

TRANSPORTATION IMPACT ANALYSIS

Poole Road Apartment Development

Knightsdale, NC

*Prepared for
Signature Property Group*





Transportation Impact Analysis

Poole Road Apartment Development Knightdale, NC

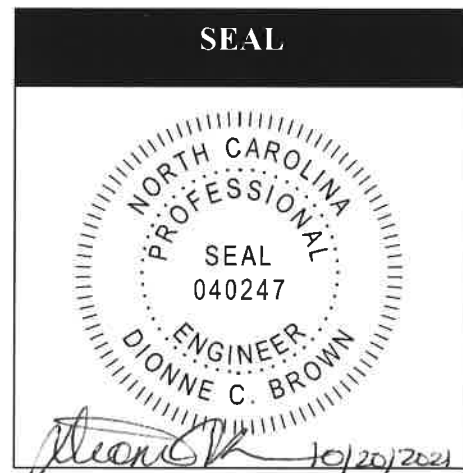
Prepared for Signature Property Group
October 15, 2021

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**Poole Road Apartment Development – Transportation Impact Analysis
Knightdale, NC
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Executive Summary

Site Overview

The Poole Road Apartment Development is to be located on the northwest quadrant of Hodge Road and Poole Road in Knightdale, North Carolina. As currently planned, this site development will consist of 364 dwelling units of apartments and 30 dwelling units of townhomes. The full build-out year is assumed as 2023. This development utilizes two (2) site accesses, one (1) full movement access on Hodge Road and one (1) full movement access on Poole Road.

Trip Generation

Based on the rates and equations in the ITE Trip Generation Manual (10th Edition) this development has a trip generation potential of 2,168 daily trips, 137 trips in the AM peak and 173 trips in the PM peak.

Conclusion

Based on the analysis, study intersections are expected to operate at LOS D or better with the exception of Hodge Road at I-87 Northbound Ramp, Spectrum Drive and Poole Road. Though they are expected to operate at LOS E or F, they are within the 25% allowable increase by NCDOT Congestion Management. The site trips of the proposed developments are approximately 5% of the intersection volumes. **However, the planned improvements by the Town of Knightdale and City of Raleigh to widen Hodge Road should be pursued as it will increase capacity for the future volumes along the study intersections.**

Based on NCDOT turn lane warrants and AADT on the roadways, it is recommended to provide right and left turn lanes at the site accesses for the proposed development.

In conclusion, this study has reviewed the impacts of both background traffic and this development traffic. Please note that all site accesses should be designed according to the NCDOT Standards.

The recommended improvements at the study intersections for 2023 full build are summarized in Table A.

Table A – Recommended Improvements Summary	
Intersection	Full Build
I-87 Southbound Ramp at Hodge Road	<ul style="list-style-type: none"> No Improvements are recommended
I-87 Northbound Ramp at Hodge Road	<ul style="list-style-type: none"> No Improvements are recommended
Hodge Road at Panther Rock Road	<ul style="list-style-type: none"> No Improvements are recommended
Hodge Road at Spectrum Drive	<ul style="list-style-type: none"> No Improvements are recommended
Hodge Road at Poole Road	<ul style="list-style-type: none"> No Improvements are recommended
Hodge Road at Site Access	<ul style="list-style-type: none"> Provide a southbound right turn lane with 100 feet of storage and appropriate taper length Provide a northbound left turn lane with 100 feet of storage and appropriate taper length Design site access according to NCDOT standards
Poole Road at Site Access	<ul style="list-style-type: none"> Provide an eastbound left turn lane with 100 feet of storage and appropriate taper length Provide a westbound right turn lane with 100 feet of storage and appropriate taper length Design site access according to NCDOT standards



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1.0 Introduction

The Poole Road Apartment Development is to be located on the northwest quadrant of Hodge Road and Poole Road in Knightdale, North Carolina. As currently planned, this site development will consist of 364 dwelling units of apartments and 30 dwelling units of townhomes. The full build-out year is assumed as 2023. This development utilizes two (2) site accesses, one (1) full movement access on Hodge Road and one (1) full movement access on Poole Road. The site plan is shown in Figure 1. Figure 2A and Figure 2B show the site location map and vicinity map, respectively.

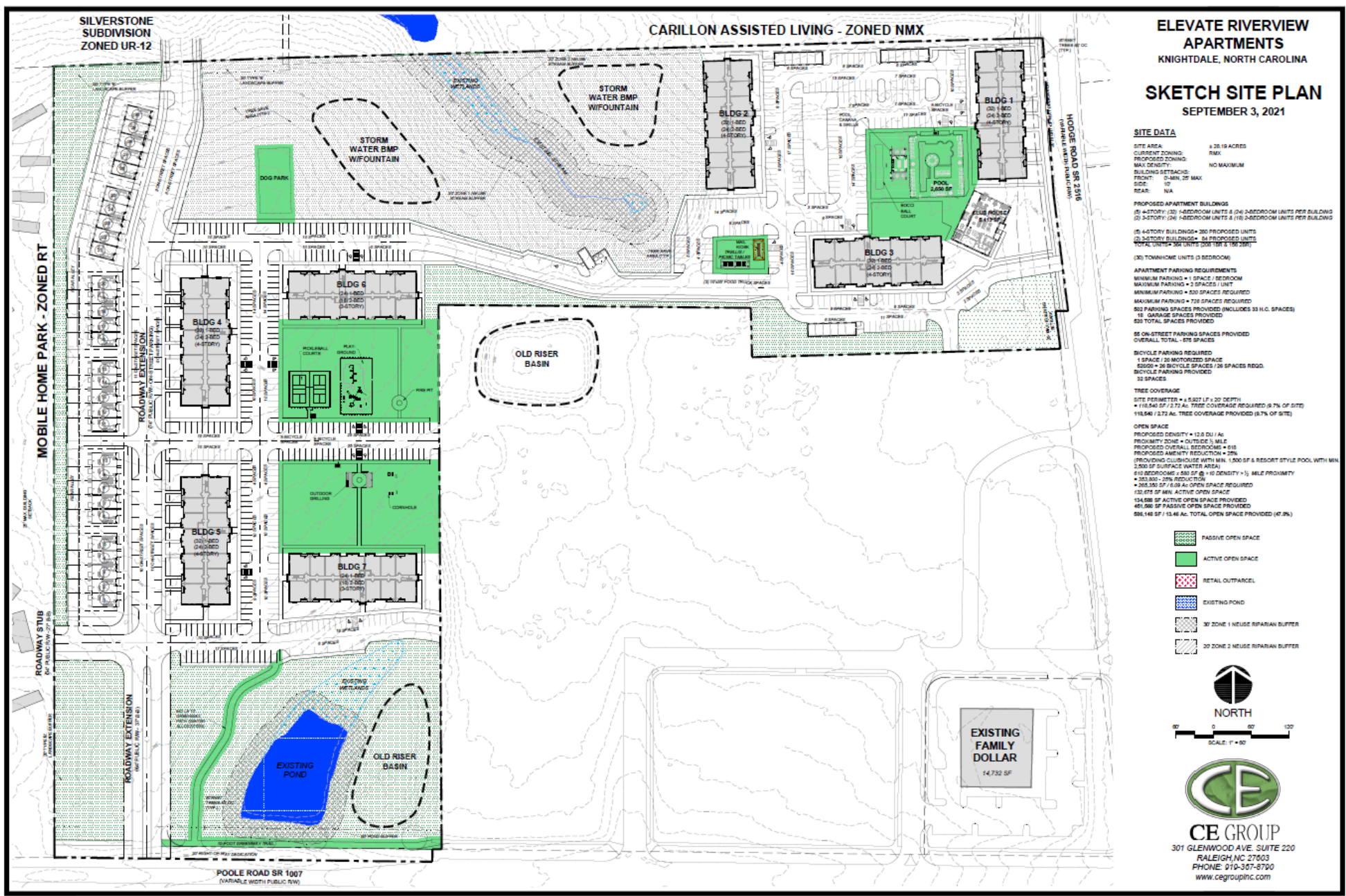
DAVENPORT was retained to determine the potential traffic impacts of this development and to identify transportation improvements that may be required to accommodate the impacts of both background traffic and new development traffic. The following intersections were included in the study:

- I-87 Southbound Ramp at Hodge Road
- I-87 Northbound Ramp at Hodge Road
- Hodge Road at Panther Rock Boulevard
- Hodge Road at Spectrum Drive
- Hodge Road at Poole Road
- Hodge Road at Site Access
- Poole Road at Site Access

The study intersections were analyzed during the AM (7 am – 9 am) and PM (4 pm – 6 pm) peaks for the following conditions. The Town of Knightdale standards require a horizon year analysis (build-out + 10 years).

- 2020 Existing Conditions
- 2023 Future No-build Conditions
- 2023 Future Build Conditions
- 2023 Future Build with Improvements
- 2033 Future No-build Conditions
- 2033 Future Build Conditions

The North Carolina Department of Transportation (NCDOT) and Town of Knightdale were contacted to obtain background information and to ascertain the elements to be covered in this Transportation Impact Analysis (TIA). The approved scope for this TIA is included in the appendix. Information regarding the property was provided by Signature Property Group.



ELEVATE RIVERVIEW APARTMENTS
 KNIGHTDALE, NORTH CAROLINA
SKETCH SITE PLAN
 SEPTEMBER 3, 2021

SITE DATA

SITE AREA: 2.25.15 ACRES
 CURRENT ZONING: NMX
 PROPOSED ZONING: NO MAXIMUM
 BUILDING SETBACKS:
 FRONT: 0 MIN. OF MAX.
 SIDE: 10'
 REAR: NA

PROPOSED APARTMENT BUILDINGS
 (5) 4-STORY (25) 4-BEDROOM UNITS & (24) 3-BEDROOM UNITS PER BUILDING
 (2) 3-STORY (24) 4-BEDROOM UNITS & (18) 3-BEDROOM UNITS PER BUILDING
 (5) 4-STORY BUILDINGS = 300 PROPOSED UNITS
 (2) 3-STORY BUILDINGS = 64 PROPOSED UNITS
 (30) TOWNHOME UNITS (3 BEDROOM)

APARTMENT PARKING REQUIREMENTS
 MINIMUM PARKING = 1 SPACE / BEDROOM
 MAXIMUM PARKING = 3 SPACES / UNIT
 MINIMUM PARKING = 550 SPACES REQUIRED
 MAXIMUM PARKING = 718 SPACES REQUIRED
 552 PARKING SPACES PROVIDED (INCLUDES 33 H.C. SPACES)
 23 TOTAL SPACES PROVIDED

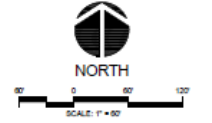
55 ON-STREET PARKING SPACES PROVIDED
 OVERALL TOTAL - 615 SPACES

BICYCLE PARKING REQUIRED
 1 SPACE / 20 MOTORIZED SPACE
 5000 SF / 20 BICYCLE SPACES / 10 SPACES REQD.
 BICYCLE PARKING PROVIDED
 32 SPACES

TREE COVERAGE
 SITE PERIMETER = 4,527 LF x 30' DEPTH
 = 135,810 SF / 2.72 AC. TREE COVERAGE REQUIRED (8.7% OF SITE)
 118,640 / 2.72 AC. TREE COVERAGE PROVIDED (8.7% OF SITE)

OPEN SPACE
 PROPOSED DENSITY = 12.8 DU / AC
 PROXIMITY ZONE = OUTSIDE 1/2 MILE
 PROPOSED OVERALL BEDROOMS = 618
 PROPOSED AMENITY REDUCTION = 29%
 (PROVIDING CLUBHOUSE WITH MIN. 1,500 SF & RESORT STYLE POOL WITH MIN. 2,500 SF SURFACE WATER AREA)
 618 BEDROOMS x 580 SF @ 10 DENSITY = 358,440 SF
 = 268,350 SF / 6.09 AC OPEN SPACE REQUIRED
 132,675 SF MIN. ACTIVE OPEN SPACE
 134,958 SF ACTIVE OPEN SPACE PROVIDED
 481,986 SF PASSIVE OPEN SPACE PROVIDED
 586,148 SF / 13.46 AC. TOTAL OPEN SPACE PROVIDED (47.2%)

- PASSIVE OPEN SPACE
- ACTIVE OPEN SPACE
- RETAIL OUTPARCEL
- EXISTING POND
- 30' ZONE 1 NEIGH. RIPARIAN BUFFER
- 30' ZONE 2 NEIGH. RIPARIAN BUFFER



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FIGURE 1
SITE PLAN



FIGURE 2A
SITE LOCATION MAP

SITE INDICATOR



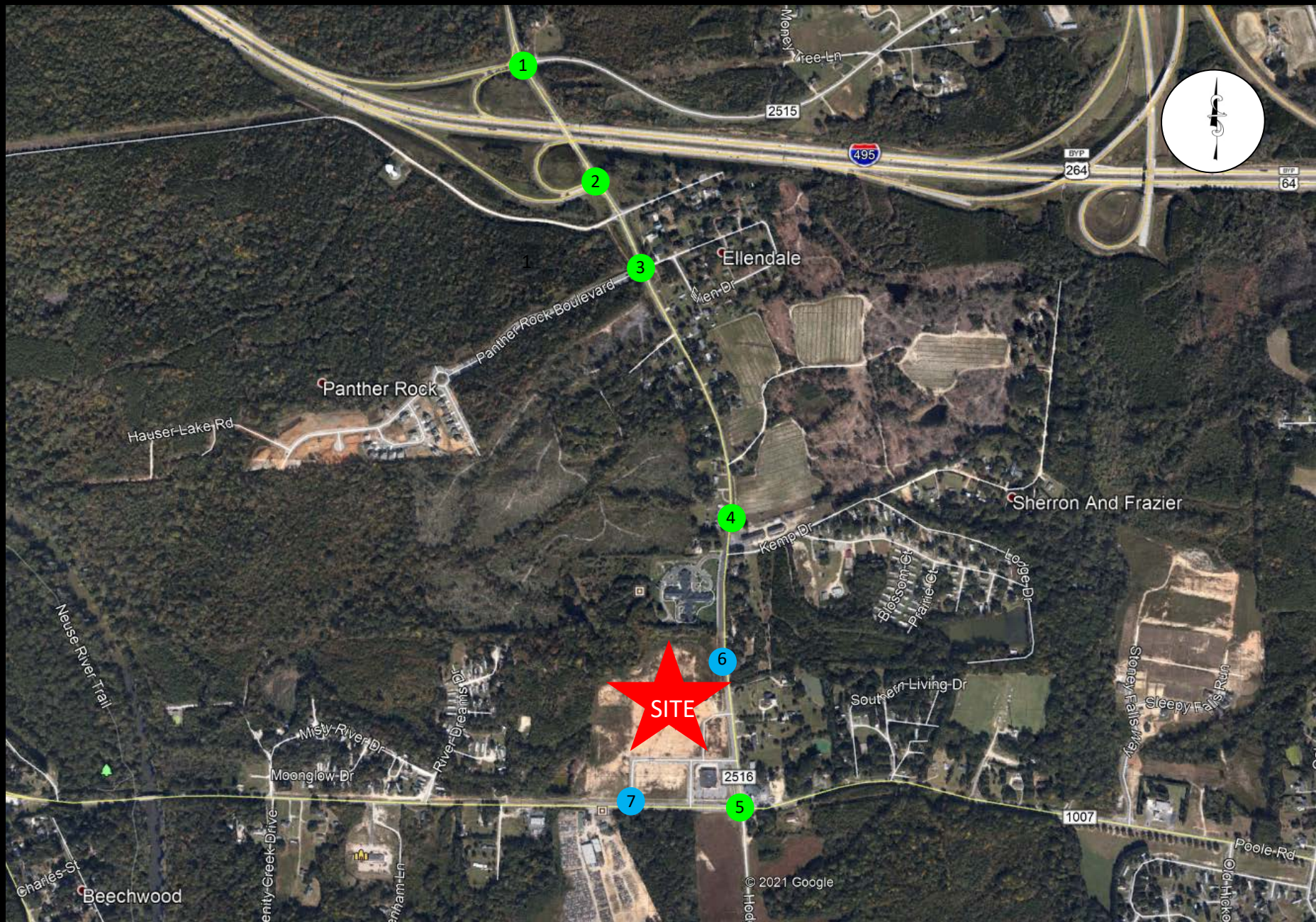
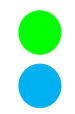


FIGURE 2B
VICINITY MAP

STUDY INTERSECTIONS
BACKGROUND
PROPOSED



2.0 Existing Conditions

2.1 Inventory

A field investigation was conducted by DAVENPORT staff to determine the existing roadway conditions in the study area. Table 2.1 contains the results of this effort. Figure 3 illustrates the existing lane geometry.

Table 2.1 - Street Inventory					
Facility Name	Route #	Typical Cross Section	Pavement Width	Speed Limit	Maintained By
I-87	I-87/ US 264	6-Lane Divided	Approx. 120'	70 MPH	NCDOT
Old Faison Road	SR 2515	2-Lane Undivided	Approx. 26'	45 MPH	NCDOT
Hodge Road	SR 2516	2-Lane Undivided	Approx. 20'	45 MPH	NCDOT
Panther Rock Boulevard	N/A	2-Lane Undivided	Approx. 36'	25 MPH	Town
Ellen Drive	SR 2577	2-Lane Undivided	Approx. 20'	25 MPH	NCDOT
Spectrum Drive	NA	4-Lane Divided	Approx. 64'	Not Posted	Private
Poole Road	SR 1007	2-Lane Undivided	Approx. 24'	45 MPH	NCDOT

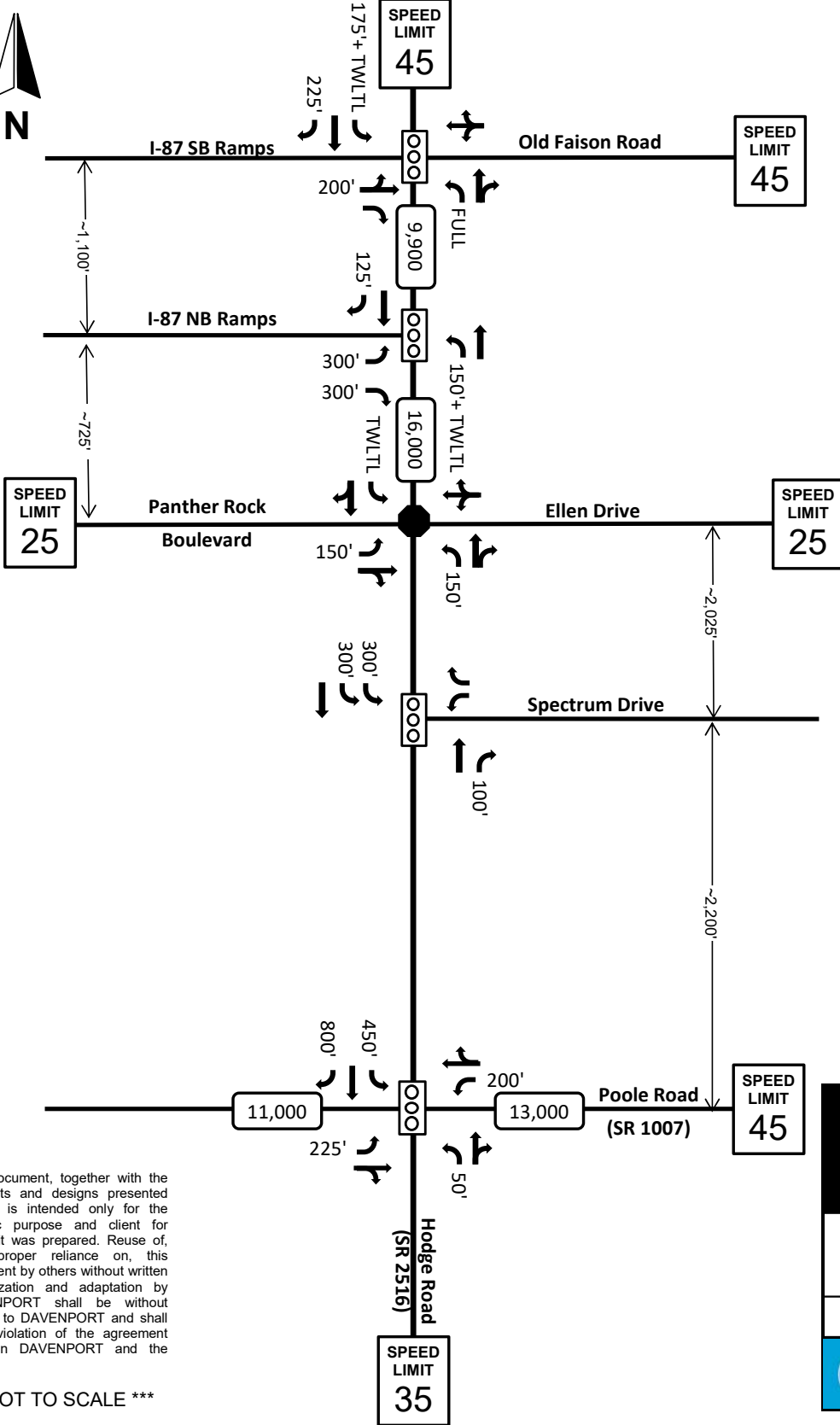
2.2 Existing Traffic Volumes

Existing traffic volumes for this project were utilized from the Eastgate 540 TIA conducted by VHB in 2021. This methodology was approved by Town of Knightdale as this was the most recent TIA completed in this area.

Figure 4 shows the 2021 Base Traffic Volumes.



LEGEND	
	SIGNALIZED INTERSECTION
	UNSIGNALIZED INTERSECTION
	ROADWAY
	TRAFFIC MOVEMENT
	BLACK = EXISTING
	2019 AADT VOLUME



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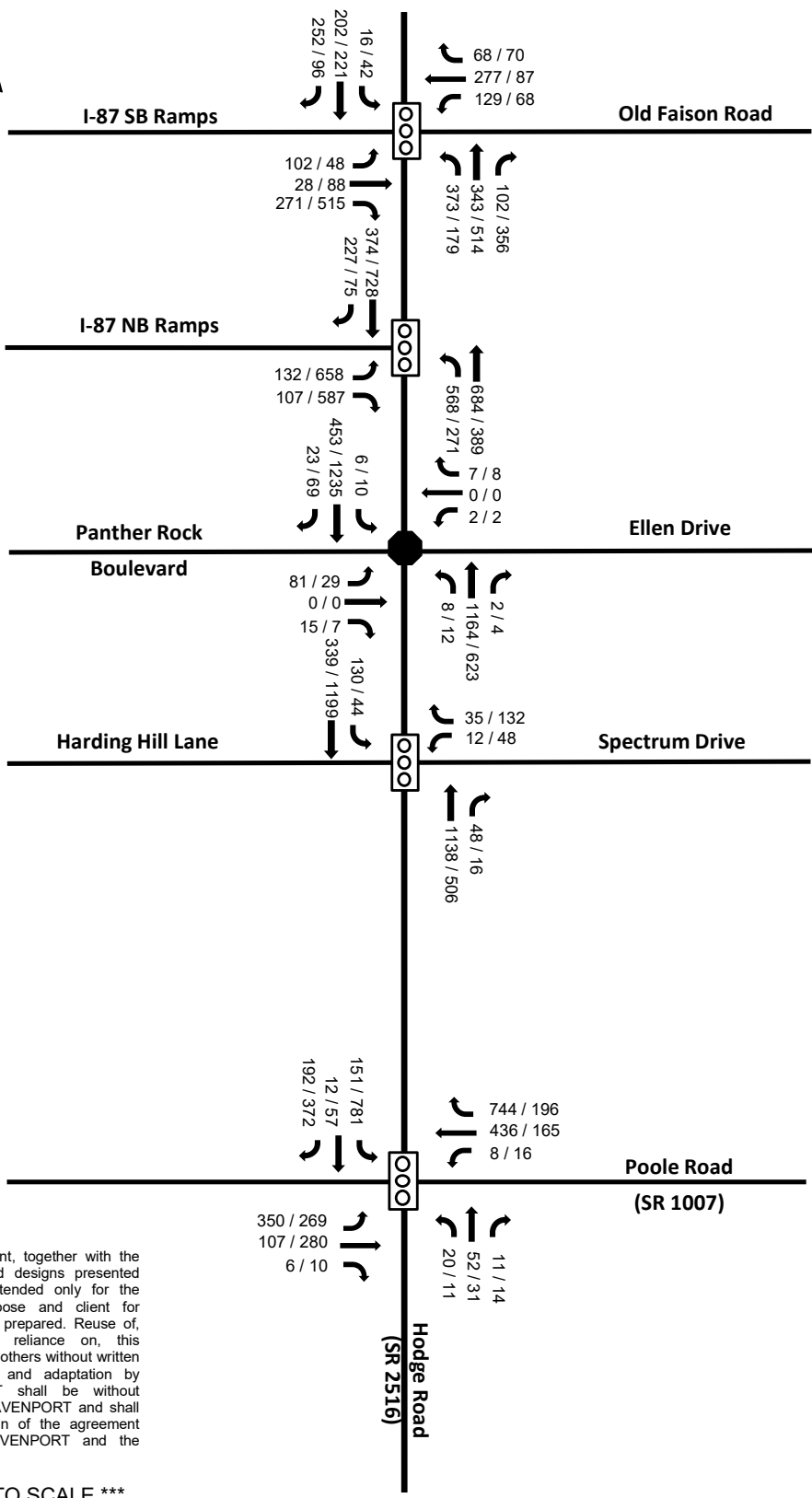
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**FIGURE 3
EXISTING LANE
GEOMETRY**

POOLE ROAD APARTMENT
DEVELOPMENT
KNIGHTDALE, NC

PROJECT NUMBER 210410





LEGEND	
	SIGNALIZED INTERSECTION
	UNSIGNALIZED INTERSECTION
	ROADWAY
	TRAFFIC MOVEMENT
	BLACK = EXISTING
	AM/PM PEAK HOURS

**FIGURE 4
2021 BASE TRAFFIC
VOLUMES**

POOLE ROAD APARTMENT
DEVELOPMENT
KNIGHTDALE, NC

PROJECT NUMBER 210410

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3.0 Approved Developments and Committed Improvements

3.1 *Approved Developments*

Approved developments are developments that have been recently approved in the area, but not yet constructed. Per NCDOT and the Town of Knightdale staff, there are three (3) approved developments in the area to be included in the analysis.

The TIA for the **SilverStone** development was conducted by Ramey Kemp and Associates in October 2016. It is proposed to be located in the northwest quadrant of Hodge Road and Kemp Drive. The development is proposed to have a full build out of 108 townhomes and 282 single family homes by 2022. Since the SilverStone development is proposed to be constructed prior to the Poole Road Apartment Development, the proposed site trips and recommended improvements will be included into the analysis.

The TIA for the **StoneRiver** development was conducted by Ramey Kemp and Associates in June 2016. It is proposed to be located west of Hodge Road and south of the US 64 Bypass interchange. The development is proposed to have a full build out of 286 single family homes and 98 townhomes by 2021. Since the StoneRiver development is proposed to be constructed prior to the Poole Road Apartment Development, the proposed site trips and recommended improvements will be included into the analysis.

The TIA for the **Eastgate 540** development was conducted by VHB in March 2021. It is proposed to be located on the east side of Hodge Road, south of I-87. The existing Eastgate 540 development is partially constructed and occupied. The full build out of the development is planned to consist of 204,000 square feet of industrial warehouse space by 2022. Since the Eastgate 540 development is proposed to be constructed prior to the Poole Road Apartment Development, the proposed site trips and recommended improvements will be included into the analysis.

The site trips can be found in the approved development section of the appendix and Figure A.

3.2 *Committed Improvements*

Committed Improvements are improvements that are planned by NCDOT, the Town, or a developer in the area, but not yet constructed. **NCDOT TIP R-2829** (NC 540 – Eastern Wake Freeway) is scheduled in 2026. This TIP is the southeast extension (Raleigh Outer Loop), I-40 to US 64/ US 264 Bypass on new location. Per the **Town's Arterial & Collector Street Plan**, Hodge Road is identified as an existing arterial that needs improvements within the study area. The **City of Raleigh's 2030 Comprehensive Plan** depicts Hodge Road as a four-lane divided avenue within the study area. Since these committed improvements are after the build year of the development, these improvements were not incorporated in the models.

The committed improvements associated with the three (3) approved developments:



SilverStone, StoneRiver and Eastgate 540 are planned near the proposed development. These approved development's committed improvements were included in the future model scenarios.

4.0 Methodology

4.1 Base Assumptions and Standards

In general, the analysis for this project was conducted utilizing commonly accepted NCDOT standards. The following table contains a summary of the base assumptions:

Table 4.1 - Assumptions	
Peak Hour Factor	0.90
Background Traffic Annual Growth Rate	3.0% per year for all roadways till 2023 1.0% per year for all roadways from 2023 to 2033
Analysis Software	Synchro/SimTraffic Version 10.0
Base Signal Timing/Phasing	NCDOT
Lane widths	12-feet
Truck percentages	2%

4.2 Trip Generation

Poole Road Apartment Development is proposed to have 364 dwelling units of apartments and 30 dwelling units of townhomes. The trip generation potential of development was computed based on the 10th edition of the ITE Trip Generation Manual. This trip generation rate was approved by the Town of Knightdale and NCDOT and Table 4.2 shows the results.

Table 4.2 ITE Trip Generation									
Poole Road Apartment Development									
Average Weekday Driveway Volumes					24 Hour Two-Way	AM Peak Hour		PM Peak Hour	
Land Use	ITE Land Code	Size		Method/Type	Volume	Enter	Exit	Enter	Exit
Multi-Family Housing (Mid-rise)	221	364	Dwelling Units	Adjacent/Equation	1,982	32	90	93	60
Multi-Family Housing (Low-rise)	220	30	Dwelling Units	Adjacent/Equation	186	3	12	13	7
Total Trips					2,168	35	102	106	67

4.3 Trip Distribution

Site trips for this proposed development were distributed based on the existing traffic patterns and engineering judgment. The trip distribution diagram for residential trips is shown in Figure 5.

The directional distributions for residential site trips are as follows:

- 40% to and from the west on I-87 SB/ US 264 WB Ramp
- 35% to and from the west on I-87 NB/ US 264 EB Ramp
- 15% to and from the north on Hodge Road
- 5% to and from the east on Poole Road
- 5% to and from the west on Poole Road

4.4 2023 Future No Build Traffic

The 2023 future no-build traffic volumes were computed by applying a 3.0% compounded annual growth rate to the 2020 base traffic volumes and adding the approved development trips. Figure 6 shows the 2023 future no-build traffic volumes for AM and PM peaks. Approved development trips are shown in Figure A.

4.5 2023 Future Build Total Traffic

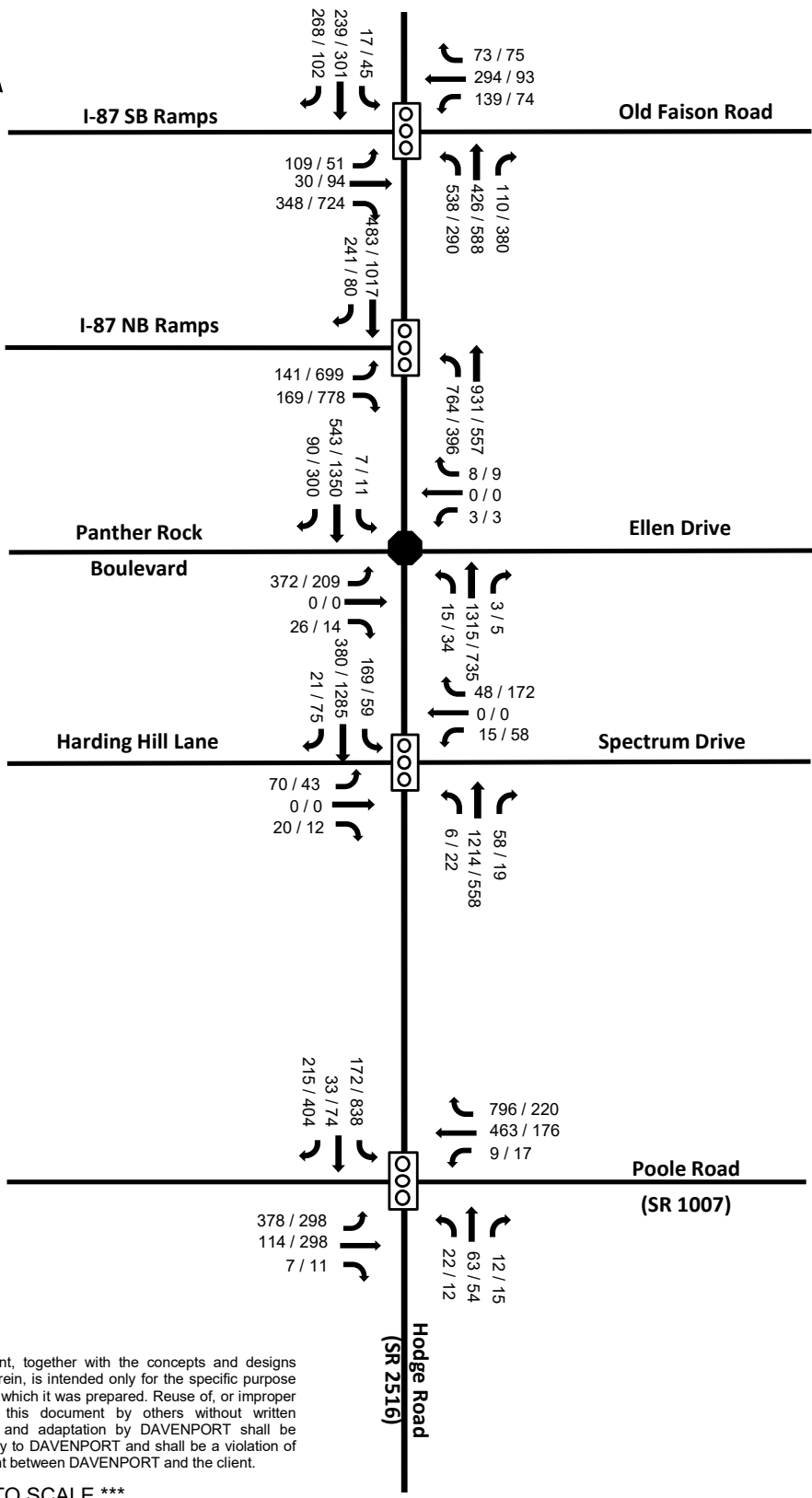
The 2023 build-out traffic volumes were obtained by summing the 2023 future no-build volumes and residential site trips due to the proposed development. Residential site trips are shown in Figure 7. The 2023 future build volumes are shown for AM and PM peaks in Figure 8.

4.6 2033 Future No Build Traffic

The 2033 future no-build traffic volumes were computed by applying a 1.0% compounded annual growth rate to the 2023 projected traffic volumes and adding the approved development trips. Figure 9 shows the 2033 future no-build traffic volumes for AM and PM peaks. Approved development trips are shown in Figure A.

4.7 2033 Future Build Total Traffic

The 2033 build-out traffic volumes were obtained by summing the 2033 future no-build volumes and residential site trips due to the proposed development. The 2033 future build volumes are shown for AM and PM peaks in Figure 10.



LEGEND	
	SIGNALIZED INTERSECTION
	UNSIGNALIZED INTERSECTION
	ROADWAY
	TRAFFIC MOVEMENT
BLACK	= EXISTING
BLUE	= PROPOSED
AM/PM PEAK HOURS	

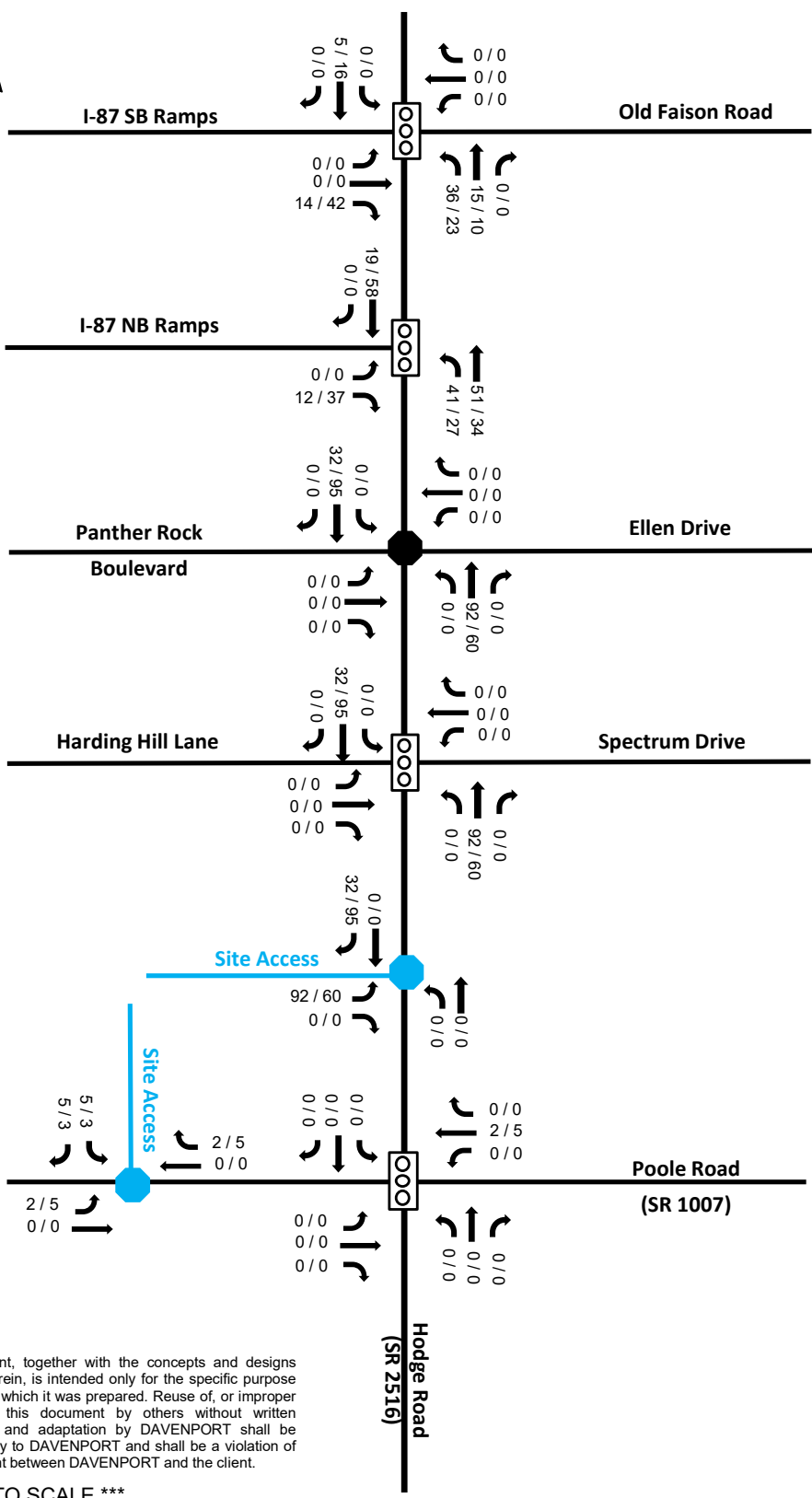
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FIGURE 6
2023 FUTURE NO BUILD VOLUMES

POOLE ROAD APARTMENT DEVELOPMENT
 KNIGHTDALE, NC

PROJECT NUMBER 210410



LEGEND	
	SIGNALIZED INTERSECTION
	UNSIGNALIZED INTERSECTION
	ROADWAY
	TRAFFIC MOVEMENT
	BLACK = EXISTING
	BLUE = PROPOSED
	AM/PM PEAK HOURS

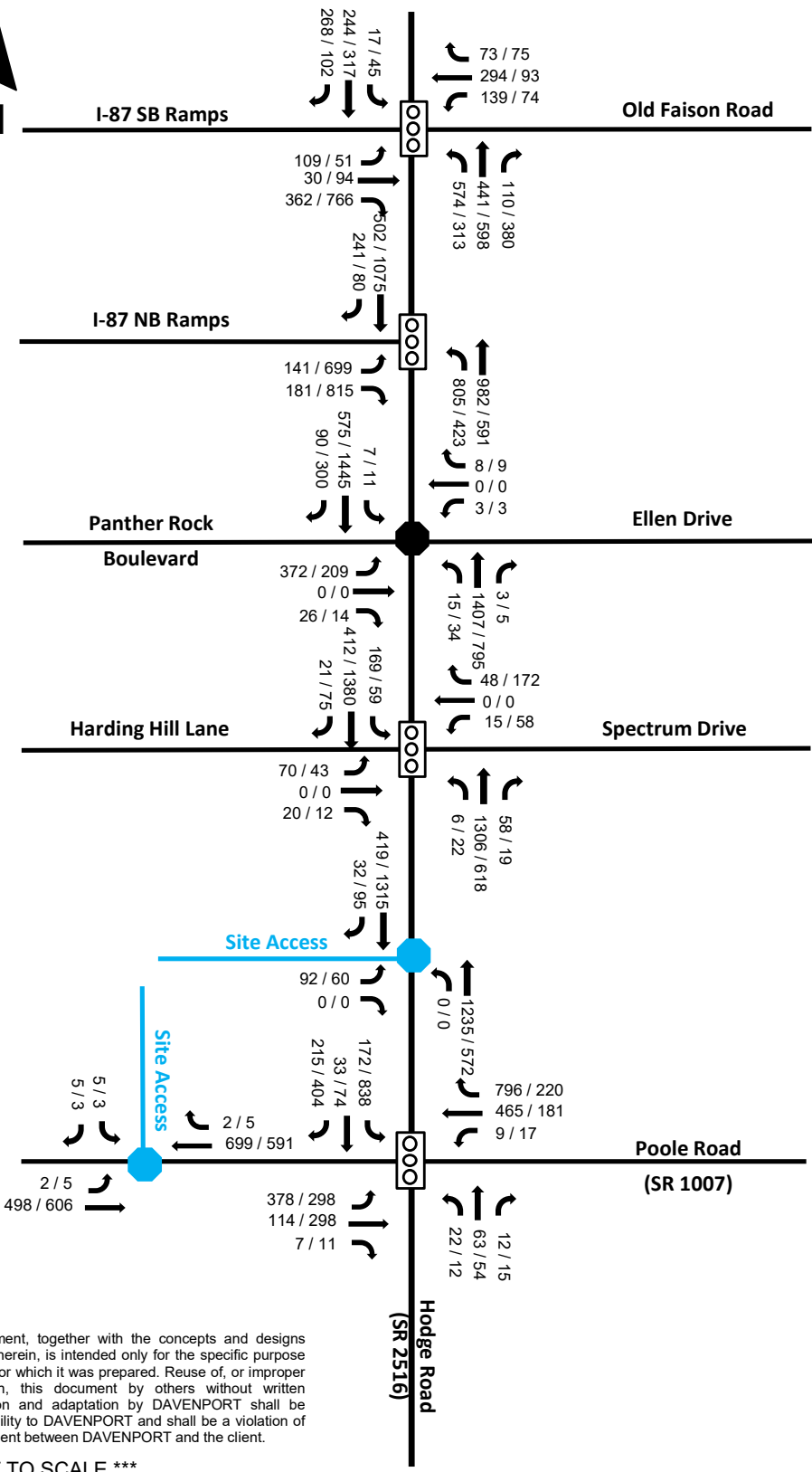
**FIGURE 7
RESIDENTIAL SITE
TRIPS**

POOLE ROAD APARTMENT
DEVELOPMENT
KNIGHTDALE, NC

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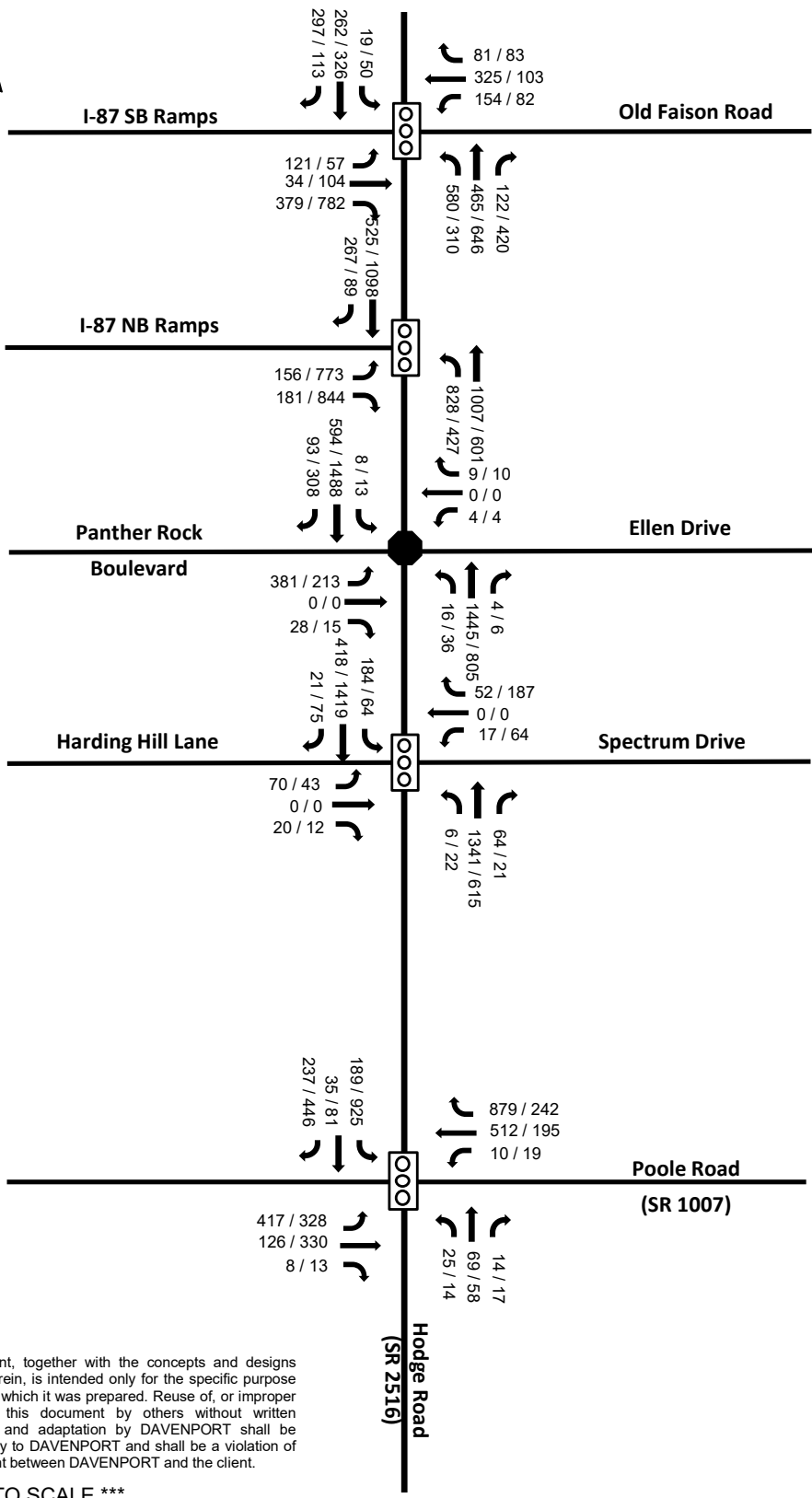
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FIGURE 8 2023 FUTURE BUILD VOLUMES

POOLE ROAD APARTMENT
DEVELOPMENT
KNIGHTDALE, NC

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LEGEND	
	SIGNALIZED INTERSECTION
	UNSIGNALIZED INTERSECTION
	ROADWAY
	TRAFFIC MOVEMENT
	BLACK = EXISTING BLUE = PROPOSED
	AM/PM PEAK HOURS

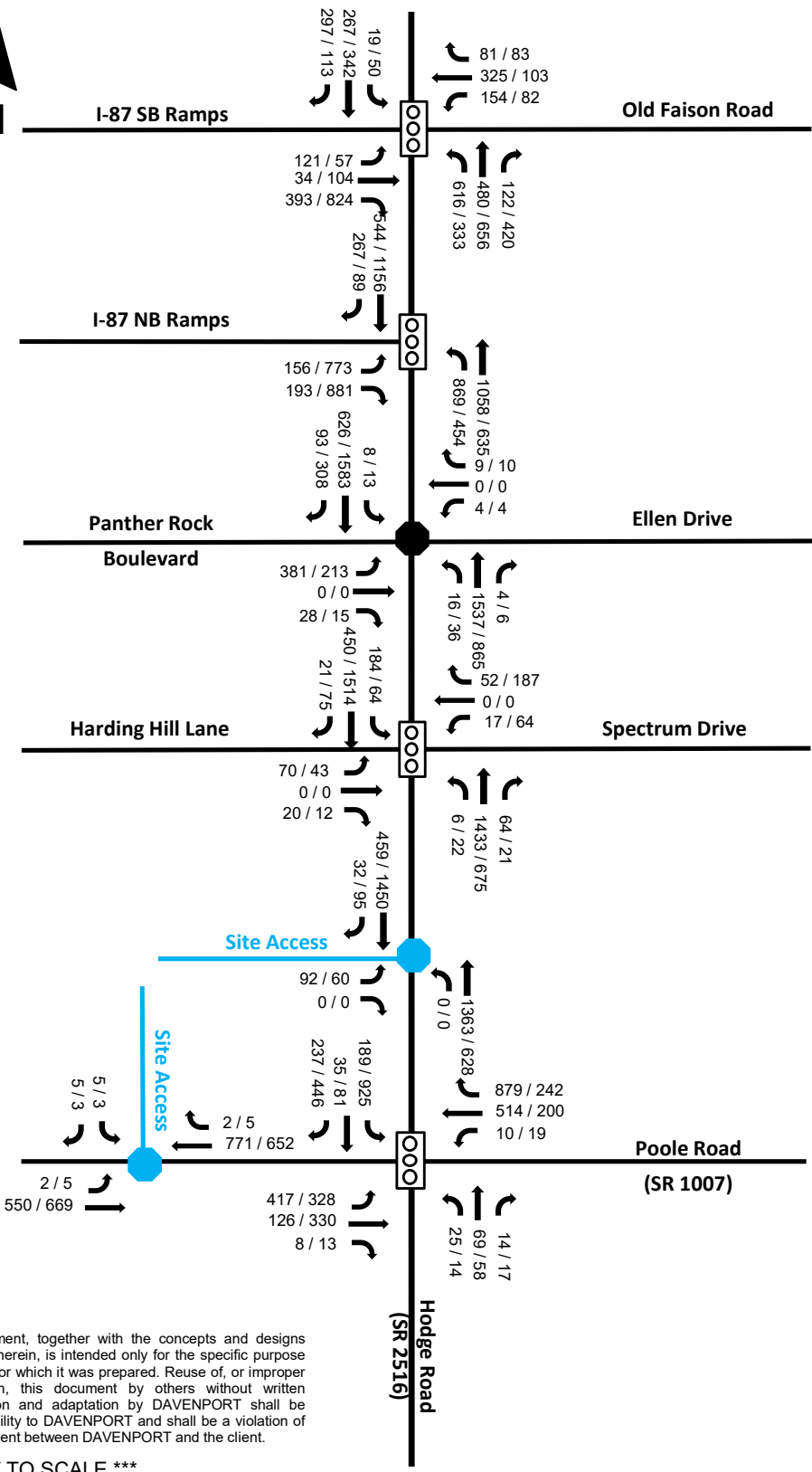
FIGURE 9
2033 FUTURE NO BUILD VOLUMES

POOLE ROAD APARTMENT DEVELOPMENT
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LEGEND	
	SIGNALIZED INTERSECTION
	UNSIGNALIZED INTERSECTION
	ROADWAY
	TRAFFIC MOVEMENT
BLACK	= EXISTING
BLUE	= PROPOSED
AM/PM PEAK HOURS	

**FIGURE 10
2033 FUTURE BUILD
VOLUMES**

POOLE ROAD APARTMENT
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5.0 Capacity Analysis

5.1 Level of Service Evaluation Criteria

The Transportation Research Board’s Highway Capacity Manual (HCM) utilizes a term “level of service” to measure how traffic operates in intersections and on roadway segments. There are currently six levels of service ranging from A to F. Level of service “A” represents low-volume traffic operations and Level of Service “F” represents high-volume, oversaturated traffic operations. Synchro Traffic Modeling software was used to determine the level of service for studied intersections. Note for unsignalized intersection analysis, the level of service noted is for the worst approach of the intersection. This is typically the left turn movement for the side street approach, due to the number of opposing movements. All worksheet reports from the analyses can be found in the Appendix.

Table 5.1 – Highway Capacity Manual

Levels of Service and Control Delay Criteria			
Signalized Intersection		Unsignalized Intersection	
Level of Service	Control Delay Per vehicle (sec)	Level of Service	Delay Range (sec)
A	≤ 10	A	≤ 10
B	> 10 and ≤ 20	B	> 10 and ≤ 15
C	> 20 and ≤ 35	C	> 15 and ≤ 25
D	> 35 and ≤ 55	D	> 25 and ≤ 35
E	> 55 and ≤ 80	E	> 35 and ≤ 50
F	> 80	F	> 50

5.2 Existing Conditions - Level of Service Results

The results of the level of service analysis are discussed by intersection below.

I-87 Southbound Ramp at Hodge Road

This signalized intersection currently operates at LOS C in the AM peak and LOS D in the PM peak.

I-87 Northbound Ramp at Hodge Road

This signalized intersection currently operates at LOS B in the AM peak and LOS F in the PM peak.

Hodge Road at Panther Rock Boulevard

This unsignalized intersection currently operates at LOS F in the AM and PM peak hours.

Hodge Road at Spectrum Drive

This signalized intersection currently operates at LOS B in the AM and PM peak hours.

Hodge Road at Poole Road

This signalized intersection currently operates at LOS F in the AM and PM peak hours.

Table 5.2 - Level of Service Summary (Existing Conditions)

Intersection	AM Peak	PM Peak
I-87 Southbound Ramp at Hodge Road	C (25)	D (36.1)
I-87 Northbound Ramp at Hodge Road	B (16.2)	F (207.8)
Hodge Road at Panther Rock Road	F (416) EB Approach	F (283.1) EB Approach
Hodge Road at Spectrum Road	B (18.2)	B (13.5)
Hodge Road at Poole Road	F (124.4)	F (85.3)

LOS (delay in seconds)

Note for unsignalized conditions, LOS and delay indicates only minor street approach with longest delay

5.3 2023 Future Conditions - Level of Service Results

The results of the level of service analysis are discussed by intersection below and recommended improvements are shown in Figure 11.

I-87 Southbound Ramp at Hodge Road

In 2023 future no-build conditions with committed improvements in place, this intersection is expected to operate at LOS C in the AM and PM peak hours. In 2023 future build conditions, the LOS D is expected in the AM peak and LOS C in the PM peak. The delay increase is within the 25% increase permitted by the congestion management guidelines. No improvements are expected at this intersection.

I-87 Northbound Ramp at Hodge Road

In 2023 future no-build conditions with committed improvements in place, this intersection is expected to operate at LOS C in the AM peak and LOS F in the PM peak. In 2023 future build conditions, the LOS is expected to remain unchanged. No improvements are expected at this intersection.

Hodge Road at Panther Rock Boulevard

In 2023 future no-build conditions this intersection will become signalized and with the committed improvements in place, this intersection is expected to operate at LOS C in the AM peak and LOS B in the PM peak. In 2023 future build conditions, the LOS is expected to remain unchanged. Therefore, no improvements are recommended.

Hodge Road at Spectrum Drive

In 2023 future no-build conditions, this intersection is expected to operate at LOS D in the AM and PM peak hours. In 2023 future build conditions, the LOS E is expected in the AM and PM peak hours. The PM peak hour is within the allowable 25% increase permitted by congestion management. Also, the site trips associated with the proposed development is 5% of the volumes at this intersection. Therefore, no improvements are recommended.

Hodge Road at Poole Road

In 2023 future no-build conditions with committed improvements in place, this intersection is expected to operate at LOS D in the AM peak and LOS E in the PM peak. In 2023 future build conditions, the LOS is expected to remain unchanged. Therefore, no improvements are recommended.

Hodge Road at Site Access

This site access is proposed to have a full movement configuration. In 2023 future build conditions, this intersection is expected to operate at LOS F in the AM and PM peak hours. It is typical for unsignalized stop-controlled intersection to operate at a LOS E or

F due to the lack of gaps for left turn movements on to the major roadway. Based on the AADT on Hodge Road being about 4,000 vehicles per day, it is recommended to provide a northbound left turn lane of 100 feet of storage with appropriate taper and a southbound right turn lane of 100 feet of storage with appropriate taper. This site access should be designed in accordance with NCDOT standards as applicable. It should also be noted that this development has a secondary access on Poole Road for vehicles to avoid the high volume of traffic on Hodge Road.

Poole Road at Site Access

This site access is proposed to have a full movement configuration. In 2023 future build conditions, this intersection is expected to operate at LOS C in the AM and PM peak hours. Based on the AADT on Hodge Road being about 4,000 vehicles per day, it is recommended to provide an eastbound left turn lane of 100 feet of storage with appropriate taper and a westbound right turn lane of 100 feet of storage with appropriate taper. This site access should be designed in accordance with NCDOT standards as applicable.

Table 5.3 - Level of Service Summary			
AM Peak	2023 No Build	2023 Build	2023 Build + Improvements
I-87 Southbound Ramp at Hodge Road	C (32.8)	D (36.7)	
I-87 Northbound Ramp at Hodge Road	C (25.1)	C (30.4)	
Hodge Road at Panther Rock Road	C (31.6)	C (33.8)	
Hodge Road at Spectrum Drive	D (53.5)	E (55.9)	
Hodge Road at Poole Road	D (41.5)	D (41.5)	
Hodge Road at Site Access		F (290.6) EB Approach	F (269.6) EB Approach
Poole Road at Site Access		C (21.1) SB Approach	C (21) SB Approach
LOS (delay in seconds) Note for unsignalized conditions, LOS and delay indicates only minor street approach with longest delay			

Table 5.3 - Level of Service Summary cont.

PM Peak	2023 No Build	2023 Build	2023 Build + Improvements
I-87 Southbound Ramp at Hodge Road	C (32.7)	D (35.1)	
I-87 Northbound Ramp at Hodge Road	F (87.7)	F (100.0)	
Hodge Road at Panther Rock Road	B (17.7)	B (18.0)	
Hodge Road at Spectrum Drive	D (47.7)	E (62.7)	
Hodge Road at Poole Road	E (73.0)	E (73.6)	
Hodge Road at Site Access		F (366.4) EB Approach	F (309.8) EB Approach
Poole Road at Site Access		C (20.4) SB Approach	C (20.2) SB Approach

LOS (delay in seconds)

Note for unsignalized conditions, LOS and delay indicates only minor street approach with longest delay

5.4 2033 Horizon Year Conditions - Level of Service Results

The results of the level of service analysis are discussed by intersection below.

I-87 Southbound Ramp at Hodge Road

In 2033 future no-build conditions, this intersection is expected to operate at LOS D in the AM and PM peak hours. In 2033 future build conditions, the LOS is expected to remain unchanged. No improvements are recommended.

I-87 Northbound Ramp at Hodge Road

In 2033 future no-build conditions, this intersection is expected to operate at LOS D in the AM peak and LOS F in the PM peak. In 2033 future build conditions, the LOS is expected to remain unchanged. No improvements are recommended.

Hodge Road at Panther Rock Boulevard

In 2033 future no-build conditions, this intersection is expected to operate at LOS D in the AM peak and LOS B in the PM peak. In 2033 future build conditions, this intersection is expected to operate at LOS E in the AM peak and LOS C in the PM peak. The delay increase is within the 25% increase permitted by the congestion management guidelines. Also, the site trips are approximately 5% of the overall intersection volume. No improvements are recommended.

Hodge Road at Spectrum Drive

In 2033 future no-build conditions, this intersection is expected to operate at LOS F in the AM peak and LOS E in the PM peak. In 2033 future build conditions, the LOS F is expected. The delay increase is within the 25% increase permitted by the congestion management guidelines. No improvements are recommended.

Hodge Road at Poole Road

In 2033 future no-build conditions, this intersection is expected to operate at LOS E in the AM peak and LOS F in the PM peak. In 2033 future build conditions, the LOS is expected to remain unchanged. Therefore, no improvements are recommended.

Hodge Road at Site Access

This site access is proposed to have a full movement configuration. In 2033 future build conditions, this intersection is expected to operate at LOS F in the AM and PM peak hours. It is typical for unsignalized stop-controlled intersection to operate at a LOS E or F due to the lack of gaps for left turn movements on to the major roadway. No additional improvements are recommended.

Poole Road at Site Access

This site access is proposed to have a full movement configuration. In 2033 future build conditions, this intersection is expected to operate at LOS C in the AM and PM peak hours. No additional improvements are recommended.

Table 5.4 - Level of Service Summary (Horizon Year Conditions)			
AM Peak	2033 Future No-build	2033 Future Build	2033 Future Build with Improvements
I-87 Southbound Ramp at Hodge Road	D (40.3)	D (45.4)	
I-87 Northbound Ramp at Hodge Road	D (36.0)	D (43.1)	
Hodge Road at Panther Rock Road	D (48.5)	E (60)	
Hodge Road at Spectrum Drive	F (81.9)	F (94.2)	
Hodge Road at Poole Road	E (57.9)	E (57.9)	
Hodge Road at Site Access		F (506) EB Approach	F (437.5) EB Approach
Poole Road at Site Access		C (24.2) SB Approach	C (24) SB Approach

LOS (delay in seconds)

Note for unsignalized conditions, LOS and delay indicates only minor street approach with longest delay

Table 5.4 - Level of Service Summary (Horizon Year Conditions) cont.			
PM Peak	2033 Future No-build	2033 Future Build	2033 Future Build with Improvements
I-87 Southbound Ramp at Hodge Road	D (37.5)	D (40.7)	
I-87 Northbound Ramp at Hodge Road	F (114.5)	F (127.1)	
Hodge Road at Panther Rock Road	B (19.4)	C (20.0)	
Hodge Road at Spectrum Drive	E (73.9)	F (89.4)	
Hodge Road at Poole Road	F (100.9)	F (101.8)	
Hodge Road at Site Access		F (511.5) EB Approach	F (436.2) EB Approach
Poole Road at Site Access		C (23.1) SB Approach	C (23.0) SB Approach
LOS (delay in seconds)			
Note for unsignalized conditions, LOS and delay indicates only minor street approach with longest delay			

5.5 2023 Queue Analysis

Tables 5.5 and 5.6 illustrate the queues for existing, 2023 future no build and future build conditions for exclusive turn lanes at the proposed study intersections. All queue reports can be found in the appendix.

Table 5.5 - Queue Results																
AM Peak Hour Queues																
Scenario	I-87 SB Ramp & Hodge Road						I-87 NB Ramp & Hodge Road						Hodge Road & Panther Rock Boulevard			
	EBR	WBL	NBL	NBR	SBL	SBR	EBL	EBL	EBR	EBR	NBL	SBR	EBL	NBL	SBL	SBR
2021 Existing	EBR	WBL	NBL	NBR	SBL	SBR	EBL	EBL	EBR	EBR	NBL	SBR	EBL	NBL	SBL	SBR
Max Queue (ft)	246		212		49	325	307				200		115	28	46	
95th Percentile Queue (ft)	153		473		36	405	228				120		99	18	24	
Storage Bay (ft)	FULL		FULL		175	225	FULL				150		150	150	50	
2023 Future No Build	EBR	WBL	NBL	NBR	SBL	SBR	EBL	EBL	EBR	EBR	NBL	SBR	EBL	NBL	SBL	SBR
Max Queue (ft)	597	224	358	69	53	325	97	137	288	248	200	225	250	249	149	300
95th Percentile Queue (ft)	421	222	289	54	41	458	103	146	181	157	222	193	255	196	88	188
Storage Bay (ft)	FULL	125	FULL	200	175	225	15	FULL	FULL	150	100	125	150	150	50	200
2023 Build	EBR	WBL	NBL	NBR	SBL	SBR	EBL	EBL	EBR	EBR	NBL	SBR	EBL	NBL	SBL	SBR
Max Queue (ft)	522	225	481	300	275	325	194	160	234	198	200	225	250	250	149	300
95th Percentile Queue (ft)	371	222	387	132	141	458	148	129	125	90	226	202	251	151	93	152
Storage Bay (ft)	FULL	125	FULL	200	175	225	300	FULL	FULL	300	100	125	150	150	50	200
2023 Build + Improvements	EBR	WBL	NBL	NBR	SBL	SBR	EBL	EBL	EBR	EBR	NBL	SBR	EBL	NBL	SBL	SBR
Max Queue (ft)	597	225	362	69	274	325	118	195	270	250	200	225	250	250	149	300
95th Percentile Queue (ft)	445	257	322	50	141	471	111	134	192	160	241	277	268	173	77	238
Storage Bay (ft)	FULL	125	FULL	200	175	225	300	FULL	FULL	300	100	125	150	150	50	200

Table 5.5 - Queue Results cont.
AM Peak Hour Queues

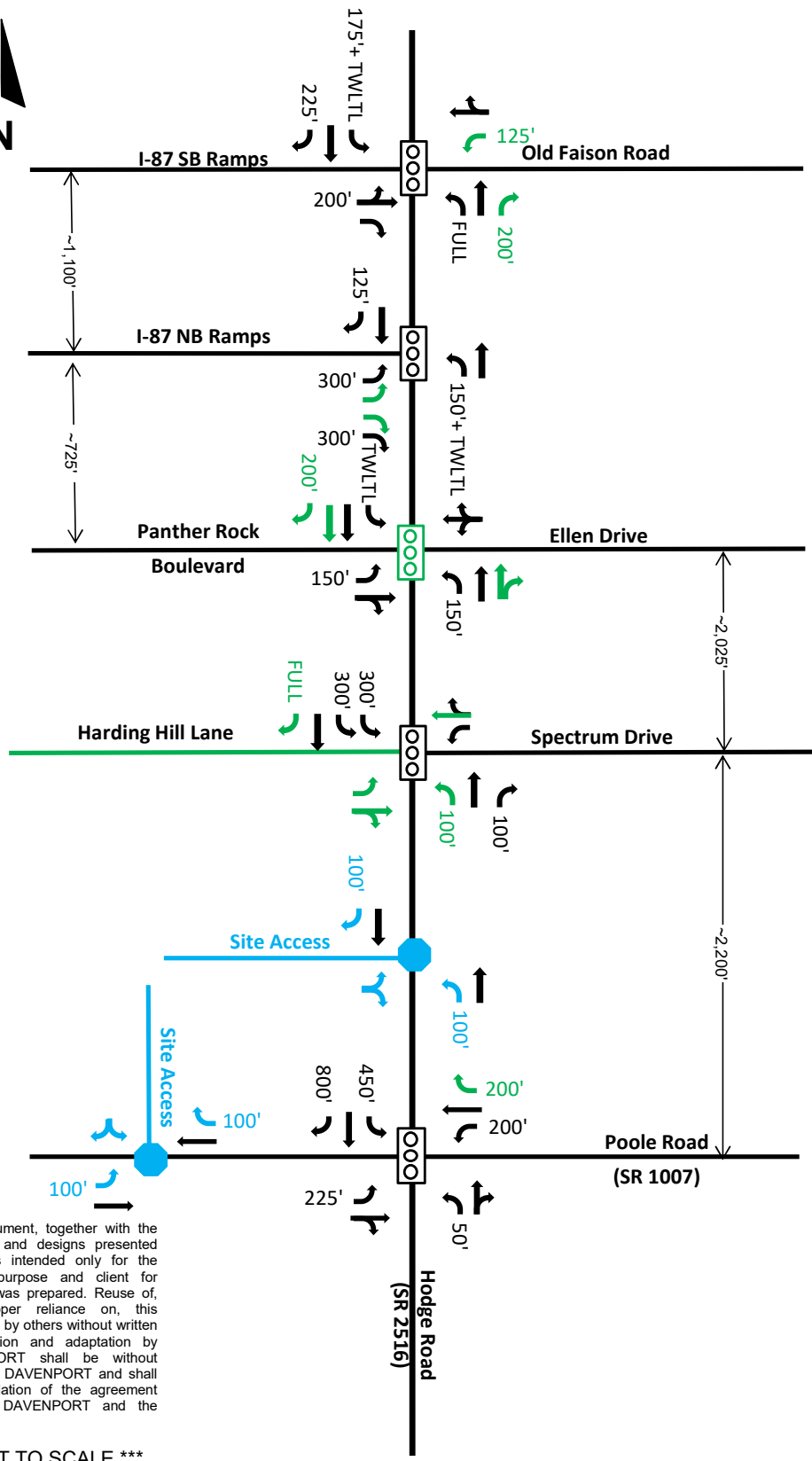
Scenario	Hodge Road & Spectrum Drive								Hodge Road & Poole Road						Hodge Road & Site Access		Poole Road & Site Access	
	EBL	WBL	WBR	NBL	NBR	SBL	SBL	SBR	EBL	WBL	WBR	NBL	SBL	SBR	NBL	SBR	EBL	WBR
2021 Existing																		
Max Queue (ft)		48	117		26	72	400		325	29		92	550	681				
95th Percentile Queue (ft)		46	79		12	45	256		355	15		73	701	888				
Storage Bay (ft)		FULL	FULL		150	300	300		225	200		50	450	800				
2023 Future No Build	EBL	WBL	WBR	NBL	NBR	SBL	SBL	SBR	EBL	WBL	WBR	NBL	SBL	SBR	NBL	SBR	EBL	WBR
Max Queue (ft)	110	137		199	200	105	400	2012	325	27	300	97	550	675				
95th Percentile Queue (ft)	101	125		68	173	91	520	2391	378	12	341	66	557	918				
Storage Bay (ft)	FULL	FULL		100	100	300	300	FULL	225	200	200	50	450	800				
2023 Build	EBL	WBL	WBR	NBL	NBR	SBL	SBL	SBR	EBL	WBL	WBR	NBL	SBL	SBR	NBL	SBR	EBL	WBR
Max Queue (ft)	130	133		23	200	87	400	2015	325	28	300	58	550	675				
95th Percentile Queue (ft)	119	131		11	156	85	469	2026	333	25	357	47	627	932				
Storage Bay (ft)	FULL	FULL		100	100	300	300	FULL	225	200	200	50	450	800				
2023 Build + Improvements	EBL	WBL	WBR	NBL	NBR	SBL	SBL	SBR	EBL	WBL	WBR	NBL	SBL	SBR	NBL	SBR	EBL	WBR
Max Queue (ft)	210	68		199	200	117	400	2026	325	28	300	76	550	675	199	200	199	
95th Percentile Queue (ft)	190	51		67	186	86	458	1967	325	17	303	67	613	956	66	250	68	
Storage Bay (ft)	FULL	FULL		100	100	300	300	FULL	225	200	200	50	450	800	100	100	100	100

Table 5.6 - Queue Results
PM Peak Hour Queues

Scenario	I-87 SB Ramp & Hodge Road						I-87 NB Ramp & Hodge Road						Hodge Road & Panther Rock Boulevard			
	EBR	WBL	NBL	NBR	SBL	SBR	EBL	EBL	EBR	EBR	NBL	SBR	EBL	NBL	SBL	SBR
2021 Existing	EBR	WBL	NBL	NBR	SBL	SBR	EBL	EBL	EBR	EBR	NBL	SBR	EBL	NBL	SBL	SBR
Max Queue (ft)	459		105		49		628			614	199		159	30	29	
95th Percentile Queue (ft)	397		95		46		612			606	215		81	28	21	
Storage Bay (ft)	FULL		FULL		175	225	FULL				150		150	150	50	
2023 Future No Build	EBR	WBL	NBL	NBR	SBL	SBR	EBL	EBL	EBR	EBR	NBL	SBR	EBL	NBL	SBL	SBR
Max Queue (ft)	634	87	221	300	275	325	592	629	595	250	200	225	250	250	149	72
95th Percentile Queue (ft)	620	89	186	262	242	253	612	614	596	302	209	222	290	300	75	64
Storage Bay (ft)	FULL	125	FULL	200	175	225	300	FULL	FULL	300	100	125	150	150	50	200
2023 Build	EBR	WBL	NBL	NBR	SBL	SBR	EBL	EBL	EBR	EBR	NBL	SBR	EBL	NBL	SBL	SBR
Max Queue (ft)	634	96	191	300	275		592	629	611	250	200	225	250	250	29	72
95th Percentile Queue (ft)	617	86	167	22	222		675	620	690	328	200	221	286	288	25	57
Storage Bay (ft)	FULL	125	FULL	200	175	225	300	FULL	FULL	300	100	125	150	150	50	200
2023 Build + Improvements	EBR	WBL	NBL	NBR	SBL	SBR	EBL	EBL	EBR	EBR	NBL	SBR	EBL	NBL	SBL	SBR
Max Queue (ft)	616	124	190	300	274	325	624	629	629	250	200	225	250	250	46	74
95th Percentile Queue (ft)	603	100	178	200	118	155	622	612	605	345	200	155	295	290	25	60
Storage Bay (ft)	FULL	125	FULL	200	175	225	300	FULL	FULL	300	100	125	150	150	50	200

Table 5.6 - Queue Results cont.
PM Peak Hour Queues

Scenario	Hodge Road & Spectrum Drive								Hodge Road & Poole Road						Hodge Road & Site Access		Poole Road & Site Access	
	EBL	WBL	WBR	NBL	NBR	SBL	SBL	SBR	EBL	WBL	WBR	NBL	SBL	SBR	NBL	SBR	EBL	WBR
2021 Existing																		
Max Queue (ft)		91	243		27	29	31		316	300		30	550	204				
95th Percentile Queue (ft)		81	204		13	10	35		271	239		18	521	156				
Storage Bay (ft)		FULL	FULL		150	300	300		225	200		50	450	800				
2023 Future No Build																		
Max Queue (ft)	88	110		199	17	64	399	25	325	299	300	52	547	133				
95th Percentile Queue (ft)	78	94		104	13	26	158	14	326	190	340	36	533	130				
Storage Bay (ft)	FULL	FULL		100	100	300	300	FULL	225	200	200	50	450	800				
2023 Build																		
Max Queue (ft)	87	915		64	16	41	394	23	325	50	300	30	550	195				
95th Percentile Queue (ft)	74	1214		39	9	21	149	8	328	45	316	21	543	150				
Storage Bay (ft)	FULL	FULL		100	100	300	300	FULL	225	200	200	50	450	800				
2023 Build + Improvements																		
Max Queue (ft)	171	896		199	193	20	66	50	325	67	300	30	485	188	28		28	
95th Percentile Queue (ft)	130	1065		102	66	16	55	20	336	48	361	20	444	151	13		9	
Storage Bay (ft)	FULL	FULL		100	100	300	300	FULL	225	200	200	50	450	800	100	100	100	100



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*** NOT TO SCALE ***

LEGEND	
	SIGNALIZED INTERSECTION
	UNSIGNALIZED INTERSECTION
	ROADWAY
	TRAFFIC MOVEMENT
BLACK = EXISTING	
GREEN = APPROVED DEVELOPMENT	
BLUE = PROPOSED DEVELOPMENT	

**FIGURE 11
RECOMMENDED
IMPROVEMENTS**

POOLE ROAD APARTMENT
DEVELOPMENT
KNIGHTDALE, NC

PROJECT NUMBER 210410

6.0 Summary and Conclusion

Site Overview

The Poole Road Apartment Development is to be located on the northwest quadrant of Hodge Road and Poole Road in Knightdale, North Carolina. As currently planned, this site development will consist of 364 dwelling units apartments and 30 dwelling units of townhomes. The full build-out year is assumed as 2023. This development utilizes two (2) site accesses, one (1) full movement access on Hodge Road and one (1) full movement access on Poole Road.

Trip Generation

Based on the rates and equations in the ITE Trip Generation Manual (10th Edition) this development has a trip generation potential of 2,168 daily trips, 137 trips in the AM peak and 173 trips in the PM peak.

Conclusion

Based on the analysis, study intersections are expected to operate at LOS D or better with the exception of Hodge Road at I-87 Northbound Ramp, Spectrum Drive and Poole Road. Though they are expected to operate at LOS E or F, they are within the 25% allowable increase by NCDOT Congestion Management. The site trips of the proposed developments are approximately 5% of the intersection volumes. **However, the planned improvements by the Town of Knightdale and City of Raleigh to widen Hodge Road should be pursued as it will increase capacity for the future volumes along the study intersections.**

Based on NCDOT turn lane warrants and AADT on the roadways, it is recommended to provide right and left turn lanes at the site accesses for the proposed development.

In conclusion, this study has reviewed the impacts of both background traffic and this development traffic. Please note that all site accesses should be designed according to the NCDOT Standards.

The recommended improvements at the study intersections for 2023 full build are summarized in Table 6.1.

Table 6.1 – Recommended Improvements Summary

Intersection	Full Build
I-87 Southbound Ramp at Hodge Road	<ul style="list-style-type: none"> No Improvements are recommended
I-87 Northbound Ramp at Hodge Road	<ul style="list-style-type: none"> No Improvements are recommended
Hodge Road at Panther Rock Road	<ul style="list-style-type: none"> No Improvements are recommended
Hodge Road at Spectrum Drive	<ul style="list-style-type: none"> No Improvements are recommended
Hodge Road at Poole Road	<ul style="list-style-type: none"> No Improvements are recommended
Hodge Road at Site Access	<ul style="list-style-type: none"> Provide a southbound right turn lane with 100 feet of storage and appropriate taper length Provide a northbound left turn lane with 100 feet of storage and appropriate taper length Design site access according to NCDOT standards
Poole Road at Site Access	<ul style="list-style-type: none"> Provide an eastbound left turn lane with 100 feet of storage and appropriate taper length Provide a westbound right turn lane with 100 feet of storage and appropriate taper length Design site access according to NCDOT standards

Appendix

Trip Generation

Trip Generation Summary

Alternative: Alternative 1

Phase:

Open Date: 10/11/2021

Project: 210410

Analysis Date: 10/11/2021

ITE	Land Use	Weekday Average Daily Trips			Weekday AM Peak Hour of Adjacent Street Traffic			Weekday PM Peak Hour of Adjacent Street Traffic					
		*	Enter	Exit	Total	*	Enter	Exit	Total	*	Enter	Exit	Total
220	LOW-RISE 1 30 Dwelling Units		93	93	186		3	12	15		13	7	20
221	MID-RISE 1 364 Dwelling Units		991	991	1982		31	90	121		93	60	153
Unadjusted Volume			1084	1084	2168		34	102	136		106	67	173
Internal Capture Trips			0	0	0		0	0	0		0	0	0
Pass-By Trips			0	0	0		0	0	0		0	0	0
Volume Added to Adjacent Streets			1084	1084	2168		34	102	136		106	67	173

Total Weekday Average Daily Trips Internal Capture = 0 Percent

Total Weekday AM Peak Hour of Adjacent Street Traffic Internal Capture = 0 Percent

Total Weekday PM Peak Hour of Adjacent Street Traffic Internal Capture = 0 Percent

* - Custom rate used for selected time period.

Source: Institute of Transportation Engineers, Trip Generation Manual 10th Edition

TRIP GENERATION 10, TRAFFICWARE, LLC

Level of Service Analysis

Existing Conditions

Lanes, Volumes, Timings

100: Hodge Road & I-87 SB Ramp/Old Faison Road

10/20/2021



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕	↗		↕		↗	↖		↖	↕	↗
Traffic Volume (vph)	102	28	271	129	277	68	373	343	102	16	202	252
Future Volume (vph)	102	28	271	129	277	68	373	343	102	16	202	252
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0	0		0	175		225
Storage Lanes	0		1	0		0	1		0	1		1
Taper Length (ft)	25			25			100			100		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850		0.981			0.966				0.850
Flt Protected		0.962			0.987		0.950			0.950		
Satd. Flow (prot)	0	1792	1583	0	1804	0	1770	1799	0	1770	1863	1583
Flt Permitted		0.435			0.839		0.432			0.483		
Satd. Flow (perm)	0	810	1583	0	1533	0	805	1799	0	900	1863	1583
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		30			45			45				45
Link Distance (ft)		621			738			1127				919
Travel Time (s)		14.1			11.2			17.1				13.9
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
Adj. Flow (vph)	113	31	301	143	308	76	414	381	113	18	224	280
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	144	301	0	527	0	414	494	0	18	224	280
Turn Type	pm+pt	NA	pm+ov	Perm	NA		pm+pt	NA		pm+pt	NA	Free
Protected Phases	7	4	5		8		5	2		1	6	
Permitted Phases	4		4	8			2			6		Free
Detector Phase	7	4	5	8	8		5	2		1	6	
Switch Phase												
Minimum Initial (s)	7.0	7.0	7.0	7.0	7.0		7.0	12.0		7.0	12.0	
Minimum Split (s)	12.5	12.7	12.5	12.7	12.7		12.5	19.0		12.5	19.0	
Total Split (s)	12.5	61.5	33.0	49.0	49.0		33.0	46.0		12.5	25.5	
Total Split (%)	10.4%	51.3%	27.5%	40.8%	40.8%		27.5%	38.3%		10.4%	21.3%	
Maximum Green (s)	7.0	55.8	27.5	43.3	43.3		27.5	39.0		7.0	18.5	
Yellow Time (s)	4.0	4.7	4.0	4.7	4.7		4.0	5.5		4.0	5.5	
All-Red Time (s)	1.5	1.0	1.5	1.0	1.0		1.5	1.5		1.5	1.5	
Lost Time Adjust (s)		-0.5	-0.5		-0.7		-0.5	-1.0		-0.5	-1.0	
Total Lost Time (s)		5.2	5.0		5.0		5.0	6.0		5.0	6.0	
Lead/Lag	Lead		Lead	Lag	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes		Yes	Yes	Yes		Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None	None	None	None		None	C-Max		None	C-Max	
Act Effct Green (s)		47.0	76.0		47.2		62.8	56.8		41.5	33.0	120.0
Actuated g/C Ratio		0.39	0.63		0.39		0.52	0.47		0.35	0.28	1.00
v/c Ratio		0.45	0.30		0.87		0.68	0.58		0.05	0.44	0.18
Control Delay		30.6	9.9		49.3		17.5	19.2		19.8	43.0	0.2
Queue Delay		0.0	0.0		0.0		0.0	0.0		0.0	0.0	0.0
Total Delay		30.6	9.9		49.3		17.5	19.2		19.8	43.0	0.2
LOS		C	A		D		B	B		B	D	A
Approach Delay		16.6			49.3			18.4			19.3	
Approach LOS		B			D			B			B	

Lanes, Volumes, Timings

100: Hodge Road & I-87 SB Ramp/Old Faison Road

10/20/2021

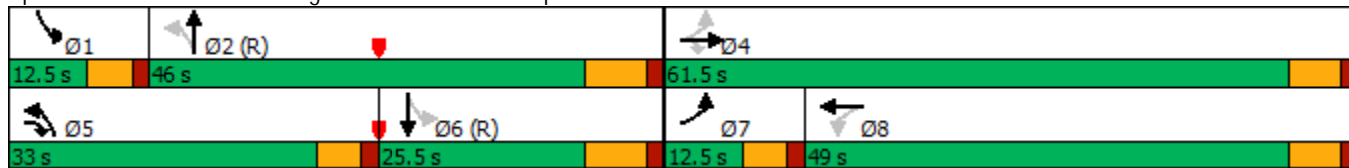


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 50th (ft)		81	94		371		102	135		7	146	0
Queue Length 95th (ft)		127	94		464		m220	m#435		22	#277	0
Internal Link Dist (ft)		541			658			1047			839	
Turn Bay Length (ft)										175		225
Base Capacity (vph)		380	1063		620		649	851		366	513	1583
Starvation Cap Reductn		0	0		0		0	0		0	0	0
Spillback Cap Reductn		0	0		0		0	0		0	0	0
Storage Cap Reductn		0	0		0		0	0		0	0	0
Reduced v/c Ratio		0.38	0.28		0.85		0.64	0.58		0.05	0.44	0.18

Intersection Summary

Area Type: Other
 Cycle Length: 120
 Actuated Cycle Length: 120
 Offset: 14 (12%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
 Natural Cycle: 90
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.87
 Intersection Signal Delay: 25.0 Intersection LOS: C
 Intersection Capacity Utilization 77.1% ICU Level of Service D
 Analysis Period (min) 15
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 100: Hodge Road & I-87 SB Ramp/Old Faison Road



Lanes, Volumes, Timings
200: Hodge Road & I-87 NB Ramp

10/20/2021



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	132	107	568	684	374	227
Future Volume (vph)	132	107	568	684	374	227
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0	150			125
Storage Lanes	1	1	1			1
Taper Length (ft)	25		100			
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.850				0.850
Flt Protected	0.950		0.950			
Satd. Flow (prot)	1770	1583	1770	1863	1863	1583
Flt Permitted	0.950		0.392			
Satd. Flow (perm)	1770	1583	730	1863	1863	1583
Right Turn on Red		No				No
Satd. Flow (RTOR)						
Link Speed (mph)	30			45	45	
Link Distance (ft)	621			755	1127	
Travel Time (s)	14.1			11.4	17.1	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	147	119	631	760	416	252
Shared Lane Traffic (%)						
Lane Group Flow (vph)	147	119	631	760	416	252
Turn Type	Prot	Free	D.P+P	NA	NA	Free
Protected Phases	4		5	2	6	
Permitted Phases		Free	6			Free
Detector Phase	4		5	2	6	
Switch Phase						
Minimum Initial (s)	7.0		7.0	12.0	12.0	
Minimum Split (s)	12.6		11.9	17.6	18.3	
Total Split (s)	15.2		55.0	104.8	49.8	
Total Split (%)	12.7%		45.8%	87.3%	41.5%	
Maximum Green (s)	9.6		50.1	99.2	43.5	
Yellow Time (s)	3.0		3.0	4.4	4.6	
All-Red Time (s)	2.6		1.9	1.2	1.7	
Lost Time Adjust (s)	-0.6		0.1	-0.6	-1.3	
Total Lost Time (s)	5.0		5.0	5.0	5.0	
Lead/Lag			Lead		Lag	
Lead-Lag Optimize?			Yes		Yes	
Vehicle Extension (s)	3.0		3.0	3.0	3.0	
Recall Mode	None		None	C-Max	C-Max	
Act Effct Green (s)	10.2	120.0	94.8	99.8	57.7	120.0
Actuated g/C Ratio	0.08	1.00	0.79	0.83	0.48	1.00
v/c Ratio	0.98	0.08	0.70	0.49	0.46	0.16
Control Delay	123.6	0.1	11.9	5.6	18.4	0.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	123.6	0.1	11.9	5.6	18.4	0.2
LOS	F	A	B	A	B	A
Approach Delay	68.3			8.5	11.5	
Approach LOS	E			A	B	

Lanes, Volumes, Timings
 200: Hodge Road & I-87 NB Ramp

10/20/2021

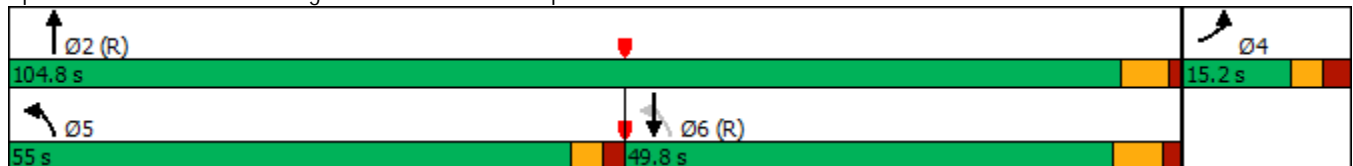


Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Queue Length 50th (ft)	116	0	239	234	175	0
Queue Length 95th (ft)	#249	0	m294	m272	m349	m0
Internal Link Dist (ft)	541			675	1047	
Turn Bay Length (ft)			150			125
Base Capacity (vph)	150	1583	1036	1549	895	1583
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.98	0.08	0.61	0.49	0.46	0.16

Intersection Summary

Area Type: Other
 Cycle Length: 120
 Actuated Cycle Length: 120
 Offset: 47 (39%), Referenced to phase 2:NBT and 6:NBSB, Start of Green
 Natural Cycle: 60
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.98
 Intersection Signal Delay: 16.2 Intersection LOS: B
 Intersection Capacity Utilization 71.0% ICU Level of Service C
 Analysis Period (min) 15
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 200: Hodge Road & I-87 NB Ramp



HCM 6th TWSC
 300: Hodge Road & Panther Rock Boulevard/Ellen Drive

10/20/2021

Intersection												
Int Delay, s/veh	23											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗			↕		↖	↗		↖	↗	
Traffic Vol, veh/h	81	0	15	2	0	7	8	1164	2	6	453	23
Future Vol, veh/h	81	0	15	2	0	7	8	1164	2	6	453	23
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	150	-	-	-	-	-	150	-	-	50	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	90	0	17	2	0	8	9	1293	2	7	503	26

Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	1846	1843	516	1851	1855	1294	529	0	0	1295	0	0
Stage 1	530	530	-	1312	1312	-	-	-	-	-	-	-
Stage 2	1316	1313	-	539	543	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	~ 57	75	559	57	74	199	1038	-	-	535	-	-
Stage 1	533	527	-	195	228	-	-	-	-	-	-	-
Stage 2	194	228	-	527	520	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	~ 54	73	559	54	72	199	1038	-	-	535	-	-
Mov Cap-2 Maneuver	~ 54	73	-	54	72	-	-	-	-	-	-	-
Stage 1	528	520	-	193	226	-	-	-	-	-	-	-
Stage 2	185	226	-	505	513	-	-	-	-	-	-	-














Approach	EB		WB		NB		SB	
HCM Control Delay, s	\$ 416		36.3		0.1		0.1	
HCM LOS	F		E					

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1038	-	-	54	559	125	535	-	-
HCM Lane V/C Ratio	0.009	-	-	1.667	0.03	0.08	0.012	-	-
HCM Control Delay (s)	8.5	-	-	\$ 490.9	11.6	36.3	11.8	-	-
HCM Lane LOS	A	-	-	F	B	E	B	-	-
HCM 95th %tile Q(veh)	0	-	-	8.5	0.1	0.3	0	-	-

Notes
 -: Volume exceeds capacity \$: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon

Lanes, Volumes, Timings
400: Hodge Road & Spectrum Drive

10/20/2021

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations					 	
Traffic Volume (vph)	12	35	1138	48	130	339
Future Volume (vph)	12	35	1138	48	130	339
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0		150	300	
Storage Lanes	1	1		1	2	
Taper Length (ft)	25				100	
Lane Util. Factor	1.00	1.00	1.00	1.00	0.97	1.00
Frt		0.850		0.850		
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1770	1583	1863	1583	3433	1863
Flt Permitted	0.950				0.061	
Satd. Flow (perm)	1770	1583	1863	1583	220	1863
Right Turn on Red		No		No		
Satd. Flow (RTOR)						
Link Speed (mph)	30		45			45
Link Distance (ft)	933		1472			2096
Travel Time (s)	21.2		22.3			31.8
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	13	39	1264	53	144	377
Shared Lane Traffic (%)						
Lane Group Flow (vph)	13	39	1264	53	144	377
Turn Type	Prot	pm+ov	NA	pm+ov	D.P+P	NA
Protected Phases	8	1	2	8	1	6
Permitted Phases		8		2	2	
Detector Phase	8	1	2	8	1	6
Switch Phase						
Minimum Initial (s)	7.0	7.0	12.0	7.0	7.0	12.0
Minimum Split (s)	13.5	13.2	18.2	13.5	13.2	18.2
Total Split (s)	13.5	13.2	93.3	13.5	13.2	106.5
Total Split (%)	11.3%	11.0%	77.8%	11.3%	11.0%	88.8%
Maximum Green (s)	7.0	7.0	87.1	7.0	7.0	100.3
Yellow Time (s)	3.0	3.0	4.6	3.0	3.0	4.6
All-Red Time (s)	3.5	3.2	1.6	3.5	3.2	1.6
Lost Time Adjust (s)	-1.5	-1.2	-1.2	-1.5	-1.2	-1.2
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag		Lead	Lag		Lead	
Lead-Lag Optimize?		Yes	Yes		Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	C-Max	None	None	C-Max
Act Effct Green (s)	8.5	19.0	91.0	104.5	99.2	105.2
Actuated g/C Ratio	0.07	0.16	0.76	0.87	0.83	0.88
v/c Ratio	0.10	0.16	0.90	0.04	0.36	0.23
Control Delay	54.2	43.2	22.4	1.5	11.7	5.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	54.2	43.2	22.4	1.5	11.7	5.2
LOS	D	D	C	A	B	A
Approach Delay	45.9		21.6			7.0
Approach LOS	D		C			A

Lanes, Volumes, Timings

400: Hodge Road & Spectrum Drive

10/20/2021



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Queue Length 50th (ft)	10	26	704	5	25	89
Queue Length 95th (ft)	31	58	#1194	10	55	223
Internal Link Dist (ft)	853		1392			2016
Turn Bay Length (ft)				150	300	
Base Capacity (vph)	125	250	1412	1378	401	1633
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.10	0.16	0.90	0.04	0.36	0.23

Intersection Summary

Area Type: Other
 Cycle Length: 120
 Actuated Cycle Length: 120
 Offset: 12 (10%), Referenced to phase 2:NBSB and 6:SBT, Start of Green
 Natural Cycle: 100
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.90
 Intersection Signal Delay: 18.2
 Intersection LOS: B
 Intersection Capacity Utilization 74.1%
 ICU Level of Service D
 Analysis Period (min) 15
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

Splits and Phases: 400: Hodge Road & Spectrum Drive



Lanes, Volumes, Timings
500: Hodge Road & Poole Road

10/20/2021



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	350	107	6	8	436	744	20	52	11	151	12	192
Future Volume (vph)	350	107	6	8	436	744	20	52	11	151	12	192
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	225		0	200		0	50		0	450		800
Storage Lanes	1		0	1		0	1		0	1		1
Taper Length (ft)	100			100			100			100		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.992			0.905			0.974				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	1848	0	1770	1686	0	1770	1814	0	1770	1863	1583
Flt Permitted	0.043			0.676			0.749			0.709		
Satd. Flow (perm)	80	1848	0	1259	1686	0	1395	1814	0	1321	1863	1583
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		45			45			45				45
Link Distance (ft)		2546			1176			1488				751
Travel Time (s)		38.6			17.8			22.5				11.4
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
Adj. Flow (vph)	389	119	7	9	484	827	22	58	12	168	13	213
Shared Lane Traffic (%)												
Lane Group Flow (vph)	389	126	0	9	1311	0	22	70	0	168	13	213
Turn Type	pm+pt	NA		Perm	NA		Perm	NA		Perm	NA	pm+ov
Protected Phases	5	2			6			8			4	5
Permitted Phases	2			6			8			4		4
Detector Phase	5	2		6	6		8	8		4	4	5
Switch Phase												
Minimum Initial (s)	7.0	12.0		12.0	12.0		7.0	7.0		7.0	7.0	7.0
Minimum Split (s)	12.4	17.4		17.4	17.4		12.2	12.2		12.6	12.6	12.4
Total Split (s)	26.0	120.0		94.0	94.0		20.0	20.0		20.0	20.0	26.0
Total Split (%)	18.6%	85.7%		67.1%	67.1%		14.3%	14.3%		14.3%	14.3%	18.6%
Maximum Green (s)	20.6	114.6		88.6	88.6		14.8	14.8		14.4	14.4	20.6
Yellow Time (s)	3.0	4.3		4.4	4.4		3.9	3.9		4.6	4.6	3.0
All-Red Time (s)	2.4	1.1		1.0	1.0		1.3	1.3		1.0	1.0	2.4
Lost Time Adjust (s)	-0.4	-0.4		-0.4	-0.4		-0.2	-0.2		-0.6	-0.6	-0.4
Total Lost Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	5.0
Lead/Lag	Lead			Lag	Lag							Lead
Lead-Lag Optimize?	Yes			Yes	Yes							Yes
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
Recall Mode	None	None		None	None		Max	Max		Max	Max	None
Act Effct Green (s)	115.0	115.0		89.0	89.0		15.0	15.0		15.0	15.0	41.0
Actuated g/C Ratio	0.82	0.82		0.64	0.64		0.11	0.11		0.11	0.11	0.29
v/c Ratio	1.22	0.08		0.01	1.22		0.15	0.36		1.19	0.07	0.46
Control Delay	163.1	2.5		9.5	135.3		59.4	63.8		188.0	57.2	44.4
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Delay	163.1	2.5		9.5	135.3		59.4	63.8		188.0	57.2	44.4
LOS	F	A		A	F		E	E		F	E	D
Approach Delay		123.8			134.4			62.8			106.0	
Approach LOS		F			F			E			F	

Lanes, Volumes, Timings
500: Hodge Road & Poole Road

10/20/2021

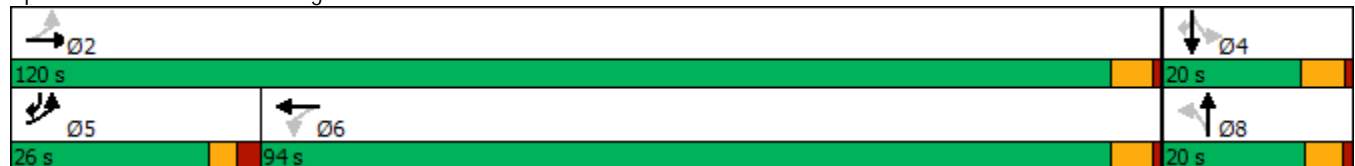


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 50th (ft)	~383	18		3	~1465		18	60		~184	11	159
Queue Length 95th (ft)	#594	29		10	#1731		47	112		#335	33	241
Internal Link Dist (ft)		2466			1096			1408			671	
Turn Bay Length (ft)	225			200			50			450		800
Base Capacity (vph)	319	1518		800	1071		149	194		141	199	463
Starvation Cap Reductn	0	0		0	0		0	0		0	0	0
Spillback Cap Reductn	0	0		0	0		0	0		0	0	0
Storage Cap Reductn	0	0		0	0		0	0		0	0	0
Reduced v/c Ratio	1.22	0.08		0.01	1.22		0.15	0.36		1.19	0.07	0.46

Intersection Summary

Area Type:	Other
Cycle Length:	140
Actuated Cycle Length:	140
Natural Cycle:	150
Control Type:	Actuated-Uncoordinated
Maximum v/c Ratio:	1.22
Intersection Signal Delay:	124.4
Intersection LOS:	F
Intersection Capacity Utilization:	115.5%
ICU Level of Service:	H
Analysis Period (min):	15
~ Volume exceeds capacity, queue is theoretically infinite. Queue shown is maximum after two cycles.	
# 95th percentile volume exceeds capacity, queue may be longer. Queue shown is maximum after two cycles.	

Splits and Phases: 500: Hodge Road & Poole Road



Lanes, Volumes, Timings

100: Hodge Road & I-87 SB Ramp/Old Faison Road

10/20/2021



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕	↗		↕		↖	↖		↖	↗	
Traffic Volume (vph)	48	88	515	68	87	70	179	514	356	42	221	96
Future Volume (vph)	48	88	515	68	87	70	179	514	356	42	221	96
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0	0		0	175		225
Storage Lanes	0		1	0		0	1		0	1		0
Taper Length (ft)	25			25			100			100		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850		0.958			0.939			0.955	
Flt Protected		0.983			0.985		0.950			0.950		
Satd. Flow (prot)	0	1831	1583	0	1758	0	1770	1749	0	1770	1779	0
Flt Permitted		0.757			0.806		0.400			0.077		
Satd. Flow (perm)	0	1410	1583	0	1438	0	745	1749	0	143	1779	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		30			30			45			45	
Link Distance (ft)		621			738			1127			919	
Travel Time (s)		14.1			16.8			17.1			13.9	
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
Adj. Flow (vph)	53	98	572	76	97	78	199	571	396	47	246	107
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	151	572	0	251	0	199	967	0	47	353	0
Turn Type	pm+pt	NA	pm+ov	Perm	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	7	4	5		8		5	2		1	6	
Permitted Phases	4		4	8			2			6		
Detector Phase	7	4	5	8	8		5	2		1	6	
Switch Phase												
Minimum Initial (s)	7.0	7.0	7.0	7.0	7.0		7.0	12.0		7.0	12.0	
Minimum Split (s)	12.5	12.7	12.5	12.7	12.7		12.5	19.0		12.5	19.0	
Total Split (s)	12.5	36.5	38.5	24.0	24.0		38.5	71.0		12.5	45.0	
Total Split (%)	10.4%	30.4%	32.1%	20.0%	20.0%		32.1%	59.2%		10.4%	37.5%	
Maximum Green (s)	7.0	30.8	33.0	18.3	18.3		33.0	64.0		7.0	38.0	
Yellow Time (s)	4.0	4.7	4.0	4.7	4.7		4.0	5.5		4.0	5.5	
All-Red Time (s)	1.5	1.0	1.5	1.0	1.0		1.5	1.5		1.5	1.5	
Lost Time Adjust (s)		-0.5	-0.5		-0.7		-0.5	-1.0		-0.5	-1.0	
Total Lost Time (s)		5.2	5.0		5.0		5.0	6.0		5.0	6.0	
Lead/Lag	Lead		Lead	Lag	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes		Yes	Yes	Yes		Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None	None	None	None		None	C-Max		None	C-Max	
Act Effct Green (s)		30.4	56.7		30.6		79.4	68.4		60.8	52.3	
Actuated g/C Ratio		0.25	0.47		0.26		0.66	0.57		0.51	0.44	
v/c Ratio		0.42	0.76		0.69		0.30	0.97		0.27	0.46	
Control Delay		41.6	32.5		51.1		10.1	42.3		18.7	28.8	
Queue Delay		0.0	0.0		0.0		0.0	0.0		0.0	0.0	
Total Delay		41.6	32.5		51.1		10.1	42.3		18.7	28.8	
LOS		D	C		D		B	D		B	C	
Approach Delay		34.4			51.1			36.8			27.6	
Approach LOS		C			D			D			C	

Lanes, Volumes, Timings

100: Hodge Road & I-87 SB Ramp/Old Faison Road

10/20/2021

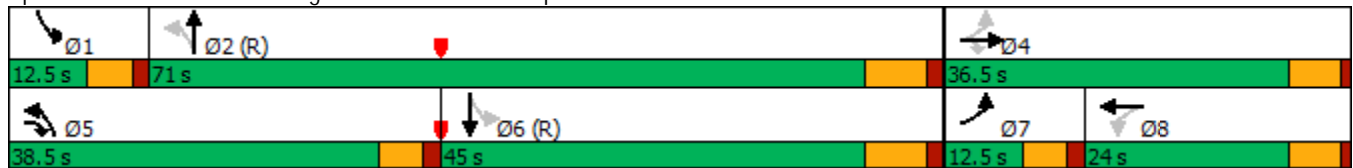


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 50th (ft)		98	353		177		95	~797		12	191	
Queue Length 95th (ft)		163	399		270		m87	m597		33	329	
Internal Link Dist (ft)		541			658			1047			839	
Turn Bay Length (ft)										175		
Base Capacity (vph)		367	911		366		779	996		174	775	
Starvation Cap Reductn		0	0		0		0	0		0	0	
Spillback Cap Reductn		0	0		0		0	0		0	0	
Storage Cap Reductn		0	0		0		0	0		0	0	
Reduced v/c Ratio		0.41	0.63		0.69		0.26	0.97		0.27	0.46	

Intersection Summary

Area Type: Other
 Cycle Length: 120
 Actuated Cycle Length: 120
 Offset: 108 (90%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
 Natural Cycle: 130
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.97
 Intersection Signal Delay: 36.1
 Intersection LOS: D
 Intersection Capacity Utilization 87.2%
 ICU Level of Service E
 Analysis Period (min) 15
 ~ Volume exceeds capacity, queue is theoretically infinite.
 Queue shown is maximum after two cycles.
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 100: Hodge Road & I-87 SB Ramp/Old Faison Road



Lanes, Volumes, Timings
200: Hodge Road & I-87 NB Ramp

10/20/2021



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	658	587	271	389	728	75
Future Volume (vph)	658	587	271	389	728	75
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0	100			125
Storage Lanes	1	1	1			0
Taper Length (ft)	25		100			
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.850			0.987	
Flt Protected	0.950		0.950			
Satd. Flow (prot)	1770	1583	1770	1863	1839	0
Flt Permitted	0.950		0.075			
Satd. Flow (perm)	1770	1583	140	1863	1839	0
Right Turn on Red		No				No
Satd. Flow (RTOR)						
Link Speed (mph)	30			45	45	
Link Distance (ft)	621			755	1127	
Travel Time (s)	14.1			11.4	17.1	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	731	652	301	432	809	83
Shared Lane Traffic (%)						
Lane Group Flow (vph)	731	652	301	432	892	0
Turn Type	Prot	Perm	D.P+P	NA	NA	
Protected Phases	4		5	2	6	
Permitted Phases		4	6			
Detector Phase	4	4	5	2	6	
Switch Phase						
Minimum Initial (s)	7.0	7.0	7.0	12.0	12.0	
Minimum Split (s)	12.6	12.6	11.9	17.6	18.3	
Total Split (s)	33.0	33.0	66.0	87.0	21.0	
Total Split (%)	27.5%	27.5%	55.0%	72.5%	17.5%	
Maximum Green (s)	27.4	27.4	61.1	81.4	14.7	
Yellow Time (s)	3.0	3.0	3.0	4.4	4.6	
All-Red Time (s)	2.6	2.6	1.9	1.2	1.7	
Lost Time Adjust (s)	-0.6	-0.6	0.1	-0.6	-1.3	
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	
Lead/Lag			Lead		Lag	
Lead-Lag Optimize?			Yes		Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	
Recall Mode	None	None	None	C-Max	C-Max	
Act Effct Green (s)	28.0	28.0	77.0	82.0	54.7	
Actuated g/C Ratio	0.23	0.23	0.64	0.68	0.46	
v/c Ratio	1.77	1.77	0.77	0.34	1.06	
Control Delay	385.7	385.5	50.3	7.2	82.5	
Queue Delay	0.0	0.0	0.0	0.0	0.0	
Total Delay	385.7	385.5	50.3	7.2	82.5	
LOS	F	F	D	A	F	
Approach Delay	385.6			24.9	82.5	
Approach LOS	F			C	F	

Lanes, Volumes, Timings
 200: Hodge Road & I-87 NB Ramp

10/20/2021

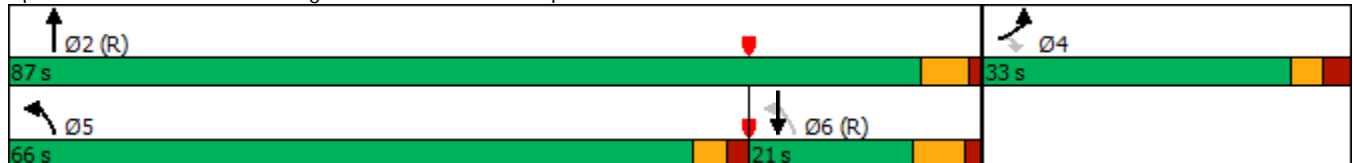


Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Queue Length 50th (ft)	~845	~753	193	123	~782	
Queue Length 95th (ft)	#1082	#982	257	141	#1139	
Internal Link Dist (ft)	541			675	1047	
Turn Bay Length (ft)			100			
Base Capacity (vph)	413	369	924	1273	838	
Starvation Cap Reductn	0	0	0	0	0	
Spillback Cap Reductn	0	0	0	0	0	
Storage Cap Reductn	0	0	0	0	0	
Reduced v/c Ratio	1.77	1.77	0.33	0.34	1.06	

Intersection Summary

Area Type: Other
 Cycle Length: 120
 Actuated Cycle Length: 120
 Offset: 8 (7%), Referenced to phase 2:NBT and 6:NBSB, Start of Green
 Natural Cycle: 150
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 1.77
 Intersection Signal Delay: 207.8
 Intersection LOS: F
 Intersection Capacity Utilization 106.8%
 ICU Level of Service G
 Analysis Period (min) 15
 ~ Volume exceeds capacity, queue is theoretically infinite.
 Queue shown is maximum after two cycles.
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

Splits and Phases: 200: Hodge Road & I-87 NB Ramp



HCM 6th TWSC
 300: Hodge Road & Panther Rock Boulevard/Ellen Drive

10/20/2021

Intersection												
Int Delay, s/veh	5.4											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↶	↷			↕		↶	↷		↶	↷	
Traffic Vol, veh/h	29	0	7	2	0	8	12	623	4	10	1235	69
Future Vol, veh/h	29	0	7	2	0	8	12	623	4	10	1235	69
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	150	-	-	-	-	-	150	-	-	50	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	32	0	8	2	0	9	13	692	4	11	1372	77

Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	2158	2155	1411	2157	2191	694	1449	0	0	696	0	0
Stage 1	1433	1433	-	720	720	-	-	-	-	-	-	-
Stage 2	725	722	-	1437	1471	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	34	48	169	34	45	443	467	-	-	900	-	-
Stage 1	166	200	-	419	432	-	-	-	-	-	-	-
Stage 2	416	431	-	166	191	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	~ 32	46	169	31	43	443	467	-	-	900	-	-
Mov Cap-2 Maneuver	~ 32	46	-	31	43	-	-	-	-	-	-	-
Stage 1	161	198	-	407	420	-	-	-	-	-	-	-
Stage 2	396	419	-	156	189	-	-	-	-	-	-	-













Approach	EB		WB		NB		SB	
HCM Control Delay, s	283.1		37.7		0.2		0.1	
HCM LOS	F		E					

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	467	-	-	32	169	121	900	-	-
HCM Lane V/C Ratio	0.029	-	-	1.007	0.046	0.092	0.012	-	-
HCM Control Delay (s)	12.9	-	-	\$ 344.8	27.3	37.7	9.1	-	-
HCM Lane LOS	B	-	-	F	D	E	A	-	-
HCM 95th %tile Q(veh)	0.1	-	-	3.5	0.1	0.3	0	-	-

Notes
 -: Volume exceeds capacity \$: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon

Lanes, Volumes, Timings
400: Hodge Road & Spectrum Drive

10/20/2021

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	48	132	506	16	44	1199
Future Volume (vph)	48	132	506	16	44	1199
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0		150	300	
Storage Lanes	1	1		1	2	
Taper Length (ft)	25				100	
Lane Util. Factor	1.00	1.00	1.00	1.00	0.97	1.00
Frt		0.850		0.850		
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1770	1583	1863	1583	3433	1863
Flt Permitted	0.950				0.403	
Satd. Flow (perm)	1770	1583	1863	1583	1456	1863
Right Turn on Red		No		No		
Satd. Flow (RTOR)						
Link Speed (mph)	30		45			45
Link Distance (ft)	933		1472			2096
Travel Time (s)	21.2		22.3			31.8
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	53	147	562	18	49	1332
Shared Lane Traffic (%)						
Lane Group Flow (vph)	53	147	562	18	49	1332
Turn Type	Prot	pm+ov	NA	pm+ov	D.P+P	NA
Protected Phases	8	1	2	8	1	6
Permitted Phases		8		2	2	
Detector Phase	8	1	2	8	1	6
Switch Phase						
Minimum Initial (s)	7.0	7.0	12.0	7.0	7.0	12.0
Minimum Split (s)	13.5	13.2	18.2	13.5	13.2	18.2
Total Split (s)	13.5	16.4	90.1	13.5	16.4	106.5
Total Split (%)	11.3%	13.7%	75.1%	11.3%	13.7%	88.8%
Maximum Green (s)	7.0	10.2	83.9	7.0	10.2	100.3
Yellow Time (s)	3.0	3.0	4.6	3.0	3.0	4.6
All-Red Time (s)	3.5	3.2	1.6	3.5	3.2	1.6
Lost Time Adjust (s)	-1.5	-1.2	-1.2	-1.5	-1.2	-1.2
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag		Lead	Lag		Lead	
Lead-Lag Optimize?		Yes	Yes		Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	C-Max	None	None	C-Max
Act Effct Green (s)	8.5	21.0	89.0	102.5	99.2	105.2
Actuated g/C Ratio	0.07	0.18	0.74	0.85	0.83	0.88
v/c Ratio	0.42	0.53	0.41	0.01	0.04	0.82
Control Delay	64.3	51.2	7.4	1.9	0.9	10.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	64.3	51.2	7.4	1.9	0.9	10.6
LOS	E	D	A	A	A	B
Approach Delay	54.7		7.2			10.2
Approach LOS	D		A			B

Lanes, Volumes, Timings
 400: Hodge Road & Spectrum Drive

10/20/2021

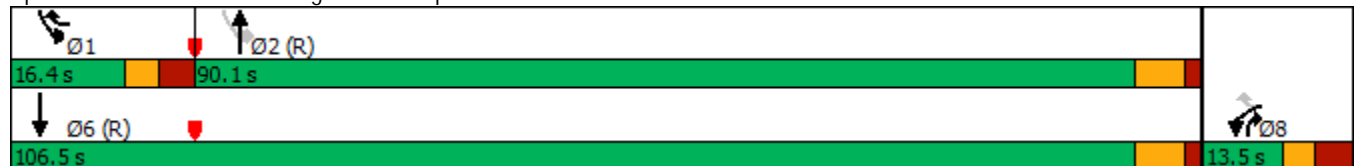


Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Queue Length 50th (ft)	40	103	148	2	2	1110
Queue Length 95th (ft)	83	167	225	6	m1	m18
Internal Link Dist (ft)	853		1392			2016
Turn Bay Length (ft)				150	300	
Base Capacity (vph)	125	292	1381	1351	1405	1633
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.42	0.50	0.41	0.01	0.03	0.82

Intersection Summary

Area Type:	Other
Cycle Length:	120
Actuated Cycle Length:	120
Offset:	44 (37%), Referenced to phase 2:NBSB and 6:SBT, Start of Green
Natural Cycle:	90
Control Type:	Actuated-Coordinated
Maximum v/c Ratio:	0.82
Intersection Signal Delay:	13.5
Intersection LOS:	B
Intersection Capacity Utilization:	77.3%
ICU Level of Service:	D
Analysis Period (min):	15
m Volume for 95th percentile queue is metered by upstream signal.	

Splits and Phases: 400: Hodge Road & Spectrum Drive



Lanes, Volumes, Timings
500: Hodge Road & Poole Road

10/20/2021



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	269	280	10	16	165	196	11	31	14	781	57	372
Future Volume (vph)	269	280	10	16	165	196	11	31	14	781	57	372
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	225		0	200		0	50		0	450		800
Storage Lanes	1		0	1		0	1		0	1		1
Taper Length (ft)	100			100			100			100		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.995			0.918			0.952				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	1853	0	1770	1710	0	1770	1773	0	1770	1863	1583
Flt Permitted	0.108			0.566			0.716			0.724		
Satd. Flow (perm)	201	1853	0	1054	1710	0	1334	1773	0	1349	1863	1583
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		45			45			45				45
Link Distance (ft)		2546			1176			1488				751
Travel Time (s)		38.6			17.8			22.5				11.4
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
Adj. Flow (vph)	299	311	11	18	183	218	12	34	16	868	63	413
Shared Lane Traffic (%)												
Lane Group Flow (vph)	299	322	0	18	401	0	12	50	0	868	63	413
Turn Type	pm+pt	NA		Perm	NA		Perm	NA		Perm	NA	pm+ov
Protected Phases	5	2			6			8			4	5
Permitted Phases	2			6			8			4		4
Detector Phase	5	2		6	6		8	8		4	4	5
Switch Phase												
Minimum Initial (s)	7.0	12.0		12.0	12.0		7.0	7.0		7.0	7.0	7.0
Minimum Split (s)	12.4	17.4		17.4	17.4		12.2	12.2		12.6	12.6	12.4
Total Split (s)	22.0	59.0		37.0	37.0		81.0	81.0		81.0	81.0	22.0
Total Split (%)	15.7%	42.1%		26.4%	26.4%		57.9%	57.9%		57.9%	57.9%	15.7%
Maximum Green (s)	16.6	53.6		31.6	31.6		75.8	75.8		75.4	75.4	16.6
Yellow Time (s)	3.0	4.3		4.4	4.4		3.9	3.9		4.6	4.6	3.0
All-Red Time (s)	2.4	1.1		1.0	1.0		1.3	1.3		1.0	1.0	2.4
Lost Time Adjust (s)	-0.4	-0.4		-0.4	-0.4		-0.2	-0.2		-0.6	-0.6	-0.4
Total Lost Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	5.0
Lead/Lag	Lead			Lag	Lag							Lead
Lead-Lag Optimize?	Yes			Yes	Yes							Yes
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
Recall Mode	None	None		None	None		Max	Max		Max	Max	None
Act Effct Green (s)	54.0	54.0		32.0	32.0		76.0	76.0		76.0	76.0	98.0
Actuated g/C Ratio	0.39	0.39		0.23	0.23		0.54	0.54		0.54	0.54	0.70
v/c Ratio	1.12	0.45		0.07	1.03		0.02	0.05		1.19	0.06	0.37
Control Delay	126.5	34.5		43.6	105.2		15.0	15.3		127.7	15.4	9.7
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Delay	126.5	34.5		43.6	105.2		15.0	15.3		127.7	15.4	9.7
LOS	F	C		D	F		B	B		F	B	A
Approach Delay		78.8			102.6			15.3				86.2
Approach LOS		E			F			B				F

Lanes, Volumes, Timings
500: Hodge Road & Poole Road

10/20/2021

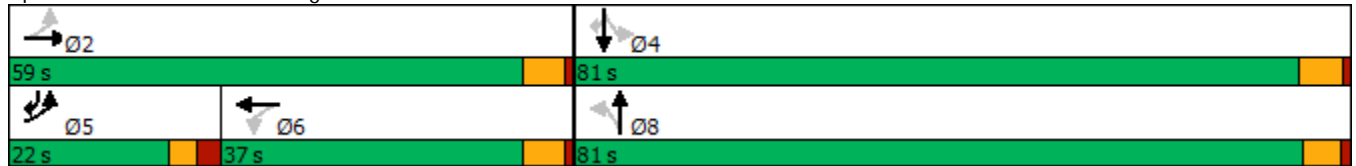


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 50th (ft)	~261	217		13	~388		5	21		-948	26	140
Queue Length 95th (ft)	#453	306		36	#596		15	42		#1203	50	197
Internal Link Dist (ft)		2466			1096			1408			671	
Turn Bay Length (ft)	225			200			50			450		800
Base Capacity (vph)	268	714		240	390		724	962		732	1011	1108
Starvation Cap Reductn	0	0		0	0		0	0		0	0	0
Spillback Cap Reductn	0	0		0	0		0	0		0	0	0
Storage Cap Reductn	0	0		0	0		0	0		0	0	0
Reduced v/c Ratio	1.12	0.45		0.07	1.03		0.02	0.05		1.19	0.06	0.37

Intersection Summary

Area Type:	Other
Cycle Length:	140
Actuated Cycle Length:	140
Natural Cycle:	140
Control Type:	Actuated-Uncoordinated
Maximum v/c Ratio:	1.19
Intersection Signal Delay:	85.3
Intersection LOS:	F
Intersection Capacity Utilization:	98.0%
ICU Level of Service:	F
Analysis Period (min):	15
~ Volume exceeds capacity, queue is theoretically infinite. Queue shown is maximum after two cycles.	
# 95th percentile volume exceeds capacity, queue may be longer. Queue shown is maximum after two cycles.	

Splits and Phases: 500: Hodge Road & Poole Road



2023 Future No Build Conditions

Lanes, Volumes, Timings

100: Hodge Road & I-87 SB Ramp/Old Faison Road

10/20/2021



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↖	↗	↖	↗		↖	↗	↗	↖	↗	↖
Traffic Volume (vph)	109	30	348	139	294	73	538	426	110	17	239	268
Future Volume (vph)	109	30	348	139	294	73	538	426	110	17	239	268
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	125		0	0		200	175		225
Storage Lanes	0		1	1		0	1		1	1		1
Taper Length (ft)	25			100			100			100		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850		0.970				0.850			0.850
Flt Protected		0.962		0.950			0.950			0.950		
Satd. Flow (prot)	0	1792	1583	1770	1807	0	1770	1863	1583	1770	1863	1583
Flt Permitted		0.492		0.513			0.224			0.492		
Satd. Flow (perm)	0	916	1583	956	1807	0	417	1863	1583	916	1863	1583
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		30			45			45				45
Link Distance (ft)		621			738			1127				919
Travel Time (s)		14.1			11.2			17.1				13.9
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
Adj. Flow (vph)	121	33	387	154	327	81	598	473	122	19	266	298
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	154	387	154	408	0	598	473	122	19	266	298
Turn Type	pm+pt	NA	pm+ov	pm+pt	NA		pm+pt	NA	pm+ov	pm+pt	NA	Free
Protected Phases	7	4	5	3	8		5	2	3	1	6	
Permitted Phases	4		4	8			2		2	6		Free
Detector Phase	7	4	5	3	8		5	2	3	1	6	
Switch Phase												
Minimum Initial (s)	7.0	7.0	7.0	7.0	7.0		7.0	12.0	7.0	7.0	12.0	
Minimum Split (s)	14.0	14.0	14.0	14.0	14.0		14.0	19.0	14.0	14.0	19.0	
Total Split (s)	14.0	37.0	43.0	14.0	37.0		43.0	55.0	14.0	14.0	26.0	
Total Split (%)	11.7%	30.8%	35.8%	11.7%	30.8%		35.8%	45.8%	11.7%	11.7%	21.7%	
Maximum Green (s)	7.0	30.0	36.0	7.0	30.0		36.0	48.0	7.0	7.0	19.0	
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0		5.0	5.0	5.0	5.0	5.0	
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)		-2.0	-2.0	-2.0	-2.0		-2.0	-2.0	-2.0	-2.0	-2.0	
Total Lost Time (s)		5.0	5.0	5.0	5.0		5.0	5.0	5.0	5.0	5.0	
Lead/Lag	Lead	Lag	Lead	Lead	Lag		Lead	Lag	Lead	Lead	Lag	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes		Yes	Yes	Yes	Yes	Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Recall Mode	None	None	None	None	None		None	C-Max	None	None	C-Max	
Act Effct Green (s)		32.0	73.8	46.0	46.0		64.0	58.4	72.4	31.2	22.2	120.0
Actuated g/C Ratio		0.27	0.62	0.38	0.38		0.53	0.49	0.60	0.26	0.18	1.00
v/c Ratio		0.63	0.40	0.36	0.59		0.94	0.52	0.13	0.06	0.77	0.19
Control Delay		52.0	13.0	27.8	33.7		53.2	27.1	12.4	18.8	63.0	0.3
Queue Delay		0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay		52.0	13.0	27.8	33.7		53.2	27.1	12.4	18.8	63.0	0.3
LOS		D	B	C	C		D	C	B	B	E	A
Approach Delay		24.1			32.1			38.7			29.5	
Approach LOS		C			C			D			C	

Lanes, Volumes, Timings

100: Hodge Road & I-87 SB Ramp/Old Faison Road

10/20/2021

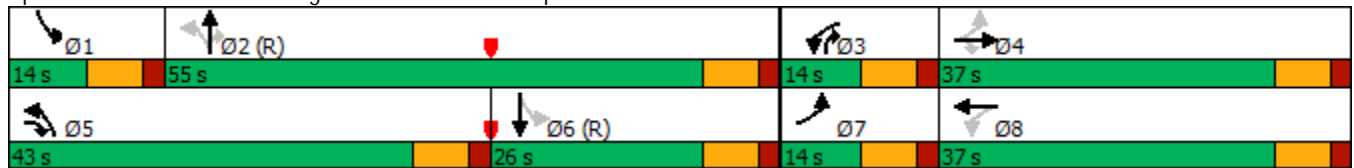


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 50th (ft)		105	139	80	249		370	205	28	7	200	0
Queue Length 95th (ft)		184	203	131	355		#572	383	m72	19	#337	0
Internal Link Dist (ft)		541			658			1047			839	
Turn Bay Length (ft)				125					200	175		225
Base Capacity (vph)		244	989	427	692		650	906	954	302	345	1583
Starvation Cap Reductn		0	0	0	0		0	0	0	0	0	0
Spillback Cap Reductn		0	0	0	0		0	0	0	0	0	0
Storage Cap Reductn		0	0	0	0		0	0	0	0	0	0
Reduced v/c Ratio		0.63	0.39	0.36	0.59		0.92	0.52	0.13	0.06	0.77	0.19

Intersection Summary

Area Type: Other
 Cycle Length: 120
 Actuated Cycle Length: 120
 Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
 Natural Cycle: 90
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.94
 Intersection Signal Delay: 32.8
 Intersection LOS: C
 Intersection Capacity Utilization 86.6%
 ICU Level of Service E
 Analysis Period (min) 15
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 100: Hodge Road & I-87 SB Ramp/Old Faison Road



Lanes, Volumes, Timings
200: Hodge Road & I-87 NB Ramp

10/20/2021



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	141	169	764	931	483	241
Future Volume (vph)	141	169	764	931	483	241
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	150	100			125
Storage Lanes	2	1	1			1
Taper Length (ft)	25		100			
Lane Util. Factor	0.97	0.88	1.00	1.00	1.00	1.00
Frt		0.850				0.850
Flt Protected	0.950		0.950			
Satd. Flow (prot)	3433	2787	1770	1863	1863	1583
Flt Permitted	0.950		0.152			
Satd. Flow (perm)	3433	2787	283	1863	1863	1583
Right Turn on Red		No				No
Satd. Flow (RTOR)						
Link Speed (mph)	30			45	45	
Link Distance (ft)	621			302	1127	
Travel Time (s)	14.1			4.6	17.1	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	157	188	849	1034	537	268
Shared Lane Traffic (%)						
Lane Group Flow (vph)	157	188	849	1034	537	268
Turn Type	Prot	pm+ov	D.P+P	NA	NA	Free
Protected Phases	4	5	5	2	6	
Permitted Phases		4	6			Free
Detector Phase	4	5	5	2	6	
Switch Phase						
Minimum Initial (s)	7.0	7.0	7.0	12.0	12.0	
Minimum Split (s)	14.6	14.0	14.0	19.0	19.0	
Total Split (s)	14.6	59.0	59.0	105.4	46.4	
Total Split (%)	12.2%	49.2%	49.2%	87.8%	38.7%	
Maximum Green (s)	7.6	52.0	52.0	98.4	39.4	
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	
Lead/Lag		Lead	Lead		Lag	
Lead-Lag Optimize?		Yes	Yes		Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	
Recall Mode	None	None	None	C-Max	C-Max	
Act Effct Green (s)	9.6	68.1	95.4	100.4	41.9	120.0
Actuated g/C Ratio	0.08	0.57	0.80	0.84	0.35	1.00
v/c Ratio	0.57	0.12	0.96	0.66	0.83	0.17
Control Delay	62.0	12.2	41.5	7.3	37.6	0.2
Queue Delay	0.0	0.0	0.0	0.9	0.0	0.0
Total Delay	62.0	12.2	41.5	8.2	37.6	0.2
LOS	E	B	D	A	D	A
Approach Delay	34.9			23.2	25.1	
Approach LOS	C			C	C	

Lanes, Volumes, Timings
 200: Hodge Road & I-87 NB Ramp

10/20/2021

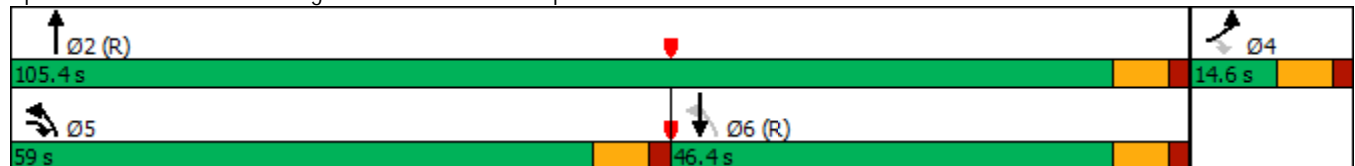


Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Queue Length 50th (ft)	61	36	617	529	409	0
Queue Length 95th (ft)	97	55	m#791	m64	#572	m0
Internal Link Dist (ft)	541			222	1047	
Turn Bay Length (ft)		150	100			125
Base Capacity (vph)	274	1593	895	1558	650	1583
Starvation Cap Reductn	0	0	0	256	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.57	0.12	0.95	0.79	0.83	0.17

Intersection Summary

Area Type: Other
 Cycle Length: 120
 Actuated Cycle Length: 120
 Offset: 47 (39%), Referenced to phase 2:NBT and 6:NBSB, Start of Green
 Natural Cycle: 90
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.96
 Intersection Signal Delay: 25.0 Intersection LOS: C
 Intersection Capacity Utilization 86.1% ICU Level of Service E
 Analysis Period (min) 15
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 200: Hodge Road & I-87 NB Ramp



Lanes, Volumes, Timings

300: Hodge Road & Panther Rock Boulevard/Ellen Drive

10/20/2021



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	372	0	26	3	0	8	15	1315	3	7	543	90
Future Volume (vph)	372	0	26	3	0	8	15	1315	3	7	543	90
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	150		0	0		0	150		0	50		200
Storage Lanes	1		0	0		0	1		0	1		1
Taper Length (ft)	100			25			100			100		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	1.00
Frt		0.850			0.899							0.850
Flt Protected	0.950				0.988		0.950			0.950		
Satd. Flow (prot)	1770	1583	0	0	1655	0	1770	3539	0	1770	3539	1583
Flt Permitted	0.800				0.905		0.380			0.111		
Satd. Flow (perm)	1490	1583	0	0	1516	0	708	3539	0	207	3539	1583
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		25			25			45			45	
Link Distance (ft)		772			750			2057			453	
Travel Time (s)		21.1			20.5			31.2			6.9	
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
Adj. Flow (vph)	413	0	29	3	0	9	17	1461	3	8	603	100
Shared Lane Traffic (%)												
Lane Group Flow (vph)	413	29	0	0	12	0	17	1464	0	8	603	100
Turn Type	D.P+P	NA		Perm	NA		D.P+P	NA		D.Pm	NA	pm+ov
Protected Phases	7	4			8		5	2			6	7
Permitted Phases	8			8			6			2		6
Detector Phase	7	4		8	8		5	2		2	6	7
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0		7.0	12.0		12.0	12.0	7.0
Minimum Split (s)	14.0	22.5		22.5	22.5		14.0	22.5		22.5	22.5	14.0
Total Split (s)	30.0	52.5		22.5	22.5		14.0	67.5		67.5	53.5	30.0
Total Split (%)	25.0%	43.8%		18.8%	18.8%		11.7%	56.3%		56.3%	44.6%	25.0%
Maximum Green (s)	23.0	45.5		15.5	15.5		7.0	60.5		60.5	46.5	23.0
Yellow Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	5.0
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0			-2.0		-2.0	-2.0		-2.0	-2.0	0.0
Total Lost Time (s)	5.0	5.0			5.0		5.0	5.0		5.0	5.0	7.0
Lead/Lag	Lead			Lag	Lag		Lead				Lag	Lead
Lead-Lag Optimize?	Yes			Yes	Yes		Yes				Yes	Yes
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
Recall Mode	None	None		None	None		None	C-Max		C-Max	C-Max	None
Act Effct Green (s)	28.8	30.8			9.2		77.2	79.2		79.2	73.6	105.8
Actuated g/C Ratio	0.24	0.26			0.08		0.64	0.66		0.66	0.61	0.88
v/c Ratio	0.99	0.07			0.10		0.03	0.63		0.06	0.28	0.07
Control Delay	85.8	31.1			53.5		14.1	21.0		18.4	24.3	7.4
Queue Delay	0.0	0.0			0.0		0.0	0.1		0.0	0.0	0.0
Total Delay	85.8	31.1			53.5		14.1	21.2		18.4	24.3	7.4
LOS	F	C			D		B	C		B	C	A
Approach Delay		82.2			53.5			21.1			21.8	
Approach LOS		F			D			C			C	

Lanes, Volumes, Timings

300: Hodge Road & Panther Rock Boulevard/Ellen Drive

10/20/2021



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 50th (ft)	~369	18			9		5	462		3	190	0
Queue Length 95th (ft)	#441	38			29		m9	m482		m9	m294	m61
Internal Link Dist (ft)		692			670			1977			373	
Turn Bay Length (ft)	150						150			50		200
Base Capacity (vph)	416	626			221		535	2334		136	2169	1395
Starvation Cap Reductn	0	0			0		0	0		0	0	0
Spillback Cap Reductn	0	0			0		0	176		0	0	0
Storage Cap Reductn	0	0			0		0	0		0	0	0
Reduced v/c Ratio	0.99	0.05			0.05		0.03	0.68		0.06	0.28	0.07

Intersection Summary

Area Type:	Other
Cycle Length:	120
Actuated Cycle Length:	120
Offset:	0 (0%), Referenced to phase 2:NBSB and 6:NBSB, Start of Green
Natural Cycle:	75
Control Type:	Actuated-Coordinated
Maximum v/c Ratio:	0.99
Intersection Signal Delay:	31.6
Intersection LOS:	C
Intersection Capacity Utilization:	72.1%
ICU Level of Service:	C
Analysis Period (min):	15
~	Volume exceeds capacity, queue is theoretically infinite. Queue shown is maximum after two cycles.
#	95th percentile volume exceeds capacity, queue may be longer. Queue shown is maximum after two cycles.
m	Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 300: Hodge Road & Panther Rock Boulevard/Ellen Drive



Lanes, Volumes, Timings
400: Hodge Road & Spectrum Drive

10/20/2021



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	70	0	20	15	0	48	6	1214	58	169	380	21
Future Volume (vph)	70	0	20	15	0	48	6	1214	58	169	380	21
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0	100		100	300		0
Storage Lanes	1		0	1		0	1		1	2		1
Taper Length (ft)	25			25			100			100		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.97	1.00	1.00
Frt		0.850			0.850				0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	1583	0	1770	1583	0	1770	1863	1583	3433	1863	1583
Flt Permitted	0.722			0.743			0.489			0.950		
Satd. Flow (perm)	1345	1583	0	1384	1583	0	911	1863	1583	3433	1863	1583
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		30			30			45			45	
Link Distance (ft)		1036			933			1472			2057	
Travel Time (s)		23.5			21.2			22.3			31.2	
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
Adj. Flow (vph)	78	0	22	17	0	53	7	1349	64	188	422	23
Shared Lane Traffic (%)												
Lane Group Flow (vph)	78	22	0	17	53	0	7	1349	64	188	422	23
Turn Type	D.Pm	NA		D.Pm	NA		D.P+P	NA	Perm	Prot	NA	Perm
Protected Phases		4			8		5	2		1	6	
Permitted Phases	8			4			6		2			6
Detector Phase	8	4		4	8		5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0		7.0	12.0	12.0	7.0	12.0	12.0
Minimum Split (s)	15.5	25.0		25.0	15.5		14.0	19.0	19.0	15.2	19.0	19.0
Total Split (s)	25.0	25.0		25.0	25.0		14.0	79.8	79.8	15.2	81.0	81.0
Total Split (%)	20.8%	20.8%		20.8%	20.8%		11.7%	66.5%	66.5%	12.7%	67.5%	67.5%
Maximum Green (s)	18.0	18.0		18.0	18.0		7.0	72.8	72.8	8.2	74.0	74.0
Yellow Time (s)	5.0	5.0		5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0
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)	-2.0	-2.0		-2.0	-2.0		-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0		5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag							Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?							Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None		None	None		None	C-Max	C-Max	None	C-Max	C-Max
Act Effct Green (s)	14.3	14.3		14.3	14.3		97.5	81.3	81.3	12.3	96.7	96.7
Actuated g/C Ratio	0.12	0.12		0.12	0.12		0.81	0.68	0.68	0.10	0.81	0.81
v/c Ratio	0.49	0.12		0.10	0.28		0.01	1.07	0.06	0.54	0.28	0.02
Control Delay	58.8	46.5		46.3	50.4		3.3	68.5	8.5	81.3	3.5	1.2
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	58.8	46.5		46.3	50.4		3.3	68.5	8.5	81.3	3.5	1.2
LOS	E	D		D	D		A	E	A	F	A	A
Approach Delay		56.1			49.4			65.5			26.5	
Approach LOS		E			D			E			C	

Lanes, Volumes, Timings
400: Hodge Road & Spectrum Drive

10/20/2021



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 50th (ft)	57	15		12	38		1	~1212	17	80	44	1
Queue Length 95th (ft)	104	40		33	75		5	#1501	36	120	87	3
Internal Link Dist (ft)		956			853			1392			1977	
Turn Bay Length (ft)							100		100	300		
Base Capacity (vph)	224	263		230	263		804	1261	1071	350	1501	1275
Starvation Cap Reductn	0	0		0	0		0	0	0	0	0	0
Spillback Cap Reductn	0	0		0	0		0	0	0	0	0	0
Storage Cap Reductn	0	0		0	0		0	0	0	0	0	0
Reduced v/c Ratio	0.35	0.08		0.07	0.20		0.01	1.07	0.06	0.54	0.28	0.02

Intersection Summary

Area Type: Other
 Cycle Length: 120
 Actuated Cycle Length: 120
 Offset: 0 (0%), Referenced to phase 2:NBT and 6:NBSB, Start of Green
 Natural Cycle: 150
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 1.07
 Intersection Signal Delay: 53.5
 Intersection LOS: D
 Intersection Capacity Utilization 91.2%
 ICU Level of Service F
 Analysis Period (min) 15
 ~ Volume exceeds capacity, queue is theoretically infinite.
 Queue shown is maximum after two cycles.
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

Splits and Phases: 400: Hodge Road & Spectrum Drive



Lanes, Volumes, Timings
500: Hodge Road & Poole Road

10/20/2021



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	378	114	7	9	463	796	22	63	12	172	33	215
Future Volume (vph)	378	114	7	9	463	796	22	63	12	172	33	215
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	225		0	200		200	50		0	450		800
Storage Lanes	1		0	1		1	1		0	1		1
Taper Length (ft)	100			100			100			100		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.991				0.850		0.977				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	1846	0	1770	1863	1583	1770	1820	0	1770	1863	1583
Flt Permitted	0.351			0.671			0.733			0.688		
Satd. Flow (perm)	654	1846	0	1250	1863	1583	1365	1820	0	1282	1863	1583
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		45			45			45				45
Link Distance (ft)		2546			1176			1488				751
Travel Time (s)		38.6			17.8			22.5				11.4
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
Adj. Flow (vph)	420	127	8	10	514	884	24	70	13	191	37	239
Shared Lane Traffic (%)												
Lane Group Flow (vph)	420	135	0	10	514	884	24	83	0	191	37	239
Turn Type	pm+pt	NA		Perm	NA	Perm	Perm	NA		Perm	NA	pm+ov
Protected Phases	5	2			6			8			4	5
Permitted Phases	2			6		6	8			4		4
Detector Phase	5	2		6	6	6	8	8		4	4	5
Switch Phase												
Minimum Initial (s)	7.0	12.0		12.0	12.0	12.0	7.0	7.0		7.0	7.0	7.0
Minimum Split (s)	14.4	19.0		19.0	19.0	19.0	14.0	14.0		14.0	14.0	14.4
Total Split (s)	26.0	120.0		94.0	94.0	94.0	20.0	20.0		20.0	20.0	26.0
Total Split (%)	18.6%	85.7%		67.1%	67.1%	67.1%	14.3%	14.3%		14.3%	14.3%	18.6%
Maximum Green (s)	19.0	113.0		87.0	87.0	87.0	13.0	13.0		13.0	13.0	19.0
Yellow Time (s)	5.0	5.0		5.0	5.0	5.0	5.0	5.0		5.0	5.0	5.0
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)	-2.0	-2.0		-2.0	-2.0	-2.0	-2.0	-2.0		-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0		5.0	5.0	5.0	5.0	5.0		5.0	5.0	5.0
Lead/Lag	Lead			Lag	Lag	Lag						Lead
Lead-Lag Optimize?	Yes			Yes	Yes	Yes						Yes
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0
Recall Mode	None	None		None	None	None	Max	Max		Max	Max	None
Act Effct Green (s)	100.4	100.4		74.0	74.0	74.0	15.2	15.2		15.2	15.2	41.7
Actuated g/C Ratio	0.80	0.80		0.59	0.59	0.59	0.12	0.12		0.12	0.12	0.33
v/c Ratio	0.59	0.09		0.01	0.47	0.95	0.15	0.38		1.23	0.16	0.46
Control Delay	6.8	2.7		9.7	15.7	43.6	57.7	60.9		194.8	57.1	40.0
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Delay	6.8	2.7		9.7	15.7	43.6	57.7	60.9		194.8	57.1	40.0
LOS	A	A		A	B	D	E	E		F	E	D
Approach Delay		5.8			33.2			60.2			104.7	
Approach LOS		A			C			E			F	

Lanes, Volumes, Timings
500: Hodge Road & Poole Road

10/20/2021



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 50th (ft)	73	19		3	222	626	19	67		-210	29	166
Queue Length 95th (ft)	101	31		10	300	#927	51	128		#390	68	270
Internal Link Dist (ft)		2466			1096			1408			671	
Turn Bay Length (ft)	225			200		200	50			450		800
Base Capacity (vph)	711	1661		898	1339	1138	165	220		155	225	524
Starvation Cap Reductn	0	0		0	0	0	0	0		0	0	0
Spillback Cap Reductn	0	0		0	0	0	0	0		0	0	0
Storage Cap Reductn	0	0		0	0	0	0	0		0	0	0
Reduced v/c Ratio	0.59	0.08		0.01	0.38	0.78	0.15	0.38		1.23	0.16	0.46

Intersection Summary

Area Type:	Other
Cycle Length:	140
Actuated Cycle Length:	125.8
Natural Cycle:	90
Control Type:	Actuated-Uncoordinated
Maximum v/c Ratio:	1.23
Intersection Signal Delay:	41.5
Intersection LOS:	D
Intersection Capacity Utilization:	88.6%
ICU Level of Service:	E
Analysis Period (min):	15
~ Volume exceeds capacity, queue is theoretically infinite. Queue shown is maximum after two cycles.	
# 95th percentile volume exceeds capacity, queue may be longer. Queue shown is maximum after two cycles.	

Splits and Phases: 500: Hodge Road & Poole Road



Lanes, Volumes, Timings

100: Hodge Road & I-87 SB Ramp/Old Faison Road

10/20/2021



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↖	↗	↖	↗		↖	↗	↗	↖	↗	↖
Traffic Volume (vph)	51	94	724	74	93	75	290	588	380	45	301	102
Future Volume (vph)	51	94	724	74	93	75	290	588	380	45	301	102
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	125		0	0		200	175		225
Storage Lanes	0		1	1		0	1		1	1		1
Taper Length (ft)	25			100			100			100		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850		0.933				0.850			0.850
Flt Protected		0.983		0.950			0.950			0.950		
Satd. Flow (prot)	0	1831	1583	1770	1738	0	1770	1863	1583	1770	1863	1583
Flt Permitted		0.807		0.336			0.210			0.417		
Satd. Flow (perm)	0	1503	1583	626	1738	0	391	1863	1583	777	1863	1583
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		30		45			45			45		45
Link Distance (ft)		621		738			1127			919		
Travel Time (s)		14.1		11.2			17.1			13.9		
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
Adj. Flow (vph)	57	104	804	82	103	83	322	653	422	50	334	113
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	161	804	82	186	0	322	653	422	50	334	113
Turn Type	pm+pt	NA	pm+ov	pm+pt	NA		pm+pt	NA	pm+ov	pm+pt	NA	Free
Protected Phases	7	4	5	3	8		5	2	3	1	6	
Permitted Phases	4		4	8			2		2	6		Free
Detector Phase	7	4	5	3	8		5	2	3	1	6	
Switch Phase												
Minimum Initial (s)	7.0	7.0	7.0	7.0	7.0		7.0	12.0	7.0	7.0	12.0	
Minimum Split (s)	14.0	14.0	14.0	14.0	14.0		14.0	19.0	14.0	14.0	19.0	
Total Split (s)	14.0	21.0	54.0	14.0	21.0		54.0	71.0	14.0	14.0	31.0	
Total Split (%)	11.7%	17.5%	45.0%	11.7%	17.5%		45.0%	59.2%	11.7%	11.7%	25.8%	
Maximum Green (s)	7.0	14.0	47.0	7.0	14.0		47.0	64.0	7.0	7.0	24.0	
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0		5.0	5.0	5.0	5.0	5.0	
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)		-2.0	-2.0	-2.0	-2.0		-2.0	-2.0	-2.0	-2.0	-2.0	
Total Lost Time (s)		5.0	5.0	5.0	5.0		5.0	5.0	5.0	5.0	5.0	
Lead/Lag	Lead	Lag	Lead	Lead	Lag		Lead	Lag	Lead	Lead	Lag	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes		Yes	Yes	Yes	Yes	Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Recall Mode	None	None	None	None	None		None	C-Max	None	None	C-Max	
Act Effct Green (s)		16.0	67.6	30.0	30.0		80.0	68.8	82.8	37.4	28.4	120.0
Actuated g/C Ratio		0.13	0.56	0.25	0.25		0.67	0.57	0.69	0.31	0.24	1.00
v/c Ratio		0.81	0.90	0.34	0.43		0.41	0.61	0.39	0.16	0.76	0.07
Control Delay		79.4	37.9	39.6	41.5		26.6	25.4	8.0	17.2	55.7	0.1
Queue Delay		0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay		79.4	37.9	39.6	41.5		26.6	25.4	8.0	17.2	55.7	0.1
LOS		E	D	D	D		C	C	A	B	E	A
Approach Delay		44.8			40.9		20.4				39.2	
Approach LOS		D			D		C				D	

Lanes, Volumes, Timings
 100: Hodge Road & I-87 SB Ramp/Old Faison Road

10/20/2021

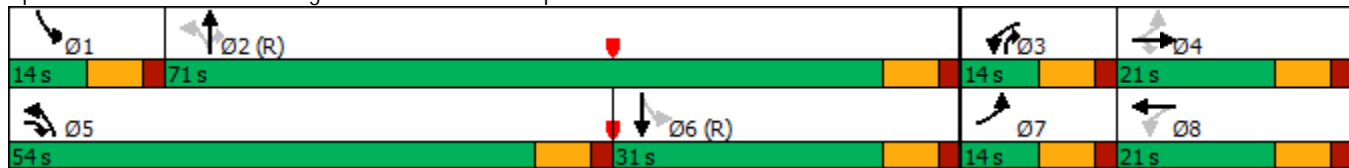


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 50th (ft)		123	500	50	122		168	257	86	14	249	0
Queue Length 95th (ft)		#238	#792	94	193		m203	m315	m118	30	#398	0
Internal Link Dist (ft)		541			658			1047			839	
Turn Bay Length (ft)				125					200	175		225
Base Capacity (vph)		200	923	242	434		823	1068	1092	316	441	1583
Starvation Cap Reductn		0	0	0	0		0	0	0	0	0	0
Spillback Cap Reductn		0	0	0	0		0	0	0	0	0	0
Storage Cap Reductn		0	0	0	0		0	0	0	0	0	0
Reduced v/c Ratio		0.81	0.87	0.34	0.43		0.39	0.61	0.39	0.16	0.76	0.07

Intersection Summary

Area Type: Other
 Cycle Length: 120
 Actuated Cycle Length: 120
 Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
 Natural Cycle: 90
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.90
 Intersection Signal Delay: 32.7
 Intersection LOS: C
 Intersection Capacity Utilization 82.6%
 ICU Level of Service E
 Analysis Period (min) 15
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 100: Hodge Road & I-87 SB Ramp/Old Faison Road



Lanes, Volumes, Timings
200: Hodge Road & I-87 NB Ramp

10/20/2021



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	699	778	396	557	1017	80
Future Volume (vph)	699	778	396	557	1017	80
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	150	100			125
Storage Lanes	2	1	1			1
Taper Length (ft)	25		100			
Lane Util. Factor	0.97	0.88	1.00	1.00	1.00	1.00
Frt		0.850				0.850
Flt Protected	0.950		0.950			
Satd. Flow (prot)	3433	2787	1770	1863	1863	1583
Flt Permitted	0.950		0.065			
Satd. Flow (perm)	3433	2787	121	1863	1863	1583
Right Turn on Red		No				No
Satd. Flow (RTOR)						
Link Speed (mph)	30			45	45	
Link Distance (ft)	621			293	1127	
Travel Time (s)	14.1			4.4	17.1	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	777	864	440	619	1130	89
Shared Lane Traffic (%)						
Lane Group Flow (vph)	777	864	440	619	1130	89
Turn Type	Prot	pm+ov	D.P+P	NA	NA	Free
Protected Phases	4	5	5	2	6	
Permitted Phases		4	6			Free
Detector Phase	4	5	5	2	6	
Switch Phase						
Minimum Initial (s)	7.0	7.0	7.0	12.0	12.0	
Minimum Split (s)	14.6	14.0	14.0	19.0	19.0	
Total Split (s)	28.0	25.0	25.0	92.0	67.0	
Total Split (%)	23.3%	20.8%	20.8%	76.7%	55.8%	
Maximum Green (s)	21.0	18.0	18.0	85.0	60.0	
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	
Lead/Lag		Lead	Lead		Lag	
Lead-Lag Optimize?		Yes	Yes		Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	
Recall Mode	None	None	None	C-Max	C-Max	
Act Effct Green (s)	23.0	48.0	82.0	87.0	62.0	120.0
Actuated g/C Ratio	0.19	0.40	0.68	0.72	0.52	1.00
v/c Ratio	1.18	0.78	1.23	0.46	1.17	0.06
Control Delay	139.7	37.1	162.7	9.8	110.6	0.0
Queue Delay	0.0	0.2	0.0	0.4	0.0	0.0
Total Delay	139.7	37.4	162.7	10.2	110.6	0.0
LOS	F	D	F	B	F	A
Approach Delay	85.8			73.6	102.6	
Approach LOS	F			E	F	

Lanes, Volumes, Timings
 200: Hodge Road & I-87 NB Ramp

10/20/2021

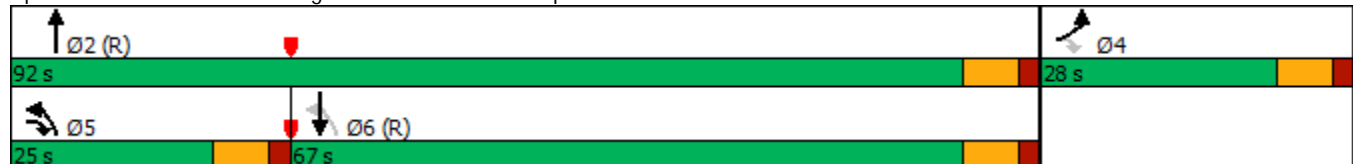


Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Queue Length 50th (ft)	~372	326	~384	153	~1045	0
Queue Length 95th (ft)	#495	416	m#555	m286	#1312	m0
Internal Link Dist (ft)	541			213	1047	
Turn Bay Length (ft)		150	100			125
Base Capacity (vph)	657	1114	357	1350	962	1583
Starvation Cap Reductn	0	0	0	317	0	0
Spillback Cap Reductn	0	27	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	1.18	0.79	1.23	0.60	1.17	0.06

Intersection Summary

Area Type:	Other
Cycle Length:	120
Actuated Cycle Length:	120
Offset:	47 (39%), Referenced to phase 2:NBT and 6:NBSB, Start of Green
Natural Cycle:	140
Control Type:	Actuated-Coordinated
Maximum v/c Ratio:	1.23
Intersection Signal Delay:	87.7
Intersection LOS:	F
Intersection Capacity Utilization:	107.9%
ICU Level of Service:	G
Analysis Period (min):	15
~	Volume exceeds capacity, queue is theoretically infinite. Queue shown is maximum after two cycles.
#	95th percentile volume exceeds capacity, queue may be longer. Queue shown is maximum after two cycles.
m	Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 200: Hodge Road & I-87 NB Ramp



Lanes, Volumes, Timings

300: Hodge Road & Panther Rock Boulevard/Ellen Drive

10/20/2021



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	209	0	14	3	0	9	34	735	5	11	1350	300
Future Volume (vph)	209	0	14	3	0	9	34	735	5	11	1350	300
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	150		0	0		0	150		0	50		200
Storage Lanes	1		0	0		0	1		0	1		1
Taper Length (ft)	100			25			100			100		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	1.00
Frt		0.850			0.896			0.999				0.850
Flt Protected	0.950				0.989		0.950			0.950		
Satd. Flow (prot)	1770	1583	0	0	1651	0	1770	3536	0	1770	3539	1583
Flt Permitted	0.784				0.916		0.105			0.320		
Satd. Flow (perm)	1460	1583	0	0	1529	0	196	3536	0	596	3539	1583
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		25			25			45			45	
Link Distance (ft)		772			750			2057			462	
Travel Time (s)		21.1			20.5			31.2			7.0	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	232	0	16	3	0	10	38	817	6	12	1500	333
Shared Lane Traffic (%)												
Lane Group Flow (vph)	232	16	0	0	13	0	38	823	0	12	1500	333
Turn Type	D.P+P	NA		Perm	NA		D.P+P	NA		D.Pm	NA	pm+ov
Protected Phases	7	4			8		5	2			6	7
Permitted Phases	8			8			6			2		6
Detector Phase	7	4		8	8		5	2		2	6	7
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0		7.0	12.0		12.0	12.0	7.0
Minimum Split (s)	14.0	22.5		22.5	22.5		14.0	22.5		22.5	22.5	14.0
Total Split (s)	18.0	40.5		22.5	22.5		14.0	79.5		79.5	65.5	18.0
Total Split (%)	15.0%	33.8%		18.8%	18.8%		11.7%	66.3%		66.3%	54.6%	15.0%
Maximum Green (s)	11.0	33.5		15.5	15.5		7.0	72.5		72.5	58.5	11.0
Yellow Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	5.0
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0			-2.0		-2.0	-2.0		-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0			5.0		5.0	5.0		5.0	5.0	5.0
Lead/Lag	Lead			Lag	Lag		Lead				Lag	Lead
Lead-Lag Optimize?	Yes			Yes	Yes		Yes				Yes	Yes
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
Recall Mode	None	None		None	None		None	C-Max		C-Max	C-Max	None
Act Effct Green (s)	16.9	18.9			9.3		88.1	91.1		91.1	82.7	102.7
Actuated g/C Ratio	0.14	0.16			0.08		0.73	0.76		0.76	0.69	0.86
v/c Ratio	0.97	0.06			0.11		0.15	0.31		0.03	0.62	0.25
Control Delay	101.2	39.4			53.6		4.6	3.8		6.4	15.0	4.2
Queue Delay	0.0	0.0			0.0		0.0	0.0		0.0	0.3	0.0
Total Delay	101.2	39.4			53.6		4.6	3.8		6.4	15.3	4.2
LOS	F	D			D		A	A		A	B	A
Approach Delay		97.2			53.6			3.8			13.3	
Approach LOS		F			D			A			B	

Lanes, Volumes, Timings

300: Hodge Road & Panther Rock Boulevard/Ellen Drive

10/20/2021

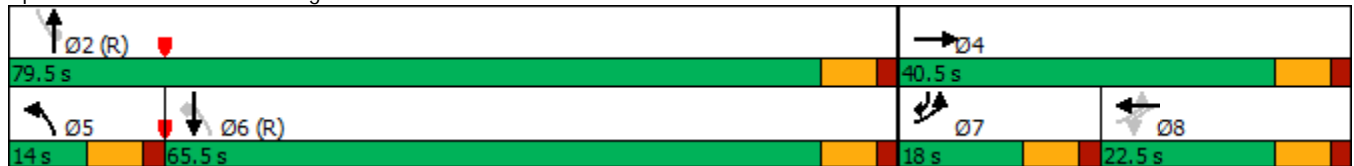


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 50th (ft)	~219	11			10		3	44		2	349	43
Queue Length 95th (ft)	#259	29			30		m12	m96		m3	m441	m99
Internal Link Dist (ft)		692			670			1977			382	
Turn Bay Length (ft)	150						150			50		200
Base Capacity (vph)	238	468			222		262	2685		452	2438	1354
Starvation Cap Reductn	0	0			0		0	0		0	376	0
Spillback Cap Reductn	0	0			0		0	0		0	0	0
Storage Cap Reductn	0	0			0		0	0		0	0	0
Reduced v/c Ratio	0.97	0.03			0.06		0.15	0.31		0.03	0.73	0.25

Intersection Summary

Area Type: Other
 Cycle Length: 120
 Actuated Cycle Length: 120
 Offset: 0 (0%), Referenced to phase 2:NBSB and 6:NBSB, Start of Green
 Natural Cycle: 90
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.97
 Intersection Signal Delay: 17.7
 Intersection LOS: B
 Intersection Capacity Utilization 63.9%
 ICU Level of Service B
 Analysis Period (min) 15
 ~ Volume exceeds capacity, queue is theoretically infinite.
 Queue shown is maximum after two cycles.
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 300: Hodge Road & Panther Rock Boulevard/Ellen Drive



Lanes, Volumes, Timings
400: Hodge Road & Spectrum Drive

10/20/2021



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	43	0	12	58	0	172	22	558	19	59	1285	75
Future Volume (vph)	43	0	12	58	0	172	22	558	19	59	1285	75
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0	100		100	300		0
Storage Lanes	1		0	1		0	1		1	2		1
Taper Length (ft)	25			25			100			100		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.97	1.00	1.00
Frt		0.850			0.850				0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	1583	0	1770	1583	0	1770	1863	1583	3433	1863	1583
Flt Permitted	0.308			0.749			0.047			0.950		
Satd. Flow (perm)	574	1583	0	1395	1583	0	88	1863	1583	3433	1863	1583
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		30			30			45			45	
Link Distance (ft)		1036			933			1472			2057	
Travel Time (s)		23.5			21.2			22.3			31.2	
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
Adj. Flow (vph)	48	0	13	64	0	191	24	620	21	66	1428	83
Shared Lane Traffic (%)												
Lane Group Flow (vph)	48	13	0	64	191	0	24	620	21	66	1428	83
Turn Type	D.Pm	NA		D.Pm	NA		D.P+P	NA	Perm	Prot	NA	Perm
Protected Phases		4			8		5	2		1	6	
Permitted Phases	8			4			6		2			6
Detector Phase	8	4		4	8		5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0		7.0	12.0	12.0	7.0	12.0	12.0
Minimum Split (s)	14.0	14.0		14.0	14.0		14.0	19.0	19.0	14.0	19.0	19.0
Total Split (s)	18.0	18.0		18.0	18.0		14.0	88.0	88.0	14.0	88.0	88.0
Total Split (%)	15.0%	15.0%		15.0%	15.0%		11.7%	73.3%	73.3%	11.7%	73.3%	73.3%
Maximum Green (s)	11.0	11.0		11.0	11.0		7.0	81.0	81.0	7.0	81.0	81.0
Yellow Time (s)	5.0	5.0		5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0
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)	-2.0	-2.0		-2.0	-2.0		-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0		5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag							Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?							Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None		None	None		None	C-Max	C-Max	None	C-Max	C-Max
Act Effct Green (s)	13.0	13.0		13.0	13.0		94.0	85.8	85.8	9.0	88.6	88.6
Actuated g/C Ratio	0.11	0.11		0.11	0.11		0.78	0.72	0.72	0.08	0.74	0.74
v/c Ratio	0.77	0.08		0.42	1.12		0.12	0.47	0.02	0.26	1.04	0.07
Control Delay	115.8	49.4		59.4	152.4		3.8	9.3	5.8	62.7	50.8	1.2
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	115.8	49.4		59.4	152.4		3.8	9.3	5.8	62.7	50.8	1.2
LOS	F	D		E	F		A	A	A	E	D	A
Approach Delay		101.6			129.0			9.0			48.7	
Approach LOS		F			F			A			D	

Lanes, Volumes, Timings
400: Hodge Road & Spectrum Drive

10/20/2021



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 50th (ft)	37	9		47	-170		3	200	5	28	-1290	3
Queue Length 95th (ft)	#110	30		94	#320		8	276	13	m45	#1500	m5
Internal Link Dist (ft)		956			853			1392			1977	
Turn Bay Length (ft)							100		100	300		
Base Capacity (vph)	62	171		151	171		195	1331	1131	257	1375	1168
Starvation Cap Reductn	0	0		0	0		0	0	0	0	0	0
Spillback Cap Reductn	0	0		0	0		0	0	0	0	0	0
Storage Cap Reductn	0	0		0	0		0	0	0	0	0	0
Reduced v/c Ratio	0.77	0.08		0.42	1.12		0.12	0.47	0.02	0.26	1.04	0.07

Intersection Summary

Area Type: Other
 Cycle Length: 120
 Actuated Cycle Length: 120
 Offset: 0 (0%), Referenced to phase 2:NBT and 6:NBSB, Start of Green
 Natural Cycle: 150
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 1.12
 Intersection Signal Delay: 47.7 Intersection LOS: D
 Intersection Capacity Utilization 96.6% ICU Level of Service F
 Analysis Period (min) 15
 ~ Volume exceeds capacity, queue is theoretically infinite.
 Queue shown is maximum after two cycles.
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 400: Hodge Road & Spectrum Drive



Lanes, Volumes, Timings
500: Hodge Road & Poole Road

10/20/2021



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	298	298	11	17	176	220	12	54	15	838	74	404
Future Volume (vph)	298	298	11	17	176	220	12	54	15	838	74	404
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	225		0	200		200	50		0	450		800
Storage Lanes	1		0	1		1	1		0	1		1
Taper Length (ft)	100			100			100			100		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.995				0.850		0.967				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	1853	0	1770	1863	1583	1770	1801	0	1770	1863	1583
Flt Permitted	0.296			0.555			0.704			0.707		
Satd. Flow (perm)	551	1853	0	1034	1863	1583	1311	1801	0	1317	1863	1583
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		45			45			45				45
Link Distance (ft)		2546			1176			1488				751
Travel Time (s)		38.6			17.8			22.5				11.4
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
Adj. Flow (vph)	331	331	12	19	196	244	13	60	17	931	82	449
Shared Lane Traffic (%)												
Lane Group Flow (vph)	331	343	0	19	196	244	13	77	0	931	82	449
Turn Type	pm+pt	NA		Perm	NA	Perm	Perm	NA		Perm	NA	pm+ov
Protected Phases	5	2			6			8			4	5
Permitted Phases	2			6		6	8			4		4
Detector Phase	5	2		6	6	6	8	8		4	4	5
Switch Phase												
Minimum Initial (s)	7.0	12.0		12.0	12.0	12.0	7.0	7.0		7.0	7.0	7.0
Minimum Split (s)	14.4	19.0		19.0	19.0	19.0	14.0	14.0		14.0	14.0	14.4
Total Split (s)	21.0	48.0		27.0	27.0	27.0	92.0	92.0		92.0	92.0	21.0
Total Split (%)	15.0%	34.3%		19.3%	19.3%	19.3%	65.7%	65.7%		65.7%	65.7%	15.0%
Maximum Green (s)	14.0	41.0		20.0	20.0	20.0	85.0	85.0		85.0	85.0	14.0
Yellow Time (s)	5.0	5.0		5.0	5.0	5.0	5.0	5.0		5.0	5.0	5.0
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)	-2.0	-2.0		-2.0	-2.0	-2.0	-2.0	-2.0		-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0		5.0	5.0	5.0	5.0	5.0		5.0	5.0	5.0
Lead/Lag	Lead			Lag	Lag	Lag						Lead
Lead-Lag Optimize?	Yes			Yes	Yes	Yes						Yes
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0
Recall Mode	None	None		None	None	None	Max	Max		Max	Max	None
Act Effct Green (s)	43.0	43.0		22.0	22.0	22.0	87.0	87.0		87.0	87.0	108.0
Actuated g/C Ratio	0.31	0.31		0.16	0.16	0.16	0.62	0.62		0.62	0.62	0.77
v/c Ratio	1.07	0.60		0.12	0.67	0.98	0.02	0.07		1.14	0.07	0.37
Control Delay	113.5	46.6		52.9	67.9	111.4	10.2	10.7		103.7	10.7	6.1
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Delay	113.5	46.6		52.9	67.9	111.4	10.2	10.7		103.7	10.7	6.1
LOS	F	D		D	E	F	B	B		F	B	A
Approach Delay		79.4			90.4			10.6			68.5	
Approach LOS		E			F			B			E	

Lanes, Volumes, Timings
500: Hodge Road & Poole Road

10/20/2021



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 50th (ft)	~282	266		15	170	224	4	26		-986	28	113
Queue Length 95th (ft)	#427	372		41	258	#402	13	48		#1243	50	158
Internal Link Dist (ft)		2466			1096			1408			671	
Turn Bay Length (ft)	225			200		200	50			450		800
Base Capacity (vph)	308	569		162	292	248	814	1119		818	1157	1221
Starvation Cap Reductn	0	0		0	0	0	0	0		0	0	0
Spillback Cap Reductn	0	0		0	0	0	0	0		0	0	0
Storage Cap Reductn	0	0		0	0	0	0	0		0	0	0
Reduced v/c Ratio	1.07	0.60		0.12	0.67	0.98	0.02	0.07		1.14	0.07	0.37

Intersection Summary

Area Type:	Other
Cycle Length:	140
Actuated Cycle Length:	140
Natural Cycle:	130
Control Type:	Actuated-Uncoordinated
Maximum v/c Ratio:	1.14
Intersection Signal Delay:	73.0
Intersection LOS:	E
Intersection Capacity Utilization:	92.1%
ICU Level of Service:	F
Analysis Period (min):	15
~ Volume exceeds capacity, queue is theoretically infinite. Queue shown is maximum after two cycles.	
# 95th percentile volume exceeds capacity, queue may be longer. Queue shown is maximum after two cycles.	

Splits and Phases: 500: Hodge Road & Poole Road

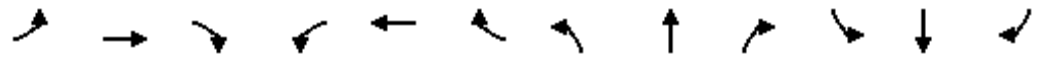


2023 Future Build Conditions

Lanes, Volumes, Timings

100: Hodge Road & I-87 SB Ramp/Old Faison Road

10/20/2021



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↖	↗	↖	↗		↖	↗	↗	↖	↗	↖
Traffic Volume (vph)	109	30	362	139	294	73	574	441	110	17	244	268
Future Volume (vph)	109	30	362	139	294	73	574	441	110	17	244	268
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	125		0	0		200	175		225
Storage Lanes	0		1	1		0	1		1	1		1
Taper Length (ft)	25			100			100			100		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850		0.970				0.850			0.850
Flt Protected		0.962		0.950			0.950			0.950		
Satd. Flow (prot)	0	1792	1583	1770	1807	0	1770	1863	1583	1770	1863	1583
Flt Permitted		0.492		0.513			0.193			0.485		
Satd. Flow (perm)	0	916	1583	956	1807	0	360	1863	1583	903	1863	1583
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		30		45			45			45		45
Link Distance (ft)		621		738			1127			919		
Travel Time (s)		14.1		11.2			17.1			13.9		
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
Adj. Flow (vph)	121	33	402	154	327	81	638	490	122	19	271	298
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	154	402	154	408	0	638	490	122	19	271	298
Turn Type	pm+pt	NA	pm+ov	pm+pt	NA		pm+pt	NA	pm+ov	pm+pt	NA	Free
Protected Phases	7	4	5	3	8		5	2	3	1	6	
Permitted Phases	4		4	8			2		2	6		Free
Detector Phase	7	4	5	3	8		5	2	3	1	6	
Switch Phase												
Minimum Initial (s)	7.0	7.0	7.0	7.0	7.0		7.0	12.0	7.0	7.0	12.0	
Minimum Split (s)	14.0	14.0	14.0	14.0	14.0		14.0	19.0	14.0	14.0	19.0	
Total Split (s)	14.0	37.0	43.0	14.0	37.0		43.0	55.0	14.0	14.0	26.0	
Total Split (%)	11.7%	30.8%	35.8%	11.7%	30.8%		35.8%	45.8%	11.7%	11.7%	21.7%	
Maximum Green (s)	7.0	30.0	36.0	7.0	30.0		36.0	48.0	7.0	7.0	19.0	
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0		5.0	5.0	5.0	5.0	5.0	
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)		-2.0	-2.0	-2.0	-2.0		-2.0	-2.0	-2.0	-2.0	-2.0	
Total Lost Time (s)		5.0	5.0	5.0	5.0		5.0	5.0	5.0	5.0	5.0	
Lead/Lag	Lead	Lag	Lead	Lead	Lag		Lead	Lag	Lead	Lead	Lag	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes		Yes	Yes	Yes	Yes	Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Recall Mode	None	None	None	None	None		None	C-Max	None	None	C-Max	
Act Effct Green (s)		32.0	75.0	46.0	46.0		64.0	58.4	72.4	30.0	21.0	120.0
Actuated g/C Ratio		0.27	0.62	0.38	0.38		0.53	0.49	0.60	0.25	0.18	1.00
v/c Ratio		0.63	0.41	0.36	0.59		1.00	0.54	0.13	0.07	0.83	0.19
Control Delay		52.0	12.8	27.8	33.7		66.4	28.3	13.1	18.8	69.7	0.3
Queue Delay		0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay		52.0	12.8	27.8	33.7		66.4	28.3	13.1	18.8	69.7	0.3
LOS		D	B	C	C		E	C	B	B	E	A
Approach Delay		23.7			32.1		46.3				32.9	
Approach LOS		C			C		D				C	

Lanes, Volumes, Timings
 100: Hodge Road & I-87 SB Ramp/Old Faison Road

10/20/2021

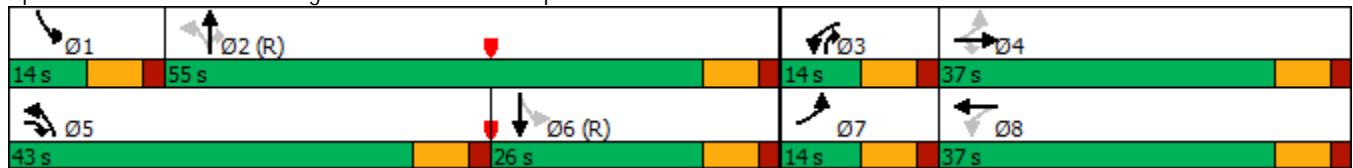


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 50th (ft)		105	146	80	249		425	225	31	7	205	0
Queue Length 95th (ft)		184	213	131	355		#664	423	m72	19	#345	0
Internal Link Dist (ft)		541			658			1047			839	
Turn Bay Length (ft)				125					200	175		225
Base Capacity (vph)		244	989	427	692		638	906	954	290	326	1583
Starvation Cap Reductn		0	0	0	0		0	0	0	0	0	0
Spillback Cap Reductn		0	0	0	0		0	0	0	0	0	0
Storage Cap Reductn		0	0	0	0		0	0	0	0	0	0
Reduced v/c Ratio		0.63	0.41	0.36	0.59		1.00	0.54	0.13	0.07	0.83	0.19

Intersection Summary

Area Type: Other
 Cycle Length: 120
 Actuated Cycle Length: 120
 Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
 Natural Cycle: 90
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 1.00
 Intersection Signal Delay: 36.7
 Intersection LOS: D
 Intersection Capacity Utilization 88.8%
 ICU Level of Service E
 Analysis Period (min) 15
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 100: Hodge Road & I-87 SB Ramp/Old Faison Road



Lanes, Volumes, Timings
200: Hodge Road & I-87 NB Ramp

10/20/2021



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	141	181	805	982	502	241
Future Volume (vph)	141	181	805	982	502	241
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	150	100			125
Storage Lanes	2	1	1			1
Taper Length (ft)	25		100			
Lane Util. Factor	0.97	0.88	1.00	1.00	1.00	1.00
Frt		0.850				0.850
Flt Protected	0.950		0.950			
Satd. Flow (prot)	3433	2787	1770	1863	1863	1583
Flt Permitted	0.950		0.122			
Satd. Flow (perm)	3433	2787	227	1863	1863	1583
Right Turn on Red		No				No
Satd. Flow (RTOR)						
Link Speed (mph)	30			45	45	
Link Distance (ft)	621			302	1127	
Travel Time (s)	14.1			4.6	17.1	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	157	201	894	1091	558	268
Shared Lane Traffic (%)						
Lane Group Flow (vph)	157	201	894	1091	558	268
Turn Type	Prot	pm+ov	D.P+P	NA	NA	Free
Protected Phases	4	5	5	2	6	
Permitted Phases		4	6			Free
Detector Phase	4	5	5	2	6	
Switch Phase						
Minimum Initial (s)	7.0	7.0	7.0	12.0	12.0	
Minimum Split (s)	14.6	14.0	14.0	19.0	19.0	
Total Split (s)	14.6	59.0	59.0	105.4	46.4	
Total Split (%)	12.2%	49.2%	49.2%	87.8%	38.7%	
Maximum Green (s)	7.6	52.0	52.0	98.4	39.4	
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	
Lead/Lag		Lead	Lead		Lag	
Lead-Lag Optimize?		Yes	Yes		Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	
Recall Mode	None	None	None	C-Max	C-Max	
Act Effct Green (s)	9.6	68.6	95.4	100.4	41.4	120.0
Actuated g/C Ratio	0.08	0.57	0.80	0.84	0.34	1.00
v/c Ratio	0.57	0.13	1.02	0.70	0.87	0.17
Control Delay	62.0	12.1	56.8	8.0	41.3	0.2
Queue Delay	0.0	0.0	0.0	1.3	0.0	0.0
Total Delay	62.0	12.1	56.8	9.3	41.3	0.2
LOS	E	B	E	A	D	A
Approach Delay	34.0			30.7	28.0	
Approach LOS	C			C	C	

Lanes, Volumes, Timings
 200: Hodge Road & I-87 NB Ramp

10/20/2021

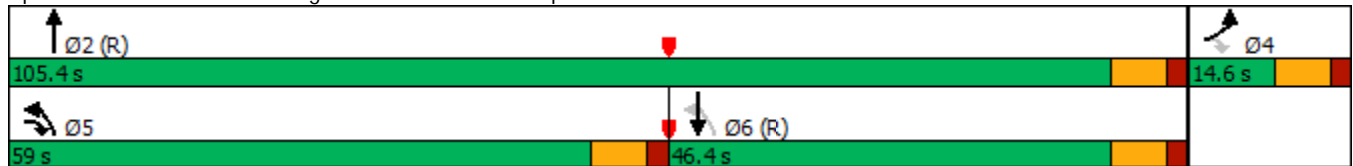


Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Queue Length 50th (ft)	61	38	~696	593	429	0
Queue Length 95th (ft)	97	59	m#872	m64	m#596	m0
Internal Link Dist (ft)	541			222	1047	
Turn Bay Length (ft)		150	100			125
Base Capacity (vph)	274	1593	874	1558	642	1583
Starvation Cap Reductn	0	0	0	256	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.57	0.13	1.02	0.84	0.87	0.17

Intersection Summary

Area Type: Other
 Cycle Length: 120
 Actuated Cycle Length: 120
 Offset: 47 (39%), Referenced to phase 2:NBT and 6:NBSB, Start of Green
 Natural Cycle: 100
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 1.02
 Intersection Signal Delay: 30.4
 Intersection LOS: C
 Intersection Capacity Utilization 89.4%
 ICU Level of Service E
 Analysis Period (min) 15
 ~ Volume exceeds capacity, queue is theoretically infinite.
 Queue shown is maximum after two cycles.
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 200: Hodge Road & I-87 NB Ramp



Lanes, Volumes, Timings

300: Hodge Road & Panther Rock Boulevard/Ellen Drive

10/20/2021



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	372	0	26	3	0	8	15	1407	3	7	575	90
Future Volume (vph)	372	0	26	3	0	8	15	1407	3	7	575	90
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	150		0	0		0	150		0	50		200
Storage Lanes	1		0	0		0	1		0	1		1
Taper Length (ft)	100			25			100			100		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	1.00
Frt		0.850			0.899							0.850
Flt Protected	0.950				0.988		0.950			0.950		
Satd. Flow (prot)	1770	1583	0	0	1655	0	1770	3539	0	1770	3539	1583
Flt Permitted	0.800				0.905		0.362			0.091		
Satd. Flow (perm)	1490	1583	0	0	1516	0	674	3539	0	170	3539	1583
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		25			25			45			45	
Link Distance (ft)		772			750			2057			453	
Travel Time (s)		21.1			20.5			31.2			6.9	
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
Adj. Flow (vph)	413	0	29	3	0	9	17	1563	3	8	639	100
Shared Lane Traffic (%)												
Lane Group Flow (vph)	413	29	0	0	12	0	17	1566	0	8	639	100
Turn Type	D.P+P	NA		Perm	NA		D.P+P	NA		D.Pm	NA	pm+ov
Protected Phases	7	4			8		5	2			6	7
Permitted Phases	8			8			6			2		6
Detector Phase	7	4		8	8		5	2		2	6	7
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0		7.0	12.0		12.0	12.0	7.0
Minimum Split (s)	14.0	22.5		22.5	22.5		14.0	22.5		22.5	22.5	14.0
Total Split (s)	30.0	52.5		22.5	22.5		14.0	67.5		67.5	53.5	30.0
Total Split (%)	25.0%	43.8%		18.8%	18.8%		11.7%	56.3%		56.3%	44.6%	25.0%
Maximum Green (s)	23.0	45.5		15.5	15.5		7.0	60.5		60.5	46.5	23.0
Yellow Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	5.0
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0			-2.0		-2.0	-2.0		-2.0	-2.0	0.0
Total Lost Time (s)	5.0	5.0			5.0		5.0	5.0		5.0	5.0	7.0
Lead/Lag	Lead			Lag	Lag		Lead				Lag	Lead
Lead-Lag Optimize?	Yes			Yes	Yes		Yes				Yes	Yes
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
Recall Mode	None	None		None	None		None	C-Max		C-Max	C-Max	None
Act Effct Green (s)	28.8	30.8			9.2		77.2	79.2		79.2	73.6	105.8
Actuated g/C Ratio	0.24	0.26			0.08		0.64	0.66		0.66	0.61	0.88
v/c Ratio	0.99	0.07			0.10		0.03	0.67		0.07	0.29	0.07
Control Delay	85.8	31.1			53.5		12.7	20.5		19.7	24.0	7.4
Queue Delay	0.0	0.0			0.0		0.0	5.5		0.0	0.0	0.0
Total Delay	85.8	31.1			53.5		12.7	26.0		19.7	24.0	7.4
LOS	F	C			D		B	C		B	C	A
Approach Delay		82.2			53.5			25.9			21.7	
Approach LOS		F			D			C			C	

Lanes, Volumes, Timings

300: Hodge Road & Panther Rock Boulevard/Ellen Drive

10/20/2021



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 50th (ft)	~369	18			9		5	498		3	201	0
Queue Length 95th (ft)	#441	38			29		m7	m521		m9	m300	m59
Internal Link Dist (ft)		692			670			1977			373	
Turn Bay Length (ft)	150						150			50		200
Base Capacity (vph)	416	626			221		515	2334		112	2169	1395
Starvation Cap Reductn	0	0			0		0	0		0	0	0
Spillback Cap Reductn	0	0			0		0	703		0	0	0
Storage Cap Reductn	0	0			0		0	0		0	0	0
Reduced v/c Ratio	0.99	0.05			0.05		0.03	0.96		0.07	0.29	0.07

Intersection Summary























Area Type: Other
 Cycle Length: 120
 Actuated Cycle Length: 120
 Offset: 0 (0%), Referenced to phase 2:NBSB and 6:NBSB, Start of Green
 Natural Cycle: 80
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.99
 Intersection Signal Delay: 33.8 Intersection LOS: C
 Intersection Capacity Utilization 74.6% ICU Level of Service D
 Analysis Period (min) 15
 ~ Volume exceeds capacity, queue is theoretically infinite.
 Queue shown is maximum after two cycles.
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 300: Hodge Road & Panther Rock Boulevard/Ellen Drive



Lanes, Volumes, Timings
400: Hodge Road & Spectrum Drive

10/20/2021

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	70	0	20	15	0	48	6	1306	58	169	412	21
Future Volume (vph)	70	0	20	15	0	48	6	1306	58	169	412	21
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0	100		100	300		0
Storage Lanes	1		0	1		0	1		1	2		1
Taper Length (ft)	25			25			100			100		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.97	1.00	1.00
Frt		0.850			0.850				0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	1583	0	1770	1583	0	1770	1863	1583	3433	1863	1583
Flt Permitted	0.722			0.743			0.474			0.950		
Satd. Flow (perm)	1345	1583	0	1384	1583	0	883	1863	1583	3433	1863	1583
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		30			30			45			45	
Link Distance (ft)		1036			933			1206			2057	
Travel Time (s)		23.5			21.2			18.3			31.2	
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
Adj. Flow (vph)	78	0	22	17	0	53	7	1451	64	188	458	23
Shared Lane Traffic (%)												
Lane Group Flow (vph)	78	22	0	17	53	0	7	1451	64	188	458	23
Turn Type	D.Pm	NA		D.Pm	NA		D.P+P	NA	Perm	Prot	NA	Perm
Protected Phases		4			8		5	2		1	6	
Permitted Phases	8			4			6		2			6
Detector Phase	8	4		4	8		5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0		7.0	12.0	12.0	7.0	12.0	12.0
Minimum Split (s)	14.0	14.0		14.0	14.0		14.0	19.0	19.0	14.0	19.0	19.0
Total Split (s)	17.0	17.0		17.0	17.0		14.0	88.0	88.0	15.0	89.0	89.0
Total Split (%)	14.2%	14.2%		14.2%	14.2%		11.7%	73.3%	73.3%	12.5%	74.2%	74.2%
Maximum Green (s)	10.0	10.0		10.0	10.0		7.0	81.0	81.0	8.0	82.0	82.0
Yellow Time (s)	5.0	5.0		5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0
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)	-2.0	-2.0		-2.0	-2.0		-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0		5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag							Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?							Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None		None	None		None	C-Max	C-Max	None	C-Max	C-Max
Act Effct Green (s)	11.4	11.4		11.4	11.4		100.4	86.3	86.3	10.1	99.6	99.6
Actuated g/C Ratio	0.10	0.10		0.10	0.10		0.84	0.72	0.72	0.08	0.83	0.83
v/c Ratio	0.61	0.15		0.13	0.35		0.01	1.08	0.06	0.65	0.30	0.02
Control Delay	72.8	51.9		51.9	57.5		2.2	70.4	6.0	89.6	3.8	1.0
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	72.8	51.9		51.9	57.5		2.2	70.4	6.0	89.6	3.8	1.0
LOS	E	D		D	E		A	E	A	F	A	A
Approach Delay		68.2			56.1			67.4			27.8	
Approach LOS		E			E			E			C	

Lanes, Volumes, Timings
400: Hodge Road & Spectrum Drive

10/20/2021



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 50th (ft)	59	16		12	39		1	~1300	14	79	56	1
Queue Length 95th (ft)	#120	43		36	81		3	#1565	28	120	103	2
Internal Link Dist (ft)		956			853			1126			1977	
Turn Bay Length (ft)							100		100	300		
Base Capacity (vph)	134	158		138	158		805	1339	1137	289	1546	1313
Starvation Cap Reductn	0	0		0	0		0	0	0	0	0	0
Spillback Cap Reductn	0	0		0	0		0	0	0	0	0	0
Storage Cap Reductn	0	0		0	0		0	0	0	0	0	0
Reduced v/c Ratio	0.58	0.14		0.12	0.34		0.01	1.08	0.06	0.65	0.30	0.02

Intersection Summary

Area Type: Other
 Cycle Length: 120
 Actuated Cycle Length: 120
 Offset: 0 (0%), Referenced to phase 2:NBT and 6:NBSB, Start of Green
 Natural Cycle: 140
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 1.08
 Intersection Signal Delay: 55.9 Intersection LOS: E
 Intersection Capacity Utilization 91.2% ICU Level of Service F
 Analysis Period (min) 15
 ~ Volume exceeds capacity, queue is theoretically infinite.
 Queue shown is maximum after two cycles.
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

Splits and Phases: 400: Hodge Road & Spectrum Drive



Lanes, Volumes, Timings
500: Hodge Road & Poole Road

10/20/2021



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	378	114	7	9	465	796	22	63	12	172	33	215
Future Volume (vph)	378	114	7	9	465	796	22	63	12	172	33	215
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	225		0	200		200	50		0	450		800
Storage Lanes	1		0	1		1	1		0	1		1
Taper Length (ft)	100			100			100			100		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.991				0.850		0.977				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	1846	0	1770	1863	1583	1770	1820	0	1770	1863	1583
Flt Permitted	0.349			0.671			0.733			0.688		
Satd. Flow (perm)	650	1846	0	1250	1863	1583	1365	1820	0	1282	1863	1583
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		45			45			45				45
Link Distance (ft)		1753			1176			1488				751
Travel Time (s)		26.6			17.8			22.5				11.4
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
Adj. Flow (vph)	420	127	8	10	517	884	24	70	13	191	37	239
Shared Lane Traffic (%)												
Lane Group Flow (vph)	420	135	0	10	517	884	24	83	0	191	37	239
Turn Type	pm+pt	NA		Perm	NA	Perm	Perm	NA		Perm	NA	pm+ov
Protected Phases	5	2			6			8			4	5
Permitted Phases	2			6		6	8			4		4
Detector Phase	5	2		6	6	6	8	8		4	4	5
Switch Phase												
Minimum Initial (s)	7.0	12.0		12.0	12.0	12.0	7.0	7.0		7.0	7.0	7.0
Minimum Split (s)	14.4	19.0		19.0	19.0	19.0	14.0	14.0		14.0	14.0	14.4
Total Split (s)	26.0	120.0		94.0	94.0	94.0	20.0	20.0		20.0	20.0	26.0
Total Split (%)	18.6%	85.7%		67.1%	67.1%	67.1%	14.3%	14.3%		14.3%	14.3%	18.6%
Maximum Green (s)	19.0	113.0		87.0	87.0	87.0	13.0	13.0		13.0	13.0	19.0
Yellow Time (s)	5.0	5.0		5.0	5.0	5.0	5.0	5.0		5.0	5.0	5.0
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)	-2.0	-2.0		-2.0	-2.0	-2.0	-2.0	-2.0		-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0		5.0	5.0	5.0	5.0	5.0		5.0	5.0	5.0
Lead/Lag	Lead			Lag	Lag	Lag						Lead
Lead-Lag Optimize?	Yes			Yes	Yes	Yes						Yes
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0
Recall Mode	None	None		None	None	None	Max	Max		Max	Max	None
Act Effct Green (s)	100.4	100.4		74.0	74.0	74.0	15.2	15.2		15.2	15.2	41.7
Actuated g/C Ratio	0.80	0.80		0.59	0.59	0.59	0.12	0.12		0.12	0.12	0.33
v/c Ratio	0.59	0.09		0.01	0.47	0.95	0.15	0.38		1.23	0.16	0.46
Control Delay	6.9	2.7		9.7	15.8	43.6	57.7	60.9		194.8	57.1	40.0
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Delay	6.9	2.7		9.7	15.8	43.6	57.7	60.9		194.8	57.1	40.0
LOS	A	A		A	B	D	E	E		F	E	D
Approach Delay		5.9			33.2			60.2			104.7	
Approach LOS		A			C			E			F	

Lanes, Volumes, Timings
500: Hodge Road & Poole Road

10/20/2021



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 50th (ft)	73	19		3	224	626	19	67		-210	29	166
Queue Length 95th (ft)	101	31		10	302	#927	51	128		#390	68	270
Internal Link Dist (ft)		1673			1096			1408			671	
Turn Bay Length (ft)	225			200		200	50			450		800
Base Capacity (vph)	708	1661		898	1339	1138	165	220		155	225	524
Starvation Cap Reductn	0	0		0	0	0	0	0		0	0	0
Spillback Cap Reductn	0	0		0	0	0	0	0		0	0	0
Storage Cap Reductn	0	0		0	0	0	0	0		0	0	0
Reduced v/c Ratio	0.59	0.08		0.01	0.39	0.78	0.15	0.38		1.23	0.16	0.46

Intersection Summary

Area Type:	Other
Cycle Length:	140
Actuated Cycle Length:	125.8
Natural Cycle:	90
Control Type:	Actuated-Uncoordinated
Maximum v/c Ratio:	1.23
Intersection Signal Delay:	41.5
Intersection LOS:	D
Intersection Capacity Utilization	88.6%
ICU Level of Service	E
Analysis Period (min)	15
~ Volume exceeds capacity, queue is theoretically infinite. Queue shown is maximum after two cycles.	
# 95th percentile volume exceeds capacity, queue may be longer. Queue shown is maximum after two cycles.	

Splits and Phases: 500: Hodge Road & Poole Road



HCM 6th TWSC
600: Hodge Road & Site Access

10/20/2021

Intersection						
Int Delay, s/veh	15.6					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	92	4	4	1235	419	32
Future Vol, veh/h	92	4	4	1235	419	32
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	102	4	4	1372	466	36

Major/Minor	Minor2	Major1	Major2			
Conflicting Flow All	1864	484	502	0	-	0
Stage 1	484	-	-	-	-	-
Stage 2	1380	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	~ 80	583	1062	-	-	-
Stage 1	620	-	-	-	-	-
Stage 2	233	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	~ 79	583	1062	-	-	-
Mov Cap-2 Maneuver	~ 79	-	-	-	-	-
Stage 1	610	-	-	-	-	-
Stage 2	233	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	290.6	0	0
HCM LOS	F		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1062	-	82	-	-
HCM Lane V/C Ratio	0.004	-	1.301	-	-
HCM Control Delay (s)	8.4	0	290.6	-	-
HCM Lane LOS	A	A	F	-	-
HCM 95th %tile Q(veh)	0	-	8.1	-	-

Notes
 -: Volume exceeds capacity \$: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon

HCM 6th TWSC
700: Poole Road & Site Access

10/20/2021

Intersection						
Int Delay, s/veh	0.2					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↶	↷		↶	
Traffic Vol, veh/h	4	498	699	4	5	5
Future Vol, veh/h	4	498	699	4	5	5
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	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	4	553	777	4	6	6

Major/Minor	Major1	Major2	Minor2		
Conflicting Flow All	781	0	-	0	1340 779
Stage 1	-	-	-	-	779 -
Stage 2	-	-	-	-	561 -
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	837	-	-	-	168 396
Stage 1	-	-	-	-	452 -
Stage 2	-	-	-	-	571 -
Platoon blocked, %		-	-	-	
Mov Cap-1 Maneuver	837	-	-	-	167 396
Mov Cap-2 Maneuver	-	-	-	-	167 -
Stage 1	-	-	-	-	449 -
Stage 2	-	-	-	-	571 -

Approach	EB	WB	SB
HCM Control Delay, s	0.1	0	21.1
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	837	-	-	-	235
HCM Lane V/C Ratio	0.005	-	-	-	0.047
HCM Control Delay (s)	9.3	0	-	-	21.1
HCM Lane LOS	A	A	-	-	C
HCM 95th %tile Q(veh)	0	-	-	-	0.1

Lanes, Volumes, Timings

100: Hodge Road & I-87 SB Ramp/Old Faison Road

10/20/2021



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↖	↗	↖	↗		↖	↗	↗	↖	↗	↖
Traffic Volume (vph)	51	94	766	74	93	75	313	598	380	45	317	102
Future Volume (vph)	51	94	766	74	93	75	313	598	380	45	317	102
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	125		0	0		200	175		225
Storage Lanes	0		1	1		0	1		1	1		1
Taper Length (ft)	25			100			100			100		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850		0.933				0.850			0.850
Flt Protected		0.983		0.950			0.950			0.950		
Satd. Flow (prot)	0	1831	1583	1770	1738	0	1770	1863	1583	1770	1863	1583
Flt Permitted		0.807		0.336			0.161			0.413		
Satd. Flow (perm)	0	1503	1583	626	1738	0	300	1863	1583	769	1863	1583
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		30		45			45			45		45
Link Distance (ft)		621		738			1127			919		
Travel Time (s)		14.1		11.2			17.1			13.9		
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
Adj. Flow (vph)	57	104	851	82	103	83	348	664	422	50	352	113
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	161	851	82	186	0	348	664	422	50	352	113
Turn Type	pm+pt	NA	pm+ov	pm+pt	NA		pm+pt	NA	pm+ov	pm+pt	NA	Free
Protected Phases	7	4	5	3	8		5	2	3	1	6	
Permitted Phases	4		4	8			2		2	6		Free
Detector Phase	7	4	5	3	8		5	2	3	1	6	
Switch Phase												
Minimum Initial (s)	7.0	7.0	7.0	7.0	7.0		7.0	12.0	7.0	7.0	12.0	
Minimum Split (s)	14.0	14.0	14.0	14.0	14.0		14.0	19.0	14.0	14.0	19.0	
Total Split (s)	14.0	21.0	54.0	14.0	21.0		54.0	71.0	14.0	14.0	31.0	
Total Split (%)	11.7%	17.5%	45.0%	11.7%	17.5%		45.0%	59.2%	11.7%	11.7%	25.8%	
Maximum Green (s)	7.0	14.0	47.0	7.0	14.0		47.0	64.0	7.0	7.0	24.0	
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0		5.0	5.0	5.0	5.0	5.0	
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)		-2.0	-2.0	-2.0	-2.0		-2.0	-2.0	-2.0	-2.0	-2.0	
Total Lost Time (s)		5.0	5.0	5.0	5.0		5.0	5.0	5.0	5.0	5.0	
Lead/Lag	Lead	Lag	Lead	Lead	Lag		Lead	Lag	Lead	Lead	Lag	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes		Yes	Yes	Yes	Yes	Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Recall Mode	None	None	None	None	None		None	C-Max	None	None	C-Max	
Act Effct Green (s)		16.0	69.0	30.0	30.0		80.0	68.8	82.8	36.0	27.0	120.0
Actuated g/C Ratio		0.13	0.58	0.25	0.25		0.67	0.57	0.69	0.30	0.22	1.00
v/c Ratio		0.81	0.94	0.34	0.43		0.44	0.62	0.39	0.16	0.84	0.07
Control Delay		79.4	42.1	39.6	41.5		29.2	25.3	8.1	17.4	63.5	0.1
Queue Delay		0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay		79.4	42.1	39.6	41.5		29.2	25.3	8.1	17.4	63.5	0.1
LOS		E	D	D	D		C	C	A	B	E	A
Approach Delay		48.1			40.9			21.2			45.1	
Approach LOS		D			D			C			D	

Lanes, Volumes, Timings
 100: Hodge Road & I-87 SB Ramp/Old Faison Road

10/20/2021

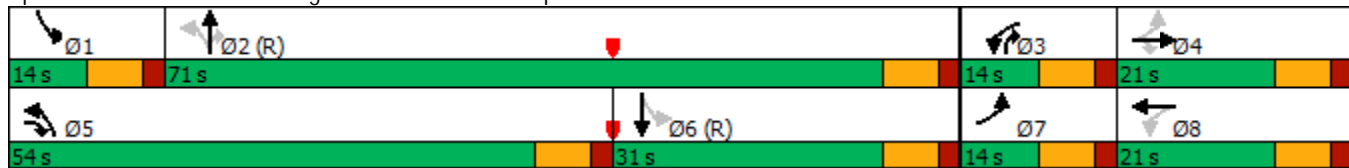


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 50th (ft)		123	563	50	122		194	265	90	14	265	0
Queue Length 95th (ft)		#238	#873	94	193		m235	m329	m125	30	#431	0
Internal Link Dist (ft)		541			658			1047			839	
Turn Bay Length (ft)				125					200	175		225
Base Capacity (vph)		200	923	242	434		800	1068	1092	306	419	1583
Starvation Cap Reductn		0	0	0	0		0	0	0	0	0	0
Spillback Cap Reductn		0	0	0	0		0	0	0	0	0	0
Storage Cap Reductn		0	0	0	0		0	0	0	0	0	0
Reduced v/c Ratio		0.81	0.92	0.34	0.43		0.43	0.62	0.39	0.16	0.84	0.07

Intersection Summary

Area Type: Other
 Cycle Length: 120
 Actuated Cycle Length: 120
 Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
 Natural Cycle: 90
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.94
 Intersection Signal Delay: 35.1
 Intersection LOS: D
 Intersection Capacity Utilization 86.1%
 ICU Level of Service E
 Analysis Period (min) 15
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 100: Hodge Road & I-87 SB Ramp/Old Faison Road



Lanes, Volumes, Timings
200: Hodge Road & I-87 NB Ramp

10/20/2021



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	699	815	423	591	1075	80
Future Volume (vph)	699	815	423	591	1075	80
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	150	100			125
Storage Lanes	2	1	1			1
Taper Length (ft)	25		100			
Lane Util. Factor	0.97	0.88	1.00	1.00	1.00	1.00
Frt		0.850				0.850
Flt Protected	0.950		0.950			
Satd. Flow (prot)	3433	2787	1770	1863	1863	1583
Flt Permitted	0.950		0.065			
Satd. Flow (perm)	3433	2787	121	1863	1863	1583
Right Turn on Red		No				No
Satd. Flow (RTOR)						
Link Speed (mph)	30			45	45	
Link Distance (ft)	621			321	1127	
Travel Time (s)	14.1			4.9	17.1	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	777	906	470	657	1194	89
Shared Lane Traffic (%)						
Lane Group Flow (vph)	777	906	470	657	1194	89
Turn Type	Prot	pm+ov	D.P+P	NA	NA	Free
Protected Phases	4	5	5	2	6	
Permitted Phases		4	6			Free
Detector Phase	4	5	5	2	6	
Switch Phase						
Minimum Initial (s)	7.0	7.0	7.0	12.0	12.0	
Minimum Split (s)	14.6	14.0	14.0	19.0	19.0	
Total Split (s)	28.0	25.0	25.0	92.0	67.0	
Total Split (%)	23.3%	20.8%	20.8%	76.7%	55.8%	
Maximum Green (s)	21.0	18.0	18.0	85.0	60.0	
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	
Lead/Lag		Lead	Lead		Lag	
Lead-Lag Optimize?		Yes	Yes		Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	
Recall Mode	None	None	None	C-Max	C-Max	
Act Effct Green (s)	23.0	48.0	82.0	87.0	62.0	120.0
Actuated g/C Ratio	0.19	0.40	0.68	0.72	0.52	1.00
v/c Ratio	1.18	0.81	1.32	0.49	1.24	0.06
Control Delay	139.7	39.1	195.1	10.2	138.8	0.0
Queue Delay	0.0	1.1	0.0	0.5	0.0	0.0
Total Delay	139.7	40.2	195.1	10.7	138.8	0.0
LOS	F	D	F	B	F	A
Approach Delay	86.1			87.6	129.1	
Approach LOS	F			F	F	

Lanes, Volumes, Timings
 200: Hodge Road & I-87 NB Ramp

10/20/2021

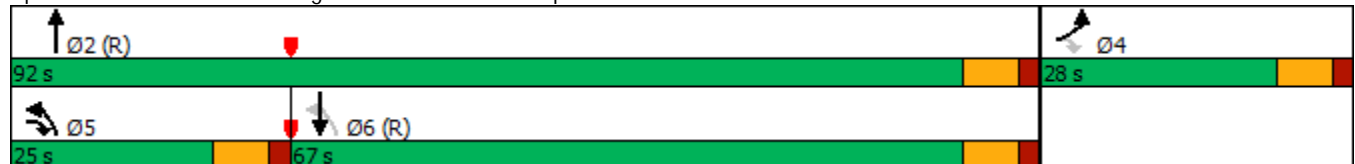


Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Queue Length 50th (ft)	~372	349	~434	161	~1152	0
Queue Length 95th (ft)	#495	444	m#611	m313	m#1350	m0
Internal Link Dist (ft)	541			241	1047	
Turn Bay Length (ft)		150	100			125
Base Capacity (vph)	657	1114	357	1350	962	1583
Starvation Cap Reductn	0	0	0	310	0	0
Spillback Cap Reductn	0	67	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	1.18	0.87	1.32	0.63	1.24	0.06

Intersection Summary

Area Type: Other
 Cycle Length: 120
 Actuated Cycle Length: 120
 Offset: 47 (39%), Referenced to phase 2:NBT and 6:NBSB, Start of Green
 Natural Cycle: 150
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 1.32
 Intersection Signal Delay: 100.0 Intersection LOS: F
 Intersection Capacity Utilization 112.5% ICU Level of Service H
 Analysis Period (min) 15
 ~ Volume exceeds capacity, queue is theoretically infinite.
 Queue shown is maximum after two cycles.
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 200: Hodge Road & I-87 NB Ramp



Lanes, Volumes, Timings

300: Hodge Road & Panther Rock Boulevard/Ellen Drive

10/20/2021



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	209	4	14	3	4	9	34	795	5	11	1445	300
Future Volume (vph)	209	4	14	3	4	9	34	795	5	11	1445	300
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	150		0	0		0	150		0	50		200
Storage Lanes	1		0	0		0	1		0	1		1
Taper Length (ft)	100			25			100			100		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	1.00
Frt		0.880			0.921			0.999				0.850
Flt Protected	0.950				0.991		0.950			0.950		
Satd. Flow (prot)	1770	1639	0	0	1700	0	1770	3536	0	1770	3539	1583
Flt Permitted	0.769				0.933		0.085			0.295		
Satd. Flow (perm)	1432	1639	0	0	1601	0	158	3536	0	550	3539	1583
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		25			25			45			45	
Link Distance (ft)		772			750			2057			435	
Travel Time (s)		21.1			20.5			31.2			6.6	
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
Adj. Flow (vph)	232	4	16	3	4	10	38	883	6	12	1606	333
Shared Lane Traffic (%)												
Lane Group Flow (vph)	232	20	0	0	17	0	38	889	0	12	1606	333
Turn Type	D.P+P	NA		Perm	NA		D.P+P	NA		D.Pm	NA	pm+ov
Protected Phases	7	4			8		5	2			6	7
Permitted Phases	8			8			6			2		6
Detector Phase	7	4		8	8		5	2		2	6	7
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0		7.0	12.0		12.0	12.0	7.0
Minimum Split (s)	14.0	22.5		22.5	22.5		14.0	22.5		22.5	22.5	14.0
Total Split (s)	18.0	40.5		22.5	22.5		14.0	79.5		79.5	65.5	18.0
Total Split (%)	15.0%	33.8%		18.8%	18.8%		11.7%	66.3%		66.3%	54.6%	15.0%
Maximum Green (s)	11.0	33.5		15.5	15.5		7.0	72.5		72.5	58.5	11.0
Yellow Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	5.0
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0			-2.0		-2.0	-2.0		-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0			5.0		5.0	5.0		5.0	5.0	5.0
Lead/Lag	Lead			Lag	Lag		Lead				Lag	Lead
Lead-Lag Optimize?	Yes			Yes	Yes		Yes				Yes	Yes
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
Recall Mode	None	None		None	None		None	C-Max		C-Max	C-Max	None
Act Effct Green (s)	17.0	19.0			9.4		88.0	91.0		91.0	82.5	102.5
Actuated g/C Ratio	0.14	0.16			0.08		0.73	0.76		0.76	0.69	0.85
v/c Ratio	0.97	0.08			0.13		0.16	0.33		0.03	0.66	0.25
Control Delay	99.5	39.6			53.7		5.4	4.2		6.5	16.0	4.3
Queue Delay	0.0	0.0			0.0		0.0	0.0		0.0	0.5	0.0
Total Delay	99.5	39.6			53.7		5.4	4.2		6.5	16.5	4.3
LOS	F	D			D		A	A		A	B	A
Approach Delay		94.7			53.7			4.2			14.4	
Approach LOS		F			D			A			B	

Lanes, Volumes, Timings

300: Hodge Road & Panther Rock Boulevard/Ellen Drive

10/20/2021



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 50th (ft)	~219	14			13		3	50		2	387	43
Queue Length 95th (ft)	#254	33			36		m12	m117		m3	m472	m95
Internal Link Dist (ft)		692			670			1977			355	
Turn Bay Length (ft)	150						150			50		200
Base Capacity (vph)	239	484			233		237	2680		416	2432	1352
Starvation Cap Reductn	0	0			0		0	0		0	369	0
Spillback Cap Reductn	0	0			0		0	0		0	0	0
Storage Cap Reductn	0	0			0		0	0		0	0	0
Reduced v/c Ratio	0.97	0.04			0.07		0.16	0.33		0.03	0.78	0.25

Intersection Summary

Area Type: Other
 Cycle Length: 120
 Actuated Cycle Length: 120
 Offset: 0 (0%), Referenced to phase 2:NBSB and 6:NBSB, Start of Green
 Natural Cycle: 100
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.97
 Intersection Signal Delay: 18.0 Intersection LOS: B
 Intersection Capacity Utilization 66.5% ICU Level of Service C
 Analysis Period (min) 15
 ~ Volume exceeds capacity, queue is theoretically infinite.
 Queue shown is maximum after two cycles.
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 300: Hodge Road & Panther Rock Boulevard/Ellen Drive



Lanes, Volumes, Timings
400: Hodge Road & Spectrum Drive

10/20/2021

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	43	4	12	58	4	172	22	618	19	59	1380	75
Future Volume (vph)	43	4	12	58	4	172	22	618	19	59	1380	75
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0	100		100	300		0
Storage Lanes	1		0	1		0	1		1	2		1
Taper Length (ft)	25			25			100			100		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.97	1.00	1.00
Frt		0.885			0.853				0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	1649	0	1770	1589	0	1770	1863	1583	3433	1863	1583
Flt Permitted	0.333			0.746			0.046			0.950		
Satd. Flow (perm)	620	1649	0	1390	1589	0	86	1863	1583	3433	1863	1583
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		30			30			45			45	
Link Distance (ft)		1036			933			1218			2057	
Travel Time (s)		23.5			21.2			18.5			31.2	
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
Adj. Flow (vph)	48	4	13	64	4	191	24	687	21	66	1533	83
Shared Lane Traffic (%)												
Lane Group Flow (vph)	48	17	0	64	195	0	24	687	21	66	1533	83
Turn Type	D.Pm	NA		D.Pm	NA		D.P+P	NA	Perm	Prot	NA	Perm
Protected Phases		4			8		5	2		1	6	
Permitted Phases	8			4			6		2			6
Detector Phase	8	4		4	8		5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0		7.0	12.0	12.0	7.0	12.0	12.0
Minimum Split (s)	14.0	14.0		14.0	14.0		14.0	19.0	19.0	14.0	19.0	19.0
Total Split (s)	17.0	17.0		17.0	17.0		14.0	89.0	89.0	14.0	89.0	89.0
Total Split (%)	14.2%	14.2%		14.2%	14.2%		11.7%	74.2%	74.2%	11.7%	74.2%	74.2%
Maximum Green (s)	10.0	10.0		10.0	10.0		7.0	82.0	82.0	7.0	82.0	82.0
Yellow Time (s)	5.0	5.0		5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0
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)	-2.0	-2.0		-2.0	-2.0		-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0		5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag							Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?							Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None		None	None		None	C-Max	C-Max	None	C-Max	C-Max
Act Effct Green (s)	12.0	12.0		12.0	12.0		95.0	86.8	86.8	9.0	89.6	89.6
Actuated g/C Ratio	0.10	0.10		0.10	0.10		0.79	0.72	0.72	0.08	0.75	0.75
v/c Ratio	0.77	0.10		0.46	1.23		0.12	0.51	0.02	0.26	1.10	0.07
Control Delay	116.3	50.9		62.4	192.9		3.6	9.5	5.6	61.4	73.5	1.5
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	116.3	50.9		62.4	192.9		3.6	9.5	5.6	61.4	73.5	1.5
LOS	F	D		E	F		A	A	A	E	E	A
Approach Delay		99.2			160.6			9.2			69.4	
Approach LOS		F			F			A			E	

Lanes, Volumes, Timings
400: Hodge Road & Spectrum Drive

10/20/2021

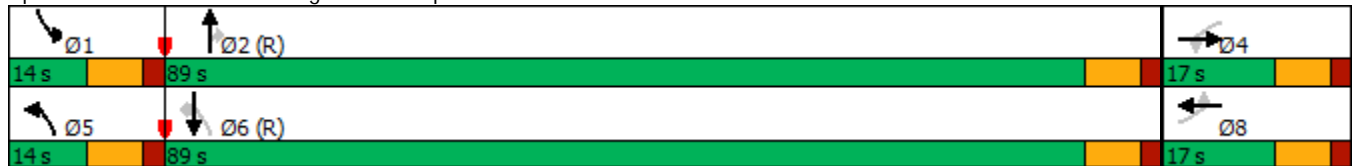


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 50th (ft)	37	12		48	-186		3	227	4	28	-1450	2
Queue Length 95th (ft)	#110	36		95	#338		7	313	12	m43	#1657	m9
Internal Link Dist (ft)		956			853			1138			1977	
Turn Bay Length (ft)							100		100	300		
Base Capacity (vph)	62	164		139	158		194	1347	1145	257	1391	1182
Starvation Cap Reductn	0	0		0	0		0	0	0	0	0	0
Spillback Cap Reductn	0	0		0	0		0	0	0	0	0	0
Storage Cap Reductn	0	0		0	0		0	0	0	0	0	0
Reduced v/c Ratio	0.77	0.10		0.46	1.23		0.12	0.51	0.02	0.26	1.10	0.07

Intersection Summary

Area Type: Other
 Cycle Length: 120
 Actuated Cycle Length: 120
 Offset: 0 (0%), Referenced to phase 2:NBT and 6:NBSB, Start of Green
 Natural Cycle: 150
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 1.23
 Intersection Signal Delay: 62.7
 Intersection LOS: E
 Intersection Capacity Utilization 101.8%
 ICU Level of Service G
 Analysis Period (min) 15
 ~ Volume exceeds capacity, queue is theoretically infinite.
 Queue shown is maximum after two cycles.
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 400: Hodge Road & Spectrum Drive



Lanes, Volumes, Timings
500: Hodge Road & Poole Road

10/20/2021



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	298	298	11	17	181	220	12	54	15	838	74	404
Future Volume (vph)	298	298	11	17	181	220	12	54	15	838	74	404
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	225		0	200		200	50		0	450		800
Storage Lanes	1		0	1		1	1		0	1		1
Taper Length (ft)	100			100			100			100		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.995				0.850		0.967				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	1853	0	1770	1863	1583	1770	1801	0	1770	1863	1583
Flt Permitted	0.285			0.555			0.704			0.707		
Satd. Flow (perm)	531	1853	0	1034	1863	1583	1311	1801	0	1317	1863	1583
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		45			45			45				45
Link Distance (ft)		1743			1176			1488				751
Travel Time (s)		26.4			17.8			22.5				11.4
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
Adj. Flow (vph)	331	331	12	19	201	244	13	60	17	931	82	449
Shared Lane Traffic (%)												
Lane Group Flow (vph)	331	343	0	19	201	244	13	77	0	931	82	449
Turn Type	pm+pt	NA		Perm	NA	Perm	Perm	NA		Perm	NA	pm+ov
Protected Phases	5	2			6			8			4	5
Permitted Phases	2			6		6	8			4		4
Detector Phase	5	2		6	6	6	8	8		4	4	5
Switch Phase												
Minimum Initial (s)	7.0	12.0		12.0	12.0	12.0	7.0	7.0		7.0	7.0	7.0
Minimum Split (s)	14.4	19.0		19.0	19.0	19.0	14.0	14.0		14.0	14.0	14.4
Total Split (s)	21.0	48.0		27.0	27.0	27.0	92.0	92.0		92.0	92.0	21.0
Total Split (%)	15.0%	34.3%		19.3%	19.3%	19.3%	65.7%	65.7%		65.7%	65.7%	15.0%
Maximum Green (s)	14.0	41.0		20.0	20.0	20.0	85.0	85.0		85.0	85.0	14.0
Yellow Time (s)	5.0	5.0		5.0	5.0	5.0	5.0	5.0		5.0	5.0	5.0
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)	-2.0	-2.0		-2.0	-2.0	-2.0	-2.0	-2.0		-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0		5.0	5.0	5.0	5.0	5.0		5.0	5.0	5.0
Lead/Lag	Lead			Lag	Lag	Lag						Lead
Lead-Lag Optimize?	Yes			Yes	Yes	Yes						Yes
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0
Recall Mode	None	None		None	None	None	Max	Max		Max	Max	None
Act Effct Green (s)	43.0	43.0		22.0	22.0	22.0	87.0	87.0		87.0	87.0	108.0
Actuated g/C Ratio	0.31	0.31		0.16	0.16	0.16	0.62	0.62		0.62	0.62	0.77
v/c Ratio	1.09	0.60		0.12	0.69	0.98	0.02	0.07		1.14	0.07	0.37
Control Delay	117.9	46.6		52.9	69.0	111.4	10.2	10.7		103.7	10.7	6.1
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Delay	117.9	46.6		52.9	69.0	111.4	10.2	10.7		103.7	10.7	6.1
LOS	F	D		D	E	F	B	B		F	B	A
Approach Delay		81.6			90.6			10.6			68.5	
Approach LOS		F			F			B			E	

Lanes, Volumes, Timings
500: Hodge Road & Poole Road

10/20/2021



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 50th (ft)	~287	266		15	175	224	4	26		-986	28	113
Queue Length 95th (ft)	#434	372		41	264	#402	13	48		#1243	50	158
Internal Link Dist (ft)		1663			1096			1408			671	
Turn Bay Length (ft)	225			200		200	50			450		800
Base Capacity (vph)	304	569		162	292	248	814	1119		818	1157	1221
Starvation Cap Reductn	0	0		0	0	0	0	0		0	0	0
Spillback Cap Reductn	0	0		0	0	0	0	0		0	0	0
Storage Cap Reductn	0	0		0	0	0	0	0		0	0	0
Reduced v/c Ratio	1.09	0.60		0.12	0.69	0.98	0.02	0.07		1.14	0.07	0.37

Intersection Summary

Area Type:	Other
Cycle Length:	140
Actuated Cycle Length:	140
Natural Cycle:	130
Control Type:	Actuated-Uncoordinated
Maximum v/c Ratio:	1.14
Intersection Signal Delay:	73.6
Intersection LOS:	E
Intersection Capacity Utilization:	92.1%
ICU Level of Service:	F
Analysis Period (min):	15
~ Volume exceeds capacity, queue is theoretically infinite. Queue shown is maximum after two cycles.	
# 95th percentile volume exceeds capacity, queue may be longer. Queue shown is maximum after two cycles.	

Splits and Phases: 500: Hodge Road & Poole Road



HCM 6th TWSC
600: Hodge Road & Site Access

10/20/2021

Intersection						
Int Delay, s/veh	11.5					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	T		T		T	
Traffic Vol, veh/h	60	4	4	572	1315	95
Future Vol, veh/h	60	4	4	572	1315	95
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	67	4	4	636	1461	106

Major/Minor	Minor2	Major1	Major2			
Conflicting Flow All	2158	1514	1567	0	-	0
Stage 1	1514	-	-	-	-	-
Stage 2	644	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	~ 52	147	421	-	-	-
Stage 1	201	-	-	-	-	-
Stage 2	523	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	~ 51	147	421	-	-	-
Mov Cap-2 Maneuver	~ 51	-	-	-	-	-
Stage 1	198	-	-	-	-	-
Stage 2	523	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s\$	366.4	0.1	0
HCM LOS	F		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	421	-	53	-	-
HCM Lane V/C Ratio	0.011	-	1.342	-	-
HCM Control Delay (s)	13.6	0\$	366.4	-	-
HCM Lane LOS	B	A	F	-	-
HCM 95th %tile Q(veh)	0	-	6.4	-	-

Notes
 -: Volume exceeds capacity \$: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon

HCM 6th TWSC
700: Poole Road & Site Access

10/20/2021

Intersection						
Int Delay, s/veh	0.2					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↔	↔		↔	
Traffic Vol, veh/h	5	606	591	5	4	4
Future Vol, veh/h	5	606	591	5	4	4
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	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	6	673	657	6	4	4

Major/Minor	Major1	Major2	Minor2		
Conflicting Flow All	663	0	-	0	1345 660
Stage 1	-	-	-	-	660 -
Stage 2	-	-	-	-	685 -
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	926	-	-	-	167 463
Stage 1	-	-	-	-	514 -
Stage 2	-	-	-	-	500 -
Platoon blocked, %		-	-	-	
Mov Cap-1 Maneuver	926	-	-	-	165 463
Mov Cap-2 Maneuver	-	-	-	-	165 -
Stage 1	-	-	-	-	509 -
Stage 2	-	-	-	-	500 -

Approach	EB	WB	SB
HCM Control Delay, s	0.1	0	20.4
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	926	-	-	-	243
HCM Lane V/C Ratio	0.006	-	-	-	0.037
HCM Control Delay (s)	8.9	0	-	-	20.4
HCM Lane LOS	A	A	-	-	C
HCM 95th %tile Q(veh)	0	-	-	-	0.1

*2023 Future Build + Improvement
Conditions*

Lanes, Volumes, Timings

100: Hodge Road & I-87 SB Ramp/Old Faison Road

10/20/2021



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↖	↗	↖	↗		↖	↗	↗	↖	↗	↖
Traffic Volume (vph)	109	30	362	139	294	73	574	441	110	17	244	268
Future Volume (vph)	109	30	362	139	294	73	574	441	110	17	244	268
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	125		0	0		200	175		225
Storage Lanes	0		1	1		0	1		1	1		1
Taper Length (ft)	25			100			100			100		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850		0.970				0.850			0.850
Flt Protected		0.962		0.950			0.950			0.950		
Satd. Flow (prot)	0	1792	1583	1770	1807	0	1770	1863	1583	1770	1863	1583
Flt Permitted		0.492		0.513			0.193			0.485		
Satd. Flow (perm)	0	916	1583	956	1807	0	360	1863	1583	903	1863	1583
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		30		45			45			45		45
Link Distance (ft)		621		738			1127			919		
Travel Time (s)		14.1		11.2			17.1			13.9		
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
Adj. Flow (vph)	121	33	402	154	327	81	638	490	122	19	271	298
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	154	402	154	408	0	638	490	122	19	271	298
Turn Type	pm+pt	NA	pm+ov	pm+pt	NA		pm+pt	NA	pm+ov	pm+pt	NA	Free
Protected Phases	7	4	5	3	8		5	2	3	1	6	
Permitted Phases	4		4	8			2		2	6		Free
Detector Phase	7	4	5	3	8		5	2	3	1	6	
Switch Phase												
Minimum Initial (s)	7.0	7.0	7.0	7.0	7.0		7.0	12.0	7.0	7.0	12.0	
Minimum Split (s)	14.0	14.0	14.0	14.0	14.0		14.0	19.0	14.0	14.0	19.0	
Total Split (s)	14.0	37.0	43.0	14.0	37.0		43.0	55.0	14.0	14.0	26.0	
Total Split (%)	11.7%	30.8%	35.8%	11.7%	30.8%		35.8%	45.8%	11.7%	11.7%	21.7%	
Maximum Green (s)	7.0	30.0	36.0	7.0	30.0		36.0	48.0	7.0	7.0	19.0	
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0		5.0	5.0	5.0	5.0	5.0	
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)		-2.0	-2.0	-2.0	-2.0		-2.0	-2.0	-2.0	-2.0	-2.0	
Total Lost Time (s)		5.0	5.0	5.0	5.0		5.0	5.0	5.0	5.0	5.0	
Lead/Lag	Lead	Lag	Lead	Lead	Lag		Lead	Lag	Lead	Lead	Lag	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes		Yes	Yes	Yes	Yes	Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Recall Mode	None	None	None	None	None		None	C-Max	None	None	C-Max	
Act Effct Green (s)		32.0	75.0	46.0	46.0		64.0	58.4	72.4	30.0	21.0	120.0
Actuated g/C Ratio		0.27	0.62	0.38	0.38		0.53	0.49	0.60	0.25	0.18	1.00
v/c Ratio		0.63	0.41	0.36	0.59		1.00	0.54	0.13	0.07	0.83	0.19
Control Delay		52.0	12.8	27.8	33.7		66.4	28.3	13.1	18.8	69.7	0.3
Queue Delay		0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay		52.0	12.8	27.8	33.7		66.4	28.3	13.1	18.8	69.7	0.3
LOS		D	B	C	C		E	C	B	B	E	A
Approach Delay		23.7			32.1		46.3				32.9	
Approach LOS		C			C		D				C	

Lanes, Volumes, Timings
 100: Hodge Road & I-87 SB Ramp/Old Faison Road

10/20/2021

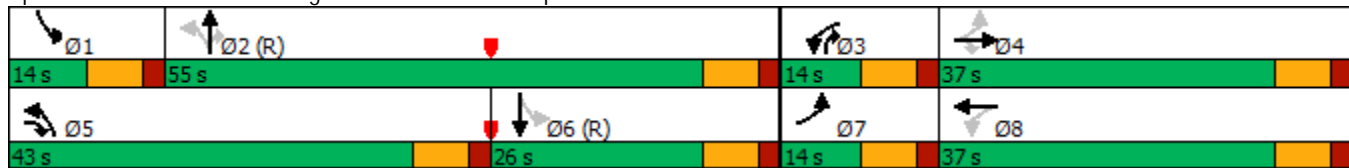


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 50th (ft)		105	146	80	249		425	225	31	7	205	0
Queue Length 95th (ft)		184	213	131	355		#664	423	m72	19	#345	0
Internal Link Dist (ft)		541			658			1047			839	
Turn Bay Length (ft)				125					200	175		225
Base Capacity (vph)		244	989	427	692		638	906	954	290	326	1583
Starvation Cap Reductn		0	0	0	0		0	0	0	0	0	0
Spillback Cap Reductn		0	0	0	0		0	0	0	0	0	0
Storage Cap Reductn		0	0	0	0		0	0	0	0	0	0
Reduced v/c Ratio		0.63	0.41	0.36	0.59		1.00	0.54	0.13	0.07	0.83	0.19

Intersection Summary

Area Type: Other
 Cycle Length: 120
 Actuated Cycle Length: 120
 Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
 Natural Cycle: 90
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 1.00
 Intersection Signal Delay: 36.7 Intersection LOS: D
 Intersection Capacity Utilization 88.8% ICU Level of Service E
 Analysis Period (min) 15
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 100: Hodge Road & I-87 SB Ramp/Old Faison Road



Lanes, Volumes, Timings
200: Hodge Road & I-87 NB Ramp

10/20/2021



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	141	181	805	982	502	241
Future Volume (vph)	141	181	805	982	502	241
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	150	100			125
Storage Lanes	2	1	1			1
Taper Length (ft)	25		100			
Lane Util. Factor	0.97	0.88	1.00	1.00	1.00	1.00
Frt		0.850				0.850
Flt Protected	0.950		0.950			
Satd. Flow (prot)	3433	2787	1770	1863	1863	1583
Flt Permitted	0.950		0.122			
Satd. Flow (perm)	3433	2787	227	1863	1863	1583
Right Turn on Red		No				No
Satd. Flow (RTOR)						
Link Speed (mph)	30			45	45	
Link Distance (ft)	621			302	1127	
Travel Time (s)	14.1			4.6	17.1	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	157	201	894	1091	558	268
Shared Lane Traffic (%)						
Lane Group Flow (vph)	157	201	894	1091	558	268
Turn Type	Prot	pm+ov	D.P+P	NA	NA	Free
Protected Phases	4	5	5	2	6	
Permitted Phases		4	6			Free
Detector Phase	4	5	5	2	6	
Switch Phase						
Minimum Initial (s)	7.0	7.0	7.0	12.0	12.0	
Minimum Split (s)	14.6	14.0	14.0	19.0	19.0	
Total Split (s)	14.6	59.0	59.0	105.4	46.4	
Total Split (%)	12.2%	49.2%	49.2%	87.8%	38.7%	
Maximum Green (s)	7.6	52.0	52.0	98.4	39.4	
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	
Lead/Lag		Lead	Lead		Lag	
Lead-Lag Optimize?		Yes	Yes		Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	
Recall Mode	None	None	None	C-Max	C-Max	
Act Effct Green (s)	9.6	68.6	95.4	100.4	41.4	120.0
Actuated g/C Ratio	0.08	0.57	0.80	0.84	0.34	1.00
v/c Ratio	0.57	0.13	1.02	0.70	0.87	0.17
Control Delay	62.0	12.1	56.8	8.0	41.3	0.2
Queue Delay	0.0	0.0	0.0	1.3	0.0	0.0
Total Delay	62.0	12.1	56.8	9.3	41.3	0.2
LOS	E	B	E	A	D	A
Approach Delay	34.0			30.7	28.0	
Approach LOS	C			C	C	

Lanes, Volumes, Timings
 200: Hodge Road & I-87 NB Ramp

10/20/2021

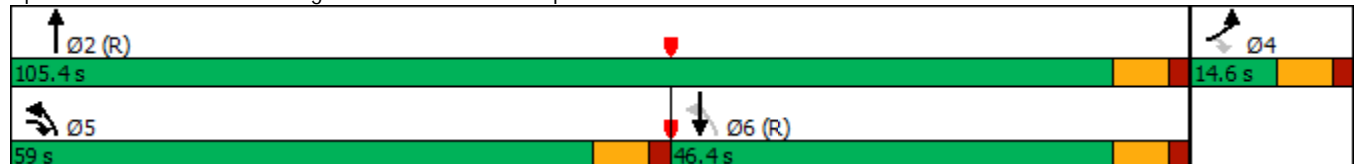


Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Queue Length 50th (ft)	61	38	~696	593	429	0
Queue Length 95th (ft)	97	59	m#872	m64	m#596	m0
Internal Link Dist (ft)	541			222	1047	
Turn Bay Length (ft)		150	100			125
Base Capacity (vph)	274	1593	874	1558	642	1583
Starvation Cap Reductn	0	0	0	256	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.57	0.13	1.02	0.84	0.87	0.17

Intersection Summary

Area Type: Other
 Cycle Length: 120
 Actuated Cycle Length: 120
 Offset: 47 (39%), Referenced to phase 2:NBT and 6:NBSB, Start of Green
 Natural Cycle: 100
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 1.02
 Intersection Signal Delay: 30.4
 Intersection LOS: C
 Intersection Capacity Utilization 89.4%
 ICU Level of Service E
 Analysis Period (min) 15
 ~ Volume exceeds capacity, queue is theoretically infinite.
 Queue shown is maximum after two cycles.
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 200: Hodge Road & I-87 NB Ramp



Lanes, Volumes, Timings

300: Hodge Road & Panther Rock Boulevard/Ellen Drive

10/20/2021



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	372	0	26	3	0	8	15	1407	3	7	575	90
Future Volume (vph)	372	0	26	3	0	8	15	1407	3	7	575	90
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	150		0	0		0	150		0	50		200
Storage Lanes	1		0	0		0	1		0	1		1
Taper Length (ft)	100			25			100			100		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	1.00
Frt		0.850			0.899							0.850
Flt Protected	0.950				0.988		0.950			0.950		
Satd. Flow (prot)	1770	1583	0	0	1655	0	1770	3539	0	1770	3539	1583
Flt Permitted	0.800				0.905		0.362			0.091		
Satd. Flow (perm)	1490	1583	0	0	1516	0	674	3539	0	170	3539	1583
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		25			25			45			45	
Link Distance (ft)		772			750			2057			453	
Travel Time (s)		21.1			20.5			31.2			6.9	
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
Adj. Flow (vph)	413	0	29	3	0	9	17	1563	3	8	639	100
Shared Lane Traffic (%)												
Lane Group Flow (vph)	413	29	0	0	12	0	17	1566	0	8	639	100
Turn Type	D.P+P	NA		Perm	NA		D.P+P	NA		D.Pm	NA	pm+ov
Protected Phases	7	4			8		5	2			6	7
Permitted Phases	8			8			6			2		6
Detector Phase	7	4		8	8		5	2		2	6	7
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0		7.0	12.0		12.0	12.0	7.0
Minimum Split (s)	14.0	22.5		22.5	22.5		14.0	22.5		22.5	22.5	14.0
Total Split (s)	30.0	52.5		22.5	22.5		14.0	67.5		67.5	53.5	30.0
Total Split (%)	25.0%	43.8%		18.8%	18.8%		11.7%	56.3%		56.3%	44.6%	25.0%
Maximum Green (s)	23.0	45.5		15.5	15.5		7.0	60.5		60.5	46.5	23.0
Yellow Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	5.0
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0			-2.0		-2.0	-2.0		-2.0	-2.0	0.0
Total Lost Time (s)	5.0	5.0			5.0		5.0	5.0		5.0	5.0	7.0
Lead/Lag	Lead			Lag	Lag		Lead				Lag	Lead
Lead-Lag Optimize?	Yes			Yes	Yes		Yes				Yes	Yes
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
Recall Mode	None	None		None	None		None	C-Max		C-Max	C-Max	None
Act Effct Green (s)	28.8	30.8			9.2		77.2	79.2		79.2	73.6	105.8
Actuated g/C Ratio	0.24	0.26			0.08		0.64	0.66		0.66	0.61	0.88
v/c Ratio	0.99	0.07			0.10		0.03	0.67		0.07	0.29	0.07
Control Delay	85.8	31.1			53.5		12.7	20.5		19.7	24.0	7.4
Queue Delay	0.0	0.0			0.0		0.0	5.5		0.0	0.0	0.0
Total Delay	85.8	31.1			53.5		12.7	26.0		19.7	24.0	7.4
LOS	F	C			D		B	C		B	C	A
Approach Delay		82.2			53.5			25.9			21.7	
Approach LOS		F			D			C			C	

Lanes, Volumes, Timings

300: Hodge Road & Panther Rock Boulevard/Ellen Drive

10/20/2021



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 50th (ft)	~369	18			9		5	498		3	201	0
Queue Length 95th (ft)	#441	38			29		m7	m521		m9	m300	m59
Internal Link Dist (ft)		692			670			1977			373	
Turn Bay Length (ft)	150						150			50		200
Base Capacity (vph)	416	626			221		515	2334		112	2169	1395
Starvation Cap Reductn	0	0			0		0	0		0	0	0
Spillback Cap Reductn	0	0			0		0	703		0	0	0
Storage Cap Reductn	0	0			0		0	0		0	0	0
Reduced v/c Ratio	0.99	0.05			0.05		0.03	0.96		0.07	0.29	0.07

Intersection Summary























Area Type: Other
 Cycle Length: 120
 Actuated Cycle Length: 120
 Offset: 0 (0%), Referenced to phase 2:NBSB and 6:NBSB, Start of Green
 Natural Cycle: 80
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.99
 Intersection Signal Delay: 33.8 Intersection LOS: C
 Intersection Capacity Utilization 74.6% ICU Level of Service D
 Analysis Period (min) 15
 ~ Volume exceeds capacity, queue is theoretically infinite.
 Queue shown is maximum after two cycles.
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 300: Hodge Road & Panther Rock Boulevard/Ellen Drive



Lanes, Volumes, Timings
400: Hodge Road & Spectrum Drive

10/20/2021

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	70	0	20	15	0	48	6	1306	58	169	412	21
Future Volume (vph)	70	0	20	15	0	48	6	1306	58	169	412	21
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0	100		100	300		0
Storage Lanes	1		0	1		0	1		1	2		1
Taper Length (ft)	25			25			100			100		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.97	1.00	1.00
Frt		0.850			0.850				0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	1583	0	1770	1583	0	1770	1863	1583	3433	1863	1583
Flt Permitted	0.722			0.743			0.474			0.950		
Satd. Flow (perm)	1345	1583	0	1384	1583	0	883	1863	1583	3433	1863	1583
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		30			30			45			45	
Link Distance (ft)		1036			933			1206			2057	
Travel Time (s)		23.5			21.2			18.3			31.2	
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
Adj. Flow (vph)	78	0	22	17	0	53	7	1451	64	188	458	23
Shared Lane Traffic (%)												
Lane Group Flow (vph)	78	22	0	17	53	0	7	1451	64	188	458	23
Turn Type	D.Pm	NA		D.Pm	NA		D.P+P	NA	Perm	Prot	NA	Perm
Protected Phases		4			8		5	2		1	6	
Permitted Phases	8			4			6		2			6
Detector Phase	8	4		4	8		5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0		7.0	12.0	12.0	7.0	12.0	12.0
Minimum Split (s)	14.0	14.0		14.0	14.0		14.0	19.0	19.0	14.0	19.0	19.0
Total Split (s)	17.0	17.0		17.0	17.0		14.0	88.0	88.0	15.0	89.0	89.0
Total Split (%)	14.2%	14.2%		14.2%	14.2%		11.7%	73.3%	73.3%	12.5%	74.2%	74.2%
Maximum Green (s)	10.0	10.0		10.0	10.0		7.0	81.0	81.0	8.0	82.0	82.0
Yellow Time (s)	5.0	5.0		5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0
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)	-2.0	-2.0		-2.0	-2.0		-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0		5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag							Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?							Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None		None	None		None	C-Max	C-Max	None	C-Max	C-Max
Act Effct Green (s)	11.4	11.4		11.4	11.4		100.4	86.3	86.3	10.1	99.6	99.6
Actuated g/C Ratio	0.10	0.10		0.10	0.10		0.84	0.72	0.72	0.08	0.83	0.83
v/c Ratio	0.61	0.15		0.13	0.35		0.01	1.08	0.06	0.65	0.30	0.02
Control Delay	72.8	51.9		51.9	57.5		2.2	70.4	6.0	89.6	3.8	1.0
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	72.8	51.9		51.9	57.5		2.2	70.4	6.0	89.6	3.8	1.0
LOS	E	D		D	E		A	E	A	F	A	A
Approach Delay		68.2			56.1			67.4			27.8	
Approach LOS		E			E			E			C	

Lanes, Volumes, Timings
400: Hodge Road & Spectrum Drive

10/20/2021



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 50th (ft)	59	16		12	39		1	~1300	14	79	56	1
Queue Length 95th (ft)	#120	43		36	81		3	#1565	28	120	103	2
Internal Link Dist (ft)		956			853			1126			1977	
Turn Bay Length (ft)							100		100	300		
Base Capacity (vph)	134	158		138	158		805	1339	1137	289	1546	1313
Starvation Cap Reductn	0	0		0	0		0	0	0	0	0	0
Spillback Cap Reductn	0	0		0	0		0	0	0	0	0	0
Storage Cap Reductn	0	0		0	0		0	0	0	0	0	0
Reduced v/c Ratio	0.58	0.14		0.12	0.34		0.01	1.08	0.06	0.65	0.30	0.02

Intersection Summary

Area Type: Other
 Cycle Length: 120
 Actuated Cycle Length: 120
 Offset: 0 (0%), Referenced to phase 2:NBT and 6:NBSB, Start of Green
 Natural Cycle: 140
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 1.08
 Intersection Signal Delay: 55.9
 Intersection LOS: E
 Intersection Capacity Utilization 91.2%
 ICU Level of Service F
 Analysis Period (min) 15
 ~ Volume exceeds capacity, queue is theoretically infinite.
 Queue shown is maximum after two cycles.
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

Splits and Phases: 400: Hodge Road & Spectrum Drive



Lanes, Volumes, Timings
500: Hodge Road & Poole Road

10/20/2021

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	378	114	7	9	465	796	22	63	12	172	33	215
Future Volume (vph)	378	114	7	9	465	796	22	63	12	172	33	215
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	225		0	200		200	50		0	450		800
Storage Lanes	1		0	1		1	1		0	1		1
Taper Length (ft)	100			100			100			100		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.991				0.850		0.977				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	1846	0	1770	1863	1583	1770	1820	0	1770	1863	1583
Flt Permitted	0.349			0.671			0.733			0.688		
Satd. Flow (perm)	650	1846	0	1250	1863	1583	1365	1820	0	1282	1863	1583
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		45			45			45				45
Link Distance (ft)		1753			1176			1488				751
Travel Time (s)		26.6			17.8			22.5				11.4
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
Adj. Flow (vph)	420	127	8	10	517	884	24	70	13	191	37	239
Shared Lane Traffic (%)												
Lane Group Flow (vph)	420	135	0	10	517	884	24	83	0	191	37	239
Turn Type	pm+pt	NA		Perm	NA	Perm	Perm	NA		Perm	NA	pm+ov
Protected Phases	5	2			6			8			4	5
Permitted Phases	2			6		6	8			4		4
Detector Phase	5	2		6	6	6	8	8		4	4	5
Switch Phase												
Minimum Initial (s)	7.0	12.0		12.0	12.0	12.0	7.0	7.0		7.0	7.0	7.0
Minimum Split (s)	14.4	19.0		19.0	19.0	19.0	14.0	14.0		14.0	14.0	14.4
Total Split (s)	26.0	120.0		94.0	94.0	94.0	20.0	20.0		20.0	20.0	26.0
Total Split (%)	18.6%	85.7%		67.1%	67.1%	67.1%	14.3%	14.3%		14.3%	14.3%	18.6%
Maximum Green (s)	19.0	113.0		87.0	87.0	87.0	13.0	13.0		13.0	13.0	19.0
Yellow Time (s)	5.0	5.0		5.0	5.0	5.0	5.0	5.0		5.0	5.0	5.0
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)	-2.0	-2.0		-2.0	-2.0	-2.0	-2.0	-2.0		-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0		5.0	5.0	5.0	5.0	5.0		5.0	5.0	5.0
Lead/Lag	Lead			Lag	Lag	Lag						Lead
Lead-Lag Optimize?	Yes			Yes	Yes	Yes						Yes
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0
Recall Mode	None	None		None	None	None	Max	Max		Max	Max	None
Act Effct Green (s)	100.4	100.4		74.0	74.0	74.0	15.2	15.2		15.2	15.2	41.7
Actuated g/C Ratio	0.80	0.80		0.59	0.59	0.59	0.12	0.12		0.12	0.12	0.33
v/c Ratio	0.59	0.09		0.01	0.47	0.95	0.15	0.38		1.23	0.16	0.46
Control Delay	6.9	2.7		9.7	15.8	43.6	57.7	60.9		194.8	57.1	40.0
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Delay	6.9	2.7		9.7	15.8	43.6	57.7	60.9		194.8	57.1	40.0
LOS	A	A		A	B	D	E	E		F	E	D
Approach Delay		5.9			33.2			60.2			104.7	
Approach LOS		A			C			E			F	

Lanes, Volumes, Timings
500: Hodge Road & Poole Road

10/20/2021

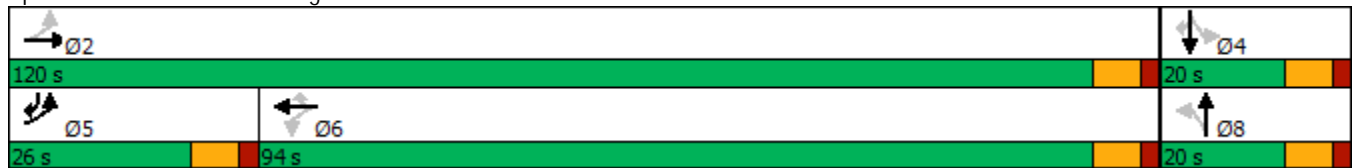


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 50th (ft)	73	19		3	224	626	19	67		-210	29	166
Queue Length 95th (ft)	101	31		10	302	#927	51	128		#390	68	270
Internal Link Dist (ft)		1673			1096			1408			671	
Turn Bay Length (ft)	225			200		200	50			450		800
Base Capacity (vph)	708	1661		898	1339	1138	165	220		155	225	524
Starvation Cap Reductn	0	0		0	0	0	0	0		0	0	0
Spillback Cap Reductn	0	0		0	0	0	0	0		0	0	0
Storage Cap Reductn	0	0		0	0	0	0	0		0	0	0
Reduced v/c Ratio	0.59	0.08		0.01	0.39	0.78	0.15	0.38		1.23	0.16	0.46

Intersection Summary

Area Type:	Other
Cycle Length:	140
Actuated Cycle Length:	125.8
Natural Cycle:	90
Control Type:	Actuated-Uncoordinated
Maximum v/c Ratio:	1.23
Intersection Signal Delay:	41.5
Intersection LOS:	D
Intersection Capacity Utilization	88.6%
ICU Level of Service	E
Analysis Period (min)	15
~ Volume exceeds capacity, queue is theoretically infinite. Queue shown is maximum after two cycles.	
# 95th percentile volume exceeds capacity, queue may be longer. Queue shown is maximum after two cycles.	

Splits and Phases: 500: Hodge Road & Poole Road



HCM 6th TWSC
600: Hodge Road & Site Access

10/20/2021

Intersection						
Int Delay, s/veh	14.5					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↘↙		↘	↑	↑	↘
Traffic Vol, veh/h	92	4	4	1235	419	32
Future Vol, veh/h	92	4	4	1235	419	32
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	100	-	-	100
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	102	4	4	1372	466	36

Major/Minor	Minor2	Major1	Major2			
Conflicting Flow All	1846	466	502	0	-	0
Stage 1	466	-	-	-	-	-
Stage 2	1380	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	~ 82	597	1062	-	-	-
Stage 1	632	-	-	-	-	-
Stage 2	233	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	~ 82	597	1062	-	-	-
Mov Cap-2 Maneuver	~ 82	-	-	-	-	-
Stage 1	629	-	-	-	-	-
Stage 2	233	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	269.6	0	0
HCM LOS	F		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1062	-	85	-	-
HCM Lane V/C Ratio	0.004	-	1.255	-	-
HCM Control Delay (s)	8.4	-	269.6	-	-
HCM Lane LOS	A	-	F	-	-
HCM 95th %tile Q(veh)	0	-	7.8	-	-

Notes
 -: Volume exceeds capacity \$: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon

HCM 6th TWSC
700: Poole Road & Site Access

10/20/2021

Intersection						
Int Delay, s/veh	0.2					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	4	498	699	4	5	5
Future Vol, veh/h	4	498	699	4	5	5
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	100	-	-	100	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	4	553	777	4	6	6

Major/Minor	Major1	Major2	Minor2		
Conflicting Flow All	781	0	-	0	1338 777
Stage 1	-	-	-	-	777 -
Stage 2	-	-	-	-	561 -
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	837	-	-	-	169 397
Stage 1	-	-	-	-	453 -
Stage 2	-	-	-	-	571 -
Platoon blocked, %		-	-	-	
Mov Cap-1 Maneuver	837	-	-	-	168 397
Mov Cap-2 Maneuver	-	-	-	-	168 -
Stage 1	-	-	-	-	451 -
Stage 2	-	-	-	-	571 -

Approach	EB	WB	SB
HCM Control Delay, s	0.1	0	21
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	837	-	-	-	236
HCM Lane V/C Ratio	0.005	-	-	-	0.047
HCM Control Delay (s)	9.3	-	-	-	21
HCM Lane LOS	A	-	-	-	C
HCM 95th %tile Q(veh)	0	-	-	-	0.1

Lanes, Volumes, Timings

100: Hodge Road & I-87 SB Ramp/Old Faison Road

10/20/2021



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↖	↗	↖	↗		↖	↗	↗	↖	↗	↖
Traffic Volume (vph)	51	94	766	74	93	75	313	598	380	45	317	102
Future Volume (vph)	51	94	766	74	93	75	313	598	380	45	317	102
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	125		0	0		200	175		225
Storage Lanes	0		1	1		0	1		1	1		1
Taper Length (ft)	25			100			100			100		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850		0.933				0.850			0.850
Flt Protected		0.983		0.950			0.950			0.950		
Satd. Flow (prot)	0	1831	1583	1770	1738	0	1770	1863	1583	1770	1863	1583
Flt Permitted		0.807		0.336			0.161			0.413		
Satd. Flow (perm)	0	1503	1583	626	1738	0	300	1863	1583	769	1863	1583
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		30		45			45			45		45
Link Distance (ft)		621		738			1127			919		
Travel Time (s)		14.1		11.2			17.1			13.9		
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
Adj. Flow (vph)	57	104	851	82	103	83	348	664	422	50	352	113
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	161	851	82	186	0	348	664	422	50	352	113
Turn Type	pm+pt	NA	pm+ov	pm+pt	NA		pm+pt	NA	pm+ov	pm+pt	NA	Free
Protected Phases	7	4	5	3	8		5	2	3	1	6	
Permitted Phases	4		4	8			2		2	6		Free
Detector Phase	7	4	5	3	8		5	2	3	1	6	
Switch Phase												
Minimum Initial (s)	7.0	7.0	7.0	7.0	7.0		7.0	12.0	7.0	7.0	12.0	
Minimum Split (s)	14.0	14.0	14.0	14.0	14.0		14.0	19.0	14.0	14.0	19.0	
Total Split (s)	14.0	21.0	54.0	14.0	21.0		54.0	71.0	14.0	14.0	31.0	
Total Split (%)	11.7%	17.5%	45.0%	11.7%	17.5%		45.0%	59.2%	11.7%	11.7%	25.8%	
Maximum Green (s)	7.0	14.0	47.0	7.0	14.0		47.0	64.0	7.0	7.0	24.0	
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0		5.0	5.0	5.0	5.0	5.0	
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)		-2.0	-2.0	-2.0	-2.0		-2.0	-2.0	-2.0	-2.0	-2.0	
Total Lost Time (s)		5.0	5.0	5.0	5.0		5.0	5.0	5.0	5.0	5.0	
Lead/Lag	Lead	Lag	Lead	Lead	Lag		Lead	Lag	Lead	Lead	Lag	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes		Yes	Yes	Yes	Yes	Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Recall Mode	None	None	None	None	None		None	C-Max	None	None	C-Max	
Act Effct Green (s)		16.0	69.0	30.0	30.0		80.0	68.8	82.8	36.0	27.0	120.0
Actuated g/C Ratio		0.13	0.58	0.25	0.25		0.67	0.57	0.69	0.30	0.22	1.00
v/c Ratio		0.81	0.94	0.34	0.43		0.44	0.62	0.39	0.16	0.84	0.07
Control Delay		79.4	42.1	39.6	41.5		29.2	25.3	8.1	17.4	63.5	0.1
Queue Delay		0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay		79.4	42.1	39.6	41.5		29.2	25.3	8.1	17.4	63.5	0.1
LOS		E	D	D	D		C	C	A	B	E	A
Approach Delay		48.1			40.9			21.2			45.1	
Approach LOS		D			D			C			D	

Lanes, Volumes, Timings
 100: Hodge Road & I-87 SB Ramp/Old Faison Road

10/20/2021

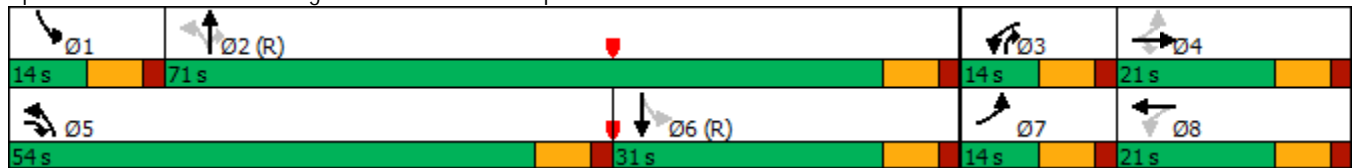


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 50th (ft)		123	563	50	122		194	265	90	14	265	0
Queue Length 95th (ft)		#238	#873	94	193		m235	m329	m125	30	#431	0
Internal Link Dist (ft)		541			658			1047			839	
Turn Bay Length (ft)				125					200	175		225
Base Capacity (vph)		200	923	242	434		800	1068	1092	306	419	1583
Starvation Cap Reductn		0	0	0	0		0	0	0	0	0	0
Spillback Cap Reductn		0	0	0	0		0	0	0	0	0	0
Storage Cap Reductn		0	0	0	0		0	0	0	0	0	0
Reduced v/c Ratio		0.81	0.92	0.34	0.43		0.43	0.62	0.39	0.16	0.84	0.07

Intersection Summary

Area Type: Other
 Cycle Length: 120
 Actuated Cycle Length: 120
 Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
 Natural Cycle: 90
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.94
 Intersection Signal Delay: 35.1
 Intersection LOS: D
 Intersection Capacity Utilization 86.1%
 ICU Level of Service E
 Analysis Period (min) 15
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 100: Hodge Road & I-87 SB Ramp/Old Faison Road



Lanes, Volumes, Timings
200: Hodge Road & I-87 NB Ramp

10/20/2021



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	699	815	423	591	1075	80
Future Volume (vph)	699	815	423	591	1075	80
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	150	100			125
Storage Lanes	2	1	1			1
Taper Length (ft)	25		100			
Lane Util. Factor	0.97	0.88	1.00	1.00	1.00	1.00
Frt		0.850				0.850
Flt Protected	0.950		0.950			
Satd. Flow (prot)	3433	2787	1770	1863	1863	1583
Flt Permitted	0.950		0.065			
Satd. Flow (perm)	3433	2787	121	1863	1863	1583
Right Turn on Red		No				No
Satd. Flow (RTOR)						
Link Speed (mph)	30			45	45	
Link Distance (ft)	621			321	1127	
Travel Time (s)	14.1			4.9	17.1	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	777	906	470	657	1194	89
Shared Lane Traffic (%)						
Lane Group Flow (vph)	777	906	470	657	1194	89
Turn Type	Prot	pm+ov	D.P+P	NA	NA	Free
Protected Phases	4	5	5	2	6	
Permitted Phases		4	6			Free
Detector Phase	4	5	5	2	6	
Switch Phase						
Minimum Initial (s)	7.0	7.0	7.0	12.0	12.0	
Minimum Split (s)	14.6	14.0	14.0	19.0	19.0	
Total Split (s)	28.0	25.0	25.0	92.0	67.0	
Total Split (%)	23.3%	20.8%	20.8%	76.7%	55.8%	
Maximum Green (s)	21.0	18.0	18.0	85.0	60.0	
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	
Lead/Lag		Lead	Lead		Lag	
Lead-Lag Optimize?		Yes	Yes		Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	
Recall Mode	None	None	None	C-Max	C-Max	
Act Effct Green (s)	23.0	48.0	82.0	87.0	62.0	120.0
Actuated g/C Ratio	0.19	0.40	0.68	0.72	0.52	1.00
v/c Ratio	1.18	0.81	1.32	0.49	1.24	0.06
Control Delay	139.7	39.1	195.1	10.2	138.8	0.0
Queue Delay	0.0	1.1	0.0	0.5	0.0	0.0
Total Delay	139.7	40.2	195.1	10.7	138.8	0.0
LOS	F	D	F	B	F	A
Approach Delay	86.1			87.6	129.1	
Approach LOS	F			F	F	

Lanes, Volumes, Timings
 200: Hodge Road & I-87 NB Ramp

10/20/2021

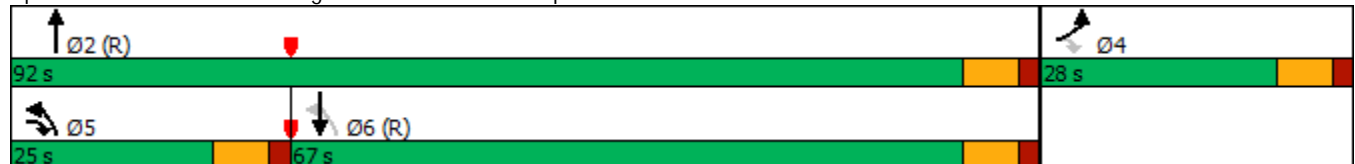


Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Queue Length 50th (ft)	~372	349	~434	161	~1152	0
Queue Length 95th (ft)	#495	444	m#611	m313	m#1350	m0
Internal Link Dist (ft)	541			241	1047	
Turn Bay Length (ft)		150	100			125
Base Capacity (vph)	657	1114	357	1350	962	1583
Starvation Cap Reductn	0	0	0	310	0	0
Spillback Cap Reductn	0	67	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	1.18	0.87	1.32	0.63	1.24	0.06

Intersection Summary

Area Type: Other
 Cycle Length: 120
 Actuated Cycle Length: 120
 Offset: 47 (39%), Referenced to phase 2:NBT and 6:NBSB, Start of Green
 Natural Cycle: 150
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 1.32
 Intersection Signal Delay: 100.0 Intersection LOS: F
 Intersection Capacity Utilization 112.5% ICU Level of Service H
 Analysis Period (min) 15
 ~ Volume exceeds capacity, queue is theoretically infinite.
 Queue shown is maximum after two cycles.
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 200: Hodge Road & I-87 NB Ramp



Lanes, Volumes, Timings

300: Hodge Road & Panther Rock Boulevard/Ellen Drive

10/20/2021



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	209	4	14	3	4	9	34	795	5	11	1445	300
Future Volume (vph)	209	4	14	3	4	9	34	795	5	11	1445	300
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	150		0	0		0	150		0	50		200
Storage Lanes	1		0	0		0	1		0	1		1
Taper Length (ft)	100			25			100			100		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	1.00
Frt		0.880			0.921			0.999				0.850
Flt Protected	0.950				0.991		0.950			0.950		
Satd. Flow (prot)	1770	1639	0	0	1700	0	1770	3536	0	1770	3539	1583
Flt Permitted	0.769				0.933		0.085			0.295		
Satd. Flow (perm)	1432	1639	0	0	1601	0	158	3536	0	550	3539	1583
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		25			25			45			45	
Link Distance (ft)		772			750			2057			435	
Travel Time (s)		21.1			20.5			31.2			6.6	
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
Adj. Flow (vph)	232	4	16	3	4	10	38	883	6	12	1606	333
Shared Lane Traffic (%)												
Lane Group Flow (vph)	232	20	0	0	17	0	38	889	0	12	1606	333
Turn Type	D.P+P	NA		Perm	NA		D.P+P	NA		D.Pm	NA	pm+ov
Protected Phases	7	4			8		5	2			6	7
Permitted Phases	8			8			6			2		6
Detector Phase	7	4		8	8		5	2		2	6	7
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0		7.0	12.0		12.0	12.0	7.0
Minimum Split (s)	14.0	22.5		22.5	22.5		14.0	22.5		22.5	22.5	14.0
Total Split (s)	18.0	40.5		22.5	22.5		14.0	79.5		79.5	65.5	18.0
Total Split (%)	15.0%	33.8%		18.8%	18.8%		11.7%	66.3%		66.3%	54.6%	15.0%
Maximum Green (s)	11.0	33.5		15.5	15.5		7.0	72.5		72.5	58.5	11.0
Yellow Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	5.0
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0			-2.0		-2.0	-2.0		-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0			5.0		5.0	5.0		5.0	5.0	5.0
Lead/Lag	Lead			Lag	Lag		Lead				Lag	Lead
Lead-Lag Optimize?	Yes			Yes	Yes		Yes				Yes	Yes
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
Recall Mode	None	None		None	None		None	C-Max		C-Max	C-Max	None
Act Effct Green (s)	17.0	19.0			9.4		88.0	91.0		91.0	82.5	102.5
Actuated g/C Ratio	0.14	0.16			0.08		0.73	0.76		0.76	0.69	0.85
v/c Ratio	0.97	0.08			0.13		0.16	0.33		0.03	0.66	0.25
Control Delay	99.5	39.6			53.7		5.4	4.2		6.5	16.0	4.3
Queue Delay	0.0	0.0			0.0		0.0	0.0		0.0	0.5	0.0
Total Delay	99.5	39.6			53.7		5.4	4.2		6.5	16.5	4.3
LOS	F	D			D		A	A		A	B	A
Approach Delay		94.7			53.7			4.2			14.4	
Approach LOS		F			D			A			B	

Lanes, Volumes, Timings

300: Hodge Road & Panther Rock Boulevard/Ellen Drive

10/20/2021



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 50th (ft)	~219	14			13		3	50		2	387	43
Queue Length 95th (ft)	#254	33			36		m12	m117		m3	m472	m95
Internal Link Dist (ft)		692			670			1977			355	
Turn Bay Length (ft)	150						150			50		200
Base Capacity (vph)	239	484			233		237	2680		416	2432	1352
Starvation Cap Reductn	0	0			0		0	0		0	369	0
Spillback Cap Reductn	0	0			0		0	0		0	0	0
Storage Cap Reductn	0	0			0		0	0		0	0	0
Reduced v/c Ratio	0.97	0.04			0.07		0.16	0.33		0.03	0.78	0.25

Intersection Summary

Area Type: Other
 Cycle Length: 120
 Actuated Cycle Length: 120
 Offset: 0 (0%), Referenced to phase 2:NBSB and 6:NBSB, Start of Green
 Natural Cycle: 100
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.97
 Intersection Signal Delay: 18.0 Intersection LOS: B
 Intersection Capacity Utilization 66.5% ICU Level of Service C
 Analysis Period (min) 15
 ~ Volume exceeds capacity, queue is theoretically infinite.
 Queue shown is maximum after two cycles.
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 300: Hodge Road & Panther Rock Boulevard/Ellen Drive



Lanes, Volumes, Timings
400: Hodge Road & Spectrum Drive

10/20/2021



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	43	4	12	58	4	172	22	618	19	59	1380	75
Future Volume (vph)	43	4	12	58	4	172	22	618	19	59	1380	75
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0	100		100	300		0
Storage Lanes	1		0	1		0	1		1	2		1
Taper Length (ft)	25			25			100			100		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.97	1.00	1.00
Frt		0.885			0.853				0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	1649	0	1770	1589	0	1770	1863	1583	3433	1863	1583
Flt Permitted	0.333			0.746			0.046			0.950		
Satd. Flow (perm)	620	1649	0	1390	1589	0	86	1863	1583	3433	1863	1583
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		30			30			45			45	
Link Distance (ft)		1036			933			1218			2057	
Travel Time (s)		23.5			21.2			18.5			31.2	
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
Adj. Flow (vph)	48	4	13	64	4	191	24	687	21	66	1533	83
Shared Lane Traffic (%)												
Lane Group Flow (vph)	48	17	0	64	195	0	24	687	21	66	1533	83
Turn Type	D.Pm	NA		D.Pm	NA		D.P+P	NA	Perm	Prot	NA	Perm
Protected Phases		4			8		5	2		1	6	
Permitted Phases	8			4			6		2			6
Detector Phase	8	4		4	8		5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0		7.0	12.0	12.0	7.0	12.0	12.0
Minimum Split (s)	14.0	14.0		14.0	14.0		14.0	19.0	19.0	14.0	19.0	19.0
Total Split (s)	17.0	17.0		17.0	17.0		14.0	89.0	89.0	14.0	89.0	89.0
Total Split (%)	14.2%	14.2%		14.2%	14.2%		11.7%	74.2%	74.2%	11.7%	74.2%	74.2%
Maximum Green (s)	10.0	10.0		10.0	10.0		7.0	82.0	82.0	7.0	82.0	82.0
Yellow Time (s)	5.0	5.0		5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0
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)	-2.0	-2.0		-2.0	-2.0		-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0		5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag							Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?							Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None		None	None		None	C-Max	C-Max	None	C-Max	C-Max
Act Effct Green (s)	12.0	12.0		12.0	12.0		95.0	86.8	86.8	9.0	89.6	89.6
Actuated g/C Ratio	0.10	0.10		0.10	0.10		0.79	0.72	0.72	0.08	0.75	0.75
v/c Ratio	0.77	0.10		0.46	1.23		0.12	0.51	0.02	0.26	1.10	0.07
Control Delay	116.3	50.9		62.4	192.9		3.6	9.5	5.6	61.4	73.5	1.5
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	116.3	50.9		62.4	192.9		3.6	9.5	5.6	61.4	73.5	1.5
LOS	F	D		E	F		A	A	A	E	E	A
Approach Delay		99.2			160.6			9.2			69.4	
Approach LOS		F			F			A			E	

Lanes, Volumes, Timings
400: Hodge Road & Spectrum Drive

10/20/2021

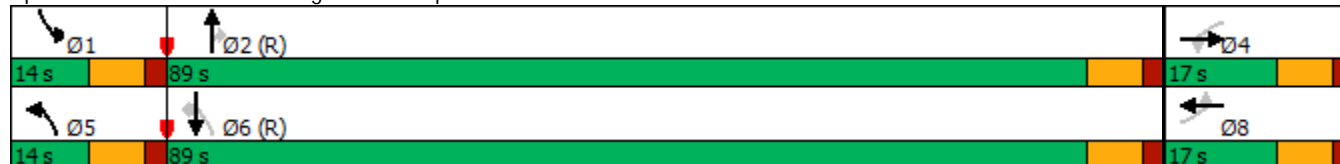


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 50th (ft)	37	12		48	-186		3	227	4	28	-1450	2
Queue Length 95th (ft)	#110	36		95	#338		7	313	12	m43	#1657	m9
Internal Link Dist (ft)		956			853			1138			1977	
Turn Bay Length (ft)							100		100	300		
Base Capacity (vph)	62	164		139	158		194	1347	1145	257	1391	1182
Starvation Cap Reductn	0	0		0	0		0	0	0	0	0	0
Spillback Cap Reductn	0	0		0	0		0	0	0	0	0	0
Storage Cap Reductn	0	0		0	0		0	0	0	0	0	0
Reduced v/c Ratio	0.77	0.10		0.46	1.23		0.12	0.51	0.02	0.26	1.10	0.07

Intersection Summary

Area Type: Other
 Cycle Length: 120
 Actuated Cycle Length: 120
 Offset: 0 (0%), Referenced to phase 2:NBT and 6:NBSB, Start of Green
 Natural Cycle: 150
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 1.23
 Intersection Signal Delay: 62.7
 Intersection LOS: E
 Intersection Capacity Utilization 101.8%
 ICU Level of Service G
 Analysis Period (min) 15
 ~ Volume exceeds capacity, queue is theoretically infinite.
 Queue shown is maximum after two cycles.
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 400: Hodge Road & Spectrum Drive



Lanes, Volumes, Timings
500: Hodge Road & Poole Road

10/20/2021



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	298	298	11	17	181	220	12	54	15	838	74	404
Future Volume (vph)	298	298	11	17	181	220	12	54	15	838	74	404
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	225		0	200		200	50		0	450		800
Storage Lanes	1		0	1		1	1		0	1		1
Taper Length (ft)	100			100			100			100		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.995				0.850		0.967				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	1853	0	1770	1863	1583	1770	1801	0	1770	1863	1583
Flt Permitted	0.285			0.555			0.704			0.707		
Satd. Flow (perm)	531	1853	0	1034	1863	1583	1311	1801	0	1317	1863	1583
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		45			45			45				45
Link Distance (ft)		1743			1176			1488				751
Travel Time (s)		26.4			17.8			22.5				11.4
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
Adj. Flow (vph)	331	331	12	19	201	244	13	60	17	931	82	449
Shared Lane Traffic (%)												
Lane Group Flow (vph)	331	343	0	19	201	244	13	77	0	931	82	449
Turn Type	pm+pt	NA		Perm	NA	Perm	Perm	NA		Perm	NA	pm+ov
Protected Phases	5	2			6			8			4	5
Permitted Phases	2			6		6	8			4		4
Detector Phase	5	2		6	6	6	8	8		4	4	5
Switch Phase												
Minimum Initial (s)	7.0	12.0		12.0	12.0	12.0	7.0	7.0		7.0	7.0	7.0
Minimum Split (s)	14.4	19.0		19.0	19.0	19.0	14.0	14.0		14.0	14.0	14.4
Total Split (s)	21.0	48.0		27.0	27.0	27.0	92.0	92.0		92.0	92.0	21.0
Total Split (%)	15.0%	34.3%		19.3%	19.3%	19.3%	65.7%	65.7%		65.7%	65.7%	15.0%
Maximum Green (s)	14.0	41.0		20.0	20.0	20.0	85.0	85.0		85.0	85.0	14.0
Yellow Time (s)	5.0	5.0		5.0	5.0	5.0	5.0	5.0		5.0	5.0	5.0
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)	-2.0	-2.0		-2.0	-2.0	-2.0	-2.0	-2.0		-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0		5.0	5.0	5.0	5.0	5.0		5.0	5.0	5.0
Lead/Lag	Lead			Lag	Lag	Lag						Lead
Lead-Lag Optimize?	Yes			Yes	Yes	Yes						Yes
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0
Recall Mode	None	None		None	None	None	Max	Max		Max	Max	None
Act Effct Green (s)	43.0	43.0		22.0	22.0	22.0	87.0	87.0		87.0	87.0	108.0
Actuated g/C Ratio	0.31	0.31		0.16	0.16	0.16	0.62	0.62		0.62	0.62	0.77
v/c Ratio	1.09	0.60		0.12	0.69	0.98	0.02	0.07		1.14	0.07	0.37
Control Delay	117.9	46.6		52.9	69.0	111.4	10.2	10.7		103.7	10.7	6.1
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Delay	117.9	46.6		52.9	69.0	111.4	10.2	10.7		103.7	10.7	6.1
LOS	F	D		D	E	F	B	B		F	B	A
Approach Delay		81.6			90.6			10.6			68.5	
Approach LOS		F			F			B			E	

Lanes, Volumes, Timings
500: Hodge Road & Poole Road

10/20/2021

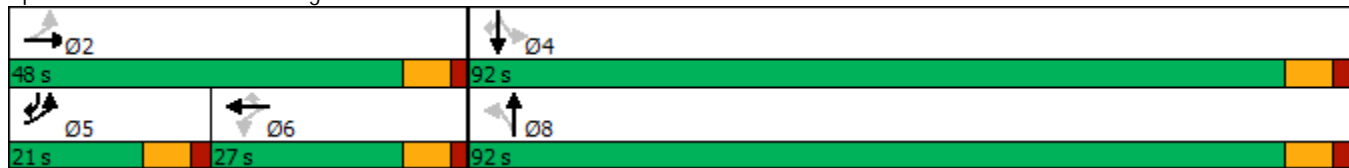


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 50th (ft)	~287	266		15	175	224	4	26		-986	28	113
Queue Length 95th (ft)	#434	372		41	264	#402	13	48		#1243	50	158
Internal Link Dist (ft)		1663			1096			1408			671	
Turn Bay Length (ft)	225			200		200	50			450		800
Base Capacity (vph)	304	569		162	292	248	814	1119		818	1157	1221
Starvation Cap Reductn	0	0		0	0	0	0	0		0	0	0
Spillback Cap Reductn	0	0		0	0	0	0	0		0	0	0
Storage Cap Reductn	0	0		0	0	0	0	0		0	0	0
Reduced v/c Ratio	1.09	0.60		0.12	0.69	0.98	0.02	0.07		1.14	0.07	0.37

Intersection Summary

Area Type:	Other
Cycle Length:	140
Actuated Cycle Length:	140
Natural Cycle:	130
Control Type:	Actuated-Uncoordinated
Maximum v/c Ratio:	1.14
Intersection Signal Delay:	73.6
Intersection LOS:	E
Intersection Capacity Utilization:	92.1%
ICU Level of Service:	F
Analysis Period (min):	15
~ Volume exceeds capacity, queue is theoretically infinite. Queue shown is maximum after two cycles.	
# 95th percentile volume exceeds capacity, queue may be longer. Queue shown is maximum after two cycles.	

Splits and Phases: 500: Hodge Road & Poole Road



HCM 6th TWSC
600: Hodge Road & Site Access

10/20/2021

Intersection						
Int Delay, s/veh	9.7					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↔		↔	↑	↑	↔
Traffic Vol, veh/h	60	4	4	572	1315	95
Future Vol, veh/h	60	4	4	572	1315	95
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	100	-	-	100
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	67	4	4	636	1461	106

Major/Minor	Minor2	Major1	Major2			
Conflicting Flow All	2105	1461	1567	0	-	0
Stage 1	1461	-	-	-	-	-
Stage 2	644	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	~ 57	158	421	-	-	-
Stage 1	213	-	-	-	-	-
Stage 2	523	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	~ 56	158	421	-	-	-
Mov Cap-2 Maneuver	~ 56	-	-	-	-	-
Stage 1	211	-	-	-	-	-
Stage 2	523	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s\$	309.8	0.1	0
HCM LOS	F		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	421	-	58	-	-
HCM Lane V/C Ratio	0.011	-	1.226	-	-
HCM Control Delay (s)	13.6	-	\$ 309.8	-	-
HCM Lane LOS	B	-	F	-	-
HCM 95th %tile Q(veh)	0	-	6	-	-

Notes
 -: Volume exceeds capacity \$: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon

HCM 6th TWSC
700: Poole Road & Site Access

10/20/2021

Intersection						
Int Delay, s/veh	0.2					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	↘	↗	↗	↘	↘	↘
Traffic Vol, veh/h	5	606	591	5	4	4
Future Vol, veh/h	5	606	591	5	4	4
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	100	-	-	100	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	6	673	657	6	4	4

Major/Minor	Major1	Major2	Minor2		
Conflicting Flow All	663	0	-	0	1342 657
Stage 1	-	-	-	-	657 -
Stage 2	-	-	-	-	685 -
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	926	-	-	-	168 465
Stage 1	-	-	-	-	516 -
Stage 2	-	-	-	-	500 -
Platoon blocked, %		-	-	-	
Mov Cap-1 Maneuver	926	-	-	-	167 465
Mov Cap-2 Maneuver	-	-	-	-	167 -
Stage 1	-	-	-	-	513 -
Stage 2	-	-	-	-	500 -

Approach	EB	WB	SB
HCM Control Delay, s	0.1	0	20.2
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	926	-	-	-	246
HCM Lane V/C Ratio	0.006	-	-	-	0.036
HCM Control Delay (s)	8.9	-	-	-	20.2
HCM Lane LOS	A	-	-	-	C
HCM 95th %tile Q(veh)	0	-	-	-	0.1

2033 Future No Build Conditions

Lanes, Volumes, Timings

100: Hodge Road & I-87 SB Ramp/Old Faison Road

10/20/2021



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	121	34	379	154	325	81	580	465	122	19	262	297
Future Volume (vph)	121	34	379	154	325	81	580	465	122	19	262	297
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	125		0	0		200	175		225
Storage Lanes	0		1	1		0	1		1	1		1
Taper Length (ft)	25			100			100			100		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850		0.970				0.850			0.850
Flt Protected		0.963		0.950			0.950			0.950		
Satd. Flow (prot)	0	1794	1583	1770	1807	0	1770	1863	1583	1770	1863	1583
Flt Permitted		0.426		0.486			0.155			0.473		
Satd. Flow (perm)	0	794	1583	905	1807	0	289	1863	1583	881	1863	1583
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		30			45			45				45
Link Distance (ft)		621			738			1127				919
Travel Time (s)		14.1			11.2			17.1				13.9
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
Adj. Flow (vph)	134	38	421	171	361	90	644	517	136	21	291	330
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	172	421	171	451	0	644	517	136	21	291	330
Turn Type	pm+pt	NA	pm+ov	pm+pt	NA		pm+pt	NA	pm+ov	pm+pt	NA	Free
Protected Phases	7	4	5	3	8		5	2	3	1	6	
Permitted Phases	4		4	8			2		2	6		Free
Detector Phase	7	4	5	3	8		5	2	3	1	6	
Switch Phase												
Minimum Initial (s)	7.0	7.0	7.0	7.0	7.0		7.0	12.0	7.0	7.0	12.0	
Minimum Split (s)	14.0	14.0	14.0	14.0	14.0		14.0	19.0	14.0	14.0	19.0	
Total Split (s)	14.0	37.0	43.0	14.0	37.0		43.0	55.0	14.0	14.0	26.0	
Total Split (%)	11.7%	30.8%	35.8%	11.7%	30.8%		35.8%	45.8%	11.7%	11.7%	21.7%	
Maximum Green (s)	7.0	30.0	36.0	7.0	30.0		36.0	48.0	7.0	7.0	19.0	
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0		5.0	5.0	5.0	5.0	5.0	
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)		-2.0	-2.0	-2.0	-2.0		-2.0	-2.0	-2.0	-2.0	-2.0	
Total Lost Time (s)		5.0	5.0	5.0	5.0		5.0	5.0	5.0	5.0	5.0	
Lead/Lag	Lead	Lag	Lead	Lead	Lag		Lead	Lag	Lead	Lead	Lag	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes		Yes	Yes	Yes	Yes	Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Recall Mode	None	None	None	None	None		None	C-Max	None	None	C-Max	
Act Effct Green (s)		32.0	75.0	46.0	46.0		64.0	58.4	72.4	30.0	21.0	120.0
Actuated g/C Ratio		0.27	0.62	0.38	0.38		0.53	0.49	0.60	0.25	0.18	1.00
v/c Ratio		0.82	0.43	0.42	0.65		1.03	0.57	0.14	0.07	0.89	0.21
Control Delay		70.9	13.1	28.9	35.8		75.4	28.5	13.2	18.9	77.8	0.3
Queue Delay		0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay		70.9	13.1	28.9	35.8		75.4	28.5	13.2	18.9	77.8	0.3
LOS		E	B	C	D		E	C	B	B	E	A
Approach Delay		29.9			33.9		50.2				36.0	
Approach LOS		C			C		D				D	

Lanes, Volumes, Timings
 100: Hodge Road & I-87 SB Ramp/Old Faison Road

10/20/2021

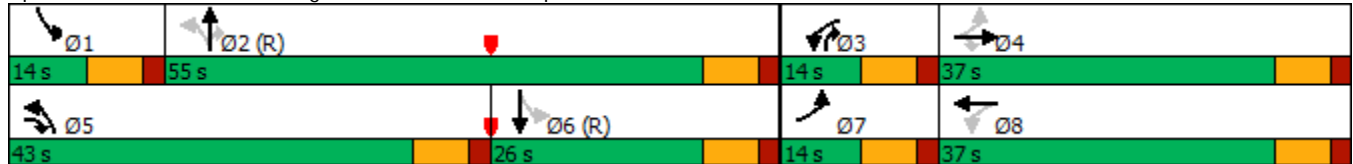


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 50th (ft)		125	156	90	284		-450	242	36	7	223	0
Queue Length 95th (ft)		#250	225	144	402		#701	457	m81	20	#384	0
Internal Link Dist (ft)		541			658			1047			839	
Turn Bay Length (ft)				125					200	175		225
Base Capacity (vph)		211	989	411	692		623	906	954	286	326	1583
Starvation Cap Reductn		0	0	0	0		0	0	0	0	0	0
Spillback Cap Reductn		0	0	0	0		0	0	0	0	0	0
Storage Cap Reductn		0	0	0	0		0	0	0	0	0	0
Reduced v/c Ratio		0.82	0.43	0.42	0.65		1.03	0.57	0.14	0.07	0.89	0.21

Intersection Summary

Area Type: Other
 Cycle Length: 120
 Actuated Cycle Length: 120
 Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
 Natural Cycle: 90
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 1.03
 Intersection Signal Delay: 40.3
 Intersection LOS: D
 Intersection Capacity Utilization 93.1%
 ICU Level of Service F
 Analysis Period (min) 15
 ~ Volume exceeds capacity, queue is theoretically infinite.
 Queue shown is maximum after two cycles.
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 100: Hodge Road & I-87 SB Ramp/Old Faison Road



Lanes, Volumes, Timings
200: Hodge Road & I-87 NB Ramp

10/20/2021



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	156	181	828	1007	525	267
Future Volume (vph)	156	181	828	1007	525	267
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	150	100			125
Storage Lanes	2	1	1			1
Taper Length (ft)	25		100			
Lane Util. Factor	0.97	0.88	1.00	1.00	1.00	1.00
Frt		0.850				0.850
Flt Protected	0.950		0.950			
Satd. Flow (prot)	3433	2787	1770	1863	1863	1583
Flt Permitted	0.950		0.097			
Satd. Flow (perm)	3433	2787	181	1863	1863	1583
Right Turn on Red		No				No
Satd. Flow (RTOR)						
Link Speed (mph)	30			45	45	
Link Distance (ft)	621			302	1127	
Travel Time (s)	14.1			4.6	17.1	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	173	201	920	1119	583	297
Shared Lane Traffic (%)						
Lane Group Flow (vph)	173	201	920	1119	583	297
Turn Type	Prot	pm+ov	D.P+P	NA	NA	Free
Protected Phases	4	5	5	2	6	
Permitted Phases		4	6			Free
Detector Phase	4	5	5	2	6	
Switch Phase						
Minimum Initial (s)	7.0	7.0	7.0	12.0	12.0	
Minimum Split (s)	14.6	14.0	14.0	19.0	19.0	
Total Split (s)	14.6	59.0	59.0	105.4	46.4	
Total Split (%)	12.2%	49.2%	49.2%	87.8%	38.7%	
Maximum Green (s)	7.6	52.0	52.0	98.4	39.4	
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	
Lead/Lag		Lead	Lead		Lag	
Lead-Lag Optimize?		Yes	Yes		Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	
Recall Mode	None	None	None	C-Max	C-Max	
Act Effct Green (s)	9.6	68.6	95.4	100.4	41.4	120.0
Actuated g/C Ratio	0.08	0.57	0.80	0.84	0.34	1.00
v/c Ratio	0.63	0.13	1.07	0.72	0.91	0.19
Control Delay	64.4	12.1	74.0	8.0	45.2	0.2
Queue Delay	0.0	0.0	0.0	1.6	0.0	0.0
Total Delay	64.4	12.1	74.0	9.5	45.2	0.2
LOS	E	B	E	A	D	A
Approach Delay	36.3			38.6	30.0	
Approach LOS	D			D	C	

Lanes, Volumes, Timings
 200: Hodge Road & I-87 NB Ramp

10/20/2021

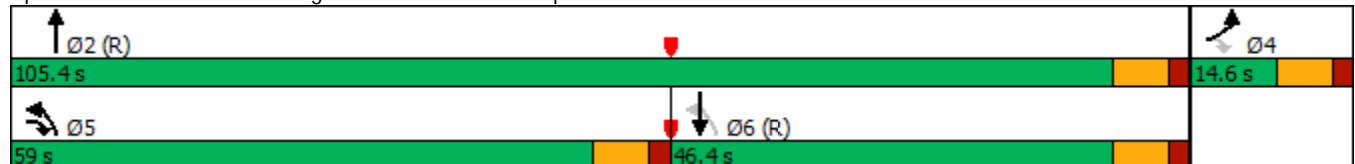


Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Queue Length 50th (ft)	68	38	~762	584	454	0
Queue Length 95th (ft)	106	59	m#934	m66	m#618	m0
Internal Link Dist (ft)	541			222	1047	
Turn Bay Length (ft)		150	100			125
Base Capacity (vph)	274	1593	858	1558	642	1583
Starvation Cap Reductn	0	0	0	256	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.63	0.13	1.07	0.86	0.91	0.19

Intersection Summary

Area Type: Other
 Cycle Length: 120
 Actuated Cycle Length: 120
 Offset: 47 (39%), Referenced to phase 2:NBT and 6:NBSB, Start of Green
 Natural Cycle: 120
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 1.07
 Intersection Signal Delay: 36.0 Intersection LOS: D
 Intersection Capacity Utilization 91.8% ICU Level of Service F
 Analysis Period (min) 15
 ~ Volume exceeds capacity, queue is theoretically infinite.
 Queue shown is maximum after two cycles.
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 200: Hodge Road & I-87 NB Ramp



Lanes, Volumes, Timings

300: Hodge Road & Panther Rock Boulevard/Ellen Drive

10/20/2021



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	381	0	28	4	0	9	16	1445	4	8	594	93
Future Volume (vph)	381	0	28	4	0	9	16	1445	4	8	594	93
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	150		0	0		0	150		0	50		200
Storage Lanes	1		0	0		0	1		0	1		1
Taper Length (ft)	100			25			100			100		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	1.00
Frt		0.850			0.904							0.850
Flt Protected	0.950				0.986		0.950			0.950		
Satd. Flow (prot)	1770	1583	0	0	1660	0	1770	3539	0	1770	3539	1583
Flt Permitted	0.784				0.892		0.351			0.082		
Satd. Flow (perm)	1460	1583	0	0	1502	0	654	3539	0	153	3539	1583
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		25			25			45				45
Link Distance (ft)		772			750			2057				453
Travel Time (s)		21.1			20.5			31.2				6.9
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
Adj. Flow (vph)	423	0	31	4	0	10	18	1606	4	9	660	103
Shared Lane Traffic (%)												
Lane Group Flow (vph)	423	31	0	0	14	0	18	1610	0	9	660	103
Turn Type	D.P+P	NA		Perm	NA		D.P+P	NA		D.Pm	NA	pm+ov
Protected Phases	7	4			8		5	2			6	7
Permitted Phases	8			8			6			2		6
Detector Phase	7	4		8	8		5	2		2	6	7
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0		7.0	12.0		12.0	12.0	7.0
Minimum Split (s)	14.0	22.5		22.5	22.5		14.0	22.5		22.5	22.5	14.0
Total Split (s)	30.0	52.5		22.5	22.5		14.0	67.5		67.5	53.5	30.0
Total Split (%)	25.0%	43.8%		18.8%	18.8%		11.7%	56.3%		56.3%	44.6%	25.0%
Maximum Green (s)	23.0	45.5		15.5	15.5		7.0	60.5		60.5	46.5	23.0
Yellow Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	5.0
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0			-2.0		-2.0	-2.0		-2.0	-2.0	0.0
Total Lost Time (s)	5.0	5.0			5.0		5.0	5.0		5.0	5.0	7.0
Lead/Lag	Lead			Lag	Lag		Lead				Lag	Lead
Lead-Lag Optimize?	Yes			Yes	Yes		Yes				Yes	Yes
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
Recall Mode	None	None		None	None		None	C-Max		C-Max	C-Max	None
Act Effct Green (s)	28.9	30.9			9.3		77.1	79.1		79.1	73.5	105.7
Actuated g/C Ratio	0.24	0.26			0.08		0.64	0.66		0.66	0.61	0.88
v/c Ratio	1.02	0.08			0.12		0.04	0.69		0.09	0.30	0.07
Control Delay	91.2	31.0			53.7		14.2	22.5		20.9	24.2	7.6
Queue Delay	0.0	0.0			0.0		0.0	28.2		0.0	0.0	0.0
Total Delay	91.2	31.0			53.7		14.2	50.7		20.9	24.2	7.6
LOS	F	C			D		B	D		C	C	A
Approach Delay		87.1			53.7			50.3			21.9	
Approach LOS		F			D			D			C	

Lanes, Volumes, Timings

300: Hodge Road & Panther Rock Boulevard/Ellen Drive

10/20/2021



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 50th (ft)	~385	20			10		5	545		3	201	0
Queue Length 95th (ft)	#463	39			32		m8	m481		m9	m301	m59
Internal Link Dist (ft)		692			670			1977			373	
Turn Bay Length (ft)	150						150			50		200
Base Capacity (vph)	416	626			219		503	2331		100	2166	1394
Starvation Cap Reductn	0	0			0		0	0		0	0	0
Spillback Cap Reductn	0	0			0		0	799		0	0	0
Storage Cap Reductn	0	0			0		0	0		0	0	0
Reduced v/c Ratio	1.02	0.05			0.06		0.04	1.05		0.09	0.30	0.07

Intersection Summary

Area Type: Other
 Cycle Length: 120
 Actuated Cycle Length: 120
 Offset: 0 (0%), Referenced to phase 2:NBSB and 6:NBSB, Start of Green
 Natural Cycle: 90
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 1.02
 Intersection Signal Delay: 48.5 Intersection LOS: D
 Intersection Capacity Utilization 76.2% ICU Level of Service D
 Analysis Period (min) 15
 ~ Volume exceeds capacity, queue is theoretically infinite.
 Queue shown is maximum after two cycles.
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 300: Hodge Road & Panther Rock Boulevard/Ellen Drive



Lanes, Volumes, Timings
400: Hodge Road & Spectrum Drive

10/20/2021



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	70	0	20	17	0	52	6	1341	64	184	418	21
Future Volume (vph)	70	0	20	17	0	52	6	1341	64	184	418	21
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0	100		100	300		0
Storage Lanes	1		0	1		0	1		1	2		1
Taper Length (ft)	25			25			100			100		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.97	1.00	1.00
Frt		0.850			0.850				0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	1583	0	1770	1583	0	1770	1863	1583	3433	1863	1583
Flt Permitted	0.719			0.743			0.464			0.950		
Satd. Flow (perm)	1339	1583	0	1384	1583	0	864	1863	1583	3433	1863	1583
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		30			30			45			45	
Link Distance (ft)		1036			933			1472			2057	
Travel Time (s)		23.5			21.2			22.3			31.2	
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
Adj. Flow (vph)	78	0	22	19	0	58	7	1490	71	204	464	23
Shared Lane Traffic (%)												
Lane Group Flow (vph)	78	22	0	19	58	0	7	1490	71	204	464	23
Turn Type	D.Pm	NA		D.Pm	NA		D.P+P	NA	Perm	Prot	NA	Perm
Protected Phases		4			8		5	2		1	6	
Permitted Phases	8			4			6		2			6
Detector Phase	8	4		4	8		5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0		7.0	12.0	12.0	7.0	12.0	12.0
Minimum Split (s)	15.5	25.0		25.0	15.5		14.0	19.0	19.0	15.2	19.0	19.0
Total Split (s)	25.0	25.0		25.0	25.0		14.0	79.8	79.8	15.2	81.0	81.0
Total Split (%)	20.8%	20.8%		20.8%	20.8%		11.7%	66.5%	66.5%	12.7%	67.5%	67.5%
Maximum Green (s)	18.0	18.0		18.0	18.0		7.0	72.8	72.8	8.2	74.0	74.0
Yellow Time (s)	5.0	5.0		5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0
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)	-2.0	-2.0		-2.0	-2.0		-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0		5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag							Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?							Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None		None	None		None	C-Max	C-Max	None	C-Max	C-Max
Act Effct Green (s)	14.3	14.3		14.3	14.3		97.5	80.9	80.9	12.6	96.7	96.7
Actuated g/C Ratio	0.12	0.12		0.12	0.12		0.81	0.67	0.67	0.10	0.81	0.81
v/c Ratio	0.49	0.12		0.12	0.31		0.01	1.19	0.07	0.57	0.31	0.02
Control Delay	58.8	46.4		46.5	51.1		3.3	114.8	8.6	81.5	3.8	1.2
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	58.8	46.4		46.5	51.1		3.3	114.8	8.6	81.5	3.8	1.2
LOS	E	D		D	D		A	F	A	F	A	A
Approach Delay		56.1			50.0			109.5			26.7	
Approach LOS		E			D			F			C	

Lanes, Volumes, Timings
400: Hodge Road & Spectrum Drive

10/20/2021



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 50th (ft)	57	15		13	42		1	~1448	20	87	52	1
Queue Length 95th (ft)	104	39		35	80		5	#1730	39	#128	95	3
Internal Link Dist (ft)		956			853			1392			1977	
Turn Bay Length (ft)							100		100	300		
Base Capacity (vph)	223	263		230	263		769	1256	1067	359	1500	1275
Starvation Cap Reductn	0	0		0	0		0	0	0	0	0	0
Spillback Cap Reductn	0	0		0	0		0	0	0	0	0	0
Storage Cap Reductn	0	0		0	0		0	0	0	0	0	0
Reduced v/c Ratio	0.35	0.08		0.08	0.22		0.01	1.19	0.07	0.57	0.31	0.02

Intersection Summary

Area Type: Other
 Cycle Length: 120
 Actuated Cycle Length: 120
 Offset: 0 (0%), Referenced to phase 2:NBT and 6:NBSB, Start of Green
 Natural Cycle: 150
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 1.19
 Intersection Signal Delay: 81.9
 Intersection LOS: F
 Intersection Capacity Utilization 97.6%
 ICU Level of Service F
 Analysis Period (min) 15
 ~ Volume exceeds capacity, queue is theoretically infinite.
 Queue shown is maximum after two cycles.
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

Splits and Phases: 400: Hodge Road & Spectrum Drive



Lanes, Volumes, Timings
500: Hodge Road & Poole Road

10/20/2021



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	417	126	8	10	512	879	25	69	14	189	35	237
Future Volume (vph)	417	126	8	10	512	879	25	69	14	189	35	237
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	225		0	200		200	50		0	450		800
Storage Lanes	1		0	1		1	1		0	1		1
Taper Length (ft)	100			100			100			100		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.991				0.850		0.974				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	1846	0	1770	1863	1583	1770	1814	0	1770	1863	1583
Flt Permitted	0.334			0.662			0.732			0.620		
Satd. Flow (perm)	622	1846	0	1233	1863	1583	1364	1814	0	1155	1863	1583
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		45			45			45				45
Link Distance (ft)		2546			1176			1488				751
Travel Time (s)		38.6			17.8			22.5				11.4
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
Adj. Flow (vph)	463	140	9	11	569	977	28	77	16	210	39	263
Shared Lane Traffic (%)												
Lane Group Flow (vph)	463	149	0	11	569	977	28	93	0	210	39	263
Turn Type	pm+pt	NA		Perm	NA	Perm	Perm	NA		Perm	NA	pm+ov
Protected Phases	5	2			6			8			4	5
Permitted Phases	2			6		6	8			4		4
Detector Phase	5	2		6	6	6	8	8		4	4	5
Switch Phase												
Minimum Initial (s)	7.0	12.0		12.0	12.0	12.0	7.0	7.0		7.0	7.0	7.0
Minimum Split (s)	14.4	19.0		19.0	19.0	19.0	14.0	14.0		14.0	14.0	14.4
Total Split (s)	26.0	120.0		94.0	94.0	94.0	20.0	20.0		20.0	20.0	26.0
Total Split (%)	18.6%	85.7%		67.1%	67.1%	67.1%	14.3%	14.3%		14.3%	14.3%	18.6%
Maximum Green (s)	19.0	113.0		87.0	87.0	87.0	13.0	13.0		13.0	13.0	19.0
Yellow Time (s)	5.0	5.0		5.0	5.0	5.0	5.0	5.0		5.0	5.0	5.0
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)	-2.0	-2.0		-2.0	-2.0	-2.0	-2.0	-2.0		-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0		5.0	5.0	5.0	5.0	5.0		5.0	5.0	5.0
Lead/Lag	Lead			Lag	Lag	Lag						Lead
Lead-Lag Optimize?	Yes			Yes	Yes	Yes						Yes
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0
Recall Mode	None	None		None	None	None	Max	Max		Max	Max	None
Act Effct Green (s)	112.0	112.0		85.9	85.9	85.9	15.0	15.0		15.0	15.0	41.1
Actuated g/C Ratio	0.82	0.82		0.63	0.63	0.63	0.11	0.11		0.11	0.11	0.30
v/c Ratio	0.68	0.10		0.01	0.49	0.98	0.19	0.47		1.67	0.19	0.55
Control Delay	8.4	2.6		9.5	15.3	50.4	60.4	66.8		368.5	59.7	46.5
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Delay	8.4	2.6		9.5	15.3	50.4	60.4	66.8		368.5	59.7	46.5
LOS	A	A		A	B	D	E	E		F	E	D
Approach Delay		7.0			37.3			65.3			179.6	
Approach LOS		A			D			E			F	

Lanes, Volumes, Timings
500: Hodge Road & Poole Road

10/20/2021

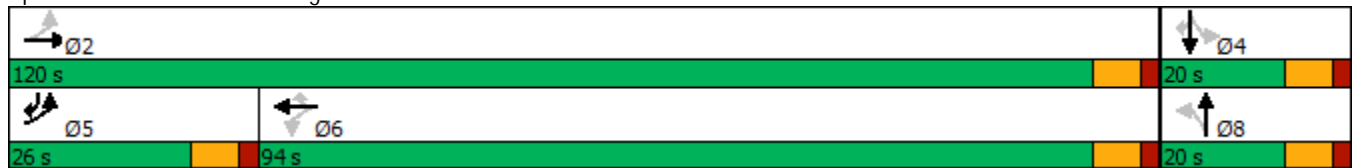


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 50th (ft)	83	21		4	256	799	24	81		-280	33	204
Queue Length 95th (ft)	113	34		11	343	#1154	56	141		#446	71	299
Internal Link Dist (ft)		2466			1096			1408			671	
Turn Bay Length (ft)	225			200		200	50			450		800
Base Capacity (vph)	684	1552		802	1212	1030	149	199		126	204	474
Starvation Cap Reductn	0	0		0	0	0	0	0		0	0	0
Spillback Cap Reductn	0	0		0	0	0	0	0		0	0	0
Storage Cap Reductn	0	0		0	0	0	0	0		0	0	0
Reduced v/c Ratio	0.68	0.10		0.01	0.47	0.95	0.19	0.47		1.67	0.19	0.55

Intersection Summary

Area Type:	Other
Cycle Length:	140
Actuated Cycle Length:	137
Natural Cycle:	110
Control Type:	Actuated-Uncoordinated
Maximum v/c Ratio:	1.67
Intersection Signal Delay:	57.9
Intersection LOS:	E
Intersection Capacity Utilization:	95.9%
ICU Level of Service:	F
Analysis Period (min):	15
~ Volume exceeds capacity, queue is theoretically infinite. Queue shown is maximum after two cycles.	
# 95th percentile volume exceeds capacity, queue may be longer. Queue shown is maximum after two cycles.	

Splits and Phases: 500: Hodge Road & Poole Road



Lanes, Volumes, Timings
 100: Hodge Road & I-87 SB Ramp/Old Faison Road

10/20/2021



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↖	↗	↖	↗		↖	↗	↗	↖	↗	↖
Traffic Volume (vph)	57	104	782	82	103	83	310	646	420	50	326	113
Future Volume (vph)	57	104	782	82	103	83	310	646	420	50	326	113
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	125		0	0		200	175		225
Storage Lanes	0		1	1		0	1		1	1		1
Taper Length (ft)	25			100			100			100		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850		0.933				0.850			0.850
Flt Protected		0.983		0.950			0.950			0.950		
Satd. Flow (prot)	0	1831	1583	1770	1738	0	1770	1863	1583	1770	1863	1583
Flt Permitted		0.800		0.292			0.140			0.392		
Satd. Flow (perm)	0	1490	1583	544	1738	0	261	1863	1583	730	1863	1583
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		30		45			45			45		45
Link Distance (ft)		621		738			1127			919		
Travel Time (s)		14.1		11.2			17.1			13.9		
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
Adj. Flow (vph)	63	116	869	91	114	92	344	718	467	56	362	126
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	179	869	91	206	0	344	718	467	56	362	126
Turn Type	pm+pt	NA	pm+ov	pm+pt	NA		pm+pt	NA	pm+ov	pm+pt	NA	Free
Protected Phases	7	4	5	3	8		5	2	3	1	6	
Permitted Phases	4		4	8			2		2	6		Free
Detector Phase	7	4	5	3	8		5	2	3	1	6	
Switch Phase												
Minimum Initial (s)	7.0	7.0	7.0	7.0	7.0		7.0	12.0	7.0	7.0	12.0	
Minimum Split (s)	14.0	14.0	14.0	14.0	14.0		14.0	19.0	14.0	14.0	19.0	
Total Split (s)	14.0	21.0	54.0	14.0	21.0		54.0	71.0	14.0	14.0	31.0	
Total Split (%)	11.7%	17.5%	45.0%	11.7%	17.5%		45.0%	59.2%	11.7%	11.7%	25.8%	
Maximum Green (s)	7.0	14.0	47.0	7.0	14.0		47.0	64.0	7.0	7.0	24.0	
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0		5.0	5.0	5.0	5.0	5.0	
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)		-2.0	-2.0	-2.0	-2.0		-2.0	-2.0	-2.0	-2.0	-2.0	
Total Lost Time (s)		5.0	5.0	5.0	5.0		5.0	5.0	5.0	5.0	5.0	
Lead/Lag	Lead	Lag	Lead	Lead	Lag		Lead	Lag	Lead	Lead	Lag	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes		Yes	Yes	Yes	Yes	Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Recall Mode	None	None	None	None	None		None	C-Max	None	None	C-Max	
Act Effct Green (s)		16.0	69.4	30.0	30.0		80.0	68.8	82.8	35.6	26.6	120.0
Actuated g/C Ratio		0.13	0.58	0.25	0.25		0.67	0.57	0.69	0.30	0.22	1.00
v/c Ratio		0.90	0.95	0.40	0.47		0.44	0.67	0.43	0.19	0.88	0.08
Control Delay		94.8	44.3	41.3	42.6		30.5	28.1	8.0	17.9	68.5	0.1
Queue Delay		0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay		94.8	44.3	41.3	42.6		30.5	28.1	8.0	17.9	68.5	0.1
LOS		F	D	D	D		C	C	A	B	E	A
Approach Delay		52.9			42.2			22.5			47.4	
Approach LOS		D			D			C			D	

Lanes, Volumes, Timings
 100: Hodge Road & I-87 SB Ramp/Old Faison Road

10/20/2021

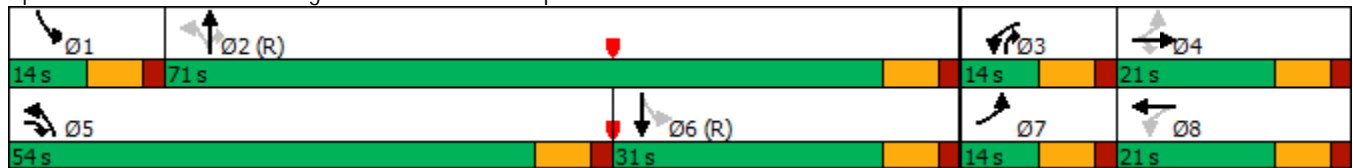


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 50th (ft)		138	589	56	136		198	328	96	16	275	0
Queue Length 95th (ft)		#275	#903	102	213		m224	m344	m124	32	#448	0
Internal Link Dist (ft)		541			658			1047			839	
Turn Bay Length (ft)				125					200	175		225
Base Capacity (vph)		198	923	227	434		790	1068	1092	294	412	1583
Starvation Cap Reductn		0	0	0	0		0	0	0	0	0	0
Spillback Cap Reductn		0	0	0	0		0	0	0	0	0	0
Storage Cap Reductn		0	0	0	0		0	0	0	0	0	0
Reduced v/c Ratio		0.90	0.94	0.40	0.47		0.44	0.67	0.43	0.19	0.88	0.08

Intersection Summary

Area Type: Other
 Cycle Length: 120
 Actuated Cycle Length: 120
 Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
 Natural Cycle: 90
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.95
 Intersection Signal Delay: 37.5 Intersection LOS: D
 Intersection Capacity Utilization 88.6% ICU Level of Service E
 Analysis Period (min) 15
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 100: Hodge Road & I-87 SB Ramp/Old Faison Road



Lanes, Volumes, Timings
200: Hodge Road & I-87 NB Ramp

10/20/2021



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	773	844	427	601	1098	89
Future Volume (vph)	773	844	427	601	1098	89
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	150	100			125
Storage Lanes	2	1	1			1
Taper Length (ft)	25		100			
Lane Util. Factor	0.97	0.88	1.00	1.00	1.00	1.00
Frt		0.850				0.850
Flt Protected	0.950		0.950			
Satd. Flow (prot)	3433	2787	1770	1863	1863	1583
Flt Permitted	0.950		0.065			
Satd. Flow (perm)	3433	2787	121	1863	1863	1583
Right Turn on Red		No				No
Satd. Flow (RTOR)						
Link Speed (mph)	30			45	45	
Link Distance (ft)	621			293	1127	
Travel Time (s)	14.1			4.4	17.1	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	859	938	474	668	1220	99
Shared Lane Traffic (%)						
Lane Group Flow (vph)	859	938	474	668	1220	99
Turn Type	Prot	pm+ov	D.P+P	NA	NA	Free
Protected Phases	4	5	5	2	6	
Permitted Phases		4	6			Free
Detector Phase	4	5	5	2	6	
Switch Phase						
Minimum Initial (s)	7.0	7.0	7.0	12.0	12.0	
Minimum Split (s)	14.6	14.0	14.0	19.0	19.0	
Total Split (s)	28.0	25.0	25.0	92.0	67.0	
Total Split (%)	23.3%	20.8%	20.8%	76.7%	55.8%	
Maximum Green (s)	21.0	18.0	18.0	85.0	60.0	
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	
Lead/Lag		Lead	Lead		Lag	
Lead-Lag Optimize?		Yes	Yes		Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	
Recall Mode	None	None	None	C-Max	C-Max	
Act Effct Green (s)	23.0	48.0	82.0	87.0	62.0	120.0
Actuated g/C Ratio	0.19	0.40	0.68	0.72	0.52	1.00
v/c Ratio	1.31	0.84	1.33	0.49	1.27	0.06
Control Delay	188.3	40.9	199.3	10.4	150.4	0.0
Queue Delay	0.0	2.3	0.0	0.5	0.0	0.0
Total Delay	188.3	43.2	199.3	11.0	150.4	0.0
LOS	F	D	F	B	F	A
Approach Delay	112.6			89.1	139.1	
Approach LOS	F			F	F	

Lanes, Volumes, Timings
 200: Hodge Road & I-87 NB Ramp

10/20/2021



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Queue Length 50th (ft)	~440	368	~442	165	~1193	0
Queue Length 95th (ft)	#566	468	m#615	m319	m#1368	m0
Internal Link Dist (ft)	541			213	1047	
Turn Bay Length (ft)		150	100			125
Base Capacity (vph)	657	1114	357	1350	962	1583
Starvation Cap Reductn	0	0	0	308	0	0
Spillback Cap Reductn	0	85	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	1.31	0.91	1.33	0.64	1.27	0.06

Intersection Summary

Area Type: Other
 Cycle Length: 120
 Actuated Cycle Length: 120
 Offset: 47 (39%), Referenced to phase 2:NBT and 6:NBSB, Start of Green
 Natural Cycle: 130
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 1.33
 Intersection Signal Delay: 114.5 Intersection LOS: F
 Intersection Capacity Utilization 116.0% ICU Level of Service H
 Analysis Period (min) 15
 ~ Volume exceeds capacity, queue is theoretically infinite.
 Queue shown is maximum after two cycles.
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 200: Hodge Road & I-87 NB Ramp



Lanes, Volumes, Timings

300: Hodge Road & Panther Rock Boulevard/Ellen Drive

10/20/2021



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	213	0	15	4	0	10	36	805	6	13	1488	308
Future Volume (vph)	213	0	15	4	0	10	36	805	6	13	1488	308
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	150		0	0		0	150		0	50		200
Storage Lanes	1		0	0		0	1		0	1		1
Taper Length (ft)	100			25			100			100		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	1.00
Frt		0.850			0.901			0.999				0.850
Flt Protected	0.950				0.987		0.950			0.950		
Satd. Flow (prot)	1770	1583	0	0	1657	0	1770	3536	0	1770	3539	1583
Flt Permitted	0.769				0.904		0.072			0.291		
Satd. Flow (perm)	1432	1583	0	0	1517	0	134	3536	0	542	3539	1583
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		25			25			45				45
Link Distance (ft)		772			750			2057				462
Travel Time (s)		21.1			20.5			31.2				7.0
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	237	0	17	4	0	11	40	894	7	14	1653	342
Shared Lane Traffic (%)												
Lane Group Flow (vph)	237	17	0	0	15	0	40	901	0	14	1653	342
Turn Type	D.P+P	NA		Perm	NA		D.P+P	NA		D.Pm	NA	pm+ov
Protected Phases	7	4			8		5	2			6	7
Permitted Phases	8			8			6			2		6
Detector Phase	7	4		8	8		5	2		2	6	7
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0		7.0	12.0		12.0	12.0	7.0
Minimum Split (s)	14.0	22.5		22.5	22.5		14.0	22.5		22.5	22.5	14.0
Total Split (s)	18.0	40.5		22.5	22.5		14.0	79.5		79.5	65.5	18.0
Total Split (%)	15.0%	33.8%		18.8%	18.8%		11.7%	66.3%		66.3%	54.6%	15.0%
Maximum Green (s)	11.0	33.5		15.5	15.5		7.0	72.5		72.5	58.5	11.0
Yellow Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	5.0
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0			-2.0		-2.0	-2.0		-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0			5.0		5.0	5.0		5.0	5.0	5.0
Lead/Lag	Lead			Lag	Lag		Lead				Lag	Lead
Lead-Lag Optimize?	Yes			Yes	Yes		Yes				Yes	Yes
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
Recall Mode	None	None		None	None		None	C-Max		C-Max	C-Max	None
Act Effct Green (s)	17.0	19.0			9.4		87.0	91.0		91.0	79.7	98.7
Actuated g/C Ratio	0.14	0.16			0.08		0.72	0.76		0.76	0.66	0.82
v/c Ratio	0.99	0.07			0.13		0.18	0.34		0.03	0.70	0.26
Control Delay	105.4	39.3			53.8		5.9	4.2		6.4	17.6	4.6
Queue Delay	0.0	0.0			0.0		0.0	0.0		0.0	0.8	0.0
Total Delay	105.4	39.3			53.8		5.9	4.2		6.4	18.4	4.6
LOS	F	D			D		A	A		A	B	A
Approach Delay		100.9			53.8			4.2			16.0	
Approach LOS		F			D			A			B	

Lanes, Volumes, Timings

300: Hodge Road & Panther Rock Boulevard/Ellen Drive

10/20/2021



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 50th (ft)	~228	12			11		4	50		2	396	44
Queue Length 95th (ft)	#267	30			33		m13	m118		m3	m485	m94
Internal Link Dist (ft)		692			670			1977			382	
Turn Bay Length (ft)	150						150			50		200
Base Capacity (vph)	239	468			221		221	2681		411	2350	1302
Starvation Cap Reductn	0	0			0		0	0		0	369	0
Spillback Cap Reductn	0	0			0		0	0		0	0	0
Storage Cap Reductn	0	0			0		0	0		0	0	0
Reduced v/c Ratio	0.99	0.04			0.07		0.18	0.34		0.03	0.83	0.26

Intersection Summary

Area Type: Other
 Cycle Length: 120
 Actuated Cycle Length: 120
 Offset: 0 (0%), Referenced to phase 2:NBSB and 6:NBSB, Start of Green
 Natural Cycle: 100
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.99
 Intersection Signal Delay: 19.4
 Intersection LOS: B
 Intersection Capacity Utilization 67.9%
 ICU Level of Service C
 Analysis Period (min) 15
 ~ Volume exceeds capacity, queue is theoretically infinite.
 Queue shown is maximum after two cycles.
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 300: Hodge Road & Panther Rock Boulevard/Ellen Drive



Lanes, Volumes, Timings
400: Hodge Road & Spectrum Drive

10/20/2021



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	43	0	12	64	0	187	22	615	21	64	1419	75
Future Volume (vph)	43	0	12	64	0	187	22	615	21	64	1419	75
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0	100		100	300		0
Storage Lanes	1		0	1		0	1		1	2		1
Taper Length (ft)	25			25			100			100		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.97	1.00	1.00
Frt		0.850			0.850				0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	1583	0	1770	1583	0	1770	1863	1583	3433	1863	1583
Flt Permitted	0.308			0.749			0.047			0.950		
Satd. Flow (perm)	574	1583	0	1395	1583	0	88	1863	1583	3433	1863	1583
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		30			30			45			45	
Link Distance (ft)		1036			933			1472			2057	
Travel Time (s)		23.5			21.2			22.3			31.2	
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
Adj. Flow (vph)	48	0	13	71	0	208	24	683	23	71	1577	83
Shared Lane Traffic (%)												
Lane Group Flow (vph)	48	13	0	71	208	0	24	683	23	71	1577	83
Turn Type	D.Pm	NA		D.Pm	NA		D.P+P	NA	Perm	Prot	NA	Perm
Protected Phases		4			8		5	2		1	6	
Permitted Phases	8			4			6		2			6
Detector Phase	8	4		4	8		5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0		7.0	12.0	12.0	7.0	12.0	12.0
Minimum Split (s)	14.0	14.0		14.0	14.0		14.0	19.0	19.0	14.0	19.0	19.0
Total Split (s)	18.0	18.0		18.0	18.0		14.0	88.0	88.0	14.0	88.0	88.0
Total Split (%)	15.0%	15.0%		15.0%	15.0%		11.7%	73.3%	73.3%	11.7%	73.3%	73.3%
Maximum Green (s)	11.0	11.0		11.0	11.0		7.0	81.0	81.0	7.0	81.0	81.0
Yellow Time (s)	5.0	5.0		5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0
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)	-2.0	-2.0		-2.0	-2.0		-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0		5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag							Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?							Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None		None	None		None	C-Max	C-Max	None	C-Max	C-Max
Act Effct Green (s)	13.0	13.0		13.0	13.0		94.0	85.8	85.8	9.0	88.6	88.6
Actuated g/C Ratio	0.11	0.11		0.11	0.11		0.78	0.72	0.72	0.08	0.74	0.74
v/c Ratio	0.77	0.08		0.47	1.22		0.12	0.51	0.02	0.28	1.15	0.07
Control Delay	115.8	49.4		61.3	183.9		3.8	10.0	5.9	60.5	93.0	2.1
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	115.8	49.4		61.3	183.9		3.8	10.0	5.9	60.5	93.0	2.1
LOS	F	D		E	F		A	B	A	E	F	A
Approach Delay		101.6			152.7			9.7			87.3	
Approach LOS		F			F			A			F	

Lanes, Volumes, Timings
400: Hodge Road & Spectrum Drive

10/20/2021

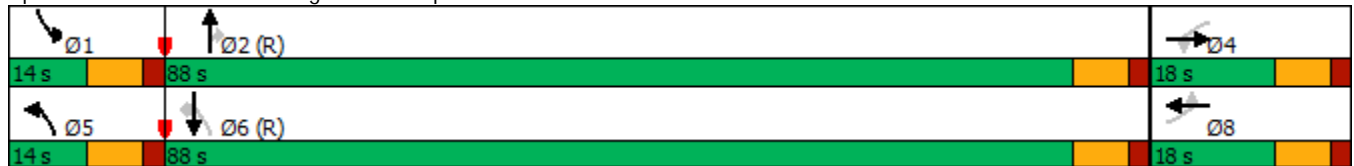


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 50th (ft)	37	9		53	-197		3	233	5	30	-1535	3
Queue Length 95th (ft)	#110	30		102	#352		8	320	13	m43	#1744	m12
Internal Link Dist (ft)		956			853			1392			1977	
Turn Bay Length (ft)							100		100	300		
Base Capacity (vph)	62	171		151	171		195	1331	1131	257	1375	1168
Starvation Cap Reductn	0	0		0	0		0	0	0	0	0	0
Spillback Cap Reductn	0	0		0	0		0	0	0	0	0	0
Storage Cap Reductn	0	0		0	0		0	0	0	0	0	0
Reduced v/c Ratio	0.77	0.08		0.47	1.22		0.12	0.51	0.02	0.28	1.15	0.07

Intersection Summary























Area Type: Other
 Cycle Length: 120
 Actuated Cycle Length: 120
 Offset: 0 (0%), Referenced to phase 2:NBT and 6:NBSB, Start of Green
 Natural Cycle: 150
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 1.22
 Intersection Signal Delay: 73.9
 Intersection LOS: E
 Intersection Capacity Utilization 104.6%
 ICU Level of Service G
 Analysis Period (min) 15
 ~ Volume exceeds capacity, queue is theoretically infinite.
 Queue shown is maximum after two cycles.
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 400: Hodge Road & Spectrum Drive



Lanes, Volumes, Timings
500: Hodge Road & Poole Road

10/20/2021

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	328	330	13	19	195	242	14	58	17	925	81	446
Future Volume (vph)	328	330	13	19	195	242	14	58	17	925	81	446
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	225		0	200		200	50		0	450		800
Storage Lanes	1		0	1		1	1		0	1		1
Taper Length (ft)	100			100			100			100		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.994				0.850		0.966				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	1852	0	1770	1863	1583	1770	1799	0	1770	1863	1583
Flt Permitted	0.250			0.535			0.699			0.703		
Satd. Flow (perm)	466	1852	0	997	1863	1583	1302	1799	0	1310	1863	1583
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		45			45			45				45
Link Distance (ft)		2546			1176			1488				751
Travel Time (s)		38.6			17.8			22.5				11.4
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
Adj. Flow (vph)	364	367	14	21	217	269	16	64	19	1028	90	496
Shared Lane Traffic (%)												
Lane Group Flow (vph)	364	381	0	21	217	269	16	83	0	1028	90	496
Turn Type	pm+pt	NA		Perm	NA	Perm	Perm	NA		Perm	NA	pm+ov
Protected Phases	5	2			6			8			4	5
Permitted Phases	2			6		6	8			4		4
Detector Phase	5	2		6	6	6	8	8		4	4	5
Switch Phase												
Minimum Initial (s)	7.0	12.0		12.0	12.0	12.0	7.0	7.0		7.0	7.0	7.0
Minimum Split (s)	14.4	19.0		19.0	19.0	19.0	14.0	14.0		14.0	14.0	14.4
Total Split (s)	21.0	48.0		27.0	27.0	27.0	92.0	92.0		92.0	92.0	21.0
Total Split (%)	15.0%	34.3%		19.3%	19.3%	19.3%	65.7%	65.7%		65.7%	65.7%	15.0%
Maximum Green (s)	14.0	41.0		20.0	20.0	20.0	85.0	85.0		85.0	85.0	14.0
Yellow Time (s)	5.0	5.0		5.0	5.0	5.0	5.0	5.0		5.0	5.0	5.0
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)	-2.0	-2.0		-2.0	-2.0	-2.0	-2.0	-2.0		-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0		5.0	5.0	5.0	5.0	5.0		5.0	5.0	5.0
Lead/Lag	Lead			Lag	Lag	Lag						Lead
Lead-Lag Optimize?	Yes			Yes	Yes	Yes						Yes
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0
Recall Mode	None	None		None	None	None	Max	Max		Max	Max	None
Act Effct Green (s)	43.0	43.0		22.0	22.0	22.0	87.0	87.0		87.0	87.0	108.0
Actuated g/C Ratio	0.31	0.31		0.16	0.16	0.16	0.62	0.62		0.62	0.62	0.77
v/c Ratio	1.25	0.67		0.13	0.74	1.08	0.02	0.07		1.26	0.08	0.41
Control Delay	172.7	49.2		53.4	72.5	135.5	10.3	10.8		154.6	10.8	6.5
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Delay	172.7	49.2		53.4	72.5	135.5	10.3	10.8		154.6	10.8	6.5
LOS	F	D		D	E	F	B	B		F	B	A
Approach Delay		109.6			105.1			10.7				101.1
Approach LOS		F			F			B				F

Lanes, Volumes, Timings
500: Hodge Road & Poole Road

10/20/2021



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 50th (ft)	~325	303		17	191	~273	5	28		~1173	31	131
Queue Length 95th (ft)	#532	421		44	#302	#455	15	51		#1434	54	181
Internal Link Dist (ft)		2466			1096			1408			671	
Turn Bay Length (ft)	225			200		200	50			450		800
Base Capacity (vph)	292	568		156	292	248	809	1117		814	1157	1221
Starvation Cap Reductn	0	0		0	0	0	0	0		0	0	0
Spillback Cap Reductn	0	0		0	0	0	0	0		0	0	0
Storage Cap Reductn	0	0		0	0	0	0	0		0	0	0
Reduced v/c Ratio	1.25	0.67		0.13	0.74	1.08	0.02	0.07		1.26	0.08	0.41

Intersection Summary

Area Type:	Other
Cycle Length:	140
Actuated Cycle Length:	140
Natural Cycle:	150
Control Type:	Actuated-Uncoordinated
Maximum v/c Ratio:	1.26
Intersection Signal Delay:	100.9
Intersection LOS:	F
Intersection Capacity Utilization	98.8%
ICU Level of Service	F
Analysis Period (min)	15
~ Volume exceeds capacity, queue is theoretically infinite. Queue shown is maximum after two cycles.	
# 95th percentile volume exceeds capacity, queue may be longer. Queue shown is maximum after two cycles.	

Splits and Phases: 500: Hodge Road & Poole Road



2033 Future Build Conditions

Lanes, Volumes, Timings

100: Hodge Road & I-87 SB Ramp/Old Faison Road

10/20/2021



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↖	↗	↖	↗		↖	↗	↗	↖	↗	↖
Traffic Volume (vph)	121	34	393	154	325	81	616	480	122	19	267	297
Future Volume (vph)	121	34	393	154	325	81	616	480	122	19	267	297
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	125		0	0		200	175		225
Storage Lanes	0		1	1		0	1		1	1		1
Taper Length (ft)	25			100			100			100		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850		0.970				0.850			0.850
Flt Protected		0.963		0.950			0.950			0.950		
Satd. Flow (prot)	0	1794	1583	1770	1807	0	1770	1863	1583	1770	1863	1583
Flt Permitted		0.426		0.486			0.154			0.466		
Satd. Flow (perm)	0	794	1583	905	1807	0	287	1863	1583	868	1863	1583
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		30		45			45			45		45
Link Distance (ft)		621		738			1127			919		
Travel Time (s)		14.1		11.2			17.1			13.9		
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
Adj. Flow (vph)	134	38	437	171	361	90	684	533	136	21	297	330
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	172	437	171	451	0	684	533	136	21	297	330
Turn Type	pm+pt	NA	pm+ov	pm+pt	NA		pm+pt	NA	pm+ov	pm+pt	NA	Free
Protected Phases	7	4	5	3	8		5	2	3	1	6	
Permitted Phases	4		4	8			2		2	6		Free
Detector Phase	7	4	5	3	8		5	2	3	1	6	
Switch Phase												
Minimum Initial (s)	7.0	7.0	7.0	7.0	7.0		7.0	12.0	7.0	7.0	12.0	
Minimum Split (s)	14.0	14.0	14.0	14.0	14.0		14.0	19.0	14.0	14.0	19.0	
Total Split (s)	14.0	37.0	43.0	14.0	37.0		43.0	55.0	14.0	14.0	26.0	
Total Split (%)	11.7%	30.8%	35.8%	11.7%	30.8%		35.8%	45.8%	11.7%	11.7%	21.7%	
Maximum Green (s)	7.0	30.0	36.0	7.0	30.0		36.0	48.0	7.0	7.0	19.0	
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0		5.0	5.0	5.0	5.0	5.0	
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)		-2.0	-2.0	-2.0	-2.0		-2.0	-2.0	-2.0	-2.0	-2.0	
Total Lost Time (s)		5.0	5.0	5.0	5.0		5.0	5.0	5.0	5.0	5.0	
Lead/Lag	Lead	Lag	Lead	Lead	Lag		Lead	Lag	Lead	Lead	Lag	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes		Yes	Yes	Yes	Yes	Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Recall Mode	None	None	None	None	None		None	C-Max	None	None	C-Max	
Act Effct Green (s)		32.0	75.0	46.0	46.0		64.0	58.4	72.4	30.0	21.0	120.0
Actuated g/C Ratio		0.27	0.62	0.38	0.38		0.53	0.49	0.60	0.25	0.18	1.00
v/c Ratio		0.82	0.44	0.42	0.65		1.10	0.59	0.14	0.07	0.91	0.21
Control Delay		70.9	13.4	28.9	35.8		95.8	29.7	13.6	18.9	80.8	0.3
Queue Delay		0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay		70.9	13.4	28.9	35.8		95.8	29.7	13.6	18.9	80.8	0.3
LOS		E	B	C	D		F	C	B	B	F	A
Approach Delay		29.6			33.9			61.5				37.8
Approach LOS		C			C			E				D

Lanes, Volumes, Timings
 100: Hodge Road & I-87 SB Ramp/Old Faison Road

10/20/2021

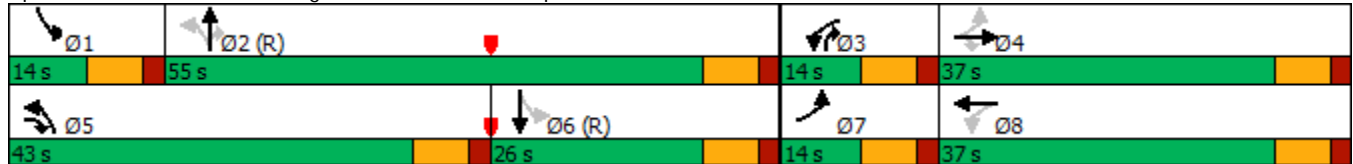


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 50th (ft)		125	163	90	284		-522	262	39	7	228	0
Queue Length 95th (ft)		#250	237	144	402		#772	472	m81	20	#393	0
Internal Link Dist (ft)		541			658			1047			839	
Turn Bay Length (ft)				125					200	175		225
Base Capacity (vph)		211	989	411	692		622	906	954	284	326	1583
Starvation Cap Reductn		0	0	0	0		0	0	0	0	0	0
Spillback Cap Reductn		0	0	0	0		0	0	0	0	0	0
Storage Cap Reductn		0	0	0	0		0	0	0	0	0	0
Reduced v/c Ratio		0.82	0.44	0.42	0.65		1.10	0.59	0.14	0.07	0.91	0.21

Intersection Summary

Area Type:	Other
Cycle Length:	120
Actuated Cycle Length:	120
Offset:	0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle:	120
Control Type:	Actuated-Coordinated
Maximum v/c Ratio:	1.10
Intersection Signal Delay:	45.4
Intersection LOS:	D
Intersection Capacity Utilization:	95.4%
ICU Level of Service:	F
Analysis Period (min):	15
~	Volume exceeds capacity, queue is theoretically infinite. Queue shown is maximum after two cycles.
#	95th percentile volume exceeds capacity, queue may be longer. Queue shown is maximum after two cycles.
m	Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 100: Hodge Road & I-87 SB Ramp/Old Faison Road



Lanes, Volumes, Timings
200: Hodge Road & I-87 NB Ramp

10/20/2021



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	156	193	869	1058	544	267
Future Volume (vph)	156	193	869	1058	544	267
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	150	100			125
Storage Lanes	2	1	1			1
Taper Length (ft)	25		100			
Lane Util. Factor	0.97	0.88	1.00	1.00	1.00	1.00
Frt		0.850				0.850
Flt Protected	0.950		0.950			
Satd. Flow (prot)	3433	2787	1770	1863	1863	1583
Flt Permitted	0.950		0.097			
Satd. Flow (perm)	3433	2787	181	1863	1863	1583
Right Turn on Red		No				No
Satd. Flow (RTOR)						
Link Speed (mph)	30			45	45	
Link Distance (ft)	621			302	1127	
Travel Time (s)	14.1			4.6	17.1	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	173	214	966	1176	604	297
Shared Lane Traffic (%)						
Lane Group Flow (vph)	173	214	966	1176	604	297
Turn Type	Prot	pm+ov	D.P+P	NA	NA	Free
Protected Phases	4	5	5	2	6	
Permitted Phases		4	6			Free
Detector Phase	4	5	5	2	6	
Switch Phase						
Minimum Initial (s)	7.0	7.0	7.0	12.0	12.0	
Minimum Split (s)	14.6	14.0	14.0	19.0	19.0	
Total Split (s)	14.6	59.0	59.0	105.4	46.4	
Total Split (%)	12.2%	49.2%	49.2%	87.8%	38.7%	
Maximum Green (s)	7.6	52.0	52.0	98.4	39.4	
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	
Lead/Lag		Lead	Lead		Lag	
Lead-Lag Optimize?		Yes	Yes		Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	
Recall Mode	None	None	None	C-Max	C-Max	
Act Effct Green (s)	9.6	68.6	95.4	100.4	41.4	120.0
Actuated g/C Ratio	0.08	0.57	0.80	0.84	0.34	1.00
v/c Ratio	0.63	0.13	1.13	0.75	0.94	0.19
Control Delay	64.4	12.2	93.3	9.1	49.9	0.2
Queue Delay	0.0	0.0	0.0	2.5	0.0	0.0
Total Delay	64.4	12.2	93.3	11.6	49.9	0.2
LOS	E	B	F	B	D	A
Approach Delay	35.5			48.4	33.5	
Approach LOS	D			D	C	

Lanes, Volumes, Timings
 200: Hodge Road & I-87 NB Ramp

10/20/2021

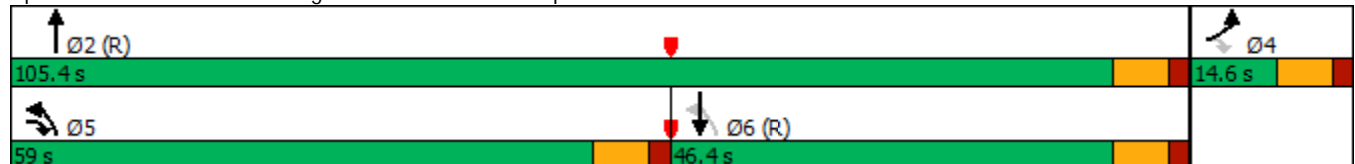


Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Queue Length 50th (ft)	68	41	~843	646	473	0
Queue Length 95th (ft)	106	63	m#1005	m66	m#649	m0
Internal Link Dist (ft)	541			222	1047	
Turn Bay Length (ft)		150	100			125
Base Capacity (vph)	274	1593	858	1558	642	1583
Starvation Cap Reductn	0	0	0	256	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.63	0.13	1.13	0.90	0.94	0.19

Intersection Summary

Area Type: Other
 Cycle Length: 120
 Actuated Cycle Length: 120
 Offset: 47 (39%), Referenced to phase 2:NBT and 6:NBSB, Start of Green
 Natural Cycle: 150
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 1.13
 Intersection Signal Delay: 43.1
 Intersection LOS: D
 Intersection Capacity Utilization 95.1%
 ICU Level of Service F
 Analysis Period (min) 15
 ~ Volume exceeds capacity, queue is theoretically infinite.
 Queue shown is maximum after two cycles.
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 200: Hodge Road & I-87 NB Ramp



Lanes, Volumes, Timings

300: Hodge Road & Panther Rock Boulevard/Ellen Drive

10/20/2021



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	381	4	28	4	4	9	16	1537	4	8	626	93
Future Volume (vph)	381	4	28	4	4	9	16	1537	4	8	626	93
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	150		0	0		0	150		0	50		200
Storage Lanes	1		0	0		0	1		0	1		1
Taper Length (ft)	100			25			100			100		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	1.00
Frt		0.867			0.925							0.850
Flt Protected	0.950				0.989		0.950			0.950		
Satd. Flow (prot)	1770	1615	0	0	1704	0	1770	3539	0	1770	3539	1583
Flt Permitted	0.755				0.913		0.333			0.064		
Satd. Flow (perm)	1406	1615	0	0	1573	0	620	3539	0	119	3539	1583
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		25			25			45				45
Link Distance (ft)		772			750			2057				453
Travel Time (s)		21.1			20.5			31.2				6.9
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
Adj. Flow (vph)	423	4	31	4	4	10	18	1708	4	9	696	103
Shared Lane Traffic (%)												
Lane Group Flow (vph)	423	35	0	0	18	0	18	1712	0	9	696	103
Turn Type	D.P+P	NA		Perm	NA		D.P+P	NA		D.Pm	NA	pm+ov
Protected Phases	7	4			8		5	2			6	7
Permitted Phases	8			8			6			2		6
Detector Phase	7	4		8	8		5	2		2	6	7
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0		7.0	12.0		12.0	12.0	7.0
Minimum Split (s)	14.0	22.5		22.5	22.5		14.0	22.5		22.5	22.5	14.0
Total Split (s)	30.0	52.5		22.5	22.5		14.0	67.5		67.5	53.5	30.0
Total Split (%)	25.0%	43.8%		18.8%	18.8%		11.7%	56.3%		56.3%	44.6%	25.0%
Maximum Green (s)	23.0	45.5		15.5	15.5		7.0	60.5		60.5	46.5	23.0
Yellow Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	5.0
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0			-2.0		-2.0	-2.0		-2.0	-2.0	0.0
Total Lost Time (s)	5.0	5.0			5.0		5.0	5.0		5.0	5.0	7.0
Lead/Lag	Lead			Lag	Lag		Lead				Lag	Lead
Lead-Lag Optimize?	Yes			Yes	Yes		Yes				Yes	Yes
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
Recall Mode	None	None		None	None		None	C-Max		C-Max	C-Max	None
Act Effct Green (s)	29.1	31.1			9.5		76.9	78.9		78.9	73.3	105.5
Actuated g/C Ratio	0.24	0.26			0.08		0.64	0.66		0.66	0.61	0.88
v/c Ratio	1.02	0.08			0.15		0.04	0.74		0.12	0.32	0.07
Control Delay	90.9	31.1			53.9		13.0	23.4		24.2	24.4	7.6
Queue Delay	0.0	0.0			0.0		0.0	48.0		0.0	0.0	0.0
Total Delay	90.9	31.1			53.9		13.0	71.4		24.2	24.4	7.6
LOS	F	C			D		B	E		C	C	A
Approach Delay		86.4			53.9			70.8			22.3	
Approach LOS		F			D			E			C	

Lanes, Volumes, Timings

300: Hodge Road & Panther Rock Boulevard/Ellen Drive

10/20/2021



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 50th (ft)	~385	22			13		5	585		3	206	0
Queue Length 95th (ft)	#459	42			37		m7	m507		m9	m308	m58
Internal Link Dist (ft)		692			670			1977			373	
Turn Bay Length (ft)	150						150			50		200
Base Capacity (vph)	416	639			229		483	2326		78	2161	1392
Starvation Cap Reductn	0	0			0		0	0		0	0	0
Spillback Cap Reductn	0	0			0		0	811		0	0	0
Storage Cap Reductn	0	0			0		0	0		0	0	0
Reduced v/c Ratio	1.02	0.05			0.08		0.04	1.13		0.12	0.32	0.07

Intersection Summary

Area Type: Other
 Cycle Length: 120
 Actuated Cycle Length: 120
 Offset: 0 (0%), Referenced to phase 2:NBSB and 6:NBSB, Start of Green
 Natural Cycle: 90
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 1.02
 Intersection Signal Delay: 60.0 Intersection LOS: E
 Intersection Capacity Utilization 78.7% ICU Level of Service D
 Analysis Period (min) 15
 ~ Volume exceeds capacity, queue is theoretically infinite.
 Queue shown is maximum after two cycles.
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 300: Hodge Road & Panther Rock Boulevard/Ellen Drive



Lanes, Volumes, Timings
400: Hodge Road & Spectrum Drive

10/20/2021

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	70	4	20	17	4	52	6	1433	64	184	450	21
Future Volume (vph)	70	4	20	17	4	52	6	1433	64	184	450	21
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0	100		100	300		0
Storage Lanes	1		0	1		0	1		1	2		1
Taper Length (ft)	25			25			100			100		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.97	1.00	1.00
Frt		0.873			0.860				0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	1626	0	1770	1602	0	1770	1863	1583	3433	1863	1583
Flt Permitted	0.717			0.740			0.446			0.950		
Satd. Flow (perm)	1336	1626	0	1378	1602	0	831	1863	1583	3433	1863	1583
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		30			30			45			45	
Link Distance (ft)		1036			933			1206			2057	
Travel Time (s)		23.5			21.2			18.3			31.2	
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
Adj. Flow (vph)	78	4	22	19	4	58	7	1592	71	204	500	23
Shared Lane Traffic (%)												
Lane Group Flow (vph)	78	26	0	19	62	0	7	1592	71	204	500	23
Turn Type	D.Pm	NA		D.Pm	NA		D.P+P	NA	Perm	Prot	NA	Perm
Protected Phases		4			8		5	2		1	6	
Permitted Phases	8			4			6		2			6
Detector Phase	8	4		4	8		5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0		7.0	12.0	12.0	7.0	12.0	12.0
Minimum Split (s)	14.0	14.0		14.0	14.0		14.0	19.0	19.0	14.0	19.0	19.0
Total Split (s)	17.0	17.0		17.0	17.0		14.0	88.0	88.0	15.0	89.0	89.0
Total Split (%)	14.2%	14.2%		14.2%	14.2%		11.7%	73.3%	73.3%	12.5%	74.2%	74.2%
Maximum Green (s)	10.0	10.0		10.0	10.0		7.0	81.0	81.0	8.0	82.0	82.0
Yellow Time (s)	5.0	5.0		5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0
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)	-2.0	-2.0		-2.0	-2.0		-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0		5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag							Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?							Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None		None	None		None	C-Max	C-Max	None	C-Max	C-Max
Act Effct Green (s)	11.4	11.4		11.4	11.4		97.6	83.4	83.4	10.2	95.8	95.8
Actuated g/C Ratio	0.10	0.10		0.10	0.10		0.81	0.70	0.70	0.08	0.80	0.80
v/c Ratio	0.62	0.17		0.15	0.41		0.01	1.23	0.06	0.70	0.34	0.02
Control Delay	73.2	52.3		52.2	59.3		2.2	132.0	6.2	92.1	4.2	0.9
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	73.2	52.3		52.2	59.3		2.2	132.0	6.2	92.1	4.2	0.9
LOS	E	D		D	E		A	F	A	F	A	A
Approach Delay		68.0			57.6			126.1			28.7	
Approach LOS		E			E			F			C	

Lanes, Volumes, Timings
400: Hodge Road & Spectrum Drive

10/20/2021



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 50th (ft)	59	19		14	46		1	~1528	16	86	66	1
Queue Length 95th (ft)	#121	48		38	92		3	#1792	31	#136	111	2
Internal Link Dist (ft)		956			853			1126			1977	
Turn Bay Length (ft)							100		100	300		
Base Capacity (vph)	133	162		137	160		746	1294	1099	293	1487	1263
Starvation Cap Reductn	0	0		0	0		0	0	0	0	0	0
Spillback Cap Reductn	0	0		0	0		0	0	0	0	0	0
Storage Cap Reductn	0	0		0	0		0	0	0	0	0	0
Reduced v/c Ratio	0.59	0.16		0.14	0.39		0.01	1.23	0.06	0.70	0.34	0.02

Intersection Summary

Area Type: Other
 Cycle Length: 120
 Actuated Cycle Length: 120
 Offset: 0 (0%), Referenced to phase 2:NBT and 6:NBSB, Start of Green
 Natural Cycle: 150
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 1.23
 Intersection Signal Delay: 94.2
 Intersection LOS: F
 Intersection Capacity Utilization 97.6%
 ICU Level of Service F
 Analysis Period (min) 15
 ~ Volume exceeds capacity, queue is theoretically infinite.
 Queue shown is maximum after two cycles.
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

Splits and Phases: 400: Hodge Road & Spectrum Drive



Lanes, Volumes, Timings
500: Hodge Road & Poole Road

10/20/2021



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	417	126	8	10	514	879	25	69	14	189	35	237
Future Volume (vph)	417	126	8	10	514	879	25	69	14	189	35	237
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	225		0	200		200	50		0	450		800
Storage Lanes	1		0	1		1	1		0	1		1
Taper Length (ft)	100			100			100			100		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.991				0.850		0.974				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	1846	0	1770	1863	1583	1770	1814	0	1770	1863	1583
Flt Permitted	0.333			0.662			0.732			0.620		
Satd. Flow (perm)	620	1846	0	1233	1863	1583	1364	1814	0	1155	1863	1583
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		45		45			45			45		45
Link Distance (ft)		1753		1176			1488			751		
Travel Time (s)		26.6		17.8			22.5			11.4		
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
Adj. Flow (vph)	463	140	9	11	571	977	28	77	16	210	39	263
Shared Lane Traffic (%)												
Lane Group Flow (vph)	463	149	0	11	571	977	28	93	0	210	39	263
Turn Type	pm+pt	NA		Perm	NA	Perm	Perm	NA		Perm	NA	pm+ov
Protected Phases	5	2		6			8			4		5
Permitted Phases	2			6		6	8			4		4
Detector Phase	5	2		6	6	6	8	8		4	4	5
Switch Phase												
Minimum Initial (s)	7.0	12.0		12.0	12.0	12.0	7.0	7.0		7.0	7.0	7.0
Minimum Split (s)	14.4	19.0		19.0	19.0	19.0	14.0	14.0		14.0	14.0	14.4
Total Split (s)	26.0	120.0		94.0	94.0	94.0	20.0	20.0		20.0	20.0	26.0
Total Split (%)	18.6%	85.7%		67.1%	67.1%	67.1%	14.3%	14.3%		14.3%	14.3%	18.6%
Maximum Green (s)	19.0	113.0		87.0	87.0	87.0	13.0	13.0		13.0	13.0	19.0
Yellow Time (s)	5.0	5.0		5.0	5.0	5.0	5.0	5.0		5.0	5.0	5.0
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)	-2.0	-2.0		-2.0	-2.0	-2.0	-2.0	-2.0		-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0		5.0	5.0	5.0	5.0	5.0		5.0	5.0	5.0
Lead/Lag	Lead			Lag	Lag	Lag						Lead
Lead-Lag Optimize?	Yes			Yes	Yes	Yes						Yes
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0
Recall Mode	None	None		None	None	None	Max	Max		Max	Max	None
Act Effct Green (s)	112.0	112.0		85.9	85.9	85.9	15.0	15.0		15.0	15.0	41.1
Actuated g/C Ratio	0.82	0.82		0.63	0.63	0.63	0.11	0.11		0.11	0.11	0.30
v/c Ratio	0.68	0.10		0.01	0.49	0.98	0.19	0.47		1.67	0.19	0.55
Control Delay	8.5	2.6		9.5	15.3	50.4	60.4	66.8		368.5	59.7	46.5
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Delay	8.5	2.6		9.5	15.3	50.4	60.4	66.8		368.5	59.7	46.5
LOS	A	A		A	B	D	E	E		F	E	D
Approach Delay		7.1			37.2			65.3				179.6
Approach LOS		A			D			E				F

Lanes, Volumes, Timings
500: Hodge Road & Poole Road

10/20/2021



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 50th (ft)	83	21		4	258	799	24	81		-280	33	204
Queue Length 95th (ft)	113	34		11	345	#1154	56	141		#446	71	299
Internal Link Dist (ft)		1673			1096			1408			671	
Turn Bay Length (ft)	225			200		200	50			450		800
Base Capacity (vph)	683	1552		802	1212	1030	149	199		126	204	474
Starvation Cap Reductn	0	0		0	0	0	0	0		0	0	0
Spillback Cap Reductn	0	0		0	0	0	0	0		0	0	0
Storage Cap Reductn	0	0		0	0	0	0	0		0	0	0
Reduced v/c Ratio	0.68	0.10		0.01	0.47	0.95	0.19	0.47		1.67	0.19	0.55

Intersection Summary

Area Type:	Other
Cycle Length:	140
Actuated Cycle Length:	137
Natural Cycle:	110
Control Type:	Actuated-Uncoordinated
Maximum v/c Ratio:	1.67
Intersection Signal Delay:	57.9
Intersection LOS:	E
Intersection Capacity Utilization:	95.9%
ICU Level of Service:	F
Analysis Period (min):	15
~ Volume exceeds capacity, queue is theoretically infinite. Queue shown is maximum after two cycles.	
# 95th percentile volume exceeds capacity, queue may be longer. Queue shown is maximum after two cycles.	

Splits and Phases: 500: Hodge Road & Poole Road



HCM 6th TWSC
600: Hodge Road & Site Access

10/20/2021

Intersection						
Int Delay, s/veh	24.9					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	92	4	4	1363	459	32
Future Vol, veh/h	92	4	4	1363	459	32
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	102	4	4	1514	510	36

Major/Minor	Minor2	Major1		Major2	
Conflicting Flow All	2050	528	546	0	0
Stage 1	528	-	-	-	-
Stage 2	1522	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-
Pot Cap-1 Maneuver	~ 61	550	1023	-	-
Stage 1	592	-	-	-	-
Stage 2	199	-	-	-	-
Platoon blocked, %				-	-
Mov Cap-1 Maneuver	~ 59	550	1023	-	-
Mov Cap-2 Maneuver	~ 59	-	-	-	-
Stage 1	577	-	-	-	-
Stage 2	199	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	\$ 506	0	0
HCM LOS	F		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1023	-	61	-	-
HCM Lane V/C Ratio	0.004	-	1.749	-	-
HCM Control Delay (s)	8.5	0	\$ 506	-	-
HCM Lane LOS	A	A	F	-	-
HCM 95th %tile Q(veh)	0	-	9.8	-	-

Notes
 -: Volume exceeds capacity \$: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon

Intersection						
Int Delay, s/veh	0.2					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↕	↕		↕	
Traffic Vol, veh/h	4	550	771	4	5	5
Future Vol, veh/h	4	550	771	4	5	5
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	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	4	611	857	4	6	6

Major/Minor	Major1	Major2	Minor2		
Conflicting Flow All	861	0	-	0	1478 859
Stage 1	-	-	-	-	859 -
Stage 2	-	-	-	-	619 -
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	781	-	-	-	139 356
Stage 1	-	-	-	-	415 -
Stage 2	-	-	-	-	537 -
Platoon blocked, %		-	-	-	
Mov Cap-1 Maneuver	781	-	-	-	138 356
Mov Cap-2 Maneuver	-	-	-	-	138 -
Stage 1	-	-	-	-	412 -
Stage 2	-	-	-	-	537 -

Approach	EB	WB	SB
HCM Control Delay, s	0.1	0	24.2
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	781	-	-	-	199
HCM Lane V/C Ratio	0.006	-	-	-	0.056
HCM Control Delay (s)	9.6	0	-	-	24.2
HCM Lane LOS	A	A	-	-	C
HCM 95th %tile Q(veh)	0	-	-	-	0.2

Lanes, Volumes, Timings

100: Hodge Road & I-87 SB Ramp/Old Faison Road

10/20/2021



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↖	↗	↖	↗		↖	↗	↗	↖	↗	↖
Traffic Volume (vph)	57	104	824	82	103	83	333	656	420	50	342	113
Future Volume (vph)	57	104	824	82	103	83	333	656	420	50	342	113
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	125		0	0		200	175		225
Storage Lanes	0		1	1		0	1		1	1		1
Taper Length (ft)	25			100			100			100		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850		0.933				0.850			0.850
Flt Protected		0.983		0.950			0.950			0.950		
Satd. Flow (prot)	0	1831	1583	1770	1738	0	1770	1863	1583	1770	1863	1583
Flt Permitted		0.800		0.292			0.129			0.388		
Satd. Flow (perm)	0	1490	1583	544	1738	0	240	1863	1583	723	1863	1583
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		30		45			45			45		45
Link Distance (ft)		621		738			1127			919		
Travel Time (s)		14.1		11.2			17.1			13.9		
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
Adj. Flow (vph)	63	116	916	91	114	92	370	729	467	56	380	126
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	179	916	91	206	0	370	729	467	56	380	126
Turn Type	pm+pt	NA	pm+ov	pm+pt	NA		pm+pt	NA	pm+ov	pm+pt	NA	Free
Protected Phases	7	4	5	3	8		5	2	3	1	6	
Permitted Phases	4		4	8			2		2	6		Free
Detector Phase	7	4	5	3	8		5	2	3	1	6	
Switch Phase												
Minimum Initial (s)	7.0	7.0	7.0	7.0	7.0		7.0	12.0	7.0	7.0	12.0	
Minimum Split (s)	14.0	14.0	14.0	14.0	14.0		14.0	19.0	14.0	14.0	19.0	
Total Split (s)	14.0	21.0	54.0	14.0	21.0		54.0	71.0	14.0	14.0	31.0	
Total Split (%)	11.7%	17.5%	45.0%	11.7%	17.5%		45.0%	59.2%	11.7%	11.7%	25.8%	
Maximum Green (s)	7.0	14.0	47.0	7.0	14.0		47.0	64.0	7.0	7.0	24.0	
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0		5.0	5.0	5.0	5.0	5.0	
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)		-2.0	-2.0	-2.0	-2.0		-2.0	-2.0	-2.0	-2.0	-2.0	
Total Lost Time (s)		5.0	5.0	5.0	5.0		5.0	5.0	5.0	5.0	5.0	
Lead/Lag	Lead	Lag	Lead	Lead	Lag		Lead	Lag	Lead	Lead	Lag	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes		Yes	Yes	Yes	Yes	Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Recall Mode	None	None	None	None	None		None	C-Max	None	None	C-Max	
Act Effct Green (s)		16.0	70.0	30.0	30.0		80.0	68.8	82.8	35.0	26.0	120.0
Actuated g/C Ratio		0.13	0.58	0.25	0.25		0.67	0.57	0.69	0.29	0.22	1.00
v/c Ratio		0.90	0.99	0.40	0.47		0.47	0.68	0.43	0.19	0.94	0.08
Control Delay		94.8	53.4	41.3	42.6		31.2	28.0	8.1	18.0	79.4	0.1
Queue Delay		0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay		94.8	53.4	41.3	42.6		31.2	28.0	8.1	18.0	79.4	0.1
LOS		F	D	D	D		C	C	A	B	E	A
Approach Delay		60.2			42.2			22.8			55.5	
Approach LOS		E			D			C			E	

Lanes, Volumes, Timings
 100: Hodge Road & I-87 SB Ramp/Old Faison Road

10/20/2021

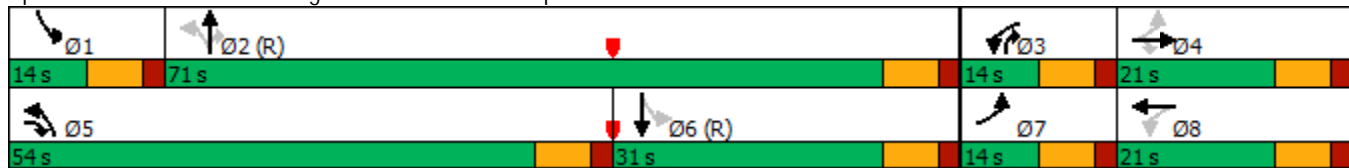


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 50th (ft)		138	665	56	136		216	335	98	16	292	0
Queue Length 95th (ft)		#275	#980	102	213		m248	m357	m132	32	#481	0
Internal Link Dist (ft)		541			658			1047			839	
Turn Bay Length (ft)				125					200	175		225
Base Capacity (vph)		198	923	227	434		784	1068	1092	289	403	1583
Starvation Cap Reductn		0	0	0	0		0	0	0	0	0	0
Spillback Cap Reductn		0	0	0	0		0	0	0	0	0	0
Storage Cap Reductn		0	0	0	0		0	0	0	0	0	0
Reduced v/c Ratio		0.90	0.99	0.40	0.47		0.47	0.68	0.43	0.19	0.94	0.08

Intersection Summary

Area Type: Other
 Cycle Length: 120
 Actuated Cycle Length: 120
 Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
 Natural Cycle: 100
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.99
 Intersection Signal Delay: 41.3
 Intersection LOS: D
 Intersection Capacity Utilization 92.0%
 ICU Level of Service F
 Analysis Period (min) 15
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 100: Hodge Road & I-87 SB Ramp/Old Faison Road



Lanes, Volumes, Timings
200: Hodge Road & I-87 NB Ramp

10/20/2021



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	773	881	454	635	1156	89
Future Volume (vph)	773	881	454	635	1156	89
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	150	100			125
Storage Lanes	2	1	1			1
Taper Length (ft)	25		100			
Lane Util. Factor	0.97	0.88	1.00	1.00	1.00	1.00
Frt		0.850				0.850
Flt Protected	0.950		0.950			
Satd. Flow (prot)	3433	2787	1770	1863	1863	1583
Flt Permitted	0.950		0.065			
Satd. Flow (perm)	3433	2787	121	1863	1863	1583
Right Turn on Red		No				No
Satd. Flow (RTOR)						
Link Speed (mph)	30			45	45	
Link Distance (ft)	621			321	1127	
Travel Time (s)	14.1			4.9	17.1	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	859	979	504	706	1284	99
Shared Lane Traffic (%)						
Lane Group Flow (vph)	859	979	504	706	1284	99
Turn Type	Prot	pm+ov	D.P+P	NA	NA	Free
Protected Phases	4	5	5	2	6	
Permitted Phases		4	6			Free
Detector Phase	4	5	5	2	6	
Switch Phase						
Minimum Initial (s)	7.0	7.0	7.0	12.0	12.0	
Minimum Split (s)	14.6	14.0	14.0	19.0	19.0	
Total Split (s)	28.0	25.0	25.0	92.0	67.0	
Total Split (%)	23.3%	20.8%	20.8%	76.7%	55.8%	
Maximum Green (s)	21.0	18.0	18.0	85.0	60.0	
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	
Lead/Lag		Lead	Lead		Lag	
Lead-Lag Optimize?		Yes	Yes		Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	
Recall Mode	None	None	None	C-Max	C-Max	
Act Effct Green (s)	23.0	48.0	82.0	87.0	62.0	120.0
Actuated g/C Ratio	0.19	0.40	0.68	0.72	0.52	1.00
v/c Ratio	1.31	0.88	1.41	0.52	1.33	0.06
Control Delay	188.3	43.8	233.1	11.1	179.3	0.0
Queue Delay	0.0	11.0	0.0	0.6	0.0	0.0
Total Delay	188.3	54.8	233.1	11.7	179.3	0.0
LOS	F	D	F	B	F	A
Approach Delay	117.2			103.9	166.5	
Approach LOS	F			F	F	

Lanes, Volumes, Timings
 200: Hodge Road & I-87 NB Ramp

10/20/2021

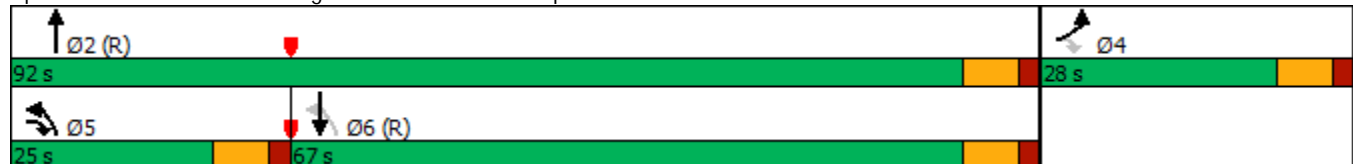


Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Queue Length 50th (ft)	~440	393	~491	173	~1301	0
Queue Length 95th (ft)	#566	#528	m#667	m360	m#1365	m0
Internal Link Dist (ft)	541			241	1047	
Turn Bay Length (ft)		150	100			125
Base Capacity (vph)	657	1114	357	1350	962	1583
Starvation Cap Reductn	0	0	0	301	0	0
Spillback Cap Reductn	0	129	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	1.31	0.99	1.41	0.67	1.33	0.06

Intersection Summary

Area Type: Other
 Cycle Length: 120
 Actuated Cycle Length: 120
 Offset: 47 (39%), Referenced to phase 2:NBT and 6:NBSB, Start of Green
 Natural Cycle: 150
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 1.41
 Intersection Signal Delay: 129.0 Intersection LOS: F
 Intersection Capacity Utilization 120.5% ICU Level of Service H
 Analysis Period (min) 15
 ~ Volume exceeds capacity, queue is theoretically infinite.
 Queue shown is maximum after two cycles.
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 200: Hodge Road & I-87 NB Ramp



Lanes, Volumes, Timings

300: Hodge Road & Panther Rock Boulevard/Ellen Drive

10/20/2021



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	213	4	15	4	4	10	36	865	6	13	1583	308
Future Volume (vph)	213	4	15	4	4	10	36	865	6	13	1583	308
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	150		0	0		0	150		0	50		200
Storage Lanes	1		0	0		0	1		0	1		1
Taper Length (ft)	100			25			100			100		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	1.00
Frt		0.879			0.922			0.999				0.850
Flt Protected	0.950				0.990		0.950			0.950		
Satd. Flow (prot)	1770	1637	0	0	1700	0	1770	3536	0	1770	3539	1583
Flt Permitted	0.755				0.921		0.054			0.268		
Satd. Flow (perm)	1406	1637	0	0	1582	0	101	3536	0	499	3539	1583
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		25			25			45			45	
Link Distance (ft)		772			750			2057			435	
Travel Time (s)		21.1			20.5			31.2			6.6	
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
Adj. Flow (vph)	237	4	17	4	4	11	40	961	7	14	1759	342
Shared Lane Traffic (%)												
Lane Group Flow (vph)	237	21	0	0	19	0	40	968	0	14	1759	342
Turn Type	D.P+P	NA		Perm	NA		D.P+P	NA		D.Pm	NA	pm+ov
Protected Phases	7	4			8		5	2			6	7
Permitted Phases	8			8			6			2		6
Detector Phase	7	4		8	8		5	2		2	6	7
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0		7.0	12.0		12.0	12.0	7.0
Minimum Split (s)	14.0	22.5		22.5	22.5		14.0	22.5		22.5	22.5	14.0
Total Split (s)	18.0	40.5		22.5	22.5		14.0	79.5		79.5	65.5	18.0
Total Split (%)	15.0%	33.8%		18.8%	18.8%		11.7%	66.3%		66.3%	54.6%	15.0%
Maximum Green (s)	11.0	33.5		15.5	15.5		7.0	72.5		72.5	58.5	11.0
Yellow Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	5.0
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0			-2.0		-2.0	-2.0		-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0			5.0		5.0	5.0		5.0	5.0	5.0
Lead/Lag	Lead			Lag	Lag		Lead				Lag	Lead
Lead-Lag Optimize?	Yes			Yes	Yes		Yes				Yes	Yes
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
Recall Mode	None	None		None	None		None	C-Max		C-Max	C-Max	None
Act Effct Green (s)	17.1	19.1			9.5		86.9	90.9		90.9	79.6	98.6
Actuated g/C Ratio	0.14	0.16			0.08		0.72	0.76		0.76	0.66	0.82
v/c Ratio	0.99	0.08			0.15		0.20	0.36		0.04	0.75	0.26
Control Delay	104.3	39.6			54.0		8.7	4.7		6.6	18.8	4.7
Queue Delay	0.0	0.0			0.0		0.0	0.0		0.0	1.4	0.0
Total Delay	104.3	39.6			54.0		8.7	4.7		6.6	20.2	4.7
LOS	F	D			D		A	A		A	C	A
Approach Delay		99.0			54.0			4.9			17.6	
Approach LOS		F			D			A			B	

Lanes, Volumes, Timings

300: Hodge Road & Panther Rock Boulevard/Ellen Drive

10/20/2021



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 50th (ft)	~228	15			14		4	56		2	423	45
Queue Length 95th (ft)	#263	34			39		m13	m146		m3	m524	m90
Internal Link Dist (ft)		692			670			1977			355	
Turn Bay Length (ft)	150						150			50		200
Base Capacity (vph)	240	484			230		199	2677		377	2346	1300
Starvation Cap Reductn	0	0			0		0	0		0	363	0
Spillback Cap Reductn	0	0			0		0	0		0	0	0
Storage Cap Reductn	0	0			0		0	0		0	0	0
Reduced v/c Ratio	0.99	0.04			0.08		0.20	0.36		0.04	0.89	0.26

Intersection Summary

Area Type: Other

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 0 (0%), Referenced to phase 2:NBSB and 6:NBSB, Start of Green

Natural Cycle: 110

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.99

Intersection Signal Delay: 20.2

Intersection LOS: C

Intersection Capacity Utilization 70.6%

ICU Level of Service C

Analysis Period (min) 15

~ Volume exceeds capacity, queue is theoretically infinite.

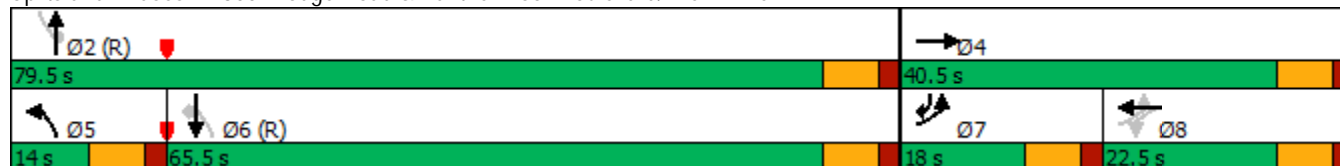
Queue shown is maximum after two cycles.

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

Queue shown is maximum after two cycles.

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

Splits and Phases: 300: Hodge Road & Panther Rock Boulevard/Ellen Drive



Lanes, Volumes, Timings

400: Hodge Road & Spectrum Drive

10/20/2021



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	43	4	12	64	4	187	22	675	21	64	1514	75
Future Volume (vph)	43	4	12	64	4	187	22	675	21	64	1514	75
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0	100		100	300		0
Storage Lanes	1		0	1		0	1		1	2		1
Taper Length (ft)	25			25			100			100		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.97	1.00	1.00
Frt		0.885			0.853				0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	1649	0	1770	1589	0	1770	1863	1583	3433	1863	1583
Flt Permitted	0.333			0.746			0.046			0.950		
Satd. Flow (perm)	620	1649	0	1390	1589	0	86	1863	1583	3433	1863	1583
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		30			30			45			45	
Link Distance (ft)		1036			933			1218			2057	
Travel Time (s)		23.5			21.2			18.5			31.2	
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
Adj. Flow (vph)	48	4	13	71	4	208	24	750	23	71	1682	83
Shared Lane Traffic (%)												
Lane Group Flow (vph)	48	17	0	71	212	0	24	750	23	71	1682	83
Turn Type	D.Pm	NA		D.Pm	NA		D.P+P	NA	Perm	Prot	NA	Perm
Protected Phases		4			8		5	2		1	6	
Permitted Phases	8			4			6		2			6
Detector Phase	8	4		4	8		5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0		7.0	12.0	12.0	7.0	12.0	12.0
Minimum Split (s)	14.0	14.0		14.0	14.0		14.0	19.0	19.0	14.0	19.0	19.0
Total Split (s)	17.0	17.0		17.0	17.0		14.0	89.0	89.0	14.0	89.0	89.0
Total Split (%)	14.2%	14.2%		14.2%	14.2%		11.7%	74.2%	74.2%	11.7%	74.2%	74.2%
Maximum Green (s)	10.0	10.0		10.0	10.0		7.0	82.0	82.0	7.0	82.0	82.0
Yellow Time (s)	5.0	5.0		5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0
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)	-2.0	-2.0		-2.0	-2.0		-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0		5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag							Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?							Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None		None	None		None	C-Max	C-Max	None	C-Max	C-Max
Act Effct Green (s)	12.0	12.0		12.0	12.0		95.0	86.8	86.8	9.0	89.6	89.6
Actuated g/C Ratio	0.10	0.10		0.10	0.10		0.79	0.72	0.72	0.08	0.75	0.75
v/c Ratio	0.77	0.10		0.51	1.34		0.12	0.56	0.02	0.28	1.21	0.07
Control Delay	116.3	50.9		64.9	231.4		3.6	10.3	5.6	59.2	119.3	2.2
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	116.3	50.9		64.9	231.4		3.6	10.3	5.6	59.2	119.3	2.2
LOS	F	D		E	F		A	B	A	E	F	A
Approach Delay		99.2			189.7			10.0			111.7	
Approach LOS		F			F			A			F	

Lanes, Volumes, Timings
500: Hodge Road & Poole Road

10/20/2021

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	328	330	13	19	200	242	14	58	17	925	81	446
Future Volume (vph)	328	330	13	19	200	242	14	58	17	925	81	446
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	225		0	200		200	50		0	450		800
Storage Lanes	1		0	1		1	1		0	1		1
Taper Length (ft)	100			100			100			100		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.994				0.850		0.966				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	1852	0	1770	1863	1583	1770	1799	0	1770	1863	1583
Flt Permitted	0.239			0.535			0.699			0.703		
Satd. Flow (perm)	445	1852	0	997	1863	1583	1302	1799	0	1310	1863	1583
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		45			45			45				45
Link Distance (ft)		1743			1176			1488				751
Travel Time (s)		26.4			17.8			22.5				11.4
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
Adj. Flow (vph)	364	367	14	21	222	269	16	64	19	1028	90	496
Shared Lane Traffic (%)												
Lane Group Flow (vph)	364	381	0	21	222	269	16	83	0	1028	90	496
Turn Type	pm+pt	NA		Perm	NA	Perm	Perm	NA		Perm	NA	pm+ov
Protected Phases	5	2			6			8			4	5
Permitted Phases	2			6		6	8			4		4
Detector Phase	5	2		6	6	6	8	8		4	4	5
Switch Phase												
Minimum Initial (s)	7.0	12.0		12.0	12.0	12.0	7.0	7.0		7.0	7.0	7.0
Minimum Split (s)	14.4	19.0		19.0	19.0	19.0	14.0	14.0		14.0	14.0	14.4
Total Split (s)	21.0	48.0		27.0	27.0	27.0	92.0	92.0		92.0	92.0	21.0
Total Split (%)	15.0%	34.3%		19.3%	19.3%	19.3%	65.7%	65.7%		65.7%	65.7%	15.0%
Maximum Green (s)	14.0	41.0		20.0	20.0	20.0	85.0	85.0		85.0	85.0	14.0
Yellow Time (s)	5.0	5.0		5.0	5.0	5.0	5.0	5.0		5.0	5.0	5.0
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)	-2.0	-2.0		-2.0	-2.0	-2.0	-2.0	-2.0		-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0		5.0	5.0	5.0	5.0	5.0		5.0	5.0	5.0
Lead/Lag	Lead			Lag	Lag	Lag						Lead
Lead-Lag Optimize?	Yes			Yes	Yes	Yes						Yes
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0
Recall Mode	None	None		None	None	None	Max	Max		Max	Max	None
Act Effct Green (s)	43.0	43.0		22.0	22.0	22.0	87.0	87.0		87.0	87.0	108.0
Actuated g/C Ratio	0.31	0.31		0.16	0.16	0.16	0.62	0.62		0.62	0.62	0.77
v/c Ratio	1.26	0.67		0.13	0.76	1.08	0.02	0.07		1.26	0.08	0.41
Control Delay	179.5	49.2		53.4	73.8	135.5	10.3	10.8		154.6	10.8	6.5
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Delay	179.5	49.2		53.4	73.8	135.5	10.3	10.8		154.6	10.8	6.5
LOS	F	D		D	E	F	B	B		F	B	A
Approach Delay		112.9			105.4			10.7				101.1
Approach LOS		F			F			B				F

Lanes, Volumes, Timings
500: Hodge Road & Poole Road

10/20/2021



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 50th (ft)	~332	303		17	196	~273	5	28		~1173	31	131
Queue Length 95th (ft)	#539	421		44	#311	#455	15	51		#1434	54	181
Internal Link Dist (ft)		1663			1096			1408			671	
Turn Bay Length (ft)	225			200		200	50			450		800
Base Capacity (vph)	288	568		156	292	248	809	1117		814	1157	1221
Starvation Cap Reductn	0	0		0	0	0	0	0		0	0	0
Spillback Cap Reductn	0	0		0	0	0	0	0		0	0	0
Storage Cap Reductn	0	0		0	0	0	0	0		0	0	0
Reduced v/c Ratio	1.26	0.67		0.13	0.76	1.08	0.02	0.07		1.26	0.08	0.41

Intersection Summary

Area Type:	Other
Cycle Length:	140
Actuated Cycle Length:	140
Natural Cycle:	150
Control Type:	Actuated-Uncoordinated
Maximum v/c Ratio:	1.26
Intersection Signal Delay:	101.8
Intersection LOS:	F
Intersection Capacity Utilization:	99.1%
ICU Level of Service:	F
Analysis Period (min):	15
~ Volume exceeds capacity, queue is theoretically infinite. Queue shown is maximum after two cycles.	
# 95th percentile volume exceeds capacity, queue may be longer. Queue shown is maximum after two cycles.	

Splits and Phases: 500: Hodge Road & Poole Road



HCM 6th TWSC
600: Hodge Road & Site Access

10/20/2021

Intersection						
Int Delay, s/veh	17.6					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	W			W	W	
Traffic Vol, veh/h	60	4	4	628	1450	95
Future Vol, veh/h	60	4	4	628	1450	95
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	67	4	4	698	1611	106

Major/Minor	Minor2	Major1	Major2			
Conflicting Flow All	2370	1664	1717	0	-	0
Stage 1	1664	-	-	-	-	-
Stage 2	706	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	~ 38	120	369	-	-	-
Stage 1	169	-	-	-	-	-
Stage 2	489	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	~ 37	120	369	-	-	-
Mov Cap-2 Maneuver	~ 37	-	-	-	-	-
Stage 1	166	-	-	-	-	-
Stage 2	489	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s\$	614.3	0.1	0
HCM LOS	F		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	369	-	39	-	-
HCM Lane V/C Ratio	0.012	-	1.823	-	-
HCM Control Delay (s)	14.9	0\$	614.3	-	-
HCM Lane LOS	B	A	F	-	-
HCM 95th %tile Q(veh)	0	-	7.5	-	-

Notes
 -: Volume exceeds capacity \$: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon

HCM 6th TWSC
700: Poole Road & Site Access

10/20/2021

Intersection						
Int Delay, s/veh	0.2					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↶	↷		↶	
Traffic Vol, veh/h	5	669	652	5	4	4
Future Vol, veh/h	5	669	652	5	4	4
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	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	6	743	724	6	4	4

Major/Minor	Major1	Major2	Minor2		
Conflicting Flow All	730	0	-	0	1482 727
Stage 1	-	-	-	-	727 -
Stage 2	-	-	-	-	755 -
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	874	-	-	-	138 424
Stage 1	-	-	-	-	478 -
Stage 2	-	-	-	-	464 -
Platoon blocked, %		-	-	-	
Mov Cap-1 Maneuver	874	-	-	-	136 424
Mov Cap-2 Maneuver	-	-	-	-	136 -
Stage 1	-	-	-	-	472 -
Stage 2	-	-	-	-	464 -

Approach	EB	WB	SB
HCM Control Delay, s	0.1	0	23.3
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	874	-	-	-	206
HCM Lane V/C Ratio	0.006	-	-	-	0.043
HCM Control Delay (s)	9.1	0	-	-	23.3
HCM Lane LOS	A	A	-	-	C
HCM 95th %tile Q(veh)	0	-	-	-	0.1

*2033 Future Build + Improvement
Conditions*

Lanes, Volumes, Timings

100: Hodge Road & I-87 SB Ramp/Old Faison Road

10/20/2021



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↖	↗	↖	↗		↖	↗	↗	↖	↗	↖
Traffic Volume (vph)	121	34	393	154	325	81	616	480	122	19	267	297
Future Volume (vph)	121	34	393	154	325	81	616	480	122	19	267	297
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	125		0	0		200	175		225
Storage Lanes	0		1	1		0	1		1	1		1
Taper Length (ft)	25			100			100			100		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850		0.970				0.850			0.850
Flt Protected		0.963		0.950			0.950			0.950		
Satd. Flow (prot)	0	1794	1583	1770	1807	0	1770	1863	1583	1770	1863	1583
Flt Permitted		0.426		0.486			0.154			0.466		
Satd. Flow (perm)	0	794	1583	905	1807	0	287	1863	1583	868	1863	1583
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		30		45			45			45		45
Link Distance (ft)		621		738			1127			919		
Travel Time (s)		14.1		11.2			17.1			13.9		
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
Adj. Flow (vph)	134	38	437	171	361	90	684	533	136	21	297	330
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	172	437	171	451	0	684	533	136	21	297	330
Turn Type	pm+pt	NA	pm+ov	pm+pt	NA		pm+pt	NA	pm+ov	pm+pt	NA	Free
Protected Phases	7	4	5	3	8		5	2	3	1	6	
Permitted Phases	4		4	8			2		2	6		Free
Detector Phase	7	4	5	3	8		5	2	3	1	6	
Switch Phase												
Minimum Initial (s)	7.0	7.0	7.0	7.0	7.0		7.0	12.0	7.0	7.0	12.0	
Minimum Split (s)	14.0	14.0	14.0	14.0	14.0		14.0	19.0	14.0	14.0	19.0	
Total Split (s)	14.0	37.0	43.0	14.0	37.0		43.0	55.0	14.0	14.0	26.0	
Total Split (%)	11.7%	30.8%	35.8%	11.7%	30.8%		35.8%	45.8%	11.7%	11.7%	21.7%	
Maximum Green (s)	7.0	30.0	36.0	7.0	30.0		36.0	48.0	7.0	7.0	19.0	
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0		5.0	5.0	5.0	5.0	5.0	
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)		-2.0	-2.0	-2.0	-2.0		-2.0	-2.0	-2.0	-2.0	-2.0	
Total Lost Time (s)		5.0	5.0	5.0	5.0		5.0	5.0	5.0	5.0	5.0	
Lead/Lag	Lead	Lag	Lead	Lead	Lag		Lead	Lag	Lead	Lead	Lag	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes		Yes	Yes	Yes	Yes	Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Recall Mode	None	None	None	None	None		None	C-Max	None	None	C-Max	
Act Effct Green (s)		32.0	75.0	46.0	46.0		64.0	58.4	72.4	30.0	21.0	120.0
Actuated g/C Ratio		0.27	0.62	0.38	0.38		0.53	0.49	0.60	0.25	0.18	1.00
v/c Ratio		0.82	0.44	0.42	0.65		1.10	0.59	0.14	0.07	0.91	0.21
Control Delay		70.9	13.4	28.9	35.8		95.8	29.7	13.6	18.9	80.8	0.3
Queue Delay		0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay		70.9	13.4	28.9	35.8		95.8	29.7	13.6	18.9	80.8	0.3
LOS		E	B	C	D		F	C	B	B	F	A
Approach Delay		29.6			33.9		61.5				37.8	
Approach LOS		C			C		E				D	

Lanes, Volumes, Timings
 100: Hodge Road & I-87 SB Ramp/Old Faison Road

10/20/2021

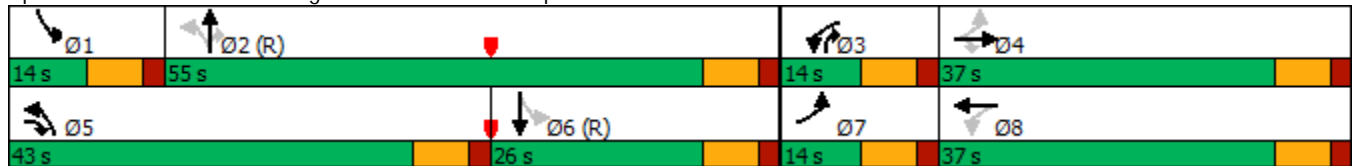


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 50th (ft)		125	163	90	284		-522	262	39	7	228	0
Queue Length 95th (ft)		#250	237	144	402		#771	471	m81	20	#393	0
Internal Link Dist (ft)		541			658			1047			839	
Turn Bay Length (ft)				125					200	175		225
Base Capacity (vph)		211	989	411	692		622	906	954	284	326	1583
Starvation Cap Reductn		0	0	0	0		0	0	0	0	0	0
Spillback Cap Reductn		0	0	0	0		0	0	0	0	0	0
Storage Cap Reductn		0	0	0	0		0	0	0	0	0	0
Reduced v/c Ratio		0.82	0.44	0.42	0.65		1.10	0.59	0.14	0.07	0.91	0.21

Intersection Summary

Area Type: Other
 Cycle Length: 120
 Actuated Cycle Length: 120
 Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
 Natural Cycle: 120
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 1.10
 Intersection Signal Delay: 45.4 Intersection LOS: D
 Intersection Capacity Utilization 95.4% ICU Level of Service F
 Analysis Period (min) 15
 ~ Volume exceeds capacity, queue is theoretically infinite.
 Queue shown is maximum after two cycles.
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 100: Hodge Road & I-87 SB Ramp/Old Faison Road



Lanes, Volumes, Timings
200: Hodge Road & I-87 NB Ramp

10/20/2021



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	156	193	869	1058	544	267
Future Volume (vph)	156	193	869	1058	544	267
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	150	100			125
Storage Lanes	2	1	1			1
Taper Length (ft)	25		100			
Lane Util. Factor	0.97	0.88	1.00	1.00	1.00	1.00
Frt		0.850				0.850
Flt Protected	0.950		0.950			
Satd. Flow (prot)	3433	2787	1770	1863	1863	1583
Flt Permitted	0.950		0.097			
Satd. Flow (perm)	3433	2787	181	1863	1863	1583
Right Turn on Red		No				No
Satd. Flow (RTOR)						
Link Speed (mph)	30			45	45	
Link Distance (ft)	621			302	1127	
Travel Time (s)	14.1			4.6	17.1	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	173	214	966	1176	604	297
Shared Lane Traffic (%)						
Lane Group Flow (vph)	173	214	966	1176	604	297
Turn Type	Prot	pm+ov	D.P+P	NA	NA	Free
Protected Phases	4	5	5	2	6	
Permitted Phases		4	6			Free
Detector Phase	4	5	5	2	6	
Switch Phase						
Minimum Initial (s)	7.0	7.0	7.0	12.0	12.0	
Minimum Split (s)	14.6	14.0	14.0	19.0	19.0	
Total Split (s)	14.6	59.0	59.0	105.4	46.4	
Total Split (%)	12.2%	49.2%	49.2%	87.8%	38.7%	
Maximum Green (s)	7.6	52.0	52.0	98.4	39.4	
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	
Lead/Lag		Lead	Lead		Lag	
Lead-Lag Optimize?		Yes	Yes		Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	
Recall Mode	None	None	None	C-Max	C-Max	
Act Effct Green (s)	9.6	68.6	95.4	100.4	41.4	120.0
Actuated g/C Ratio	0.08	0.57	0.80	0.84	0.34	1.00
v/c Ratio	0.63	0.13	1.13	0.75	0.94	0.19
Control Delay	64.4	12.2	93.3	9.2	49.9	0.2
Queue Delay	0.0	0.0	0.0	2.5	0.0	0.0
Total Delay	64.4	12.2	93.3	11.8	49.9	0.2
LOS	E	B	F	B	D	A
Approach Delay	35.5			48.5	33.5	
Approach LOS	D			D	C	

Lanes, Volumes, Timings
 200: Hodge Road & I-87 NB Ramp

10/20/2021

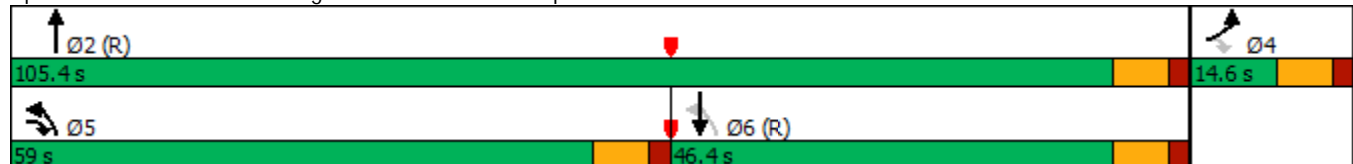


Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Queue Length 50th (ft)	68	41	~843	646	473	0
Queue Length 95th (ft)	106	63	m#1005	m66	m#649	m0
Internal Link Dist (ft)	541			222	1047	
Turn Bay Length (ft)		150	100			125
Base Capacity (vph)	274	1593	858	1558	642	1583
Starvation Cap Reductn	0	0	0	256	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.63	0.13	1.13	0.90	0.94	0.19

Intersection Summary

Area Type: Other
 Cycle Length: 120
 Actuated Cycle Length: 120
 Offset: 47 (39%), Referenced to phase 2:NBT and 6:NBSB, Start of Green
 Natural Cycle: 150
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 1.13
 Intersection Signal Delay: 43.1
 Intersection LOS: D
 Intersection Capacity Utilization 95.1%
 ICU Level of Service F
 Analysis Period (min) 15
 ~ Volume exceeds capacity, queue is theoretically infinite.
 Queue shown is maximum after two cycles.
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 200: Hodge Road & I-87 NB Ramp



Lanes, Volumes, Timings

300: Hodge Road & Panther Rock Boulevard/Ellen Drive

10/20/2021



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗			↔		↖	↕		↖	↕	↗
Traffic Volume (vph)	381	0	28	4	0	9	16	1537	4	8	626	93
Future Volume (vph)	381	0	28	4	0	9	16	1537	4	8	626	93
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	150		0	0		0	150		0	50		200
Storage Lanes	1		0	0		0	1		0	1		1
Taper Length (ft)	100			25			100			100		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	1.00
Frt		0.850			0.904							0.850
Flt Protected	0.950				0.986		0.950			0.950		
Satd. Flow (prot)	1770	1583	0	0	1660	0	1770	3539	0	1770	3539	1583
Flt Permitted	0.784				0.892		0.333			0.065		
Satd. Flow (perm)	1460	1583	0	0	1502	0	620	3539	0	121	3539	1583
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		25			25			45				45
Link Distance (ft)		772			750			2057				453
Travel Time (s)		21.1			20.5			31.2				6.9
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
Adj. Flow (vph)	423	0	31	4	0	10	18	1708	4	9	696	103
Shared Lane Traffic (%)												
Lane Group Flow (vph)	423	31	0	0	14	0	18	1712	0	9	696	103
Turn Type	D.P+P	NA		Perm	NA		D.P+P	NA		D.Pm	NA	pm+ov
Protected Phases	7	4			8		5	2			6	7
Permitted Phases	8			8			6			2		6
Detector Phase	7	4		8	8		5	2		2	6	7
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0		7.0	12.0		12.0	12.0	7.0
Minimum Split (s)	14.0	22.5		22.5	22.5		14.0	22.5		22.5	22.5	14.0
Total Split (s)	30.0	52.5		22.5	22.5		14.0	67.5		67.5	53.5	30.0
Total Split (%)	25.0%	43.8%		18.8%	18.8%		11.7%	56.3%		56.3%	44.6%	25.0%
Maximum Green (s)	23.0	45.5		15.5	15.5		7.0	60.5		60.5	46.5	23.0
Yellow Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	5.0
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0			-2.0		-2.0	-2.0		-2.0	-2.0	0.0
Total Lost Time (s)	5.0	5.0			5.0		5.0	5.0		5.0	5.0	7.0
Lead/Lag	Lead			Lag	Lag		Lead				Lag	Lead
Lead-Lag Optimize?	Yes			Yes	Yes		Yes				Yes	Yes
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
Recall Mode	None	None		None	None		None	C-Max		C-Max	C-Max	None
Act Effct Green (s)	28.9	30.9			9.3		77.1	79.1		79.1	73.5	105.7
Actuated g/C Ratio	0.24	0.26			0.08		0.64	0.66		0.66	0.61	0.88
v/c Ratio	1.02	0.08			0.12		0.04	0.73		0.11	0.32	0.07
Control Delay	91.2	31.0			53.7		12.8	23.2		23.6	24.2	7.5
Queue Delay	0.0	0.0			0.0		0.0	48.0		0.0	0.0	0.0
Total Delay	91.2	31.0			53.7		12.8	71.2		23.6	24.2	7.5
LOS	F	C			D		B	E		C	C	A
Approach Delay		87.1			53.7			70.6			22.1	
Approach LOS		F			D			E			C	

Lanes, Volumes, Timings

300: Hodge Road & Panther Rock Boulevard/Ellen Drive

10/20/2021



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 50th (ft)	~385	20			10		5	591		3	206	0
Queue Length 95th (ft)	#463	39			32		m7	m507		m9	m308	m58
Internal Link Dist (ft)		692			670			1977			373	
Turn Bay Length (ft)	150						150			50		200
Base Capacity (vph)	416	626			219		484	2331		79	2166	1394
Starvation Cap Reductn	0	0			0		0	0		0	0	0
Spillback Cap Reductn	0	0			0		0	811		0	0	0
Storage Cap Reductn	0	0			0		0	0		0	0	0
Reduced v/c Ratio	1.02	0.05			0.06		0.04	1.13		0.11	0.32	0.07

Intersection Summary

Area Type: Other
 Cycle Length: 120
 Actuated Cycle Length: 120
 Offset: 0 (0%), Referenced to phase 2:NBSB and 6:NBSB, Start of Green
 Natural Cycle: 90
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 1.02
 Intersection Signal Delay: 60.0 Intersection LOS: E
 Intersection Capacity Utilization 78.7% ICU Level of Service D
 Analysis Period (min) 15
 ~ Volume exceeds capacity, queue is theoretically infinite.
 Queue shown is maximum after two cycles.
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 300: Hodge Road & Panther Rock Boulevard/Ellen Drive



Lanes, Volumes, Timings

400: Hodge Road & Spectrum Drive

10/20/2021



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	70	0	20	17	0	52	6	1433	64	184	450	21
Future Volume (vph)	70	0	20	17	0	52	6	1433	64	184	450	21
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0	100		100	300		0
Storage Lanes	1		0	1		0	1		1	2		1
Taper Length (ft)	25			25			100			100		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.97	1.00	1.00
Frt		0.850			0.850				0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	1583	0	1770	1583	0	1770	1863	1583	3433	1863	1583
Flt Permitted	0.719			0.743			0.446			0.950		
Satd. Flow (perm)	1339	1583	0	1384	1583	0	831	1863	1583	3433	1863	1583
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		30			30			45			45	
Link Distance (ft)		1036			933			1206			2057	
Travel Time (s)		23.5			21.2			18.3			31.2	
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
Adj. Flow (vph)	78	0	22	19	0	58	7	1592	71	204	500	23
Shared Lane Traffic (%)												
Lane Group Flow (vph)	78	22	0	19	58	0	7	1592	71	204	500	23
Turn Type	D.Pm	NA		D.Pm	NA		D.P+P	NA	Perm	Prot	NA	Perm
Protected Phases		4			8		5	2		1	6	
Permitted Phases	8			4			6		2			6
Detector Phase	8	4		4	8		5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0		7.0	12.0	12.0	7.0	12.0	12.0
Minimum Split (s)	14.0	14.0		14.0	14.0		14.0	19.0	19.0	14.0	19.0	19.0
Total Split (s)	17.0	17.0		17.0	17.0		14.0	88.0	88.0	15.0	89.0	89.0
Total Split (%)	14.2%	14.2%		14.2%	14.2%		11.7%	73.3%	73.3%	12.5%	74.2%	74.2%
Maximum Green (s)	10.0	10.0		10.0	10.0		7.0	81.0	81.0	8.0	82.0	82.0
Yellow Time (s)	5.0	5.0		5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0
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)	-2.0	-2.0		-2.0	-2.0		-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0		5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag							Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?							Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None		None	None		None	C-Max	C-Max	None	C-Max	C-Max
Act Effct Green (s)	11.4	11.4		11.4	11.4		97.6	83.4	83.4	10.2	95.8	95.8
Actuated g/C Ratio	0.10	0.10		0.10	0.10		0.81	0.70	0.70	0.08	0.80	0.80
v/c Ratio	0.62	0.15		0.15	0.39		0.01	1.23	0.06	0.70	0.34	0.02
Control Delay	73.2	51.9		52.2	58.6		2.2	132.0	6.2	92.2	4.2	0.9
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	73.2	51.9		52.2	58.6		2.2	132.0	6.2	92.2	4.2	0.9
LOS	E	D		D	E		A	F	A	F	A	A
Approach Delay		68.5			57.1			126.1			28.8	
Approach LOS		E			E			F			C	

Lanes, Volumes, Timings
400: Hodge Road & Spectrum Drive

10/20/2021



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 50th (ft)	59	16		14	43		1	~1528	16	86	66	1
Queue Length 95th (ft)	#121	43		38	87		3	#1792	31	#136	112	2
Internal Link Dist (ft)		956			853			1126			1977	
Turn Bay Length (ft)							100		100	300		
Base Capacity (vph)	133	158		138	158		746	1294	1099	293	1487	1263
Starvation Cap Reductn	0	0		0	0		0	0	0	0	0	0
Spillback Cap Reductn	0	0		0	0		0	0	0	0	0	0
Storage Cap Reductn	0	0		0	0		0	0	0	0	0	0
Reduced v/c Ratio	0.59	0.14		0.14	0.37		0.01	1.23	0.06	0.70	0.34	0.02

Intersection Summary

Area Type: Other
 Cycle Length: 120
 Actuated Cycle Length: 120
 Offset: 0 (0%), Referenced to phase 2:NBT and 6:NBSB, Start of Green
 Natural Cycle: 150
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 1.23
 Intersection Signal Delay: 94.3
 Intersection LOS: F
 Intersection Capacity Utilization 97.6%
 ICU Level of Service F
 Analysis Period (min) 15
 ~ Volume exceeds capacity, queue is theoretically infinite.
 Queue shown is maximum after two cycles.
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

Splits and Phases: 400: Hodge Road & Spectrum Drive



Lanes, Volumes, Timings
500: Hodge Road & Poole Road

10/20/2021



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	417	126	8	10	514	879	25	69	14	189	35	237
Future Volume (vph)	417	126	8	10	514	879	25	69	14	189	35	237
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	225		0	200		200	50		0	450		800
Storage Lanes	1		0	1		1	1		0	1		1
Taper Length (ft)	100			100			100			100		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.991				0.850		0.974				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	1846	0	1770	1863	1583	1770	1814	0	1770	1863	1583
Flt Permitted	0.333			0.662			0.732			0.620		
Satd. Flow (perm)	620	1846	0	1233	1863	1583	1364	1814	0	1155	1863	1583
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		45		45			45			45		45
Link Distance (ft)		1753		1176			1488			751		
Travel Time (s)		26.6		17.8			22.5			11.4		
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
Adj. Flow (vph)	463	140	9	11	571	977	28	77	16	210	39	263
Shared Lane Traffic (%)												
Lane Group Flow (vph)	463	149	0	11	571	977	28	93	0	210	39	263
Turn Type	pm+pt	NA		Perm	NA	Perm	Perm	NA		Perm	NA	pm+ov
Protected Phases	5	2		6			8			4		5
Permitted Phases	2			6		6	8			4		4
Detector Phase	5	2		6	6	6	8	8		4	4	5
Switch Phase												
Minimum Initial (s)	7.0	12.0		12.0	12.0	12.0	7.0	7.0		7.0	7.0	7.0
Minimum Split (s)	14.4	19.0		19.0	19.0	19.0	14.0	14.0		14.0	14.0	14.4
Total Split (s)	26.0	120.0		94.0	94.0	94.0	20.0	20.0		20.0	20.0	26.0
Total Split (%)	18.6%	85.7%		67.1%	67.1%	67.1%	14.3%	14.3%		14.3%	14.3%	18.6%
Maximum Green (s)	19.0	113.0		87.0	87.0	87.0	13.0	13.0		13.0	13.0	19.0
Yellow Time (s)	5.0	5.0		5.0	5.0	5.0	5.0	5.0		5.0	5.0	5.0
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)	-2.0	-2.0		-2.0	-2.0	-2.0	-2.0	-2.0		-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0		5.0	5.0	5.0	5.0	5.0		5.0	5.0	5.0
Lead/Lag	Lead			Lag	Lag	Lag						Lead
Lead-Lag Optimize?	Yes			Yes	Yes	Yes						Yes
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0
Recall Mode	None	None		None	None	None	Max	Max		Max	Max	None
Act Effct Green (s)	112.0	112.0		85.9	85.9	85.9	15.0	15.0		15.0	15.0	41.1
Actuated g/C Ratio	0.82	0.82		0.63	0.63	0.63	0.11	0.11		0.11	0.11	0.30
v/c Ratio	0.68	0.10		0.01	0.49	0.98	0.19	0.47		1.67	0.19	0.55
Control Delay	8.5	2.6		9.5	15.3	50.4	60.4	66.8		368.5	59.7	46.5
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Delay	8.5	2.6		9.5	15.3	50.4	60.4	66.8		368.5	59.7	46.5
LOS	A	A		A	B	D	E	E		F	E	D
Approach Delay		7.1			37.2			65.3				179.6
Approach LOS		A			D			E				F

Lanes, Volumes, Timings
500: Hodge Road & Poole Road

10/20/2021

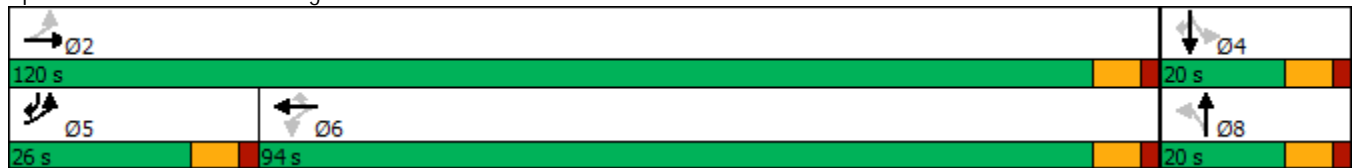


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 50th (ft)	83	21		4	258	799	24	81		-280	33	204
Queue Length 95th (ft)	113	34		11	345	#1154	56	141		#446	71	299
Internal Link Dist (ft)		1673			1096			1408			671	
Turn Bay Length (ft)	225			200		200	50			450		800
Base Capacity (vph)	683	1552		802	1212	1030	149	199		126	204	474
Starvation Cap Reductn	0	0		0	0	0	0	0		0	0	0
Spillback Cap Reductn	0	0		0	0	0	0	0		0	0	0
Storage Cap Reductn	0	0		0	0	0	0	0		0	0	0
Reduced v/c Ratio	0.68	0.10		0.01	0.47	0.95	0.19	0.47		1.67	0.19	0.55

Intersection Summary

Area Type:	Other
Cycle Length:	140
Actuated Cycle Length:	137
Natural Cycle:	110
Control Type:	Actuated-Uncoordinated
Maximum v/c Ratio:	1.67
Intersection Signal Delay:	57.9
Intersection LOS:	E
Intersection Capacity Utilization:	95.9%
ICU Level of Service:	F
Analysis Period (min):	15
~ Volume exceeds capacity, queue is theoretically infinite. Queue shown is maximum after two cycles.	
# 95th percentile volume exceeds capacity, queue may be longer. Queue shown is maximum after two cycles.	

Splits and Phases: 500: Hodge Road & Poole Road



HCM 6th TWSC
600: Hodge Road & Site Access

10/20/2021

Intersection						
Int Delay, s/veh	20.7					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↘↙		↘	↑	↑	↘
Traffic Vol, veh/h	92	0	0	1363	459	32
Future Vol, veh/h	92	0	0	1363	459	32
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	100	-	-	100
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	102	0	0	1514	510	36

Major/Minor	Minor2	Major1	Major2			
Conflicting Flow All	2024	510	546	0	-	0
Stage 1	510	-	-	-	-	-
Stage 2	1514	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	~ 64	563	1023	-	-	-
Stage 1	603	-	-	-	-	-
Stage 2	201	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	~ 64	563	1023	-	-	-
Mov Cap-2 Maneuver	~ 64	-	-	-	-	-
Stage 1	603	-	-	-	-	-
Stage 2	201	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s\$	437.5	0	0
HCM LOS	F		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1023	-	64	-	-
HCM Lane V/C Ratio	-	-	1.597	-	-
HCM Control Delay (s)	0	-	\$ 437.5	-	-
HCM Lane LOS	A	-	F	-	-
HCM 95th %tile Q(veh)	0	-	9	-	-

Notes
 -: Volume exceeds capacity \$: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon

Intersection						
Int Delay, s/veh	0.2					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	2	550	771	2	5	5
Future Vol, veh/h	2	550	771	2	5	5
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	100	-	-	100	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	2	611	857	2	6	6

Major/Minor	Major1	Major2	Minor2		
Conflicting Flow All	859	0	-	0	1472 857
Stage 1	-	-	-	-	857 -
Stage 2	-	-	-	-	615 -
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	782	-	-	-	140 357
Stage 1	-	-	-	-	416 -
Stage 2	-	-	-	-	539 -
Platoon blocked, %		-	-	-	
Mov Cap-1 Maneuver	782	-	-	-	140 357
Mov Cap-2 Maneuver	-	-	-	-	140 -
Stage 1	-	-	-	-	415 -
Stage 2	-	-	-	-	539 -

Approach	EB	WB	SB
HCM Control Delay, s	0	0	24
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	782	-	-	-	201
HCM Lane V/C Ratio	0.003	-	-	-	0.055
HCM Control Delay (s)	9.6	-	-	-	24
HCM Lane LOS	A	-	-	-	C
HCM 95th %tile Q(veh)	0	-	-	-	0.2

Lanes, Volumes, Timings

100: Hodge Road & I-87 SB Ramp/Old Faison Road

10/20/2021



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↖	↗	↖	↗		↖	↗	↗	↖	↗	↖
Traffic Volume (vph)	57	104	824	82	103	83	333	656	420	50	342	113
Future Volume (vph)	57	104	824	82	103	83	333	656	420	50	342	113
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	125		0	0		200	175		225
Storage Lanes	0		1	1		0	1		1	1		1
Taper Length (ft)	25			100			100			100		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850		0.933				0.850			0.850
Flt Protected		0.983		0.950			0.950			0.950		
Satd. Flow (prot)	0	1831	1583	1770	1738	0	1770	1863	1583	1770	1863	1583
Flt Permitted		0.800		0.292			0.129			0.388		
Satd. Flow (perm)	0	1490	1583	544	1738	0	240	1863	1583	723	1863	1583
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		30		45			45			45		45
Link Distance (ft)		621		738			1127			919		
Travel Time (s)		14.1		11.2			17.1			13.9		
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
Adj. Flow (vph)	63	116	916	91	114	92	370	729	467	56	380	126
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	179	916	91	206	0	370	729	467	56	380	126
Turn Type	pm+pt	NA	pm+ov	pm+pt	NA		pm+pt	NA	pm+ov	pm+pt	NA	Free
Protected Phases	7	4	5	3	8		5	2	3	1	6	
Permitted Phases	4		4	8			2		2	6		Free
Detector Phase	7	4	5	3	8		5	2	3	1	6	
Switch Phase												
Minimum Initial (s)	7.0	7.0	7.0	7.0	7.0		7.0	12.0	7.0	7.0	12.0	
Minimum Split (s)	14.0	14.0	14.0	14.0	14.0		14.0	19.0	14.0	14.0	19.0	
Total Split (s)	14.0	21.0	54.0	14.0	21.0		54.0	71.0	14.0	14.0	31.0	
Total Split (%)	11.7%	17.5%	45.0%	11.7%	17.5%		45.0%	59.2%	11.7%	11.7%	25.8%	
Maximum Green (s)	7.0	14.0	47.0	7.0	14.0		47.0	64.0	7.0	7.0	24.0	
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0		5.0	5.0	5.0	5.0	5.0	
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)		-2.0	-2.0	-2.0	-2.0		-2.0	-2.0	-2.0	-2.0	-2.0	
Total Lost Time (s)		5.0	5.0	5.0	5.0		5.0	5.0	5.0	5.0	5.0	
Lead/Lag	Lead	Lag	Lead	Lead	Lag		Lead	Lag	Lead	Lead	Lag	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes		Yes	Yes	Yes	Yes	Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Recall Mode	None	None	None	None	None		None	C-Max	None	None	C-Max	
Act Effct Green (s)		16.0	70.0	30.0	30.0		80.0	68.8	82.8	35.0	26.0	120.0
Actuated g/C Ratio		0.13	0.58	0.25	0.25		0.67	0.57	0.69	0.29	0.22	1.00
v/c Ratio		0.90	0.99	0.40	0.47		0.47	0.68	0.43	0.19	0.94	0.08
Control Delay		94.8	53.4	41.3	42.6		31.2	28.0	8.1	18.0	79.4	0.1
Queue Delay		0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay		94.8	53.4	41.3	42.6		31.2	28.0	8.1	18.0	79.4	0.1
LOS		F	D	D	D		C	C	A	B	E	A
Approach Delay		60.2			42.2			22.8			55.5	
Approach LOS		E			D			C			E	

Lanes, Volumes, Timings
 100: Hodge Road & I-87 SB Ramp/Old Faison Road

10/20/2021

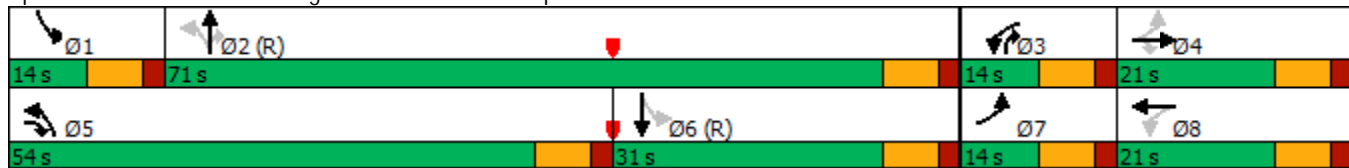


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 50th (ft)		138	665	56	136		216	335	98	16	292	0
Queue Length 95th (ft)		#275	#980	102	213		m248	m357	m132	32	#481	0
Internal Link Dist (ft)		541			658			1047			839	
Turn Bay Length (ft)				125					200	175		225
Base Capacity (vph)		198	923	227	434		784	1068	1092	289	403	1583
Starvation Cap Reductn		0	0	0	0		0	0	0	0	0	0
Spillback Cap Reductn		0	0	0	0		0	0	0	0	0	0
Storage Cap Reductn		0	0	0	0		0	0	0	0	0	0
Reduced v/c Ratio		0.90	0.99	0.40	0.47		0.47	0.68	0.43	0.19	0.94	0.08

Intersection Summary

Area Type: Other
 Cycle Length: 120
 Actuated Cycle Length: 120
 Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
 Natural Cycle: 100
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.99
 Intersection Signal Delay: 41.3
 Intersection LOS: D
 Intersection Capacity Utilization 92.0%
 ICU Level of Service F
 Analysis Period (min) 15
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 100: Hodge Road & I-87 SB Ramp/Old Faison Road



Lanes, Volumes, Timings
200: Hodge Road & I-87 NB Ramp

10/20/2021



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	773	881	454	635	1156	89
Future Volume (vph)	773	881	454	635	1156	89
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	150	100			125
Storage Lanes	2	1	1			1
Taper Length (ft)	25		100			
Lane Util. Factor	0.97	0.88	1.00	1.00	1.00	1.00
Frt		0.850				0.850
Flt Protected	0.950		0.950			
Satd. Flow (prot)	3433	2787	1770	1863	1863	1583
Flt Permitted	0.950		0.065			
Satd. Flow (perm)	3433	2787	121	1863	1863	1583
Right Turn on Red		No				No
Satd. Flow (RTOR)						
Link Speed (mph)	30			45	45	
Link Distance (ft)	621			321	1127	
Travel Time (s)	14.1			4.9	17.1	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	859	979	504	706	1284	99
Shared Lane Traffic (%)						
Lane Group Flow (vph)	859	979	504	706	1284	99
Turn Type	Prot	pm+ov	D.P+P	NA	NA	Free
Protected Phases	4	5	5	2	6	
Permitted Phases		4	6			Free
Detector Phase	4	5	5	2	6	
Switch Phase						
Minimum Initial (s)	7.0	7.0	7.0	12.0	12.0	
Minimum Split (s)	14.6	14.0	14.0	19.0	19.0	
Total Split (s)	28.0	25.0	25.0	92.0	67.0	
Total Split (%)	23.3%	20.8%	20.8%	76.7%	55.8%	
Maximum Green (s)	21.0	18.0	18.0	85.0	60.0	
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	
Lead/Lag		Lead	Lead		Lag	
Lead-Lag Optimize?		Yes	Yes		Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	
Recall Mode	None	None	None	C-Max	C-Max	
Act Effct Green (s)	23.0	48.0	82.0	87.0	62.0	120.0
Actuated g/C Ratio	0.19	0.40	0.68	0.72	0.52	1.00
v/c Ratio	1.31	0.88	1.41	0.52	1.33	0.06
Control Delay	188.3	43.8	233.1	11.1	179.3	0.0
Queue Delay	0.0	11.0	0.0	0.6	0.0	0.0
Total Delay	188.3	54.8	233.1	11.7	179.3	0.0
LOS	F	D	F	B	F	A
Approach Delay	117.2			103.9	166.5	
Approach LOS	F			F	F	

Lanes, Volumes, Timings
 200: Hodge Road & I-87 NB Ramp

10/20/2021

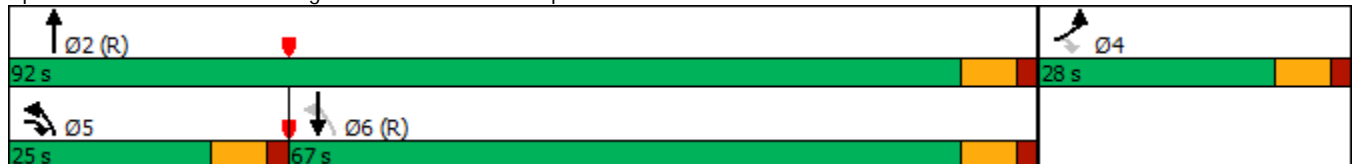


Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Queue Length 50th (ft)	~440	393	~491	173	~1301	0
Queue Length 95th (ft)	#566	#528	m#667	m360	m#1365	m0
Internal Link Dist (ft)	541			241	1047	
Turn Bay Length (ft)		150	100			125
Base Capacity (vph)	657	1114	357	1350	962	1583
Starvation Cap Reductn	0	0	0	301	0	0
Spillback Cap Reductn	0	129	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	1.31	0.99	1.41	0.67	1.33	0.06

Intersection Summary

Area Type: Other
 Cycle Length: 120
 Actuated Cycle Length: 120
 Offset: 47 (39%), Referenced to phase 2:NBT and 6:NBSB, Start of Green
 Natural Cycle: 150
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 1.41
 Intersection Signal Delay: 129.0
 Intersection LOS: F
 Intersection Capacity Utilization 120.5%
 ICU Level of Service H
 Analysis Period (min) 15
 ~ Volume exceeds capacity, queue is theoretically infinite.
 Queue shown is maximum after two cycles.
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 200: Hodge Road & I-87 NB Ramp



Lanes, Volumes, Timings
300: Hodge Road & Panther Rock Boulevard/Ellen Drive

10/20/2021



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	213	4	15	4	4	10	36	865	6	13	1583	308
Future Volume (vph)	213	4	15	4	4	10	36	865	6	13	1583	308
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	150		0	0		0	150		0	50		200
Storage Lanes	1		0	0		0	1		0	1		1
Taper Length (ft)	100			25			100			100		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	1.00
Frt		0.879			0.922			0.999				0.850
Flt Protected	0.950				0.990		0.950			0.950		
Satd. Flow (prot)	1770	1637	0	0	1700	0	1770	3536	0	1770	3539	1583
Flt Permitted	0.755				0.921		0.054			0.268		
Satd. Flow (perm)	1406	1637	0	0	1582	0	101	3536	0	499	3539	1583
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		25			25			45			45	
Link Distance (ft)		772			750			2057			435	
Travel Time (s)		21.1			20.5			31.2			6.6	
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
Adj. Flow (vph)	237	4	17	4	4	11	40	961	7	14	1759	342
Shared Lane Traffic (%)												
Lane Group Flow (vph)	237	21	0	0	19	0	40	968	0	14	1759	342
Turn Type	D.P+P	NA		Perm	NA		D.P+P	NA		D.Pm	NA	pm+ov
Protected Phases	7	4			8		5	2			6	7
Permitted Phases	8			8			6			2		6
Detector Phase	7	4		8	8		5	2		2	6	7
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0		7.0	12.0		12.0	12.0	7.0
Minimum Split (s)	14.0	22.5		22.5	22.5		14.0	22.5		22.5	22.5	14.0
Total Split (s)	18.0	40.5		22.5	22.5		14.0	79.5		79.5	65.5	18.0
Total Split (%)	15.0%	33.8%		18.8%	18.8%		11.7%	66.3%		66.3%	54.6%	15.0%
Maximum Green (s)	11.0	33.5		15.5	15.5		7.0	72.5		72.5	58.5	11.0
Yellow Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	5.0
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0			-2.0		-2.0	-2.0		-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0			5.0		5.0	5.0		5.0	5.0	5.0
Lead/Lag	Lead			Lag	Lag		Lead				Lag	Lead
Lead-Lag Optimize?	Yes			Yes	Yes		Yes				Yes	Yes
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
Recall Mode	None	None		None	None		None	C-Max		C-Max	C-Max	None
Act Effct Green (s)	17.1	19.1			9.5		86.9	90.9		90.9	79.6	98.6
Actuated g/C Ratio	0.14	0.16			0.08		0.72	0.76		0.76	0.66	0.82
v/c Ratio	0.99	0.08			0.15		0.20	0.36		0.04	0.75	0.26
Control Delay	104.3	39.6			54.0		8.7	4.7		6.6	18.8	4.7
Queue Delay	0.0	0.0			0.0		0.0	0.0		0.0	1.4	0.0
Total Delay	104.3	39.6			54.0		8.7	4.7		6.6	20.2	4.7
LOS	F	D			D		A	A		A	C	A
Approach Delay		99.0			54.0			4.9			17.6	
Approach LOS		F			D			A			B	

Lanes, Volumes, Timings

300: Hodge Road & Panther Rock Boulevard/Ellen Drive

10/20/2021



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 50th (ft)	~228	15			14		4	56		2	423	45
Queue Length 95th (ft)	#263	34			39		m13	m146		m3	m524	m90
Internal Link Dist (ft)		692			670			1977			355	
Turn Bay Length (ft)	150						150			50		200
Base Capacity (vph)	240	484			230		199	2677		377	2346	1300
Starvation Cap Reductn	0	0			0		0	0		0	363	0
Spillback Cap Reductn	0	0			0		0	0		0	0	0
Storage Cap Reductn	0	0			0		0	0		0	0	0
Reduced v/c Ratio	0.99	0.04			0.08		0.20	0.36		0.04	0.89	0.26

Intersection Summary

Area Type: Other
 Cycle Length: 120
 Actuated Cycle Length: 120
 Offset: 0 (0%), Referenced to phase 2:NBSB and 6:NBSB, Start of Green
 Natural Cycle: 110
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.99
 Intersection Signal Delay: 20.2 Intersection LOS: C
 Intersection Capacity Utilization 70.6% ICU Level of Service C
 Analysis Period (min) 15
 ~ Volume exceeds capacity, queue is theoretically infinite.
 Queue shown is maximum after two cycles.
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 300: Hodge Road & Panther Rock Boulevard/Ellen Drive



Lanes, Volumes, Timings
 400: Hodge Road & Spectrum Drive

10/20/2021



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	43	4	12	64	4	187	22	675	21	64	1514	75
Future Volume (vph)	43	4	12	64	4	187	22	675	21	64	1514	75
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0	100		100	300		0
Storage Lanes	1		0	1		0	1		1	2		1
Taper Length (ft)	25			25			100			100		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.97	1.00	1.00
Frt		0.885			0.853				0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	1649	0	1770	1589	0	1770	1863	1583	3433	1863	1583
Flt Permitted	0.333			0.746			0.046			0.950		
Satd. Flow (perm)	620	1649	0	1390	1589	0	86	1863	1583	3433	1863	1583
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		30			30			45			45	
Link Distance (ft)		1036			933			1218			2057	
Travel Time (s)		23.5			21.2			18.5			31.2	
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
Adj. Flow (vph)	48	4	13	71	4	208	24	750	23	71	1682	83
Shared Lane Traffic (%)												
Lane Group Flow (vph)	48	17	0	71	212	0	24	750	23	71	1682	83
Turn Type	D.Pm	NA		D.Pm	NA		D.P+P	NA	Perm	Prot	NA	Perm
Protected Phases		4			8		5	2		1	6	
Permitted Phases	8			4			6		2			6
Detector Phase	8	4		4	8		5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0		7.0	12.0	12.0	7.0	12.0	12.0
Minimum Split (s)	14.0	14.0		14.0	14.0		14.0	19.0	19.0	14.0	19.0	19.0
Total Split (s)	17.0	17.0		17.0	17.0		14.0	89.0	89.0	14.0	89.0	89.0
Total Split (%)	14.2%	14.2%		14.2%	14.2%		11.7%	74.2%	74.2%	11.7%	74.2%	74.2%
Maximum Green (s)	10.0	10.0		10.0	10.0		7.0	82.0	82.0	7.0	82.0	82.0
Yellow Time (s)	5.0	5.0		5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0
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)	-2.0	-2.0		-2.0	-2.0		-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0		5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag							Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?							Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None		None	None		None	C-Max	C-Max	None	C-Max	C-Max
Act Effct Green (s)	12.0	12.0		12.0	12.0		95.0	86.8	86.8	9.0	89.6	89.6
Actuated g/C Ratio	0.10	0.10		0.10	0.10		0.79	0.72	0.72	0.08	0.75	0.75
v/c Ratio	0.77	0.10		0.51	1.34		0.12	0.56	0.02	0.28	1.21	0.07
Control Delay	116.3	50.9		64.9	231.4		3.6	10.3	5.6	59.2	119.3	2.2
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	116.3	50.9		64.9	231.4		3.6	10.3	5.6	59.2	119.3	2.2
LOS	F	D		E	F		A	B	A	E	F	A
Approach Delay		99.2			189.7			10.0			111.7	
Approach LOS		F			F			A			F	

Lanes, Volumes, Timings
400: Hodge Road & Spectrum Drive

10/20/2021



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 50th (ft)	37	12		53	-214		3	262	5	30	-1697	2
Queue Length 95th (ft)	#110	36		103	#370		7	361	13	m41	#1906	m11
Internal Link Dist (ft)		956			853			1138			1977	
Turn Bay Length (ft)							100		100	300		
Base Capacity (vph)	62	164		139	158		194	1347	1145	257	1391	1182
Starvation Cap Reductn	0	0		0	0		0	0	0	0	0	0
Spillback Cap Reductn	0	0		0	0		0	0	0	0	0	0
Storage Cap Reductn	0	0		0	0		0	0	0	0	0	0
Reduced v/c Ratio	0.77	0.10		0.51	1.34		0.12	0.56	0.02	0.28	1.21	0.07

Intersection Summary

Area Type: Other
 Cycle Length: 120
 Actuated Cycle Length: 120
 Offset: 0 (0%), Referenced to phase 2:NBT and 6:NBSB, Start of Green
 Natural Cycle: 150
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 1.34
 Intersection Signal Delay: 91.6
 Intersection LOS: F
 Intersection Capacity Utilization 109.8%
 ICU Level of Service H
 Analysis Period (min) 15
 ~ Volume exceeds capacity, queue is theoretically infinite.
 Queue shown is maximum after two cycles.
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 400: Hodge Road & Spectrum Drive



Lanes, Volumes, Timings

500: Hodge Road & Poole Road

10/20/2021



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	328	330	13	19	200	242	14	58	17	925	81	446
Future Volume (vph)	328	330	13	19	200	242	14	58	17	925	81	446
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	225		0	200		200	50		0	450		800
Storage Lanes	1		0	1		1	1		0	1		1
Taper Length (ft)	100			100			100			100		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.994				0.850		0.966				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	1852	0	1770	1863	1583	1770	1799	0	1770	1863	1583
Flt Permitted	0.239			0.535			0.699			0.703		
Satd. Flow (perm)	445	1852	0	997	1863	1583	1302	1799	0	1310	1863	1583
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		45		45			45			45		45
Link Distance (ft)		1743		1176			1488			751		
Travel Time (s)		26.4		17.8			22.5			11.4		
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
Adj. Flow (vph)	364	367	14	21	222	269	16	64	19	1028	90	496
Shared Lane Traffic (%)												
Lane Group Flow (vph)	364	381	0	21	222	269	16	83	0	1028	90	496
Turn Type	pm+pt	NA		Perm	NA	Perm	Perm	NA		Perm	NA	pm+ov
Protected Phases	5	2			6			8			4	5
Permitted Phases	2			6		6	8			4		4
Detector Phase	5	2		6	6	6	8	8		4	4	5
Switch Phase												
Minimum Initial (s)	7.0	12.0		12.0	12.0	12.0	7.0	7.0		7.0	7.0	7.0
Minimum Split (s)	14.4	19.0		19.0	19.0	19.0	14.0	14.0		14.0	14.0	14.4
Total Split (s)	21.0	48.0		27.0	27.0	27.0	92.0	92.0		92.0	92.0	21.0
Total Split (%)	15.0%	34.3%		19.3%	19.3%	19.3%	65.7%	65.7%		65.7%	65.7%	15.0%
Maximum Green (s)	14.0	41.0		20.0	20.0	20.0	85.0	85.0		85.0	85.0	14.0
Yellow Time (s)	5.0	5.0		5.0	5.0	5.0	5.0	5.0		5.0	5.0	5.0
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)	-2.0	-2.0		-2.0	-2.0	-2.0	-2.0	-2.0		-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0		5.0	5.0	5.0	5.0	5.0		5.0	5.0	5.0
Lead/Lag	Lead			Lag	Lag	Lag						Lead
Lead-Lag Optimize?	Yes			Yes	Yes	Yes						Yes
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0
Recall Mode	None	None		None	None	None	Max	Max		Max	Max	None
Act Effct Green (s)	43.0	43.0		22.0	22.0	22.0	87.0	87.0		87.0	87.0	108.0
Actuated g/C Ratio	0.31	0.31		0.16	0.16	0.16	0.62	0.62		0.62	0.62	0.77
v/c Ratio	1.26	0.67		0.13	0.76	1.08	0.02	0.07		1.26	0.08	0.41
Control Delay	179.5	49.2		53.4	73.8	135.5	10.3	10.8		154.6	10.8	6.5
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Delay	179.5	49.2		53.4	73.8	135.5	10.3	10.8		154.6	10.8	6.5
LOS	F	D		D	E	F	B	B		F	B	A
Approach Delay		112.9			105.4			10.7			101.1	
Approach LOS		F			F			B			F	

Lanes, Volumes, Timings
500: Hodge Road & Poole Road

10/20/2021

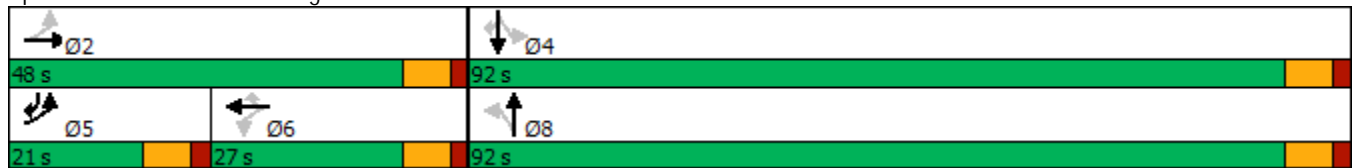


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 50th (ft)	~332	303		17	196	~273	5	28		~1173	31	131
Queue Length 95th (ft)	#539	421		44	#311	#455	15	51		#1434	54	181
Internal Link Dist (ft)		1663			1096			1408			671	
Turn Bay Length (ft)	225			200		200	50			450		800
Base Capacity (vph)	288	568		156	292	248	809	1117		814	1157	1221
Starvation Cap Reductn	0	0		0	0	0	0	0		0	0	0
Spillback Cap Reductn	0	0		0	0	0	0	0		0	0	0
Storage Cap Reductn	0	0		0	0	0	0	0		0	0	0
Reduced v/c Ratio	1.26	0.67		0.13	0.76	1.08	0.02	0.07		1.26	0.08	0.41

Intersection Summary

Area Type:	Other
Cycle Length:	140
Actuated Cycle Length:	140
Natural Cycle:	150
Control Type:	Actuated-Uncoordinated
Maximum v/c Ratio:	1.26
Intersection Signal Delay:	101.8
Intersection LOS:	F
Intersection Capacity Utilization	99.1%
ICU Level of Service	F
Analysis Period (min)	15
~ Volume exceeds capacity, queue is theoretically infinite. Queue shown is maximum after two cycles.	
# 95th percentile volume exceeds capacity, queue may be longer. Queue shown is maximum after two cycles.	

Splits and Phases: 500: Hodge Road & Poole Road



HCM 6th TWSC
600: Hodge Road & Site Access

10/20/2021

Intersection						
Int Delay, s/veh	14.5					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↔		↔	↑	↑	↔
Traffic Vol, veh/h	60	4	4	628	1450	95
Future Vol, veh/h	60	4	4	628	1450	95
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	100	-	-	100
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	67	4	4	698	1611	106

Major/Minor	Minor2	Major1	Major2			
Conflicting Flow All	2317	1611	1717	0	-	0
Stage 1	1611	-	-	-	-	-
Stage 2	706	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	~ 42	129	369	-	-	-
Stage 1	180	-	-	-	-	-
Stage 2	489	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	~ 42	129	369	-	-	-
Mov Cap-2 Maneuver	~ 42	-	-	-	-	-
Stage 1	178	-	-	-	-	-
Stage 2	489	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	\$ 506	0.1	0
HCM LOS	F		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	369	-	44	-	-
HCM Lane V/C Ratio	0.012	-	1.616	-	-
HCM Control Delay (s)	14.9	-	\$ 506	-	-
HCM Lane LOS	B	-	F	-	-
HCM 95th %tile Q(veh)	0	-	7.1	-	-

Notes
 -: Volume exceeds capacity \$: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon

Intersection						
Int Delay, s/veh	0.2					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	5	669	652	5	4	4
Future Vol, veh/h	5	669	652	5	4	4
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	100	-	-	100	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	6	743	724	6	4	4

Major/Minor	Major1	Major2	Minor2		
Conflicting Flow All	730	0	-	0	1479 724
Stage 1	-	-	-	-	724 -
Stage 2	-	-	-	-	755 -
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	874	-	-	-	138 426
Stage 1	-	-	-	-	480 -
Stage 2	-	-	-	-	464 -
Platoon blocked, %		-	-	-	
Mov Cap-1 Maneuver	874	-	-	-	137 426
Mov Cap-2 Maneuver	-	-	-	-	137 -
Stage 1	-	-	-	-	477 -
Stage 2	-	-	-	-	464 -

Approach	EB	WB	SB
HCM Control Delay, s	0.1	0	23.2
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	874	-	-	-	207
HCM Lane V/C Ratio	0.006	-	-	-	0.043
HCM Control Delay (s)	9.1	-	-	-	23.2
HCM Lane LOS	A	-	-	-	C
HCM 95th %tile Q(veh)	0	-	-	-	0.1

Queueing and Blocking Reports

Queuing and Blocking Report
AM Existing

04/22/2021

Intersection: 100: Hodge Road & I-87 SB Ramp/Old Faison Road

Movement	EB	EB	WB	NB	NB	SB	SB	SB
Directions Served	LT	R	LTR	L	TR	L	T	R
Maximum Queue (ft)	199	246	500	212	269	49	920	325
Average Queue (ft)	87	86	303	115	134	11	623	308
95th Queue (ft)	153	169	473	191	236	36	1086	405
Link Distance (ft)	580	580	679	1034	1034		886	
Upstream Blk Time (%)							32	
Queuing Penalty (veh)							0	
Storage Bay Dist (ft)						175		225
Storage Blk Time (%)							6	80
Queuing Penalty (veh)							17	174

Intersection: 200: Hodge Road & I-87 NB Ramp

Movement	EB	NB	NB	SB
Directions Served	L	L	T	T
Maximum Queue (ft)	307	200	182	225
Average Queue (ft)	136	109	56	86
95th Queue (ft)	228	164	120	174
Link Distance (ft)	580		700	1034
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)		150		
Storage Blk Time (%)		1	0	4
Queuing Penalty (veh)		7	2	9

Intersection: 300: Hodge Road & Panther Rock Boulevard/Ellen Drive

Movement	EB	EB	WB	NB	SB
Directions Served	L	TR	LTR	L	L
Maximum Queue (ft)	115	30	25	28	46
Average Queue (ft)	48	12	6	3	5
95th Queue (ft)	99	35	23	18	24
Link Distance (ft)		731	710		
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (ft)	150			150	50
Storage Blk Time (%)					1
Queuing Penalty (veh)					4

Queuing and Blocking Report
AM Existing

04/22/2021

Intersection: 400: Hodge Road & Spectrum Drive

Movement	WB	WB	NB	NB	SB	SB	SB
Directions Served	L	R	T	R	L	L	T
Maximum Queue (ft)	48	117	350	26	72	400	1154
Average Queue (ft)	21	33	127	2	13	76	151
95th Queue (ft)	46	79	255	12	45	256	612
Link Distance (ft)	875	875	1412				2009
Upstream Blk Time (%)							
Queuing Penalty (veh)							
Storage Bay Dist (ft)				150	300	300	
Storage Blk Time (%)			4				17
Queuing Penalty (veh)			2				22

Intersection: 500: Hodge Road & Poole Road

Movement	EB	EB	WB	WB	NB	NB	SB	SB	SB	B14
Directions Served	L	TR	L	TR	L	TR	L	T	R	T
Maximum Queue (ft)	325	513	29	1192	92	158	550	778	681	1423
Average Queue (ft)	237	112	2	1161	30	63	486	562	417	651
95th Queue (ft)	355	401	15	1177	73	120	701	1060	888	1675
Link Distance (ft)		2494		1140		1455		681		1412
Upstream Blk Time (%)				61				54	2	17
Queuing Penalty (veh)				0				189	0	60
Storage Bay Dist (ft)	225		200		50		450		800	
Storage Blk Time (%)	22	0		43	19	39	76		2	
Queuing Penalty (veh)	25	0		3	12	8	155		3	

Network Summary

Network wide Queuing Penalty: 693

Queuing and Blocking Report
PM Existing

04/27/2021

Intersection: 100: Hodge Road & I-87 SB Ramp/Old Faison Road

Movement	EB	EB	WB	NB	NB	SB	SB
Directions Served	LT	R	LTR	L	TR	L	TR
Maximum Queue (ft)	154	459	718	105	340	49	247
Average Queue (ft)	79	241	624	46	188	23	112
95th Queue (ft)	140	397	842	95	309	46	214
Link Distance (ft)	583	583	679	1034	1034		886
Upstream Blk Time (%)			69				
Queuing Penalty (veh)			0				
Storage Bay Dist (ft)						175	
Storage Blk Time (%)							4
Queuing Penalty (veh)							1

Intersection: 200: Hodge Road & I-87 NB Ramp

Movement	EB	EB	NB	NB	SB
Directions Served	L	R	L	T	TR
Maximum Queue (ft)	629	614	199	270	1154
Average Queue (ft)	598	595	149	133	604
95th Queue (ft)	612	606	215	266	1080
Link Distance (ft)	580	580		700	1034
Upstream Blk Time (%)	79	49			0
Queuing Penalty (veh)	0	0			2
Storage Bay Dist (ft)			100		
Storage Blk Time (%)			28	6	
Queuing Penalty (veh)			109	17	

Intersection: 300: Hodge Road & Panther Rock Boulevard/Ellen Drive

Movement	EB	EB	WB	NB	SB
Directions Served	L	TR	LTR	L	L
Maximum Queue (ft)	159	31	50	30	29
Average Queue (ft)	32	4	11	7	4
95th Queue (ft)	81	21	35	28	21
Link Distance (ft)		731	710		
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (ft)	150			150	50
Storage Blk Time (%)	1				
Queuing Penalty (veh)	0				

Queuing and Blocking Report
PM Existing

04/27/2021

Intersection: 400: Hodge Road & Spectrum Drive

Movement	WB	WB	NB	NB	SB	SB	SB
Directions Served	L	R	T	R	L	L	T
Maximum Queue (ft)	91	243	245	27	29	31	151
Average Queue (ft)	36	111	68	2	1	12	54
95th Queue (ft)	81	204	172	13	10	35	130
Link Distance (ft)	875	875	1412				2009
Upstream Blk Time (%)							
Queuing Penalty (veh)							
Storage Bay Dist (ft)				150	300	300	
Storage Blk Time (%)			1				
Queuing Penalty (veh)			0				

Intersection: 500: Hodge Road & Poole Road

Movement	EB	EB	WB	WB	NB	NB	SB	SB	SB
Directions Served	L	TR	L	TR	L	TR	L	T	R
Maximum Queue (ft)	316	316	300	1034	30	133	550	628	204
Average Queue (ft)	181	161	64	616	3	26	328	38	77
95th Queue (ft)	271	267	239	1059	18	81	521	221	156
Link Distance (ft)		2494		1140		1455		681	
Upstream Blk Time (%)									
Queuing Penalty (veh)									
Storage Bay Dist (ft)	225		200		50		450		800
Storage Blk Time (%)	4	2		73	0	5	4		
Queuing Penalty (veh)	11	5		12	0	1	16		

Network Summary

Network wide Queuing Penalty: 174

Queuing and Blocking Report
AM No Build

04/22/2021

Intersection: 100: Hodge Road & I-87 SB Ramp/Old Faison Road

Movement	EB	EB	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	LT	R	L	TR	L	T	R	L	T	R
Maximum Queue (ft)	588	597	224	670	358	208	69	53	932	325
Average Queue (ft)	154	170	111	203	202	111	24	16	532	211
95th Queue (ft)	326	421	222	437	289	183	54	41	1097	458
Link Distance (ft)	582	582		661	1014	1014			880	
Upstream Blk Time (%)	0	6		4					31	
Queuing Penalty (veh)	0	0		0					0	
Storage Bay Dist (ft)			125				200	175		225
Storage Blk Time (%)			20	16		1			22	54
Queuing Penalty (veh)			75	22		1			62	138

Intersection: 200: Hodge Road & I-87 NB Ramp

Movement	EB	EB	EB	EB	NB	NB	B4	SB	SB
Directions Served	L	L	R	R	L	T	T	T	R
Maximum Queue (ft)	97	137	288	248	200	326	454	1048	225
Average Queue (ft)	69	86	37	30	189	236	163	354	45
95th Queue (ft)	103	146	181	157	222	415	466	929	193
Link Distance (ft)	577	577	577			254	387	1014	
Upstream Blk Time (%)						12	2	14	
Queuing Penalty (veh)						202	18	100	
Storage Bay Dist (ft)				150	100				125
Storage Blk Time (%)			11		43	4		34	
Queuing Penalty (veh)			10		402	27		82	

Intersection: 300: Hodge Road & Panther Rock Boulevard/Ellen Drive

Movement	EB	EB	WB	NB	NB	NB	SB	SB	SB	SB	B4	B4
Directions Served	L	TR	LTR	L	T	TR	L	T	T	R	T	T
Maximum Queue (ft)	250	750	46	249	2002	2023	149	477	457	300	339	323
Average Queue (ft)	248	695	11	44	1366	1319	16	262	201	45	84	74
95th Queue (ft)	255	834	32	196	2284	2271	88	485	463	188	316	280
Link Distance (ft)		711	699		1967	1967		387	387		254	254
Upstream Blk Time (%)		70			5	3		28	17		19	8
Queuing Penalty (veh)		0			31	19		91	54		62	27
Storage Bay Dist (ft)	150			150			50			200		
Storage Blk Time (%)	82				58		2	52	29			
Queuing Penalty (veh)	21				9		6	4	26			

Intersection: 400: Hodge Road & Spectrum Drive

Movement	EB	EB	WB	WB	NB	NB	NB	B14	SB	SB	SB	SB
Directions Served	L	TR	L	TR	L	T	R	T	L	L	T	R
Maximum Queue (ft)	110	83	137	115	199	1503	200	687	105	400	2005	2012
Average Queue (ft)	56	19	45	51	8	1165	44	160	36	246	1137	880
95th Queue (ft)	101	56	125	95	68	1640	173	627	91	520	2514	2391
Link Distance (ft)	970	970	882	882		1396		675			1967	1967
Upstream Blk Time (%)						19		1			28	14
Queuing Penalty (veh)							234	15			79	39
Storage Bay Dist (ft)					100			100	300	300		
Storage Blk Time (%)						39					67	
Queuing Penalty (veh)						25					112	

Intersection: 500: Hodge Road & Poole Road

Movement	EB	EB	WB	WB	WB	NB	NB	SB	SB	SB	B14
Directions Served	L	TR	L	T	R	L	TR	L	T	R	T
Maximum Queue (ft)	325	1139	27	1191	300	97	136	550	766	675	1413
Average Queue (ft)	316	536	2	815	294	30	63	547	721	613	1167
95th Queue (ft)	378	1073	12	1235	341	66	112	557	943	918	1933
Link Distance (ft)		2494		1139			1455		675		1396
Upstream Blk Time (%)				13					81	2	46
Queuing Penalty (veh)				0					336	0	191
Storage Bay Dist (ft)	225		200		200	50		450		800	
Storage Blk Time (%)	72	0		5	39	17	40	100		2	
Queuing Penalty (veh)	87	0		42	185	13	9	247		5	

Network Summary

Network wide Queuing Penalty: 3110

Intersection: 100: Hodge Road & I-87 SB Ramp/Old Faison Road

Movement	EB	EB	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	LT	R	L	TR	L	T	R	L	T	R
Maximum Queue (ft)	597	634	87	232	221	431	300	275	449	325
Average Queue (ft)	594	602	49	102	101	226	135	83	255	54
95th Queue (ft)	607	620	89	193	186	358	262	242	412	253
Link Distance (ft)	582	582		661	1014	1014			880	
Upstream Blk Time (%)	49	94								
Queuing Penalty (veh)	0	0								
Storage Bay Dist (ft)			125				200	175		225
Storage Blk Time (%)				9		10	1		35	
Queuing Penalty (veh)				7		43	6		57	

Intersection: 200: Hodge Road & I-87 NB Ramp

Movement	EB	EB	EB	EB	NB	NB	B4	B4	SB	SB
Directions Served	L	L	R	R	L	T	T		T	R
Maximum Queue (ft)	592	629	595	250	200	341	472	408	1043	225
Average Queue (ft)	583	597	591	113	198	304	372	14	1016	60
95th Queue (ft)	612	614	596	302	209	394	578	135	1082	222
Link Distance (ft)	577	577	577				245	397	397	1014
Upstream Blk Time (%)	47	80	57				53	28	0	11
Queuing Penalty (veh)	0	0	0				545	143	2	135
Storage Bay Dist (ft)				150	100					125
Storage Blk Time (%)				33	5	76	4			48
Queuing Penalty (veh)				138	19	458	17			42

Intersection: 300: Hodge Road & Panther Rock Boulevard/Ellen Drive

Movement	EB	EB	WB	NB	NB	NB	SB	SB	SB	SB
Directions Served	L	TR	LTR	L	T	TR	L	T	T	R
Maximum Queue (ft)	250	651	69	250	1915	1836	149	314	281	72
Average Queue (ft)	227	374	16	106	1007	943	14	191	113	24
95th Queue (ft)	290	796	42	300	1949	1850	75	312	222	64
Link Distance (ft)		712	699		1967	1967		397	397	
Upstream Blk Time (%)										
Queuing Penalty (veh)										
Storage Bay Dist (ft)	150			150			50			200
Storage Blk Time (%)	70				79			20	1	
Queuing Penalty (veh)	11				28			3	2	

Intersection: 400: Hodge Road & Spectrum Drive

Movement	EB	EB	WB	WB	NB	NB	NB	SB	SB	SB	SB	
Directions Served	L	TR	L	TR	L	T	R	L	L	T	R	
Maximum Queue (ft)	88	39	110	593	199	311	17	64	399	495	25	
Average Queue (ft)	44	6	53	465	25	112	3	5	45	94	2	
95th Queue (ft)	78	23	94	631	104	280	13	26	158	265	14	
Link Distance (ft)	970	970	882	882		1396				1967	1967	
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (ft)					100			100	300	300		
Storage Blk Time (%)							9					0
Queuing Penalty (veh)							4					0

Intersection: 500: Hodge Road & Poole Road

Movement	EB	EB	WB	WB	WB	NB	NB	SB	SB	SB
Directions Served	L	TR	L	T	R	L	TR	L	T	R
Maximum Queue (ft)	325	2528	299	1154	300	52	52	547	90	133
Average Queue (ft)	324	1894	53	880	283	11	25	341	22	61
95th Queue (ft)	326	3038	190	1396	340	36	56	533	61	130
Link Distance (ft)	2494		1139				1455	675		
Upstream Blk Time (%)	35		28							
Queuing Penalty (veh)	0		0							
Storage Bay Dist (ft)	225	200		200		50	450		800	
Storage Blk Time (%)	87	7	44		75	0	5	4		
Queuing Penalty (veh)	297	22	114		160	0	1	22		

Network Summary

Network wide Queuing Penalty: 2277

Intersection: 100: Hodge Road & I-87 SB Ramp/Old Faison Road

Movement	EB	EB	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	LT	R	L	TR	L	T	R	L	T	R
Maximum Queue (ft)	529	522	225	584	481	407	300	275	895	325
Average Queue (ft)	323	159	99	212	266	150	46	31	478	238
95th Queue (ft)	552	371	222	354	387	272	132	141	905	458
Link Distance (ft)	582	582		661	1014	1014			880	
Upstream Blk Time (%)									2	
Queuing Penalty (veh)									0	
Storage Bay Dist (ft)			125				200	175		225
Storage Blk Time (%)			13	26		3			32	59
Queuing Penalty (veh)			46	36		4			92	154

Intersection: 200: Hodge Road & I-87 NB Ramp

Movement	EB	EB	EB	EB	NB	NB	B4	SB	SB
Directions Served	L	L	R	R	L	T	T	T	R
Maximum Queue (ft)	194	160	234	198	200	349	475	1051	225
Average Queue (ft)	80	68	23	13	188	276	174	316	50
95th Queue (ft)	148	129	125	90	226	415	454	826	202
Link Distance (ft)	577	577	577			254	387	1014	
Upstream Blk Time (%)						12	1	9	
Queuing Penalty (veh)						213	13	69	
Storage Bay Dist (ft)				150	100				125
Storage Blk Time (%)			6		44	7		28	0
Queuing Penalty (veh)			6		432	54		68	1

Intersection: 300: Hodge Road & Panther Rock Boulevard/Ellen Drive

Movement	EB	EB	WB	NB	NB	NB	SB	SB	SB	SB	B4	B4
Directions Served	L	TR	LTR	L	T	TR	L	T	T	R	T	T
Maximum Queue (ft)	250	753	45	250	2007	2008	149	494	476	300	376	253
Average Queue (ft)	249	669	8	28	1620	1573	21	226	167	32	73	48
95th Queue (ft)	251	837	28	151	2314	2328	93	466	436	152	298	198
Link Distance (ft)		711	699		1967	1967		387	387		254	254
Upstream Blk Time (%)		39			6	3		22	19		16	1
Queuing Penalty (veh)		0			42	22		77	65		55	2
Storage Bay Dist (ft)	150			150			50			200		
Storage Blk Time (%)	82				54			43	21			
Queuing Penalty (veh)	21				8			3	19			

Intersection: 400: Hodge Road & Spectrum Drive

Movement	EB	EB	WB	WB	NB	NB	NB	SB	SB	SB	SB
Directions Served	L	TR	L	TR	L	T	R	L	L	T	R
Maximum Queue (ft)	130	82	133	119	23	1132	200	87	400	1987	2015
Average Queue (ft)	63	18	54	50	1	878	38	39	208	834	573
95th Queue (ft)	119	54	131	105	11	1167	156	85	469	2290	2026
Link Distance (ft)	970	970	882	882		1122				1967	1967
Upstream Blk Time (%)						4				22	10
Queuing Penalty (veh)						53				68	31
Storage Bay Dist (ft)					100		100	300	300		
Storage Blk Time (%)						37				47	
Queuing Penalty (veh)						24				80	

Intersection: 500: Hodge Road & Poole Road

Movement	EB	EB	WB	WB	WB	NB	NB	SB	SB	SB	B14
Directions Served	L	TR	L	T	R	L	TR	L	T	R	T
Maximum Queue (ft)	325	1564	28	1173	300	58	227	550	766	675	291
Average Queue (ft)	323	1036	7	697	281	18	69	526	624	483	185
95th Queue (ft)	333	1682	25	1324	357	47	133	627	1069	932	357
Link Distance (ft)		1667		1139			1455		675		218
Upstream Blk Time (%)				16					71	2	62
Queuing Penalty (veh)				0					300	0	262
Storage Bay Dist (ft)	225		200		200	50		450		800	
Storage Blk Time (%)	83	0		5	35	6	40	89		2	
Queuing Penalty (veh)	100	0		40	167	4	9	221		5	

Intersection: 600: Hodge Road & Site Access

Movement	EB	NB	B14	SB
Directions Served	LR	LT	T	TR
Maximum Queue (ft)	452	326	688	1144
Average Queue (ft)	406	82	159	764
95th Queue (ft)	540	297	609	1579
Link Distance (ft)	437	218	675	1122
Upstream Blk Time (%)	77	17	3	38
Queuing Penalty (veh)	0	205	35	172
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 700: Poole Road & Site Access

Movement	EB	SB
Directions Served	LT	LR
Maximum Queue (ft)	30	31
Average Queue (ft)	1	10
95th Queue (ft)	10	32
Link Distance (ft)	769	777
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Network Summary

Network wide Queuing Penalty: 3277

Intersection: 100: Hodge Road & I-87 SB Ramp/Old Faison Road

Movement	EB	EB	WB	WB	NB	NB	NB	SB	SB
Directions Served	LT	R	L	TR	L	T	R	L	T
Maximum Queue (ft)	616	634	98	174	191	447	300	275	547
Average Queue (ft)	597	600	40	74	105	202	115	68	227
95th Queue (ft)	609	617	86	155	167	311	224	222	409
Link Distance (ft)	582	582		661	1014	1014			880
Upstream Blk Time (%)	54	95							
Queuing Penalty (veh)	0	0							
Storage Bay Dist (ft)			125				200	175	
Storage Blk Time (%)				4		7	0		30
Queuing Penalty (veh)				3		28	1		44

Intersection: 200: Hodge Road & I-87 NB Ramp

Movement	EB	EB	EB	EB	NB	NB	B4	SB	SB
Directions Served	L	L	R	R	L	T	T	T	R
Maximum Queue (ft)	592	629	611	250	200	394	457	1050	225
Average Queue (ft)	562	593	575	154	199	352	408	1014	59
95th Queue (ft)	675	620	690	328	200	375	473	1092	221
Link Distance (ft)	577	577	577			273	371	1014	
Upstream Blk Time (%)	24	62	52			58	32	11	
Queuing Penalty (veh)	0	0	0			590	163	125	
Storage Bay Dist (ft)				150	100				125
Storage Blk Time (%)			33	12	79	3		48	
Queuing Penalty (veh)			135	49	467	14		38	

Intersection: 300: Hodge Road & Panther Rock Boulevard/Ellen Drive

Movement	EB	EB	WB	NB	NB	NB	SB	SB	SB	SB
Directions Served	L	TR	LTR	L	T	TR	L	T	T	R
Maximum Queue (ft)	250	409	48	250	1908	1943	29	385	371	72
Average Queue (ft)	222	209	13	96	1272	1192	7	172	113	19
95th Queue (ft)	286	474	35	288	2144	2092	25	288	251	57
Link Distance (ft)		712	699		1967	1967		371	371	
Upstream Blk Time (%)								0	0	
Queuing Penalty (veh)								1	0	
Storage Bay Dist (ft)	150			150			50			200
Storage Blk Time (%)	65	0			80			18	0	
Queuing Penalty (veh)	12	0			27			2	0	

Intersection: 400: Hodge Road & Spectrum Drive

Movement	EB	EB	WB	WB	NB	NB	NB	SB	SB	SB	SB
Directions Served	L	TR	L	TR	L	T	R	L	L	T	R
Maximum Queue (ft)	87	60	915	915	64	350	16	41	394	376	23
Average Queue (ft)	38	10	534	777	10	98	2	4	36	130	1
95th Queue (ft)	74	35	1214	1080	39	258	9	21	149	307	8
Link Distance (ft)	970	970	881	881		1139				1967	1967
Upstream Blk Time (%)			42	58							
Queuing Penalty (veh)			0	0							
Storage Bay Dist (ft)					100		100	300	300		
Storage Blk Time (%)						6				1	
Queuing Penalty (veh)						3				1	

Intersection: 500: Hodge Road & Poole Road

Movement	EB	EB	WB	WB	WB	NB	NB	SB	SB	SB
Directions Served	L	TR	L	T	R	L	TR	L	T	R
Maximum Queue (ft)	325	1245	50	1178	300	30	51	550	621	195
Average Queue (ft)	323	801	18	1107	296	5	21	329	43	69
95th Queue (ft)	328	1338	45	1331	316	21	51	543	227	150
Link Distance (ft)		1657		1139			1455		675	
Upstream Blk Time (%)				79						
Queuing Penalty (veh)				0						
Storage Bay Dist (ft)	225		200		200	50		450		800
Storage Blk Time (%)	87	5		12	92	0	4	4		
Queuing Penalty (veh)	269	14		28	182	0	0	19		

Intersection: 600: Hodge Road & Site Access

Movement	EB	NB	B14	SB
Directions Served	LR	LT	T	TR
Maximum Queue (ft)	356	286	130	22
Average Queue (ft)	114	10	4	1
95th Queue (ft)	271	94	43	7
Link Distance (ft)	583	214	675	1139
Upstream Blk Time (%)		1		
Queuing Penalty (veh)		8		
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 700: Poole Road & Site Access

Movement	EB	SB
Directions Served	LT	LR
Maximum Queue (ft)	27	31
Average Queue (ft)	1	7
95th Queue (ft)	9	28
Link Distance (ft)	779	663
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Network Summary

Network wide Queuing Penalty: 2223

Intersection: 100: Hodge Road & I-87 SB Ramp/Old Faison Road

Movement	EB	EB	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	LT	R	L	TR	L	T	R	L	T	R
Maximum Queue (ft)	284	597	225	676	362	214	69	274	895	325
Average Queue (ft)	122	207	132	252	216	129	19	30	699	236
95th Queue (ft)	223	445	257	528	322	198	50	141	1163	471
Link Distance (ft)	582	582		661	1014	1014			880	
Upstream Blk Time (%)		8		7					42	
Queuing Penalty (veh)		0		0					0	
Storage Bay Dist (ft)			125				200	175		225
Storage Blk Time (%)			23	20		1			37	59
Queuing Penalty (veh)			86	28		1			105	154

Intersection: 200: Hodge Road & I-87 NB Ramp

Movement	EB	EB	EB	EB	NB	NB	B4	SB	SB
Directions Served	L	L	R	R	L	T	T	T	R
Maximum Queue (ft)	118	195	270	250	200	359	476	1049	225
Average Queue (ft)	66	68	44	31	184	264	190	415	96
95th Queue (ft)	111	134	192	160	241	430	487	1006	277
Link Distance (ft)	577	577	577			254	387	1014	
Upstream Blk Time (%)						15	3	17	
Queuing Penalty (veh)						271	28	130	
Storage Bay Dist (ft)				150	100				125
Storage Blk Time (%)			11		46	5		36	0
Queuing Penalty (veh)			10		453	41		88	0

Intersection: 300: Hodge Road & Panther Rock Boulevard/Ellen Drive

Movement	EB	EB	WB	NB	NB	NB	SB	SB	SB	SB	B4	B4
Directions Served	L	TR	LTR	L	T	TR	L	T	T	R	T	T
Maximum Queue (ft)	250	763	67	250	1999	2019	149	495	481	300	339	332
Average Queue (ft)	243	482	18	36	1698	1665	17	264	215	58	101	78
95th Queue (ft)	268	906	48	173	2314	2327	77	518	510	238	352	280
Link Distance (ft)		711	699		1967	1967		387	387		254	254
Upstream Blk Time (%)		18			14	8		32	28		26	2
Queuing Penalty (veh)		0			101	60		110	95		89	8
Storage Bay Dist (ft)	150			150			50			200		
Storage Blk Time (%)	70				57		2	53	29			
Queuing Penalty (veh)	18				8		7	4	26			

Intersection: 400: Hodge Road & Spectrum Drive

Movement	EB	EB	WB	WB	NB	NB	NB	SB	SB	SB	SB
Directions Served	L	TR	L	TR	L	T	R	L	L	T	R
Maximum Queue (ft)	210	80	68	117	199	1133	200	117	400	2000	2026
Average Queue (ft)	92	17	16	46	7	998	48	32	188	1042	812
95th Queue (ft)	190	49	51	86	67	1252	186	86	458	2516	2336
Link Distance (ft)	970	970	882	882		1121				1967	1967
Upstream Blk Time (%)						8				29	19
Queuing Penalty (veh)						105				88	56
Storage Bay Dist (ft)					100		100	300	300		
Storage Blk Time (%)						45	0			57	
Queuing Penalty (veh)						29	0			96	

Intersection: 500: Hodge Road & Poole Road

Movement	EB	EB	WB	WB	WB	NB	NB	SB	SB	SB	B14
Directions Served	L	TR	L	T	R	L	TR	L	T	R	T
Maximum Queue (ft)	325	1682	28	1202	300	76	143	550	771	675	292
Average Queue (ft)	324	1267	3	1080	299	29	74	535	674	553	211
95th Queue (ft)	325	1974	17	1352	303	67	119	613	1037	956	345
Link Distance (ft)		1667		1139			1455		675		218
Upstream Blk Time (%)		16		38					80	3	71
Queuing Penalty (veh)		79		0					340	0	301
Storage Bay Dist (ft)	225		200		200	50		450		800	
Storage Blk Time (%)	89			4	53	13	48	93		3	
Queuing Penalty (veh)	107			34	253	10	11	231		6	

Intersection: 600: Hodge Road & Site Access

Movement	EB	NB	NB	B14	SB	SB
Directions Served	LR	L	T	T	T	R
Maximum Queue (ft)	457	199	336	688	1141	200
Average Queue (ft)	370	7	148	274	850	86
95th Queue (ft)	550	66	394	811	1582	250
Link Distance (ft)	423		218	675	1121	
Upstream Blk Time (%)	74	0	36	6	44	
Queuing Penalty (veh)	0	0	446	69	198	
Storage Bay Dist (ft)		100				100
Storage Blk Time (%)			36		79	
Queuing Penalty (veh)			1		25	

Intersection: 700: Poole Road & Site Access

Movement	EB	EB	SB
Directions Served	L	T	LR
Maximum Queue (ft)	199	736	62
Average Queue (ft)	8	123	16
95th Queue (ft)	68	472	46
Link Distance (ft)		769	764
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)	100		
Storage Blk Time (%)		25	
Queuing Penalty (veh)		1	

Network Summary

Network wide Queuing Penalty: 4408

Intersection: 100: Hodge Road & I-87 SB Ramp/Old Faison Road

Movement	EB	EB	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	LT	R	L	TR	L	T	R	L	T	R
Maximum Queue (ft)	611	616	124	183	190	346	300	274	327	325
Average Queue (ft)	578	597	47	85	107	194	114	37	203	22
95th Queue (ft)	739	603	100	161	178	286	200	118	304	155
Link Distance (ft)	582	582		661	1014	1014			880	
Upstream Blk Time (%)	51	94								
Queuing Penalty (veh)	0	0								
Storage Bay Dist (ft)			125				200	175		225
Storage Blk Time (%)			0	6		5	0		21	
Queuing Penalty (veh)			1	4		20	0		31	

Intersection: 200: Hodge Road & I-87 NB Ramp

Movement	EB	EB	EB	EB	NB	NB	B4	SB	SB
Directions Served	L	L	R	R	L	T	T	T	R
Maximum Queue (ft)	624	629	629	250	200	365	457	1052	225
Average Queue (ft)	581	595	593	152	199	347	377	1014	30
95th Queue (ft)	622	612	605	345	200	372	550	1089	155
Link Distance (ft)	577	577	577			273	371	1014	
Upstream Blk Time (%)	41	76	53			60	32	11	
Queuing Penalty (veh)	0	0	0			611	162	127	
Storage Bay Dist (ft)				150	100				125
Storage Blk Time (%)			35	10	80	3		48	
Queuing Penalty (veh)			141	40	470	13		38	

Intersection: 300: Hodge Road & Panther Rock Boulevard/Ellen Drive

Movement	EB	EB	WB	NB	NB	NB	SB	SB	SB	SB
Directions Served	L	TR	LTR	L	T	TR	L	T	T	R
Maximum Queue (ft)	250	667	48	250	2000	2006	46	370	304	74
Average Queue (ft)	232	351	10	95	1234	1189	5	159	90	23
95th Queue (ft)	295	678	33	290	2369	2362	25	288	214	60
Link Distance (ft)		712	699		1967	1967		371	371	
Upstream Blk Time (%)					13	8		0		
Queuing Penalty (veh)					56	33		1		
Storage Bay Dist (ft)	150			150			50			200
Storage Blk Time (%)	76	0			77		2	17	0	
Queuing Penalty (veh)	14	0			26		13	2	0	

Intersection: 400: Hodge Road & Spectrum Drive

Movement	EB	EB	WB	WB	NB	NB	NB	SB	SB	SB	SB
Directions Served	L	TR	L	TR	L	T	R	L	L	T	R
Maximum Queue (ft)	171	42	896	915	199	747	193	20	66	423	50
Average Queue (ft)	60	11	391	687	21	175	8	4	29	101	3
95th Queue (ft)	130	33	1065	1088	102	466	66	16	55	258	20
Link Distance (ft)	970	970	881	881		1140				1967	1967
Upstream Blk Time (%)			33	39							
Queuing Penalty (veh)			0	0							
Storage Bay Dist (ft)					100		100	300	300		
Storage Blk Time (%)						24				1	
Queuing Penalty (veh)						10				0	

Intersection: 500: Hodge Road & Poole Road

Movement	EB	EB	WB	WB	WB	NB	NB	SB	SB	SB
Directions Served	L	TR	L	T	R	L	TR	L	T	R
Maximum Queue (ft)	325	1538	67	1173	300	30	71	485	68	188
Average Queue (ft)	321	857	19	859	277	4	14	281	25	77
95th Queue (ft)	336	1477	48	1491	361	20	48	444	62	151
Link Distance (ft)		1657		1139			1455		675	
Upstream Blk Time (%)				53						
Queuing Penalty (veh)				0						
Storage Bay Dist (ft)	225		200		200	50		450		800
Storage Blk Time (%)	81	7		11	78		3	1		
Queuing Penalty (veh)	250	22		26	154		0	4		

Intersection: 600: Hodge Road & Site Access

Movement	EB	NB
Directions Served	LR	L
Maximum Queue (ft)	150	28
Average Queue (ft)	42	2
95th Queue (ft)	97	13
Link Distance (ft)	570	
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		100
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 700: Poole Road & Site Access

Movement	EB	SB
Directions Served	L	LR
Maximum Queue (ft)	28	24
Average Queue (ft)	1	5
95th Queue (ft)	9	21
Link Distance (ft)		651
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)	100	
Storage Blk Time (%)		
Queuing Penalty (veh)		

Network Summary

Network wide Queuing Penalty: 2267

Intersection: 100: Hodge Road & I-87 SB Ramp/Old Faison Road

Movement	EB	EB	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	LT	R	L	TR	L	T	R	L	T	R
Maximum Queue (ft)	594	597	225	672	368	306	299	47	932	325
Average Queue (ft)	278	169	104	206	217	143	38	8	797	300
95th Queue (ft)	536	379	210	399	326	232	122	30	1187	434
Link Distance (ft)	582	582		661	1014	1014			880	
Upstream Blk Time (%)	0	4		3					75	
Queuing Penalty (veh)	0	0		0					0	
Storage Bay Dist (ft)			125				200	175		225
Storage Blk Time (%)			15	21		3			21	86
Queuing Penalty (veh)			60	33		3			68	241

Intersection: 200: Hodge Road & I-87 NB Ramp

Movement	EB	EB	EB	EB	NB	NB	B4	SB	SB
Directions Served	L	L	R	R	L	T	T	T	R
Maximum Queue (ft)	118	118	231	198	200	349	462	1038	225
Average Queue (ft)	62	63	36	19	167	204	112	269	49
95th Queue (ft)	105	107	158	113	231	378	395	784	198
Link Distance (ft)	577	577	577			254	387	1014	
Upstream Blk Time (%)						7	1	11	
Queuing Penalty (veh)						120	8	85	
Storage Bay Dist (ft)				150	100				125
Storage Blk Time (%)			12	0	36	6		22	0
Queuing Penalty (veh)			11	0	362	48		58	0

Intersection: 300: Hodge Road & Panther Rock Boulevard/Ellen Drive

Movement	EB	EB	WB	NB	NB	NB	SB	SB	SB	SB	B4	B4
Directions Served	L	TR	LTR	L	T	TR	L	T	T	R	T	T
Maximum Queue (ft)	250	745	69	250	2007	2031	46	458	457	296	339	323
Average Queue (ft)	248	683	23	55	1359	1320	5	197	153	16	60	38
95th Queue (ft)	255	812	59	216	2179	2166	25	420	406	105	266	186
Link Distance (ft)		711	699		1967	1967		387	387		254	254
Upstream Blk Time (%)		50			4	2		18	17		16	5
Queuing Penalty (veh)		0			27	15		63	59		55	18
Storage Bay Dist (ft)	150			150			50			200		
Storage Blk Time (%)	82				55		3	46	18			
Queuing Penalty (veh)	23				9		10	4	17			

Intersection: 400: Hodge Road & Spectrum Drive

Movement	EB	EB	WB	WB	NB	NB	NB	B14	SB	SB	SB	SB
Directions Served	L	TR	L	TR	L	T	R	T	L	L	T	R
Maximum Queue (ft)	111	188	215	156	198	1490	200	680	150	400	2017	1981
Average Queue (ft)	52	69	64	52	7	1202	56	193	42	70	691	482
95th Queue (ft)	98	184	184	110	66	1750	198	599	107	193	2120	1807
Link Distance (ft)	970	970	882	882		1396		675			1967	1967
Upstream Blk Time (%)						27		1			14	8
Queuing Penalty (veh)						366		9			44	25
Storage Bay Dist (ft)					100		100		300	300		
Storage Blk Time (%)						37	0				38	
Queuing Penalty (veh)						26	0				69	

Intersection: 500: Hodge Road & Poole Road

Movement	EB	EB	WB	WB	WB	NB	NB	SB	SB	SB	B14
Directions Served	L	TR	L	T	R	L	TR	L	T	R	T
Maximum Queue (ft)	325	1954	47	1192	300	149	198	550	747	675	1411
Average Queue (ft)	325	1373	5	1157	297	43	99	500	526	349	755
95th Queue (ft)	325	2105	26	1196	306	115	172	645	1074	827	1825
Link Distance (ft)		2494		1139			1455		675		1396
Upstream Blk Time (%)				36					62	1	36
Queuing Penalty (veh)				0					280	0	163
Storage Bay Dist (ft)	225		200		200	50		450		800	
Storage Blk Time (%)	86			5	38	8	56	76		1	
Queuing Penalty (veh)	115			47	199	7	14	207		3	

Network Summary

Network wide Queuing Penalty: 2970

Intersection: 100: Hodge Road & I-87 SB Ramp/Old Faison Road

Movement	EB	EB	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	LT	R	L	TR	L	T	R	L	T	R
Maximum Queue (ft)	597	634	87	232	221	431	300	275	449	325
Average Queue (ft)	594	602	49	102	101	226	135	83	255	54
95th Queue (ft)	607	620	89	193	186	358	262	242	412	253
Link Distance (ft)	582	582		661	1014	1014			880	
Upstream Blk Time (%)	49	94								
Queuing Penalty (veh)	0	0								
Storage Bay Dist (ft)			125				200	175		225
Storage Blk Time (%)				9		10	1		35	
Queuing Penalty (veh)				7		43	6		57	

Intersection: 200: Hodge Road & I-87 NB Ramp

Movement	EB	EB	EB	EB	NB	NB	B4	B4	SB	SB
Directions Served	L	L	R	R	L	T	T		T	R
Maximum Queue (ft)	592	629	595	250	200	341	472	408	1043	225
Average Queue (ft)	583	597	591	113	198	304	372	14	1016	60
95th Queue (ft)	612	614	596	302	209	394	578	135	1082	222
Link Distance (ft)	577	577	577			245	397	397	1014	
Upstream Blk Time (%)	47	80	57			53	28	0	11	
Queuing Penalty (veh)	0	0	0			545	143	2	135	
Storage Bay Dist (ft)				150	100					125
Storage Blk Time (%)			33	5	76	4			48	
Queuing Penalty (veh)			138	19	458	17			42	

Intersection: 300: Hodge Road & Panther Rock Boulevard/Ellen Drive

Movement	EB	EB	WB	NB	NB	NB	SB	SB	SB	SB
Directions Served	L	TR	LTR	L	T	TR	L	T	T	R
Maximum Queue (ft)	250	651	69	250	1915	1836	149	314	281	72
Average Queue (ft)	227	374	16	106	1007	943	14	191	113	24
95th Queue (ft)	290	796	42	300	1949	1850	75	312	222	64
Link Distance (ft)		712	699		1967	1967		397	397	
Upstream Blk Time (%)										
Queuing Penalty (veh)										
Storage Bay Dist (ft)	150			150			50			200
Storage Blk Time (%)	70				79			20	1	
Queuing Penalty (veh)	11				28			3	2	

Intersection: 400: Hodge Road & Spectrum Drive

Movement	EB	EB	WB	WB	NB	NB	NB	SB	SB	SB	SB	
Directions Served	L	TR	L	TR	L	T	R	L	L	T	R	
Maximum Queue (ft)	88	39	110	593	199	311	17	64	399	495	25	
Average Queue (ft)	44	6	53	465	25	112	3	5	45	94	2	
95th Queue (ft)	78	23	94	631	104	280	13	26	158	265	14	
Link Distance (ft)	970	970	882	882		1396				1967	1967	
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (ft)					100			100	300	300		
Storage Blk Time (%)							9					0
Queuing Penalty (veh)							4					0

Intersection: 500: Hodge Road & Poole Road

Movement	EB	EB	WB	WB	WB	NB	NB	SB	SB	SB
Directions Served	L	TR	L	T	R	L	TR	L	T	R
Maximum Queue (ft)	325	2528	299	1154	300	52	52	547	90	133
Average Queue (ft)	324	1894	53	880	283	11	25	341	22	61
95th Queue (ft)	326	3038	190	1396	340	36	56	533	61	130
Link Distance (ft)	2494		1139				1455	675		
Upstream Blk Time (%)	35		28							
Queuing Penalty (veh)	0		0							
Storage Bay Dist (ft)	225	200		200		50	450		800	
Storage Blk Time (%)	87	7	44		75	0	5	4		
Queuing Penalty (veh)	297	22	114		160	0	1	22		

Network Summary

Network wide Queuing Penalty: 2277

Intersection: 100: Hodge Road & I-87 SB Ramp/Old Faison Road

Movement	EB	EB	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	LT	R	L	TR	L	T	R	L	T	R
Maximum Queue (ft)	598	627	225	670	427	217	71	274	895	325
Average Queue (ft)	440	342	129	256	236	127	30	32	474	245
95th Queue (ft)	737	726	252	533	365	201	65	142	897	452
Link Distance (ft)	582	582		661	1014	1014			880	
Upstream Blk Time (%)	36	27		8					16	
Queuing Penalty (veh)	0	0		0					0	
Storage Bay Dist (ft)			125				200	175		225
Storage Blk Time (%)			22	21		1			51	48
Queuing Penalty (veh)			90	33		2			161	137

Intersection: 200: Hodge Road & I-87 NB Ramp

Movement	EB	EB	EB	EB	NB	NB	B4	SB	SB
Directions Served	L	L	R	R	L	T	T	T	R
Maximum Queue (ft)	137	124	273	250	200	345	475	1051	225
Average Queue (ft)	71	65	60	33	183	221	138	408	65
95th Queue (ft)	127	116	211	157	228	406	434	1010	230
Link Distance (ft)	577	577	577			254	387	1014	
Upstream Blk Time (%)						10	2	19	
Queuing Penalty (veh)						198	19	155	
Storage Bay Dist (ft)				150	100				125
Storage Blk Time (%)			16	0	42	5		36	
Queuing Penalty (veh)			15	0	445	40		95	

Intersection: 300: Hodge Road & Panther Rock Boulevard/Ellen Drive

Movement	EB	EB	WB	NB	NB	NB	SB	SB	SB	SB	B4	B4
Directions Served	L	TR	LTR	L	T	TR	L	T	T	R	T	T
Maximum Queue (ft)	250	726	46	250	2003	2038	149	495	481	300	339	347
Average Queue (ft)	246	462	18	62	1808	1798	7	275	247	47	98	68
95th Queue (ft)	263	769	40	233	2323	2345	52	516	519	213	348	251
Link Distance (ft)		711	699		1967	1967		387	387		254	254
Upstream Blk Time (%)		1			13	8		30	29		24	6
Queuing Penalty (veh)		0			104	66		112	105		87	21
Storage Bay Dist (ft)	150			150			50			200		
Storage Blk Time (%)	67	0			57			59	29			
Queuing Penalty (veh)	22	0			9			5	27			

Intersection: 400: Hodge Road & Spectrum Drive

Movement	EB	EB	WB	WB	NB	NB	NB	SB	SB	SB	SB
Directions Served	L	TR	L	TR	L	T	R	L	L	T	R
Maximum Queue (ft)	88	127	68	117	45	1136	200	230	400	2005	2013
Average Queue (ft)	53	23	14	47	3	1012	65	42	219	1137	905
95th Queue (ft)	94	76	44	86	19	1303	211	127	502	2580	2459
Link Distance (ft)	970	970	882	882		1122				1967	1967
Upstream Blk Time (%)						8				37	18
Queuing Penalty (veh)						121				121	61
Storage Bay Dist (ft)					100		100	300	300		
Storage Blk Time (%)						44				63	
Queuing Penalty (veh)						31				117	

Intersection: 500: Hodge Road & Poole Road

Movement	EB	EB	WB	WB	WB	NB	NB	SB	SB	SB	B14
Directions Served	L	TR	L	T	R	L	TR	L	T	R	T
Maximum Queue (ft)	325	1682	28	1191	300	74	113	550	770	675	291
Average Queue (ft)	324	1537	2	1161	297	23	56	538	646	536	190
95th Queue (ft)	326	2084	13	1181	310	60	103	597	1058	920	345
Link Distance (ft)		1667		1139			1455		675		218
Upstream Blk Time (%)		39		47					75	2	61
Queuing Penalty (veh)		218		0					346	0	283
Storage Bay Dist (ft)	225		200		200	50		450		800	
Storage Blk Time (%)	88			4	52	12	36	93		2	
Queuing Penalty (veh)	118			37	271	10	9	252		5	

Intersection: 600: Hodge Road & Site Access

Movement	EB	NB	B14	SB
Directions Served	LR	LT	T	TR
Maximum Queue (ft)	471	337	682	1142
Average Queue (ft)	382	198	416	821
95th Queue (ft)	520	430	936	1607
Link Distance (ft)	437	218	675	1122
Upstream Blk Time (%)	49	43	5	44
Queuing Penalty (veh)	0	592	71	215
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 700: Poole Road & Site Access

Movement	EB	SB
Directions Served	LT	LR
Maximum Queue (ft)	832	94
Average Queue (ft)	590	11
95th Queue (ft)	1135	44
Link Distance (ft)	769	777
Upstream Blk Time (%)	64	
Queuing Penalty (veh)	0	
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Network Summary

Network wide Queuing Penalty: 4826

Intersection: 100: Hodge Road & I-87 SB Ramp/Old Faison Road

Movement	EB	EB	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	LT	R	L	TR	L	T	R	L	T	R
Maximum Queue (ft)	616	616	154	198	178	414	300	275	895	325
Average Queue (ft)	597	601	60	92	109	210	115	72	519	161
95th Queue (ft)	606	614	118	180	180	316	215	225	1007	428
Link Distance (ft)	582	582		661	1014	1014			880	
Upstream Blk Time (%)	63	97							15	
Queuing Penalty (veh)	0	0							0	
Storage Bay Dist (ft)			125				200	175		225
Storage Blk Time (%)			1	8		8	0		58	
Queuing Penalty (veh)			2	6		33	0		95	

Intersection: 200: Hodge Road & I-87 NB Ramp

Movement	EB	EB	EB	EB	NB	NB	B4	B4	SB	SB
Directions Served	L	L	R	R	L	T	T		T	R
Maximum Queue (ft)	592	616	611	250	200	394	468	368	1052	225
Average Queue (ft)	577	593	592	114	199	351	413	12	1031	67
95th Queue (ft)	613	605	602	305	200	368	466	121	1066	236
Link Distance (ft)	577	577	577			273	371	371	1014	
Upstream Blk Time (%)	33	81	57			61	36	1	17	
Queuing Penalty (veh)	0	0	0			667	196	5	214	
Storage Bay Dist (ft)				150	100					125
Storage Blk Time (%)			26	5	80	3			49	
Queuing Penalty (veh)			114	23	507	12			44	

Intersection: 300: Hodge Road & Panther Rock Boulevard/Ellen Drive

Movement	EB	EB	WB	NB	NB	NB	SB	SB	SB	SB
Directions Served	L	TR	LTR	L	T	TR	L	T	T	R
Maximum Queue (ft)	250	461	48	250	2004	1985	29	312	309	72
Average Queue (ft)	230	152	16	112	1471	1430	3	167	105	21
95th Queue (ft)	281	423	40	311	2433	2399	16	275	237	61
Link Distance (ft)		712	699		1967	1967		371	371	
Upstream Blk Time (%)					6	2				
Queuing Penalty (veh)					28	10				
Storage Bay Dist (ft)	150			150			50			200
Storage Blk Time (%)	70				85			17	0	
Queuing Penalty (veh)	13				31			2	1	

Intersection: 400: Hodge Road & Spectrum Drive

Movement	EB	EB	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	L	TR	L	TR	L	T	R	L	L	T
Maximum Queue (ft)	67	41	920	907	200	357	200	41	66	536
Average Queue (ft)	37	9	339	590	38	141	18	6	29	102
95th Queue (ft)	67	29	986	1066	144	327	99	23	55	313
Link Distance (ft)	970	970	881	881		1139				1967
Upstream Blk Time (%)			30	32						
Queuing Penalty (veh)			0	0						
Storage Bay Dist (ft)					100		100	300	300	
Storage Blk Time (%)						14				2
Queuing Penalty (veh)						6				1

Intersection: 500: Hodge Road & Poole Road

Movement	EB	EB	WB	WB	WB	NB	NB	SB	SB	SB
Directions Served	L	TR	L	T	R	L	TR	L	T	R
Maximum Queue (ft)	325	1672	299	1202	300	30	93	547	437	175
Average Queue (ft)	322	1387	26	971	291	5	21	293	30	61
95th Queue (ft)	330	2083	115	1461	336	23	56	501	159	129
Link Distance (ft)		1657		1139			1455		675	
Upstream Blk Time (%)		23		59						
Queuing Penalty (veh)		154		0						
Storage Bay Dist (ft)	225		200		200	50		450		800
Storage Blk Time (%)	84	7		11	85	0	2	2	0	
Queuing Penalty (veh)	289	21		30	186	0	0	9	0	

Intersection: 600: Hodge Road & Site Access

Movement	EB	NB
Directions Served	LR	LT
Maximum Queue (ft)	217	97
Average Queue (ft)	56	4
95th Queue (ft)	126	34
Link Distance (ft)	583	214
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 700: Poole Road & Site Access

Movement	EB	SB
Directions Served	LT	LR
Maximum Queue (ft)	831	74
Average Queue (ft)	400	11
95th Queue (ft)	970	45
Link Distance (ft)	779	663
Upstream Blk Time (%)	21	
Queuing Penalty (veh)	0	
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Network Summary

Network wide Queuing Penalty: 2699

Intersection: 100: Hodge Road & I-87 SB Ramp/Old Faison Road

Movement	EB	EB	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	LT	R	L	TR	L	T	R	L	T	R
Maximum Queue (ft)	458	500	225	676	403	205	155	49	914	325
Average Queue (ft)	232	177	126	230	246	112	45	8	735	268
95th Queue (ft)	390	366	243	475	343	183	101	31	1188	466
Link Distance (ft)	582	582		661	1014	1014			880	
Upstream Blk Time (%)				5					65	
Queuing Penalty (veh)				0					0	
Storage Bay Dist (ft)			125				200	175		225
Storage Blk Time (%)			17	21		0			18	74
Queuing Penalty (veh)			69	33		0			56	211

Intersection: 200: Hodge Road & I-87 NB Ramp

Movement	EB	EB	EB	EB	NB	NB	B4	SB	SB
Directions Served	L	L	R	R	L	T	T	T	R
Maximum Queue (ft)	137	163	283	250	200	345	462	1049	225
Average Queue (ft)	65	84	49	13	171	227	168	347	43
95th Queue (ft)	133	141	189	96	245	414	481	938	186
Link Distance (ft)	577	577	577			254	387	1014	
Upstream Blk Time (%)						15	5	14	
Queuing Penalty (veh)						294	47	113	
Storage Bay Dist (ft)				150	100				125
Storage Blk Time (%)			11	0	40	6		31	0
Queuing Penalty (veh)			10	0	427	51		84	0

Intersection: 300: Hodge Road & Panther Rock Boulevard/Ellen Drive

Movement	EB	EB	WB	NB	NB	NB	SB	SB	SB	SB	B4	B4
Directions Served	L	TR	LTR	L	T	TR	L	T	T	R	T	T
Maximum Queue (ft)	250	750	27	250	2008	2033	27	495	476	300	339	287
Average Queue (ft)	249	691	9	21	1858	1841	2	257	203	81	88	68
95th Queue (ft)	251	810	28	123	2306	2332	12	507	505	282	323	247
Link Distance (ft)		711	699		1967	1967		387	387		254	254
Upstream Blk Time (%)		60			14	11		27	26		23	7
Queuing Penalty (veh)		0			107	85		101	97		84	27
Storage Bay Dist (ft)	150			150			50				200	
Storage Blk Time (%)	83				57			50	27			
Queuing Penalty (veh)	23				9			4	25			

Intersection: 400: Hodge Road & Spectrum Drive

Movement	EB	EB	WB	WB	NB	NB	NB	SB	SB	SB	SB
Directions Served	L	TR	L	TR	L	T	R	L	L	T	R
Maximum Queue (ft)	130	39	134	215	199	1135	200	110	400	2022	2024
Average Queue (ft)	64	14	41	79	8	1033	51	35	229	1074	762
95th Queue (ft)	109	37	95	176	68	1320	187	90	495	2538	2260
Link Distance (ft)	970	970	882	882		1121				1967	1967
Upstream Blk Time (%)						8				35	13
Queuing Penalty (veh)						121				114	44
Storage Bay Dist (ft)					100		100	300	300		
Storage Blk Time (%)						45				61	
Queuing Penalty (veh)						31				112	

Intersection: 500: Hodge Road & Poole Road

Movement	EB	EB	WB	WB	WB	NB	NB	SB	SB	SB	B14
Directions Served	L	TR	L	T	R	L	TR	L	T	R	T
Maximum Queue (ft)	325	1681	28	1191	300	149	156	550	766	675	292
Average Queue (ft)	324	1448	1	1125	299	28	83	536	666	451	199
95th Queue (ft)	327	2082	10	1284	303	81	133	602	1025	913	344
Link Distance (ft)		1667		1139			1455		675		218
Upstream Blk Time (%)		34		45					77	2	66
Queuing Penalty (veh)		187		0					354	0	301
Storage Bay Dist (ft)	225		200		200	50		450		800	
Storage Blk Time (%)	89			2	53	9	55	93	1	2	
Queuing Penalty (veh)	119			20	276	8	14	253	2	5	

Intersection: 600: Hodge Road & Site Access

Movement	EB	NB	B14	SB	SB
Directions Served	LR	T	T	T	R
Maximum Queue (ft)	438	325	689	1136	200
Average Queue (ft)	340	203	424	852	53
95th Queue (ft)	559	428	932	1603	199
Link Distance (ft)	423	218	675	1121	
Upstream Blk Time (%)	64	43	4	47	
Queuing Penalty (veh)	0	594	51	229	
Storage Bay Dist (ft)					100
Storage Blk Time (%)		43		76	
Queuing Penalty (veh)		0		24	

Intersection: 700: Poole Road & Site Access

Movement	EB	SB
Directions Served	T	LR
Maximum Queue (ft)	803	23
Average Queue (ft)	496	6
95th Queue (ft)	1091	22
Link Distance (ft)	769	764
Upstream Blk Time (%)	55	
Queuing Penalty (veh)	0	
Storage Bay Dist (ft)		
Storage Blk Time (%)	65	
Queuing Penalty (veh)	1	

Network Summary

Network wide Queuing Penalty: 4819

Intersection: 100: Hodge Road & I-87 SB Ramp/Old Faison Road

Movement	EB	EB	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	LT	R	L	TR	L	T	R	L	T	R
Maximum Queue (ft)	645	645	137	153	189	435	300	275	932	325
Average Queue (ft)	594	602	44	84	114	217	134	108	563	173
95th Queue (ft)	618	621	101	148	183	348	249	291	1077	439
Link Distance (ft)	582	582		661	1014	1014			880	
Upstream Blk Time (%)	54	97							18	
Queuing Penalty (veh)	0	0							0	
Storage Bay Dist (ft)			125				200	175		225
Storage Blk Time (%)			1	1		10	0		61	
Queuing Penalty (veh)			2	1		40	3		99	

Intersection: 200: Hodge Road & I-87 NB Ramp

Movement	EB	EB	EB	EB	NB	NB	B4	B4	SB	SB
Directions Served	L	L	R	R	L	T	T		T	R
Maximum Queue (ft)	592	629	611	250	200	370	465	379	1058	225
Average Queue (ft)	577	594	592	141	199	348	405	13	1029	52
95th Queue (ft)	620	610	602	316	200	358	462	125	1083	206
Link Distance (ft)	577	577	577			273	371	371	1014	
Upstream Blk Time (%)	33	78	50			57	29	1	15	
Queuing Penalty (veh)	0	0	0			621	155	5	186	
Storage Bay Dist (ft)				150	100					125
Storage Blk Time (%)			36	8	77	5			48	
Queuing Penalty (veh)			158	34	489	22			43	

Intersection: 300: Hodge Road & Panther Rock Boulevard/Ellen Drive

Movement	EB	EB	WB	NB	NB	NB	SB	SB	SB	SB
Directions Served	L	TR	LTR	L	T	TR	L	T	T	R
Maximum Queue (ft)	250	638	92	250	1876	1881	149	363	329	114
Average Queue (ft)	209	177	23	128	1253	1188	17	181	116	34
95th Queue (ft)	289	529	62	328	2061	2004	79	285	251	83
Link Distance (ft)		712	699		1967	1967		371	371	
Upstream Blk Time (%)								0		
Queuing Penalty (veh)								0		
Storage Bay Dist (ft)	150			150			50			200
Storage Blk Time (%)	52				83			20	0	
Queuing Penalty (veh)	10				30			3	0	

Intersection: 400: Hodge Road & Spectrum Drive

Movement	EB	EB	WB	WB	NB	NB	NB	SB	SB	SB	SB
Directions Served	L	TR	L	TR	L	T	R	L	L	T	R
Maximum Queue (ft)	92	61	920	915	62	304	9	41	66	248	47
Average Queue (ft)	28	15	283	664	11	99	0	5	24	66	5
95th Queue (ft)	68	47	893	1042	34	264	3	25	58	186	23
Link Distance (ft)	970	970	881	881		1140				1967	1967
Upstream Blk Time (%)			18	27							
Queuing Penalty (veh)			0	0							
Storage Bay Dist (ft)					100		100	300	300		
Storage Blk Time (%)						6					
Queuing Penalty (veh)						3					

Intersection: 500: Hodge Road & Poole Road

Movement	EB	EB	WB	WB	WB	NB	NB	SB	SB	SB
Directions Served	L	TR	L	T	R	L	TR	L	T	R
Maximum Queue (ft)	325	1671	65	1178	300	50	75	550	628	159
Average Queue (ft)	324	1621	11	1136	299	7	21	335	34	66
95th Queue (ft)	329	1804	42	1301	302	29	58	493	219	144
Link Distance (ft)		1657		1139			1455		675	
Upstream Blk Time (%)		34		85						
Queuing Penalty (veh)		228		0						
Storage Bay Dist (ft)	225		200		200	50		450		800
Storage Blk Time (%)	85	5		27	91	0	2	2		
Queuing Penalty (veh)	290	16		69	199	0	0	10		

Intersection: 600: Hodge Road & Site Access

Movement	EB	NB
Directions Served	LR	L
Maximum Queue (ft)	88	29
Average Queue (ft)	43	2
95th Queue (ft)	80	13
Link Distance (ft)	570	
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		100
Storage Blk Time (%)		
Queuing Penalty (veh)		

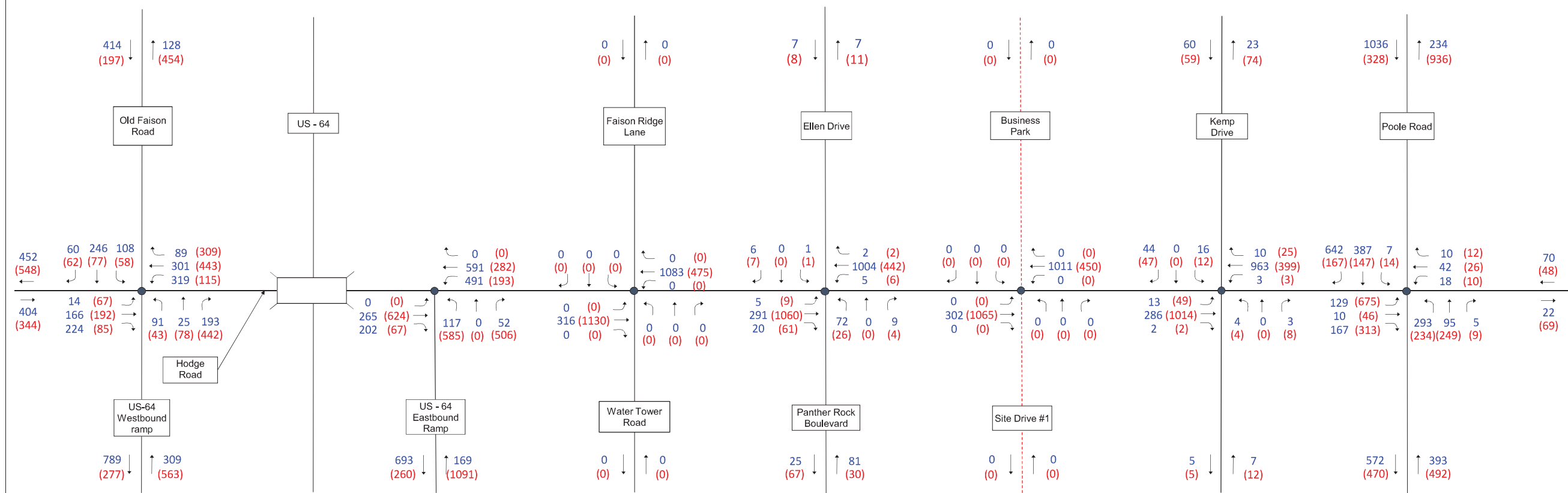
Intersection: 700: Poole Road & Site Access

Movement	EB	EB	SB
Directions Served	L	T	LR
Maximum Queue (ft)	199	831	23
Average Queue (ft)	26	629	6
95th Queue (ft)	138	1132	22
Link Distance (ft)		779	651
Upstream Blk Time (%)		69	
Queuing Penalty (veh)		0	
Storage Bay Dist (ft)	100		
Storage Blk Time (%)		73	
Queuing Penalty (veh)		4	

Network Summary

Network wide Queuing Penalty: 2722

Traffic Volume Data



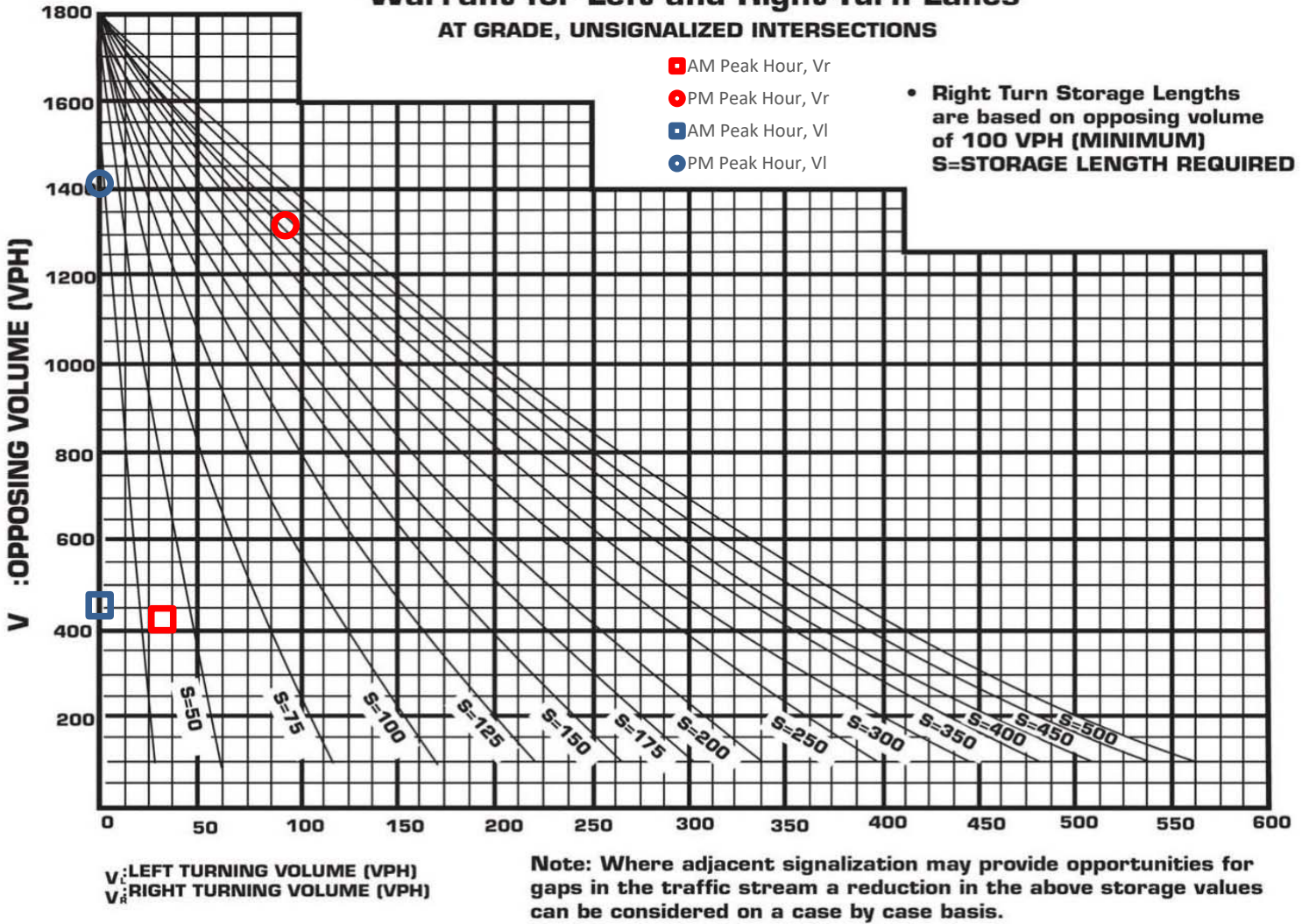
LEGEND:

- Existing Road
- - - Proposed Road
- XX AM Peak Hour Volume (vph)
- (XX) PM Peak Hour Volume (vph)

Supporting Documentation

Peak Hour	Volumes		Peak Hour	Volumes	
	Opposing	Lefts		Opposing	Rights
AM	451	0	AM	419	32
PM	1410	0	PM	1315	95

Warrant for Left and Right-Turn Lanes AT GRADE, UNSIGNALIZED INTERSECTIONS

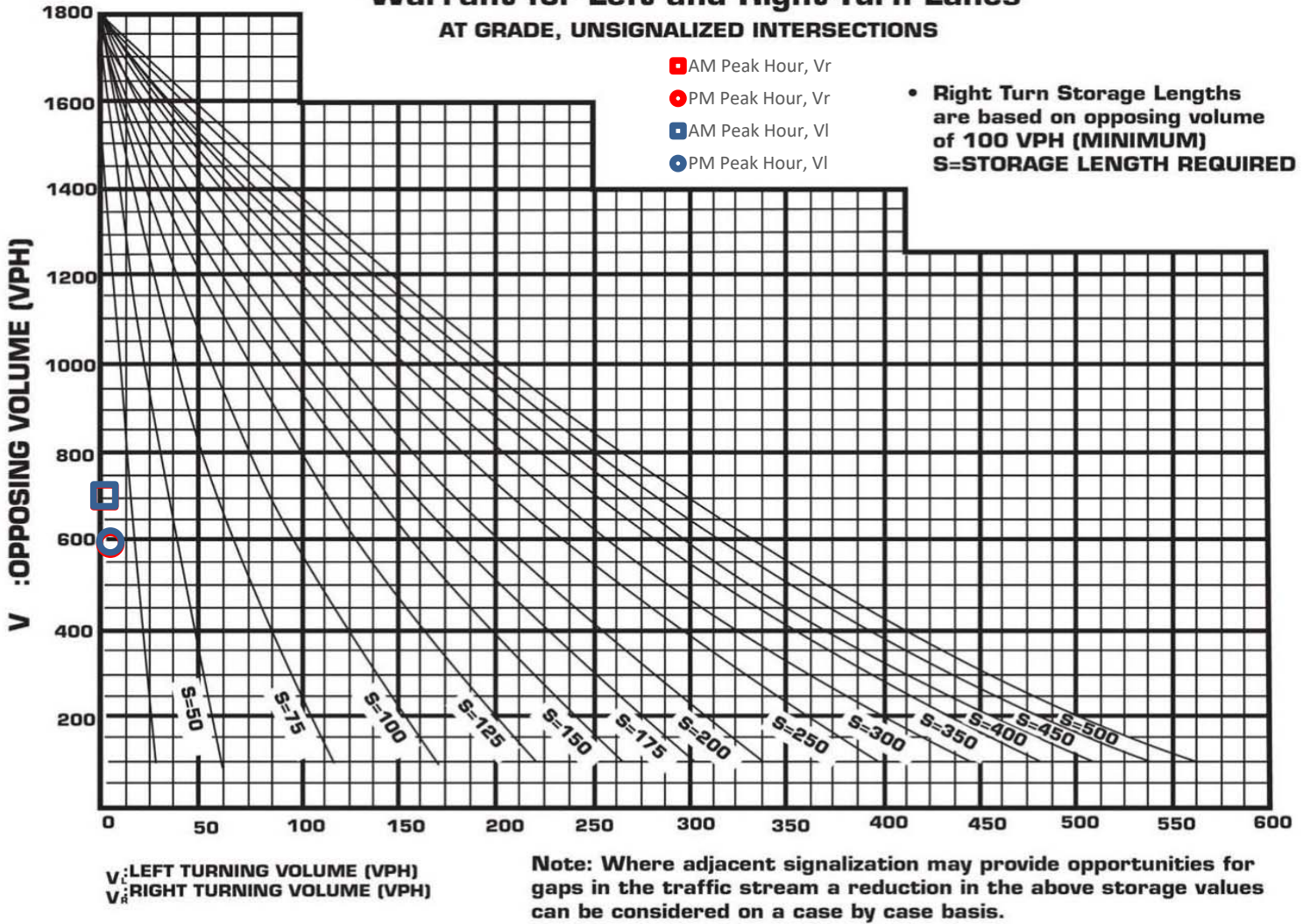


TURN LANE WARRANT SUMMARY

HODGE ROAD AT SITE ACCESS

Peak Hour	Volumes		Peak Hour	Volumes	
	Opposing	Lefts		Opposing	Rights
AM	701	2	AM	699	2
PM	596	5	PM	591	5

Warrant for Left and Right-Turn Lanes AT GRADE, UNSIGNALIZED INTERSECTIONS



TURN LANE WARRANT SUMMARY

POOLE ROAD AT SITE ACCESS



NCDOT Traffic Impact Analysis Need Screening / Scoping Request



- The proposed site access is located within 1,000 feet of an interchange.
- The Applicant requests for a new or modified control-of-access break.
- The Applicant requests for a new or modified median break.

Applicant's Signature
Print Name
Date

Site Plan/Vicinity Map Requirement for TIA Need Screening: While the site plan may not be finalized during the TIA scoping stage, the graphic representation of the proposed development shall provide adequate details on the development scope and context. More specifically, the site plan/map shall clearly show the location and type of each access point, spacing to adjacent and opposing driveways or intersections, internal street network, proposed buildings/parcels with their anticipated uses and sizes at full build-out and, if applicable, any nearby interstate, US, NC or Secondary Roads (SR).

Project Name: _____ **Project Reference Number:** _____

- A TIA is Required by the Local Government.** In addition, the study area is expected to include NCDOT maintained transportation facilities.
- A TIA is Required by NCDOT,** per the [Policy on Street and Driveway Access to North Carolina Highways](#).

If either or both of the boxes above are checked, the Applicant/TIA Consultant is hereby requested to fill out as much as possible of the following TIA scoping checklist, and return it along with the supporting documents to NCDOT prior to the scoping meeting.

- A TIA is NOT required.** This decision is based on the development information presented above. Changes in the development plan will require re-evaluation of the TIA need, and may necessitate a TIA. The Applicant should inform the District Engineer of any significant changes in a timely fashion to avoid delays or rejections of the driveway permit / encroachment agreement applications.



NCDOT Traffic Impact Analysis Need Screening / Scoping Request



Additional Comments:

The TIA need decision is made by the NCDOT Division _____ District _____ on _____.

NCDOT District Representative's Signature

Print Name

Email concurrence may be used in lieu of the signature.



NCDOT TIA Scoping Checklist



Project Name: Pooler Road Development

TIA Scoping Date: _____

TIA Need Screening Forms are Attached. Project Reference #: 210410 Decision Date: _____

Site Plan and Access

Provide a site plan illustrating site access, internal and external roadways, buildings and land uses.

Refer to NCDOT's [Policy on Street and Driveway Access to North Carolina Highways](#) pages 14 and 15 for site plan requirements.

Identify site access.

New Access	On Road	Access Type		Driveway Spacing		
	Road Name	Permitted Movements	Traffic Control	Distance (ft)	Direction	Nearest Intersection / Access
Access A	Pooler Road	Conventional Full-Mvmt	2-Way Stop	840	West	Hodge Road
Access B	Hodge Road	Conventional Full-Mvmt	2-Way Stop	1060	North	Pooler Road
Access C						
Access D						
Access E						
Access F						
Access G						
Access H						
Existing Access	Existing Intersection of		Access Modification	Proposed Interconnectivity (If Applicable)		
	Road A	Road B		Connector #	Road Connected	Adjacent Development
Access 1			Please Select	Connector 1		
Access 2				Connector 2		
Access 3				Connector 3		
Access 4				Connector 4		

Additional access clarifications and provisions (e.g., proposed control-of-access or median breaks, modifications of existing access, loading/unloading area access, bike/pedestrian accommodation).

Proposed K-12 School Site

NCDOT [MSTA School Traffic Calculator](#) for Public School shall be used.

Peak Hour Factors (PHFs) shall be adjusted/weighted for new school trips (0.5 PHF by default).

Internal school circulation analysis is required, and should be submitted in advance or concurrent with the TIA submittal.

Clarify traffic operation plans (e.g. traffic circulation pattern, pedestrian access, drop-off/pick-up zone location and configuration, queue storage area and, if applicable, staggered start times).



NCDOT TIA Scoping Checklist



Trip Generation

The TIA Consultant shall prepare trip generation estimates following the current [NCDOT Congestion Management Capacity Analysis Guidelines](#), and submit the calculation sheets and supporting information to the District Engineer for approval prior to capacity analysis.

ITE LUC	Proposed Land Use	Size	Unit	Daily Trips	Peak Hour Type	AM Peak Hour Trips			PM Peak Hour Trips			Data Source
						Enter	Exit	Total	Enter	Exit	Total	
221	Multi Family	360	DW. Unit	1960	Adj. Street	31	89	120	93	59	152	ITE Equation
Unadjusted Site Trips				1960		31	89	120	93	59	152	X
Internal Capture Trips (Attach Calculation Sheets)												
Internal Capture % of Unadjusted Site Trips				%		%			%			X
LUC	Proposed Land Use	Any Internal Trips?		Pass-By % of External Trips								
				%	%			%			X	
				%	%			%				
				%	%			%				
				%	%			%				
				%	%			%				
Pass-By Trips (Attach Calculation Sheets)												X
Adjacent Street Volumes												Please Select
Non-Pass-By Primary Trips												X
Diverted Trips, if Applicable and Justifiable												Please Select

**Explain local or other data sources, if used:

Existing Site Trip Information for Redevelopment Projects (Attach separate sheets as needed)

ITE LUC	Existing Land Use	Size	Unit	Daily Trips	Peak Hour Type	AM Peak Hour Trips			PM Peak Hour Trips			Data Source
						Enter	Exit	Total	Enter	Exit	Total	
					Please Select							Please Select
Total Existing Site Trips												X



NCDOT TIA Scoping Checklist



Trip Distribution

- Trip distribution diagrams are submitted concurrently with this document (attach separate sheets).
- Trip distribution diagrams will be submitted separately, along with supporting information, to the District Engineer for review and approval prior to capacity analysis. The trip distribution shall be based on the current and anticipated traffic patterns, as well as instructions noted below.

If required by the District Engineer, the following additional diagrams shall also be submitted:

- Mixed-Use Developments (separate diagrams for residential, commercial, and office trips)
- Inter-Development Trips (if 'internal' trips cross public streets)
- Pass-By Trips
- Diverted Trips
- Each Analysis Period

Mode Split

- Provide Data Source and Justification

Mode \ Period	Auto		
AM Peak	%	%	%
PM Peak	%	%	%
Daily	%	%	%
	%	%	%

- Identify proper infrastructure and accommodation for other modes of travel.

Analysis Peak Periods:

- Weekday AM Peak 7am - 9am
- Weekday PM Peak 4pm - 6pm
- Weekday Midday Peak _____
- Weekday PM School Peak _____
- Weekend _____ Peak _____
- Other _____



NCDOT TIA Scoping Checklist



Study Area Intersections and Data Collection

The study area shall include the site access intersections (both new and existing) identified under “Site Plan and Access” on page 1, as well as the following external and, if applicable, internal intersections.

External Intersection	Intersection of		Traffic Control	Intersection Turning Movement Counts			Notes
	Road A	Road B		New / Existing	Date of Counts	Growth Adjustment	
#1	Hodge Road	Poole Road	Signal	Use Existing Counts			Kdale provided
#2	Hodge Road	Spectrum	Signal	Use Existing Counts			Kdale provided
#3	Hodge Road	Panther Rock	Signal	Use Existing Counts			Kdale provided
#4	Hodge Road	I-87 NB Ramp	Signal	Use Existing Counts			Kdale provided
#5	Hodge Road	I-87 SB Ramp	Signal	Use Existing Counts			Kdale provided
#6	Hodge Road	Site Access	2-Way Stop				
#7	Poole Road	Site Access	2-Way Stop				
#8							
#9							
#10							
#11							
#12							

Internal Intersection	Intersection of		Access Type		Intersection Spacing		
	Road A	Road B	Traffic Control	Permitted Movements	Distance (ft)	Direction	Nearest Intersection
#101							
#102							
#103							
#104							
#105							

The following data will be collected:

- New traffic turning movement counts in 15-min intervals 5-min intervals (near schools)
 Unless otherwise noted above, new traffic counts shall be collected at the existing study intersections during the analysis periods. Weekday counts shall avoid Mondays, Fridays, holidays, school breaks, road closures, and major weather events.
- To account for the impact of existing and/or proposed school traffic, PHFs will be adjusted for:
 intersections numbered: _____
 and access points numbered: _____
- Traffic Forecast Data for TIP: _____
- Roadway/Intersection Configuration & Traffic Control
- Traffic Signal Phasing & Timing Data
- Crash Data: _____ Period: _____
- Other: _____



NCDOT TIA Scoping Checklist



Future Year Conditions

Project Build-Out Year: 2023

Future Analysis Year(s): 2033 (Build-out plus 10 year analysis)

Identify below any funded/committed future transportation improvements, as well as any approved but incomplete developments near the site.

Funded STIP / Local CIP Project	Project Description		Year Complete
Nearby Approved Development	Location	Future Land Use (exclude any completed phases)	Committed Improvements
Silverstone Develop	Knightdale, NC	276 SF DU, 103 TH DU	within TIA
East Gate Develop	Knightdale, NC		within TIA
Panther Rock Develop	Knightdale, NC		within TIA

Annual Growth Factor: 3 %

Justification/Data Source: _____

Local Comprehensive Transportation Plan Compliance

Identify Applicable Local Transportation Planning Documents

Identify Applicable Roadways inside the Study Area

Road Name	Classification	Speed Limit	Proposed Cross-Section	Proposed Right-of-Way	Compliance Requirements	Affect Study Intersection #



NCDOT TIA Scoping Checklist



Study Method

The traffic analysis shall follow the current [NCDOT Congestion Management Capacity Analysis Guidelines](#), [Policy on Street and Driveway Access to North Carolina Highways](#), and use the current approved version of analysis software (e.g. Synchro/SimTraffic, HCS, Sidra Intersection, TransModeler).

The study shall include the following analysis scenarios for each analysis period.

1. Existing Conditions
2. Future No-Build Conditions (existing + background growth + approved developments + committed or funded improvements)
3. Future Build Conditions (future no-build + site trips)
4. Future Build with Improvements Conditions (future build traffic with improvements to mitigate the proposed development's impacts) and, if applicable:
5. TIP Design Year Analysis _____
6. Alternative Access Scenario (without proposed control-of-access or median break / modification)

The following additional analysis/outputs should be provided as warranted:

- Signal Warrant Analysis for accesses/intersections _____
- Multi-Modal Level of Service Analysis
- School Loading Zone Traffic Simulation
- Phasing Analysis (scope separately as needed)
- Safety/Crash Analysis
- Control-of-Access Modification Justification
- Median Break / Modification Justification
- Other _____

Submittals

In addition to the hardcopies required below, the TIA Consultant shall provide the District Engineer and, if required, the local government an electronic copy of the study documents, including the latest site plan, figures and appendices, in searchable PDF files and the original traffic analysis files (e.g., Synchro, HCS).

To expedite review, the NCDOT electronic submittals shall also be delivered concurrently to:

- Div. Traffic Engr Regional Traffic Engr Congestion Management Other _____

Submittals	NCDOT		Local Government	
	Electronic	Hardcopy	Electronic	Hardcopy
Trip Generation & Distribution	Required		Please Select	
Draft TIA Report	Required			
Final Sealed TIA Report	Required			

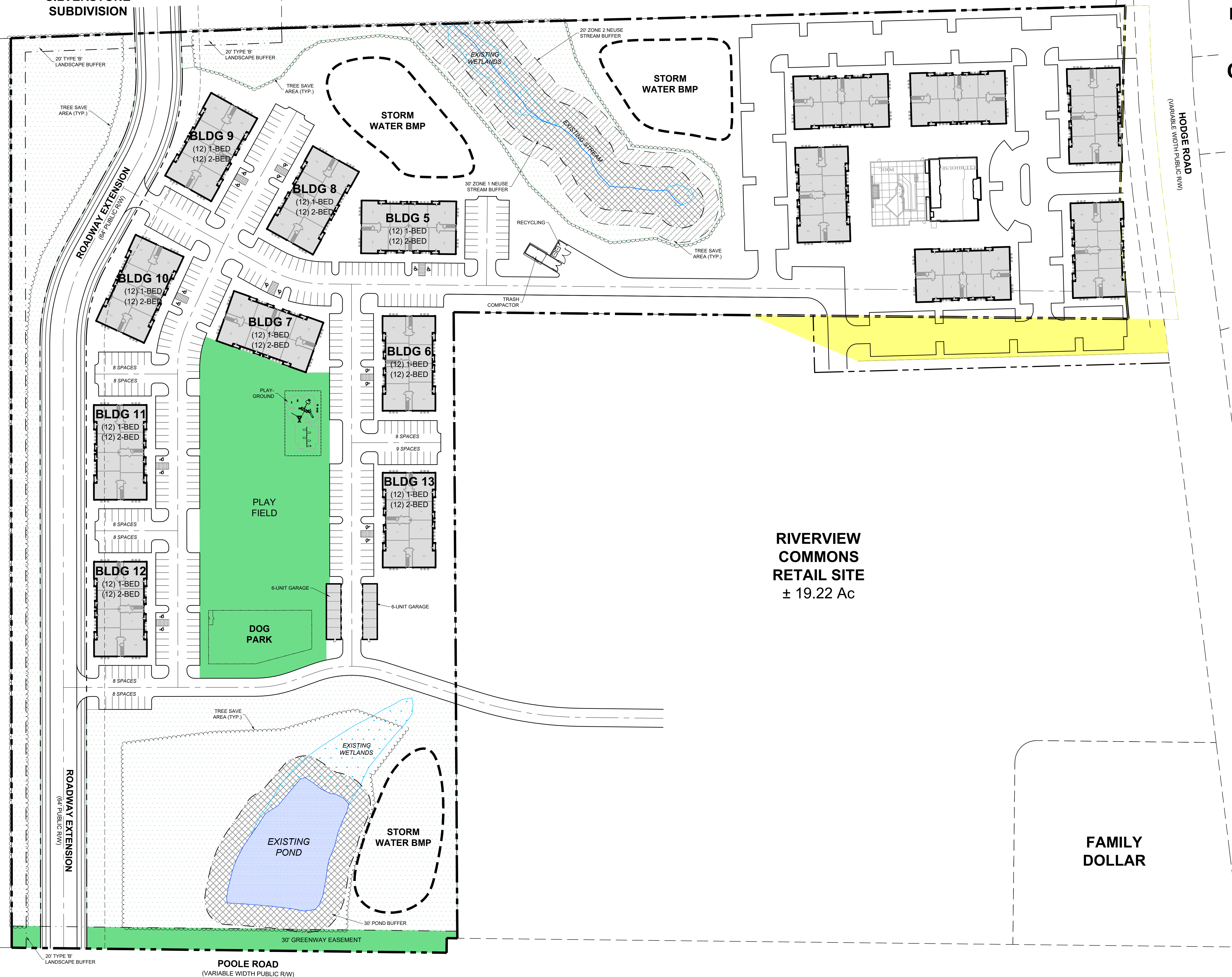
- Additional Comments** (municipal TIA requirements, approved variations from NCDOT guidelines)

SILVERSTONE SUBDIVISION





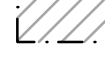
POOLE ROAD APARTMENTS
KNIGHTDALE, NORTH CAROLINA

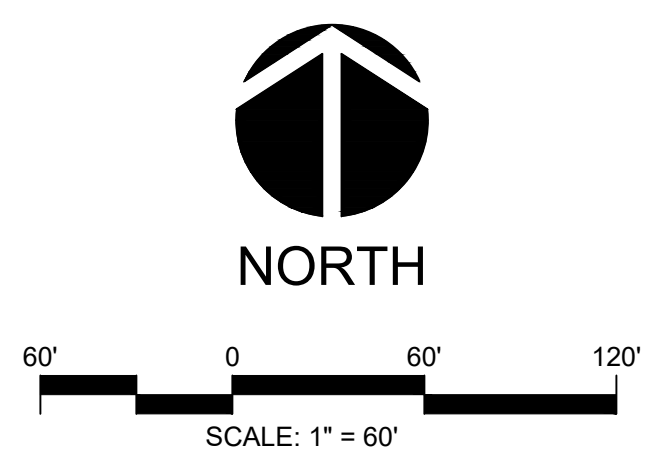
CONCEPT 4 SITE PLAN

March 4, 2021

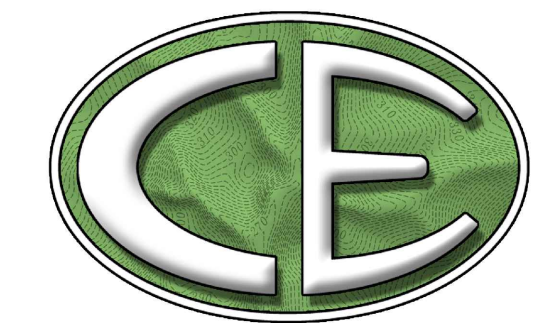


RIVERVIEW
COMMONS
RETAIL SITE
± 19.22 Ac

-  ACTIVE OPEN SPACE
-  PASSIVE OPEN SPACE
-  EXISTING POND
-  30' ZONE 1 NEUSE RIPARIAN BUFFER
-  20' ZONE 2 NEUSE RIPARIAN BUFFER



FAMILY
DOLLAR



CE GROUP
301 GLENWOOD AVE. SUITE 220
RALEIGH, NC 27603
PHONE: 919-367-8790
www.cegroupinc.com



FIGURE 2A
SITE LOCATION MAP

SITE INDICATOR



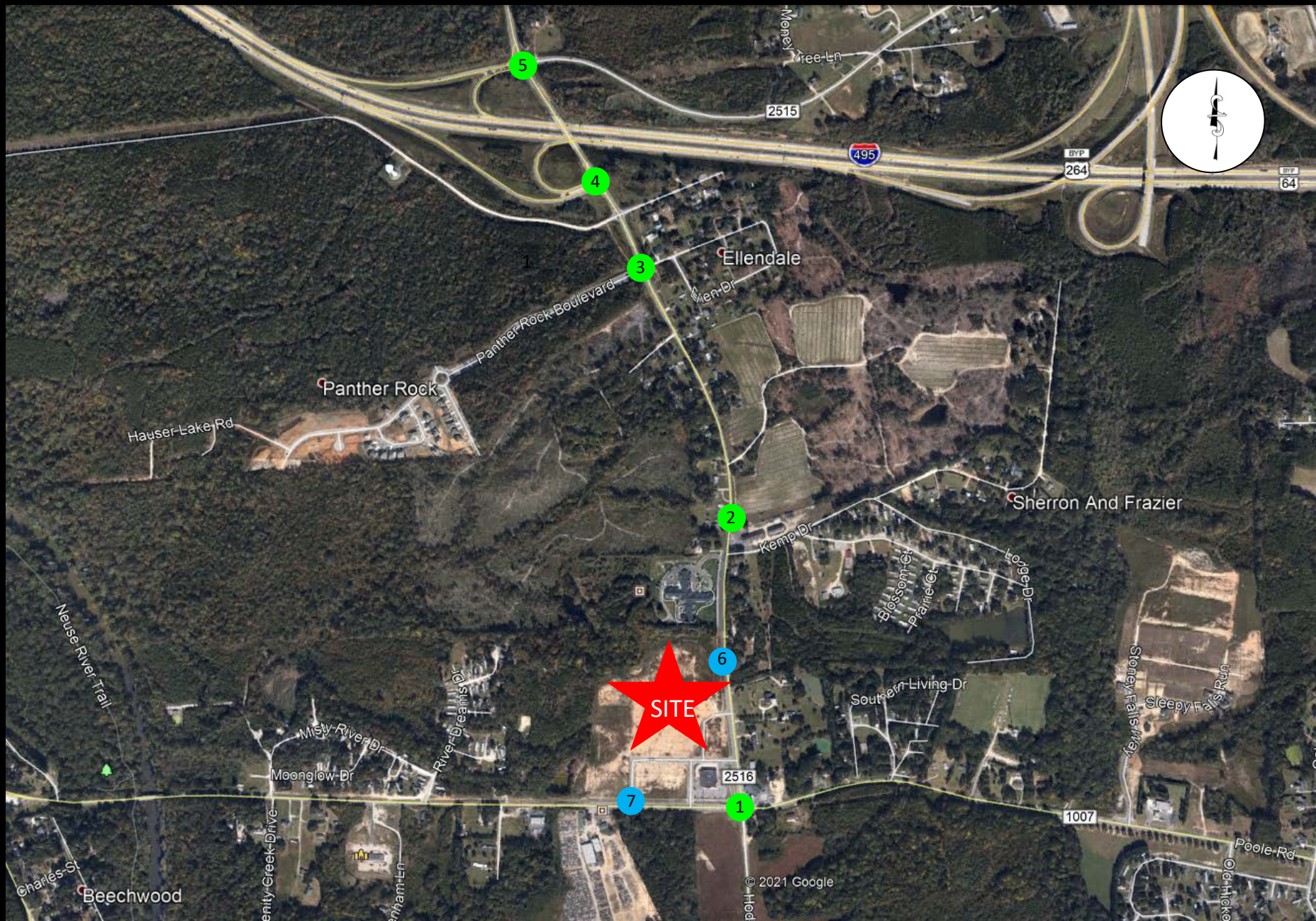


FIGURE 2B
VICINITY MAP

STUDY INTERSECTIONS
BACKGROUND
PROPOSED

-
-

Trip Generation Summary

Alternative: Alternative 1

Phase:

Open Date: 4/1/2021

Project: 210410

Analysis Date: 4/1/2021

ITE	Land Use	Weekday Average Daily Trips			Weekday AM Peak Hour of Adjacent Street Traffic			Weekday PM Peak Hour of Adjacent Street Traffic					
		*	Enter	Exit	Total	*	Enter	Exit	Total	*	Enter	Exit	Total
221	MID-RISE 1 360 Dwelling Units		980	980	1960		31	89	120		93	59	152
Unadjusted Volume			980	980	1960		31	89	120		93	59	152
Internal Capture Trips			0	0	0		0	0	0		0	0	0
Pass-By Trips			0	0	0		0	0	0		0	0	0
Volume Added to Adjacent Streets			980	980	1960		31	89	120		93	59	152

Total Weekday Average Daily Trips Internal Capture = 0 Percent

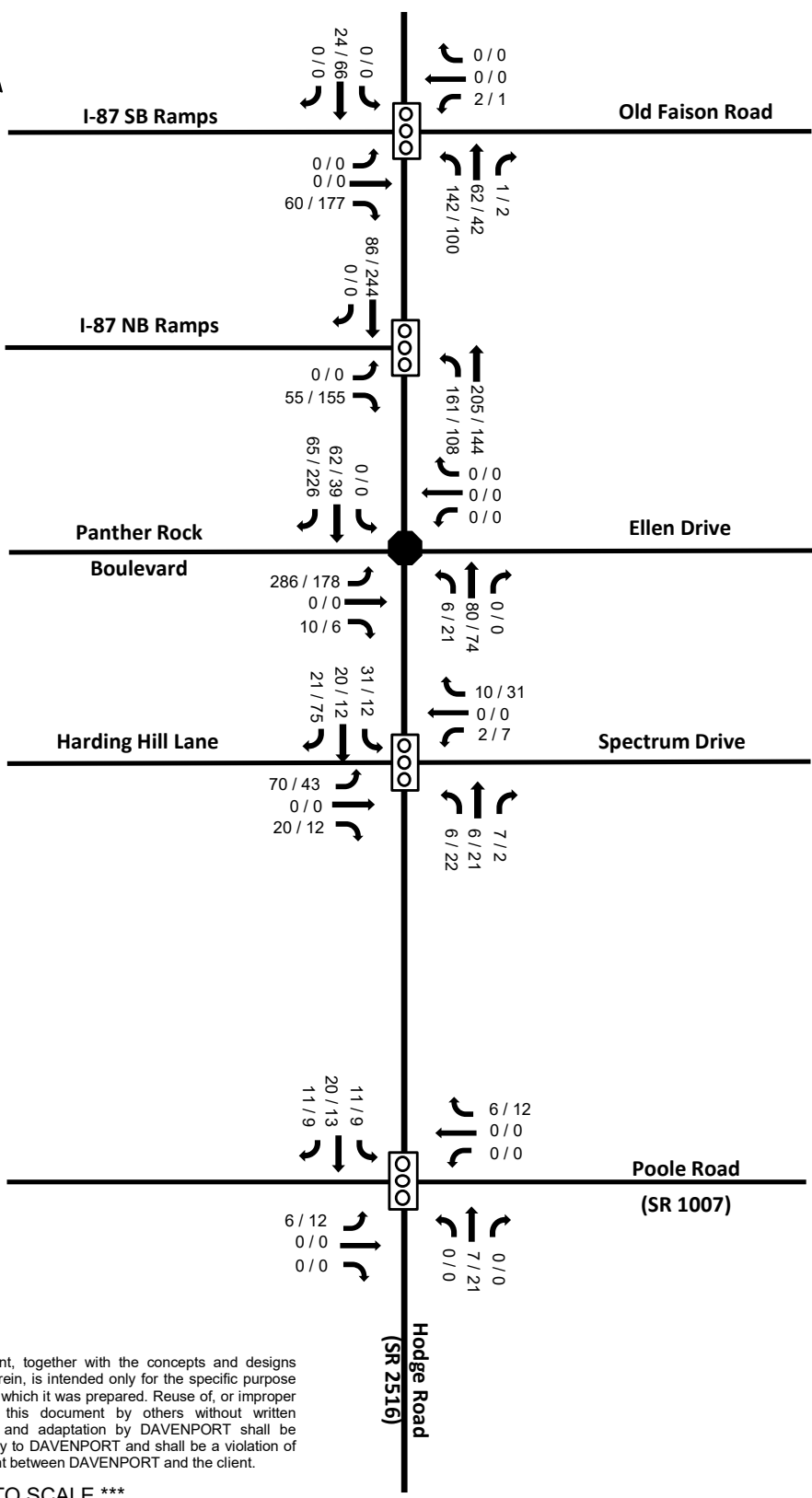
Total Weekday AM Peak Hour of Adjacent Street Traffic Internal Capture = 0 Percent

Total Weekday PM Peak Hour of Adjacent Street Traffic Internal Capture = 0 Percent

* - Custom rate used for selected time period.

Source: Institute of Transportation Engineers, Trip Generation Manual 10th Edition

TRIP GENERATION 10, TRAFFICWARE, LLC



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*** NOT TO SCALE ***

LEGEND

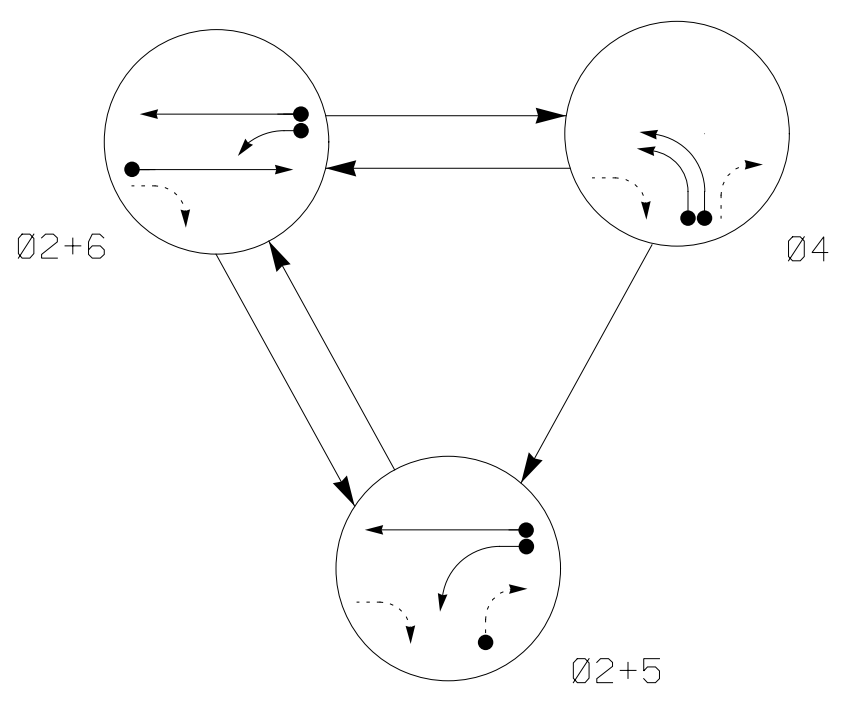
- SIGNALIZED INTERSECTION
- UNSIGNALIZED INTERSECTION
- ROADWAY
- TRAFFIC MOVEMENT
- BLACK = EXISTING
- BLUE = PROPOSED
- AM/PM PEAK HOURS

**FIGURE A
APPROVED
DEVELOPMENT**

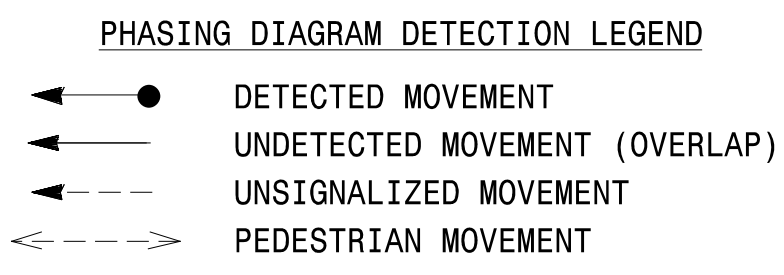
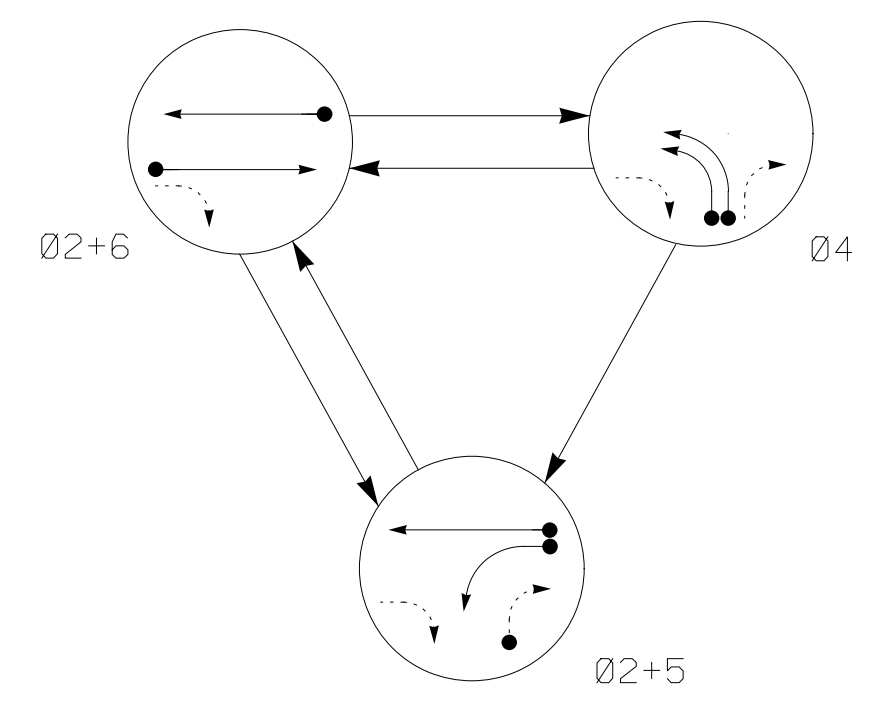
POOLE ROAD APARTMENT
DEVELOPMENT
KNIGHTDALE, NC

PROJECT NUMBER 210410

DEFAULT PHASING DIAGRAM



ALTERNATE PHASING DIAGRAM



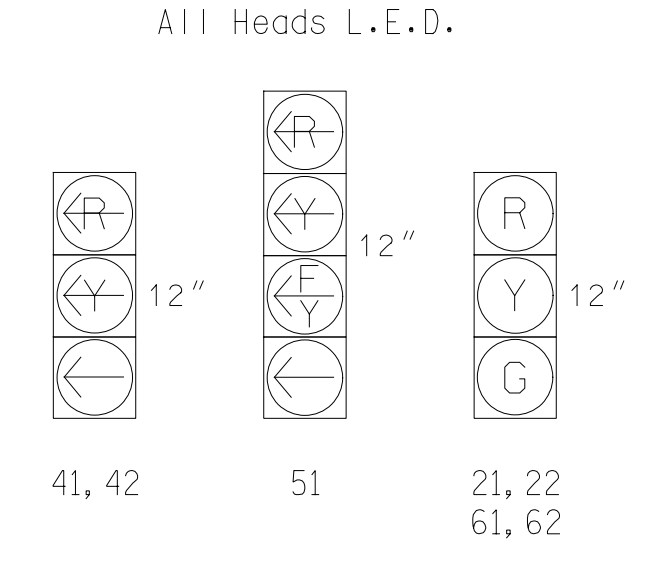
DEFAULT PHASING TABLE OF OPERATION

SIGNAL FACE	PHASE			
	02+5	02+6	04	FLASH
21, 22	G	G	R	Y
41, 42	R	R	R	R
51	L	R	R	Y
61, 62	R	G	R	Y

ALTERNATE PHASING TABLE OF OPERATION

SIGNAL FACE	PHASE			
	02+5	02+6	04	FLASH
21, 22	G	G	R	Y
41, 42	R	R	R	R
51	L	R	R	Y
61, 62	R	G	R	Y

SIGNAL FACE I.D.



OASIS 2070 LOOP & DETECTOR INSTALLATION CHART

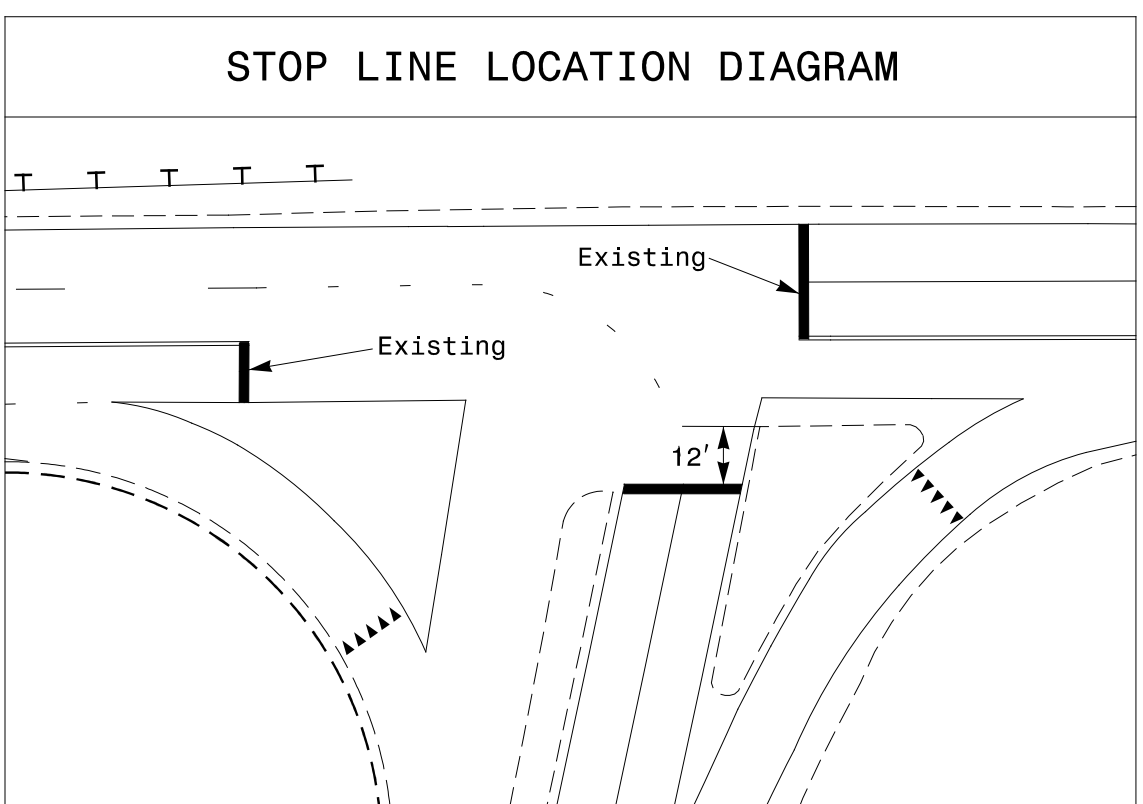
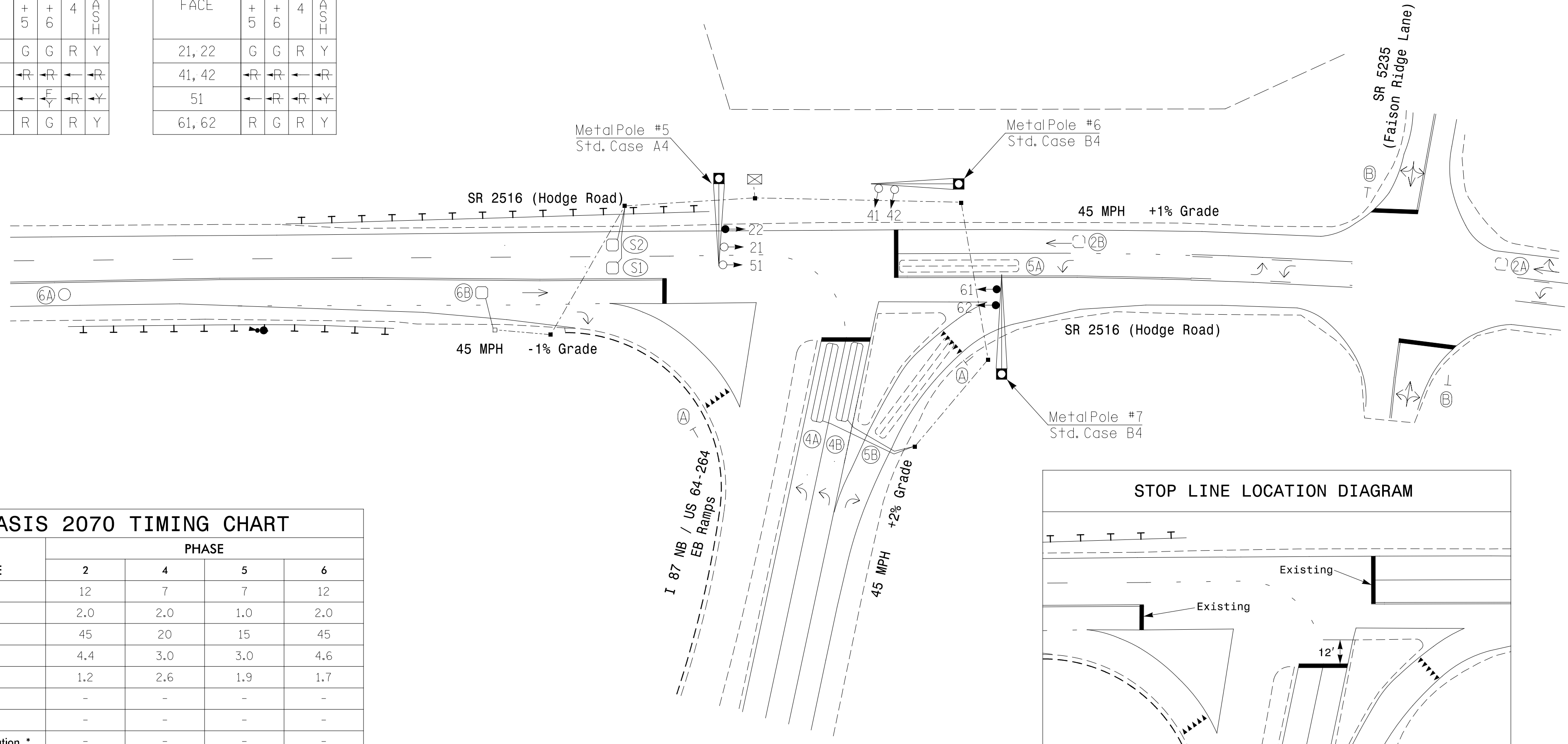
LOOP	SIZE (FT)	DISTANCE FROM STOPBAR (FT)	TURNS	NEW LOOP	DETECTOR PROGRAMMING				STRETCH TIME	DELAY TIME	SYSTEM LOOP	NEW CARD
					PHASE	CALLING	EXTENSION	FULL TIME DELAY				
2A	6X6	300	EXIST	-	2	Y	Y	-	1.6	-	-	-
2B	6X6	90	EXIST	-	2	Y	Y	-	-	-	-	-
4A	6X40	0	2-4-2	Y	4	Y	Y	-	-	-	-	-
4B	6X40	0	2-4-2	Y	4	Y	Y	-	-	-	-	Y
5A	6X60	0	2-4-2	-	5	Y	Y	-	-	15*	-	-
5B	6X60	0	2-4-2	-	5	Y	Y	-	-	20	-	-
6A *	6X6	300	*	-	6	Y	Y	-	1.6	-	-	-
6B	6X6	90	3	Y	6	Y	Y	-	-	-	-	-
S1	6X6	+145	3	Y	-	-	-	-	-	-	Y	-
S2	6X6	+145	3	Y	-	-	-	-	-	-	Y	Y

* Reduce delay to 0 seconds during Alternate Phasing.
 # Disable phase call(s) for loop(s) during Alternate Phasing.
 * Microwave Detection

3 Phase Fully Actuated (Hodge Road Closed Loop System) Signal System #: 10512

NOTES

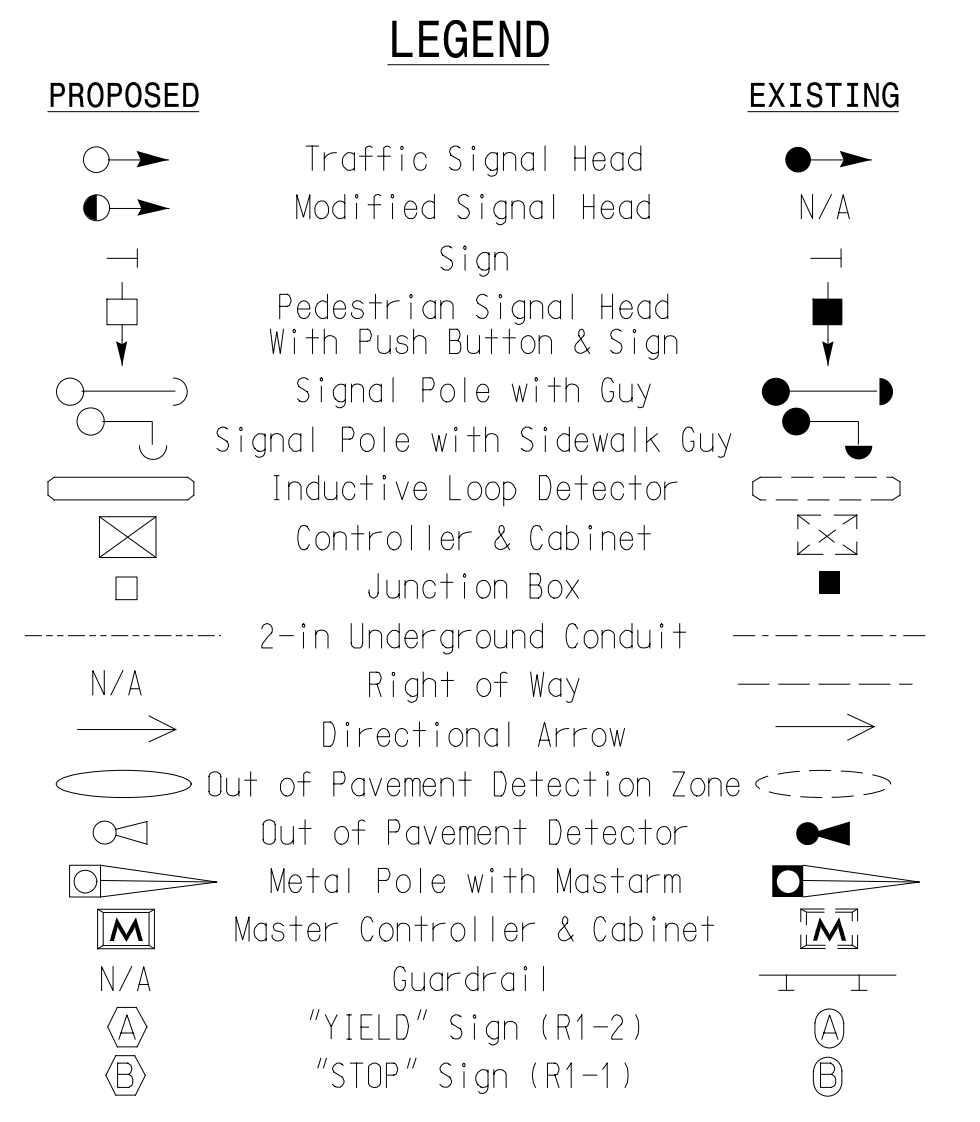
- Refer to "Roadway Standard Drawings NCDOT" dated January 2018, "Standard Specifications for Roads and Structures" dated January 2018.
- Do not program signal for late night flashing operation unless otherwise directed by the Engineer.
- Phase 5 may be lagged.
- Set all detector units to presence mode.
- In the event of loop replacement, refer to the current ITS and Signals Design Manual and submit a Plan of Record to the Signal Design Section.
- Install new cabinet on existing cabinet foundation.
- The Division Traffic Engineer will determine the hours of use for each phasing plan.
- Maximum times shown in timing chart are for free-run operation only. Coordinated signal system timing values supersede these values.
- Closed loop system data:
 Master Asset #:10512,
 Controller Asset #: 2158.



OASIS 2070 TIMING CHART

FEATURE	PHASE			
	2	4	5	6
Min Green 1 *	12	7	7	12
Extension 1 *	2.0	2.0	1.0	2.0
Max Green 1 *	45	20	15	45
Yellow Clearance	4.4	3.0	3.0	4.6
Red Clearance	1.2	2.6	1.9	1.7
Walk 1 *	-	-	-	-
Don't Walk 1	-	-	-	-
Seconds Per Actuation *	-	-	-	-
Max Variable Initial *	-	-	-	-
Time Before Reduction *	-	-	-	-
Time To Reduce *	-	-	-	-
Minimum Gap	-	-	-	-
Recall Mode	MIN RECALL	-	-	MIN RECALL
Vehicle Call Memory	YELLOW	-	-	YELLOW
Dual Entry	-	-	-	-
Simultaneous Gap	ON	ON	ON	ON

* These values may be field adjusted. Do not adjust Min Green and Extension times for phases 2 and 6 lower than what is shown. Min Green for all other phases should not be lower than 4 seconds.



Signal Upgrade

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

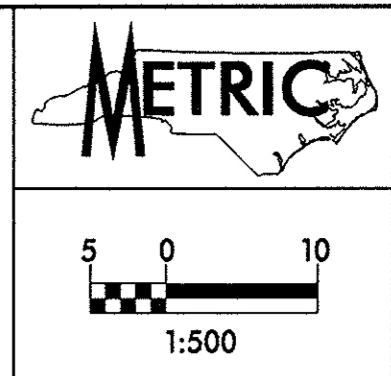
NC Dept of Transportation
 Division of Highways
 Final Drawing Date: 1/28/2020
 ITS & Signals Unit

vhb
 VHB Engineering NC, P.C. (C-3705)
 940 Main Campus Drive, Suite 500
 Raleigh, NC 27606
 919.829.0328

Prepared for the Office of:
 TRANSPORTATION MOBILITY AND SAFETY DIVISION
 DEPARTMENT OF TRANSPORTATION
 SIGNAL DESIGN SECTION
 750 N. Greenfield Pkwy, Garner, NC 27529

SR 2516 (Hodge Road) at I 87 NB / US 64-264 EB Ramps
 Division 5 Wake County Knightdale
 PLAN DATE: January 2020 REVIEWED BY: J.L. Lewis
 PREPARED BY: M.L. Stygles REVIEWED BY: J. Ma
 REVISIONS: INIT. DATE

SEAL
 NORTH CAROLINA PROFESSIONAL ENGINEER
 SEAL 046057
 MATTHEW L. STYGLES
 1/16/2020
 SIG. INVENTORY NO. 05-2158



PROJECT REFERENCE NO. R-2547BB
SHEET NO. SIG-2
RELEASE FOR CONSTRUCTION
DATE: 8-8-03

PHASING DIAGRAM

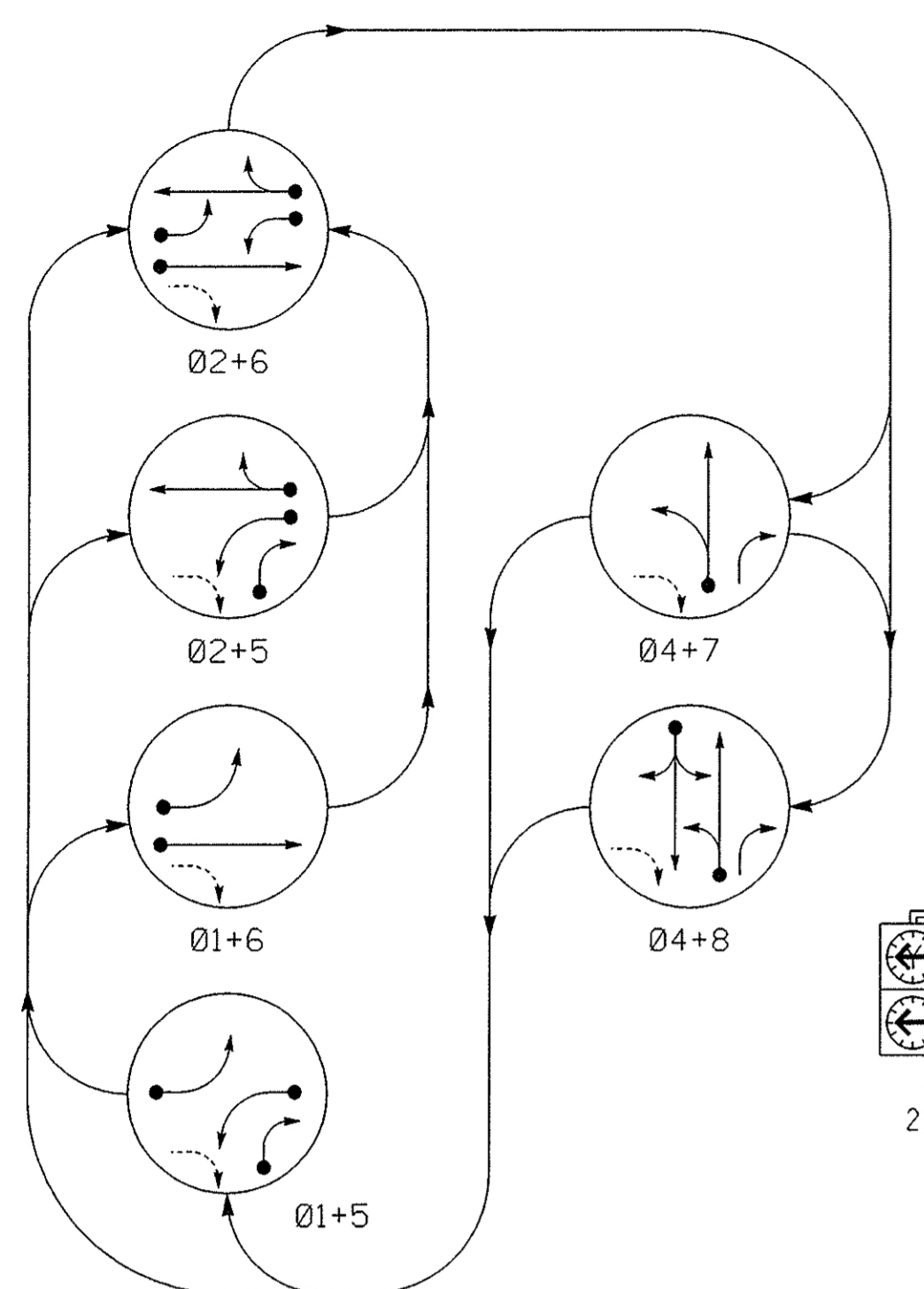
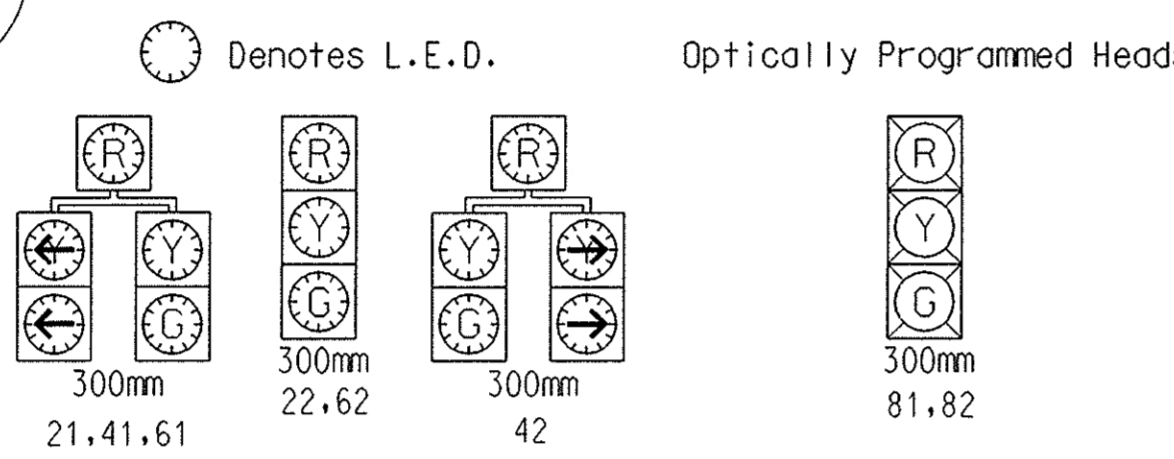


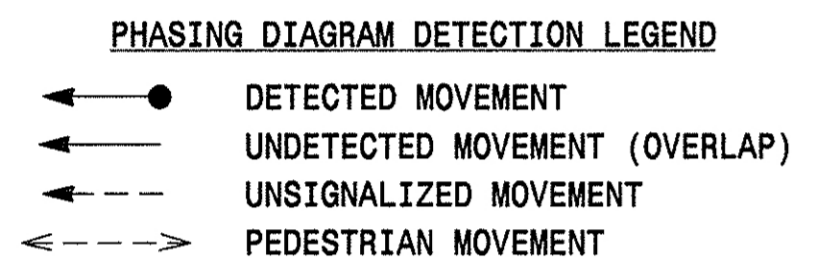
TABLE OF OPERATION

SIGNAL FACE	PHASE							
	01+5	01+6	02+5	02+6	04+7	04+8	FS	HS
21	R	R	G	G	R	R	Y	
22	R	R	G	G	R	R	Y	
41	R	R	R	G	R	R	Y	
42	R	R	R	G	R	R	Y	
61	R	G	R	G	R	R	Y	
62	R	G	R	G	R	R	Y	
81, 82	R	R	R	R	R	G	R	

SIGNAL FACE I.D.



- NOTES**
- Refer to "Roadway Standard Drawings NCDOT" dated January 2002 and "Standard Specifications for Roads and Structures" dated January 2002.
 - Omit Phase 1 during Phase 2 on.
 - Omit Phase 5 during Phase 6 on.
 - Omit Phase 7 during Phase 8 on.
 - Program controller to clear from phase 2+6 to phase 1 and/or 5 by progressing through phase 4+8 (see Electrical Details).
 - Maximum times shown in timing chart are for free run operation only. Coordinated signal system timing values shall supersede these values.
 - Set all detector units to presence mode.
 - Closed loop system data: Controller Asset #: 2157
 - Conduit under pavement shall be installed in trench prior to the placement of final pavement. Conduit placed after final paving shall be installed by directional drilling.



SR 2516 (HODGE ROAD)
45 MPH (72 km/hr) 9% GRADE

(72 km/hr) -3% GRADE
45 MPH

45 MPH (72 km/hr) -8% GRADE

METAL POLE #2, CASE B1
STA.14+34+/- -Y4-13m+/- LT.

METAL POLE #1, CASE B4
STA.13+97+/- -Y4-13m+/- LT.

METAL POLE #3, CASE B4
STA.14+31+/- -Y4-12m+/- RT.

METAL POLE #4, CASE B4
STA.14+09+/- -Y4-28m+/- RT.

6 PHASE FULLY ACTUATED (HODGE ROAD CLOSED LOOP SYSTEM)

2070L TIMING CHART

FEATURE	PHASE							
	1	2	4	5	6	7	8	
Min Green 1 *	7	12	7	7	12	7	7	
Extension 1 *	1.0	2.0	1.0	1.0	2.0	1.0	1.0	
Max Green 1 *	15	45	25	15	45	15	25	
Yellow Clearance	4.0	5.5	4.7	4.0	5.5	4.0	4.7	
Red Clearance	1.5	1.5	1.0	1.5	1.5	1.5	1.0	
Walk 1 *	-	-	-	-	-	-	-	
Don't Walk 1	-	-	-	-	-	-	-	
Seconds Per Actuation *	-	-	-	-	-	-	-	
Max Variable Initial *	-	-	-	-	-	-	-	
Time Before Reduction *	-	-	-	-	-	-	-	
Time To Reduction *	-	-	-	-	-	-	-	
Minimum Gap	-	-	-	-	-	-	-	
Recall Mode	-	MIN RECALL	-	-	MIN RECALL	-	-	
Vehicle Call Memory	-	YELLOW	-	-	YELLOW	-	-	
Dual Entry	-	-	ON	-	-	-	ON	
Simultaneous Gap	ON	ON	ON	ON	ON	ON	ON	

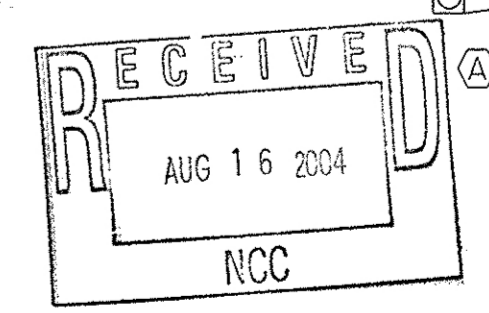
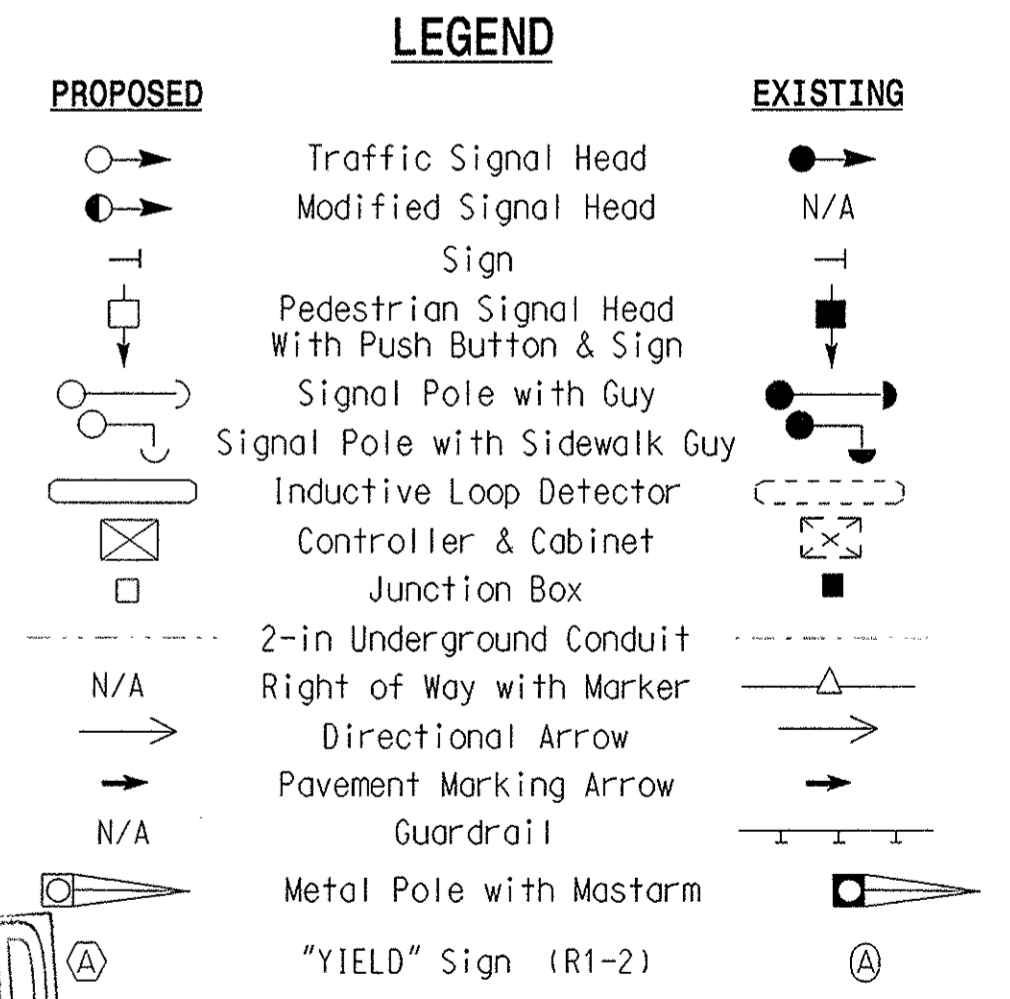
* These values may be field adjusted. Do not adjust Min Green and Extension times for phases 2 and 6 lower than what is shown. Min Green for all other phases should not be lower than 4 seconds.

2070L LOOP & DETECTOR INSTALLATION

LOOP	SIZE (m)	TURNS	DISTANCE FROM STOPBAR (m)	NEW LOOP	PHASE	DETECTOR PROGRAMMING				STRETCH TIME	DELAY TIME	NEW CARD
						CALLING	EXTENSION	FULL TIME DELAY	SYSTEM LOOP			
1A	1.8 x 18	2-4-2	0	Y	1	Y	Y	Y			15	Y
2A	1.8 x 1.8	4	90	Y	2	Y	Y	Y	1.8		-	Y
2B	1.8 x 1.8	4	27	Y	2	Y	Y	Y			-	Y
5A	1.8 x 18	2-4-2	0	Y	2	Y	Y	Y			3	Y
5B	1.8 x 18	2-4-2	4	Y	5	Y	Y	Y			15	Y
5C	1.8 x 5	2-4-2	+1	Y	5	Y	Y	Y			15	Y
6A	1.8 x 1.8	4	90	Y	6	Y	Y	Y	1.8		-	Y
6B	1.8 x 1.8	4	27	Y	6	Y	Y	Y			-	Y
7A	1.8 x 18	2-4-2	0	Y	7	Y	Y	Y			15	Y
8A	1.8 x 18	2-4-2	0	Y	8	Y	Y	Y			10	Y
S2	1.8 x 1.8	4	+40	Y	-			Y			-	Y

PLAN QUANTITIES

Pay Item	Meters
Signal Cable	220
Messenger Cable	0
Loop Lead-in Cable	540



THE LPA GROUP
TRANSPORTATION CONSULTANTS
THE LPA GROUP of North Carolina, p.c.
4904 Professional Court, Suite 201
Raleigh, North Carolina 27609
RALPH WHITEHEAD ASSOCIATES, INC.
CONSULTING ENGINEERS
P.O. BOX 35624 CHARLOTTE, N.C. 28235

NCC
North Carolina Constructors

REVISIONS

NO.	BY:	DATE:	DESCRIPTION OF REVISION
5			
4			
3			
2	RJD	8/8/03	SHEET REVISED TO ADDRESS COMMENTS
1	RJD	6/11/03	SHEET REVISED
0	RJD	4/8/03	RELEASE FOR CONSTRUCTION



Robert J. Dubnicka 8-7-03

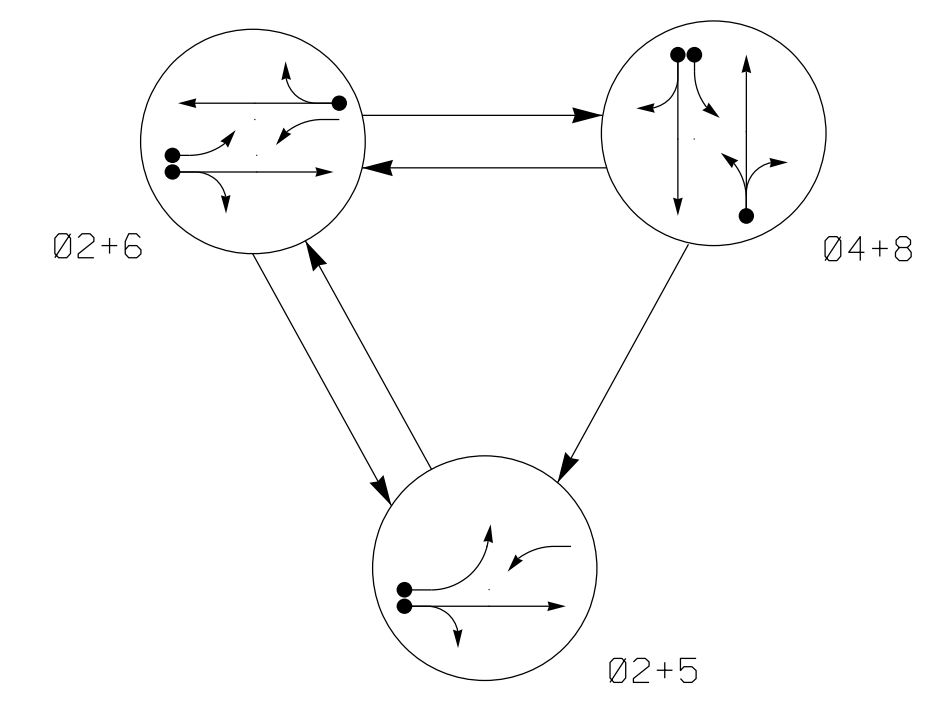
NEW INSTALLATION

DRAWN BY: A. SPENCER DATE: 12/09/02
CHECKED BY: R. DUBNICKA, P.E. DATE: _____
Document Control Number : _____
Filename : Y:\Traf\Tlc\Knightdale\BB\slgl.dgn

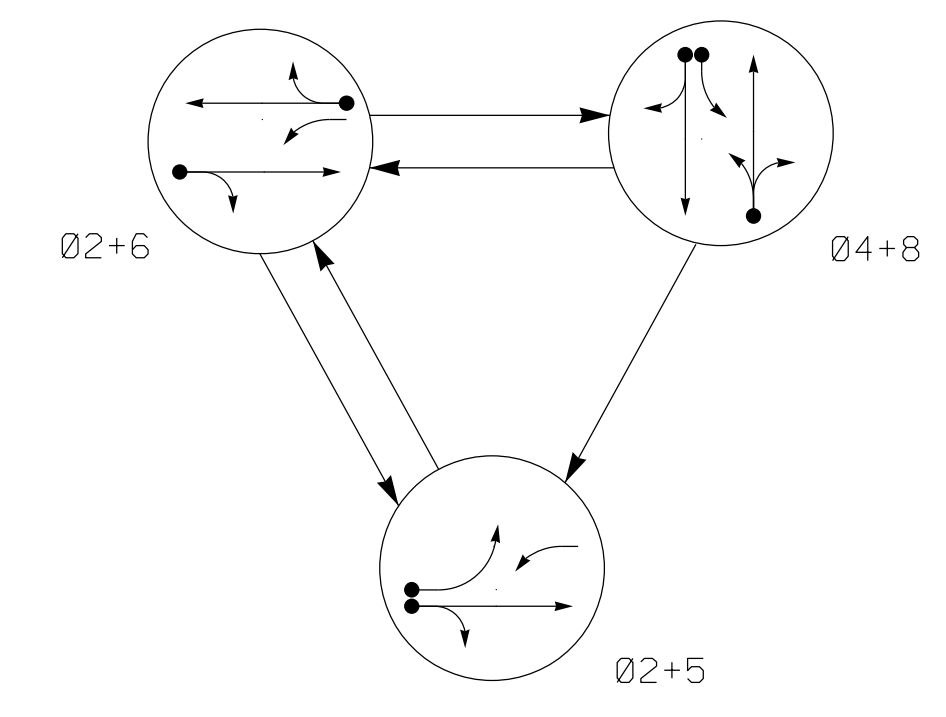
SIG. INVENTORY NO. 05-2157

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
SR 2516 (HODGE ROAD)
AT
US 64 (KNIGHTDALE BYPASS) WB RAMP
AND **SR 2515 (OLD FAISON ROAD)**
DIVISION 5 WAKE COUNTY EAST OF RALEIGH

DEFAULT PHASING DIAGRAM



ALTERNATE PHASING DIAGRAM



DEFAULT PHASING TABLE OF OPERATION

SIGNAL FACE	PHASE			
	02+5	02+6	04+8	02+5
21,22	G	G	R	Y
41	R	R	F	Y
42,43	R	R	G	R
51	F	F	R	Y
61	F	F	R	Y
62,63	R	G	R	Y
81,82	R	R	G	R

ALTERNATE PHASING TABLE OF OPERATION

SIGNAL FACE	PHASE			
	02+5	02+6	04+8	02+5
21,22	G	G	R	Y
41	R	R	F	Y
42,43	R	R	G	R
51	F	F	R	Y
61	F	F	R	Y
62,63	R	G	R	Y
81,82	R	R	G	R

OASIS 2070 LOOP & DETECTOR INSTALLATION CHART

ZONE	SIZE (FT)	DISTANCE FROM STOPBAR (FT)	TURNS	NEW LOOP	DETECTOR PROGRAMMING						
					PHASE	CALLING	EXTENSION	STRETCH TIME	DELAY TIME	SYSTEM LOOP	NEW CARD
2A	6X6	300	*	*	2	Y	Y	-	-	-	Y
2B	6X40	0	*	*	2	Y	Y	2.0	5	-	Y
4A	6X40	0	*	*	4	Y	Y	-	3	-	Y
4B	6X40	0	*	*	4	Y	Y	-	10	-	Y
5A	6X40	0	*	*	5	Y	Y	-	15★	-	Y
6A	6X6	300	*	*	6	Y	Y	-	-	-	Y
6B	6X40	0	*	*	6	Y	Y	2.0	5	-	Y
8A	6X40	0	*	*	8	Y	Y	-	5	-	Y

* Video Detection Area
★ Reduce delay to 3 seconds during Alternate Phasing.
Disable phase call(s) for loop(s) during Alternate Phasing.

3 Phase Fully Actuated (Hodge Road Closed Loop System) Signal System #: 10512

NOTES

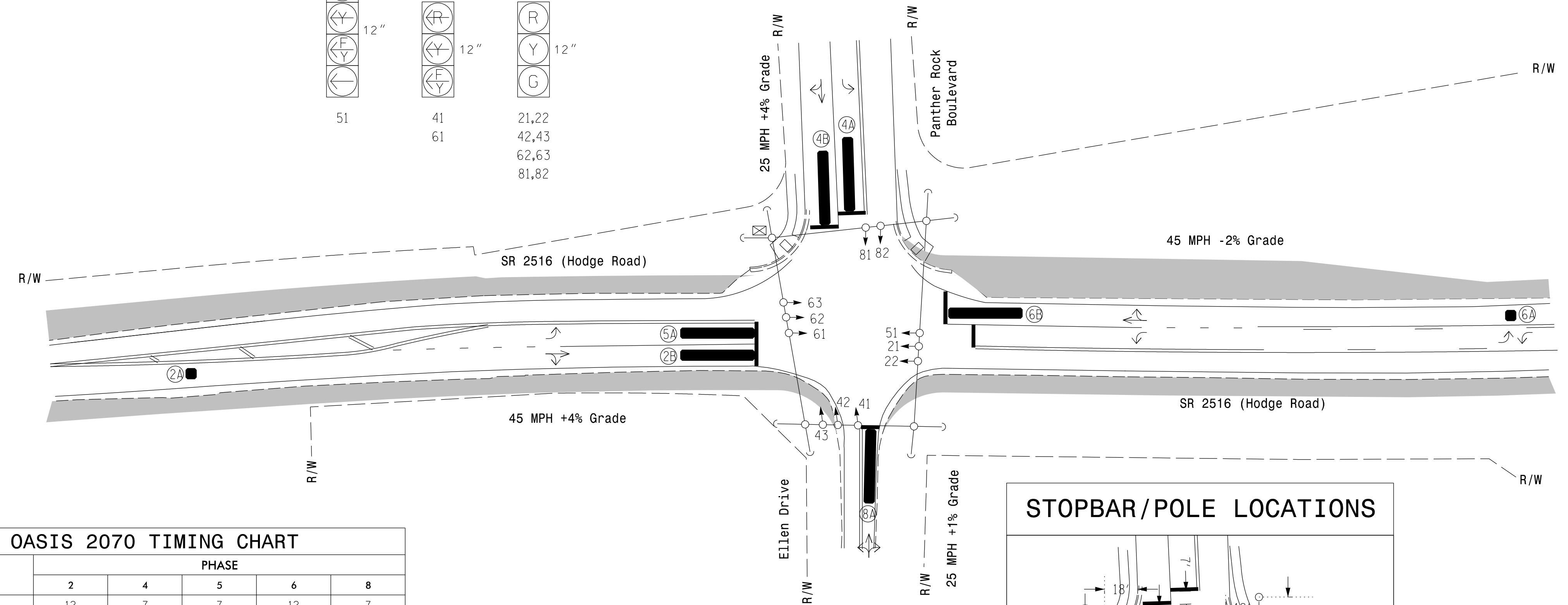
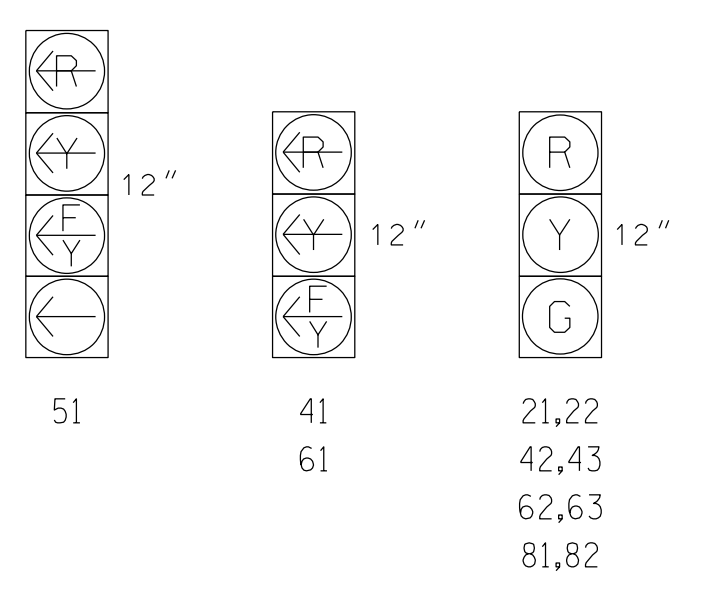
- Refer to "Roadway Standard Drawings NCDOT" dated January 2018 and "Standard Specifications for Roads and Structures" dated January 2018, and all applicable sections of the generic Project Special Provisions. The PSP can be accessed at the following website: <https://connect.ncdot.gov/resources/safety/Pages/ITS-Design-Resources.aspx>
- Do not program signal for late night flashing operation unless otherwise directed by the Engineer.
- Phase 5 may be lagged.
- Set all detector units to presence mode.
- Locate new cabinet so as not to obstruct sight distance of vehicles turning right on red.
- The Division Traffic Engineer will determine the hours of use for each phasing plan.
- This intersection utilizes a video detection system. Camera locations should be confirmed in the field by the contractor in order to provide detection of the areas indicated.
- Maximum times shown in timing chart are for free-run operation only. Coordinated signal system timing values supercede these values.
- Closed loop system data:
Master Asset #: 10512.
Controller Asset #: 2005.

PHASING DIAGRAM DETECTION LEGEND

- ←●→ DETECTED MOVEMENT
- ←○→ UNDETECTED MOVEMENT (OVERLAP)
- ←○→ UNSIGNALIZED MOVEMENT
- ←○→ PEDESTRIAN MOVEMENT

SIGNAL FACE I.D.

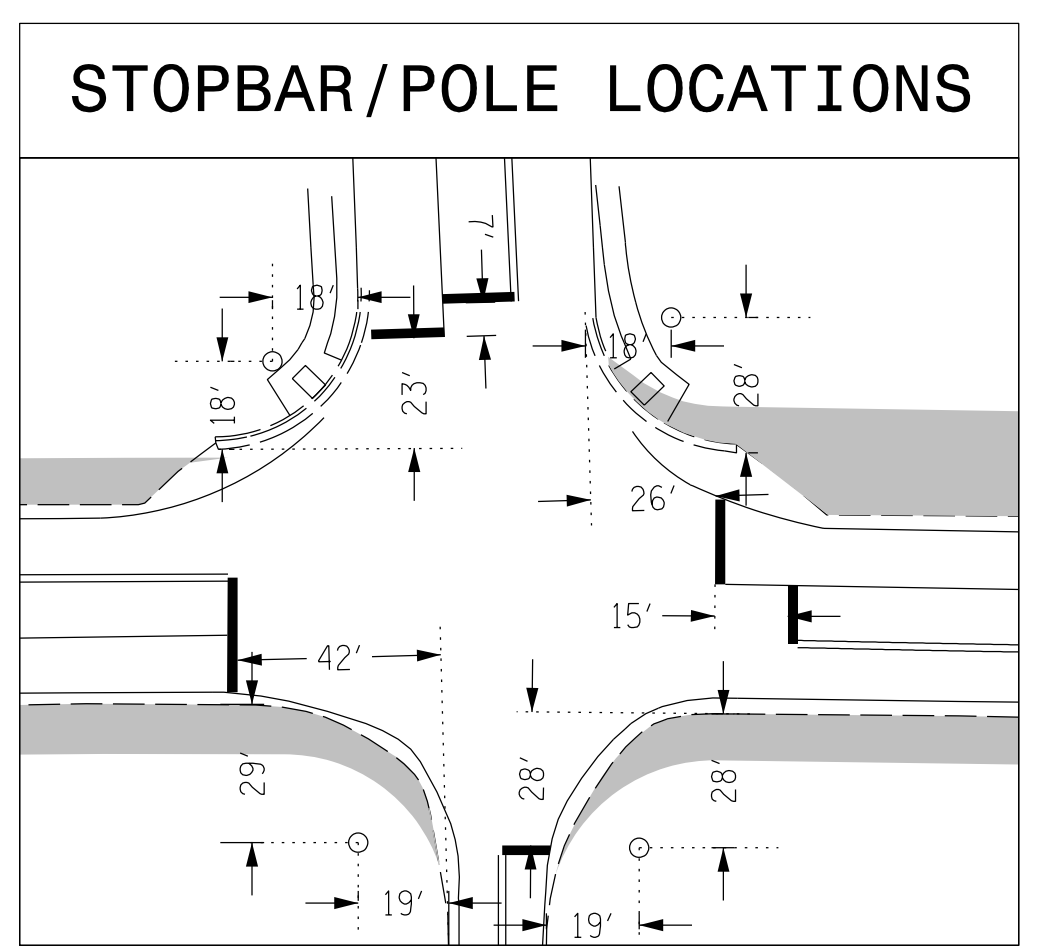
All Heads L.E.D.



OASIS 2070 TIMING CHART

FEATURE	PHASE				
	2	4	5	6	8
Min Green 1 *	12	7	7	12	7
Extension 1 *	6.0	2.0	2.0	6.0	2.0
Max Green 1 *	90	45	15	90	45
Yellow Clearance	4.7	3.1	3.0	4.7	3.1
Red Clearance	1.1	2.6	2.3	1.1	2.6
Red Revert	2.0	2.0	2.0	2.0	2.0
Walk 1 *	-	-	-	-	-
Don't Walk 1	-	-	-	-	-
Seconds Per Actuation *	-	-	-	-	-
Max Variable Initial *	-	-	-	-	-
Time Before Reduction *	15	-	-	15	-
Time To Reduce *	30	-	-	30	-
Minimum Gap	3.0	-	-	3.0	-
Recall Mode	MIN RECALL	-	-	MIN RECALL	-
Vehicle Call Memory	YELLOW	-	-	YELLOW	-
Dual Entry	-	ON	-	-	ON
Simultaneous Gap	ON	ON	ON	ON	ON

* These values may be field adjusted. Do not adjust Min Green and Extension times for phases 2 and 6 lower than what is shown. Min Green for all other phases should not be lower than 4 seconds.



LEGEND

PROPOSED	EXISTING
○→ Traffic Signal Head	●→ Traffic Signal Head
●→ Modified Signal Head	N/A
○→ Sign	N/A
○→ Pedestrian Signal Head With Push Button & Sign	○→ Pedestrian Signal Head
○→ Signal Pole with Guy	○→ Signal Pole with Guy
○→ Signal Pole with Sidewalk Guy	○→ Signal Pole with Sidewalk Guy
■→ Video Detection Area	■→ Video Detection Area
□→ Controller & Cabinet	□→ Controller & Cabinet
□→ Junction Box	□→ Junction Box
--- 2-in Underground Conduit	--- 2-in Underground Conduit
N/A → Right of Way	→ Right of Way
N/A → Directional Arrow	→ Directional Arrow
N/A → Gaurdrail	→ Gaurdrail
■→ Construction Zone	■→ Construction Zone

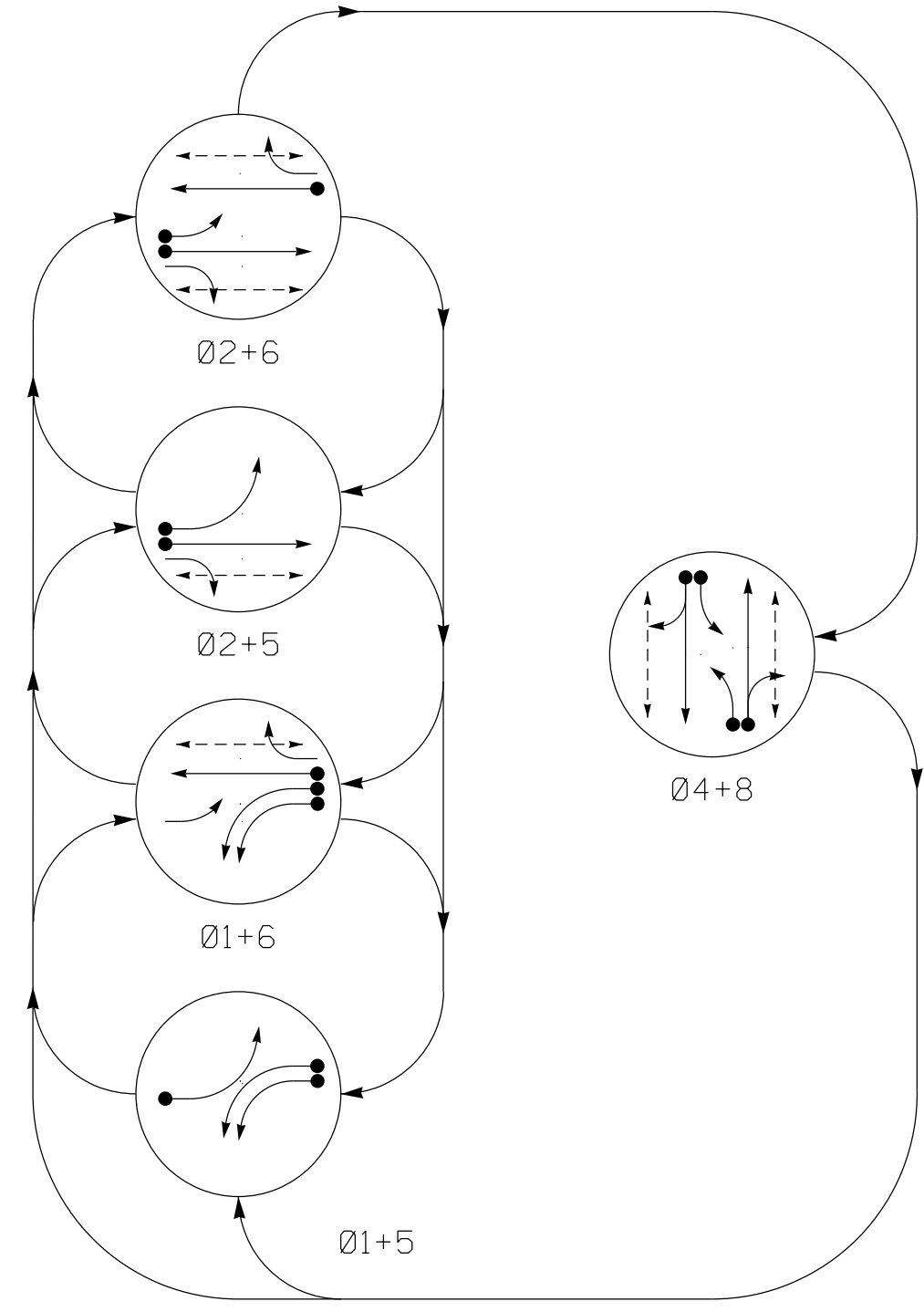
NC Dept of Transportation
Division of Highways
Final Drawing Date: 9/17/2020
Robert J. Ziema
ITS & Signals Unit

TIMMONS GROUP
YOUR VISION ACHIEVED THROUGH OURS.
5410 Trinity Road Suite 102
Raleigh, NC 27607
Tel: 919.866.4951
Fax: 919.859.5663
License: C-1652

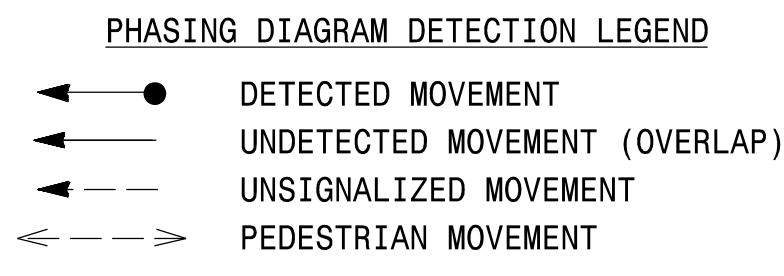
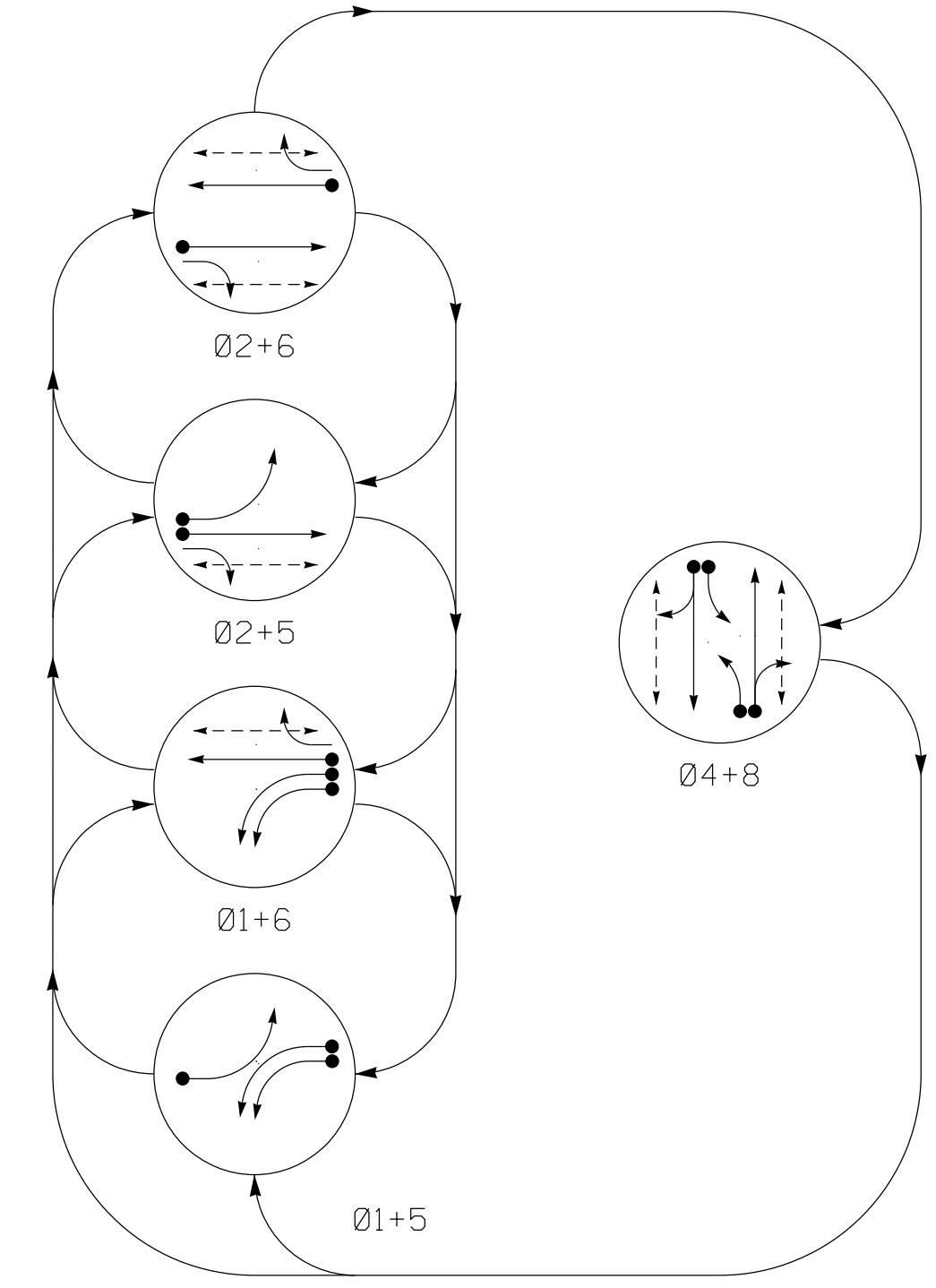
New Installation - Temporary Design 1
SR 2516 (Hodge Road) at Ellen Drive/Panther Rock Boulevard
Divison 5 Wake County Knightdale
PLAN DATE: July 2020 REVIEWED BY: J Hochanadel
PREPARED BY: N Harmon REVIEWED BY: C Lawson
SCALE: 1" = 40'
REVISIONS: INIT. DATE
SEAL: NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 043203
Cliff Lawson 9/4/2020
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED
SIG. INVENTORY NO. 05-200571

9/4/2020 L:\2020\07-44872-511\ervers\stone_stoner\ver_5\signal\sr2516\hodge-ellen_1.dgn C:\11\FL

DEFAULT PHASING DIAGRAM



ALTERNATE PHASING DIAGRAM



ALTERNATE PHASING TABLE OF OPERATION

SIGNAL FACE	PHASE				
	Ø 1 + 5	Ø 1 + 6	Ø 2 + 5	Ø 2 + 6	FLASH
11,12	←	←	←	←	←
21,22	R	R	G	G	R
41	←	←	←	←	←
42,43	R	R	R	G	R
51	←	←	←	←	←
61,62	R	G	R	G	R
63	R	←	←	←	←
81	←	←	←	←	←
82,83	R	R	R	G	R
P21,P22	DW	DW	W	W	DRK
P41,P42	DW	DW	DW	W	DRK
P61,P62	DW	W	DW	W	DRK
P81,P82	DW	DW	DW	W	DRK

ALTERNATE PHASING TABLE OF OPERATION

SIGNAL FACE	PHASE				
	Ø 1 + 5	Ø 1 + 6	Ø 2 + 5	Ø 2 + 6	FLASH
11,12	←	←	←	←	←
21,22	R	R	G	G	R
41	←	←	←	←	←
42,43	R	R	R	G	R
51	←	←	←	←	←
61,62	R	G	R	G	R
63	R	←	←	←	←
81	←	←	←	←	←
82,83	R	R	R	G	R
P21,P22	DW	DW	W	W	DRK
P41,P42	DW	DW	DW	W	DRK
P61,P62	DW	W	DW	W	DRK
P81,P82	DW	DW	DW	W	DRK

OASIS 2070 LOOP & DETECTOR INSTALLATION CHART

LOOP	SIZE (FT)	DISTANCE FROM STOPBAR (FT)	TURNS	NEW LOOP	DETECTOR PROGRAMMING				STRETCH TIME	DELAY TIME	SYSTEM LOOP	NEW CARD
					PHASE	CALLING	EXTENSION	FULL TIME DELAY				
1A	6X40	0	2-4-2	Y	1	Y	Y	-	-	3	-	-
1B	6X40	0	2-4-2	Y	1	Y	Y	-	-	-	-	-
2A	6X6	300	4	Y	2	Y	Y	-	-	-	-	-
4A	6X40	0	2-4-2	Y	4	Y	Y	-	-	3	-	Y
4B	6X40	0	2-4-2	Y	4	Y	Y	-	-	10	-	Y
5A	6X40	0	2-4-2	Y	5	Y	Y	-	-	15*	-	Y
6A	6X6	300	4	Y	6	Y	Y	-	-	-	-	-
8A	6X40	0	2-4-2	-	8	Y	Y	-	-	3	-	-
8B	6X40	0	2-4-2	-	8	Y	Y	-	-	10	-	Y
8C	6X6	0	4	-	8	Y	Y	-	-	15	-	Y

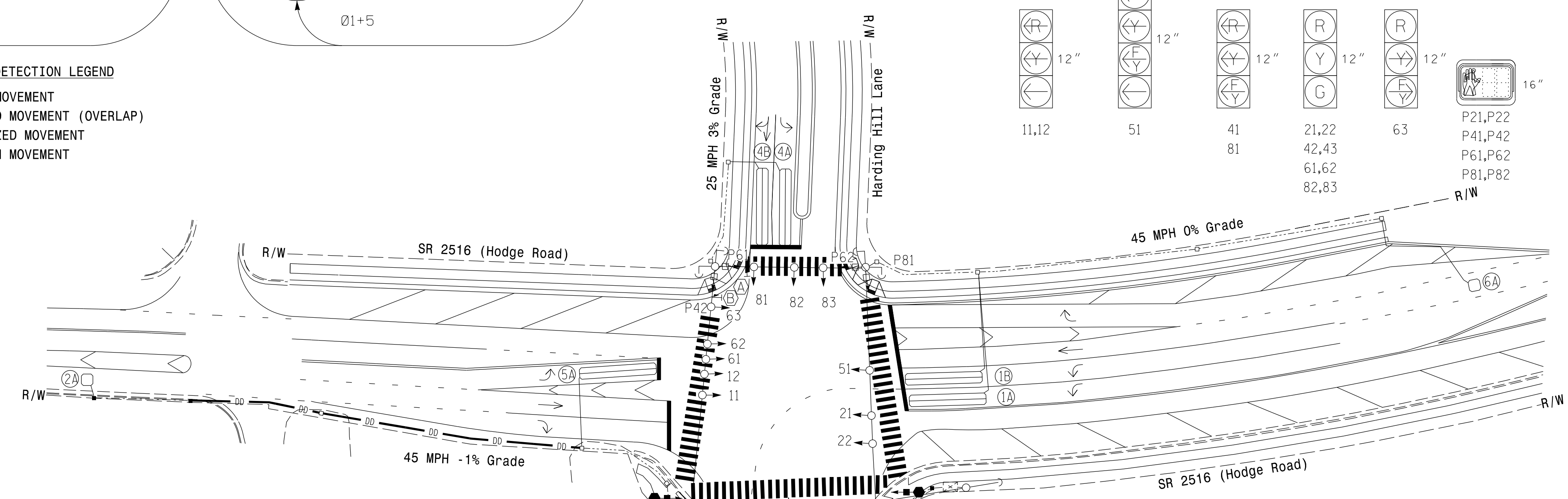
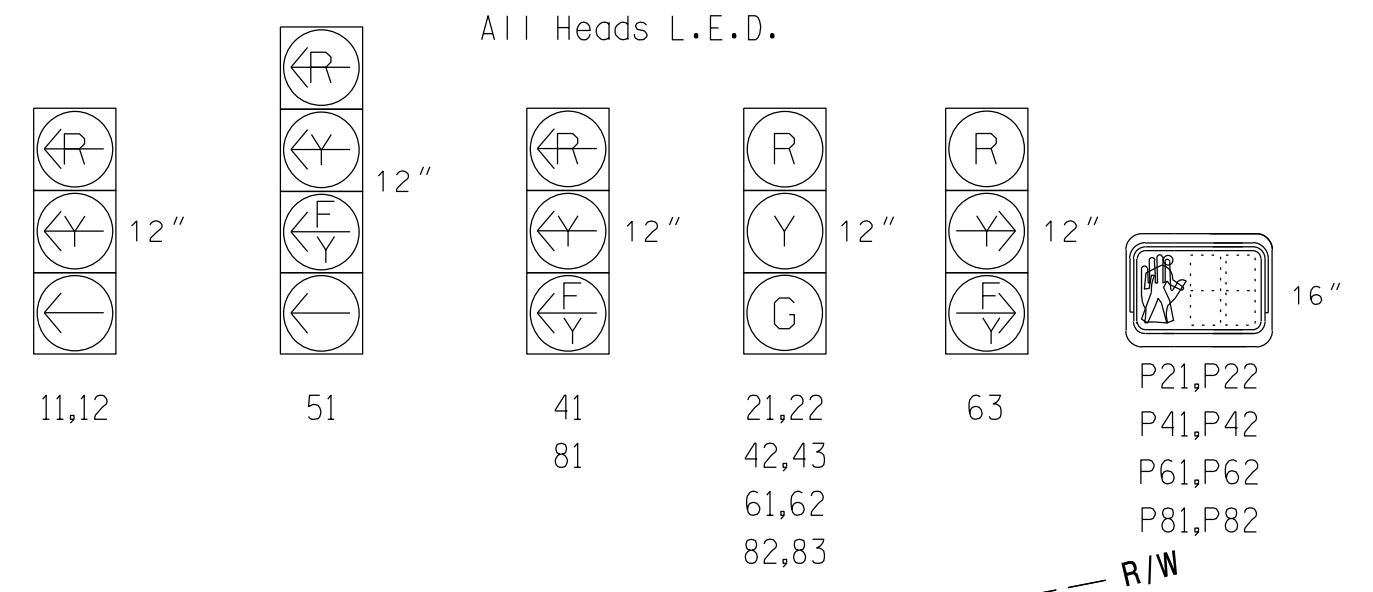
* Reduce delay to 3 seconds during Alternate Phasing.
Disable phase call(s) for loop(s) during Alternate Phasing.

5 Phase Fully Actuated
(Hodge Road Closed Loop System)
Signal System #: 10512

NOTES

- Refer to "Roadway Standard Drawings NCDOT" dated January 2018 and "Standard Specifications for Roads and Structures" dated January 2018, and all applicable sections of the latest version of the generic Project Special Provisions. The PSP can be accessed at the following website: <https://connect.ncdot.gov/resources/safety/Pages/ITS-Design-Resources.aspx>
- Do not program signal for late night flashing operation unless otherwise directed by the Engineer.
- Phase 1 and/or phase 5 may be lagged.
- Set all detector units to presence mode.
- Omit "WALK" and flashing "DON'T WALK" with no pedestrian calls.
- Program pedestrians heads to countdown the flashing "Don't Walk" time only.
- The Division Traffic Engineer will determine the hours of use for each phasing plan.
- Maximum times shown in timing chart are for free-run operation only. Coordinated signal system timing values supercede these values.
- Closed loop system data:
Master Asset #: 10512,
Controller Asset #: 2011.

SIGNAL FACE I.D.



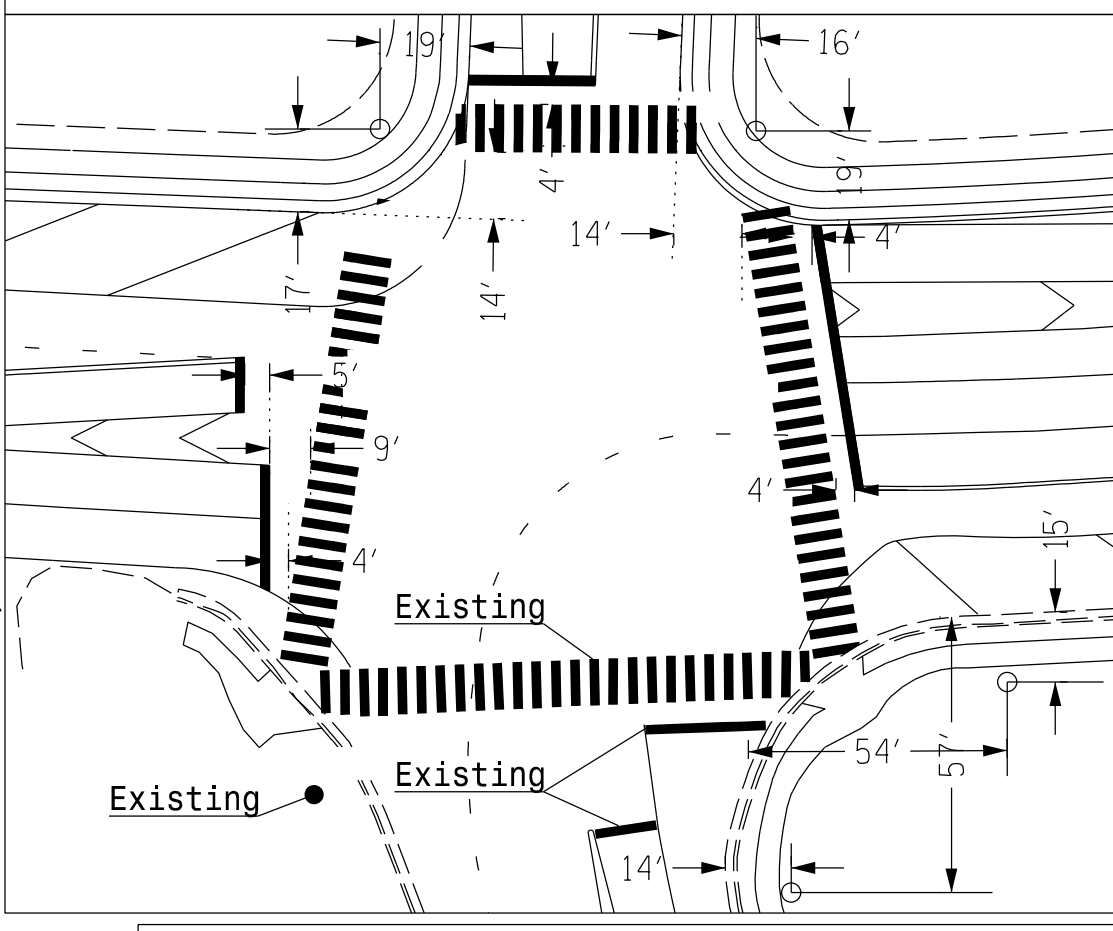
This plan supersedes the plan signed and sealed on 09/04/20.

OASIS 2070 TIMING CHART

FEATURE	PHASE					
	1	2	4	5	6	8
Min Green 1 *	7	12	7	7	12	7
Extension 1 *	2.0	6.0	2.0	2.0	6.0	2.0
Max Green 1 *	20	70	20	20	90	20
Yellow Clearance	3.0	4.6	3.1	3.0	4.6	3.1
Red Clearance	3.3	1.7	3.4	3.2	1.7	3.4
Red Revert	2.0	2.0	2.0	2.0	2.0	2.0
Walk 1 *	-	7	7	-	7	7
Don't Walk 1	-	27	27	-	10	26
Seconds Per Actuation *	-	2.5	-	-	2.5	-
Max Variable Initial *	-	34	-	-	34	-
Time Before Reduction *	-	15	-	-	15	-
Time To Reduce *	-	45	-	-	45	-
Minimum Gap	-	3.0	-	-	3.0	-
Recall Mode	-	MIN RECALL	-	-	MIN RECALL	-
Vehicle Call Memory	-	YELLOW	-	-	YELLOW	-
Dual Entry	-	-	ON	-	-	ON
Simultaneous Gap	ON	ON	ON	ON	ON	ON

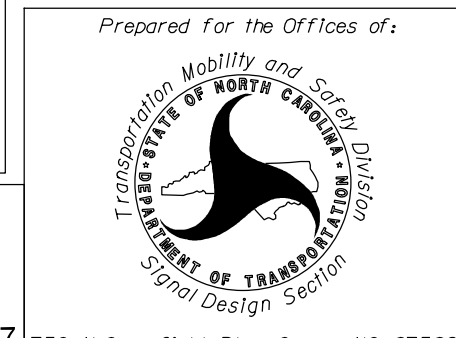
* These values may be field adjusted. Do not adjust Min Green and Extension times for phases 2 and 6 lower than what is shown. Min Green for all other phases should not be lower than 4 seconds.

STOP LINE/POLE LOCATIONS



NC Dept of Transportation
Division of Highways
Final Drawing Date: 2/1/2021
Robert J. Ziamba
ITS & Signals Unit

Signal Upgrade



SR 2516 (Hodge Road)
at
Harding Hill Lane/
Spectrum Drive

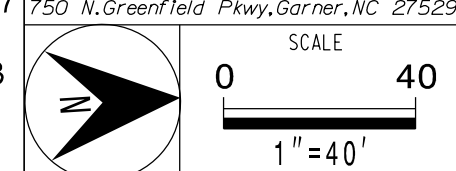
Divison 5 Wake County Knightdale
PLAN DATE: December 2020 REVIEWED BY: J Hochanadel
PREPARED BY: C Lawson REVIEWED BY:

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

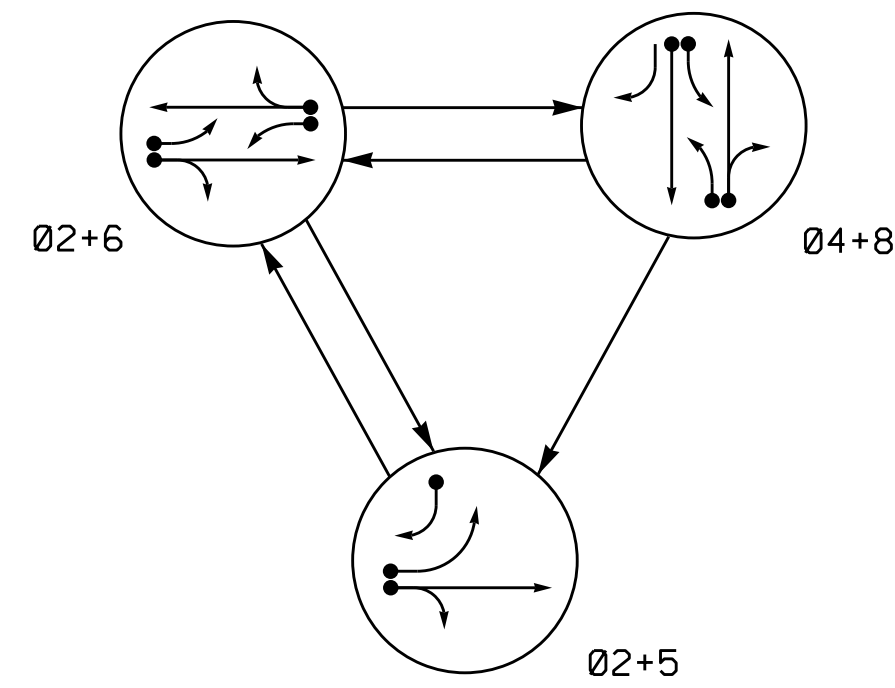
SEAL
NORTH CAROLINA PROFESSIONAL ENGINEER
CLIFF LAWSON
1/22/2021



5410 Trinity Road
Suite 102
Raleigh, NC 27607
Tel: 919.866.4951
Fax: 919.859.5663
License: C-1652



PHASING DIAGRAM



SIGNAL FACE	PHASE			
	02+5	02+6	04+8	F L S A H
21	G	R	Y	
22	G	G	R	Y
41	R	R	G	R
42	R	R	G	R
61, 62	R	G	R	Y
81, 82	R	R	G	R

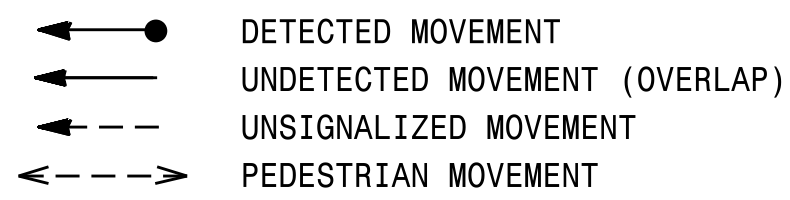
LOOP	SIZE (FT)	DISTANCE FROM STOPBAR (FT)	TURNS	DETECTOR PROGRAMMING								
				NEW LOOP	PHASE	CALLING	EXTENSION	FULL TIME DELAY	STRETCH TIME	DELAY TIME	SYSTEM LOOP	NEW CARD
2A	6x6	300	EXISTING	-	2	Y	Y	-	-	-	-	-
4A	6x40	0	2-4-2	-	4	Y	Y	-	-	-	3	-
4B	6x40	0	2-4-2	-	4	Y	Y	-	-	-	-	-
5A	6x40	0	2-4-2	-	5	Y	Y	-	-	15	-	-
5B	6x40	0	2-4-2	-	5	Y	Y	-	-	15	-	-
6A	6x6	300	EXISTING	-	6	Y	Y	-	-	-	-	-
6B	6x40	0	2-4-2	-	6	Y	Y	-	-	-	3	-
8A	6x40	0	2-4-2	-	8	Y	Y	-	-	-	3	-
8B	6x40	0	2-4-2	-	8	Y	Y	-	-	-	10	-

3 Phase Fully Actuated (Isolated)

NOTES

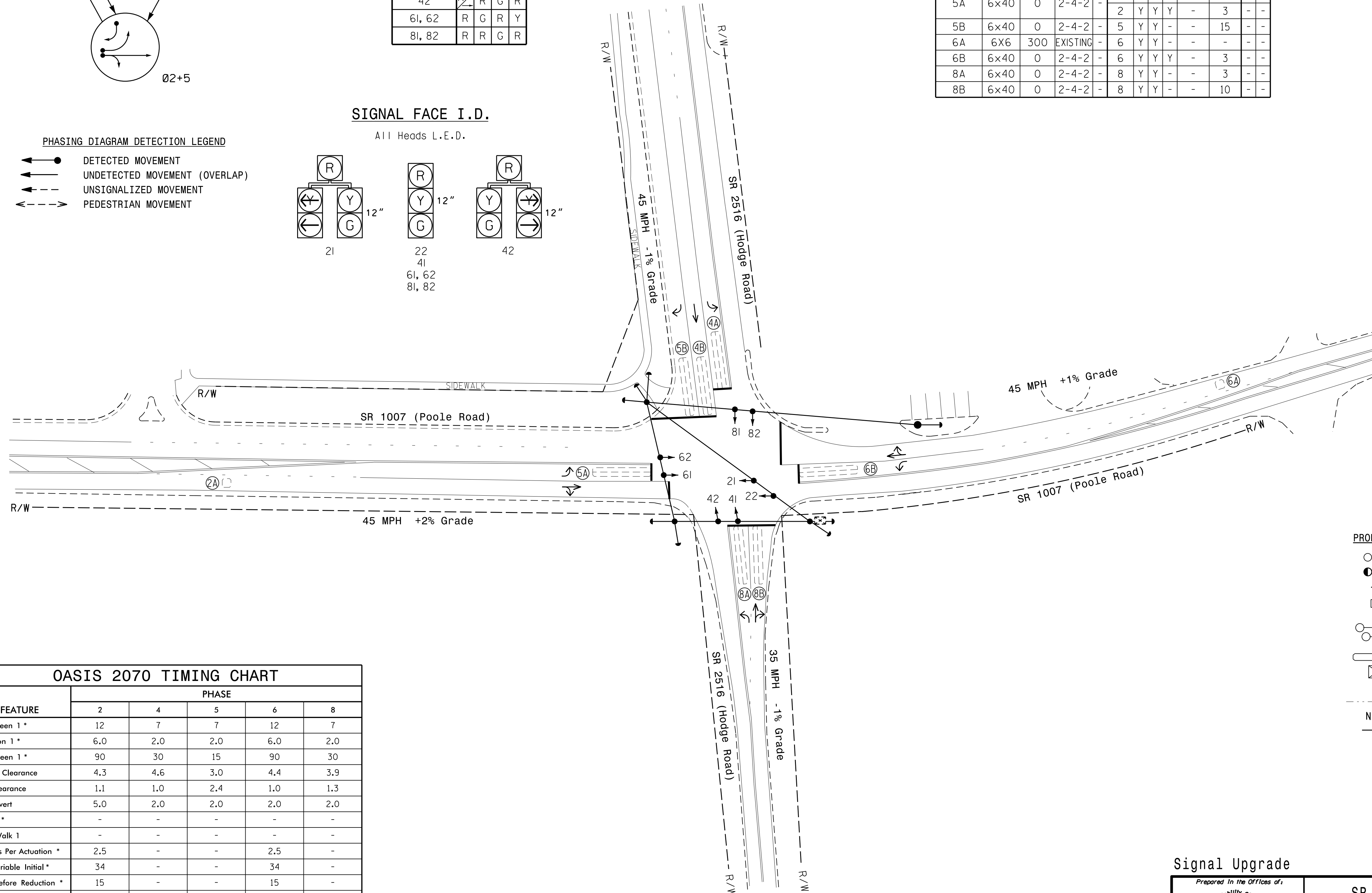
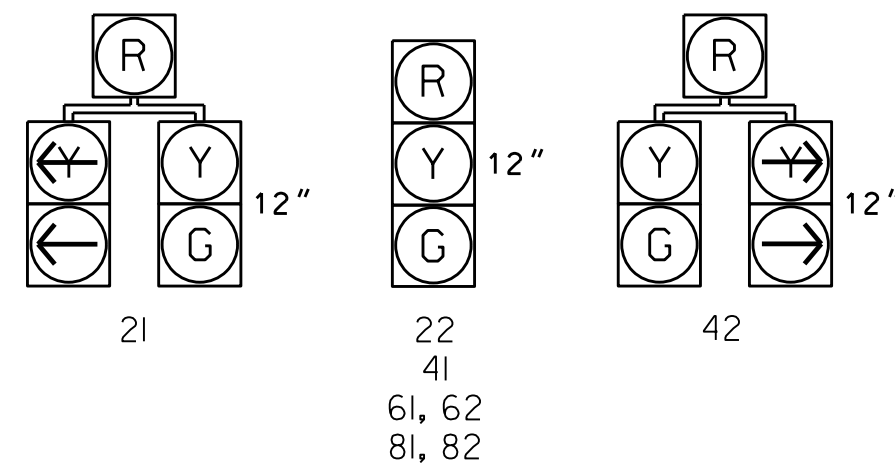
1. Refer to "Roadway Standard Drawings NCDOT" dated January 2018 and "Standard Specifications for Roads and Structures" dated January 2018.
2. Do not program signal for late night flashing operation unless otherwise directed by the Engineer.
3. Enable Backup Protect for phase 2 to allow the controller to clear from phase 2+6 to phase 2+5 by progressing through an all red display.
4. Set all detector units to presence mode.
5. Pavement markings are existing.

PHASING DIAGRAM DETECTION LEGEND



SIGNAL FACE I.D.

All Heads L.E.D.

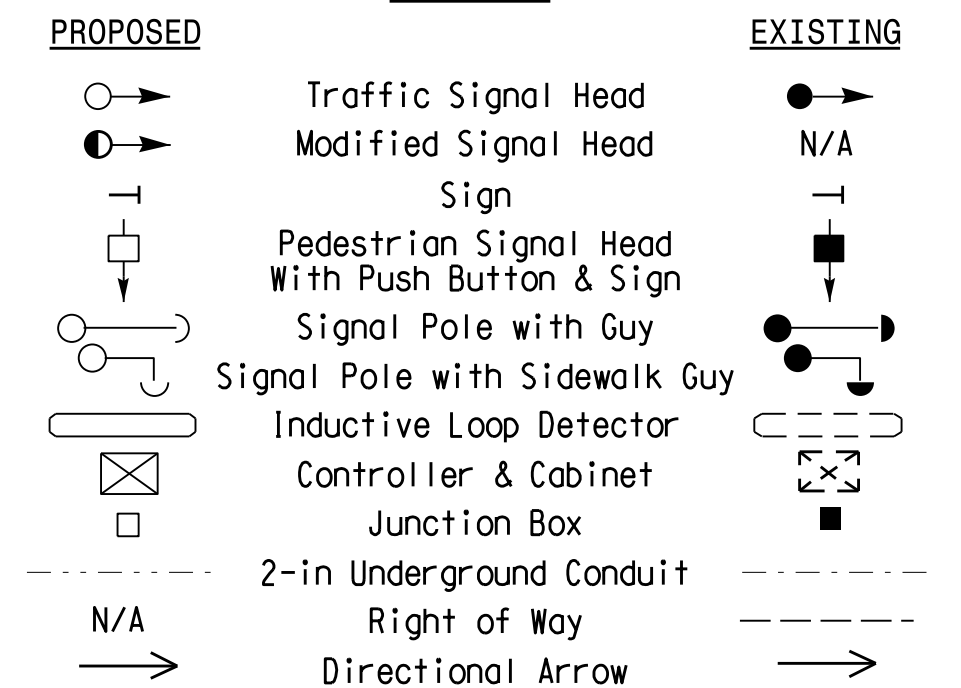


OASIS 2070 TIMING CHART

FEATURE	PHASE				
	2	4	5	6	8
Min Green 1 *	12	7	7	12	7
Extension 1 *	6.0	2.0	2.0	6.0	2.0
Max Green 1 *	90	30	15	90	30
Yellow Clearance	4.3	4.6	3.0	4.4	3.9
Red Clearance	1.1	1.0	2.4	1.0	1.3
Red Revert	5.0	2.0	2.0	2.0	2.0
Walk 1 *	-	-	-	-	-
Don't Walk 1	-	-	-	-	-
Seconds Per Actuation *	2.5	-	-	2.5	-
Max Variable Initial *	34	-	-	34	-
Time Before Reduction *	15	-	-	15	-
Time To Reduce *	30	-	-	30	-
Minimum Gap	3.0	-	-	3.0	-
Recall Mode	MIN RECALL	-	-	MIN RECALL	-
Vehicle Call Memory	YELLOW	-	-	YELLOW	-
Dual Entry	-	ON	-	-	ON
Simultaneous Gap	ON	ON	ON	ON	ON

* These values may be field adjusted. Do not adjust Min Green and Extension times for phases 2 and 6 lower than what is shown. Min Green for all other phases should not be lower than 4 seconds.

LEGEND



Signal Upgrade

Prepared in the Offices of:

750 N. Greenleaf Pkwy, Garner, NC 27529

**SR 1007 (Poole Road)
at
SR 2516 (Hodge Road)**

Division 5 Wake County Knightdale

PLAN DATE: October 2020 REVIEWED BY:

PREPARED BY: C.E. Carter REVIEWED BY:

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

SEAL

11/18/2020

SIG. INVENTORY NO. 05-0977