

Merritt Island Apartments

Traffic Impact Analysis

Brevard County, FL

December 2022

Kimley»Horn



TRAFFIC IMPACT ANALYSIS

Merritt Island Apartments

Brevard County, FL

Prepared by:

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December 2022

Table of Contents

1.0	INTRODUCTION.....	1
1.1	Study Area	1
2.0	EXISTING CONDITIONS ANALYSIS.....	4
2.1	Existing Traffic Counts.....	4
2.2	Existing Roadway Segment Conditions.....	4
2.3	Existing Intersection Conditions	7
3.0	DEVELOPMENT TRAFFIC.....	10
3.1	Trip Generation.....	10
3.2	Trip Distribution	10
3.3	Trip Assignment.....	10
4.0	BACKGROUND CONDITIONS ANALYSIS – YEAR 2025	14
4.1	Background Traffic	14
4.2	Background Roadway Segment Analysis.....	14
4.3	Background Intersection Analysis	17
5.0	BUILDOUT CONDITIONS ANALYSIS – YEAR 2025.....	21
5.1	Buildout Roadway Segment Analysis.....	21
5.2	Buildout Intersection Analysis	26
5.3	Buildout Driveway Ingress Turn Lane Analysis.....	29
6.0	CONCLUSION.....	30

Figures

Figure 1: Project Location & Study Area.....	3
Figure 2: Project Trip Distribution.....	12
Figure 3: Project Trip Assignment.....	13
Figure 4: AM Peak Hour Buildout Intersection Volumes	22
Figure 5: PM Peak Hour Buildout Intersection Volumes	23

Tables

Table 1: Existing Roadway Segment Analysis (Daily)	5
Table 2: Existing Roadway Segment Analysis (PM Peak Hour)	6
Table 3: Existing Intersection Conditions (AM Peak Hour)	8
Table 4: Existing Intersection Conditions (PM Peak Hour)	9
Table 5: Trip Generation	11
Table 6: Background Roadway Segment Analysis (Daily).....	15
Table 7: Background Roadway Segment Analysis (PM Peak Hour).....	16
Table 8: Background Intersection Conditions (AM Peak Hour).....	18
Table 9: Background Intersection Conditions (PM Peak Hour).....	19
Table 10: Background with Improvement Intersection Conditions (PM Peak Hour).....	20
Table 11: Buildout Roadway Segment Analysis (Daily).....	24
Table 12: Buildout Roadway Segment Analysis (PM Peak Hour).....	25
Table 13: Buildout Intersection Conditions (AM Peak Hour).....	27
Table 14: Buildout Intersection Conditions (PM Peak Hour).....	28

Appendices

Appendix A: Methodology Statement

Appendix B: Concept Site Plan

Appendix C: Turning Movement Counts

Appendix D: FDOT's Florida Traffic Online (FTO) Data

Appendix E: Turning Movement Volume Worksheets

Appendix F: Space Coast TPO Traffic Counts

Appendix G: Synchro Outputs

Appendix H: ITE Excerpts

Appendix I: CFRPM Model Plot

Appendix J: NCHRP Turn Lane Warrant Worksheets

1.0 INTRODUCTION

Kimley-Horn has been retained to analyze and document the traffic impacts associated with the development of the Merritt Island Apartments. The proposed development is located on the south side of Fortenberry Road, west of Harbor Woods Boulevard, and north of Lands Way in Brevard County.

A portion of the project property is undeveloped, and the eastern part is an abandoned active recreation facility. The proposed Merritt Island Apartments development on the 15.26-acre property consists of ±370 multifamily dwelling units. Buildout of the proposed development is anticipated in 2025. The Methodology Statement approved by County Staff was used to guide this transportation analysis and is provided in **Appendix A**.

Access to the site will be provided via one (1) full access driveway on Fortenberry Road one (1) full access driveway on Harbor Woods Boulevard. The access points are shown in the conceptual site plan provided in **Appendix B**.

1.1 STUDY AREA

The study area, determined using the Brevard County *Guidelines on Minimum Requirements for Traffic Impact Analyses* (2022), was discussed and approved as part of the Traffic Impact Analysis Methodology (**Appendix A**). The agreed-upon study area roadway segments and intersections are listed below and displayed on **Figure 1**.

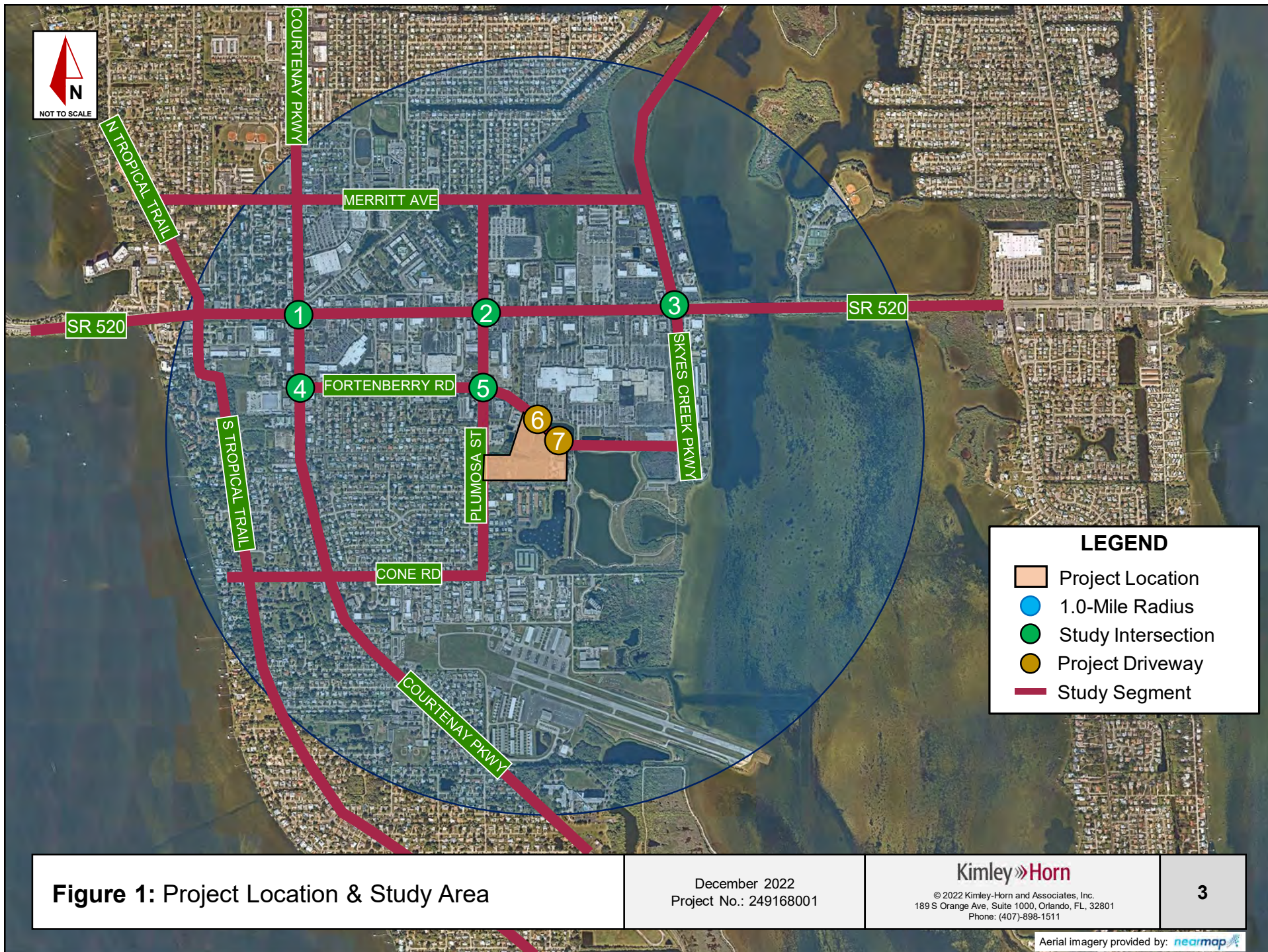
Study Area Roadway Segments

- Fortenberry Rd from S Courtenay Pkwy to S Plumosa St
- Fortenberry Rd from S Plumosa St to S Skyes Creek Pkwy
- Cone Rd from S Tropical Trl to S Courtenay Pkwy
- Cone Rd from S Courtenay Pkwy to S Plumosa St
- N Plumosa St from Merritt Ave to SR 520
- S Plumosa St from SR 520 to Fortenberry Rd
- S Plumosa St from Fortenberry Rd to Cone Rd
- SR 520 from Hubert Humphrey Bridge to Tropical Trl
- SR 520 from Tropical Trl to Courtenay Pkwy
- SR 520 from Courtenay Pkwy to Plaza Entry
- SR 520 from Plaza Entry to Plumosa St
- SR 520 from Plumosa St to Merritt Sq (Mall Entry)
- SR 520 from Merritt Sq (Mall Entry) to Skyes Creek Pkwy
- SR 520 from Skyes Creek Pkwy to Newfound Harbor Dr
- N Skyes Creek Pkwy from N Banana River Dr to Merritt Ave
- N Skyes Creek Pkwy from Merritt Ave to SR 520
- S Skyes Creek Pkwy from SR 520 to Fortenberry Rd
- Merritt Ave from N Courtenay Pkwy to N Plumosa St
- N Courtenay Pkwy from Needle Blvd to Merritt Ave
- N Courtenay Pkwy from Merritt Ave to SR 520
- S Courtenay Pkwy from SR 520 to Magnolia Ave
- S Courtenay Pkwy from Magnolia Ave to Fortenberry Rd
- S Courtenay Pkwy from Cone Rd to Banana Blvd
- N Tropical Trl from Merritt Ave to SR 520

- S Tropical Trl from Cone Rd to Plantation Rd

Study Area Intersections

- SR 520 & Courtenay Parkway
- SR 520 & Plumosa Street
- SR 520 & Skyes Creek Parkway
- S Courtenay Parkway & Fortenberry Road
- S Plumosa Parkway & Fortenberry Road
- Project Driveway & Fortenberry Road
- Harbor Woods Boulevard/Project Driveway & Fortenberry Road



2.0 EXISTING CONDITIONS ANALYSIS

2.1 EXISTING TRAFFIC COUNTS

Turning movement counts (TMCs) were collected at the study intersections on Tuesday, October 18, 2022, and are provided in **Appendix C**. Data was collected during the AM Peak Period (7:00 AM to 9:00 AM) and PM Peak Period (4:00 PM to 6:00 PM) at the study area intersections.

Turning movement volumes were adjusted by a seasonal factor (SF) based on data from FDOT's Florida Traffic Online (FTO) database, as shown in **Appendix D**. Turning movement volume worksheets for all intersections can be found in **Appendix E**.

2.2 EXISTING ROADWAY SEGMENT CONDITIONS

A roadway segment analysis was performed within the study area to determine existing Daily and PM peak hour conditions. The Daily analysis was conducted by comparing the 2022 Average Annual Daily Traffic (AADT) segment volumes to the TPO's Daily Maximum Service Volumes (MSV) corresponding to the adopted Level of Service (LOS) standard for each roadway segment. 2021 AADTs were obtained from the latest Space Coast Transportation Planning Organization (TPO) Traffic Count publication and grown to existing year 2022 using a 2% annual growth rate, as agreed upon in the TIA Methodology. The Space Coast TPO Traffic Count publication is provided in **Appendix F**.

Additionally, a PM peak hour roadway segment analysis was conducted by comparing peak hour two-way volumes to the peak hour two-way MSV corresponding to the adopted Level of Service (LOS) standard for each roadway segment. Existing peak hour two-way roadway segment volumes are from the Space Coast TPO's most recent data collection. The FDOT Q/LOS Handbook was used to supplement the determination of each segment's peak hour two-way volume.

The existing roadway segment data is included in **Tables 1 and 2** for Daily and PM peak hour conditions, respectively. As shown in the tables, the analysis identifies no roadway segment capacity deficiencies within the study area under existing Daily and PM peak hour conditions.

Table 1: Existing Roadway Segment Analysis (Daily)

Roadway			Roadway Attributes					Daily - Existing (2022)				
			Functional Classification ¹	Number of Lanes	Speed Limit	Adopted LOS ¹	Daily MSV ¹	2021 AADT ¹	Growth Rate	Existing 2022 AADT ²	V/C Ratio	Existing Deficiency?
Fortenberry Rd												
119	Courtenay Pkwy	Plumosa St	Urban Major Collector	2	35	E	15,600	3,900	2%	3,978	0.26	No
154	Plumosa St	Skyes Creek Pkwy	Urban Major Collector	2	35	E	15,600	3,900	2%	3,978	0.26	No
Cone Rd												
117	Tropical Trl	Courtenay Pkwy	Urban Minor Collector	2	35	E	15,600	4,200	2%	4,284	0.27	No
115	Courtenay Pkwy	Plumosa St	Urban Minor Collector	2	35	D	15,600	4,800	2%	4,896	0.31	No
S Plumosa St												
106	Merritt Ave	SR 520	Urban Minor Collector	2	25	E	15,600	5,260	2%	5,365	0.34	No
120	SR 520	Fortenberry Rd	Urban Minor Collector	2	25	E	15,600	4,160	2%	4,243	0.27	No
116	Fortenberry Rd	Cone Rd	Urban Minor Collector	2	35	E	15,600	4,820	2%	4,916	0.32	No
SR 520												
101	Bridge	Tropical Trl	Urban Principal Arterial - Other	6	45	D	59,900	44,030	2%	44,911	0.75	No
148	Tropical Trl	Courtenay Pkwy	Urban Principal Arterial - Other	6	45	D	59,900	37,330	2%	38,077	0.64	No
97	Courtenay Pkwy	Plaza Ent	Urban Principal Arterial - Other	6	45	D	62,900	30,030	2%	30,631	0.49	No
98	Plaza Ent	Plumosa St	Urban Principal Arterial - Other	6	45	D	62,900	29,680	2%	30,274	0.48	No
99	Plumosa St	Mall Ent	Urban Principal Arterial - Other	6	45	D	62,900	28,180	2%	28,744	0.46	No
100	Mall Ent	Skyes Creek Pkwy	Urban Principal Arterial - Other	6	45	D	62,900	23,830	2%	24,307	0.39	No
149	Skyes Creek Pkwy	Newbound Harbor Dr	Urban Principal Arterial - Other	6	45	D	62,900	28,480	2%	29,050	0.46	No
Skyes Creek Pkwy												
108	N Banana River Dr	Merritt Ave	Urban Major Collector	2	45	D	17,700	9,680	2%	9,874	0.56	No
121	Merritt Ave	SR 520	Urban Major Collector	4	45	D	39,800	10,770	2%	10,985	0.28	No
123	SR 520	Fortenberry Rd	Urban Major Collector	4	35	E	33,800	4,050	2%	4,131	0.12	No
Merritt Ave												
103	Courtenay Pkwy	Plumosa St	Urban Major Collector	4	35	E	33,800	12,780	2%	13,036	0.39	No
Courtenay Pkwy												
131	Needle Blvd	Merritt Ave	Urban Principal Arterial - Other	4	40	D	41,790	32,130	2%	32,773	0.78	No
130	Merritt Ave	SR 520	Urban Principal Arterial - Other	4	40	D	41,790	26,150	2%	26,673	0.64	No
139	SR 520	Magnolia Ave	Urban Minor Arterial	4	35	E	33,800	17,860	2%	18,217	0.54	No
122	Magnolia Ave	Fortenberry Rd	Urban Minor Arterial	4	35	E	33,800	16,840	2%	17,177	0.51	No
114	Cone Rd	Banana Blvd	Urban Minor Arterial	2	35	E	15,600	10,970	2%	11,189	0.72	No
Tropical Trl												
147	Merritt Ave	SR 520	Urban Major Collector	2	25	E	15,600	8,100	2%	8,262	0.53	No
126	Cone Rd	Plantation Rd	Urban Major Collector	2	35	E	12,480	6,730	2%	6,865	0.55	No

Notes

1. Data obtained from Space Coast TPO 2020 Functional Classification, MAV, and LOS Table.
2. Existing (2022) AADT developed by applying the calculated growth rates.

Table 2: Existing Roadway Segment Analysis (PM Peak Hour)

Roadway			Roadway Attributes ¹					Peak Hour - Existing (2022)		
			Functional Classification	Number of Lanes	Speed Limit	Adopted LOS ¹	Peak Hour Two-Way MSV ¹	2022 Peak Hour Two-Way Volume ²	V/C Ratio	Existing Deficiency?
Fortenberry Rd										
119	Courtenay Pkwy	Plumosa St	Urban Major Collector	2	35	E	1,410	399	0.29	No
154	Plumosa St	Skyes Creek Pkwy	Urban Major Collector	2	35	E	1,410	508	0.37	No
Cone Rd										
117	Tropical Trl	Courtenay Pkwy	Urban Minor Collector	2	35	E	1,410	431	0.31	No
115	Courtenay Pkwy	Plumosa St	Urban Minor Collector	2	35	E	1,410	550	0.4	No
Plumosa St										
106	Merritt Ave	SR 520	Urban Minor Collector	2	25	E	1,410	544	0.39	No
120	SR 520	Fortenberry Rd	Urban Minor Collector	2	25	E	1,410	419	0.3	No
116	Fortenberry Rd	Cone Rd	Urban Minor Collector	2	35	E	1,410	487	0.35	No
SR 520										
101	Bridge	Tropical Trl	Urban Principal Arterial - Other	6	45	D	5,390	3,900	0.74	No
148	Tropical Trl	Courtenay Pkwy	Urban Principal Arterial - Other	6	45	D	5,390	3,117	0.59	No
97	Courtenay Pkwy	Plaza Ent	Urban Principal Arterial - Other	6	45	D	5,660	2,681	0.48	No
98	Plaza Ent	Plumosa St	Urban Principal Arterial - Other	6	45	D	5,660	2,619	0.47	No
99	Plumosa St	Mall Ent	Urban Principal Arterial - Other	6	45	D	5,660	2,521	0.45	No
100	Mall Ent	Skyes Creek Pkwy	Urban Principal Arterial - Other	6	45	D	5,660	1,914	0.34	No
149	Skyes Creek Pkwy	Newbound Harbor Dr	Urban Principal Arterial - Other	6	45	D	5,660	2,643	0.48	No
Skyes Creek Pkwy										
108	N Banana River Dr	Merritt Ave	Urban Major Collector	2	45	D	1,600	955	0.61	No
121	Merritt Ave	SR 520	Urban Major Collector	4	45	D	3,580	949	0.27	No
123	SR 520	Fortenberry Rd	Urban Major Collector	4	35	E	3,040	432	0.15	No
Merritt Ave										
103	Courtenay Pkwy	Plumosa St	Urban Major Collector	4	35	E	3,040	1,255	0.42	No
Courtenay Pkwy										
131	Needle Blvd	Merritt Ave	Urban Principal Arterial - Other	4	40	D	3,760	2,519	0.68	No
130	Merritt Ave	SR 520	Urban Principal Arterial - Other	4	40	D	3,760	2,193	0.59	No
139	SR 520	Magnolia Ave	Urban Minor Arterial	4	35	E	3,040	1,603	0.54	No
122	Magnolia Ave	Fortenberry Rd	Urban Minor Arterial	4	35	E	3,040	1,330	0.45	No
114	Cone Rd	Banana Blvd	Urban Minor Arterial	2	35	E	1,410	1,116	0.81	No
Tropical Trl										
147	Merritt Ave	SR 520	Urban Major Collector	2	25	E	1,410	792	0.57	No
126	Cone Rd	Plantation Rd	Urban Major Collector	2	35	E	1,130	691	0.62	No

Notes

1. Data obtained from Space Coast TPO 2020 Functional Classification, MAV, and LOS Table and 2020 FDOT Q/LOS Table

2. Data obtained from Space Coast TPO Transportation Data Management System.

2.3 EXISTING INTERSECTION CONDITIONS

An intersection operational analysis was performed for existing conditions during the AM and PM peak hours using procedures outlined in the *Highway Capacity Manual, 6th Edition* with Synchro (v11) software. Intersection level of service (LOS) and maximum volume to capacity (v/c) ratios for the AM and PM peak hour existing conditions are provided in **Tables 3 and 4**. Synchro outputs are provided in **Appendix G**.

As shown in the tables below, all study area intersections currently operate with acceptable overall LOS and with v/c ratios less than one (1.0) under existing (2022) AM and PM peak hour conditions except for the following:

- SR 520 & Courtenay Parkway
 - o Northbound Approach – LOS F – AM and PM Peak Hour
- SR 520 & Plumosa Street
 - o Northbound Approach – LOS F – PM Peak Hour
 - o Southbound Approach – LOS F – AM and PM Peak Hour
- SR 520 & Skyes Creek Parkway
 - o Northbound Approach – LOS F – AM and PM Peak Hour
 - o Northbound Right Movement – v/c > 1 – PM Peak Hour
- Courtenay Parkway & Fortenberry Road
 - o Eastbound Left/Through Movement – v/c > 1 – PM Peak Hour

Table 3: Existing Intersection Conditions (AM Peak Hour)

Existing Condition - 2022						
Intersection		Control Type	Approach	AM Peak Hour		
				Max Level of Service	Max V/C Ratio	Max V/C Movement
1	SR 520 & Courtenay Pkwy	Signalized	EB	D	0.89	EBL
			WB	D	0.72	WBL
			NB	F	0.92	NBT/R
			SB	E	0.84	SBL
			Overall	E (60.2 s)	0.92	NBT/R
2	SR 520 & Plumosa St	Signalized	EB	D	0.80	EBL
			WB	A	0.79	WBL
			NB	E	0.78	NBL
			SB	F	0.85	SBT/R
			Overall	C (31.1 s)	0.85	SBT/R
3	SR 520 & Skyes Creek Pkwy	Signalized	EB	B	0.75	EBL
			WB	C	0.55	WBL
			NB	F	0.85	NBR
			SB	E	0.85	SBL
			Overall	C (30.3 s)	0.85	NBR
4	Courtenay Pkwy & Fortenberry Rd	Signalized	EB	D	0.03	EBL/T/R
			WB	C	0.37	WBL/T
			NB	B	0.36	NBT
			SB	A	0.27	SBT/R
			Overall	B (10.7 s)	0.37	WBL/T
5	Fortenberry Rd & Plumosa St	Signalized	EB	C	0.52	EBT/R
			WB	C	0.26	WBL
			NB	B	0.16	NBT
			SB	B	0.23	SBT/R
			Overall	B (16.5 s)	0.52	EBT/R

Table 4: Existing Intersection Conditions (PM Peak Hour)

Existing Condition - 2022						
Intersection		Control Type	Approach	PM Peak Hour		
				Max Level of Service	Max V/C Ratio	Max V/C Movement
1	SR 520 & Courtenay Pkwy	Signalized	EB	D	0.90	EBL
			WB	E	0.75	WBL
			NB	F	0.90	NBL
			SB	E	0.92	SBR
			Overall	E (67.2 s)	0.92	SBR
2	SR 520 & Plumosa St	Signalized	EB	D	0.84	EBL
			WB	A	0.82	WBL
			NB	F	0.84	NBT/R
			SB	F	0.89	SBT/R
			Overall	D (35.1 s)	0.89	SBT/R
3	SR 520 & Skyes Creek Pkwy	Signalized	EB	B	0.83	EBL
			WB	C	0.76	WBL
			NB	F	1.11	NBR
			SB	E	0.85	SBL
			Overall	D (41.6 s)	1.11	NBR
4	Courtenay Pkwy & Fortenberry Rd	Signalized	EB	D	0.00	EBL/T/R
			WB	E	1.01	WBL/T
			NB	B	0.47	NBT
			SB	A	0.39	SBT/R
			Overall	B (19.5 s)	1.01	WBL/T
5	Fortenberry Rd & Plumosa St	Signalized	EB	D	0.63	EBT/R
			WB	B	0.34	WBL
			NB	B	0.24	NBT
			SB	B	0.22	SBT/R
			Overall	B (19.3 s)	0.63	EBT/R

3.0 DEVELOPMENT TRAFFIC

The Merritt Island Apartment development is proposed to consist of ±370 multifamily dwelling units. Buildout of the proposed development is anticipated in 2025. The latest industry standards were referenced to evaluate the amount of new external trips to be generated by the site at buildout. The adopted regional travel demand model was used to forecast the distribution of trips throughout the study area.

3.1 TRIP GENERATION

Trip generation for the proposed project was calculated per procedures published in the 11th Edition of the Institute of Transportation Engineers' (ITE) *Trip Generation Manual*. Land Use Code (LUC) 221 – Multifamily Housing (Mid-Rise) was used for the proposed development.

Relevant excerpts from the *Trip Generation Manual* are included in **Appendix H**.

Table 5 provides the Daily, AM peak hour, and PM peak hour trip generation summary for the project. The proposed site is anticipated to generate 1,718 daily trips, 151 AM peak hour trips (35 inbound and 116 outbound), and 145 PM peak hour trips (88 inbound and 57 outbound).

3.2 TRIP DISTRIBUTION

Projected traffic demand of project trips on study roadways was derived with use of the most recent adopted regional travel demand model. Land use data for the project was entered into a new traffic analysis zone (TAZ) within the latest Central Florida Regional Planning Model set and situated within the existing roadway network to appropriately represent project access. The model was used to assign trips for all trip purposes between allocated origin and destination pairs using project build-out year model data. Trip distribution for the project was extracted from the completed model assignment and reviewed for logic. The resulting model plot showing the percent of daily project distribution is provided in **Appendix I**.

Daily model project distribution was referenced to manually assign project distribution at the study area intersections and driveways in general accordance with the model output. **Figure 2** shows the intersection movement project distribution within the study area for use in forecasting project trips.

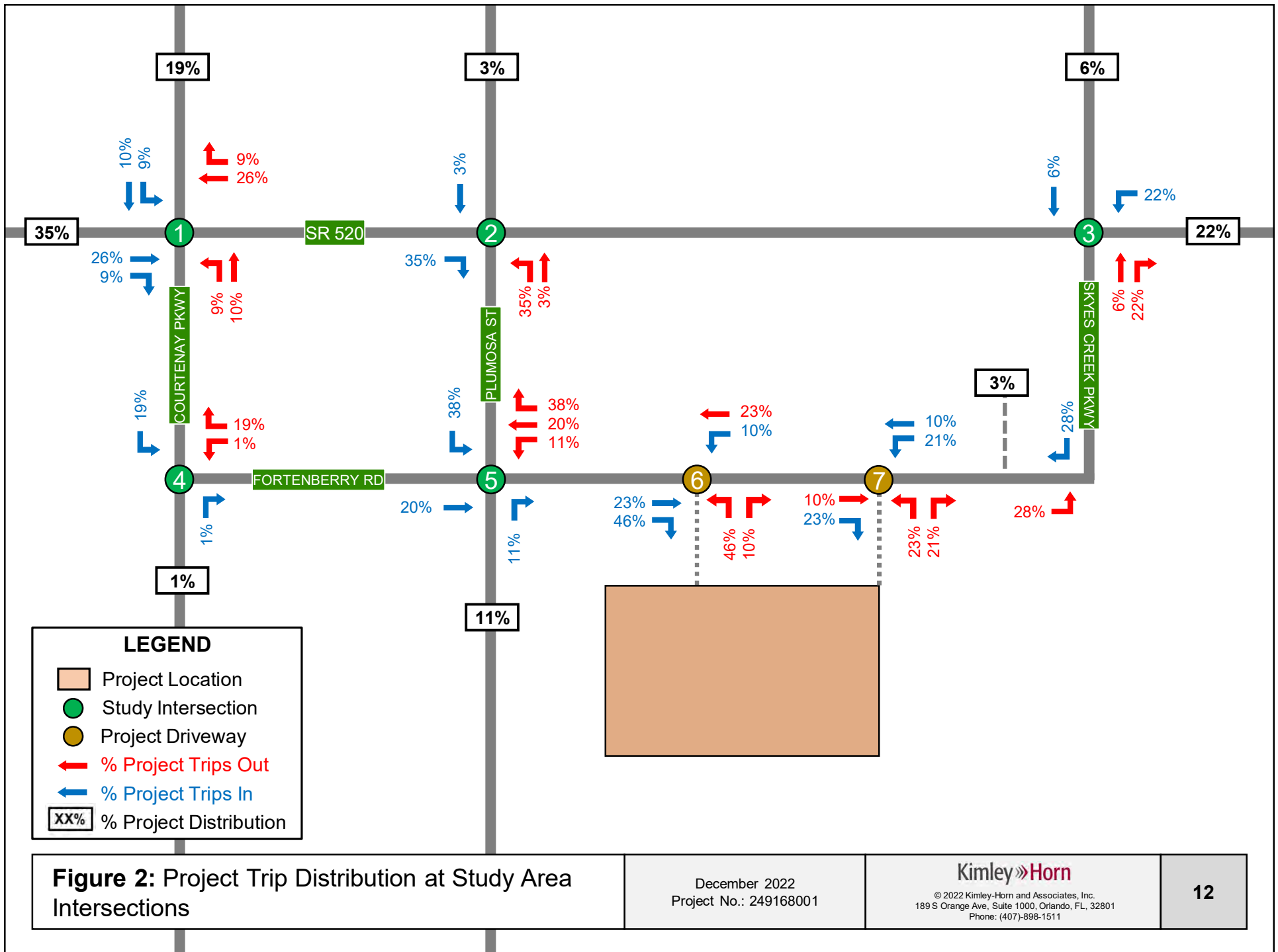
3.3 TRIP ASSIGNMENT

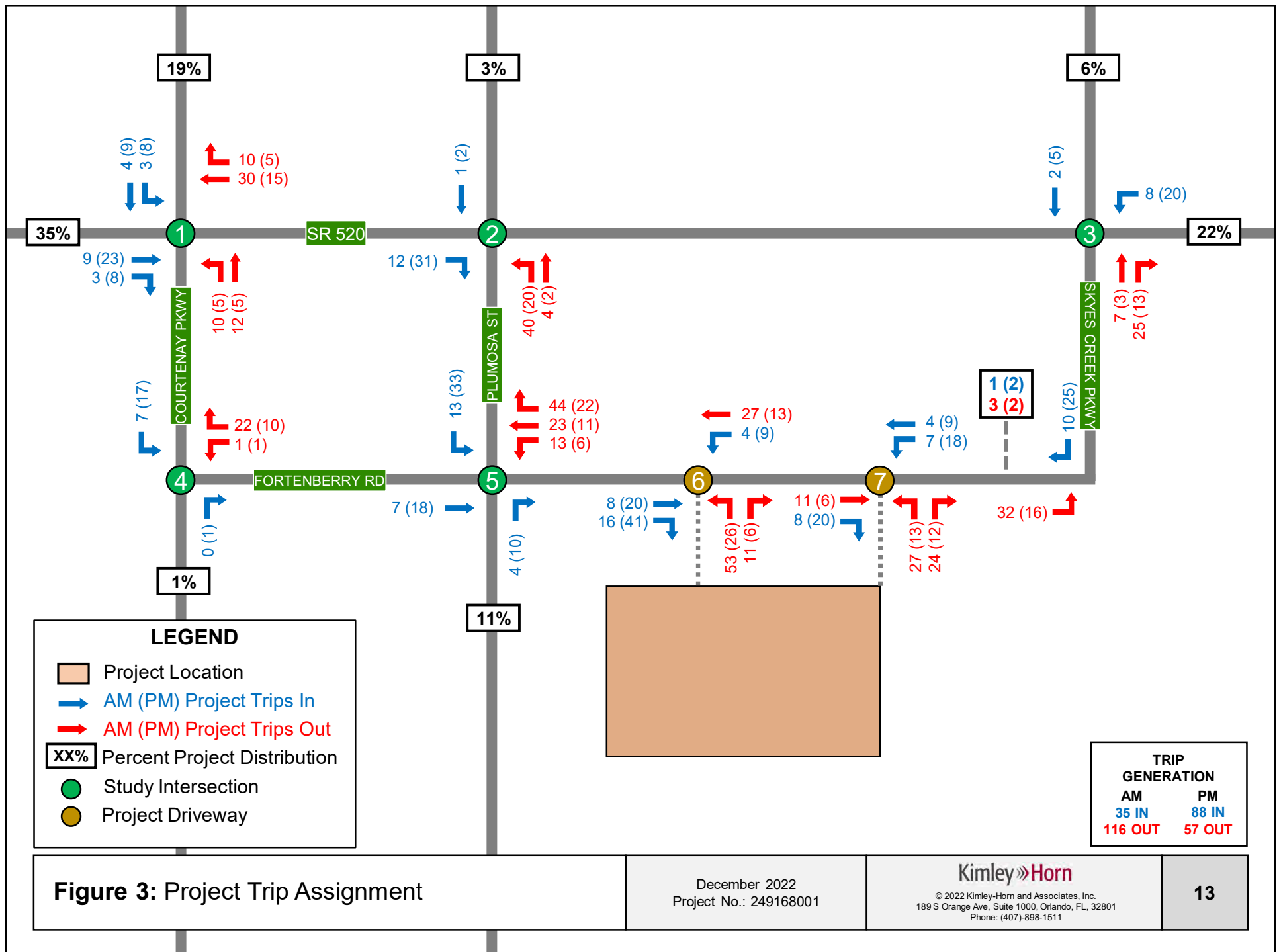
The project trip distribution percentages were used to assign anticipated project trips to the study area roadways and intersections. **Figure 3** shows the anticipated project trip assignment at the study area intersections during the AM and PM peak hours.

Table 5: Trip Generation

Daily	Land Use	ITE LUC ¹	Size	Units	Trip Generation Equation	Daily				
						Total	In ¹		Out ¹	
	Multifamily Housing (Mid-Rise)	221	370	DU	T = 4.77 * X - 46.46	1,718	50%	859	50%	859
	Total Generated Trips					1,718	859		859	
AM Peak Hour	Land Use	ITE LUC ¹	Size	Units	Trip Generation Equation	AM Peak Hour				
						Total	In ¹		Out ¹	
	Multifamily Housing (Mid-Rise)	221	370	DU	T = 0.44 * X - 11.61	151	23%	35	77%	116
	Total Generated Trips					151	35		116	
PM Peak Hour	Land Use	ITE LUC ¹	Size	Units	Trip Generation Equation	PM Peak Hour				
						Total	In ¹		Out ¹	
	Multifamily Housing (Mid-Rise)	221	370	DU	T = 0.39 * X + 0.34	145	61%	88	39%	57
	Total Generated Trips					145	88		57	

Note: ¹ Vehicle trip rate and directional splits per ITE Trip Generation, 11th Edition





4.0 BACKGROUND CONDITIONS ANALYSIS – YEAR 2025

4.1 BACKGROUND TRAFFIC

Traffic conditions were evaluated for year 2025 background conditions, without the impact of project trips on the roadway network. Per the approved TIA Methodology background volumes on study area roadway segments and intersections were derived by applying a 2% annual growth rate to existing traffic counts. Adjusted turning movement volume worksheets for all intersections can be found in **Appendix E**.

4.2 BACKGROUND ROADWAY SEGMENT ANALYSIS

A roadway segment analysis was performed within the study area to determine background Daily and PM peak hour conditions. The analysis was conducted by comparing the projected 2025 Background AADT and PM peak hour two-way segment volumes to the segment's Maximum Service Volumes (MSV).

The background roadway segment data is included in **Tables 6 and 7** for Daily and PM peak hour conditions, respectively. As shown in the tables, the analysis identifies no capacity deficiencies under background (2025) conditions.

Table 6: Background Roadway Segment Analysis (Daily)

Roadway Link ID From To			Roadway Attributes ¹					Daily - Background (2025)				
			Functional Classification ¹	Number of Lanes	Speed Limit	Adopted LOS ¹	Daily MSV ¹	Existing 2022 AADT	Growth Rate	2025 AADT ²	V/C Ratio	Background Deficiency?
Fortenberry Rd												
119	Courtenay Pkwy	Plumosa St	Urban Major Collector	2	35	E	15,600	3,978	2%	4,221	0.27	No
154	Plumosa St	Skyes Creek Pkwy	Urban Major Collector	2	35	E	15,600	3,978	2%	4,221	0.27	No
Cone Rd												
117	Tropical Trl	Courtenay Pkwy	Urban Minor Collector	2	35	E	15,600	4,284	2%	4,546	0.29	No
115	Courtenay Pkwy	Plumosa St	Urban Minor Collector	2	35	D	15,600	4,896	2%	5,196	0.33	No
S Plumosa St												
106	Merritt Ave	SR 520	Urban Minor Collector	2	25	E	15,600	5,365	2%	5,694	0.36	No
120	SR 520	Fortenberry Rd	Urban Minor Collector	2	25	E	15,600	4,243	2%	4,503	0.29	No
116	Fortenberry Rd	Cone Rd	Urban Minor Collector	2	35	E	15,600	4,916	2%	5,217	0.33	No
SR 520												
101	Bridge	Tropical Trl	Urban Principal Arterial - Other	6	45	D	59,900	44,911	2%	47,659	0.80	No
148	Tropical Trl	Courtenay Pkwy	Urban Principal Arterial - Other	6	45	D	59,900	38,077	2%	40,407	0.67	No
97	Courtenay Pkwy	Plaza Ent	Urban Principal Arterial - Other	6	45	D	62,900	30,631	2%	32,505	0.52	No
98	Plaza Ent	Plumosa St	Urban Principal Arterial - Other	6	45	D	62,900	30,274	2%	32,127	0.51	No
99	Plumosa St	Mall Ent	Urban Principal Arterial - Other	6	45	D	62,900	28,744	2%	30,503	0.48	No
100	Mall Ent	Skyes Creek Pkwy	Urban Principal Arterial - Other	6	45	D	62,900	24,307	2%	25,794	0.41	No
149	Skyes Creek Pkwy	Newbound Harbor D	Urban Principal Arterial - Other	6	45	D	62,900	29,050	2%	30,828	0.49	No
Skyes Creek Pkwy												
108	N Banana River Dr	Merritt Ave	Urban Major Collector	2	45	D	17,700	9,874	2%	10,478	0.59	No
121	Merritt Ave	SR 520	Urban Major Collector	4	45	D	39,800	10,985	2%	11,658	0.29	No
123	SR 520	Fortenberry Rd	Urban Major Collector	4	35	E	33,800	4,131	2%	4,384	0.13	No
Merritt Ave												
103	Courtenay Pkwy	Plumosa St	Urban Major Collector	4	35	E	33,800	13,036	2%	13,833	0.41	No
Courtenay Pkwy												
131	Needle Blvd	Merritt Ave	Urban Principal Arterial - Other	4	40	D	41,790	32,773	2%	34,779	0.83	No
130	Merritt Ave	SR 520	Urban Principal Arterial - Other	4	40	D	41,790	26,673	2%	28,306	0.68	No
139	SR 520	Magnolia Ave	Urban Minor Arterial	4	35	E	33,800	18,217	2%	19,332	0.57	No
122	Magnolia Ave	Fortenberry Rd	Urban Minor Arterial	4	35	E	33,800	17,177	2%	18,228	0.54	No
114	Cone Rd	Banana Blvd	Urban Minor Arterial	2	35	E	15,600	11,189	2%	11,874	0.76	No
Tropical Trl												
147	Merritt Ave	SR 520	Urban Major Collector	2	25	E	15,600	8,262	2%	8,768	0.56	No
126	Cone Rd	Plantation Rd	Urban Major Collector	2	35	E	12,480	6,865	2%	7,285	0.58	No

Notes

1. Data obtained from Space Coast TPO 2020 Functional Classification, MAV, and LOS Table.

2. Background (2025) AADT developed by applying the calculated growth rates.

Table 7: Background Roadway Segment Analysis (PM Peak Hour)

Roadway			Roadway Attributes					Peak Hour - Background (2025)				
Link ID	From	To	Functional Classification	Number of Lanes	Speed Limit	Adopted LOS ¹	Peak Hour Two-Way MSV ¹	Existing 2022 Peak Hour Two-Way Volume	Growth Rate	Background 2025 Peak Hour Two-Way Volume ²	V/C Ratio	Background Deficiency?
Fortenberry Rd												
119	Courtenay Pkwy	Plumosa St	Urban Major Collector	2	35	E	1,410	399	2%	423	0.30	No
154	Plumosa St	Skyes Creek Pkwy	Urban Major Collector	2	35	E	1,410	508	2%	539	0.38	No
Cone Rd												
117	Tropical Trl	Courtenay Pkwy	Urban Minor Collector	2	35	E	1,410	431	2%	457	0.32	No
115	Courtenay Pkwy	Plumosa St	Urban Minor Collector	2	35	E	1,410	550	2%	584	0.41	No
Plumosa St												
106	Merritt Ave	SR 520	Urban Minor Collector	2	25	E	1,410	544	2%	577	0.41	No
120	SR 520	Fortenberry Rd	Urban Minor Collector	2	25	E	1,410	419	2%	445	0.32	No
116	Fortenberry Rd	Cone Rd	Urban Minor Collector	2	35	E	1,410	487	2%	517	0.37	No
SR 520												
101	Bridge	Tropical Trl	Urban Principal Arterial - Other	6	45	D	5,390	3,900	2%	4,139	0.77	No
148	Tropical Trl	Courtenay Pkwy	Urban Principal Arterial - Other	6	45	D	5,390	3,117	2%	3,308	0.61	No
97	Courtenay Pkwy	Plaza Ent	Urban Principal Arterial - Other	6	45	D	5,660	2,681	2%	2,845	0.50	No
98	Plaza Ent	Plumosa St	Urban Principal Arterial - Other	6	45	D	5,660	2,619	2%	2,779	0.49	No
99	Plumosa St	Mall Ent	Urban Principal Arterial - Other	6	45	D	5,660	2,521	2%	2,675	0.47	No
100	Mall Ent	Skyes Creek Pkwy	Urban Principal Arterial - Other	6	45	D	5,660	1,914	2%	2,031	0.36	No
149	Skyes Creek Pkwy	Newbound Harbor Dr	Urban Principal Arterial - Other	6	45	D	5,660	2,643	2%	2,805	0.50	No
Skyes Creek Pkwy												
108	N Banana River Dr	Merritt Ave	Urban Major Collector	2	45	D	1,600	955	2%	1,013	0.63	No
121	Merritt Ave	SR 520	Urban Major Collector	4	45	D	3,580	949	2%	1,007	0.28	No
123	SR 520	Fortenberry Rd	Urban Major Collector	4	35	E	3,040	432	2%	458	0.15	No
Merritt Ave												
103	Courtenay Pkwy	Plumosa St	Urban Major Collector	4	35	E	3,040	1,255	2%	1,332	0.44	No
Courtenay Pkwy												
131	Needle Blvd	Merritt Ave	Urban Principal Arterial - Other	4	40	D	3,760	2,519	2%	2,673	0.71	No
130	Merritt Ave	SR 520	Urban Principal Arterial - Other	4	40	D	3,760	2,193	2%	2,327	0.62	No
139	SR 520	Magnolia Ave	Urban Minor Arterial	4	35	E	3,040	1,603	2%	1,701	0.56	No
122	Magnolia Ave	Fortenberry Rd	Urban Minor Arterial	4	35	E	3,040	1,330	2%	1,411	0.46	No
114	Cone Rd	Banana Blvd	Urban Minor Arterial	2	35	E	1,410	1,116	2%	1,184	0.84	No
Tropical Trl												
147	Merritt Ave	SR 520	Urban Major Collector	2	25	E	1,410	792	2%	840	0.60	No
126	Cone Rd	Plantation Rd	Urban Major Collector	2	35	E	1,130	691	2%	733	0.65	No

Notes

1. Data obtained from Space Coast TPO 2020 Functional Classification, MAV, and LOS Table and 2020 FDOT Q/LOS Table
2. Background (2025) Peak Hour Two-Way Volume developed by applying the calculated growth rates.

4.3 BACKGROUND INTERSECTION ANALYSIS

An intersection operational analysis was performed for background conditions during the AM and PM peak hours using procedures outlined in the *Highway Capacity Manual, 6th Edition* with Synchro (v11) software. Intersection level of service (LOS) and maximum volume to capacity (v/c) ratios for the AM and PM peak hour background conditions are provided in **Tables 8 and 9**. Synchro outputs are provided in **Appendix G**.

As shown in the tables below, all study area intersections are expected to operate at an acceptable LOS overall and v/c ratio in the background (2025) AM and PM peak hour with the exception of the existing intersection deficiencies and the following:

- SR 520 & Courtenay Parkway
 - o Southbound Approach – LOS F – PM Peak Hour

It is anticipated that minor street movements at the study area intersections may operate with high delay during the peak hour. This is due to the green time prioritization for the major street approaches and movements. To mitigate the movements that operate with volume-to-capacity ratios greater than 1.0 under existing and background conditions, minor signal timing adjustments were implemented at the deficiency intersections to reduce v/c ratios to less than 1.0. **Table 10** provides the improved intersections' LOS and maximum volume to capacity (v/c) ratios for the PM peak hour.

Table 8: Background Intersection Conditions (AM Peak Hour)

Background Condition - 2025						
Intersection		Control Type	Approach	AM Peak Hour		
				Max Level of Service	Max V/C Ratio	Max V/C Movement
1	SR 520 & Courtenay Pkwy	Signalized	EB	D	0.89	EBL
			WB	D	0.73	WBL
			NB	F	0.95	NBT/R
			SB	E	0.85	SBR
			Overall	E (62.2 s)	0.95	NBT/R
2	SR 520 & Plumosa St	Signalized	EB	C	0.81	EBL
			WB	A	0.80	WBL
			NB	E	0.78	NBL
			SB	F	0.86	SBT/R
			Overall	C (27.1 s)	0.86	SBT/R
3	SR 520 & Skyes Creek Pkwy	Signalized	EB	B	0.76	EBL
			WB	C	0.58	WBL
			NB	F	0.86	NBR
			SB	E	0.84	SBL
			Overall	C (30.9 s)	0.86	NBR
4	Courtenay Pkwy & Fortenberry Rd	Signalized	EB	D	0.03	EBL/T/R
			WB	C	0.38	WBL/T
			NB	B	0.38	NBT
			SB	A	0.29	SBT/R
			Overall	B (10.9 s)	0.38	WBL/T
5	Fortenberry Rd & Plumosa St	Signalized	EB	D	0.56	EBT/R
			WB	C	0.28	WBL
			NB	B	0.17	NBT
			SB	B	0.25	SBT/R
			Overall	B (16.9 s)	0.56	EBT/R

Table 9: Background Intersection Conditions (PM Peak Hour)

Background Condition - 2025						
Intersection		Control Type	Approach	PM Peak Hour		
				Max Level of Service	Max V/C Ratio	Max V/C Movement
1	SR 520 & Courtenay Pkwy	Signalized	EB	D	0.91	EBL
			WB	E	0.76	WBL
			NB	F	0.94	NBL
			SB	F	0.95	SBR
			Overall	E (70.5 s)	0.95	SBR
2	SR 520 & Plumosa St	Signalized	EB	D	0.85	EBL
			WB	A	0.83	WBL
			NB	F	0.83	NBL
			SB	F	0.90	SBT/R
			Overall	C (31.4 s)	0.90	SBT/R
3	SR 520 & Skyes Creek Pkwy	Signalized	EB	B	0.84	EBL
			WB	C	0.77	WBL
			NB	F	1.19	NBR
			SB	E	0.86	SBL
			Overall	D (43.6 s)	1.19	NBR
4	Courtenay Pkwy & Fortenberry Rd	Signalized	EB	D	0.00	EBL/T/R
			WB	E	1.06	WBL/T
			NB	B	0.50	NBT
			SB	A	0.42	SBT/R
			Overall	C (20.4 s)	1.06	WBL/T
5	Fortenberry Rd & Plumosa St	Signalized	EB	D	0.67	EBT/R
			WB	B	0.37	WBL
			NB	B	0.25	NBT
			SB	B	0.24	SBT/R
			Overall	B (19.8 s)	0.67	EBT/R

Table 10: Background with Improvement Intersection Conditions (PM Peak Hour)

Background with Improvement Condition - 2025							
Intersection		Control Type	Improvement	Approach	PM Peak Hour		
					Max Level of Service	Max V/C Ratio	Max V/C Movement
3	SR 520 & Skyes Creek Pkwy	Signalized	Minor Signal Timing Adjustments	EB	B	0.83	EBL
				WB	C	0.77	WBL
				NB	F	0.90	NBR
				SB	E	0.86	SBL
				Overall	D (38.3 s)	0.90	NBR
4	Courtenay Pkwy & Fortenberry Rd	Signalized	Minor Signal Timing Adjustments	EB	D	0.00	EBL/T/R
				WB	D	0.90	WBL/T
				NB	B	0.55	NBT
				SB	B	0.45	SBT/R
				Overall	B (19.9 s)	0.90	WBL/T

5.0 BUILDOUT CONDITIONS ANALYSIS – YEAR 2025

Buildout volumes were developed by adding anticipated project trips to background volumes. A determination of the impact of project traffic on the roadway network was made, including LOS conditions for the intersections and roadway segments within the study area. Turning movement volume worksheets for all intersections and driveways are provided in **Appendix E**.

Figures 4 and 5 illustrate turning movement buildout volumes at the study intersections for the AM and PM peak hour, respectively.

5.1 BUILDOUT ROADWAY SEGMENT ANALYSIS

A roadway segment analysis was performed within the study area to determine buildout Daily and PM peak hour two-way conditions. The Daily analysis was conducted by comparing the projected 2025 buildout AADT and PM peak hour two-way volume to the segment's Maximum Service Volumes (MSV).

The buildout roadway segment data is included in **Tables 11 and 12** for Daily and PM peak hour conditions, respectively. As shown in the tables, the analysis identifies no roadway capacity deficiencies under buildout (2025) Daily or PM peak hour two-way conditions. No new roadway deficiencies are anticipated due to project impact.

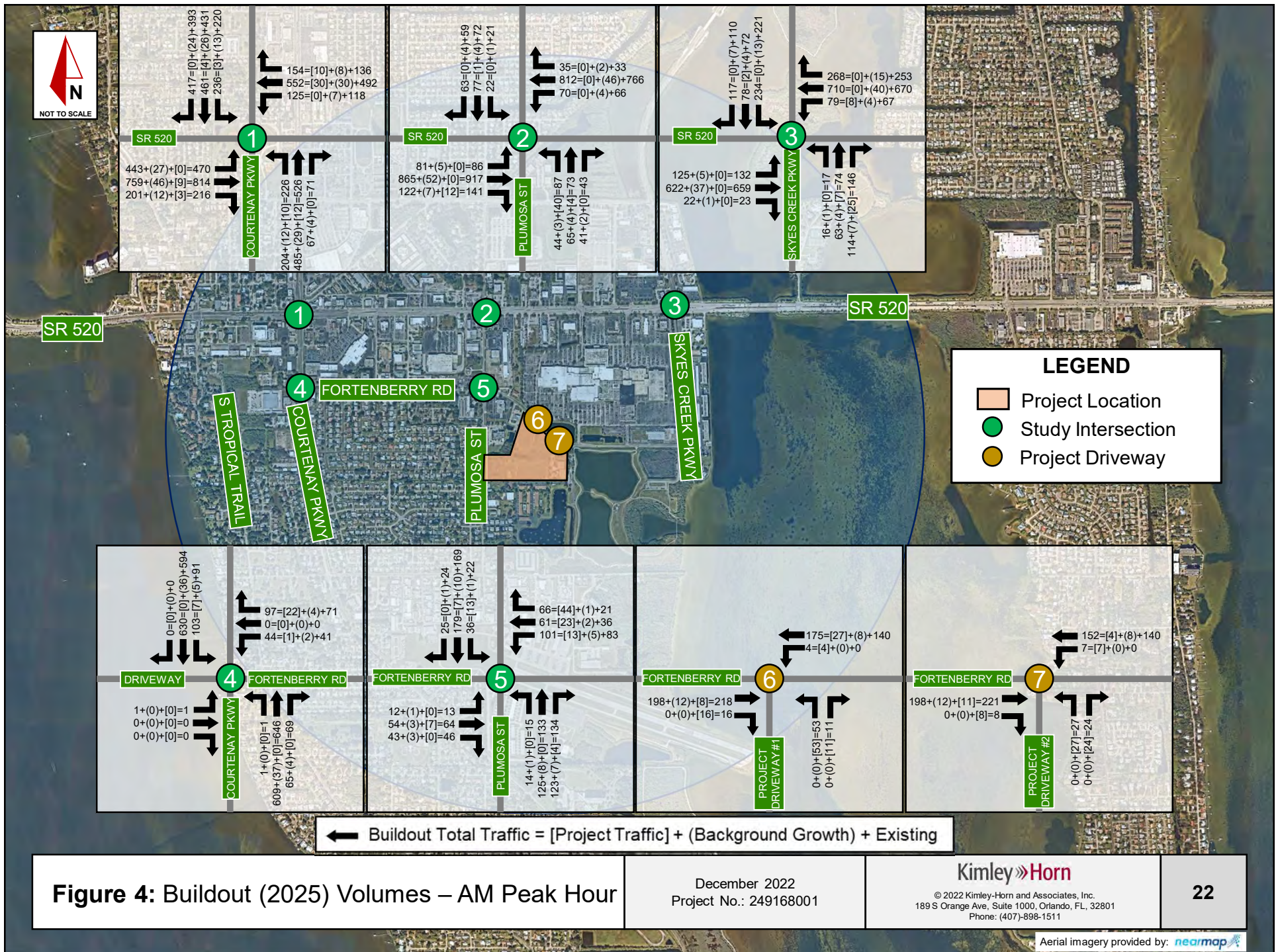


Figure 4: Buildout (2025) Volumes – AM Peak Hour

December 2022
Project No.: 249168001

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Phone: (407)-898-1511

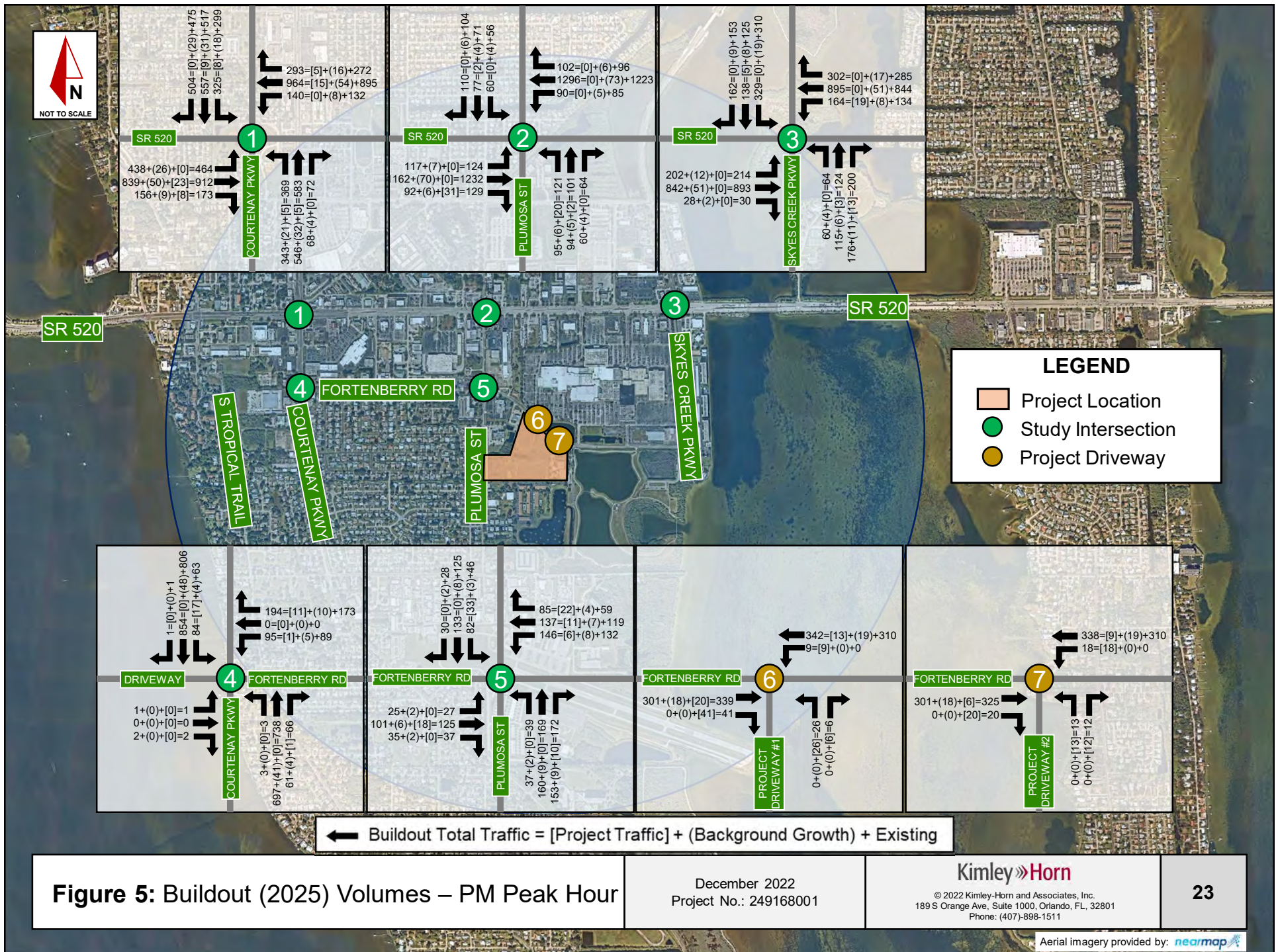


Figure 5: Buildout (2025) Volumes – PM Peak Hour

December 2022
Project No.: 249168001

Kimley»Horn
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Table 11: Buildout Roadway Segment Analysis (Daily)

Roadway			Roadway Attributes ¹						Daily - Buildout (2025)				
			Functional Classification	Number of Lanes	Speed Limit	Adopted LOS ¹	Daily MSV ¹	Background 2025 AADT	Project Trips		Buildout 2025 AADT ³	V/C Ratio	Buildout Deficiency?
									% Assign ²	Project Trips			
Link ID	From	To											
Fortenberry Rd													
119	Courtenay Pkwy	Plumosa St	Urban Major Collector	2	35	E	15,600	4,221	20%	344	4,565	0.29	No
154	Plumosa St	Skyles Creek Pkwy	Urban Major Collector	2	35	E	15,600	4,221	69%	1,185	5,406	0.35	No
Cone Rd													
117	Tropical Trl	Courtenay Pkwy	Urban Minor Collector	2	35	E	15,600	4,546	2%	34	4,580	0.29	No
115	Courtenay Pkwy	Plumosa St	Urban Minor Collector	2	35	D	15,600	5,196	10%	172	5,368	0.34	No
S Plumosa St													
106	Merritt Ave	SR 520	Urban Minor Collector	2	25	E	15,600	5,694	3%	52	5,746	0.37	No
120	SR 520	Fortenberry Rd	Urban Minor Collector	2	25	E	15,600	4,503	39%	670	5,173	0.33	No
116	Fortenberry Rd	Cone Rd	Urban Minor Collector	2	35	E	15,600	5,217	11%	189	5,406	0.35	No
SR 520													
101	Bridge	Tropical Trl	Urban Principal Arterial - Other	6	45	D	59,900	47,659	34%	584	48,243	0.81	No
148	Tropical Trl	Courtenay Pkwy	Urban Principal Arterial - Other	6	45	D	59,900	40,407	35%	601	41,008	0.68	No
97	Courtenay Pkwy	Plaza Ent	Urban Principal Arterial - Other	6	45	D	62,900	32,505	35%	601	33,106	0.53	No
98	Plaza Ent	Plumosa St	Urban Principal Arterial - Other	6	45	D	62,900	32,127	35%	601	32,728	0.52	No
99	Plumosa St	Mall Ent	Urban Principal Arterial - Other	6	45	D	62,900	30,503	1%	17	30,520	0.49	No
100	Mall Ent	Skyles Creek Pkwy	Urban Principal Arterial - Other	6	45	D	62,900	25,794	1%	17	25,811	0.41	No
149	Skyles Creek Pkwy	Newbound Harbor Dr	Urban Principal Arterial - Other	6	45	D	62,900	30,828	22%	378	31,206	0.50	No
Skyles Creek Pkwy													
108	N Banana River Dr	Merritt Ave	Urban Major Collector	2	45	D	17,700	10,478	6%	103	10,581	0.60	No
121	Merritt Ave	SR 520	Urban Major Collector	4	45	D	39,800	11,658	6%	103	11,761	0.30	No
123	SR 520	Fortenberry Rd	Urban Major Collector	4	35	E	33,800	4,384	28%	481	4,865	0.14	No
Merritt Ave													
103	Courtenay Pkwy	Plumosa St	Urban Major Collector	4	35	E	33,800	13,833	2%	34	13,867	0.41	No
Courtenay Pkwy													
131	Needle Blvd	Merritt Ave	Urban Principal Arterial - Other	4	40	D	41,790	34,779	18%	309	35,088	0.84	No
130	Merritt Ave	SR 520	Urban Principal Arterial - Other	4	40	D	41,790	28,306	19%	326	28,632	0.69	No
139	SR 520	Magnolia Ave	Urban Minor Arterial	4	35	E	33,800	19,332	19%	326	19,658	0.58	No
122	Magnolia Ave	Fortenberry Rd	Urban Minor Arterial	4	35	E	33,800	18,228	19%	326	18,554	0.55	No
114	Cone Rd	Banana Blvd	Urban Minor Arterial	2	35	E	15,600	11,874	1%	17	11,891	0.76	No
Tropical Trl													
147	Merritt Ave	SR 520	Urban Major Collector	2	25	E	15,600	8,768	1%	17	8,785	0.56	No
126	Cone Rd	Plantation Rd	Urban Major Collector	2	35	E	12,480	7,285	2%	34	7,319	0.59	No

Notes

1. Data obtained from Space Coast TPO 2020 Functional Classification, MAV, and LOS Table.

2. Percent assigned as the highest percent across the segment.

3. Buildout (2025) AADT developed by adding project trips to background (2025) volumes.

Table 12: Buildout Roadway Segment Analysis (PM Peak Hour)

Roadway			Roadway Attributes ¹					Peak Hour - Buildout (2025)					
			Functional Classification	Number of Lanes	Speed Limit	Adopted LOS ¹	Peak Hour Two-Way MSV ¹	Background 2025 Peak Hour Two-Way Volume	Project Trips		Buildout 2025 Peak Hour Two-way Volume ³	V/C Ratio	Buildout Deficiency?
Link ID	From	To							% Assign ²	Project Trips			
Fortenberry Rd													
119	Courtenay Pkwy	Plumosa St	Urban Major Collector	2	35	E	1,410	423	20%	29	452	0.32	No
154	Plumosa St	Skyes Creek Pkwy	Urban Major Collector	2	35	E	1,410	539	69%	100	639	0.45	No
Cone Rd													
117	Tropical Trl	Courtenay Pkwy	Urban Minor Collector	2	35	E	1,410	457	2%	3	460	0.33	No
115	Courtenay Pkwy	Plumosa St	Urban Minor Collector	2	35	E	1,410	584	10%	15	599	0.42	No
Plumosa St													
106	Merritt Ave	SR 520	Urban Minor Collector	2	25	E	1,410	577	3%	4	581	0.41	No
120	SR 520	Fortenberry Rd	Urban Minor Collector	2	25	E	1,410	445	39%	57	502	0.36	No
116	Fortenberry Rd	Cone Rd	Urban Minor Collector	2	35	E	1,410	517	11%	16	533	0.38	No
SR 520													
101	Bridge	Tropical Trl	Urban Principal Arterial - Other	6	45	D	5,390	4,139	34%	49	4,188	0.78	No
148	Tropical Trl	Courtenay Pkwy	Urban Principal Arterial - Other	6	45	D	5,390	3,308	35%	51	3,359	0.62	No
97	Courtenay Pkwy	Plaza Ent	Urban Principal Arterial - Other	6	45	D	5,660	2,845	35%	51	2,896	0.51	No
98	Plaza Ent	Plumosa St	Urban Principal Arterial - Other	6	45	D	5,660	2,779	35%	51	2,830	0.50	No
99	Plumosa St	Mall Ent	Urban Principal Arterial - Other	6	45	D	5,660	2,675	1%	1	2,676	0.47	No
100	Mall Ent	Skyes Creek Pkwy	Urban Principal Arterial - Other	6	45	D	5,660	2,031	1%	1	2,032	0.36	No
149	Skyes Creek Pkwy	Newbound Harbor Dr	Urban Principal Arterial - Other	6	45	D	5,660	2,805	22%	32	2,837	0.50	No
Skyes Creek Pkwy													
108	N Banana River Dr	Merritt Ave	Urban Major Collector	2	45	D	1,600	1,013	6%	9	1,022	0.64	No
121	Merritt Ave	SR 520	Urban Major Collector	4	45	D	3,580	1,007	6%	9	1,016	0.28	No
123	SR 520	Fortenberry Rd	Urban Major Collector	4	35	E	3,040	458	28%	41	499	0.16	No
Merritt Ave													
103	Courtenay Pkwy	Plumosa St	Urban Major Collector	4	35	E	3,040	1,332	2%	3	1,335	0.44	No
Courtenay Pkwy													
131	Needle Blvd	Merritt Ave	Urban Principal Arterial - Other	4	40	D	3,760	2,673	18%	26	2,699	0.72	No
130	Merritt Ave	SR 520	Urban Principal Arterial - Other	4	40	D	3,760	2,327	19%	28	2,355	0.63	No
139	SR 520	Magnolia Ave	Urban Minor Arterial	4	35	E	3,040	1,701	19%	28	1,729	0.57	No
122	Magnolia Ave	Fortenberry Rd	Urban Minor Arterial	4	35	E	3,040	1,411	19%	28	1,439	0.47	No
114	Cone Rd	Banana Blvd	Urban Minor Arterial	2	35	E	1,410	1,184	1%	1	1,185	0.84	No
Tropical Trl													
147	Merritt Ave	SR 520	Urban Major Collector	2	25	E	1,410	840	1%	1	841	0.60	No
126	Cone Rd	Plantation Rd	Urban Major Collector	2	35	E	1,130	733	2%	3	736	0.65	No

Notes

1. Data obtained from Space Coast TPO 2020 Functional Classification, MAV, and LOS Table and 2020 FDOT Q/LOS Table
2. Percent assigned as the highest percent across the segment.
3. Buildout (2025) Peak Hour Two-Way Volume developed by adding project trips to background (2025) volumes.

5.2 BUILDOUT INTERSECTION ANALYSIS

An intersection operational analysis was performed for Year 2025 buildout conditions during the AM and PM peak hours using procedures outlined in the *Highway Capacity Manual, 6th Edition* with Synchro (v11) software. Intersection level of service (LOS), delay, and maximum volume to capacity (v/c) ratios for the AM and PM peak hour buildout conditions are provided in **Tables 13 and 14**. Synchro outputs are provided in **Appendix G**.

As shown in the tables below, all study area intersections operate at an acceptable overall LOS and with v/c ratios less than one (1.0) in the buildout AM and PM peak hour. There are minor street approaches at the intersections along SR 520 that continue to operate with high delay. This is due to the prioritization of green time on the major road, SR 520. The maximum v/c ratio for movements on these minor street approaches are still less than one (1.0). The proposed project driveways operate efficiently under buildout conditions. Therefore, no new deficiencies were identified as a result of the proposed development.

Table 13: Buildout Intersection Conditions (AM Peak Hour)

Buildout Condition - 2025						
Intersection		Control Type	Approach	AM Peak Hour		
				Max Level of Service	Max V/C Ratio	Max V/C Movement
1	SR 520 & Courtenay Pkwy	Signalized	EB	D	0.89	EBL
			WB	D	0.73	WBL
			NB	F	0.97	NBT/R
			SB	E	0.86	SBR
			Overall	E (63.4 s)	0.97	NBT/R
2	SR 520 & Plumosa St	Signalized	EB	C	0.81	EBL
			WB	A	0.80	WBL
			NB	E	0.82	NBL
			SB	F	0.87	SBT/R
			Overall	C (29.1 s)	0.87	SBT/R
3	SR 520 & Skyes Creek Pkwy	Signalized	EB	B	0.76	EBL
			WB	C	0.64	WBL
			NB	F	0.90	NBR
			SB	E	0.84	SBL
			Overall	C (32.9 s)	0.90	NBR
4	Courtenay Pkwy & Fortenberry Rd	Signalized	EB	D	0.03	EBL/T/R
			WB	C	0.39	WBL/T
			NB	B	0.38	NBT
			SB	A	0.29	SBT/R
			Overall	B (11.2 s)	0.39	WBL/T
5	Fortenberry Rd & Plumosa St	Signalized	EB	D	0.63	EBT/R
			WB	C	0.33	WBL
			NB	B	0.17	NBT
			SB	B	0.24	SBT/R
			Overall	B (18.0 s)	0.63	EBT/R
6	Project Driveway 1 & Fortenberry Rd	Unsignalized (TWSC)	EB(L)	-	-	-
			WB(L)	A	0.00	WBL
			NB	B	0.12	NBL/R
			SB	-	-	-
			Overall	-	0.12	NBL/R
7	Project Driveway 2 & Fortenberry Rd	Unsignalized (TWSC)	EB(L)	-	-	-
			WB(L)	A	0.01	WBL
			NB	B	0.08	NBL/R
			SB	-	-	-
			Overall	-	0.08	NBL/R

Table 14: Buildout Intersection Conditions (PM Peak Hour)

Buildout Condition - 2025						
Intersection		Control Type	Approach	PM Peak Hour		
				Max Level of Service	Max V/C Ratio	Max V/C Movement
1	SR 520 & Courtenay Pkwy	Signalized	EB	D	0.91	EBL
			WB	E	0.76	WBL/R
			NB	F	0.95	NBL
			SB	F	0.95	SBR
			Overall	E (71.2 s)	0.95	NBL
2	SR 520 & Plumosa St	Signalized	EB	D	0.85	EBL
			WB	A	0.83	WBL
			NB	F	0.85	NBL
			SB	F	0.90	SBT/R
			Overall	C (32.5 s)	0.90	SBT/R
3	SR 520 & Skyes Creek Pkwy	Signalized	EB	B	0.83	EBL
			WB	D	0.79	WBL
			NB	F	0.91	NBR
			SB	E	0.86	SBL
			Overall	D (39.5 s)	0.91	NBR
4	Courtenay Pkwy & Fortenberry Rd	Signalized	EB	D	0.00	EBL/T/R
			WB	D	0.91	WBL/T
			NB	B	0.56	NBT
			SB	B	0.45	SBT/R
			Overall	C (20.2 s)	0.91	WBL/T
5	Fortenberry Rd & Plumosa St	Signalized	EB	D	0.79	EBT/R
			WB	C	0.42	WBL
			NB	B	0.25	NBT
			SB	B	0.23	SBT/R
			Overall	C (22.4 s)	0.79	EBT/R
6	Project Driveway 1 & Fortenberry Rd	Unsignalized (TWSC)	EB(L)	-	-	-
			WB(L)	A	0.01	WBL
			NB	C	0.09	NBL/R
			SB	-	-	-
			Overall	-	0.09	NBL/R
7	Project Driveway 2 & Fortenberry Rd	Unsignalized (TWSC)	EB(L)	-	-	-
			WB(L)	A	0.02	WBL
			NB	B	0.06	NBL/R
			SB	-	-	-
			Overall	-	0.06	NBL/R

5.3 BUILDOUT DRIVEWAY INGRESS TURN LANE ANALYSIS

The need for exclusive ingress left-turn and right-turn lanes at the proposed project driveways on Fortenberry Road were evaluated using the National Cooperative Highway Research Program (NCHRP) Report 457 thresholds.

The need for exclusive right-turn lanes at the full access project driveways on Fortenberry Road was determined by comparing the right turning volumes with the approach volume. Based on the project volumes shown in **Figures 4 and 5** and thresholds specified by the NCHRP Report 457, right-turn lanes are not warranted at either of the project driveways on Fortenberry Road.

The need for exclusive left-turn lanes at the full access project driveways on Fortenberry Road was determined by comparing the percent left turning volume with the advancing and opposing volumes. Based on the project volumes shown in **Figures 4 and 5** and thresholds specified by the NCHRP Report 457, left-turn lanes are not warranted at either of the project driveways on Fortenberry Road.

NCHRP outputs are provided in **Appendix J**.

6.0 CONCLUSION

This traffic impact analysis was performed to analyze and document the transportation impacts associated with the buildout of the proposed Merritt Island Apartments development located south of Fortenberry Road, west of Harbor Woods Boulevard, and north of Lands Way in Brevard County. The development, proposed for buildout in 2025, will consist of ±370 multifamily dwelling units. Access to the site will be provided via one (1) full access driveway on Fortenberry Road and one (1) full access driveway off Harbor Woods Boulevard.

The proposed development is anticipated to generate 1,718 daily trips, 151 AM peak hour trips (35 inbound and 116 outbound), and 145 PM peak hour trips (88 inbound and 57 outbound) based on data from the ITE *Trip Generation Manual*. Project trips were distributed onto the surrounding roadway network using the adopted regional travel demand model and manual assignment at the study area intersections.

A roadway segment capacity analysis was performed for the study area roadway segments for existing, background, and buildout conditions. The Daily and PM peak hour two-way analysis identified no roadway segment capacity deficiencies within the study area.

An operational analysis for existing and future conditions was performed at the study area intersections. All study intersections were found to operate at an acceptable overall LOS and v/c ratio in the AM and PM peak hour with proposed background improvements. There are minor street approaches at the intersections along SR 520 that operate with high delay under existing, background, and buildout conditions. This is due to the prioritization of green time for the major road, SR 520. The maximum v/c ratio for movements on these minor street approaches are still less than one (1.0). No new deficiencies were identified as a result of the proposed development.

The need for exclusive ingress right-turn lanes and left-turn lanes at the full access project driveways on Fortenberry Road was evaluated based on the National Cooperative Highway Research Program (NCHRP) Report 457 thresholds. No ingress turn lanes are warranted at the project driveways on Fortenberry Road.

APPENDIX A

Methodology Statement

MEMORANDUM

From: James M. Taylor, P.E.
Kimley-Horn and Associates, Inc.

Date: October 3, 2022

Subject: Traffic Impact Analysis (TIA) Methodology
Merritt Island Apartments

Purpose

The following is a Traffic Impact Analysis (TIA) methodology outline for the above referenced project. The forthcoming TIA will generally conform to the methodology herein and the policies and guidelines of Brevard County.

Project Description

Merritt Island Apartments is a proposed multifamily development located on the south side of Fortenberry Road, west of Harbor Woods Boulevard, and north of Landings Way in Brevard County. A portion of the project property is undeveloped, and the eastern part is an abandoned active recreation facility. The proposed development on the 15.26-acre property is to consist of ±368 multifamily dwelling units. Buildout of the proposed development is anticipated in 2025.

Access to the site will be provided via two (2) full access driveways on Fortenberry Road, shown in the conceptual site plan provided in **Attachment A**.

Study Area

As stated in the Brevard County *Guidelines on Minimum Requirements for Traffic Impact Analyses* (2022), the study area shall be preliminarily established with a radius of 0.5-miles per 100 peak hour trips. As determined in the Trip Generation portion of this memorandum, the proposed development is anticipated to generate 150 peak hour trips; therefore, the preliminary study area will have a radius of 1.0 miles.

All segments within the 1.0-mile radius will be included in the study area. In addition, segments outside of the 1.0-mile radius that are significantly impacted by project trips will be included in the study area as well.

Initially, a significance test was performed for all roadway segments within the 1.0-mile area of influence. Significance was calculated by dividing the portion of total project trips assigned to each roadway segment by the corresponding maximum available volume (MAV) for that segment. A 5.0% significance test was performed for all concurrent



roadway segments and a 1.0% significance test for all roadway segments with concurrency failure within the 1.0-mile study area. Results of this analysis show that no segments inside the 1.0-mile study area are significantly impacted. Therefore, no additional segments were analyzed or included in the study area. **Table 1** summarizes the roadway segment significance test and the study area determination.

The major intersections where project trips are anticipated to complete turning movements within the 1.0-mile study area will be included.

From this analysis, the study area roadway segments and intersections are listed below and displayed on **Figure 1**:

Study Area Roadway Segments

- Fortenberry Rd from S Courtenay Pkwy to S Plumosa St
- Fortenberry Rd from S Plumosa St to S Skyes Creek Pkwy
- Cone Rd from S Tropical Trl to S Courtenay Pkwy
- Cone Rd from S Courtenay Pkwy to S Plumosa St
- N Plumosa St from Merritt Ave to SR 520
- S Plumosa St from SR 520 to Fortenberry Rd
- S Plumosa St from Fortenberry Rd to Cone Rd
- SR 520 from Hubert Humphrey Bridge to Tropical Trl
- SR 520 from Tropical Trl to Courtenay Pkwy
- SR 520 from Courtenay Pkwy to Plaza Entry
- SR 520 from Plaza Entry to Plumosa St
- SR 520 from Plumosa St to Merritt Sq (Mall Entry)
- SR 520 from Merritt Sq (Mall Entry) to Skyes Creek Pkwy
- SR 520 from Skyes Creek Pkwy to Newfound Harbor Dr
- N Skyes Creek Pkwy from N Banana River Dr to Merritt Ave
- N Skyes Creek Pkwy from Merritt Ave to SR 520
- S Skyes Creek Pkwy from SR 520 to Fortenberry Rd
- Merritt Ave from N Tropical Trl to N Courtenay Pkwy
- Merritt Ave from N Courtenay Pkwy to N Plumosa St
- Merritt Ave from N Plumosa St to N Skyes Creek Pkwy
- N Courtenay Pkwy from Needle Blvd to Merritt Ave
- N Courtenay Pkwy from Merritt Ave to SR 520
- S Courtenay Pkwy from SR 520 to Magnolia Ave
- S Courtenay Pkwy from Magnolia Ave to Fortenberry Rd
- S Courtenay Pkwy from Fortenberry Rd to Cone Rd
- S Courtenay Pkwy from Cone Rd to Banana Blvd
- N Tropical Trl from Merritt Ave to SR 520
- S Tropical Trl from SR 520 to Cone Rd



- S Tropical Trl from Cone Rd to Plantation Rd

Study Area Intersections

- SR 520 & Courtenay Pkwy
- SR 520 & Plumosa St
- SR 520 & Skyes Creek Pkwy
- S Courtenay Pkwy & Fortneberry Rd
- S Plumosa St & Fortenberry Rd

Table 1: Study Area Segments

Link ID#	Roadway FromTo		Roadway Attributes ¹						Daily Project Traffic Total Daily Trips = 1,709			Included in Study Area
			Adopted LOS	Number of Lanes	Speed Limit	Max Avail. Volume (MAV)	2021 AADT	Existing V/C Ratio	% Project Distribution ²	Project Trips	% Impact ³	
	Fortenberry Rd											
119	Courtenay Pkwy	Plumosa St	E	2	35	15,600	3,900	0.25	20%	342	2.19%	Yes
154	Plumosa St	Skyes Creek Pkwy	E	2	35	15,600	3,900	0.25	69%	1,179	7.56%	Yes
	Cone Rd											
117	Tropical Trl	Courtenay Pkwy	E	2	35	15,600	4,200	0.27	2%	34	0.22%	Yes
115	Courtenay Pkwy	Plumosa St	E	2	35	15,600	4,800	0.31	10%	171	1.10%	Yes
	S Plumosa St											
106	Merritt Ave	SR 520	E	2	25	15,600	5,260	0.34	3%	51	0.33%	Yes
120	SR 520	Fortenberry Rd	E	2	25	15,600	4,160	0.27	39%	667	4.28%	Yes
116	Fortenberry Rd	Cone Rd	E	2	35	15,600	4,820	0.31	11%	188	1.21%	Yes
	SR 520											
101	Bridge	Tropical Trl	D	6	45	59,900	44,030	0.74	34%	581	0.97%	Yes
148	Tropical Trl	Courtenay Pkwy	D	6	45	59,900	37,330	0.62	35%	598	1.00%	Yes
97	Courtenay Pkwy	Plaza ent	D	6	45	62,900	30,030	0.48	35%	598	0.95%	Yes
98	Plaza ent	Plumosa St	D	6	45	62,900	29,680	0.47	35%	598	0.95%	Yes
99	Plumosa St	Mall ent	D	6	45	62,900	28,180	0.45	1%	17	0.03%	Yes
100	Mall ent	Skyes Creek Pkwy	D	6	45	62,900	23,830	0.38	1%	17	0.03%	Yes
149	Skyes Creek Pkwy	Newbound Harbor Dr	D	6	45	62,900	28,480	0.45	22%	376	0.60%	Yes
	Skyes Creek Pkwy											
108	N Banana River Dr	Merritt Ave	D	2	45	17,700	9,680	0.55	6%	103	0.58%	Yes
121	Merritt Ave	SR 520	D	4	45	39,800	10,770	0.27	6%	103	0.26%	Yes
123	SR 520	Fortenberry Rd	E	4	35	33,800	4,050	0.12	28%	479	1.42%	Yes
	Merritt Ave											
153	Tropical Trl	Courtenay Pkwy	E	2	25	15,600	3,240	0.21	0%	0	0.00%	Yes
103	Courtenay Pkwy	Plumosa St	E	4	35	33,800	12,780	0.38	2%	34	0.10%	Yes
110	Plumosa St	Skyes Creek Pkwy	E	4	35	33,800	13,220	0.39	0%	0	0.00%	Yes
	Courtenay Pkwy											
131	Needle Blvd	Merritt Ave	D	4	40	41,790	32,130	0.77	18%	308	0.74%	Yes
130	Merritt Ave	SR 520	D	4	40	41,790	26,150	0.63	19%	325	0.78%	Yes
139	SR 520	Magnolia Ave	E	4	35	33,800	17,860	0.53	19%	325	0.96%	Yes
122	Magnolia Ave	Fortenberry Rd	E	4	35	33,800	16,840	0.50	19%	325	0.96%	Yes
118	Fortenberry Rd	Cone Rd	E	2	35	15,600	13,400	0.86	0%	0	0.00%	Yes
114	Cone Rd	Banana Blvd	E	2	35	15,600	10,970	0.70	7%	120	0.77%	Yes
	Tropical Trail											
147	Merritt Ave	SR 520	E	2	35	15,600	8,100	0.52	1%	17	0.11%	Yes
124	SR 520	Cone Rd	E	2	35	12,480	5,070	0.41	0%	0	0.00%	Yes
126	Cone Rd	Plantation Rd	E	2	35	12,480	6,730	0.54	2%	34	0.27%	Yes

Notes:

1. Data obtained from the Space Coast TPO Traffic Counts Report.

2. Percent project traffic assignment was calculated as the maximum across the segment.

3. Percent impact was calculated as the project traffic divided by the maximum service volume.

4. All segments within a 1.0-mile radius of the project site will be included in the study area. As no segments exceed the 5% impact threshold, no additional analysis is needed.

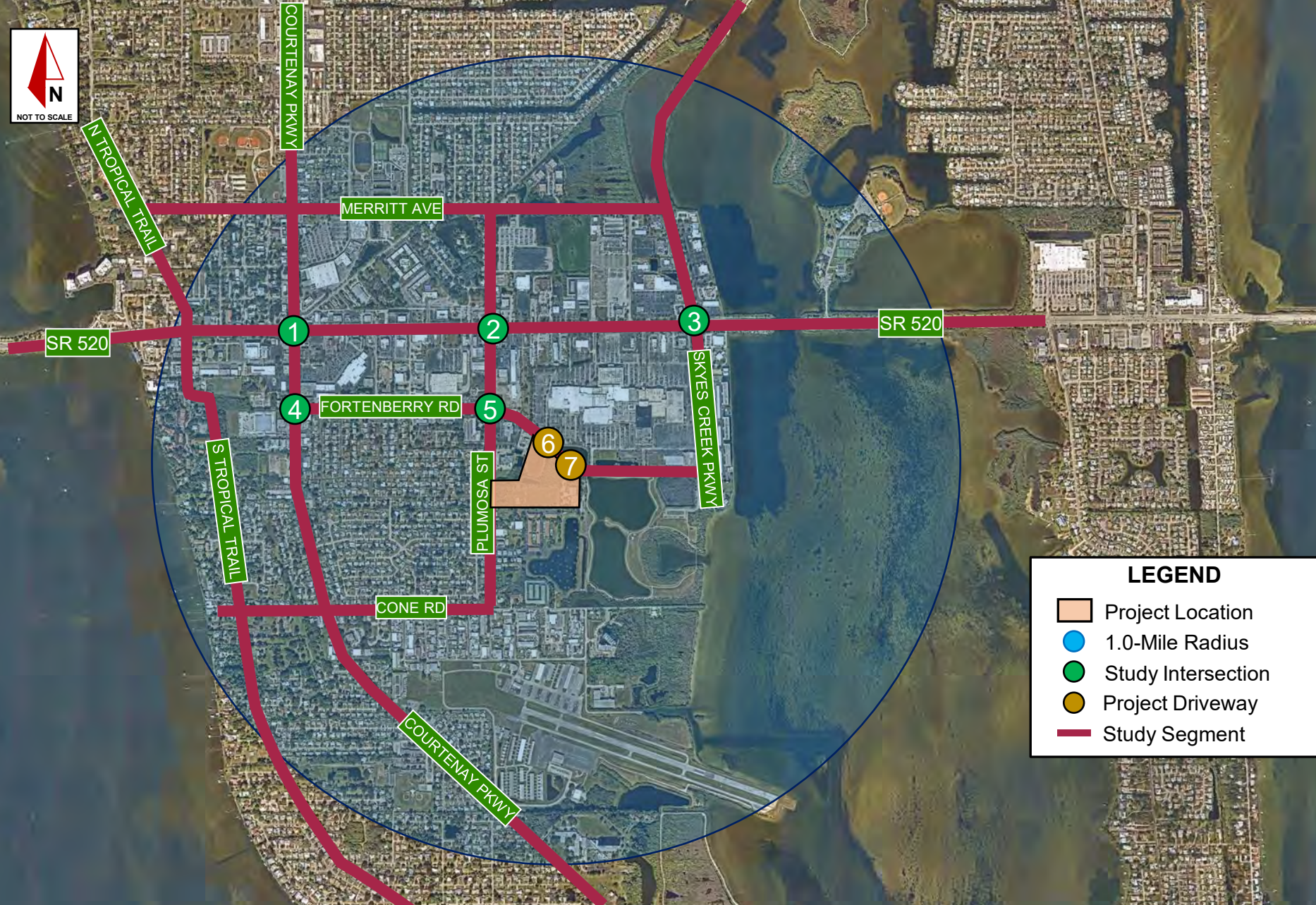


Figure 1: Project Location & Study Area

October 2022
Project No.: 249168001

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Existing (2022) Conditions

An existing roadway segment analysis will be performed for Daily and PM peak hour conditions for segments within the study area. Existing daily count data available from the latest Space Coast Transportation Planning Organization (SCTPO) Traffic Counts Report database will be compared to the segment's maximum allowable volume, as provided by the SCTPO and the 2020 FDOT Q/LOS Tables. As the most recent SCTPO Traffic Report does not include peak hour data, peak hour segment volumes will be extrapolated from the turning movement counts collected at the study area intersections.

Intersection turning movement counts will be collected in the AM and PM peak hour at the study area intersections on a standard mid-week day. Turning movement volumes will be adjusted by a seasonal factor (SF) based on data from FDOT's Florida Traffic Online (FTO) database. Signal timings for the signalized intersections in the study area will be requested from the County.

An intersection capacity analysis will be performed using the operational analysis procedures outlined in the *Highway Capacity Manual* 6th Edition. Specifically, Synchro (v11) software will be used to evaluate existing operational conditions at the study area intersections by reporting volume to capacity (v/c) ratios, level of service, and queue length demands. Any operational deficiencies will be identified.

Background (2025) Conditions

Per Brevard County's Guidelines on Minimum Requirements for Traffic Impact Analyses, annual growth rates shall be applied to background traffic by either applying the annual growth rate of the roadway or an annual growth rate of 2%, whichever is greater. Growth rates for the study area segments are included in **Table 2** below. The growth trend calculation worksheets are included in **Attachment B**.

Background volumes on roadway segments will be derived by applying the segment's annual growth rate. A background (2025) roadway segment analysis will also be conducted by comparing background volumes to maximum allowable volumes. Any capacity deficiencies will be identified.

**Table 2: Segment Growth Rates**

Link ID#	Roadway		Calculated Growth Rate	Applied Growth Rate ¹
	From	To		
	Fortenberry Rd			
119	Courtenay Pkwy	Plumosa St	-0.50%	2%
154	Plumosa St	Skyes Creek Pkwy	-5.09%	2%
	Cone Rd			
117	Tropical Trl	Courtenay Pkwy	-4.18%	2%
115	Courtenay Pkwy	Plumosa St	-6.46%	2%
	S Plumosa St			
106	Merritt Ave	SR 520	-3.60%	2%
120	SR 520	Fortenberry Rd	-3.42%	2%
116	Fortenberry Rd	Cone Rd	-0.48%	2%
	SR 520			
101	Bridge	Tropical Trl	0.35%	2%
148	Tropical Trl	Courtenay Pkwy	-0.91%	2%
97	Courtenay Pkwy	Plaza ent	0.26%	2%
98	Plaza ent	Plumosa St	-2.20%	2%
99	Plumosa St	Mall ent	-0.27%	2%
100	Mall ent	Skyes Creek Pkwy	0.52%	2%
149	Skyes Creek Pkwy	Newbound Harbor Dr	-2.74%	2%
	Skyes Creek Pkwy			
108	N Banana River Dr	Merritt Ave	-1.63%	2%
121	Merritt Ave	SR 520	-1.43%	2%
123	SR 520	Fortenberry Rd	-4.99%	2%
	Merritt Ave			
153	Tropical Trl	Courtenay Pkwy	0.73%	2%
103	Courtenay Pkwy	Plumosa St	0.37%	2%
110	Plumosa St	Skyes Creek Pkwy	-3.63%	2%
	Courtenay Pkwy			
131	Needle Blvd	Merritt Ave	-2.58%	2%
130	Merritt Ave	SR 520	-1.71%	2%
139	SR 520	Magnolia Ave	-3.17%	2%
122	Magnolia Ave	Fortenberry Rd	-0.57%	2%
118	Fortenberry Rd	Cone Rd	-1.91%	2%
114	Cone Rd	Banana Blvd	1.51%	2%
	Tropical Trail			
147	Merritt Ave	SR 520	-2.35%	2%
124	SR 520	Cone Rd	-1.39%	2%
126	Cone Rd	Plantation Rd	-0.71%	2%

Notes:

1. Applied Growth Rate is either 2% or the calculated growth rate, whichever is larger.



A 2% annual growth rate will be applied to the existing intersection volumes to determine background (2025) intersection volumes. An intersection capacity analysis will be performed using the operational analysis procedures outlined in the *Highway Capacity Manual* 6th Edition. Specifically, Synchro (v11) software will be used to evaluate background operational conditions at the study area intersections by reporting volume to capacity (v/c) ratios, level of service, and queue length demands. Any operational deficiencies will be identified.

Trip Generation

Trip generation for the proposed project was calculated per procedures published in the 11th Edition of the Institute of Transportation Engineers' (ITE) *Trip Generation Manual*. Land Use Code (LUC) 221 - Multifamily Housing (Mid-Rise) was used for the proposed development.

Relevant excerpts from the *Trip Generation Manual* are included in **Attachment C**.

Table 3 provides the Daily, AM peak hour, and PM peak hour trip generation summary for the project.

Table 3: Trip Generation Summary

Daily	Land Use	ITE LUC ¹	Size	Units	Trip Generation Equation	Daily				
						Total	In ¹		Out ¹	
	Multifamily Housing (Mid-Rise)	221	368	DU	$T = 4.77 * X - 46.46$	1,709	50%	855	50%	854
	Total Generated Trips					1,709	855			854
AM Peak Hour	Land Use	ITE LUC ¹	Size	Units	Trip Generation Equation	AM Peak Hour				
						Total	In ¹		Out ¹	
	Multifamily Housing (Mid-Rise)	221	368	DU	$T = 0.44 * X - 11.61$	150	23%	35	77%	115
	Total Generated Trips					150	35			115
PM Peak Hour	Land Use	ITE LUC ¹	Size	Units	Trip Generation Equation	PM Peak Hour				
						Total	In ¹		Out ¹	
	Multifamily Housing (Mid-Rise)	221	368	DU	$T = 0.39 * X + 0.34$	144	61%	88	39%	56
	Total Generated Trips					144	88			56

Note: ¹ Vehicle trip rate and directional splits per ITE Trip Generation, 11th Edition



Trip Distribution and Trip Assignment

Projected traffic demand of project trips on study roadways was derived with use of the most recent adopted regional travel demand model. Land use data for the project was entered into a new traffic analysis zone (TAZ) within the latest Central Florida Regional Planning Model model set and situated within the existing roadway network to appropriately represent project access. The model was used to assign trips for all trip purposes between allocated origin and destination pairs using project build-out year model data. Trip distribution for the project was extracted from the completed model assignment and reviewed for logic. **Figure 2** shows the general project distribution to be used in the forthcoming TIA. The resulting model plot showing percent of daily project distribution is provided in **Attachment D**.

Daily model project distribution will be referenced to manually assign project distribution at the study area intersections and driveways in general accordance with the model output. This project trip distribution is subject to change based upon the proposed site plan. **Figure 3** provides the anticipated project trip distribution at the study area intersections to be used in the forthcoming TIA.

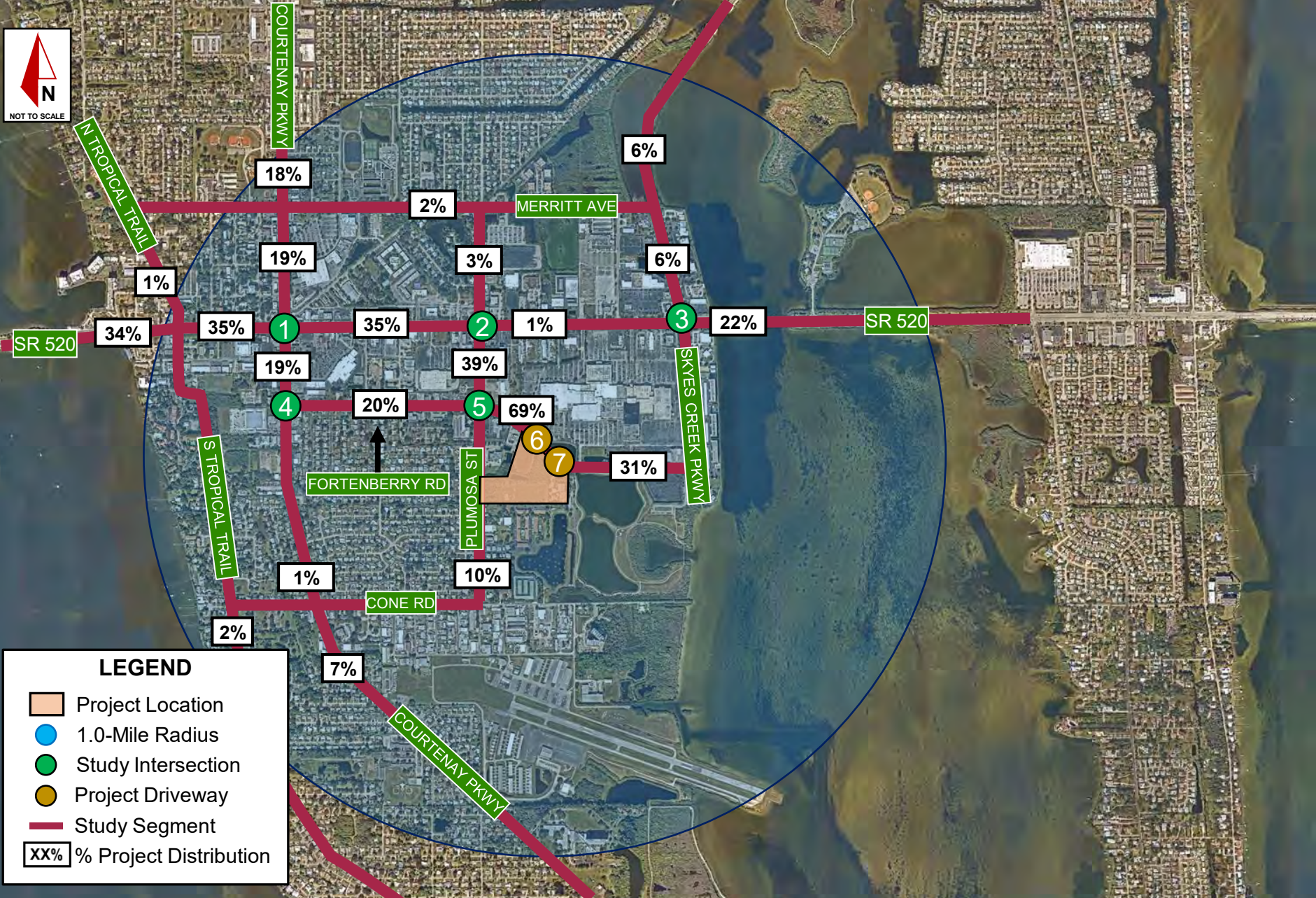


Figure 2: General Project Trip Distribution

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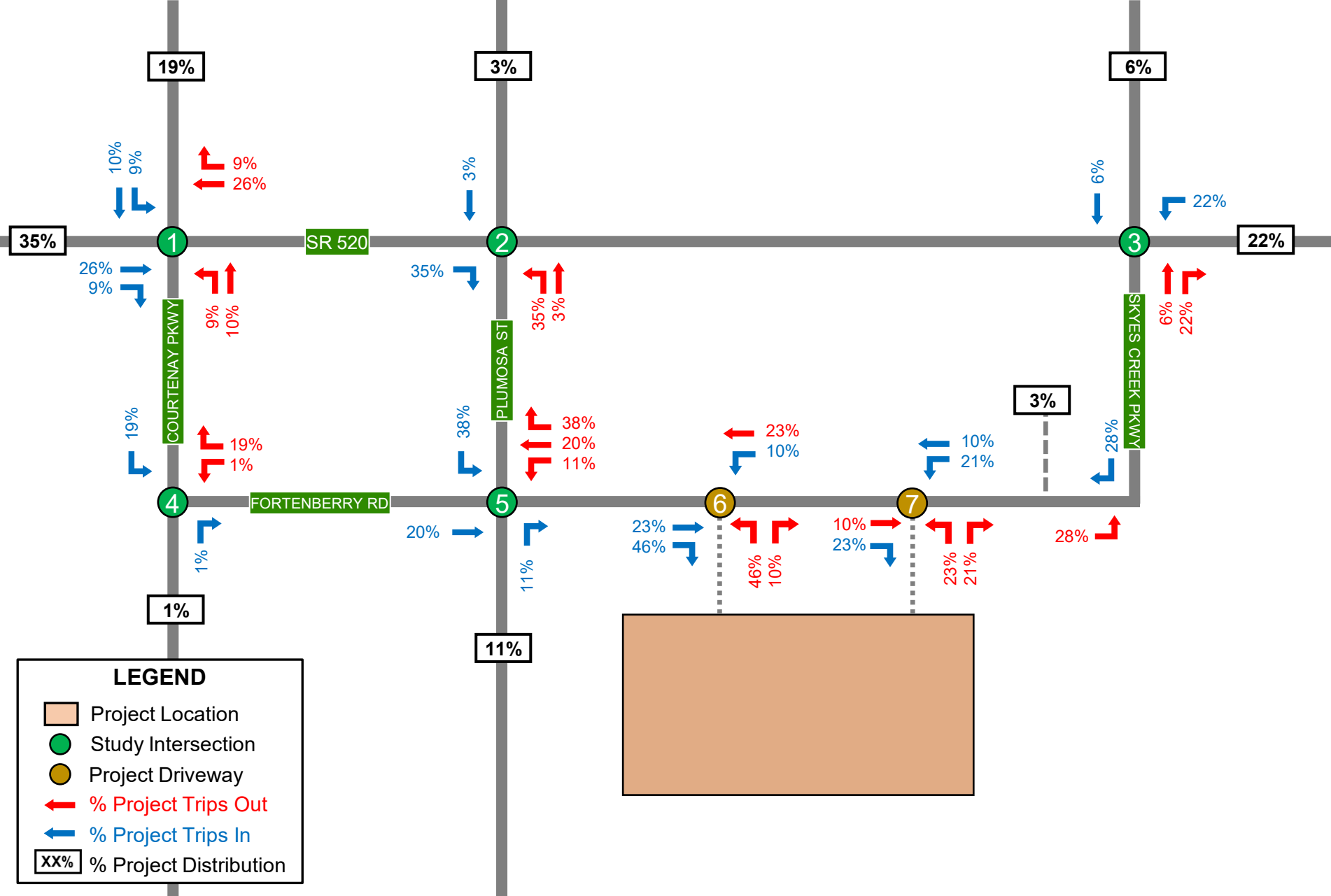


Figure 3: Project Trip Distribution at Study Area Intersections

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Buildout (2025) Conditions

A buildout (2025) roadway segment analysis will be performed for Daily and PM peak hour conditions within the study area by comparing buildout volume projections to the segment's maximum allowable volumes. Buildout volumes will be derived by adding background volumes and project trips on study area roadway segments. Any capacity deficiencies will be identified.

An intersection capacity analysis will be performed for buildout (2025) conditions using the operational analysis procedures outlined in the *Highway Capacity Manual* 6th Edition. Specifically, Synchro (v11) software will be used to evaluate buildout operational conditions at the study area intersections and project driveways by reporting volume to capacity (v/c) ratios, level of service, and queue length demands. Any operational deficiencies will be identified. If necessary, mitigating measures for any operational deficiencies identified due to project traffic impact will be recommended in the TIA.

Report/Conclusions

All analysis and findings will be documented in a report to be provided to Brevard County for review.

APPENDIX B

Concept Site Plan

APPENDIX C

Turning Movement Counts



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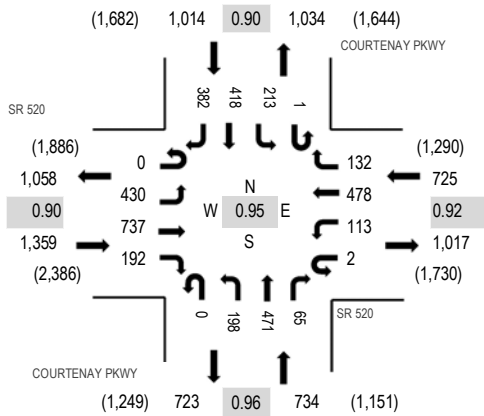
Location: 1 COURTENAY PKWY & SR 520 AM

Date: Tuesday, October 18, 2022

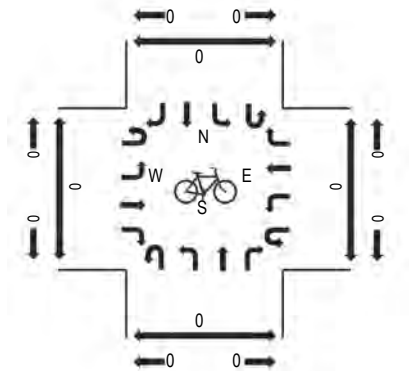
Peak Hour: 08:00 AM - 09:00 AM

Peak 15-Minutes: 08:15 AM - 08:30 AM

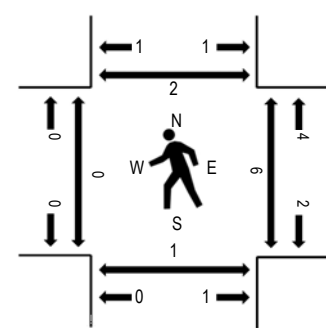
Peak Hour - Motorized Vehicles



Peak Hour - Bicycles



Peak Hour - Pedestrians



Note: Total study counts contained in parentheses.

Traffic Counts - Motorized Vehicles

Interval Start Time	SR 520 Eastbound				SR 520 Westbound				COURTENAY PKWY Northbound				COURTENAY PKWY Southbound				Total	Rolling Hour	Pedestrian Crossings			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right			West	East	South	North
7:00 AM	0	47	107	28	0	11	71	12	0	18	56	9	0	19	46	49	473	2,677	0	0	0	0
7:15 AM	0	64	112	33	0	19	113	28	0	38	65	5	0	18	92	65	652	3,101	0	0	0	0
7:30 AM	0	62	147	39	0	32	105	13	0	57	85	13	0	37	58	70	718	3,461	0	0	0	0
7:45 AM	0	121	200	67	0	19	115	27	0	37	29	5	1	41	82	90	834	3,704	0	1	0	0
8:00 AM	0	132	173	36	0	25	103	23	0	54	106	14	1	44	97	89	897	3,832	0	1	0	0
8:15 AM	0	113	190	50	0	29	133	35	0	42	137	13	0	55	110	105	1,012		0	1	0	1
8:30 AM	0	86	178	49	0	31	111	42	0	43	117	23	0	60	116	105	961		0	1	1	0
8:45 AM	0	99	196	57	2	28	131	32	0	59	111	15	0	54	95	83	962		0	3	0	1

Peak Rolling Hour Flow Rates

Vehicle Type	Eastbound				Westbound				Northbound				Southbound				Total
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	
Articulated Trucks	0	2	10	2	0	0	8	0	0	3	0	1	0	1	4	4	35
Lights	0	421	717	184	2	112	461	129	0	194	465	64	1	208	408	376	3,742
Mediums	0	7	10	6	0	1	9	3	0	1	6	0	0	4	6	2	55
Total	0	430	737	192	2	113	478	132	0	198	471	65	1	213	418	382	3,832

Heavy Vehicle Percentage and Peak Hour Factor

	Eastbound				Westbound				Northbound				Southbound				Total
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	
Heavy Vehicle %		2.7%				2.9%				1.5%				2.1%			2.3%
Heavy Vehicle %	0.0%	2.1%	2.7%	4.2%	0.0%	0.9%	3.6%	2.3%	0.0%	2.0%	1.3%	1.5%	0.0%	2.3%	2.4%	1.6%	2.3%
Peak Hour Factor		0.90				0.92				0.96				0.90			0.95
Peak Hour Factor	0.00	0.86	0.93	0.75	0.25	0.91	0.90	0.79	0.00	0.84	0.86	0.71	0.50	0.89	0.90	0.93	0.95



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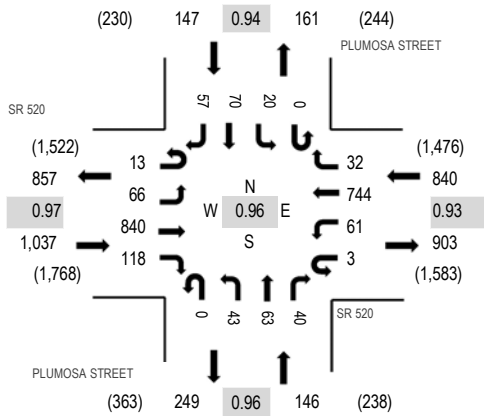
Location: 2 PLUMOSA STREET & SR 520 AM

Date: Tuesday, October 18, 2022

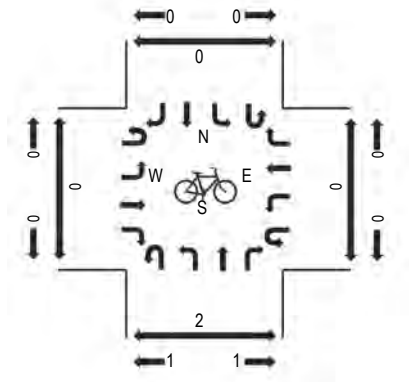
Peak Hour: 08:00 AM - 09:00 AM

Peak 15-Minutes: 08:45 AM - 09:00 AM

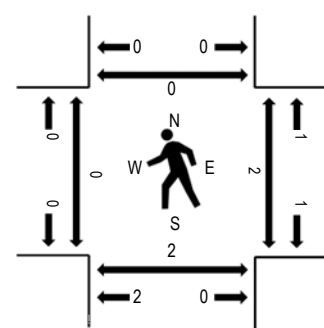
Peak Hour - Motorized Vehicles



Peak Hour - Bicycles



Peak Hour - Pedestrians



Note: Total study counts contained in parentheses.

Traffic Counts - Motorized Vehicles

Interval Start Time	SR 520 Eastbound				SR 520 Westbound				PLUMOSA STREET Northbound				PLUMOSA STREET Southbound				Total	Rolling Hour	Pedestrian Crossings			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right			West	East	South	North
7:00 AM	1	7	121	10	0	3	99	5	0	5	7	5	0	0	1	10	274	1,542	2	0	3	0
7:15 AM	0	7	120	12	0	8	174	1	0	9	6	10	0	0	9	12	368	1,772	0	0	1	0
7:30 AM	1	7	209	14	0	11	146	3	0	8	9	10	0	4	7	14	443	1,949	0	0	0	0
7:45 AM	0	10	191	21	1	8	169	8	0	5	13	5	0	4	10	12	457	2,063	0	0	0	0
8:00 AM	1	22	188	27	0	12	171	10	0	5	21	10	0	4	19	14	504	2,170	0	0	0	0
8:15 AM	1	19	220	26	0	10	189	7	0	8	18	9	0	5	19	14	545		0	0	0	0
8:30 AM	3	12	218	34	1	16	192	5	0	11	14	12	0	5	16	18	557		0	1	0	0
8:45 AM	8	13	214	31	2	23	192	10	0	19	10	9	0	6	16	11	564		0	1	2	0

Peak Rolling Hour Flow Rates

Vehicle Type	Eastbound				Westbound				Northbound				Southbound				Total
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	
Articulated Trucks	0	1	9	1	0	0	4	0	0	1	0	0	0	0	0	1	17
Lights	13	64	803	113	3	61	719	32	0	41	61	39	0	19	67	56	2,091
Mediums	0	1	28	4	0	0	21	0	0	1	2	1	0	1	3	0	62
Total	13	66	840	118	3	61	744	32	0	43	63	40	0	20	70	57	2,170

Heavy Vehicle Percentage and Peak Hour Factor

	Eastbound				Westbound				Northbound				Southbound				Total
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	
Heavy Vehicle %		4.2%				3.0%				3.4%				3.4%			3.6%
Heavy Vehicle %	0.0%	3.0%	4.4%	4.2%	0.0%	0.0%	3.4%	0.0%	0.0%	4.7%	3.2%	2.5%	0.0%	5.0%	4.3%	1.8%	3.6%
Peak Hour Factor		0.97				0.93				0.96				0.94			0.96
Peak Hour Factor	0.41	0.75	0.95	0.87	0.38	0.66	0.97	0.80	0.00	0.57	0.79	0.83	0.00	0.83	0.92	0.81	0.96



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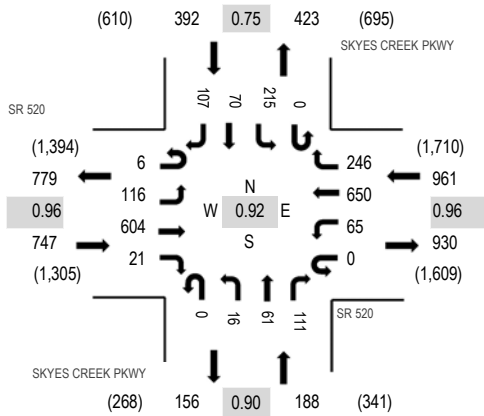
Location: 3 SKYES CREEK PKWY & SR 520 AM

Date: Tuesday, October 18, 2022

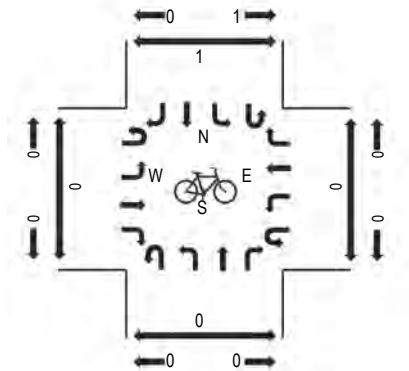
Peak Hour: 08:00 AM - 09:00 AM

Peak 15-Minutes: 08:45 AM - 09:00 AM

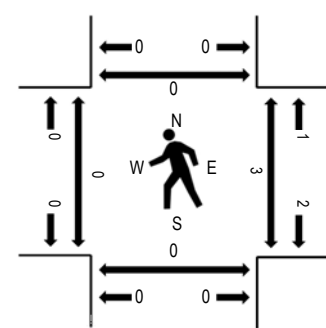
Peak Hour - Motorized Vehicles



Peak Hour - Bicycles



Peak Hour - Pedestrians



Note: Total study counts contained in parentheses.

Traffic Counts - Motorized Vehicles

Interval Start Time	SR 520 Eastbound				SR 520 Westbound				SKYES CREEK PKWY Northbound				SKYES CREEK PKWY Southbound				Total	Rolling Hour	Pedestrian Crossings			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right			West	East	South	North
7:00 AM	0	9	102	2	0	8	93	27	0	3	4	17	0	20	7	13	305	1,678	0	0	0	0
7:15 AM	0	13	86	0	0	17	138	28	0	2	7	17	0	16	8	18	350	1,876	0	0	0	1
7:30 AM	0	32	139	4	1	16	145	40	0	4	9	37	0	39	8	22	496	2,100	0	0	0	0
7:45 AM	0	30	134	7	0	25	155	56	0	3	17	33	0	38	10	19	527	2,194	0	0	0	0
8:00 AM	1	26	139	5	0	14	141	57	0	7	14	24	0	39	16	20	503	2,288	0	3	0	0
8:15 AM	1	29	152	7	0	11	169	71	0	3	13	24	0	59	13	22	574		0	0	0	0
8:30 AM	1	32	158	3	0	21	164	66	0	0	17	35	0	45	24	24	590		0	0	0	0
8:45 AM	3	29	155	6	0	19	176	52	0	6	17	28	0	72	17	41	621		0	0	0	0

Peak Rolling Hour Flow Rates

Vehicle Type	Eastbound				Westbound				Northbound				Southbound				Total
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	
Articulated Trucks	0	0	6	0	0	0	4	1	0	0	0	0	0	1	1	0	13
Lights	6	115	572	20	0	64	630	241	0	15	60	110	0	211	69	106	2,219
Mediums	0	1	26	1	0	1	16	4	0	1	1	1	0	3	0	1	56
Total	6	116	604	21	0	65	650	246	0	16	61	111	0	215	70	107	2,288

Heavy Vehicle Percentage and Peak Hour Factor

	Eastbound				Westbound				Northbound				Southbound				Total
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	
Heavy Vehicle %		4.6%				2.7%				1.6%				1.5%			3.0%
Heavy Vehicle %	0.0%	0.9%	5.3%	4.8%	0.0%	1.5%	3.1%	2.0%	0.0%	6.3%	1.6%	0.9%	0.0%	1.9%	1.4%	0.9%	3.0%
Peak Hour Factor		0.96				0.96				0.90				0.75			0.92
Peak Hour Factor	0.50	0.91	0.96	0.82	0.25	0.72	0.92	0.88	0.00	0.61	0.90	0.80	0.00	0.75	0.73	0.65	0.92



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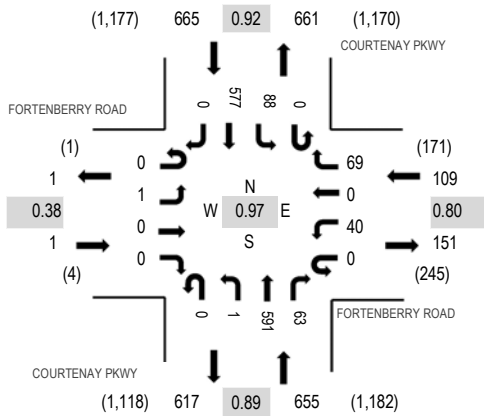
Location: 4 COURTENAY PKWY & FORTENBERRY ROAD AM

Date: Tuesday, October 18, 2022

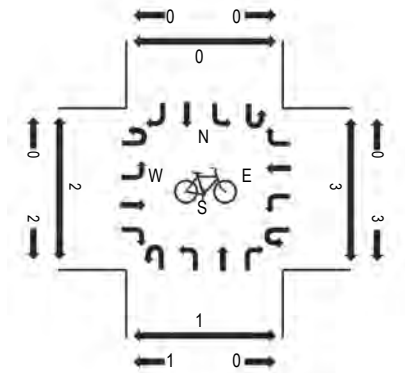
Peak Hour: 08:00 AM - 09:00 AM

Peak 15-Minutes: 08:30 AM - 08:45 AM

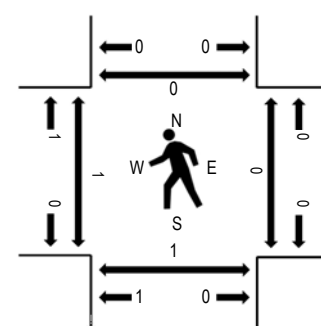
Peak Hour - Motorized Vehicles



Peak Hour - Bicycles



Peak Hour - Pedestrians



Note: Total study counts contained in parentheses.

Traffic Counts - Motorized Vehicles

Interval Start Time	FORTENBERRY ROAD Eastbound				FORTENBERRY ROAD Westbound				COURTENAY PKWY Northbound				COURTENAY PKWY Southbound				Total	Rolling Hour	Pedestrian Crossings			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right			West	East	South	North
7:00 AM	0	0	0	0	0	2	0	8	0	0	91	7	0	3	82	0	193	1,104	0	1	0	0
7:15 AM	0	0	0	0	0	9	0	8	0	0	96	9	0	8	115	0	245	1,272	2	0	0	0
7:30 AM	0	1	0	0	0	7	0	10	0	0	146	17	0	8	130	0	319	1,378	0	1	0	0
7:45 AM	0	0	0	2	0	10	0	8	0	0	141	20	0	22	144	0	347	1,429	0	1	0	0
8:00 AM	0	0	0	0	0	8	0	11	0	0	175	18	0	21	128	0	361	1,430	0	0	0	0
8:15 AM	0	0	0	0	0	7	0	18	0	0	154	14	0	16	142	0	351		0	0	0	0
8:30 AM	0	1	0	0	0	12	0	22	0	1	137	16	0	28	153	0	370		1	0	1	0
8:45 AM	0	0	0	0	0	13	0	18	0	0	125	15	0	23	154	0	348		0	0	0	0

Peak Rolling Hour Flow Rates

Vehicle Type	Eastbound				Westbound				Northbound				Southbound				Total
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	
Articulated Trucks	0	0	0	0	0	0	0	2	0	0	1	0	0	0	7	0	10
Lights	0	1	0	0	0	38	0	66	0	1	582	62	0	88	553	0	1,391
Mediums	0	0	0	0	0	2	0	1	0	0	8	1	0	0	17	0	29
Total	0	1	0	0	0	40	0	69	0	1	591	63	0	88	577	0	1,430

Heavy Vehicle Percentage and Peak Hour Factor

	Eastbound				Westbound				Northbound				Southbound				Total
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	
Heavy Vehicle %	0.0%				4.6%				1.5%				3.6%				2.7%
Heavy Vehicle %	0.0%	0.0%	0.0%	0.0%	0.0%	5.0%	0.0%	4.3%	0.0%	0.0%	1.5%	1.6%	0.0%	0.0%	4.2%	0.0%	2.7%
Peak Hour Factor	0.38				0.80				0.89				0.92				0.97
Peak Hour Factor	0.00	0.25	0.00	0.25	0.00	0.77	0.00	0.78	0.00	0.25	0.88	0.86	0.00	0.79	0.94	0.00	0.97



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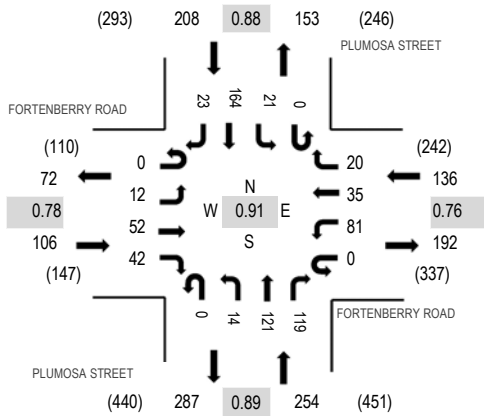
Location: 5 PLUMOSA STREET & FORTENBERRY ROAD AM

Date: Tuesday, October 18, 2022

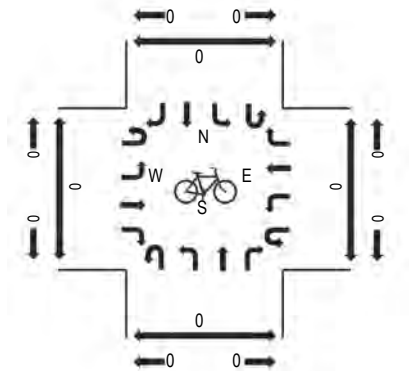
Peak Hour: 08:00 AM - 09:00 AM

Peak 15-Minutes: 08:30 AM - 08:45 AM

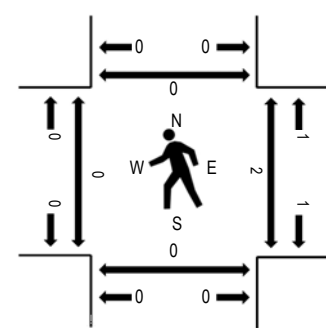
Peak Hour - Motorized Vehicles



Peak Hour - Bicycles



Peak Hour - Pedestrians



Note: Total study counts contained in parentheses.

Traffic Counts - Motorized Vehicles

Interval Start Time	FORTENBERRY ROAD				FORTENBERRY ROAD				PLUMOSA STREET				PLUMOSA STREET				Total	Rolling Hour	Pedestrian Crossings			
	Eastbound				Westbound				Northbound				Southbound						West	East	South	North
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right						
7:00 AM	0	0	3	1	0	6	5	4	0	2	16	14	0	3	10	0	64	429	0	0	0	0
7:15 AM	0	0	5	6	0	19	8	3	0	1	21	20	0	2	16	0	101	529	0	0	0	0
7:30 AM	0	1	8	2	0	19	7	3	0	2	22	36	0	2	22	1	125	581	0	0	0	0
7:45 AM	0	2	10	3	0	23	6	3	0	4	18	41	0	1	26	2	139	650	0	0	0	0
8:00 AM	0	3	9	9	0	19	5	4	0	1	36	29	0	2	41	6	164	704	0	0	0	0
8:15 AM	0	2	18	6	0	21	8	3	0	2	28	23	0	4	31	7	153		0	0	0	0
8:30 AM	0	4	17	13	0	16	8	7	0	6	28	37	0	7	48	3	194		0	0	0	0
8:45 AM	0	3	8	14	0	25	14	6	0	5	29	30	0	8	44	7	193		0	2	0	0

Peak Rolling Hour Flow Rates

Vehicle Type	Eastbound				Westbound				Northbound				Southbound				Total
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	
Articulated Trucks	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1	1	3
Lights	0	12	50	42	0	79	35	19	0	14	115	119	0	21	161	21	688
Mediums	0	0	2	0	0	2	0	0	0	0	6	0	0	0	2	1	13
Total	0	12	52	42	0	81	35	20	0	14	121	119	0	21	164	23	704

Heavy Vehicle Percentage and Peak Hour Factor

	Eastbound				Westbound				Northbound				Southbound				Total
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	
Heavy Vehicle %		1.9%				2.2%				2.4%				2.4%			2.3%
Heavy Vehicle %	0.0%	0.0%	3.8%	0.0%	0.0%	2.5%	0.0%	5.0%	0.0%	0.0%	5.0%	0.0%	0.0%	0.0%	1.8%	8.7%	2.3%
Peak Hour Factor		0.78				0.76				0.89				0.88			0.91
Peak Hour Factor	0.00	0.75	0.75	0.75	0.00	0.89	0.63	0.71	0.00	0.58	0.84	0.79	0.00	0.66	0.85	0.82	0.91



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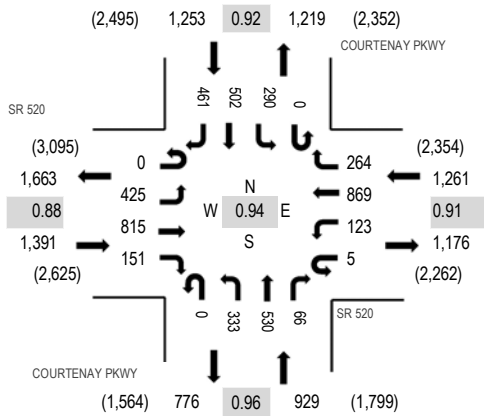
Location: 1 COURTENAY PKWY & SR 520 PM

Date: Tuesday, October 18, 2022

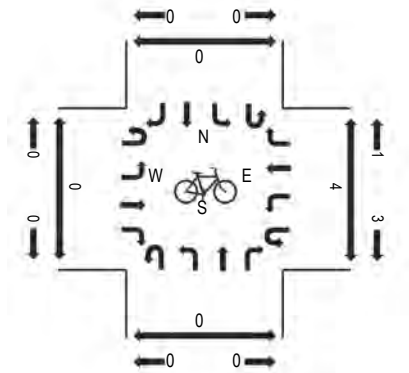
Peak Hour: 04:30 PM - 05:30 PM

Peak 15-Minutes: 05:15 PM - 05:30 PM

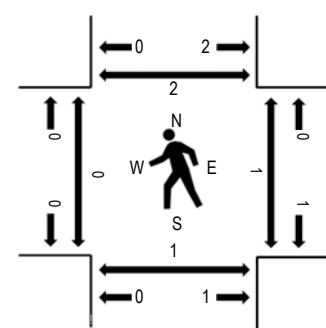
Peak Hour - Motorized Vehicles



Peak Hour - Bicycles



Peak Hour - Pedestrians



Note: Total study counts contained in parentheses.

Traffic Counts - Motorized Vehicles

Interval Start Time	SR 520				SR 520				COURTENAY PKWY				COURTENAY PKWY				Total	Rolling Hour	Pedestrian Crossings			
	Eastbound				Westbound				Northbound				Southbound						West	East	South	North
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right						
4:00 PM	0	92	205	37	2	34	201	64	0	69	108	13	0	75	144	128	1,172	4,649	0	1	0	0
4:15 PM	0	87	167	40	1	33	195	54	0	89	118	23	0	96	118	98	1,119	4,670	0	2	0	0
4:30 PM	0	91	208	34	0	20	226	74	0	91	120	22	0	82	83	120	1,171	4,834	0	1	0	1
4:45 PM	0	84	201	33	2	47	218	70	0	74	141	13	0	65	140	99	1,187	4,797	0	0	0	0
5:00 PM	0	110	197	39	1	24	176	55	0	86	144	15	0	76	146	124	1,193	4,624	0	0	0	0
5:15 PM	0	140	209	45	2	32	249	65	0	82	125	16	0	67	133	118	1,283		0	0	1	1
5:30 PM	0	98	175	35	0	38	201	61	0	48	150	20	1	66	138	103	1,134		0	0	0	0
5:45 PM	0	96	166	36	0	14	137	58	0	68	146	18	0	59	121	95	1,014		0	0	0	0

Peak Rolling Hour Flow Rates

Vehicle Type	Eastbound				Westbound				Northbound				Southbound				Total
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	
Articulated Trucks	0	0	6	1	0	0	4	1	0	3	2	0	0	1	0	0	18
Lights	0	424	804	149	5	122	853	262	0	326	519	66	0	289	502	458	4,779
Mediums	0	1	5	1	0	1	12	1	0	4	9	0	0	0	0	3	37
Total	0	425	815	151	5	123	869	264	0	333	530	66	0	290	502	461	4,834

Heavy Vehicle Percentage and Peak Hour Factor

	Eastbound				Westbound				Northbound				Southbound				Total
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	
Heavy Vehicle %		1.0%				1.5%				1.9%				0.3%			1.1%
Heavy Vehicle %	0.0%	0.2%	1.3%	1.3%	0.0%	0.8%	1.8%	0.8%	0.0%	2.1%	2.1%	0.0%	0.0%	0.3%	0.0%	0.7%	1.1%
Peak Hour Factor		0.88				0.91				0.96				0.92			0.94
Peak Hour Factor	0.00	0.79	0.97	0.86	0.63	0.75	0.87	0.89	0.00	0.93	0.94	0.79	0.25	0.83	0.95	0.93	0.94



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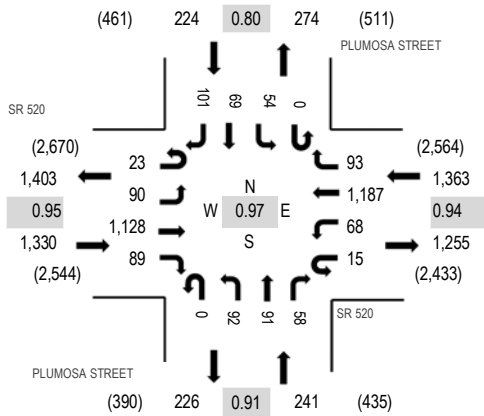
Location: 2 PLUMOSA STREET & SR 520 PM

Date: Tuesday, October 18, 2022

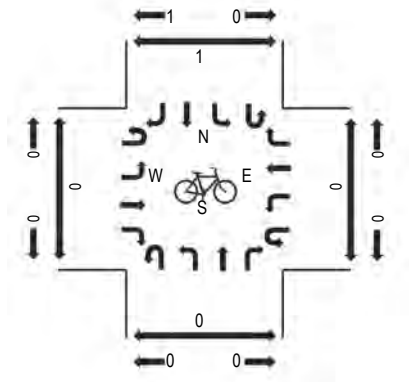
Peak Hour: 04:15 PM - 05:15 PM

Peak 15-Minutes: 05:00 PM - 05:15 PM

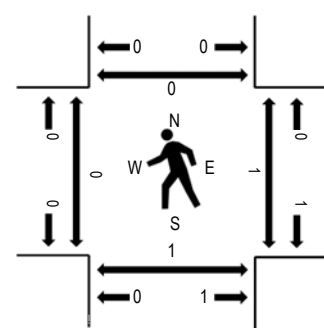
Peak Hour - Motorized Vehicles



Peak Hour - Bicycles



Peak Hour - Pedestrians



Note: Total study counts contained in parentheses.

Traffic Counts - Motorized Vehicles

Interval Start Time	SR 520 Eastbound				SR 520 Westbound				PLUMOSA STREET Northbound				PLUMOSA STREET Southbound				Total	Rolling Hour	Pedestrian Crossings			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right			West	East	South	North
4:00 PM	5	23	270	12	2	18	303	16	0	20	15	12	0	16	21	37	770	3,113	0	1	2	0
4:15 PM	8	19	302	19	6	21	307	29	0	13	15	5	0	14	19	24	801	3,158	0	0	0	0
4:30 PM	3	27	252	30	4	19	270	26	0	18	28	20	0	13	17	27	754	3,100	0	0	0	0
4:45 PM	5	26	277	13	5	20	303	22	0	33	19	17	0	13	14	21	788	3,040	0	1	0	0
5:00 PM	7	18	297	27	0	8	307	16	0	28	29	16	0	14	19	29	815	2,891	0	0	1	0
5:15 PM	6	30	270	9	7	13	272	17	0	24	18	15	0	24	11	27	743		0	0	0	0
5:30 PM	4	20	247	5	7	13	275	20	0	23	15	8	0	17	23	17	694		0	2	2	0
5:45 PM	11	27	257	18	2	8	209	19	0	13	17	14	0	10	13	21	639		0	0	2	0

Peak Rolling Hour Flow Rates

Vehicle Type	Eastbound				Westbound				Northbound				Southbound				Total
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	
Articulated Trucks	0	0	3	0	0	0	5	0	0	0	0	0	0	0	0	0	8
Lights	23	85	1,117	87	15	68	1,165	90	0	90	91	57	0	52	68	100	3,108
Mediums	0	5	8	2	0	0	17	3	0	2	0	1	0	2	1	1	42
Total	23	90	1,128	89	15	68	1,187	93	0	92	91	58	0	54	69	101	3,158

Heavy Vehicle Percentage and Peak Hour Factor

	Eastbound				Westbound				Northbound				Southbound				Total
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	
Heavy Vehicle %		1.4%				1.8%				1.2%				1.8%			1.6%
Heavy Vehicle %	0.0%	5.6%	1.0%	2.2%	0.0%	0.0%	1.9%	3.2%	0.0%	2.2%	0.0%	1.7%	0.0%	3.7%	1.4%	1.0%	1.6%
Peak Hour Factor		0.95				0.94				0.91				0.80			0.97
Peak Hour Factor	0.64	0.84	0.93	0.74	0.68	0.93	0.97	0.80	0.00	0.82	0.81	0.85	0.00	0.71	0.85	0.74	0.97



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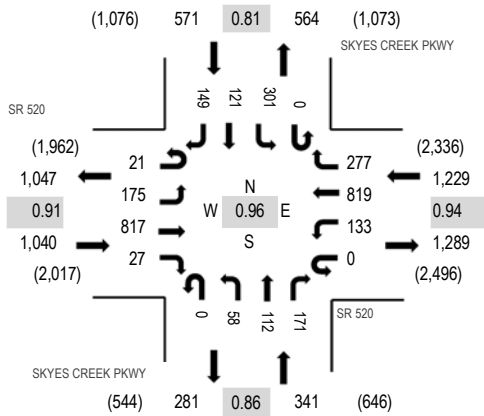
Location: 3 SKYES CREEK PKWY & SR 520 PM

Date: Tuesday, October 18, 2022

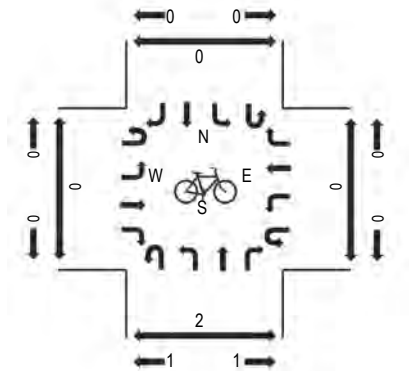
Peak Hour: 04:00 PM - 05:00 PM

Peak 15-Minutes: 04:00 PM - 04:15 PM

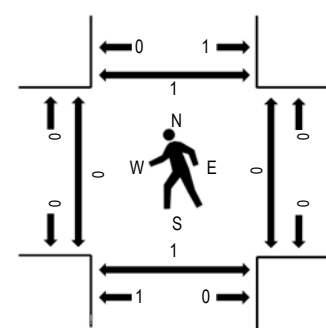
Peak Hour - Motorized Vehicles



Peak Hour - Bicycles



Peak Hour - Pedestrians



Note: Total study counts contained in parentheses.

Traffic Counts - Motorized Vehicles

Interval Start Time	SR 520 Eastbound				SR 520 Westbound				SKYES CREEK PKWY Northbound				SKYES CREEK PKWY Southbound				Total	Rolling Hour	Pedestrian Crossings			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right			West	East	South	North
4:00 PM	6	48	222	10	0	35	202	62	0	19	16	36	0	88	37	51	832	3,181	0	0	1	0
4:15 PM	4	51	213	6	0	36	220	75	0	12	38	41	0	65	34	31	826	3,139	0	0	0	1
4:30 PM	3	39	168	6	0	37	213	67	0	17	31	58	0	85	26	32	782	3,083	0	0	0	0
4:45 PM	8	37	214	5	0	25	184	73	0	10	27	36	0	63	24	35	741	2,964	0	0	0	0
5:00 PM	7	42	199	3	0	34	207	72	0	8	38	49	0	58	43	30	790	2,894	0	1	0	0
5:15 PM	4	44	201	6	0	30	220	51	0	14	27	39	0	75	25	34	770		0	0	0	0
5:30 PM	3	36	202	8	0	28	163	52	0	10	22	29	0	61	21	28	663		0	0	0	0
5:45 PM	2	33	181	6	0	27	158	65	0	6	27	36	0	77	32	21	671		0	0	2	0

Peak Rolling Hour Flow Rates

Vehicle Type	Eastbound				Westbound				Northbound				Southbound				Total
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	
Articulated Trucks	0	0	1	0	0	0	4	1	0	0	0	0	0	1	0	0	7
Lights	21	173	808	27	0	131	796	268	0	58	110	168	0	299	117	148	3,124
Mediums	0	2	8	0	0	2	19	8	0	0	2	3	0	1	4	1	50
Total	21	175	817	27	0	133	819	277	0	58	112	171	0	301	121	149	3,181

Heavy Vehicle Percentage and Peak Hour Factor

	Eastbound				Westbound				Northbound				Southbound				Total
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	
Heavy Vehicle %		1.1%				2.8%				1.5%				1.2%			1.8%
Heavy Vehicle %	0.0%	1.1%	1.1%	0.0%	0.0%	1.5%	2.8%	3.2%	0.0%	0.0%	1.8%	1.8%	0.0%	0.7%	3.3%	0.7%	1.8%
Peak Hour Factor		0.91				0.94				0.86				0.81			0.96
Peak Hour Factor	0.69	0.86	0.92	0.68	0.00	0.90	0.94	0.96	0.00	0.76	0.88	0.79	0.00	0.86	0.74	0.73	0.96



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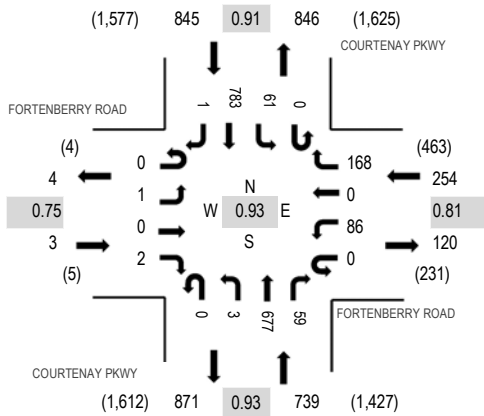
Location: 4 COURTENAY PKWY & FORTENBERRY ROAD PM

Date: Tuesday, October 18, 2022

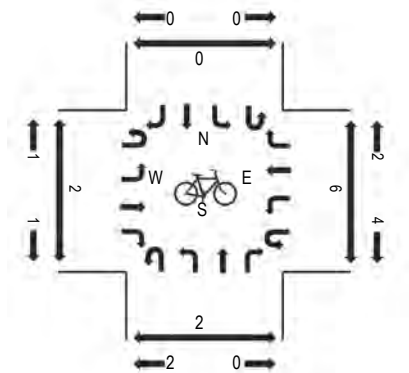
Peak Hour: 04:45 PM - 05:45 PM

Peak 15-Minutes: 05:00 PM - 05:15 PM

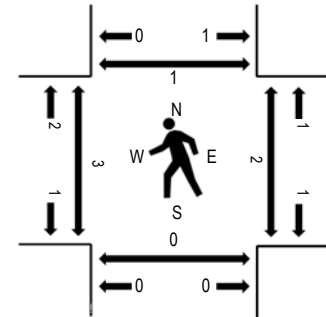
Peak Hour - Motorized Vehicles



Peak Hour - Bicycles



Peak Hour - Pedestrians



Note: Total study counts contained in parentheses.

Traffic Counts - Motorized Vehicles

Interval Start Time	FORTENBERRY ROAD				FORTENBERRY ROAD				COURTENAY PKWY				COURTENAY PKWY				Total	Rolling Hour	Pedestrian Crossings			
	Eastbound				Westbound				Northbound				Southbound						West	East	South	North
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right						
4:00 PM	0	0	1	0	0	18	0	41	0	0	145	7	0	23	187	0	422	1,690	0	1	0	0
4:15 PM	0	1	0	0	0	17	0	37	0	0	166	13	0	15	173	0	422	1,761	0	2	0	0
4:30 PM	0	0	0	0	0	23	0	29	0	0	186	13	0	9	157	0	417	1,825	0	2	0	0
4:45 PM	0	0	0	0	0	19	0	43	0	0	146	18	0	20	183	0	429	1,841	2	0	0	1
5:00 PM	0	0	0	1	0	23	0	59	0	3	180	13	0	17	196	1	493	1,782	1	0	0	0
5:15 PM	0	0	0	1	0	25	0	44	0	0	168	16	0	15	217	0	486		0	2	0	0
5:30 PM	0	1	0	0	0	19	0	22	0	0	183	12	0	9	187	0	433		0	0	0	0
5:45 PM	0	0	0	0	0	15	0	29	0	0	145	13	0	17	151	0	370		0	1	0	1

Peak Rolling Hour Flow Rates

Vehicle Type	Eastbound				Westbound				Northbound				Southbound				Total
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	
Articulated Trucks	0	0	0	0	0	0	0	1	0	0	3	1	0	0	0	0	5
Lights	0	1	0	2	0	86	0	166	0	3	665	56	0	61	779	1	1,820
Mediums	0	0	0	0	0	0	0	1	0	0	9	2	0	0	4	0	16
Total	0	1	0	2	0	86	0	168	0	3	677	59	0	61	783	1	1,841

Heavy Vehicle Percentage and Peak Hour Factor

	Eastbound				Westbound				Northbound				Southbound				Total
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	
Heavy Vehicle %	0.0%				0.8%				2.0%				0.5%				1.1%
Heavy Vehicle %	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	1.2%	0.0%	0.0%	1.8%	5.1%	0.0%	0.0%	0.5%	0.0%	1.1%
Peak Hour Factor	0.75				0.81				0.93				0.91				0.93
Peak Hour Factor	0.00	0.25	0.25	0.50	0.00	0.90	0.00	0.74	0.00	0.25	0.91	0.83	0.00	0.73	0.90	0.25	0.93



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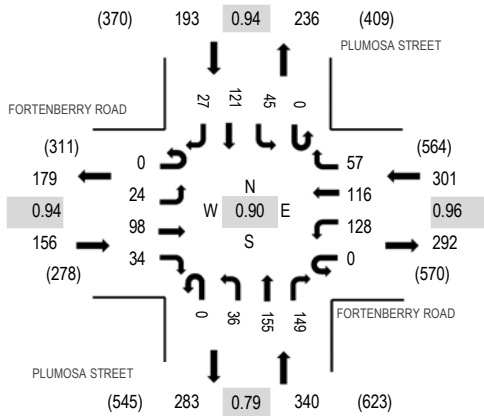
Location: 5 PLUMOSA STREET & FORTENBERRY ROAD PM

Date: Tuesday, October 18, 2022

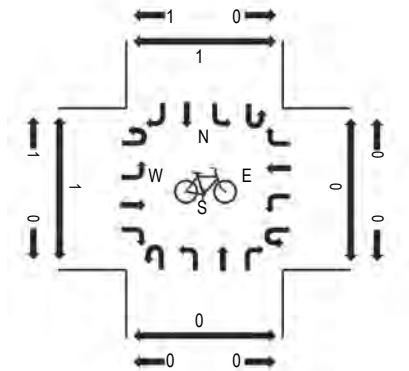
Peak Hour: 04:30 PM - 05:30 PM

Peak 15-Minutes: 05:00 PM - 05:15 PM

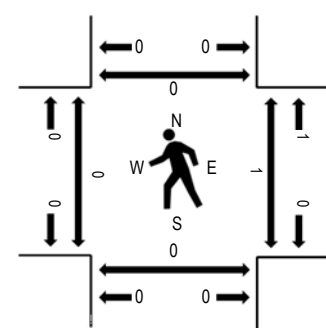
Peak Hour - Motorized Vehicles



Peak Hour - Bicycles



Peak Hour - Pedestrians



Note: Total study counts contained in parentheses.

Traffic Counts - Motorized Vehicles

Interval Start Time	FORTENBERRY ROAD				FORTENBERRY ROAD				PLUMOSA STREET				PLUMOSA STREET				Total	Rolling Hour	Pedestrian Crossings			
	Eastbound				Westbound				Northbound				Southbound						West	East	South	North
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right						
4:00 PM	0	4	21	9	0	36	23	15	0	7	23	35	0	15	32	8	228	941	0	1	0	0
4:15 PM	0	4	30	4	0	35	20	19	0	12	21	34	0	9	32	6	226	989	0	1	0	0
4:30 PM	0	5	22	11	0	29	29	16	0	9	34	42	0	14	29	11	251	990	0	0	0	0
4:45 PM	0	7	27	8	0	28	29	17	0	4	36	29	0	17	31	3	236	951	0	1	0	0
5:00 PM	0	6	27	10	0	38	24	13	0	15	48	44	0	9	33	9	276	894	0	0	0	0
5:15 PM	0	6	22	5	0	33	34	11	0	8	37	34	0	5	28	4	227		0	0	0	0
5:30 PM	0	1	15	9	0	33	14	15	0	5	32	46	0	6	32	4	212		0	0	0	0
5:45 PM	0	3	19	3	0	19	21	13	0	5	23	40	0	8	18	7	179		0	0	0	0

Peak Rolling Hour Flow Rates

Vehicle Type	Eastbound				Westbound				Northbound				Southbound				Total
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	
Articulated Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1
Lights	0	24	97	34	0	126	116	56	0	36	154	145	0	43	120	27	978
Mediums	0	0	1	0	0	2	0	1	0	0	1	4	0	2	0	0	11
Total	0	24	98	34	0	128	116	57	0	36	155	149	0	45	121	27	990

Heavy Vehicle Percentage and Peak Hour Factor

	Eastbound				Westbound				Northbound				Southbound				Total
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	
Heavy Vehicle %	0.6%				1.0%				1.5%				1.6%				1.2%
Heavy Vehicle %	0.0%	0.0%	1.0%	0.0%	0.0%	1.6%	0.0%	1.8%	0.0%	0.0%	0.6%	2.7%	0.0%	4.4%	0.8%	0.0%	1.2%
Peak Hour Factor	0.94				0.96				0.79				0.94				0.90
Peak Hour Factor	0.00	0.86	0.88	0.77	0.00	0.87	0.85	0.88	0.00	0.67	0.81	0.89	0.00	0.81	0.95	0.66	0.90

APPENDIX D

FDOT's Florida Traffic Online (FTO) Data

2021 PEAK SEASON FACTOR CATEGORY REPORT - REPORT TYPE: ALL
 CATEGORY: 7000 BREVARD COUNTYWIDE

WEEK	DATES	SF	MOCF: 0.95 PSCF
1	01/01/2021 - 01/02/2021	1.02	1.07
2	01/03/2021 - 01/09/2021	1.02	1.07
3	01/10/2021 - 01/16/2021	1.03	1.08
4	01/17/2021 - 01/23/2021	1.02	1.07
5	01/24/2021 - 01/30/2021	1.00	1.05
6	01/31/2021 - 02/06/2021	0.99	1.04
7	02/07/2021 - 02/13/2021	0.98	1.03
* 8	02/14/2021 - 02/20/2021	0.97	1.02
* 9	02/21/2021 - 02/27/2021	0.95	1.00
* 10	02/28/2021 - 03/06/2021	0.94	0.99
* 11	03/07/2021 - 03/13/2021	0.93	0.98
* 12	03/14/2021 - 03/20/2021	0.91	0.96
* 13	03/21/2021 - 03/27/2021	0.92	0.97
* 14	03/28/2021 - 04/03/2021	0.94	0.99
* 15	04/04/2021 - 04/10/2021	0.95	1.00
* 16	04/11/2021 - 04/17/2021	0.96	1.01
* 17	04/18/2021 - 04/24/2021	0.96	1.01
* 18	04/25/2021 - 05/01/2021	0.97	1.02
* 19	05/02/2021 - 05/08/2021	0.98	1.03
* 20	05/09/2021 - 05/15/2021	0.98	1.03
21	05/16/2021 - 05/22/2021	0.99	1.04
22	05/23/2021 - 05/29/2021	1.00	1.05
23	05/30/2021 - 06/05/2021	1.00	1.05
24	06/06/2021 - 06/12/2021	1.01	1.06
25	06/13/2021 - 06/19/2021	1.01	1.06
26	06/20/2021 - 06/26/2021	1.02	1.07
27	06/27/2021 - 07/03/2021	1.03	1.08
28	07/04/2021 - 07/10/2021	1.04	1.09
29	07/11/2021 - 07/17/2021	1.04	1.09
30	07/18/2021 - 07/24/2021	1.05	1.11
31	07/25/2021 - 07/31/2021	1.06	1.12
32	08/01/2021 - 08/07/2021	1.06	1.12
33	08/08/2021 - 08/14/2021	1.07	1.13
34	08/15/2021 - 08/21/2021	1.07	1.13
35	08/22/2021 - 08/28/2021	1.07	1.13
36	08/29/2021 - 09/04/2021	1.06	1.12
37	09/05/2021 - 09/11/2021	1.05	1.11
38	09/12/2021 - 09/18/2021	1.04	1.09
39	09/19/2021 - 09/25/2021	1.04	1.09
40	09/26/2021 - 10/02/2021	1.03	1.08
41	10/03/2021 - 10/09/2021	1.03	1.08
42	10/10/2021 - 10/16/2021	1.02	1.07
43	10/17/2021 - 10/23/2021	1.03	1.08
44	10/24/2021 - 10/30/2021	1.03	1.08
45	10/31/2021 - 11/06/2021	1.03	1.08
46	11/07/2021 - 11/13/2021	1.03	1.08
47	11/14/2021 - 11/20/2021	1.03	1.08
48	11/21/2021 - 11/27/2021	1.03	1.08
49	11/28/2021 - 12/04/2021	1.03	1.08
50	12/05/2021 - 12/11/2021	1.02	1.07
51	12/12/2021 - 12/18/2021	1.02	1.07
52	12/19/2021 - 12/25/2021	1.02	1.07
53	12/26/2021 - 12/31/2021	1.03	1.08

* PEAK SEASON

08-MAR-2022 12:36:27

830UPD

5_7000_PKSEASON.TXT

APPENDIX E

Turning Movement Volume Worksheets

Intersection Development Worksheet



Expect More. Experience Better.

Intersection #: 1
Major Street: SR 520 E/W
Minor Street: Courtenay Pkwy N/S

Existing Year: 2022
Buildout Year: 2025
Seasonal Factor: 1.03

TMC Year: 2022

AM Peak Hour Trips: IN = 35 OUT = 116

Weekday AM Peak Hour 8:00 AM - 9:00 AM	Courtenay Pkwy								SR 520							
	Northbound				Southbound				Eastbound				Westbound			
	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
TMC (2022)	0	198	471	65	1	213	418	382	0	430	737	195	2	113	478	132
Seasonal Factor	1.03				1.03				1.03				1.03			
Heavy Vehicle (%)	0%	2%	1%	2%	0%	2%	2%	2%	0%	2%	3%	4%	0%	1%	4%	2%
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Existing (2022)	0	204	485	67	1	219	431	393	0	443	759	201	2	116	492	136
Growth Rates	2.00%				2.00%				2.00%				2.00%			
Background (2025)	0	216	514	71	1	232	457	417	0	470	805	213	2	123	522	144
Project Assignment																
Ingress																
Egress																
Project Trips	0	10	12	0	0	3	4	0	0	0	9	3	0	0	30	10
Project Buildout	0	226	526	71	1	235	461	417	0	470	814	216	2	123	552	154

PM Peak Hour Trips: IN = 88 OUT = 57

Weekday PM Peak Hour 4:30 PM - 5:30 PM	Courtenay Pkwy								SR 520							
	Northbound				Southbound				Eastbound				Westbound			
	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
TMC (2022)	0	333	530	66	0	290	502	461	0	425	815	151	5	123	869	264
Seasonal Factor	1.03				1.03				1.03				1.03			
Heavy Vehicle (%)	0%	2%	2%	0%	0%	0%	0%	1%	0%	0%	1%	1%	0%	1%	2%	1%
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	0.94	0.94	0.94	0.94
Existing (2022)	0	343	546	68	0	299	517	475	0	438	839	156	5	127	895	272
Growth Rates	2.00%				2.00%				2.00%				2.00%			
Background (2025)	0	364	578	72	0	317	548	504	0	464	889	165	5	135	949	288
Project Assignment																
Ingress																
Egress																
Project Trips	0	5	5	0	0	8	9	0	0	0	23	8	0	0	15	5
Project Buildout	0	369	583	72	0	325	557	504	0	464	912	173	5	135	964	293

Intersection Development Worksheet



Expect More. Experience Better.

Intersection #: 2
Major Street: SR 520 E/W
Minor Street: Plumosa St N/S

Existing Year: 2022
Buildout Year: 2025
Seasonal Factor: 1.03

TMC Year: 2022

AM Peak Hour Trips: IN = 35 OUT = 116

Weekday AM Peak Hour 8:00 AM - 9:00 AM	Plumosa St								SR 520							
	Northbound				Southbound				Eastbound				Westbound			
	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
TMC (2022)	0	43	63	40	0	20	70	57	13	66	840	118	3	61	744	32
Seasonal Factor	1.03				1.03				1.03				1.03			
Heavy Vehicle (%)	0%	5%	3%	3%	0%	5%	4%	2%	0%	3%	4%	4%	0%	0%	3%	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	0.96	0.96	0.96	0.96
Existing (2022)	0	44	65	41	0	21	72	59	13	68	865	122	3	63	766	33
Growth Rates	2.00%				2.00%				2.00%				2.00%			
Background (2025)	0	47	69	43	0	22	76	63	14	72	917	129	3	67	812	35
Project Assignment																
Ingress																
Egress																
Project Trips	0	40	4	0	0	0	1	0	0	0	0	12	0	0	0	0
Project Buildout	0	87	73	43	0	22	77	63	14	72	917	141	3	67	812	35

PM Peak Hour Trips: IN = 88 OUT = 57

Weekday PM Peak Hour 4:15 PM - 5:15 PM	Plumosa St								SR 520							
	Northbound				Southbound				Eastbound				Westbound			
	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
TMC (2022)	0	92	91	58	0	54	69	101	23	90	1,128	89	15	68	1,187	93
Seasonal Factor	1.03				1.03				1.03				1.03			
Heavy Vehicle (%)	0%	2%	0%	2%	0%	4%	1%	1%	0%	6%	1%	2%	0%	0%	2%	3%
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	0.97	0.97	0.97	0.97
Existing (2022)	0	95	94	60	0	56	71	104	24	93	1,162	92	15	70	1,223	96
Growth Rates	2.00%				2.00%				2.00%				2.00%			
Background (2025)	0	101	99	64	0	60	75	110	25	99	1,232	98	16	74	1,296	102
Project Assignment																
Ingress																
Egress																
Project Trips	0	20	2	0	0	0	2	0	0	0	0	31	0	0	0	0
Project Buildout	0	121	101	64	0	60	77	110	25	99	1,232	129	16	74	1,296	102

Intersection Development Worksheet



Expect More. Experience Better.

Intersection #: 3
 Major Street: SR 520 E/W
 Minor Street: Skyes Creek Pkwy N/S

Existing Year: 2022
 Buildout Year: 2025
 Seasonal Factor: 1.03

TMC Year: 2022

AM Peak Hour Trips: IN = 35 OUT = 116

Weekday AM Peak Hour 8:00 AM - 9:00 AM	Skyes Creek Pkwy								SR 520							
	Northbound				Southbound				Eastbound				Westbound			
	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
TMC (2022)	0	16	61	111	0	215	70	107	6	116	604	21	0	65	650	246
Seasonal Factor	1.03				1.03				1.03				1.03			
Heavy Vehicle (%)	0%	6%	2%	1%	0%	2%	1%	1%	0%	1%	5%	5%	0%	2%	3%	2%
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	0.92	0.92	0.92	0.92
Existing (2022)	0	16	63	114	0	221	72	110	6	119	622	22	0	67	670	253
Growth Rates	2.00%				2.00%				2.00%				2.00%			
Background (2025)	0	17	67	121	0	234	76	117	6	126	659	23	0	71	710	268
Project Assignment																
Ingress																
Egress																
Project Trips	0	0	7	25	0	0	2	0	0	0	0	0	0	8	0	0
Project Buildout	0	17	74	146	0	234	78	117	6	126	659	23	0	79	710	268

PM Peak Hour Trips: IN = 88 OUT = 57

Weekday PM Peak Hour 4:00 PM - 5:00 PM	Skyes Creek Pkwy								SR 520							
	Northbound				Southbound				Eastbound				Westbound			
	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
TMC (2022)	0	58	112	171	0	301	121	149	21	175	817	27	0	133	819	277
Seasonal Factor	1.03				1.03				1.03				1.03			
Heavy Vehicle (%)	0%	0%	2%	2%	0%	1%	3%	1%	0%	1%	1%	0%	0%	2%	3%	3%
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	0.96	0.96	0.96	0.96
Existing (2022)	0	60	115	176	0	310	125	153	22	180	842	28	0	137	844	285
Growth Rates	2.00%				2.00%				2.00%				2.00%			
Background (2025)	0	64	121	187	0	329	133	162	23	191	893	30	0	145	895	302
Project Assignment																
Ingress																
Egress																
Project Trips	0	0	3	13	0	0	5	0	0	0	0	0	0	19	0	0
Project Buildout	0	64	124	200	0	329	138	162	23	191	893	30	0	164	895	302

Intersection Development Worksheet



Expect More. Experience Better.

Intersection #: 4
 Major Street: Courtenay Pkwy N/S
 Minor Street: Fortenberry Rd E/W

Existing Year: 2022
 Buildout Year: 2025
 Seasonal Factor: 1.03

TMC Year: 2022

AM Peak Hour Trips: IN = 35 OUT = 116

Weekday AM Peak Hour 8:00 AM - 9:00 AM	Courtenay Pkwy								Fortenberry Rd							
	Northbound				Southbound				Eastbound				Westbound			
	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
TMC (2022)	0	1	591	63	0	88	577	0	0	1	0	0	0	40	0	69
Seasonal Factor	1.03				1.03				1.03				1.03			
Heavy Vehicle (%)	0%	0%	2%	2%	0%	0%	4%	0%	0%	0%	0%	0%	0%	5%	0%	4%
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	0.97	0.97	0.97	0.97
Existing (2022)	0	1	609	65	0	91	594	0	0	1	0	0	0	41	0	71
Growth Rates	2.00%				2.00%				2.00%				2.00%			
Background (2025)	0	1	646	69	0	96	630	0	0	1	0	0	0	43	0	75
Project Assignment																
Ingress																
Egress																
Project Trips	0	0	0	0	0	7	0	0	0	0	0	0	0	1	0	22
Project Buildout	0	1	646	69	0	103	630	0	0	1	0	0	0	44	0	97

PM Peak Hour Trips: IN = 88 OUT = 57

Weekday PM Peak Hour 4:45 PM - 5:45 PM	Courtenay Pkwy								Fortenberry Rd							
	Northbound				Southbound				Eastbound				Westbound			
	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
TMC (2022)	0	3	677	59	0	61	783	1	0	1	0	2	0	86	0	168
Seasonal Factor	1.03				1.03				1.03				1.03			
Heavy Vehicle (%)	0%	0%	2%	5%	0%	0%	1%	0%	0%	0%	0%	0%	0%	0%	0%	1%
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Existing (2022)	0	3	697	61	0	63	806	1	0	1	0	2	0	89	0	173
Growth Rates	2.00%				2.00%				2.00%				2.00%			
Background (2025)	0	3	738	65	0	67	854	1	0	1	0	2	0	94	0	183
Project Assignment																
Ingress																
Egress																
Project Trips	0	0	0	1	0	17	0	0	0	0	0	0	0	1	0	10
Project Buildout	0	3	738	66	0	84	854	1	0	1	0	2	0	95	0	193

Intersection Development Worksheet



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Intersection #: 5
Major Street: Fortenberry Rd E/W
Minor Street: Plumosa St N/S

Existing Year: 2022
Buildout Year: 2025
Seasonal Factor: 1.03

TMC Year: 2022

AM Peak Hour Trips: IN = 35 OUT = 116

Weekday AM Peak Hour 8:00 AM - 9:00 AM	Plumosa St								Fortenberry Rd							
	Northbound				Southbound				Eastbound				Westbound			
	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
TMC (2022)	0	14	121	119	0	21	164	23	0	12	52	42	0	81	35	20
Seasonal Factor	1.03				1.03				1.03				1.03			
Heavy Vehicle (%)	0%	0%	5%	0%	0%	0%	2%	9%	0%	0%	4%	0%	0%	3%	0%	5%
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Existing (2022)	0	14	125	123	0	22	169	24	0	12	54	43	0	83	36	21
Growth Rates	2.00%				2.00%				2.00%				2.00%			
Background (2025)	0	15	133	130	0	23	179	25	0	13	57	46	0	88	38	22
Project Assignment																
Ingress																
Egress																
Project Trips	0	0	0	4	0	13	0	0	0	0	7	0	0	13	23	44
Project Buildout	0	15	133	134	0	36	179	25	0	13	64	46	0	101	61	66

PM Peak Hour Trips: IN = 88 OUT = 57

Weekday PM Peak Hour 4:30 PM - 5:30 PM	Plumosa St								Fortenberry Rd							
	Northbound				Southbound				Eastbound				Westbound			
	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
TMC (2022)	0	36	155	149	0	45	121	27	0	24	98	34	0	128	116	57
Seasonal Factor	1.03				1.03				1.03				1.03			
Heavy Vehicle (%)	0%	0%	1%	3%	0%	4%	1%	0%	0%	0%	1%	0%	0%	2%	0%	2%
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	0.90	0.90	0.90	0.90
Existing (2022)	0	37	160	153	0	46	125	28	0	25	101	35	0	132	119	59
Growth Rates	2.00%				2.00%				2.00%				2.00%			
Background (2025)	0	39	169	162	0	49	133	30	0	27	107	37	0	140	126	63
Project Assignment																
Ingress																
Egress																
Project Trips	0	0	0	10	0	33	0	0	0	0	18	0	0	6	11	22
Project Buildout	0	39	169	172	0	82	133	30	0	27	125	37	0	146	137	85

Intersection Development Worksheet



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Intersection #: 6
Major Street: Fortenberry Rd E/W
Minor Street: Project Drwy #1 N/S

Existing Year: 2022
Buildout Year: 2025
Seasonal Factor: 1.03

TMC Year: 2022

AM Peak Hour Trips: IN = 35 OUT = 116

Weekday AM Peak Hour 8:00 AM - 9:00 AM	Project Drwy #1								Fortenberry Rd							
	Northbound				Southbound				Eastbound				Westbound			
	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
TMC (2022)	0	0	0	0	0	0	0	0	0	0	192	0	0	0	136	0
Seasonal Factor	1.03				1.03				1.03				1.03			
Heavy Vehicle (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	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	0.92	0.92	0.92	0.92
Existing (2022)	0	0	0	0	0	0	0	0	0	0	198	0	0	0	140	0
Growth Rates	2.00%				2.00%				2.00%				2.00%			
Background (2025)	0	0	0	0	0	0	0	0	0	0	210	0	0	0	148	0
Project Assignment																
Ingress									23% 46%				10%			
Egress	46%												23%			
Project Trips	0	53	0	11	0	0	0	0	0	0	8	16	0	4	27	0
Project Buildout	0	53	0	11	0	0	0	0	0	0	218	16	0	4	175	0

PM Peak Hour Trips: IN = 88 OUT = 57

Weekday PM Peak Hour 4:30 PM - 5:30 PM	Project Drwy #1								Fortenberry Rd							
	Northbound				Southbound				Eastbound				Westbound			
	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
TMC (2022)	0	0	0	0	0	0	0	0	0	0	292	0	0	0	301	0
Seasonal Factor	1.03				1.03				1.03				1.03			
Heavy Vehicle (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	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	0.92	0.92	0.92	0.92
Existing (2022)	0	0	0	0	0	0	0	0	0	0	301	0	0	0	310	0
Growth Rates	2.00%				2.00%				2.00%				2.00%			
Background (2025)	0	0	0	0	0	0	0	0	0	0	319	0	0	0	329	0
Project Assignment																
Ingress									23% 46%				10%			
Egress	46%												23%			
Project Trips	0	26	0	6	0	0	0	0	0	0	20	41	0	9	13	0
Project Buildout	0	26	0	6	0	0	0	0	0	0	339	41	0	9	342	0

Intersection Development Worksheet



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Intersection #: 7
Major Street: Fortenberry Rd E/W
Minor Street: Harbor Woods Bou N/S

Existing Year: 2022
Buildout Year: 2025
Seasonal Factor: 1.03

TMC Year: 2022

AM Peak Hour Trips: IN = 35 OUT = 116

PHF: 0.920

Weekday AM Peak Hour	Fortenberry Rd								Fortenberry Rd							
	Northbound				Southbound				Eastbound				Westbound			
	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
TMC (2022)	0	0	0	0	0	0	0	0	0	0	192	0	0	0	136	0
Seasonal Factor	1.03				1.03				1.03				1.03			
Heavy Vehicle (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	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	0.92	0.92	0.92	0.92
Existing (2022)	0	0	0	0	0	0	0	0	0	0	198	0	0	0	140	0
Growth Rates	2.00%				2.00%				2.00%				2.00%			
Background (2025)	0	0	0	0	0	0	0	0	0	0	210	0	0	0	148	0
Project Assignment																
Ingress													23%			
Egress	23%								10%				21% 10%			
Project Trips	0	27	0	24	0	0	0	0	0	0	11	8	0	7	4	0
Project Buildout	0	27	0	24	0	0	0	0	0	0	221	8	0	7	152	0

PM Peak Hour Trips: IN = 88 OUT = 57

PHF: 0.920

Weekday PM Peak Hour	Fortenberry Rd								Fortenberry Rd							
	Northbound				Southbound				Eastbound				Westbound			
	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
TMC (2022)	0	0	0	0	0	0	0	0	0	0	292	0	0	0	301	0
Seasonal Factor	1.03				1.03				1.03				1.03			
Heavy Vehicle (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	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	0.92	0.92	0.92	0.92
Existing (2022)	0	0	0	0	0	0	0	0	0	0	301	0	0	0	310	0
Growth Rates	2.00%				2.00%				2.00%				2.00%			
Background (2025)	0	0	0	0	0	0	0	0	0	0	319	0	0	0	329	0
Project Assignment																
Ingress													23%			
Egress	23%								10%				21% 10%			
Project Trips	0	13	0	12	0	0	0	0	0	0	6	20	0	18	9	0
Project Buildout	0	13	0	12	0	0	0	0	0	0	325	20	0	18	338	0

APPENDIX F

Space Coast TPO Traffic Counts

SPACE COAST TRANSPORTATION PLANNING ORGANIZATION TRAFFIC COUNTS: 2012 - 2021

ID	ROAD	SEGMENT (Sections)	2012 AADT	2013 AADT	2014 AADT	2015 AADT	2016 AADT	2017 AADT	2018 AADT	2019 AADT	2020 AADT	2021 AADT	Current MAV	Last Count Taken	Functional Classification
AREA: MERRITT ISLAND															
	CONE	S TROPICAL-PLUMOSA	5,145	5,085		5,295	5,205	5,495	5,330	3,920	4,880	4,510			
117	CONE	S Tropical-S Courtenay	4,390	4,440	NC	4,710	4,570	4,810	4,660	3,920	4,720	4,220	15,600	2/4/2021	Urban Minor Collector
115	CONE	S Courtenay-Plumosa	5,900	5,730	UC	5,880	5,840	6,180	6,000	NC	5,040	4,800	15,600	2/4/2021	Urban Minor Collector
137	CROCKETT	N TROPICAL-N COURTENAY	1,890	1,800	1,880	1,950	1,970	2,100	2,200	2,090	1,890	1,850	15,600	1/27/2021	Urban Minor Collector
	FORTENBERRY	S COURTENAY- SYKES CREEK	4,535	4,490		4,705	4,730	4,840	4,820	5,810	4,700	3,945			
119	FORTENBERRY	S Courtenay-Plumosa	4,000	4,150	UC	4,460	4,590	4,610	4,710	6,640	4,960	3,900	15,600	2/4/2021	Urban Major Collector
154	FORTENBERRY	Plumosa-Sykes Ck Pkwy	5,070	4,830	UC	4,950	4,870	5,070	4,930	4,980	4,440	3,990	15,600	2/17/2021	Urban Major Collector
158	HALL	N COURTENAY-N TROPICAL	2,890	2,960	UC	2,950	3,080	3,270	3,010	2,920	2,950	980	15,600	1/27/2021	Urban Minor Collector
138	LUCAS	N TROPICAL-N COURTENAY	2,720	2,970	2,740	3,020	3,180	3,570	3,060	2,730	3,410	3,090	15,600	1/27/2021	Urban Minor Collector
153	MERRITT AVE	N TROPICAL-N COURTENAY	2,690	2,720	3,140	3,280	3,240	3,330	3,470	3,470	3,940	3,240	15,600	1/27/2021	Urban Major Collector
	MERRITT AVE	N COURTENAY - SYKES CREEK	14,005	13,790	14,855	15,090	15,970	15,910	13,695	14,645	14,660	13,000			
103	MERRITT AVE	N Courtenay-Plumosa	13,310	13,170	14,080	14,550	NC	14,210	11,910	14,380	15,150	12,780	33,800	1/27/2021	Urban Major Collector
110	MERRITT AVE	Plumosa-Sykes Ck Pkwy	14,700	14,410	15,630	15,630	15,970	15,600	15,480	14,910	14,170	13,220	33,800	2/17/2021	Urban Major Collector
104	NEWFOUND HARB.	END-SR 520	6,610	6,700	6,900	6,950	6,820	7,030	7,040	5,860	6,260	5,400	15,600	2/17/2021	Urban Minor Collector
	N. BANANA RVR	SR 520-SR 528	9,683	9,763	9,737	10,070	10,078	10,850	10,785	8,878	8,802	7,862			
109	N. BANANA RVR	SR 520-SYKES CREEK	6,910	6,960	6,630	6,670	6,600	7,040	7,360	6,850	6,390	6,140	15,600	2/17/2021	Urban Minor Arterial
107	N. BANANA RVR	Sykes Creek-Central	12,240	12,110	12,400	12,900	12,040	13,600	13,250	12,890	12,300	11,680	15,600	2/17/2021	Urban Minor Arterial
102	N. BANANA RVR	Central-Martin Blvd.	9,900	10,220	10,180	10,640	10,770	11,410	11,330	11,200	11,920	10,050	15,600	2/17/2021	Urban Minor Arterial
602	N. BANANA RVR	Martin Blvd.-SR 528				10,550	10,900	11,350	11,200	11,250	11,900	10,010	15,600	2/17/2021	Urban Minor Arterial
613	N. BANANA RVR	SR 528-Sea Ray Drive						4,360	NC	2,200	1,500	1,430	15,600	2/17/2021	Urban Local
	N. COURTENAY	SR 520-SR 528	30,461	30,734	31,339	33,350	31,930	32,329	29,427	29,527	29,001	30,260			
130	N. COURTENAY	SR 520-Merritt	25,380	25,430	26,500	27,810	27,300	28,270	24,240	25,070	25,760	26,150	41,790	1/27/2021	Urban Principal Arterial-Other
131	N. COURTENAY	Merritt-Needle	34,780	34,880	35,440	37,970	35,290	34,940	31,940	32,440	30,220	32,130	41,790	1/27/2021	Urban Principal Arterial-Other
133	N. COURTENAY	Needle-Lucas	33,210	33,180	34,540	36,350	35,520	33,120	32,040	31,530	32,190	34,740	41,790	1/27/2021	Urban Principal Arterial-Other
135	N. COURTENAY	Lucas-Crockett	32,420	32,870	33,160	35,460	33,490	33,740	30,610	30,580	27,630	29,670	41,790	1/27/2021	Urban Principal Arterial-Other
136	N. COURTENAY	Crockett-Pioneer	29,970	30,080	30,230	32,920	30,870	31,730	29,450	28,280	26,690	28,680	41,790	1/27/2021	Urban Principal Arterial-Other
152	N. COURTENAY	Pioneer-S Ramps SR 528	30,120	30,850	30,540	33,730	32,850	32,310	30,010	31,700	33,250	31,170	41,790	1/27/2021	Urban Principal Arterial-Other
155	N. COURTENAY	S Ramps-N Ramps SR 528	27,350	27,850	28,960	29,210	28,190	32,190	27,700	27,090	27,270	29,280	41,790	1/27/2021	Urban Principal Arterial-Other
	N. COURTENAY	SR 528-SPACE COMMERCE WAY	14,103	14,213	14,017	15,580	14,573	15,963	14,840	14,833	14,900	12,893			
140	N. COURTENAY	N Ramps-Hall	20,900	20,420	19,090	22,300	21,170	22,960	20,840	21,200	18,780	18,040	41,790	1/27/2021	Urban Principal Arterial-Other
157	N. COURTENAY	Hall-N Tropical	13,040	13,570	14,270	15,090	13,490	15,220	14,890	14,320	15,610	14,330	41,790	1/27/2021	Urban Principal Arterial-Other
141	N. COURTENAY	N. Tropical-Space Commerce Way	8,370	8,650	8,690	9,350	9,060	9,710	8,790	8,980	10,310	6,310	40,300	1/27/2021	Rural Principal Arterial Other
	N. TROPICAL TR	SR 520-PIONEER	4,620	4,665	4,658	5,233	5,388	6,620	5,570	5,108	5,083	5,040			
147	N. TROPICAL TR	SR 520-Merritt	7,200	7,440	7,420	8,170	8,260	8,840	8,620	7,690	8,240	8,100	15,600	1/27/2021	Urban Major Collector
146	N. TROPICAL TR	Merritt-Lucas	5,600	5,660	5,550	6,190	6,320	6,380	6,880	6,660	6,270	6,110	15,600	1/27/2021	Urban Major Collector
145	N. TROPICAL TR	Lucas-Crockett	3,790	3,700	3,790	4,370	4,640	4,640	4,500	3,870	3,930	3,990	15,600	1/27/2021	Urban Major Collector
156	N. TROPICAL TR	Crockett-Pioneer	1,890	1,860	1,870	2,200	2,330	NC	2,280	2,210	1,890	1,960	15,600	1/27/2021	Urban Major Collector
	N. TROPICAL TR	GRANT-N COURTENAY	1,020	1,515	1,455	1,565	1,273	1,800	1,360	1,710	1,403	1,295			
144	N. TROPICAL TR	Grant-Hall	580	NC	UC	NC	660	NC	690	NC	760	NC	15,600	3/12/2020	Urban Major Collector
143	N. TROPICAL TR	Hall-Crisafulli	NC	1,670	1,530	1,640	1,720	1,800	1,710	1,680	1,560	870	15,600	1/27/2021	Urban Major Collector
142	N. TROPICAL TR	Crisafulli-N Courtenay	1,460	1,360	1,380	1,490	1,440	1,800	1,680	1,740	1,890	1,720	15,600	1/27/2021	Urban Major Collector
	PLUMOSA	CONE-MERRITT AVE	5,600	5,475		5,710	5,705	6,280	5,960	6,710	5,280	4,710			
116	PLUMOSA	Cone-Fortenberry	5,630	NC	NC	NC	5,010	NC	5,540	NC	4,820	NC	15,600	3/5/2020	Urban Minor Collector
120	PLUMOSA	Fortenberry-SR 520	NC	5,240	NC	5,190	NC	NC	NC	NC	NC	4,160	15,600	2/17/2021	Urban Minor Collector
106	PLUMOSA	SR 520-Merritt Ave	5,570	5,710	NC	6,230	6,400	6,280	6,380	6,710	5,740	5,260	15,600	2/4/2021	Urban Minor Collector
105	S. BANANA DR.	END-SR 520	1,930	2,230	1,920	2,200	2,120	2,390	2,520	2,080	2,230	2,340	12,480	2/17/2021	Urban Major Collector
	S. COURTENAY	PINEDA-FORTENBERRY	10,998	10,983	9,437	11,240	10,605	10,868	11,470	11,235	12,113	10,198			
112	S. TROPICAL TR	PINEDA-S COURTENAY	7,270	7,170	7,320	7,520	7,390	7,400	8,130	7,960	8,600	7,530	12,480	3/3/2021	Urban Minor Arterial
113	S. COURTENAY	S. Tropical Tr-Banana	9,370	9,140	9,160	9,340	8,820	9,500	9,490	9,680	10,300	8,890	15,600	2/17/2021	Urban Minor Arterial
114	S. COURTENAY	Banana-Cone	11,850	11,910	11,830	12,030	10,890	10,860	12,260	11,430	13,010	10,970	15,600	2/16/2021	Urban Minor Arterial
118	S. COURTENAY	Cone-Fortenberry	15,500	15,710	NC	16,070	15,320	15,710	16,000	15,870	16,540	13,400	15,600	2/4/2021	Urban Minor Arterial

*Note: 2016 AADT's Beaches area were counted twice in 2016 and the AADT listed is the average of the two counts.
NC=Not Counted; UC=Under Construction

SPACE COAST TRANSPORTATION PLANNING ORGANIZATION TRAFFIC COUNTS: 2012 - 2021

ID	ROAD	SEGMENT (Sections)	2012 AADT	2013 AADT	2014 AADT	2015 AADT	2016 AADT	2017 AADT	2018 AADT	2019 AADT	2020 AADT	2021 AADT	Current MAV	Last Count Taken	Functional Classification
AREA: MERRITT ISLAND															
	S. COURTENAY	Fortenberry-SR 520	12,587	12,400		13,097	12,103	13,100	18,760	18,625	17,805	17,350			
122	S. COURTENAY	Fortenberry-Magnolia	16,990	16,600	NC	18,570	17,500	17,210	17,900	17,710	17,160	16,840	33,800	2/4/2021	Urban Minor Arterial
139	S. COURTENAY	Magnolia-SR 520	19,410	19,300	UC	19,320	17,330	20,550	19,620	19,540	18,450	17,860	33,800	1/27/2021	Urban Minor Arterial
111	S. TROPICAL TR	S PATRICK-PINEDA	1,360	1,300	1,340	1,400	1,480	1,540	1,490	1,600	1,740	1,550	12,480	3/3/2021	Urban Major Collector
	S. TROPICAL TR	S COURTENAY-SR 520	4,097	4,283	4,353	4,510	4,377	4,610	4,627	4,253	4,887	4,363			
125	S. TROPICAL TR	S Courtenay-Plantation	1,150	1,260	1,160	1,210	1,270	1,220	1,350	1,320	1,520	1,290	12,480	3/3/2021	Urban Major Collector
126	S. TROPICAL TR	Plantation-Cone	6,670	6,760	6,780	7,030	6,780	7,090	7,140	6,590	7,410	6,730	12,480	3/3/2021	Urban Major Collector
124	S. TROPICAL TR	Cone-SR 520	4,470	4,830	5,120	5,290	5,080	5,520	5,390	4,850	5,730	5,070	12,480	2/4/2021	Urban Major Collector
603	SPACE COMMERCE WAY	SR 3-NASA CAUSEWAY				3,090	3,040	3,780	3,440	4,960	3,990	3,270	12,900	1/27/2021	Rural Principal Arterial Other
	SR 520	HUMPHREY BR-S. BANANA	30,878	32,220	33,311	34,200	32,467	30,929	29,694	29,844	30,794	30,016			
101	SR 520	Bridge-N.Tropical	NC	44,390	46,090	48,440	44,400	44,820	39,660	43,440	44,660	44,030	59,900	3/10/2021	Urban Principal Arterial-Other
148	SR 520	N.Tropical-SR 3	37,670	37,240	34,900	39,820	37,210	36,850	35,640	35,120	33,180	37,330	59,900	1/27/2021	Urban Principal Arterial-Other
97	SR 520	SR 3-Plaza ent	33,430	31,820	34,410	33,630	32,070	29,870	28,700	25,840	31,100	30,030	62,900	1/27/2021	Urban Principal Arterial-Other
98	SR 520	Plaza ent-Plumosa	30,530	31,860	34,130	33,790	31,800	29,940	30,490	31,230	27,800	29,680	62,900	2/4/2021	Urban Principal Arterial-Other
99	SR 520	Plumosa-Mall ent	32,560	30,560	32,780	32,140	31,640	28,750	25,300	28,870	26,780	28,180	62,900	3/3/2021	Urban Principal Arterial-Other
100	SR 520	Mall ent-SykesCrkPkw	26,270	26,010	28,740	27,140	24,810	23,660	24,130	23,280	25,190	23,830	62,900	2/17/2021	Urban Principal Arterial-Other
149	SR 520	Sykes-Newfound HrbDr	32,270	32,520	33,160	34,480	35,170	30,740	31,000	30,070	26,850	28,480	62,900	3/3/2021	Urban Principal Arterial-Other
150	SR 520	Newfound Hbr-N Banana	27,330	27,290	28,940	29,920	28,670	26,820	26,050	25,830	NC	24,780	62,900	2/17/2021	Urban Principal Arterial-Other
151	SR 520	N Banana-S Banana	26,960	28,290	26,650	28,440	26,430	26,910	26,280	24,920	NC	23,800	62,900	2/17/2021	Urban Principal Arterial-Other
	SR 528	US 1-SR 401	35,343	37,053	37,850	39,243	37,940	39,587	38,480	39,403	47,357	36,517			
128	SR 528	US 1-N COURTENAY	43,000	44,700	45,760	49,740	48,660	48,600	44,630	46,100	55,910	46,300	74,400	1/27/2021	Urban Principal Arterial-Other
129	SR 528	N Crtny-N Banana Rv Dr	32,770	33,630	36,360	32,570	31,070	36,810	37,340	37,570	44,790	35,050	74,400	1/27/2021	Urban Principal Arterial-Other
127	SR 528	N Banana Rv Dr-SR 401	30,260	32,830	31,430	35,420	34,090	33,350	33,470	34,540	41,370	28,200	74,400	3/3/2021	Urban Principal Arterial-Other
123	SYKES CREEK	FORTENBERRY-SR 520	5,490	5,610	NC	5,610	5,390	5,440	4,830	4,670	4,850	4,050	33,800	2/17/2021	Urban Major Collector
121	SYKES CREEK	SR 520-MERRITT	12,010	11,770	12,210	12,640	12,680	12,070	12,570	12,010	12,910	10,770	39,800	2/17/2021	Urban Major Collector
108	SYKES CREEK	MERRITT-N BANANA	9,700	9,890	NC	10,610	11,080	10,970	10,660	10,090	11,410	9,680	17,700	2/17/2021	Urban Major Collector

*Note: 2016 AADT's Beaches area were counted twice in 2016 and the AADT listed is the average of the two counts.
NC=Not Counted; UC=Under Construction

APPENDIX G

Synchro Outputs

Timings

1: Courtenay Pkwy & SR 520

Existing Conditions

AM Peak Hour

										
Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Configurations	 	  	 	  		 	 	 	 	 
Traffic Volume (vph)	443	759	118	492	136	204	485	220	431	393
Future Volume (vph)	443	759	118	492	136	204	485	220	431	393
Turn Type	Prot	NA	Prot	NA	Perm	Prot	NA	Prot	NA	Perm
Protected Phases	1	6	5	2		7	4	3	8	
Permitted Phases					2					8
Detector Phase	1	6	5	2	2	7	4	3	8	8
Switch Phase										
Minimum Initial (s)	6.0	15.0	6.0	15.0	15.0	6.0	8.0	6.0	8.0	8.0
Minimum Split (s)	14.7	23.7	14.7	23.7	23.7	13.9	18.6	13.9	18.6	18.6
Total Split (s)	38.0	71.0	23.0	56.0	56.0	21.0	35.0	21.0	35.0	35.0
Total Split (%)	25.3%	47.3%	15.3%	37.3%	37.3%	14.0%	23.3%	14.0%	23.3%	23.3%
Yellow Time (s)	4.8	4.8	4.8	4.8	4.8	4.1	4.1	4.1	4.1	4.1
All-Red Time (s)	3.9	3.9	3.9	3.9	3.9	3.8	3.8	3.8	3.8	3.8
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	8.7	8.7	8.7	8.7	8.7	7.9	7.9	7.9	7.9	7.9
Lead/Lag	Lead	Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Max	None	C-Max	C-Max	None	None	None	None	None

Intersection Summary

Cycle Length: 150

Actuated Cycle Length: 150

Offset: 37 (25%), Referenced to phase 2:WBT and 6:EBT, Start of Yellow

Natural Cycle: 80

Control Type: Actuated-Coordinated

Splits and Phases: 1: Courtenay Pkwy & SR 520

 Ø1	 Ø2 (R)	 Ø3	 Ø4
38 s	56 s	21 s	35 s
 Ø5	 Ø6 (R)	 Ø7	 Ø8
23 s	71 s	21 s	35 s

HCM 6th Signalized Intersection Summary

1: Courtenay Pkwy & SR 520

Existing Conditions

AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	443	759	201	118	492	136	204	485	67	220	431	393
Future Volume (veh/h)	443	759	201	118	492	136	204	485	67	220	431	393
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1856	1841	1885	1841	1870	1870	1885	1870	1870	1870	1870
Adj Flow Rate, veh/h	466	799	212	124	518	143	215	511	71	232	454	414
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	3	4	1	4	2	2	1	2	2	2	2
Cap, veh/h	526	1889	497	173	1861	587	261	556	77	277	641	503
Arrive On Green	0.15	0.47	0.47	0.02	0.12	0.12	0.08	0.18	0.18	0.08	0.18	0.18
Sat Flow, veh/h	3456	3993	1051	3483	5025	1585	3456	3160	437	3456	3554	2790
Grp Volume(v), veh/h	466	675	336	124	518	143	215	289	293	232	454	414
Grp Sat Flow(s),veh/h/ln	1728	1689	1666	1742	1675	1585	1728	1791	1806	1728	1777	1395
Q Serve(g_s), s	19.8	19.7	20.0	5.3	14.1	12.2	9.2	23.8	24.0	9.9	18.0	21.4
Cycle Q Clear(g_c), s	19.8	19.7	20.0	5.3	14.1	12.2	9.2	23.8	24.0	9.9	18.0	21.4
Prop In Lane	1.00		0.63	1.00		1.00	1.00		0.24	1.00		1.00
Lane Grp Cap(c), veh/h	526	1598	788	173	1861	587	261	315	318	277	641	503
V/C Ratio(X)	0.89	0.42	0.43	0.72	0.28	0.24	0.82	0.92	0.92	0.84	0.71	0.82
Avail Cap(c_a), veh/h	675	1598	788	332	1861	587	302	324	326	302	642	504
HCM Platoon Ratio	1.00	1.00	1.00	0.33	0.33	0.33	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.97	0.97	0.97	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	62.3	26.0	26.1	72.7	47.6	46.8	68.4	60.7	60.8	68.0	57.8	59.2
Incr Delay (d2), s/veh	11.1	0.8	1.7	5.3	0.4	1.0	14.9	29.4	30.4	17.3	3.6	10.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	9.4	7.9	8.1	2.5	6.4	5.4	4.6	13.3	13.6	5.0	8.4	8.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	73.4	26.8	27.8	78.0	48.0	47.8	83.2	90.1	91.3	85.3	61.3	69.7
LnGrp LOS	E	C	C	E	D	D	F	F	F	F	E	E
Approach Vol, veh/h		1477			785			797			1100	
Approach Delay, s/veh		41.8			52.7			88.7			69.5	
Approach LOS		D			D			F			E	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	31.6	64.2	19.9	34.3	16.1	79.7	19.2	35.0				
Change Period (Y+Rc), s	* 8.7	* 8.7	* 7.9	* 7.9	* 8.7	* 8.7	* 7.9	* 7.9				
Max Green Setting (Gmax), s	* 29	* 47	* 13	* 27	* 14	* 62	* 13	* 27				
Max Q Clear Time (g_c+I1), s	21.8	16.1	11.9	26.0	7.3	22.0	11.2	23.4				
Green Ext Time (p_c), s	1.0	3.9	0.1	0.4	0.2	7.4	0.1	1.6				

Intersection Summary

HCM 6th Ctrl Delay 60.2

HCM 6th LOS E

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Timings 2: Plumosa St & SR 520

Existing Conditions

AM Peak Hour

								
Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	81	865	66	766	44	65	21	72
Future Volume (vph)	81	865	66	766	44	65	21	72
Turn Type	Prot	NA	Prot	NA	Prot	NA	Prot	NA
Protected Phases	1	6	5	2	7	4	3	8
Permitted Phases								
Detector Phase	1	6	5	2	7	4	3	8
Switch Phase								
Minimum Initial (s)	6.0	15.0	6.0	15.0	6.0	8.0	6.0	8.0
Minimum Split (s)	13.1	22.1	13.1	22.1	13.4	15.4	13.4	15.4
Total Split (s)	24.0	81.0	24.0	81.0	20.0	27.0	18.0	25.0
Total Split (%)	16.0%	54.0%	16.0%	54.0%	13.3%	18.0%	12.0%	16.7%
Yellow Time (s)	4.8	4.8	4.8	4.8	4.0	4.0	4.0	4.0
All-Red Time (s)	2.3	2.3	2.3	2.3	3.4	3.4	3.4	3.4
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.1	7.1	7.1	7.1	7.4	7.4	7.4	7.4
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Max	None	C-Max	None	None	None	None

Intersection Summary

Cycle Length: 150

Actuated Cycle Length: 150

Offset: 111 (74%), Referenced to phase 2:WBT and 6:EBT, Start of Yellow

Natural Cycle: 65

Control Type: Actuated-Coordinated

Splits and Phases: 2: Plumosa St & SR 520

			
Ø1	Ø2 (R)	Ø3	Ø4
24 s	81 s	18 s	27 s
			
Ø5	Ø6 (R)	Ø7	Ø8
24 s	81 s	20 s	25 s

HCM 6th Signalized Intersection Summary

2: Plumosa St & SR 520

Existing Conditions

AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	81	865	122	66	766	33	44	65	41	21	72	59
Future Volume (veh/h)	81	865	122	66	766	33	44	65	41	21	72	59
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1841	1841	1900	1856	1900	1826	1856	1870	1826	1841	1870
Adj Flow Rate, veh/h	84	901	127	69	798	34	46	68	43	22	75	61
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
Percent Heavy Veh, %	2	4	4	0	3	0	5	3	2	5	4	2
Cap, veh/h	105	2809	394	87	3090	131	59	110	70	42	88	71
Arrive On Green	0.02	0.21	0.21	0.10	1.00	1.00	0.03	0.10	0.10	0.02	0.09	0.09
Sat Flow, veh/h	1781	4453	625	1810	4983	212	1739	1063	672	1739	939	764
Grp Volume(v), veh/h	84	677	351	69	540	292	46	0	111	22	0	136
Grp Sat Flow(s),veh/h/ln	1781	1675	1728	1810	1689	1817	1739	0	1735	1739	0	1703
Q Serve(g_s), s	7.0	25.7	25.9	5.6	0.0	0.0	3.9	0.0	9.2	1.9	0.0	11.8
Cycle Q Clear(g_c), s	7.0	25.7	25.9	5.6	0.0	0.0	3.9	0.0	9.2	1.9	0.0	11.8
Prop In Lane	1.00		0.36	1.00		0.12	1.00		0.39	1.00		0.45
Lane Grp Cap(c), veh/h	105	2114	1090	87	2094	1127	59	0	180	42	0	159
V/C Ratio(X)	0.80	0.32	0.32	0.79	0.26	0.26	0.78	0.00	0.62	0.53	0.00	0.85
Avail Cap(c_a), veh/h	201	2114	1090	204	2094	1127	146	0	227	123	0	200
HCM Platoon Ratio	0.33	0.33	0.33	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.84	0.84	0.84	0.98	0.98	0.98	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	72.6	32.1	32.2	67.0	0.0	0.0	71.9	0.0	64.4	72.4	0.0	67.0
Incr Delay (d2), s/veh	11.0	0.3	0.7	14.3	0.3	0.5	19.0	0.0	3.4	9.9	0.0	24.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.6	11.6	12.2	2.8	0.1	0.2	2.1	0.0	4.2	1.0	0.0	6.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	83.6	32.4	32.8	81.3	0.3	0.5	90.9	0.0	67.8	82.3	0.0	91.2
LnGrp LOS	F	C	C	F	A	A	F	A	E	F	A	F
Approach Vol, veh/h	1112				901				157			
Approach Delay, s/veh	36.4				6.6				74.6			
Approach LOS	D				A				E			
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	16.0	100.1	11.0	22.9	14.3	101.7	12.5	21.4				
Change Period (Y+Rc), s	* 7.1	* 7.1	7.4	7.4	* 7.1	* 7.1	7.4	7.4				
Max Green Setting (Gmax), s	* 17	* 74	10.6	19.6	* 17	* 74	12.6	17.6				
Max Q Clear Time (g_c+I1), s	9.0	2.0	3.9	11.2	7.6	27.9	5.9	13.8				
Green Ext Time (p_c), s	0.1	5.7	0.0	0.3	0.1	7.6	0.0	0.2				

Intersection Summary

HCM 6th Ctrl Delay 31.1

HCM 6th LOS C

Notes

User approved pedestrian interval to be less than phase max green.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Timings

3: Skyes Creek Pkwy & SR 520

Existing Conditions

AM Peak Hour

											
Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	 	  	 	  	 		 		  		
Traffic Volume (vph)	125	622	67	670	253	16	63	114	221	72	110
Future Volume (vph)	125	622	67	670	253	16	63	114	221	72	110
Turn Type	Prot	NA	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Free
Protected Phases	1	6	5	2		7	4		3	8	
Permitted Phases					2			4			Free
Detector Phase	1	6	5	2	2	7	4	4	3	8	
Switch Phase											
Minimum Initial (s)	6.0	15.0	6.0	15.0	15.0	6.0	8.0	8.0	6.0	8.0	
Minimum Split (s)	14.3	23.3	14.3	23.3	23.3	14.4	16.4	16.4	14.4	16.4	
Total Split (s)	22.0	73.0	27.0	78.0	78.0	20.0	25.0	25.0	25.0	30.0	
Total Split (%)	14.7%	48.7%	18.0%	52.0%	52.0%	13.3%	16.7%	16.7%	16.7%	20.0%	
Yellow Time (s)	4.8	4.8	4.8	4.8	4.8	4.8	4.8	4.8	4.8	4.8	
All-Red Time (s)	3.5	3.5	3.5	3.5	3.5	3.6	3.6	3.6	3.6	3.6	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	8.3	8.3	8.3	8.3	8.3	8.4	8.4	8.4	8.4	8.4	
Lead/Lag	Lead	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	
Recall Mode	None	C-Max	None	C-Max	C-Max	None	None	None	None	None	

Intersection Summary

Cycle Length: 150

Actuated Cycle Length: 150

Offset: 112 (75%), Referenced to phase 2:WBT and 6:EBT, Start of Yellow

Natural Cycle: 70

Control Type: Actuated-Coordinated

Splits and Phases: 3: Skyes Creek Pkwy & SR 520

 Ø1	 Ø2 (R)	 Ø3	 Ø4
22 s	78 s	25 s	25 s
 Ø5	 Ø6 (R)	 Ø7	 Ø8
27 s	73 s	20 s	30 s

HCM 6th Signalized Intersection Summary

3: Skyes Creek Pkwy & SR 520

Existing Conditions
AM Peak Hour

													
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations													
Traffic Volume (veh/h)	125	622	22	67	670	253	16	63	114	221	72	110	
Future Volume (veh/h)	125	622	22	67	670	253	16	63	114	221	72	110	
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0	
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Work Zone On Approach	No			No			No			No			
Adj Sat Flow, veh/h/ln	1885	1826	1826	1870	1856	1870	1811	1870	1885	1870	1885	1885	
Adj Flow Rate, veh/h	136	676	24	73	728	275	17	68	124	240	78	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	
Percent Heavy Veh, %	1	5	5	2	3	2	6	2	1	2	1	1	
Cap, veh/h	182	2789	99	132	2787	1535	35	324	146	289	291		
Arrive On Green	0.10	1.00	1.00	0.04	0.55	0.55	0.02	0.09	0.09	0.08	0.15	0.00	
Sat Flow, veh/h	3483	4943	175	3456	5066	2790	1725	3554	1598	3456	1885	1598	
Grp Volume(v), veh/h	136	454	246	73	728	275	17	68	124	240	78	0	
Grp Sat Flow(s),veh/h/ln	1742	1662	1794	1728	1689	1395	1725	1777	1598	1728	1885	1598	
Q Serve(g_s), s	5.7	0.0	0.0	3.1	11.3	7.4	1.5	2.7	11.5	10.3	5.5	0.0	
Cycle Q Clear(g_c), s	5.7	0.0	0.0	3.1	11.3	7.4	1.5	2.7	11.5	10.3	5.5	0.0	
Prop In Lane	1.00		0.10	1.00		1.00	1.00		1.00	1.00		1.00	
Lane Grp Cap(c), veh/h	182	1875	1013	132	2787	1535	35	324	146	289	291		
V/C Ratio(X)	0.75	0.24	0.24	0.55	0.26	0.18	0.49	0.21	0.85	0.83	0.27		
Avail Cap(c_a), veh/h	318	1875	1013	431	2787	1535	133	393	177	382	291		
HCM Platoon Ratio	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Upstream Filter(I)	0.95	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	
Uniform Delay (d), s/veh	66.2	0.0	0.0	70.9	17.7	16.8	72.7	63.2	67.2	67.7	55.9	0.0	
Incr Delay (d2), s/veh	5.7	0.3	0.5	3.6	0.2	0.3	10.0	0.3	26.9	11.0	0.5	0.0	
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
%ile BackOfQ(50%),veh/ln	2.5	0.1	0.2	1.4	4.4	2.4	0.7	1.2	5.7	4.9	2.6	0.0	
Unsig. Movement Delay, s/veh													
LnGrp Delay(d),s/veh	71.9	0.3	0.5	74.5	17.9	17.1	82.7	63.5	94.0	78.7	56.4	0.0	
LnGrp LOS	E	A	A	E	B	B	F	E	F	E	E		
Approach Vol, veh/h	836			1076			209			318			A
Approach Delay, s/veh	12.0			21.6			83.2			73.2			
Approach LOS	B			C			F			E			
Timer - Assigned Phs	1	2	3	4	5	6	7	8					
Phs Duration (G+Y+Rc), s	16.1	90.8	21.0	22.1	14.0	93.0	11.4	31.6					
Change Period (Y+Rc), s	8.3	8.3	* 8.4	* 8.4	8.3	8.3	* 8.4	* 8.4					
Max Green Setting (Gmax), s	13.7	69.7	* 17	* 17	18.7	64.7	* 12	* 22					
Max Q Clear Time (g_c+I1), s	7.7	13.3	12.3	13.5	5.1	2.0	3.5	7.5					
Green Ext Time (p_c), s	0.2	6.7	0.3	0.2	0.1	4.6	0.0	0.2					

Intersection Summary

HCM 6th Ctrl Delay	30.3
HCM 6th LOS	C

Notes

User approved pedestrian interval to be less than phase max green.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Unsignalized Delay for [SBR] is excluded from calculations of the approach delay and intersection delay.

Timings

4: Courtenay Pkwy & Fortenberry Rd

Existing Conditions

AM Peak Hour

										
Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations										
Traffic Volume (vph)	1	0	41	0	71	1	609	65	91	594
Future Volume (vph)	1	0	41	0	71	1	609	65	91	594
Turn Type	Perm	NA	Perm	NA	Over	Perm	NA	Perm	pm+pt	NA
Protected Phases		4		3	1		2		1	6
Permitted Phases	4		3			2		2	6	
Detector Phase	4	4	3	3	1	2	2	2	1	6
Switch Phase										
Minimum Initial (s)	7.0	7.0	1.0	1.0	5.0	12.0	12.0	12.0	5.0	12.0
Minimum Split (s)	14.0	14.0	7.6	7.6	11.6	18.2	18.2	18.2	11.6	18.2
Total Split (s)	14.0	14.0	15.0	15.0	14.0	32.0	32.0	32.0	14.0	46.0
Total Split (%)	18.7%	18.7%	20.0%	20.0%	18.7%	42.7%	42.7%	42.7%	18.7%	61.3%
Yellow Time (s)	4.0	4.0	3.6	3.6	3.6	4.0	4.0	4.0	3.6	4.0
All-Red Time (s)	3.0	3.0	3.0	3.0	3.0	2.2	2.2	2.2	3.0	2.2
Lost Time Adjust (s)		0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)		7.0		6.6	6.6	6.2	6.2	6.2	6.6	6.2
Lead/Lag	Lag	Lag	Lead	Lead	Lead	Lag	Lag	Lag	Lead	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	
Recall Mode	None	None	None	None	None	C-Max	C-Max	C-Max	None	C-Max

Intersection Summary

Cycle Length: 75

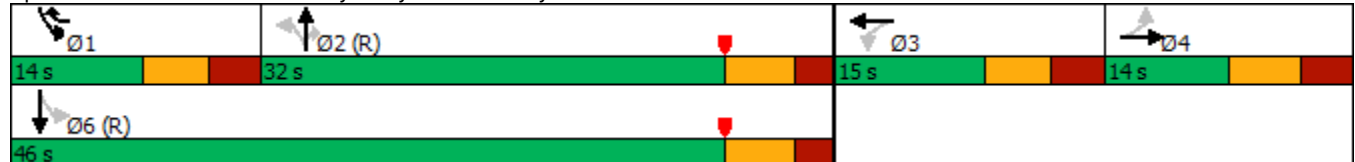
Actuated Cycle Length: 75

Offset: 32 (43%), Referenced to phase 2:NBTL and 6:SBTL, Start of Yellow

Natural Cycle: 60

Control Type: Actuated-Coordinated

Splits and Phases: 4: Courtenay Pkwy & Fortenberry Rd



HCM Signalized Intersection Capacity Analysis

4: Courtenay Pkwy & Fortenberry Rd

Existing Conditions

AM Peak Hour

													
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations													
Traffic Volume (vph)	1	0	0	41	0	71	1	609	65	91	594	0	
Future Volume (vph)	1	0	0	41	0	71	1	609	65	91	594	0	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Total Lost time (s)		7.0				6.6	6.6	6.2	6.2	6.2	6.6	6.2	
Lane Util. Factor		1.00				1.00	1.00	1.00	0.95	1.00	1.00	0.95	
Frt		1.00				1.00	0.85	1.00	1.00	0.85	1.00	1.00	
Flt Protected		0.95				0.95	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)		1805				1719	1553	1805	3539	1583	1805	3471	
Flt Permitted		1.00				1.00	1.00	0.42	1.00	1.00	0.33	1.00	
Satd. Flow (perm)		1900				1810	1553	798	3539	1583	625	3471	
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	
Adj. Flow (vph)	1	0	0	42	0	73	1	628	67	94	612	0	
RTOR Reduction (vph)	0	0	0	0	0	68	0	0	34	0	0	0	
Lane Group Flow (vph)	0	1	0	0	42	5	1	628	33	94	612	0	
Heavy Vehicles (%)	0%	0%	0%	5%	0%	4%	0%	2%	2%	0%	4%	0%	
Turn Type	Perm	NA		Perm	NA	Over	Perm	NA	Perm	pm+pt	NA		
Protected Phases		4				3	1	2		1			6
Permitted Phases	4			3			2			2			6
Actuated Green, G (s)		1.4				4.7	5.4	37.1	37.1	37.1	49.1	49.1	
Effective Green, g (s)		1.4				4.7	5.4	37.1	37.1	37.1	49.1	49.1	
Actuated g/C Ratio		0.02				0.06	0.07	0.49	0.49	0.49	0.65	0.65	
Clearance Time (s)		7.0				6.6	6.6	6.2	6.2	6.2	6.6	6.2	
Vehicle Extension (s)		3.0				3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)		35				113	111	394	1750	783	494	2272	
v/s Ratio Prot							0.00	c0.18			0.01	c0.18	
v/s Ratio Perm		c0.00				c0.02		0.00			0.02	0.11	
v/c Ratio		0.03				0.37	0.05	0.00	0.36	0.04	0.19	0.27	
Uniform Delay, d1		36.1				33.7	32.4	9.6	11.6	9.8	5.3	5.4	
Progression Factor		1.00				1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2		0.3				2.1	0.2	0.0	0.6	0.1	0.2	0.3	
Delay (s)		36.5				35.8	32.6	9.6	12.2	9.9	5.5	5.7	
Level of Service		D				D	C	A	B	A	A	A	
Approach Delay (s)		36.5				33.8		12.0			5.7		
Approach LOS		D				C		B			A		
Intersection Summary													
HCM 2000 Control Delay	10.7			HCM 2000 Level of Service					B				
HCM 2000 Volume to Capacity ratio	0.36												
Actuated Cycle Length (s)	75.0			Sum of lost time (s)					26.4				
Intersection Capacity Utilization	48.4%			ICU Level of Service					A				
Analysis Period (min)	15												
c Critical Lane Group													

Timings 5: Plumosa St & Fortenberry Rd

Existing Conditions

AM Peak Hour

										
Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations										
Traffic Volume (vph)	12	54	83	36	21	14	125	123	22	169
Future Volume (vph)	12	54	83	36	21	14	125	123	22	169
Turn Type	Perm	NA	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA
Protected Phases		7	8	4		5	2		1	6
Permitted Phases	7		4		4	2		2	6	
Detector Phase	7	7	8	4	4	5	2	2	1	6
Switch Phase										
Minimum Initial (s)	5.0	5.0	7.0	7.0	7.0	5.0	14.0	14.0	5.0	14.0
Minimum Split (s)	11.0	11.0	13.0	13.0	13.0	11.0	20.0	20.0	11.0	20.0
Total Split (s)	15.0	15.0	35.0	35.0	35.0	15.0	35.0	35.0	15.0	35.0
Total Split (%)	15.0%	15.0%	35.0%	35.0%	35.0%	15.0%	35.0%	35.0%	15.0%	35.0%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
Lead/Lag	Lead	Lead	Lag			Lead	Lag	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes			Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	Max	Max	None	Max

Intersection Summary

Cycle Length: 100

Actuated Cycle Length: 64.9

Natural Cycle: 55

Control Type: Actuated-Uncoordinated

Splits and Phases: 5: Plumosa St & Fortenberry Rd

		
Ø1	Ø2	Ø4
15 s	35 s	35 s
		
Ø5	Ø6	Ø7
15 s	35 s	15 s
		35 s

HCM Signalized Intersection Capacity Analysis

5: Plumosa St & Fortenberry Rd

Existing Conditions
AM Peak Hour

													
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations													
Traffic Volume (vph)	12	54	43	83	36	21	14	125	123	22	169	24	
Future Volume (vph)	12	54	43	83	36	21	14	125	123	22	169	24	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Total Lost time (s)	6.0	6.0		6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0		
Lane Util. Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		
Frt	1.00	0.93		1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.98		
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		
Satd. Flow (prot)	1805	1735		1770	1900	1538	1805	1810	1615	1805	1813		
Flt Permitted	0.73	1.00		0.69	1.00	1.00	0.63	1.00	1.00	0.65	1.00		
Satd. Flow (perm)	1389	1735		1283	1900	1538	1188	1810	1615	1233	1813		
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)	13	59	47	91	40	23	15	137	135	24	186	26	
RTOR Reduction (vph)	0	29	0	0	0	17	0	0	70	0	4	0	
Lane Group Flow (vph)	13	77	0	91	40	6	15	137	65	24	208	0	
Heavy Vehicles (%)	0%	4%	0%	2%	0%	5%	0%	5%	0%	0%	2%	9%	
Turn Type	Perm	NA		pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA		
Protected Phases		7		8	4		5	2		1	6		
Permitted Phases	7			4		4	2		2	6			
Actuated Green, G (s)	6.2	6.2		17.7	17.7	17.7	35.8	34.7	34.7	38.0	35.8		
Effective Green, g (s)	6.2	6.2		17.7	17.7	17.7	35.8	34.7	34.7	38.0	35.8		
Actuated g/C Ratio	0.09	0.09		0.24	0.24	0.24	0.49	0.48	0.48	0.52	0.49		
Clearance Time (s)	6.0	6.0		6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0		
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)	118	148		349	463	374	595	865	771	662	894		
v/s Ratio Prot		c0.04		c0.02	0.02		0.00	0.08		c0.00	c0.11		
v/s Ratio Perm	0.01			0.04		0.00	0.01		0.04	0.02			
v/c Ratio	0.11	0.52		0.26	0.09	0.01	0.03	0.16	0.08	0.04	0.23		
Uniform Delay, d1	30.7	31.8		22.3	21.2	20.8	9.4	10.7	10.3	8.4	10.5		
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		
Incremental Delay, d2	0.4	3.0		0.4	0.1	0.0	0.0	0.4	0.2	0.0	0.6		
Delay (s)	31.1	34.8		22.7	21.3	20.8	9.4	11.1	10.5	8.4	11.1		
Level of Service	C	C		C	C	C	A	B	B	A	B		
Approach Delay (s)		34.4			22.1			10.7			10.9		
Approach LOS		C			C			B			B		
Intersection Summary													
HCM 2000 Control Delay			16.5									HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio			0.28										
Actuated Cycle Length (s)			72.6								24.0		
Intersection Capacity Utilization			39.5%									ICU Level of Service	A
Analysis Period (min)			15										
c Critical Lane Group													

Timings

1: Courtenay Pkwy & SR 520

Existing Conditions

PM Peak Hour

										
Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Configurations	 	  	 	  		 	 	 	 	 
Traffic Volume (vph)	438	839	132	895	272	343	546	299	517	475
Future Volume (vph)	438	839	132	895	272	343	546	299	517	475
Turn Type	Prot	NA	Prot	NA	Perm	Prot	NA	Prot	NA	Perm
Protected Phases	1	6	5	2		7	4	3	8	
Permitted Phases					2					8
Detector Phase	1	6	5	2	2	7	4	3	8	8
Switch Phase										
Minimum Initial (s)	6.0	15.0	6.0	15.0	15.0	6.0	8.0	6.0	8.0	8.0
Minimum Split (s)	14.7	23.7	14.7	23.7	23.7	13.9	15.9	13.9	15.9	15.9
Total Split (s)	37.0	71.0	22.0	56.0	56.0	27.0	42.0	25.0	40.0	40.0
Total Split (%)	23.1%	44.4%	13.8%	35.0%	35.0%	16.9%	26.3%	15.6%	25.0%	25.0%
Yellow Time (s)	4.8	4.8	4.8	4.8	4.8	4.1	4.1	4.1	4.1	4.1
All-Red Time (s)	3.9	3.9	3.9	3.9	3.9	3.8	3.8	3.8	3.8	3.8
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	8.7	8.7	8.7	8.7	8.7	7.9	7.9	7.9	7.9	7.9
Lead/Lag	Lead	Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Max	None	C-Max	C-Max	None	None	None	None	None

Intersection Summary

Cycle Length: 160

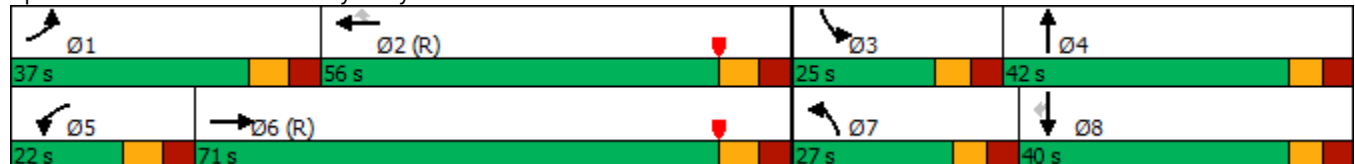
Actuated Cycle Length: 160

Offset: 20 (13%), Referenced to phase 2:WBT and 6:EBT, Start of Yellow

Natural Cycle: 90

Control Type: Actuated-Coordinated

Splits and Phases: 1: Courtenay Pkwy & SR 520



HCM 6th Signalized Intersection Summary

1: Courtenay Pkwy & SR 520

Existing Conditions

PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	438	839	156	132	895	272	343	546	68	299	517	475
Future Volume (veh/h)	438	839	156	132	895	272	343	546	68	299	517	475
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1900	1885	1885	1885	1870	1885	1870	1870	1900	1900	1900	1885
Adj Flow Rate, veh/h	466	893	166	140	952	289	365	581	72	318	550	505
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
Percent Heavy Veh, %	0	1	1	1	2	1	2	2	0	0	0	1
Cap, veh/h	520	1861	344	186	1694	530	405	669	83	360	706	550
Arrive On Green	0.15	0.43	0.43	0.02	0.11	0.11	0.12	0.21	0.21	0.10	0.20	0.20
Sat Flow, veh/h	3510	4363	807	3483	5106	1598	3456	3183	394	3510	3610	2812
Grp Volume(v), veh/h	466	701	358	140	952	289	365	324	329	318	550	505
Grp Sat Flow(s),veh/h/ln	1755	1716	1740	1742	1702	1598	1728	1777	1800	1755	1805	1406
Q Serve(g_s), s	20.9	23.6	23.7	6.4	28.3	27.4	16.7	28.2	28.3	14.3	23.1	28.2
Cycle Q Clear(g_c), s	20.9	23.6	23.7	6.4	28.3	27.4	16.7	28.2	28.3	14.3	23.1	28.2
Prop In Lane	1.00		0.46	1.00		1.00	1.00		0.22	1.00		1.00
Lane Grp Cap(c), veh/h	520	1463	742	186	1694	530	405	373	378	360	706	550
V/C Ratio(X)	0.90	0.48	0.48	0.75	0.56	0.55	0.90	0.87	0.87	0.88	0.78	0.92
Avail Cap(c_a), veh/h	621	1463	742	290	1694	530	413	379	384	375	724	564
HCM Platoon Ratio	1.00	1.00	1.00	0.33	0.33	0.33	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.83	0.83	0.83	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	66.9	33.1	33.1	77.5	60.2	59.8	69.7	61.0	61.1	70.9	61.1	63.1
Incr Delay (d2), s/veh	14.0	1.1	2.2	5.1	1.1	3.3	22.2	18.5	18.8	20.7	5.3	20.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	10.2	9.9	10.3	3.1	13.2	12.3	8.6	14.6	14.9	7.5	11.1	11.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	80.9	34.2	35.4	82.6	61.3	63.1	91.9	79.6	79.9	91.6	66.4	83.1
LnGrp LOS	F	C	D	F	E	E	F	E	E	F	E	F
Approach Vol, veh/h		1525			1381			1018			1373	
Approach Delay, s/veh		48.8			63.9			84.1			78.4	
Approach LOS		D			E			F			E	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	32.4	61.8	24.3	41.5	17.2	76.9	26.6	39.2				
Change Period (Y+Rc), s	* 8.7	* 8.7	* 7.9	* 7.9	* 8.7	* 8.7	* 7.9	* 7.9				
Max Green Setting (Gmax), s	* 28	* 47	* 17	* 34	* 13	* 62	* 19	* 32				
Max Q Clear Time (g_c+I1), s	22.9	30.3	16.3	30.3	8.4	25.7	18.7	30.2				
Green Ext Time (p_c), s	0.8	6.7	0.1	1.4	0.2	7.7	0.1	1.1				

Intersection Summary

HCM 6th Ctrl Delay 67.2

HCM 6th LOS E

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Timings 2: Plumosa St & SR 520

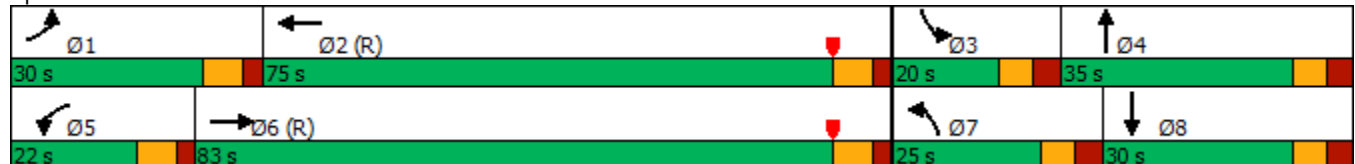
Existing Conditions
PM Peak Hour

								
Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	117	1162	85	1223	95	94	56	71
Future Volume (vph)	117	1162	85	1223	95	94	56	71
Turn Type	Prot	NA	Prot	NA	Prot	NA	Prot	NA
Protected Phases	1	6	5	2	7	4	3	8
Permitted Phases								
Detector Phase	1	6	5	2	7	4	3	8
Switch Phase								
Minimum Initial (s)	6.0	15.0	6.0	15.0	6.0	8.0	6.0	8.0
Minimum Split (s)	13.2	22.2	13.2	22.2	13.4	15.4	13.4	15.4
Total Split (s)	30.0	83.0	22.0	75.0	25.0	35.0	20.0	30.0
Total Split (%)	18.8%	51.9%	13.8%	46.9%	15.6%	21.9%	12.5%	18.8%
Yellow Time (s)	4.8	4.8	4.8	4.8	4.0	4.0	4.0	4.0
All-Red Time (s)	2.3	2.3	2.3	2.3	3.4	3.4	3.4	3.4
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.1	7.1	7.1	7.1	7.4	7.4	7.4	7.4
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Max	None	C-Min	None	None	Max	None

Intersection Summary

Cycle Length: 160
Actuated Cycle Length: 160
Offset: 102 (64%), Referenced to phase 2:WBT and 6:EBT, Start of Yellow
Natural Cycle: 75
Control Type: Actuated-Coordinated

Splits and Phases: 2: Plumosa St & SR 520



HCM 6th Signalized Intersection Summary

2: Plumosa St & SR 520

Existing Conditions

PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	117	1162	92	85	1223	96	95	94	60	56	71	104
Future Volume (veh/h)	117	1162	92	85	1223	96	95	94	60	56	71	104
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1811	1885	1870	1900	1870	1856	1870	1900	1870	1841	1885	1885
Adj Flow Rate, veh/h	121	1198	95	88	1261	99	98	97	62	58	73	107
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
Percent Heavy Veh, %	6	1	2	0	2	3	2	0	2	4	1	1
Cap, veh/h	143	2791	221	107	2656	209	119	115	74	138	82	120
Arrive On Green	0.03	0.19	0.19	0.12	1.00	1.00	0.07	0.11	0.11	0.08	0.12	0.12
Sat Flow, veh/h	1725	4861	385	1810	4827	379	1781	1083	692	1753	691	1012
Grp Volume(v), veh/h	121	845	448	88	889	471	98	0	159	58	0	180
Grp Sat Flow(s),veh/h/ln	1725	1716	1816	1810	1702	1802	1781	0	1775	1753	0	1703
Q Serve(g_s), s	11.2	34.8	34.8	7.6	0.0	0.0	8.7	0.0	14.1	5.0	0.0	16.7
Cycle Q Clear(g_c), s	11.2	34.8	34.8	7.6	0.0	0.0	8.7	0.0	14.1	5.0	0.0	16.7
Prop In Lane	1.00		0.21	1.00		0.21	1.00		0.39	1.00		0.59
Lane Grp Cap(c), veh/h	143	1970	1043	107	1873	992	119	0	189	138	0	202
V/C Ratio(X)	0.84	0.43	0.43	0.82	0.47	0.47	0.83	0.00	0.84	0.42	0.00	0.89
Avail Cap(c_a), veh/h	247	1970	1043	169	1873	992	196	0	306	138	0	241
HCM Platoon Ratio	0.33	0.33	0.33	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.78	0.78	0.78	0.96	0.96	0.96	0.99	0.00	0.99	1.00	0.00	1.00
Uniform Delay (d), s/veh	76.8	41.7	41.7	69.7	0.0	0.0	73.8	0.0	70.1	70.2	0.0	69.5
Incr Delay (d2), s/veh	10.1	0.5	1.0	15.6	0.8	1.6	13.2	0.0	10.6	9.1	0.0	27.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.6	16.2	17.3	3.8	0.2	0.4	4.4	0.0	6.9	2.6	0.0	8.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	86.8	42.2	42.7	85.3	0.8	1.6	86.9	0.0	80.7	79.3	0.0	97.4
LnGrp LOS	F	D	D	F	A	A	F	A	F	E	A	F
Approach Vol, veh/h	1414				1448				257			
Approach Delay, s/veh	46.2				6.2				83.1			
Approach LOS	D				A				F			
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	20.4	95.1	20.0	24.5	16.6	99.0	18.1	26.4				
Change Period (Y+Rc), s	* 7.1	* 7.1	7.4	7.4	* 7.1	* 7.1	7.4	7.4				
Max Green Setting (Gmax), s	* 23	* 68	12.6	27.6	* 15	* 76	17.6	22.6				
Max Q Clear Time (g_c+I1), s	13.2	2.0	7.0	16.1	9.6	36.8	10.7	18.7				
Green Ext Time (p_c), s	0.2	11.8	0.0	0.6	0.1	10.2	0.1	0.3				

Intersection Summary

HCM 6th Ctrl Delay 35.1

HCM 6th LOS D

Notes

User approved pedestrian interval to be less than phase max green.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Timings 3: Skyes Creek Pkwy & SR 520

Existing Conditions
PM Peak Hour

											
Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	 	  	 	  	 		 		  	 	 
Traffic Volume (vph)	202	842	137	844	285	60	115	176	310	125	153
Future Volume (vph)	202	842	137	844	285	60	115	176	310	125	153
Turn Type	Prot	NA	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Free
Protected Phases	1	6	5	2		7	4		3	8	
Permitted Phases					2			4			Free
Detector Phase	1	6	5	2	2	7	4	4	3	8	
Switch Phase											
Minimum Initial (s)	6.0	15.0	6.0	15.0	15.0	6.0	8.0	8.0	6.0	8.0	
Minimum Split (s)	14.3	23.3	14.3	23.3	23.3	14.4	16.4	16.4	14.4	16.4	
Total Split (s)	23.0	75.0	25.0	77.0	77.0	23.0	25.0	25.0	35.0	37.0	
Total Split (%)	14.4%	46.9%	15.6%	48.1%	48.1%	14.4%	15.6%	15.6%	21.9%	23.1%	
Yellow Time (s)	4.8	4.8	4.8	4.8	4.8	4.8	4.8	4.8	4.8	4.8	
All-Red Time (s)	3.5	3.5	3.5	3.5	3.5	3.6	3.6	3.6	3.6	3.6	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	8.3	8.3	8.3	8.3	8.3	8.4	8.4	8.4	8.4	8.4	
Lead/Lag	Lead	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	
Recall Mode	None	C-Max	None	C-Max	C-Max	None	None	None	None	None	

Intersection Summary

Cycle Length: 160

Actuated Cycle Length: 160

Offset: 105 (66%), Referenced to phase 2:WBT and 6:EBT, Start of Yellow

Natural Cycle: 70

Control Type: Actuated-Coordinated

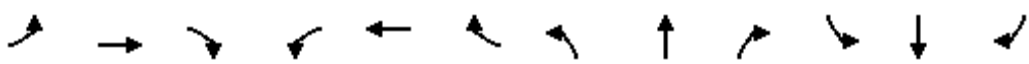
Splits and Phases: 3: Skyes Creek Pkwy & SR 520



HCM 6th Signalized Intersection Summary

3: Skyes Creek Pkwy & SR 520

Existing Conditions
PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔↔	↔↔↔		↔↔	↔↔↔	↔↔	↔	↔↔	↔	↔↔	↔	↔
Traffic Volume (veh/h)	202	842	28	137	844	285	60	115	176	310	125	153
Future Volume (veh/h)	202	842	28	137	844	285	60	115	176	310	125	153
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1885	1885	1900	1870	1856	1856	1900	1870	1870	1885	1856	1885
Adj Flow Rate, veh/h	210	877	29	143	879	297	62	120	183	323	130	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
Percent Heavy Veh, %	1	1	0	2	3	3	0	2	2	1	3	1
Cap, veh/h	252	2683	89	189	2567	1402	79	369	164	378	313	
Arrive On Green	0.14	1.00	1.00	0.05	0.51	0.51	0.04	0.10	0.10	0.11	0.17	0.00
Sat Flow, veh/h	3483	5117	169	3456	5066	2768	1810	3554	1585	3483	1856	1598
Grp Volume(v), veh/h	210	588	318	143	879	297	62	120	183	323	130	0
Grp Sat Flow(s),veh/h/ln	1742	1716	1855	1728	1689	1384	1810	1777	1585	1742	1856	1598
Q Serve(g_s), s	9.4	0.0	0.0	6.5	16.6	9.5	5.4	5.0	16.6	14.6	10.0	0.0
Cycle Q Clear(g_c), s	9.4	0.0	0.0	6.5	16.6	9.5	5.4	5.0	16.6	14.6	10.0	0.0
Prop In Lane	1.00		0.09	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	252	1799	973	189	2567	1402	79	369	164	378	313	
V/C Ratio(X)	0.83	0.33	0.33	0.76	0.34	0.21	0.78	0.33	1.11	0.85	0.42	
Avail Cap(c_a), veh/h	320	1799	973	361	2567	1402	165	369	164	579	332	
HCM Platoon Ratio	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.88	0.88	0.88	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	67.5	0.0	0.0	74.6	23.6	21.8	75.7	66.5	71.7	70.1	59.5	0.0
Incr Delay (d2), s/veh	12.4	0.4	0.8	6.1	0.4	0.3	15.3	0.5	103.6	7.7	0.9	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.3	0.1	0.2	3.0	6.6	3.1	2.9	2.3	11.4	6.8	4.7	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	79.9	0.4	0.8	80.6	23.9	22.2	91.0	67.0	175.3	77.8	60.4	0.0
LnGrp LOS	E	A	A	F	C	C	F	E	F	E	E	
Approach Vol, veh/h		1116			1319			365			453	A
Approach Delay, s/veh		15.5			29.7			125.4			72.8	
Approach LOS		B			C			F			E	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	19.9	89.4	25.8	25.0	17.0	92.2	15.4	35.4				
Change Period (Y+Rc), s	8.3	8.3	* 8.4	* 8.4	8.3	8.3	* 8.4	* 8.4				
Max Green Setting (Gmax), s	14.7	68.7	* 27	* 17	16.7	66.7	* 15	* 29				
Max Q Clear Time (g_c+I1), s	11.4	18.6	16.6	18.6	8.5	2.0	7.4	12.0				
Green Ext Time (p_c), s	0.2	8.4	0.8	0.0	0.2	6.4	0.1	0.5				

Intersection Summary

HCM 6th Ctrl Delay	41.6
HCM 6th LOS	D

Notes

User approved pedestrian interval to be less than phase max green.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Unsignalized Delay for [SBR] is excluded from calculations of the approach delay and intersection delay.

Timings

4: Courtenay Pkwy & Fortenberry Rd

Existing Conditions

PM Peak Hour

										
Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations										
Traffic Volume (vph)	1	0	89	0	173	3	697	61	63	806
Future Volume (vph)	1	0	89	0	173	3	697	61	63	806
Turn Type	Perm	NA	Perm	NA	Over	Perm	NA	Perm	pm+pt	NA
Protected Phases		4		3	1		2		1	6
Permitted Phases	4		3			2		2	6	
Detector Phase	4	4	3	3	1	2	2	2	1	6
Switch Phase										
Minimum Initial (s)	7.0	7.0	7.0	7.0	5.0	12.0	12.0	12.0	5.0	12.0
Minimum Split (s)	14.0	14.0	13.6	13.6	11.6	18.2	18.2	18.2	11.6	18.2
Total Split (s)	16.0	16.0	16.0	16.0	14.0	34.0	34.0	34.0	14.0	48.0
Total Split (%)	20.0%	20.0%	20.0%	20.0%	17.5%	42.5%	42.5%	42.5%	17.5%	60.0%
Yellow Time (s)	4.0	4.0	3.6	3.6	3.6	4.0	4.0	4.0	3.6	4.0
All-Red Time (s)	3.0	3.0	3.0	3.0	3.0	2.2	2.2	2.2	3.0	2.2
Lost Time Adjust (s)		0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)		7.0		6.6	6.6	6.2	6.2	6.2	6.6	6.2
Lead/Lag	Lag	Lag	Lead	Lead	Lead	Lag	Lag	Lag	Lead	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	
Recall Mode	None	None	None	None	None	C-Max	C-Max	C-Max	None	C-Max

Intersection Summary

Cycle Length: 80

Actuated Cycle Length: 80

Offset: 57.8 (72%), Referenced to phase 2:NBTL and 6:SBTL, Start of Yellow

Natural Cycle: 65

Control Type: Actuated-Coordinated

Splits and Phases: 4: Courtenay Pkwy & Fortenberry Rd

			
Ø1	Ø2 (R)	Ø3	Ø4
14 s	34 s	16 s	16 s
			
Ø5 (R)			
48 s			

HCM Signalized Intersection Capacity Analysis

4: Courtenay Pkwy & Fortenberry Rd

Existing Conditions
PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	1	0	2	89	0	173	3	697	61	63	806	1
Future Volume (vph)	1	0	2	89	0	173	3	697	61	63	806	1
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		7.0			6.6	6.6	6.2	6.2	6.2	6.6	6.2	
Lane Util. Factor		1.00			1.00	1.00	1.00	0.95	1.00	1.00	0.95	
Frt		0.91			1.00	0.85	1.00	1.00	0.85	1.00	1.00	
Flt Protected		0.98			0.95	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)		1701			1805	1599	1805	3539	1538	1805	3574	
Flt Permitted		1.00			0.43	1.00	0.33	1.00	1.00	0.26	1.00	
Satd. Flow (perm)		1729			809	1599	621	3539	1538	489	3574	
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)	1	0	2	96	0	186	3	749	66	68	867	1
RTOR Reduction (vph)	0	3	0	0	0	170	0	0	36	0	0	0
Lane Group Flow (vph)	0	0	0	0	96	16	3	749	30	68	868	0
Heavy Vehicles (%)	0%	0%	0%	0%	0%	1%	0%	2%	5%	0%	1%	0%
Turn Type	Perm	NA		Perm	NA	Over	Perm	NA	Perm	pm+pt	NA	
Protected Phases		4			3	1		2		1	6	
Permitted Phases	4			3			2		2	6		
Actuated Green, G (s)		1.4			9.4	6.8	36.0	36.0	36.0	49.4	49.4	
Effective Green, g (s)		1.4			9.4	6.8	36.0	36.0	36.0	49.4	49.4	
Actuated g/C Ratio		0.02			0.12	0.08	0.45	0.45	0.45	0.62	0.62	
Clearance Time (s)		7.0			6.6	6.6	6.2	6.2	6.2	6.6	6.2	
Vehicle Extension (s)		3.0			3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)		30			95	135	279	1592	692	413	2206	
v/s Ratio Prot						0.01		c0.21		0.01	c0.24	
v/s Ratio Perm		c0.00			c0.12		0.00		0.02	0.09		
v/c Ratio		0.00			1.01	0.12	0.01	0.47	0.04	0.16	0.39	
Uniform Delay, d1		38.6			35.3	33.8	12.2	15.3	12.3	7.2	7.7	
Progression Factor		1.00			1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2		0.0			95.2	0.4	0.1	1.0	0.1	0.2	0.5	
Delay (s)		38.6			130.5	34.2	12.2	16.4	12.5	7.4	8.3	
Level of Service		D			F	C	B	B	B	A	A	
Approach Delay (s)		38.6			67.0			16.0			8.2	
Approach LOS		D			E			B			A	
Intersection Summary												
HCM 2000 Control Delay			19.5		HCM 2000 Level of Service					B		
HCM 2000 Volume to Capacity ratio			0.57									
Actuated Cycle Length (s)			80.0		Sum of lost time (s)					26.4		
Intersection Capacity Utilization			59.7%		ICU Level of Service					B		
Analysis Period (min)			15									
c Critical Lane Group												

Timings 5: Plumosa St & Fortenberry Rd

Existing Conditions

PM Peak Hour

										
Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations										
Traffic Volume (vph)	25	101	132	119	59	37	160	153	46	125
Future Volume (vph)	25	101	132	119	59	37	160	153	46	125
Turn Type	Perm	NA	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA
Protected Phases		7	8	4		5	2		1	6
Permitted Phases	7		4		4	2		2	6	
Detector Phase	7	7	8	4	4	5	2	2	1	6
Switch Phase										
Minimum Initial (s)	5.0	5.0	7.0	7.0	7.0	5.0	14.0	14.0	5.0	14.0
Minimum Split (s)	11.0	11.0	13.0	13.0	13.0	11.0	20.0	20.0	11.0	20.0
Total Split (s)	15.0	15.0	35.0	35.0	35.0	15.0	35.0	35.0	15.0	35.0
Total Split (%)	15.0%	15.0%	35.0%	35.0%	35.0%	15.0%	35.0%	35.0%	15.0%	35.0%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
Lead/Lag	Lead	Lead	Lag			Lead	Lag	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes			Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	Max	Max	None	Max

Intersection Summary

Cycle Length: 100

Actuated Cycle Length: 71

Natural Cycle: 55

Control Type: Actuated-Uncoordinated

Splits and Phases: 5: Plumosa St & Fortenberry Rd

		
Ø1	Ø2	Ø4
15 s	35 s	35 s
		
Ø5	Ø6	Ø7
15 s	35 s	15 s
		35 s

HCM Signalized Intersection Capacity Analysis

5: Plumosa St & Fortenberry Rd

Existing Conditions
PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	25	101	35	132	119	59	37	160	153	46	125	28
Future Volume (vph)	25	101	35	132	119	59	37	160	153	46	125	28
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0		6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	
Lane Util. Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Frt	1.00	0.96		1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.97	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1805	1813		1770	1900	1583	1805	1881	1568	1736	1833	
Flt Permitted	0.67	1.00		0.66	1.00	1.00	0.65	1.00	1.00	0.64	1.00	
Satd. Flow (perm)	1278	1813		1231	1900	1583	1234	1881	1568	1174	1833	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	28	112	39	147	132	66	41	178	170	51	139	31
RTOR Reduction (vph)	0	12	0	0	0	46	0	0	102	0	7	0
Lane Group Flow (vph)	28	139	0	147	132	20	41	178	68	51	163	0
Heavy Vehicles (%)	0%	1%	0%	2%	0%	2%	0%	1%	3%	4%	1%	0%
Turn Type	Perm	NA		pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	
Protected Phases		7		8	4		5	2		1	6	
Permitted Phases	7			4		4	2		2	6		
Actuated Green, G (s)	9.0	9.0		22.4	22.4	22.4	33.1	29.3	29.3	33.3	29.4	
Effective Green, g (s)	9.0	9.0		22.4	22.4	22.4	33.1	29.3	29.3	33.3	29.4	
Actuated g/C Ratio	0.12	0.12		0.30	0.30	0.30	0.45	0.40	0.40	0.45	0.40	
Clearance Time (s)	6.0	6.0		6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	
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)	156	221		428	578	481	584	748	624	560	732	
v/s Ratio Prot		c0.08		c0.03	0.07		0.00	c0.09		c0.00	0.09	
v/s Ratio Perm	0.02			0.07		0.01	0.03		0.04	0.04		
v/c Ratio	0.18	0.63		0.34	0.23	0.04	0.07	0.24	0.11	0.09	0.22	
Uniform Delay, d1	29.0	30.7		20.2	19.1	18.0	11.4	14.7	13.9	11.4	14.6	
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	0.6	5.5		0.5	0.2	0.0	0.1	0.7	0.4	0.1	0.7	
Delay (s)	29.5	36.2		20.7	19.3	18.1	11.5	15.5	14.3	11.4	15.3	
Level of Service	C	D		C	B	B	B	B	B	B	B	
Approach Delay (s)		35.1			19.7			14.5			14.4	
Approach LOS		D			B			B			B	
Intersection Summary												
HCM 2000 Control Delay			19.3			HCM 2000 Level of Service			B			
HCM 2000 Volume to Capacity ratio			0.32									
Actuated Cycle Length (s)			73.6			Sum of lost time (s)			24.0			
Intersection Capacity Utilization			50.6%			ICU Level of Service			A			
Analysis Period (min)			15									
c Critical Lane Group												

Timings 1: Courtenay Pkwy & SR 520

Background Conditions
AM Peak Hour

										
Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Configurations	 	  	 	  		 	 	 	 	 
Traffic Volume (vph)	470	805	125	522	144	216	514	233	457	417
Future Volume (vph)	470	805	125	522	144	216	514	233	457	417
Turn Type	Prot	NA	Prot	NA	Perm	Prot	NA	Prot	NA	Perm
Protected Phases	1	6	5	2		7	4	3	8	
Permitted Phases					2					8
Detector Phase	1	6	5	2	2	7	4	3	8	8
Switch Phase										
Minimum Initial (s)	6.0	15.0	6.0	15.0	15.0	6.0	8.0	6.0	8.0	8.0
Minimum Split (s)	14.7	23.7	14.7	23.7	23.7	13.9	18.6	13.9	18.6	18.6
Total Split (s)	38.0	71.0	23.0	56.0	56.0	21.0	35.0	21.0	35.0	35.0
Total Split (%)	25.3%	47.3%	15.3%	37.3%	37.3%	14.0%	23.3%	14.0%	23.3%	23.3%
Yellow Time (s)	4.8	4.8	4.8	4.8	4.8	4.1	4.1	4.1	4.1	4.1
All-Red Time (s)	3.9	3.9	3.9	3.9	3.9	3.8	3.8	3.8	3.8	3.8
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	8.7	8.7	8.7	8.7	8.7	7.9	7.9	7.9	7.9	7.9
Lead/Lag	Lead	Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Max	None	C-Max	C-Max	None	None	None	None	None

Intersection Summary

Cycle Length: 150

Actuated Cycle Length: 150

Offset: 37 (25%), Referenced to phase 2:WBT and 6:EBT, Start of Yellow

Natural Cycle: 90

Control Type: Actuated-Coordinated

Splits and Phases: 1: Courtenay Pkwy & SR 520



HCM 6th Signalized Intersection Summary

1: Courtenay Pkwy & SR 520

Background Conditions

AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	470	805	213	125	522	144	216	514	71	233	457	417
Future Volume (veh/h)	470	805	213	125	522	144	216	514	71	233	457	417
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1856	1841	1885	1841	1870	1870	1885	1870	1870	1870	1870
Adj Flow Rate, veh/h	495	847	224	132	549	152	227	541	75	245	481	439
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	3	4	1	4	2	2	1	2	2	2	2
Cap, veh/h	554	1847	485	181	1779	561	272	571	79	289	659	517
Arrive On Green	0.16	0.46	0.46	0.02	0.12	0.12	0.08	0.18	0.18	0.08	0.19	0.19
Sat Flow, veh/h	3456	3994	1050	3483	5025	1585	3456	3161	437	3456	3554	2790
Grp Volume(v), veh/h	495	715	356	132	549	152	227	306	310	245	481	439
Grp Sat Flow(s),veh/h/ln	1728	1689	1667	1742	1675	1585	1728	1791	1807	1728	1777	1395
Q Serve(g_s), s	21.1	21.7	21.9	5.7	15.0	13.1	9.7	25.3	25.5	10.5	19.1	22.8
Cycle Q Clear(g_c), s	21.1	21.7	21.9	5.7	15.0	13.1	9.7	25.3	25.5	10.5	19.1	22.8
Prop In Lane	1.00		0.63	1.00		1.00	1.00		0.24	1.00		1.00
Lane Grp Cap(c), veh/h	554	1561	771	181	1779	561	272	324	326	289	659	517
V/C Ratio(X)	0.89	0.46	0.46	0.73	0.31	0.27	0.83	0.95	0.95	0.85	0.73	0.85
Avail Cap(c_a), veh/h	675	1561	771	332	1779	561	302	324	326	302	659	517
HCM Platoon Ratio	1.00	1.00	1.00	0.33	0.33	0.33	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.96	0.96	0.96	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	61.7	27.5	27.6	72.7	49.4	48.6	68.1	60.7	60.8	67.8	57.5	59.1
Incr Delay (d2), s/veh	12.5	1.0	2.0	5.3	0.4	1.1	16.6	35.8	36.8	19.1	4.1	12.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	10.0	8.8	8.9	2.7	6.8	5.8	4.9	14.7	15.0	5.4	8.9	8.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	74.3	28.5	29.5	78.0	49.9	49.7	84.7	96.5	97.6	86.9	61.7	71.6
LnGrp LOS	E	C	C	E	D	D	F	F	F	F	E	E
Approach Vol, veh/h		1566			833			843			1165	
Approach Delay, s/veh		43.2			54.3			93.7			70.7	
Approach LOS		D			D			F			E	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	32.8	61.8	20.4	35.0	16.5	78.1	19.7	35.7				
Change Period (Y+Rc), s	* 8.7	* 8.7	* 7.9	* 7.9	* 8.7	* 8.7	* 7.9	* 7.9				
Max Green Setting (Gmax), s	* 29	* 47	* 13	* 27	* 14	* 62	* 13	* 27				
Max Q Clear Time (g_c+I1), s	23.1	17.0	12.5	27.5	7.7	23.9	11.7	24.8				
Green Ext Time (p_c), s	1.0	4.2	0.1	0.0	0.2	8.0	0.1	1.1				

Intersection Summary

HCM 6th Ctrl Delay 62.2

HCM 6th LOS E

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Timings 2: Plumosa St & SR 520

Background Conditions

AM Peak Hour

								
Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	86	917	70	812	47	69	22	76
Future Volume (vph)	86	917	70	812	47	69	22	76
Turn Type	Prot	NA	Prot	NA	Prot	NA	Prot	NA
Protected Phases	1	6	5	2	7	4	3	8
Permitted Phases								
Detector Phase	1	6	5	2	7	4	3	8
Switch Phase								
Minimum Initial (s)	6.0	15.0	6.0	15.0	6.0	8.0	6.0	8.0
Minimum Split (s)	13.1	22.1	13.1	22.1	13.4	15.4	13.4	15.4
Total Split (s)	24.0	81.0	24.0	81.0	20.0	27.0	18.0	25.0
Total Split (%)	16.0%	54.0%	16.0%	54.0%	13.3%	18.0%	12.0%	16.7%
Yellow Time (s)	4.8	4.8	4.8	4.8	4.0	4.0	4.0	4.0
All-Red Time (s)	2.3	2.3	2.3	2.3	3.4	3.4	3.4	3.4
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.1	7.1	7.1	7.1	7.4	7.4	7.4	7.4
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Max	None	C-Max	None	None	None	None

Intersection Summary

Cycle Length: 150

Actuated Cycle Length: 150

Offset: 111 (74%), Referenced to phase 2:WBT and 6:EBT, Start of Yellow

Natural Cycle: 65

Control Type: Actuated-Coordinated

Splits and Phases: 2: Plumosa St & SR 520

			
Ø1	Ø2 (R)	Ø3	Ø4
24 s	81 s	18 s	27 s
			
Ø5	Ø6 (R)	Ø7	Ø8
24 s	81 s	20 s	25 s

HCM 6th Signalized Intersection Summary

2: Plumosa St & SR 520

Background Conditions

AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		  			  						 	
Traffic Volume (veh/h)	86	917	129	70	812	35	47	69	43	22	76	63
Future Volume (veh/h)	86	917	129	70	812	35	47	69	43	22	76	63
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1841	1841	1900	1856	1900	1826	1856	1870	1826	1841	1870
Adj Flow Rate, veh/h	90	955	134	73	846	36	49	72	45	23	79	66
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
Percent Heavy Veh, %	2	4	4	0	3	0	5	3	2	5	4	2
Cap, veh/h	111	2768	387	92	3037	129	63	118	73	43	91	76
Arrive On Green	0.04	0.42	0.42	0.10	1.00	1.00	0.04	0.11	0.11	0.02	0.10	0.10
Sat Flow, veh/h	1781	4455	623	1810	4983	212	1739	1068	667	1739	927	774
Grp Volume(v), veh/h	90	717	372	73	573	309	49	0	117	23	0	145
Grp Sat Flow(s),veh/h/ln	1781	1675	1729	1810	1689	1817	1739	0	1735	1739	0	1701
Q Serve(g_s), s	7.5	21.9	22.0	5.9	0.0	0.0	4.2	0.0	9.7	2.0	0.0	12.6
Cycle Q Clear(g_c), s	7.5	21.9	22.0	5.9	0.0	0.0	4.2	0.0	9.7	2.0	0.0	12.6
Prop In Lane	1.00		0.36	1.00		0.12	1.00		0.38	1.00		0.46
Lane Grp Cap(c), veh/h	111	2081	1074	92	2058	1108	63	0	191	43	0	168
V/C Ratio(X)	0.81	0.34	0.35	0.80	0.28	0.28	0.78	0.00	0.61	0.54	0.00	0.86
Avail Cap(c_a), veh/h	201	2081	1074	204	2058	1108	146	0	227	123	0	200
HCM Platoon Ratio	0.67	0.67	0.67	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.81	0.81	0.81	0.98	0.98	0.98	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	71.0	23.0	23.0	66.6	0.0	0.0	71.7	0.0	63.7	72.3	0.0	66.6
Incr Delay (d2), s/veh	10.6	0.4	0.7	14.0	0.3	0.6	18.5	0.0	3.5	10.0	0.0	27.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.8	9.3	9.7	2.9	0.1	0.2	2.2	0.0	4.4	1.0	0.0	6.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	81.5	23.3	23.7	80.6	0.3	0.6	90.2	0.0	67.2	82.3	0.0	93.7
LnGrp LOS	F	C	C	F	A	A	F	A	E	F	A	F
Approach Vol, veh/h		1179			955			166			168	
Approach Delay, s/veh		27.9			6.6			74.0			92.1	
Approach LOS		C			A			E			F	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	16.5	98.5	11.1	23.9	14.7	100.3	12.8	22.2				
Change Period (Y+Rc), s	* 7.1	* 7.1	7.4	7.4	* 7.1	* 7.1	7.4	7.4				
Max Green Setting (Gmax), s	* 17	* 74	10.6	19.6	* 17	* 74	12.6	17.6				
Max Q Clear Time (g_c+I1), s	9.5	2.0	4.0	11.7	7.9	24.0	6.2	14.6				
Green Ext Time (p_c), s	0.1	6.2	0.0	0.3	0.1	8.3	0.0	0.2				
Intersection Summary												
HCM 6th Ctrl Delay			27.1									
HCM 6th LOS			C									
Notes												
User approved pedestrian interval to be less than phase max green.												
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.												

Timings

3: Skyes Creek Pkwy & SR 520

Background Conditions

AM Peak Hour

											
Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	 	  	 	  	 		 		 		
Traffic Volume (vph)	132	659	71	710	268	17	67	121	234	76	117
Future Volume (vph)	132	659	71	710	268	17	67	121	234	76	117
Turn Type	Prot	NA	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Free
Protected Phases	1	6	5	2		7	4		3	8	
Permitted Phases					2			4			Free
Detector Phase	1	6	5	2	2	7	4	4	3	8	
Switch Phase											
Minimum Initial (s)	6.0	15.0	6.0	15.0	15.0	6.0	8.0	8.0	6.0	8.0	
Minimum Split (s)	14.3	23.3	14.3	23.3	23.3	14.4	16.4	16.4	14.4	16.4	
Total Split (s)	22.0	73.0	27.0	78.0	78.0	20.0	25.0	25.0	25.0	30.0	
Total Split (%)	14.7%	48.7%	18.0%	52.0%	52.0%	13.3%	16.7%	16.7%	16.7%	20.0%	
Yellow Time (s)	4.8	4.8	4.8	4.8	4.8	4.8	4.8	4.8	4.8	4.8	
All-Red Time (s)	3.5	3.5	3.5	3.5	3.5	3.6	3.6	3.6	3.6	3.6	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	8.3	8.3	8.3	8.3	8.3	8.4	8.4	8.4	8.4	8.4	
Lead/Lag	Lead	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	
Recall Mode	None	C-Max	None	C-Max	C-Max	None	None	None	None	None	

Intersection Summary

Cycle Length: 150

Actuated Cycle Length: 150

Offset: 112 (75%), Referenced to phase 2:WBT and 6:EBT, Start of Yellow

Natural Cycle: 70

Control Type: Actuated-Coordinated

Splits and Phases: 3: Skyes Creek Pkwy & SR 520

 Ø1	 Ø2 (R)	 Ø3	 Ø4
22 s	78 s	25 s	25 s
 Ø5	 Ø6 (R)	 Ø7	 Ø8
27 s	73 s	20 s	30 s

HCM 6th Signalized Intersection Summary

3: Skyes Creek Pkwy & SR 520

Background Conditions

AM Peak Hour

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰↱	↰↱↰		↰↱	↰↱↰	↰↱	↰	↰↱	↰	↰↱	↰	↰
Traffic Volume (veh/h)	132	659	23	71	710	268	17	67	121	234	76	117
Future Volume (veh/h)	132	659	23	71	710	268	17	67	121	234	76	117
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1885	1826	1826	1870	1856	1870	1811	1870	1885	1870	1885	1885
Adj Flow Rate, veh/h	143	716	25	77	772	291	18	73	132	254	83	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
Percent Heavy Veh, %	1	5	5	2	3	2	6	2	1	2	1	1
Cap, veh/h	189	2747	96	133	2733	1505	36	341	153	303	306	
Arrive On Green	0.11	1.00	1.00	0.04	0.54	0.54	0.02	0.10	0.10	0.09	0.16	0.00
Sat Flow, veh/h	3483	4946	172	3456	5066	2790	1725	3554	1598	3456	1885	1598
Grp Volume(v), veh/h	143	480	261	77	772	291	18	73	132	254	83	0
Grp Sat Flow(s),veh/h/ln	1742	1662	1795	1728	1689	1395	1725	1777	1598	1728	1885	1598
Q Serve(g_s), s	6.0	0.0	0.0	3.3	12.4	8.0	1.5	2.8	12.2	10.9	5.8	0.0
Cycle Q Clear(g_c), s	6.0	0.0	0.0	3.3	12.4	8.0	1.5	2.8	12.2	10.9	5.8	0.0
Prop In Lane	1.00		0.10	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	189	1846	997	133	2733	1505	36	341	153	303	306	
V/C Ratio(X)	0.76	0.26	0.26	0.58	0.28	0.19	0.49	0.21	0.86	0.84	0.27	
Avail Cap(c_a), veh/h	318	1846	997	431	2733	1505	133	393	177	382	306	
HCM Platoon Ratio	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	0.93	0.93	0.93	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	65.9	0.0	0.0	70.9	18.8	17.8	72.6	62.6	66.8	67.4	55.0	0.0
Incr Delay (d2), s/veh	5.7	0.3	0.6	4.0	0.3	0.3	10.0	0.3	29.8	12.5	0.5	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.7	0.1	0.2	1.5	4.8	2.6	0.8	1.3	6.2	5.2	2.8	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	71.6	0.3	0.6	74.9	19.0	18.0	82.6	62.9	96.6	79.9	55.5	0.0
LnGrp LOS	E	A	A	E	B	B	F	E	F	E	E	
Approach Vol, veh/h		884			1140			223			337	A
Approach Delay, s/veh		11.9			22.5			84.4			73.9	
Approach LOS		B			C			F			E	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	16.4	89.2	21.5	22.8	14.1	91.6	11.6	32.8				
Change Period (Y+Rc), s	8.3	8.3	* 8.4	* 8.4	8.3	8.3	* 8.4	* 8.4				
Max Green Setting (Gmax), s	13.7	69.7	* 17	* 17	18.7	64.7	* 12	* 22				
Max Q Clear Time (g_c+l1), s	8.0	14.4	12.9	14.2	5.3	2.0	3.5	7.8				
Green Ext Time (p_c), s	0.2	7.3	0.3	0.2	0.1	4.9	0.0	0.2				

Intersection Summary

HCM 6th Ctrl Delay	30.9
HCM 6th LOS	C

Notes

User approved pedestrian interval to be less than phase max green.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Unsignalized Delay for [SBR] is excluded from calculations of the approach delay and intersection delay.

Timings

4: Courtenay Pkwy & Fortenberry Rd

Background Conditions

AM Peak Hour

										
Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations										
Traffic Volume (vph)	1	0	43	0	75	1	646	69	96	630
Future Volume (vph)	1	0	43	0	75	1	646	69	96	630
Turn Type	Perm	NA	Perm	NA	Over	Perm	NA	Perm	pm+pt	NA
Protected Phases		4		3	1		2		1	6
Permitted Phases	4		3			2		2	6	
Detector Phase	4	4	3	3	1	2	2	2	1	6
Switch Phase										
Minimum Initial (s)	7.0	7.0	1.0	1.0	5.0	12.0	12.0	12.0	5.0	12.0
Minimum Split (s)	14.0	14.0	7.6	7.6	11.6	18.2	18.2	18.2	11.6	18.2
Total Split (s)	14.0	14.0	15.0	15.0	14.0	32.0	32.0	32.0	14.0	46.0
Total Split (%)	18.7%	18.7%	20.0%	20.0%	18.7%	42.7%	42.7%	42.7%	18.7%	61.3%
Yellow Time (s)	4.0	4.0	3.6	3.6	3.6	4.0	4.0	4.0	3.6	4.0
All-Red Time (s)	3.0	3.0	3.0	3.0	3.0	2.2	2.2	2.2	3.0	2.2
Lost Time Adjust (s)		0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)		7.0		6.6	6.6	6.2	6.2	6.2	6.6	6.2
Lead/Lag	Lag	Lag	Lead	Lead	Lead	Lag	Lag	Lag	Lead	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	
Recall Mode	None	None	None	None	None	C-Max	C-Max	C-Max	None	C-Max

Intersection Summary

Cycle Length: 75

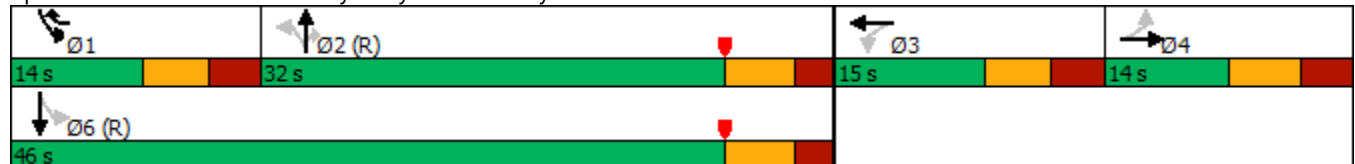
Actuated Cycle Length: 75

Offset: 32 (43%), Referenced to phase 2:NBTL and 6:SBTL, Start of Yellow

Natural Cycle: 60

Control Type: Actuated-Coordinated

Splits and Phases: 4: Courtenay Pkwy & Fortenberry Rd



HCM Signalized Intersection Capacity Analysis

4: Courtenay Pkwy & Fortenberry Rd

Background Conditions

AM Peak Hour

													
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations													
Traffic Volume (vph)	1	0	0	43	0	75	1	646	69	96	630	0	
Future Volume (vph)	1	0	0	43	0	75	1	646	69	96	630	0	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Total Lost time (s)		7.0				6.6	6.6	6.2	6.2	6.2	6.6	6.2	
Lane Util. Factor		1.00				1.00	1.00	1.00	0.95	1.00	1.00	0.95	
Frt		1.00				1.00	0.85	1.00	1.00	0.85	1.00	1.00	
Flt Protected		0.95				0.95	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)		1805				1719	1553	1805	3539	1583	1805	3471	
Flt Permitted		1.00				1.00	1.00	0.41	1.00	1.00	0.31	1.00	
Satd. Flow (perm)		1900				1810	1553	770	3539	1583	591	3471	
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	
Adj. Flow (vph)	1	0	0	44	0	77	1	666	71	99	649	0	
RTOR Reduction (vph)	0	0	0	0	0	71	0	0	36	0	0	0	
Lane Group Flow (vph)	0	1	0	0	44	6	1	666	35	99	649	0	
Heavy Vehicles (%)	0%	0%	0%	5%	0%	4%	0%	2%	2%	0%	4%	0%	
Turn Type	Perm	NA		Perm	NA	Over	Perm	NA	Perm	pm+pt	NA		
Protected Phases		4				3	1	2		1			6
Permitted Phases	4				3			2	2		6		
Actuated Green, G (s)		1.4				4.8	5.4	37.0	37.0	37.0	49.0	49.0	
Effective Green, g (s)		1.4				4.8	5.4	37.0	37.0	37.0	49.0	49.0	
Actuated g/C Ratio		0.02				0.06	0.07	0.49	0.49	0.49	0.65	0.65	
Clearance Time (s)		7.0				6.6	6.6	6.2	6.2	6.2	6.6	6.2	
Vehicle Extension (s)		3.0				3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)		35				115	111	379	1745	780	473	2267	
v/s Ratio Prot							0.00	c0.19			0.02	c0.19	
v/s Ratio Perm		c0.00				c0.02		0.00		0.02	0.12		
v/c Ratio		0.03				0.38	0.05	0.00	0.38	0.04	0.21	0.29	
Uniform Delay, d1		36.1				33.7	32.4	9.6	11.9	9.8	5.5	5.5	
Progression Factor		1.00				1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2		0.3				2.1	0.2	0.0	0.6	0.1	0.2	0.3	
Delay (s)		36.5				35.8	32.6	9.7	12.5	10.0	5.7	5.9	
Level of Service		D				D	C	A	B	A	A	A	
Approach Delay (s)		36.5				33.8		12.2			5.8		
Approach LOS		D				C		B			A		
Intersection Summary													
HCM 2000 Control Delay			10.9		HCM 2000 Level of Service				B				
HCM 2000 Volume to Capacity ratio			0.38										
Actuated Cycle Length (s)			75.0		Sum of lost time (s)				26.4				
Intersection Capacity Utilization			49.4%		ICU Level of Service				A				
Analysis Period (min)			15										
c Critical Lane Group													

Timings 5: Plumosa St & Fortenberry Rd

Background Conditions

AM Peak Hour

										
Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations										
Traffic Volume (vph)	13	57	88	38	22	15	133	130	23	179
Future Volume (vph)	13	57	88	38	22	15	133	130	23	179
Turn Type	Perm	NA	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA
Protected Phases		7	8	4		5	2		1	6
Permitted Phases	7		4		4	2		2	6	
Detector Phase	7	7	8	4	4	5	2	2	1	6
Switch Phase										
Minimum Initial (s)	5.0	5.0	7.0	7.0	7.0	5.0	14.0	14.0	5.0	14.0
Minimum Split (s)	11.0	11.0	13.0	13.0	13.0	11.0	20.0	20.0	11.0	20.0
Total Split (s)	15.0	15.0	35.0	35.0	35.0	15.0	35.0	35.0	15.0	35.0
Total Split (%)	15.0%	15.0%	35.0%	35.0%	35.0%	15.0%	35.0%	35.0%	15.0%	35.0%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
Lead/Lag	Lead	Lead	Lag			Lead	Lag	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes			Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	Max	Max	None	Max

Intersection Summary

Cycle Length: 100

Actuated Cycle Length: 65.1

Natural Cycle: 55

Control Type: Actuated-Uncoordinated

Splits and Phases: 5: Plumosa St & Fortenberry Rd

		
Ø1	Ø2	Ø4
15 s	35 s	35 s
		
Ø5	Ø6	Ø7
15 s	35 s	15 s
		Ø8
		35 s

HCM Signalized Intersection Capacity Analysis

5: Plumosa St & Fortenberry Rd

Background Conditions

AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	13	57	46	88	38	22	15	133	130	23	179	25
Future Volume (vph)	13	57	46	88	38	22	15	133	130	23	179	25
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0		6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	
Lane Util. Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Frt	1.00	0.93		1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.98	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1805	1734		1770	1900	1538	1805	1810	1615	1805	1814	
Flt Permitted	0.73	1.00		0.68	1.00	1.00	0.62	1.00	1.00	0.64	1.00	
Satd. Flow (perm)	1386	1734		1273	1900	1538	1175	1810	1615	1223	1814	
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)	14	63	51	97	42	24	16	146	143	25	197	27
RTOR Reduction (vph)	0	29	0	0	0	18	0	0	75	0	4	0
Lane Group Flow (vph)	14	85	0	97	42	6	16	146	68	25	220	0
Heavy Vehicles (%)	0%	4%	0%	2%	0%	5%	0%	5%	0%	0%	2%	9%
Turn Type	Perm	NA		pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	
Protected Phases		7		8	4		5	2		1	6	
Permitted Phases	7			4		4	2		2	6		
Actuated Green, G (s)	6.4	6.4		17.9	17.9	17.9	35.8	34.7	34.7	38.0	35.8	
Effective Green, g (s)	6.4	6.4		17.9	17.9	17.9	35.8	34.7	34.7	38.0	35.8	
Actuated g/C Ratio	0.09	0.09		0.25	0.25	0.25	0.49	0.48	0.48	0.52	0.49	
Clearance Time (s)	6.0	6.0		6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	
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)	121	152		350	467	378	587	862	769	655	892	
v/s Ratio Prot		c0.05		c0.02	0.02		0.00	0.08		c0.00	c0.12	
v/s Ratio Perm	0.01			0.05		0.00	0.01		0.04	0.02		
v/c Ratio	0.12	0.56		0.28	0.09	0.02	0.03	0.17	0.09	0.04	0.25	
Uniform Delay, d1	30.6	31.8		22.4	21.2	20.8	9.5	10.8	10.4	8.4	10.7	
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	0.4	4.4		0.4	0.1	0.0	0.0	0.4	0.2	0.0	0.7	
Delay (s)	31.0	36.2		22.8	21.3	20.8	9.5	11.3	10.6	8.5	11.4	
Level of Service	C	D		C	C	C	A	B	B	A	B	
Approach Delay (s)		35.7			22.1			10.9			11.1	
Approach LOS		D			C			B			B	
Intersection Summary												
HCM 2000 Control Delay			16.9			HCM 2000 Level of Service				B		
HCM 2000 Volume to Capacity ratio			0.30									
Actuated Cycle Length (s)			72.8			Sum of lost time (s)			24.0			
Intersection Capacity Utilization			40.7%			ICU Level of Service			A			
Analysis Period (min)			15									
c Critical Lane Group												

Timings

1: Courtenay Pkwy & SR 520

Background Conditions

PM Peak Hour

										
Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Configurations	 	  	 	  		 	 	 	 	 
Traffic Volume (vph)	464	889	140	949	288	364	578	317	548	504
Future Volume (vph)	464	889	140	949	288	364	578	317	548	504
Turn Type	Prot	NA	Prot	NA	Perm	Prot	NA	Prot	NA	Perm
Protected Phases	1	6	5	2		7	4	3	8	
Permitted Phases					2					8
Detector Phase	1	6	5	2	2	7	4	3	8	8
Switch Phase										
Minimum Initial (s)	6.0	15.0	6.0	15.0	15.0	6.0	8.0	6.0	8.0	8.0
Minimum Split (s)	14.7	23.7	14.7	23.7	23.7	13.9	15.9	13.9	15.9	15.9
Total Split (s)	37.0	71.0	22.0	56.0	56.0	27.0	42.0	25.0	40.0	40.0
Total Split (%)	23.1%	44.4%	13.8%	35.0%	35.0%	16.9%	26.3%	15.6%	25.0%	25.0%
Yellow Time (s)	4.8	4.8	4.8	4.8	4.8	4.1	4.1	4.1	4.1	4.1
All-Red Time (s)	3.9	3.9	3.9	3.9	3.9	3.8	3.8	3.8	3.8	3.8
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	8.7	8.7	8.7	8.7	8.7	7.9	7.9	7.9	7.9	7.9
Lead/Lag	Lead	Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Max	None	C-Max	C-Max	None	None	None	None	None

Intersection Summary

Cycle Length: 160

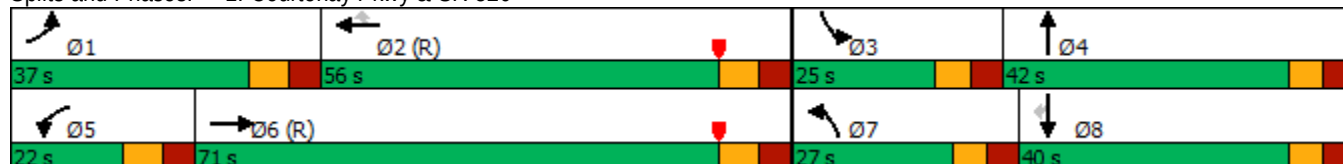
Actuated Cycle Length: 160

Offset: 20 (13%), Referenced to phase 2:WBT and 6:EBT, Start of Yellow

Natural Cycle: 100

Control Type: Actuated-Coordinated

Splits and Phases: 1: Courtenay Pkwy & SR 520



HCM 6th Signalized Intersection Summary

1: Courtenay Pkwy & SR 520

Background Conditions

PM Peak Hour

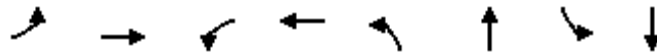
												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	464	889	165	140	949	288	364	578	72	317	548	504
Future Volume (veh/h)	464	889	165	140	949	288	364	578	72	317	548	504
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1900	1885	1885	1885	1870	1885	1870	1870	1900	1900	1900	1885
Adj Flow Rate, veh/h	494	946	176	149	1010	306	387	615	77	337	583	536
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
Percent Heavy Veh, %	0	1	1	1	2	1	2	2	0	0	0	1
Cap, veh/h	546	1817	337	195	1619	506	413	677	85	375	724	564
Arrive On Green	0.16	0.42	0.42	0.02	0.10	0.10	0.12	0.21	0.21	0.11	0.20	0.20
Sat Flow, veh/h	3510	4362	809	3483	5106	1598	3456	3178	397	3510	3610	2812
Grp Volume(v), veh/h	494	743	379	149	1010	306	387	343	349	337	583	536
Grp Sat Flow(s),veh/h/ln	1755	1716	1740	1742	1702	1598	1728	1777	1799	1755	1805	1406
Q Serve(g_s), s	22.1	25.8	26.0	6.8	30.3	29.3	17.8	30.2	30.3	15.2	24.6	30.1
Cycle Q Clear(g_c), s	22.1	25.8	26.0	6.8	30.3	29.3	17.8	30.2	30.3	15.2	24.6	30.1
Prop In Lane	1.00		0.46	1.00		1.00	1.00		0.22	1.00		1.00
Lane Grp Cap(c), veh/h	546	1429	725	195	1619	506	413	379	383	375	724	564
V/C Ratio(X)	0.91	0.52	0.52	0.76	0.62	0.60	0.94	0.91	0.91	0.90	0.80	0.95
Avail Cap(c_a), veh/h	621	1429	725	290	1619	506	413	379	383	375	724	564
HCM Platoon Ratio	1.00	1.00	1.00	0.33	0.33	0.33	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.79	0.79	0.79	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	66.4	34.8	34.8	77.5	62.5	62.0	69.9	61.4	61.4	70.6	61.0	63.2
Incr Delay (d2), s/veh	15.6	1.4	2.7	5.4	1.4	4.2	29.2	24.8	25.1	23.5	6.6	26.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	10.9	10.9	11.4	3.3	14.1	13.3	9.5	16.2	16.4	8.0	11.9	12.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	82.1	36.1	37.5	82.8	63.9	66.2	99.0	86.2	86.5	94.1	67.6	89.1
LnGrp LOS	F	D	D	F	E	E	F	F	F	F	E	F
Approach Vol, veh/h		1616			1465			1079			1456	
Approach Delay, s/veh		50.5			66.3			90.9			81.7	
Approach LOS		D			E			F			F	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	33.6	59.4	25.0	42.0	17.7	75.3	27.0	40.0				
Change Period (Y+Rc), s	* 8.7	* 8.7	* 7.9	* 7.9	* 8.7	* 8.7	* 7.9	* 7.9				
Max Green Setting (Gmax), s	* 28	* 47	* 17	* 34	* 13	* 62	* 19	* 32				
Max Q Clear Time (g_c+I1), s	24.1	32.3	17.2	32.3	8.8	28.0	19.8	32.1				
Green Ext Time (p_c), s	0.7	6.7	0.0	0.8	0.2	8.2	0.0	0.0				
Intersection Summary												
HCM 6th Ctrl Delay			70.5									
HCM 6th LOS			E									
Notes												

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Timings 2: Plumosa St & SR 520

Background Conditions

PM Peak Hour



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	124	1232	90	1296	101	99	60	75
Future Volume (vph)	124	1232	90	1296	101	99	60	75
Turn Type	Prot	NA	Prot	NA	Prot	NA	Prot	NA
Protected Phases	1	6	5	2	7	4	3	8
Permitted Phases								
Detector Phase	1	6	5	2	7	4	3	8
Switch Phase								
Minimum Initial (s)	6.0	15.0	6.0	15.0	6.0	8.0	6.0	8.0
Minimum Split (s)	13.2	22.2	13.2	22.2	13.4	15.4	13.4	15.4
Total Split (s)	30.0	83.0	22.0	75.0	25.0	35.0	20.0	30.0
Total Split (%)	18.8%	51.9%	13.8%	46.9%	15.6%	21.9%	12.5%	18.8%
Yellow Time (s)	4.8	4.8	4.8	4.8	4.0	4.0	4.0	4.0
All-Red Time (s)	2.3	2.3	2.3	2.3	3.4	3.4	3.4	3.4
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.1	7.1	7.1	7.1	7.4	7.4	7.4	7.4
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Max	None	C-Min	None	None	Max	None

Intersection Summary

Cycle Length: 160

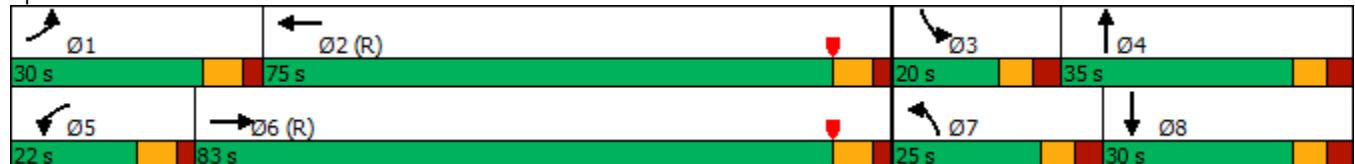
Actuated Cycle Length: 160

Offset: 102 (64%), Referenced to phase 2:WBT and 6:EBT, Start of Yellow

Natural Cycle: 80

Control Type: Actuated-Coordinated

Splits and Phases: 2: Plumosa St & SR 520



HCM 6th Signalized Intersection Summary

2: Plumosa St & SR 520

Background Conditions

PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		  			  						 	
Traffic Volume (veh/h)	124	1232	98	90	1296	102	101	99	64	60	75	110
Future Volume (veh/h)	124	1232	98	90	1296	102	101	99	64	60	75	110
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1811	1885	1870	1900	1870	1856	1870	1900	1870	1841	1885	1885
Adj Flow Rate, veh/h	128	1270	101	93	1336	105	104	102	66	62	77	113
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
Percent Heavy Veh, %	6	1	2	0	2	3	2	0	2	4	1	1
Cap, veh/h	150	2733	217	112	2594	204	125	125	81	138	86	126
Arrive On Green	0.06	0.38	0.38	0.12	1.00	1.00	0.07	0.12	0.12	0.08	0.12	0.12
Sat Flow, veh/h	1725	4860	386	1810	4827	379	1781	1077	697	1753	690	1013
Grp Volume(v), veh/h	128	897	474	93	942	499	104	0	168	62	0	190
Grp Sat Flow(s),veh/h/ln	1725	1716	1816	1810	1702	1802	1781	0	1775	1753	0	1703
Q Serve(g_s), s	11.8	31.6	31.6	8.0	0.0	0.0	9.2	0.0	14.8	5.4	0.0	17.6
Cycle Q Clear(g_c), s	11.8	31.6	31.6	8.0	0.0	0.0	9.2	0.0	14.8	5.4	0.0	17.6
Prop In Lane	1.00		0.21	1.00		0.21	1.00		0.39	1.00		0.59
Lane Grp Cap(c), veh/h	150	1929	1021	112	1830	969	125	0	205	138	0	212
V/C Ratio(X)	0.85	0.46	0.46	0.83	0.51	0.51	0.83	0.00	0.82	0.45	0.00	0.90
Avail Cap(c_a), veh/h	247	1929	1021	169	1830	969	196	0	306	138	0	241
HCM Platoon Ratio	0.67	0.67	0.67	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.73	0.73	0.73	0.95	0.95	0.95	0.99	0.00	0.99	1.00	0.00	1.00
Uniform Delay (d), s/veh	74.3	31.7	31.7	69.2	0.0	0.0	73.5	0.0	69.1	70.4	0.0	69.1
Incr Delay (d2), s/veh	10.8	0.6	1.1	17.7	1.0	1.9	15.5	0.0	10.2	10.2	0.0	30.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.7	13.9	14.9	4.0	0.3	0.5	4.8	0.0	7.3	2.9	0.0	9.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	85.1	32.3	32.8	86.9	1.0	1.9	89.0	0.0	79.3	80.6	0.0	99.3
LnGrp LOS	F	C	C	F	A	A	F	A	E	F	A	F
Approach Vol, veh/h		1499			1534			272			252	
Approach Delay, s/veh		36.9			6.5			83.0			94.7	
Approach LOS		D			A			F			F	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	21.0	93.1	20.0	25.9	17.0	97.1	18.6	27.3				
Change Period (Y+Rc), s	* 7.1	* 7.1	7.4	7.4	* 7.1	* 7.1	7.4	7.4				
Max Green Setting (Gmax), s	* 23	* 68	12.6	27.6	* 15	* 76	17.6	22.6				
Max Q Clear Time (g_c+I1), s	13.8	2.0	7.4	16.8	10.0	33.6	11.2	19.6				
Green Ext Time (p_c), s	0.2	13.0	0.0	0.6	0.1	11.3	0.1	0.3				

Intersection Summary

HCM 6th Ctrl Delay 31.4

HCM 6th LOS C

Notes

User approved pedestrian interval to be less than phase max green.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Timings

3: Skyes Creek Pkwy & SR 520

Background Conditions

PM Peak Hour

											
Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	 	  	 	  	 		 		 	 	
Traffic Volume (vph)	214	893	145	895	302	64	121	187	329	133	162
Future Volume (vph)	214	893	145	895	302	64	121	187	329	133	162
Turn Type	Prot	NA	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Free
Protected Phases	1	6	5	2		7	4		3	8	
Permitted Phases					2			4			Free
Detector Phase	1	6	5	2	2	7	4	4	3	8	
Switch Phase											
Minimum Initial (s)	6.0	15.0	6.0	15.0	15.0	6.0	8.0	8.0	6.0	8.0	
Minimum Split (s)	14.3	23.3	14.3	23.3	23.3	14.4	16.4	16.4	14.4	16.4	
Total Split (s)	23.0	75.0	25.0	77.0	77.0	23.0	25.0	25.0	35.0	37.0	
Total Split (%)	14.4%	46.9%	15.6%	48.1%	48.1%	14.4%	15.6%	15.6%	21.9%	23.1%	
Yellow Time (s)	4.8	4.8	4.8	4.8	4.8	4.8	4.8	4.8	4.8	4.8	
All-Red Time (s)	3.5	3.5	3.5	3.5	3.5	3.6	3.6	3.6	3.6	3.6	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	8.3	8.3	8.3	8.3	8.3	8.4	8.4	8.4	8.4	8.4	
Lead/Lag	Lead	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	
Recall Mode	None	C-Max	None	C-Max	C-Max	None	None	None	None	None	

Intersection Summary

Cycle Length: 160

Actuated Cycle Length: 160

Offset: 105 (66%), Referenced to phase 2:WBT and 6:EBT, Start of Yellow

Natural Cycle: 75

Control Type: Actuated-Coordinated

Splits and Phases: 3: Skyes Creek Pkwy & SR 520

 Ø1	 Ø2 (R)	 Ø3	 Ø4
23 s	77 s	35 s	25 s
 Ø5	 Ø6 (R)	 Ø7	 Ø8
25 s	75 s	23 s	37 s

HCM 6th Signalized Intersection Summary

3: Skyes Creek Pkwy & SR 520

Background Conditions

PM Peak Hour

													
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations													
Traffic Volume (veh/h)	214	893	30	145	895	302	64	121	187	329	133	162	
Future Volume (veh/h)	214	893	30	145	895	302	64	121	187	329	133	162	
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0	
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Work Zone On Approach	No			No			No			No			
Adj Sat Flow, veh/h/ln	1885	1885	1900	1870	1856	1856	1900	1870	1870	1885	1856	1885	
Adj Flow Rate, veh/h	223	930	31	151	932	315	67	126	195	343	139	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	
Percent Heavy Veh, %	1	1	0	2	3	3	0	2	2	1	3	1	
Cap, veh/h	264	2641	88	197	2519	1376	85	369	164	398	317		
Arrive On Green	0.15	1.00	1.00	0.06	0.50	0.50	0.05	0.10	0.10	0.11	0.17	0.00	
Sat Flow, veh/h	3483	5115	170	3456	5066	2768	1810	3554	1585	3483	1856	1598	
Grp Volume(v), veh/h	223	623	338	151	932	315	67	126	195	343	139	0	
Grp Sat Flow(s),veh/h/ln	1742	1716	1855	1728	1689	1384	1810	1777	1585	1742	1856	1598	
Q Serve(g_s), s	10.0	0.0	0.0	6.9	18.1	10.3	5.9	5.3	16.6	15.5	10.7	0.0	
Cycle Q Clear(g_c), s	10.0	0.0	0.0	6.9	18.1	10.3	5.9	5.3	16.6	15.5	10.7	0.0	
Prop In Lane	1.00		0.09	1.00		1.00	1.00		1.00	1.00		1.00	
Lane Grp Cap(c), veh/h	264	1771	957	197	2519	1376	85	369	164	398	317		
V/C Ratio(X)	0.84	0.35	0.35	0.77	0.37	0.23	0.79	0.34	1.19	0.86	0.44		
Avail Cap(c_a), veh/h	320	1771	957	361	2519	1376	165	369	164	579	332		
HCM Platoon Ratio	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Upstream Filter(l)	0.85	0.85	0.85	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	
Uniform Delay (d), s/veh	66.9	0.0	0.0	74.4	24.8	22.8	75.5	66.6	71.7	69.6	59.4	0.0	
Incr Delay (d2), s/veh	13.7	0.5	0.9	6.1	0.4	0.4	14.7	0.5	128.9	8.9	1.0	0.0	
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
%ile BackOfQ(50%),veh/ln	4.6	0.1	0.2	3.2	7.3	3.4	3.1	2.4	12.5	7.3	5.1	0.0	
Unsig. Movement Delay, s/veh													
LnGrp Delay(d),s/veh	80.6	0.5	0.9	80.5	25.2	23.2	90.2	67.2	200.6	78.6	60.4	0.0	
LnGrp LOS	F	A	A	F	C	C	F	E	F	E	E		
Approach Vol, veh/h	1184			1398			388			482			A
Approach Delay, s/veh	15.7			30.7			138.2			73.3			
Approach LOS	B			C			F			E			
Timer - Assigned Phs	1	2	3	4	5	6	7	8					
Phs Duration (G+Y+Rc), s	20.4	87.9	26.7	25.0	17.4	90.9	15.9	35.8					
Change Period (Y+Rc), s	8.3	8.3	* 8.4	* 8.4	8.3	8.3	* 8.4	* 8.4					
Max Green Setting (Gmax), s	14.7	68.7	* 27	* 17	16.7	66.7	* 15	* 29					
Max Q Clear Time (g_c+l1), s	12.0	20.1	17.5	18.6	8.9	2.0	7.9	12.7					
Green Ext Time (p_c), s	0.2	9.1	0.8	0.0	0.2	6.9	0.1	0.5					

Intersection Summary

HCM 6th Ctrl Delay 43.6

HCM 6th LOS D

Notes

User approved pedestrian interval to be less than phase max green.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Unsignalized Delay for [SBR] is excluded from calculations of the approach delay and intersection delay.

Timings

4: Courtenay Pkwy & Fortenberry Rd

Background Conditions

PM Peak Hour

										
Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations										
Traffic Volume (vph)	1	0	94	0	183	3	738	65	67	854
Future Volume (vph)	1	0	94	0	183	3	738	65	67	854
Turn Type	Perm	NA	Perm	NA	Over	Perm	NA	Perm	pm+pt	NA
Protected Phases		4		3	1		2		1	6
Permitted Phases	4		3			2		2	6	
Detector Phase	4	4	3	3	1	2	2	2	1	6
Switch Phase										
Minimum Initial (s)	7.0	7.0	7.0	7.0	5.0	12.0	12.0	12.0	5.0	12.0
Minimum Split (s)	14.0	14.0	13.6	13.6	11.6	18.2	18.2	18.2	11.6	18.2
Total Split (s)	16.0	16.0	16.0	16.0	14.0	34.0	34.0	34.0	14.0	48.0
Total Split (%)	20.0%	20.0%	20.0%	20.0%	17.5%	42.5%	42.5%	42.5%	17.5%	60.0%
Yellow Time (s)	4.0	4.0	3.6	3.6	3.6	4.0	4.0	4.0	3.6	4.0
All-Red Time (s)	3.0	3.0	3.0	3.0	3.0	2.2	2.2	2.2	3.0	2.2
Lost Time Adjust (s)		0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)		7.0		6.6	6.6	6.2	6.2	6.2	6.6	6.2
Lead/Lag	Lag	Lag	Lead	Lead	Lead	Lag	Lag	Lag	Lead	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	
Recall Mode	None	None	None	None	None	C-Max	C-Max	C-Max	None	C-Max

Intersection Summary

Cycle Length: 80

Actuated Cycle Length: 80

Offset: 57.8 (72%), Referenced to phase 2:NBTL and 6:SBTL, Start of Yellow

Natural Cycle: 65

Control Type: Actuated-Coordinated

Splits and Phases: 4: Courtenay Pkwy & Fortenberry Rd

			
Ø1	Ø2 (R)	Ø3	Ø4
14 s	34 s	16 s	16 s
			
Ø5 (R)			
48 s			

HCM Signalized Intersection Capacity Analysis

4: Courtenay Pkwy & Fortenberry Rd

Background Conditions

PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	1	0	2	94	0	183	3	738	65	67	854	1
Future Volume (vph)	1	0	2	94	0	183	3	738	65	67	854	1
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		7.0				6.6	6.6	6.2	6.2	6.2	6.6	6.2
Lane Util. Factor		1.00				1.00	1.00	1.00	0.95	1.00	1.00	0.95
Frt		0.91				1.00	0.85	1.00	1.00	0.85	1.00	1.00
Flt Protected		0.98				0.95	1.00	0.95	1.00	1.00	0.95	1.00
Satd. Flow (prot)		1701				1805	1599	1805	3539	1538	1805	3574
Flt Permitted		1.00				0.43	1.00	0.31	1.00	1.00	0.24	1.00
Satd. Flow (perm)		1729				809	1599	590	3539	1538	453	3574
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)	1	0	2	101	0	197	3	794	70	72	918	1
RTOR Reduction (vph)	0	3	0	0	0	180	0	0	39	0	0	0
Lane Group Flow (vph)	0	0	0	0	101	17	3	794	32	72	919	0
Heavy Vehicles (%)	0%	0%	0%	0%	0%	1%	0%	2%	5%	0%	1%	0%
Turn Type	Perm	NA			Perm	NA	Over	Perm	NA	Perm	pm+pt	NA
Protected Phases		4				3	1		2		1	6
Permitted Phases	4			3				2		2	6	
Actuated Green, G (s)		1.4				9.4	6.8	36.0	36.0	36.0	49.4	49.4
Effective Green, g (s)		1.4				9.4	6.8	36.0	36.0	36.0	49.4	49.4
Actuated g/C Ratio		0.02				0.12	0.08	0.45	0.45	0.45	0.62	0.62
Clearance Time (s)		7.0				6.6	6.6	6.2	6.2	6.2	6.6	6.2
Vehicle Extension (s)		3.0				3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)		30				95	135	265	1592	692	394	2206
v/s Ratio Prot							0.01		c0.22		0.02	c0.26
v/s Ratio Perm		c0.00				c0.12		0.01		0.02	0.10	
v/c Ratio		0.00				1.06	0.12	0.01	0.50	0.05	0.18	0.42
Uniform Delay, d1		38.6				35.3	33.8	12.2	15.6	12.4	7.4	7.9
Progression Factor		1.00				1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2		0.0				110.5	0.4	0.1	1.1	0.1	0.2	0.6
Delay (s)		38.6				145.8	34.3	12.2	16.7	12.5	7.6	8.5
Level of Service		D				F	C	B	B	B	A	A
Approach Delay (s)		38.6				72.1			16.4			8.4
Approach LOS		D				E			B			A
Intersection Summary												
HCM 2000 Control Delay			20.4		HCM 2000 Level of Service				C			
HCM 2000 Volume to Capacity ratio			0.61									
Actuated Cycle Length (s)			80.0		Sum of lost time (s)				26.4			
Intersection Capacity Utilization			61.3%		ICU Level of Service				B			
Analysis Period (min)			15									
c Critical Lane Group												

Timings 5: Plumosa St & Fortenberry Rd

Background Conditions

PM Peak Hour

											
Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	
Lane Configurations											
Traffic Volume (vph)	27	107	140	126	63	39	169	162	49	133	
Future Volume (vph)	27	107	140	126	63	39	169	162	49	133	
Turn Type	Perm	NA	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	
Protected Phases		7	8	4		5	2		1	6	
Permitted Phases	7		4		4	2		2	6		
Detector Phase	7	7	8	4	4	5	2	2	1	6	
Switch Phase											
Minimum Initial (s)	5.0	5.0	7.0	7.0	7.0	5.0	14.0	14.0	5.0	14.0	
Minimum Split (s)	11.0	11.0	13.0	13.0	13.0	11.0	20.0	20.0	11.0	20.0	
Total Split (s)	15.0	15.0	35.0	35.0	35.0	15.0	35.0	35.0	15.0	35.0	
Total Split (%)	15.0%	15.0%	35.0%	35.0%	35.0%	15.0%	35.0%	35.0%	15.0%	35.0%	
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	
Lead/Lag	Lead	Lead	Lag			Lead	Lag	Lag	Lead	Lag	
Lead-Lag Optimize?	Yes	Yes	Yes			Yes	Yes	Yes	Yes	Yes	
Recall Mode	None	None	None	None	None	None	Max	Max	None	Max	

Intersection Summary

Cycle Length: 100

Actuated Cycle Length: 71.4

Natural Cycle: 55

Control Type: Actuated-Uncoordinated

Splits and Phases: 5: Plumosa St & Fortenberry Rd

		
Ø1	Ø2	Ø4
15 s	35 s	35 s
		
Ø5	Ø6	Ø7
15 s	35 s	15 s
		Ø8
		35 s

HCM Signalized Intersection Capacity Analysis

5: Plumosa St & Fortenberry Rd

Background Conditions

PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	27	107	37	140	126	63	39	169	162	49	133	30
Future Volume (vph)	27	107	37	140	126	63	39	169	162	49	133	30
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0		6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	
Lane Util. Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Frt	1.00	0.96		1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.97	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1805	1813		1770	1900	1583	1805	1881	1568	1736	1833	
Flt Permitted	0.67	1.00		0.64	1.00	1.00	0.64	1.00	1.00	0.63	1.00	
Satd. Flow (perm)	1269	1813		1194	1900	1583	1222	1881	1568	1160	1833	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	30	119	41	156	140	70	43	188	180	54	148	33
RTOR Reduction (vph)	0	12	0	0	0	49	0	0	109	0	7	0
Lane Group Flow (vph)	30	148	0	156	140	21	43	188	71	54	174	0
Heavy Vehicles (%)	0%	1%	0%	2%	0%	2%	0%	1%	3%	4%	1%	0%
Turn Type	Perm	NA		pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	
Protected Phases		7		8	4		5	2		1	6	
Permitted Phases	7			4		4	2		2	6		
Actuated Green, G (s)	9.1	9.1		22.7	22.7	22.7	33.1	29.3	29.3	33.5	29.5	
Effective Green, g (s)	9.1	9.1		22.7	22.7	22.7	33.1	29.3	29.3	33.5	29.5	
Actuated g/C Ratio	0.12	0.12		0.31	0.31	0.31	0.45	0.40	0.40	0.45	0.40	
Clearance Time (s)	6.0	6.0		6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	
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)	156	222		425	582	485	576	744	620	556	730	
v/s Ratio Prot		c0.08		c0.04	0.07		0.00	c0.10		c0.01	0.10	
v/s Ratio Perm	0.02			0.07		0.01	0.03		0.05	0.04		
v/c Ratio	0.19	0.67		0.37	0.24	0.04	0.07	0.25	0.11	0.10	0.24	
Uniform Delay, d1	29.1	31.0		20.7	19.2	18.0	11.6	15.0	14.1	11.4	14.8	
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	0.6	7.3		0.5	0.2	0.0	0.1	0.8	0.4	0.1	0.8	
Delay (s)	29.8	38.3		21.2	19.4	18.1	11.6	15.8	14.5	11.5	15.6	
Level of Service	C	D		C	B	B	B	B	B	B	B	
Approach Delay (s)		37.0			19.9			14.8			14.6	
Approach LOS		D			B			B			B	
Intersection Summary												
HCM 2000 Control Delay			19.8			HCM 2000 Level of Service				B		
HCM 2000 Volume to Capacity ratio			0.34									
Actuated Cycle Length (s)			74.0			Sum of lost time (s)			24.0			
Intersection Capacity Utilization			51.5%			ICU Level of Service			A			
Analysis Period (min)			15									
c Critical Lane Group												

Timings

3: Skyes Creek Pkwy & SR 520

Background Conditions with Improvements

PM Peak Hour

											
Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	 	  	 	  	 		 		 	 	
Traffic Volume (vph)	214	893	145	895	302	64	121	187	329	133	162
Future Volume (vph)	214	893	145	895	302	64	121	187	329	133	162
Turn Type	Prot	NA	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Free
Protected Phases	1	6	5	2		7	4		3	8	
Permitted Phases					2			4			Free
Detector Phase	1	6	5	2	2	7	4	4	3	8	
Switch Phase											
Minimum Initial (s)	6.0	15.0	6.0	15.0	15.0	6.0	8.0	8.0	6.0	8.0	
Minimum Split (s)	14.3	23.3	14.3	23.3	23.3	14.4	16.4	16.4	14.4	16.4	
Total Split (s)	30.0	63.0	25.0	58.0	58.0	25.0	34.0	34.0	38.0	47.0	
Total Split (%)	18.8%	39.4%	15.6%	36.3%	36.3%	15.6%	21.3%	21.3%	23.8%	29.4%	
Yellow Time (s)	4.8	4.8	4.8	4.8	4.8	4.8	4.8	4.8	4.8	4.8	
All-Red Time (s)	3.5	3.5	3.5	3.5	3.5	3.6	3.6	3.6	3.6	3.6	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	8.3	8.3	8.3	8.3	8.3	8.4	8.4	8.4	8.4	8.4	
Lead/Lag	Lead	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	
Recall Mode	None	C-Max	None	C-Max	C-Max	None	None	None	None	None	

Intersection Summary

Cycle Length: 160

Actuated Cycle Length: 160

Offset: 105 (66%), Referenced to phase 2:WBT and 6:EBT, Start of Yellow

Natural Cycle: 75

Control Type: Actuated-Coordinated

Splits and Phases: 3: Skyes Creek Pkwy & SR 520

 Ø1	 Ø2 (R)	 Ø3	 Ø4
30 s	58 s	38 s	34 s
 Ø5	 Ø6 (R)	 Ø7	 Ø8
25 s	63 s	25 s	47 s

HCM 6th Signalized Intersection Summary 3: Skyes Creek Pkwy & SR 520

Background Conditions with Improvements

PM Peak Hour

													
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations	 	  		 	  	 		 		 			
Traffic Volume (veh/h)	214	893	30	145	895	302	64	121	187	329	133	162	
Future Volume (veh/h)	214	893	30	145	895	302	64	121	187	329	133	162	
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0	
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Work Zone On Approach	No			No			No			No			
Adj Sat Flow, veh/h/ln	1885	1885	1900	1870	1856	1856	1900	1870	1870	1885	1856	1885	
Adj Flow Rate, veh/h	223	930	31	151	932	315	67	126	195	343	139	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	
Percent Heavy Veh, %	1	1	0	2	3	3	0	2	2	1	3	1	
Cap, veh/h	270	2467	82	197	2340	1278	85	487	217	400	380		
Arrive On Green	0.16	0.96	0.96	0.06	0.46	0.46	0.05	0.14	0.14	0.11	0.20	0.00	
Sat Flow, veh/h	3483	5115	170	3456	5066	2768	1810	3554	1585	3483	1856	1598	
Grp Volume(v), veh/h	223	623	338	151	932	315	67	126	195	343	139	0	
Grp Sat Flow(s),veh/h/ln	1742	1716	1855	1728	1689	1384	1810	1777	1585	1742	1856	1598	
Q Serve(g_s), s	9.9	1.6	1.6	6.9	19.4	11.1	5.9	5.1	19.4	15.5	10.3	0.0	
Cycle Q Clear(g_c), s	9.9	1.6	1.6	6.9	19.4	11.1	5.9	5.1	19.4	15.5	10.3	0.0	
Prop In Lane	1.00		0.09	1.00		1.00	1.00		1.00	1.00		1.00	
Lane Grp Cap(c), veh/h	270	1655	895	197	2340	1278	85	487	217	400	380		
V/C Ratio(X)	0.83	0.38	0.38	0.77	0.40	0.25	0.79	0.26	0.90	0.86	0.37		
Avail Cap(c_a), veh/h	472	1655	895	361	2340	1278	188	569	254	644	448		
HCM Platoon Ratio	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Upstream Filter(I)	0.85	0.85	0.85	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	
Uniform Delay (d), s/veh	66.5	1.5	1.5	74.4	28.4	26.1	75.4	61.8	68.0	69.5	54.7	0.0	
Incr Delay (d2), s/veh	5.4	0.6	1.0	6.1	0.5	0.5	14.6	0.3	28.7	6.5	0.6	0.0	
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
%ile BackOfQ(50%),veh/ln	4.3	0.5	0.7	3.2	7.9	3.7	3.1	2.3	9.5	7.2	4.8	0.0	
Unsig. Movement Delay, s/veh													
LnGrp Delay(d),s/veh	72.0	2.0	2.5	80.5	28.9	26.6	90.1	62.1	96.7	76.0	55.3	0.0	
LnGrp LOS	E	A	A	F	C	C	F	E	F	E	E		
Approach Vol, veh/h	1184			1398			388			482			A
Approach Delay, s/veh	15.4			34.0			84.3			70.1			
Approach LOS	B			C			F			E			
Timer - Assigned Phs	1	2	3	4	5	6	7	8					
Phs Duration (G+Y+Rc), s	20.7	82.2	26.8	30.3	17.4	85.5	15.9	41.2					
Change Period (Y+Rc), s	8.3	8.3	* 8.4	* 8.4	8.3	8.3	* 8.4	* 8.4					
Max Green Setting (Gmax), s	21.7	49.7	* 30	* 26	16.7	54.7	* 17	* 39					
Max Q Clear Time (g_c+I1), s	11.9	21.4	17.5	21.4	8.9	3.6	7.9	12.3					
Green Ext Time (p_c), s	0.5	8.3	0.9	0.5	0.2	6.8	0.1	0.6					

Intersection Summary

HCM 6th Ctrl Delay 38.3

HCM 6th LOS D

Notes

User approved pedestrian interval to be less than phase max green.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Unsignalized Delay for [SBR] is excluded from calculations of the approach delay and intersection delay.

Timings

Background Conditions with Improvements

4: Courtenay Pkwy & Fortenberry Rd

PM Peak Hour

										
Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations										
Traffic Volume (vph)	1	0	94	0	183	3	738	65	67	854
Future Volume (vph)	1	0	94	0	183	3	738	65	67	854
Turn Type	Perm	NA	Perm	NA	Over	Perm	NA	Perm	pm+pt	NA
Protected Phases		4		3	1		2		1	6
Permitted Phases	4		3			2		2	6	
Detector Phase	4	4	3	3	1	2	2	2	1	6
Switch Phase										
Minimum Initial (s)	7.0	7.0	7.0	7.0	5.0	12.0	12.0	12.0	5.0	12.0
Minimum Split (s)	14.0	14.0	13.6	13.6	11.6	18.2	18.2	18.2	11.6	18.2
Total Split (s)	14.0	14.0	23.6	23.6	14.2	28.2	28.2	28.2	14.2	42.4
Total Split (%)	17.5%	17.5%	29.5%	29.5%	17.8%	35.3%	35.3%	35.3%	17.8%	53.0%
Yellow Time (s)	4.0	4.0	3.6	3.6	3.6	4.0	4.0	4.0	3.6	4.0
All-Red Time (s)	3.0	3.0	3.0	3.0	3.0	2.2	2.2	2.2	3.0	2.2
Lost Time Adjust (s)		0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)		7.0		6.6	6.6	6.2	6.2	6.2	6.6	6.2
Lead/Lag	Lag	Lag	Lead	Lead	Lead	Lag	Lag	Lag	Lead	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	
Recall Mode	None	None	None	None	None	C-Max	C-Max	C-Max	None	C-Max

Intersection Summary

Cycle Length: 80

Actuated Cycle Length: 80

Offset: 57.8 (72%), Referenced to phase 2:NBTL and 6:SBTL, Start of Yellow

Natural Cycle: 65

Control Type: Actuated-Coordinated

Splits and Phases: 4: Courtenay Pkwy & Fortenberry Rd

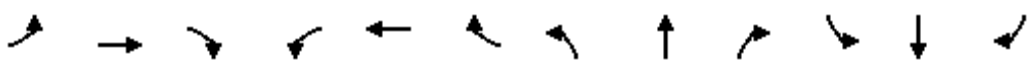
			
Ø1	Ø2 (R)	Ø3	Ø4
14.2 s	28.2 s	23.6 s	14 s
			
Ø5 (R)			
42.4 s			

HCM Signalized Intersection Capacity Analysis

4: Courtenay Pkwy & Fortenberry Rd

Background Conditions with Improvements

PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔	↔	↔	↕	↔	↔	↕	↕
Traffic Volume (vph)	1	0	2	94	0	183	3	738	65	67	854	1
Future Volume (vph)	1	0	2	94	0	183	3	738	65	67	854	1
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		7.0			6.6	6.6	6.2	6.2	6.2	6.6	6.2	
Lane Util. Factor		1.00			1.00	1.00	1.00	0.95	1.00	1.00	0.95	
Frt		0.91			1.00	0.85	1.00	1.00	0.85	1.00	1.00	
Flt Protected		0.98			0.95	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)		1701			1805	1599	1805	3539	1538	1805	3574	
Flt Permitted		1.00			0.36	1.00	0.31	1.00	1.00	0.22	1.00	
Satd. Flow (perm)		1729			680	1599	590	3539	1538	414	3574	
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)	1	0	2	101	0	197	3	794	70	72	918	1
RTOR Reduction (vph)	0	3	0	0	0	181	0	0	42	0	0	0
Lane Group Flow (vph)	0	0	0	0	101	16	3	794	28	72	919	0
Heavy Vehicles (%)	0%	0%	0%	0%	0%	1%	0%	2%	5%	0%	1%	0%
Turn Type	Perm	NA		Perm	NA	Over	Perm	NA	Perm	pm+pt	NA	
Protected Phases		4			3	1		2		1	6	
Permitted Phases	4			3			2		2	6		
Actuated Green, G (s)		1.4			13.2	6.6	32.4	32.4	32.4	45.6	45.6	
Effective Green, g (s)		1.4			13.2	6.6	32.4	32.4	32.4	45.6	45.6	
Actuated g/C Ratio		0.02			0.16	0.08	0.40	0.40	0.40	0.57	0.57	
Clearance Time (s)		7.0			6.6	6.6	6.2	6.2	6.2	6.6	6.2	
Vehicle Extension (s)		3.0			3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)		30			112	131	238	1433	622	350	2037	
v/s Ratio Prot						0.01		c0.22		0.02	c0.26	
v/s Ratio Perm		c0.00			c0.15		0.01		0.02	0.10		
v/c Ratio		0.00			0.90	0.12	0.01	0.55	0.05	0.21	0.45	
Uniform Delay, d1		38.6			32.8	34.0	14.2	18.3	14.4	9.2	10.0	
Progression Factor		1.00			1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2		0.0			55.1	0.4	0.1	1.5	0.1	0.3	0.7	
Delay (s)		38.6			87.9	34.4	14.3	19.8	14.6	9.5	10.7	
Level of Service		D			F	C	B	B	B	A	B	
Approach Delay (s)		38.6			52.6			19.4			10.6	
Approach LOS		D			D			B			B	
Intersection Summary												
HCM 2000 Control Delay			19.9									
HCM 2000 Volume to Capacity ratio			0.65									
Actuated Cycle Length (s)			80.0									
Intersection Capacity Utilization			61.3%									
Analysis Period (min)			15									
c Critical Lane Group												

Timings

1: Courtenay Pkwy & SR 520

Buildout Conditions

AM Peak Hour

										
Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Configurations	 	  	 	  		 	 	 	 	 
Traffic Volume (vph)	470	814	125	552	154	226	526	236	461	417
Future Volume (vph)	470	814	125	552	154	226	526	236	461	417
Turn Type	Prot	NA	Prot	NA	Perm	Prot	NA	Prot	NA	Perm
Protected Phases	1	6	5	2		7	4	3	8	
Permitted Phases					2					8
Detector Phase	1	6	5	2	2	7	4	3	8	8
Switch Phase										
Minimum Initial (s)	6.0	15.0	6.0	15.0	15.0	6.0	8.0	6.0	8.0	8.0
Minimum Split (s)	14.7	23.7	14.7	23.7	23.7	13.9	18.6	13.9	18.6	18.6
Total Split (s)	38.0	71.0	23.0	56.0	56.0	21.0	35.0	21.0	35.0	35.0
Total Split (%)	25.3%	47.3%	15.3%	37.3%	37.3%	14.0%	23.3%	14.0%	23.3%	23.3%
Yellow Time (s)	4.8	4.8	4.8	4.8	4.8	4.1	4.1	4.1	4.1	4.1
All-Red Time (s)	3.9	3.9	3.9	3.9	3.9	3.8	3.8	3.8	3.8	3.8
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	8.7	8.7	8.7	8.7	8.7	7.9	7.9	7.9	7.9	7.9
Lead/Lag	Lead	Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Max	None	C-Max	C-Max	None	None	None	None	None

Intersection Summary

Cycle Length: 150

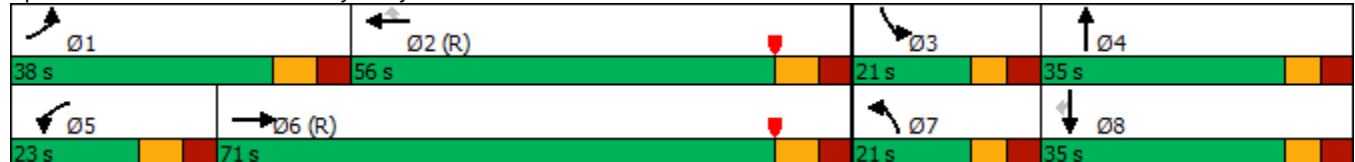
Actuated Cycle Length: 150

Offset: 37 (25%), Referenced to phase 2:WBT and 6:EBT, Start of Yellow

Natural Cycle: 90

Control Type: Actuated-Coordinated

Splits and Phases: 1: Courtenay Pkwy & SR 520



HCM 6th Signalized Intersection Summary

1: Courtenay Pkwy & SR 520

Buildout Conditions

AM Peak Hour

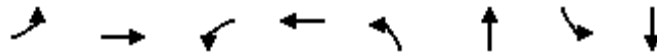
												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	470	814	216	125	552	154	226	526	71	236	461	417
Future Volume (veh/h)	470	814	216	125	552	154	226	526	71	236	461	417
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1856	1841	1885	1841	1870	1870	1885	1870	1870	1870	1870
Adj Flow Rate, veh/h	495	857	227	132	581	162	238	554	75	248	485	439
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	3	4	1	4	2	2	1	2	2	2	2
Cap, veh/h	554	1843	485	181	1775	560	283	573	77	292	651	511
Arrive On Green	0.16	0.46	0.46	0.02	0.12	0.12	0.08	0.18	0.18	0.08	0.18	0.18
Sat Flow, veh/h	3456	3992	1051	3483	5025	1585	3456	3171	428	3456	3554	2790
Grp Volume(v), veh/h	495	724	360	132	581	162	238	312	317	248	485	439
Grp Sat Flow(s),veh/h/ln	1728	1689	1666	1742	1675	1585	1728	1791	1808	1728	1777	1395
Q Serve(g_s), s	21.1	22.0	22.2	5.7	15.9	14.0	10.2	25.9	26.1	10.6	19.4	22.9
Cycle Q Clear(g_c), s	21.1	22.0	22.2	5.7	15.9	14.0	10.2	25.9	26.1	10.6	19.4	22.9
Prop In Lane	1.00		0.63	1.00		1.00	1.00		0.24	1.00		1.00
Lane Grp Cap(c), veh/h	554	1559	769	181	1775	560	283	324	327	292	651	511
V/C Ratio(X)	0.89	0.46	0.47	0.73	0.33	0.29	0.84	0.96	0.97	0.85	0.74	0.86
Avail Cap(c_a), veh/h	675	1559	769	332	1775	560	302	324	327	302	651	511
HCM Platoon Ratio	1.00	1.00	1.00	0.33	0.33	0.33	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.94	0.94	0.94	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	61.7	27.7	27.7	72.7	49.9	49.0	67.9	61.0	61.0	67.7	57.9	59.4
Incr Delay (d2), s/veh	12.5	1.0	2.0	5.2	0.5	1.2	18.1	40.5	41.6	19.6	4.6	13.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	10.0	8.9	9.1	2.7	7.3	6.2	5.2	15.4	15.7	5.5	9.1	9.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	74.3	28.7	29.8	77.8	50.4	50.3	86.0	101.5	102.6	87.3	62.6	73.0
LnGrp LOS	E	C	C	E	D	D	F	F	F	F	E	E
Approach Vol, veh/h		1579			875			867			1172	
Approach Delay, s/veh		43.2			54.5			97.7			71.7	
Approach LOS		D			D			F			E	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	32.8	61.7	20.6	35.0	16.5	77.9	20.2	35.4				
Change Period (Y+Rc), s	* 8.7	* 8.7	* 7.9	* 7.9	* 8.7	* 8.7	* 7.9	* 7.9				
Max Green Setting (Gmax), s	* 29	* 47	* 13	* 27	* 14	* 62	* 13	* 27				
Max Q Clear Time (g_c+I1), s	23.1	17.9	12.6	28.1	7.7	24.2	12.2	24.9				
Green Ext Time (p_c), s	1.0	4.4	0.0	0.0	0.2	8.1	0.1	1.1				
Intersection Summary												
HCM 6th Ctrl Delay			63.4									
HCM 6th LOS			E									
Notes												

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Timings 2: Plumosa St & SR 520

Buildout Conditions

AM Peak Hour



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	86	917	70	812	87	73	22	77
Future Volume (vph)	86	917	70	812	87	73	22	77
Turn Type	Prot	NA	Prot	NA	Prot	NA	Prot	NA
Protected Phases	1	6	5	2	7	4	3	8
Permitted Phases								
Detector Phase	1	6	5	2	7	4	3	8
Switch Phase								
Minimum Initial (s)	6.0	15.0	6.0	15.0	6.0	8.0	6.0	8.0
Minimum Split (s)	13.1	22.1	13.1	22.1	13.4	15.4	13.4	15.4
Total Split (s)	24.0	81.0	24.0	81.0	20.0	27.0	18.0	25.0
Total Split (%)	16.0%	54.0%	16.0%	54.0%	13.3%	18.0%	12.0%	16.7%
Yellow Time (s)	4.8	4.8	4.8	4.8	4.0	4.0	4.0	4.0
All-Red Time (s)	2.3	2.3	2.3	2.3	3.4	3.4	3.4	3.4
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.1	7.1	7.1	7.1	7.4	7.4	7.4	7.4
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Max	None	C-Max	None	None	None	None

Intersection Summary

Cycle Length: 150

Actuated Cycle Length: 150

Offset: 111 (74%), Referenced to phase 2:WBT and 6:EBT, Start of Yellow

Natural Cycle: 65

Control Type: Actuated-Coordinated

Splits and Phases: 2: Plumosa St & SR 520

Ø1	Ø2 (R)	Ø3	Ø4
24 s	81 s	18 s	27 s
Ø5	Ø6 (R)	Ø7	Ø8
24 s	81 s	20 s	25 s

HCM 6th Signalized Intersection Summary

2: Plumosa St & SR 520

Buildout Conditions

AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		  			  						 	
Traffic Volume (veh/h)	86	917	141	70	812	35	87	73	43	22	77	63
Future Volume (veh/h)	86	917	141	70	812	35	87	73	43	22	77	63
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1841	1841	1900	1856	1900	1826	1856	1870	1826	1841	1870
Adj Flow Rate, veh/h	90	955	147	73	846	36	91	76	45	23	80	66
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
Percent Heavy Veh, %	2	4	4	0	3	0	5	3	2	5	4	2
Cap, veh/h	111	2606	400	92	2896	123	111	151	89	43	92	76
Arrive On Green	0.04	0.40	0.40	0.10	1.00	1.00	0.06	0.14	0.14	0.02	0.10	0.10
Sat Flow, veh/h	1781	4395	674	1810	4983	212	1739	1092	647	1739	933	769
Grp Volume(v), veh/h	90	727	375	73	573	309	91	0	121	23	0	146
Grp Sat Flow(s),veh/h/ln	1781	1675	1719	1810	1689	1817	1739	0	1739	1739	0	1702
Q Serve(g_s), s	7.5	23.0	23.1	5.9	0.0	0.0	7.8	0.0	9.7	2.0	0.0	12.7
Cycle Q Clear(g_c), s	7.5	23.0	23.1	5.9	0.0	0.0	7.8	0.0	9.7	2.0	0.0	12.7
Prop In Lane	1.00		0.39	1.00		0.12	1.00		0.37	1.00		0.45
Lane Grp Cap(c), veh/h	111	1987	1020	92	1963	1056	111	0	241	43	0	169
V/C Ratio(X)	0.81	0.37	0.37	0.80	0.29	0.29	0.82	0.00	0.50	0.54	0.00	0.87
Avail Cap(c_a), veh/h	201	1987	1020	204	1963	1056	146	0	241	123	0	200
HCM Platoon Ratio	0.67	0.67	0.67	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.80	0.80	0.80	0.98	0.98	0.98	0.99	0.00	0.99	1.00	0.00	1.00
Uniform Delay (d), s/veh	71.0	25.3	25.4	66.6	0.0	0.0	69.4	0.0	59.9	72.3	0.0	66.6
Incr Delay (d2), s/veh	10.5	0.4	0.8	14.0	0.4	0.7	23.2	0.0	1.6	10.0	0.0	27.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.8	9.8	10.2	2.9	0.1	0.2	4.2	0.0	4.4	1.0	0.0	6.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	81.4	25.7	26.2	80.6	0.4	0.7	92.6	0.0	61.5	82.3	0.0	93.9
LnGrp LOS	F	C	C	F	A	A	F	A	E	F	A	F
Approach Vol, veh/h		1192			955			212			169	
Approach Delay, s/veh		30.1			6.6			74.8			92.3	
Approach LOS		C			A			E			F	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	16.5	94.3	11.1	28.1	14.7	96.0	17.0	22.3				
Change Period (Y+Rc), s	* 7.1	* 7.1	7.4	7.4	* 7.1	* 7.1	7.4	7.4				
Max Green Setting (Gmax), s	* 17	* 74	10.6	19.6	* 17	* 74	12.6	17.6				
Max Q Clear Time (g_c+I1), s	9.5	2.0	4.0	11.7	7.9	25.1	9.8	14.7				
Green Ext Time (p_c), s	0.1	6.2	0.0	0.3	0.1	8.4	0.0	0.2				

Intersection Summary

HCM 6th Ctrl Delay 29.1

HCM 6th LOS C

Notes

User approved pedestrian interval to be less than phase max green.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Timings

3: Skyes Creek Pkwy & SR 520

Buildout Conditions

AM Peak Hour

											
Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	 	  	 	  	 		 		 	 	
Traffic Volume (vph)	132	659	79	710	268	17	74	146	234	78	117
Future Volume (vph)	132	659	79	710	268	17	74	146	234	78	117
Turn Type	Prot	NA	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Free
Protected Phases	1	6	5	2		7	4		3	8	
Permitted Phases					2			4			Free
Detector Phase	1	6	5	2	2	7	4	4	3	8	
Switch Phase											
Minimum Initial (s)	6.0	15.0	6.0	15.0	15.0	6.0	8.0	8.0	6.0	8.0	
Minimum Split (s)	14.3	23.3	14.3	23.3	23.3	14.4	16.4	16.4	14.4	16.4	
Total Split (s)	22.0	73.0	27.0	78.0	78.0	20.0	25.0	25.0	25.0	30.0	
Total Split (%)	14.7%	48.7%	18.0%	52.0%	52.0%	13.3%	16.7%	16.7%	16.7%	20.0%	
Yellow Time (s)	4.8	4.8	4.8	4.8	4.8	4.8	4.8	4.8	4.8	4.8	
All-Red Time (s)	3.5	3.5	3.5	3.5	3.5	3.6	3.6	3.6	3.6	3.6	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	8.3	8.3	8.3	8.3	8.3	8.4	8.4	8.4	8.4	8.4	
Lead/Lag	Lead	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	
Recall Mode	None	C-Max	None	C-Max	C-Max	None	None	None	None	None	

Intersection Summary

Cycle Length: 150

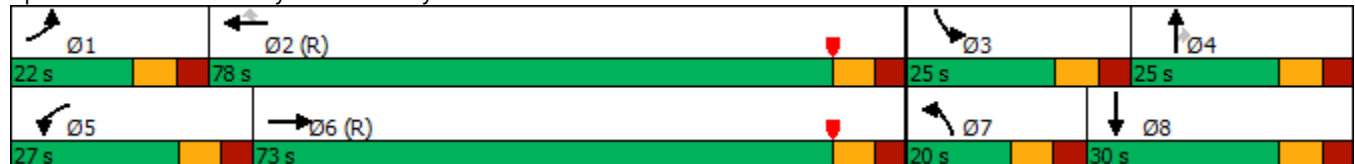
Actuated Cycle Length: 150

Offset: 112 (75%), Referenced to phase 2:WBT and 6:EBT, Start of Yellow

Natural Cycle: 70

Control Type: Actuated-Coordinated

Splits and Phases: 3: Skyes Creek Pkwy & SR 520



HCM 6th Signalized Intersection Summary

3: Skyes Creek Pkwy & SR 520

Buildout Conditions

AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	132	659	23	79	710	268	17	74	146	234	78	117
Future Volume (veh/h)	132	659	23	79	710	268	17	74	146	234	78	117
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1885	1826	1826	1870	1856	1870	1811	1870	1885	1870	1885	1885
Adj Flow Rate, veh/h	143	716	25	86	772	291	18	80	159	254	85	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
Percent Heavy Veh, %	1	5	5	2	3	2	6	2	1	2	1	1
Cap, veh/h	189	2671	93	134	2658	1464	36	393	177	303	334	
Arrive On Green	0.11	1.00	1.00	0.04	0.52	0.52	0.02	0.11	0.11	0.09	0.18	0.00
Sat Flow, veh/h	3483	4946	172	3456	5066	2790	1725	3554	1598	3456	1885	1598
Grp Volume(v), veh/h	143	480	261	86	772	291	18	80	159	254	85	0
Grp Sat Flow(s),veh/h/ln	1742	1662	1795	1728	1689	1395	1725	1777	1598	1728	1885	1598
Q Serve(g_s), s	6.0	0.0	0.0	3.7	12.8	8.3	1.5	3.1	14.7	10.9	5.8	0.0
Cycle Q Clear(g_c), s	6.0	0.0	0.0	3.7	12.8	8.3	1.5	3.1	14.7	10.9	5.8	0.0
Prop In Lane	1.00		0.10	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	189	1795	970	134	2658	1464	36	393	177	303	334	
V/C Ratio(X)	0.76	0.27	0.27	0.64	0.29	0.20	0.49	0.20	0.90	0.84	0.25	
Avail Cap(c_a), veh/h	318	1795	970	431	2658	1464	133	393	177	382	334	
HCM Platoon Ratio	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.92	0.92	0.92	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	65.9	0.0	0.0	71.0	20.0	18.9	72.6	60.7	65.9	67.4	53.2	0.0
Incr Delay (d2), s/veh	5.6	0.3	0.6	5.0	0.3	0.3	10.0	0.3	40.5	12.5	0.4	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.7	0.1	0.2	1.7	5.0	2.7	0.8	1.4	7.9	5.2	2.8	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	71.5	0.3	0.6	76.0	20.3	19.2	82.6	60.9	106.3	79.9	53.6	0.0
LnGrp LOS	E	A	A	E	C	B	F	E	F	E	D	
Approach Vol, veh/h	884		1149				257		339			
Approach Delay, s/veh	11.9		24.2				90.5		73.3			
Approach LOS	B		C				F		E			
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	16.4	87.0	21.5	25.0	14.1	89.3	11.6	35.0				
Change Period (Y+Rc), s	8.3	8.3	* 8.4	* 8.4	8.3	8.3	* 8.4	* 8.4				
Max Green Setting (Gmax), s	13.7	69.7	* 17	* 17	18.7	64.7	* 12	* 22				
Max Q Clear Time (g_c+I1), s	8.0	14.8	12.9	16.7	5.7	2.0	3.5	7.8				
Green Ext Time (p_c), s	0.2	7.3	0.3	0.0	0.2	4.9	0.0	0.2				

Intersection Summary

HCM 6th Ctrl Delay 32.9

HCM 6th LOS C

Notes

User approved pedestrian interval to be less than phase max green.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Unsignalized Delay for [SBR] is excluded from calculations of the approach delay and intersection delay.

Timings

4: Courtenay Pkwy & Fortenberry Rd

Buildout Conditions

AM Peak Hour

										
Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations										
Traffic Volume (vph)	1	0	44	0	97	1	646	69	103	630
Future Volume (vph)	1	0	44	0	97	1	646	69	103	630
Turn Type	Perm	NA	Perm	NA	Over	Perm	NA	Perm	pm+pt	NA
Protected Phases		4		3	1		2		1	6
Permitted Phases	4		3			2		2	6	
Detector Phase	4	4	3	3	1	2	2	2	1	6
Switch Phase										
Minimum Initial (s)	7.0	7.0	1.0	1.0	5.0	12.0	12.0	12.0	5.0	12.0
Minimum Split (s)	14.0	14.0	7.6	7.6	11.6	18.2	18.2	18.2	11.6	18.2
Total Split (s)	14.0	14.0	15.0	15.0	14.0	32.0	32.0	32.0	14.0	46.0
Total Split (%)	18.7%	18.7%	20.0%	20.0%	18.7%	42.7%	42.7%	42.7%	18.7%	61.3%
Yellow Time (s)	4.0	4.0	3.6	3.6	3.6	4.0	4.0	4.0	3.6	4.0
All-Red Time (s)	3.0	3.0	3.0	3.0	3.0	2.2	2.2	2.2	3.0	2.2
Lost Time Adjust (s)		0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)		7.0		6.6	6.6	6.2	6.2	6.2	6.6	6.2
Lead/Lag	Lag	Lag	Lead	Lead	Lead	Lag	Lag	Lag	Lead	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	
Recall Mode	None	None	None	None	None	C-Max	C-Max	C-Max	None	C-Max

Intersection Summary

Cycle Length: 75

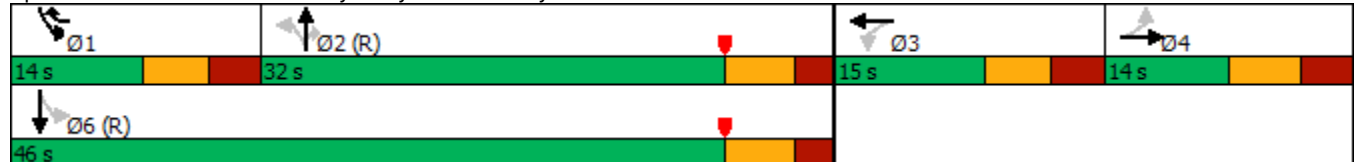
Actuated Cycle Length: 75

Offset: 32 (43%), Referenced to phase 2:NBTL and 6:SBTL, Start of Yellow

Natural Cycle: 60

Control Type: Actuated-Coordinated

Splits and Phases: 4: Courtenay Pkwy & Fortenberry Rd



HCM Signalized Intersection Capacity Analysis

4: Courtenay Pkwy & Fortenberry Rd

Buildout Conditions

AM Peak Hour

													
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations													
Traffic Volume (vph)	1	0	0	44	0	97	1	646	69	103	630	0	
Future Volume (vph)	1	0	0	44	0	97	1	646	69	103	630	0	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Total Lost time (s)		7.0				6.6	6.6	6.2	6.2	6.2	6.6	6.2	
Lane Util. Factor		1.00				1.00	1.00	1.00	0.95	1.00	1.00	0.95	
Frt		1.00				1.00	0.85	1.00	1.00	0.85	1.00	1.00	
Flt Protected		0.95				0.95	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)		1805				1719	1553	1805	3539	1583	1805	3471	
Flt Permitted		1.00				1.00	1.00	0.41	1.00	1.00	0.31	1.00	
Satd. Flow (perm)		1900				1810	1553	770	3539	1583	591	3471	
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	
Adj. Flow (vph)	1	0	0	45	0	100	1	666	71	106	649	0	
RTOR Reduction (vph)	0	0	0	0	0	93	0	0	36	0	0	0	
Lane Group Flow (vph)	0	1	0	0	45	7	1	666	35	106	649	0	
Heavy Vehicles (%)	0%	0%	0%	5%	0%	4%	0%	2%	2%	0%	4%	0%	
Turn Type	Perm	NA		Perm	NA	Over	Perm	NA	Perm	pm+pt	NA		
Protected Phases		4				3	1	2		1			6
Permitted Phases	4			3			2			2			6
Actuated Green, G (s)		1.4				4.8	5.4	37.0	37.0	37.0	49.0	49.0	
Effective Green, g (s)		1.4				4.8	5.4	37.0	37.0	37.0	49.0	49.0	
Actuated g/C Ratio		0.02				0.06	0.07	0.49	0.49	0.49	0.65	0.65	
Clearance Time (s)		7.0				6.6	6.6	6.2	6.2	6.2	6.6	6.2	
Vehicle Extension (s)		3.0				3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)		35				115	111	379	1745	780	473	2267	
v/s Ratio Prot							0.00	c0.19			0.02	c0.19	
v/s Ratio Perm		c0.00				c0.02		0.00			0.02	0.13	
v/c Ratio		0.03				0.39	0.06	0.00	0.38	0.04	0.22	0.29	
Uniform Delay, d1		36.1				33.7	32.4	9.6	11.9	9.8	5.5	5.5	
Progression Factor		1.00				1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2		0.3				2.2	0.2	0.0	0.6	0.1	0.2	0.3	
Delay (s)		36.5				35.9	32.7	9.7	12.5	10.0	5.7	5.9	
Level of Service		D				D	C	A	B	A	A	A	
Approach Delay (s)		36.5				33.7		12.2			5.8		
Approach LOS		D				C		B			A		
Intersection Summary													
HCM 2000 Control Delay	11.2			HCM 2000 Level of Service					B				
HCM 2000 Volume to Capacity ratio	0.39												
Actuated Cycle Length (s)	75.0			Sum of lost time (s)					26.4				
Intersection Capacity Utilization	49.4%			ICU Level of Service					A				
Analysis Period (min)	15												
c Critical Lane Group													

Timings 5: Plumosa St & Fortenberry Rd

Buildout Conditions

AM Peak Hour

										
Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations										
Traffic Volume (vph)	13	64	101	61	66	15	133	134	36	179
Future Volume (vph)	13	64	101	61	66	15	133	134	36	179
Turn Type	Perm	NA	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA
Protected Phases		7	8	4		5	2		1	6
Permitted Phases	7		4		4	2		2	6	
Detector Phase	7	7	8	4	4	5	2	2	1	6
Switch Phase										
Minimum Initial (s)	5.0	5.0	7.0	7.0	7.0	5.0	14.0	14.0	5.0	14.0
Minimum Split (s)	11.0	11.0	13.0	13.0	13.0	11.0	20.0	20.0	11.0	20.0
Total Split (s)	15.0	15.0	35.0	35.0	35.0	15.0	35.0	35.0	15.0	35.0
Total Split (%)	15.0%	15.0%	35.0%	35.0%	35.0%	15.0%	35.0%	35.0%	15.0%	35.0%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
Lead/Lag	Lead	Lead	Lag			Lead	Lag	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes			Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	Max	Max	None	Max

Intersection Summary

Cycle Length: 100

Actuated Cycle Length: 65.2

Natural Cycle: 55

Control Type: Actuated-Uncoordinated

Splits and Phases: 5: Plumosa St & Fortenberry Rd

		
Ø1	Ø2	Ø4
15 s	35 s	35 s
		
Ø5	Ø6	Ø7
15 s	35 s	15 s
		Ø8
		35 s

HCM Signalized Intersection Capacity Analysis

5: Plumosa St & Fortenberry Rd

Buildout Conditions

AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	13	64	46	101	61	66	15	133	134	36	179	25
Future Volume (vph)	13	64	46	101	61	66	15	133	134	36	179	25
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0		6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	
Lane Util. Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Frt	1.00	0.94		1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.98	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1805	1740		1770	1900	1538	1805	1810	1615	1805	1814	
Flt Permitted	0.71	1.00		0.68	1.00	1.00	0.62	1.00	1.00	0.62	1.00	
Satd. Flow (perm)	1355	1740		1265	1900	1538	1175	1810	1615	1182	1814	
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)	14	70	51	111	67	73	16	146	147	40	197	27
RTOR Reduction (vph)	0	26	0	0	0	56	0	0	78	0	4	0
Lane Group Flow (vph)	14	95	0	111	67	17	16	146	69	40	220	0
Heavy Vehicles (%)	0%	4%	0%	2%	0%	5%	0%	5%	0%	0%	2%	9%
Turn Type	Perm	NA		pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	
Protected Phases		7		8	4		5	2		1	6	
Permitted Phases	7			4		4	2		2	6		
Actuated Green, G (s)	6.3	6.3		17.4	17.4	17.4	35.2	34.1	34.1	39.8	36.4	
Effective Green, g (s)	6.3	6.3		17.4	17.4	17.4	35.2	34.1	34.1	39.8	36.4	
Actuated g/C Ratio	0.09	0.09		0.24	0.24	0.24	0.48	0.47	0.47	0.55	0.50	
Clearance Time (s)	6.0	6.0		6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	
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)	117	150		337	453	367	576	846	755	674	905	
v/s Ratio Prot		c0.05		c0.02	0.04		0.00	0.08		c0.00	c0.12	
v/s Ratio Perm	0.01			0.06		0.01	0.01		0.04	0.03		
v/c Ratio	0.12	0.63		0.33	0.15	0.05	0.03	0.17	0.09	0.06	0.24	
Uniform Delay, d1	30.7	32.2		23.2	21.9	21.4	9.8	11.2	10.8	7.7	10.4	
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	0.5	8.3		0.6	0.2	0.1	0.0	0.4	0.2	0.0	0.6	
Delay (s)	31.2	40.5		23.7	22.1	21.4	9.9	11.7	11.0	7.8	11.0	
Level of Service	C	D		C	C	C	A	B	B	A	B	
Approach Delay (s)		39.5			22.6			11.3			10.5	
Approach LOS		D			C			B			B	
Intersection Summary												
HCM 2000 Control Delay			18.0									
HCM 2000 Volume to Capacity ratio			0.31									
Actuated Cycle Length (s)			72.9									
Intersection Capacity Utilization			43.1%									
Analysis Period (min)			15									
c Critical Lane Group												

HCM 6th TWSC
6: Project Driveway 1 & Fortenberry Rd

Buildout Conditions
AM Peak Hour

Intersection						
Int Delay, s/veh	1.7					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	218	16	4	175	53	11
Future Vol, veh/h	218	16	4	175	53	11
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	237	17	4	190	58	12
Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	254	0	444	246
Stage 1	-	-	-	-	246	-
Stage 2	-	-	-	-	198	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1311	-	571	793
Stage 1	-	-	-	-	795	-
Stage 2	-	-	-	-	835	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1311	-	569	793
Mov Cap-2 Maneuver	-	-	-	-	569	-
Stage 1	-	-	-	-	795	-
Stage 2	-	-	-	-	832	-
Approach	EB		WB		NB	
HCM Control Delay, s	0		0.2		11.8	
HCM LOS					B	
Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT	
Capacity (veh/h)	598	-	-	1311	-	
HCM Lane V/C Ratio	0.116	-	-	0.003	-	
HCM Control Delay (s)	11.8	-	-	7.8	0	
HCM Lane LOS	B	-	-	A	A	
HCM 95th %tile Q(veh)	0.4	-	-	0	-	

HCM 6th TWSC
7: Project Driveway 2 & Fortenberry Rd

Buildout Conditions
AM Peak Hour

Intersection						
Int Delay, s/veh	1.4					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	221	8	7	152	27	24
Future Vol, veh/h	221	8	7	152	27	24
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	240	9	8	165	29	26
Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	249	0	426	245
Stage 1	-	-	-	-	245	-
Stage 2	-	-	-	-	181	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1317	-	585	794
Stage 1	-	-	-	-	796	-
Stage 2	-	-	-	-	850	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1317	-	581	794
Mov Cap-2 Maneuver	-	-	-	-	581	-
Stage 1	-	-	-	-	796	-
Stage 2	-	-	-	-	844	-
Approach	EB		WB		NB	
HCM Control Delay, s	0		0.3		10.9	
HCM LOS					B	
Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT	
Capacity (veh/h)	665	-	-	1317	-	
HCM Lane V/C Ratio	0.083	-	-	0.006	-	
HCM Control Delay (s)	10.9	-	-	7.7	0	
HCM Lane LOS	B	-	-	A	A	
HCM 95th %tile Q(veh)	0.3	-	-	0	-	

Timings

1: Courtenay Pkwy & SR 520

Buildout Conditions

PM Peak hour

										
Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Configurations	 	  	 	  		 	 	 	 	 
Traffic Volume (vph)	464	912	140	964	293	369	583	325	557	504
Future Volume (vph)	464	912	140	964	293	369	583	325	557	504
Turn Type	Prot	NA	Prot	NA	Perm	Prot	NA	Prot	NA	Perm
Protected Phases	1	6	5	2		7	4	3	8	
Permitted Phases					2					8
Detector Phase	1	6	5	2	2	7	4	3	8	8
Switch Phase										
Minimum Initial (s)	6.0	15.0	6.0	15.0	15.0	6.0	8.0	6.0	8.0	8.0
Minimum Split (s)	14.7	23.7	14.7	23.7	23.7	13.9	15.9	13.9	15.9	15.9
Total Split (s)	37.0	71.0	22.0	56.0	56.0	27.0	42.0	25.0	40.0	40.0
Total Split (%)	23.1%	44.4%	13.8%	35.0%	35.0%	16.9%	26.3%	15.6%	25.0%	25.0%
Yellow Time (s)	4.8	4.8	4.8	4.8	4.8	4.1	4.1	4.1	4.1	4.1
All-Red Time (s)	3.9	3.9	3.9	3.9	3.9	3.8	3.8	3.8	3.8	3.8
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	8.7	8.7	8.7	8.7	8.7	7.9	7.9	7.9	7.9	7.9
Lead/Lag	Lead	Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Max	None	C-Max	C-Max	None	None	None	None	None

Intersection Summary

Cycle Length: 160

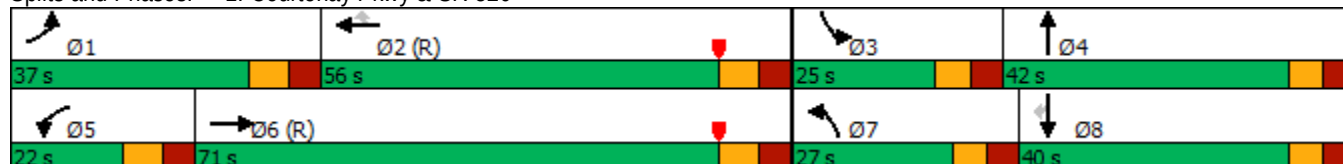
Actuated Cycle Length: 160

Offset: 20 (13%), Referenced to phase 2:WBT and 6:EBT, Start of Yellow

Natural Cycle: 100

Control Type: Actuated-Coordinated

Splits and Phases: 1: Courtenay Pkwy & SR 520



HCM 6th Signalized Intersection Summary

1: Courtenay Pkwy & SR 520

Buildout Conditions

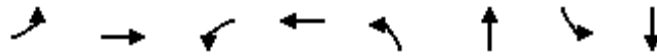
PM Peak hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	464	912	173	140	964	293	369	583	72	325	557	504
Future Volume (veh/h)	464	912	173	140	964	293	369	583	72	325	557	504
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1900	1885	1885	1885	1870	1885	1870	1870	1900	1900	1900	1885
Adj Flow Rate, veh/h	494	970	184	149	1026	312	393	620	77	346	593	536
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
Percent Heavy Veh, %	0	1	1	1	2	1	2	2	0	0	0	1
Cap, veh/h	546	1810	342	195	1619	506	413	678	84	375	724	564
Arrive On Green	0.16	0.42	0.42	0.02	0.10	0.10	0.12	0.21	0.21	0.11	0.20	0.20
Sat Flow, veh/h	3510	4346	822	3483	5106	1598	3456	3182	394	3510	3610	2812
Grp Volume(v), veh/h	494	765	389	149	1026	312	393	346	351	346	593	536
Grp Sat Flow(s),veh/h/ln	1755	1716	1737	1742	1702	1598	1728	1777	1799	1755	1805	1406
Q Serve(g_s), s	22.1	26.8	26.9	6.8	30.8	29.9	18.1	30.4	30.5	15.6	25.1	30.1
Cycle Q Clear(g_c), s	22.1	26.8	26.9	6.8	30.8	29.9	18.1	30.4	30.5	15.6	25.1	30.1
Prop In Lane	1.00		0.47	1.00		1.00	1.00		0.22	1.00		1.00
Lane Grp Cap(c), veh/h	546	1429	724	195	1619	506	413	379	383	375	724	564
V/C Ratio(X)	0.91	0.54	0.54	0.76	0.63	0.62	0.95	0.91	0.92	0.92	0.82	0.95
Avail Cap(c_a), veh/h	621	1429	724	290	1619	506	413	379	383	375	724	564
HCM Platoon Ratio	1.00	1.00	1.00	0.33	0.33	0.33	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.78	0.78	0.78	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	66.4	35.1	35.1	77.5	62.7	62.3	70.0	61.5	61.5	70.8	61.2	63.2
Incr Delay (d2), s/veh	15.6	1.4	2.9	5.3	1.5	4.3	32.3	25.9	26.2	27.8	7.4	26.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	10.9	11.3	11.8	3.3	14.4	13.5	9.8	16.4	16.7	8.5	12.2	12.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	82.1	36.5	37.9	82.8	64.2	66.6	102.3	87.4	87.8	98.6	68.5	89.1
LnGrp LOS	F	D	D	F	E	E	F	F	F	F	E	F
Approach Vol, veh/h		1648			1487			1090			1475	
Approach Delay, s/veh		50.5			66.6			92.9			83.1	
Approach LOS		D			E			F			F	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	33.6	59.4	25.0	42.0	17.7	75.3	27.0	40.0				
Change Period (Y+Rc), s	* 8.7	* 8.7	* 7.9	* 7.9	* 8.7	* 8.7	* 7.9	* 7.9				
Max Green Setting (Gmax), s	* 28	* 47	* 17	* 34	* 13	* 62	* 19	* 32				
Max Q Clear Time (g_c+I1), s	24.1	32.8	17.6	32.5	8.8	28.9	20.1	32.1				
Green Ext Time (p_c), s	0.7	6.6	0.0	0.7	0.2	8.5	0.0	0.0				
Intersection Summary												
HCM 6th Ctrl Delay			71.2									
HCM 6th LOS			E									
Notes												
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.												

Timings 2: Plumosa St & SR 520

Buildout Conditions

PM Peak hour



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	124	1232	90	1296	121	101	60	77
Future Volume (vph)	124	1232	90	1296	121	101	60	77
Turn Type	Prot	NA	Prot	NA	Prot	NA	Prot	NA
Protected Phases	1	6	5	2	7	4	3	8
Permitted Phases								
Detector Phase	1	6	5	2	7	4	3	8
Switch Phase								
Minimum Initial (s)	6.0	15.0	6.0	15.0	6.0	8.0	6.0	8.0
Minimum Split (s)	13.2	22.2	13.2	22.2	13.4	15.4	13.4	15.4
Total Split (s)	30.0	83.0	22.0	75.0	25.0	35.0	20.0	30.0
Total Split (%)	18.8%	51.9%	13.8%	46.9%	15.6%	21.9%	12.5%	18.8%
Yellow Time (s)	4.8	4.8	4.8	4.8	4.0	4.0	4.0	4.0
All-Red Time (s)	2.3	2.3	2.3	2.3	3.4	3.4	3.4	3.4
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.1	7.1	7.1	7.1	7.4	7.4	7.4	7.4
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Max	None	C-Min	None	None	Max	None

Intersection Summary

Cycle Length: 160

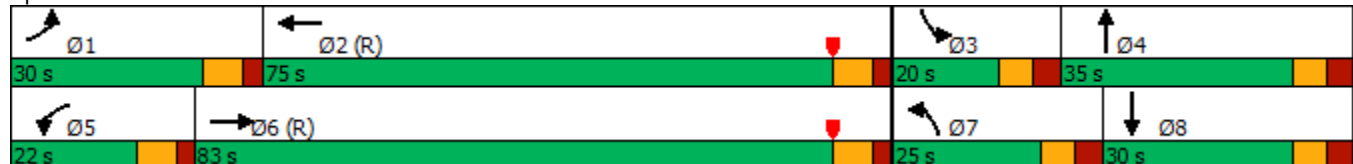
Actuated Cycle Length: 160

Offset: 102 (64%), Referenced to phase 2:WBT and 6:EBT, Start of Yellow

Natural Cycle: 80

Control Type: Actuated-Coordinated

Splits and Phases: 2: Plumosa St & SR 520



HCM 6th Signalized Intersection Summary

2: Plumosa St & SR 520

Buildout Conditions

PM Peak hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		  			  							
Traffic Volume (veh/h)	124	1232	129	90	1296	102	121	101	64	60	77	110
Future Volume (veh/h)	124	1232	129	90	1296	102	121	101	64	60	77	110
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1811	1885	1870	1900	1870	1856	1870	1900	1870	1841	1885	1885
Adj Flow Rate, veh/h	128	1270	133	93	1336	105	125	104	66	62	79	113
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
Percent Heavy Veh, %	6	1	2	0	2	3	2	0	2	4	1	1
Cap, veh/h	150	2599	272	112	2532	199	146	140	89	138	88	126
Arrive On Green	0.06	0.37	0.37	0.12	1.00	1.00	0.08	0.13	0.13	0.08	0.13	0.13
Sat Flow, veh/h	1725	4732	495	1810	4827	379	1781	1086	689	1753	701	1003
Grp Volume(v), veh/h	128	921	482	93	942	499	125	0	170	62	0	192
Grp Sat Flow(s),veh/h/ln	1725	1716	1796	1810	1702	1802	1781	0	1776	1753	0	1705
Q Serve(g_s), s	11.8	33.1	33.1	8.0	0.0	0.0	11.1	0.0	14.8	5.4	0.0	17.8
Cycle Q Clear(g_c), s	11.8	33.1	33.1	8.0	0.0	0.0	11.1	0.0	14.8	5.4	0.0	17.8
Prop In Lane	1.00		0.28	1.00		0.21	1.00		0.39	1.00		0.59
Lane Grp Cap(c), veh/h	150	1885	987	112	1785	945	146	0	228	138	0	213
V/C Ratio(X)	0.85	0.49	0.49	0.83	0.53	0.53	0.85	0.00	0.74	0.45	0.00	0.90
Avail Cap(c_a), veh/h	247	1885	987	169	1785	945	196	0	306	138	0	241
HCM Platoon Ratio	0.67	0.67	0.67	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.71	0.71	0.71	0.95	0.95	0.95	0.98	0.00	0.98	1.00	0.00	1.00
Uniform Delay (d), s/veh	74.3	33.2	33.2	69.2	0.0	0.0	72.5	0.0	67.2	70.4	0.0	69.0
Incr Delay (d2), s/veh	10.5	0.6	1.2	17.7	1.1	2.0	22.7	0.0	6.4	10.2	0.0	30.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.7	14.6	15.5	4.0	0.3	0.5	6.0	0.0	7.1	2.9	0.0	9.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	84.9	33.9	34.5	86.9	1.1	2.0	95.2	0.0	73.6	80.6	0.0	99.6
LnGrp LOS	F	C	C	F	A	A	F	A	E	F	A	F
Approach Vol, veh/h		1531			1534			295			254	
Approach Delay, s/veh		38.3			6.6			82.8			95.0	
Approach LOS		D			A			F			F	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	21.0	91.0	20.0	28.0	17.0	95.0	20.5	27.4				
Change Period (Y+Rc), s	* 7.1	* 7.1	7.4	7.4	* 7.1	* 7.1	7.4	7.4				
Max Green Setting (Gmax), s	* 23	* 68	12.6	27.6	* 15	* 76	17.6	22.6				
Max Q Clear Time (g_c+I1), s	13.8	2.0	7.4	16.8	10.0	35.1	13.1	19.8				
Green Ext Time (p_c), s	0.2	13.0	0.0	0.6	0.1	11.6	0.1	0.3				

Intersection Summary

HCM 6th Ctrl Delay 32.5

HCM 6th LOS C

Notes

User approved pedestrian interval to be less than phase max green.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Timings

3: Skyes Creek Pkwy & SR 520

Buildout Conditions

PM Peak hour

											
Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations											
Traffic Volume (vph)	214	893	164	895	302	64	124	200	329	138	162
Future Volume (vph)	214	893	164	895	302	64	124	200	329	138	162
Turn Type	Prot	NA	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Free
Protected Phases	1	6	5	2		7	4		3	8	
Permitted Phases					2			4			Free
Detector Phase	1	6	5	2	2	7	4	4	3	8	
Switch Phase											
Minimum Initial (s)	6.0	15.0	6.0	15.0	15.0	6.0	8.0	8.0	6.0	8.0	
Minimum Split (s)	14.3	23.3	14.3	23.3	23.3	14.4	16.4	16.4	14.4	16.4	
Total Split (s)	30.0	63.0	25.0	58.0	58.0	25.0	34.0	34.0	38.0	47.0	
Total Split (%)	18.8%	39.4%	15.6%	36.3%	36.3%	15.6%	21.3%	21.3%	23.8%	29.4%	
Yellow Time (s)	4.8	4.8	4.8	4.8	4.8	4.8	4.8	4.8	4.8	4.8	
All-Red Time (s)	3.5	3.5	3.5	3.5	3.5	3.6	3.6	3.6	3.6	3.6	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	8.3	8.3	8.3	8.3	8.3	8.4	8.4	8.4	8.4	8.4	
Lead/Lag	Lead	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	
Recall Mode	None	C-Max	None	C-Max	C-Max	None	None	None	None	None	

Intersection Summary

Cycle Length: 160

Actuated Cycle Length: 160

Offset: 105 (66%), Referenced to phase 2:WBT and 6:EBT, Start of Yellow

Natural Cycle: 75

Control Type: Actuated-Coordinated

Splits and Phases: 3: Skyes Creek Pkwy & SR 520

			
Ø1	Ø2 (R)	Ø3	Ø4
30 s	58 s	38 s	34 s
			
Ø5	Ø6 (R)	Ø7	Ø8
25 s	63 s	25 s	47 s

HCM 6th Signalized Intersection Summary

3: Skyes Creek Pkwy & SR 520

Buildout Conditions

PM Peak hour

													
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations	 	 		 	 	 		 	 	 	 	 	
Traffic Volume (veh/h)	214	893	30	164	895	302	64	124	200	329	138	162	
Future Volume (veh/h)	214	893	30	164	895	302	64	124	200	329	138	162	
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0	
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Work Zone On Approach	No			No			No			No			
Adj Sat Flow, veh/h/ln	1885	1885	1900	1870	1856	1856	1900	1870	1870	1885	1856	1885	
Adj Flow Rate, veh/h	223	930	31	171	932	315	67	129	208	343	144	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	
Percent Heavy Veh, %	1	1	0	2	3	3	0	2	2	1	3	1	
Cap, veh/h	270	2399	80	217	2302	1258	85	513	229	400	394		
Arrive On Green	0.16	0.94	0.94	0.06	0.45	0.45	0.05	0.14	0.14	0.11	0.21	0.00	
Sat Flow, veh/h	3483	5115	170	3456	5066	2768	1810	3554	1585	3483	1856	1598	
Grp Volume(v), veh/h	223	623	338	171	932	315	67	129	208	343	144	0	
Grp Sat Flow(s),veh/h/ln	1742	1716	1855	1728	1689	1384	1810	1777	1585	1742	1856	1598	
Q Serve(g_s), s	9.9	2.8	2.8	7.8	19.7	11.2	5.9	5.2	20.7	15.5	10.6	0.0	
Cycle Q Clear(g_c), s	9.9	2.8	2.8	7.8	19.7	11.2	5.9	5.2	20.7	15.5	10.6	0.0	
Prop In Lane	1.00		0.09	1.00		1.00	1.00		1.00	1.00		1.00	
Lane Grp Cap(c), veh/h	270	1609	870	217	2302	1258	85	513	229	400	394		
V/C Ratio(X)	0.83	0.39	0.39	0.79	0.40	0.25	0.79	0.25	0.91	0.86	0.37		
Avail Cap(c_a), veh/h	472	1609	870	361	2302	1258	188	569	254	644	448		
HCM Platoon Ratio	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Upstream Filter(I)	0.84	0.84	0.84	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	
Uniform Delay (d), s/veh	66.5	2.7	2.7	73.9	29.2	26.9	75.4	60.8	67.4	69.5	53.8	0.0	
Incr Delay (d2), s/veh	5.4	0.6	1.1	6.2	0.5	0.5	14.6	0.3	31.8	6.5	0.6	0.0	
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
%ile BackOfQ(50%),veh/ln	4.3	0.9	1.1	3.6	8.0	3.8	3.1	2.4	10.3	7.2	5.0	0.0	
Unsig. Movement Delay, s/veh													
LnGrp Delay(d),s/veh	71.9	3.3	3.8	80.1	29.7	27.3	90.1	61.0	99.2	76.0	54.4	0.0	
LnGrp LOS	E	A	A	F	C	C	F	E	F	E	D		
Approach Vol, veh/h	1184			1418			404			487			A
Approach Delay, s/veh	16.4			35.3			85.5			69.6			
Approach LOS	B			D			F			E			
Timer - Assigned Phs	1	2	3	4	5	6	7	8					
Phs Duration (G+Y+Rc), s	20.7	81.0	26.8	31.5	18.4	83.3	15.9	42.4					
Change Period (Y+Rc), s	8.3	8.3	* 8.4	* 8.4	8.3	8.3	* 8.4	* 8.4					
Max Green Setting (Gmax), s	21.7	49.7	* 30	* 26	16.7	54.7	* 17	* 39					
Max Q Clear Time (g_c+l1), s	11.9	21.7	17.5	22.7	9.8	4.8	7.9	12.6					
Green Ext Time (p_c), s	0.5	8.2	0.9	0.4	0.3	6.8	0.1	0.7					

Intersection Summary

HCM 6th Ctrl Delay 39.5

HCM 6th LOS D

Notes

User approved pedestrian interval to be less than phase max green.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Unsignalized Delay for [SBR] is excluded from calculations of the approach delay and intersection delay.

Timings

4: Courtenay Pkwy & Fortenberry Rd

Buildout Conditions

PM Peak hour

										
Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations										
Traffic Volume (vph)	1	0	95	0	193	3	738	66	84	854
Future Volume (vph)	1	0	95	0	193	3	738	66	84	854
Turn Type	Perm	NA	Perm	NA	Over	Perm	NA	Perm	pm+pt	NA
Protected Phases		4		3	1		2		1	6
Permitted Phases	4		3			2		2	6	
Detector Phase	4	4	3	3	1	2	2	2	1	6
Switch Phase										
Minimum Initial (s)	7.0	7.0	7.0	7.0	5.0	12.0	12.0	12.0	5.0	12.0
Minimum Split (s)	14.0	14.0	13.6	13.6	11.6	18.2	18.2	18.2	11.6	18.2
Total Split (s)	14.0	14.0	23.6	23.6	14.2	28.2	28.2	28.2	14.2	42.4
Total Split (%)	17.5%	17.5%	29.5%	29.5%	17.8%	35.3%	35.3%	35.3%	17.8%	53.0%
Yellow Time (s)	4.0	4.0	3.6	3.6	3.6	4.0	4.0	4.0	3.6	4.0
All-Red Time (s)	3.0	3.0	3.0	3.0	3.0	2.2	2.2	2.2	3.0	2.2
Lost Time Adjust (s)		0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)		7.0		6.6	6.6	6.2	6.2	6.2	6.6	6.2
Lead/Lag	Lag	Lag	Lead	Lead	Lead	Lag	Lag	Lag	Lead	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	
Recall Mode	None	None	None	None	None	C-Max	C-Max	C-Max	None	C-Max

Intersection Summary

Cycle Length: 80

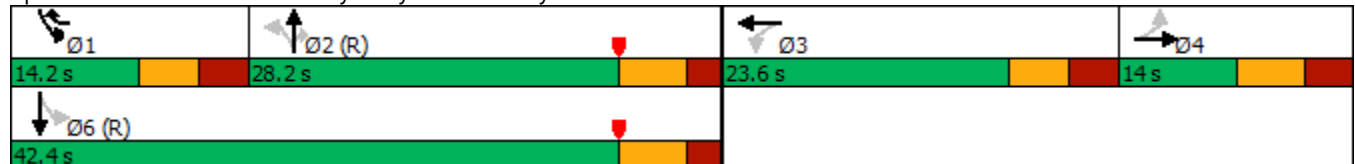
Actuated Cycle Length: 80

Offset: 57.8 (72%), Referenced to phase 2:NBTL and 6:SBTL, Start of Yellow

Natural Cycle: 65

Control Type: Actuated-Coordinated

Splits and Phases: 4: Courtenay Pkwy & Fortenberry Rd

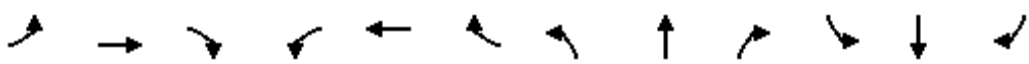


HCM Signalized Intersection Capacity Analysis

4: Courtenay Pkwy & Fortenberry Rd

Buildout Conditions

PM Peak hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔	↔	↔	↕	↔	↔	↕	↕
Traffic Volume (vph)	1	0	2	95	0	193	3	738	66	84	854	1
Future Volume (vph)	1	0	2	95	0	193	3	738	66	84	854	1
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		7.0			6.6	6.6	6.2	6.2	6.2	6.6	6.2	
Lane Util. Factor		1.00			1.00	1.00	1.00	0.95	1.00	1.00	0.95	
Frt		0.91			1.00	0.85	1.00	1.00	0.85	1.00	1.00	
Flt Protected		0.98			0.95	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)		1701			1805	1599	1805	3539	1538	1805	3574	
Flt Permitted		1.00			0.36	1.00	0.31	1.00	1.00	0.22	1.00	
Satd. Flow (perm)		1729			679	1599	590	3539	1538	411	3574	
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)	1	0	2	102	0	208	3	794	71	90	918	1
RTOR Reduction (vph)	0	3	0	0	0	190	0	0	43	0	0	0
Lane Group Flow (vph)	0	0	0	0	102	18	3	794	28	90	919	0
Heavy Vehicles (%)	0%	0%	0%	0%	0%	1%	0%	2%	5%	0%	1%	0%
Turn Type	Perm	NA		Perm	NA	Over	Perm	NA	Perm	pm+pt	NA	
Protected Phases		4			3	1		2		1	6	
Permitted Phases	4			3			2		2	6		
Actuated Green, G (s)		1.4			13.3	6.8	32.1	32.1	32.1	45.5	45.5	
Effective Green, g (s)		1.4			13.3	6.8	32.1	32.1	32.1	45.5	45.5	
Actuated g/C Ratio		0.02			0.17	0.08	0.40	0.40	0.40	0.57	0.57	
Clearance Time (s)		7.0			6.6	6.6	6.2	6.2	6.2	6.6	6.2	
Vehicle Extension (s)		3.0			3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)		30			112	135	236	1420	617	352	2032	
v/s Ratio Prot						0.01		c0.22		0.02	c0.26	
v/s Ratio Perm		c0.00			c0.15		0.01		0.02	0.12		
v/c Ratio		0.00			0.91	0.13	0.01	0.56	0.05	0.26	0.45	
Uniform Delay, d1		38.6			32.8	33.9	14.4	18.5	14.6	9.4	10.0	
Progression Factor		1.00			1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2		0.0			57.6	0.4	0.1	1.6	0.1	0.4	0.7	
Delay (s)		38.6			90.4	34.3	14.5	20.1	14.8	9.8	10.7	
Level of Service		D			F	C	B	C	B	A	B	
Approach Delay (s)		38.6			52.8			19.6			10.7	
Approach LOS		D			D			B			B	
Intersection Summary												
HCM 2000 Control Delay			20.2									
HCM 2000 Volume to Capacity ratio			0.65									
Actuated Cycle Length (s)			80.0									
Intersection Capacity Utilization			61.4%									
Analysis Period (min)			15									
c Critical Lane Group												

Timings 5: Plumosa St & Fortenberry Rd

Buildout Conditions

PM Peak hour

										
Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations										
Traffic Volume (vph)	27	125	146	137	85	39	169	172	82	133
Future Volume (vph)	27	125	146	137	85	39	169	172	82	133
Turn Type	Perm	NA	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA
Protected Phases		7	8	4		5	2		1	6
Permitted Phases	7		4		4	2		2	6	
Detector Phase	7	7	8	4	4	5	2	2	1	6
Switch Phase										
Minimum Initial (s)	5.0	5.0	7.0	7.0	7.0	5.0	14.0	14.0	5.0	14.0
Minimum Split (s)	11.0	11.0	13.0	13.0	13.0	11.0	20.0	20.0	11.0	20.0
Total Split (s)	15.0	15.0	35.0	35.0	35.0	15.0	35.0	35.0	15.0	35.0
Total Split (%)	15.0%	15.0%	35.0%	35.0%	35.0%	15.0%	35.0%	35.0%	15.0%	35.0%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
Lead/Lag	Lead	Lead	Lag			Lead	Lag	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes			Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	Max	Max	None	Max

Intersection Summary

Cycle Length: 100

Actuated Cycle Length: 74.9

Natural Cycle: 60

Control Type: Actuated-Uncoordinated

Splits and Phases: 5: Plumosa St & Fortenberry Rd

		
Ø1	Ø2	Ø4
15 s	35 s	35 s
		
Ø5	Ø6	Ø7
15 s	35 s	15 s
		Ø8
		35 s

HCM Signalized Intersection Capacity Analysis

5: Plumosa St & Fortenberry Rd

Buildout Conditions

PM Peak hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	27	125	37	146	137	85	39	169	172	82	133	30
Future Volume (vph)	27	125	37	146	137	85	39	169	172	82	133	30
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0		6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	
Lane Util. Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Frt	1.00	0.97		1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.97	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1805	1821		1770	1900	1583	1805	1881	1568	1736	1833	
Flt Permitted	0.66	1.00		0.58	1.00	1.00	0.64	1.00	1.00	0.60	1.00	
Satd. Flow (perm)	1255	1821		1073	1900	1583	1222	1881	1568	1092	1833	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	30	139	41	162	152	94	43	188	191	91	148	33
RTOR Reduction (vph)	0	11	0	0	0	66	0	0	116	0	6	0
Lane Group Flow (vph)	30	169	0	162	152	28	43	188	75	91	175	0
Heavy Vehicles (%)	0%	1%	0%	2%	0%	2%	0%	1%	3%	4%	1%	0%
Turn Type	Perm	NA		pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	
Protected Phases		7		8	4		5	2		1	6	
Permitted Phases	7			4		4	2		2	6		
Actuated Green, G (s)	9.1	9.1		23.0	23.0	23.0	34.3	30.4	30.4	38.5	32.5	
Effective Green, g (s)	9.1	9.1		23.0	23.0	23.0	34.3	30.4	30.4	38.5	32.5	
Actuated g/C Ratio	0.12	0.12		0.30	0.30	0.30	0.44	0.39	0.39	0.50	0.42	
Clearance Time (s)	6.0	6.0		6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	
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)	147	214		389	564	470	570	738	615	593	769	
v/s Ratio Prot		c0.09		c0.04	0.08		0.00	c0.10		c0.01	0.10	
v/s Ratio Perm	0.02			0.08		0.02	0.03		0.05	0.06		
v/c Ratio	0.20	0.79		0.42	0.27	0.06	0.08	0.25	0.12	0.15	0.23	
Uniform Delay, d1	30.9	33.2		23.4	20.8	19.5	12.3	15.9	15.0	10.3	14.4	
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	0.7	17.9		0.7	0.3	0.1	0.1	0.8	0.4	0.1	0.7	
Delay (s)	31.6	51.1		24.1	21.0	19.5	12.3	16.7	15.4	10.5	15.1	
Level of Service	C	D		C	C	B	B	B	B	B	B	
Approach Delay (s)		48.3			21.9			15.7			13.5	
Approach LOS		D			C			B			B	
Intersection Summary												
HCM 2000 Control Delay			22.4			HCM 2000 Level of Service				C		
HCM 2000 Volume to Capacity ratio			0.37									
Actuated Cycle Length (s)			77.4			Sum of lost time (s)			24.0			
Intersection Capacity Utilization			53.1%			ICU Level of Service			A			
Analysis Period (min)			15									
c Critical Lane Group												

HCM 6th TWSC
6: Project Driveway 1 & Fortenberry Rd

Buildout Conditions
PM Peak hour

Intersection						
Int Delay, s/veh	0.7					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	339	41	9	342	26	6
Future Vol, veh/h	339	41	9	342	26	6
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	368	45	10	372	28	7
Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	413	0	783	391
Stage 1	-	-	-	-	391	-
Stage 2	-	-	-	-	392	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1146	-	362	658
Stage 1	-	-	-	-	683	-
Stage 2	-	-	-	-	683	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1146	-	358	658
Mov Cap-2 Maneuver	-	-	-	-	358	-
Stage 1	-	-	-	-	683	-
Stage 2	-	-	-	-	675	-
Approach	EB		WB		NB	
HCM Control Delay, s	0		0.2		15.1	
HCM LOS	C					
Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT	
Capacity (veh/h)	391	-	-	1146	-	
HCM Lane V/C Ratio	0.089	-	-	0.009	-	
HCM Control Delay (s)	15.1	-	-	8.2	0	
HCM Lane LOS	C	-	-	A	A	
HCM 95th %tile Q(veh)	0.3	-	-	0	-	

HCM 6th TWSC
7: Project Driveway 2 & Fortenberry Rd

Buildout Conditions
PM Peak hour

Intersection						
Int Delay, s/veh	0.7					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	325	20	18	338	13	12
Future Vol, veh/h	325	20	18	338	13	12
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	353	22	20	367	14	13
Major/Minor	Major1	Major2		Minor1		
Conflicting Flow All	0	0	375	0	771	364
Stage 1	-	-	-	-	364	-
Stage 2	-	-	-	-	407	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1183	-	368	681
Stage 1	-	-	-	-	703	-
Stage 2	-	-	-	-	672	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	1183	-	360	681
Mov Cap-2 Maneuver	-	-	-	-	360	-
Stage 1	-	-	-	-	703	-
Stage 2	-	-	-	-	658	-
Approach	EB		WB		NB	
HCM Control Delay, s	0		0.4		13.2	
HCM LOS					B	
Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT	
Capacity (veh/h)	465	-	-	1183	-	
HCM Lane V/C Ratio	0.058	-	-	0.017	-	
HCM Control Delay (s)	13.2	-	-	8.1	0	
HCM Lane LOS	B	-	-	A	A	
HCM 95th %tile Q(veh)	0.2	-	-	0.1	-	

APPENDIX H

ITE Excerpts

Land Use: 221

Multifamily Housing (Mid-Rise)

Description

Mid-rise multifamily housing includes apartments and condominiums located in a building that has between four and 10 floors of living space. Access to individual dwelling units is through an outside building entrance, a lobby, elevator, and a set of hallways.

Multifamily housing (low-rise) (Land Use 220), multifamily housing (high-rise) (Land Use 222), off-campus student apartment (mid-rise) (Land Use 226), and mid-rise residential with ground-floor commercial (Land Use 231) are related land uses.

Land Use Subcategory

Data are presented for two subcategories for this land use: (1) not close to rail transit and (2) close to rail transit. A site is considered close to rail transit if the walking distance between the residential site entrance and the closest rail transit station entrance is ½ mile or less.

Additional Data

For the six sites for which both the number of residents and the number of occupied dwelling units were available, there were an average of 2.5 residents per occupied dwelling unit.

For the five sites for which the numbers of both total dwelling units and occupied dwelling units were available, an average of 96 percent of the total dwelling units were occupied.

The technical appendices provide supporting information on time-of-day distributions for this land use. The appendices can be accessed through either the ITETripGen web app or the trip generation resource page on the ITE website (<https://www.ite.org/technical-resources/topics/trip-and-parking-generation/>).

It is expected that the number of bedrooms and number of residents are likely correlated to the trips generated by a residential site. To assist in future analysis, trip generation studies of all multifamily housing should attempt to obtain information on occupancy rate and on the mix of residential unit sizes (i.e., number of units by number of bedrooms at the site complex).

The sites were surveyed in the 1990s, the 2000s, the 2010s, and the 2020s in Alberta (CAN), California, District of Columbia, Florida, Georgia, Illinois, Maryland, Massachusetts, Minnesota, Montana, New Jersey, New York, Ontario (CAN), Oregon, Utah, and Virginia.

Source Numbers

168, 188, 204, 305, 306, 321, 818, 857, 862, 866, 901, 904, 910, 949, 951, 959, 963, 964, 966, 967, 969, 970, 1004, 1014, 1022, 1023, 1025, 1031, 1032, 1035, 1047, 1056, 1057, 1058, 1071, 1076

Multifamily Housing (Mid-Rise) Not Close to Rail Transit (221)

Vehicle Trip Ends vs: Dwelling Units
On a: Weekday

Setting/Location: General Urban/Suburban

Number of Studies: 11

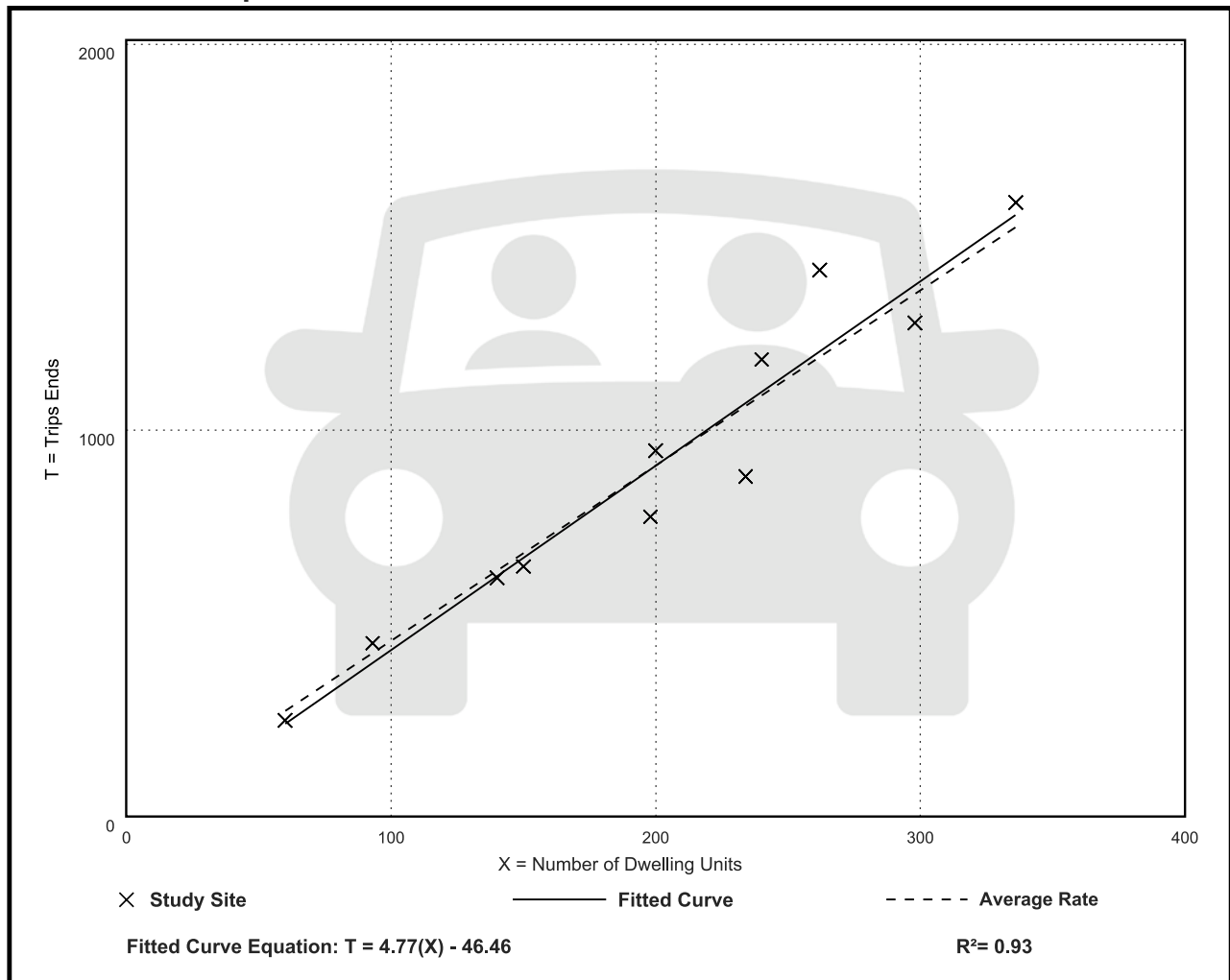
Avg. Num. of Dwelling Units: 201

Directional Distribution: 50% entering, 50% exiting

Vehicle Trip Generation per Dwelling Unit

Average Rate	Range of Rates	Standard Deviation
4.54	3.76 - 5.40	0.51

Data Plot and Equation



Multifamily Housing (Mid-Rise) Not Close to Rail Transit (221)

Vehicle Trip Ends vs: Dwelling Units

On a: Weekday,

Peak Hour of Adjacent Street Traffic,

One Hour Between 7 and 9 a.m.

Setting/Location: General Urban/Suburban

Number of Studies: 30

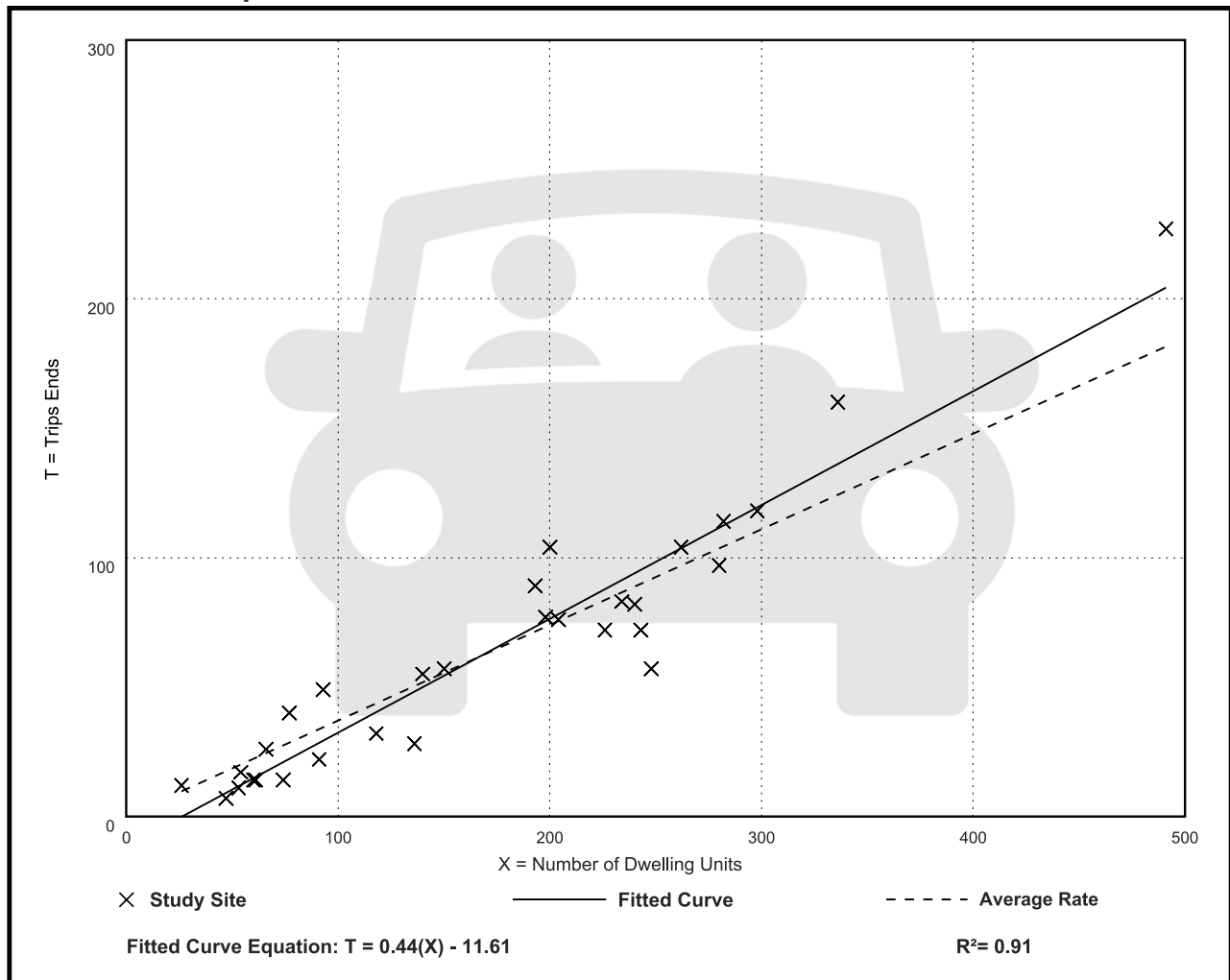
Avg. Num. of Dwelling Units: 173

Directional Distribution: 23% entering, 77% exiting

Vehicle Trip Generation per Dwelling Unit

Average Rate	Range of Rates	Standard Deviation
0.37	0.15 - 0.53	0.09

Data Plot and Equation



Multifamily Housing (Mid-Rise) Not Close to Rail Transit (221)

Vehicle Trip Ends vs: Dwelling Units

On a: Weekday,

Peak Hour of Adjacent Street Traffic,

One Hour Between 4 and 6 p.m.

Setting/Location: General Urban/Suburban

Number of Studies: 31

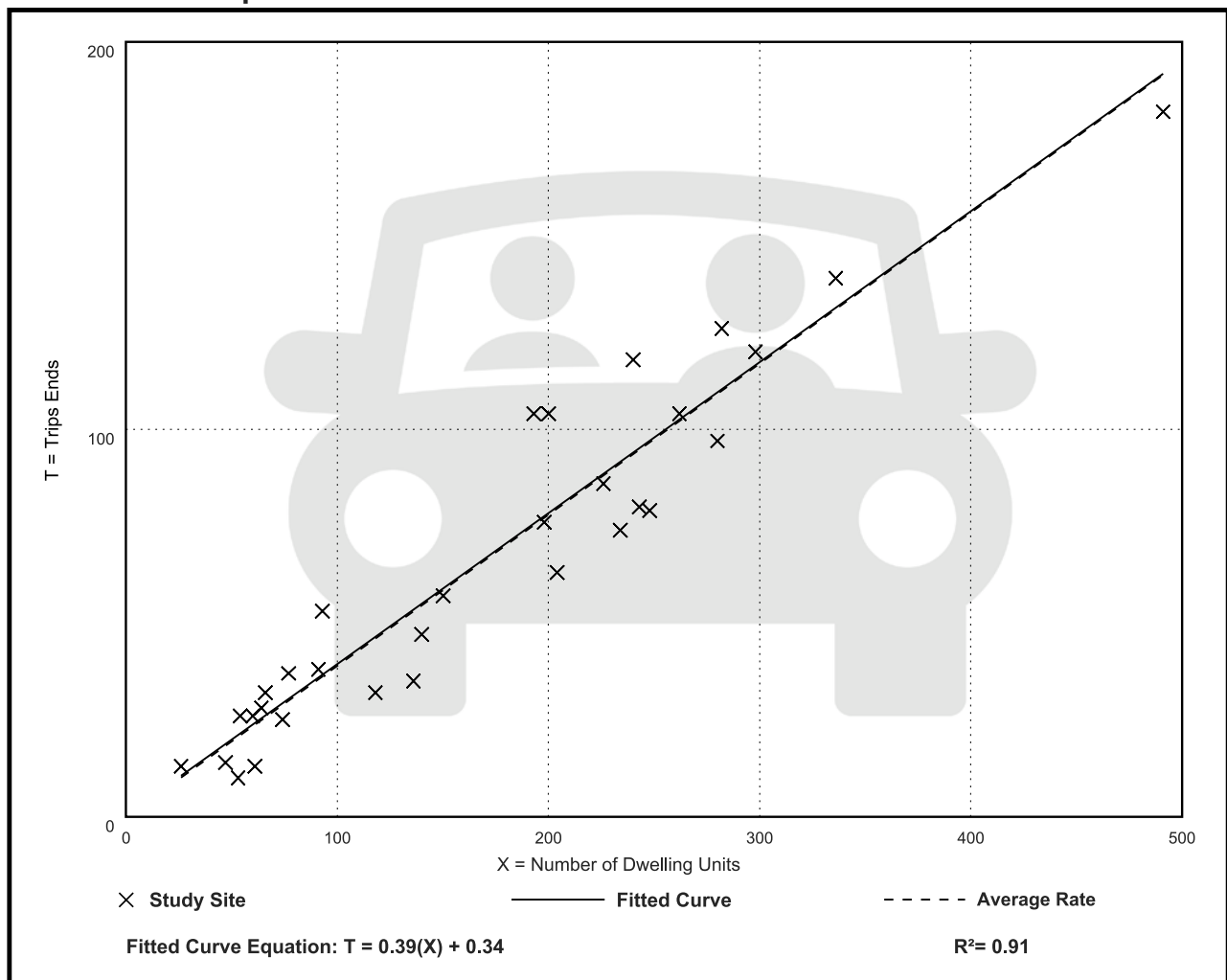
Avg. Num. of Dwelling Units: 169

Directional Distribution: 61% entering, 39% exiting

Vehicle Trip Generation per Dwelling Unit

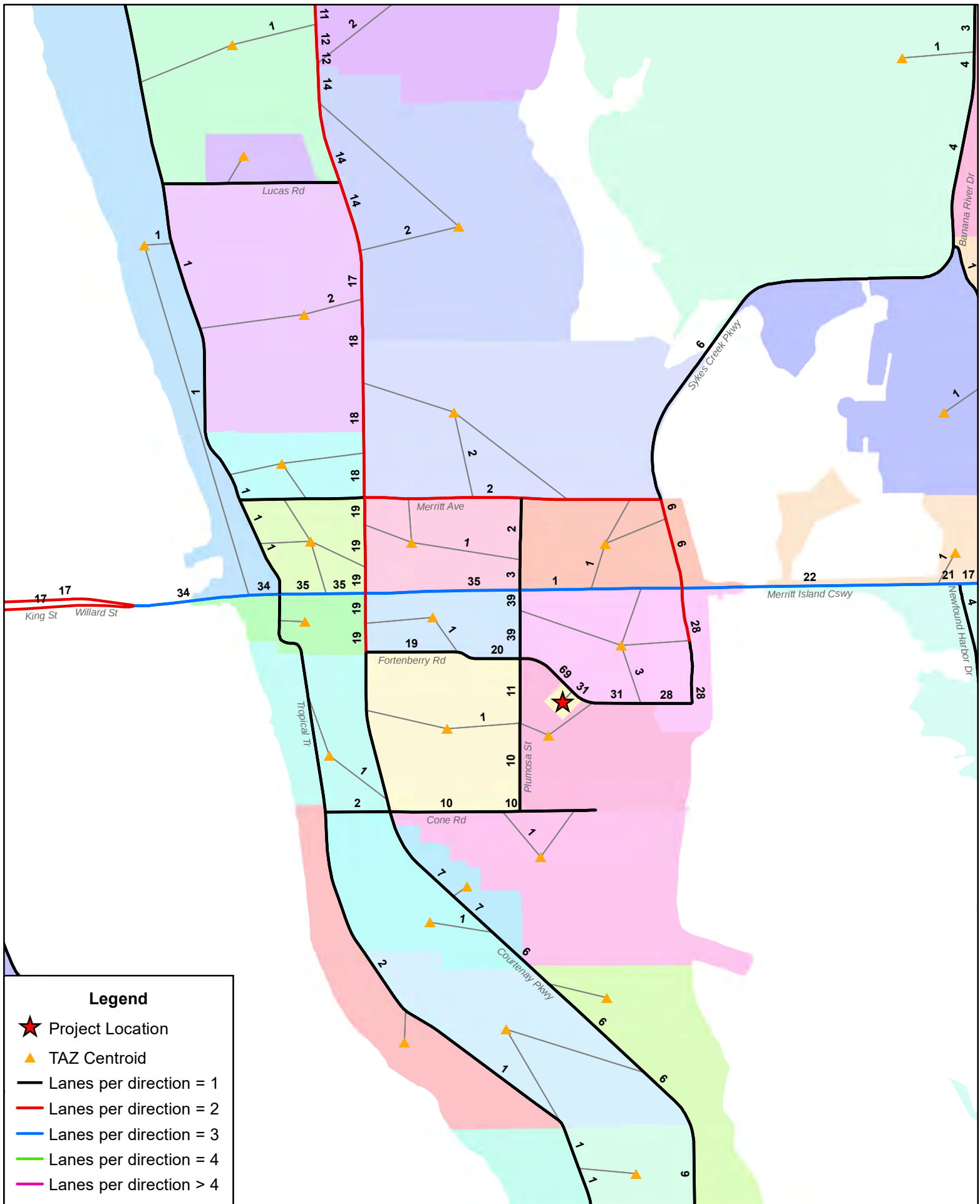
Average Rate	Range of Rates	Standard Deviation
0.39	0.19 - 0.57	0.08

Data Plot and Equation



APPENDIX I

CFRPM Model Plot



Trip Distribution - Merritt Island Apartments
CFRPMv7 - 2025 - September 2022



APPENDIX J

NCHRP Warrant Worksheets

Intersection #6
AM Peak Hour

Figure 2 - 5. Guideline for determining the need for a major-road left-turn bay at a two-way stop-controlled intersection.

2-lane roadway (English)

INPUT

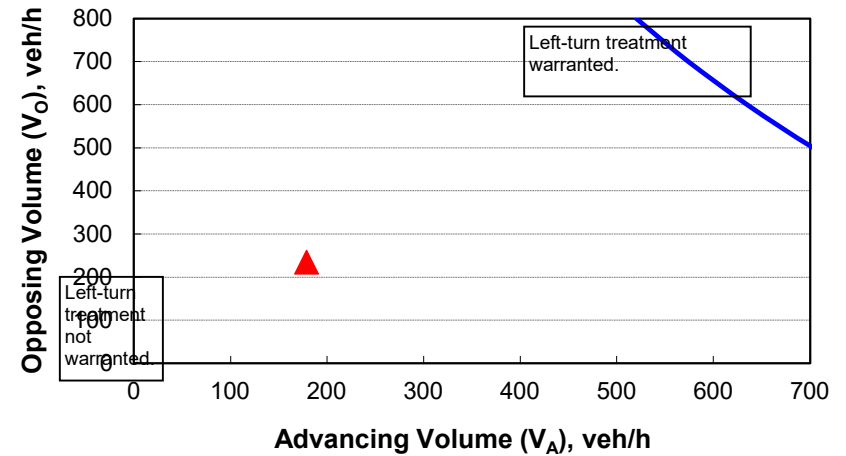
Variable	Value
85 th percentile speed, mph:	35
Percent of left-turns in advancing volume (V_A), %:	2%
Advancing volume (V_A), veh/h:	179
Opposing volume (V_O), veh/h:	234

OUTPUT

Variable	Value
Limiting advancing volume (V_A), veh/h:	935
Guidance for determining the need for a major-road left-turn bay:	
Left-turn treatment NOT warranted.	

CALIBRATION CONSTANTS

Variable	Value
Average time for making left-turn, s:	3.0
Critical headway, s:	5.0
Average time for left-turn vehicle to clear the advancing lane, s:	1.9



Intersection #6
PM Peak Hour

Figure 2 - 5. Guideline for determining the need for a major-road left-turn bay at a two-way stop-controlled intersection.

2-lane roadway (English)

INPUT

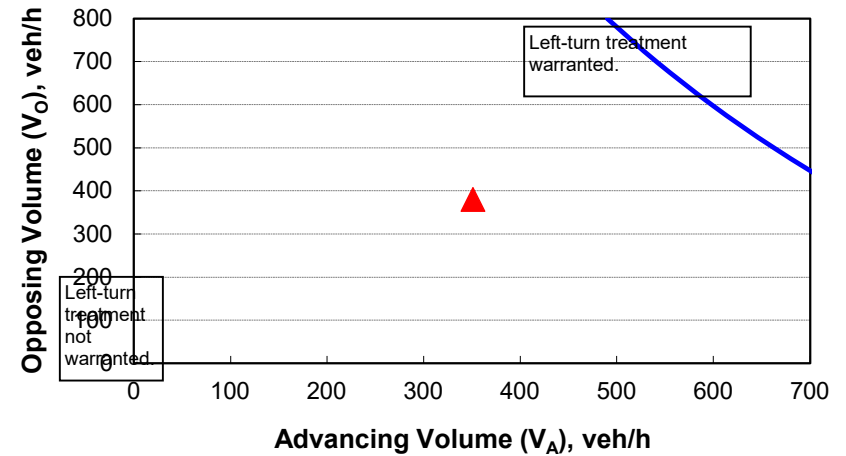
Variable	Value
85 th percentile speed, mph:	35
Percent of left-turns in advancing volume (V_A), %:	3%
Advancing volume (V_A), veh/h:	351
Opposing volume (V_O), veh/h:	380

OUTPUT

Variable	Value
Limiting advancing volume (V_A), veh/h:	751
Guidance for determining the need for a major-road left-turn bay:	
Left-turn treatment NOT warranted.	

CALIBRATION CONSTANTS

Variable	Value
Average time for making left-turn, s:	3.0
Critical headway, s:	5.0
Average time for left-turn vehicle to clear the advancing lane, s:	1.9



Intersection #6
AM Peak Hour

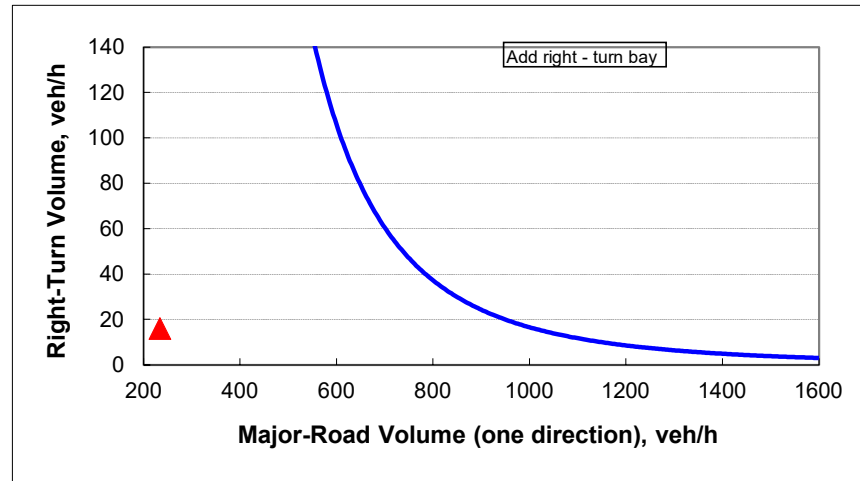
Figure 2 - 6. Guideline for determining the need for a major-road right-turn bay at a two-way stop-controlled intersection.

INPUT

Roadway geometry:	2-lane roadway
Variable	Value
Major-road speed, mph:	35
Major-road volume (one direction), veh/h:	234
Right-turn volume, veh/h:	16

OUTPUT

Variable	Value
Limiting right-turn volume, veh/h:	3250
Guidance for determining the need for a major-road right-turn bay for a 2-lane roadway:	
Do NOT add right-turn bay.	



Intersection #6
PM Peak Hour

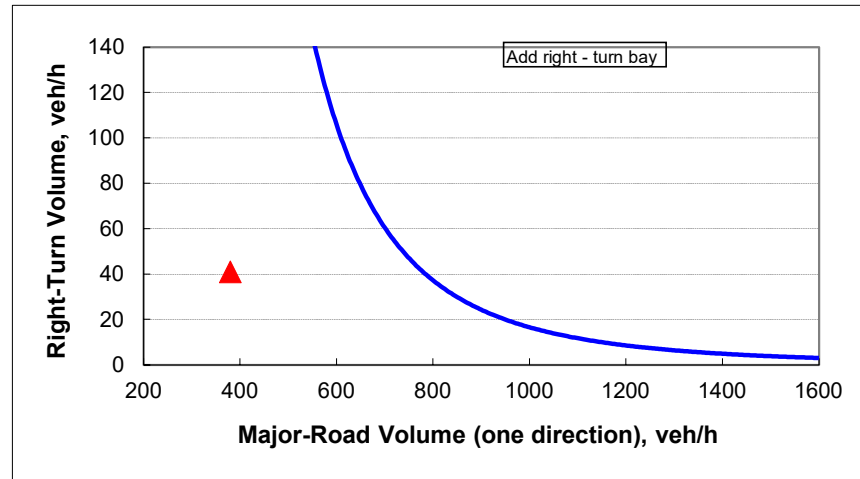
Figure 2 - 6. Guideline for determining the need for a major-road right-turn bay at a two-way stop-controlled intersection.

INPUT

Roadway geometry:	2-lane roadway
Variable	Value
Major-road speed, mph:	35
Major-road volume (one direction), veh/h:	380
Right-turn volume, veh/h:	41

OUTPUT

Variable	Value
Limiting right-turn volume, veh/h:	557
Guidance for determining the need for a major-road right-turn bay for a 2-lane roadway:	
Do NOT add right-turn bay.	



Intersection #7
AM Peak Hour

Figure 2 - 5. Guideline for determining the need for a major-road left-turn bay at a two-way stop-controlled intersection.

2-lane roadway (English)

INPUT

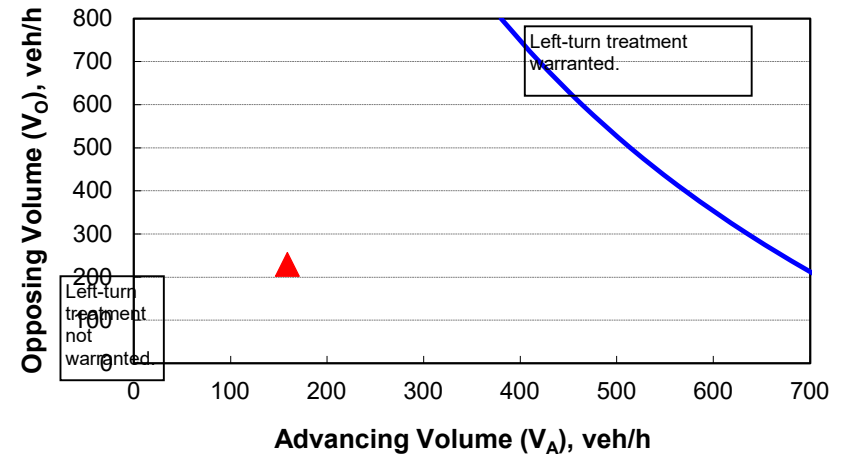
Variable	Value
85 th percentile speed, mph:	35
Percent of left-turns in advancing volume (V_A), %:	4%
Advancing volume (V_A), veh/h:	159
Opposing volume (V_O), veh/h:	229

OUTPUT

Variable	Value
Limiting advancing volume (V_A), veh/h:	687
Guidance for determining the need for a major-road left-turn bay:	
Left-turn treatment NOT warranted.	

CALIBRATION CONSTANTS

Variable	Value
Average time for making left-turn, s:	3.0
Critical headway, s:	5.0
Average time for left-turn vehicle to clear the advancing lane, s:	1.9



Intersection #7
PM Peak Hour

Figure 2 - 5. Guideline for determining the need for a major-road left-turn bay at a two-way stop-controlled intersection.

2-lane roadway (English)

INPUT

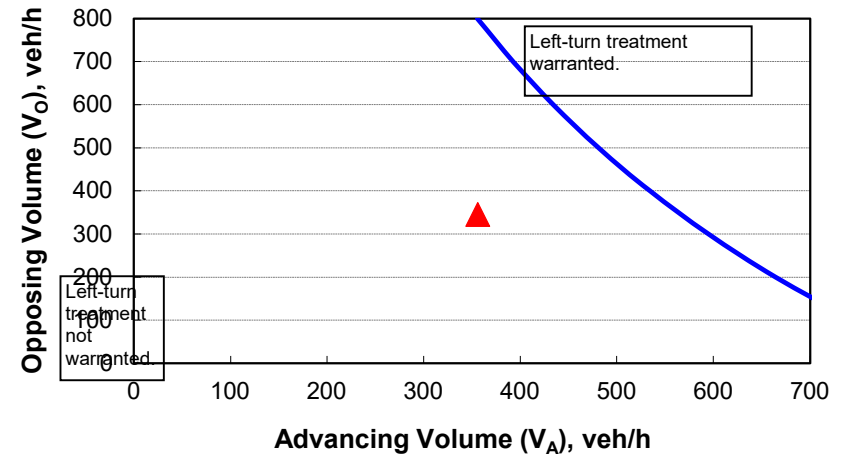
Variable	Value
85 th percentile speed, mph:	35
Percent of left-turns in advancing volume (V_A), %:	5%
Advancing volume (V_A), veh/h:	356
Opposing volume (V_O), veh/h:	345

OUTPUT

Variable	Value
Limiting advancing volume (V_A), veh/h:	566
Guidance for determining the need for a major-road left-turn bay:	
Left-turn treatment NOT warranted.	

CALIBRATION CONSTANTS

Variable	Value
Average time for making left-turn, s:	3.0
Critical headway, s:	5.0
Average time for left-turn vehicle to clear the advancing lane, s:	1.9



Intersection #7
AM Peak Hour

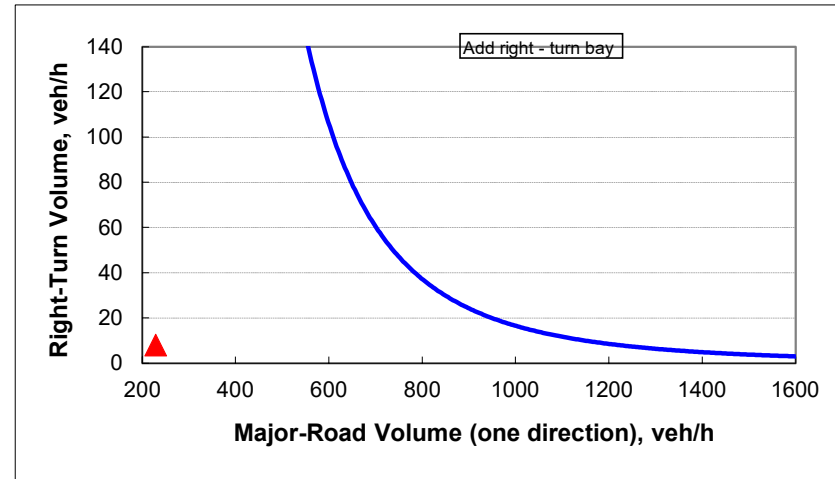
Figure 2 - 6. Guideline for determining the need for a major-road right-turn bay at a two-way stop-controlled intersection.

INPUT

Roadway geometry:	2-lane roadway
Variable	Value
Major-road speed, mph:	35
Major-road volume (one direction), veh/h:	229
Right-turn volume, veh/h:	8

OUTPUT

Variable	Value
Limiting right-turn volume, veh/h:	3516
Guidance for determining the need for a major-road right-turn bay for a 2-lane roadway:	
Do NOT add right-turn bay.	



Intersection #7
PM Peak Hour

Figure 2 - 6. Guideline for determining the need for a major-road right-turn bay at a two-way stop-controlled intersection.

INPUT

Roadway geometry:	2-lane roadway
Variable	Value
Major-road speed, mph:	35
Major-road volume (one direction), veh/h:	345
Right-turn volume, veh/h:	20

OUTPUT

Variable	Value
Limiting right-turn volume, veh/h:	792
Guidance for determining the need for a major-road right-turn bay for a 2-lane roadway:	
Do NOT add right-turn bay.	

