431			204			710	925	102	823	925	216
tC, single (s)	4.5			4.1			7.5	6.5	7.1	7.5	6.5	7.1
tC, 2 stage (s)												
tF (s)	2.4			2.2			3.5	4.0	3.4	3.5	4.0	3.4
p0 queue free %	86			100			100	100	85	100	100	15
cM capacity (veh/h)	1007			1380			43	232	911	204	232	771
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	NB 1	SB 1				
Volume Total	145	102	102	216	216	22	133	656				
Volume Left	145	0	0	0	0	0	0	0				
Volume Right	0	0	0	0	0	22	133	656				
cSH	1007	1700	1700	1700	1700	1700	911	771				
Volume to Capacity	0.14	0.06	0.06	0.13	0.13	0.01	0.15	0.85				
Queue Length 95th (ft)	13	0	0	0	0	0	13	252				
Control Delay (s)	9.2	0.0	0.0	0.0	0.0	0.0	9.6	30.1				
Lane LOS	A							A	D			
Approach Delay (s)	3.8			0.0			9.6	30.1				
Approach LOS							A	D				
Intersection Summary												
Average Delay			14.0									
Intersection Capacity Utilization			56.1%		ICU Level of Service				B			
Analysis Period (min)			15									

Iron Horse Data Center TIA
7: Patrick Henry Hwy & Telcourt Rd

2022 Existing - AM
HCM Unsignalized Intersection Capacity Analysis

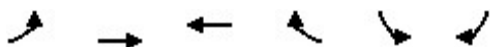


Movement	EBL	EBT	WBT	WBR	SBL	SBR	
Lane Configurations							
Traffic Volume (veh/h)	33	317	407	9	4	5	
Future Volume (Veh/h)	33	317	407	9	4	5	
Sign Control		Free	Free		Stop		
Grade		0%	0%		0%		
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	
Hourly flow rate (vph)	35	334	428	9	4	5	
Pedestrians							
Lane Width (ft)							
Walking Speed (ft/s)							
Percent Blockage							
Right turn flare (veh)							
Median type		None	None				
Median storage veh							
Upstream signal (ft)							
pX, platoon unblocked							
vC, conflicting volume	437				665	214	
vC1, stage 1 conf vol							
vC2, stage 2 conf vol							
vCu, unblocked vol	437				665	214	
tC, single (s)	4.5				6.8	6.9	
tC, 2 stage (s)							
tF (s)	2.4				3.5	3.3	
p0 queue free %	96				99	99	
cM capacity (veh/h)	995				384	797	
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	SB 1
Volume Total	35	167	167	214	214	9	9
Volume Left	35	0	0	0	0	0	4
Volume Right	0	0	0	0	0	9	5
cSH	995	1700	1700	1700	1700	1700	539
Volume to Capacity	0.04	0.10	0.10	0.13	0.13	0.01	0.02
Queue Length 95th (ft)	3	0	0	0	0	0	1
Control Delay (s)	8.7	0.0	0.0	0.0	0.0	0.0	11.8
Lane LOS	A						B
Approach Delay (s)	0.8			0.0			11.8
Approach LOS							B
Intersection Summary							
Average Delay			0.5				
Intersection Capacity Utilization			27.9%		ICU Level of Service		A
Analysis Period (min)			15				

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	41	258	21	13	351	10	28	1	6	3	4	37
Future Volume (Veh/h)	41	258	21	13	351	10	28	1	6	3	4	37
Sign Control	Free			Free			Stop			Stop		
Grade	0%			0%			0%			0%		
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	45	280	23	14	382	11	30	1	7	3	4	40
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type	None			None								
Median storage (veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	393			303			834	802	292	788	803	382
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	393			303			834	802	292	788	803	382
tC, single (s)	4.1			4.1			7.2	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.6	4.0	3.3	3.5	4.0	3.3
p0 queue free %	96			99			88	100	99	99	99	94
cM capacity (veh/h)	1177			1269			249	304	752	296	304	670
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	SB 1						
Volume Total	45	303	396	11	38	47						
Volume Left	45	0	14	0	30	3						
Volume Right	0	23	0	11	7	40						
cSH	1177	1700	1269	1700	285	566						
Volume to Capacity	0.04	0.18	0.01	0.01	0.13	0.08						
Queue Length 95th (ft)	3	0	1	0	11	7						
Control Delay (s)	8.2	0.0	0.4	0.0	19.5	11.9						
Lane LOS	A		A		C	B						
Approach Delay (s)	1.1		0.4		19.5	11.9						
Approach LOS					C	B						
Intersection Summary												
Average Delay				2.2								
Intersection Capacity Utilization				49.4%	ICU Level of Service				A			
Analysis Period (min)				15								

Iron Horse Data Center TIA
9: Patrick Henry Hwy & Woodside Ln

2022 Existing - AM
HCM Unsignalized Intersection Capacity Analysis



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	61	203	245	17	54	131
Future Volume (Veh/h)	61	203	245	17	54	131
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96
Hourly flow rate (vph)	64	211	255	18	56	136
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						12
Median type		None	None			
Median storage veh						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	273				603	264
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	273				603	264
tC, single (s)	4.1				6.5	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.6	3.3
p0 queue free %	95				87	82
cM capacity (veh/h)	1284				431	777
Direction, Lane #	EB 1	EB 2	WB 1	SB 1		
Volume Total	64	211	273	192		
Volume Left	64	0	0	56		
Volume Right	0	0	18	136		
cSH	1284	1700	1700	1097		
Volume to Capacity	0.05	0.12	0.16	0.18		
Queue Length 95th (ft)	4	0	0	16		
Control Delay (s)	7.9	0.0	0.0	11.8		
Lane LOS	A			B		
Approach Delay (s)	1.9		0.0	11.8		
Approach LOS				B		
Intersection Summary						
Average Delay			3.7			
Intersection Capacity Utilization			30.6%		ICU Level of Service	A
Analysis Period (min)			15			

Iron Horse Data Center TIA
10: Goddins Hill Rd & Patrick Henry Hwy

2022 Existing - AM
HCM Unsignalized Intersection Capacity Analysis

						
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	178	55	83	199	26	23
Future Volume (Veh/h)	178	55	83	199	26	23
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88
Hourly flow rate (vph)	202	62	94	226	30	26
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			264		616	202
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			264		616	202
tC, single (s)			4.1		6.4	6.3
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.4
p0 queue free %			93		93	97
cM capacity (veh/h)			1306		418	821
Direction, Lane #	EB 1	EB 2	WB 1	NB 1		
Volume Total	202	62	320	56		
Volume Left	0	0	94	30		
Volume Right	0	62	0	26		
cSH	1700	1700	1306	542		
Volume to Capacity	0.12	0.04	0.07	0.10		
Queue Length 95th (ft)	0	0	6	9		
Control Delay (s)	0.0	0.0	2.8	12.4		
Lane LOS			A	B		
Approach Delay (s)	0.0		2.8	12.4		
Approach LOS				B		
Intersection Summary						
Average Delay			2.5			
Intersection Capacity Utilization			37.8%		ICU Level of Service	
					A	
Analysis Period (min)			15			

Intersection: 1: Washington Hwy & England St

Movement	EB	EB	EB	EB	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	L	T	T	R	L	T	L	T	T	L	T	T
Maximum Queue (ft)	143	178	192	79	163	344	168	162	127	223	213	203
Average Queue (ft)	50	86	98	28	67	140	76	77	46	113	111	92
95th Queue (ft)	104	149	168	60	134	278	139	133	98	191	181	169
Link Distance (ft)		1170			891	891		1257	1257		1361	1361
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (ft)	290		340	340			350			320		
Storage Blk Time (%)										0		2
Queuing Penalty (veh)										0		2

Intersection: 1: Washington Hwy & England St

Movement	SB
Directions Served	R
Maximum Queue (ft)	125
Average Queue (ft)	35
95th Queue (ft)	83
Link Distance (ft)	
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	140
Storage Blk Time (%)	0
Queuing Penalty (veh)	0

Intersection: 2: Cottage Green Dr & England St

Movement	EB	EB	EB	EB	WB	WB	WB	WB	WB	NB	NB	NB
Directions Served	L	T	T	TR	L	L	T	T	TR	L	T	R
Maximum Queue (ft)	56	133	146	223	38	76	118	166	180	71	53	33
Average Queue (ft)	11	45	51	85	3	23	20	36	36	20	5	10
95th Queue (ft)	36	105	113	172	17	56	71	112	117	56	29	33
Link Distance (ft)		891	891	891			1075	1075	1075	954	954	
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (ft)	235				260	260						170
Storage Blk Time (%)												
Queuing Penalty (veh)												

Intersection: 2: Cottage Green Dr & England St

Movement	SB	SB
Directions Served	L	TR
Maximum Queue (ft)	131	115
Average Queue (ft)	59	29
95th Queue (ft)	113	77
Link Distance (ft)		803
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)	155	
Storage Blk Time (%)	0	0
Queuing Penalty (veh)	0	0

Intersection: 3: Hill Carter Pkwy & England St

Movement	EB	EB	EB	EB	EB	WB	WB	WB	WB	WB	NB	NB
Directions Served	L	T	T	T	R	L	L	T	T	TR	L	LT
Maximum Queue (ft)	114	172	293	357	200	116	111	179	190	203	52	106
Average Queue (ft)	35	68	103	167	44	59	54	81	100	99	13	42
95th Queue (ft)	86	136	216	281	141	100	95	149	165	172	40	85
Link Distance (ft)		1075	1075	1075		214	214	214	214	214		920
Upstream Blk Time (%)								0	0	0		
Queuing Penalty (veh)								0	0	0		
Storage Bay Dist (ft)	325				200						220	
Storage Blk Time (%)				5	0							
Queuing Penalty (veh)				4	0							

Intersection: 3: Hill Carter Pkwy & England St

Movement	NB	NB	SB	SB	SB
Directions Served	T	R	L	T	TR
Maximum Queue (ft)	33	130	220	70	51
Average Queue (ft)	2	51	83	12	10
95th Queue (ft)	17	103	171	43	34
Link Distance (ft)	920			976	976
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (ft)		325	290		
Storage Blk Time (%)			0		
Queuing Penalty (veh)			0		

Intersection: 4: S. Carter St/N. Carter St & England St

Movement	EB	EB	WB	NB	SB
Directions Served	T	TR	TR	R	R
Maximum Queue (ft)	12	82	3	65	52
Average Queue (ft)	0	4	0	27	13
95th Queue (ft)	8	39	3	53	40
Link Distance (ft)	214	214	275	315	396
Upstream Blk Time (%)		0			
Queuing Penalty (veh)		0			
Storage Bay Dist (ft)					
Storage Blk Time (%)					
Queuing Penalty (veh)					

Intersection: 5: I-95 SB Ramp & England St/Patrick Henry Hwy

Movement	WB	SB
Directions Served	L	LT
Maximum Queue (ft)	70	32
Average Queue (ft)	28	5
95th Queue (ft)	59	23
Link Distance (ft)	207	
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		150
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 6: I-95 NB Ramp & Patrick Henry Hwy

Movement	EB	WB	WB
Directions Served	L	T	T
Maximum Queue (ft)	108	4	5
Average Queue (ft)	23	0	0
95th Queue (ft)	66	3	5
Link Distance (ft)		189	189
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)	435		
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 7: Patrick Henry Hwy & Telcourt Rd

Movement	EB	EB	WB	SB
Directions Served	L	T	R	LR
Maximum Queue (ft)	67	4	24	31
Average Queue (ft)	11	0	2	7
95th Queue (ft)	42	5	14	28
Link Distance (ft)		286		754
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)	100		50	
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 8: Mt. Hermon Rd/Frances Rd & Patrick Henry Hwy

Movement	EB	WB	NB	SB
Directions Served	L	LT	LTR	LTR
Maximum Queue (ft)	47	48	72	42
Average Queue (ft)	10	5	22	21
95th Queue (ft)	33	26	54	41
Link Distance (ft)	240	2189	1204	994
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 9: Patrick Henry Hwy & Woodside Ln

Movement	EB	SB	SB
Directions Served	L	L	R
Maximum Queue (ft)	57	61	73
Average Queue (ft)	12	27	40
95th Queue (ft)	38	54	65
Link Distance (ft)		1059	
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)	300		290
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 10: Goddins Hill Rd & Patrick Henry Hwy

Movement	EB	WB	NB
Directions Served	R	LT	LR
Maximum Queue (ft)	2	53	49
Average Queue (ft)	0	11	18
95th Queue (ft)	0	37	39
Link Distance (ft)		2248	1610
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)	200		
Storage Blk Time (%)			
Queuing Penalty (veh)			

Network Summary

Network wide Queuing Penalty: 6

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	140	432	124	215	436	239	243	426	214	263	427	97
v/c Ratio	0.41	0.40	0.20	0.48	0.72	0.16	0.71	0.79	0.14	0.78	0.77	0.22
Control Delay	21.8	35.3	0.7	19.3	29.4	0.2	40.9	60.3	0.2	46.0	58.8	1.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	21.8	35.3	0.7	19.3	29.4	0.2	40.9	60.3	0.2	46.0	58.8	1.2
Queue Length 50th (ft)	60	145	0	73	323	0	133	167	0	147	166	0
Queue Length 95th (ft)	101	196	0	89	#460	0	203	225	0	#226	226	0
Internal Link Dist (ft)	1151			901			1233			1319		
Turn Bay Length (ft)	290	340			350			400	320	140		
Base Capacity (vph)	403	1086	631	468	607	1509	367	578	1553	355	576	444
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.35	0.40	0.20	0.46	0.72	0.16	0.66	0.74	0.14	0.74	0.74	0.22

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Iron Horse Data Center TIA
1: Washington Hwy & England St

2022 Existing - PM
HCM Signalized Intersection Capacity Analysis

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		 						 			 	
Traffic Volume (vph)	133	410	118	204	414	227	231	405	203	250	406	92
Future Volume (vph)	133	410	118	204	414	227	231	405	203	250	406	92
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	9.3	9.3	9.3	9.3	9.3	4.0	8.4	8.4	4.0	8.4	8.4	8.4
Lane Util. Factor	1.00	0.95	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1805	3539	1583	1719	1863	1509	1805	3539	1553	1770	3505	1599
Flt Permitted	0.29	1.00	1.00	0.46	1.00	1.00	0.34	1.00	1.00	0.34	1.00	1.00
Satd. Flow (perm)	558	3539	1583	839	1863	1509	651	3539	1553	627	3505	1599
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	140	432	124	215	436	239	243	426	214	263	427	97
RTOR Reduction (vph)	0	0	86	0	0	0	0	0	0	0	0	82
Lane Group Flow (vph)	140	432	38	215	436	239	243	426	214	263	427	15
Heavy Vehicles (%)	0%	2%	2%	5%	2%	7%	0%	2%	4%	2%	3%	1%
Turn Type	D.P+P	NA	Perm	D.P+P	NA	Free	D.P+P	NA	Free	D.P+P	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	8		4	4		Free	6		Free	2		6
Actuated Green, G (s)	49.9	36.8	36.8	49.9	39.1	120.0	34.7	18.3	120.0	34.7	18.9	18.9
Effective Green, g (s)	49.9	36.8	36.8	49.9	39.1	120.0	34.7	18.3	120.0	34.7	18.9	18.9
Actuated g/C Ratio	0.42	0.31	0.31	0.42	0.33	1.00	0.29	0.15	1.00	0.29	0.16	0.16
Clearance Time (s)	9.3	9.3	9.3	9.3	9.3		8.4	8.4		8.4	8.4	8.4
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	344	1085	485	444	607	1509	340	539	1553	337	552	251
v/s Ratio Prot	0.04	0.12		c0.05	c0.23		0.09	0.12		c0.11	c0.12	
v/s Ratio Perm	0.13		0.02	0.15		c0.16	0.11		0.14	0.12		0.01
v/c Ratio	0.41	0.40	0.08	0.48	0.72	0.16	0.71	0.79	0.14	0.78	0.77	0.06
Uniform Delay, d1	23.5	32.9	29.6	23.4	35.6	0.0	35.2	49.0	0.0	35.8	48.5	43.0
Progression Factor	1.00	1.00	1.00	0.82	0.57	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.8	1.1	0.3	0.8	6.9	0.2	7.0	7.7	0.2	11.1	6.7	0.1
Delay (s)	24.3	33.9	29.9	20.0	27.3	0.2	42.2	56.7	0.2	46.9	55.2	43.1
Level of Service	C	C	C	C	C	A	D	E	A	D	E	D
Approach Delay (s)		31.3			18.3			39.0			50.9	
Approach LOS		C			B			D			D	
Intersection Summary												
HCM 2000 Control Delay			34.6			HCM 2000 Level of Service				C		
HCM 2000 Volume to Capacity ratio			0.74									
Actuated Cycle Length (s)			120.0			Sum of lost time (s)				35.4		
Intersection Capacity Utilization			85.0%			ICU Level of Service				E		
Analysis Period (min)			15									
c Critical Lane Group												



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	30	821	60	876	48	50	49	192	77
v/c Ratio	0.20	0.32	0.29	0.34	0.37	0.37	0.16	0.68	0.26
Control Delay	43.7	16.6	70.9	11.3	60.5	59.9	1.1	59.8	35.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	43.7	16.6	70.9	11.3	60.5	59.9	1.1	59.8	35.0
Queue Length 50th (ft)	17	115	15	86	36	38	0	142	40
Queue Length 95th (ft)	m45	132	47	75	74	77	0	212	82
Internal Link Dist (ft)		901		1090		942			790
Turn Bay Length (ft)	235		260				170	155	
Base Capacity (vph)	245	2630	385	2632	182	191	354	289	303
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.12	0.31	0.16	0.33	0.26	0.26	0.14	0.66	0.25

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

Iron Horse Data Center TIA
2: Cottage Green Dr & England St

2022 Existing - PM
HCM Signalized Intersection Capacity Analysis

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	29	760	28	58	722	119	46	48	47	184	49	25
Future Volume (vph)	29	760	28	58	722	119	46	48	47	184	49	25
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.7	4.9		7.6	5.1		7.9	7.9	7.9	7.5	7.5	
Lane Util. Factor	1.00	0.91		0.97	0.91		1.00	1.00	1.00	1.00	1.00	
Frt	1.00	0.99		1.00	0.98		1.00	1.00	0.85	1.00	0.95	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1805	5008		3213	4902		1805	1900	1583	1787	1780	
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	1805	5008		3213	4902		1805	1900	1583	1787	1780	
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	30	792	29	60	752	124	48	50	49	192	51	26
RTOR Reduction (vph)	0	3	0	0	16	0	0	0	46	0	15	0
Lane Group Flow (vph)	30	818	0	60	860	0	48	50	3	192	62	0
Heavy Vehicles (%)	0%	3%	4%	9%	4%	1%	0%	0%	2%	1%	2%	0%
Turn Type	Prot	NA		Prot	NA		Split	NA	Perm	Split	NA	
Protected Phases	5	2		1	6		3	3		4	4	
Permitted Phases									3			
Actuated Green, G (s)	7.5	59.2		6.5	58.9		7.5	7.5	7.5	18.9	18.9	
Effective Green, g (s)	7.5	59.2		6.5	58.9		7.5	7.5	7.5	18.9	18.9	
Actuated g/C Ratio	0.06	0.49		0.05	0.49		0.06	0.06	0.06	0.16	0.16	
Clearance Time (s)	6.7	4.9		7.6	5.1		7.9	7.9	7.9	7.5	7.5	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	112	2470		174	2406		112	118	98	281	280	
v/s Ratio Prot	0.02	c0.16		0.02	c0.18		c0.03	0.03		c0.11	0.03	
v/s Ratio Perm									0.00			
v/c Ratio	0.27	0.33		0.34	0.36		0.43	0.42	0.03	0.68	0.22	
Uniform Delay, d1	53.6	18.4		54.7	18.9		54.2	54.2	52.8	47.7	44.1	
Progression Factor	0.82	0.84		1.27	0.56		1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	1.2	0.3		1.1	0.4		2.6	2.4	0.1	6.7	0.4	
Delay (s)	45.1	15.7		70.5	11.0		56.8	56.6	53.0	54.4	44.5	
Level of Service	D	B		E	B		E	E	D	D	D	
Approach Delay (s)		16.8			14.8			55.5			51.6	
Approach LOS		B			B			E			D	
Intersection Summary												
HCM 2000 Control Delay			22.8			HCM 2000 Level of Service				C		
HCM 2000 Volume to Capacity ratio			0.45									
Actuated Cycle Length (s)			120.0			Sum of lost time (s)			27.9			
Intersection Capacity Utilization			52.2%			ICU Level of Service			A			
Analysis Period (min)			15									
c Critical Lane Group												

										
Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	51	882	144	226	831	93	105	274	73	40
v/c Ratio	0.37	0.41	0.18	0.53	0.34	0.53	0.30	0.66	0.52	0.12
Control Delay	47.1	25.9	8.7	54.2	21.3	60.9	50.4	13.5	64.1	27.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	47.1	25.9	8.7	54.2	21.3	60.9	50.4	13.5	64.1	27.5
Queue Length 50th (ft)	31	209	14	87	149	75	41	0	55	6
Queue Length 95th (ft)	m82	276	m84	125	220	132	69	80	101	23
Internal Link Dist (ft)		1090			235		916			977
Turn Bay Length (ft)	325		200	550		220		325	290	
Base Capacity (vph)	256	2222	824	465	2437	180	360	422	205	478
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.20	0.40	0.17	0.49	0.34	0.52	0.29	0.65	0.36	0.08
Intersection Summary										
m Volume for 95th percentile queue is metered by upstream signal.										

Iron Horse Data Center TIA
3: Hill Carter Pkwy & England St

2022 Existing - PM
HCM Signalized Intersection Capacity Analysis

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		  		 	  			 			 	
Traffic Volume (vph)	47	820	134	210	727	46	174	10	255	68	17	20
Future Volume (vph)	47	820	134	210	727	46	174	10	255	68	17	20
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.6	5.7	5.7	8.5	5.8		8.9	8.9	8.9	8.9	8.9	
Lane Util. Factor	1.00	0.91	1.00	0.97	0.91		0.91	0.91	1.00	1.00	0.95	
Frt	1.00	1.00	0.85	1.00	0.99		1.00	1.00	0.85	1.00	0.92	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	0.96	1.00	0.95	1.00	
Satd. Flow (prot)	1770	5036	1599	3367	4757		1610	3219	1599	1444	3225	
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	0.96	1.00	0.95	1.00	
Satd. Flow (perm)	1770	5036	1599	3367	4757		1610	3219	1599	1444	3225	
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	51	882	144	226	782	49	187	11	274	73	18	22
RTOR Reduction (vph)	0	0	86	0	5	0	0	0	244	0	20	0
Lane Group Flow (vph)	51	882	58	226	826	0	93	105	30	73	20	0
Heavy Vehicles (%)	2%	3%	1%	4%	5%	57%	2%	10%	1%	25%	6%	0%
Turn Type	Prot	NA	Perm	Prot	NA		Split	NA	Perm	Split	NA	
Protected Phases	5	2		1	6		3	3		4	4	
Permitted Phases			2						3			
Actuated Green, G (s)	7.8	48.3	48.3	16.6	57.9		13.0	13.0	13.0	10.1	10.1	
Effective Green, g (s)	7.8	48.3	48.3	16.6	57.9		13.0	13.0	13.0	10.1	10.1	
Actuated g/C Ratio	0.06	0.40	0.40	0.14	0.48		0.11	0.11	0.11	0.08	0.08	
Clearance Time (s)	7.6	5.7	5.7	8.5	5.8		8.9	8.9	8.9	8.9	8.9	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	115	2026	643	465	2295		174	348	173	121	271	
v/s Ratio Prot	0.03	c0.18		c0.07	0.17		c0.06	0.03		c0.05	0.01	
v/s Ratio Perm			0.04						0.02			
v/c Ratio	0.44	0.44	0.09	0.49	0.36		0.53	0.30	0.17	0.60	0.07	
Uniform Delay, d1	54.0	26.0	22.2	47.8	19.4		50.6	49.3	48.6	53.0	50.6	
Progression Factor	0.77	0.97	12.95	1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	2.6	0.7	0.3	0.8	0.4		3.1	0.5	0.5	8.2	0.1	
Delay (s)	44.0	26.0	288.1	48.6	19.9		53.8	49.8	49.1	61.2	50.8	
Level of Service	D	C	F	D	B		D	D	D	E	D	
Approach Delay (s)		61.9			26.0			50.2			57.5	
Approach LOS		E			C			D			E	
Intersection Summary												
HCM 2000 Control Delay			45.7			HCM 2000 Level of Service			D			
HCM 2000 Volume to Capacity ratio			0.48									
Actuated Cycle Length (s)			120.0			Sum of lost time (s)			32.0			
Intersection Capacity Utilization			57.9%			ICU Level of Service			B			
Analysis Period (min)			15									
c Critical Lane Group												

Iron Horse Data Center TIA
4: S. Carter Rd/N. Carter Rd & England St

2022 Existing - PM
HCM Unsignalized Intersection Capacity Analysis

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↑			↑↑↑				↗			↗
Traffic Volume (veh/h)	0	1108	51	0	1004	37	0	0	32	0	0	5
Future Volume (Veh/h)	0	1108	51	0	1004	37	0	0	32	0	0	5
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	1204	55	0	1091	40	0	0	35	0	0	5
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type	None			None								
Median storage (veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	1131			1259			1600	2362	429	1547	2370	384
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1131			1259			1600	2362	429	1547	2370	384
tC, single (s)	4.1			4.1			7.5	6.5	7.1	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.4	3.5	4.0	3.3
p0 queue free %	100			100			100	100	94	100	100	99
cM capacity (veh/h)	625			559			72	36	555	74	35	620
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	NB 1	SB 1				
Volume Total	482	482	296	436	436	258	35	5				
Volume Left	0	0	0	0	0	0	0	0				
Volume Right	0	0	55	0	0	40	35	5				
cSH	1700	1700	1700	1700	1700	1700	555	620				
Volume to Capacity	0.28	0.28	0.17	0.26	0.26	0.15	0.06	0.01				
Queue Length 95th (ft)	0	0	0	0	0	0	5	1				
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	11.9	10.9				
Lane LOS							B	B				
Approach Delay (s)	0.0			0.0			11.9	10.9				
Approach LOS							B	B				
Intersection Summary												
Average Delay			0.2									
Intersection Capacity Utilization			32.5%	ICU Level of Service				A				
Analysis Period (min)			15									

Iron Horse Data Center TIA
5: I-95 SB Ramp & England St/Patrick Henry Hwy

2022 Existing - PM
HCM Unsignalized Intersection Capacity Analysis

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑	↑	↑	↑↑						↩	↩
Traffic Volume (veh/h)	0	510	729	178	885	0	0	0	0	21	1	206
Future Volume (Veh/h)	0	510	729	178	885	0	0	0	0	21	1	206
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Hourly flow rate (vph)	0	526	752	184	912	0	0	0	0	22	1	212
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type	None			None								
Median storage veh												
Upstream signal (ft)	976											
pX, platoon unblocked												
vC, conflicting volume	912			526			1350	1806	263	1543	1806	456
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	912			526			1350	1806	263	1543	1806	456
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.8	6.5	7.1
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.6	4.0	3.4
p0 queue free %	100			82			100	100	100	63	98	60
cM capacity (veh/h)	755			1037			57	66	742	60	66	533
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	SB 1	SB 2				
Volume Total	263	263	752	184	456	456	23	212				
Volume Left	0	0	0	184	0	0	22	0				
Volume Right	0	0	752	0	0	0	0	212				
cSH	1700	1700	1700	1037	1700	1700	60	533				
Volume to Capacity	0.15	0.15	0.44	0.18	0.27	0.27	0.38	0.40				
Queue Length 95th (ft)	0	0	0	16	0	0	35	47				
Control Delay (s)	0.0	0.0	0.0	9.2	0.0	0.0	97.5	16.2				
Lane LOS				A			F	C				
Approach Delay (s)	0.0			1.5			24.1					
Approach LOS							C					
Intersection Summary												
Average Delay	2.8											
Intersection Capacity Utilization	68.3%			ICU Level of Service				C				
Analysis Period (min)	15											

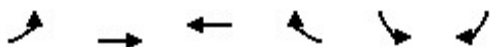
Iron Horse Data Center TIA
6: I-95 NB Ramp & Patrick Henry Hwy

2022 Existing - PM
HCM Unsignalized Intersection Capacity Analysis

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		 			 							
Traffic Volume (veh/h)	205	322	0	0	452	29	0	0	192	0	0	610
Future Volume (Veh/h)	205	322	0	0	452	29	0	0	192	0	0	610
Sign Control	Free			Free			Yield			Yield		
Grade	0%			0%			0%			0%		
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Hourly flow rate (vph)	214	335	0	0	471	30	0	0	200	0	0	635
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type	None			None								
Median storage (veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	471			335			998	1234	168	1066	1234	236
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	471			335			998	1234	168	1066	1234	236
tC, single (s)	4.2			4.1			7.5	6.5	6.9	7.5	6.5	7.0
tC, 2 stage (s)												
tF (s)	2.3			2.2			3.5	4.0	3.3	3.5	4.0	3.4
p0 queue free %	80			100			100	100	77	100	100	16
cM capacity (veh/h)	1053			1236			27	142	854	116	142	754
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	NB 1	SB 1				
Volume Total	214	168	168	236	236	30	200	635				
Volume Left	214	0	0	0	0	0	0	0				
Volume Right	0	0	0	0	0	30	200	635				
cSH	1053	1700	1700	1700	1700	1700	854	754				
Volume to Capacity	0.20	0.10	0.10	0.14	0.14	0.02	0.23	0.84				
Queue Length 95th (ft)	19	0	0	0	0	0	23	242				
Control Delay (s)	9.3	0.0	0.0	0.0	0.0	0.0	10.5	29.7				
Lane LOS	A						B	D				
Approach Delay (s)	3.6			0.0			10.5	29.7				
Approach LOS							B	D				
Intersection Summary												
Average Delay	12.2											
Intersection Capacity Utilization	56.9%			ICU Level of Service					B			
Analysis Period (min)	15											

Iron Horse Data Center TIA
7: Patrick Henry Hwy & Telcourt Rd

2022 Existing - PM
HCM Unsignalized Intersection Capacity Analysis

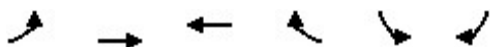


Movement	EBL	EBT	WBT	WBR	SBL	SBR	
Lane Configurations							
Traffic Volume (veh/h)	30	470	422	10	2	24	
Future Volume (Veh/h)	30	470	422	10	2	24	
Sign Control		Free	Free		Stop		
Grade		0%	0%		0%		
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	
Hourly flow rate (vph)	33	516	464	11	2	26	
Pedestrians							
Lane Width (ft)							
Walking Speed (ft/s)							
Percent Blockage							
Right turn flare (veh)							
Median type		None	None				
Median storage (veh)							
Upstream signal (ft)							
pX, platoon unblocked							
vC, conflicting volume	475				788	232	
vC1, stage 1 conf vol							
vC2, stage 2 conf vol							
vCu, unblocked vol	475				788	232	
tC, single (s)	4.3				6.8	6.9	
tC, 2 stage (s)							
tF (s)	2.3				3.5	3.3	
p0 queue free %	97				99	97	
cM capacity (veh/h)	1029				322	776	
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	SB 1
Volume Total	33	258	258	232	232	11	28
Volume Left	33	0	0	0	0	0	2
Volume Right	0	0	0	0	0	11	26
cSH	1029	1700	1700	1700	1700	1700	705
Volume to Capacity	0.03	0.15	0.15	0.14	0.14	0.01	0.04
Queue Length 95th (ft)	2	0	0	0	0	0	3
Control Delay (s)	8.6	0.0	0.0	0.0	0.0	0.0	10.3
Lane LOS	A						B
Approach Delay (s)	0.5			0.0			10.3
Approach LOS							B
Intersection Summary							
Average Delay			0.5				
Intersection Capacity Utilization			28.3%		ICU Level of Service		A
Analysis Period (min)			15				

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	19	415	24	9	363	4	37	2	16	2	2	28
Future Volume (Veh/h)	19	415	24	9	363	4	37	2	16	2	2	28
Sign Control	Free			Free			Stop			Stop		
Grade	0%			0%			0%			0%		
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	21	461	27	10	403	4	41	2	18	2	2	31
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type	None			None								
Median storage (veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	407			488			972	944	474	945	953	403
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	407			488			972	944	474	945	953	403
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	98			99			81	99	97	99	99	95
cM capacity (veh/h)	1163			1086			217	257	594	230	254	652
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	SB 1						
Volume Total	21	488	413	4	61	35						
Volume Left	21	0	10	0	41	2						
Volume Right	0	27	0	4	18	31						
cSH	1163	1700	1086	1700	269	546						
Volume to Capacity	0.02	0.29	0.01	0.00	0.23	0.06						
Queue Length 95th (ft)	1	0	1	0	21	5						
Control Delay (s)	8.2	0.0	0.3	0.0	22.3	12.0						
Lane LOS	A		A		C	B						
Approach Delay (s)	0.3		0.3		22.3	12.0						
Approach LOS					C	B						
Intersection Summary												
Average Delay				2.0								
Intersection Capacity Utilization				42.8%	ICU Level of Service			A				
Analysis Period (min)				15								

Iron Horse Data Center TIA
9: Patrick Henry Hwy & Woodside Ln

2022 Existing - PM
HCM Unsignalized Intersection Capacity Analysis



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	143	287	256	14	26	117
Future Volume (Veh/h)	143	287	256	14	26	117
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	155	312	278	15	28	127
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						12
Median type		None	None			
Median storage veh						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	293				908	286
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	293				908	286
tC, single (s)	4.1				6.5	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.6	3.3
p0 queue free %	88				89	83
cM capacity (veh/h)	1280				262	756
Direction, Lane #	EB 1	EB 2	WB 1	SB 1		
Volume Total	155	312	293	155		
Volume Left	155	0	0	28		
Volume Right	0	0	15	127		
cSH	1280	1700	1700	923		
Volume to Capacity	0.12	0.18	0.17	0.17		
Queue Length 95th (ft)	10	0	0	15		
Control Delay (s)	8.2	0.0	0.0	12.5		
Lane LOS	A			B		
Approach Delay (s)	2.7		0.0	12.5		
Approach LOS				B		
Intersection Summary						
Average Delay			3.5			
Intersection Capacity Utilization			35.6%	ICU Level of Service		A
Analysis Period (min)			15			

Iron Horse Data Center TIA
10: Goddins Hill Rd & Patrick Henry Hwy

2022 Existing - PM
HCM Unsignalized Intersection Capacity Analysis

	→	↘	↙	←	↖	↗
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑	↗		↖	↘	
Traffic Volume (veh/h)	252	29	31	206	28	57
Future Volume (Veh/h)	252	29	31	206	28	57
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88
Hourly flow rate (vph)	286	33	35	234	32	65
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume				319	590	286
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol				319	590	286
tC, single (s)				4.1	6.4	6.2
tC, 2 stage (s)						
tF (s)				2.2	3.5	3.3
p0 queue free %				97	93	91
cM capacity (veh/h)				1252	460	758
Direction, Lane #	EB 1	EB 2	WB 1	NB 1		
Volume Total	286	33	269	97		
Volume Left	0	0	35	32		
Volume Right	0	33	0	65		
cSH	1700	1700	1252	625		
Volume to Capacity	0.17	0.02	0.03	0.16		
Queue Length 95th (ft)	0	0	2	14		
Control Delay (s)	0.0	0.0	1.3	11.8		
Lane LOS				A	B	
Approach Delay (s)	0.0		1.3	11.8		
Approach LOS				B		
Intersection Summary						
Average Delay			2.2			
Intersection Capacity Utilization			40.9%	ICU Level of Service		A
Analysis Period (min)			15			

Intersection: 1: Washington Hwy & England St

Movement	EB	EB	EB	EB	WB	WB	WB	NB	NB	NB	SB	SB
Directions Served	L	T	T	R	L	T	R	L	T	T	L	T
Maximum Queue (ft)	178	203	215	75	234	543	27	262	227	214	256	262
Average Queue (ft)	77	101	113	25	106	209	1	127	147	127	139	148
95th Queue (ft)	145	170	189	54	194	431	27	218	215	200	234	231
Link Distance (ft)		1170			891	891	891		1257	1257		1361
Upstream Blk Time (%)						0						
Queuing Penalty (veh)						0						
Storage Bay Dist (ft)	290		340	340				350			320	
Storage Blk Time (%)	0	0									0	0
Queuing Penalty (veh)	0	0									0	0

Intersection: 1: Washington Hwy & England St

Movement	SB	SB
Directions Served	T	R
Maximum Queue (ft)	265	140
Average Queue (ft)	139	63
95th Queue (ft)	231	141
Link Distance (ft)	1361	
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		140
Storage Blk Time (%)	9	0
Queuing Penalty (veh)	8	1

Intersection: 2: Cottage Green Dr & England St

Movement	EB	EB	EB	EB	WB	WB	WB	WB	WB	NB	NB	NB
Directions Served	L	T	T	TR	L	L	T	T	TR	L	T	R
Maximum Queue (ft)	71	137	153	216	64	93	196	218	223	100	100	61
Average Queue (ft)	26	63	77	113	12	36	57	84	75	35	41	27
95th Queue (ft)	61	119	136	186	42	75	143	179	180	80	88	56
Link Distance (ft)		891	891	891			1075	1075	1075	954	954	
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (ft)	235				260	260						170
Storage Blk Time (%)							0					
Queuing Penalty (veh)							0					

Intersection: 2: Cottage Green Dr & England St

Movement	SB	SB
Directions Served	L	TR
Maximum Queue (ft)	154	279
Average Queue (ft)	120	82
95th Queue (ft)	174	209
Link Distance (ft)		803
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)	155	
Storage Blk Time (%)	8	1
Queuing Penalty (veh)	6	1

Intersection: 3: Hill Carter Pkwy & England St

Movement	EB	EB	EB	EB	EB	WB	WB	WB	WB	WB	NB	NB
Directions Served	L	T	T	T	R	L	L	T	T	TR	L	LT
Maximum Queue (ft)	97	233	357	424	200	139	129	197	203	256	149	172
Average Queue (ft)	39	121	176	241	108	76	69	102	113	129	47	90
95th Queue (ft)	79	201	297	384	244	121	115	181	185	221	113	151
Link Distance (ft)		1075	1075	1075		214	214	214	214	214		920
Upstream Blk Time (%)								0	0	1		
Queuing Penalty (veh)								0	0	2		
Storage Bay Dist (ft)	325				200						220	
Storage Blk Time (%)				11	1							0
Queuing Penalty (veh)				15	2							0

Intersection: 3: Hill Carter Pkwy & England St

Movement	NB	NB	SB	SB	SB
Directions Served	T	R	L	T	TR
Maximum Queue (ft)	58	184	181	52	44
Average Queue (ft)	3	80	67	10	11
95th Queue (ft)	26	148	142	34	31
Link Distance (ft)	920			976	976
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (ft)		325	290		
Storage Blk Time (%)			0		
Queuing Penalty (veh)			0		

Intersection: 4: S. Carter St/N. Carter St & England St

Movement	EB	EB	WB	B41	B41	NB	SB
Directions Served	T	TR	TR	T	T	R	R
Maximum Queue (ft)	34	64	9	5	10	61	27
Average Queue (ft)	1	4	0	0	0	23	5
95th Queue (ft)	21	38	9	5	8	52	21
Link Distance (ft)	214	214	275	269	269	315	396
Upstream Blk Time (%)		0					
Queuing Penalty (veh)		0					
Storage Bay Dist (ft)							
Storage Blk Time (%)							
Queuing Penalty (veh)							

Intersection: 5: I-95 SB Ramp & England St/Patrick Henry Hwy

Movement	WB	SB
Directions Served	L	LT
Maximum Queue (ft)	85	80
Average Queue (ft)	34	21
95th Queue (ft)	67	59
Link Distance (ft)	207	
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		150
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 6: I-95 NB Ramp & Patrick Henry Hwy

Movement	EB	WB
Directions Served	L	T
Maximum Queue (ft)	135	2
Average Queue (ft)	34	0
95th Queue (ft)	86	0
Link Distance (ft)		227
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)	435	
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 7: Patrick Henry Hwy & Telcourt Rd

Movement	EB	WB	WB	SB
Directions Served	L	T	R	LR
Maximum Queue (ft)	56	2	21	40
Average Queue (ft)	10	0	2	18
95th Queue (ft)	38	2	13	43
Link Distance (ft)		240		754
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)	100		50	
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 8: Mt. Hermon Rd/Frances Rd & Patrick Henry Hwy

Movement	EB	WB	NB	SB
Directions Served	L	LT	LTR	LTR
Maximum Queue (ft)	29	73	64	35
Average Queue (ft)	4	5	29	15
95th Queue (ft)	19	37	54	34
Link Distance (ft)	240	2189	1204	994
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)		0		
Queuing Penalty (veh)		0		

Intersection: 9: Patrick Henry Hwy & Woodside Ln

Movement	EB	SB	SB
Directions Served	L	L	R
Maximum Queue (ft)	60	53	70
Average Queue (ft)	22	18	38
95th Queue (ft)	53	46	61
Link Distance (ft)		1059	
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)	300		290
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 10: Goddins Hill Rd & Patrick Henry Hwy

Movement	WB	NB
Directions Served	LT	LR
Maximum Queue (ft)	34	48
Average Queue (ft)	4	21
95th Queue (ft)	22	36
Link Distance (ft)	1631	1350
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Network Summary

Network wide Queuing Penalty: 35

Appendix H

Capacity Analysis for 2033 Background Conditions

													
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Group Flow (vph)	93	471	174	178	485	389	182	235	149	278	411	91	
v/c Ratio	0.36	0.50	0.29	0.46	0.82	0.26	0.57	0.44	0.11	0.78	0.73	0.19	
Control Delay	20.2	33.4	2.0	17.0	35.4	1.5	31.2	40.8	0.1	43.4	48.2	0.8	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay	20.2	33.4	2.0	17.0	35.4	1.5	31.2	40.8	0.1	43.4	48.2	0.8	
Queue Length 50th (ft)	33	136	0	23	308	12	81	71	0	134	132	0	
Queue Length 95th (ft)	63	187	11	67	#487	46	135	109	0	#240	185	0	
Internal Link Dist (ft)	1151			901			1233			1319			
Turn Bay Length (ft)	290		340				350		400		320		140
Base Capacity (vph)	292	939	600	403	588	1495	329	549	1417	357	570	490	
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0	
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0	
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0	
Reduced v/c Ratio	0.32	0.50	0.29	0.44	0.82	0.26	0.55	0.43	0.11	0.78	0.72	0.19	

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Iron Horse Data Center TIA
1: Washington Hwy & England St

2033 Background - AM
HCM Signalized Intersection Capacity Analysis

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	86	433	160	164	446	358	167	216	137	256	378	84
Future Volume (vph)	86	433	160	164	446	358	167	216	137	256	378	84
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	9.3	9.3	9.3	9.3	9.3	4.0	8.4	8.4	4.0	8.4	8.4	8.4
Lane Util. Factor	1.00	0.95	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1687	3471	1538	1736	1863	1495	1736	3312	1417	1641	3374	1615
Flt Permitted	0.21	1.00	1.00	0.44	1.00	1.00	0.42	1.00	1.00	0.61	1.00	1.00
Satd. Flow (perm)	380	3471	1538	804	1863	1495	767	3312	1417	1046	3374	1615
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	93	471	174	178	485	389	182	235	149	278	411	91
RTOR Reduction (vph)	0	0	127	0	0	0	0	0	0	0	0	76
Lane Group Flow (vph)	93	471	47	178	485	389	182	235	149	278	411	15
Heavy Vehicles (%)	7%	4%	5%	4%	2%	8%	4%	9%	14%	10%	7%	0%
Turn Type	D.P+P	NA	Perm	D.P+P	NA	Free	D.P+P	NA	Free	D.P+P	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	8		4	4		Free	6		Free	2		6
Actuated Green, G (s)	37.0	27.0	27.0	37.0	29.7	100.0	27.6	16.0	100.0	27.6	16.7	16.7
Effective Green, g (s)	37.0	27.0	27.0	37.0	29.7	100.0	27.6	16.0	100.0	27.6	16.7	16.7
Actuated g/C Ratio	0.37	0.27	0.27	0.37	0.30	1.00	0.28	0.16	1.00	0.28	0.17	0.17
Clearance Time (s)	9.3	9.3	9.3	9.3	9.3		8.4	8.4		8.4	8.4	8.4
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	236	937	415	390	553	1495	317	529	1417	357	563	269
v/s Ratio Prot	0.03	0.14		c0.05	c0.26		0.06	0.07		c0.09	0.12	
v/s Ratio Perm	0.12		0.03	0.12		c0.26	0.10		0.11	c0.12		0.01
v/c Ratio	0.39	0.50	0.11	0.46	0.88	0.26	0.57	0.44	0.11	0.78	0.73	0.06
Uniform Delay, d1	22.6	30.8	27.5	22.1	33.4	0.0	29.3	38.0	0.0	31.7	39.5	35.0
Progression Factor	1.00	1.00	1.00	0.78	0.59	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	1.1	1.9	0.6	0.8	17.2	0.4	2.5	0.6	0.1	10.3	4.8	0.1
Delay (s)	23.6	32.8	28.0	18.1	37.0	0.4	31.8	38.6	0.1	42.0	44.4	35.1
Level of Service	C	C	C	B	D	A	C	D	A	D	D	D
Approach Delay (s)		30.5			20.3			26.3			42.4	
Approach LOS		C			C			C			D	
Intersection Summary												
HCM 2000 Control Delay			29.3			HCM 2000 Level of Service				C		
HCM 2000 Volume to Capacity ratio			0.82									
Actuated Cycle Length (s)			100.0			Sum of lost time (s)				35.4		
Intersection Capacity Utilization			84.4%			ICU Level of Service				E		
Analysis Period (min)			15									
c Critical Lane Group												



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	14	825	47	1025	26	5	15	98	40
v/c Ratio	0.13	0.28	0.22	0.31	0.22	0.05	0.04	0.51	0.20
Control Delay	56.1	17.6	76.7	2.0	47.7	43.0	0.2	50.7	24.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	56.1	17.6	76.7	2.0	47.7	43.0	0.2	50.7	24.2
Queue Length 50th (ft)	9	152	16	2	16	3	0	60	10
Queue Length 95th (ft)	m13	139	37	38	42	14	0	107	40
Internal Link Dist (ft)		901		1090		942			790
Turn Bay Length (ft)	235		260				170	155	
Base Capacity (vph)	236	2958	391	3343	150	139	384	201	210
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.06	0.28	0.12	0.31	0.17	0.04	0.04	0.49	0.19

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

Iron Horse Data Center TIA
2: Cottage Green Dr & England St

2033 Background - AM
HCM Signalized Intersection Capacity Analysis

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	13	750	25	44	919	44	24	5	14	92	16	22
Future Volume (vph)	13	750	25	44	919	44	24	5	14	92	16	22
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.7	4.9		7.6	5.1		7.9	7.9	7.9	7.5	7.5	
Lane Util. Factor	1.00	0.91		0.97	0.91		1.00	1.00	1.00	1.00	1.00	
Frt	1.00	1.00		1.00	0.99		1.00	1.00	0.85	1.00	0.91	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1656	4763		3155	4931		1641	1520	1615	1736	1640	
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	1656	4763		3155	4931		1641	1520	1615	1736	1640	
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	14	798	27	47	978	47	26	5	15	98	17	23
RTOR Reduction (vph)	0	3	0	0	4	0	0	0	14	0	21	0
Lane Group Flow (vph)	14	822	0	47	1021	0	26	5	1	98	19	0
Heavy Vehicles (%)	9%	8%	19%	11%	4%	14%	10%	25%	0%	4%	7%	5%
Turn Type	Prot	NA		Prot	NA		Split	NA	Perm	Split	NA	
Protected Phases	5	2		1	6		3	3		4	4	
Permitted Phases									3			
Actuated Green, G (s)	1.6	53.0		4.6	56.7		4.8	4.8	4.8	9.7	9.7	
Effective Green, g (s)	1.6	53.0		4.6	56.7		4.8	4.8	4.8	9.7	9.7	
Actuated g/C Ratio	0.02	0.53		0.05	0.57		0.05	0.05	0.05	0.10	0.10	
Clearance Time (s)	6.7	4.9		7.6	5.1		7.9	7.9	7.9	7.5	7.5	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	26	2524		145	2795		78	72	77	168	159	
v/s Ratio Prot	0.01	c0.17		0.01	c0.21		c0.02	0.00		c0.06	0.01	
v/s Ratio Perm									0.00			
v/c Ratio	0.54	0.33		0.32	0.37		0.33	0.07	0.01	0.58	0.12	
Uniform Delay, d1	48.8	13.3		46.2	11.8		46.1	45.5	45.3	43.2	41.3	
Progression Factor	1.23	1.23		1.71	0.16		1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	17.3	0.3		1.2	0.3		2.5	0.4	0.0	5.1	0.3	
Delay (s)	77.5	16.7		80.2	2.3		48.6	45.9	45.4	48.3	41.6	
Level of Service	E	B		F	A		D	D	D	D	D	
Approach Delay (s)		17.7			5.7			47.2			46.4	
Approach LOS		B			A			D			D	
Intersection Summary												
HCM 2000 Control Delay			14.1			HCM 2000 Level of Service				B		
HCM 2000 Volume to Capacity ratio			0.41									
Actuated Cycle Length (s)			100.0			Sum of lost time (s)			27.9			
Intersection Capacity Utilization			41.2%			ICU Level of Service			A			
Analysis Period (min)			15									
c Critical Lane Group												

										
Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	42	778	98	219	970	44	53	158	94	37
v/c Ratio	0.31	0.42	0.13	0.54	0.41	0.32	0.20	0.40	0.63	0.10
Control Delay	36.9	28.4	4.7	46.2	20.8	49.4	44.3	3.0	59.8	24.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	36.9	28.4	4.7	46.2	20.8	49.4	44.3	3.0	59.8	24.6
Queue Length 50th (ft)	28	156	14	68	167	29	17	0	57	5
Queue Length 95th (ft)	m48	239	28	104	231	68	37	0	109	20
Internal Link Dist (ft)		1090			235		916			977
Turn Bay Length (ft)	325		200	550		220		325	290	
Base Capacity (vph)	170	1907	788	409	2390	148	288	402	182	428
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.25	0.41	0.12	0.54	0.41	0.30	0.18	0.39	0.52	0.09
Intersection Summary										
m Volume for 95th percentile queue is metered by upstream signal.										

Iron Horse Data Center TIA
3: Hill Carter Pkwy & England St

2033 Background - AM
HCM Signalized Intersection Capacity Analysis

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		  		 	  			 			 	
Traffic Volume (vph)	40	747	94	210	926	5	84	9	152	90	19	16
Future Volume (vph)	40	747	94	210	926	5	84	9	152	90	19	16
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.6	5.7	5.7	8.5	5.8		8.9	8.9	8.9	8.9	8.9	
Lane Util. Factor	1.00	0.91	1.00	0.97	0.91		0.91	0.91	1.00	1.00	0.95	
Frt	1.00	1.00	0.85	1.00	1.00		1.00	1.00	0.85	1.00	0.93	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	0.96	1.00	0.95	1.00	
Satd. Flow (prot)	1492	4803	1599	3367	4931		1626	3160	1404	1203	2729	
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	0.96	1.00	0.95	1.00	
Satd. Flow (perm)	1492	4803	1599	3367	4931		1626	3160	1404	1203	2729	
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	42	778	98	219	965	5	88	9	158	94	20	17
RTOR Reduction (vph)	0	0	65	0	1	0	0	0	145	0	15	0
Lane Group Flow (vph)	42	778	33	219	969	0	44	53	13	94	22	0
Heavy Vehicles (%)	21%	8%	1%	4%	5%	25%	1%	25%	15%	50%	25%	21%
Turn Type	Prot	NA	Perm	Prot	NA		Split	NA	Perm	Split	NA	
Protected Phases	5	2		1	6		3	3		4	4	
Permitted Phases			2						3			
Actuated Green, G (s)	5.8	33.6	33.6	15.1	43.7		8.5	8.5	8.5	10.8	10.8	
Effective Green, g (s)	5.8	33.6	33.6	15.1	43.7		8.5	8.5	8.5	10.8	10.8	
Actuated g/C Ratio	0.06	0.34	0.34	0.15	0.44		0.08	0.08	0.08	0.11	0.11	
Clearance Time (s)	7.6	5.7	5.7	8.5	5.8		8.9	8.9	8.9	8.9	8.9	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	86	1613	537	508	2154		138	268	119	129	294	
v/s Ratio Prot	0.03	c0.16		0.07	c0.20		c0.03	0.02		c0.08	0.01	
v/s Ratio Perm			0.02						0.01			
v/c Ratio	0.49	0.48	0.06	0.43	0.45		0.32	0.20	0.11	0.73	0.07	
Uniform Delay, d1	45.7	26.3	22.5	38.5	19.7		43.0	42.6	42.3	43.2	40.1	
Progression Factor	0.73	1.11	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	4.2	1.0	0.2	0.6	0.7		1.3	0.4	0.4	18.5	0.1	
Delay (s)	37.6	30.2	22.7	39.1	20.4		44.4	42.9	42.7	61.7	40.2	
Level of Service	D	C	C	D	C		D	D	D	E	D	
Approach Delay (s)		29.8			23.9			43.0			55.6	
Approach LOS		C			C			D			E	
Intersection Summary												
HCM 2000 Control Delay			29.7			HCM 2000 Level of Service			C			
HCM 2000 Volume to Capacity ratio			0.53									
Actuated Cycle Length (s)			100.0			Sum of lost time (s)			32.0			
Intersection Capacity Utilization			54.9%			ICU Level of Service			A			
Analysis Period (min)			15									
c Critical Lane Group												

Iron Horse Data Center TIA
4: S. Carter St/N. Carter St & England St

2033 Background - AM
HCM Unsignalized Intersection Capacity Analysis

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↑			↑↑↑				↗			↗
Traffic Volume (veh/h)	0	946	66	0	1116	57	0	0	69	0	0	21
Future Volume (Veh/h)	0	946	66	0	1116	57	0	0	69	0	0	21
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Hourly flow rate (vph)	0	1006	70	0	1187	61	0	0	73	0	0	22
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type	None			None								
Median storage veh												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	1248			1076			1459	2289	370	1626	2294	426
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1248			1076			1459	2289	370	1626	2294	426
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	7.1
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.4
p0 queue free %	100			100			100	100	88	100	100	96
cM capacity (veh/h)	565			656			89	40	627	61	40	552
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	NB 1	SB 1				
Volume Total	402	402	271	475	475	298	73	22				
Volume Left	0	0	0	0	0	0	0	0				
Volume Right	0	0	70	0	0	61	73	22				
cSH	1700	1700	1700	1700	1700	1700	627	552				
Volume to Capacity	0.24	0.24	0.16	0.28	0.28	0.18	0.12	0.04				
Queue Length 95th (ft)	0	0	0	0	0	0	10	3				
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	11.5	11.8				
Lane LOS							B	B				
Approach Delay (s)	0.0			0.0			11.5	11.8				
Approach LOS							B	B				
Intersection Summary												
Average Delay			0.5									
Intersection Capacity Utilization			32.8%	ICU Level of Service				A				
Analysis Period (min)			15									

Iron Horse Data Center TIA
5: I-95 SB Ramp & England St/Patrick Henry Hwy

2033 Background - AM
HCM Unsignalized Intersection Capacity Analysis

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑	↑	↑	↑↑						↩	↩
Traffic Volume (veh/h)	0	382	707	225	975	0	0	0	0	4	4	234
Future Volume (Veh/h)	0	382	707	225	975	0	0	0	0	4	4	234
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.88	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	415	768	245	1060	0	0	0	0	4	4	254
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type	None			None								
Median storage veh												
Upstream signal (ft)	976											
pX, platoon unblocked												
vC, conflicting volume	1060			415			1437	1965	208	1758	1965	530
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1060			415			1437	1965	208	1758	1965	530
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	7.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.5
p0 queue free %	100			79			100	100	100	91	92	44
cM capacity (veh/h)	665			1140			33	50	805	46	50	456
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	SB 1	SB 2				
Volume Total	208	208	768	245	530	530	8	254				
Volume Left	0	0	0	245	0	0	4	0				
Volume Right	0	0	768	0	0	0	0	254				
cSH	1700	1700	1700	1140	1700	1700	48	456				
Volume to Capacity	0.12	0.12	0.45	0.21	0.31	0.31	0.17	0.56				
Queue Length 95th (ft)	0	0	0	20	0	0	14	83				
Control Delay (s)	0.0	0.0	0.0	9.0	0.0	0.0	94.5	22.3				
Lane LOS				A			F	C				
Approach Delay (s)	0.0			1.7			24.5					
Approach LOS							C					
Intersection Summary												
Average Delay			3.1									
Intersection Capacity Utilization			69.6%		ICU Level of Service					C		
Analysis Period (min)			15									

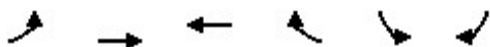
Iron Horse Data Center TIA
6: I-95 NB Ramp & Patrick Henry Hwy

2033 Background - AM
HCM Unsignalized Intersection Capacity Analysis

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		 			 							
Traffic Volume (veh/h)	160	226	0	0	477	25	0	0	147	0	0	727
Future Volume (Veh/h)	160	226	0	0	477	25	0	0	147	0	0	727
Sign Control		Free			Free			Yield			Yield	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Hourly flow rate (vph)	170	240	0	0	507	27	0	0	156	0	0	773
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage (veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	507			240			834	1087	120	967	1087	254
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	507			240			834	1087	120	967	1087	254
tC, single (s)	4.5			4.1			7.5	6.5	7.1	7.5	6.5	7.1
tC, 2 stage (s)												
tF (s)	2.4			2.2			3.5	4.0	3.4	3.5	4.0	3.4
p0 queue free %	82			100			0	100	82	100	100	0
cM capacity (veh/h)	938			1339			0	178	887	150	178	728
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	NB 1	SB 1				
Volume Total	170	120	120	254	254	27	156	773				
Volume Left	170	0	0	0	0	0	0	0				
Volume Right	0	0	0	0	0	27	156	773				
cSH	938	1700	1700	1700	1700	1700	887	728				
Volume to Capacity	0.18	0.07	0.07	0.15	0.15	0.02	0.18	1.06				
Queue Length 95th (ft)	16	0	0	0	0	0	16	502				
Control Delay (s)	9.7	0.0	0.0	0.0	0.0	0.0	9.9	74.4				
Lane LOS	A						A	F				
Approach Delay (s)	4.0			0.0			9.9	74.4				
Approach LOS							A	F				
Intersection Summary												
Average Delay			32.4									
Intersection Capacity Utilization			64.9%			ICU Level of Service			C			
Analysis Period (min)			15									

Iron Horse Data Center TIA
7: Patrick Henry Hwy & Telcourt Rd

2033 Background - AM
HCM Unsignalized Intersection Capacity Analysis



Movement	EBL	EBT	WBT	WBR	SBL	SBR	
Lane Configurations							
Traffic Volume (veh/h)	39	373	479	11	5	6	
Future Volume (Veh/h)	39	373	479	11	5	6	
Sign Control		Free	Free		Stop		
Grade		0%	0%		0%		
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	
Hourly flow rate (vph)	41	393	504	12	5	6	
Pedestrians							
Lane Width (ft)							
Walking Speed (ft/s)							
Percent Blockage							
Right turn flare (veh)							
Median type		None	None				
Median storage veh)							
Upstream signal (ft)							
pX, platoon unblocked							
vC, conflicting volume	516				782	252	
vC1, stage 1 conf vol							
vC2, stage 2 conf vol							
vCu, unblocked vol	516				782	252	
tC, single (s)	4.5				6.8	6.9	
tC, 2 stage (s)							
tF (s)	2.4				3.5	3.3	
p0 queue free %	96				98	99	
cM capacity (veh/h)	924				320	754	
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	SB 1
Volume Total	41	196	196	252	252	12	11
Volume Left	41	0	0	0	0	0	5
Volume Right	0	0	0	0	0	12	6
cSH	924	1700	1700	1700	1700	1700	467
Volume to Capacity	0.04	0.12	0.12	0.15	0.15	0.01	0.02
Queue Length 95th (ft)	3	0	0	0	0	0	2
Control Delay (s)	9.1	0.0	0.0	0.0	0.0	0.0	12.9
Lane LOS	A						B
Approach Delay (s)	0.9			0.0			12.9
Approach LOS							B
Intersection Summary							
Average Delay			0.5				
Intersection Capacity Utilization			29.9%		ICU Level of Service		A
Analysis Period (min)			15				

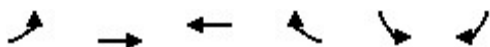
Iron Horse Data Center TIA
8: Mt. Hermon Rd/Frances Rd & Patrick Henry Hwy

2033 Background - AM
HCM Unsignalized Intersection Capacity Analysis

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	48	304	25	15	413	12	33	1	7	4	5	44
Future Volume (Veh/h)	48	304	25	15	413	12	33	1	7	4	5	44
Sign Control	Free			Free			Stop			Stop		
Grade	0%			0%			0%			0%		
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	52	330	27	16	449	13	36	1	8	4	5	48
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type	None			None								
Median storage (veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	462			357			979	942	344	924	942	449
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	462			357			979	942	344	924	942	449
tC, single (s)	4.1			4.1			7.2	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.6	4.0	3.3	3.5	4.0	3.3
p0 queue free %	95			99			81	100	99	98	98	92
cM capacity (veh/h)	1110			1213			191	249	704	237	249	614
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	SB 1						
Volume Total	52	357	465	13	45	57						
Volume Left	52	0	16	0	36	4						
Volume Right	0	27	0	13	8	48						
cSH	1110	1700	1213	1700	221	495						
Volume to Capacity	0.05	0.21	0.01	0.01	0.20	0.12						
Queue Length 95th (ft)	4	0	1	0	19	10						
Control Delay (s)	8.4	0.0	0.4	0.0	25.4	13.2						
Lane LOS	A		A		D	B						
Approach Delay (s)	1.1		0.4		25.4	13.2						
Approach LOS					D	B						
Intersection Summary												
Average Delay				2.6								
Intersection Capacity Utilization				55.5%	ICU Level of Service			B				
Analysis Period (min)				15								

Iron Horse Data Center TIA
9: Patrick Henry Hwy & Woodside Ln

2033 Background - AM
HCM Unsignalized Intersection Capacity Analysis



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	72	239	289	20	64	154
Future Volume (Veh/h)	72	239	289	20	64	154
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96
Hourly flow rate (vph)	75	249	301	21	67	160
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						12
Median type		None	None			
Median storage veh						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	322				710	312
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	322				710	312
tC, single (s)	4.1				6.5	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.6	3.3
p0 queue free %	94				82	78
cM capacity (veh/h)	1232				369	731
Direction, Lane #	EB 1	EB 2	WB 1	SB 1		
Volume Total	75	249	322	227		
Volume Left	75	0	0	67		
Volume Right	0	0	21	160		
cSH	1232	1700	1700	1037		
Volume to Capacity	0.06	0.15	0.19	0.22		
Queue Length 95th (ft)	5	0	0	21		
Control Delay (s)	8.1	0.0	0.0	13.0		
Lane LOS	A			B		
Approach Delay (s)	1.9		0.0	13.0		
Approach LOS				B		
Intersection Summary						
Average Delay			4.1			
Intersection Capacity Utilization			34.0%	ICU Level of Service		A
Analysis Period (min)			15			

Iron Horse Data Center TIA
10: Goddins Hill Rd & Patrick Henry Hwy

2033 Background - AM
HCM Unsignalized Intersection Capacity Analysis

	→	↘	↙	←	↖	↗
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑	↗		↖	↘	
Traffic Volume (veh/h)	210	65	98	234	31	27
Future Volume (Veh/h)	210	65	98	234	31	27
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	228	71	107	254	34	29
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			299		696	228
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			299		696	228
tC, single (s)			4.1		6.4	6.3
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.4
p0 queue free %			92		91	96
cM capacity (veh/h)			1268		371	794
Direction, Lane #	EB 1	EB 2	WB 1	NB 1		
Volume Total	228	71	361	63		
Volume Left	0	0	107	34		
Volume Right	0	71	0	29		
cSH	1700	1700	1268	491		
Volume to Capacity	0.13	0.04	0.08	0.13		
Queue Length 95th (ft)	0	0	7	11		
Control Delay (s)	0.0	0.0	3.0	13.4		
Lane LOS			A	B		
Approach Delay (s)	0.0		3.0	13.4		
Approach LOS				B		
Intersection Summary						
Average Delay			2.6			
Intersection Capacity Utilization			42.2%	ICU Level of Service		A
Analysis Period (min)			15			

Intersection: 1: Washington Hwy & England St

Movement	EB	EB	EB	EB	WB	WB	WB	NB	NB	NB	SB	SB
Directions Served	L	T	T	R	L	T	R	L	T	T	L	T
Maximum Queue (ft)	124	202	207	108	205	456	27	178	169	148	294	297
Average Queue (ft)	50	97	114	34	85	202	1	83	90	60	151	140
95th Queue (ft)	97	168	183	76	157	375	28	146	153	127	260	241
Link Distance (ft)		1170			891	891	891		1257	1257		1361
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (ft)	290		340	340				350			320	
Storage Blk Time (%)		0									0	0
Queuing Penalty (veh)		0									0	0

Intersection: 1: Washington Hwy & England St

Movement	SB	SB
Directions Served	T	R
Maximum Queue (ft)	238	140
Average Queue (ft)	120	51
95th Queue (ft)	209	123
Link Distance (ft)	1361	
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		140
Storage Blk Time (%)	5	0
Queuing Penalty (veh)	4	0

Intersection: 2: Cottage Green Dr & England St

Movement	EB	EB	EB	EB	WB	WB	WB	WB	WB	NB	NB	NB
Directions Served	L	T	T	TR	L	L	T	T	TR	L	T	R
Maximum Queue (ft)	53	149	161	215	39	77	130	185	199	66	58	35
Average Queue (ft)	15	58	64	104	5	27	19	43	39	22	6	11
95th Queue (ft)	43	126	137	195	24	63	73	125	127	54	30	35
Link Distance (ft)		891	891	891			1075	1075	1075	954	954	
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (ft)	235				260	260						170
Storage Blk Time (%)												
Queuing Penalty (veh)												

Intersection: 2: Cottage Green Dr & England St

Movement	SB	SB
Directions Served	L	TR
Maximum Queue (ft)	136	116
Average Queue (ft)	67	31
95th Queue (ft)	119	77
Link Distance (ft)		803
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)	155	
Storage Blk Time (%)	0	0
Queuing Penalty (veh)	0	0

Intersection: 3: Hill Carter Pkwy & England St

Movement	EB	EB	EB	EB	EB	WB	WB	WB	WB	WB	NB	NB
Directions Served	L	T	T	T	R	L	L	T	T	TR	L	LT
Maximum Queue (ft)	115	175	342	421	200	144	127	202	214	234	58	115
Average Queue (ft)	43	83	132	196	62	72	67	106	129	130	14	48
95th Queue (ft)	93	153	260	345	178	118	113	182	207	215	42	92
Link Distance (ft)		1075	1075	1075		214	214	214	214	214		920
Upstream Blk Time (%)								0	0	1		
Queuing Penalty (veh)								0	0	1		
Storage Bay Dist (ft)	325				200						220	
Storage Blk Time (%)				7	0							
Queuing Penalty (veh)				7	1							

Intersection: 3: Hill Carter Pkwy & England St

Movement	NB	NB	SB	SB	SB
Directions Served	T	R	L	T	TR
Maximum Queue (ft)	19	152	214	61	52
Average Queue (ft)	1	60	93	13	12
95th Queue (ft)	11	117	183	43	38
Link Distance (ft)	920			976	976
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (ft)		325	290		
Storage Blk Time (%)			0		
Queuing Penalty (veh)			0		

Intersection: 4: S. Carter St/N. Carter St & England St

Movement	EB	EB	WB	WB	B41	NB	SB
Directions Served	T	TR	T	TR	T	R	R
Maximum Queue (ft)	6	49	3	7	15	68	63
Average Queue (ft)	0	3	0	0	1	32	19
95th Queue (ft)	6	24	3	6	12	57	48
Link Distance (ft)	214	214	275	275	269	315	396
Upstream Blk Time (%)							
Queuing Penalty (veh)							
Storage Bay Dist (ft)							
Storage Blk Time (%)							
Queuing Penalty (veh)							

Intersection: 5: I-95 SB Ramp & England St/Patrick Henry Hwy

Movement	EB	EB	B41	WB	B52	SB
Directions Served	T	R	T	L	T	LT
Maximum Queue (ft)	13	13	3	73	35	30
Average Queue (ft)	0	0	0	33	1	7
95th Queue (ft)	10	9	3	64	32	26
Link Distance (ft)	269	269	275	207	468	
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)						150
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 6: I-95 NB Ramp & Patrick Henry Hwy

Movement	EB	WB
Directions Served	L	T
Maximum Queue (ft)	110	2
Average Queue (ft)	34	0
95th Queue (ft)	80	1
Link Distance (ft)		189
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)	435	
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 7: Patrick Henry Hwy & Telcourt Rd

Movement	EB	EB	B61	WB	WB	SB
Directions Served	L	T	T	T	R	LR
Maximum Queue (ft)	60	3	6	2	27	33
Average Queue (ft)	13	0	0	0	2	9
95th Queue (ft)	45	3	6	2	15	32
Link Distance (ft)		286	189	242		754
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)	100				50	
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 8: Mt. Hermon Rd/Frances Rd & Patrick Henry Hwy

Movement	EB	EB	WB	NB	SB
Directions Served	L	TR	LT	LTR	LTR
Maximum Queue (ft)	39	2	55	62	53
Average Queue (ft)	11	0	5	25	24
95th Queue (ft)	32	2	27	53	45
Link Distance (ft)	242	242	1048	603	993
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (ft)					
Storage Blk Time (%)					
Queuing Penalty (veh)					

Intersection: 9: Patrick Henry Hwy & Woodside Ln

Movement	EB	WB	SB	SB
Directions Served	L	TR	L	R
Maximum Queue (ft)	50	5	76	86
Average Queue (ft)	15	0	35	46
95th Queue (ft)	41	5	63	72
Link Distance (ft)		463	1062	
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)	300		290	
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 10: Goddins Hill Rd & Patrick Henry Hwy

Movement	WB	NB
Directions Served	LT	LR
Maximum Queue (ft)	67	54
Average Queue (ft)	17	20
95th Queue (ft)	48	41
Link Distance (ft)	2248	1612
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Network Summary

Network wide Queuing Penalty: 15

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	165	508	146	253	514	281	286	502	252	309	503	114
v/c Ratio	0.62	0.51	0.24	0.64	0.92	0.19	0.85	0.89	0.16	0.93	0.87	0.26
Control Delay	31.2	38.5	1.9	34.7	52.7	0.3	52.6	67.7	0.2	65.1	65.5	1.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	31.2	38.5	1.9	34.7	52.7	0.3	52.6	67.7	0.2	65.1	65.5	1.4
Queue Length 50th (ft)	72	176	0	56	400	0	162	201	0	178	202	0
Queue Length 95th (ft)	125	232	11	208	#590	0	#290	#292	0	#342	#295	0
Internal Link Dist (ft)	1151			901			1233			1319		
Turn Bay Length (ft)	290	340			350			400	320	140		
Base Capacity (vph)	308	1001	598	408	556	1509	345	578	1553	334	578	446
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.54	0.51	0.24	0.62	0.92	0.19	0.83	0.87	0.16	0.93	0.87	0.26

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Iron Horse Data Center TIA
1: Washington Hwy & England St

2033 Background - PM
HCM Signalized Intersection Capacity Analysis

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		 						 			 	
Traffic Volume (vph)	157	483	139	240	488	267	272	477	239	294	478	108
Future Volume (vph)	157	483	139	240	488	267	272	477	239	294	478	108
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	9.3	9.3	9.3	9.3	9.3	4.0	8.4	8.4	4.0	8.4	8.4	8.4
Lane Util. Factor	1.00	0.95	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1805	3539	1583	1719	1863	1509	1805	3539	1553	1770	3505	1599
Flt Permitted	0.15	1.00	1.00	0.39	1.00	1.00	0.26	1.00	1.00	0.25	1.00	1.00
Satd. Flow (perm)	291	3539	1583	700	1863	1509	490	3539	1553	466	3505	1599
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	165	508	146	253	514	281	286	502	252	309	503	114
RTOR Reduction (vph)	0	0	105	0	0	0	0	0	0	0	0	95
Lane Group Flow (vph)	165	508	41	253	514	281	286	502	252	309	503	19
Heavy Vehicles (%)	0%	2%	2%	5%	2%	7%	0%	2%	4%	2%	3%	1%
Turn Type	D.P+P	NA	Perm	D.P+P	NA	Free	D.P+P	NA	Free	D.P+P	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	8		4	4		Free	6		Free	2		6
Actuated Green, G (s)	47.8	34.0	34.0	47.8	35.9	120.0	36.8	19.2	120.0	36.8	19.8	19.8
Effective Green, g (s)	47.8	34.0	34.0	47.8	35.9	120.0	36.8	19.2	120.0	36.8	19.8	19.8
Actuated g/C Ratio	0.40	0.28	0.28	0.40	0.30	1.00	0.31	0.16	1.00	0.31	0.17	0.17
Clearance Time (s)	9.3	9.3	9.3	9.3	9.3		8.4	8.4		8.4	8.4	8.4
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	266	1002	448	396	557	1509	336	566	1553	334	578	263
v/s Ratio Prot	0.06	0.14		c0.07	c0.28		0.12	0.14		c0.14	0.14	
v/s Ratio Perm	0.19		0.03	0.18		c0.19	0.14		0.16	c0.15		0.01
v/c Ratio	0.62	0.51	0.09	0.64	0.92	0.19	0.85	0.89	0.16	0.93	0.87	0.07
Uniform Delay, d1	26.9	36.0	31.6	25.7	40.7	0.0	34.8	49.3	0.0	35.5	48.8	42.3
Progression Factor	1.00	1.00	1.00	1.31	0.68	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	4.4	1.8	0.4	3.2	22.3	0.3	18.3	15.5	0.2	30.5	13.4	0.1
Delay (s)	31.4	37.8	32.1	36.8	50.0	0.3	53.0	64.8	0.2	65.9	62.3	42.4
Level of Service	C	D	C	D	D	A	D	E	A	E	E	D
Approach Delay (s)		35.5			33.5			45.9			61.1	
Approach LOS		D			C			D			E	
Intersection Summary												
HCM 2000 Control Delay			44.0			HCM 2000 Level of Service				D		
HCM 2000 Volume to Capacity ratio			0.90									
Actuated Cycle Length (s)			120.0			Sum of lost time (s)			35.4			
Intersection Capacity Utilization			93.4%			ICU Level of Service			F			
Analysis Period (min)			15									
c Critical Lane Group												



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	35	966	71	1031	56	59	57	226	90
v/c Ratio	0.24	0.40	0.33	0.42	0.41	0.41	0.18	0.65	0.25
Control Delay	46.8	19.8	69.1	13.2	61.0	60.6	1.2	53.8	34.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	46.8	19.8	69.1	13.2	61.0	60.6	1.2	53.8	34.1
Queue Length 50th (ft)	23	132	23	66	42	44	0	163	48
Queue Length 95th (ft)	m49	m186	m38	175	83	86	0	239	92
Internal Link Dist (ft)		901		1090		942			790
Turn Bay Length (ft)	235		260				170	155	
Base Capacity (vph)	245	2470	385	2547	183	192	355	346	358
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.14	0.39	0.18	0.40	0.31	0.31	0.16	0.65	0.25

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

Iron Horse Data Center TIA
2: Cottage Green Dr & England St

2033 Background - PM
HCM Signalized Intersection Capacity Analysis

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		  			  						 	
Traffic Volume (vph)	34	895	33	68	850	140	54	57	55	217	58	29
Future Volume (vph)	34	895	33	68	850	140	54	57	55	217	58	29
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.7	4.9		7.6	5.1		7.9	7.9	7.9	7.5	7.5	
Lane Util. Factor	1.00	0.91		0.97	0.91		1.00	1.00	1.00	1.00	1.00	
Frt	1.00	0.99		1.00	0.98		1.00	1.00	0.85	1.00	0.95	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1805	5008		3213	4984		1805	1900	1583	1787	1781	
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	1805	5008		3213	4984		1805	1900	1583	1787	1781	
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	35	932	34	71	885	146	56	59	57	226	60	30
RTOR Reduction (vph)	0	3	0	0	17	0	0	0	53	0	14	0
Lane Group Flow (vph)	35	963	0	71	1014	0	56	59	4	226	76	0
Heavy Vehicles (%)	0%	3%	4%	9%	2%	1%	0%	0%	2%	1%	2%	0%
Turn Type	Prot	NA		Prot	NA		Split	NA	Perm	Split	NA	
Protected Phases	5	2		1	6		3	3		4	4	
Permitted Phases									3			
Actuated Green, G (s)	7.1	53.9		6.9	54.4		8.0	8.0	8.0	23.3	23.3	
Effective Green, g (s)	7.1	53.9		6.9	54.4		8.0	8.0	8.0	23.3	23.3	
Actuated g/C Ratio	0.06	0.45		0.06	0.45		0.07	0.07	0.07	0.19	0.19	
Clearance Time (s)	6.7	4.9		7.6	5.1		7.9	7.9	7.9	7.5	7.5	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	106	2249		184	2259		120	126	105	346	345	
v/s Ratio Prot	0.02	c0.19		0.02	c0.20		0.03	c0.03		c0.13	0.04	
v/s Ratio Perm									0.00			
v/c Ratio	0.33	0.43		0.39	0.45		0.47	0.47	0.04	0.65	0.22	
Uniform Delay, d1	54.2	22.5		54.5	22.5		53.9	54.0	52.4	44.6	40.7	
Progression Factor	0.86	0.83		1.23	0.56		1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	1.6	0.5		1.2	0.6		2.9	2.7	0.1	4.4	0.3	
Delay (s)	47.9	19.2		68.4	13.3		56.8	56.7	52.5	49.0	41.0	
Level of Service	D	B		E	B		E	E	D	D	D	
Approach Delay (s)		20.2			16.9			55.3			46.7	
Approach LOS		C			B			E			D	
Intersection Summary												
HCM 2000 Control Delay			24.3			HCM 2000 Level of Service				C		
HCM 2000 Volume to Capacity ratio			0.52									
Actuated Cycle Length (s)			120.0			Sum of lost time (s)			27.9			
Intersection Capacity Utilization			58.3%			ICU Level of Service			B			
Analysis Period (min)			15									
c Critical Lane Group												

										
Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	59	1039	170	266	978	110	123	323	86	48
v/c Ratio	0.41	0.49	0.22	0.62	0.41	0.62	0.35	0.70	0.61	0.13
Control Delay	46.8	29.5	10.5	56.2	23.0	66.7	52.2	14.2	68.0	26.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	46.8	29.5	10.5	56.2	23.0	66.7	52.2	14.2	68.0	26.9
Queue Length 50th (ft)	46	261	34	102	196	89	47	0	65	8
Queue Length 95th (ft)	m91	330	117	143	245	#205	85	#102	116	26
Internal Link Dist (ft)		1090			235		916			977
Turn Bay Length (ft)	325		200	550		220		325	290	
Base Capacity (vph)	256	2161	807	472	2359	179	358	465	190	482
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.23	0.48	0.21	0.56	0.41	0.61	0.34	0.69	0.45	0.10

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

Iron Horse Data Center TIA
3: Hill Carter Pkwy & England St

2033 Background - PM
HCM Signalized Intersection Capacity Analysis

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	55	966	158	247	856	54	205	12	300	80	20	24
Future Volume (vph)	55	966	158	247	856	54	205	12	300	80	20	24
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.6	5.7	5.7	8.5	5.8		8.9	8.9	8.9	8.9	8.9	
Lane Util. Factor	1.00	0.91	1.00	0.97	0.91		0.91	0.91	1.00	1.00	0.95	
Frt	1.00	1.00	0.85	1.00	0.99		1.00	1.00	0.85	1.00	0.92	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	0.96	1.00	0.95	1.00	
Satd. Flow (prot)	1770	5036	1599	3367	4756		1610	3218	1599	1337	3228	
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	0.96	1.00	0.95	1.00	
Satd. Flow (perm)	1770	5036	1599	3367	4756		1610	3218	1599	1337	3228	
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	59	1039	170	266	920	58	220	13	323	86	22	26
RTOR Reduction (vph)	0	0	104	0	5	0	0	0	287	0	24	0
Lane Group Flow (vph)	59	1039	66	266	973	0	110	123	36	86	24	0
Heavy Vehicles (%)	2%	3%	1%	4%	5%	57%	2%	10%	1%	35%	6%	0%
Turn Type	Prot	NA	Perm	Prot	NA		Split	NA	Perm	Split	NA	
Protected Phases	5	2		1	6		3	3		4	4	
Permitted Phases			2						3			
Actuated Green, G (s)	8.2	46.9	46.9	16.7	56.2		13.2	13.2	13.2	11.2	11.2	
Effective Green, g (s)	8.2	46.9	46.9	16.7	56.2		13.2	13.2	13.2	11.2	11.2	
Actuated g/C Ratio	0.07	0.39	0.39	0.14	0.47		0.11	0.11	0.11	0.09	0.09	
Clearance Time (s)	7.6	5.7	5.7	8.5	5.8		8.9	8.9	8.9	8.9	8.9	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	120	1968	624	468	2227		177	353	175	124	301	
v/s Ratio Prot	0.03	c0.21		0.08	c0.20		c0.07	0.04		c0.06	0.01	
v/s Ratio Perm			0.04						0.02			
v/c Ratio	0.49	0.53	0.11	0.57	0.44		0.62	0.35	0.20	0.69	0.08	
Uniform Delay, d1	53.9	28.1	23.2	48.3	21.3		51.0	49.4	48.6	52.7	49.7	
Progression Factor	0.75	1.03	6.52	1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	2.9	0.9	0.3	1.6	0.6		6.6	0.6	0.6	15.5	0.1	
Delay (s)	43.5	29.8	151.7	49.9	22.0		57.6	50.0	49.2	68.2	49.8	
Level of Service	D	C	F	D	C		E	D	D	E	D	
Approach Delay (s)		46.8			27.9			51.0			61.6	
Approach LOS		D			C			D			E	
Intersection Summary												
HCM 2000 Control Delay			40.8			HCM 2000 Level of Service			D			
HCM 2000 Volume to Capacity ratio			0.57									
Actuated Cycle Length (s)			120.0			Sum of lost time (s)			32.0			
Intersection Capacity Utilization			63.5%			ICU Level of Service			B			
Analysis Period (min)			15									
c Critical Lane Group												

Iron Horse Data Center TIA
4: S. Carter St/N. Carter St & England St

2033 Background - PM
HCM Unsignalized Intersection Capacity Analysis

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↑			↑↑↑				↑			↑
Traffic Volume (veh/h)	0	1305	60	0	1183	44	0	0	38	0	0	6
Future Volume (Veh/h)	0	1305	60	0	1183	44	0	0	38	0	0	6
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	1418	65	0	1286	48	0	0	41	0	0	7
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type	None			None								
Median storage veh												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	1334			1483			1886	2784	505	1824	2793	453
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1334			1483			1886	2784	505	1824	2793	453
tC, single (s)	4.1			4.1			7.5	6.5	7.1	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.4	3.5	4.0	3.3
p0 queue free %	100			100			100	100	92	100	100	99
cM capacity (veh/h)	524			460			44	19	494	45	19	560
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	NB 1	SB 1				
Volume Total	567	567	349	514	514	305	41	7				
Volume Left	0	0	0	0	0	0	0	0				
Volume Right	0	0	65	0	0	48	41	7				
cSH	1700	1700	1700	1700	1700	1700	494	560				
Volume to Capacity	0.33	0.33	0.21	0.30	0.30	0.18	0.08	0.01				
Queue Length 95th (ft)	0	0	0	0	0	0	7	1				
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	12.9	11.5				
Lane LOS							B	B				
Approach Delay (s)	0.0			0.0			12.9	11.5				
Approach LOS							B	B				
Intersection Summary												
Average Delay			0.2									
Intersection Capacity Utilization			36.5%	ICU Level of Service					A			
Analysis Period (min)			15									

Iron Horse Data Center TIA
5: I-95 SB Ramp & England St/Patrick Henry Hwy

2033 Background - PM
HCM Unsignalized Intersection Capacity Analysis

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑	↑	↑	↑↑						↔	↑
Traffic Volume (veh/h)	0	601	859	210	1042	0	0	0	0	25	1	243
Future Volume (Veh/h)	0	601	859	210	1042	0	0	0	0	25	1	243
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Hourly flow rate (vph)	0	620	886	216	1074	0	0	0	0	26	1	251
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type	None				None							
Median storage veh												
Upstream signal (ft)	976											
pX, platoon unblocked												
vC, conflicting volume	1074			620			1590	2126	310	1816	2126	537
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1074			620			1590	2126	310	1816	2126	537
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.8	6.5	7.1
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.6	4.0	3.4
p0 queue free %	100			77			100	100	100	26	97	47
cM capacity (veh/h)	657			956			28	39	692	35	39	471
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	SB 1	SB 2				
Volume Total	310	310	886	216	537	537	27	251				
Volume Left	0	0	0	216	0	0	26	0				
Volume Right	0	0	886	0	0	0	0	251				
cSH	1700	1700	1700	956	1700	1700	35	471				
Volume to Capacity	0.18	0.18	0.52	0.23	0.32	0.32	0.76	0.53				
Queue Length 95th (ft)	0	0	0	22	0	0	68	77				
Control Delay (s)	0.0	0.0	0.0	9.9	0.0	0.0	247.9	21.1				
Lane LOS				A			F	C				
Approach Delay (s)	0.0			1.7			43.1					
Approach LOS							E					
Intersection Summary												
Average Delay			4.6									
Intersection Capacity Utilization			78.2%			ICU Level of Service				D		
Analysis Period (min)			15									

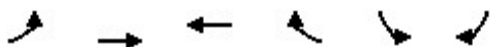
Iron Horse Data Center TIA
6: I-95 NB Ramp & Patrick Henry Hwy

2033 Background - PM
HCM Unsignalized Intersection Capacity Analysis

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		 			 							
Traffic Volume (veh/h)	241	379	0	0	532	34	0	0	226	0	0	719
Future Volume (Veh/h)	241	379	0	0	532	34	0	0	226	0	0	719
Sign Control		Free			Free			Yield			Yield	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Hourly flow rate (vph)	251	395	0	0	554	35	0	0	235	0	0	749
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type	None				None							
Median storage veh												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	554			395			1174	1451	198	1254	1451	277
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	554			395			1174	1451	198	1254	1451	277
tC, single (s)	4.2			4.1			7.5	6.5	6.9	7.5	6.5	7.0
tC, 2 stage (s)												
tF (s)	2.3			2.2			3.5	4.0	3.3	3.5	4.0	3.4
p0 queue free %	74			100			0	100	71	100	100	0
cM capacity (veh/h)	978			1175			0	98	817	75	98	708
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	NB 1	SB 1				
Volume Total	251	198	198	277	277	35	235	749				
Volume Left	251	0	0	0	0	0	0	0				
Volume Right	0	0	0	0	0	35	235	749				
cSH	978	1700	1700	1700	1700	1700	817	708				
Volume to Capacity	0.26	0.12	0.12	0.16	0.16	0.02	0.29	1.06				
Queue Length 95th (ft)	26	0	0	0	0	0	30	487				
Control Delay (s)	9.9	0.0	0.0	0.0	0.0	0.0	11.2	73.8				
Lane LOS	A						B	F				
Approach Delay (s)	3.9			0.0			11.2	73.8				
Approach LOS							B	F				
Intersection Summary												
Average Delay	27.2											
Intersection Capacity Utilization	65.9%			ICU Level of Service					C			
Analysis Period (min)	15											

Iron Horse Data Center TIA
7: Patrick Henry Hwy & Telcourt Rd

2033 Background - PM
HCM Unsignalized Intersection Capacity Analysis



Movement	EBL	EBT	WBT	WBR	SBL	SBR	
Lane Configurations							
Traffic Volume (veh/h)	35	554	497	12	2	28	
Future Volume (Veh/h)	35	554	497	12	2	28	
Sign Control		Free	Free		Stop		
Grade		0%	0%		0%		
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	
Hourly flow rate (vph)	38	602	540	13	2	30	
Pedestrians							
Lane Width (ft)							
Walking Speed (ft/s)							
Percent Blockage							
Right turn flare (veh)							
Median type		None	None				
Median storage veh)							
Upstream signal (ft)							
pX, platoon unblocked							
vC, conflicting volume	553				917	270	
vC1, stage 1 conf vol							
vC2, stage 2 conf vol							
vCu, unblocked vol	553				917	270	
tC, single (s)	4.3				6.8	6.9	
tC, 2 stage (s)							
tF (s)	2.3				3.5	3.3	
p0 queue free %	96				99	96	
cM capacity (veh/h)	960				264	734	
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	SB 1
Volume Total	38	301	301	270	270	13	32
Volume Left	38	0	0	0	0	0	2
Volume Right	0	0	0	0	0	13	30
cSH	960	1700	1700	1700	1700	1700	661
Volume to Capacity	0.04	0.18	0.18	0.16	0.16	0.01	0.05
Queue Length 95th (ft)	3	0	0	0	0	0	4
Control Delay (s)	8.9	0.0	0.0	0.0	0.0	0.0	10.7
Lane LOS	A						B
Approach Delay (s)	0.5			0.0			10.7
Approach LOS							B
Intersection Summary							
Average Delay			0.6				
Intersection Capacity Utilization			30.4%		ICU Level of Service		A
Analysis Period (min)			15				

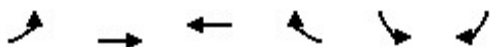
Iron Horse Data Center TIA
8: Mt. Hermon Rd/Frances Rd & Patrick Henry Hwy

2033 Background - PM
HCM Unsignalized Intersection Capacity Analysis

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	22	489	28	11	428	5	44	2	19	2	2	33
Future Volume (Veh/h)	22	489	28	11	428	5	44	2	19	2	2	33
Sign Control	Free			Free			Stop			Stop		
Grade	0%			0%			0%			0%		
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	24	532	30	12	465	5	48	2	21	2	2	36
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type	None			None								
Median storage (veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	470			562			1121	1089	547	1091	1099	465
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	470			562			1121	1089	547	1091	1099	465
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	98			99			71	99	96	99	99	94
cM capacity (veh/h)	1102			1019			168	210	541	180	207	602
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	SB 1						
Volume Total	24	562	477	5	71	40						
Volume Left	24	0	12	0	48	2						
Volume Right	0	30	0	5	21	36						
cSH	1102	1700	1019	1700	213	496						
Volume to Capacity	0.02	0.33	0.01	0.00	0.33	0.08						
Queue Length 95th (ft)	2	0	1	0	35	7						
Control Delay (s)	8.3	0.0	0.4	0.0	30.1	12.9						
Lane LOS	A		A		D	B						
Approach Delay (s)	0.3		0.3		30.1	12.9						
Approach LOS					D	B						
Intersection Summary												
Average Delay				2.6								
Intersection Capacity Utilization				48.4%	ICU Level of Service				A			
Analysis Period (min)				15								

Iron Horse Data Center TIA
9: Patrick Henry Hwy & Woodside Ln

2033 Background - PM
HCM Unsignalized Intersection Capacity Analysis



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	168	338	302	16	31	138
Future Volume (Veh/h)	168	338	302	16	31	138
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	183	367	328	17	34	150
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						12
Median type		None	None			
Median storage veh						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	345				1070	336
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	345				1070	336
tC, single (s)	4.1				6.5	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.6	3.3
p0 queue free %	85				83	79
cM capacity (veh/h)	1225				203	708
Direction, Lane #	EB 1	EB 2	WB 1	SB 1		
Volume Total	183	367	345	184		
Volume Left	183	0	0	34		
Volume Right	0	0	17	150		
cSH	1225	1700	1700	868		
Volume to Capacity	0.15	0.22	0.20	0.21		
Queue Length 95th (ft)	13	0	0	20		
Control Delay (s)	8.5	0.0	0.0	14.2		
Lane LOS	A			B		
Approach Delay (s)	2.8		0.0	14.2		
Approach LOS				B		
Intersection Summary						
Average Delay			3.9			
Intersection Capacity Utilization			39.5%	ICU Level of Service		A
Analysis Period (min)			15			

Iron Horse Data Center TIA
10: Goddins Hill Rd & Patrick Henry Hwy

2033 Background - PM
HCM Unsignalized Intersection Capacity Analysis

						
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	297	34	37	243	33	67
Future Volume (Veh/h)	297	34	37	243	33	67
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	323	37	40	264	36	73
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None		None			
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			360		667	323
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			360		667	323
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			97		91	90
cM capacity (veh/h)			1210		413	723
Direction, Lane #	EB 1	EB 2	WB 1	NB 1		
Volume Total	323	37	304	109		
Volume Left	0	0	40	36		
Volume Right	0	37	0	73		
cSH	1700	1700	1210	579		
Volume to Capacity	0.19	0.02	0.03	0.19		
Queue Length 95th (ft)	0	0	3	17		
Control Delay (s)	0.0	0.0	1.3	12.7		
Lane LOS			A	B		
Approach Delay (s)	0.0		1.3	12.7		
Approach LOS				B		
Intersection Summary						
Average Delay			2.3			
Intersection Capacity Utilization			46.4%	ICU Level of Service		A
Analysis Period (min)			15			

Intersection: 1: Washington Hwy & England St

Movement	EB	EB	EB	EB	WB	WB	WB	NB	NB	NB	SB	SB
Directions Served	L	T	T	R	L	T	R	L	T	T	L	T
Maximum Queue (ft)	219	252	257	84	529	719	227	293	336	296	316	373
Average Queue (ft)	102	136	149	30	195	388	21	165	189	170	188	194
95th Queue (ft)	181	220	230	66	489	747	221	290	330	300	307	310
Link Distance (ft)	1170				891	891	891	1257		1257	1361	
Upstream Blk Time (%)					0	1	0					
Queuing Penalty (veh)					1	2	0					
Storage Bay Dist (ft)	290	340		340				350	320			
Storage Blk Time (%)	0		0					2	1	0	1	1
Queuing Penalty (veh)	0		0					5	4	0	2	2

Intersection: 1: Washington Hwy & England St

Movement	SB	SB
Directions Served	T	R
Maximum Queue (ft)	318	140
Average Queue (ft)	187	89
95th Queue (ft)	294	172
Link Distance (ft)	1361	
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		140
Storage Blk Time (%)	20	1
Queuing Penalty (veh)	22	2

Intersection: 2: Cottage Green Dr & England St

Movement	EB	EB	EB	EB	WB	WB	WB	WB	WB	NB	NB	NB
Directions Served	L	T	T	TR	L	L	T	T	TR	L	T	R
Maximum Queue (ft)	82	221	242	229	71	147	229	254	233	119	114	78
Average Queue (ft)	30	81	104	135	13	41	74	104	89	45	48	30
95th Queue (ft)	70	177	200	207	46	100	183	223	194	95	96	65
Link Distance (ft)		891	891	891			1075	1075	1075	954	954	
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (ft)	235				260	260						170
Storage Blk Time (%)						0	0				0	0
Queuing Penalty (veh)						0	0				0	0

Intersection: 2: Cottage Green Dr & England St

Movement	SB	SB
Directions Served	L	TR
Maximum Queue (ft)	154	316
Average Queue (ft)	129	111
95th Queue (ft)	177	262
Link Distance (ft)		803
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)	155	
Storage Blk Time (%)	10	1
Queuing Penalty (veh)	9	3

Intersection: 3: Hill Carter Pkwy & England St

Movement	EB	EB	EB	EB	EB	WB	WB	WB	WB	WB	NB	NB
Directions Served	L	T	T	T	R	L	L	T	T	TR	L	LT
Maximum Queue (ft)	114	281	442	504	200	152	152	229	224	254	155	187
Average Queue (ft)	49	152	234	308	128	86	82	121	134	144	60	107
95th Queue (ft)	96	247	384	472	263	140	138	199	205	231	131	167
Link Distance (ft)		1075	1075	1075		214	214	214	214	214		920
Upstream Blk Time (%)								0	0	2		
Queuing Penalty (veh)								1	1	4		
Storage Bay Dist (ft)	325				200						220	
Storage Blk Time (%)		0		17	1							0
Queuing Penalty (veh)		0		27	3							0

Intersection: 3: Hill Carter Pkwy & England St

Movement	NB	NB	SB	SB	SB
Directions Served	T	R	L	T	TR
Maximum Queue (ft)	90	238	203	56	40
Average Queue (ft)	7	106	82	10	10
95th Queue (ft)	43	193	166	36	30
Link Distance (ft)	920			976	976
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (ft)		325	290		
Storage Blk Time (%)					
Queuing Penalty (veh)					

Intersection: 4: S. Carter St/N. Carter St & England St

Movement	EB	EB	B41	NB	SB
Directions Served	T	TR	T	R	R
Maximum Queue (ft)	22	140	5	75	27
Average Queue (ft)	1	8	0	24	4
95th Queue (ft)	16	66	5	56	21
Link Distance (ft)	214	214	269	315	396
Upstream Blk Time (%)		0			
Queuing Penalty (veh)		0			
Storage Bay Dist (ft)					
Storage Blk Time (%)					
Queuing Penalty (veh)					

Intersection: 5: I-95 SB Ramp & England St/Patrick Henry Hwy

Movement	EB	EB	B41	WB	B52	SB	SB
Directions Served	T	T	T	L	T	LT	R
Maximum Queue (ft)	2	2	3	102	30	91	91
Average Queue (ft)	0	0	0	39	1	28	10
95th Queue (ft)	2	2	3	76	31	73	155
Link Distance (ft)	269	269	275	207	468		1149
Upstream Blk Time (%)							
Queuing Penalty (veh)							
Storage Bay Dist (ft)						150	
Storage Blk Time (%)						0	0
Queuing Penalty (veh)						0	0

Intersection: 6: I-95 NB Ramp & Patrick Henry Hwy

Movement	EB	WB	WB
Directions Served	L	T	T
Maximum Queue (ft)	126	10	5
Average Queue (ft)	44	0	0
95th Queue (ft)	96	5	4
Link Distance (ft)		189	189
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)	435		
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 7: Patrick Henry Hwy & Telcourt Rd

Movement	EB	WB	SB
Directions Served	L	R	LR
Maximum Queue (ft)	50	24	42
Average Queue (ft)	13	2	21
95th Queue (ft)	41	14	46
Link Distance (ft)			754
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)	100	50	
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 8: Mt. Hermon Rd/Frances Rd & Patrick Henry Hwy

Movement	EB	EB	WB	NB	SB
Directions Served	L	TR	LT	LTR	LTR
Maximum Queue (ft)	33	2	83	61	48
Average Queue (ft)	5	0	7	28	20
95th Queue (ft)	22	2	39	52	42
Link Distance (ft)	242	242	1048	603	993
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (ft)					
Storage Blk Time (%)			0		
Queuing Penalty (veh)			0		

Intersection: 9: Patrick Henry Hwy & Woodside Ln

Movement	EB	WB	SB	SB
Directions Served	L	TR	L	R
Maximum Queue (ft)	76	6	67	86
Average Queue (ft)	28	0	21	44
95th Queue (ft)	60	4	51	70
Link Distance (ft)		463	1062	
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)	300		290	
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 10: Goddins Hill Rd & Patrick Henry Hwy

Movement	WB	NB
Directions Served	LT	LR
Maximum Queue (ft)	49	60
Average Queue (ft)	7	27
95th Queue (ft)	30	47
Link Distance (ft)	2248	1612
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Network Summary

Network wide Queuing Penalty: 86

Appendix I

Capacity Analysis Worksheets for 2039 Background Conditions

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	102	515	190	195	530	426	199	257	162	304	449	99
v/c Ratio	0.46	0.56	0.32	0.53	0.92	0.28	0.65	0.48	0.11	0.85	0.79	0.20
Control Delay	23.6	34.8	2.7	20.7	44.9	1.7	34.7	41.2	0.2	51.1	51.5	0.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	23.6	34.8	2.7	20.7	44.9	1.7	34.7	41.2	0.2	51.1	51.5	0.9
Queue Length 50th (ft)	36	151	0	28	~368	16	90	78	0	149	146	0
Queue Length 95th (ft)	68	205	20	95	#556	51	147	119	0	#214	#218	0
Internal Link Dist (ft)	1151			901			1233			1319		
Turn Bay Length (ft)	290	340			350			400	320	140		
Base Capacity (vph)	254	920	592	378	578	1495	314	549	1417	357	567	489
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.40	0.56	0.32	0.52	0.92	0.28	0.63	0.47	0.11	0.85	0.79	0.20

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Iron Horse Data Center TIA
1: Washington Hwy & England St

2039 Background - AM
HCM Signalized Intersection Capacity Analysis

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		 						 			 	
Traffic Volume (vph)	94	474	175	179	488	392	183	236	149	280	413	91
Future Volume (vph)	94	474	175	179	488	392	183	236	149	280	413	91
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	9.3	9.3	9.3	9.3	9.3	4.0	8.4	8.4	4.0	8.4	8.4	8.4
Lane Util. Factor	1.00	0.95	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1687	3471	1538	1736	1863	1495	1736	3312	1417	1641	3374	1615
Flt Permitted	0.14	1.00	1.00	0.40	1.00	1.00	0.37	1.00	1.00	0.59	1.00	1.00
Satd. Flow (perm)	254	3471	1538	725	1863	1495	676	3312	1417	1024	3374	1615
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	102	515	190	195	530	426	199	257	162	304	449	99
RTOR Reduction (vph)	0	0	140	0	0	0	0	0	0	0	0	82
Lane Group Flow (vph)	102	515	50	195	530	426	199	257	162	304	449	17
Heavy Vehicles (%)	7%	4%	5%	4%	2%	8%	4%	9%	14%	10%	7%	0%
Turn Type	D.P+P	NA	Perm	D.P+P	NA	Free	D.P+P	NA	Free	D.P+P	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	8		4	4		Free	6		Free	2		6
Actuated Green, G (s)	36.7	26.5	26.5	36.7	29.2	100.0	27.9	16.3	100.0	27.9	16.8	16.8
Effective Green, g (s)	36.7	26.5	26.5	36.7	29.2	100.0	27.9	16.3	100.0	27.9	16.8	16.8
Actuated g/C Ratio	0.37	0.26	0.26	0.37	0.29	1.00	0.28	0.16	1.00	0.28	0.17	0.17
Clearance Time (s)	9.3	9.3	9.3	9.3	9.3		8.4	8.4		8.4	8.4	8.4
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	200	919	407	369	543	1495	306	539	1417	357	566	271
v/s Ratio Prot	0.04	0.15		c0.05	c0.28		0.07	0.08		c0.10	0.13	
v/s Ratio Perm	0.15		0.03	0.14		c0.28	0.11		0.11	c0.14		0.01
v/c Ratio	0.51	0.56	0.12	0.53	0.98	0.28	0.65	0.48	0.11	0.85	0.79	0.06
Uniform Delay, d1	23.7	31.7	27.9	22.7	35.1	0.0	29.5	38.0	0.0	32.3	39.9	35.0
Progression Factor	1.00	1.00	1.00	0.89	0.56	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	2.2	2.5	0.6	1.3	32.2	0.5	4.9	0.7	0.2	17.4	7.5	0.1
Delay (s)	25.8	34.2	28.6	21.4	51.6	0.5	34.4	38.6	0.2	49.8	47.5	35.1
Level of Service	C	C	C	C	D	A	C	D	A	D	D	D
Approach Delay (s)		31.8			27.6			27.2			46.8	
Approach LOS		C			C			C			D	
Intersection Summary												
HCM 2000 Control Delay			33.3			HCM 2000 Level of Service				C		
HCM 2000 Volume to Capacity ratio			0.90									
Actuated Cycle Length (s)			100.0			Sum of lost time (s)			35.4			
Intersection Capacity Utilization			88.4%			ICU Level of Service			E			
Analysis Period (min)			15									
c Critical Lane Group												



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	15	901	51	1120	28	5	16	106	45
v/c Ratio	0.12	0.35	0.23	0.38	0.24	0.05	0.04	0.53	0.21
Control Delay	45.0	18.0	72.9	4.3	47.9	42.8	0.3	50.5	23.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	45.0	18.0	72.9	4.3	47.9	42.8	0.3	50.5	23.5
Queue Length 50th (ft)	0	152	18	3	17	3	0	65	11
Queue Length 95th (ft)	m12	m123	33	31	44	14	0	114	42
Internal Link Dist (ft)		901		1090		942			790
Turn Bay Length (ft)	235		260				170	155	
Base Capacity (vph)	236	2616	391	2943	150	139	385	208	220
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.06	0.34	0.13	0.38	0.19	0.04	0.04	0.51	0.20

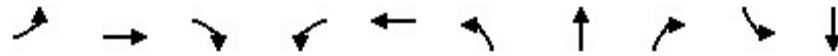
Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

Iron Horse Data Center TIA
2: Cottage Green Dr & England St

2039 Background - AM
HCM Signalized Intersection Capacity Analysis

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	14	820	27	48	1005	48	26	5	15	100	18	24
Future Volume (vph)	14	820	27	48	1005	48	26	5	15	100	18	24
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.7	4.9		7.6	5.1		7.9	7.9	7.9	7.5	7.5	
Lane Util. Factor	1.00	0.91		0.97	0.91		1.00	1.00	1.00	1.00	1.00	
Frt	1.00	1.00		1.00	0.99		1.00	1.00	0.85	1.00	0.91	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1656	4764		3155	4932		1641	1520	1615	1736	1640	
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	1656	4764		3155	4932		1641	1520	1615	1736	1640	
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	15	872	29	51	1069	51	28	5	16	106	19	26
RTOR Reduction (vph)	0	3	0	0	4	0	0	0	15	0	23	0
Lane Group Flow (vph)	15	898	0	51	1116	0	28	5	1	106	22	0
Heavy Vehicles (%)	9%	8%	19%	11%	4%	14%	10%	25%	0%	4%	7%	5%
Turn Type	Prot	NA		Prot	NA		Split	NA	Perm	Split	NA	
Protected Phases	5	2		1	6		3	3		4	4	
Permitted Phases									3			
Actuated Green, G (s)	4.0	49.7		5.9	52.3		4.9	4.9	4.9	11.6	11.6	
Effective Green, g (s)	4.0	49.7		5.9	52.3		4.9	4.9	4.9	11.6	11.6	
Actuated g/C Ratio	0.04	0.50		0.06	0.52		0.05	0.05	0.05	0.12	0.12	
Clearance Time (s)	6.7	4.9		7.6	5.1		7.9	7.9	7.9	7.5	7.5	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	66	2367		186	2579		80	74	79	201	190	
v/s Ratio Prot	0.01	c0.19		0.02	c0.23		c0.02	0.00		c0.06	0.01	
v/s Ratio Perm									0.00			
v/c Ratio	0.23	0.38		0.27	0.43		0.35	0.07	0.01	0.53	0.12	
Uniform Delay, d1	46.5	15.6		45.0	14.7		46.0	45.4	45.2	41.6	39.6	
Progression Factor	1.02	1.11		1.62	0.27		1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	1.4	0.4		0.7	0.5		2.6	0.4	0.1	2.5	0.3	
Delay (s)	49.1	17.6		73.8	4.5		48.7	45.8	45.3	44.1	39.9	
Level of Service	D	B		E	A		D	D	D	D	D	
Approach Delay (s)		18.2			7.5			47.3			42.8	
Approach LOS		B			A			D			D	
Intersection Summary												
HCM 2000 Control Delay			15.0			HCM 2000 Level of Service				B		
HCM 2000 Volume to Capacity ratio			0.47									
Actuated Cycle Length (s)			100.0			Sum of lost time (s)			27.9			
Intersection Capacity Utilization			43.2%			ICU Level of Service			A			
Analysis Period (min)			15									
c Critical Lane Group												



Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	46	851	107	239	1059	47	58	173	102	41
v/c Ratio	0.34	0.47	0.14	0.58	0.45	0.34	0.21	0.44	0.67	0.11
Control Delay	35.1	29.5	4.2	47.6	21.8	49.8	44.4	3.5	61.8	24.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	35.1	29.5	4.2	47.6	21.8	49.8	44.4	3.5	61.8	24.2
Queue Length 50th (ft)	27	210	14	74	190	31	19	0	62	6
Queue Length 95th (ft)	m49	259	21	115	256	72	40	0	#118	22
Internal Link Dist (ft)		1090			235		916			977
Turn Bay Length (ft)	325		200	550		220		325	290	
Base Capacity (vph)	170	1886	782	410	2362	149	290	403	183	432
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.27	0.45	0.14	0.58	0.45	0.32	0.20	0.43	0.56	0.09

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

Iron Horse Data Center TIA
3: Hill Carter Pkwy & England St

2039 Background - AM
HCM Signalized Intersection Capacity Analysis

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		  		 	  			 			 	
Traffic Volume (vph)	44	817	103	229	1012	5	91	10	166	98	21	18
Future Volume (vph)	44	817	103	229	1012	5	91	10	166	98	21	18
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.6	5.7	5.7	8.5	5.8		8.9	8.9	8.9	8.9	8.9	
Lane Util. Factor	1.00	0.91	1.00	0.97	0.91		0.91	0.91	1.00	1.00	0.95	
Frt	1.00	1.00	0.85	1.00	1.00		1.00	1.00	0.85	1.00	0.93	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	0.96	1.00	0.95	1.00	
Satd. Flow (prot)	1492	4803	1599	3367	4932		1626	3158	1404	1203	2728	
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	0.96	1.00	0.95	1.00	
Satd. Flow (perm)	1492	4803	1599	3367	4932		1626	3158	1404	1203	2728	
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	46	851	107	239	1054	5	95	10	173	102	22	19
RTOR Reduction (vph)	0	0	72	0	1	0	0	0	158	0	17	0
Lane Group Flow (vph)	46	851	35	239	1058	0	47	58	15	102	24	0
Heavy Vehicles (%)	21%	8%	1%	4%	5%	25%	1%	25%	15%	50%	25%	21%
Turn Type	Prot	NA	Perm	Prot	NA		Split	NA	Perm	Split	NA	
Protected Phases	5	2		1	6		3	3		4	4	
Permitted Phases			2						3			
Actuated Green, G (s)	5.9	33.0	33.0	15.2	43.1		8.6	8.6	8.6	11.2	11.2	
Effective Green, g (s)	5.9	33.0	33.0	15.2	43.1		8.6	8.6	8.6	11.2	11.2	
Actuated g/C Ratio	0.06	0.33	0.33	0.15	0.43		0.09	0.09	0.09	0.11	0.11	
Clearance Time (s)	7.6	5.7	5.7	8.5	5.8		8.9	8.9	8.9	8.9	8.9	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	88	1584	527	511	2125		139	271	120	134	305	
v/s Ratio Prot	0.03	c0.18		0.07	c0.21		c0.03	0.02		c0.08	0.01	
v/s Ratio Perm			0.02						0.01			
v/c Ratio	0.52	0.54	0.07	0.47	0.50		0.34	0.21	0.12	0.76	0.08	
Uniform Delay, d1	45.7	27.3	23.0	38.7	20.6		43.0	42.6	42.2	43.1	39.8	
Progression Factor	0.68	1.12	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	5.2	1.2	0.2	0.7	0.8		1.4	0.4	0.5	22.2	0.1	
Delay (s)	36.2	31.7	23.2	39.4	21.5		44.5	43.0	42.7	65.3	39.9	
Level of Service	D	C	C	D	C		D	D	D	E	D	
Approach Delay (s)		31.0			24.8			43.0			58.0	
Approach LOS		C			C			D			E	
Intersection Summary												
HCM 2000 Control Delay			30.7			HCM 2000 Level of Service			C			
HCM 2000 Volume to Capacity ratio			0.58									
Actuated Cycle Length (s)			100.0			Sum of lost time (s)			32.0			
Intersection Capacity Utilization			57.0%			ICU Level of Service			B			
Analysis Period (min)			15									
c Critical Lane Group												

Iron Horse Data Center TIA
4: S. Carter St/N. Carter St & England St

2039 Background - AM
HCM Unsignalized Intersection Capacity Analysis

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	1034	72	0	1220	62	0	0	76	0	0	23
Future Volume (Veh/h)	0	1034	72	0	1220	62	0	0	76	0	0	23
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Hourly flow rate (vph)	0	1100	77	0	1298	66	0	0	81	0	0	24
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type	None				None							
Median storage veh												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	1364			1177			1595	2502	405	1779	2508	466
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1364			1177			1595	2502	405	1779	2508	466
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	7.1
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.4
p0 queue free %	100			100			100	100	86	100	100	95
cM capacity (veh/h)	510			601			70	29	595	46	29	520
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	NB 1	SB 1				
Volume Total	440	440	297	519	519	326	81	24				
Volume Left	0	0	0	0	0	0	0	0				
Volume Right	0	0	77	0	0	66	81	24				
cSH	1700	1700	1700	1700	1700	1700	595	520				
Volume to Capacity	0.26	0.26	0.17	0.31	0.31	0.19	0.14	0.05				
Queue Length 95th (ft)	0	0	0	0	0	0	12	4				
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	12.0	12.3				
Lane LOS							B	B				
Approach Delay (s)	0.0			0.0			12.0	12.3				
Approach LOS							B	B				
Intersection Summary												
Average Delay			0.5									
Intersection Capacity Utilization			35.0%		ICU Level of Service				A			
Analysis Period (min)			15									

Iron Horse Data Center TIA
5: I-95 SB Ramp & England St/Patrick Henry Hwy

2039 Background - AM
HCM Unsignalized Intersection Capacity Analysis

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑	↑	↑	↑↑						↩	↩
Traffic Volume (veh/h)	0	417	773	246	1066	0	0	0	0	4	4	256
Future Volume (Veh/h)	0	417	773	246	1066	0	0	0	0	4	4	256
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.88	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	453	840	267	1159	0	0	0	0	4	4	278
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type	None				None							
Median storage veh												
Upstream signal (ft)	976											
pX, platoon unblocked												
vC, conflicting volume	1159			453			1568	2146	226	1920	2146	580
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1159			453			1568	2146	226	1920	2146	580
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	7.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.5
p0 queue free %	100			76			100	100	100	88	89	34
cM capacity (veh/h)	610			1104			20	37	783	34	37	422
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	SB 1	SB 2				
Volume Total	226	226	840	267	580	580	8	278				
Volume Left	0	0	0	267	0	0	4	0				
Volume Right	0	0	840	0	0	0	0	278				
cSH	1700	1700	1700	1104	1700	1700	35	422				
Volume to Capacity	0.13	0.13	0.49	0.24	0.34	0.34	0.23	0.66				
Queue Length 95th (ft)	0	0	0	24	0	0	18	115				
Control Delay (s)	0.0	0.0	0.0	9.3	0.0	0.0	133.9	28.5				
Lane LOS				A			F	D				
Approach Delay (s)	0.0			1.7			31.5					
Approach LOS							D					
Intersection Summary												
Average Delay				3.8								
Intersection Capacity Utilization				74.8%	ICU Level of Service				D			
Analysis Period (min)				15								

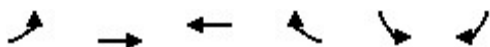
Iron Horse Data Center TIA
6: I-95 NB Ramp & Patrick Henry Hwy

2039 Background - AM
HCM Unsignalized Intersection Capacity Analysis

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		 			 							
Traffic Volume (veh/h)	175	247	0	0	522	27	0	0	161	0	0	795
Future Volume (Veh/h)	175	247	0	0	522	27	0	0	161	0	0	795
Sign Control	Free			Free			Yield			Yield		
Grade	0%			0%			0%			0%		
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Hourly flow rate (vph)	186	263	0	0	555	29	0	0	171	0	0	846
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type	None			None								
Median storage (veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	555			263			912	1190	132	1058	1190	278
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	555			263			912	1190	132	1058	1190	278
tC, single (s)	4.5			4.1			7.5	6.5	7.1	7.5	6.5	7.1
tC, 2 stage (s)												
tF (s)	2.4			2.2			3.5	4.0	3.4	3.5	4.0	3.4
p0 queue free %	79			100			0	100	80	100	100	0
cM capacity (veh/h)	897			1313			0	150	872	123	150	702
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	NB 1	SB 1				
Volume Total	186	132	132	278	278	29	171	846				
Volume Left	186	0	0	0	0	0	0	0				
Volume Right	0	0	0	0	0	29	171	846				
cSH	897	1700	1700	1700	1700	1700	872	702				
Volume to Capacity	0.21	0.08	0.08	0.16	0.16	0.02	0.20	1.20				
Queue Length 95th (ft)	19	0	0	0	0	0	18	724				
Control Delay (s)	10.1	0.0	0.0	0.0	0.0	0.0	10.1	126.3				
Lane LOS	B						B	F				
Approach Delay (s)	4.2			0.0			10.1	126.3				
Approach LOS							B	F				
Intersection Summary												
Average Delay	53.9											
Intersection Capacity Utilization	70.3%			ICU Level of Service					C			
Analysis Period (min)	15											

Iron Horse Data Center TIA
7: Patrick Henry Hwy & Telcourt Rd

2039 Background - AM
HCM Unsignalized Intersection Capacity Analysis



Movement	EBL	EBT	WBT	WBR	SBL	SBR	
Lane Configurations							
Traffic Volume (veh/h)	43	408	524	12	5	6	
Future Volume (Veh/h)	43	408	524	12	5	6	
Sign Control		Free	Free		Stop		
Grade		0%	0%		0%		
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	
Hourly flow rate (vph)	45	429	552	13	5	6	
Pedestrians							
Lane Width (ft)							
Walking Speed (ft/s)							
Percent Blockage							
Right turn flare (veh)							
Median type		None	None				
Median storage veh							
Upstream signal (ft)							
pX, platoon unblocked							
vC, conflicting volume	565				856	276	
vC1, stage 1 conf vol							
vC2, stage 2 conf vol							
vCu, unblocked vol	565				856	276	
tC, single (s)	4.5				6.8	6.9	
tC, 2 stage (s)							
tF (s)	2.4				3.5	3.3	
p0 queue free %	95				98	99	
cM capacity (veh/h)	883				285	727	
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	SB 1
Volume Total	45	214	214	276	276	13	11
Volume Left	45	0	0	0	0	0	5
Volume Right	0	0	0	0	0	13	6
cSH	883	1700	1700	1700	1700	1700	427
Volume to Capacity	0.05	0.13	0.13	0.16	0.16	0.01	0.03
Queue Length 95th (ft)	4	0	0	0	0	0	2
Control Delay (s)	9.3	0.0	0.0	0.0	0.0	0.0	13.7
Lane LOS	A						B
Approach Delay (s)	0.9			0.0			13.7
Approach LOS							B
Intersection Summary							
Average Delay			0.5				
Intersection Capacity Utilization			31.2%		ICU Level of Service		A
Analysis Period (min)			15				

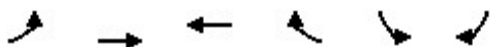
Iron Horse Data Center TIA
8: Mt. Hermon Rd/Frances Rd & Patrick Henry Hwy

2039 Background - AM
HCM Unsignalized Intersection Capacity Analysis

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	53	332	27	17	452	13	36	1	8	4	5	48
Future Volume (Veh/h)	53	332	27	17	452	13	36	1	8	4	5	48
Sign Control	Free			Free			Stop			Stop		
Grade	0%			0%			0%			0%		
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	58	361	29	18	491	14	39	1	9	4	5	52
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type	None			None								
Median storage (veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	505			390			1073	1032	376	1014	1033	491
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	505			390			1073	1032	376	1014	1033	491
tC, single (s)	4.1			4.1			7.2	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.6	4.0	3.3	3.5	4.0	3.3
p0 queue free %	95			98			76	100	99	98	98	91
cM capacity (veh/h)	1070			1180			161	218	675	204	218	582
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	SB 1						
Volume Total	58	390	509	14	49	61						
Volume Left	58	0	18	0	39	4						
Volume Right	0	29	0	14	9	52						
cSH	1070	1700	1180	1700	189	462						
Volume to Capacity	0.05	0.23	0.02	0.01	0.26	0.13						
Queue Length 95th (ft)	4	0	1	0	25	11						
Control Delay (s)	8.6	0.0	0.5	0.0	30.7	14.0						
Lane LOS	A		A		D	B						
Approach Delay (s)	1.1		0.4		30.7	14.0						
Approach LOS					D	B						
Intersection Summary												
Average Delay				2.9								
Intersection Capacity Utilization				59.9%	ICU Level of Service			B				
Analysis Period (min)				15								

Iron Horse Data Center TIA
9: Patrick Henry Hwy & Woodside Ln

2039 Background - AM
HCM Unsignalized Intersection Capacity Analysis



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	79	261	316	22	70	169
Future Volume (Veh/h)	79	261	316	22	70	169
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96
Hourly flow rate (vph)	82	272	329	23	73	176
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						12
Median type		None	None			
Median storage veh						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	352				776	340
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	352				776	340
tC, single (s)	4.1				6.5	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.6	3.3
p0 queue free %	93				78	75
cM capacity (veh/h)	1201				334	704
Direction, Lane #	EB 1	EB 2	WB 1	SB 1		
Volume Total	82	272	352	249		
Volume Left	82	0	0	73		
Volume Right	0	0	23	176		
cSH	1201	1700	1700	996		
Volume to Capacity	0.07	0.16	0.21	0.25		
Queue Length 95th (ft)	5	0	0	25		
Control Delay (s)	8.2	0.0	0.0	13.8		
Lane LOS	A			B		
Approach Delay (s)	1.9		0.0	13.8		
Approach LOS				B		
Intersection Summary						
Average Delay			4.3			
Intersection Capacity Utilization			36.2%		ICU Level of Service	A
Analysis Period (min)			15			

Iron Horse Data Center TIA
10: Goddins Hill Rd & Patrick Henry Hwy

2039 Background - AM
HCM Unsignalized Intersection Capacity Analysis

						
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	229	71	107	256	33	30
Future Volume (Veh/h)	229	71	107	256	33	30
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	249	77	116	278	36	33
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None		None			
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			326		759	249
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			326		759	249
tC, single (s)			4.1		6.4	6.3
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.4
p0 queue free %			91		89	96
cM capacity (veh/h)			1239		337	773
Direction, Lane #	EB 1	EB 2	WB 1	NB 1		
Volume Total	249	77	394	69		
Volume Left	0	0	116	36		
Volume Right	0	77	0	33		
cSH	1700	1700	1239	461		
Volume to Capacity	0.15	0.05	0.09	0.15		
Queue Length 95th (ft)	0	0	8	13		
Control Delay (s)	0.0	0.0	3.1	14.2		
Lane LOS			A	B		
Approach Delay (s)	0.0		3.1	14.2		
Approach LOS				B		
Intersection Summary						
Average Delay			2.8			
Intersection Capacity Utilization			45.1%	ICU Level of Service		A
Analysis Period (min)			15			

Intersection: 1: Washington Hwy & England St

Movement	EB	EB	EB	EB	WB	WB	WB	NB	NB	NB	SB	SB
Directions Served	L	T	T	R	L	T	R	L	T	T	L	T
Maximum Queue (ft)	152	210	242	103	248	616	45	184	173	155	311	337
Average Queue (ft)	64	106	128	38	96	266	2	94	98	70	187	162
95th Queue (ft)	126	177	207	83	185	505	46	164	159	138	313	332
Link Distance (ft)		1170			891	891	891		1257	1257		1361
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (ft)	290		340	340				350			320	
Storage Blk Time (%)		0	0								4	2
Queuing Penalty (veh)		0	0								8	6

Intersection: 1: Washington Hwy & England St

Movement	SB	SB
Directions Served	T	R
Maximum Queue (ft)	298	140
Average Queue (ft)	148	63
95th Queue (ft)	293	140
Link Distance (ft)	1361	
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		140
Storage Blk Time (%)	7	0
Queuing Penalty (veh)	7	1

Intersection: 2: Cottage Green Dr & England St

Movement	EB	EB	EB	EB	WB	WB	WB	WB	WB	NB	NB	NB
Directions Served	L	T	T	TR	L	L	T	T	TR	L	T	R
Maximum Queue (ft)	62	176	221	267	50	98	163	229	228	95	52	39
Average Queue (ft)	15	72	89	131	6	30	26	47	48	25	8	12
95th Queue (ft)	47	146	173	231	29	71	98	146	152	69	33	37
Link Distance (ft)		891	891	891			1075	1075	1075	954	954	
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (ft)	235				260	260						170
Storage Blk Time (%)		0					0					
Queuing Penalty (veh)		0					0					

Intersection: 2: Cottage Green Dr & England St

Movement	SB	SB
Directions Served	L	TR
Maximum Queue (ft)	145	122
Average Queue (ft)	73	34
95th Queue (ft)	126	81
Link Distance (ft)		803
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)	155	
Storage Blk Time (%)	1	0
Queuing Penalty (veh)	0	0

Intersection: 3: Hill Carter Pkwy & England St

Movement	EB	EB	EB	EB	EB	WB	WB	WB	WB	WB	NB	NB
Directions Served	L	T	T	T	R	L	L	T	T	TR	L	LT
Maximum Queue (ft)	134	234	362	418	200	142	145	213	233	229	70	114
Average Queue (ft)	48	97	162	228	94	78	73	120	141	141	17	51
95th Queue (ft)	106	180	296	374	235	125	123	202	215	219	52	95
Link Distance (ft)		1075	1075	1075		214	214	214	214	214		920
Upstream Blk Time (%)						0	0	0	0	1		
Queuing Penalty (veh)						0	1	1	1	1		
Storage Bay Dist (ft)	325				200						220	
Storage Blk Time (%)				11	0							
Queuing Penalty (veh)				11	1							

Intersection: 3: Hill Carter Pkwy & England St

Movement	NB	NB	SB	SB	SB
Directions Served	T	R	L	T	TR
Maximum Queue (ft)	38	166	219	57	72
Average Queue (ft)	3	65	95	13	16
95th Queue (ft)	18	127	178	41	47
Link Distance (ft)	920			976	976
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (ft)		325	290		
Storage Blk Time (%)					
Queuing Penalty (veh)					

Intersection: 4: S. Carter St/N. Carter St & England St

Movement	EB	EB	WB	B41	B41	NB	SB
Directions Served	T	TR	TR	T	T	R	R
Maximum Queue (ft)	51	112	7	15	10	81	58
Average Queue (ft)	1	10	0	1	0	34	19
95th Queue (ft)	14	62	5	11	10	64	48
Link Distance (ft)	214	214	275	269	269	315	396
Upstream Blk Time (%)		0					
Queuing Penalty (veh)		0					
Storage Bay Dist (ft)							
Storage Blk Time (%)							
Queuing Penalty (veh)							

Intersection: 5: I-95 SB Ramp & England St/Patrick Henry Hwy

Movement	EB	EB	B41	WB	SB
Directions Served	T	R	T	L	LT
Maximum Queue (ft)	2	9	4	97	38
Average Queue (ft)	0	0	0	39	8
95th Queue (ft)	2	9	0	77	30
Link Distance (ft)	269	269	275	207	
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (ft)				150	
Storage Blk Time (%)					
Queuing Penalty (veh)					

Intersection: 6: I-95 NB Ramp & Patrick Henry Hwy

Movement	EB	WB	WB
Directions Served	L	T	T
Maximum Queue (ft)	125	6	13
Average Queue (ft)	35	0	1
95th Queue (ft)	86	4	8
Link Distance (ft)		189	189
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)	435		
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 7: Patrick Henry Hwy & Telcourt Rd

Movement	EB	EB	WB	WB	SB
Directions Served	L	T	T	R	LR
Maximum Queue (ft)	68	5	3	25	33
Average Queue (ft)	17	0	0	2	9
95th Queue (ft)	53	5	3	15	33
Link Distance (ft)		286	242		754
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (ft)	100			50	
Storage Blk Time (%)	0			0	
Queuing Penalty (veh)	0			0	

Intersection: 8: Mt. Hermon Rd/Frances Rd & Patrick Henry Hwy

Movement	EB	EB	WB	NB	SB
Directions Served	L	TR	LT	LTR	LTR
Maximum Queue (ft)	40	6	75	64	50
Average Queue (ft)	14	0	9	26	24
95th Queue (ft)	38	6	42	54	45
Link Distance (ft)	242	242	1048	603	993
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (ft)					
Storage Blk Time (%)			0		
Queuing Penalty (veh)			0		

Intersection: 9: Patrick Henry Hwy & Woodside Ln

Movement	EB	WB	SB	SB
Directions Served	L	TR	L	R
Maximum Queue (ft)	51	7	89	85
Average Queue (ft)	17	0	38	48
95th Queue (ft)	46	6	72	73
Link Distance (ft)		463	1062	
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)	300		290	
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 10: Goddins Hill Rd & Patrick Henry Hwy

Movement	EB	WB	NB
Directions Served	R	LT	LR
Maximum Queue (ft)	9	72	63
Average Queue (ft)	0	19	23
95th Queue (ft)	4	53	46
Link Distance (ft)		2248	1612
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)	200		
Storage Blk Time (%)			
Queuing Penalty (veh)			

Network Summary

Network wide Queuing Penalty: 38

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	180	556	160	277	561	307	314	549	275	339	551	124
v/c Ratio	0.72	0.57	0.27	0.74	1.03	0.20	0.96	0.95	0.18	1.06	0.96	0.28
Control Delay	42.8	40.1	2.7	46.3	77.4	0.3	73.7	76.9	0.2	99.5	79.7	1.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	42.8	40.1	2.7	46.3	77.4	0.3	73.7	76.9	0.2	99.5	79.7	1.6
Queue Length 50th (ft)	82	195	0	105	~477	0	190	224	0	~235	225	0
Queue Length 95th (ft)	162	255	21	#246	#679	0	#374	#335	0	#426	#338	0
Internal Link Dist (ft)	1151				901				1233			
Turn Bay Length (ft)	290	340					350	400		320	140	
Base Capacity (vph)	284	978	589	382	544	1509	328	578	1553	321	572	443
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.63	0.57	0.27	0.73	1.03	0.20	0.96	0.95	0.18	1.06	0.96	0.28

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Iron Horse Data Center TIA
1: Washington Hwy & England St

2039 Background - PM
HCM Signalized Intersection Capacity Analysis

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	171	528	152	263	533	292	298	522	261	322	523	118
Future Volume (vph)	171	528	152	263	533	292	298	522	261	322	523	118
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	9.3	9.3	9.3	9.3	9.3	4.0	8.4	8.4	4.0	8.4	8.4	8.4
Lane Util. Factor	1.00	0.95	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1805	3539	1583	1719	1863	1509	1805	3539	1553	1770	3505	1599
Flt Permitted	0.11	1.00	1.00	0.34	1.00	1.00	0.20	1.00	1.00	0.20	1.00	1.00
Satd. Flow (perm)	217	3539	1583	620	1863	1509	388	3539	1553	380	3505	1599
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	180	556	160	277	561	307	314	549	275	339	551	124
RTOR Reduction (vph)	0	0	116	0	0	0	0	0	0	0	0	104
Lane Group Flow (vph)	180	556	44	277	561	307	314	549	275	339	551	20
Heavy Vehicles (%)	0%	2%	2%	5%	2%	7%	0%	2%	4%	2%	3%	1%
Turn Type	D.P+P	NA	Perm	D.P+P	NA	Free	D.P+P	NA	Free	D.P+P	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	8		4	4		Free	6		Free	2		6
Actuated Green, G (s)	47.4	33.2	33.2	47.4	35.1	120.0	37.2	19.6	120.0	37.2	19.6	19.6
Effective Green, g (s)	47.4	33.2	33.2	47.4	35.1	120.0	37.2	19.6	120.0	37.2	19.6	19.6
Actuated g/C Ratio	0.39	0.28	0.28	0.39	0.29	1.00	0.31	0.16	1.00	0.31	0.16	0.16
Clearance Time (s)	9.3	9.3	9.3	9.3	9.3		8.4	8.4		8.4	8.4	8.4
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	248	979	437	374	544	1509	328	578	1553	321	572	261
v/s Ratio Prot	0.07	0.16		c0.09	c0.30		0.14	0.16		c0.15	0.16	
v/s Ratio Perm	0.21		0.03	0.20		c0.20	0.16		0.18	c0.17		0.01
v/c Ratio	0.73	0.57	0.10	0.74	1.03	0.20	0.96	0.95	0.18	1.06	0.96	0.08
Uniform Delay, d1	28.5	37.2	32.3	26.5	42.5	0.0	35.4	49.7	0.0	36.2	49.8	42.5
Progression Factor	1.00	1.00	1.00	1.59	0.71	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	10.1	2.4	0.5	7.1	45.2	0.3	38.0	25.2	0.2	65.8	28.4	0.1
Delay (s)	38.6	39.6	32.8	49.4	75.2	0.3	73.4	74.9	0.2	101.9	78.3	42.7
Level of Service	D	D	C	D	E	A	E	E	A	F	E	D
Approach Delay (s)		38.2			48.9			56.4			81.8	
Approach LOS		D			D			E			F	
Intersection Summary												
HCM 2000 Control Delay			56.6			HCM 2000 Level of Service				E		
HCM 2000 Volume to Capacity ratio			1.02									
Actuated Cycle Length (s)			120.0			Sum of lost time (s)				35.4		
Intersection Capacity Utilization			99.3%			ICU Level of Service				F		
Analysis Period (min)			15									
c Critical Lane Group												



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	39	1058	78	1128	61	65	64	247	99
v/c Ratio	0.27	0.49	0.35	0.50	0.43	0.44	0.20	0.65	0.25
Control Delay	49.3	22.9	67.5	14.4	61.2	61.0	1.4	52.3	34.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	49.3	22.9	67.5	14.4	61.2	61.0	1.4	52.3	34.6
Queue Length 50th (ft)	28	143	27	75	46	49	0	176	53
Queue Length 95th (ft)	m50	m229	m41	194	89	93	0	271	105
Internal Link Dist (ft)		901		1090		942			790
Turn Bay Length (ft)	235		260				170	155	
Base Capacity (vph)	245	2249	385	2344	185	194	356	380	393
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.16	0.47	0.20	0.48	0.33	0.34	0.18	0.65	0.25

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

Iron Horse Data Center TIA
2: Cottage Green Dr & England St

2039 Background - PM
HCM Signalized Intersection Capacity Analysis

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	37	979	36	75	930	153	59	62	61	237	63	32
Future Volume (vph)	37	979	36	75	930	153	59	62	61	237	63	32
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.7	4.9		7.6	5.1		7.9	7.9	7.9	7.5	7.5	
Lane Util. Factor	1.00	0.91		0.97	0.91		1.00	1.00	1.00	1.00	1.00	
Frt	1.00	0.99		1.00	0.98		1.00	1.00	0.85	1.00	0.95	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1805	5007		3213	4985		1805	1900	1583	1787	1781	
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	1805	5007		3213	4985		1805	1900	1583	1787	1781	
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	39	1020	38	78	969	159	61	65	64	247	66	33
RTOR Reduction (vph)	0	4	0	0	19	0	0	0	59	0	13	0
Lane Group Flow (vph)	39	1054	0	78	1109	0	61	65	5	247	86	0
Heavy Vehicles (%)	0%	3%	4%	9%	2%	1%	0%	0%	2%	1%	2%	0%
Turn Type	Prot	NA		Prot	NA		Split	NA	Perm	Split	NA	
Protected Phases	5	2		1	6		3	3		4	4	
Permitted Phases									3			
Actuated Green, G (s)	7.1	49.9		7.1	50.6		9.5	9.5	9.5	25.6	25.6	
Effective Green, g (s)	7.1	49.9		7.1	50.6		9.5	9.5	9.5	25.6	25.6	
Actuated g/C Ratio	0.06	0.42		0.06	0.42		0.08	0.08	0.08	0.21	0.21	
Clearance Time (s)	6.7	4.9		7.6	5.1		7.9	7.9	7.9	7.5	7.5	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	106	2082		190	2102		142	150	125	381	379	
v/s Ratio Prot	0.02	c0.21		0.02	c0.22		0.03	c0.03		c0.14	0.05	
v/s Ratio Perm									0.00			
v/c Ratio	0.37	0.51		0.41	0.53		0.43	0.43	0.04	0.65	0.23	
Uniform Delay, d1	54.3	25.9		54.4	25.8		52.7	52.7	51.0	43.1	39.0	
Progression Factor	0.89	0.85		1.20	0.54		1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	1.7	0.7		1.3	0.8		2.1	2.0	0.1	3.8	0.3	
Delay (s)	50.3	22.8		66.9	14.9		54.8	54.7	51.2	46.9	39.3	
Level of Service	D	C		E	B		D	D	D	D	D	
Approach Delay (s)		23.8			18.2			53.5			44.7	
Approach LOS		C			B			D			D	
Intersection Summary												
HCM 2000 Control Delay			26.0			HCM 2000 Level of Service				C		
HCM 2000 Volume to Capacity ratio			0.58									
Actuated Cycle Length (s)			120.0			Sum of lost time (s)			27.9			
Intersection Capacity Utilization			61.4%			ICU Level of Service			B			
Analysis Period (min)			15									
c Critical Lane Group												

										
Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	66	1135	186	290	1069	120	135	353	95	52
v/c Ratio	0.44	0.58	0.25	0.70	0.49	0.67	0.38	0.72	0.65	0.14
Control Delay	45.4	32.5	11.5	59.7	25.2	70.3	53.1	14.5	70.2	26.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	45.4	32.5	11.5	59.7	25.2	70.3	53.1	14.5	70.2	26.6
Queue Length 50th (ft)	53	290	54	111	231	95	51	0	71	8
Queue Length 95th (ft)	m99	368	130	158	275	#228	91	#120	127	27
Internal Link Dist (ft)		1090			235		916			977
Turn Bay Length (ft)	325		200	550		220		325	290	
Base Capacity (vph)	256	2002	763	466	2186	179	358	491	190	484
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.26	0.57	0.24	0.62	0.49	0.67	0.38	0.72	0.50	0.11
Intersection Summary										
# 95th percentile volume exceeds capacity, queue may be longer. Queue shown is maximum after two cycles.										
m Volume for 95th percentile queue is metered by upstream signal.										

Iron Horse Data Center TIA
3: Hill Carter Pkwy & England St

2039 Background - PM
HCM Signalized Intersection Capacity Analysis

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		  		 	  			 			 	
Traffic Volume (vph)	61	1056	173	270	936	59	224	13	328	88	22	26
Future Volume (vph)	61	1056	173	270	936	59	224	13	328	88	22	26
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.6	5.7	5.7	8.5	5.8		8.9	8.9	8.9	8.9	8.9	
Lane Util. Factor	1.00	0.91	1.00	0.97	0.91		0.91	0.91	1.00	1.00	0.95	
Frt	1.00	1.00	0.85	1.00	0.99		1.00	1.00	0.85	1.00	0.92	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	0.96	1.00	0.95	1.00	
Satd. Flow (prot)	1770	5036	1599	3367	4757		1610	3219	1599	1337	3229	
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	0.96	1.00	0.95	1.00	
Satd. Flow (perm)	1770	5036	1599	3367	4757		1610	3219	1599	1337	3229	
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	66	1135	186	290	1006	63	241	14	353	95	24	28
RTOR Reduction (vph)	0	0	116	0	5	0	0	0	314	0	25	0
Lane Group Flow (vph)	66	1135	70	290	1064	0	120	135	39	95	27	0
Heavy Vehicles (%)	2%	3%	1%	4%	5%	57%	2%	10%	1%	35%	6%	0%
Turn Type	Prot	NA	Perm	Prot	NA		Split	NA	Perm	Split	NA	
Protected Phases	5	2		1	6		3	3		4	4	
Permitted Phases			2						3			
Actuated Green, G (s)	8.6	45.0	45.0	16.3	53.5		13.4	13.4	13.4	13.3	13.3	
Effective Green, g (s)	8.6	45.0	45.0	16.3	53.5		13.4	13.4	13.4	13.3	13.3	
Actuated g/C Ratio	0.07	0.38	0.38	0.14	0.45		0.11	0.11	0.11	0.11	0.11	
Clearance Time (s)	7.6	5.7	5.7	8.5	5.8		8.9	8.9	8.9	8.9	8.9	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	126	1888	599	457	2120		179	359	178	148	357	
v/s Ratio Prot	0.04	c0.23		0.09	c0.22		c0.07	0.04		c0.07	0.01	
v/s Ratio Perm			0.04						0.02			
v/c Ratio	0.52	0.60	0.12	0.63	0.50		0.67	0.38	0.22	0.64	0.08	
Uniform Delay, d1	53.7	30.3	24.5	49.0	23.7		51.2	49.4	48.5	51.1	47.8	
Progression Factor	0.72	1.04	4.77	1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	3.5	1.3	0.4	2.9	0.9		9.5	0.7	0.6	9.2	0.1	
Delay (s)	42.2	32.8	117.3	51.9	24.6		60.6	50.1	49.2	60.2	47.9	
Level of Service	D	C	F	D	C		E	D	D	E	D	
Approach Delay (s)		44.6			30.4			51.6			55.9	
Approach LOS		D			C			D			E	
Intersection Summary												
HCM 2000 Control Delay			40.8			HCM 2000 Level of Service			D			
HCM 2000 Volume to Capacity ratio			0.63									
Actuated Cycle Length (s)			120.0			Sum of lost time (s)			32.0			
Intersection Capacity Utilization			67.0%			ICU Level of Service			C			
Analysis Period (min)			15									
c Critical Lane Group												

Iron Horse Data Center TIA
4: S. Carter St/N. Carter St & England St

2039 Background - PM
HCM Unsignalized Intersection Capacity Analysis

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↑			↑↑↑				↗			↗
Traffic Volume (veh/h)	0	1427	66	0	1293	48	0	0	41	0	0	6
Future Volume (Veh/h)	0	1427	66	0	1293	48	0	0	41	0	0	6
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	1551	72	0	1405	52	0	0	45	0	0	7
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type	None			None								
Median storage veh												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	1457			1623			2062	3044	553	1993	3054	494
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1457			1623			2062	3044	553	1993	3054	494
tC, single (s)	4.1			4.1			7.5	6.5	7.1	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.4	3.5	4.0	3.3
p0 queue free %	100			100			100	100	90	100	100	99
cM capacity (veh/h)	470			406			32	13	459	33	13	526
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	NB 1	SB 1				
Volume Total	620	620	382	562	562	333	45	7				
Volume Left	0	0	0	0	0	0	0	0				
Volume Right	0	0	72	0	0	52	45	7				
cSH	1700	1700	1700	1700	1700	1700	459	526				
Volume to Capacity	0.36	0.36	0.22	0.33	0.33	0.20	0.10	0.01				
Queue Length 95th (ft)	0	0	0	0	0	0	8	1				
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	13.7	11.9				
Lane LOS							B	B				
Approach Delay (s)	0.0			0.0			13.7	11.9				
Approach LOS							B	B				
Intersection Summary												
Average Delay	0.2											
Intersection Capacity Utilization	39.0%			ICU Level of Service					A			
Analysis Period (min)	15											

Iron Horse Data Center TIA
5: I-95 SB Ramp & England St/Patrick Henry Hwy

2039 Background - PM
HCM Unsignalized Intersection Capacity Analysis

																
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR				
Lane Configurations		↑↑	↑	↑	↑↑						↑	↑				
Traffic Volume (veh/h)	0	657	939	229	1140	0	0	0	0	27	1	265				
Future Volume (Veh/h)	0	657	939	229	1140	0	0	0	0	27	1	265				
Sign Control		Free			Free			Stop			Stop					
Grade		0%			0%			0%			0%					
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97				
Hourly flow rate (vph)	0	677	968	236	1175	0	0	0	0	28	1	273				
Pedestrians																
Lane Width (ft)																
Walking Speed (ft/s)																
Percent Blockage																
Right turn flare (veh)																
Median type	None				None											
Median storage veh																
Upstream signal (ft)	976															
pX, platoon unblocked																
vC, conflicting volume	1175			677			1737	2324	338	1986	2324	588				
vC1, stage 1 conf vol																
vC2, stage 2 conf vol																
vCu, unblocked vol	1175			677			1737	2324	338	1986	2324	588				
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.8	6.5	7.1				
tC, 2 stage (s)																
tF (s)	2.2			2.2			3.5	4.0	3.3	3.6	4.0	3.4				
p0 queue free %	100			74			100	100	100	0	96	37				
cM capacity (veh/h)	602			911			17	28	663	25	28	435				
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	SB 1	SB 2								
Volume Total	338	338	968	236	588	588	29	273								
Volume Left	0	0	0	236	0	0	28	0								
Volume Right	0	0	968	0	0	0	0	273								
cSH	1700	1700	1700	911	1700	1700	25	435								
Volume to Capacity	0.20	0.20	0.57	0.26	0.35	0.35	1.15	0.63								
Queue Length 95th (ft)	0	0	0	26	0	0	89	105								
Control Delay (s)	0.0	0.0	0.0	10.3	0.0	0.0	455.5	26.2								
Lane LOS				B			F		D							
Approach Delay (s)	0.0				1.7	67.4										
Approach LOS																
Intersection Summary																
Average Delay				6.8												
Intersection Capacity Utilization				84.2%			ICU Level of Service			E						
Analysis Period (min)				15												

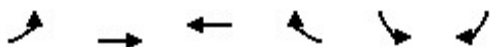
Iron Horse Data Center TIA
6: I-95 NB Ramp & Patrick Henry Hwy

2039 Background - PM
HCM Unsignalized Intersection Capacity Analysis

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		 			 							
Traffic Volume (veh/h)	264	415	0	0	582	37	0	0	247	0	0	786
Future Volume (Veh/h)	264	415	0	0	582	37	0	0	247	0	0	786
Sign Control		Free			Free			Yield			Yield	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Hourly flow rate (vph)	275	432	0	0	606	39	0	0	257	0	0	819
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage (veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	606			432			1285	1588	216	1372	1588	303
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	606			432			1285	1588	216	1372	1588	303
tC, single (s)	4.2			4.1			7.5	6.5	6.9	7.5	6.5	7.0
tC, 2 stage (s)												
tF (s)	2.3			2.2			3.5	4.0	3.3	3.5	4.0	3.4
p0 queue free %	71			100			0	100	68	100	100	0
cM capacity (veh/h)	935			1138			0	77	795	56	77	681
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	NB 1	SB 1				
Volume Total	275	216	216	303	303	39	257	819				
Volume Left	275	0	0	0	0	0	0	0				
Volume Right	0	0	0	0	0	39	257	819				
cSH	935	1700	1700	1700	1700	1700	795	681				
Volume to Capacity	0.29	0.13	0.13	0.18	0.18	0.02	0.32	1.20				
Queue Length 95th (ft)	31	0	0	0	0	0	35	703				
Control Delay (s)	10.4	0.0	0.0	0.0	0.0	0.0	11.7	126.0				
Lane LOS	B						B	F				
Approach Delay (s)	4.1			0.0			11.7	126.0				
Approach LOS							B	F				
Intersection Summary												
Average Delay			44.9									
Intersection Capacity Utilization			71.4%			ICU Level of Service		C				
Analysis Period (min)			15									

Iron Horse Data Center TIA
7: Patrick Henry Hwy & Telcourt Rd

2039 Background - PM
HCM Unsignalized Intersection Capacity Analysis

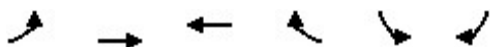


Movement	EBL	EBT	WBT	WBR	SBL	SBR	
Lane Configurations							
Traffic Volume (veh/h)	39	605	544	13	3	31	
Future Volume (Veh/h)	39	605	544	13	3	31	
Sign Control		Free	Free		Stop		
Grade		0%	0%		0%		
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	
Hourly flow rate (vph)	42	658	591	14	3	34	
Pedestrians							
Lane Width (ft)							
Walking Speed (ft/s)							
Percent Blockage							
Right turn flare (veh)							
Median type		None	None				
Median storage veh							
Upstream signal (ft)							
pX, platoon unblocked							
vC, conflicting volume	605				1004	296	
vC1, stage 1 conf vol							
vC2, stage 2 conf vol							
vCu, unblocked vol	605				1004	296	
tC, single (s)	4.3				6.8	6.9	
tC, 2 stage (s)							
tF (s)	2.3				3.5	3.3	
p0 queue free %	95				99	95	
cM capacity (veh/h)	916				231	707	
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	SB 1
Volume Total	42	329	329	296	296	14	37
Volume Left	42	0	0	0	0	0	3
Volume Right	0	0	0	0	0	14	34
cSH	916	1700	1700	1700	1700	1700	606
Volume to Capacity	0.05	0.19	0.19	0.17	0.17	0.01	0.06
Queue Length 95th (ft)	4	0	0	0	0	0	5
Control Delay (s)	9.1	0.0	0.0	0.0	0.0	0.0	11.3
Lane LOS	A						B
Approach Delay (s)	0.5			0.0			11.3
Approach LOS							B
Intersection Summary							
Average Delay			0.6				
Intersection Capacity Utilization			31.7%		ICU Level of Service		A
Analysis Period (min)			15				

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	24	535	31	12	468	5	48	3	21	3	3	36
Future Volume (Veh/h)	24	535	31	12	468	5	48	3	21	3	3	36
Sign Control	Free			Free			Stop			Stop		
Grade	0%			0%			0%			0%		
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	26	582	34	13	509	5	52	3	23	3	3	39
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type	None			None								
Median storage (veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	514			616			1226	1191	599	1194	1203	509
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	514			616			1226	1191	599	1194	1203	509
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	98			99			63	98	95	98	98	93
cM capacity (veh/h)	1062			974			140	182	505	151	179	568
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	SB 1						
Volume Total	26	616	522	5	78	45						
Volume Left	26	0	13	0	52	3						
Volume Right	0	34	0	5	23	39						
cSH	1062	1700	974	1700	180	428						
Volume to Capacity	0.02	0.36	0.01	0.00	0.43	0.11						
Queue Length 95th (ft)	2	0	1	0	50	9						
Control Delay (s)	8.5	0.0	0.4	0.0	39.5	14.4						
Lane LOS	A		A		E	B						
Approach Delay (s)	0.3		0.4		39.5	14.4						
Approach LOS					E	B						
Intersection Summary												
Average Delay				3.2								
Intersection Capacity Utilization				51.7%	ICU Level of Service			A				
Analysis Period (min)				15								

Iron Horse Data Center TIA
9: Patrick Henry Hwy & Woodside Ln

2039 Background - PM
HCM Unsignalized Intersection Capacity Analysis



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	184	370	330	18	33	151
Future Volume (Veh/h)	184	370	330	18	33	151
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	200	402	359	20	36	164
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						12
Median type		None	None			
Median storage veh						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	379				1171	369
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	379				1171	369
tC, single (s)	4.1				6.5	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.6	3.3
p0 queue free %	83				79	76
cM capacity (veh/h)	1191				172	679
Direction, Lane #	EB 1	EB 2	WB 1	SB 1		
Volume Total	200	402	379	200		
Volume Left	200	0	0	36		
Volume Right	0	0	20	164		
cSH	1191	1700	1700	828		
Volume to Capacity	0.17	0.24	0.22	0.24		
Queue Length 95th (ft)	15	0	0	24		
Control Delay (s)	8.6	0.0	0.0	15.5		
Lane LOS	A			C		
Approach Delay (s)	2.9		0.0	15.5		
Approach LOS				C		
Intersection Summary						
Average Delay			4.1			
Intersection Capacity Utilization			42.0%	ICU Level of Service		A
Analysis Period (min)			15			

Iron Horse Data Center TIA
10: Goddins Hill Rd & Patrick Henry Hwy

2039 Background - PM
HCM Unsignalized Intersection Capacity Analysis

	→	↘	↙	←	↖	↗
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑	↗		↖	↘↗	
Traffic Volume (veh/h)	325	37	40	265	36	73
Future Volume (Veh/h)	325	37	40	265	36	73
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	353	40	43	288	39	79
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			393		727	353
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			393		727	353
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			96		90	89
cM capacity (veh/h)			1177		380	695
Direction, Lane #	EB 1	EB 2	WB 1	NB 1		
Volume Total	353	40	331	118		
Volume Left	0	0	43	39		
Volume Right	0	40	0	79		
cSH	1700	1700	1177	545		
Volume to Capacity	0.21	0.02	0.04	0.22		
Queue Length 95th (ft)	0	0	3	20		
Control Delay (s)	0.0	0.0	1.4	13.4		
Lane LOS			A	B		
Approach Delay (s)	0.0		1.4	13.4		
Approach LOS				B		
Intersection Summary						
Average Delay			2.4			
Intersection Capacity Utilization			49.7%	ICU Level of Service		A
Analysis Period (min)			15			

Intersection: 1: Washington Hwy & England St

Movement	EB	EB	EB	EB	WB	WB	WB	NB	NB	NB	NB	SB
Directions Served	L	T	T	R	L	T	R	L	T	T	R	L
Maximum Queue (ft)	228	287	269	95	778	876	571	350	628	583	80	316
Average Queue (ft)	116	149	160	31	325	604	79	264	323	286	23	264
95th Queue (ft)	197	241	241	69	755	992	449	408	633	571	176	378
Link Distance (ft)	1170				891	891	891	1257		1257		
Upstream Blk Time (%)					1	4	0					
Queuing Penalty (veh)					3	12	1					
Storage Bay Dist (ft)	290	340		340				350			400	320
Storage Blk Time (%)	0	0	0					18	13	3	0	25
Queuing Penalty (veh)	0	1	0					47	39	7	0	65

Intersection: 1: Washington Hwy & England St

Movement	SB	SB	SB
Directions Served	T	T	R
Maximum Queue (ft)	658	581	140
Average Queue (ft)	368	333	97
95th Queue (ft)	696	623	178
Link Distance (ft)	1361	1361	
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)	140		
Storage Blk Time (%)	16	35	1
Queuing Penalty (veh)	52	41	3

Intersection: 2: Cottage Green Dr & England St

Movement	EB	EB	EB	EB	WB	WB	WB	WB	WB	NB	NB	NB
Directions Served	L	T	T	TR	L	L	T	T	TR	L	T	R
Maximum Queue (ft)	89	171	279	249	73	178	306	332	316	122	110	76
Average Queue (ft)	32	90	114	148	16	53	112	143	125	49	51	34
95th Queue (ft)	72	149	215	218	51	144	294	324	293	102	97	65
Link Distance (ft)		891	891	891			1075	1075	1075	954	954	
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (ft)	235				260	260						170
Storage Blk Time (%)						0	2					
Queuing Penalty (veh)						0	2					

Intersection: 2: Cottage Green Dr & England St

Movement	SB	SB
Directions Served	L	TR
Maximum Queue (ft)	154	375
Average Queue (ft)	137	148
95th Queue (ft)	176	326
Link Distance (ft)		803
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)	155	
Storage Blk Time (%)	16	2
Queuing Penalty (veh)	15	6

Intersection: 3: Hill Carter Pkwy & England St

Movement	EB	EB	EB	EB	EB	WB	WB	WB	WB	WB	NB	NB
Directions Served	L	T	T	T	R	L	L	T	T	TR	L	LT
Maximum Queue (ft)	146	306	470	542	200	186	183	253	259	279	175	192
Average Queue (ft)	53	168	261	343	147	101	95	135	148	160	75	119
95th Queue (ft)	104	262	416	499	272	160	157	218	227	248	155	182
Link Distance (ft)		1075	1075	1075		214	214	214	214	214		920
Upstream Blk Time (%)						0	0	1	1	2		
Queuing Penalty (veh)						0	0	2	3	5		
Storage Bay Dist (ft)	325				200						220	
Storage Blk Time (%)		0		19	1						0	0
Queuing Penalty (veh)		0		33	4						0	0

Intersection: 3: Hill Carter Pkwy & England St

Movement	NB	NB	SB	SB	SB
Directions Served	T	R	L	T	TR
Maximum Queue (ft)	146	268	201	54	42
Average Queue (ft)	13	131	82	12	13
95th Queue (ft)	78	230	167	38	34
Link Distance (ft)	920			976	976
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (ft)		325	290		
Storage Blk Time (%)	0	0			
Queuing Penalty (veh)	0	0			

Intersection: 4: S. Carter St/N. Carter St & England St

Movement	EB	EB	WB	WB	B41	B41	B41	NB	SB
Directions Served	T	TR	T	TR	T	T	T	R	R
Maximum Queue (ft)	71	143	1	11	29	8	12	91	27
Average Queue (ft)	3	11	0	0	1	0	1	30	4
95th Queue (ft)	41	77	1	6	18	6	9	68	20
Link Distance (ft)	214	214	275	275	269	269	269	315	396
Upstream Blk Time (%)	0	0							
Queuing Penalty (veh)	0	0							
Storage Bay Dist (ft)									
Storage Blk Time (%)									
Queuing Penalty (veh)									

Intersection: 5: I-95 SB Ramp & England St/Patrick Henry Hwy

Movement	EB	EB	B41	B41	WB	WB	SB
Directions Served	T	T	T	T	L	T	LT
Maximum Queue (ft)	3	7	33	4	118	2	102
Average Queue (ft)	0	0	1	0	48	0	31
95th Queue (ft)	0	3	34	5	91	2	79
Link Distance (ft)	269	269	275	275	207	207	
Upstream Blk Time (%)			0				
Queuing Penalty (veh)			0				
Storage Bay Dist (ft)							150
Storage Blk Time (%)							0
Queuing Penalty (veh)							0

Intersection: 6: I-95 NB Ramp & Patrick Henry Hwy

Movement	EB	WB	WB
Directions Served	L	T	T
Maximum Queue (ft)	144	17	12
Average Queue (ft)	54	1	0
95th Queue (ft)	112	10	8
Link Distance (ft)		189	189
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)	435		
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 7: Patrick Henry Hwy & Telcourt Rd

Movement	EB	WB	SB
Directions Served	L	R	LR
Maximum Queue (ft)	54	29	50
Average Queue (ft)	14	3	24
95th Queue (ft)	42	17	48
Link Distance (ft)			754
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)	100	50	
Storage Blk Time (%)	0	0	
Queuing Penalty (veh)	0	0	

Intersection: 8: Mt. Hermon Rd/Frances Rd & Patrick Henry Hwy

Movement	EB	EB	WB	WB	NB	SB
Directions Served	L	TR	LT	R	LTR	LTR
Maximum Queue (ft)	29	5	74	2	69	46
Average Queue (ft)	7	0	8	0	31	21
95th Queue (ft)	25	5	42	2	58	41
Link Distance (ft)	242	242	1048		603	993
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)				110		
Storage Blk Time (%)			0			
Queuing Penalty (veh)			0			

Intersection: 9: Patrick Henry Hwy & Woodside Ln

Movement	EB	WB	SB	SB
Directions Served	L	TR	L	R
Maximum Queue (ft)	99	2	71	87
Average Queue (ft)	34	0	25	44
95th Queue (ft)	73	2	57	70
Link Distance (ft)		463	1062	
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)	300		290	
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 10: Goddins Hill Rd & Patrick Henry Hwy

Movement	EB	WB	NB
Directions Served	R	LT	LR
Maximum Queue (ft)	4	55	62
Average Queue (ft)	0	10	27
95th Queue (ft)	4	36	47
Link Distance (ft)		2248	1612
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)	200		
Storage Blk Time (%)			
Queuing Penalty (veh)			

Network Summary

Network wide Queuing Penalty: 343

Appendix J

Bowman Data Center Study, March 2023

Bowman

Memorandum

To: Mr. Casey Frazier
Sr. Real Estate Development Manager
AWS Data Center Supply Solutions

From: Michael J. Young, P.E.

Date: 3/24/2023

Re: Potomac Church AWS Data Center – Trip Generation Assessment



As requested, Bowman has conducted a trip generation assessment for the proposed Potomac Church Amazon Web Services (AWS) Data Center development to be located in Stafford County, Virginia. The proposed development is expected to consist of two (2) Data Center buildings with a cumulative size of approximately 510,000 S.F.

The purpose of this memorandum is to evaluate the anticipated site trips generated by the proposed Data Center facility, and to determine if the development meets the requirements for the preparation of a Traffic Impact Analysis (TIA) per local guidelines.

Background Information

The proposed development is expected to be located nearby US Route 1 along the eastern side of Old Potomac Church Road to the south of Hospital Center Boulevard, in Stafford County, Virginia. **Figure 1** depicts the site location.



Figure 1. Site location

The Applicant is proposing to develop the site with two (2) two-story Data Center Buildings with a cumulative size of 510,000 S.F.

The conceptual plan for the Potomac Church AWS Data Center development is depicted on **Figure 2** and included in **Attachment A** to this memorandum.

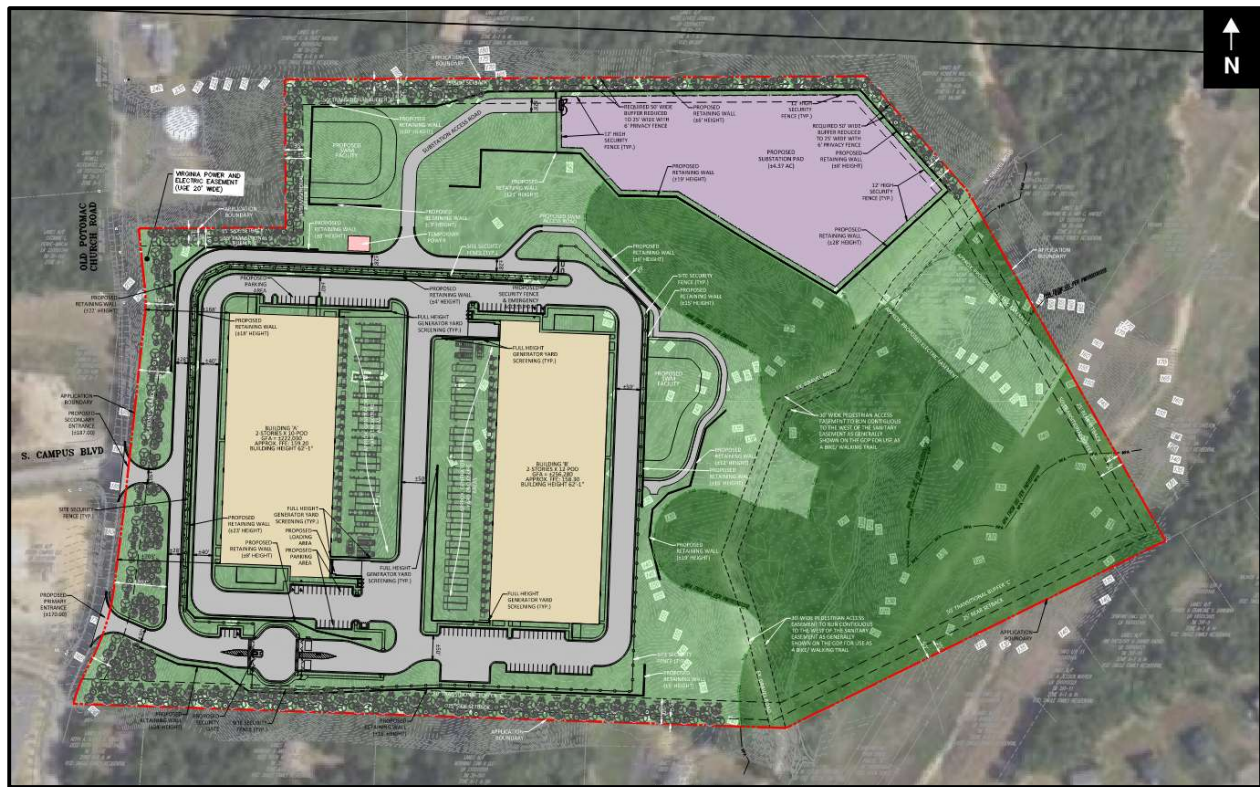


Figure 2. Conceptual Plan.

As shown on **Figure 2**, access to the proposed development is expected to be provided via two (2) full-access driveways along Old Potomac Church Road.

The primary site driveway is to be located along Old Potomac Church Road to the south of the intersection with S. Campus Boulevard, and the secondary site driveway is expected to form the fourth leg of the existing three-legged intersection of Old Potomac Church Road and S. Campus Boulevard. To access these site driveways, it is anticipated that the proposed development's site traffic will utilize S. Campus Boulevard.

Existing Roadway Network

US Route 1 within the identified study area is a four-lane undivided roadway with exclusive turning lanes, listed as a Principal Arterial on VDOT's 2014 Functional Classification Map. It has a north-south alignment with a posted speed limit of 45 mph to the north of S. Campus Blvd, and a posted speed limit of 50 mph to the south of S. Campus Blvd. According to published VDOT traffic data, US Route 1 currently carries an average daily traffic (ADT) of 13,000 vehicles.

Old Potomac Church Road within the identified study area is a two-lane undivided roadway with no pavement markings, listed as a Local Street on VDOT's 2014 Functional Classification Map. It has a north-south alignment and a posted speed limit of 25 mph. There is no published VDOT traffic data available for this roadway segment.

S. Campus Boulevard within the identified study area is a two-lane undivided roadway, listed as a Local Street on VDOT's 2014 Functional Classification Map. It has an east-west alignment and a posted speed limit of 35 mph. There is no published VDOT traffic data available for this roadway segment.

Trip Generation Assessment

Trip Generation Methodology

The trip generation projections for the proposed site were developed based on existing traffic data for similar data center facilities within the Commonwealth of Virginia.

Amazon Web Services constructs data centers throughout the country and the Commonwealth. The data centers developed by AWS are unique compared to typical data centers because of their highly specialized and modern facilities which require fewer external trips to the roadway network due to their efficient operations and automated systems.

Bowman prepared and developed a Trip Generation Assessment in March 2023 to determine the average weekday and peak hour trip generation rates for these facilities based on actual data from fully operational sites. This assessment was developed in coordination with VDOT's Fredericksburg District and Central Office, and the assessment has been approved by both entities for use in this evaluation.

The results of this evaluation yielded the following average weekday, AM peak hour, and PM peak hour trip generation rates for the existing data center facilities:

- 0.75 Daily Trips per 1,000 S.F.
- 0.09 AM Peak Hour Trips per 1,000 S.F.
- 0.03 PM Peak Hour Trips per 1,000 S.F.

The AWS Data Center Trip Generation Methodology document is included in **Attachment B** to this memorandum.

Trip Generation Calculations

The projected site trips generated by the proposed development were calculated based on the methodology outlined above. As previously mentioned, the proposed development is expected to consist of two (2) Data Center buildings with a cumulative size of 510,000 S.F.

Table 1 outlines the projected morning peak hour, evening peak hour, and average weekday trip generation for the proposed development.

Table 1. Site Trip Generation

Development ⁽¹⁾	Size	Units	Weekday AM Peak Hour	Weekday PM Peak Hour	Average Weekday
Potomac Church AWS Data Center	510,000	S.F.	46	15	383

(1) Trips based on the 2023 AWS Data Center Trip Generation Assessment prepared by Bowman

As shown in **Table 2**, the proposed development is expected to generate 46 trips during the morning peak hour, 15 trips during the evening peak hour, and 383 trips during an average weekday.

Determination of the Need for a Traffic Impact Analysis (TIA)

The proposed development is to be located in Stafford County, Virginia. The Stafford County *Zoning Reclassification Application Packet, revised August 2020* notes that a Traffic Impact Analysis (TIA) is required for any proposed development that is anticipated to generate 1,000 or more vehicle trips per day.

The evaluation contained in this memorandum indicates that the proposed development is anticipated to generate **383 daily trips**.

Therefore, as the total projected site trips are below the threshold of 1,000 vehicle trips per day, the preparation of a TIA is not required for the proposed development based on Stafford County standards.

ATTACHMENT A:

Proposed Conceptual Plan

STAFFORD COUNTY, VIRGINIA

DRAFT

PLAN STATUS		
02/07/23	ISSUED TO CLIENT	
DATE	DESCRIPTION	
DESIGN	GDE DRAWN	GDE/M/ CHKD
SCALE	H: 1"=80' V: N/A	
JOB No. 100475-01-002		
DATE : FEBRUARY, 2023		
FILE No.		
SHEET	4 OF 6	

	DEVELOPED AREA (APPROX.)		LIGHT INDUSTRIAL/DATA CENTER BUILDING
	OPEN SPACE AREA (APPROX.)		SUBSTATION
	APPLICATION AREA		AUXILIARY BUILDING

1. THIS PLAN IS SUBJECT TO TECHNICAL MODIFICATIONS OR ADJUSTMENTS PER THE STAFFORD COUNTY ZONING ORDINANCE.
2. THE AREA FOR DEVELOPMENT MAY BE SUBJECT TO ADJUSTMENTS FOR THE PURPOSE OF CONSTRUCTABILITY/ CONTRACTORS LIMIT OF DISTURBANCE. SUCH ADJUSTMENTS WILL BE CLARIFIED AT THE SITE PLAN STAGE.
3. NO FURTHER SETBACK/ LANDSCAPE/ SCREENING BUFFERS WILL BE REQUIRED AROUND ANY NEW LOTS CREATED FOR UTILITY PURPOSES.
4. SUBSTATION EQUIPMENT VISIBLE ABOVE THE FENCE LINE WILL NOT REQUIRE ADDITIONAL SCREENING AND ARE EXEMPT FROM HEIGHT REQUIREMENTS.



ATTACHMENT B:

2023 AWS Data Center Trip Generation Assessment

Bowman

Memorandum

To: Mr. Casey Frazier
Sr. Real Estate Development Manager
AWS Data Center Supply Solutions

From: Michael J. Young, P.E.

Date: 3/15/2023

Re: AWS Data Center Trip Generation Assessment

As requested, Bowman has prepared a trip generation assessment to determine the weighted average trip generation rate for Amazon Web Services (AWS) Data Centers located in the Commonwealth of Virginia. This evaluation was performed in accordance with the criteria and guidelines established in the Institute of Transportation Engineers (ITE) *Trip Generation Handbook, 3rd Edition*.

Background Information

AWS develops and constructs data centers throughout the country and the Commonwealth of Virginia. The data centers developed by AWS are highly specialized and modern facilities, and the evolving design of these facilities incorporate efficient operations and automated systems.

There are several data centers planned in Virginia by AWS and, as part of the development of these sites, traffic projections need to be developed to anticipate potential impacts.

The ITE *Trip Generation Manual, 11th Edition* includes such traffic projection information for data center sites. However, the trip generation rates from the Manual were developed based on two (2) surveyed sites for daily trips, six (6) surveyed sites for AM peak hour trips, and five (5) surveyed sites for PM peak hour trips. Due to the limited number of surveyed sites, the Trip Generation Manual offers the following disclaimer for this information:

"Caution should be used when applying trip generation rates for data centers, as the database contains a small number of sites with limited data on the number of tenants and employees."

Data centers have a very small number of visitors, and the majority of trips are typically driven by employees or deliveries. Due to the technological advancements referenced above, data centers have become more efficient over time and rely on fewer on-site employees to operate.

The ITE Trip Generation Manual notes that the sites included were surveyed in the 2010s. Due to the aforementioned technological advancements, it is also likely that the traffic generation rates from the 2010s are no longer applicable to newer facilities.

Therefore, Bowman has prepared this trip generation assessment based on historical data of already established campuses with the following purposes:

1. To determine the average weekday, morning peak hour, and evening peak hour trip generation rates for a fully operational AWS Data Center. These average rates will be developed based on data from six (6) existing facilities, and will then be utilized throughout the planning process for future AWS Data Center developments in the Commonwealth of Virginia.
2. To compare these trip generation rates to the trip generation data documented in the ITE *Trip Generation Manual, 11th Edition*.

Methodology

The methodology utilized for this assessment was developed based on the criteria and guidelines included in the ITE *Trip Generation Handbook, 3rd Edition*, Chapter 9, "Use of Local Data to Estimate Trip Generation." Chapter 9 outlines the process for calculating the weighted average trip rate based on traffic data collected from existing facilities.

Chapter 9 also notes that trip generation data should be collected at a minimum of three (3) local sites, but that collecting data at five (5) or more sites is preferable. Please note that, for the purposes of this evaluation, trip generation information from six (6) existing sites was evaluated.

Site Selection

For the purposes of this assessment, traffic data was collected from six (6) existing AWS Data Center campuses, all of which are located within the Commonwealth of Virginia. The sites surveyed are similar in both size and anticipated operations as the future data centers planned in Virginia by AWS.

Additional information regarding the building square footage and number of employees at each surveyed campus is as follows:

- Campus 1: 285,000 SF / 50 Employees
- Campus 2: 600,000 SF / 100 Employees
- Campus 3: 520,000 SF / 75 Employees
- Campus 4: 310,000 SF / 50 Employees
- Campus 5: 435,000 SF / 75 Employees
- Campus 6: 725,000 SF / 160 Employees

Trip Generation Data Collection

Cumulative trip data for each campus identified above was provided by AWS for the time period of January, 2022 to January, 2023. The AWS Data Centers are all secure facilities with historical data records, and the trip data provided to Bowman was extracted from the security card readers at each campus entrance.

The data center campuses surveyed included auxiliary spaces for site maintenance and support services which do not generate additional site trips. These auxiliary spaces vary in size from campus to campus, and therefore, the square footage of these areas was not included as part of the development of the trip generation rates for the actual data center buildings.

However, all existing site trips pertinent to the overall data center operations (including the auxiliary spaces) were included in the traffic data captured and evaluated in this memorandum.

Typical vehicle and heavy vehicle information was able to be included in this dataset, as the security gates at the facilities have separate card readers for trucks vs. passenger cars.

The trip data provided to Bowman was further refined to only include the card reader information recorded on an average weekday (Tuesday, Wednesday, or Thursday). The card reader information is timestamped, and therefore, the AM and PM peak hour trips for each campus were able to be extracted from the highest one-hour period of trips from 7:00 AM – 9:00 AM (AM peak), and from 4:00 PM – 6:00 PM (PM peak).

Data Summary and Evaluation

Based on the data provided, the existing trips per day for each surveyed campus were developed as shown in **Table 1**.

Table 1. Existing Campus Trips per Day

Campus	No. of Average Weekdays Recorded Jan '22 - Jan '23	Trip Type	Total Recorded Daily Trips Jan '22 - Jan '23	Trips per Day	Total Recorded AM Peak Trips Jan '22 - Jan '23	AM Peak Hour Trips per Day	Total Recorded PM Peak Trips Jan '22 - Jan '23	PM Peak Hour Trips per Day
Campus 1	159	Car	39,272	246.99	4,360	27.42	1,583	9.96
		Truck	1,500	9.43	95	0.60	0	0.00
		TOTAL	40,772	256.43	4,455	28.02	1,583	9.96
Campus 2	159	Car	90,362	568.31	11,238	70.68	3,263	20.52
		Truck	2,026	12.74	198	1.25	7	0.04
		TOTAL	92,388	581.06	11,436	71.92	3,270	20.57
Campus 3	130	Car	41,442	318.78	5,867	45.13	1,930	14.85
		Truck	646	4.97	84	0.65	7	0.05
		TOTAL	42,088	323.75	5,951	45.78	1,937	14.90
Campus 4	159	Car	29,504	185.56	2,442	15.36	1,373	8.64
		Truck	3,984	25.06	195	1.23	60	0.38
		TOTAL	33,488	210.62	2,637	16.58	1,433	9.01
Campus 5	159	Car	45,538	286.40	6,309	39.68	1,863	11.72
		Truck	5,782	36.36	653	4.11	60	0.38
		TOTAL	51,320	322.77	6,962	43.79	1,923	12.09
Campus 6	130	Car	58,394	449.18	7,871	60.55	2,333	17.95
		Truck	2,324	17.88	285	2.19	50	0.38
		TOTAL	60,718	467.06	8,156	62.74	2,383	18.33

The campus-specific size and number of employees were then applied to these total trips to develop the average trips per 1,000 SF and the average trips per employee at each campus as shown in **Table 2**.

Table 2. Average Campus Trips per 1,000 SF and per Employee

Campus	Square Footage (SF)	No. of Employees	Trip Type	Trips per Day	Daily Trips per 1,000 SF	Daily Trips per Employee	AM Peak Hour Trips per Day	AM Peak Hour Trips per 1,000 SF	AM Peak Hour Trips per Employee	PM Peak Hour Trips per Day	PM Peak Hour Trips per 1,000 SF	PM Peak Hour Trips per Employee
Campus 1	285,000	50	Car	246.99	0.87	4.94	27.42	0.10	0.55	9.96	0.03	0.20
			Truck	9.43	0.03	0.19	0.60	0.00	0.01	0.00	0.00	0.00
			TOTAL	256.43	0.90	5.13	28.02	0.10	0.56	9.96	0.03	0.20
Campus 2	600,000	100	Car	568.31	0.95	5.68	70.68	0.12	0.71	20.52	0.03	0.21
			Truck	12.74	0.02	0.13	1.25	0.00	0.01	0.04	0.00	0.00
			TOTAL	581.06	0.97	5.81	71.92	0.12	0.72	20.57	0.03	0.21
Campus 3	520,000	75	Car	318.78	0.61	4.25	45.13	0.09	0.60	14.85	0.03	0.20
			Truck	4.97	0.01	0.07	0.65	0.00	0.01	0.05	0.00	0.00
			TOTAL	323.75	0.62	4.32	45.78	0.09	0.61	14.90	0.03	0.20
Campus 4	310,000	50	Car	185.56	0.60	3.71	15.36	0.05	0.31	8.64	0.03	0.17
			Truck	25.06	0.08	0.50	1.23	0.00	0.02	0.38	0.00	0.01
			TOTAL	210.62	0.68	4.21	16.58	0.05	0.33	9.01	0.03	0.18
Campus 5	435,000	75	Car	286.40	0.66	3.82	39.68	0.09	0.53	11.72	0.03	0.16
			Truck	36.36	0.08	0.48	4.11	0.01	0.05	0.38	0.00	0.01
			TOTAL	322.77	0.74	4.30	43.79	0.10	0.58	12.09	0.03	0.16
Campus 6	725,000	160	Car	449.18	0.62	2.81	60.55	0.08	0.38	17.95	0.02	0.11
			Truck	17.88	0.02	0.11	2.19	0.00	0.01	0.38	0.00	0.00
			TOTAL	467.06	0.64	2.92	62.74	0.09	0.39	18.33	0.03	0.11

The cumulative trip, square footage, and employee data across all six (6) campuses were then combined to develop the weighted average trip rates per the criteria in the *ITE Trip Generation Handbook, 3rd Edition*.

The weighted average trip generation rates are shown in **Table 3**.

Table 3. Weighted Average Trip Generation Rates

	Square Footage (SF)	No. of Employees	Trip Type	Trips per Day	Daily Trips per 1,000 SF	Daily Trips per Employee	AM Peak Hour Trips per Day	AM Peak Hour Trips per 1,000 SF	AM Peak Hour Trips per Employee	PM Peak Hour Trips per Day	PM Peak Hour Trips per 1,000 SF	PM Peak Hour Trips per Employee
WEIGHTED AVERAGE	2,875,000	510	Car	2055.24	0.71	4.03	258.82	0.09	0.51	83.62	0.03	0.16
			Truck	106.44	0.04	0.21	10.01	0.00	0.02	1.24	0.00	0.00
			TOTAL	2161.68	0.75	4.24	268.83	0.09	0.53	84.86	0.03	0.17

Note: Values shown represent the cumulative data from all six (6) surveyed AWS campuses.

Data Comparison with ITE Trip Generation Manual

The average projected trip generation rates for the existing data centers shown in **Table 3** were then compared with the published rates from the ITE Trip Generation Manual for data centers (Land Use 160).

The ITE Trip Generation Manual does not include any employee information, and therefore, the comparison of rates was limited to building square footage only. The average rate comparison is shown in **Table 4**.

Table 4. Average Rate Comparison – ITE Trip Generation Manual vs. Existing Campus Data

Data Source	Weekday per 1,000 SF	AM Peak Hour per 1,000 SF	PM Peak Hour per 1,000 Sf
ITE Manual	0.99	0.11	0.09
Existing Campus Data	0.75	0.09	0.03
Existing Campus % of ITE Rate	75.8%	81.8%	33.3%

As shown in **Table 4**, the site-specific campus data indicates that the average trip rates for the AWS Data Centers are lower than those included in the ITE Trip Generation Manual.

PM Peak Hour of Generator Evaluation

Based on the data provided by AWS, the PM Peak Hour (highest one-hour period from 4:00 PM – 6:00 PM) trip generation rate shown in **Table 4** is 1/3 the size of both the ITE Manual PM Peak Hour trip generation rate, and the existing campus AM Peak Hour trip generation rate.

Upon review of the data provided by AWS, this PM Peak Hour trip generation rate appears to be a result of the campus operations being more intensive during times when the surrounding roadways are not as busy (“off-peak”). Therefore, through additional coordination with VDOT, it was requested that this memorandum also evaluate the PM Peak Hour of Generator for the existing data center campuses.

Instead of only evaluating the highest one-hour period from 4:00 PM – 6:00 PM, the “PM Peak Hour of Generator” is the most trip-intensive hour of a development for any time between 12:00 PM and 12:00 AM.

The trip data for each campus was combined into 15-minute intervals for this 12:00 PM – 12:00 AM timeframe in order to determine the PM Peak Hour of Generator for each campus. The results

of this evaluation indicate that the PM Peak Hour of Generator generally falls somewhere within the timeframe of 12:30 PM to 2:15 PM depending on the campus.

The existing PM Peak Hours of Generator and associated trips per day for each surveyed campus were developed and are included in **Table 5**. The campus-specific size and number of employees were then applied to these trips per day to develop the average PM Peak Hour of Generator trips per 1,000 SF and per employee at each campus.

Table 5. PM Peak Hour of Generator Existing Campus Trips per Day, per 1,000 SF, and per Employee

Campus	No. of Average Weekdays Recorded Jan '22 - Jan '23	Observed PM Peak Hour of Generator	Square Footage (SF)	No. of Employees	Trip Type	Total Recorded PM Peak Hour of Generator Trips Jan '22 - Jan '23	PM Peak Hour of Generator Trips per Day	PM Peak Hour of Generator Trips per 1,000 SF	PM Peak Hour of Generator Trips per Employee
Campus 1	159	1:15 PM - 2:15 PM	285,000	50	Car	3,710	23.33	0.08	0.47
					Truck	229	1.44	0.01	0.03
					TOTAL	3,939	24.77	0.09	0.50
Campus 2	159	1:15 PM - 2:15 PM	600,000	100	Car	8,386	52.74	0.09	0.53
					Truck	162	1.02	0.00	0.01
					TOTAL	8,548	53.76	0.09	0.54
Campus 3	130	1:15 PM - 2:15 PM	520,000	75	Car	3,355	25.81	0.05	0.34
					Truck	62	0.48	0.00	0.01
					TOTAL	3,417	26.28	0.05	0.35
Campus 4	159	1:00 PM - 2:00 PM	310,000	50	Car	2,743	17.25	0.06	0.35
					Truck	536	3.37	0.01	0.07
					TOTAL	3,279	20.62	0.07	0.41
Campus 5	159	12:30 PM - 1:30 PM	435,000	75	Car	3,195	20.09	0.05	0.27
					Truck	524	3.30	0.01	0.04
					TOTAL	3,719	23.39	0.05	0.31
Campus 6	130	1:00 PM - 2:00 PM	725,000	160	Car	4,919	37.84	0.05	0.24
					Truck	262	2.02	0.00	0.01
					TOTAL	5,181	39.85	0.05	0.25

This information was then combined in **Table 6** to develop the weighted average PM Peak Hour of Generator trip rates per the criteria in the *ITE Trip Generation Handbook, 3rd Edition*.

Table 6. Weighted Average PM Peak Hour of Generator Trip Generation Rates

	Square Footage (SF)	No. of Employees	Trip Type	PM Peak Hour of Generator Trips per Day	PM Peak Hour of Generator Trips per 1,000 SF	PM Peak Hour of Generator Trips per Employee
WEIGHTED AVERAGE	2,875,000	510	Car	177.07	0.06	0.35
			Truck	11.62	0.00	0.02
			TOTAL	188.69	0.07	0.37

Note: Values shown represent the cumulative data from all six (6) surveyed AWS campuses.

As shown in **Table 6**, the calculated PM Peak Hour of Generator for the existing campuses currently generates an average of 0.07 trips per 1,000 SF and 0.37 trips per employee. These rates represent values that are over twice as intensive as those associated with the standard PM Peak Hour from 4:00 PM – 6:00 PM (0.03 trips per 1,000 SF and 0.17 trips per employee).

Conclusions

Based on the evaluation contained in this memorandum, the anticipated site trip rates associated with the AWS Data Centers are lower than those included in the ITE Trip Generation Manual.

The AWS rates appear to be a more appropriate estimation of future trips, as the rates from the Trip Generation Manual were developed based on a fewer number of surveyed sites. The Trip Generation Manual also only includes data from the 2010s, and the lower AWS trip generation rate is consistent with changes in the data center industry since then.

The average PM Peak Hour trip generation rate at the existing campuses is 1/3 the size of both the ITE Manual PM Peak Hour trip generation rate and the existing campus average AM Peak Hour trip generation rate. Therefore, VDOT requested an additional evaluation to determine the PM Peak Hour of Generator for the existing campuses.

Based on this evaluation, the PM Peak Hour of Generator for each campus generally falls somewhere within the timeframe of 12:30 PM to 2:15 PM, and the site trips during these timeframes are over twice as intensive as those associated with the standard PM Peak Hour from 4:00 PM – 6:00 PM.

Data centers have become more efficient and automated over this time, and typically require fewer on-site employees to operate. In coordination with VDOT, it has been determined that the square footage of each proposed campus should be used to project the anticipated site trips associated with each Data Center development.

As such, it is proposed to use the following rates throughout the planning process for future AWS Data Center developments in the Commonwealth of Virginia:

- **0.75 Daily Trips per 1,000 S.F.**
- **0.09 Morning Peak Hour Trips per 1,000 S.F.**
- **0.03 Evening Peak Hour Trips per 1,000 S.F.**

Appendix K

Capacity Analysis Worksheets for 2033 Total Conditions

Iron Horse Data Center TIA
1: Washington Hwy & England St

2033 Total Future - AM (Data Center)

Queues

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	93	479	174	192	492	403	182	235	166	296	411	91
v/c Ratio	0.36	0.54	0.30	0.46	0.74	0.27	0.63	0.47	0.12	0.86	0.71	0.18
Control Delay	23.6	35.6	2.1	13.8	26.4	1.8	35.5	42.2	0.2	56.3	46.1	0.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	23.6	35.6	2.1	13.8	26.4	1.8	35.5	42.2	0.2	56.3	46.1	0.8
Queue Length 50th (ft)	32	148	0	68	308	13	82	73	0	146	128	0
Queue Length 95th (ft)	62	190	11	86	#418	68	138	111	0	#280	181	0
Internal Link Dist (ft)	1151			901			1233			1319		
Turn Bay Length (ft)	290	340					350	400		320	140	
Base Capacity (vph)	259	959	607	439	662	1509	292	516	1442	356	627	513
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.36	0.50	0.29	0.44	0.74	0.27	0.62	0.46	0.12	0.83	0.66	0.18

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Iron Horse Data Center TIA
1: Washington Hwy & England St

2033 Total Future - AM (Data Center)
HCM Signalized Intersection Capacity Analysis

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		 						 			 	
Traffic Volume (vph)	86	441	160	177	453	371	167	216	153	272	378	84
Future Volume (vph)	86	441	160	177	453	371	167	216	153	272	378	84
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	9.3	9.3	9.3	9.3	9.3	4.0	8.4	8.4	4.0	8.4	8.4	8.4
Lane Util. Factor	1.00	0.95	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1687	3471	1538	1752	1863	1509	1736	3312	1442	1656	3374	1615
Flt Permitted	0.26	1.00	1.00	0.41	1.00	1.00	0.43	1.00	1.00	0.61	1.00	1.00
Satd. Flow (perm)	458	3471	1538	765	1863	1509	777	3312	1442	1055	3374	1615
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	93	479	174	192	492	403	182	235	166	296	411	91
RTOR Reduction (vph)	0	0	133	0	0	0	0	0	0	0	0	75
Lane Group Flow (vph)	93	479	41	192	492	403	182	235	166	296	411	16
Heavy Vehicles (%)	7%	4%	5%	3%	2%	7%	4%	9%	12%	9%	7%	0%
Turn Type	D.P+P	NA	Perm	D.P+P	NA	Free	D.P+P	NA	Free	D.P+P	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	8		4	4		Free	6		Free	2		6
Actuated Green, G (s)	38.2	23.6	23.6	38.2	33.6	100.0	26.4	15.1	100.0	26.4	17.3	17.3
Effective Green, g (s)	38.2	23.6	23.6	38.2	33.6	100.0	26.4	15.1	100.0	26.4	17.3	17.3
Actuated g/C Ratio	0.38	0.24	0.24	0.38	0.34	1.00	0.26	0.15	1.00	0.26	0.17	0.17
Clearance Time (s)	9.3	9.3	9.3	9.3	9.3		8.4	8.4		8.4	8.4	8.4
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	231	819	362	436	625	1509	292	500	1442	346	583	279
v/s Ratio Prot	0.02	0.14		c0.06	c0.26		0.06	0.07		0.10	c0.12	
v/s Ratio Perm	0.13		0.03	0.10		c0.27	0.11		0.12	c0.13		0.01
v/c Ratio	0.40	0.58	0.11	0.44	0.79	0.27	0.62	0.47	0.12	0.86	0.70	0.06
Uniform Delay, d1	33.7	33.9	30.0	27.0	30.0	0.0	30.3	38.8	0.0	34.0	38.9	34.5
Progression Factor	1.00	1.00	1.00	0.50	0.60	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	1.2	3.0	0.6	0.7	9.4	0.4	4.1	0.7	0.2	18.3	3.9	0.1
Delay (s)	34.8	36.9	30.6	14.1	27.3	0.4	34.4	39.5	0.2	52.3	42.8	34.6
Level of Service	C	D	C	B	C	A	C	D	A	D	D	C
Approach Delay (s)		35.2			15.0			26.7			45.4	
Approach LOS		D			B			C			D	
Intersection Summary												
HCM 2000 Control Delay			29.4			HCM 2000 Level of Service				C		
HCM 2000 Volume to Capacity ratio			0.87									
Actuated Cycle Length (s)			100.0			Sum of lost time (s)			35.4			
Intersection Capacity Utilization			85.7%			ICU Level of Service			E			
Analysis Period (min)			15									
c Critical Lane Group												



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	14	868	47	1061	26	5	15	98	40
v/c Ratio	0.13	0.29	0.22	0.32	0.22	0.05	0.04	0.52	0.20
Control Delay	31.9	5.4	56.9	1.6	47.7	43.0	0.2	51.1	24.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	31.9	5.4	56.9	1.6	47.7	43.0	0.2	51.1	24.3
Queue Length 50th (ft)	7	47	11	2	16	3	0	60	10
Queue Length 95th (ft)	m15	101	20	5	42	14	0	107	40
Internal Link Dist (ft)		901		1090		942			790
Turn Bay Length (ft)	235		260				170	155	
Base Capacity (vph)	154	2962	266	3353	165	156	397	227	234
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.09	0.29	0.18	0.32	0.16	0.03	0.04	0.43	0.17

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

Iron Horse Data Center TIA
2: Cottage Green Dr & England St

2033 Total Future - AM (Data Center)
HCM Signalized Intersection Capacity Analysis

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		  		 	  						 	
Traffic Volume (vph)	13	791	25	44	953	44	24	5	14	92	16	22
Future Volume (vph)	13	791	25	44	953	44	24	5	14	92	16	22
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.7	4.9		7.6	5.1		7.9	7.9	7.9	7.5	7.5	
Lane Util. Factor	1.00	0.91		0.97	0.91		1.00	1.00	1.00	1.00	1.00	
Frt	1.00	1.00		1.00	0.99		1.00	1.00	0.85	1.00	0.91	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1656	4765		3155	4935		1641	1545	1615	1736	1640	
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	1656	4765		3155	4935		1641	1545	1615	1736	1640	
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	14	841	27	47	1014	47	26	5	15	98	17	23
RTOR Reduction (vph)	0	3	0	0	3	0	0	0	14	0	21	0
Lane Group Flow (vph)	14	865	0	47	1058	0	26	5	1	98	19	0
Heavy Vehicles (%)	9%	8%	19%	11%	4%	13%	10%	23%	0%	4%	7%	5%
Turn Type	Prot	NA		Prot	NA		Split	NA	Perm	Split	NA	
Protected Phases	5	2		1	6		3	3		4	4	
Permitted Phases									3			
Actuated Green, G (s)	1.6	53.1		4.6	56.8		4.8	4.8	4.8	9.6	9.6	
Effective Green, g (s)	1.6	53.1		4.6	56.8		4.8	4.8	4.8	9.6	9.6	
Actuated g/C Ratio	0.02	0.53		0.05	0.57		0.05	0.05	0.05	0.10	0.10	
Clearance Time (s)	6.7	4.9		7.6	5.1		7.9	7.9	7.9	7.5	7.5	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	26	2530		145	2803		78	74	77	166	157	
v/s Ratio Prot	0.01	c0.18		0.01	c0.21		c0.02	0.00		c0.06	0.01	
v/s Ratio Perm									0.00			
v/c Ratio	0.54	0.34		0.32	0.38		0.33	0.07	0.01	0.59	0.12	
Uniform Delay, d1	48.8	13.4		46.2	11.9		46.1	45.5	45.3	43.3	41.3	
Progression Factor	0.68	0.36		1.26	0.13		1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	17.1	0.3		1.2	0.4		2.5	0.4	0.0	5.5	0.4	
Delay (s)	50.3	5.2		59.3	1.9		48.6	45.9	45.4	48.8	41.7	
Level of Service	D	A		E	A		D	D	D	D	D	
Approach Delay (s)		5.9			4.4			47.2			46.8	
Approach LOS		A			A			D			D	
Intersection Summary												
HCM 2000 Control Delay			8.6			HCM 2000 Level of Service			A			
HCM 2000 Volume to Capacity ratio			0.43									
Actuated Cycle Length (s)			100.0			Sum of lost time (s)			27.9			
Intersection Capacity Utilization			42.0%			ICU Level of Service			A			
Analysis Period (min)			15									
c Critical Lane Group												

										
Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	42	821	98	219	1005	44	53	158	94	37
v/c Ratio	0.33	0.44	0.13	0.58	0.42	0.30	0.18	0.39	0.63	0.10
Control Delay	45.0	13.4	1.9	48.3	21.3	47.3	42.9	2.9	59.8	24.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	45.0	13.4	1.9	48.3	21.3	47.3	42.9	2.9	59.8	24.6
Queue Length 50th (ft)	28	96	0	69	174	29	17	0	57	5
Queue Length 95th (ft)	47	222	16	106	245	64	36	0	109	20
Internal Link Dist (ft)	1090				235				977	
Turn Bay Length (ft)	325		200		550		220		325	
Base Capacity (vph)	140	1871	773	424	2381	213	413	446	175	412
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.30	0.44	0.13	0.52	0.42	0.21	0.13	0.35	0.54	0.09
Intersection Summary										

Iron Horse Data Center TIA
3: Hill Carter Pkwy & England St

2033 Total Future - AM (Data Center)
HCM Signalized Intersection Capacity Analysis

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		  		 	  			 			 	
Traffic Volume (vph)	40	788	94	210	960	5	84	9	152	90	19	16
Future Volume (vph)	40	788	94	210	960	5	84	9	152	90	19	16
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.6	5.7	5.7	8.5	5.8		8.9	8.9	8.9	8.9	8.9	
Lane Util. Factor	1.00	0.91	1.00	0.97	0.91		0.91	0.91	1.00	1.00	0.95	
Frt	1.00	1.00	0.85	1.00	1.00		1.00	1.00	0.85	1.00	0.93	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	0.96	1.00	0.95	1.00	
Satd. Flow (prot)	1492	4848	1599	3367	4932		1626	3155	1404	1203	2731	
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	0.96	1.00	0.95	1.00	
Satd. Flow (perm)	1492	4848	1599	3367	4932		1626	3155	1404	1203	2731	
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	42	821	98	219	1000	5	88	9	158	94	20	17
RTOR Reduction (vph)	0	0	65	0	1	0	0	0	144	0	15	0
Lane Group Flow (vph)	42	821	33	219	1004	0	44	53	14	94	22	0
Heavy Vehicles (%)	21%	7%	1%	4%	5%	23%	1%	26%	15%	50%	24%	22%
Turn Type	Prot	NA	Perm	Prot	NA		Split	NA	Perm	Split	NA	
Protected Phases	5	2		1	6		3	3		4	4	
Permitted Phases			2						3			
Actuated Green, G (s)	5.4	33.8	33.8	14.3	43.5		9.1	9.1	9.1	10.8	10.8	
Effective Green, g (s)	5.4	33.8	33.8	14.3	43.5		9.1	9.1	9.1	10.8	10.8	
Actuated g/C Ratio	0.05	0.34	0.34	0.14	0.44		0.09	0.09	0.09	0.11	0.11	
Clearance Time (s)	7.6	5.7	5.7	8.5	5.8		8.9	8.9	8.9	8.9	8.9	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	80	1638	540	481	2145		147	287	127	129	294	
v/s Ratio Prot	0.03	c0.17		0.07	c0.20		c0.03	0.02		c0.08	0.01	
v/s Ratio Perm			0.02						0.01			
v/c Ratio	0.53	0.50	0.06	0.46	0.47		0.30	0.18	0.11	0.73	0.07	
Uniform Delay, d1	46.1	26.4	22.4	39.3	20.0		42.5	42.0	41.7	43.2	40.1	
Progression Factor	0.89	0.50	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	5.9	1.1	0.2	0.7	0.7		1.1	0.3	0.4	18.5	0.1	
Delay (s)	46.9	14.4	22.6	40.0	20.8		43.6	42.3	42.1	61.7	40.2	
Level of Service	D	B	C	D	C		D	D	D	E	D	
Approach Delay (s)		16.6			24.2			42.4			55.6	
Approach LOS		B			C			D			E	
Intersection Summary												
HCM 2000 Control Delay			24.8			HCM 2000 Level of Service			C			
HCM 2000 Volume to Capacity ratio			0.54									
Actuated Cycle Length (s)			100.0			Sum of lost time (s)			32.0			
Intersection Capacity Utilization			55.6%			ICU Level of Service			B			
Analysis Period (min)			15									
c Critical Lane Group												

Iron Horse Data Center TIA
5: I-95 SB Ramp & England St/Patrick Henry Hwy

2033 Total Future - AM (Data Center)
HCM Unsignalized Intersection Capacity Analysis

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑	↗	↗	↑↑						↖	↖
Traffic Volume (veh/h)	0	423	707	279	1009	0	0	0	0	45	4	234
Future Volume (Veh/h)	0	423	707	279	1009	0	0	0	0	45	4	234
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.88	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	460	768	303	1097	0	0	0	0	49	4	254
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type	None			None								
Median storage veh												
Upstream signal (ft)	976											
pX, platoon unblocked												
vC, conflicting volume	1097			460			1616	2163	230	1933	2163	548
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1097			460			1616	2163	230	1933	2163	548
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	7.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.5
p0 queue free %	100			72			100	100	100	0	88	43
cM capacity (veh/h)	644			1097			22	35	779	32	35	443
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	SB 1	SB 2				
Volume Total	230	230	768	303	548	548	53	254				
Volume Left	0	0	0	303	0	0	49	0				
Volume Right	0	0	768	0	0	0	0	254				
cSH	1700	1700	1700	1097	1700	1700	32	443				
Volume to Capacity	0.14	0.14	0.45	0.28	0.32	0.32	1.65	0.57				
Queue Length 95th (ft)	0	0	0	28	0	0	149	88				
Control Delay (s)	0.0	0.0	0.0	9.5	0.0	0.0	585.2	23.5				
Lane LOS				A			F	C				
Approach Delay (s)	0.0			2.1			120.4					
Approach LOS							F					
Intersection Summary												
Average Delay			13.6									
Intersection Capacity Utilization			72.6%			ICU Level of Service		C				
Analysis Period (min)			15									

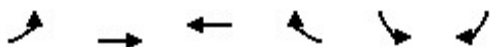
Iron Horse Data Center TIA
6: I-95 NB Ramp & Patrick Henry Hwy

2033 Total Future - AM (Data Center)
HCM Unsignalized Intersection Capacity Analysis

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations					 							
Traffic Volume (veh/h)	160	308	0	0	564	59	0	0	212	0	0	727
Future Volume (Veh/h)	160	308	0	0	564	59	0	0	212	0	0	727
Sign Control	Free			Free			Yield			Yield		
Grade	0%			0%			0%			0%		
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Hourly flow rate (vph)	170	328	0	0	600	63	0	0	226	0	0	773
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type	None				None							
Median storage veh												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	600			328			968	1268	328	1268	1268	300
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	600			328			968	1268	328	1268	1268	300
tC, single (s)	4.5			4.1			7.5	6.5	7.0	7.5	6.5	7.1
tC, 2 stage (s)												
tF (s)	2.4			2.2			3.5	4.0	3.4	3.5	4.0	3.4
p0 queue free %	80			100			0	100	66	100	100	0
cM capacity (veh/h)	860			1243			0	136	656	71	136	679
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	WB 3	NB 1	SB 1					
Volume Total	170	328	300	300	63	226	773					
Volume Left	170	0	0	0	0	0	0					
Volume Right	0	0	0	0	63	226	773					
cSH	860	1700	1700	1700	1700	656	679					
Volume to Capacity	0.20	0.19	0.18	0.18	0.04	0.34	1.14					
Queue Length 95th (ft)	18	0	0	0	0	38	598					
Control Delay (s)	10.2	0.0	0.0	0.0	0.0	13.3	102.4					
Lane LOS	B					B	F					
Approach Delay (s)	3.5		0.0			13.3	102.4					
Approach LOS						B	F					
Intersection Summary												
Average Delay			38.9									
Intersection Capacity Utilization			67.3%		ICU Level of Service				C			
Analysis Period (min)			15									

Iron Horse Data Center TIA
7: Patrick Henry Hwy & Telcourt Rd

2033 Total Future - AM (Data Center)
HCM Unsignalized Intersection Capacity Analysis



Movement	EBL	EBT	WBT	WBR	SBL	SBR	
Lane Configurations							
Traffic Volume (veh/h)	39	520	600	11	5	6	
Future Volume (Veh/h)	39	520	600	11	5	6	
Sign Control		Free	Free		Stop		
Grade		0%	0%		0%		
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	
Hourly flow rate (vph)	41	547	632	12	5	6	
Pedestrians							
Lane Width (ft)							
Walking Speed (ft/s)							
Percent Blockage							
Right turn flare (veh)							
Median type		None	None				
Median storage veh)							
Upstream signal (ft)							
pX, platoon unblocked							
vC, conflicting volume	644				988	316	
vC1, stage 1 conf vol							
vC2, stage 2 conf vol							
vCu, unblocked vol	644				988	316	
tC, single (s)	4.5				6.8	6.9	
tC, 2 stage (s)							
tF (s)	2.4				3.5	3.3	
p0 queue free %	95				98	99	
cM capacity (veh/h)	819				235	686	
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	SB 1
Volume Total	41	274	274	316	316	12	11
Volume Left	41	0	0	0	0	0	5
Volume Right	0	0	0	0	0	12	6
cSH	819	1700	1700	1700	1700	1700	367
Volume to Capacity	0.05	0.16	0.16	0.19	0.19	0.01	0.03
Queue Length 95th (ft)	4	0	0	0	0	0	2
Control Delay (s)	9.6	0.0	0.0	0.0	0.0	0.0	15.1
Lane LOS	A						C
Approach Delay (s)	0.7			0.0			15.1
Approach LOS							C
Intersection Summary							
Average Delay			0.5				
Intersection Capacity Utilization			33.3%		ICU Level of Service		A
Analysis Period (min)			15				

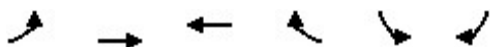
Iron Horse Data Center TIA
8: Mt. Hermon Rd/Frances Rd & Patrick Henry Hwy

2033 Total Future - AM (Data Center)
HCM Unsignalized Intersection Capacity Analysis

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	48	402	74	15	493	12	73	1	7	4	5	44
Future Volume (Veh/h)	48	402	74	15	493	12	73	1	7	4	5	44
Sign Control	Free			Free			Stop			Stop		
Grade	0%			0%			0%			0%		
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	52	437	80	16	536	13	79	1	8	4	5	48
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type	None			None								
Median storage (veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	549			517			1160	1122	437	1118	1189	536
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	549			517			1160	1122	437	1118	1189	536
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	95			98			46	99	99	98	97	91
cM capacity (veh/h)	1031			1059			145	194	624	174	177	549
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	NB 1	SB 1				
Volume Total	52	437	80	16	536	13	88	57				
Volume Left	52	0	0	16	0	0	79	4				
Volume Right	0	0	80	0	0	13	8	48				
cSH	1031	1700	1700	1059	1700	1700	157	411				
Volume to Capacity	0.05	0.26	0.05	0.02	0.32	0.01	0.56	0.14				
Queue Length 95th (ft)	4	0	0	1	0	0	72	12				
Control Delay (s)	8.7	0.0	0.0	8.5	0.0	0.0	54.1	15.2				
Lane LOS	A			A			F	C				
Approach Delay (s)	0.8			0.2			54.1	15.2				
Approach LOS							F	C				
Intersection Summary												
Average Delay	4.9											
Intersection Capacity Utilization	50.5%			ICU Level of Service					A			
Analysis Period (min)	15											

Iron Horse Data Center TIA
9: Patrick Henry Hwy & Woodside Ln

2033 Total Future - AM (Data Center)
HCM Unsignalized Intersection Capacity Analysis



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	72	246	297	20	64	154
Future Volume (Veh/h)	72	246	297	20	64	154
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96
Hourly flow rate (vph)	75	256	309	21	67	160
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						12
Median type		None	None			
Median storage veh						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	330				726	320
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	330				726	320
tC, single (s)	4.1				6.5	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.6	3.3
p0 queue free %	94				81	78
cM capacity (veh/h)	1224				361	724
Direction, Lane #	EB 1	EB 2	WB 1	SB 1		
Volume Total	75	256	330	227		
Volume Left	75	0	0	67		
Volume Right	0	0	21	160		
cSH	1224	1700	1700	1027		
Volume to Capacity	0.06	0.15	0.19	0.22		
Queue Length 95th (ft)	5	0	0	21		
Control Delay (s)	8.1	0.0	0.0	13.1		
Lane LOS	A			B		
Approach Delay (s)	1.8		0.0	13.1		
Approach LOS				B		
Intersection Summary						
Average Delay			4.0			
Intersection Capacity Utilization			34.4%	ICU Level of Service		A
Analysis Period (min)			15			

Iron Horse Data Center TIA
10: Goddins Hill Rd & Patrick Henry Hwy

2033 Total Future - AM (Data Center)
HCM Unsignalized Intersection Capacity Analysis

						
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	223	65	98	250	31	27
Future Volume (Veh/h)	223	65	98	250	31	27
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	242	71	107	272	34	29
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None		None			
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			313		728	242
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			313		728	242
tC, single (s)			4.1		6.4	6.3
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.4
p0 queue free %			91		90	96
cM capacity (veh/h)			1253		354	780
Direction, Lane #	EB 1	EB 2	WB 1	NB 1		
Volume Total	242	71	379	63		
Volume Left	0	0	107	34		
Volume Right	0	71	0	29		
cSH	1700	1700	1253	473		
Volume to Capacity	0.14	0.04	0.09	0.13		
Queue Length 95th (ft)	0	0	7	11		
Control Delay (s)	0.0	0.0	2.9	13.8		
Lane LOS			A	B		
Approach Delay (s)	0.0		2.9	13.8		
Approach LOS				B		
Intersection Summary						
Average Delay			2.6			
Intersection Capacity Utilization			43.7%	ICU Level of Service		A
Analysis Period (min)			15			

Iron Horse Data Center TIA
11: Site Entrance A & Patrick Henry Hwy

2033 Total Future - AM (Data Center)
HCM Unsignalized Intersection Capacity Analysis

	→	↘	↙	←	↖	↗
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑	↗	↙	↑	↘↙	
Traffic Volume (veh/h)	315	98	8	441	80	7
Future Volume (Veh/h)	315	98	8	441	80	7
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	332	103	8	464	84	7
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			435		812	332
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			435		812	332
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			99		76	99
cM capacity (veh/h)			1135		349	714
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	
Volume Total	332	103	8	464	91	
Volume Left	0	0	8	0	84	
Volume Right	0	103	0	0	7	
cSH	1700	1700	1135	1700	363	
Volume to Capacity	0.20	0.06	0.01	0.27	0.25	
Queue Length 95th (ft)	0	0	1	0	24	
Control Delay (s)	0.0	0.0	8.2	0.0	18.2	
Lane LOS			A	C		
Approach Delay (s)	0.0		0.1		18.2	
Approach LOS					C	
Intersection Summary						
Average Delay			1.7			
Intersection Capacity Utilization			34.7%		ICU Level of Service	
					A	
Analysis Period (min)			15			

Iron Horse Data Center TIA
12: Site Entrance B & Patrick Henry Hwy

2033 Total Future - AM (Data Center)
HCM Unsignalized Intersection Capacity Analysis

	→	↘	↙	←	↖	↗
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↱			↱	↘↙	
Traffic Volume (veh/h)	310	0	8	317	0	7
Future Volume (Veh/h)	310	0	8	317	0	7
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Hourly flow rate (vph)	333	0	9	341	0	8
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			333		692	333
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			333		692	333
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			99		100	99
cM capacity (veh/h)			1238		410	713
Direction, Lane #	EB 1	WB 1	NB 1			
Volume Total	333	350	8			
Volume Left	0	9	0			
Volume Right	0	0	8			
cSH	1700	1238	713			
Volume to Capacity	0.20	0.01	0.01			
Queue Length 95th (ft)	0	1	1			
Control Delay (s)	0.0	0.3	10.1			
Lane LOS		A	B			
Approach Delay (s)	0.0	0.3	10.1			
Approach LOS			B			
Intersection Summary						
Average Delay		0.3				
Intersection Capacity Utilization		33.1%		ICU Level of Service		A
Analysis Period (min)		15				

Iron Horse Data Center TIA
13: Mt. Hermon Rd & Site Entrance C

2033 Total Future - AM (Data Center)
HCM Unsignalized Intersection Capacity Analysis

						
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	0	40	41	0	49	45
Future Volume (Veh/h)	0	40	41	0	49	45
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	43	45	0	53	49
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	200	45			45	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	200	45			45	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	100	96			97	
cM capacity (veh/h)	766	1031			1576	
Direction, Lane #	WB 1	NB 1	SB 1			
Volume Total	43	45	102			
Volume Left	0	0	53			
Volume Right	43	0	0			
cSH	1031	1700	1576			
Volume to Capacity	0.04	0.03	0.03			
Queue Length 95th (ft)	3	0	3			
Control Delay (s)	8.6	0.0	3.9			
Lane LOS	A		A			
Approach Delay (s)	8.6	0.0	3.9			
Approach LOS	A					
Intersection Summary						
Average Delay			4.1			
Intersection Capacity Utilization			21.7%	ICU Level of Service	A	
Analysis Period (min)			15			

Iron Horse Data Center TIA
4: S. Carter St/N. Carter St & England St

2033 Total Future Phase - AM (Data Center)
HCM Unsignalized Intersection Capacity Analysis

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↑			↑↑↑				↗			↗
Traffic Volume (veh/h)	0	987	66	0	1150	57	0	0	69	0	0	21
Future Volume (Veh/h)	0	987	66	0	1150	57	0	0	69	0	0	21
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Hourly flow rate (vph)	0	1050	70	0	1223	61	0	0	73	0	0	22
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type	None				None							
Median storage veh												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	1284			1120			1515	2369	385	1676	2374	438
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1284			1120			1515	2369	385	1676	2374	438
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	7.1
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.4
p0 queue free %	100			100			100	100	88	100	100	96
cM capacity (veh/h)	547			631			80	35	613	56	35	542
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	NB 1	SB 1				
Volume Total	420	420	280	489	489	306	73	22				
Volume Left	0	0	0	0	0	0	0	0				
Volume Right	0	0	70	0	0	61	73	22				
cSH	1700	1700	1700	1700	1700	1700	613	542				
Volume to Capacity	0.25	0.25	0.16	0.29	0.29	0.18	0.12	0.04				
Queue Length 95th (ft)	0	0	0	0	0	0	10	3				
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	11.7	11.9				
Lane LOS							B	B				
Approach Delay (s)	0.0			0.0			11.7	11.9				
Approach LOS							B	B				
Intersection Summary												
Average Delay			0.4									
Intersection Capacity Utilization			33.5%			ICU Level of Service		A				
Analysis Period (min)			15									

Intersection: 1: Washington Hwy & England St

Movement	EB	EB	EB	EB	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	L	T	T	R	L	T	L	T	T	L	T	T
Maximum Queue (ft)	180	203	207	102	264	441	169	174	154	294	264	260
Average Queue (ft)	75	113	126	35	91	180	83	89	58	171	129	115
95th Queue (ft)	147	185	198	74	179	375	145	146	120	273	218	202
Link Distance (ft)		1170			891	891		1257	1257		1361	1361
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (ft)	290		340	340			350			320		
Storage Blk Time (%)										0	0	4
Queuing Penalty (veh)										1	0	4

Intersection: 1: Washington Hwy & England St

Movement	SB
Directions Served	R
Maximum Queue (ft)	140
Average Queue (ft)	52
95th Queue (ft)	124
Link Distance (ft)	
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	140
Storage Blk Time (%)	0
Queuing Penalty (veh)	0

Intersection: 2: Cottage Green Dr & England St

Movement	EB	EB	EB	EB	WB	WB	WB	WB	WB	NB	NB	NB
Directions Served	L	T	T	TR	L	L	T	T	TR	L	T	R
Maximum Queue (ft)	60	103	174	173	36	73	176	263	227	82	64	36
Average Queue (ft)	13	21	39	58	4	26	35	59	57	23	9	12
95th Queue (ft)	43	68	130	135	21	59	118	179	167	58	36	37
Link Distance (ft)		891	891	891			1075	1075	1075	954	954	
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (ft)	235				260	260						170
Storage Blk Time (%)							0					
Queuing Penalty (veh)							0					

Intersection: 2: Cottage Green Dr & England St

Movement	SB	SB
Directions Served	L	TR
Maximum Queue (ft)	145	114
Average Queue (ft)	71	33
95th Queue (ft)	127	82
Link Distance (ft)		803
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)	155	
Storage Blk Time (%)	0	0
Queuing Penalty (veh)	0	0

Intersection: 3: Hill Carter Pkwy & England St

Movement	EB	EB	EB	EB	EB	WB	WB	WB	WB	WB	NB	NB
Directions Served	L	T	T	T	R	L	L	T	T	TR	L	LT
Maximum Queue (ft)	112	174	287	358	200	138	132	200	226	240	53	106
Average Queue (ft)	44	57	113	168	51	68	63	104	129	126	14	46
95th Queue (ft)	94	125	225	298	157	116	112	181	206	205	41	90
Link Distance (ft)		1075	1075	1075		214	214	214	214	214		920
Upstream Blk Time (%)								0	0	1		
Queuing Penalty (veh)								0	1	1		
Storage Bay Dist (ft)	325				200						220	
Storage Blk Time (%)				5	0							
Queuing Penalty (veh)				5	0							

Intersection: 3: Hill Carter Pkwy & England St

Movement	NB	NB	SB	SB	SB
Directions Served	T	R	L	T	TR
Maximum Queue (ft)	33	160	235	77	50
Average Queue (ft)	2	61	101	14	12
95th Queue (ft)	17	120	196	54	37
Link Distance (ft)	920			976	976
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (ft)		325	290		
Storage Blk Time (%)			0	0	
Queuing Penalty (veh)			0	0	

Intersection: 4: S. Carter St/N. Carter St & England St

Movement	EB	EB	WB	B41	NB	SB
Directions Served	T	TR	TR	T	R	R
Maximum Queue (ft)	26	95	2	9	73	62
Average Queue (ft)	1	5	0	0	32	17
95th Queue (ft)	22	47	2	4	61	46
Link Distance (ft)	214	214	275	269	315	396
Upstream Blk Time (%)	0	0				
Queuing Penalty (veh)	0	0				
Storage Bay Dist (ft)						
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 5: I-95 SB Ramp & England St/Patrick Henry Hwy

Movement	EB	EB	B41	WB	WB	SB	SB
Directions Served	T	T	T	L	T	LT	R
Maximum Queue (ft)	13	26	3	94	3	119	94
Average Queue (ft)	0	1	0	44	0	48	11
95th Queue (ft)	13	21	3	79	3	105	131
Link Distance (ft)	269	269	275	207	207		1149
Upstream Blk Time (%)							
Queuing Penalty (veh)							
Storage Bay Dist (ft)						150	
Storage Blk Time (%)						3	0
Queuing Penalty (veh)						8	0

Intersection: 6: I-95 NB Ramp & Patrick Henry Hwy

Movement	EB	EB	WB	WB
Directions Served	L	T	T	T
Maximum Queue (ft)	126	3	11	2
Average Queue (ft)	43	0	0	0
95th Queue (ft)	92	3	6	2
Link Distance (ft)	476	476	189	189
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 7: Patrick Henry Hwy & Telcourt Rd

Movement	EB	WB	WB	SB
Directions Served	L	T	R	LR
Maximum Queue (ft)	61	4	28	38
Average Queue (ft)	17	0	3	9
95th Queue (ft)	50	3	16	33
Link Distance (ft)		244		754
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)	100		50	
Storage Blk Time (%)			0	
Queuing Penalty (veh)			0	

Intersection: 8: Mt. Hermon Rd/Frances Rd & Patrick Henry Hwy

Movement	EB	EB	WB	NB	SB
Directions Served	L	R	L	LTR	LTR
Maximum Queue (ft)	47	6	23	82	56
Average Queue (ft)	15	0	4	27	24
95th Queue (ft)	39	4	19	58	45
Link Distance (ft)		244		596	993
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (ft)	150		150		
Storage Blk Time (%)					
Queuing Penalty (veh)					

Intersection: 9: Patrick Henry Hwy & Woodside Ln

Movement	EB	WB	SB	SB
Directions Served	L	TR	L	R
Maximum Queue (ft)	53	4	76	86
Average Queue (ft)	14	0	34	46
95th Queue (ft)	40	3	65	74
Link Distance (ft)		458	1062	
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)	300		290	
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 10: Goddins Hill Rd & Patrick Henry Hwy

Movement	WB	NB
Directions Served	LT	LR
Maximum Queue (ft)	60	61
Average Queue (ft)	15	23
95th Queue (ft)	46	46
Link Distance (ft)	2248	1612
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 11: Site Entrance A & Patrick Henry Hwy

Movement	WB	NB
Directions Served	L	LR
Maximum Queue (ft)	26	63
Average Queue (ft)	2	28
95th Queue (ft)	15	52
Link Distance (ft)		597
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)	150	
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 12: Site Entrance B & Patrick Henry Hwy

Movement	WB	NB
Directions Served	LT	LR
Maximum Queue (ft)	31	30
Average Queue (ft)	2	6
95th Queue (ft)	15	26
Link Distance (ft)	597	420
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 13: Mt. Hermon Rd & Site Entrance C

Movement	WB	SB
Directions Served	LR	LT
Maximum Queue (ft)	44	17
Average Queue (ft)	23	2
95th Queue (ft)	46	14
Link Distance (ft)	562	596
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Network Summary

Network wide Queuing Penalty: 21

Iron Horse Data Center TIA
1: Washington Hwy & England St

2033 Total Future - PM (Data Center)

Queues

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	165	511	146	260	517	288	286	502	255	313	503	114
v/c Ratio	0.73	0.56	0.26	0.66	0.84	0.19	0.84	0.88	0.16	0.89	0.78	0.21
Control Delay	53.1	41.7	2.1	25.5	40.1	0.3	50.5	66.3	0.2	57.2	55.6	0.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	53.1	41.7	2.1	25.5	40.1	0.3	50.5	66.3	0.2	57.2	55.6	0.9
Queue Length 50th (ft)	74	184	0	175	404	0	159	201	0	178	196	0
Queue Length 95th (ft)	#144	242	12	67	#567	0	#276	#292	0	#336	258	0
Internal Link Dist (ft)	1151			901			1233			1319		
Turn Bay Length (ft)	290	340			350			400	320	140		
Base Capacity (vph)	227	927	569	413	627	1524	343	584	1553	356	664	548
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.73	0.55	0.26	0.63	0.82	0.19	0.83	0.86	0.16	0.88	0.76	0.21

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Iron Horse Data Center TIA
1: Washington Hwy & England St

2033 Total Future - PM (Data Center)
HCM Signalized Intersection Capacity Analysis

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		 						 			 	
Traffic Volume (vph)	157	485	139	247	491	274	272	477	242	297	478	108
Future Volume (vph)	157	485	139	247	491	274	272	477	242	297	478	108
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	9.3	9.3	9.3	9.3	9.3	4.0	8.4	8.4	4.0	8.4	8.4	8.4
Lane Util. Factor	1.00	0.95	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1805	3539	1583	1719	1863	1524	1805	3539	1553	1770	3505	1599
Flt Permitted	0.20	1.00	1.00	0.37	1.00	1.00	0.29	1.00	1.00	0.25	1.00	1.00
Satd. Flow (perm)	376	3539	1583	670	1863	1524	549	3539	1553	471	3505	1599
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	165	511	146	260	517	288	286	502	255	313	503	114
RTOR Reduction (vph)	0	0	108	0	0	0	0	0	0	0	0	93
Lane Group Flow (vph)	165	511	38	260	517	288	286	502	255	313	503	21
Heavy Vehicles (%)	0%	2%	2%	5%	2%	6%	0%	2%	4%	2%	3%	1%
Turn Type	D.P+P	NA	Perm	D.P+P	NA	Free	D.P+P	NA	Free	D.P+P	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	8		4	4		Free	6		Free	2		6
Actuated Green, G (s)	46.5	31.2	31.2	46.5	39.7	120.0	38.1	19.4	120.0	38.1	22.2	22.2
Effective Green, g (s)	46.5	31.2	31.2	46.5	39.7	120.0	38.1	19.4	120.0	38.1	22.2	22.2
Actuated g/C Ratio	0.39	0.26	0.26	0.39	0.33	1.00	0.32	0.16	1.00	0.32	0.18	0.18
Clearance Time (s)	9.3	9.3	9.3	9.3	9.3		8.4	8.4		8.4	8.4	8.4
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	226	920	411	393	616	1524	340	572	1553	351	648	295
v/s Ratio Prot	0.04	0.14		0.08	c0.28		0.11	0.14		c0.14	0.14	
v/s Ratio Perm	0.24		0.02	c0.17		c0.19	c0.16		0.16	0.14		0.01
v/c Ratio	0.73	0.56	0.09	0.66	0.84	0.19	0.84	0.88	0.16	0.89	0.78	0.07
Uniform Delay, d1	45.8	38.4	33.7	26.8	37.2	0.0	33.7	49.1	0.0	34.5	46.5	40.4
Progression Factor	1.00	1.00	1.00	0.80	0.71	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	11.5	2.4	0.4	3.9	12.4	0.3	16.9	14.2	0.2	23.5	5.8	0.1
Delay (s)	57.3	40.8	34.1	25.4	39.0	0.3	50.5	63.3	0.2	58.0	52.3	40.5
Level of Service	E	D	C	C	D	A	D	E	A	E	D	D
Approach Delay (s)		42.9			25.2			44.4			52.8	
Approach LOS		D			C			D			D	
Intersection Summary												
HCM 2000 Control Delay			40.8			HCM 2000 Level of Service				D		
HCM 2000 Volume to Capacity ratio			0.89									
Actuated Cycle Length (s)			120.0			Sum of lost time (s)			35.4			
Intersection Capacity Utilization			93.7%			ICU Level of Service			F			
Analysis Period (min)			15									
c Critical Lane Group												



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	35	975	71	1049	56	59	57	226	90
v/c Ratio	0.30	0.40	0.29	0.41	0.41	0.41	0.18	0.72	0.27
Control Delay	51.3	16.5	31.0	4.6	61.0	60.6	1.2	59.2	34.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	51.3	16.5	31.0	4.6	61.0	60.6	1.2	59.2	34.7
Queue Length 50th (ft)	21	194	27	61	42	44	0	166	48
Queue Length 95th (ft)	m46	m288	52	136	83	86	0	239	91
Internal Link Dist (ft)		901		1090		942			790
Turn Bay Length (ft)	235		260				170	155	
Base Capacity (vph)	154	2503	268	2606	257	270	409	326	340
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.23	0.39	0.26	0.40	0.22	0.22	0.14	0.69	0.26

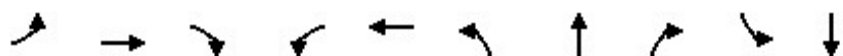
Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

Iron Horse Data Center TIA
2: Cottage Green Dr & England St

2033 Total Future - PM (Data Center)
HCM Signalized Intersection Capacity Analysis

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		  		 	  						 	
Traffic Volume (vph)	34	903	33	68	867	140	54	57	55	217	58	29
Future Volume (vph)	34	903	33	68	867	140	54	57	55	217	58	29
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.7	4.9		7.6	5.1		7.9	7.9	7.9	7.5	7.5	
Lane Util. Factor	1.00	0.91		0.97	0.91		1.00	1.00	1.00	1.00	1.00	
Frt	1.00	0.99		1.00	0.98		1.00	1.00	0.85	1.00	0.95	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1805	5008		3213	4903		1805	1900	1583	1787	1781	
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	1805	5008		3213	4903		1805	1900	1583	1787	1781	
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	35	941	34	71	903	146	56	59	57	226	60	30
RTOR Reduction (vph)	0	3	0	0	15	0	0	0	53	0	15	0
Lane Group Flow (vph)	35	972	0	71	1034	0	56	59	4	226	75	0
Heavy Vehicles (%)	0%	3%	4%	9%	4%	1%	0%	0%	2%	1%	2%	0%
Turn Type	Prot	NA		Prot	NA		Split	NA	Perm	Split	NA	
Protected Phases	5	2		1	6		3	3		4	4	
Permitted Phases									3			
Actuated Green, G (s)	5.4	53.6		9.3	58.2		8.0	8.0	8.0	21.2	21.2	
Effective Green, g (s)	5.4	53.6		9.3	58.2		8.0	8.0	8.0	21.2	21.2	
Actuated g/C Ratio	0.05	0.45		0.08	0.49		0.07	0.07	0.07	0.18	0.18	
Clearance Time (s)	6.7	4.9		7.6	5.1		7.9	7.9	7.9	7.5	7.5	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	81	2236		249	2377		120	126	105	315	314	
v/s Ratio Prot	0.02	c0.19		0.02	c0.21		0.03	c0.03		c0.13	0.04	
v/s Ratio Perm									0.00			
v/c Ratio	0.43	0.43		0.29	0.43		0.47	0.47	0.04	0.72	0.24	
Uniform Delay, d1	55.8	22.8		52.2	20.2		53.9	54.0	52.4	46.6	42.5	
Progression Factor	0.87	0.68		0.55	0.20		1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	3.1	0.5		0.6	0.5		2.9	2.7	0.1	7.6	0.4	
Delay (s)	51.4	16.1		29.3	4.6		56.8	56.7	52.5	54.2	42.9	
Level of Service	D	B		C	A		E	E	D	D	D	
Approach Delay (s)		17.3			6.1			55.3			50.9	
Approach LOS		B			A			E			D	
Intersection Summary												
HCM 2000 Control Delay			19.1			HCM 2000 Level of Service			B			
HCM 2000 Volume to Capacity ratio			0.53									
Actuated Cycle Length (s)			120.0			Sum of lost time (s)			27.9			
Intersection Capacity Utilization			58.3%			ICU Level of Service			B			
Analysis Period (min)			15									
c Critical Lane Group												



Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	59	1047	170	266	997	110	123	323	86	48
v/c Ratio	0.29	0.49	0.21	0.69	0.45	0.61	0.34	0.69	0.60	0.13
Control Delay	27.8	9.8	1.0	61.2	27.0	65.0	51.0	13.7	67.5	26.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	27.8	9.8	1.0	61.2	27.0	65.0	51.0	13.7	67.5	26.7
Queue Length 50th (ft)	40	78	3	102	215	90	48	0	65	8
Queue Length 95th (ft)	m62	95	m6	#163	280	157	80	89	116	26
Internal Link Dist (ft)		1090			235		916			977
Turn Bay Length (ft)	325		200	550		220		325	290	
Base Capacity (vph)	207	2232	826	392	2351	208	416	488	174	443
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.29	0.47	0.21	0.68	0.42	0.53	0.30	0.66	0.49	0.11

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

Iron Horse Data Center TIA
3: Hill Carter Pkwy & England St

2033 Total Future - PM (Data Center)
HCM Signalized Intersection Capacity Analysis

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		  		 	  			 			 	
Traffic Volume (vph)	55	974	158	247	873	54	205	12	300	80	20	24
Future Volume (vph)	55	974	158	247	873	54	205	12	300	80	20	24
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.6	5.7	5.7	8.5	5.8		8.9	8.9	8.9	8.9	8.9	
Lane Util. Factor	1.00	0.91	1.00	0.97	0.91		0.91	0.91	1.00	1.00	0.95	
Frt	1.00	1.00	0.85	1.00	0.99		1.00	1.00	0.85	1.00	0.92	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	0.96	1.00	0.95	1.00	
Satd. Flow (prot)	1770	5036	1599	3367	4760		1610	3218	1599	1337	3228	
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	0.96	1.00	0.95	1.00	
Satd. Flow (perm)	1770	5036	1599	3367	4760		1610	3218	1599	1337	3228	
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	59	1047	170	266	939	58	220	13	323	86	22	26
RTOR Reduction (vph)	0	0	100	0	6	0	0	0	287	0	24	0
Lane Group Flow (vph)	59	1047	70	266	991	0	110	123	36	86	24	0
Heavy Vehicles (%)	2%	3%	1%	4%	5%	57%	2%	10%	1%	35%	6%	0%
Turn Type	Prot	NA	Perm	Prot	NA		Split	NA	Perm	Split	NA	
Protected Phases	5	2		1	6		3	3		4	4	
Permitted Phases			2						3			
Actuated Green, G (s)	12.2	49.6	49.6	13.7	51.9		13.4	13.4	13.4	11.3	11.3	
Effective Green, g (s)	12.2	49.6	49.6	13.7	51.9		13.4	13.4	13.4	11.3	11.3	
Actuated g/C Ratio	0.10	0.41	0.41	0.11	0.43		0.11	0.11	0.11	0.09	0.09	
Clearance Time (s)	7.6	5.7	5.7	8.5	5.8		8.9	8.9	8.9	8.9	8.9	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	179	2081	660	384	2058		179	359	178	125	303	
v/s Ratio Prot	0.03	c0.21		0.08	c0.21		c0.07	0.04		c0.06	0.01	
v/s Ratio Perm			0.04						0.02			
v/c Ratio	0.33	0.50	0.11	0.69	0.48		0.61	0.34	0.20	0.69	0.08	
Uniform Delay, d1	50.1	26.1	21.6	51.1	24.4		50.8	49.2	48.4	52.6	49.6	
Progression Factor	0.51	0.33	0.27	1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	1.0	0.8	0.3	5.3	0.8		6.1	0.6	0.6	14.6	0.1	
Delay (s)	26.6	9.4	6.1	56.5	25.2		57.0	49.8	49.0	67.3	49.7	
Level of Service	C	A	A	E	C		E	D	D	E	D	
Approach Delay (s)		9.8			31.8			50.8			61.0	
Approach LOS		A			C			D			E	
Intersection Summary												
HCM 2000 Control Delay			27.6			HCM 2000 Level of Service			C			
HCM 2000 Volume to Capacity ratio			0.57									
Actuated Cycle Length (s)			120.0			Sum of lost time (s)			32.0			
Intersection Capacity Utilization			63.6%			ICU Level of Service			B			
Analysis Period (min)			15									
c Critical Lane Group												

Iron Horse Data Center TIA
5: I-95 SB Ramp & England St/Patrick Henry Hwy

2033 Total Future - PM (Data Center)
HCM Unsignalized Intersection Capacity Analysis

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑	↑	↑	↑↑						↩	↩
Traffic Volume (veh/h)	0	609	859	238	1059	0	0	0	0	33	1	243
Future Volume (Veh/h)	0	609	859	238	1059	0	0	0	0	33	1	243
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Hourly flow rate (vph)	0	628	886	245	1092	0	0	0	0	34	1	251
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type	None				None							
Median storage veh												
Upstream signal (ft)	976											
pX, platoon unblocked												
vC, conflicting volume	1092			628			1664	2210	314	1896	2210	546
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1092			628			1664	2210	314	1896	2210	546
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.7	6.5	7.1
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.6	4.0	3.4
p0 queue free %	100			74			100	100	100	0	97	46
cM capacity (veh/h)	647			957			23	33	688	31	33	464
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	SB 1	SB 2				
Volume Total	314	314	886	245	546	546	35	251				
Volume Left	0	0	0	245	0	0	34	0				
Volume Right	0	0	886	0	0	0	0	251				
cSH	1700	1700	1700	957	1700	1700	31	464				
Volume to Capacity	0.18	0.18	0.52	0.26	0.32	0.32	1.11	0.54				
Queue Length 95th (ft)	0	0	0	26	0	0	96	79				
Control Delay (s)	0.0	0.0	0.0	10.1	0.0	0.0	386.0	21.5				
Lane LOS				B			F	C				
Approach Delay (s)	0.0			1.8			66.1					
Approach LOS							F					
Intersection Summary												
Average Delay			6.8									
Intersection Capacity Utilization			79.7%		ICU Level of Service					D		
Analysis Period (min)			15									

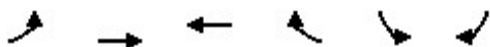
Iron Horse Data Center TIA
6: I-95 NB Ramp & Patrick Henry Hwy

2033 Total Future - PM (Data Center)
HCM Unsignalized Intersection Capacity Analysis

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	241	394	0	0	577	51	0	0	238	0	0	719
Future Volume (Veh/h)	241	394	0	0	577	51	0	0	238	0	0	719
Sign Control	Free			Free			Yield			Yield		
Grade	0%			0%			0%			0%		
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Hourly flow rate (vph)	251	410	0	0	601	53	0	0	248	0	0	749
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type	None				None							
Median storage veh												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	601			410			1212	1513	410	1513	1513	300
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	601			410			1212	1513	410	1513	1513	300
tC, single (s)	4.2			4.1			7.5	6.5	6.9	7.5	6.5	7.0
tC, 2 stage (s)												
tF (s)	2.3			2.2			3.5	4.0	3.3	3.5	4.0	3.4
p0 queue free %	73			100			0	100	58	100	100	0
cM capacity (veh/h)	939			1160			0	89	596	39	89	684
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	WB 3	NB 1	SB 1					
Volume Total	251	410	300	300	53	248	749					
Volume Left	251	0	0	0	0	0	0					
Volume Right	0	0	0	0	53	248	749					
cSH	939	1700	1700	1700	1700	596	684					
Volume to Capacity	0.27	0.24	0.18	0.18	0.03	0.42	1.10					
Queue Length 95th (ft)	27	0	0	0	0	51	533					
Control Delay (s)	10.2	0.0	0.0	0.0	0.0	15.3	87.0					
Lane LOS	B					C	F					
Approach Delay (s)	3.9		0.0			15.3	87.0					
Approach LOS						C	F					
Intersection Summary												
Average Delay				30.9								
Intersection Capacity Utilization				67.1%	ICU Level of Service				C			
Analysis Period (min)				15								

Iron Horse Data Center TIA
7: Patrick Henry Hwy & Telcourt Rd

2033 Total Future - PM (Data Center)
HCM Unsignalized Intersection Capacity Analysis



Movement	EBL	EBT	WBT	WBR	SBL	SBR	
Lane Configurations							
Traffic Volume (veh/h)	35	581	559	12	2	28	
Future Volume (Veh/h)	35	581	559	12	2	28	
Sign Control		Free	Free		Stop		
Grade		0%	0%		0%		
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	
Hourly flow rate (vph)	38	632	608	13	2	30	
Pedestrians							
Lane Width (ft)							
Walking Speed (ft/s)							
Percent Blockage							
Right turn flare (veh)							
Median type		None	None				
Median storage veh)							
Upstream signal (ft)							
pX, platoon unblocked							
vC, conflicting volume	621				1000	304	
vC1, stage 1 conf vol							
vC2, stage 2 conf vol							
vCu, unblocked vol	621				1000	304	
tC, single (s)	4.3				6.8	6.9	
tC, 2 stage (s)							
tF (s)	2.3				3.5	3.3	
p0 queue free %	96				99	96	
cM capacity (veh/h)	903				233	698	
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	SB 1
Volume Total	38	316	316	304	304	13	32
Volume Left	38	0	0	0	0	0	2
Volume Right	0	0	0	0	0	13	30
cSH	903	1700	1700	1700	1700	1700	621
Volume to Capacity	0.04	0.19	0.19	0.18	0.18	0.01	0.05
Queue Length 95th (ft)	3	0	0	0	0	0	4
Control Delay (s)	9.2	0.0	0.0	0.0	0.0	0.0	11.1
Lane LOS	A						B
Approach Delay (s)	0.5			0.0			11.1
Approach LOS							B
Intersection Summary							
Average Delay			0.5				
Intersection Capacity Utilization			32.1%		ICU Level of Service		A
Analysis Period (min)			15				

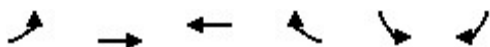
Iron Horse Data Center TIA
8: Mt. Hermon Rd/Frances Rd & Patrick Henry Hwy

2033 Total Future - PM (Data Center)
HCM Unsignalized Intersection Capacity Analysis

																
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR				
Lane Configurations																
Traffic Volume (veh/h)	22	507	37	11	469	5	65	2	19	2	2	33				
Future Volume (Veh/h)	22	507	37	11	469	5	65	2	19	2	2	33				
Sign Control	Free			Free			Stop			Stop						
Grade	0%			0%			0%			0%						
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92				
Hourly flow rate (vph)	24	551	40	12	510	5	71	2	21	2	2	36				
Pedestrians																
Lane Width (ft)																
Walking Speed (ft/s)																
Percent Blockage																
Right turn flare (veh)																
Median type	None			None												
Median storage (veh)																
Upstream signal (ft)																
pX, platoon unblocked																
vC, conflicting volume	515			591			1170	1138	551	1155	1173	510				
vC1, stage 1 conf vol																
vC2, stage 2 conf vol																
vCu, unblocked vol	515			591			1170	1138	551	1155	1173	510				
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2				
tC, 2 stage (s)																
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3				
p0 queue free %	98			99			54	99	96	99	99	94				
cM capacity (veh/h)	1061			995			155	196	538	163	187	567				
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	NB 1	SB 1								
Volume Total	24	551	40	12	510	5	94	40								
Volume Left	24	0	0	12	0	0	71	2								
Volume Right	0	0	40	0	0	5	21	36								
cSH	1061	1700	1700	995	1700	1700	185	463								
Volume to Capacity	0.02	0.32	0.02	0.01	0.30	0.00	0.51	0.09								
Queue Length 95th (ft)	2	0	0	1	0	0	63	7								
Control Delay (s)	8.5	0.0	0.0	8.7	0.0	0.0	42.9	13.5								
Lane LOS	A			A			E	B								
Approach Delay (s)	0.3			0.2			42.9	13.5								
Approach LOS							E	B								
Intersection Summary																
Average Delay				3.8												
Intersection Capacity Utilization				44.9%	ICU Level of Service				A							
Analysis Period (min)				15												

Iron Horse Data Center TIA
9: Patrick Henry Hwy & Woodside Ln

2033 Total Future - PM (Data Center)
HCM Unsignalized Intersection Capacity Analysis



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	168	341	304	16	31	138
Future Volume (Veh/h)	168	341	304	16	31	138
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	183	371	330	17	34	150
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						12
Median type		None	None			
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	347				1076	338
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	347				1076	338
tC, single (s)	4.1				6.5	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.6	3.3
p0 queue free %	85				83	79
cM capacity (veh/h)	1223				201	706
Direction, Lane #	EB 1	EB 2	WB 1	SB 1		
Volume Total	183	371	347	184		
Volume Left	183	0	0	34		
Volume Right	0	0	17	150		
cSH	1223	1700	1700	866		
Volume to Capacity	0.15	0.22	0.20	0.21		
Queue Length 95th (ft)	13	0	0	20		
Control Delay (s)	8.5	0.0	0.0	14.2		
Lane LOS	A			B		
Approach Delay (s)	2.8		0.0	14.2		
Approach LOS				B		
Intersection Summary						
Average Delay			3.8			
Intersection Capacity Utilization			39.6%		ICU Level of Service	A
Analysis Period (min)			15			

Iron Horse Data Center TIA
10: Goddins Hill Rd & Patrick Henry Hwy

2033 Total Future - PM (Data Center)
HCM Unsignalized Intersection Capacity Analysis

						
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	304	34	37	246	33	67
Future Volume (Veh/h)	304	34	37	246	33	67
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	330	37	40	267	36	73
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None		None			
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			367		677	330
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			367		677	330
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			97		91	90
cM capacity (veh/h)			1203		407	716
Direction, Lane #	EB 1	EB 2	WB 1	NB 1		
Volume Total	330	37	307	109		
Volume Left	0	0	40	36		
Volume Right	0	37	0	73		
cSH	1700	1700	1203	573		
Volume to Capacity	0.19	0.02	0.03	0.19		
Queue Length 95th (ft)	0	0	3	17		
Control Delay (s)	0.0	0.0	1.3	12.8		
Lane LOS			A	B		
Approach Delay (s)	0.0		1.3	12.8		
Approach LOS				B		
Intersection Summary						
Average Delay			2.3			
Intersection Capacity Utilization			46.9%	ICU Level of Service		A
Analysis Period (min)			15			

Iron Horse Data Center TIA
11: Site Entrance A & Patrick Henry Hwy

2033 Total Future - PM (Data Center)
HCM Unsignalized Intersection Capacity Analysis

						
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	510	18	2	443	41	3
Future Volume (Veh/h)	510	18	2	443	41	3
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	554	20	2	482	45	3
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None		None			
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			574		1040	554
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			574		1040	554
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		82	99
cM capacity (veh/h)			1009		257	536
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	
Volume Total	554	20	2	482	48	
Volume Left	0	0	2	0	45	
Volume Right	0	20	0	0	3	
cSH	1700	1700	1009	1700	265	
Volume to Capacity	0.33	0.01	0.00	0.28	0.18	
Queue Length 95th (ft)	0	0	0	0	16	
Control Delay (s)	0.0	0.0	8.6	0.0	21.5	
Lane LOS			A	C		
Approach Delay (s)	0.0		0.0		21.5	
Approach LOS					C	
Intersection Summary						
Average Delay			0.9			
Intersection Capacity Utilization			36.8%	ICU Level of Service	A	
Analysis Period (min)			15			

Iron Horse Data Center TIA
12: Site Entrance B & Patrick Henry Hwy

2033 Total Future - PM (Data Center)
HCM Unsignalized Intersection Capacity Analysis

						
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	372	0	2	320	0	3
Future Volume (Veh/h)	372	0	2	320	0	3
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Hourly flow rate (vph)	400	0	2	344	0	3
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	400			748	400	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	400			748	400	
tC, single (s)	4.1			6.4	6.2	
tC, 2 stage (s)						
tF (s)	2.2			3.5	3.3	
p0 queue free %	100			100	100	
cM capacity (veh/h)	1170			382	654	
Direction, Lane #	EB 1	WB 1	NB 1			
Volume Total	400	346	3			
Volume Left	0	2	0			
Volume Right	0	0	3			
cSH	1700	1170	654			
Volume to Capacity	0.24	0.00	0.00			
Queue Length 95th (ft)	0	0	0			
Control Delay (s)	0.0	0.1	10.5			
Lane LOS		A	B			
Approach Delay (s)	0.0	0.1	10.5			
Approach LOS			B			
Intersection Summary						
Average Delay	0.1					
Intersection Capacity Utilization	29.6%			ICU Level of Service	A	
Analysis Period (min)	15					

Iron Horse Data Center TIA
13: Mt. Hermon Rd & Site Entrance C

2033 Total Future - PM (Data Center)
HCM Unsignalized Intersection Capacity Analysis

						
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	0	21	65	0	9	41
Future Volume (Veh/h)	0	21	65	0	9	41
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	23	71	0	10	45
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	136	71			71	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	136	71			71	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	100	98			99	
cM capacity (veh/h)	857	997			1542	
Direction, Lane #	WB 1	NB 1	SB 1			
Volume Total	23	71	55			
Volume Left	0	0	10			
Volume Right	23	0	0			
cSH	997	1700	1542			
Volume to Capacity	0.02	0.04	0.01			
Queue Length 95th (ft)	2	0	0			
Control Delay (s)	8.7	0.0	1.4			
Lane LOS	A		A			
Approach Delay (s)	8.7	0.0	1.4			
Approach LOS	A					
Intersection Summary						
Average Delay			1.9			
Intersection Capacity Utilization			19.3%	ICU Level of Service		A
Analysis Period (min)			15			

Iron Horse Data Center TIA
4: S. Carter St/N. Carter St & England St

2033 Total Future - PM (Data Center)
HCM Unsignalized Intersection Capacity Analysis

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↑			↑↑↑				↗			↗
Traffic Volume (veh/h)	0	1313	60	0	1200	44	0	0	38	0	0	6
Future Volume (Veh/h)	0	1313	60	0	1200	44	0	0	38	0	0	6
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	1427	65	0	1304	48	0	0	41	0	0	7
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type	None				None							
Median storage (veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	1352			1492			1901	2812	508	1845	2820	459
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1352			1492			1901	2812	508	1845	2820	459
tC, single (s)	4.1			4.1			7.5	6.5	7.1	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.4	3.5	4.0	3.3
p0 queue free %	100			100			100	100	92	100	100	99
cM capacity (veh/h)	516			456			42	18	492	43	18	555
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	NB 1	SB 1				
Volume Total	571	571	350	522	522	309	41	7				
Volume Left	0	0	0	0	0	0	0	0				
Volume Right	0	0	65	0	0	48	41	7				
cSH	1700	1700	1700	1700	1700	1700	492	555				
Volume to Capacity	0.34	0.34	0.21	0.31	0.31	0.18	0.08	0.01				
Queue Length 95th (ft)	0	0	0	0	0	0	7	1				
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	13.0	11.6				
Lane LOS							B	B				
Approach Delay (s)	0.0			0.0			13.0	11.6				
Approach LOS							B	B				
Intersection Summary												
Average Delay			0.2									
Intersection Capacity Utilization			36.7%			ICU Level of Service			A			
Analysis Period (min)			15									

Intersection: 1: Washington Hwy & England St

Movement	EB	EB	EB	EB	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	L	T	T	R	L	T	L	T	T	L	T	T
Maximum Queue (ft)	258	321	256	81	314	523	320	351	289	318	398	355
Average Queue (ft)	131	136	142	31	121	231	194	178	164	195	179	175
95th Queue (ft)	225	254	229	66	233	428	311	300	266	307	298	288
Link Distance (ft)		1170			891	891		1257	1257		1361	1361
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (ft)	290		340	340			350			320		
Storage Blk Time (%)	1	0	0				1	0	0	1	0	17
Queuing Penalty (veh)	4	0	0				3	1	0	3	1	18

Intersection: 1: Washington Hwy & England St

Movement	SB
Directions Served	R
Maximum Queue (ft)	140
Average Queue (ft)	80
95th Queue (ft)	166
Link Distance (ft)	
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	140
Storage Blk Time (%)	1
Queuing Penalty (veh)	1

Intersection: 2: Cottage Green Dr & England St

Movement	EB	EB	EB	EB	WB	WB	WB	WB	WB	NB	NB	NB
Directions Served	L	T	T	TR	L	L	T	T	TR	L	T	R
Maximum Queue (ft)	82	215	377	336	61	96	224	171	159	98	121	89
Average Queue (ft)	33	96	141	187	12	36	34	44	38	43	47	33
95th Queue (ft)	71	185	278	306	43	77	153	119	111	83	98	65
Link Distance (ft)		891	891	891			1075	1075	1075	954	954	
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (ft)	235				260	260						170
Storage Blk Time (%)		0									0	0
Queuing Penalty (veh)		0									0	0

Intersection: 2: Cottage Green Dr & England St

Movement	SB	SB
Directions Served	L	TR
Maximum Queue (ft)	154	306
Average Queue (ft)	126	116
95th Queue (ft)	181	270
Link Distance (ft)		803
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)	155	
Storage Blk Time (%)	10	1
Queuing Penalty (veh)	9	2

Intersection: 3: Hill Carter Pkwy & England St

Movement	EB	EB	EB	EB	EB	WB	WB	WB	WB	WB	NB	NB
Directions Served	L	T	T	T	R	L	L	T	T	TR	L	LT
Maximum Queue (ft)	102	162	264	318	200	168	177	257	260	298	165	194
Average Queue (ft)	39	49	96	139	53	99	96	146	156	177	56	102
95th Queue (ft)	85	116	199	260	153	151	155	241	241	281	126	165
Link Distance (ft)		1075	1075	1075		214	214	214	214	214		920
Upstream Blk Time (%)						0	0	2	2	5		
Queuing Penalty (veh)						0	0	4	4	12		
Storage Bay Dist (ft)	325				200						220	
Storage Blk Time (%)				3	0							0
Queuing Penalty (veh)				4	0							0

Intersection: 3: Hill Carter Pkwy & England St

Movement	NB	NB	SB	SB	SB
Directions Served	T	R	L	T	TR
Maximum Queue (ft)	90	248	212	50	42
Average Queue (ft)	5	107	88	10	10
95th Queue (ft)	40	196	177	34	30
Link Distance (ft)	920			976	976
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (ft)		325	290		
Storage Blk Time (%)			0		
Queuing Penalty (veh)			0		

Intersection: 4: S. Carter St/N. Carter St & England St

Movement	EB	EB	WB	WB	WB	B41	B41	B41	NB	SB
Directions Served	T	TR	T	T	TR	T	T	T	R	R
Maximum Queue (ft)	10	51	10	12	30	6	7	12	74	33
Average Queue (ft)	0	3	0	0	2	0	0	0	25	5
95th Queue (ft)	8	24	9	9	15	6	7	9	56	23
Link Distance (ft)	214	214	275	275	275	269	269	269	315	396
Upstream Blk Time (%)										
Queuing Penalty (veh)										
Storage Bay Dist (ft)										
Storage Blk Time (%)										
Queuing Penalty (veh)										

Intersection: 5: I-95 SB Ramp & England St/Patrick Henry Hwy

Movement	EB	WB	WB	B52	B52	SB	SB
Directions Served	T	L	T	T	T	LT	R
Maximum Queue (ft)	6	98	3	27	26	104	84
Average Queue (ft)	0	42	0	1	1	35	5
95th Queue (ft)	6	80	3	28	27	86	81
Link Distance (ft)	269	207	207	476	476		1149
Upstream Blk Time (%)							
Queuing Penalty (veh)							
Storage Bay Dist (ft)						150	
Storage Blk Time (%)						1	0
Queuing Penalty (veh)						2	0

Intersection: 6: I-95 NB Ramp & Patrick Henry Hwy

Movement	EB	WB	WB
Directions Served	L	T	T
Maximum Queue (ft)	124	13	13
Average Queue (ft)	47	1	1
95th Queue (ft)	96	7	9
Link Distance (ft)	476	189	189
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 7: Patrick Henry Hwy & Telcourt Rd

Movement	EB	WB	WB	SB
Directions Served	L	T	R	LR
Maximum Queue (ft)	54	2	24	49
Average Queue (ft)	12	0	3	18
95th Queue (ft)	41	2	17	45
Link Distance (ft)		244		754
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)	100		50	
Storage Blk Time (%)	0			
Queuing Penalty (veh)	0			

Intersection: 8: Mt. Hermon Rd/Frances Rd & Patrick Henry Hwy

Movement	EB	EB	WB	NB	SB
Directions Served	L	R	L	LTR	LTR
Maximum Queue (ft)	35	2	22	80	40
Average Queue (ft)	8	0	3	29	19
95th Queue (ft)	28	2	15	62	39
Link Distance (ft)		244		596	993
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (ft)	150		150		
Storage Blk Time (%)					
Queuing Penalty (veh)					

Intersection: 9: Patrick Henry Hwy & Woodside Ln

Movement	EB	WB	SB	SB
Directions Served	L	TR	L	R
Maximum Queue (ft)	68	4	58	81
Average Queue (ft)	29	0	23	43
95th Queue (ft)	59	2	51	69
Link Distance (ft)		458	1062	
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)	300		290	
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 10: Goddins Hill Rd & Patrick Henry Hwy

Movement	EB	WB	NB
Directions Served	R	LT	LR
Maximum Queue (ft)	2	52	55
Average Queue (ft)	0	9	25
95th Queue (ft)	2	34	42
Link Distance (ft)		2248	1612
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)	200		
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 11: Site Entrance A & Patrick Henry Hwy

Movement	WB	NB
Directions Served	L	LR
Maximum Queue (ft)	12	52
Average Queue (ft)	1	19
95th Queue (ft)	7	41
Link Distance (ft)		597
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)	150	
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 12: Site Entrance B & Patrick Henry Hwy

Movement	WB	NB
Directions Served	LT	LR
Maximum Queue (ft)	8	30
Average Queue (ft)	0	3
95th Queue (ft)	7	17
Link Distance (ft)	597	420
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 13: Mt. Hermon Rd & Site Entrance C

Movement	WB	SB
Directions Served	LR	LT
Maximum Queue (ft)	33	22
Average Queue (ft)	16	1
95th Queue (ft)	40	11
Link Distance (ft)	562	596
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Network Summary

Network wide Queuing Penalty: 71

Appendix L

Capacity Analysis Worksheets for 2039 Total Conditions

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	102	524	190	209	538	440	199	257	179	322	449	99
v/c Ratio	0.47	0.60	0.33	0.53	0.82	0.29	0.72	0.51	0.12	0.92	0.74	0.20
Control Delay	30.7	36.6	2.8	16.5	31.1	2.0	41.6	43.1	0.2	66.7	46.8	0.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	30.7	36.6	2.8	16.5	31.1	2.0	41.6	43.1	0.2	66.7	46.8	0.9
Queue Length 50th (ft)	36	162	0	51	335	17	91	80	0	162	142	0
Queue Length 95th (ft)	67	209	20	130	#485	73	#168	120	0	#333	197	0
Internal Link Dist (ft)	1151			901			1233			1319		
Turn Bay Length (ft)	290	340					350	400		320	140	
Base Capacity (vph)	219	947	602	411	654	1509	277	516	1442	354	627	513
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.47	0.55	0.32	0.51	0.82	0.29	0.72	0.50	0.12	0.91	0.72	0.19

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Iron Horse Data Center TIA
1: Washington Hwy & England St

2039 Total Future - AM
HCM Signalized Intersection Capacity Analysis

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	94	482	175	192	495	405	183	236	165	296	413	91
Future Volume (vph)	94	482	175	192	495	405	183	236	165	296	413	91
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	9.3	9.3	9.3	9.3	9.3	4.0	8.4	8.4	4.0	8.4	8.4	8.4
Lane Util. Factor	1.00	0.95	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1687	3471	1538	1752	1863	1509	1736	3312	1442	1656	3374	1615
Flt Permitted	0.20	1.00	1.00	0.37	1.00	1.00	0.38	1.00	1.00	0.59	1.00	1.00
Satd. Flow (perm)	350	3471	1538	681	1863	1509	700	3312	1442	1033	3374	1615
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	102	524	190	209	538	440	199	257	179	322	449	99
RTOR Reduction (vph)	0	0	145	0	0	0	0	0	0	0	0	81
Lane Group Flow (vph)	102	524	45	209	538	440	199	257	179	322	449	18
Heavy Vehicles (%)	7%	4%	5%	3%	2%	7%	4%	9%	12%	9%	7%	0%
Turn Type	D.P+P	NA	Perm	D.P+P	NA	Free	D.P+P	NA	Free	D.P+P	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	8		4	4		Free	6		Free	2		6
Actuated Green, G (s)	37.9	23.5	23.5	37.9	33.3	100.0	26.7	15.1	100.0	26.7	18.0	18.0
Effective Green, g (s)	37.9	23.5	23.5	37.9	33.3	100.0	26.7	15.1	100.0	26.7	18.0	18.0
Actuated g/C Ratio	0.38	0.24	0.24	0.38	0.33	1.00	0.27	0.15	1.00	0.27	0.18	0.18
Clearance Time (s)	9.3	9.3	9.3	9.3	9.3		8.4	8.4		8.4	8.4	8.4
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	194	815	361	412	620	1509	277	500	1442	348	607	290
v/s Ratio Prot	0.02	0.15		c0.07	c0.29		0.06	0.08		c0.11	c0.13	
v/s Ratio Perm	0.17		0.03	0.12		c0.29	0.13		0.12	c0.14		0.01
v/c Ratio	0.53	0.64	0.12	0.51	0.87	0.29	0.72	0.51	0.12	0.93	0.74	0.06
Uniform Delay, d1	37.7	34.5	30.1	28.7	31.3	0.0	30.8	39.1	0.0	34.4	38.8	34.0
Progression Factor	1.00	1.00	1.00	0.50	0.59	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	2.6	3.9	0.7	0.9	14.5	0.5	8.6	0.9	0.2	29.7	4.7	0.1
Delay (s)	40.2	38.4	30.8	15.3	33.0	0.5	39.4	40.0	0.2	64.1	43.5	34.1
Level of Service	D	D	C	B	C	A	D	D	A	E	D	C
Approach Delay (s)		36.8			17.8			28.6			50.0	
Approach LOS		D			B			C			D	
Intersection Summary												
HCM 2000 Control Delay			32.2			HCM 2000 Level of Service				C		
HCM 2000 Volume to Capacity ratio			0.95									
Actuated Cycle Length (s)			100.0			Sum of lost time (s)			35.4			
Intersection Capacity Utilization			89.7%			ICU Level of Service			E			
Analysis Period (min)			15									
c Critical Lane Group												



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	15	945	51	1156	28	5	16	106	45
v/c Ratio	0.13	0.36	0.23	0.39	0.24	0.04	0.04	0.54	0.22
Control Delay	30.4	7.2	55.5	4.2	47.9	42.8	0.3	51.2	23.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	30.4	7.2	55.5	4.2	47.9	42.8	0.3	51.2	23.6
Queue Length 50th (ft)	7	54	14	2	17	3	0	65	11
Queue Length 95th (ft)	m16	m118	m20	299	44	14	0	114	42
Internal Link Dist (ft)		901		1090		942			790
Turn Bay Length (ft)	235		260				170	155	
Base Capacity (vph)	154	2627	267	2994	165	156	397	230	240
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.10	0.36	0.19	0.39	0.17	0.03	0.04	0.46	0.19

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

Iron Horse Data Center TIA
2: Cottage Green Dr & England St

2039 Total Future - AM
HCM Signalized Intersection Capacity Analysis

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		  		 	  							
Traffic Volume (vph)	14	861	27	48	1039	48	26	5	15	100	18	24
Future Volume (vph)	14	861	27	48	1039	48	26	5	15	100	18	24
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.7	4.9		7.6	5.1		7.9	7.9	7.9	7.5	7.5	
Lane Util. Factor	1.00	0.91		0.97	0.91		1.00	1.00	1.00	1.00	1.00	
Frt	1.00	1.00		1.00	0.99		1.00	1.00	0.85	1.00	0.91	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1656	4766		3155	4936		1641	1545	1615	1736	1640	
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	1656	4766		3155	4936		1641	1545	1615	1736	1640	
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	15	916	29	51	1105	51	28	5	16	106	19	26
RTOR Reduction (vph)	0	3	0	0	4	0	0	0	15	0	23	0
Lane Group Flow (vph)	15	942	0	51	1152	0	28	5	1	106	22	0
Heavy Vehicles (%)	9%	8%	19%	11%	4%	13%	10%	23%	0%	4%	7%	5%
Turn Type	Prot	NA		Prot	NA		Split	NA	Perm	Split	NA	
Protected Phases	5	2		1	6		3	3		4	4	
Permitted Phases									3			
Actuated Green, G (s)	3.3	49.9		5.9	53.2		4.9	4.9	4.9	11.4	11.4	
Effective Green, g (s)	3.3	49.9		5.9	53.2		4.9	4.9	4.9	11.4	11.4	
Actuated g/C Ratio	0.03	0.50		0.06	0.53		0.05	0.05	0.05	0.11	0.11	
Clearance Time (s)	6.7	4.9		7.6	5.1		7.9	7.9	7.9	7.5	7.5	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	54	2378		186	2625		80	75	79	197	186	
v/s Ratio Prot	0.01	c0.20		0.02	c0.23		c0.02	0.00		c0.06	0.01	
v/s Ratio Perm									0.00			
v/c Ratio	0.28	0.40		0.27	0.44		0.35	0.07	0.01	0.54	0.12	
Uniform Delay, d1	47.2	15.6		45.0	14.3		46.0	45.4	45.2	41.8	39.8	
Progression Factor	0.66	0.43		1.22	0.28		1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	2.3	0.4		0.7	0.5		2.6	0.4	0.1	2.8	0.3	
Delay (s)	33.3	7.1		55.8	4.5		48.7	45.7	45.3	44.6	40.1	
Level of Service	C	A		E	A		D	D	D	D	D	
Approach Delay (s)		7.5			6.7			47.3			43.3	
Approach LOS		A			A			D			D	
Intersection Summary												
HCM 2000 Control Delay			10.2			HCM 2000 Level of Service			B			
HCM 2000 Volume to Capacity ratio			0.47									
Actuated Cycle Length (s)			100.0			Sum of lost time (s)			27.9			
Intersection Capacity Utilization			43.9%			ICU Level of Service			A			
Analysis Period (min)			15									
c Critical Lane Group												

										
Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	46	894	107	239	1095	47	58	173	102	41
v/c Ratio	0.35	0.54	0.15	0.62	0.50	0.31	0.20	0.43	0.66	0.11
Control Delay	42.8	15.8	1.9	49.7	23.5	47.4	42.9	3.3	61.2	24.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	42.8	15.8	1.9	49.7	23.5	47.4	42.9	3.3	61.2	24.3
Queue Length 50th (ft)	29	103	0	75	199	31	19	0	62	6
Queue Length 95th (ft)	m48	240	20	114	271	69	39	0	#121	22
Internal Link Dist (ft)		1090			235		916			977
Turn Bay Length (ft)	325		200	550		220		325	290	
Base Capacity (vph)	141	1671	717	420	2179	213	413	446	176	416
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.33	0.54	0.15	0.57	0.50	0.22	0.14	0.39	0.58	0.10

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

Iron Horse Data Center TIA
3: Hill Carter Pkwy & England St

2039 Total Future - AM
HCM Signalized Intersection Capacity Analysis

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		  		 	  			 			 	
Traffic Volume (vph)	44	858	103	229	1046	5	91	10	166	98	21	18
Future Volume (vph)	44	858	103	229	1046	5	91	10	166	98	21	18
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.6	5.7	5.7	8.5	5.8		8.9	8.9	8.9	8.9	8.9	
Lane Util. Factor	1.00	0.91	1.00	0.97	0.91		0.91	0.91	1.00	1.00	0.95	
Frt	1.00	1.00	0.85	1.00	1.00		1.00	1.00	0.85	1.00	0.93	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	0.96	1.00	0.95	1.00	
Satd. Flow (prot)	1492	4848	1599	3367	4932		1626	3158	1404	1203	2728	
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	0.96	1.00	0.95	1.00	
Satd. Flow (perm)	1492	4848	1599	3367	4932		1626	3158	1404	1203	2728	
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	46	894	107	239	1090	5	95	10	173	102	22	19
RTOR Reduction (vph)	0	0	73	0	1	0	0	0	157	0	17	0
Lane Group Flow (vph)	46	894	34	239	1094	0	47	58	16	102	24	0
Heavy Vehicles (%)	21%	7%	1%	4%	5%	25%	1%	25%	15%	50%	25%	21%
Turn Type	Prot	NA	Perm	Prot	NA		Split	NA	Perm	Split	NA	
Protected Phases	5	2		1	6		3	3		4	4	
Permitted Phases			2						3			
Actuated Green, G (s)	5.5	31.4	31.4	14.4	41.1		9.3	9.3	9.3	12.9	12.9	
Effective Green, g (s)	5.5	31.4	31.4	14.4	41.1		9.3	9.3	9.3	12.9	12.9	
Actuated g/C Ratio	0.06	0.31	0.31	0.14	0.41		0.09	0.09	0.09	0.13	0.13	
Clearance Time (s)	7.6	5.7	5.7	8.5	5.8		8.9	8.9	8.9	8.9	8.9	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	82	1522	502	484	2027		151	293	130	155	351	
v/s Ratio Prot	0.03	c0.18		0.07	c0.22		c0.03	0.02		c0.08	0.01	
v/s Ratio Perm			0.02						0.01			
v/c Ratio	0.56	0.59	0.07	0.49	0.54		0.31	0.20	0.12	0.66	0.07	
Uniform Delay, d1	46.1	28.9	24.0	39.4	22.3		42.4	41.9	41.6	41.5	38.3	
Progression Factor	0.82	0.53	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	8.1	1.6	0.2	0.8	1.0		1.2	0.3	0.4	9.7	0.1	
Delay (s)	46.1	16.8	24.3	40.2	23.3		43.5	42.2	42.0	51.1	38.4	
Level of Service	D	B	C	D	C		D	D	D	D	D	
Approach Delay (s)		18.9			26.4			42.3			47.5	
Approach LOS		B			C			D			D	
Intersection Summary												
HCM 2000 Control Delay			26.2			HCM 2000 Level of Service			C			
HCM 2000 Volume to Capacity ratio			0.59									
Actuated Cycle Length (s)			100.0			Sum of lost time (s)			32.0			
Intersection Capacity Utilization			57.7%			ICU Level of Service			B			
Analysis Period (min)			15									
c Critical Lane Group												

Iron Horse Data Center TIA
5: I-95 SB Ramp & England St/Patrick Henry Hwy

2039 Total Future - AM
HCM Unsignalized Intersection Capacity Analysis

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑	↑	↑	↑↑						↑	↑
Traffic Volume (veh/h)	0	458	773	300	1100	0	0	0	0	45	4	256
Future Volume (Veh/h)	0	458	773	300	1100	0	0	0	0	45	4	256
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.88	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	498	840	326	1196	0	0	0	0	49	4	278
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type	None			None								
Median storage veh												
Upstream signal (ft)	976											
pX, platoon unblocked												
vC, conflicting volume	1196			498			1750	2346	249	2097	2346	598
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1196			498			1750	2346	249	2097	2346	598
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	7.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.5
p0 queue free %	100			69			100	100	100	0	84	32
cM capacity (veh/h)	591			1062			12	25	757	23	25	410
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	SB 1	SB 2				
Volume Total	249	249	840	326	598	598	53	278				
Volume Left	0	0	0	326	0	0	49	0				
Volume Right	0	0	840	0	0	0	0	278				
cSH	1700	1700	1700	1062	1700	1700	23	410				
Volume to Capacity	0.15	0.15	0.49	0.31	0.35	0.35	2.26	0.68				
Queue Length 95th (ft)	0	0	0	33	0	0	167	122				
Control Delay (s)	0.0	0.0	0.0	9.9	0.0	0.0	929.6	30.4				
Lane LOS				A				F	D			
Approach Delay (s)	0.0			2.1			174.3					
Approach LOS							F					
Intersection Summary												
Average Delay	19.1											
Intersection Capacity Utilization	77.8%			ICU Level of Service				D				
Analysis Period (min)	15											

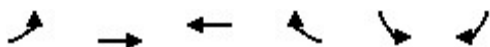
Iron Horse Data Center TIA
6: I-95 NB Ramp & Patrick Henry Hwy

2039 Total Future - AM
HCM Unsignalized Intersection Capacity Analysis

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations					 							
Traffic Volume (veh/h)	175	329	0	0	609	61	0	0	226	0	0	795
Future Volume (Veh/h)	175	329	0	0	609	61	0	0	226	0	0	795
Sign Control	Free			Free			Yield			Yield		
Grade	0%			0%			0%			0%		
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Hourly flow rate (vph)	186	350	0	0	648	65	0	0	240	0	0	846
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type	None			None								
Median storage (veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	648			350			1046	1370	350	1370	1370	324
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	648			350			1046	1370	350	1370	1370	324
tC, single (s)	4.5			4.1			7.5	6.5	7.0	7.5	6.5	7.1
tC, 2 stage (s)												
tF (s)	2.4			2.2			3.5	4.0	3.4	3.5	4.0	3.4
p0 queue free %	77			100			0	100	62	100	100	0
cM capacity (veh/h)	822			1220			0	114	635	55	114	654
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	WB 3	NB 1	SB 1					
Volume Total	186	350	324	324	65	240	846					
Volume Left	186	0	0	0	0	0	0					
Volume Right	0	0	0	0	65	240	846					
cSH	822	1700	1700	1700	1700	635	654					
Volume to Capacity	0.23	0.21	0.19	0.19	0.04	0.38	1.29					
Queue Length 95th (ft)	22	0	0	0	0	44	836					
Control Delay (s)	10.7	0.0	0.0	0.0	0.0	14.1	163.2					
Lane LOS	B					B	F					
Approach Delay (s)	3.7		0.0			14.1	163.2					
Approach LOS						B	F					
Intersection Summary												
Average Delay	61.4											
Intersection Capacity Utilization	72.7%			ICU Level of Service			C					
Analysis Period (min)	15											

Iron Horse Data Center TIA
7: Patrick Henry Hwy & Telcourt Rd

2039 Total Future - AM
HCM Unsignalized Intersection Capacity Analysis



Movement	EBL	EBT	WBT	WBR	SBL	SBR	
Lane Configurations							
Traffic Volume (veh/h)	43	555	645	12	5	6	
Future Volume (Veh/h)	43	555	645	12	5	6	
Sign Control		Free	Free		Stop		
Grade		0%	0%		0%		
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	
Hourly flow rate (vph)	45	584	679	13	5	6	
Pedestrians							
Lane Width (ft)							
Walking Speed (ft/s)							
Percent Blockage							
Right turn flare (veh)							
Median type		None	None				
Median storage veh							
Upstream signal (ft)							
pX, platoon unblocked							
vC, conflicting volume	692				1061	340	
vC1, stage 1 conf vol							
vC2, stage 2 conf vol							
vCu, unblocked vol	692				1061	340	
tC, single (s)	4.5				6.8	6.9	
tC, 2 stage (s)							
tF (s)	2.4				3.5	3.3	
p0 queue free %	94				98	99	
cM capacity (veh/h)	783				209	662	
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	SB 1
Volume Total	45	292	292	340	340	13	11
Volume Left	45	0	0	0	0	0	5
Volume Right	0	0	0	0	0	13	6
cSH	783	1700	1700	1700	1700	1700	334
Volume to Capacity	0.06	0.17	0.17	0.20	0.20	0.01	0.03
Queue Length 95th (ft)	5	0	0	0	0	0	3
Control Delay (s)	9.9	0.0	0.0	0.0	0.0	0.0	16.1
Lane LOS	A						C
Approach Delay (s)	0.7			0.0			16.1
Approach LOS							C
Intersection Summary							
Average Delay			0.5				
Intersection Capacity Utilization			34.5%		ICU Level of Service		A
Analysis Period (min)			15				

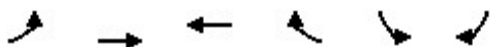
Iron Horse Data Center TIA
8: Mt. Hermon Rd/Frances Rd & Patrick Henry Hwy

2039 Total Future - AM
HCM Unsignalized Intersection Capacity Analysis

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	53	430	76	17	532	13	76	1	8	4	5	48
Future Volume (Veh/h)	53	430	76	17	532	13	76	1	8	4	5	48
Sign Control	Free			Free			Stop			Stop		
Grade	0%			0%			0%			0%		
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	58	467	83	18	578	14	83	1	9	4	5	52
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type	None			None								
Median storage (veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	592			550			1252	1211	467	1206	1280	578
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	592			550			1252	1211	467	1206	1280	578
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	94			98			32	99	98	97	97	90
cM capacity (veh/h)	994			1030			122	170	600	150	155	519
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	NB 1	SB 1				
Volume Total	58	467	83	18	578	14	93	61				
Volume Left	58	0	0	18	0	0	83	4				
Volume Right	0	0	83	0	0	14	9	52				
cSH	994	1700	1700	1030	1700	1700	133	383				
Volume to Capacity	0.06	0.27	0.05	0.02	0.34	0.01	0.70	0.16				
Queue Length 95th (ft)	5	0	0	1	0	0	98	14				
Control Delay (s)	8.8	0.0	0.0	8.6	0.0	0.0	78.8	16.2				
Lane LOS	A			A			F	C				
Approach Delay (s)	0.8			0.3			78.8	16.2				
Approach LOS							F	C				
Intersection Summary												
Average Delay	6.5											
Intersection Capacity Utilization	52.8%			ICU Level of Service					A			
Analysis Period (min)	15											

Iron Horse Data Center TIA
9: Patrick Henry Hwy & Woodside Ln

2039 Total Future - AM
HCM Unsignalized Intersection Capacity Analysis



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	79	268	324	22	70	169
Future Volume (Veh/h)	79	268	324	22	70	169
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96
Hourly flow rate (vph)	82	279	338	23	73	176
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						12
Median type		None	None			
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	361				792	350
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	361				792	350
tC, single (s)	4.1				6.5	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.6	3.3
p0 queue free %	93				78	75
cM capacity (veh/h)	1192				327	696
Direction, Lane #	EB 1	EB 2	WB 1	SB 1		
Volume Total	82	279	361	249		
Volume Left	82	0	0	73		
Volume Right	0	0	23	176		
cSH	1192	1700	1700	985		
Volume to Capacity	0.07	0.16	0.21	0.25		
Queue Length 95th (ft)	6	0	0	25		
Control Delay (s)	8.2	0.0	0.0	14.0		
Lane LOS	A			B		
Approach Delay (s)	1.9		0.0	14.0		
Approach LOS				B		
Intersection Summary						
Average Delay			4.3			
Intersection Capacity Utilization			36.6%		ICU Level of Service	A
Analysis Period (min)			15			

Iron Horse Data Center TIA
10: Goddins Hill Rd & Patrick Henry Hwy

2039 Total Future - AM
HCM Unsignalized Intersection Capacity Analysis

	→	↘	↙	←	↖	↗
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑	↗		↖	↘	
Traffic Volume (veh/h)	242	71	107	272	33	30
Future Volume (Veh/h)	242	71	107	272	33	30
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	263	77	116	296	36	33
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None		None			
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			340		791	263
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			340		791	263
tC, single (s)			4.1		6.4	6.3
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.4
p0 queue free %			91		89	96
cM capacity (veh/h)			1225		322	759
Direction, Lane #	EB 1	EB 2	WB 1	NB 1		
Volume Total	263	77	412	69		
Volume Left	0	0	116	36		
Volume Right	0	77	0	33		
cSH	1700	1700	1225	444		
Volume to Capacity	0.15	0.05	0.09	0.16		
Queue Length 95th (ft)	0	0	8	14		
Control Delay (s)	0.0	0.0	3.0	14.6		
Lane LOS			A	B		
Approach Delay (s)	0.0		3.0	14.6		
Approach LOS				B		
Intersection Summary						
Average Delay			2.7			
Intersection Capacity Utilization			46.6%	ICU Level of Service	A	
Analysis Period (min)			15			

Iron Horse Data Center TIA
11: Site Entrance A & Patrick Henry Hwy

2039 Total Future - AM
HCM Unsignalized Intersection Capacity Analysis

						
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	344	98	8	482	80	7
Future Volume (Veh/h)	344	98	8	482	80	7
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	362	103	8	507	84	7
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	465			885	362	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	465			885	362	
tC, single (s)	4.1			6.4	6.2	
tC, 2 stage (s)						
tF (s)	2.2			3.5	3.3	
p0 queue free %	99			73	99	
cM capacity (veh/h)	1107			316	687	
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	
Volume Total	362	103	8	507	91	
Volume Left	0	0	8	0	84	
Volume Right	0	103	0	0	7	
cSH	1700	1700	1107	1700	329	
Volume to Capacity	0.21	0.06	0.01	0.30	0.28	
Queue Length 95th (ft)	0	0	1	0	28	
Control Delay (s)	0.0	0.0	8.3	0.0	20.0	
Lane LOS	A			C		
Approach Delay (s)	0.0	0.1		20.0		
Approach LOS				C		
Intersection Summary						
Average Delay	1.8					
Intersection Capacity Utilization	36.9%			ICU Level of Service	A	
Analysis Period (min)	15					

Iron Horse Data Center TIA
12: Site Entrance B & Patrick Henry Hwy

2039 Total Future - AM
HCM Unsignalized Intersection Capacity Analysis

	→	↘	↙	←	↖	↗
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↰			↱	↰	↱
Traffic Volume (veh/h)	338	0	8	345	0	7
Future Volume (Veh/h)	338	0	8	345	0	7
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Hourly flow rate (vph)	363	0	9	371	0	8
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			363		752	363
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			363		752	363
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			99		100	99
cM capacity (veh/h)			1207		378	686
Direction, Lane #	EB 1	WB 1	NB 1			
Volume Total	363	380	8			
Volume Left	0	9	0			
Volume Right	0	0	8			
cSH	1700	1207	686			
Volume to Capacity	0.21	0.01	0.01			
Queue Length 95th (ft)	0	1	1			
Control Delay (s)	0.0	0.3	10.3			
Lane LOS		A	B			
Approach Delay (s)	0.0	0.3	10.3			
Approach LOS			B			
Intersection Summary						
Average Delay			0.2			
Intersection Capacity Utilization			34.6%	ICU Level of Service		A
Analysis Period (min)			15			

Iron Horse Data Center TIA
13: Mt. Hermon Rd & Site Entrance C

2039 Total Future - AM
HCM Unsignalized Intersection Capacity Analysis

						
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	0	40	45	0	49	49
Future Volume (Veh/h)	0	40	45	0	49	49
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	43	49	0	53	53
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	208	49			49	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	208	49			49	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	100	96			97	
cM capacity (veh/h)	758	1025			1571	
Direction, Lane #	WB 1	NB 1	SB 1			
Volume Total	43	49	106			
Volume Left	0	0	53			
Volume Right	43	0	0			
cSH	1025	1700	1571			
Volume to Capacity	0.04	0.03	0.03			
Queue Length 95th (ft)	3	0	3			
Control Delay (s)	8.7	0.0	3.8			
Lane LOS	A		A			
Approach Delay (s)	8.7	0.0	3.8			
Approach LOS	A					
Intersection Summary						
Average Delay			3.9			
Intersection Capacity Utilization			22.0%	ICU Level of Service	A	
Analysis Period (min)			15			

Iron Horse Data Center TIA
4: S. Carter St/N. Carter St & England St

2039 Total Future - AM
HCM Unsignalized Intersection Capacity Analysis

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↑			↑↑↑				↗			↗
Traffic Volume (veh/h)	0	1075	72	0	1254	62	0	0	76	0	0	23
Future Volume (Veh/h)	0	1075	72	0	1254	62	0	0	76	0	0	23
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Hourly flow rate (vph)	0	1144	77	0	1334	66	0	0	81	0	0	24
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type	None				None							
Median storage veh												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	1400			1221			1651	2582	420	1829	2588	478
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1400			1221			1651	2582	420	1829	2588	478
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	7.1
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.4
p0 queue free %	100			100			100	100	86	100	100	95
cM capacity (veh/h)	494			578			63	26	582	42	26	510
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	NB 1	SB 1				
Volume Total	458	458	306	534	534	333	81	24				
Volume Left	0	0	0	0	0	0	0	0				
Volume Right	0	0	77	0	0	66	81	24				
cSH	1700	1700	1700	1700	1700	1700	582	510				
Volume to Capacity	0.27	0.27	0.18	0.31	0.31	0.20	0.14	0.05				
Queue Length 95th (ft)	0	0	0	0	0	0	12	4				
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	12.2	12.4				
Lane LOS							B	B				
Approach Delay (s)	0.0			0.0			12.2	12.4				
Approach LOS							B	B				
Intersection Summary												
Average Delay	0.5											
Intersection Capacity Utilization	35.6%			ICU Level of Service					A			
Analysis Period (min)	15											

Intersection: 1: Washington Hwy & England St

Movement	EB	EB	EB	EB	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	L	T	T	R	L	T	L	T	T	L	T	T
Maximum Queue (ft)	206	256	262	96	263	578	222	163	149	313	445	418
Average Queue (ft)	84	127	145	38	98	241	105	88	60	200	161	143
95th Queue (ft)	161	217	231	76	193	501	192	145	120	316	339	300
Link Distance (ft)		1170			891	891		1257	1257		1361	1361
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (ft)	290		340	340			350			320		
Storage Blk Time (%)	0	0	0							3	1	6
Queuing Penalty (veh)	0	1	0							7	4	6

Intersection: 1: Washington Hwy & England St

Movement	SB
Directions Served	R
Maximum Queue (ft)	140
Average Queue (ft)	60
95th Queue (ft)	136
Link Distance (ft)	
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	140
Storage Blk Time (%)	0
Queuing Penalty (veh)	1

Intersection: 2: Cottage Green Dr & England St

Movement	EB	EB	EB	EB	WB	WB	WB	WB	WB	NB	NB	NB
Directions Served	L	T	T	TR	L	L	T	T	TR	L	T	R
Maximum Queue (ft)	65	115	137	171	45	78	194	280	284	88	49	43
Average Queue (ft)	14	22	34	61	7	29	35	64	64	26	7	13
95th Queue (ft)	46	72	94	135	27	65	121	191	196	67	32	39
Link Distance (ft)		891	891	891			1075	1075	1075	954	954	
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (ft)	235				260	260						170
Storage Blk Time (%)							0					
Queuing Penalty (veh)							0					

Intersection: 2: Cottage Green Dr & England St

Movement	SB	SB
Directions Served	L	TR
Maximum Queue (ft)	141	128
Average Queue (ft)	68	32
95th Queue (ft)	122	85
Link Distance (ft)		803
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)	155	
Storage Blk Time (%)	0	0
Queuing Penalty (veh)	0	0

Intersection: 3: Hill Carter Pkwy & England St

Movement	EB	EB	EB	EB	EB	WB	WB	WB	WB	WB	NB	NB
Directions Served	L	T	T	T	R	L	L	T	T	TR	L	LT
Maximum Queue (ft)	119	186	325	397	200	136	137	214	235	242	77	114
Average Queue (ft)	45	61	122	176	63	76	73	119	139	137	17	54
95th Queue (ft)	100	130	248	321	184	125	124	197	215	225	50	101
Link Distance (ft)		1075	1075	1075		214	214	214	214	214		920
Upstream Blk Time (%)								0	0	1		
Queuing Penalty (veh)								0	1	4		
Storage Bay Dist (ft)	325				200						220	
Storage Blk Time (%)				6	0							
Queuing Penalty (veh)				6	1							

Intersection: 3: Hill Carter Pkwy & England St

Movement	NB	NB	SB	SB	SB
Directions Served	T	R	L	T	TR
Maximum Queue (ft)	46	154	240	67	67
Average Queue (ft)	3	64	101	13	14
95th Queue (ft)	22	122	197	44	43
Link Distance (ft)	920			976	976
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (ft)		325	290		
Storage Blk Time (%)					
Queuing Penalty (veh)					

Intersection: 4: S. Carter St/N. Carter St & England St

Movement	EB	EB	WB	WB	B41	B41	NB	SB
Directions Served	T	TR	T	TR	T	T	R	R
Maximum Queue (ft)	52	100	11	19	5	4	85	71
Average Queue (ft)	2	7	0	1	0	0	34	19
95th Queue (ft)	33	51	8	15	5	4	66	51
Link Distance (ft)	214	214	275	275	269	269	315	396
Upstream Blk Time (%)	0							
Queuing Penalty (veh)	0							
Storage Bay Dist (ft)								
Storage Blk Time (%)								
Queuing Penalty (veh)								

Intersection: 5: I-95 SB Ramp & England St/Patrick Henry Hwy

Movement	EB	EB	EB	B41	WB	SB	SB
Directions Served	T	T	R	T	L	LT	R
Maximum Queue (ft)	14	49	26	6	123	127	296
Average Queue (ft)	1	2	1	0	48	61	57
95th Queue (ft)	15	28	16	6	91	137	419
Link Distance (ft)	269	269	269	275	207		1149
Upstream Blk Time (%)							2
Queuing Penalty (veh)							0
Storage Bay Dist (ft)						150	
Storage Blk Time (%)						9	3
Queuing Penalty (veh)						23	1

Intersection: 6: I-95 NB Ramp & Patrick Henry Hwy

Movement	EB	WB	WB
Directions Served	L	T	T
Maximum Queue (ft)	142	11	2
Average Queue (ft)	48	0	0
95th Queue (ft)	100	6	2
Link Distance (ft)	476	189	189
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 7: Patrick Henry Hwy & Telcourt Rd

Movement	EB	EB	EB	WB	WB	WB	SB
Directions Served	L	T	T	T	T	R	LR
Maximum Queue (ft)	72	15	2	2	2	30	34
Average Queue (ft)	20	1	0	0	0	3	9
95th Queue (ft)	57	15	2	2	2	17	32
Link Distance (ft)		286	286	244	244		754
Upstream Blk Time (%)							
Queuing Penalty (veh)							
Storage Bay Dist (ft)	100					50	
Storage Blk Time (%)	0	0				0	
Queuing Penalty (veh)	0	0				0	

Intersection: 8: Mt. Hermon Rd/Frances Rd & Patrick Henry Hwy

Movement	EB	EB	WB	WB	NB	SB
Directions Served	L	R	L	R	LTR	LTR
Maximum Queue (ft)	41	4	25	2	85	57
Average Queue (ft)	15	0	5	0	29	27
95th Queue (ft)	38	3	20	2	58	48
Link Distance (ft)		244			596	993
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)	150		150	110		
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 9: Patrick Henry Hwy & Woodside Ln

Movement	EB	WB	SB	SB
Directions Served	L	TR	L	R
Maximum Queue (ft)	52	4	89	91
Average Queue (ft)	16	0	38	47
95th Queue (ft)	41	3	70	75
Link Distance (ft)		458	1062	
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)	300		290	
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 10: Goddins Hill Rd & Patrick Henry Hwy

Movement	EB	WB	NB
Directions Served	R	LT	LR
Maximum Queue (ft)	9	78	72
Average Queue (ft)	0	20	24
95th Queue (ft)	6	54	50
Link Distance (ft)		2248	1612
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)	200		
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 11: Site Entrance A & Patrick Henry Hwy

Movement	WB	NB
Directions Served	L	LR
Maximum Queue (ft)	24	71
Average Queue (ft)	2	29
95th Queue (ft)	13	57
Link Distance (ft)		597
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)	150	
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 12: Site Entrance B & Patrick Henry Hwy

Movement	WB	NB
Directions Served	LT	LR
Maximum Queue (ft)	35	30
Average Queue (ft)	2	7
95th Queue (ft)	18	27
Link Distance (ft)	597	420
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 13: Mt. Hermon Rd & Site Entrance C

Movement	WB	SB
Directions Served	LR	LT
Maximum Queue (ft)	46	20
Average Queue (ft)	23	1
95th Queue (ft)	46	11
Link Distance (ft)	562	596
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Network Summary

Network wide Queuing Penalty: 55

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	180	558	160	284	564	315	314	549	278	342	551	124
v/c Ratio	0.96	0.63	0.29	0.76	0.94	0.21	0.95	0.95	0.18	0.99	0.83	0.23
Control Delay	99.6	43.9	3.0	31.2	52.3	0.3	70.0	76.9	0.3	82.0	59.2	1.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	99.6	43.9	3.0	31.2	52.3	0.3	70.0	76.9	0.3	82.0	59.2	1.0
Queue Length 50th (ft)	~81	204	0	188	442	0	178	224	0	~221	218	0
Queue Length 95th (ft)	#229	265	22	#99	#647	0	#355	#335	0	#419	#302	0
Internal Link Dist (ft)	1151			901			1233			1319		
Turn Bay Length (ft)	290	340			350			400	320	140		
Base Capacity (vph)	187	885	553	385	616	1524	329	578	1553	344	660	547
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.96	0.63	0.29	0.74	0.92	0.21	0.95	0.95	0.18	0.99	0.83	0.23

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Iron Horse Data Center TIA
1: Washington Hwy & England St

2039 Total Future - PM
HCM Signalized Intersection Capacity Analysis

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		 						 			 	
Traffic Volume (vph)	171	530	152	270	536	299	298	522	264	325	523	118
Future Volume (vph)	171	530	152	270	536	299	298	522	264	325	523	118
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	9.3	9.3	9.3	9.3	9.3	4.0	8.4	8.4	4.0	8.4	8.4	8.4
Lane Util. Factor	1.00	0.95	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1805	3539	1583	1719	1863	1524	1805	3539	1553	1770	3505	1599
Flt Permitted	0.12	1.00	1.00	0.32	1.00	1.00	0.24	1.00	1.00	0.20	1.00	1.00
Satd. Flow (perm)	237	3539	1583	582	1863	1524	461	3539	1553	380	3505	1599
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	180	558	160	284	564	315	314	549	278	342	551	124
RTOR Reduction (vph)	0	0	120	0	0	0	0	0	0	0	0	101
Lane Group Flow (vph)	180	558	40	284	564	315	314	549	278	342	551	23
Heavy Vehicles (%)	0%	2%	2%	5%	2%	6%	0%	2%	4%	2%	3%	1%
Turn Type	D.P+P	NA	Perm	D.P+P	NA	Free	D.P+P	NA	Free	D.P+P	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	8		4	4		Free	6		Free	2		6
Actuated Green, G (s)	45.9	30.1	30.1	45.9	38.5	120.0	38.7	19.6	120.0	38.7	22.6	22.6
Effective Green, g (s)	45.9	30.1	30.1	45.9	38.5	120.0	38.7	19.6	120.0	38.7	22.6	22.6
Actuated g/C Ratio	0.38	0.25	0.25	0.38	0.32	1.00	0.32	0.16	1.00	0.32	0.19	0.19
Clearance Time (s)	9.3	9.3	9.3	9.3	9.3		8.4	8.4		8.4	8.4	8.4
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	187	887	397	372	597	1524	328	578	1553	343	660	301
v/s Ratio Prot	0.06	0.16		0.10	0.30		0.13	0.16		c0.16	0.16	
v/s Ratio Perm	c0.31		0.03	c0.19		c0.21	c0.18		0.18	0.16		0.01
v/c Ratio	0.96	0.63	0.10	0.76	0.94	0.21	0.96	0.95	0.18	1.00	0.83	0.08
Uniform Delay, d1	49.7	40.0	34.6	27.8	39.7	0.0	34.7	49.7	0.0	35.2	46.9	40.1
Progression Factor	1.00	1.00	1.00	0.80	0.68	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	54.6	3.4	0.5	8.3	24.1	0.3	38.0	25.2	0.3	47.5	9.0	0.1
Delay (s)	104.3	43.4	35.1	30.6	51.2	0.3	72.8	74.9	0.3	82.7	55.9	40.2
Level of Service	F	D	D	C	D	A	E	E	A	F	E	D
Approach Delay (s)		54.1			32.3			56.1			63.0	
Approach LOS		D			C			E			E	
Intersection Summary												
HCM 2000 Control Delay			50.8			HCM 2000 Level of Service				D		
HCM 2000 Volume to Capacity ratio			1.01									
Actuated Cycle Length (s)			120.0			Sum of lost time (s)			35.4			
Intersection Capacity Utilization			99.6%			ICU Level of Service			F			
Analysis Period (min)			15									
c Critical Lane Group												



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	39	1066	78	1145	61	65	64	247	99
v/c Ratio	0.33	0.48	0.30	0.48	0.43	0.44	0.20	0.74	0.28
Control Delay	51.9	18.7	30.4	5.7	61.2	61.0	1.4	59.4	35.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	51.9	18.7	30.4	5.7	61.2	61.0	1.4	59.4	35.3
Queue Length 50th (ft)	28	224	30	67	46	49	0	180	53
Queue Length 95th (ft)	m44	m317	m55	224	89	93	0	268	103
Internal Link Dist (ft)		901		1090		942			790
Turn Bay Length (ft)	235		260				170	155	
Base Capacity (vph)	154	2315	274	2408	257	270	409	339	353
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.25	0.46	0.28	0.48	0.24	0.24	0.16	0.73	0.28

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

Iron Horse Data Center TIA
2: Cottage Green Dr & England St

2039 Total Future - PM
HCM Signalized Intersection Capacity Analysis

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		  		 	  							
Traffic Volume (vph)	37	987	36	75	947	153	59	62	61	237	63	32
Future Volume (vph)	37	987	36	75	947	153	59	62	61	237	63	32
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.7	4.9		7.6	5.1		7.9	7.9	7.9	7.5	7.5	
Lane Util. Factor	1.00	0.91		0.97	0.91		1.00	1.00	1.00	1.00	1.00	
Frt	1.00	0.99		1.00	0.98		1.00	1.00	0.85	1.00	0.95	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1805	5007		3213	4903		1805	1900	1583	1787	1781	
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	1805	5007		3213	4903		1805	1900	1583	1787	1781	
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	39	1028	38	78	986	159	61	65	64	247	66	33
RTOR Reduction (vph)	0	3	0	0	16	0	0	0	59	0	15	0
Lane Group Flow (vph)	39	1063	0	78	1129	0	61	65	5	247	84	0
Heavy Vehicles (%)	0%	3%	4%	9%	4%	1%	0%	0%	2%	1%	2%	0%
Turn Type	Prot	NA		Prot	NA		Split	NA	Perm	Split	NA	
Protected Phases	5	2		1	6		3	3		4	4	
Permitted Phases									3			
Actuated Green, G (s)	5.5	50.6		9.5	55.3		9.5	9.5	9.5	22.5	22.5	
Effective Green, g (s)	5.5	50.6		9.5	55.3		9.5	9.5	9.5	22.5	22.5	
Actuated g/C Ratio	0.05	0.42		0.08	0.46		0.08	0.08	0.08	0.19	0.19	
Clearance Time (s)	6.7	4.9		7.6	5.1		7.9	7.9	7.9	7.5	7.5	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	82	2111		254	2259		142	150	125	335	333	
v/s Ratio Prot	0.02	c0.21		0.02	c0.23		0.03	c0.03		c0.14	0.05	
v/s Ratio Perm									0.00			
v/c Ratio	0.48	0.50		0.31	0.50		0.43	0.43	0.04	0.74	0.25	
Uniform Delay, d1	55.8	25.5		52.1	22.7		52.7	52.7	51.0	46.0	41.6	
Progression Factor	0.87	0.70		0.54	0.22		1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	3.3	0.7		0.6	0.7		2.1	2.0	0.1	8.2	0.4	
Delay (s)	52.2	18.5		28.7	5.7		54.8	54.7	51.2	54.2	42.0	
Level of Service	D	B		C	A		D	D	D	D	D	
Approach Delay (s)		19.7			7.2			53.5			50.7	
Approach LOS		B			A			D			D	
Intersection Summary												
HCM 2000 Control Delay			20.4			HCM 2000 Level of Service				C		
HCM 2000 Volume to Capacity ratio			0.58									
Actuated Cycle Length (s)			120.0			Sum of lost time (s)			27.9			
Intersection Capacity Utilization			61.8%			ICU Level of Service			B			
Analysis Period (min)			15									
c Critical Lane Group												

										
Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	66	1144	186	290	1088	120	135	353	95	52
v/c Ratio	0.32	0.57	0.24	0.77	0.54	0.64	0.36	0.76	0.66	0.14
Control Delay	27.6	10.2	1.0	66.0	29.1	65.6	50.8	19.8	72.9	27.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	27.6	10.2	1.0	66.0	29.1	65.6	50.8	19.8	72.9	27.1
Queue Length 50th (ft)	45	161	3	111	250	96	52	27	71	8
Queue Length 95th (ft)	m69	102	m6	#185	299	169	87	133	129	28
Internal Link Dist (ft)		1090			235		916			977
Turn Bay Length (ft)	325		200	550		220		325	290	
Base Capacity (vph)	208	2055	777	381	2201	212	424	483	170	436
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.32	0.56	0.24	0.76	0.49	0.57	0.32	0.73	0.56	0.12

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

Iron Horse Data Center TIA
3: Hill Carter Pkwy & England St

2039 Total Future - PM
HCM Signalized Intersection Capacity Analysis

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		  		 	  			 			 	
Traffic Volume (vph)	61	1064	173	270	953	59	224	13	328	88	22	26
Future Volume (vph)	61	1064	173	270	953	59	224	13	328	88	22	26
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.6	5.7	5.7	8.5	5.8		8.9	8.9	8.9	8.9	8.9	
Lane Util. Factor	1.00	0.91	1.00	0.97	0.91		0.91	0.91	1.00	1.00	0.95	
Frt	1.00	1.00	0.85	1.00	0.99		1.00	1.00	0.85	1.00	0.92	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	0.96	1.00	0.95	1.00	
Satd. Flow (prot)	1770	5036	1599	3367	4761		1610	3219	1599	1337	3229	
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	0.96	1.00	0.95	1.00	
Satd. Flow (perm)	1770	5036	1599	3367	4761		1610	3219	1599	1337	3229	
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	66	1144	186	290	1025	63	241	14	353	95	24	28
RTOR Reduction (vph)	0	0	112	0	6	0	0	0	277	0	25	0
Lane Group Flow (vph)	66	1144	74	290	1082	0	120	135	76	95	27	0
Heavy Vehicles (%)	2%	3%	1%	4%	5%	57%	2%	10%	1%	35%	6%	0%
Turn Type	Prot	NA	Perm	Prot	NA		Split	NA	Perm	Split	NA	
Protected Phases	5	2		1	6		3	3		4	4	
Permitted Phases			2						3			
Actuated Green, G (s)	12.2	47.5	47.5	13.5	49.6		14.1	14.1	14.1	12.9	12.9	
Effective Green, g (s)	12.2	47.5	47.5	13.5	49.6		14.1	14.1	14.1	12.9	12.9	
Actuated g/C Ratio	0.10	0.40	0.40	0.11	0.41		0.12	0.12	0.12	0.11	0.11	
Clearance Time (s)	7.6	5.7	5.7	8.5	5.8		8.9	8.9	8.9	8.9	8.9	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	179	1993	632	378	1967		189	378	187	143	347	
v/s Ratio Prot	0.04	c0.23		0.09	c0.23		c0.07	0.04		c0.07	0.01	
v/s Ratio Perm			0.05						0.05			
v/c Ratio	0.37	0.57	0.12	0.77	0.55		0.63	0.36	0.41	0.66	0.08	
Uniform Delay, d1	50.3	28.3	23.0	51.7	26.7		50.5	48.8	49.1	51.5	48.2	
Progression Factor	0.49	0.31	0.16	1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	1.2	1.1	0.3	9.0	1.1		6.8	0.6	1.4	11.1	0.1	
Delay (s)	26.0	9.9	3.9	60.7	27.8		57.3	49.4	50.5	62.5	48.3	
Level of Service	C	A	A	E	C		E	D	D	E	D	
Approach Delay (s)		9.8			34.8			51.6			57.5	
Approach LOS		A			C			D			E	
Intersection Summary												
HCM 2000 Control Delay			28.8			HCM 2000 Level of Service			C			
HCM 2000 Volume to Capacity ratio			0.63									
Actuated Cycle Length (s)			120.0			Sum of lost time (s)			32.0			
Intersection Capacity Utilization			67.1%			ICU Level of Service			C			
Analysis Period (min)			15									
c Critical Lane Group												

Iron Horse Data Center TIA
5: I-95 SB Ramp & England St/Patrick Henry Hwy

2039 Total Future - PM
HCM Unsignalized Intersection Capacity Analysis

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑	↑	↑	↑↑						↑	↑
Traffic Volume (veh/h)	0	665	939	257	1157	0	0	0	0	35	1	265
Future Volume (Veh/h)	0	665	939	257	1157	0	0	0	0	35	1	265
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Hourly flow rate (vph)	0	686	968	265	1193	0	0	0	0	36	1	273
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type	None				None							
Median storage veh												
Upstream signal (ft)	976											
pX, platoon unblocked												
vC, conflicting volume	1193			686			1813	2409	343	2066	2409	596
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1193			686			1813	2409	343	2066	2409	596
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.7	6.5	7.1
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.6	4.0	3.4
p0 queue free %	100			71			100	100	100	0	96	36
cM capacity (veh/h)	592			910			14	24	659	22	24	429
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	SB 1	SB 2				
Volume Total	343	343	968	265	596	596	37	273				
Volume Left	0	0	0	265	0	0	36	0				
Volume Right	0	0	968	0	0	0	0	273				
cSH	1700	1700	1700	910	1700	1700	22	429				
Volume to Capacity	0.20	0.20	0.57	0.29	0.35	0.35	1.65	0.64				
Queue Length 95th (ft)	0	0	0	30	0	0	119	107				
Control Delay (s)	0.0	0.0	0.0	10.6	0.0	0.0	688.3	26.9				
Lane LOS				B			F	D				
Approach Delay (s)	0.0			1.9			105.8					
Approach LOS							F					
Intersection Summary												
Average Delay	10.4											
Intersection Capacity Utilization	85.7%			ICU Level of Service					E			
Analysis Period (min)	15											

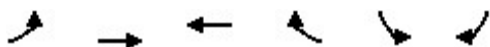
Iron Horse Data Center TIA
6: I-95 NB Ramp & Patrick Henry Hwy

2039 Total Future - PM
HCM Unsignalized Intersection Capacity Analysis

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	264	430	0	0	627	54	0	0	259	0	0	786
Future Volume (Veh/h)	264	430	0	0	627	54	0	0	259	0	0	786
Sign Control	Free			Free			Yield			Yield		
Grade	0%			0%			0%			0%		
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Hourly flow rate (vph)	275	448	0	0	653	56	0	0	270	0	0	819
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type	None			None								
Median storage (veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	653			448			1324	1651	448	1651	1651	326
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	653			448			1324	1651	448	1651	1651	326
tC, single (s)	4.2			4.1			7.5	6.5	6.9	7.5	6.5	7.0
tC, 2 stage (s)												
tF (s)	2.3			2.2			3.5	4.0	3.3	3.5	4.0	3.4
p0 queue free %	69			100			0	100	52	100	100	0
cM capacity (veh/h)	897			1123			0	69	564	26	69	658
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	WB 3	NB 1	SB 1					
Volume Total	275	448	326	326	56	270	819					
Volume Left	275	0	0	0	0	0	0					
Volume Right	0	0	0	0	56	270	819					
cSH	897	1700	1700	1700	1700	564	658					
Volume to Capacity	0.31	0.26	0.19	0.19	0.03	0.48	1.25					
Queue Length 95th (ft)	33	0	0	0	0	64	758					
Control Delay (s)	10.8	0.0	0.0	0.0	0.0	17.1	143.9					
Lane LOS	B					C	F					
Approach Delay (s)	4.1		0.0			17.1	143.9					
Approach LOS						C	F					
Intersection Summary												
Average Delay	49.8											
Intersection Capacity Utilization	72.7%			ICU Level of Service			C					
Analysis Period (min)	15											

Iron Horse Data Center TIA
7: Patrick Henry Hwy & Telcourt Rd

2039 Total Future - PM
HCM Unsignalized Intersection Capacity Analysis



Movement	EBL	EBT	WBT	WBR	SBL	SBR	
Lane Configurations							
Traffic Volume (veh/h)	39	632	606	13	3	31	
Future Volume (Veh/h)	39	632	606	13	3	31	
Sign Control		Free	Free		Stop		
Grade		0%	0%		0%		
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	
Hourly flow rate (vph)	42	687	659	14	3	34	
Pedestrians							
Lane Width (ft)							
Walking Speed (ft/s)							
Percent Blockage							
Right turn flare (veh)							
Median type		None	None				
Median storage veh							
Upstream signal (ft)							
pX, platoon unblocked							
vC, conflicting volume	673				1086	330	
vC1, stage 1 conf vol							
vC2, stage 2 conf vol							
vCu, unblocked vol	673				1086	330	
tC, single (s)	4.3				6.8	6.9	
tC, 2 stage (s)							
tF (s)	2.3				3.5	3.3	
p0 queue free %	95				99	95	
cM capacity (veh/h)	862				204	672	
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	SB 1
Volume Total	42	344	344	330	330	14	37
Volume Left	42	0	0	0	0	0	3
Volume Right	0	0	0	0	0	14	34
cSH	862	1700	1700	1700	1700	1700	566
Volume to Capacity	0.05	0.20	0.20	0.19	0.19	0.01	0.07
Queue Length 95th (ft)	4	0	0	0	0	0	5
Control Delay (s)	9.4	0.0	0.0	0.0	0.0	0.0	11.8
Lane LOS	A						B
Approach Delay (s)	0.5			0.0			11.8
Approach LOS							B
Intersection Summary							
Average Delay			0.6				
Intersection Capacity Utilization			33.4%		ICU Level of Service		A
Analysis Period (min)			15				

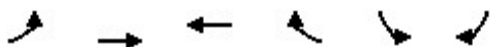
Iron Horse Data Center TIA
8: Mt. Hermon Rd/Frances Rd & Patrick Henry Hwy

2039 Total Future - PM
HCM Unsignalized Intersection Capacity Analysis

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	24	553	40	12	509	5	69	3	21	3	3	36
Future Volume (Veh/h)	24	553	40	12	509	5	69	3	21	3	3	36
Sign Control	Free			Free			Stop			Stop		
Grade	0%			0%			0%			0%		
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	26	601	43	13	553	5	75	3	23	3	3	39
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type	None			None								
Median storage (veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	558			644			1272	1237	601	1256	1275	553
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	558			644			1272	1237	601	1256	1275	553
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	97			99			42	98	95	98	98	93
cM capacity (veh/h)	1023			951			129	171	504	137	162	537
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	NB 1	SB 1				
Volume Total	26	601	43	13	553	5	101	45				
Volume Left	26	0	0	13	0	0	75	3				
Volume Right	0	0	43	0	0	5	23	39				
cSH	1023	1700	1700	951	1700	1700	157	398				
Volume to Capacity	0.03	0.35	0.03	0.01	0.33	0.00	0.64	0.11				
Queue Length 95th (ft)	2	0	0	1	0	0	89	9				
Control Delay (s)	8.6	0.0	0.0	8.8	0.0	0.0	62.0	15.2				
Lane LOS	A			A			F	C				
Approach Delay (s)	0.3			0.2			62.0	15.2				
Approach LOS							F	C				
Intersection Summary												
Average Delay	5.3											
Intersection Capacity Utilization	47.7%			ICU Level of Service					A			
Analysis Period (min)	15											

Iron Horse Data Center TIA
9: Patrick Henry Hwy & Woodside Ln

2039 Total Future - PM
HCM Unsignalized Intersection Capacity Analysis



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	184	373	332	18	33	151
Future Volume (Veh/h)	184	373	332	18	33	151
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	200	405	361	20	36	164
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						12
Median type		None	None			
Median storage veh						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	381				1176	371
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	381				1176	371
tC, single (s)	4.1				6.5	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.6	3.3
p0 queue free %	83				79	76
cM capacity (veh/h)	1189				171	677
Direction, Lane #	EB 1	EB 2	WB 1	SB 1		
Volume Total	200	405	381	200		
Volume Left	200	0	0	36		
Volume Right	0	0	20	164		
cSH	1189	1700	1700	826		
Volume to Capacity	0.17	0.24	0.22	0.24		
Queue Length 95th (ft)	15	0	0	24		
Control Delay (s)	8.6	0.0	0.0	15.5		
Lane LOS	A			C		
Approach Delay (s)	2.9		0.0	15.5		
Approach LOS				C		
Intersection Summary						
Average Delay			4.1			
Intersection Capacity Utilization			42.1%	ICU Level of Service		A
Analysis Period (min)			15			

Iron Horse Data Center TIA
10: Goddins Hill Rd & Patrick Henry Hwy

2039 Total Future - PM
HCM Unsignalized Intersection Capacity Analysis

						
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	332	37	40	268	36	73
Future Volume (Veh/h)	332	37	40	268	36	73
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	361	40	43	291	39	79
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None		None			
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			401		738	361
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			401		738	361
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			96		90	89
cM capacity (veh/h)			1169		374	688
Direction, Lane #	EB 1	EB 2	WB 1	NB 1		
Volume Total	361	40	334	118		
Volume Left	0	0	43	39		
Volume Right	0	40	0	79		
cSH	1700	1700	1169	538		
Volume to Capacity	0.21	0.02	0.04	0.22		
Queue Length 95th (ft)	0	0	3	21		
Control Delay (s)	0.0	0.0	1.4	13.6		
Lane LOS			A	B		
Approach Delay (s)	0.0		1.4	13.6		
Approach LOS				B		
Intersection Summary						
Average Delay			2.4			
Intersection Capacity Utilization			50.3%	ICU Level of Service	A	
Analysis Period (min)			15			

Iron Horse Data Center TIA
11: Site Entrance A & Patrick Henry Hwy

2039 Total Future - PM
HCM Unsignalized Intersection Capacity Analysis

						
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	558	18	2	484	41	3
Future Volume (Veh/h)	558	18	2	484	41	3
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	607	20	2	526	45	3
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume				627	1137	607
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol				627	1137	607
tC, single (s)				4.1	6.4	6.2
tC, 2 stage (s)						
tF (s)				2.2	3.5	3.3
p0 queue free %				100	80	99
cM capacity (veh/h)				965	225	500
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	
Volume Total	607	20	2	526	48	
Volume Left	0	0	2	0	45	
Volume Right	0	20	0	0	3	
cSH	1700	1700	965	1700	233	
Volume to Capacity	0.36	0.01	0.00	0.31	0.21	
Queue Length 95th (ft)	0	0	0	0	19	
Control Delay (s)	0.0	0.0	8.7	0.0	24.4	
Lane LOS				A	C	
Approach Delay (s)	0.0		0.0		24.4	
Approach LOS					C	
Intersection Summary						
Average Delay				1.0		
Intersection Capacity Utilization				39.4%	ICU Level of Service	A
Analysis Period (min)				15		

Iron Horse Data Center TIA
12: Site Entrance B & Patrick Henry Hwy

2039 Total Future - PM
HCM Unsignalized Intersection Capacity Analysis

	→	↘	↙	←	↖	↗
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↰			↱	↰	↱
Traffic Volume (veh/h)	406	0	2	350	0	3
Future Volume (Veh/h)	406	0	2	350	0	3
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Hourly flow rate (vph)	437	0	2	376	0	3
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			437			817
vC1, stage 1 conf vol						437
vC2, stage 2 conf vol						
vCu, unblocked vol			437			817
tC, single (s)			4.1			6.4
tC, 2 stage (s)						6.2
tF (s)			2.2			3.5
p0 queue free %			100			100
cM capacity (veh/h)			1134			348
						624
Direction, Lane #	EB 1	WB 1	NB 1			
Volume Total	437	378	3			
Volume Left	0	2	0			
Volume Right	0	0	3			
cSH	1700	1134	624			
Volume to Capacity	0.26	0.00	0.00			
Queue Length 95th (ft)	0	0	0			
Control Delay (s)	0.0	0.1	10.8			
Lane LOS			A			
Approach Delay (s)	0.0	0.1	10.8			
Approach LOS			B			
Intersection Summary						
Average Delay			0.1			
Intersection Capacity Utilization			31.4%		ICU Level of Service	
Analysis Period (min)			15		A	

Iron Horse Data Center TIA
13: Mt. Hermon Rd & Site Entrance C

2039 Total Future - PM
HCM Unsignalized Intersection Capacity Analysis

						
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	0	21	71	0	9	45
Future Volume (Veh/h)	0	21	71	0	9	45
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	23	77	0	10	49
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	146	77			77	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	146	77			77	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	100	98			99	
cM capacity (veh/h)	846	990			1535	
Direction, Lane #	WB 1	NB 1	SB 1			
Volume Total	23	77	59			
Volume Left	0	0	10			
Volume Right	23	0	0			
cSH	990	1700	1535			
Volume to Capacity	0.02	0.05	0.01			
Queue Length 95th (ft)	2	0	0			
Control Delay (s)	8.7	0.0	1.3			
Lane LOS	A		A			
Approach Delay (s)	8.7	0.0	1.3			
Approach LOS	A					
Intersection Summary						
Average Delay		1.7				
Intersection Capacity Utilization		19.5%		ICU Level of Service		A
Analysis Period (min)		15				

Iron Horse Data Center TIA
4: S. Carter St/N. Carter St & England St

2039 Total Future - PM
HCM Unsignalized Intersection Capacity Analysis

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↑			↑↑↑				↗			↗
Traffic Volume (veh/h)	0	1435	66	0	1310	48	0	0	41	0	0	6
Future Volume (Veh/h)	0	1435	66	0	1310	48	0	0	41	0	0	6
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	1560	72	0	1424	52	0	0	45	0	0	7
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type	None			None								
Median storage veh												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	1476			1632			2078	3072	556	2015	3082	501
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1476			1632			2078	3072	556	2015	3082	501
tC, single (s)	4.1			4.1			7.5	6.5	7.1	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.4	3.5	4.0	3.3
p0 queue free %	100			100			100	100	90	100	100	99
cM capacity (veh/h)	462			403			31	12	457	32	12	521
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	NB 1	SB 1				
Volume Total	624	624	384	570	570	337	45	7				
Volume Left	0	0	0	0	0	0	0	0				
Volume Right	0	0	72	0	0	52	45	7				
cSH	1700	1700	1700	1700	1700	1700	457	521				
Volume to Capacity	0.37	0.37	0.23	0.34	0.34	0.20	0.10	0.01				
Queue Length 95th (ft)	0	0	0	0	0	0	8	1				
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	13.7	12.0				
Lane LOS							B	B				
Approach Delay (s)	0.0			0.0			13.7	12.0				
Approach LOS							B	B				
Intersection Summary												
Average Delay			0.2									
Intersection Capacity Utilization			39.2%	ICU Level of Service				A				
Analysis Period (min)			15									

Intersection: 1: Washington Hwy & England St

Movement	EB	EB	EB	EB	WB	WB	WB	NB	NB	NB	NB	SB
Directions Served	L	T	T	R	L	T	R	L	T	T	R	L
Maximum Queue (ft)	274	452	298	122	487	687	156	345	610	560	39	320
Average Queue (ft)	176	214	174	39	173	338	7	251	319	287	1	266
95th Queue (ft)	290	594	295	88	399	681	107	391	689	629	39	370
Link Distance (ft)		1170			891	891	891		1257	1257		
Upstream Blk Time (%)		1										
Queuing Penalty (veh)		0										
Storage Bay Dist (ft)	290		340	340				350			400	320
Storage Blk Time (%)	6	1	0	0				20	16	0		17
Queuing Penalty (veh)	40	7	2	0				52	47	0		44

Intersection: 1: Washington Hwy & England St

Movement	SB	SB	SB
Directions Served	T	T	R
Maximum Queue (ft)	568	500	140
Average Queue (ft)	301	263	95
95th Queue (ft)	580	504	173
Link Distance (ft)	1361	1361	
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			140
Storage Blk Time (%)	10	25	1
Queuing Penalty (veh)	31	30	2

Intersection: 2: Cottage Green Dr & England St

Movement	EB	EB	EB	EB	WB	WB	WB	WB	WB	NB	NB	NB
Directions Served	L	T	T	TR	L	L	T	T	TR	L	T	R
Maximum Queue (ft)	130	237	430	369	75	109	228	252	145	125	123	97
Average Queue (ft)	37	115	168	214	12	38	41	54	45	45	48	34
95th Queue (ft)	87	204	313	343	40	79	159	179	116	97	99	69
Link Distance (ft)		891	891	891			1075	1075	1075	954	954	
Upstream Blk Time (%)								0				
Queuing Penalty (veh)								0				
Storage Bay Dist (ft)	235				260	260						170
Storage Blk Time (%)	0	0									0	0
Queuing Penalty (veh)	0	0									0	0

Intersection: 2: Cottage Green Dr & England St

Movement	SB	SB
Directions Served	L	TR
Maximum Queue (ft)	154	340
Average Queue (ft)	131	124
95th Queue (ft)	178	283
Link Distance (ft)		803
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)	155	
Storage Blk Time (%)	12	1
Queuing Penalty (veh)	11	2

Intersection: 3: Hill Carter Pkwy & England St

Movement	EB	EB	EB	EB	EB	WB	WB	WB	WB	WB	NB	NB
Directions Served	L	T	T	T	R	L	L	T	T	TR	L	LT
Maximum Queue (ft)	133	214	350	387	200	193	188	274	306	321	164	188
Average Queue (ft)	46	53	109	162	60	107	104	151	170	191	64	106
95th Queue (ft)	101	133	244	312	165	167	166	243	262	298	138	170
Link Distance (ft)		1075	1075	1075		214	214	214	214	214		920
Upstream Blk Time (%)						0	0	2	3	6		
Queuing Penalty (veh)						0	0	6	9	17		
Storage Bay Dist (ft)	325				200						220	
Storage Blk Time (%)				5	0						0	0
Queuing Penalty (veh)				8	1						0	0

Intersection: 3: Hill Carter Pkwy & England St

Movement	NB	NB	SB	SB	SB
Directions Served	T	R	L	T	TR
Maximum Queue (ft)	146	270	232	94	46
Average Queue (ft)	11	134	95	15	13
95th Queue (ft)	69	240	190	76	33
Link Distance (ft)	920			976	976
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (ft)		325	290		
Storage Blk Time (%)	0	0	0	0	
Queuing Penalty (veh)	0	0	0	0	

Intersection: 4: S. Carter St/N. Carter St & England St

Movement	EB	EB	WB	WB	WB	B41	NB	SB
Directions Served	T	TR	T	T	TR	T	R	R
Maximum Queue (ft)	25	80	12	30	82	13	80	32
Average Queue (ft)	1	4	0	1	5	0	28	7
95th Queue (ft)	15	40	7	12	41	10	60	26
Link Distance (ft)	214	214	275	275	275	269	315	396
Upstream Blk Time (%)		0						
Queuing Penalty (veh)		0						
Storage Bay Dist (ft)								
Storage Blk Time (%)								
Queuing Penalty (veh)								

Intersection: 5: I-95 SB Ramp & England St/Patrick Henry Hwy

Movement	EB	EB	WB	B52	SB	SB
Directions Served	T	T	L	T	LT	R
Maximum Queue (ft)	2	11	126	33	140	278
Average Queue (ft)	0	0	52	1	61	29
95th Queue (ft)	2	7	98	34	130	226
Link Distance (ft)	269	269	207	476		1149
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)					150	
Storage Blk Time (%)					5	1
Queuing Penalty (veh)					12	0

Intersection: 6: I-95 NB Ramp & Patrick Henry Hwy

Movement	EB	WB	WB
Directions Served	L	T	T
Maximum Queue (ft)	154	10	11
Average Queue (ft)	51	0	0
95th Queue (ft)	107	4	7
Link Distance (ft)	476	189	189
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 7: Patrick Henry Hwy & Telcourt Rd

Movement	EB	EB	WB	SB
Directions Served	L	T	R	LR
Maximum Queue (ft)	58	4	27	45
Average Queue (ft)	16	0	3	21
95th Queue (ft)	45	4	18	47
Link Distance (ft)		286		754
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)	100		50	
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 8: Mt. Hermon Rd/Frances Rd & Patrick Henry Hwy

Movement	EB	EB	WB	WB	NB	SB
Directions Served	L	R	L	T	LTR	LTR
Maximum Queue (ft)	32	2	25	2	75	59
Average Queue (ft)	7	0	4	0	29	19
95th Queue (ft)	26	2	19	2	58	44
Link Distance (ft)		244		1041	596	993
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)	150		150			
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 9: Patrick Henry Hwy & Woodside Ln

Movement	EB	WB	SB	SB
Directions Served	L	TR	L	R
Maximum Queue (ft)	79	2	72	87
Average Queue (ft)	31	0	25	45
95th Queue (ft)	66	2	58	74
Link Distance (ft)		458	1062	
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)	300		290	
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 10: Goddins Hill Rd & Patrick Henry Hwy

Movement	WB	NB
Directions Served	LT	LR
Maximum Queue (ft)	52	63
Average Queue (ft)	9	27
95th Queue (ft)	34	46
Link Distance (ft)	2248	1612
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 11: Site Entrance A & Patrick Henry Hwy

Movement	WB	NB
Directions Served	L	LR
Maximum Queue (ft)	18	54
Average Queue (ft)	1	20
95th Queue (ft)	8	42
Link Distance (ft)		597
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)	150	
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 12: Site Entrance B & Patrick Henry Hwy

Movement	WB	NB
Directions Served	LT	LR
Maximum Queue (ft)	24	27
Average Queue (ft)	1	3
95th Queue (ft)	9	19
Link Distance (ft)	597	420
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 13: Mt. Hermon Rd & Site Entrance C

Movement	WB	SB
Directions Served	LR	LT
Maximum Queue (ft)	35	12
Average Queue (ft)	16	1
95th Queue (ft)	41	7
Link Distance (ft)	562	596
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

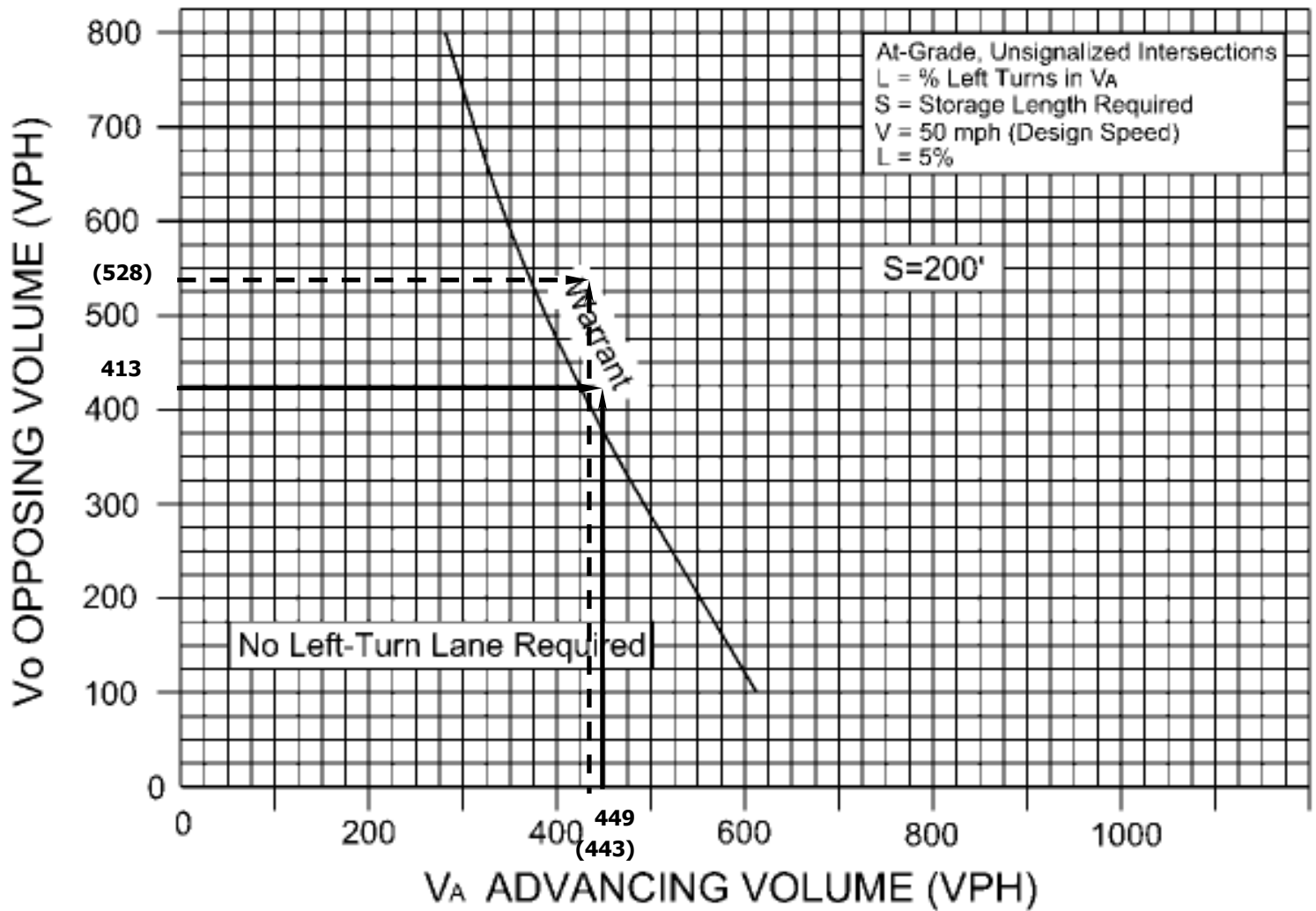
Network Summary

Network wide Queuing Penalty: 323

Appendix M

Turn Lane Warrant Analysis

WARRANT FOR LEFT-TURN STORAGE LANES
ON TWM-LANE HIGHWAYS (50 MPH)
FIGURE 3-11 VDOT ROAD DESIGN MANUAL APPENDIX F

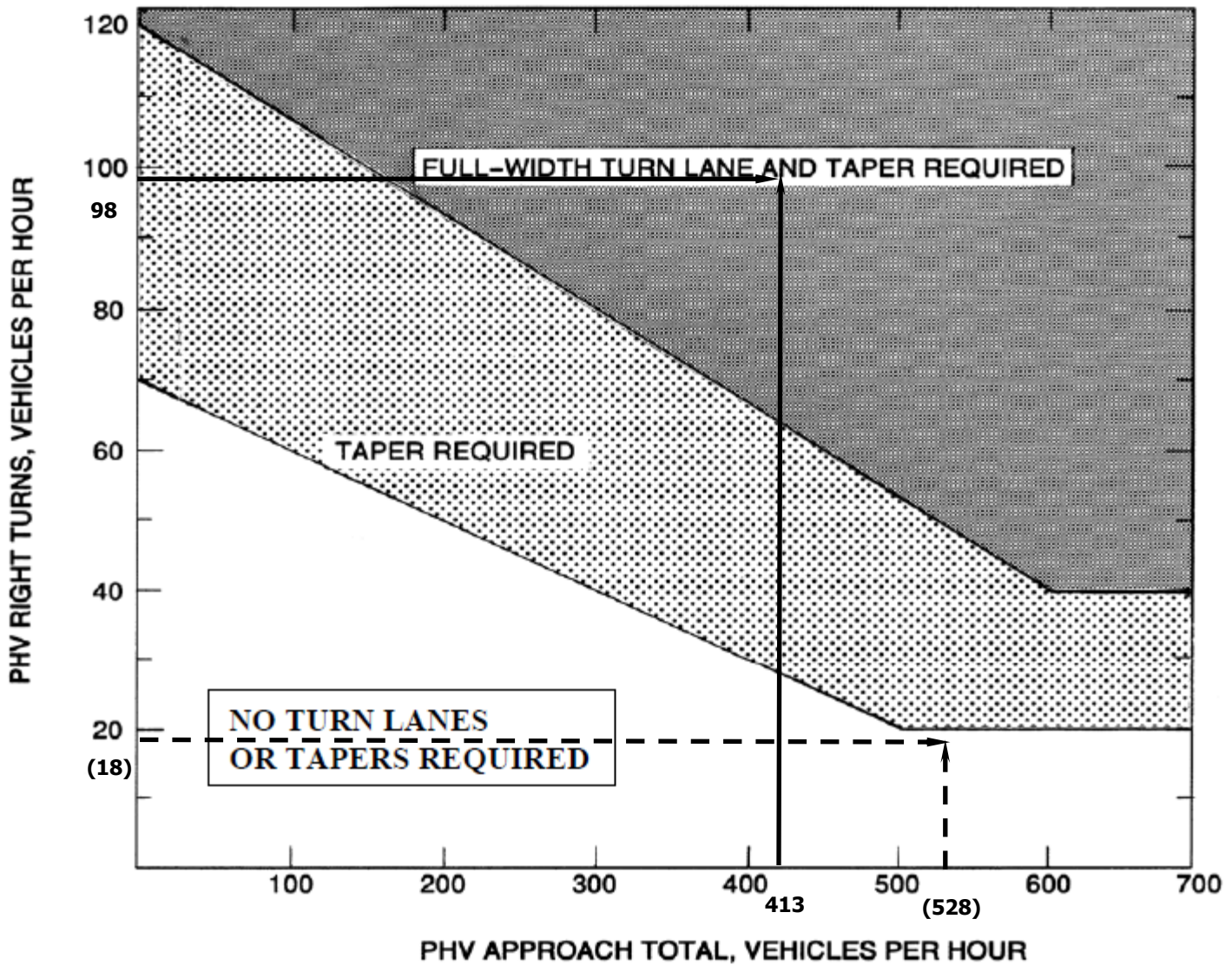


LEGEND

— XX AM Peak Hour
- - - (XX) PM Peak Hour

LEFT TURN LANE REQUIRED

GUIDELINES FOR RIGHT TURN TREATMENT (2-LANE HIGHWAY)
FIGURE 3-26 VDOT ROAD DESIGN MANUAL APPENDIX F



RIGHT TURN LANE REQUIRED

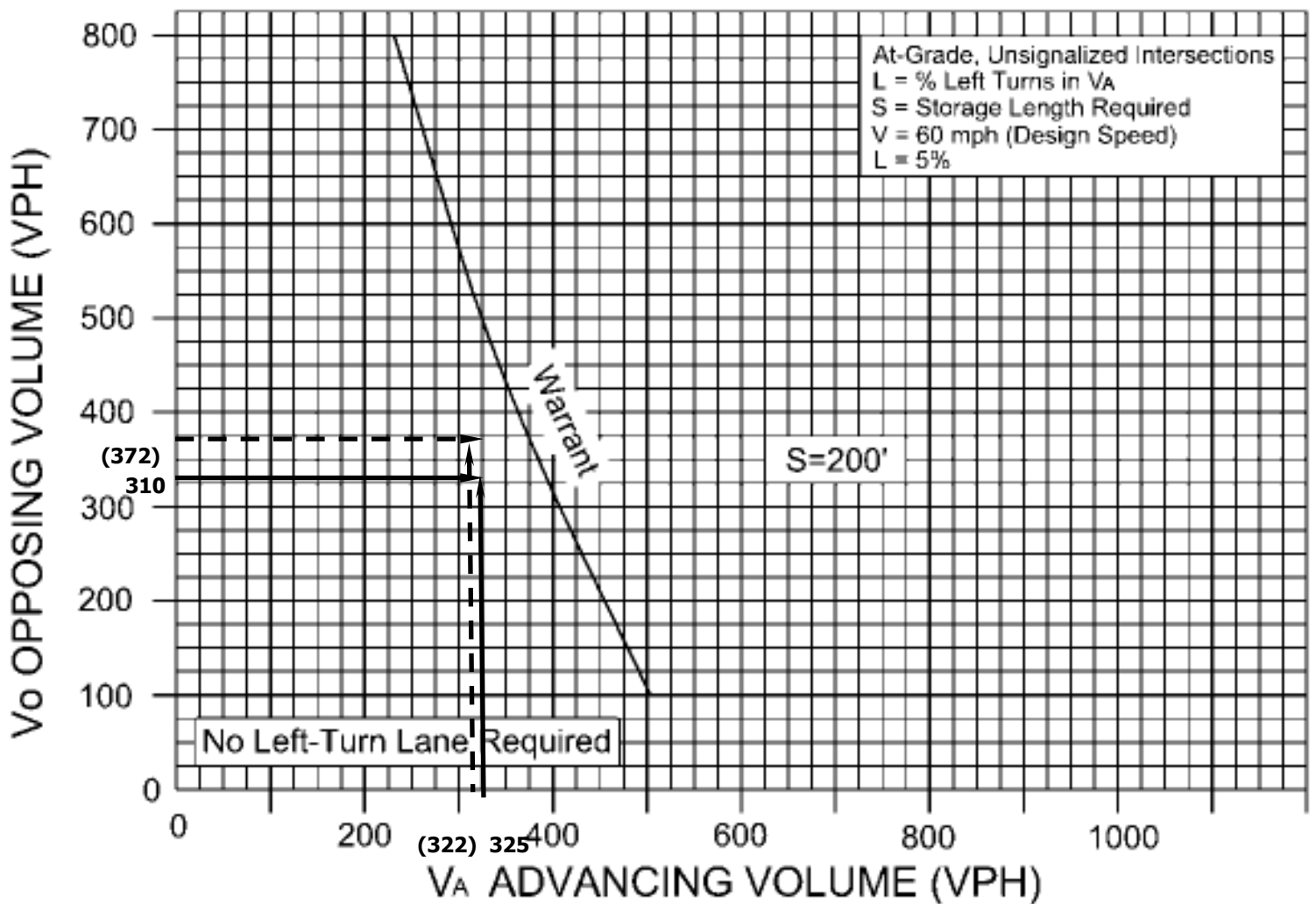
LEGEND

- XX AM Peak Hour
- - - (XX) PM Peak Hour
- 30* Adjusted Right Turns

Adjustment for Right Turns:

For posted speeds ≤ 45 mph, PHV right turns > 40 , and PHV total < 300 .
Adjusted right turns = PHV right turns - 20.

WARRANT FOR LEFT-TURN STORAGE LANES
ON TWM-LANE HIGHWAYS (60 MPH)
FIGURE 3-17 VDOT ROAD DESIGN MANUAL APPENDIX F

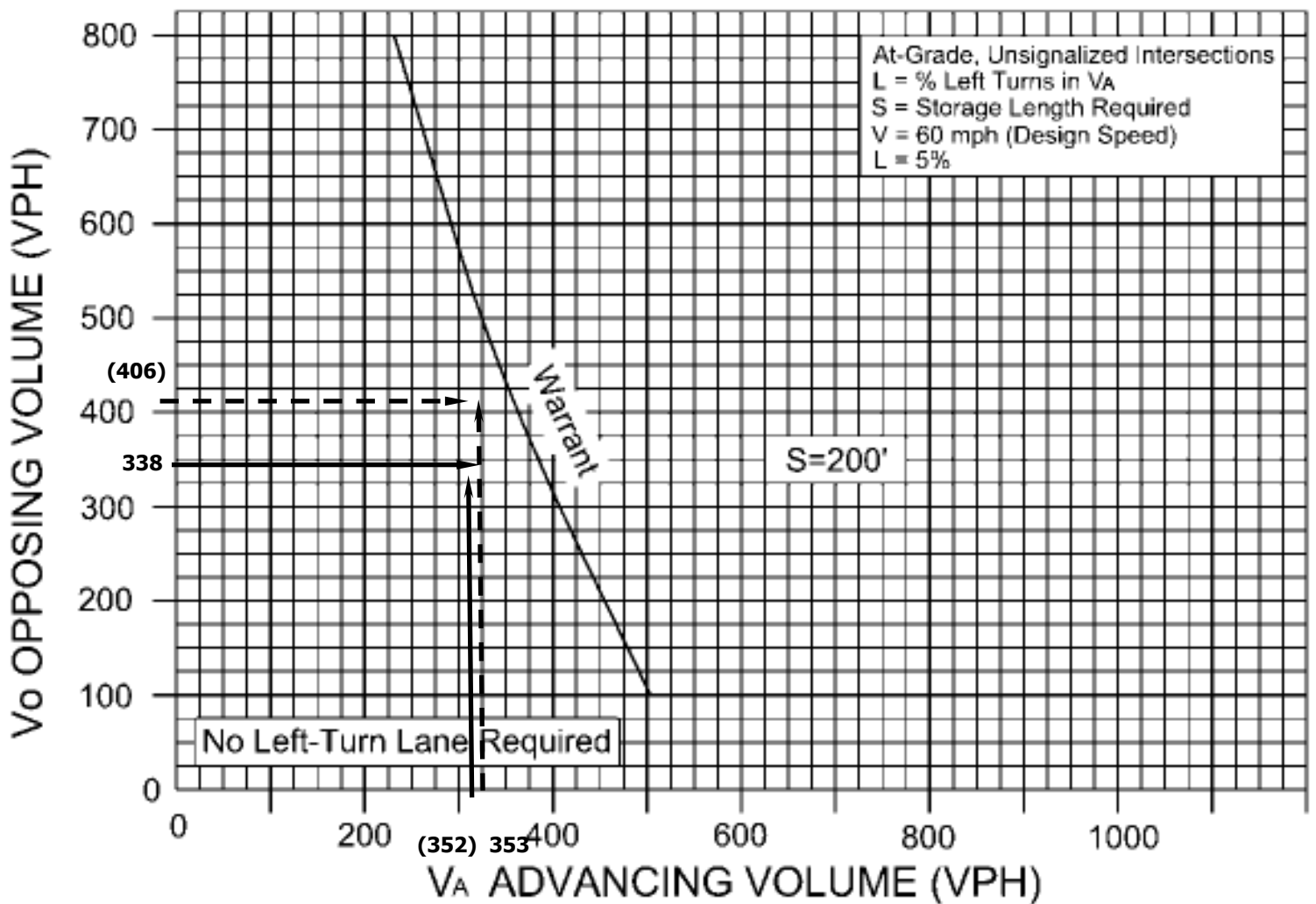


LEGEND

— XX AM Peak Hour
 - - - (XX) PM Peak Hour

NO LEFT TURN LANE REQUIRED

WARRANT FOR LEFT-TURN STORAGE LANES
ON TWM-LANE HIGHWAYS (60 MPH)
FIGURE 3-17 VDOT ROAD DESIGN MANUAL APPENDIX F

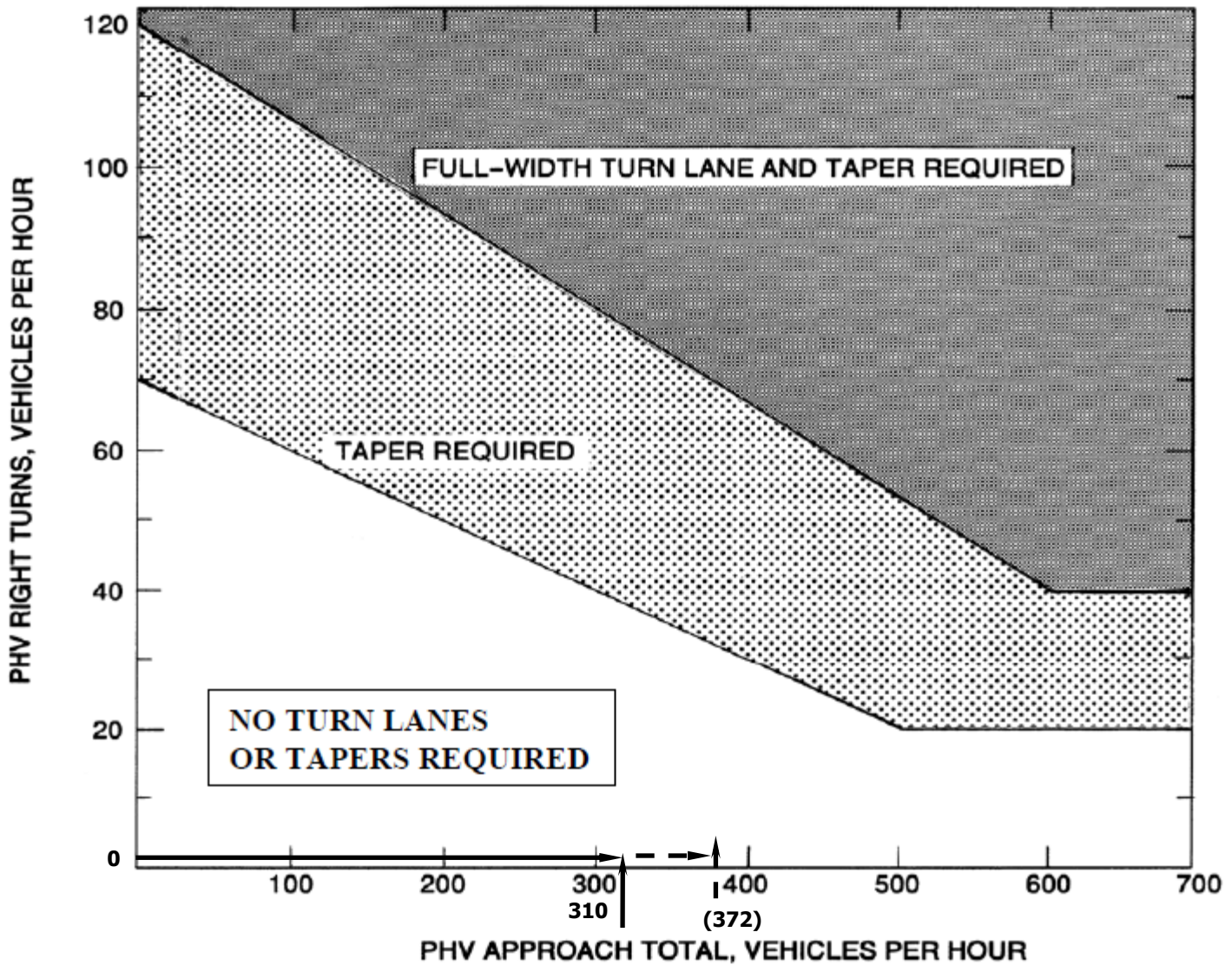


LEGEND

— XX AM Peak Hour
- - - (XX) PM Peak Hour

NO LEFT TURN LANE REQUIRED

GUIDELINES FOR RIGHT TURN TREATMENT (2-LANE HIGHWAY)
FIGURE 3-26 VDOT ROAD DESIGN MANUAL APPENDIX F



NO RIGHT TURN LANE REQUIRED

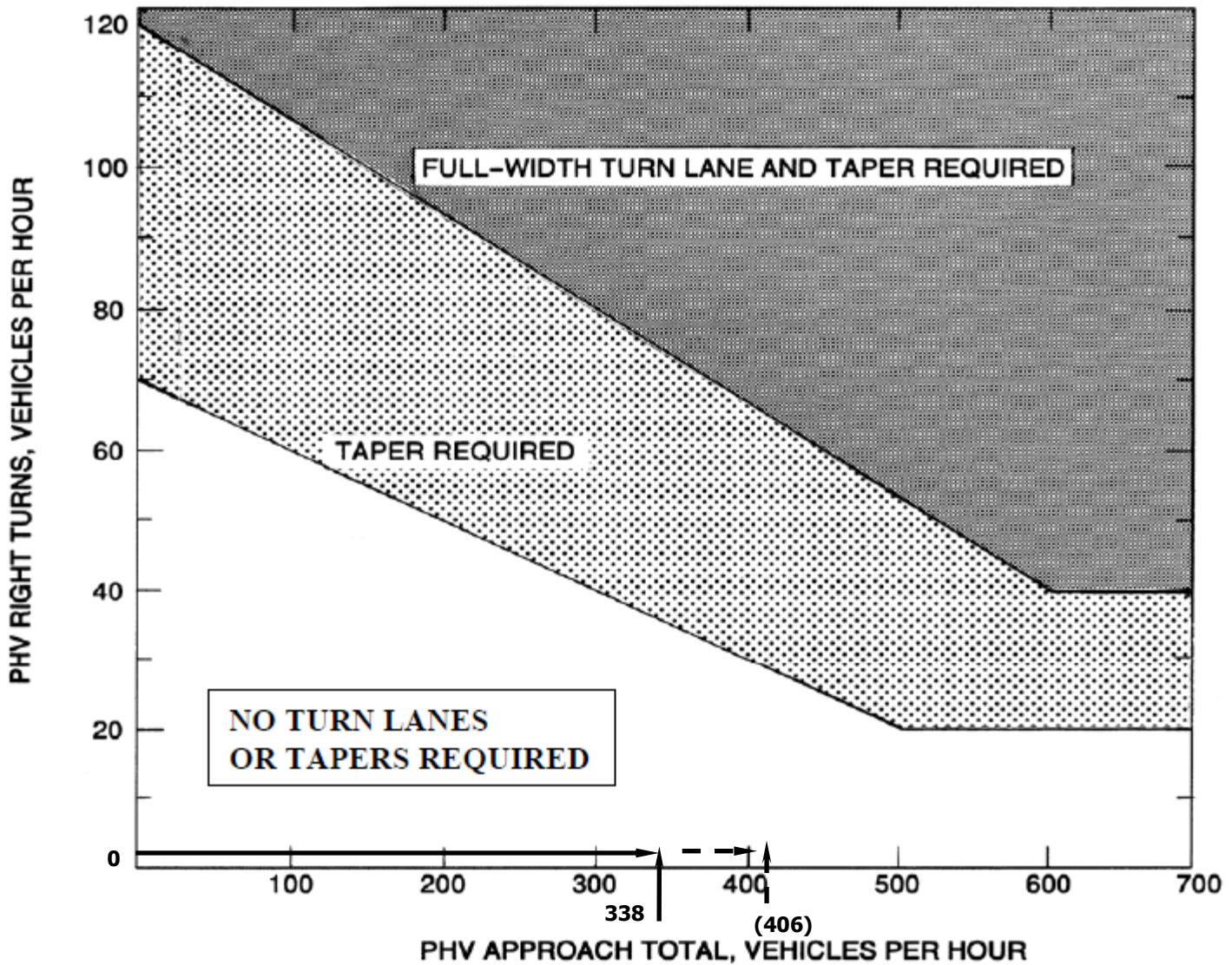
LEGEND

- XX AM Peak Hour
- - - (XX) PM Peak Hour
- 30* Adjusted Right Turns

Adjustment for Right Turns:

For posted speeds ≤ 45 mph, PHV right turns > 40 , and PHV total < 300 .
Adjusted right turns = PHV right turns - 20.

GUIDELINES FOR RIGHT TURN TREATMENT (2-LANE HIGHWAY)
FIGURE 3-26 VDOT ROAD DESIGN MANUAL APPENDIX F



NO RIGHT TURN LANE REQUIRED

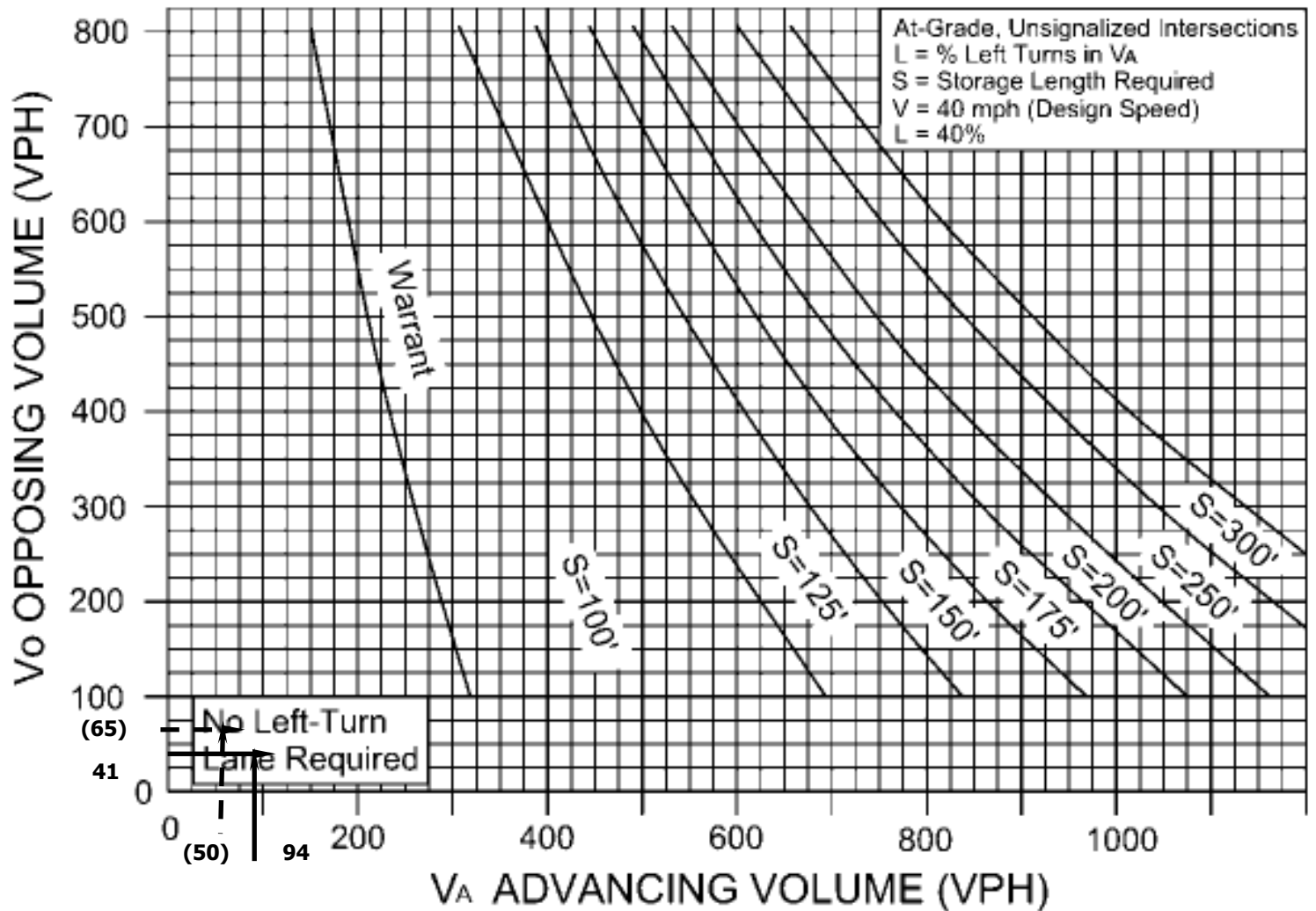
LEGEND

- XX AM Peak Hour
- - - (XX) PM Peak Hour
- 30* Adjusted Right Turns

Adjustment for Right Turns:

For posted speeds ≤ 45 mph, PHV right turns > 40 , and PHV total < 300 .
Adjusted right turns = PHV right turns - 20.

**WARRANT FOR LEFT-TURN STORAGE LANES
ON TWM-LANE HIGHWAYS (40 MPH)
FIGURE 3-10 VDOT ROAD DESIGN MANUAL APPENDIX F**



LEGEND

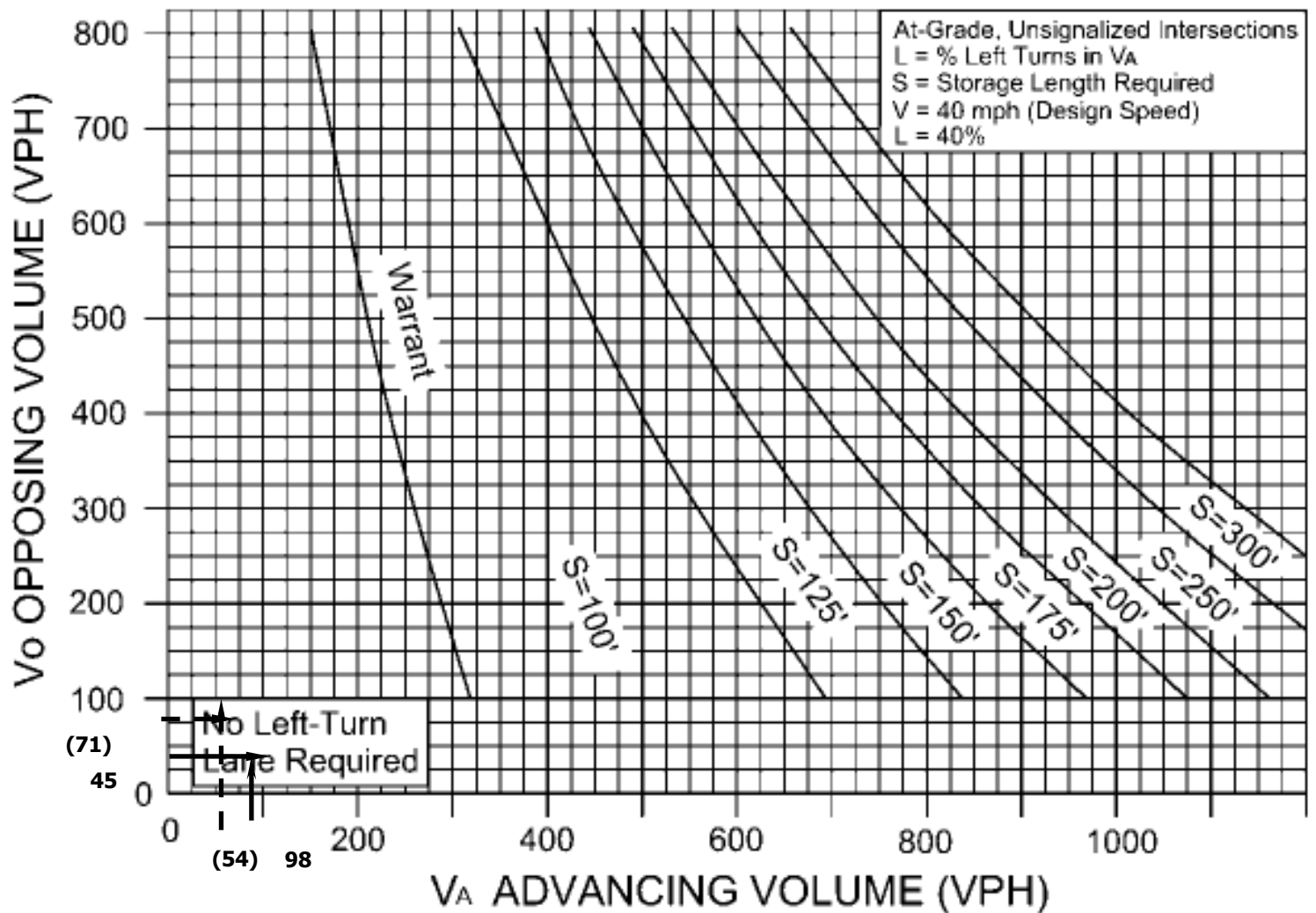
- AM Peak Hour
- - - PM Peak Hour
- XX (XX) AM (PM) Traffic Volume

NO LEFT TURN LANE REQUIRED

Left-Turn Lane Warrant
 2033 Total Traffic Volumes
 (SB Mt. Hermon Rd at Entrance C)

Figure
 M-7

**WARRANT FOR LEFT-TURN STORAGE LANES
ON TWM-LANE HIGHWAYS (40 MPH)
FIGURE 3-10 VDOT ROAD DESIGN MANUAL APPENDIX F**

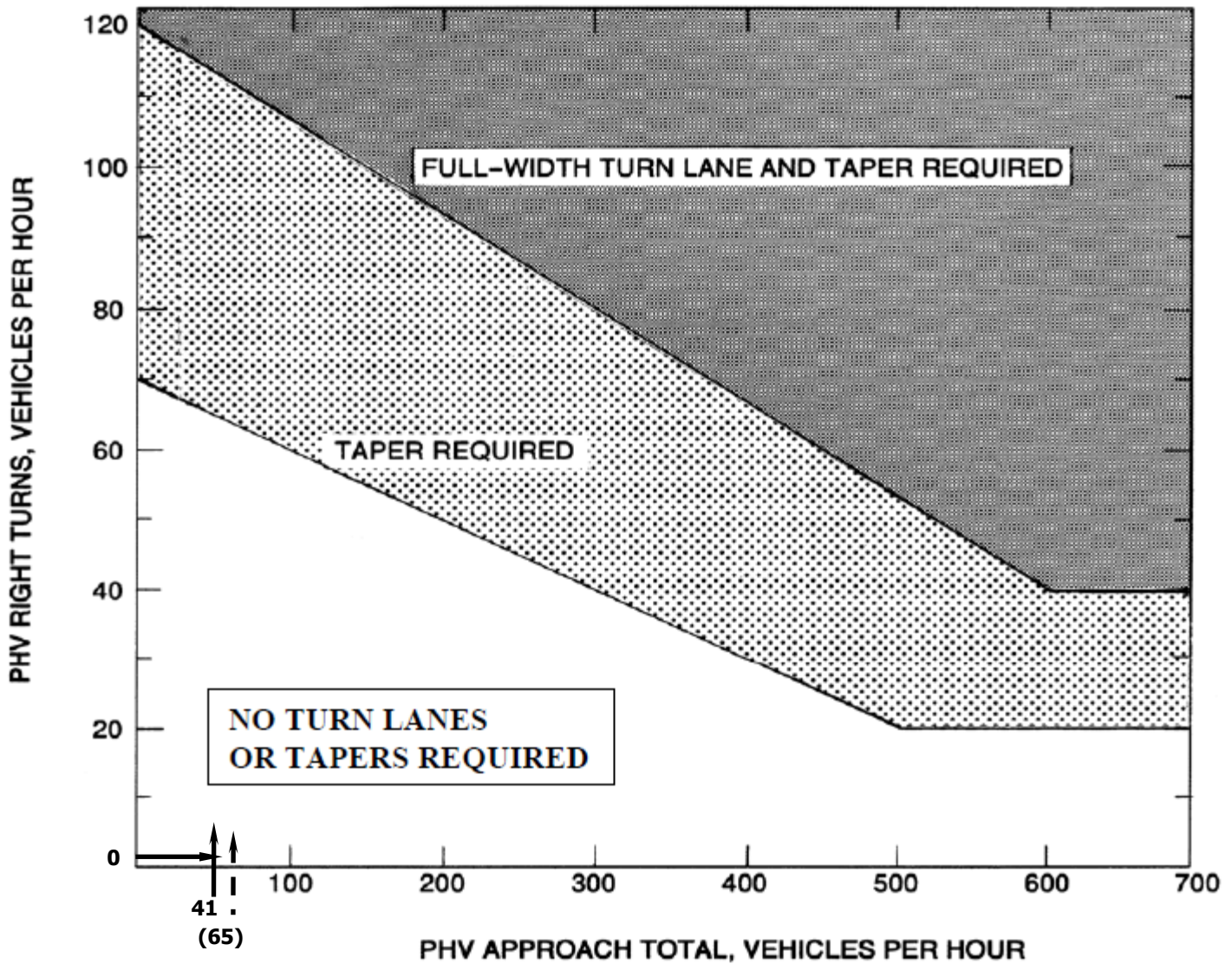


LEGEND

- AM Peak Hour
- - - PM Peak Hour
- XX (XX) AM (PM) Traffic Volume

NO LEFT TURN LANE REQUIRED

GUIDELINES FOR RIGHT TURN TREATMENT (2-LANE HIGHWAY)
FIGURE 3-26 VDOT ROAD DESIGN MANUAL APPENDIX F



NO RIGHT TURN LANE REQUIRED

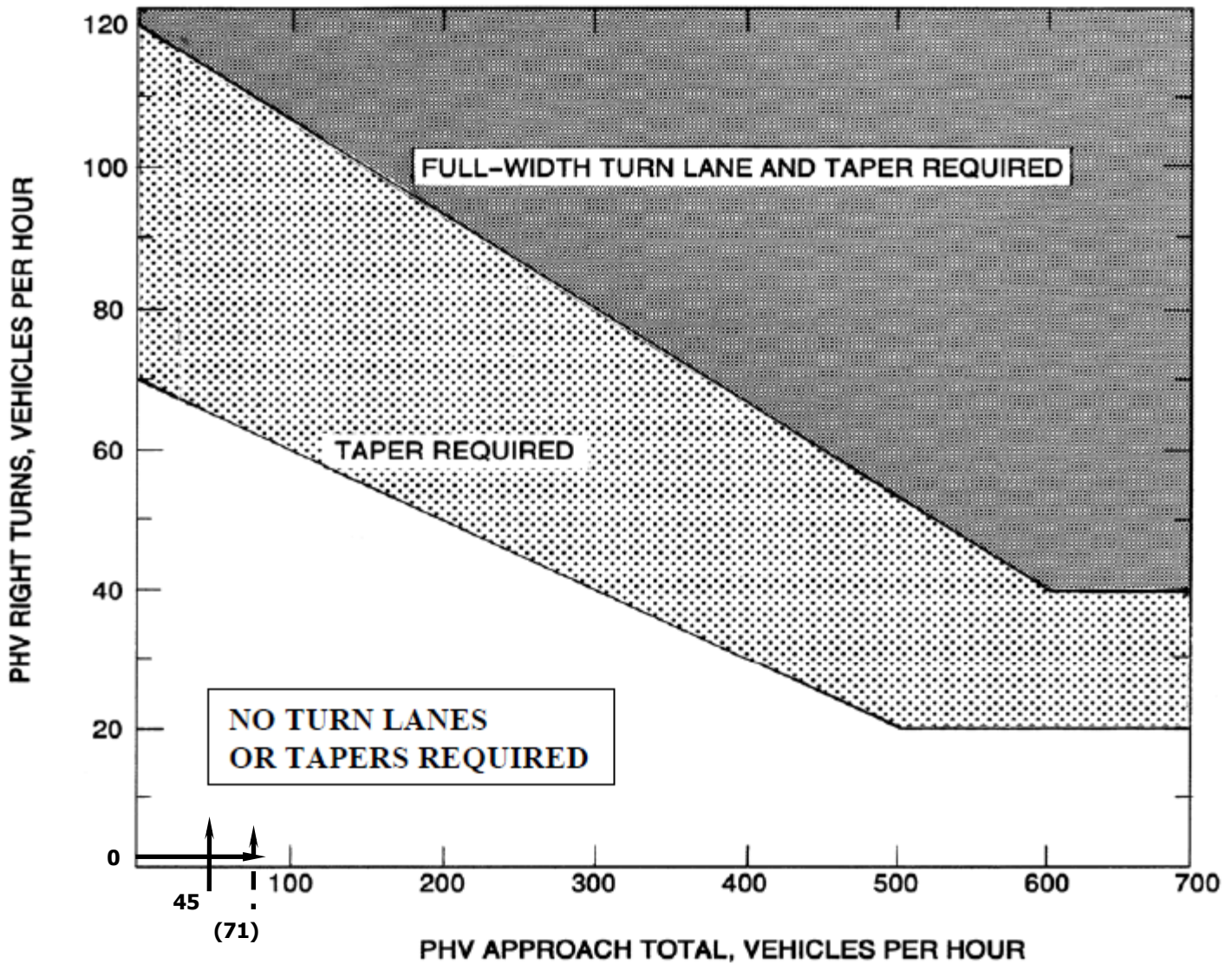
LEGEND

- AM Peak Hour
- - - PM Peak Hour
- XX (XX) AM (PM) Traffic Volume

Adjustment for Right Turns:

For posted speeds ≤ 45 mph, PHV right turns > 40 , and PHV total < 300 .
Adjusted right turns = PHV right turns - 20.

GUIDELINES FOR RIGHT TURN TREATMENT (2-LANE HIGHWAY)
FIGURE 3-26 VDOT ROAD DESIGN MANUAL APPENDIX F



NO RIGHT TURN LANE REQUIRED

LEGEND

- AM Peak Hour
- - - PM Peak Hour
- XX (XX) AM (PM) Traffic Volume

Adjustment for Right Turns:

For posted speeds ≤ 45 mph, PHV right turns > 40 , and PHV total < 300 .
Adjusted right turns = PHV right turns - 20.