# INTERCHANGE OPERATIONAL ANALYSIS REPORT

Interstate 10 at State Road 51 (US 129) Interchange

Suwannee County, Florida

Financial Project Identification:
443239-1-21-01

Prepared By:
Florida Department of Transportation
District Two
1109 South Marion Avenue
Lake City, Florida 32025

January 2022

# PROFESSIONAL ENGINEER CERTIFICATION

I hereby certify that I am a registered professional engineer in the State of Florida practicing with the Florida Department of Transportation, and that I have supervised the preparation and approve the evaluation, findings, opinions, conclusions, and technical advice hereby reported for:

Project: I-10 at SR 51 Interchange Improvements
Location: I-10 at SR 51 Interchange, Suwannee County, Florida

Report: Interchange Operational Analysis Report
Financial Project ID No.: 443239-1-21-01

This report provides preliminary engineering analysis for the proposed improvements along SR 51. Any engineering analyses, documents, conclusions, or recommendations relied upon from other professional sources or provided by others are referenced accordingly in the following report.

_____

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## Executive Summary

The purpose of this study is to determine enhancements that improve operations at the I-10 at SR 51 (US 129) interchange. Improvements are aimed at increasing the efficiency of the interchanges' ramp terminal intersection operations and improving safety at the interchange. The primary need of the project is to improve future traffic conditions thereby improving safety at the interchange. The interchange of I-10 at SR 51 (US 129) is an unsignalized diamond interchange providing full access. It is an important component of the Strategic Intermodal System (SIS) providing access to the City of Live Oak.

If no improvements are made to the interchange, traffic operations and safety within the area will continue to deteriorate as traffic volumes increase.

A Methodology Letter of Understanding (MLOU) was not prepared for this project, however, the methodology is laid out in this report and briefly described hereafter. The primary basis for traffic projections in this Interchange Operational Analysis Report (IOAR) are the weekday turning movement counts collected on November 6, 2019 during the morning and evening peak hours and the FDOT Traffic Online (FTO) 2019 data. The analysis years for this study include Existing Year 2020, Opening Year 2025 and Design Year 2045. The operational analysis for this study was performed using the Highway Capacity Software (HCS 7) and Synchro 11 software.

Two alternatives were evaluated to address the purpose and needs identified for this project and presented in this IOAR. These include the No-Build Alternative and the Build Alternative. Transportation Systems Management and Operations (TSM&O) improvements were considered and include implementation of non-capacity improvements to improve traffic flow within the project area. The Build Alternative developed for this IOAR incorporates TSM&O improvements. The alternatives analyzed include:

- No-Build Alternative – This alternative includes the existing interchange configuration with future traffic.
- Build Alternative – This alternative includes signalizing the I-10 at SR 51 (US 129) interchange ramp terminals and enhance each off ramp to operate with dual left turns, signalizing the Busy Bee northern entrance, increasing the storage length of the SR 51 (US 129) southbound left turn onto the I-10 Eastbound Ramps, increasing the storage length of the SR 51 (US 129) northbound left turn onto the I-10 Westbound Ramps, move the SR 51 (US 129) southbound left turn into the Busy Bee northern entrance to the southern entrance, remove the direct right into the Busy Bee from the I-10 Westbound off ramp to the Busy Bee Southern Driveway, and widen SR 51 (US 129) to the north of the Busy Bee adding bicycle lanes and sidewalks.

As part of this study, an existing crash analysis was performed. The data provided from FDOT Crash Analysis Reporting System (CARS Online) shows angle crashes are the most prominent crash types within the project

area on SR 51 (US 129). The proposed Build Alternative shows improved traffic operations and safety within the project area due to reduction in congestion and improved geometric design.

Based on the evaluations of the No-Build and Build Alternatives, the recommended alternative for approval in this study is the Build Alternative. The recommended alternative will incorporate viable TSM&O improvements and will be developed further in the next phase.

This IOAR has been developed in accordance with FDOT Policy No. 000-525-015: Approval of New or Modified Access to Limited Access Highways on the Strategic Highway System (SHS), FDOT Procedure No. 525-030-160: New or Modified Interchanges, 2020 Interchange Access Request User's Guide (IARUG), 2020 IARUG Safety Analysis Guidance, and the 2019 FDOT Traffic Forecasting Handbook (Procedure No. 525-030-120).

## E.1 Compliance with FHWA General Requirements

The following requirements serve as the primary decision criteria used in approval of interchange modification projects. Responses to each of the FHWA two policy points are provided to show that the proposed modification for the I-10 at SR 51 (US 129) interchange is viable based on the operational and safety analysis performed to date.

### *E.1.1 FHWA Policy Point 1*

*An operational and safety analysis has concluded that the proposed change in access does not have a significant adverse impact on the safety and operation of the Interstate facility (which includes mainline lanes, existing, new, or modified ramps, and ramp intersections with crossroad) or on the local street network based on both the current and the planned future traffic projections. The analysis should, particularly in urbanized areas, include at least the first adjacent existing or proposed interchange on either side of the proposed change in access (Title 23, Code of Federal Regulations (CFR), paragraphs 625.2(a), 655.603(d) and 771.111(f)). The crossroads and the local street network, to at least the first major intersection on either side of the proposed change in access, should be included in this analysis to the extent necessary to fully evaluate the safety and operational impacts that the proposed change in access and other transportation improvements may have on the local street network (23 CFR 625.2(a) and 655.603(d)). Requests for a proposed change in access should include a description and assessment of the impacts and ability of the proposed changes to safely and efficiently collect, distribute, and accommodate traffic on the Interstate facility, ramps, intersection of ramps with crossroad, and local street network (23 CFR 625.2(a) and 655.603(d)). Each request should also include a conceptual plan of the type and location of the signs proposed to support each design alternative (23 U.S.C. 109(d) and 23 CFR 655.603(d)).*

An in-depth operational and safety analysis was conducted to study the impacts of the proposed improvements at the I-10 and SR 51 (US 129) interchange. Several performance measures were used to compare the operations of the existing system under No-Build and Build conditions. Key measures included freeway densities, intersection delays, LOS, 95$^{th}$ percentile queue lengths and safety under existing and proposed conditions.

From an operational perspective in the Design Year 2045 under the No-Build Alternative, operational and safety deficiencies will exist. The intersections along SR 51 (US 129) at the Eastbound and Westbound I-10 Ramps will operate at LOS E or worse in the AM and PM peak hours. The Busy Bee Northern Entrance will operate at LOS D in the AM peak hour and LOS F in the PM peak hour. These deficiencies are attributed to the insufficient capacity and operations at all three intersections.

The Build Alternative for this study performs substantially better than the No-Build Alternative for all future years. The proposed interchange improvements provide additional capacity for the heavy left turn volumes from the I-10 off ramp, as well as signalize the eastbound and westbound ramp terminal intersections with SR 51 (US 129), and the Busy Bee North Entrance intersection with SR 51 (US 129). By implementing these improvements, the study intersection at the I-10 at SR 51 (US 129) interchange will operate at acceptable LOS D or better in both AM and PM Peak hour. SR 51 (US 129) left turns onto the Interchange Ramps will also benefit from the signalization of the intersection because they will have a dedicate left turn signal to remove driver uncertainty.

A safety analysis was performed for the study area using the most recent 5 year crash history, from 2014 to 2018. The analysis indicated a total of 118 crashes occurred within the project area, of which 73 of the crashes occurred on the project segment of SR 51 (US 129). The predominant crash type reported was angle collisions.

With the improved operations under the Build Alternative, it is anticipated to enhance safety within the project area. A CMF safety analysis was performed for the study area where improvements are to be implemented. Based on the safety analysis, it is predicted that a reduction of 2.126 crashes per year will occur due to the recommended improvements.

Overall, the Build Alternative provides significantly better traffic operations and enhances safety when compared to the No-Build Alternative.

In conclusion, the comparison of the No-Build and Build Alternatives show the proposed interchange improvements provide enhanced operation and safety conditions. The proposed modifications in the Build Alternative are not anticipated to have a negative impact on operations or safety of the I-10 mainline or any adjacent interchanges.

### *E.1.2 FHWA Policy Point 2*

*The proposed access connects to a public road only and will provide for all traffic movements. Less than "full interchanges" may be considered on a case-by-case basis for applications requiring special access, such as managed lanes (e.g., transit or high occupancy vehicle and high occupancy toll lanes) or park and ride lots. The proposed access will be designed to meet or exceed current standards (23 CFR 625.2(a), 625.4(a)(2), and 655.603(d)). In rare instances where all basic movements are not provided by the proposed design, the report should include a full-interchange option with a comparison of the operational and safety analyses to the partial interchange option. The report should also include the mitigation proposed to compensate for the*

*missing movements, including wayfinding signage, impacts on local intersections, mitigation of driver expectation leading to wrong-way movements on ramps, etc. The report should describe whether future provision of a full interchange is precluded by the proposed design.*

The proposed improvements to the I-10 at SR 51 (US 129) interchange and adjacent intersections will provide full access and cater to all traffic movements from SR 51 (US 129) to and from I-10. The proposed modifications are designed to meet current standards for federal-aid projects on the interstate system and conform to American Association of State Highway and Transportation Official (AASHTO) and the FDOT design.

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# 1. INTRODUCTION

The interchange of Interstate 10 (I-10) with State Road 51 (US 129) is located in Suwannee County, Florida. The interchange provides primary access for the City of Live Oak, located to the south of this interchange. The Florida Department of Transportation (FDOT) District Two is conducting an interchange study to evaluate improvements for the interchange of I-10 and SR 51 (US 129). This Interchange Operational Analysis Report (IOAR) evaluated alternatives to improve traffic operations and safety at this critical interchange in Suwannee County. The existing I-10 and SR 51 (US 129) interchange is an unsignalized diamond interchange configuration. SR 51 (US 129) is functionally classified as a four-lane Rural Minor Arterial and I-10 is functionally classified as a Rural Principal Arterial Interstate. The context classifications are as follows: SR 51 (US 129) is classified as a C3C-Suburban Commercial Facility south of I-10 and C2-Rural Facility north of I-10.

## 1.1 Background

The interchange of I-10 at SR 51 (US 129) is an important component of the State's Strategic Intermodal System (SIS) and provides access to the City of Live Oak. This IOAR proposes Ultimate Improvements to enhance the movement of people and goods at this Interchange. SR 51 is currently a divided four-lane roadway north and south of I-10 transitioning to an undivided two-lane roadway approximately a half mile north of the interchange. I-10 is currently a divided four-lane roadway within the project limits.

The project is included in the State Transportation Improvement Program (STIP) and FDOT's 5-year Work Program.

This IOAR is seeking approval from FDOT's Chief Engineer and FDOT Central Office for the proposed improvements to the access point of I-10 at SR 51 (US 129) in Suwannee County. This IOAR has been developed in accordance with FDOT Policy No. 000-525-015: Approval of New or Modified Access to Limited Access Highways on the Strategic Highway System (SHS), FDOT Procedure No. 525-030-160: New or Modified Interchanges, 2020 Interchange Access Request User's Guide (IARUG), 2020 IARUG Safety Analysis Guidance, and the 2019 FDOT Traffic Forecasting Handbook (Procedure No. 525-030-120).

## 1.2 Purpose and Need

The purpose of this study is to improve interchange operations, reduce congestion, improve safety, and alleviate spillback onto I-10 during hurricane evacuation at this interchange location. Improvements are aimed at increasing the efficiency of the I-10 at SR 51 (US 129) interchange and SR 51 (US 129) arterial corridor.

The primary need of the project is to improve existing and future traffic operations thereby improving safety at the interchange. The interchange of I-10 at SR 51 (US 129) is a diamond interchange providing full access to SR 51 (US 129). It is an important component of the SIS providing access to the City of Live Oak. Currently, the westbound I-10 off-ramp and the eastbound I-10 off-ramp both terminate at stop-controlled intersections. During the Design Year (2045), this configuration does not provide efficient operations and results in traffic

backups, primarily at the off ramp left turns, during the AM and PM peak hours. Additionally, the ramp terminals experience crash rates higher than the statewide averages.

The available crash data collected from the FDOT Crash Analysis Reporting On-line (CAR On-line) for the years 2014 through 2018 reveal that a total of 118 crashes occurred in the project area, of which 36 (31%) were angle crashes and 23 (19%) were front to rear crashes. Most of the crashes (73 or 62%) of the total crashes occurred on the project segment of SR 51 (US 129), resulting in 49 injuries and one fatality.

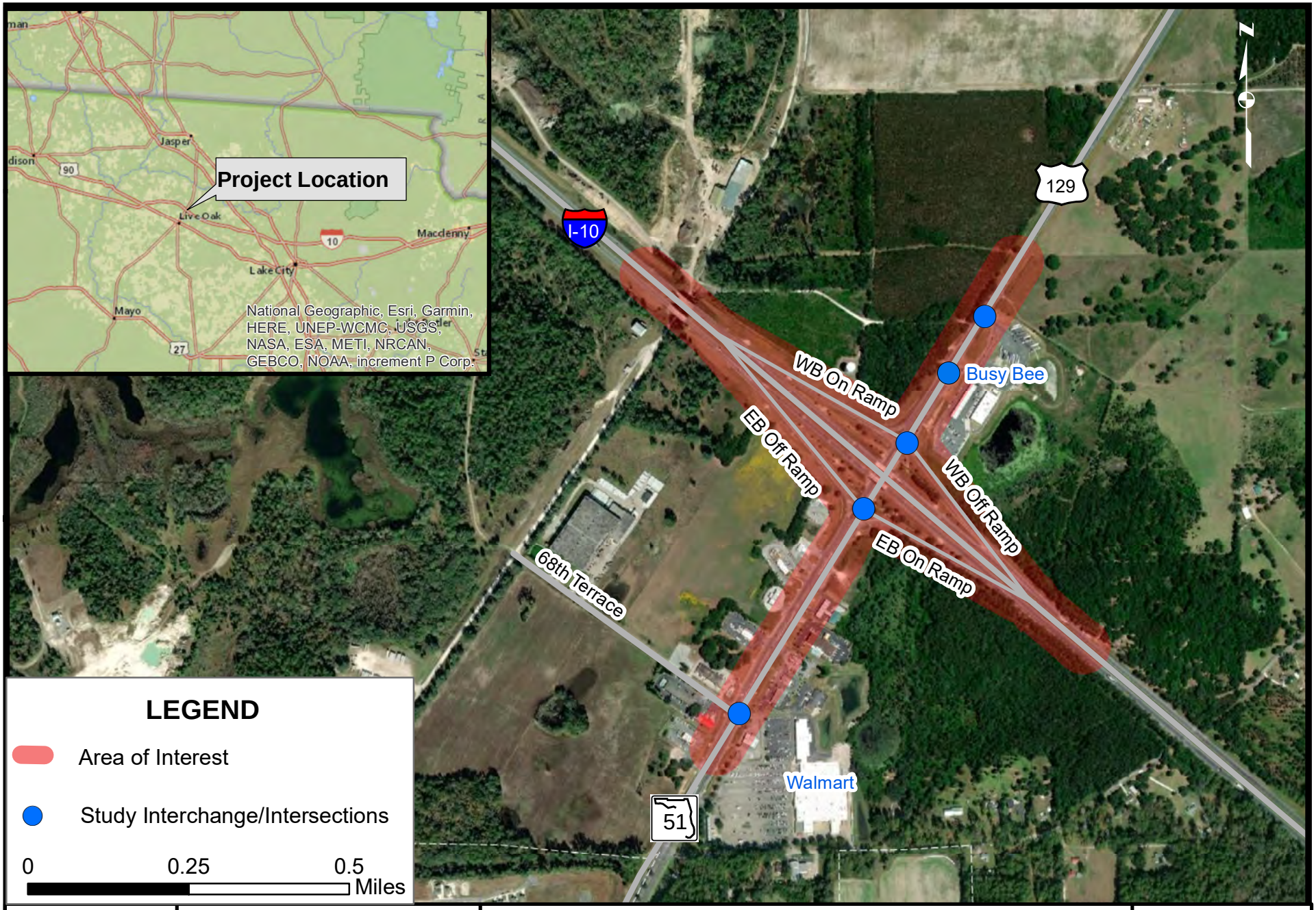
If no operational and safety improvements are made within the interchange area, conditions will become progressively worse as traffic volumes continue to increase, thereby, deteriorating this interchange access.

## 1.3 Project Location

The subject interchange is in Suwannee County, along I-10 at Milepost (MP) 14.565. The I-10 at SR 51 (US 129) interchange is located between the interchanges of I-10 at SR 10 (US 90) to the west (MP 6.465) and I-10 at CR 137 to the east (MP 23.865). The SR 51 (US 129) interchange is located approximately 8.1 miles to the east of the SR 10 interchange and approximately 9.3 miles to the west of the CR 137 interchange. The project location and the study area are shown in **Figure 1-1**. The adjacent interchanges are not included within the area of influence as they are more than 5 miles from the study interchange and will not be impacted.

## 1.4 Access for Special Events

The I-10 at SR 51 (US 129) interchange provides primary access to the Spirit of the Suwannee Music Park located 5.6 miles north of the interchange on SR 51 (US 129). The Spirit of the Suwannee Music Park is an 800-acre campground and music park located on the historic banks of the Suwannee River. The Park holds multiple multi-day concert music festivals throughout the year attracting up to 21,000 attendees. These events further strain the interchange at I-10 and SR 51 (US 129) with decreasing operations, increased congestion and thus deteriorating safety.

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|---|---|---|---|
| FDOT | I-10 at SR 51 (US 129) Interchange IOAR | **Project Location and Study Interchange/Intersections Map** | Figure 1-1 |
| | | | Page 3 |

# 2. METHODOLOGY

## 2.1 Overview

The methodology used for travel demand forecasting and development of design hour traffic is consistent with the 2019 FDOT Project Traffic Forecasting Handbook. The primary basis for traffic projections were November 6, 2019 weekday turning movement counts (TMCs) collected during the morning and evening peak periods for the following study intersections:

- SR 51 at 68th Terrace
- SR 51 at I-10 Eastbound Ramps
- SR 51 at I-10 Westbound Ramps
- SR 51 at Busy Bee South Entrance
- SR 51 at Busy Bee North Entrance and Exit

Twenty-Four hour hose counts were collected on November 6, 2019 for the following SR 51 (US 129) at I-10 interchange ramps:

- eastbound off ramp
- eastbound on ramp
- westbound off ramp
- westbound on ramp

In addition to the traffic counts, traffic volume data from Florida Traffic Online (FTO) was also obtained for I-10 mainline west and east of SR 51 (US 129), SR 51 (US 129) interchange ramps and SR 51 (US 129) roadway south and north of I-10. The aforementioned data was used to establish Existing Conditions 2020 traffic volumes, project Opening Year 2025 and Design Year 2045 traffic volumes.

## 2.2 Analysis Years

The following study years are established for this IOAR:

- Existing Year: 2020
- Opening Year: 2025
- Design Year: 2045

## 2.3 Area of Influence

The area of influence (AOI) for the IOAR includes the study interchange of I-10 at SR 51 (US 129) and SR 51 (US 129) corridor between 68th Terrace and Busy Bee Entrance, located in Suwannee County. Along I-10, the nearest interchanges of SR 10 and CR 137 are 8.1 and 9.3 miles to the west and east, respectively. These interchanges are not included within the area of influence as they are more than 5 miles from the study interchange and will not be impacted.

The major study corridor is SR 51 (US 129):

- SR 51 (US 129) is a 4-lane divided Rural Minor Arterial south of I-10 and transitions to a 2-lane undivided Rural Minor Arterial approximately 860 feet north of I-10. The speed limit within the study limits to the north and south of I-10 is 45 mph. However, north of I-10 the speed limit transitions from 45 mph to 55 mph and then 60 mph, at approximately 1,800 and 2,800 feet north of I-10, respectively.

The area of influence also includes signalized and stop controlled intersections along SR 51 (US 129). The intersections used for traffic operational analysis within the area of influence are listed below:

- Intersections
  - SR 51 (US 129) at 68$^{th}$ Terrace, signalized
  - SR 51 (US 129) at Eastbound Interchange Ramps, stop controlled
  - SR 51 (US 129) at Westbound Interchange Ramps, stop controlled
  - SR 51 (US 129) at Busy Bee North Entrance and Exit, stop controlled

The area of influence is shown in **Figure 1-1**.

## 2.4 Data Collection

The analysis conducted for this IOAR is based on a combination of data that includes field traffic counts and additional data available from FDOT. The data sources within the project study area include:

- Traffic Forecasts based on November 6, 2019 traffic counts
- Existing Traffic Data from FTO
- Land Use Data from the Florida Geographic Data Library (FGDL)
- Crash data from the CAR On-line
- FDOT Straight Line Diagrams (SLD)
- Existing Signal timings from local agencies

Traffic in 2020 was affected by the Covid-19 Pandemic, however the traffic data for this project was collected in 2019, before the start of the Pandemic.

## 2.5 Base Traffic Data and Traffic Volumes Development

Existing Year (2020) was established using the November 6, 2019 traffic counts and traffic volumes from FTO obtained for I-10 mainline west and east of SR 51 (US 129), SR 51 (US 129) interchange ramps and SR 51 (US 129) roadway south and north of I-10.

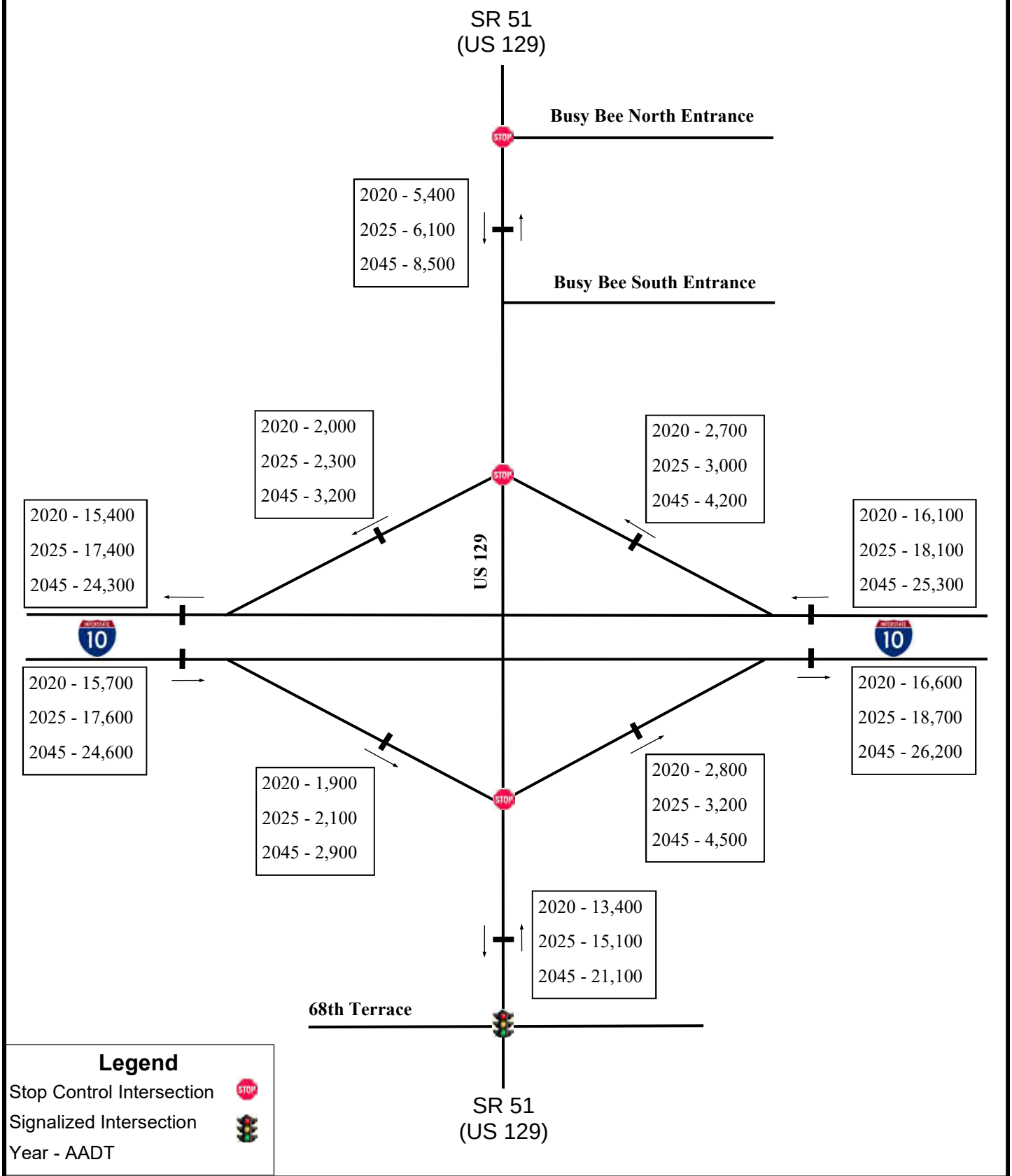
As a result of the study interchange not being covered under a regional or district travel demand model, historical traffic growth trend analysis for the study area roadways and population growth for Suwannee County were established to develop Opening Year (2025) and Design Year (2045) traffic volumes. Based on the

comparison of above sources, a linear growth rate of 2.5% is recommended for estimating Existing Year (2020) and Opening Year (2025) design hour volumes. A linear growth rate of 2.0% is recommended for estimating Design Year (2045) volumes by applying this growth rate to Opening Year (2025) peak hour volumes.

Average Annual Daily Traffic (AADT) were developed using the following steps:

1. AADT volumes for I-10 mainline east and west of SR 51 (US 129) and SR 51 (US 129) ramps were obtained from FTO. Daily ramp volumes were also available from 2019 hose counts. Both FTO and ramp hose count data were reviewed to develop Existing Year (2020) AADT volumes using a 2.5% linear annual growth rate.
2. Opening Year (2025) AADT volumes were then developed from Existing Year (2020) AADT using a 2.5% linear annual growth rate.
3. Design Year (2045) AADT volumes were then developed from Opening Year (2025) AADT using a 2.0% linear annual growth rate.

**Figure 2-1** shows the AADT volume information developed for Existing Year (2020), Opening Year (2025), and Design Year (2045) traffic conditions.

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|---|---|---|---|
| FDOT | I-10 at SR 51 (US 129) Interchange IOAR | Existing Year (2020), Opening Year (2025) & Design Year (2045)<br>Annual Average Daily Traffic (AADT) | Figure 2-1<br>Page 7 |

Peak Hour Volumes were developed using the following steps:

1. Traffic counts data for study area intersections, ramps, and mainline segments were available from year 2019 field collected data. The 2019 AM and PM peak hour volumes were first adjusted and balanced where there are not driveways between adjacent junctions. A 2.5% linear annual growth rate was then applied to develop Existing Year (2020) AM and PM peak hour volumes. **Figure 2-2** shows Existing Year (2020) AM and PM peak hour volumes.
2. Opening Year (2025) AM and PM peak hour volumes were then developed from Existing Year (2020) peak hour volumes by applying a 2.5% linear annual growth rate. **Figure 2-3** shows Opening Year (2025) AM and PM peak hour volumes.
3. Design Year (2045) AM and PM peak hour volumes were then developed from Opening Year (2025) peak hour volumes using a 2.0% linear annual growth rate. **Figure 2-4** shows Design Year (2045) AM and PM peak hour volumes.

A detailed summary of the study area growth rates trends analysis and development of the project traffic can be found in **Appendix A.**

The factors used in the traffic operational analysis analysis include the $T_{Daily}$ percentage, Design Hour Truck (DHT) percentage, Peak Hour Factor (PHF), Directional Distribution (D), and Design Hour Factor (K)

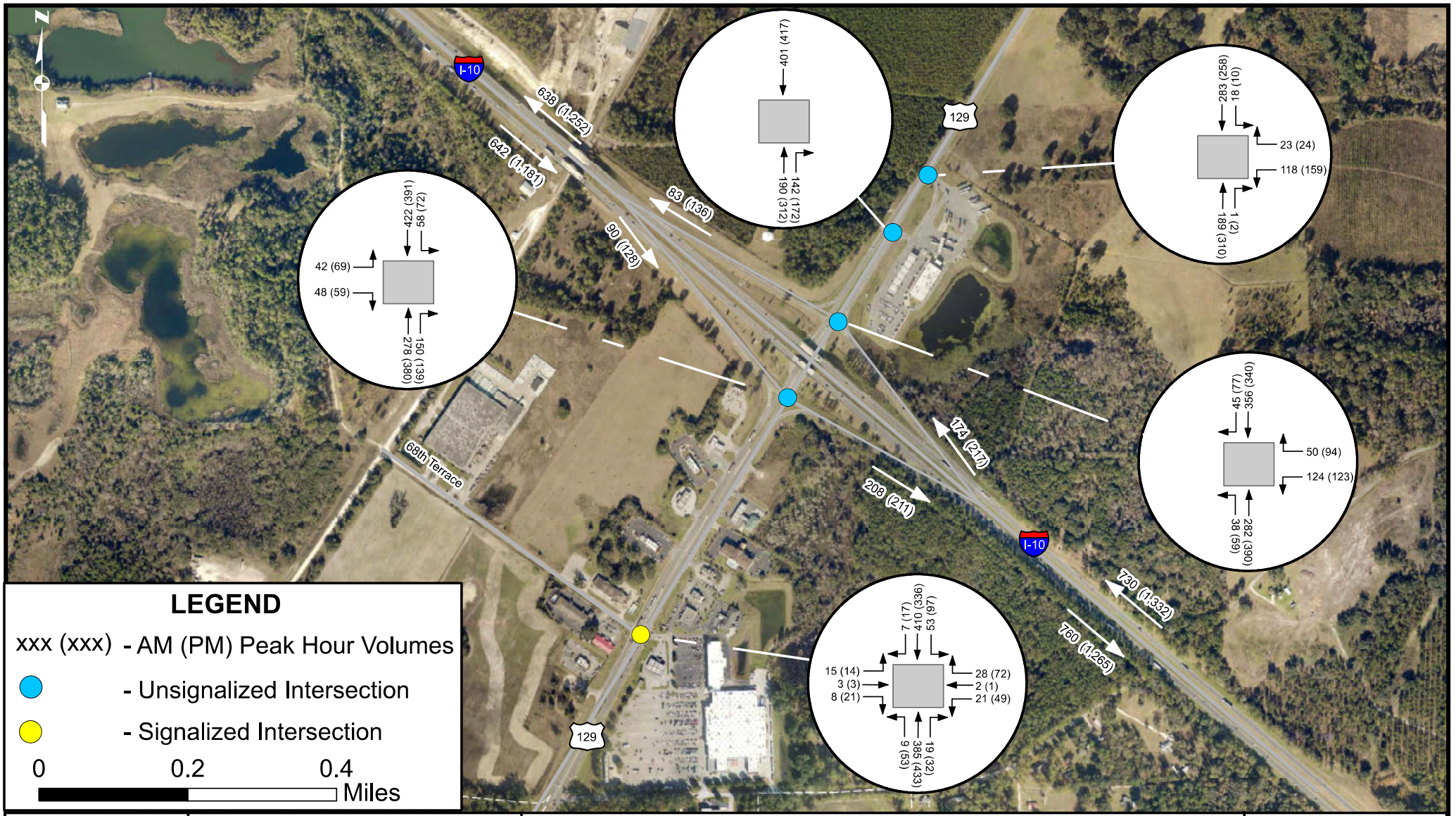
- The $T_{Daily}$ factor is the adjusted, annual daily percentage of truck traffic. This data is gathered from 2019 FTO portable traffic monitoring site 370143 for I-10 and 375033 for SR 51 (US 129), respectively.
- The DHT percentage is calculated as one half of the daily truck percentage.
- The PHF is applied to convert hourly flow to peak 15-minute flow rate for capacity analysis. A PHF of 0.92 was chosen from the 2019 Project Traffic Forecasting Handbook – Table 2-1 FDOT Standard K Factors for a transition to Urbanized Areas.
- The Directional Distribution is the percentage of the total, two-way design hour traffic traveling in the peak direction.
- The Design Hour Factor is the proportion of the AADT occurring in the peak hour.

The traffic factors for use in this IOAR are presented in **Table 2-1**.

**Table 2-1: Summary of Traffic Factors**

| Roadway | $T_{Daily}$[1] | DHT | PHF | D | K |
|---|---|---|---|---|---|
| **I-10 (SR 8) W of US 129** | 26.4% | 13.2% | 0.92 | 54.40% | 9.0% |
| **I-10 (SR 8) E of US 129** | 26.4% | 13.2% | 0.92 | 54.38% | 9.0% |
| **SR 51 (US 129)** | 5.6% | 2.8% | 0.92 | 55.90% | 9.0% |

[1] Source: FDOT FTO

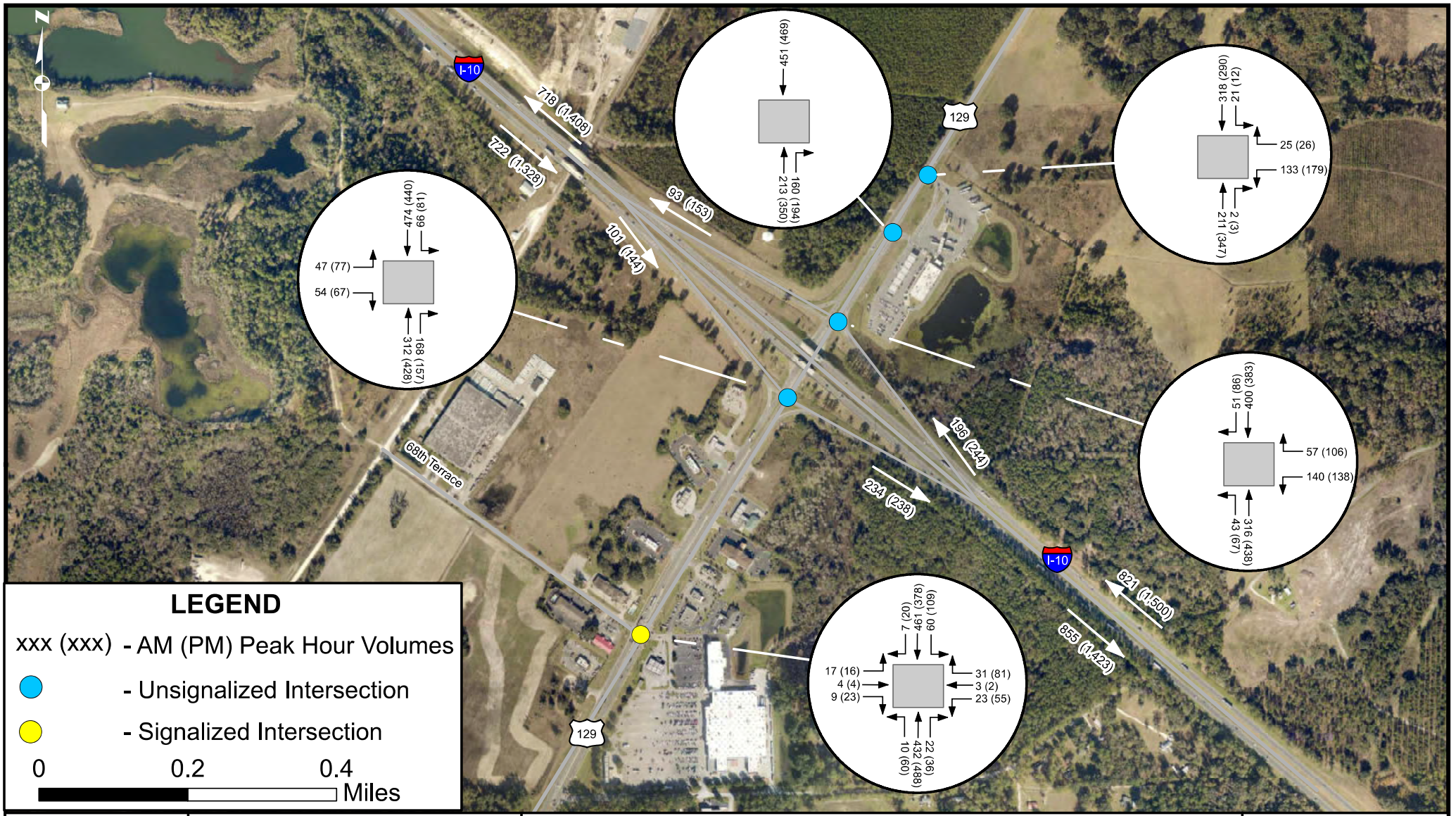



FDOT

I-10 at SR 51 (US 129)
Interchange IOAR

**Existing Year 2020**
**Peak Hour Volumes**

Figure 2-2

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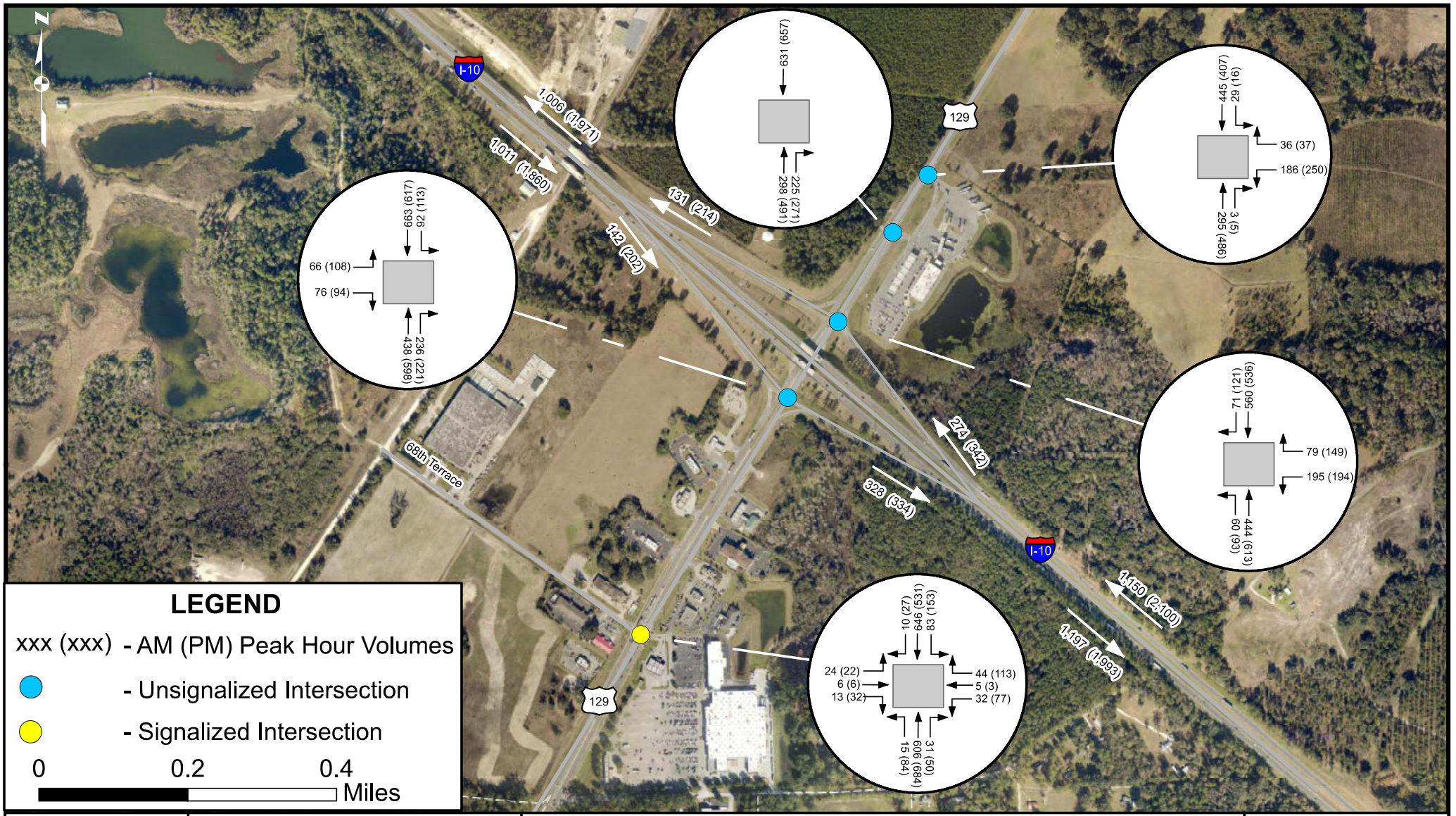
|---|---|---|---|
| FDOT | I-10 at SR 51 (US 129) Interchange IOAR | **Opening Year 2025 Peak Hour Volumes** | Figure 2-3 |
| | | | Page 10 |




FDOT

I-10 at SR 51 (US 129)
Interchange IOAR

**Design Year 2045**
**Peak Hour Volumes**

Figure 2-4

## 2.6 LOS Criteria

FDOT Topic No. 000-525-006 provides Level of Service (LOS) targets for the SHS. The term LOS is defined as the system of six designated ranges from "A" (best) to "F" (worst) used to evaluate roadway facility performance. The I-10 at SR 51 (US 129) interchange is located in a previously rural area but due to the commercial development around the interchange and high traffic to the city of Live Oak, it is analyzed with the Urban LOS targets. The LOS targets for major roadways analyzed in this IOAR are summarized below:

- I-10 Interstate Mainline: LOS D
- Ramps Merge/Diverge: LOS D
- Signalized/unsignalized Intersections: LOS D

## 2.7 Analysis Procedures

The analysis procedure was conducted using the most recent versions of the Highway Capacity Software (HCS 7) and Synchro 11. Analysis of the I-10 system and SR 51 (US 129) arterial, including the mainline, interchange ramps and intersections were based on criteria and policies detailed in the FDOT Traffic Analysis Handbook, March 2014 Edition.

The recommended improvements such as the change in intersection controls and addition of turn lanes at intersections were analyzed using Synchro.

The HCM methodology and Synchro 11 are generally classified as a series of analytical procedures (flow rate variables) that produce deterministic results (no randomness). Each transportation facility (freeway mainline, freeway ramp, signalized intersection, etc.) is analyzed using a unique methodology, which is performed independent of other adjacent facilities. The discussion of HCS and Synchro analysis is documented in subsequent sections for the Existing Year 2020, Opening Year 2025, and Design Year 2045.

## 2.8 Alternatives Considered

The following scenarios were considered for this project:

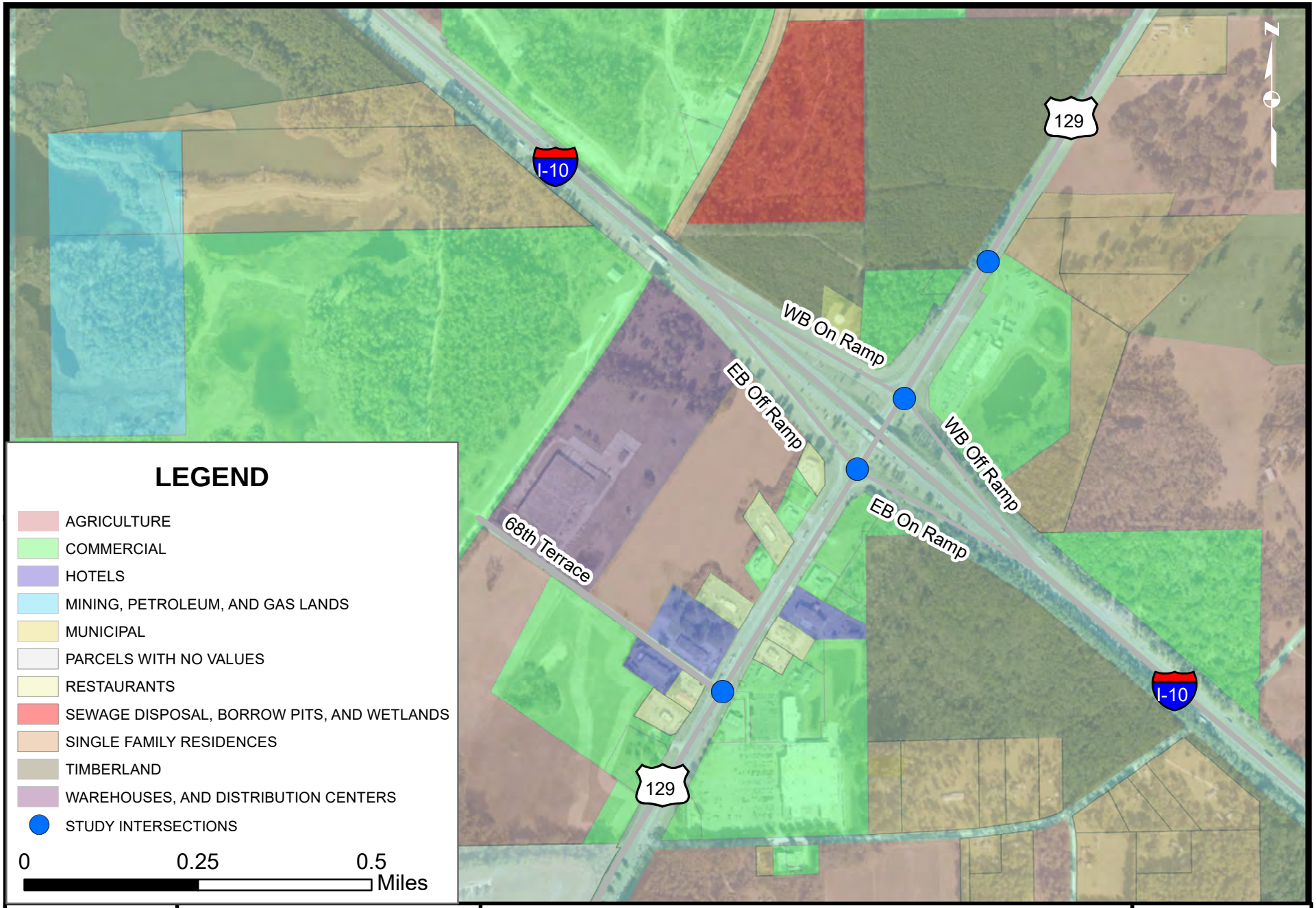
- Existing Year 2020: AM and PM peak hours
- No-Build Alternative – Opening Year 2025 and Design Year 2045: AM and PM peak hours
- Build Alternative – Opening Year 2025 and Design Year 2045: AM and PM peak hours

# 3. EXISTING CONDITIONS

The following Section provides a discussion and evaluation of the existing conditions within the area of influence. This discussion includes existing land use data, transportation systems data, existing traffic data, and existing operating and safety conditions.

## 3.1 Existing Land Use

The interchange falls within Suwannee County. According to the Suwannee County Property Appraiser's website the area is primarily commercial, consisting of drive-in restaurants, retail stores, hotels, service stations, and undeveloped commercial property. The existing land uses within the area of influence are shown in **Figure 3-1**. Land use within the study area of influence is expected to be further developed and become more commercial in the future.

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|---|---|---|---|
| FDOT | I-10 at SR 51 (US 129) Interchange IOAR | **Existing Land Use Map** | Figure 3-1 |
| | | | Page 14 |

## 3.2 Existing Transportation Network

The existing transportation network within the area of influence consists of a 4-lane interstate highway with an interchange at SR 51 (US 129). **Table 3-1** summarizes the functional classification and number of lanes for I-10 and SR 51 (US 129) within the project area of influence. I-10 at SR 51 (US 129) is the only interchange within the study area. This study interchange is a diamond interchange, and the existing lane configuration is provided in **Figure 3-2**.

**Table 3-1: Functional Classification of Area Roadways**

| Roadway | Functional Classification | Number of Lanes |
|---|---|---|
| I-10 | Rural Principal Arterial - Interstate | 4 |
| SR 51 (US 129) | Rural Minor Arterial | 4 |

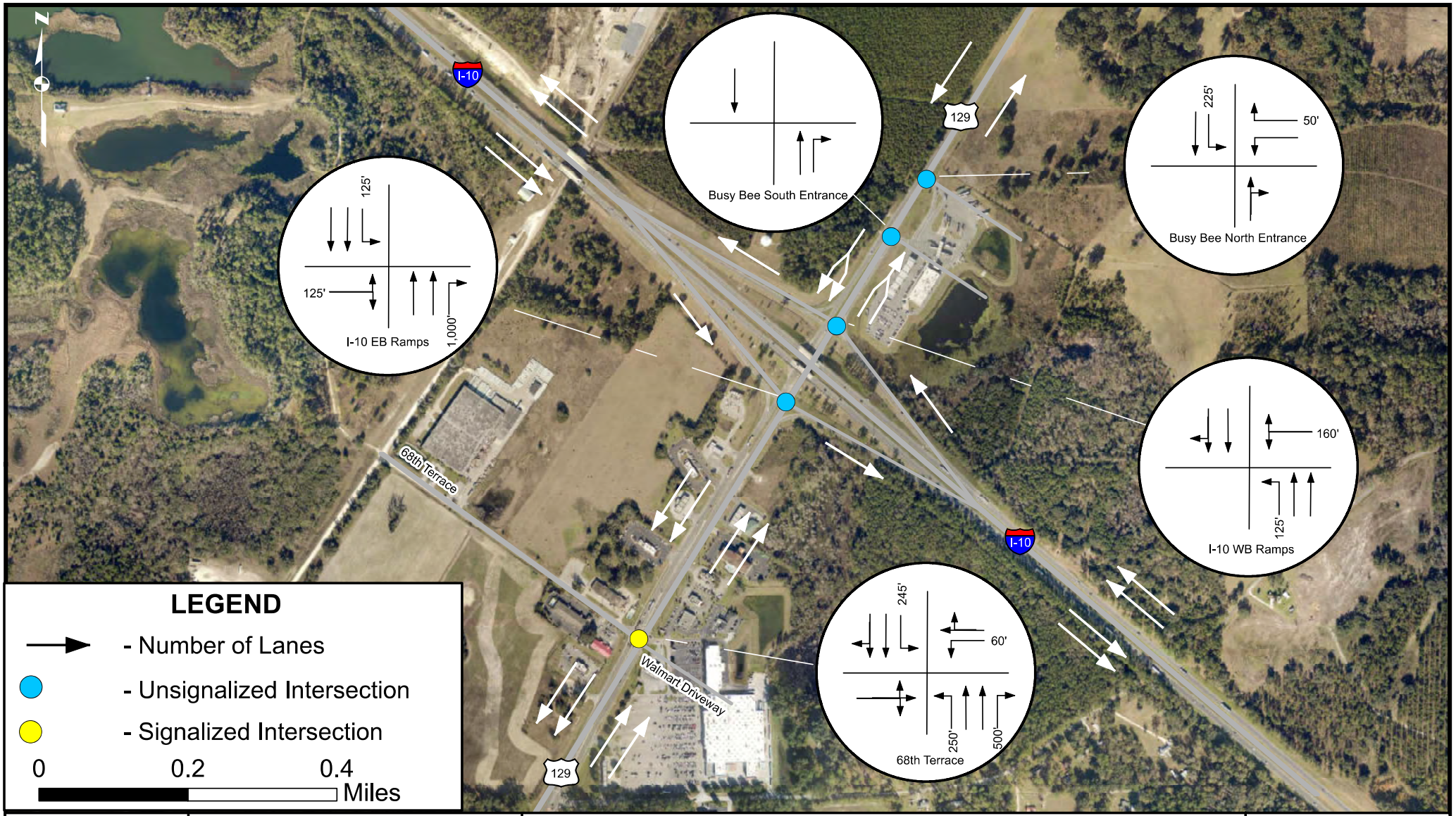
I-10 – I-10 within the study area is a four lane east-west Rural Principal Arterial Interstate providing two general use lanes in each direction. The median within this section is approximately 64 feet with guardrail barrier throughout the length of the study area. The posted speed limit along I-10 is 70 mph.

SR 51 (US 129) – SR 51 (US 129) is a Rural Minor Arterial consisting of four lanes in each direction. On the south side of the I-10 Interchange SR 51 (US 129) has a 20-foot grassy and raised median dividing the roadway. On the north side of the I-10 Interchange SR 51 (US 129) transitions to a two lane Rural Minor Arterial with no median. SR 51 (US 129) serves primarily commercial and retail properties within the area of influence. The posted speed limit along SR 51 (US 129) is 45 mph.

## 3.3 Field Observations

Key observations within the study area from a field visit conducted January 21, 2020 are summarized below.

- Commuters exiting I-10 using the eastbound and westbound off ramps and turning left onto SR 51 (US 129) encounter poor site distance due to the proximity to the I-10 overpass structures and associated structures' embankment. Hesitation to perform the turning movements to head north and south on SR 51 (US 129) due to poor sight distance leads to delays for motorists exiting the freeway. Drivers of heavy trucks making this movement have been observed pulling out to the median of SR 51 (US 129) and blocking through traffic in the opposite lanes of SR 51 (US 129). These conditions result in unsafe traffic conditions.
- Commuters traveling on the Westbound off ramp turning right to go northbound on SR 51 encounter merging traffic to turn right into the southern Busy Bee entrance due to the shared right turn lane between the off ramp and southern entrance. This shared lane accommodates both decelerating and accelerating traffic which leads to unsafe traffic conditions.




FDOT

I-10 at SR 51 (US 129)
Interchange IOAR

**Existing Lane Configurations**

Figure 3-2

## 3.4 Existing Operational Performance

This section summarizes the existing traffic and operational analysis performed within the area of influence to assess the mobility conditions. This facility accommodates interstate and regional mobility for commuter and freight traffic.

### *3.4.1 HCM Based Operational Analysis*

A detailed operational analysis for the Existing Year 2020 was performed for individual roadway elements, i.e., mainline segments, ramp junctions and study intersections.

HCS 7 was used for the operational analysis of freeway mainline segments and ramps; Synchro 11.0 was used for the analysis of study intersections. Synchro is adequate to analyze the change in intersection controls and addition of turn lanes. **Figure 2-2** illustrates the peak hour volumes utilized for the Existing Year 2020 HCS and Synchro analysis. Additional information on the existing conditions analysis is provided in **Appendix B**. Existing signal timings for 68th Terrace and SR 51 (US 129) were obtained from the local maintaining agency and were used in the Existing Year 2020 operational analysis. The existing signal timing information for 68th Terrace and SR 51 (US 129) can be found in **Appendix C**.

**HCS Analysis**

The Existing Year 2020 HCS analysis results are summarized in **Table 3-2**. The results of the operational analysis show that in both AM and PM peak hours all the mainline segments operate at an acceptable LOS D or better.

**Table 3-2: Existing Year 2020 HCS Analysis Summary**

| Segment | Analysis Type | AM Peak Hour | | | PM Peak Hour | | |
|---|---|---|---|---|---|---|---|
| | | Volume | Density[1] | LOS | Volume | Density[1] | LOS |
| **I-10 Eastbound West of SR 51** | Basic Segment | 642 | 5.4 | A | 1,181 | 9.9 | A |
| **I-10 Eastbound to SR 51 Off-Ramp** | Diverge | 552 | 6.5 | A | 1,053 | 12.0 | B |
| **I-10 Eastbound from SR 51 On-Ramp** | Merge | 552 | 7.0 | B | 1,053 | 11.9 | B |
| **I-10 Eastbound East of SR 51** | Basic Segment | 760 | 6.4 | A | 1,265 | 10.6 | A |
| **I-10 Westbound East of SR 51** | Basic Segment | 730 | 6.1 | A | 1,332 | 11.1 | B |
| **I-10 Westbound to SR 51 Off-Ramp** | Diverge | 556 | 7.5 | B | 1,115 | 13.6 | B |
| **I-10 Westbound from SR 51 On-Ramp** | Merge | 556 | 6.0 | A | 1,115 | 11.7 | B |
| **I-10 Westbound West of SR 51** | Basic Segment | 638 | 5.3 | A | 1,252 | 10.4 | A |

[1] Density = passenger cars/mile/lane

## Intersection Analysis

The Existing Year 2020 intersection analysis results are summarized in **Table 3-3**. Except the intersection of SR 51 (US 129) at 68th Terrace, all other intersections within the project limits were analyzed as stop controlled intersections or the Existing Year 2020 conditions. In the Existing Year 2020, all intersections within the study area operate at acceptable LOS D or better.

### Table 3-3: Existing Year 2020 Intersection Analysis Summary

| Intersection | Type | Eastbound | | | | | | Westbound | | | | | | Northbound | | | | | | Southbound | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Left | | Thru | | Right | | Left | | Thru | | Right | | Left | | Thru | | Right | | Left | | Thru | | Right | |
| | | Delay | LOS | Delay | LOS | Delay | LOS | Delay | LOS | Delay | LOS | Delay | LOS | Delay | LOS | Delay | LOS | Delay | LOS | Delay | LOS | Delay | LOS | Delay | LOS |
| AM Peak Hour | | | | | | | | | | | | | | | | | | | | | | | | | |
| 68th Terrace | S | - | - | 16.5 | B | - | - | 19.1 | B | 10.0 | A | - | - | 5.0 | A | 11.2 | B | 0.1 | A | 4.7 | A | 6.8 | A | - | - |
| | | 8.9/A | | | | | | | | | | | | | | | | | | | | | | | |
| I-10 EB Ramps | U | 15.6 | | | C | | | - | - | - | - | - | - | - | - | 0.0 | A | 0.0 | A | 8.0 | A | 0.0 | A | - | - |
| | | 15.6/C | | | | | | | | | | | | | | | | | | | | | | | |
| I-10 WB Ramps | U | - | - | - | - | - | - | 18.4 | | | C | | | 8.2 | A | 0.0 | A | - | - | - | - | 0.0 | A | - | - |
| | | 18.4/C | | | | | | | | | | | | | | | | | | | | | | | |
| Busy Bee North Entrance | U | - | - | - | - | - | - | 14.2 | | | B | | | - | - | 0.0 | A | - | - | 7.7 | A | 0.0 | A | - | - |
| | | 14.2/B | | | | | | | | | | | | | | | | | | | | | | | |
| PM Peak Hour | | | | | | | | | | | | | | | | | | | | | | | | | |
| 68th Terrace | S | - | - | 13.7 | B | - | - | 22.0 | C | 8.0 | A | | | 5.8 | A | 14.6 | B | 0.2 | A | 6.1 | A | 12.3 | B | - | - |
| | | 12.2/B | | | | | | | | | | | | | | | | | | | | | | | |
| I-10 EB Ramps | U | 19.7 | | | C | | | - | - | - | - | - | - | - | - | 0.0 | A | 0.0 | A | 8.4 | A | 0.0 | A | - | - |
| | | 19.7/C | | | | | | | | | | | | | | | | | | | | | | | |
| I-10 WB Ramps | U | - | - | - | - | - | - | 26.0 | | | D | | | 8.2 | A | - | - | 0.0 | A | - | - | 0.0 | A | 0.0 | A |
| | | 26.0/D | | | | | | | | | | | | | | | | | | | | | | | |
| Busy Bee North Entrance | U | - | - | - | - | - | - | 17.6 | | | C | | | - | - | 0.0 | A | - | - | 8.0 | A | 0.0 | A | - | - |
| | | 17.6/C | | | | | | | | | | | | | | | | | | | | | | | |

Notes:
(1) Delay – Average Delay (seconds)
(2) S = Signalized; U = Unsignalized

In the existing year, the 95th Percentile queue lengths did not exceed the storage available at any of the study intersection approaches. The queue lengths obtained from the analysis generally matched the field observations. **Table 3-4** summarizes the queue analysis for Existing Year 2020.

**Table 3-4: Existing Year 2020 Queue Analysis**

| Intersection | Time Period | Peak Hour Queues (feet) | | | | | | | | | | | | Remarks |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Eastbound | | | Westbound | | | Northbound | | | Southbound | | | |
| | | L | T | R | L | T | R | L | T | R | L | T | R | |
| **68th Terrace** | AM | 23 | | | 22 | 19 | | 5 | 84 | 0 | 17 | 88 | | **Signalized Intersection** |
| | PM | 27 | | | 42 | 30 | | 19 | 104 | 2 | 30 | 83 | | |
| | Actual Storage | 250 | | | 60 | 60 | | 250 | 1,000 | 500 | 245 | 430 | | |
| **I-10 EB Ramps** | AM | 21 | | | - | - | - | - | 0 | 0 | 4 | 0 | - | **Unsignalized Intersection** |
| | PM | 41 | | | - | - | - | - | 0 | 0 | 6 | 0 | - | |
| | Actual Storage | 125 | | | - | - | - | - | 560 | 1,000 | 125 | 340 | - | |
| **I-10 WB Ramps** | AM | - | - | - | 50 | | | 3 | 0 | - | - | 0 | 0 | **Unsignalized Intersection** |
| | PM | - | - | - | 91 | | | 4 | 0 | - | - | 0 | 0 | |
| | Actual Storage | - | - | - | 160 | | | 125 | 340 | - | - | 1,025 | 200 | |
| **Busy Bee North Entrance** | AM | - | - | - | 26 | | | - | 0 | | 1 | 0 | - | **Unsignalized Intersection** |
| | PM | - | - | - | 47 | | | - | 0 | | 1 | 0 | - | |
| | Actual Storage | - | - | - | 400 | | | - | 775 | | 225 | 775 | - | |

## 3.5 Existing Crash Data Summary

Vehicular crash data along I-10, SR 51 (US 129) and at the interchange ramps were obtained from the FDOT State Safety Office CAR Online. CAR Online is a database maintained annually by FDOT for crashes reported along state highway facilities. The database provides information on various characteristics associated with each crash including collision type, severity, weather conditions, road surface conditions and date/time information. The crash data was collected for the most recent validated five years, 2014 through 2018. The crashes were analyzed to assess safety conditions along I-10, SR 51 (US 129) and the interchange ramps within the project limits. The existing crash analysis performed for the IOAR is consistent with the Crash Modification Factor (CMF) methods outlined in the IARUG, IARUG Safety Analysis Guidance and Highway Safety Manual (HSM). In this section, the existing crash analysis will be broken down between I-10, SR 51 (US 129) and the interchange ramps. The raw crash data and project's crash analysis segment maps are provided in **Appendix D**.

The existing crashes were first segmented based on arterial, freeway and ramp segments as outlined in Chapters 12, 18 and 19 of the HSM. After segmenting I-10, SR 51 (US 129) and the interchange ramps, the crash frequency and crash rate were calculated for each segment. The 'Average Crash Rate Method' of crash analysis, based on segment length, AADT and number of crashes occurred, was used for calculating actual crash rates for the roadway segments. The actual crash rate for the study corridors from 2014 through 2018 was compared with the statewide average crash rate for the same type of facility. The following segments of the project have crash rates higher than the statewide averages:

- I-10 Eastbound between on/off Ramps
- I-10 Eastbound Merge Area from SR 51 (US 129)
- I-10 Westbound Merge Area from SR 51 (US 129)
- SR 51 (US 129) at Busy Bee North Entrance Intersection
- SR 51 (US 129) between Westbound Ramps and Busy Bee North Entrance

- Westbound Ramp Terminal
- Eastbound Ramp Terminal
- SR 51 (US 129) between Eastbound Ramps and 68th Terrace

The average crash rates could be higher than the statewide averages at the following locations for different reasons as discussed below. These reasons are not all-inclusive or definitive of every crash within the project limits but observations of the existing conditions of the roadway in relation to the segments with crash rates higher than the statewide averages. Crashes are rare and random events that can be attributed to roadway features but also dynamic factors such as: driver awareness, vehicle maintenance, pedestrians, bicyclists, animals, and weather.

The SR 51 (US 129) at Busy Bee North Entrance Intersection, Westbound Ramp Terminal Intersection, and Eastbound Ramp Terminal Intersection could have high crash rates because they are stop controlled. This may lead to drivers making risky decisions when making the left turns at these intersections. Additionally, at the ramp terminals the I-10 bridge overpass structure and embankments could be hindering the sight distance leading to drivers making risky and unsafe movements when making the left turns from the off-ramps.

The SR 51 (US 129) segment between the Westbound Ramps and Busy Bee North Entrance could have high crash rates because of the speed difference and weaving from drivers accelerating and decelerating in the right turn lane to the Busy Bee Southern Entrance. In this lane drivers making the northbound right onto SR 51 (US 129) from the I-10 westbound off ramp encounter drivers merging and decelerating into the same lane to enter the Busy Bee at the Southern Driveway. This combination of accelerating and decelerating drivers in the same lane while weaving in- and out- of the turn lane could be leading to an increase in crashes at this area.

The SR 51 (US 129) segment between the Eastbound Ramps and 68th Terrace higher crash rates could be contributed to the high number of commercial driveways servicing the fast food restaurants, convenience stores, and commercial shopping centers. All of these driveways are stop controlled. This could be leading to drivers making risky decisions when pulling into and out of these driveways from SR 51 (US 129).

The I-10 Eastbound and Westbound Merge areas from SR 51 (US 129) could be attributed to short acceleration lanes and slower vehicles merging with faster vehicles on I-10.

The SR 51 (US 129) segment between the Westbound Ramps and Eastbound Ramps could be attributed to the short left turn storage areas for vehicles turning from SR 51 (US 129) onto the entrance ramps. It could also be attributed to the short clear zone distances in combination with the rural typical section under the I-10 overpass structure.

### *3.5.1 Interstate 10*

The crash analysis results revealed there were a total of 29 crashes within the project area during the most recent validated five years (2014 - 2018). Of these crashes, 62% were property damage only crashes, 38% were crashes with injuries, and there were no crashes with fatalities. Front to Rear were the most common type of crash accounting for 24% of total crashes followed by Side Swipe - Same Direction crashes accounting for 10% of total crashes. There were 18 total injuries. **Figure 3-3, Table 3-5**, and **Table 3-8** provide summaries of the crash analysis for I-10.

**Figure 3-3: I-10 Crash Types (2014 - 2018)**

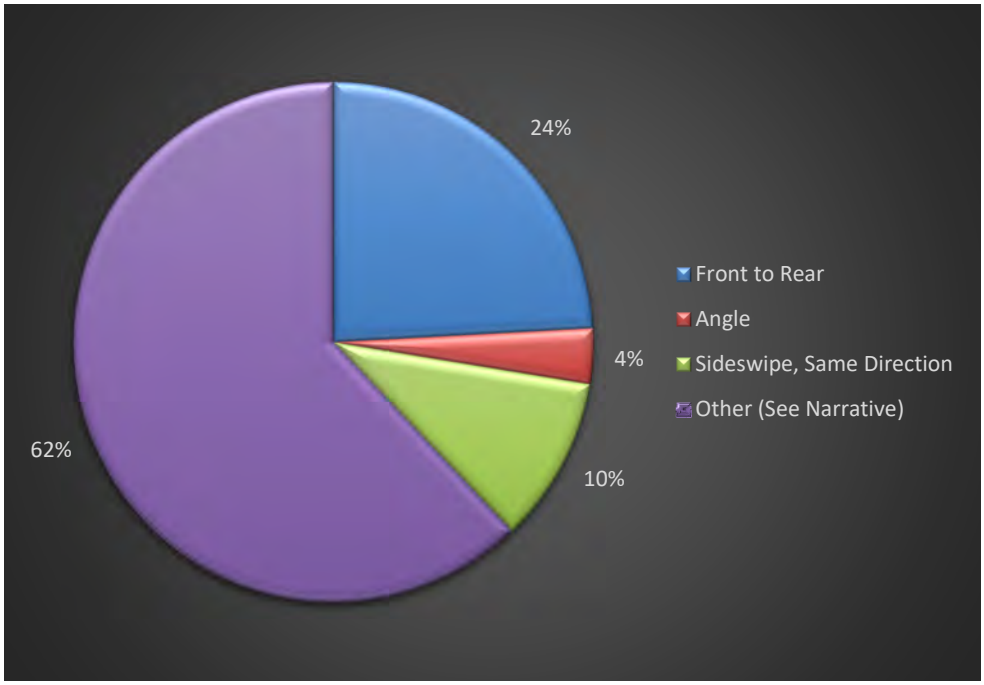



**Table 3-5: I-10 Crash Severity Summary (2014 - 2018)**

| Injury Type | 2014 | 2015 | 2016 | 2017 | 2018 | Total | Percent of Total |
|---|---|---|---|---|---|---|---|
| **Number of Property Damage Only Crashes** | 2 | 3 | 3 | 3 | 7 | 18 | 62% |
| **Number of Crashes with Injuries** | 2 | 2 | 3 | 3 | 1 | 11 | 38% |
| **Number of Crashes with Fatalities** | 0 | 0 | 0 | 0 | 0 | 0 | 0% |
| **Total** | 4 | 5 | 6 | 6 | 8 | 29 | 100% |
| | | | | | | | |
| **Number of Injuries** | 8 | 2 | 4 | 3 | 1 | 18 | |
| **Number of Fatalities** | 0 | 0 | 0 | 0 | 0 | 0 | |

### *3.5.2 State Road 51*

The Crash analysis results revealed there were a total of 73 crashes on SR 51 (US 129) within the project area during the five study years (2014-2018). Of these crashes, 62% were property damage only crashes, 37% were crashes with injuries, and 1% were crashes with fatalities. Angle crashes were the most common type of crash accounting for 47% of total crashes followed by front to rear crashes accounting for 8% of total crashes. There were 49 total injuries and 1 fatality. The fatal crash involved a driver under the influence of drugs. **Figure 3-4, Table 3-6**, and **Table 3-8** provide summaries of the crash analysis along SR 51 (US 129).

**Figure 3-4: SR 51 Crash Types (2014 - 2018)**

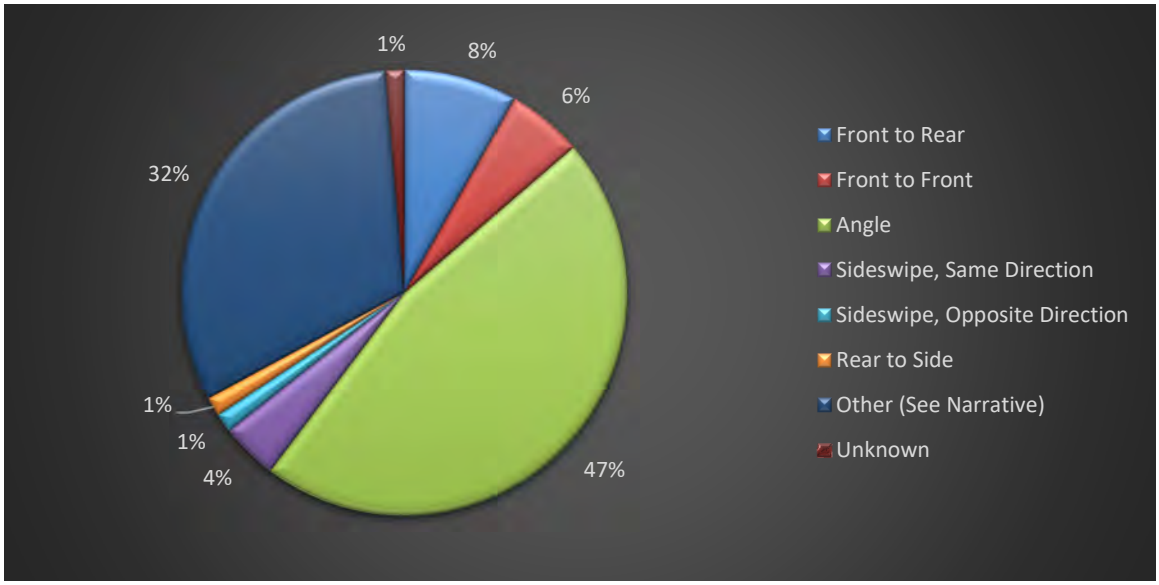



**Table 3-6: SR 51 Crash Severity Summary (2014 - 2018)**

| Injury Type | 2014 | 2015 | 2016 | 2017 | 2018 | Total | Percent of Total |
|---|---|---|---|---|---|---|---|
| **Number of Property Damage Only Crashes** | 6 | 3 | 9 | 13 | 14 | 45 | 62% |
| **Number of Crashes with Injuries** | 4 | 5 | 4 | 8 | 6 | 27 | 37% |
| **Number of Crashes with Fatalities** | 0 | 0 | 1 | 0 | 0 | 1 | 1% |
| **Total** | 10 | 8 | 14 | 21 | 20 | 73 | 100% |
| | | | | | | | |
| **Number of Injuries** | 6 | 6 | 5 | 18 | 14 | 49 | |
| **Number of Fatalities** | 0 | 0 | 1 | 0 | 0 | 1 | |

### *3.5.3 Interchange Ramps*

The crash analysis results reveal that there was a total of 16 crashes on the interchange ramps within the project area during the five study years (2014 - 2018). Of these crashes, 50% were property damage only crashes, 50% were crashes with injuries, and there were no crashes with fatalities. Front to rear crashes were the most common type of crash accounting for 63% of total crashes, followed by Angle crashes and same direction Side Swipe crashes, same direction crashes both at 6% of total crashes. There were 10 total injuries, and no fatalities. **Figure 3-5, Table 3-7**, and **Table 3-8** provide summaries of the crash analysis at the Interchange Ramps.

**Figure 3-5: Interchange Ramps Crash Types (2014 - 2018)**

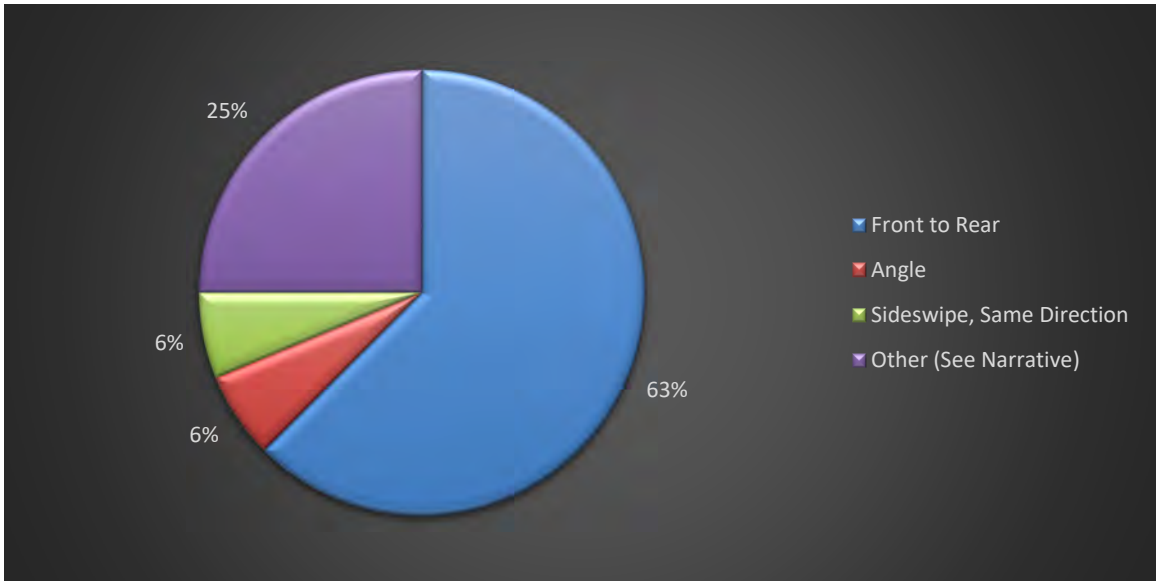



**Table 3-7: Interchange Ramps Crash Severity Summary (2014 - 2018)**

| Injury Type | 2014 | 2015 | 2016 | 2017 | 2018 | Total | Percent of Total |
|---|---|---|---|---|---|---|---|
| **Number of Property Damage Only Crashes** | 0 | 1 | 2 | 3 | 2 | 8 | 50% |
| **Number of Crashes with Injuries** | 0 | 1 | 5 | 2 | 0 | 8 | 50% |
| **Number of Crashes with Fatalities** | 0 | 0 | 0 | 0 | 0 | 0 | 0% |
| **Total** | 0 | 2 | 7 | 5 | 2 | 16 | 100% |
| | | | | | | | |
| **Number of Injuries** | 0 | 1 | 5 | 4 | 0 | 10 | |
| **Number of Fatalities** | 0 | 0 | 0 | 0 | 0 | 0 | |

**Table 3-8** further summarizes the existing crash data and provides the crash frequency and rates at each of the study corridors and ramps. The table also provides a comparison with statewide average crash rates of similar facilities. AADT values were determined using Figure 1 from the Traffic Development Memo (Appendix A). For the Ramp Terminals the off ramp AADTs were added to the SR 51 AADTs to get the total AADTs entering the intersection. The same methodology was used at the intersection of SR 51 and Busy Bee North Entrance, except the AADTs estimated to come out of the Busy Bee North Entrance were estimated by dividing the PM left and right peak hour volumes by the k factor.

### Table 3-8: Existing Segment Crash Summary (2014 - 2018)

| Location | Number of Crashes | Daily Entering (AADT) | Length (miles) | Crash Frequency (crashes/year) | Crash Rate (crashes/million miles traveled) | Statewide Average Crash Rate |
|---|---|---|---|---|---|---|
| I-10 EB Diverge Area to SR 51 | 0 | 15700 | 0.147 | 0.000 | 0.000 | 0.457 |
| I-10 EB Off Ramp | 7 | 1900 | 0.267 | 1.400 | 7.561 | * |
| **I-10 EB Segment between On & Off Ramps** | **20** | **13800** | **0.529** | **4.000** | **1.501** | **0.457** |
| I-10 EB On Ramp | 2 | 2800 | 0.263 | 0.400 | 1.488 | * |
| **I-10 EB Merge Area from SR 51** | **2** | **16600** | **0.091** | **0.400** | **0.725** | **0.457** |
| I-10 WB Diverge Area to SR 51 | 0 | 16100 | 0.091 | 0.000 | 0.000 | 0.457 |
| I-10 WB Off Ramp | 5 | 2700 | 0.267 | 1.000 | 3.800 | * |
| I-10 WB Segment between On & Off Ramps | 5 | 13400 | 0.529 | 1.000 | 0.386 | 0.457 |
| I-10 WB On Ramp | 2 | 2000 | 0.243 | 0.400 | 2.255 | * |
| **I-10 WB Merge Area from SR 51** | **2** | **15400** | **0.147** | **0.400** | **0.484** | **0.457** |
| **SR 51 Segment between WB Ramps and Busy Bee North Entrance** | **3** | **5400** | **0.111** | **0.600** | **2.742** | **0.273** |
| **SR 51 Segment between EB Ramps and 68th Terrace** | **16** | **13400** | **0.227** | **3.200** | **2.882** | **1.332** |

*Statewide average crash rate not available.
**Bold rows are locations with crash rates higher than the statewide average.**

### Table 3-9: Existing Intersection Crash Summary (2014 - 2018)

| Location | Number of Crashes | Daily Entering (AADT) | Length (miles) | Crash Frequency (crashes/year) | Crash Rate (crashes per million entering vehicles) | Statewide Average Crash Rate |
|---|---|---|---|---|---|---|
| **SR 51 at BB North Entrance** | **4** | **5400** | **N/A** | **0.800** | **0.406** | **0.273** |
| **SR 51 at WB Ramp Terminal** | **25** | **8100** | **N/A** | **5.000** | **1.691** | **0.104** |
| **SR 51 at EB Ramp Terminal** | **12** | **15300** | **N/A** | **2.400** | **0.430** | **0.104** |
| SR 51 at 68th Terrace | 13 | 13400 | N/A | 2.600 | 0.532 | 1.332 |

*Statewide average crash rate not available.
Bold rows are locations with crash rates higher than the statewide average.

# 4. NEED

The SR 51 (US 129) interchange with I-10 is an important component of the SIS in Suwannee County, Florida and provides access to the City of Live Oak. The objective of the IOAR is to propose improvements that will provide a safer and more operationally efficient interchange.

## 4.1 Operational Performance

The I-10 at SR 51 (US 129) interchange ramps and intersections operate at an acceptable LOS D or better during the AM and PM peak hours in Existing Year 2020. Travel Demand forecasts indicate that the study area is expected to experience traffic growth in future years. Based on the anticipated growth in traffic, operating conditions at the interchange and the study intersections will further deteriorate. The SR 51 (US 129) at I-10 Westbound ramp terminal intersection will operate at LOS E during the PM peak hour in Opening Year 2025. Additionally, the SR 51 (US 129) at I-10 Eastbound ramp terminal intersection, SR 51 (US 129) at I-10 Westbound ramp terminal intersection, and SR 51 (US 129) at the Busy Bee North Entrance will operate at LOS F during the AM and PM peak hour in Design Year 2045. The proposed project will address these concerns by increasing capacity and enhancing operations at the interchange and providing acceptable operating conditions through the Design Year 2045.

## 4.2 Transportation Capacity

An increase in demand on I-10 and SR 51 (US 129) interchange is anticipated in the future due to growth in Suwannee County. As a result, additional traffic demand on I-10 and at the interchange will need to be addressed. **Table 4-1** summarized the anticipated traffic growth within the study area.

**Table 4-1: Forecasted Growth in Traffic Volumes**

| Segment | Existing Year (2020) | Design Year (2045) | Percent Growth |
|---|---|---|---|
| **I-10 Eastbound** | | | |
| West of SR 51 | 15,700 | 24,600 | 56.7% |
| East of SR 51 | 16,600 | 26,200 | 57.8% |
| **I-10 Westbound** | | | |
| West of SR 51 | 15,400 | 24,300 | 57.8% |
| East of SR 51 | 16,100 | 25,300 | 57.1% |
| **I-10 Ramps** | | | |
| Eastbound Off-Ramp | 1,900 | 2,900 | 52.6% |
| Eastbound On-Ramp | 2,800 | 4,500 | 60.7% |
| Westbound Off-Ramp | 2,700 | 4,200 | 55.6% |
| Westbound On-Ramp | 2,000 | 3,200 | 60.0% |
| **SR 51** | | | |
| North of I-10 | 5,400 | 8,500 | 57.4% |
| South of I-10 | 13,400 | 21,000 | 56.7% |

## 4.3 Safety

The crash analysis results reveal there were a total of 73 crashes on SR 51 (US 129) within the project area during the five study years 2014 to 2018. The predominant crash pattern experienced within the study area include angle crashes (47%) indicating risky decision making by motorist at intersections. If no improvements are made within the project limits of SR 51 (US 129) then the crash rate could progressively become worse as traffic increases in the area. The proposed project will implement operational improvements at the intersections and provide additional capacity that will assist in alleviating these safety concerns within the project limits.

## 4.4 Emergency Evacuation

I-10 and SR 51 (US 129) corridors serve as part of the emergency evacuation route network designated by the Florida Division of Emergency Management and Suwannee County. This interchange is critical in facilitating traffic flow during emergency evacuation periods.

## 4.5 Special Events

The Spirit of the Suwannee Music Park is an 800-acre campground located on the historic banks of the Suwannee River and is located 5 miles north of the SR 51 (US 129) and I-10 interchange on SR 51 (US 129). The Park hosts numerous events throughout the year, the largest of which was recorded to have 21,000 attendees. The proposed project will help lessen the increased strain these larger events will put on the transportation system within the study area.

# 5. NO-BUILD CONDITIONS

This section documents the future traffic operational conditions within the I-10 at SR 51 (US 129) interchange study area of influence for the No-Build Alternative. The analysis years considered under the No-Build Alternative are Opening Year 2025 and Design Year 2045. The operational analysis utilizes the future year peak hour forecasts for the area of influence. The primary objective of this analysis was to establish No-Build operational conditions along I-10 and at the study interchange and intersections.

The No-Build lane configuration is provided in **Figure 3-2**.

## 5.1 No-Build Operational Analysis

An individual element operational analysis was conducted for the No-Build Alternative using HCM methodologies. HCS 7 was used to perform capacity analysis for the freeway and ramps merge/diverge segments. Synchro 11 was used to analyze the study intersections. The results of this detailed analysis are presented in the following sections. **Figure 2-3** and **Figure 2-4** illustrate the peak hour volumes utilized for the Opening Year 2025 and Design Year 2045 No-Build Alternative HCS and Synchro analysis, respectively. Reports generated from HCS 7 and Synchro for the No-Build Alternative analysis is provided in **Appendix B.** Existing signal timings for 68th Terrace and SR 51 (US 129) was obtained from the local agency and was used in the No-Build Alternative analysis for the Opening Year 2025 and Design Year 2045. The existing signal timing report for 68th Terrace and SR 51 (US 129) can be found in **Appendix C**.

### *5.1.1 Opening Year 2025 No-Build Analysis*

HCS Analysis

The Opening Year 2025 No-Build HCS analysis is summarized in **Table 5-1**. The results of the HCS operational analysis show that all the mainline segments operate at an acceptable LOS in both AM and PM peak hours.

**Table 5-1: Opening Year 2025 No-Build HCS Analysis Summary**

| Segment | Analysis Type | AM Peak Hour | | | PM Peak Hour | | |
|---|---|---|---|---|---|---|---|
| | | Volume | Density[1] | LOS | Volume | Density[1] | LOS |
| **I-10 East Bound West of SR 51** | Basic Segment | 722 | 6.0 | A | 1,328 | 11.1 | B |
| **I-10 East Bound to SR 51 Off-Ramp** | Diverge | 621 | 7.3 | B | 1,184 | 13.5 | B |
| **I-10 East Bound from SR 51 On-Ramp** | Merge | 621 | 7.9 | B | 1,184 | 13.4 | B |
| **I-10 East Bound East of SR 51** | Basic Segment | 855 | 7.1 | A | 1,423 | 11.9 | B |
| **I-10 West Bound East of SR 51** | Basic Segment | 821 | 6.9 | A | 1,500 | 12.5 | B |
| **I-10 West Bound to SR 51 Off-Ramp** | Diverge | 625 | 8.4 | B | 1,256 | 15.4 | B |
| **I-10 West Bound from SR 51 On-Ramp** | Merge | 625 | 6.7 | A | 1,256 | 13.2 | B |
| **I-10 West Bound West of SR 51** | Basic Segment | 718 | 6.0 | A | 1,408 | 11.8 | B |

[1] Density = passenger cars/mile/lane

Intersection Analysis

The Opening Year 2025 No-Build intersection analysis results are summarized in **Table 5-2**. In Opening Year 2025, one intersection within the study area operates below LOS D in the PM peak hour: 1) SR 51 (US 129) at I-10 Westbound On/Off Ramps. There is one movement at this intersection operating at LOS E in the PM peak hour. The movement is the I-10 Westbound Off Ramp left movement to SR 51 (US 129) southbound. Additionally, it should be noted the I-10 Eastbound Off Ramp left movement to SR 51 (US 129) northbound is approaching unacceptable LOS operations during the PM peak hour.

## Table 5-2: Opening Year 2025 No-Build Intersection Analysis Summary

| Intersection | Type | Eastbound | | | | | | Westbound | | | | | | Northbound | | | | | | Southbound | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Left | | Thru | | Right | | Left | | Thru | | Right | | Left | | Thru | | Right | | Left | | Thru | | Right | |
| | | Delay | LOS | Delay | LOS | Delay | LOS | Delay | LOS | Delay | LOS | Delay | LOS | Delay | LOS | Delay | LOS | Delay | LOS | Delay | LOS | Delay | LOS | Delay | LOS |
| AM Peak Hour | | | | | | | | | | | | | | | | | | | | | | | | | |
| 68th Terrace | S | - | - | 16.2 | B | - | - | 18.9 | B | 9.7 | A | - | - | 5.1 | A | 11.0 | B | 0.0 | A | 5.1 | A | 6.8 | A | - | - |
| | | 8.8/A | | | | | | | | | | | | | | | | | | | | | | | |
| I-10 EB Ramps | U | 18.0 | | C | | - | - | - | - | - | - | - | - | - | 0.0 | A | 0.0 | A | 8.2 | A | 0.0 | A | - | - | |
| | | 18.0/C | | | | | | | | | | | | | | | | | | | | | | | |
| I-10 WB Ramps | U | - | - | - | - | - | - | 23.1 | | C | | | | 8.4 | A | 0.0 | A | - | - | - | - | 0.0 | A | 0.0 | A |
| | | 23.1/C | | | | | | | | | | | | | | | | | | | | | | | |
| Busy Bee North Entrance | U | - | - | - | - | - | - | 15.9 | | C | | | | - | - | 0.0 | A | 0.0 | A | 7.8 | A | 0.0 | A | - | - |
| | | 15.9/C | | | | | | | | | | | | | | | | | | | | | | | |
| PM Peak Hour | | | | | | | | | | | | | | | | | | | | | | | | | |
| 68th Terrace | S | - | - | 13.4 | B | - | - | 21.8 | C | 7.8 | A | | | 6.1 | A | 14.1 | B | 1.0 | A | 7.5 | A | 13.1 | B | - | - |
| | | 12.4/B | | | | | | | | | | | | | | | | | | | | | | | |
| I-10 EB Ramps | U | 25.3 | | D | | - | - | - | - | - | - | - | - | 0.0 | A | 0.0 | A | 0.0 | A | 8.6 | A | 0.0 | A | - | - |
| | | 25.3/D | | | | | | | | | | | | | | | | | | | | | | | |
| I-10 WB Ramps | U | - | - | - | - | - | - | 41.1 | | E | | | | 8.4 | A | - | - | 0.0 | A | - | - | 0.0 | A | 0.0 | A |
| | | 41.1/E | | | | | | | | | | | | | | | | | | | | | | | |
| Busy Bee North Entrance | U | - | - | - | - | - | - | 21.6 | | C | | | | - | - | 0.0 | A | 0.0 | A | 8.1 | A | 0.0 | A | - | - |
| | | 21.6/C | | | | | | | | | | | | | | | | | | | | | | | |

Notes:
(1) Delay – Average Delay (seconds)
(2) S = Signalized; U = Unsignalized

In the Opening Year 2025 No-Build Alternative, the 95th Percentile queue length did not exceed available storage at any of the study intersection's approaches.

The queue analysis for the Opening Year 2025 No-Build Alternative is summarized in **Table 5-3**.

## Table 5-3: 95th Percentile Queue Length Summary – Opening Year 2025 No-Build Alternative

| Intersection | Time Period | Peak Hour Queues (feet) | | | | | | | | | | | | Remarks |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Eastbound | | | Westbound | | | Northbound | | | Southbound | | | |
| | | L | T | R | L | T | R | L | T | R | L | T | R | |
| **68th Terrace** | AM | 25 | | | 23 | 20 | | 6 | 92 | 0 | 19 | 97 | | **Signalized Intersection** |
| | PM | 29 | | | 45 | 31 | | 21 | 111 | 5 | 34 | 97 | | |
| | Actual Storage | 250 | | | 60 | 60 | | 250 | 1,000 | 500 | 245 | 430 | | |
| **I-10 EB Ramps** | AM | 29 | | | - | - | - | - | 0 | 0 | 5 | 0 | - | **Unsignalized Intersection** |
| | PM | 61 | | | - | - | - | - | 0 | 0 | 7 | 0 | - | |
| | Actual Storage | 125 | | | - | - | - | - | 560 | 1,000 | 125 | 340 | - | |
| **I-10 WB Ramps** | AM | - | - | - | 73 | | | 3 | 0 | - | - | 0 | 0 | **Unsignalized Intersection** |
| | PM | - | - | - | 149 | | | 5 | 0 | - | - | 0 | 0 | |
| | Actual Storage | - | - | - | 160 | | | 125 | 340 | - | - | 1,025 | 200 | |
| **Busy Bee North Entrance** | AM | - | - | - | 36 | | | - | 0 | | 1 | 0 | - | **Unsignalized Intersection** |
| | PM | - | - | - | 69 | | | - | 0 | | 1 | 0 | - | |
| | Actual Storage | - | - | - | 400 | | | - | 775 | | 225 | 775 | - | |

### *5.1.2 Design Year 2045 No-Build Analysis*

HCS Analysis

The Design Year 2045 No-Build HCS analysis is summarized in **Table 5-4**. The results of the HCS operational analysis show that all the mainline segments operate at an acceptable LOS in both AM and PM peak hours.

**Table 5-4: Design Year 2045 No-Build HCS Analysis Summary**

| Segment | Analysis Type | AM Peak Hour | | | PM Peak Hour | | |
|---|---|---|---|---|---|---|---|
| | | Volume | Density[1] | LOS | Volume | Density[1] | LOS |
| **I-10 East Bound West of SR 51** | Basic Segment | 1,011 | 8.4 | A | 1,860 | 15.6 | B |
| **I-10 East Bound to SR 51 Off-Ramp** | Diverge | 869 | 10.3 | B | 1,658 | 19.0 | C |
| **I-10 East Bound from SR 51 On-Ramp** | Merge | 869 | 11.1 | B | 1,658 | 19.0 | C |
| **I-10 East Bound East of SR 51** | Basic Segment | 1,197 | 10.0 | A | 1,993 | 16.7 | B |
| **I-10 West Bound East of SR 51** | Basic Segment | 1,150 | 9.6 | A | 2,100 | 17.7 | B |
| **I-10 West Bound to SR 51 Off-Ramp** | Diverge | 876 | 11.8 | B | 1,758 | 21.6 | C |
| **I-10 West Bound from SR 51 On-Ramp** | Merge | 876 | 9.4 | B | 1,758 | 18.7 | C |
| **I-10 West Bound West of SR 51** | Basic Segment | 1,006 | 8.4 | A | 1,971 | 16.5 | B |

[1] Density = passenger cars/mile/lane

Intersection Analysis

The Design Year 2045 No-Build intersection analysis results are summarized in **Table 5-5**. In Design Year 2045, the results indicate several operational deficiencies along SR 51 (US 129) within the study area. The following intersections will operate at LOS E or worse by year 2045:

- SR 51 at I-10 Westbound Ramps (AM and PM peak hours)
- SR 51 at I-10 Eastbound Ramps (AM and PM peak hours)
- SR 51 at the Northern Busy Bee Driveway (PM peak hours)

The limiting movements at these intersections are the stop controlled left turns onto SR 51 (US 129) from the off ramps and the Busy Bee northern entrance. This could be attributed to SR 51 (US 129) having a high posted speed and an even distribution of through traffic utilizing the roadway. This could lead to there not being sufficient traffic gaps for drivers making the left turns onto SR 51 (US 129).

## Table 5-5: Design Year 2045 No-Build Intersection Analysis Summary

| Intersection | Type | Eastbound | | | | | | Westbound | | | | | | Northbound | | | | | | Southbound | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Left | | Thru | | Right | | Left | | Thru | | Right | | Left | | Thru | | Right | | Left | | Thru | | Right | |
| | | Delay | LOS | Delay | LOS | Delay | LOS | Delay | LOS | Delay | LOS | Delay | LOS | Delay | LOS | Delay | LOS | Delay | LOS | Delay | LOS | Delay | LOS | Delay | LOS |
| AM Peak Hour | | | | | | | | | | | | | | | | | | | | | | | | | |
| 68th Terrace | S | - | - | 18.1 | B | - | - | 21.4 | C | 10.1 | B | - | - | 5.1 | A | 12.3 | B | 0.4 | A | 5.5 | A | 6.8 | A | - | - |
| | | 9.5/A | | | | | | | | | | | | | | | | | | | | | | | |
| I-10 EB Ramps | U | 44.2 | | | E | | | - | - | - | - | - | - | - | - | 0.0 | A | 0.0 | A | 8.7 | A | 0.0 | A | - | - |
| | | 44.2/E | | | | | | | | | | | | | | | | | | | | | | | |
| I-10 WB Ramps | U | - | - | - | - | - | - | 127.4 | | | F | | | 9.0 | A | 0.0 | A | - | - | - | - | 0.0 | A | 0.0 | A |
| | | 127.4/F | | | | | | | | | | | | | | | | | | | | | | | |
| Busy Bee North Entrance | U | - | - | - | - | - | - | 32.5 | | | D | | | - | - | 0.0 | A | 0.0 | A | 8.0 | A | 0.0 | A | - | - |
| | | 32.5/D | | | | | | | | | | | | | | | | | | | | | | | |
| PM Peak Hour | | | | | | | | | | | | | | | | | | | | | | | | | |
| 68th Terrace | S | - | - | 15.5 | B | - | - | 27.5 | C | 8.4 | A | | | 6.8 | A | 17.9 | B | 0.2 | A | 11.7 | B | 17.0 | B | - | - |
| | | 15.8/B | | | | | | | | | | | | | | | | | | | | | | | |
| I-10 EB Ramps | U | 165.2 | | | F | | | - | - | - | - | - | - | 0.0 | A | 0.0 | A | 0.0 | A | 9.5 | A | 0.0 | A | - | - |
| | | 165.2/F | | | | | | | | | | | | | | | | | | | | | | | |
| I-10 WB Ramps | U | - | - | - | - | - | - | 407.5 | | | F | | | 9.1 | A | - | - | 0.0 | A | - | - | 0.0 | A | 0.0 | A |
| | | 407.5/F | | | | | | | | | | | | | | | | | | | | | | | |
| Busy Bee North Entrance | U | - | - | - | - | - | - | 121.1 | | | F | | | - | - | 0.0 | A | 0.00 | A | 8.6 | A | 0.0 | A | - | - |
| | | 121.1/F | | | | | | | | | | | | | | | | | | | | | | | |

Notes:
(1) Delay – Average Delay (seconds)
(2) S = Signalized; U = Unsignalized

In the Design Year 2045 No-Build Alternative, the 95$^{th}$ Percentile queue length exceeded the available storage at the following three locations:

- 68$^{th}$ Terrace - westbound to southbound left movement during PM peak hour
- I-10 Eastbound Ramps - eastbound to northbound left movement during the AM and PM peak hours
- I-10 Westbound Ramps - westbound to southbound left movement during the AM and PM peak hours

The 68$^{th}$ Terrace westbound left during the PM peak hour movement services the Walmart shopping plaza. It will not be necessary to increase storage length at this location because traffic will have additional storage in the shopping plaza parking lot and impacts to the parking lot are outside of the scope of this project.

The inadequate storage length of the Eastbound and Westbound ramp lefts will be addressed in the Build Alternative.

The queue analysis for the Design Year 2045 No-Build Alternative is summarized in **Table 5-6**.

## Table 5-6: 95th Percentile Queue Length Summary – Design Year 2045 No-Build Alternative

| Intersection | Time Period | Peak Hour Queues (feet) | | | | | | | | | | | | Remarks |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Eastbound | | | Westbound | | | Northbound | | | Southbound | | | |
| | | L | T | R | L | T | R | L | T | R | L | T | R | |
| **68th Terrace** | AM | 36 | | | 33 | 27 | | 7 | 134 | 2 | 25 | 143 | | **Signalized Intersection** |
| | PM | 43 | | | 71 | 42 | | 30 | 182 | 0 | 51 | 154 | | |
| | Actual Storage | 250 | | | 60 | 60 | | 250 | 1,000 | 500 | 245 | 430 | | |
| **I-10 EB Ramps** | AM | 100 | | | - | - | - | - | 0 | 0 | 8 | 0 | - | **Unsignalized Intersection** |
| | PM | 278 | | | - | - | - | - | 0 | 0 | 11 | 0 | - | |
| | Actual Storage | 125 | | | - | - | - | - | 560 | 1,000 | 125 | 340 | - | |
| **I-10 WB Ramps** | AM | - | - | - | 313 | | | 5 | 0 | - | - | 0 | 0 | **Unsignalized Intersection** |
| | PM | - | - | - | 645 | | | 9 | 0 | - | - | 0 | 0 | |
| | Actual Storage | - | - | - | 160 | | | 125 | 340 | - | - | 1,025 | 200 | |
| **Busy Bee North Entrance** | AM | - | - | - | 114 | | | - | 0 | | 2 | 0 | - | **Unsignalized Intersection** |
| | PM | - | - | - | 316 | | | - | 0 | | 1 | 0 | - | |
| | Actual Storage | - | - | - | 400 | | | - | 775 | | 225 | 775 | - | |

# 6. ALTERNATIVES

As part of this IOAR, the following alternatives have been analyzed:

- No-Build Alternative
- Build Alternative

## 6.1 No-Build Alternative

The No-Build Alternative provides a baseline for comparison to all study alternatives. This alternative represents the existing physical and operational conditions within the area of influence including all planned and programmed roadway improvements over the course of the analysis years.

The No-Build Alternative considered the existing configuration plus any programmed improvement with future traffic. The No-Build Alternative does not satisfy the objectives of this project. The operational analysis results for the No-Build Alternative are provided in **Section 5**.

## 6.2 Transportation Systems Management and Operations Improvements

The Transportation Systems Management and Operations (TSM&O) Program endeavors to provide a safe transportation system that ensures the mobility of people and goods, enhances economic prosperity, and preserves the quality of our environment and communities. Intelligent Transportation Systems (ITS), multimodal applications and adjusting signal phasing and timing are TSM&O strategies commonly used to maximize transportation infrastructure utilization. Such improvements are often less costly and require little to no right-of-way compared to physical expansion of the transportation network.

The TSM&O improvements considered for SR 51 include optimized signal timing and phasing plans and coordinated signal timings with offsets, cycle lengths and splits optimized for the study area intersections. These improvements will not satisfy the purpose and need alone, thus they are included in the Build Alternative analysis.

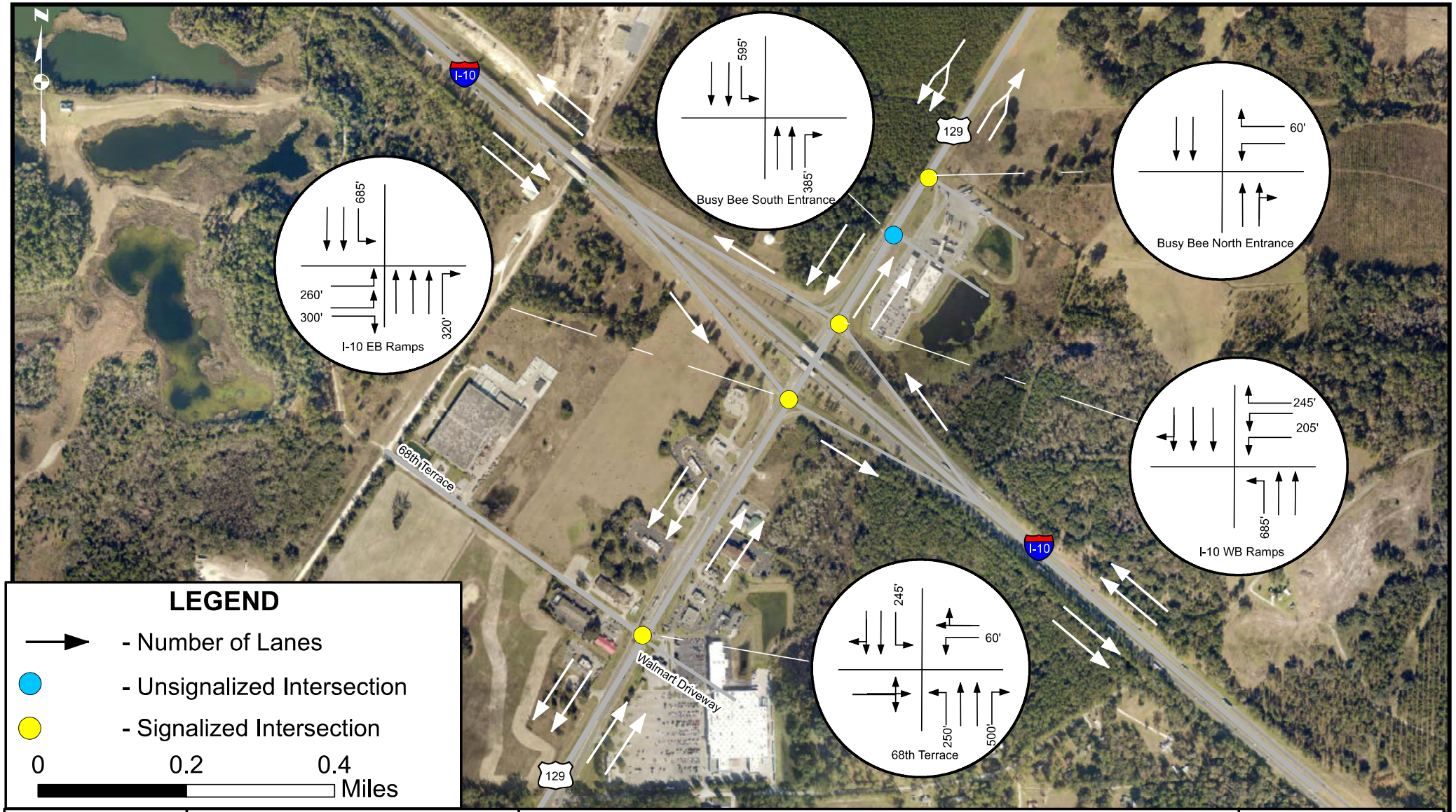
## 6.3 Build Alternative

One Build Alternative was considered for the study interchange in this IOAR. The following are the major improvements with the Build Alternative:

- Signalize Intersections – The Build Alternative proposes signalizing the I-10 Eastbound and Westbound Ramp Terminals and the Busy Bee Northern Entrance.
- Adding an additional left turn lane to the Eastbound and Westbound Off Ramps. This will enhance each off-ramp to operate with dual left turns each Off Ramp dual lefts.
- Adding individual right turn lanes to the Eastbound and Westbound Off Ramps. This will increase storage for right turning vehicles.
- Increasing the storage length of the SR 51 (US 129) Southbound left turn onto the Eastbound On Ramp. The additional thru lane at the upstream signal will act as additional storage for this movement.

- Increasing the storage length of the SR 51 (US 129) Northbound left turn onto the Westbound On Ramp. The additional thru lane at the upstream signal will act as additional storage for this movement.
- Signalizing the Busy Bee North Entrance at SR 51 (US 129) intersection.
- Moving the SR 51 (US 129) Southbound left turn into the Busy Bee North Entrance to the Busy Bee Southern Entrance.
- Adding curb and gutter, bicycle lanes, and sidewalks from south of the EB Ramps to north of the WB Ramps.
- Widening SR 51 roadway from two lanes to four lanes with median, curb, gutter and sidewalk improvements from south of the Busy Bee Southern Entrance to north of the Busy Bee Northern Entrance.
- Shorten the length of the right turn lane onto the I-10 EB On Ramp. The existing turn lane intersects five driveways and by shortening it we can reduce unnecessary conflict points. Analysis in the Design Year for the Build Alternative shows the reduced right turn lane will be sufficient.
- Restriping the direct yield controlled right turn from the I-10 Westbound Off Ramp to the Busy Bee South Entrance. This will facilitate traffic to honor the yield control and eliminate a high speed weave between traffic accessing the southern Busy Bee Entrance and I-10 Westbound Off Ramp Traffic making the right to go Northbound on SR 51 (US 129).

The Build Alternative interchange lane configuration is shown in **Figure 6-1** and the Build Alternative concept plans are included in **Appendix E**.




FDOT

I-10 at SR 51 (US 129)
Interchange IOAR

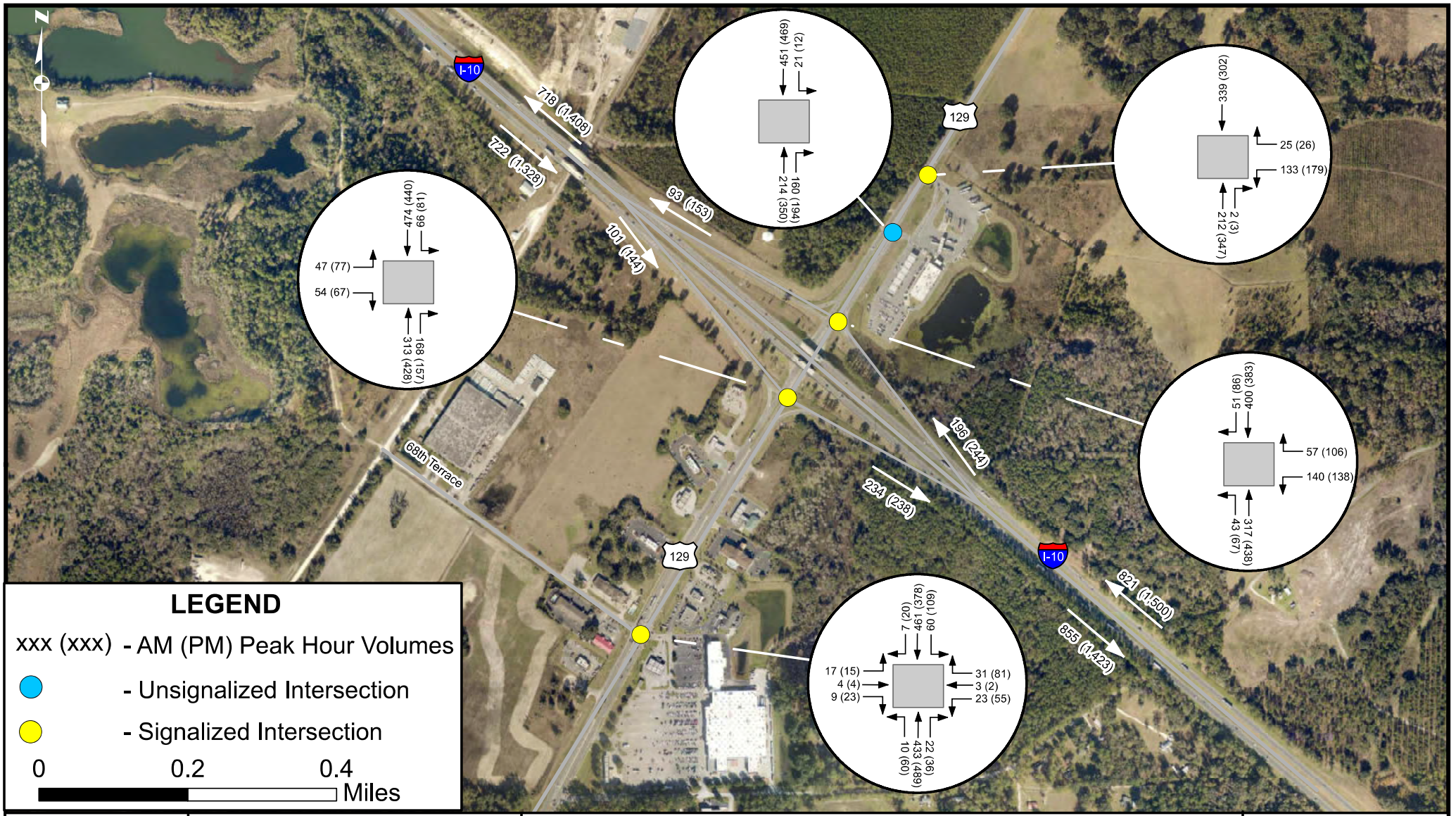
**Build Alternative**
**Lane Configurations**

Figure 6-1

## 6.4 Build Alternative Design Traffic

The Build Alternative design traffic for Opening Year 2025 and Design Year 2045 were developed by redistributing the No-Build Alternative traffic volumes based on the proposed geometric changes with the Build Alternative. The primary traffic pattern change with the Build Alternative is the shift in the SR 51 (US 129) southbound left turn into the Busy Bee Northern Entrance. This movement is relocated to the Busy Bee Southern Entrance.

The Build Alternative peak hour traffic volumes for Opening Year 2025 and Design Year 2045 are presented in **Figure 6-2** and **Figure 6-3**.

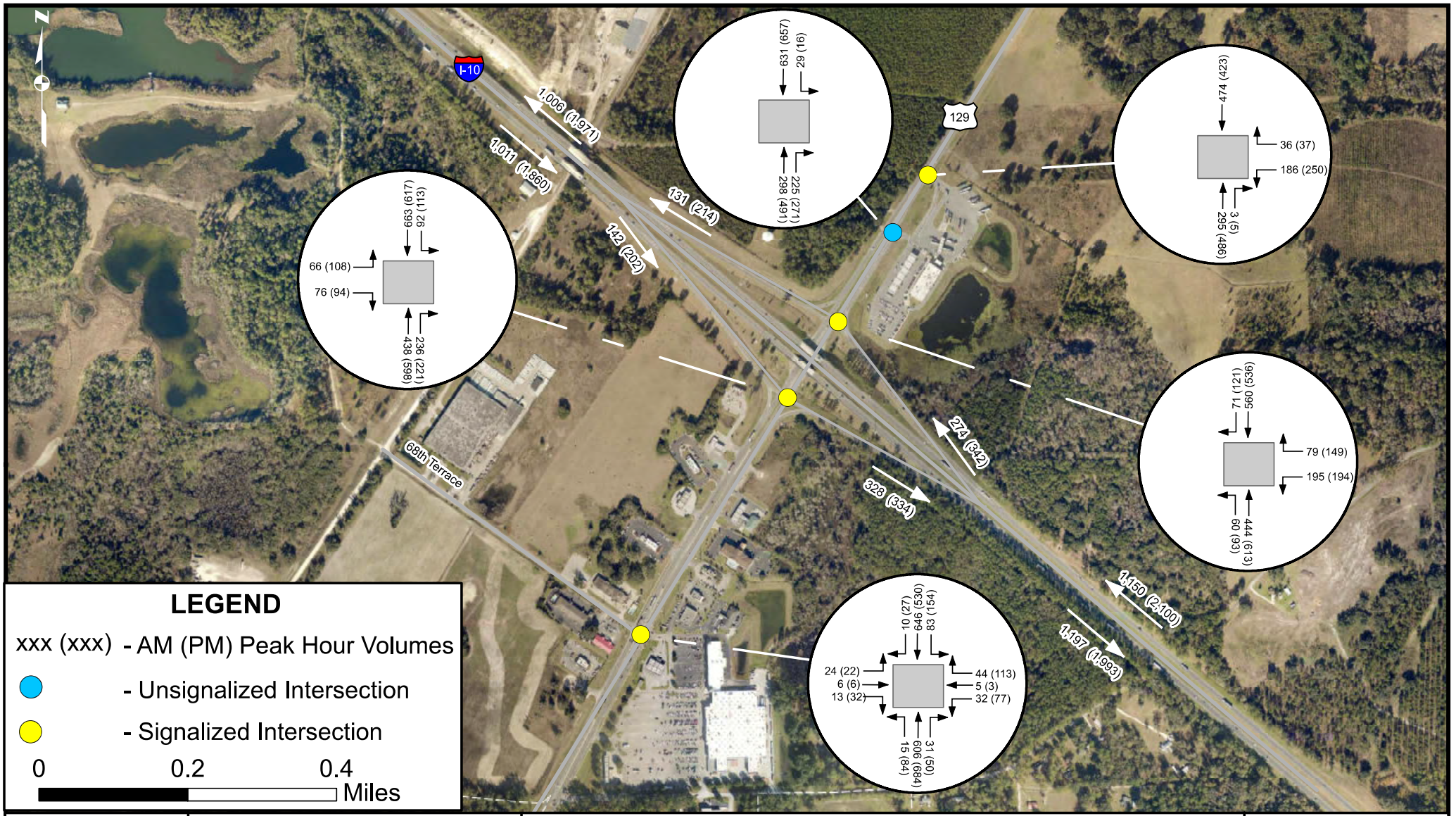



FDOT

I-10 at SR 51 (US 129)
Interchange IOAR

**Build Alternative Opening Year 2025**
**Peak Hour Volumes**

Figure 6-2




| | | | |
|---|---|---|---|
| FDOT | I-10 at SR 51 (US 129) Interchange IOAR | **Build Alternative Design Year 2045 Peak Hour Volumes** | Figure 6-3 |
| | | | Page 38 |

# 7. EVALUATION OF ALTERNATIVES

This section discusses the analysis of alternatives based on engineering, safety and financial factors. The No-Build Alternative was evaluated in **Section 5**; the Build Alternative is analyzed and compared with the No-Build Alternative in this section. A comparison of the No-Build and the Build Alternative is provided in this section. The evaluation criteria are described as follows:

- Conformance with Local, Regional and State Transportation Plans
- Compliance with FHWA Requirements Policies and Engineering Standards
- Traffic Operational Performance
- Safety
- Achievement of Objectives

## 7.1 Conformance with Local, Regional and State Transportation Plans

The improvements proposed in the IOAR for the Build Alternatives are consistent with improvement plans incorporated in the State Transportation Improvement Plan (STIP) and FDOT's Work Program.

## 7.2 Compliance with Policies and Engineering Standards

The design criteria for this project are based on design parameters outlined in the FDOT Florida Design Manual (FDM), the FDOT Manual of Uniform Minimum Standards for Design, Construction and Maintenance for Streets and Highways and AASHTO's A Policy on Geometric Design of Highway and Streets published in 2011.

## 7.3 HCM Based Individual Element Build Operational Analysis

An individual element operational analysis was conducted for the Build Alternative. The LOS for individual freeway elements was determined using HCS 7. Ramp analysis was performed by calculating the merge/diverge areas density and LOS. Synchro 11 was used to analyze the study intersections. The results of this detailed analysis are presented in the following sections. **Figure 6-2** and **Figure 6-3** illustrate the peak hour volumes utilized for the Opening Year 2025 and Design Year 2045 Build Alternative HCS and Synchro analysis, respectively. Reports generated from HCS 7 and Synchro for the Build Alternative analysis are provided in **Appendix F**.

## 7.4 Build Alternative Operational Analysis

The Build Alternative evaluated for the SR 51 (US 129) interchange along I-10 is described in detail in **Section 6.3**.

The No-Build Alternative Operational analysis presented in **Section 5** of this IOAR, demonstrated that failing conditions are expected within the study area by Design Year 2045 if no infrastructure improvements are considered. To address these operational deficiencies, improvements were developed and evaluated for the SR 51 (US 129) interchange. The Build Alternative operational analysis was performed for the interchange using HCM procedures.

It should be noted that the proposed improvements did not include any design modification to I-10 mainline and associated merge/diverge areas. Therefore, HCS freeway operational analysis for the Build Alternative is similar to the No-Build Alternative. Also, the Build Alternative did not include any improvements at the SR 51 (US 129) and 68th Terrace intersection as this intersection is considered as an adjacent intersection to the proposed project improvements. The lane configuration and results for this intersection are the same as the No-Build Alternative.

### *7.4.1 Opening Year 2025 Build Alternative Analysis*

Intersection Analysis

The Opening Year 2025 Build Alternative intersection analysis results are summarized in **Table 7-1**. The Build Alternative did not include any improvements at the SR 51 (US 129) and 68th Terrace intersection. The lane configuration and results for this intersection are the same as the No-Build Alternative. All intersections within the project area operate at an acceptable LOS D or better in both AM and PM peak hours. No operational issues are observed at any of these intersections in the Opening Year 2025 with the Build Alternative.

**Table 7-1: Opening Year 2025 Build Alternative Intersection Analysis Summary**

| Intersection | Type | Eastbound | | | | | | Westbound | | | | | | Northbound | | | | | | Southbound | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Left | | Thru | | Right | | Left | | Thru | | Right | | Left | | Thru | | Right | | Left | | Thru | | Right | |
| | | Delay | LOS | Delay | LOS | Delay | LOS | Delay | LOS | Delay | LOS | Delay | LOS | Delay | LOS | Delay | LOS | Delay | LOS | Delay | LOS | Delay | LOS | Delay | LOS |
| AM Peak Hour | | | | | | | | | | | | | | | | | | | | | | | | | |
| 68th Terrace | S | - | - | 25.2 | C | - | - | 30.4 | C | 14.3 | A | - | - | 9.6 | A | 7.8 | A | 0.0 | A | 2.6 | A | 2.2 | A | - | - |
| | | 6.1/A | | | | | | | | | | | | | | | | | | | | | | | |
| I-10 EB Ramps | S | 30.0 | C | - | - | 0.4 | A | - | - | - | - | - | - | - | - | 2.8 | A | 0.4 | A | 0.7 | A | 0.6 | A | - | - |
| | | 2.4/A | | | | | | | | | | | | | | | | | | | | | | | |
| I-10 WB Ramps | S | - | - | - | - | - | - | 31.3 | C | - | - | 0.2 | A | 0.6 | A | 0.6 | A | - | - | - | - | 11.7 | B | - | - |
| | | 9.8/A | | | | | | | | | | | | | | | | | | | | | | | |
| Busy Bee South Entrance | U | - | - | - | - | - | - | - | - | - | - | - | - | - | - | 0.0 | A | 0.0 | A | 7.8 | A | 0.0 | A | - | - |
| | | 7.8/A | | | | | | | | | | | | | | | | | | | | | | | |
| Busy Bee North Entrance | S | - | - | - | - | - | - | 33.0 | C | - | - | 10.4 | B | - | - | 3.5 | A | - | - | - | - | 4.9 | A | - | - |
| | | 9.9/A | | | | | | | | | | | | | | | | | | | | | | | |
| PM Peak Hour | | | | | | | | | | | | | | | | | | | | | | | | | |
| 68th Terrace | S | - | - | 18.4 | B | - | - | 33.4 | C | 10.6 | B | | | 13.2 | B | 11.9 | B | 0.1 | A | 4.2 | A | 2.8 | A | - | - |
| | | 9.2/A | | | | | | | | | | | | | | | | | | | | | | | |
| I-10 EB Ramps | S | 30.2 | C | - | - | 0.5 | A | - | - | - | - | - | - | - | - | 3.0 | A | 0.7 | A | 1.3 | B | 0.6 | A | - | - |
| | | 3.3/A | | | | | | | | | | | | | | | | | | | | | | | |
| I-10 WB Ramps | S | - | - | - | - | - | - | 31.2 | C | - | - | 0.7 | A | 0.9 | A | 1.0 | A | - | - | - | - | 9.5 | A | - | - |
| | | 7.7/A | | | | | | | | | | | | | | | | | | | | | | | |
| Busy Bee South Entrance | U | | | | | | | | | | | | | | | 0.0 | A | 0.0 | A | 8.1 | A | 0.0 | A | | |
| | | 8.1/A | | | | | | | | | | | | | | | | | | | | | | | |
| Busy Bee North Entrance | S | - | - | - | - | - | - | 32.9 | C | - | - | 9.2 | A | - | - | 4.0 | A | - | - | - | - | 6.1 | A | - | - |
| | | 10.9/B | | | | | | | | | | | | | | | | | | | | | | | |

Notes:
(1) Delay – Average Delay (seconds)
(2) S = Signalized

In the Opening Year 2025 Build Alternative, the 95th Percentile queue lengths did not exceed the available storage at any of the study intersection approaches with the Build Alternative.

**Table 7-2** summarized the queue analysis for Opening Year 2025 Build Alternative.

**Table 7-2: 95th Percentile Queue Length Summary – Opening Year 2025 Build Alternative**

| Intersection | Time Period | Peak Hour Queues (feet) | | | | | | | | | | | | Remarks |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Eastbound | | | Westbound | | | Northbound | | | Southbound | | | |
| | | L | T | R | L | T | R | L | T | R | L | T | R | |
| **68th Terrace** | AM | 32 | | | 31 | 26 | | 10 | 92 | 0 | 20 | 54 | | **Signalized Intersection** |
| | PM | 33 | | | 55 | 36 | | 41 | 124 | 0 | 29 | 50 | | |
| | Actual Storage | 250 | | | 60 | 60 | | 250 | 1,000 | 500 | 245 | 430 | | |
| **I-10 EB Ramps** | AM | 25 | - | 0 | - | - | - | - | 7 | 0 | 1 | 3 | - | **Signalized Intersection** |
| | PM | 36 | - | 0 | - | - | - | - | 14 | 0 | 2 | 4 | - | |
| | Actual Storage | 260 | - | 300 | - | - | - | - | 560 | 320 | 340 | 340 | - | |
| **I-10 WB Ramps** | AM | - | - | - | 56 | - | 0 | 1 | 1 | - | - | 37 | - | **Signalized Intersection** |
| | PM | - | - | - | 56 | - | 0 | 2 | 4 | - | - | 36 | - | |
| | Actual Storage | - | - | - | 205 | - | 245 | 340 | - | - | - | 1,025 | - | |
| **Busy Bee South Entrance** | AM | - | - | - | - | - | - | - | 0 | 0 | 1 | 0 | - | **Unsignalized Intersection** |
| | PM | - | - | - | - | - | - | - | 0 | 0 | 1 | 0 | - | |
| | Actual Storage | - | - | - | - | - | - | - | 385 | 385 | 595 | 285 | - | |
| **Busy Bee North Entrance** | AM | - | - | - | 102 | - | 18 | - | 21 | | - | 34 | - | **Signalized Intersection** |
| | PM | - | - | - | 126 | - | 17 | - | 32 | | - | 35 | - | |
| | Actual Storage | - | - | - | 400 | - | 60 | - | 285 | | - | 500 | - | |

### *7.4.2 2045 Build Analysis*

Intersection Analysis

The Design Year 2045 Build Alternative intersection analysis results are summarized in **Table 7-3**. The Build Alternative did not include any improvements at the SR 51 (US 129) and 68th Terrace intersection. The lane configuration and results for this intersection are the same as the No-Build Alternative. In Design Year 2045, all the intersections within the project operate at acceptable LOS D or better in both AM and PM peak hours. No operational issues are observed at any of the study intersections in the Design Year 2045 Build Alternative. All individual movements at the study intersections operate at the acceptable LOS in Design Year 2045 under the Build Alternative versus the No-Build condition that had several failing movements.

## Table 7-3: Design Year 2045 Build Alternative Intersection Analysis Summary

| Intersection | Type | Eastbound | | | | | | Westbound | | | | | | Northbound | | | | | | Southbound | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Left | | Thru | | Right | | Left | | Thru | | Right | | Left | | Thru | | Right | | Left | | Thru | | Right | |
| | | Delay | LOS | Delay | LOS | Delay | LOS | Delay | LOS | Delay | LOS | Delay | LOS | Delay | LOS | Delay | LOS | Delay | LOS | Delay | LOS | Delay | LOS | Delay | LOS |
| AM Peak Hour | | | | | | | | | | | | | | | | | | | | | | | | | |
| 68th Terrace | S | - | - | 26.2 | C | - | - | 32.2 | C | 13.4 | B | - | - | 10.7 | B | 10.6 | B | 0.1 | A | 2.6 | A | 2.3 | A | - | - |
| | | 7.3/A | | | | | | | | | | | | | | | | | | | | | | | |
| I-10 EB Ramps | S | 30.1 | C | - | - | 1.0 | A | - | - | - | - | - | - | - | - | 2.1 | A | 0.7 | A | 1.0 | A | 0.8 | A | - | - |
| | | 2.4/A | | | | | | | | | | | | | | | | | | | | | | | |
| I-10 WB Ramps | S | - | - | - | - | - | - | 31.8 | C | - | - | 0.5 | A | 0.8 | A | 0.8 | A | - | - | - | - | 13.7 | B | - | - |
| | | 10.9/B | | | | | | | | | | | | | | | | | | | | | | | |
| Busy Bee South Entrance | U | - | - | - | - | - | - | - | - | - | - | - | - | - | - | 0.0 | A | 0.0 | A | 8.0 | A | 0.0 | A | - | - |
| | | 8.0/A | | | | | | | | | | | | | | | | | | | | | | | |
| Busy Bee North Entrance | S | - | - | - | - | - | - | 32.7 | C | - | - | 8.3 | A | - | - | 4.6 | A | - | - | - | - | 6.4 | A | - | - |
| | | 10.9/B | | | | | | | | | | | | | | | | | | | | | | | |
| PM Peak Hour | | | | | | | | | | | | | | | | | | | | | | | | | |
| 68th Terrace | S | - | - | 20.7 | C | - | - | 41.0 | D | 10.5 | B | - | - | 15.3 | B | 14.8 | B | 0.1 | A | 7.1 | A | 3.6 | A | - | - |
| | | 11.3/B | | | | | | | | | | | | | | | | | | | | | | | |
| I-10 EB Ramps | S | 35.7 | D | - | - | 1.2 | A | - | - | - | - | - | - | - | - | 3.8 | A | 2.0 | A | 1.8 | A | 0.5 | A | - | - |
| | | 4.1/A | | | | | | | | | | | | | | | | | | | | | | | |
| I-10 WB Ramps | S | - | - | - | - | - | - | 35.9 | D | - | - | 1.8 | A | 1.8 | A | 1.7 | A | - | - | - | - | 11.7 | B | - | - |
| | | 9.5/A | | | | | | | | | | | | | | | | | | | | | | | |
| Busy Bee South Entrance | U | - | - | - | - | - | - | - | - | - | - | - | - | - | - | 0.0 | A | 0.0 | A | 8.6 | A | 0.0 | A | - | - |
| | | 8.6/A | | | | | | | | | | | | | | | | | | | | | | | |
| Busy Bee North Entrance | S | - | - | - | - | - | - | 37.0 | D | - | - | 7.8 | A | - | - | 4.5 | A | - | - | - | - | 7.7 | A | - | - |
| | | 12.5/B | | | | | | | | | | | | | | | | | | | | | | | |

Notes:
(1) Delay – Average Delay (seconds)
(2) S = Signalized

In the Design Year 2045 Build Alternative, the 95$^{th}$ Percentile queue lengths did not exceed the storage available at the any of the study intersection approaches, except for 68$^{th}$ Terrace Westbound left movement during the PM peak hours. No improvements are proposed at the 68$^{th}$ Terrace Westbound left movement because it is outside of the scope of this project, also a temporary construction easement would be needed to modify the Walmart Shopping Plaza's parking lot, and any spill back from the Westbound left queue is in to the shopping plaza's parking lot. Additionally, it should be noted the queue lengths are less at I-10 Eastbound Ramp Terminal, I-10 Westbound Ramp Terminal, and Busy Bee North Entrance intersections when compared to the No-Build Alternative in the Design Year 2045. **Table 7-4** summarized the queue analysis for Design Year 2045 Build Alternative.

**Table 7-4: 95th Percentile Queue Length Summary – Design Year 2045 Build Alternative**

| Intersection | Time Period | Peak Hour Queues (feet) | | | | | | | | | | | | Remarks |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Eastbound | | | Westbound | | | Northbound | | | Southbound | | | |
| | | L | T | R | L | T | R | L | T | R | L | T | R | |
| **68th Terrace** | AM | 41 | | | 38 | 30 | | 14 | 140 | 0 | 13 | 70 | | **Signalized Intersection** |
| | PM | 46 | | | 78 | 45 | | 57 | 198 | 0 | 50 | 72 | | |
| | Actual Storage | 250 | | | 60 | 60 | | 250 | 1,000 | 500 | 245 | 430 | | |
| **I-10 EB Ramps** | AM | 32 | - | 0 | - | - | - | - | 9 | 0 | 2 | 5 | - | **Signalized Intersection** |
| | PM | 51 | - | 0 | - | - | - | - | 7 | 0 | 3 | 3 | - | |
| | Actual Storage | 260 | - | 300 | - | - | - | - | 560 | 320 | 340 | 340 | - | |
| **I-10 WB Ramps** | AM | - | - | - | 74 | - | 0 | 1 | 1 | - | - | 87 | - | **Signalized Intersection** |
| | PM | - | - | - | 80 | - | 0 | 4 | 8 | - | - | 91 | - | |
| | Actual Storage | - | - | - | 205 | - | 245 | 340 | 340 | - | - | 1,025 | - | |
| **Busy Bee South Entrance** | AM | - | - | - | - | - | - | - | 0 | 0 | 2 | 0 | - | **Unsignalized Intersection** |
| | PM | - | - | - | - | - | - | - | 0 | 0 | 1 | 0 | - | |
| | Actual Storage | - | - | - | - | - | - | - | 385 | 385 | 595 | 285 | - | |
| **Busy Bee North Entrance** | AM | - | - | - | 129 | - | 21 | - | 33 | | - | 54 | - | **Signalized Intersection** |
| | PM | - | - | - | 183 | - | 21 | - | 50 | | - | 58 | - | |
| | Actual Storage | - | - | - | 400 | - | 60 | - | 285 | | - | 500 | - | |

## 7.5 Build Alternative Safety Analysis

To determine the potential safety benefits of the proposed Build Alternative a crash modification factor (CMF) based safety evaluation was performed for this study. CMFs were obtained from the CMF Clearinghouse funded by FHWA.

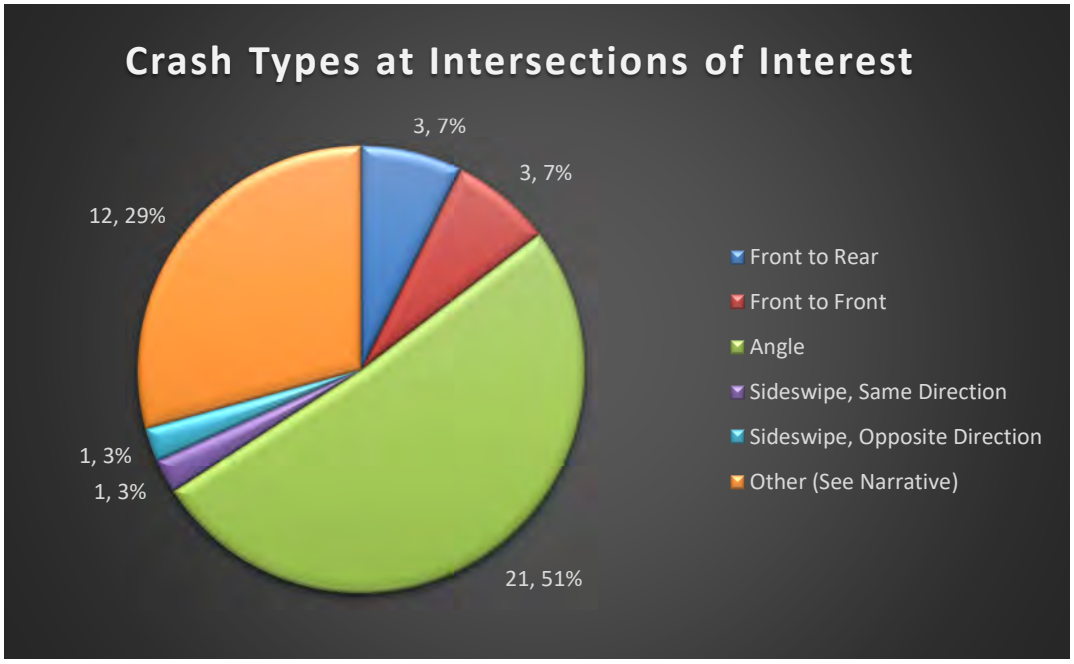
The safety evaluation was developed for the following intersections: SR 51 at the Eastbound Ramp Terminal, SR 51 (US 129) at the Westbound Ramp Terminal, and SR 51 (US 129) at the Northern Busy Bee Entrance. The proposed build improvements will mainly affect operations at these intersections through installing signalization. Three CMFs were identified to be applied to the historical crash frequency at the three intersections. The CMFs identified were developed for use at non-interchange related intersections. CMFs were not available for the interchange related intersections (EB and WB Ramp Terminals); therefore, the best available CMFs were used for this analysis. The CMFs used are summarized in **Table 7-5**.

**Table 7-5: Crash Modification Factor (CMF) Summary Table**

| CMF ID | Description | CMF |
|---|---|---|
| **322** | Install A Traffic Signal - All Types (All Severities) | 0.95 |
| **323** | Install A Traffic Signal - Angle (All Severities) | 0.33 |
| **324** | Install A Traffic Signal - Rear-end (All Severities) | 2.43 |

The CMFs are applied to the aggregate of the crashes at all three intersections. These crashes were obtained from the FDOT State Safety Office Car Online System for the years 2014 through 2018. There were a total of 41 crashes within these limits, from 2014 through 2018. The majority of the crashes were Angle crashes (21 crashes or 51%).

**Figure 7-1: Crash Types at Intersections of Interest (2014 - 2018)**




The CMFs are applied to the crashes at the three intersections examined along SR 51 (US 129). At these locations, the crashes will result in a 67 percent decrease in angle crashes, 143 percent increase in rear end crashes, and 5 percent decrease in all other applicable crash types for the Build Alternative. This will result in an estimated reduction of 2.814 angle crashes and a reduction of 0.170 all other crashes. However, there will be an estimated increase of 0.858 rear-end crashes; signalized intersections tend to increase rear end crashes because of interrupted traffic flow; however, signalized intersections tend to have lower fatality rates compared to unsignalized intersections because of slower average speeds associated with the interrupted traffic flow. This results in a reduction of a total of 2.126 crashes per year by the Build Alternative. The effects of the Build Alternative on crashes are summarized in **Table 7-6** and the CMF Clearinghouse summary reports are provided in **Appendix G**.

**Table 7-6: Build Alternative Crash Reduction**

| Crash Type | Historical Crashes (2014-2018) | | Build Alternative | | |
|---|---|---|---|---|---|
| | Total Crashes | Crashes per Year | CMF | Est. Crash per Year After Improvements | % Change |
| Angle | 21 | 4.200 | 0.33 | 1.386 | -67% |
| Rear-End | 3 | 0.600 | 2.43 | 1.458 | 143% |
| Other | 17 | 3.400 | 0.95 | 3.230 | -5% |
| **Totals:** | 41 | 8.200 | | 6.074 | -26% |

### 7.5.1 Pedestrian and Bicycle facilities

The Build Alternative includes adding pedestrian and bicycle facilities such as sidewalks, crosswalks, bike lanes, and key holes to the project area that were previously not present. From a qualitative perspective, accommodating pedestrians and bicyclist through the project area compared to the No-Build conditions. The Build Alternative should improve safety and operations for vehicles, pedestrians, and bicyclists alike.

## 7.6 Alternatives Comparison

The No-Build Alternative and the Build Alternative were compared, and a summary is provided in the sections below.

### 7.6.1 Operational Comparison

This section compares the mainline, merge/diverge and intersections traffic operational performance of the No-Build and Build Alternatives.

The No-Build Alternative intersections of SR 51 (US 129) at the Eastbound Ramps, SR 51 (US 129) at the Westbound Ramps, and SR 51 (US 129) at the Northern Busy Bee Entrance do not operate at an acceptable LOS and individual movements operate at LOS F in the Design Year 2045. The Build Alternative will improve traffic operations at these intersections to an acceptable LOS (LOS D or better) during the Design Year 2045.

### 7.6.2 Safety Comparison

The quantifiable safety benefits of the Build Alternative were predicted to decrease crashes by 2.126 per year when compared to the No-Build Alternative. This is a 26% decrease in overall crashes within the study areas. Additionally, from a qualitative perspective, crashes are expected to decrease around the Busy Bee Southern entrance because of the Build Alternatives modifications to the right turn lane into the Busy Bee. The Build Alternative will increase bicycle and pedestrian safety with the addition of bicycle and pedestrian facilities that are not present under the No-Build Alternative.

### 7.6.3 Cost Estimation

A cost estimation was performed for the Build Alternative. The Build Alternative cost estimate is shown in **Table 7-7**. The total project cost for the Build Alternative is $7,678,353. The FDOT Long Range Estimating (LRE) is provided in **Appendix H**.

**Table 7-7 Build Alternative Cost Estimate**

| Cost | Build Alternative |
|---|---|
| Roadway Construction (LRE Cost) | $6,142,683 |
| Engineering/Design (10% Construction) | $614,268 |
| CEI (15% Construction) | $921,402 |
| **Total Project Cost** | $7,678,353 |

## 7.7 Recommended Alternative

The No-Build Alternative will not accommodate the travel demand at the I-10 at SR 51 (US 129) interchange. In the Design Year 2045, significant operational deficiencies exist. Three out of four study intersections operate at unacceptable LOS in the Design Year 2045 with No-Build Alternative. These operational deficiencies are associated with high arterial through and left-turn volumes at the SR 51 (US 129) ramp terminal intersections and the Busy Bee North Entrance and can be attributed to the stop-controlled intersections.

The Build Alternative for this study performs substantially better than the No-Build Alternative for all future years. The proposed interchange improvements provide additional capacity for the off ramp left turn movements onto SR 51 (US 129) and signalize the intersections at the ramp terminals, as well as the northern Busy Bee Entrance, resulting in lower intersection delay. These improvements help process traffic travelling to and from the interchange quickly with less delays.

A quantitative safety analysis was also performed to determine if the Build Alternative addressed the existing safety concerns. Based on the proposed improvements, crashes are expected to reduce by 2.126 crashes per year.

Considering all the findings described in the IOAR, the Build Alternative is recommended as the Preferred Alternative for approval in this study.

## 7.8 Conceptual Signing Plan

A conceptual signing plan was prepared for the Build Alternative. **Appendix I** presents the conceptual signing plan for proposed modifications within the area of influence. The conceptual signing plan is consistent with the Manual on Uniform Traffic Control Devices (MUTCD).

## 7.9 Design Exceptions and Variations

Implementation of the proposed improvements will not require any design exceptions but will require one design variation. The design variation will be for 5-foot bicycle lanes along SR 51 (US 129).

# 8. JUSTIFICATION

The proposed improvements at the I-10 interchange with SR 51 (US 129) are consistent with the requirements set by the FHWA Access to the Interstate System FDOT Policy No. 000-525-015 dated May 22, 2017 and the New or Modified Interchanges FDOT Procedure No. 525-030-160. The roadway enhancements in this IOAR will provide traffic relief, thereby enhance safety within the area of influence. The I-10 at SR 51 (US 129) interchange will operate at an acceptable LOS through the Design Year 2045 with the proposed improvements.

## 8.1 Compliance with FHWA General Requirements

The following requirements serve as the primary decision criteria used in approval of interchange modification projects. Responses to each of the FHWA two policy points are provided to show that the proposed modification for the I-10 at SR 51 (US 129) interchange is viable based on the operational and safety analysis performed to date.

### 8.1.1 FHWA Policy Point 1

*An operational and safety analysis has concluded that the proposed change in access does not have a significant adverse impact on the safety and operation of the Interstate facility (which includes mainline lanes, existing, new, or modified ramps, and ramp intersections with crossroad) or on the local street network based on both the current and the planned future traffic projections. The analysis should, particularly in urbanized areas, include at least the first adjacent existing or proposed interchange on either side of the proposed change in access (Title 23, Code of Federal Regulations (CFR), paragraphs 625.2(a), 655.603(d) and 771.111(f)). The crossroads and the local street network, to at least the first major intersection on either side of the proposed change in access, should be included in this analysis to the extent necessary to fully evaluate the safety and operational impacts that the proposed change in access and other transportation improvements may have on the local street network (23 CFR 625.2(a) and 655.603(d)). Requests for a proposed change in access should include a description and assessment of the impacts and ability of the proposed changes to safely and efficiently collect, distribute, and accommodate traffic on the Interstate facility, ramps, intersection of ramps with crossroad, and local street network (23 CFR 625.2(a) and 655.603(d)). Each request should also include a conceptual plan of the type and location of the signs proposed to support each design alternative (23 U.S.C. 109(d) and 23 CFR 655.603(d)).*

An in-depth operational and safety analysis was conducted to study the impacts of the proposed improvements at the I-10 and SR 51 (US 129) interchange. Several performance measures were used to compare the operations of the existing system under No-Build and Build conditions. Key measures included freeway densities, intersection delays LOS, 95$^{th}$ percentile queue lengths and safety under existing and proposed conditions.

From an operational perspective in the Design Year 2045 under the No-Build Alternative, operational and safety deficiencies will exist. The intersections along SR 51 (US 129) at the Eastbound and Westbound Ramps,

as well as the Busy Bee Northern Entrance, will operate at LOS E or worse in the AM and PM peak hours. These deficiencies are attributed to the insufficient capacity and operations at all three intersections.

The Build Alternative for this study performs substantially better than the No-Build Alternative for all future years. The proposed interchange improvements provide additional capacity for the heavy left turn volumes and signalize the eastbound and westbound ramp terminals with SR 51 and the Busy Bee North Entrance intersection with SR 51 (US 129). By implementing these improvements, the study intersections of I-10 at SR 51 (US 129) will operate at acceptable LOS C or better in both AM and PM Peak hour through the Design Year 2045.

The safety analysis performed for this study indicated a total of 118 crashes occurred within the project area, of which 73 of the crashes occurred on the project segment of SR 51 (US 129) from 2014 to 2018. The predominant crash types that occurred within the study area were angle collisions.

With the improved operations under the Build Alternative, it is anticipated to enhance safety within the project area. A CMF safety analysis was performed for the study area where improvements are to be implemented and could be quantified. Based on the safety analysis, it is predicted that a reduction of 2.126 crashes per year will occur due to the recommended improvements.

Overall, the Build Alternative provides significantly better traffic operations and enhances safety when compared to the No-Build Alternative.

In conclusion, the comparison of the No-Build and Build Alternatives show the proposed interchange improvements provide enhanced operation and safety conditions. The proposed modifications in the Build Alternative are not anticipated to have a negative impact on operations or safety of the I-10 mainline or any adjacent interchanges.

### 8.1.2 FHWA Policy Point 2

*The proposed access connects to a public road only and will provide for all traffic movements. Less than "full interchanges" may be considered on a case-by-case basis for applications requiring special access, such as managed lanes (e.g., transit or high occupancy vehicle and high occupancy toll lanes) or park and ride lots. The proposed access will be designed to meet or exceed current standards (23 CFR 625.2(a), 625.4(a)(2), and 655.603(d)). In rare instances where all basic movements are not provided by the proposed design, the report should include a full-interchange option with a comparison of the operational and safety analyses to the partial interchange option. The report should also include the mitigation proposed to compensate for the missing movements, including wayfinding signage, impacts on local intersections, mitigation of driver expectation leading to wrong-way movements on ramps, etc. The report should describe whether future provision of a full interchange is precluded by the proposed design.*

The proposed improvements to the I-10 at SR 51 (US 129) interchange and adjacent intersections will provide full access and cater to all traffic movements from SR 51 (US 129) to and from I-10. The proposed

modifications are designed to meet current standards for federal-aid projects on the interstate system and conform to American Association of State Highway and Transportation Official (AASHTO) and the FDOT Design Manual (FDM).

## 9. CONCEPTUAL FUNDING PLAN/CONSTRUCTION SCHEDULE

The improvements proposed as part of the Build Alternative at the I-10 at SR 51 (US 129) interchange are performed under the Programmatic Agreement with FHWA. This project is included in the 2021-2025 FDOT Five Year Work Program. This project is also included in the Statewide Transportation Improvement Program (STIP) adopted in September 2020 for Fiscal Year (FY) 2020/21-2023/24. At this time the project has Federal Funding programmed for Design in FY 2023 and Construction in FY 2025.

# LIST OF APPENDICES

# APPENDIX A

Traffic Development Document

# I-10 at US 129 IOAR – Traffic Development

## I) Existing Traffic

The weekday turning movement counts (TMCs) were collected during the morning and evening peak periods for the following study intersections:

- US 129/ at 68th Terrace
- US 129 at I-10 eastbound Ramps
- US 129 at I-10 westbound Ramps
- US 129 at Busy Bee South Entrance and
- US 129 at Busy Bee North Entrance/Exit

The TMCs were collected for the following hours on November 06, 2019:

- AM Peak Period – 06:30 AM to 10:30 AM
- PM Peak Period – 03:30 PM to 07:30 PM

24-hour hose counts were collected on November 06, 2019 for the following study interchange ramps:

US 129 at I-10 eastbound off ramp
US 129 at I-10 eastbound on ramp
US 129 at I-10 westbound off ramp
US 129 at I-10 westbound off ramps

In addition to above traffic counts data, traffic volumes data from Florida Traffic Online (FTO) was also obtained for I-10 mainline west and east of US 129, US 129 interchange ramps and US 129 roadway south and north of I-10.

The above collected data was used to establish Existing Conditions 2020 traffic volumes as presented in Section II-4.

## II) Design Traffic Development

### 1. Historical Traffic Growth

The historical AADT volumes for the past 10 years were obtained from FTO to study the historical growth rate. The historical growth rate was estimated based on regression analysis from two (2) FDOT count stations along I-10 mainline and one (1) count station along US 129. The analysis was performed using FDOT's Trend tool.

The annual historic growth rates results are shown in **Table 1** with their R square values. FDOT defines acceptable Historic Trend Growth Rate as that which has an R square of 75% and greater. It was noted that most of the sites have linear growth rate with higher R square value as compared to compound growth rate. Based on information presented in **Table 1** below, it is noted that only one site has R square value higher than 75%. However, due to limited count sites, all three sites were considered. Average historic growth rate of 2.45% was estimated and projected linear growth rate of 2.52% from existing year 2019 to design year 2045.

**Table 1 – Historic Traffic Growth Rates**

| Roadway | Location | FDOT Count Station | Annual Historic Growth Rate (2009 to 2019) | Projected Linear Growth Rate (2019 to 2045) | Trend R Square |
|---|---|---|---|---|---|
| I-10 Mainline | West of US 129 | 370143 | 3.39% | 2.53% | 62.96% |
| | East of US 129 | 370238 | 2.27% | 2.94% | 82.31% |
| US 129 | South of I-10 | 375033 | 1.68% | 2.08% | 68.84% |
| **Average** | | | **2.45%** | **2.52%** | **71.37%** |

## 2. Population Projections

In addition to the historical trend analysis, 2010 census data and 2020 and 2045 (low, medium and high) population projection data from Bureau of Economic and Business Research (BEBR) was used for comparison and to determine the reasonableness of growth rate estimate. **Table 2** shows 2010 census data and 2020 and 2045 population projections for Suwannee County. These growth rates show the population growth will occur at below one (1%) percent with low and medium projections in Suwannee County from 2020 to 2045.

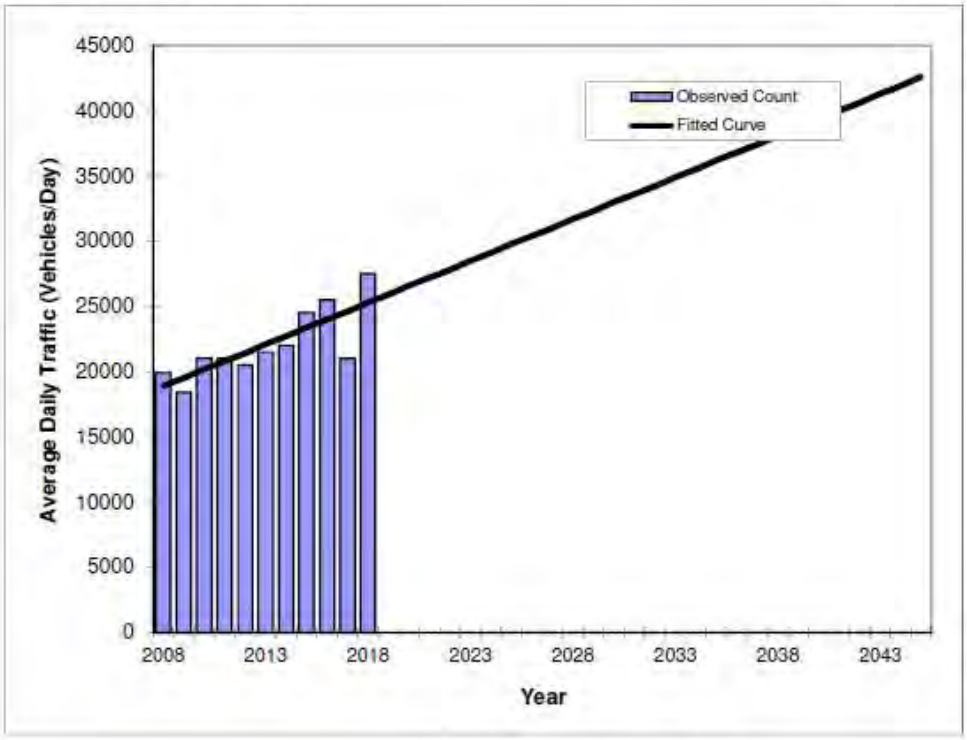
**Table 2 – Suwannee County Population Growth Rates**

| Year | Census | BEBR Projections | | | Average |
|---|---|---|---|---|---|
| Population | | Low | Medium | High | |
| 2010 | 41,551 | | | | |
| 2020 | | 44,000 | 45,900 | 47,700 | |
| 2045 | | 46,500 | 54,700 | 65,700 | |
| **Linear Growth Rate** | | | | | |
| 2010-2020 | | 0.59% | 1.05% | 1.48% | **1.04%** |
| 2020-2045 | | 0.23% | 0.77% | 1.51% | **0.83%** |

# Traffic Trends - V03.a

| | |
|---|---|
| FIN# | 1234 |
| Location | 1 |

| | |
|---|---|
| County: | Suwannee (37) |
| Station #: | 0143 |
| Highway: | 0 |




| Year | Traffic (ADT/AADT) Count* | Trend** |
|---|---|---|
| 2008 | 19900 | 18900 |
| 2009 | 18400 | 19500 |
| 2010 | 21000 | 20200 |
| 2011 | 21000 | 20800 |
| 2012 | 20500 | 21400 |
| 2013 | 21500 | 22100 |
| 2014 | 22000 | 22700 |
| 2015 | 24500 | 23400 |
| 2016 | 25500 | 24000 |
| 2017 | 21000 | 24600 |
| 2018 | 27500 | 25300 |
| **2025 Opening Year Trend** | | |
| 2025 | N/A | 29800 |
| **2035 Mid-Year Trend** | | |
| 2035 | N/A | 36200 |
| **2045 Design Year Trend** | | |
| 2045 | N/A | 42600 |
| **TRANPLAN Forecasts/Trends** | | |

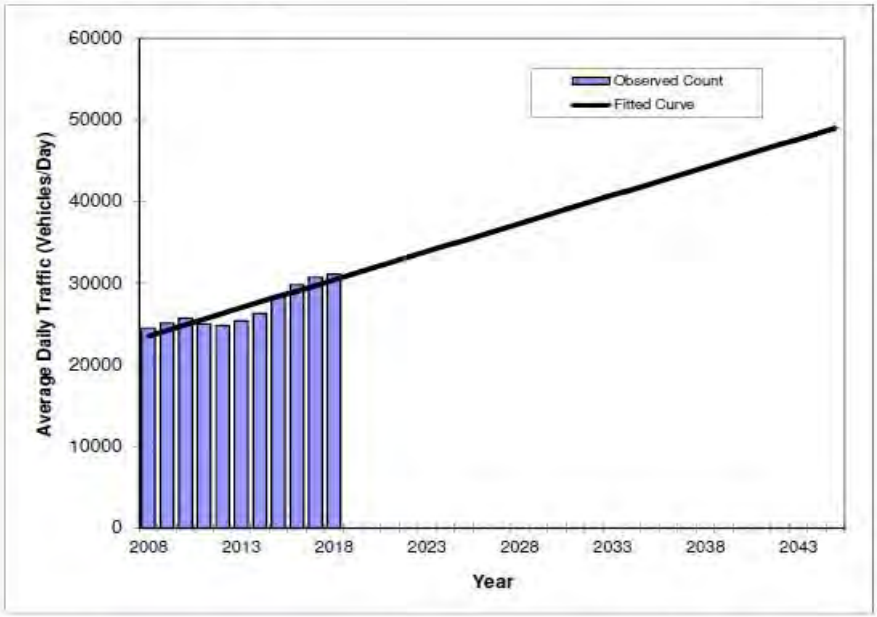
| | |
|---|---|
| ** Annual Trend Increase: | 640 |
| Trend R-squared: | 62.96% |
| Trend Annual Historic Growth Rate: | 3.39% |
| Trend Growth Rate (2018 to Design Year): | 2.53% |
| Printed: | 28-Apr-20 |
| **Straight Line Growth Option** | |

*Axle-Adjusted

## Traffic Trends - V03.a

| | |
|---|---|
| FIN# | 1234 |
| Location | 1 |

| | |
|---|---|
| County: | Suwannee (37) |
| Station #: | 0238 |
| Highway: | 0 |




| Year | Traffic (ADT/AADT) Count* | Trend** |
|---|---|---|
| 2008 | 24500 | 23500 |
| 2009 | 25100 | 24200 |
| 2010 | 25700 | 24900 |
| 2011 | 25000 | 25600 |
| 2012 | 24800 | 26300 |
| 2013 | 25400 | 27000 |
| 2014 | 26300 | 27700 |
| 2015 | 28300 | 28400 |
| 2016 | 29800 | 29000 |
| 2017 | 30700 | 29700 |
| 2018 | 31100 | 30400 |
| **2025 Opening Year Trend** | | |
| 2025 | N/A | 35200 |
| **2035 Mid-Year Trend** | | |
| 2035 | N/A | 42100 |
| **2045 Design Year Trend** | | |
| 2045 | N/A | 49000 |
| **TRANPLAN Forecasts/Trends** | | |

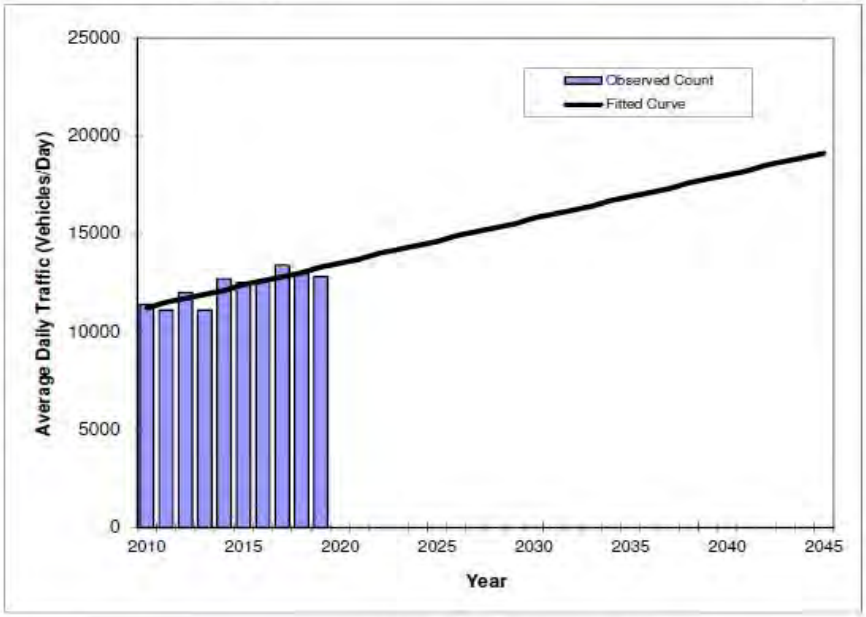
| | |
|---|---|
| ** Annual Trend Increase: | 689 |
| Trend R-squared: | 82.31% |
| Trend Annual Historic Growth Rate: | 2.94% |
| Trend Growth Rate (2018 to Design Year): | 2.27% |
| Printed: | 28-Apr-20 |
| **Straight Line Growth Option** | |

*Axle-Adjusted

## Traffic Trends - V03.a

| | |
|---|---|
| FIN# | 1234 |
| Location | 1 |

| | |
|---|---|
| County: | Suwannee (37) |
| Station #: | 5033 |
| Highway: | 0 |




| Year | Traffic (ADT/AADT) Count* | Trend** |
|---|---|---|
| 2010 | 11400 | 11200 |
| 2011 | 11100 | 11500 |
| 2012 | 12000 | 11700 |
| 2013 | 11100 | 11900 |
| 2014 | 12700 | 12100 |
| 2015 | 12500 | 12400 |
| 2016 | 12600 | 12600 |
| 2017 | 13400 | 12800 |
| 2018 | 13000 | 13000 |
| 2019 | 12800 | 13300 |
| **2025 Opening Year Trend** | | |
| 2025 | N/A | 14600 |
| **2035 Mid-Year Trend** | | |
| 2035 | N/A | 16900 |
| **2045 Design Year Trend** | | |
| 2045 | N/A | 19100 |
| **TRANPLAN Forecasts/Trends** | | |

| | |
|---|---|
| ** Annual Trend Increase: | 225 |
| Trend R-squared: | 69.84% |
| Trend Annual Historic Growth Rate: | 2.08% |
| Trend Growth Rate (2019 to Design Year): | 1.68% |
| Printed: | 28-Apr-20 |
| **Straight Line Growth Option** | |

*Axle-Adjusted

## 3. Recommended Growth Rates

In order to develop 2025 and 2045 traffic volumes, historic trend analysis for the study area roadways and population growth for Suwannee County were considered. The study interchange is not covered with a regional or district travel demand model. Based on the comparison of above sources, a linear growth rate of **2.5%** is recommended for estimating existing year 2020 and opening year 2025 design hour volumes using the 2019 counts. A linear growth rate of **2.0%** is recommended for estimating design year 2045 volumes applying this growth rate to 2025 peak hour volumes.

## 4. Traffic Volumes Development

Traffic volumes for Existing Year 2020, Opening Year 2025 and Design Year 2045 were developed using annual linear growth rates recommended in Section 3.0 following steps listed below:

### 4a. Annual Average Daily Traffic (AADT) Development

**Step 1:** AADT volumes for I-10 mainline east and west of US 129 and US 129 ramps for year 2018 were obtained from FDOT Traffic Online. Daily ramps volumes were also available from 2019 hose counts. Both 2018 and 2019 data was reviewed to develop Existing Year 2020 AADT volumes using a 2.5% annual linear growth rate.

**Step 2:** Opening Year 2025 AADT volumes were then developed from 2020 AADT using a 2.5% annual linear growth rate.

**Step 3:** Design Year 2045 AADT volumes were then developed from 2025 AADT using a 2.0% annual linear growth rate.

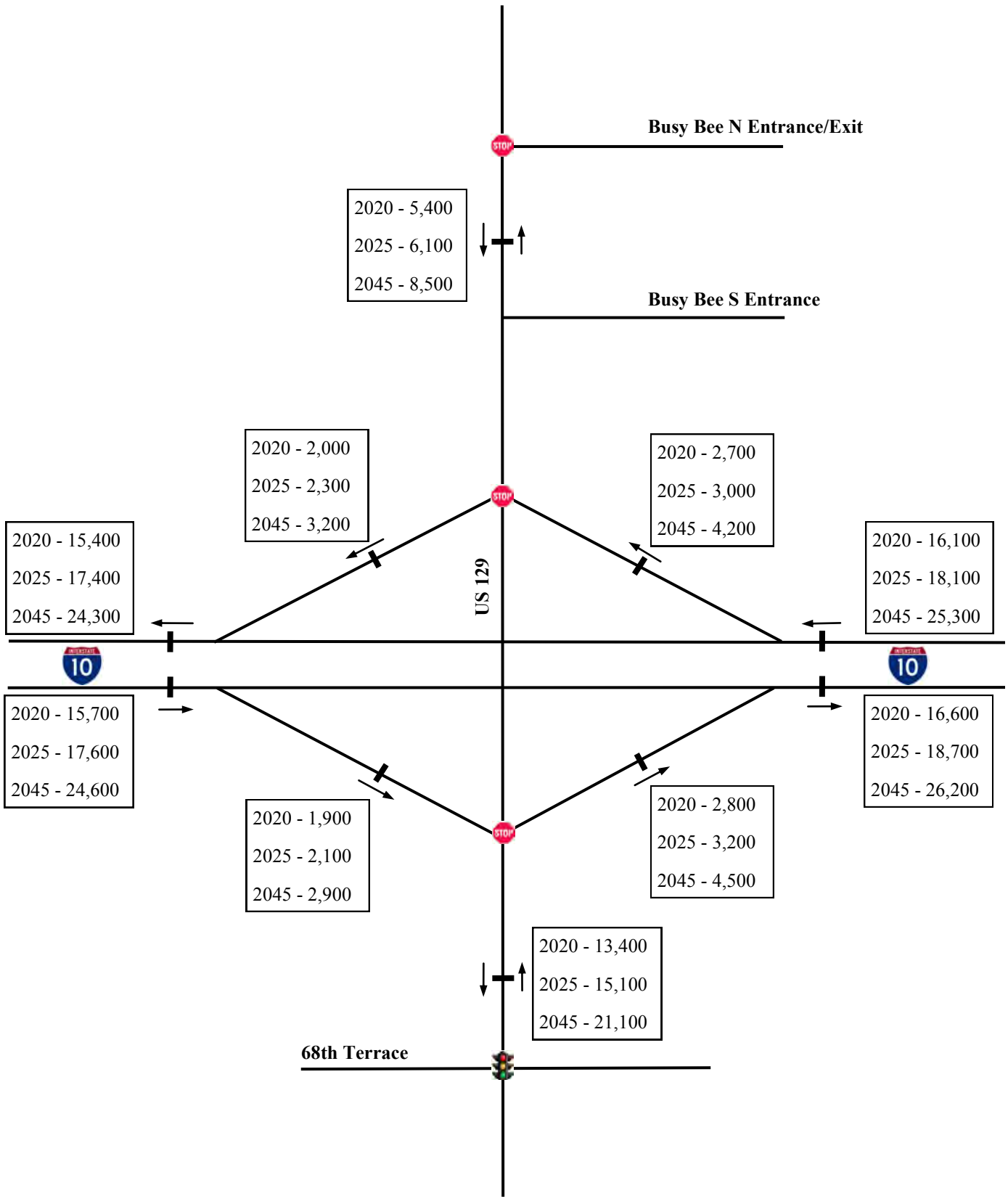
**Figure 1** shows mainline and ramp AADT for Existing Year 2020, Opening Year 2025 and Design Year 2045.

### 4b. Peak Hour Volumes Development

**Step 1:** Traffic counts data for study area intersections, ramps and mainline segments was available from year 2019. The 2019 AM and PM peak hour volumes were first adjusted and balanced where no driveway exists between adjacent junctions. A 2.5% annual linear growth rate was then applied to develop Existing Year 2020 AM and PM peak hour volumes. **Figure 2** shows Existing Year 2020 AM and PM peak hour volumes.

**Step 2:** Opening Year 2025 AM and PM peak hour volumes were then developed from 2020 peak hour volumes using a 2.5% annual linear growth rate. **Figure 3** shows Opening Year 2025 AM and PM peak hour volumes.

**Step 3:** Design Year 2045 AM and PM peak hour volumes were then developed from 2025 peak hour volumes using a 2.0% annual linear growth rate. **Figure 4** shows Design Year 2045 AM and PM peak hour volumes.




**I-10 at US 129 IOAR**

**Suwannee County, Florida**

**Legend:**

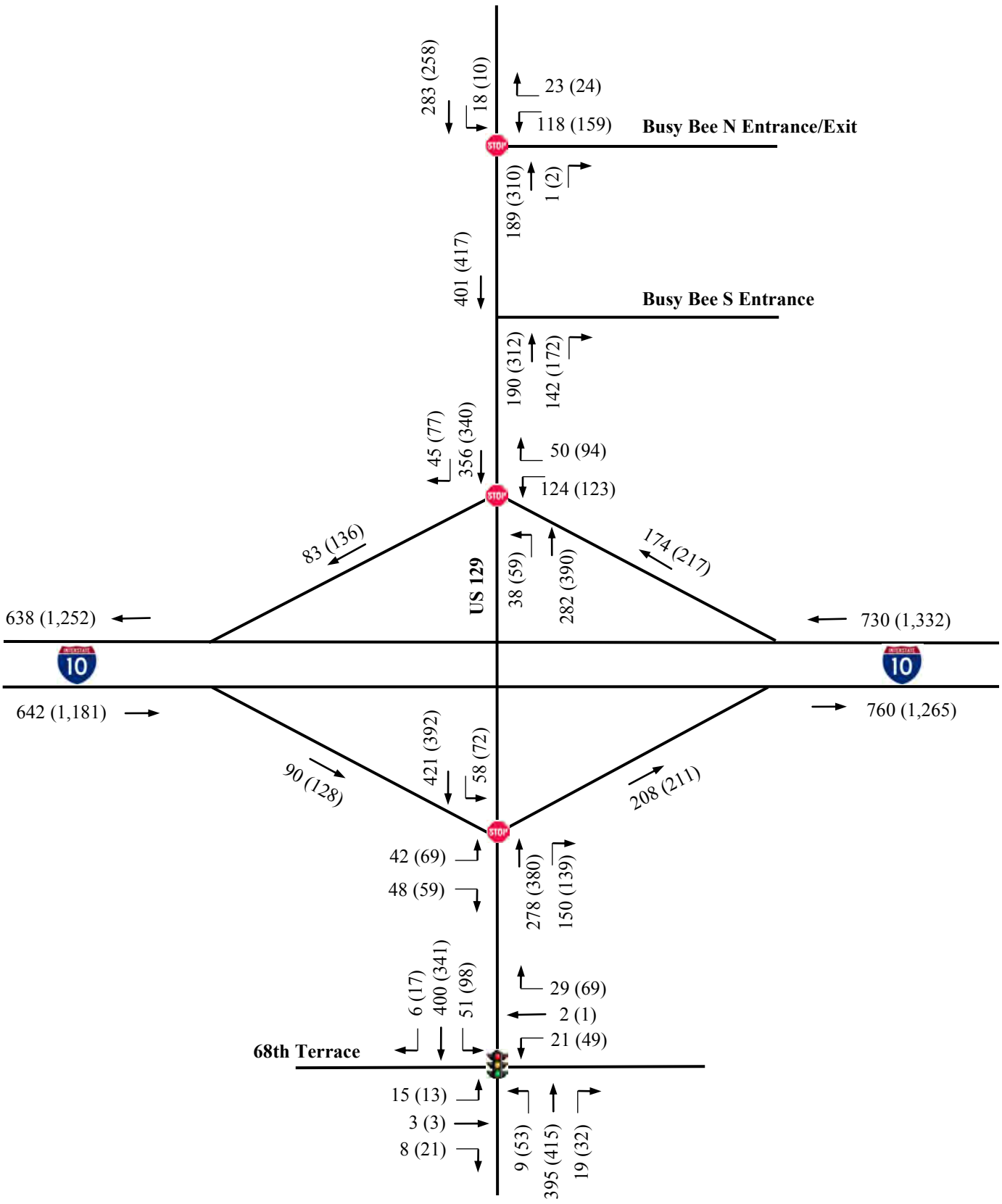
Stop Control Intersection

Signalized Intersection

1,000: AADT

**Figure 1**

**Existing 2020, Opening 2025 & Design 2045 AADT**




**I-10 at US 129 IOAR**

**Suwannee County, Florida**

**Legend:**

Stop Control Intersection

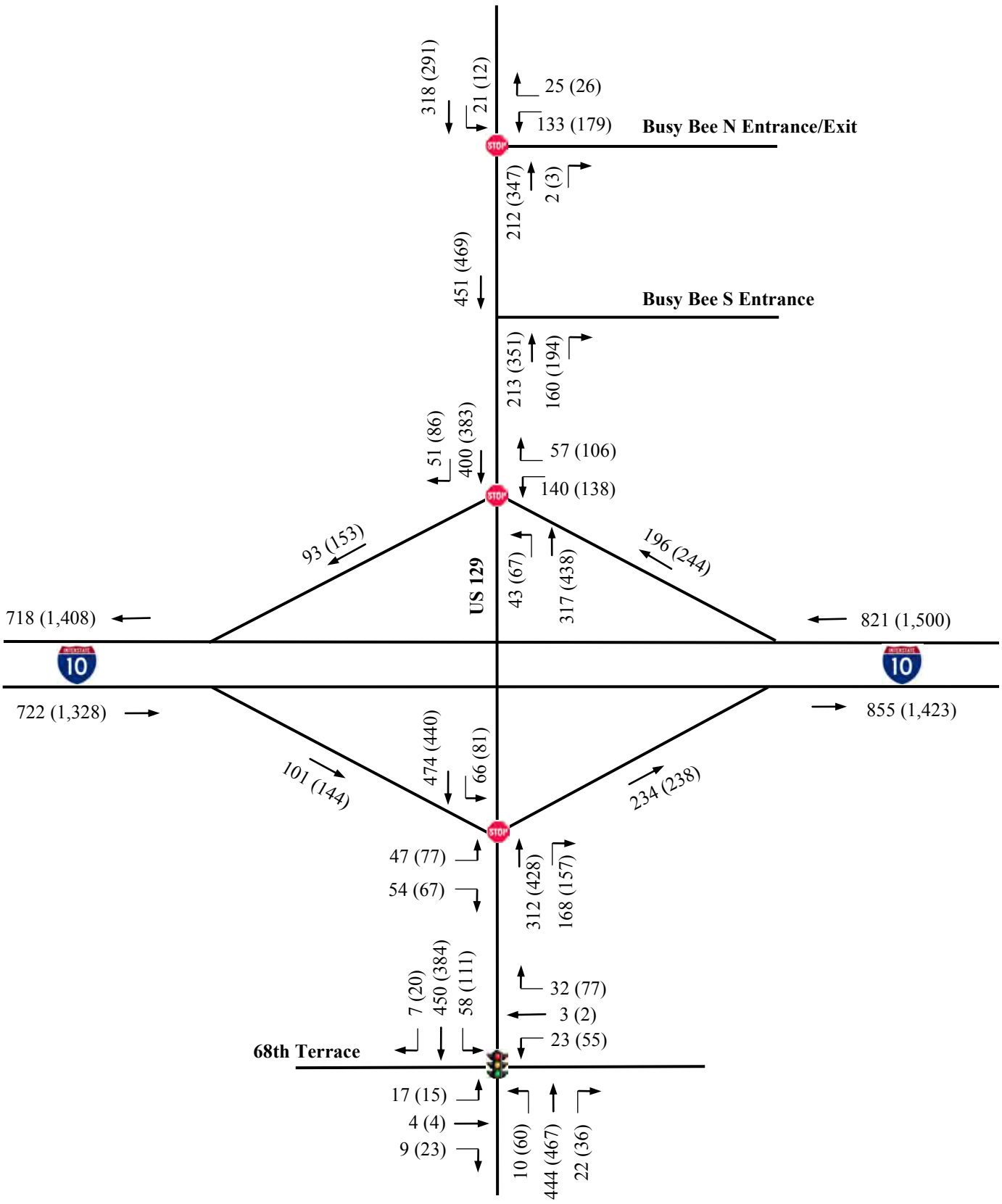
Signalized Intersection

123 (123): AM (PM)

**Figure 2**

**Existing 2020 AM (PM)**

**Peak Hour Volumes**




**I-10 at US 129 IOAR**

**Suwannee County, Florida**

**Legend:**

Stop Control Intersection

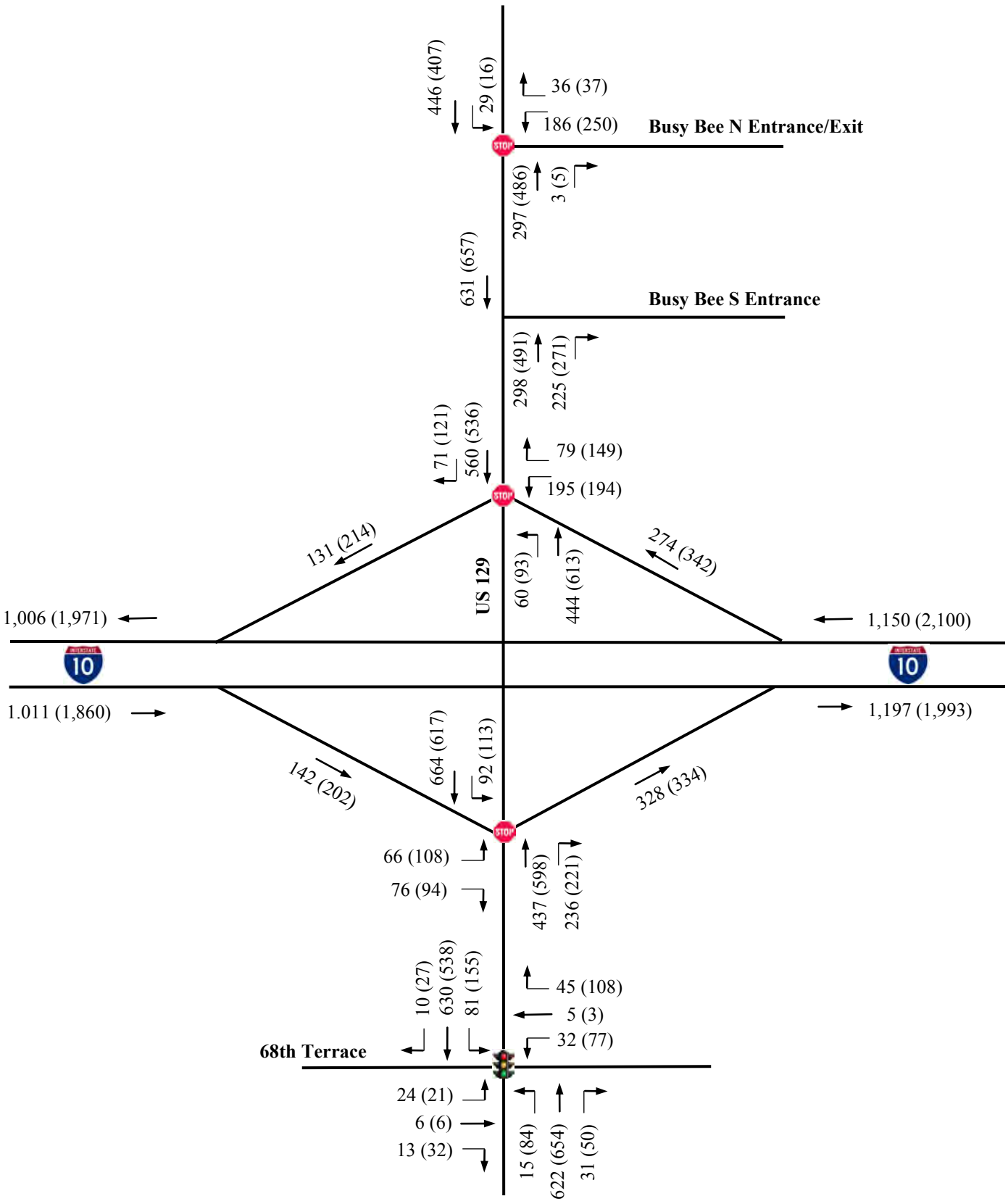
Signalized Intersection

123 (123): AM (PM)

**Figure 3**

**Opening 2025 AM (PM)**

**Peak Hour Volumes**




**I-10 at US 129 IOAR**

**Suwannee County, Florida**

**Legend:**

Stop Control Intersection

Signalized Intersection

123 (123): AM (PM)

**Figure 4**

**Design 2045 AM (PM)**

**Peak Hour Volumes**

# APPENDIX B

No-Build Existing Year 2020, Opening Year 2025, and Design Year 2045 HCS 7 and Synchro Outputs

# HCS7 Freeway Merge Report

## Project Information

| | | | |
|---|---|---|---|
| Analyst | Justin Garland | Date | 12/15/2021 |
| Agency | FDOT | Analysis Year | 2020 |
| Jurisdiction | D2 | Time Period Analyzed | Existing AM |
| Project Description | I-10 at 129 - EB Merge | | |

## Geometric Data

| | Freeway | Ramp |
|---|---|---|
| Number of Lanes (N) | 2 | 1 |
| Free-Flow Speed (FFS), mi/h | 75.0 | 35.0 |
| Segment Length (L) / Acceleration Length ($L_A$), ft | 1500 | 300 |
| Terrain Type | Level | Level |
| Percent Grade, % | - | - |
| Segment Type / Ramp Side | Freeway | Right |

## Adjustment Factors

| | | |
|---|---|---|
| Driver Population | All Familiar | All Familiar |
| Weather Type | Non-Severe Weather | Non-Severe Weather |
| Incident Type | No Incident | - |
| Final Speed Adjustment Factor (SAF) | 1.000 | 1.000 |
| Final Capacity Adjustment Factor (CAF) | 1.000 | 1.000 |
| Demand Adjustment Factor (DAF) | 1.000 | 1.000 |

## Demand and Capacity

| | | |
|---|---|---|
| Demand Volume ($V_i$), veh/h | 552 | 208 |
| Peak Hour Factor (PHF) | 0.92 | 0.92 |
| Total Trucks, % | 13.20 | 2.80 |
| Single-Unit Trucks (SUT), % | - | - |
| Tractor-Trailers (TT), % | - | - |
| Heavy Vehicle Adjustment Factor ($f_{HV}$) | 0.883 | 0.973 |
| Flow Rate ($v_i$), pc/h | 680 | 232 |
| Capacity (c), pc/h | 4800 | 2000 |
| Volume-to-Capacity Ratio (v/c) | 0.19 | 0.12 |

## Speed and Density

| | | | |
|---|---|---|---|
| Upstream Equilibrium Distance ($L_{EQ}$), ft | - | Density in Ramp Influence Area ($D_R$), pc/mi/ln | 10.7 |
| Distance to Upstream Ramp ($L_{UP}$), ft | - | Speed Index ($M_S$) | 0.310 |
| Downstream Equilibrium Distance ($L_{EQ}$), ft | - | Flow Outer Lanes ($v_{OA}$), pc/h/ln | - |
| Distance to Downstream Ramp ($L_{DOWN}$), ft | - | On-Ramp Influence Area Speed ($S_R$), mi/h | 64.8 |
| Prop. Freeway Vehicles in Lane 1 and 2 ($P_{FM}$) | 1.000 | Outer Lanes Freeway Speed ($S_O$), mi/h | - |
| Flow in Lanes 1 and 2 ($v_{12}$), pc/h | 680 | Ramp Junction Speed (S), mi/h | 64.8 |
| Flow Entering Ramp-Infl. Area ($v_{R12}$), pc/h | 912 | Average Density (D), pc/mi/ln | 7.0 |
| Level of Service (LOS) | B | | |

# HCS7 Freeway Merge Report

## Project Information

| | | | |
|---|---|---|---|
| Analyst | Justin Garland | Date | 12/15/2021 |
| Agency | FDOT | Analysis Year | 2020 |
| Jurisdiction | D2 | Time Period Analyzed | Existing AM |
| Project Description | I-10 at 129 - WB Merge | | |

## Geometric Data

| | Freeway | Ramp |
|---|---|---|
| Number of Lanes (N) | 2 | 1 |
| Free-Flow Speed (FFS), mi/h | 75.0 | 35.0 |
| Segment Length (L) / Acceleration Length ($L_A$), ft | 1500 | 450 |
| Terrain Type | Level | Level |
| Percent Grade, % | - | - |
| Segment Type / Ramp Side | Freeway | Right |

## Adjustment Factors

| | | |
|---|---|---|
| Driver Population | All Familiar | All Familiar |
| Weather Type | Non-Severe Weather | Non-Severe Weather |
| Incident Type | No Incident | - |
| Final Speed Adjustment Factor (SAF) | 1.000 | 1.000 |
| Final Capacity Adjustment Factor (CAF) | 1.000 | 1.000 |
| Demand Adjustment Factor (DAF) | 1.000 | 1.000 |

## Demand and Capacity

| | | |
|---|---|---|
| Demand Volume ($V_i$), veh/h | 556 | 83 |
| Peak Hour Factor (PHF) | 0.92 | 0.92 |
| Total Trucks, % | 13.20 | 2.80 |
| Single-Unit Trucks (SUT), % | - | - |
| Tractor-Trailers (TT), % | - | - |
| Heavy Vehicle Adjustment Factor ($f_{HV}$) | 0.883 | 0.973 |
| Flow Rate ($v_i$), pc/h | 684 | 93 |
| Capacity (c), pc/h | 4800 | 2000 |
| Volume-to-Capacity Ratio (v/c) | 0.16 | 0.05 |

## Speed and Density

| | | | |
|---|---|---|---|
| Upstream Equilibrium Distance ($L_{EQ}$), ft | - | Density in Ramp Influence Area ($D_R$), pc/mi/ln | 8.7 |
| Distance to Upstream Ramp ($L_{UP}$), ft | - | Speed Index ($M_S$) | 0.298 |
| Downstream Equilibrium Distance ($L_{EQ}$), ft | - | Flow Outer Lanes ($v_{OA}$), pc/h/ln | - |
| Distance to Downstream Ramp ($L_{DOWN}$), ft | - | On-Ramp Influence Area Speed ($S_R$), mi/h | 65.2 |
| Prop. Freeway Vehicles in Lane 1 and 2 ($P_{FM}$) | 1.000 | Outer Lanes Freeway Speed ($S_O$), mi/h | - |
| Flow in Lanes 1 and 2 ($v_{12}$), pc/h | 684 | Ramp Junction Speed (S), mi/h | 65.2 |
| Flow Entering Ramp-Infl. Area ($v_{R12}$), pc/h | 777 | Average Density (D), pc/mi/ln | 6.0 |
| Level of Service (LOS) | A | | |

# HCS7 Freeway Diverge Report

## Project Information

| | | | |
|---|---|---|---|
| Analyst | Justin Garland | Date | 12/8/2020 |
| Agency | FDOT | Analysis Year | 2020 |
| Jurisdiction | D2 | Time Period Analyzed | Existing AM |
| Project Description | I-10 at 129 - EB Diverge | | |

## Geometric Data

| | Freeway | Ramp |
|---|---|---|
| Number of Lanes (N) | 2 | 1 |
| Free-Flow Speed (FFS), mi/h | 75.0 | 35.0 |
| Segment Length (L) / Deceleration Length ($L_D$), ft | 1500 | 200 |
| Terrain Type | Level | Level |
| Percent Grade, % | - | - |
| Segment Type / Ramp Side | Highway/CD Roadway | Right |

## Adjustment Factors

| | | |
|---|---|---|
| Driver Population | All Familiar | All Familiar |
| Weather Type | Non-Severe Weather | Non-Severe Weather |
| Incident Type | No Incident | - |
| Final Speed Adjustment Factor (SAF) | 1.000 | 1.000 |
| Final Capacity Adjustment Factor (CAF) | 1.000 | 1.000 |
| Demand Adjustment Factor (DAF) | 1.000 | 1.000 |

## Demand and Capacity

| | | |
|---|---|---|
| Demand Volume ($V_i$), veh/h | 642 | 90 |
| Peak Hour Factor (PHF) | 0.92 | 0.92 |
| Total Trucks, % | 13.20 | 2.80 |
| Single-Unit Trucks (SUT), % | - | - |
| Tractor-Trailers (TT), % | - | - |
| Heavy Vehicle Adjustment Factor ($f_{HV}$) | 0.883 | 0.973 |
| Flow Rate ($v_i$), pc/h | 790 | 101 |
| Capacity (c), pc/h | 4400 | 2000 |
| Volume-to-Capacity Ratio (v/c) | 0.18 | 0.05 |

## Speed and Density

| | | | |
|---|---|---|---|
| Upstream Equilibrium Distance ($L_{EQ}$), ft | - | Density in Ramp Influence Area ($D_R$), pc/mi/ln | 9.2 |
| Distance to Upstream Ramp ($L_{UP}$), ft | - | Speed Index ($D_S$) | 0.437 |
| Downstream Equilibrium Distance ($L_{EQ}$), ft | - | Flow Outer Lanes ($v_{OA}$), pc/h/ln | - |
| Distance to Downstream Ramp ($L_{DOWN}$), ft | - | Off-Ramp Influence Area Speed ($S_R$), mi/h | 60.6 |
| Prop. Freeway Vehicles in Lane 1 and 2 ($P_{FD}$) | 1.000 | Outer Lanes Freeway Speed ($S_O$), mi/h | - |
| Flow in Lanes 1 and 2 ($v_{12}$), pc/h | 790 | Ramp Junction Speed (S), mi/h | 60.6 |
| Flow Entering Ramp-Infl. Area ($v_{R12}$), pc/h | - | Average Density (D), pc/mi/ln | 6.5 |
| Level of Service (LOS) | A | | |

# HCS7 Freeway Diverge Report

## Project Information

| | | | |
|---|---|---|---|
| Analyst | Justin Garland | Date | 12/8/2020 |
| Agency | FDOT | Analysis Year | 2020 |
| Jurisdiction | D2 | Time Period Analyzed | Existing AM |
| Project Description | I-10 at 129 - WB Diverge | | |

## Geometric Data

| | Freeway | Ramp |
|---|---|---|
| Number of Lanes (N) | 2 | 1 |
| Free-Flow Speed (FFS), mi/h | 75.0 | 35.0 |
| Segment Length (L) / Deceleration Length ($L_D$), ft | 1500 | 200 |
| Terrain Type | Level | Level |
| Percent Grade, % | - | - |
| Segment Type / Ramp Side | Highway/CD Roadway | Right |

## Adjustment Factors

| | | |
|---|---|---|
| Driver Population | All Familiar | All Familiar |
| Weather Type | Non-Severe Weather | Non-Severe Weather |
| Incident Type | No Incident | - |
| Final Speed Adjustment Factor (SAF) | 1.000 | 1.000 |
| Final Capacity Adjustment Factor (CAF) | 1.000 | 1.000 |
| Demand Adjustment Factor (DAF) | 1.000 | 1.000 |

## Demand and Capacity

| | | |
|---|---|---|
| Demand Volume ($V_i$), veh/h | 730 | 174 |
| Peak Hour Factor (PHF) | 0.92 | 0.92 |
| Total Trucks, % | 13.20 | 2.80 |
| Single-Unit Trucks (SUT), % | - | - |
| Tractor-Trailers (TT), % | - | - |
| Heavy Vehicle Adjustment Factor ($f_{HV}$) | 0.883 | 0.973 |
| Flow Rate ($v_i$), pc/h | 899 | 194 |
| Capacity (c), pc/h | 4400 | 2000 |
| Volume-to-Capacity Ratio (v/c) | 0.20 | 0.10 |

## Speed and Density

| | | | |
|---|---|---|---|
| Upstream Equilibrium Distance ($L_{EQ}$), ft | - | Density in Ramp Influence Area ($D_R$), pc/mi/ln | 10.2 |
| Distance to Upstream Ramp ($L_{UP}$), ft | - | Speed Index ($D_S$) | 0.445 |
| Downstream Equilibrium Distance ($L_{EQ}$), ft | - | Flow Outer Lanes ($v_{OA}$), pc/h/ln | - |
| Distance to Downstream Ramp ($L_{DOWN}$), ft | - | Off-Ramp Influence Area Speed ($S_R$), mi/h | 60.3 |
| Prop. Freeway Vehicles in Lane 1 and 2 ($P_{FD}$) | 1.000 | Outer Lanes Freeway Speed ($S_O$), mi/h | - |
| Flow in Lanes 1 and 2 ($v_{12}$), pc/h | 899 | Ramp Junction Speed (S), mi/h | 60.3 |
| Flow Entering Ramp-Infl. Area ($v_{R12}$), pc/h | - | Average Density (D), pc/mi/ln | 7.5 |
| Level of Service (LOS) | B | | |

# HCS7 Basic Freeway Report

## Project Information

| | | | |
|---|---|---|---|
| Analyst | Justin Garland | Date | 12/1/2020 |
| Agency | FDOT | Analysis Year | 2020 |
| Jurisdiction | D2 | Time Period Analyzed | Existing AM |
| Project Description | I-10 EB East of 129 | | |

## Geometric Data

| | | | |
|---|---|---|---|
| Number of Lanes, ln | 2 | Terrain Type | Level |
| Segment Length (L), ft | - | Percent Grade, % | - |
| Measured or Base Free-Flow Speed | Base | Grade Length, mi | - |
| Base Free-Flow Speed (BFFS), mi/h | 75.0 | Total Ramp Density (TRD), ramps/mi | 0.33 |
| Lane Width, ft | 12 | Free-Flow Speed (FFS), mi/h | 73.7 |
| Right-Side Lateral Clearance, ft | 10 | | |

## Adjustment Factors

| | | | |
|---|---|---|---|
| Driver Population | All Familiar | Final Speed Adjustment Factor (SAF) | 1.000 |
| Weather Type | Non-Severe Weather | Final Capacity Adjustment Factor (CAF) | 1.000 |
| Incident Type | No Incident | Demand Adjustment Factor (DAF) | 1.000 |

## Demand and Capacity

| | | | |
|---|---|---|---|
| Demand Volume veh/h | 760 | Heavy Vehicle Adjustment Factor ($f_{HV}$) | 0.883 |
| Peak Hour Factor | 0.92 | Flow Rate ($V_p$), pc/h/ln | 468 |
| Total Trucks, % | 13.20 | Capacity (c), pc/h/ln | 2400 |
| Single-Unit Trucks (SUT), % | - | Adjusted Cpacity ($c_{adj}$), pc/h/ln | 2400 |
| Tractor-Trailers (TT), % | - | Volume-to-Capacity Ratio (v/c) | 0.20 |
| Passenger Car Equivalent ($E_T$) | 2.000 | | |

## Speed and Density

| | | | |
|---|---|---|---|
| Lane Width Adjustment ($f_{LW}$) | 0.0 | Average Speed (S), mi/h | 73.7 |
| Right-Side Lateral Clearance Adj. ($f_{RLC}$) | 0.0 | Density (D), pc/mi/ln | 6.4 |
| Total Ramp Density Adjustment | 1.3 | Level of Service (LOS) | A |
| Adjusted Free-Flow Speed ($FFS_{adj}$), mi/h | 73.7 | | |

# HCS7 Basic Freeway Report

## Project Information

| | | | |
|---|---|---|---|
| Analyst | Justin Garland | Date | 12/1/2020 |
| Agency | FDOT | Analysis Year | 2020 |
| Jurisdiction | D2 | Time Period Analyzed | Existing AM |
| Project Description | I-10 EB West of 129 | | |

## Geometric Data

| | | | |
|---|---|---|---|
| Number of Lanes, ln | 2 | Terrain Type | Level |
| Segment Length (L), ft | - | Percent Grade, % | - |
| Measured or Base Free-Flow Speed | Base | Grade Length, mi | - |
| Base Free-Flow Speed (BFFS), mi/h | 75.0 | Total Ramp Density (TRD), ramps/mi | 0.33 |
| Lane Width, ft | 12 | Free-Flow Speed (FFS), mi/h | 73.7 |
| Right-Side Lateral Clearance, ft | 10 | | |

## Adjustment Factors

| | | | |
|---|---|---|---|
| Driver Population | All Familiar | Final Speed Adjustment Factor (SAF) | 1.000 |
| Weather Type | Non-Severe Weather | Final Capacity Adjustment Factor (CAF) | 1.000 |
| Incident Type | No Incident | Demand Adjustment Factor (DAF) | 1.000 |

## Demand and Capacity

| | | | |
|---|---|---|---|
| Demand Volume veh/h | 642 | Heavy Vehicle Adjustment Factor ($f_{HV}$) | 0.883 |
| Peak Hour Factor | 0.92 | Flow Rate ($V_p$), pc/h/ln | 395 |
| Total Trucks, % | 13.20 | Capacity (c), pc/h/ln | 2400 |
| Single-Unit Trucks (SUT), % | - | Adjusted Cpacity ($c_{adj}$), pc/h/ln | 2400 |
| Tractor-Trailers (TT), % | - | Volume-to-Capacity Ratio (v/c) | 0.16 |
| Passenger Car Equivalent ($E_T$) | 2.000 | | |

## Speed and Density

| | | | |
|---|---|---|---|
| Lane Width Adjustment ($f_{LW}$) | 0.0 | Average Speed (S), mi/h | 73.7 |
| Right-Side Lateral Clearance Adj. ($f_{RLC}$) | 0.0 | Density (D), pc/mi/ln | 5.4 |
| Total Ramp Density Adjustment | 1.3 | Level of Service (LOS) | A |
| Adjusted Free-Flow Speed ($FFS_{adj}$), mi/h | 73.7 | | |

# HCS7 Basic Freeway Report

## Project Information

| | | | |
|---|---|---|---|
| Analyst | Justin Garland | Date | 12/1/2020 |
| Agency | FDOT | Analysis Year | 2020 |
| Jurisdiction | D2 | Time Period Analyzed | Existing AM |
| Project Description | I-10 WB East of 129 | | |

## Geometric Data

| | | | |
|---|---|---|---|
| Number of Lanes, ln | 2 | Terrain Type | Level |
| Segment Length (L), ft | - | Percent Grade, % | - |
| Measured or Base Free-Flow Speed | Base | Grade Length, mi | - |
| Base Free-Flow Speed (BFFS), mi/h | 75.0 | Total Ramp Density (TRD), ramps/mi | 0.33 |
| Lane Width, ft | 12 | Free-Flow Speed (FFS), mi/h | 73.7 |
| Right-Side Lateral Clearance, ft | 10 | | |

## Adjustment Factors

| | | | |
|---|---|---|---|
| Driver Population | All Familiar | Final Speed Adjustment Factor (SAF) | 1.000 |
| Weather Type | Non-Severe Weather | Final Capacity Adjustment Factor (CAF) | 1.000 |
| Incident Type | No Incident | Demand Adjustment Factor (DAF) | 1.000 |

## Demand and Capacity

| | | | |
|---|---|---|---|
| Demand Volume veh/h | 730 | Heavy Vehicle Adjustment Factor ($f_{HV}$) | 0.883 |
| Peak Hour Factor | 0.92 | Flow Rate ($V_p$), pc/h/ln | 450 |
| Total Trucks, % | 13.20 | Capacity (c), pc/h/ln | 2400 |
| Single-Unit Trucks (SUT), % | - | Adjusted Cpacity ($c_{adj}$), pc/h/ln | 2400 |
| Tractor-Trailers (TT), % | - | Volume-to-Capacity Ratio (v/c) | 0.19 |
| Passenger Car Equivalent ($E_T$) | 2.000 | | |

## Speed and Density

| | | | |
|---|---|---|---|
| Lane Width Adjustment ($f_{LW}$) | 0.0 | Average Speed (S), mi/h | 73.7 |
| Right-Side Lateral Clearance Adj. ($f_{RLC}$) | 0.0 | Density (D), pc/mi/ln | 6.1 |
| Total Ramp Density Adjustment | 1.3 | Level of Service (LOS) | A |
| Adjusted Free-Flow Speed ($FFS_{adj}$), mi/h | 73.7 | | |

# HCS7 Basic Freeway Report

## Project Information

| | | | |
|---|---|---|---|
| Analyst | Justin Garland | Date | 12/1/2020 |
| Agency | FDOT | Analysis Year | 2020 |
| Jurisdiction | D2 | Time Period Analyzed | Existing AM |
| Project Description | I-10 WB West of 129 | | |

## Geometric Data

| | | | |
|---|---|---|---|
| Number of Lanes, ln | 2 | Terrain Type | Level |
| Segment Length (L), ft | - | Percent Grade, % | - |
| Measured or Base Free-Flow Speed | Base | Grade Length, mi | - |
| Base Free-Flow Speed (BFFS), mi/h | 75.0 | Total Ramp Density (TRD), ramps/mi | 0.33 |
| Lane Width, ft | 12 | Free-Flow Speed (FFS), mi/h | 73.7 |
| Right-Side Lateral Clearance, ft | 10 | | |

## Adjustment Factors

| | | | |
|---|---|---|---|
| Driver Population | All Familiar | Final Speed Adjustment Factor (SAF) | 1.000 |
| Weather Type | Non-Severe Weather | Final Capacity Adjustment Factor (CAF) | 1.000 |
| Incident Type | No Incident | Demand Adjustment Factor (DAF) | 1.000 |

## Demand and Capacity

| | | | |
|---|---|---|---|
| Demand Volume veh/h | 638 | Heavy Vehicle Adjustment Factor ($f_{HV}$) | 0.883 |
| Peak Hour Factor | 0.92 | Flow Rate ($V_p$), pc/h/ln | 392 |
| Total Trucks, % | 13.20 | Capacity (c), pc/h/ln | 2400 |
| Single-Unit Trucks (SUT), % | - | Adjusted Cpacity ($c_{adj}$), pc/h/ln | 2400 |
| Tractor-Trailers (TT), % | - | Volume-to-Capacity Ratio (v/c) | 0.16 |
| Passenger Car Equivalent ($E_T$) | 2.000 | | |

## Speed and Density

| | | | |
|---|---|---|---|
| Lane Width Adjustment ($f_{LW}$) | 0.0 | Average Speed (S), mi/h | 73.7 |
| Right-Side Lateral Clearance Adj. ($f_{RLC}$) | 0.0 | Density (D), pc/mi/ln | 5.3 |
| Total Ramp Density Adjustment | 1.3 | Level of Service (LOS) | A |
| Adjusted Free-Flow Speed ($FFS_{adj}$), mi/h | 73.7 | | |

# HCS7 Freeway Merge Report

## Project Information

| | | | |
|---|---|---|---|
| Analyst | Justin Garland | Date | 12/15/2021 |
| Agency | FDOT | Analysis Year | 2020 |
| Jurisdiction | D2 | Time Period Analyzed | Existing PM |
| Project Description | I-10 at 129 - EB Merge | | |

## Geometric Data

| | Freeway | Ramp |
|---|---|---|
| Number of Lanes (N) | 2 | 1 |
| Free-Flow Speed (FFS), mi/h | 75.0 | 35.0 |
| Segment Length (L) / Acceleration Length ($L_A$), ft | 1500 | 300 |
| Terrain Type | Level | Level |
| Percent Grade, % | - | - |
| Segment Type / Ramp Side | Freeway | Right |

## Adjustment Factors

| | | |
|---|---|---|
| Driver Population | All Familiar | All Familiar |
| Weather Type | Non-Severe Weather | Non-Severe Weather |
| Incident Type | No Incident | - |
| Final Speed Adjustment Factor (SAF) | 1.000 | 1.000 |
| Final Capacity Adjustment Factor (CAF) | 1.000 | 1.000 |
| Demand Adjustment Factor (DAF) | 1.000 | 1.000 |

## Demand and Capacity

| | | |
|---|---|---|
| Demand Volume ($V_i$), veh/h | 1053 | 211 |
| Peak Hour Factor (PHF) | 0.92 | 0.92 |
| Total Trucks, % | 13.20 | 2.80 |
| Single-Unit Trucks (SUT), % | - | - |
| Tractor-Trailers (TT), % | - | - |
| Heavy Vehicle Adjustment Factor ($f_{HV}$) | 0.883 | 0.973 |
| Flow Rate ($v_i$), pc/h | 1296 | 236 |
| Capacity (c), pc/h | 4800 | 2000 |
| Volume-to-Capacity Ratio (v/c) | 0.32 | 0.12 |

## Speed and Density

| | | | |
|---|---|---|---|
| Upstream Equilibrium Distance ($L_{EQ}$), ft | - | Density in Ramp Influence Area ($D_R$), pc/mi/ln | 15.5 |
| Distance to Upstream Ramp ($L_{UP}$), ft | - | Speed Index ($M_S$) | 0.318 |
| Downstream Equilibrium Distance ($L_{EQ}$), ft | - | Flow Outer Lanes ($v_{OA}$), pc/h/ln | - |
| Distance to Downstream Ramp ($L_{DOWN}$), ft | - | On-Ramp Influence Area Speed ($S_R$), mi/h | 64.5 |
| Prop. Freeway Vehicles in Lane 1 and 2 ($P_{FM}$) | 1.000 | Outer Lanes Freeway Speed ($S_O$), mi/h | - |
| Flow in Lanes 1 and 2 ($v_{12}$), pc/h | 1296 | Ramp Junction Speed (S), mi/h | 64.5 |
| Flow Entering Ramp-Infl. Area ($v_{R12}$), pc/h | 1532 | Average Density (D), pc/mi/ln | 11.9 |
| Level of Service (LOS) | B | | |

# HCS7 Freeway Merge Report

## Project Information

| | | | |
|---|---|---|---|
| Analyst | Justin Garland | Date | 12/15/2021 |
| Agency | FDOT | Analysis Year | 2020 |
| Jurisdiction | D2 | Time Period Analyzed | Existing PM |
| Project Description | I-10 at 129 - WB Merge | | |

## Geometric Data

| | Freeway | Ramp |
|---|---|---|
| Number of Lanes (N) | 2 | 1 |
| Free-Flow Speed (FFS), mi/h | 75.0 | 35.0 |
| Segment Length (L) / Acceleration Length ($L_A$), ft | 1500 | 500 |
| Terrain Type | Level | Level |
| Percent Grade, % | - | - |
| Segment Type / Ramp Side | Freeway | Right |

## Adjustment Factors

| | | |
|---|---|---|
| Driver Population | All Familiar | All Familiar |
| Weather Type | Non-Severe Weather | Non-Severe Weather |
| Incident Type | No Incident | - |
| Final Speed Adjustment Factor (SAF) | 1.000 | 1.000 |
| Final Capacity Adjustment Factor (CAF) | 1.000 | 1.000 |
| Demand Adjustment Factor (DAF) | 1.000 | 1.000 |

## Demand and Capacity

| | | |
|---|---|---|
| Demand Volume ($V_i$), veh/h | 1115 | 136 |
| Peak Hour Factor (PHF) | 0.92 | 0.92 |
| Total Trucks, % | 13.20 | 2.80 |
| Single-Unit Trucks (SUT), % | - | - |
| Tractor-Trailers (TT), % | - | - |
| Heavy Vehicle Adjustment Factor ($f_{HV}$) | 0.883 | 0.973 |
| Flow Rate ($v_i$), pc/h | 1373 | 152 |
| Capacity (c), pc/h | 4800 | 2000 |
| Volume-to-Capacity Ratio (v/c) | 0.32 | 0.08 |

## Speed and Density

| | | | |
|---|---|---|---|
| Upstream Equilibrium Distance ($L_{EQ}$), ft | - | Density in Ramp Influence Area ($D_R$), pc/mi/ln | 14.2 |
| Distance to Upstream Ramp ($L_{UP}$), ft | - | Speed Index ($M_S$) | 0.304 |
| Downstream Equilibrium Distance ($L_{EQ}$), ft | - | Flow Outer Lanes ($v_{OA}$), pc/h/ln | - |
| Distance to Downstream Ramp ($L_{DOWN}$), ft | - | On-Ramp Influence Area Speed ($S_R$), mi/h | 65.0 |
| Prop. Freeway Vehicles in Lane 1 and 2 ($P_{FM}$) | 1.000 | Outer Lanes Freeway Speed ($S_O$), mi/h | - |
| Flow in Lanes 1 and 2 ($v_{12}$), pc/h | 1373 | Ramp Junction Speed (S), mi/h | 65.0 |
| Flow Entering Ramp-Infl. Area ($v_{R12}$), pc/h | 1525 | Average Density (D), pc/mi/ln | 11.7 |
| Level of Service (LOS) | B | | |

# HCS7 Freeway Diverge Report

## Project Information

| | | | |
|---|---|---|---|
| Analyst | Justin Garland | Date | 12/8/2020 |
| Agency | FDOT | Analysis Year | 2020 |
| Jurisdiction | D2 | Time Period Analyzed | Existing PM |
| Project Description | I-10 at 129 - EB Diverge | | |

## Geometric Data

| | Freeway | Ramp |
|---|---|---|
| Number of Lanes (N) | 2 | 1 |
| Free-Flow Speed (FFS), mi/h | 75.0 | 35.0 |
| Segment Length (L) / Deceleration Length ($L_D$), ft | 1500 | 200 |
| Terrain Type | Level | Level |
| Percent Grade, % | - | - |
| Segment Type / Ramp Side | Highway/CD Roadway | Right |

## Adjustment Factors

| | | |
|---|---|---|
| Driver Population | All Familiar | All Familiar |
| Weather Type | Non-Severe Weather | Non-Severe Weather |
| Incident Type | No Incident | - |
| Final Speed Adjustment Factor (SAF) | 1.000 | 1.000 |
| Final Capacity Adjustment Factor (CAF) | 1.000 | 1.000 |
| Demand Adjustment Factor (DAF) | 1.000 | 1.000 |

## Demand and Capacity

| | | |
|---|---|---|
| Demand Volume ($V_i$), veh/h | 1181 | 128 |
| Peak Hour Factor (PHF) | 0.92 | 0.92 |
| Total Trucks, % | 13.20 | 2.80 |
| Single-Unit Trucks (SUT), % | - | - |
| Tractor-Trailers (TT), % | - | - |
| Heavy Vehicle Adjustment Factor ($f_{HV}$) | 0.883 | 0.973 |
| Flow Rate ($v_i$), pc/h | 1454 | 143 |
| Capacity (c), pc/h | 4400 | 2000 |
| Volume-to-Capacity Ratio (v/c) | 0.33 | 0.07 |

## Speed and Density

| | | | |
|---|---|---|---|
| Upstream Equilibrium Distance ($L_{EQ}$), ft | - | Density in Ramp Influence Area ($D_R$), pc/mi/ln | 15.0 |
| Distance to Upstream Ramp ($L_{UP}$), ft | - | Speed Index ($D_S$) | 0.441 |
| Downstream Equilibrium Distance ($L_{EQ}$), ft | - | Flow Outer Lanes ($v_{OA}$), pc/h/ln | - |
| Distance to Downstream Ramp ($L_{DOWN}$), ft | - | Off-Ramp Influence Area Speed ($S_R$), mi/h | 60.4 |
| Prop. Freeway Vehicles in Lane 1 and 2 ($P_{FD}$) | 1.000 | Outer Lanes Freeway Speed ($S_O$), mi/h | - |
| Flow in Lanes 1 and 2 ($v_{12}$), pc/h | 1454 | Ramp Junction Speed (S), mi/h | 60.4 |
| Flow Entering Ramp-Infl. Area ($v_{R12}$), pc/h | - | Average Density (D), pc/mi/ln | 12.0 |
| Level of Service (LOS) | B | | |

# HCS7 Freeway Diverge Report

## Project Information

| | | | |
|---|---|---|---|
| Analyst | Justin Garland | Date | 12/8/2020 |
| Agency | FDOT | Analysis Year | 2020 |
| Jurisdiction | D2 | Time Period Analyzed | Existing PM |
| Project Description | I-10 at 129 - WB Diverge | | |

## Geometric Data

| | Freeway | Ramp |
|---|---|---|
| Number of Lanes (N) | 2 | 1 |
| Free-Flow Speed (FFS), mi/h | 75.0 | 35.0 |
| Segment Length (L) / Deceleration Length ($L_D$), ft | 1500 | 200 |
| Terrain Type | Level | Level |
| Percent Grade, % | - | - |
| Segment Type / Ramp Side | Highway/CD Roadway | Right |

## Adjustment Factors

| | | |
|---|---|---|
| Driver Population | All Familiar | All Familiar |
| Weather Type | Non-Severe Weather | Non-Severe Weather |
| Incident Type | No Incident | - |
| Final Speed Adjustment Factor (SAF) | 1.000 | 1.000 |
| Final Capacity Adjustment Factor (CAF) | 1.000 | 1.000 |
| Demand Adjustment Factor (DAF) | 1.000 | 1.000 |

## Demand and Capacity

| | | |
|---|---|---|
| Demand Volume ($V_i$), veh/h | 1332 | 217 |
| Peak Hour Factor (PHF) | 0.92 | 0.92 |
| Total Trucks, % | 13.20 | 2.80 |
| Single-Unit Trucks (SUT), % | - | - |
| Tractor-Trailers (TT), % | - | - |
| Heavy Vehicle Adjustment Factor ($f_{HV}$) | 0.883 | 0.973 |
| Flow Rate ($v_i$), pc/h | 1640 | 242 |
| Capacity (c), pc/h | 4400 | 2000 |
| Volume-to-Capacity Ratio (v/c) | 0.37 | 0.12 |

## Speed and Density

| | | | |
|---|---|---|---|
| Upstream Equilibrium Distance ($L_{EQ}$), ft | - | Density in Ramp Influence Area ($D_R$), pc/mi/ln | 16.6 |
| Distance to Upstream Ramp ($L_{UP}$), ft | - | Speed Index ($D_S$) | 0.450 |
| Downstream Equilibrium Distance ($L_{EQ}$), ft | - | Flow Outer Lanes ($v_{OA}$), pc/h/ln | - |
| Distance to Downstream Ramp ($L_{DOWN}$), ft | - | Off-Ramp Influence Area Speed ($S_R$), mi/h | 60.2 |
| Prop. Freeway Vehicles in Lane 1 and 2 ($P_{FD}$) | 1.000 | Outer Lanes Freeway Speed ($S_O$), mi/h | - |
| Flow in Lanes 1 and 2 ($v_{12}$), pc/h | 1640 | Ramp Junction Speed (S), mi/h | 60.2 |
| Flow Entering Ramp-Infl. Area ($v_{R12}$), pc/h | - | Average Density (D), pc/mi/ln | 13.6 |
| Level of Service (LOS) | B | | |

# HCS7 Basic Freeway Report

## Project Information

| | | | |
|---|---|---|---|
| Analyst | Justin Garland | Date | 12/1/2020 |
| Agency | FDOT | Analysis Year | 2020 |
| Jurisdiction | D2 | Time Period Analyzed | Existing PM |
| Project Description | I-10 EB East of 129 | | |

## Geometric Data

| | | | |
|---|---|---|---|
| Number of Lanes, ln | 2 | Terrain Type | Level |
| Segment Length (L), ft | - | Percent Grade, % | - |
| Measured or Base Free-Flow Speed | Base | Grade Length, mi | - |
| Base Free-Flow Speed (BFFS), mi/h | 75.0 | Total Ramp Density (TRD), ramps/mi | 0.33 |
| Lane Width, ft | 12 | Free-Flow Speed (FFS), mi/h | 73.7 |
| Right-Side Lateral Clearance, ft | 10 | | |

## Adjustment Factors

| | | | |
|---|---|---|---|
| Driver Population | All Familiar | Final Speed Adjustment Factor (SAF) | 1.000 |
| Weather Type | Non-Severe Weather | Final Capacity Adjustment Factor (CAF) | 1.000 |
| Incident Type | No Incident | Demand Adjustment Factor (DAF) | 1.000 |

## Demand and Capacity

| | | | |
|---|---|---|---|
| Demand Volume veh/h | 1265 | Heavy Vehicle Adjustment Factor ($f_{HV}$) | 0.883 |
| Peak Hour Factor | 0.92 | Flow Rate ($V_p$), pc/h/ln | 778 |
| Total Trucks, % | 13.20 | Capacity (c), pc/h/ln | 2400 |
| Single-Unit Trucks (SUT), % | - | Adjusted Cpacity ($c_{adj}$), pc/h/ln | 2400 |
| Tractor-Trailers (TT), % | - | Volume-to-Capacity Ratio (v/c) | 0.32 |
| Passenger Car Equivalent ($E_T$) | 2.000 | | |

## Speed and Density

| | | | |
|---|---|---|---|
| Lane Width Adjustment ($f_{LW}$) | 0.0 | Average Speed (S), mi/h | 73.7 |
| Right-Side Lateral Clearance Adj. ($f_{RLC}$) | 0.0 | Density (D), pc/mi/ln | 10.6 |
| Total Ramp Density Adjustment | 1.3 | Level of Service (LOS) | A |
| Adjusted Free-Flow Speed ($FFS_{adj}$), mi/h | 73.7 | | |

# HCS7 Basic Freeway Report

## Project Information

| | | | |
|---|---|---|---|
| Analyst | Justin Garland | Date | 12/1/2020 |
| Agency | FDOT | Analysis Year | 2020 |
| Jurisdiction | D2 | Time Period Analyzed | Existing PM |
| Project Description | I-10 EB West of 129 | | |

## Geometric Data

| | | | |
|---|---|---|---|
| Number of Lanes, ln | 2 | Terrain Type | Level |
| Segment Length (L), ft | - | Percent Grade, % | - |
| Measured or Base Free-Flow Speed | Base | Grade Length, mi | - |
| Base Free-Flow Speed (BFFS), mi/h | 75.0 | Total Ramp Density (TRD), ramps/mi | 0.33 |
| Lane Width, ft | 12 | Free-Flow Speed (FFS), mi/h | 73.7 |
| Right-Side Lateral Clearance, ft | 10 | | |

## Adjustment Factors

| | | | |
|---|---|---|---|
| Driver Population | All Familiar | Final Speed Adjustment Factor (SAF) | 1.000 |
| Weather Type | Non-Severe Weather | Final Capacity Adjustment Factor (CAF) | 1.000 |
| Incident Type | No Incident | Demand Adjustment Factor (DAF) | 1.000 |

## Demand and Capacity

| | | | |
|---|---|---|---|
| Demand Volume veh/h | 1181 | Heavy Vehicle Adjustment Factor ($f_{HV}$) | 0.883 |
| Peak Hour Factor | 0.92 | Flow Rate ($V_p$), pc/h/ln | 727 |
| Total Trucks, % | 13.20 | Capacity (c), pc/h/ln | 2400 |
| Single-Unit Trucks (SUT), % | - | Adjusted Cpacity ($c_{adj}$), pc/h/ln | 2400 |
| Tractor-Trailers (TT), % | - | Volume-to-Capacity Ratio (v/c) | 0.30 |
| Passenger Car Equivalent ($E_T$) | 2.000 | | |

## Speed and Density

| | | | |
|---|---|---|---|
| Lane Width Adjustment ($f_{LW}$) | 0.0 | Average Speed (S), mi/h | 73.7 |
| Right-Side Lateral Clearance Adj. ($f_{RLC}$) | 0.0 | Density (D), pc/mi/ln | 9.9 |
| Total Ramp Density Adjustment | 1.3 | Level of Service (LOS) | A |
| Adjusted Free-Flow Speed ($FFS_{adj}$), mi/h | 73.7 | | |

# HCS7 Basic Freeway Report

## Project Information

| | | | |
|---|---|---|---|
| Analyst | Justin Garland | Date | 12/1/2020 |
| Agency | FDOT | Analysis Year | 2020 |
| Jurisdiction | D2 | Time Period Analyzed | Existing PM |
| Project Description | I-10 WB East of 129 | | |

## Geometric Data

| | | | |
|---|---|---|---|
| Number of Lanes, ln | 2 | Terrain Type | Level |
| Segment Length (L), ft | - | Percent Grade, % | - |
| Measured or Base Free-Flow Speed | Base | Grade Length, mi | - |
| Base Free-Flow Speed (BFFS), mi/h | 75.0 | Total Ramp Density (TRD), ramps/mi | 0.33 |
| Lane Width, ft | 12 | Free-Flow Speed (FFS), mi/h | 73.7 |
| Right-Side Lateral Clearance, ft | 10 | | |

## Adjustment Factors

| | | | |
|---|---|---|---|
| Driver Population | All Familiar | Final Speed Adjustment Factor (SAF) | 1.000 |
| Weather Type | Non-Severe Weather | Final Capacity Adjustment Factor (CAF) | 1.000 |
| Incident Type | No Incident | Demand Adjustment Factor (DAF) | 1.000 |

## Demand and Capacity

| | | | |
|---|---|---|---|
| Demand Volume veh/h | 1332 | Heavy Vehicle Adjustment Factor ($f_{HV}$) | 0.883 |
| Peak Hour Factor | 0.92 | Flow Rate ($V_p$), pc/h/ln | 820 |
| Total Trucks, % | 13.20 | Capacity (c), pc/h/ln | 2400 |
| Single-Unit Trucks (SUT), % | - | Adjusted Cpacity ($c_{adj}$), pc/h/ln | 2400 |
| Tractor-Trailers (TT), % | - | Volume-to-Capacity Ratio (v/c) | 0.34 |
| Passenger Car Equivalent ($E_T$) | 2.000 | | |

## Speed and Density

| | | | |
|---|---|---|---|
| Lane Width Adjustment ($f_{LW}$) | 0.0 | Average Speed (S), mi/h | 73.7 |
| Right-Side Lateral Clearance Adj. ($f_{RLC}$) | 0.0 | Density (D), pc/mi/ln | 11.1 |
| Total Ramp Density Adjustment | 1.3 | Level of Service (LOS) | B |
| Adjusted Free-Flow Speed ($FFS_{adj}$), mi/h | 73.7 | | |

# HCS7 Basic Freeway Report

## Project Information

| | | | |
|---|---|---|---|
| Analyst | Justin Garland | Date | 12/1/2020 |
| Agency | FDOT | Analysis Year | 2020 |
| Jurisdiction | D2 | Time Period Analyzed | Existing PM |
| Project Description | I-10 WB West of 129 | | |

## Geometric Data

| | | | |
|---|---|---|---|
| Number of Lanes, ln | 2 | Terrain Type | Level |
| Segment Length (L), ft | - | Percent Grade, % | - |
| Measured or Base Free-Flow Speed | Base | Grade Length, mi | - |
| Base Free-Flow Speed (BFFS), mi/h | 75.0 | Total Ramp Density (TRD), ramps/mi | 0.33 |
| Lane Width, ft | 12 | Free-Flow Speed (FFS), mi/h | 73.7 |
| Right-Side Lateral Clearance, ft | 10 | | |

## Adjustment Factors

| | | | |
|---|---|---|---|
| Driver Population | All Familiar | Final Speed Adjustment Factor (SAF) | 1.000 |
| Weather Type | Non-Severe Weather | Final Capacity Adjustment Factor (CAF) | 1.000 |
| Incident Type | No Incident | Demand Adjustment Factor (DAF) | 1.000 |

## Demand and Capacity

| | | | |
|---|---|---|---|
| Demand Volume veh/h | 1252 | Heavy Vehicle Adjustment Factor ($f_{HV}$) | 0.883 |
| Peak Hour Factor | 0.92 | Flow Rate ($V_p$), pc/h/ln | 770 |
| Total Trucks, % | 13.20 | Capacity (c), pc/h/ln | 2400 |
| Single-Unit Trucks (SUT), % | - | Adjusted Cpacity ($c_{adj}$), pc/h/ln | 2400 |
| Tractor-Trailers (TT), % | - | Volume-to-Capacity Ratio (v/c) | 0.32 |
| Passenger Car Equivalent ($E_T$) | 2.000 | | |

## Speed and Density

| | | | |
|---|---|---|---|
| Lane Width Adjustment ($f_{LW}$) | 0.0 | Average Speed (S), mi/h | 73.7 |
| Right-Side Lateral Clearance Adj. ($f_{RLC}$) | 0.0 | Density (D), pc/mi/ln | 10.4 |
| Total Ramp Density Adjustment | 1.3 | Level of Service (LOS) | A |
| Adjusted Free-Flow Speed ($FFS_{adj}$), mi/h | 73.7 | | |

# HCS7 Freeway Merge Report

## Project Information

| | | | |
|---|---|---|---|
| Analyst | Justin Garland | Date | 12/15/2021 |
| Agency | FDOT | Analysis Year | 2025 |
| Jurisdiction | D2 | Time Period Analyzed | Opening AM |
| Project Description | I-10 at 129 - EB Merge | | |

## Geometric Data

| | Freeway | Ramp |
|---|---|---|
| Number of Lanes (N) | 2 | 1 |
| Free-Flow Speed (FFS), mi/h | 75.0 | 35.0 |
| Segment Length (L) / Acceleration Length ($L_A$), ft | 1500 | 300 |
| Terrain Type | Level | Level |
| Percent Grade, % | - | - |
| Segment Type / Ramp Side | Freeway | Right |

## Adjustment Factors

| | | |
|---|---|---|
| Driver Population | All Familiar | All Familiar |
| Weather Type | Non-Severe Weather | Non-Severe Weather |
| Incident Type | No Incident | - |
| Final Speed Adjustment Factor (SAF) | 1.000 | 1.000 |
| Final Capacity Adjustment Factor (CAF) | 1.000 | 1.000 |
| Demand Adjustment Factor (DAF) | 1.000 | 1.000 |

## Demand and Capacity

| | | |
|---|---|---|
| Demand Volume ($V_i$), veh/h | 621 | 234 |
| Peak Hour Factor (PHF) | 0.92 | 0.92 |
| Total Trucks, % | 13.20 | 2.80 |
| Single-Unit Trucks (SUT), % | - | - |
| Tractor-Trailers (TT), % | - | - |
| Heavy Vehicle Adjustment Factor ($f_{HV}$) | 0.883 | 0.973 |
| Flow Rate ($v_i$), pc/h | 764 | 261 |
| Capacity (c), pc/h | 4800 | 2000 |
| Volume-to-Capacity Ratio (v/c) | 0.21 | 0.13 |

## Speed and Density

| | | | |
|---|---|---|---|
| Upstream Equilibrium Distance ($L_{EQ}$), ft | - | Density in Ramp Influence Area ($D_R$), pc/mi/ln | 11.5 |
| Distance to Upstream Ramp ($L_{UP}$), ft | - | Speed Index ($M_S$) | 0.311 |
| Downstream Equilibrium Distance ($L_{EQ}$), ft | - | Flow Outer Lanes ($v_{OA}$), pc/h/ln | - |
| Distance to Downstream Ramp ($L_{DOWN}$), ft | - | On-Ramp Influence Area Speed ($S_R$), mi/h | 64.7 |
| Prop. Freeway Vehicles in Lane 1 and 2 ($P_{FM}$) | 1.000 | Outer Lanes Freeway Speed ($S_O$), mi/h | - |
| Flow in Lanes 1 and 2 ($v_{12}$), pc/h | 764 | Ramp Junction Speed (S), mi/h | 64.7 |
| Flow Entering Ramp-Infl. Area ($v_{R12}$), pc/h | 1025 | Average Density (D), pc/mi/ln | 7.9 |
| Level of Service (LOS) | B | | |

# HCS7 Freeway Merge Report

## Project Information

| | | | |
|---|---|---|---|
| Analyst | Justin Garland | Date | 12/15/2021 |
| Agency | FDOT | Analysis Year | 2025 |
| Jurisdiction | D2 | Time Period Analyzed | Opening AM |
| Project Description | I-10 at 129 - WB Merge | | |

## Geometric Data

| | Freeway | Ramp |
|---|---|---|
| Number of Lanes (N) | 2 | 1 |
| Free-Flow Speed (FFS), mi/h | 75.0 | 35.0 |
| Segment Length (L) / Acceleration Length ($L_A$), ft | 1500 | 500 |
| Terrain Type | Level | Level |
| Percent Grade, % | - | - |
| Segment Type / Ramp Side | Freeway | Right |

## Adjustment Factors

| | | |
|---|---|---|
| Driver Population | All Familiar | All Familiar |
| Weather Type | Non-Severe Weather | Non-Severe Weather |
| Incident Type | No Incident | - |
| Final Speed Adjustment Factor (SAF) | 1.000 | 1.000 |
| Final Capacity Adjustment Factor (CAF) | 1.000 | 1.000 |
| Demand Adjustment Factor (DAF) | 1.000 | 1.000 |

## Demand and Capacity

| | | |
|---|---|---|
| Demand Volume ($V_i$), veh/h | 625 | 93 |
| Peak Hour Factor (PHF) | 0.92 | 0.92 |
| Total Trucks, % | 13.20 | 2.80 |
| Single-Unit Trucks (SUT), % | - | - |
| Tractor-Trailers (TT), % | - | - |
| Heavy Vehicle Adjustment Factor ($f_{HV}$) | 0.883 | 0.973 |
| Flow Rate ($v_i$), pc/h | 769 | 104 |
| Capacity (c), pc/h | 4800 | 2000 |
| Volume-to-Capacity Ratio (v/c) | 0.18 | 0.05 |

## Speed and Density

| | | | |
|---|---|---|---|
| Upstream Equilibrium Distance ($L_{EQ}$), ft | - | Density in Ramp Influence Area ($D_R$), pc/mi/ln | 9.2 |
| Distance to Upstream Ramp ($L_{UP}$), ft | - | Speed Index ($M_S$) | 0.295 |
| Downstream Equilibrium Distance ($L_{EQ}$), ft | - | Flow Outer Lanes ($v_{OA}$), pc/h/ln | - |
| Distance to Downstream Ramp ($L_{DOWN}$), ft | - | On-Ramp Influence Area Speed ($S_R$), mi/h | 65.3 |
| Prop. Freeway Vehicles in Lane 1 and 2 ($P_{FM}$) | 1.000 | Outer Lanes Freeway Speed ($S_O$), mi/h | - |
| Flow in Lanes 1 and 2 ($v_{12}$), pc/h | 769 | Ramp Junction Speed (S), mi/h | 65.3 |
| Flow Entering Ramp-Infl. Area ($v_{R12}$), pc/h | 873 | Average Density (D), pc/mi/ln | 6.7 |
| Level of Service (LOS) | A | | |

# HCS7 Freeway Diverge Report

## Project Information

| | | | |
|---|---|---|---|
| Analyst | Justin Garland | Date | 12/8/2020 |
| Agency | FDOT | Analysis Year | 2025 |
| Jurisdiction | D2 | Time Period Analyzed | Opening AM |
| Project Description | I-10 at 129 - EB Diverge | | |

## Geometric Data

| | Freeway | Ramp |
|---|---|---|
| Number of Lanes (N) | 2 | 1 |
| Free-Flow Speed (FFS), mi/h | 75.0 | 35.0 |
| Segment Length (L) / Deceleration Length ($L_D$), ft | 1500 | 200 |
| Terrain Type | Level | Level |
| Percent Grade, % | - | - |
| Segment Type / Ramp Side | Highway/CD Roadway | Right |

## Adjustment Factors

| | | |
|---|---|---|
| Driver Population | All Familiar | All Familiar |
| Weather Type | Non-Severe Weather | Non-Severe Weather |
| Incident Type | No Incident | - |
| Final Speed Adjustment Factor (SAF) | 1.000 | 1.000 |
| Final Capacity Adjustment Factor (CAF) | 1.000 | 1.000 |
| Demand Adjustment Factor (DAF) | 1.000 | 1.000 |

## Demand and Capacity

| | | |
|---|---|---|
| Demand Volume ($V_i$), veh/h | 722 | 101 |
| Peak Hour Factor (PHF) | 0.92 | 0.92 |
| Total Trucks, % | 13.20 | 2.80 |
| Single-Unit Trucks (SUT), % | - | - |
| Tractor-Trailers (TT), % | - | - |
| Heavy Vehicle Adjustment Factor ($f_{HV}$) | 0.883 | 0.973 |
| Flow Rate ($v_i$), pc/h | 889 | 113 |
| Capacity (c), pc/h | 4400 | 2000 |
| Volume-to-Capacity Ratio (v/c) | 0.20 | 0.06 |

## Speed and Density

| | | | |
|---|---|---|---|
| Upstream Equilibrium Distance ($L_{EQ}$), ft | - | Density in Ramp Influence Area ($D_R$), pc/mi/ln | 10.1 |
| Distance to Upstream Ramp ($L_{UP}$), ft | - | Speed Index ($D_S$) | 0.438 |
| Downstream Equilibrium Distance ($L_{EQ}$), ft | - | Flow Outer Lanes ($v_{OA}$), pc/h/ln | - |
| Distance to Downstream Ramp ($L_{DOWN}$), ft | - | Off-Ramp Influence Area Speed ($S_R$), mi/h | 60.5 |
| Prop. Freeway Vehicles in Lane 1 and 2 ($P_{FD}$) | 1.000 | Outer Lanes Freeway Speed ($S_O$), mi/h | - |
| Flow in Lanes 1 and 2 ($v_{12}$), pc/h | 889 | Ramp Junction Speed (S), mi/h | 60.5 |
| Flow Entering Ramp-Infl. Area ($v_{R12}$), pc/h | - | Average Density (D), pc/mi/ln | 7.3 |
| Level of Service (LOS) | B | | |

Diverge 2020.xuf

# HCS7 Freeway Diverge Report

## Project Information

| | | | |
|---|---|---|---|
| Analyst | Justin Garland | Date | 12/8/2020 |
| Agency | FDOT | Analysis Year | 2025 |
| Jurisdiction | D2 | Time Period Analyzed | Opening AM |
| Project Description | I-10 at 129 - WB Diverge | | |

## Geometric Data

| | Freeway | Ramp |
|---|---|---|
| Number of Lanes (N) | 2 | 1 |
| Free-Flow Speed (FFS), mi/h | 75.0 | 35.0 |
| Segment Length (L) / Deceleration Length ($L_D$), ft | 1500 | 200 |
| Terrain Type | Level | Level |
| Percent Grade, % | - | - |
| Segment Type / Ramp Side | Highway/CD Roadway | Right |

## Adjustment Factors

| | | |
|---|---|---|
| Driver Population | All Familiar | All Familiar |
| Weather Type | Non-Severe Weather | Non-Severe Weather |
| Incident Type | No Incident | - |
| Final Speed Adjustment Factor (SAF) | 1.000 | 1.000 |
| Final Capacity Adjustment Factor (CAF) | 1.000 | 1.000 |
| Demand Adjustment Factor (DAF) | 1.000 | 1.000 |

## Demand and Capacity

| | | |
|---|---|---|
| Demand Volume ($V_i$), veh/h | 821 | 196 |
| Peak Hour Factor (PHF) | 0.92 | 0.92 |
| Total Trucks, % | 13.20 | 2.80 |
| Single-Unit Trucks (SUT), % | - | - |
| Tractor-Trailers (TT), % | - | - |
| Heavy Vehicle Adjustment Factor ($f_{HV}$) | 0.883 | 0.973 |
| Flow Rate ($v_i$), pc/h | 1011 | 219 |
| Capacity (c), pc/h | 4400 | 2000 |
| Volume-to-Capacity Ratio (v/c) | 0.23 | 0.11 |

## Speed and Density

| | | | |
|---|---|---|---|
| Upstream Equilibrium Distance ($L_{EQ}$), ft | - | Density in Ramp Influence Area ($D_R$), pc/mi/ln | 11.1 |
| Distance to Upstream Ramp ($L_{UP}$), ft | - | Speed Index ($D_S$) | 0.448 |
| Downstream Equilibrium Distance ($L_{EQ}$), ft | - | Flow Outer Lanes ($v_{OA}$), pc/h/ln | - |
| Distance to Downstream Ramp ($L_{DOWN}$), ft | - | Off-Ramp Influence Area Speed ($S_R$), mi/h | 60.2 |
| Prop. Freeway Vehicles in Lane 1 and 2 ($P_{FD}$) | 1.000 | Outer Lanes Freeway Speed ($S_O$), mi/h | - |
| Flow in Lanes 1 and 2 ($v_{12}$), pc/h | 1011 | Ramp Junction Speed (S), mi/h | 60.2 |
| Flow Entering Ramp-Infl. Area ($v_{R12}$), pc/h | - | Average Density (D), pc/mi/ln | 8.4 |
| Level of Service (LOS) | B | | |

# HCS7 Basic Freeway Report

## Project Information

| | | | |
|---|---|---|---|
| Analyst | Justin Garland | Date | 12/1/2020 |
| Agency | FDOT | Analysis Year | 2025 |
| Jurisdiction | D2 | Time Period Analyzed | Opening AM |
| Project Description | I-10 EB East of 129 | | |

## Geometric Data

| | | | |
|---|---|---|---|
| Number of Lanes, ln | 2 | Terrain Type | Level |
| Segment Length (L), ft | - | Percent Grade, % | - |
| Measured or Base Free-Flow Speed | Base | Grade Length, mi | - |
| Base Free-Flow Speed (BFFS), mi/h | 75.0 | Total Ramp Density (TRD), ramps/mi | 0.33 |
| Lane Width, ft | 12 | Free-Flow Speed (FFS), mi/h | 73.7 |
| Right-Side Lateral Clearance, ft | 10 | | |

## Adjustment Factors

| | | | |
|---|---|---|---|
| Driver Population | All Familiar | Final Speed Adjustment Factor (SAF) | 1.000 |
| Weather Type | Non-Severe Weather | Final Capacity Adjustment Factor (CAF) | 1.000 |
| Incident Type | No Incident | Demand Adjustment Factor (DAF) | 1.000 |

## Demand and Capacity

| | | | |
|---|---|---|---|
| Demand Volume veh/h | 855 | Heavy Vehicle Adjustment Factor ($f_{HV}$) | 0.883 |
| Peak Hour Factor | 0.92 | Flow Rate ($V_p$), pc/h/ln | 526 |
| Total Trucks, % | 13.20 | Capacity (c), pc/h/ln | 2400 |
| Single-Unit Trucks (SUT), % | - | Adjusted Cpacity ($c_{adj}$), pc/h/ln | 2400 |
| Tractor-Trailers (TT), % | - | Volume-to-Capacity Ratio (v/c) | 0.22 |
| Passenger Car Equivalent ($E_T$) | 2.000 | | |

## Speed and Density

| | | | |
|---|---|---|---|
| Lane Width Adjustment ($f_{LW}$) | 0.0 | Average Speed (S), mi/h | 73.7 |
| Right-Side Lateral Clearance Adj. ($f_{RLC}$) | 0.0 | Density (D), pc/mi/ln | 7.1 |
| Total Ramp Density Adjustment | 1.3 | Level of Service (LOS) | A |
| Adjusted Free-Flow Speed ($FFS_{adj}$), mi/h | 73.7 | | |

# HCS7 Basic Freeway Report

## Project Information

| | | | |
|---|---|---|---|
| Analyst | Justin Garland | Date | 12/1/2020 |
| Agency | FDOT | Analysis Year | 2025 |
| Jurisdiction | D2 | Time Period Analyzed | Opening AM |
| Project Description | I-10 EB West of 129 | | |

## Geometric Data

| | | | |
|---|---|---|---|
| Number of Lanes, ln | 2 | Terrain Type | Level |
| Segment Length (L), ft | - | Percent Grade, % | - |
| Measured or Base Free-Flow Speed | Base | Grade Length, mi | - |
| Base Free-Flow Speed (BFFS), mi/h | 75.0 | Total Ramp Density (TRD), ramps/mi | 0.33 |
| Lane Width, ft | 12 | Free-Flow Speed (FFS), mi/h | 73.7 |
| Right-Side Lateral Clearance, ft | 10 | | |

## Adjustment Factors

| | | | |
|---|---|---|---|
| Driver Population | All Familiar | Final Speed Adjustment Factor (SAF) | 1.000 |
| Weather Type | Non-Severe Weather | Final Capacity Adjustment Factor (CAF) | 1.000 |
| Incident Type | No Incident | Demand Adjustment Factor (DAF) | 1.000 |

## Demand and Capacity

| | | | |
|---|---|---|---|
| Demand Volume veh/h | 722 | Heavy Vehicle Adjustment Factor ($f_{HV}$) | 0.883 |
| Peak Hour Factor | 0.92 | Flow Rate ($V_p$), pc/h/ln | 444 |
| Total Trucks, % | 13.20 | Capacity (c), pc/h/ln | 2400 |
| Single-Unit Trucks (SUT), % | - | Adjusted Cpacity ($c_{adj}$), pc/h/ln | 2400 |
| Tractor-Trailers (TT), % | - | Volume-to-Capacity Ratio (v/c) | 0.19 |
| Passenger Car Equivalent ($E_T$) | 2.000 | | |

## Speed and Density

| | | | |
|---|---|---|---|
| Lane Width Adjustment ($f_{LW}$) | 0.0 | Average Speed (S), mi/h | 73.7 |
| Right-Side Lateral Clearance Adj. ($f_{RLC}$) | 0.0 | Density (D), pc/mi/ln | 6.0 |
| Total Ramp Density Adjustment | 1.3 | Level of Service (LOS) | A |
| Adjusted Free-Flow Speed ($FFS_{adj}$), mi/h | 73.7 | | |

# HCS7 Basic Freeway Report

## Project Information

| | | | |
|---|---|---|---|
| Analyst | Justin Garland | Date | 12/1/2020 |
| Agency | FDOT | Analysis Year | 2025 |
| Jurisdiction | D2 | Time Period Analyzed | Opening AM |
| Project Description | I-10 WB East of 129 | | |

## Geometric Data

| | | | |
|---|---|---|---|
| Number of Lanes, ln | 2 | Terrain Type | Level |
| Segment Length (L), ft | - | Percent Grade, % | - |
| Measured or Base Free-Flow Speed | Base | Grade Length, mi | - |
| Base Free-Flow Speed (BFFS), mi/h | 75.0 | Total Ramp Density (TRD), ramps/mi | 0.33 |
| Lane Width, ft | 12 | Free-Flow Speed (FFS), mi/h | 73.7 |
| Right-Side Lateral Clearance, ft | 10 | | |

## Adjustment Factors

| | | | |
|---|---|---|---|
| Driver Population | All Familiar | Final Speed Adjustment Factor (SAF) | 1.000 |
| Weather Type | Non-Severe Weather | Final Capacity Adjustment Factor (CAF) | 1.000 |
| Incident Type | No Incident | Demand Adjustment Factor (DAF) | 1.000 |

## Demand and Capacity

| | | | |
|---|---|---|---|
| Demand Volume veh/h | 821 | Heavy Vehicle Adjustment Factor ($f_{HV}$) | 0.883 |
| Peak Hour Factor | 0.92 | Flow Rate ($V_p$), pc/h/ln | 506 |
| Total Trucks, % | 13.20 | Capacity (c), pc/h/ln | 2400 |
| Single-Unit Trucks (SUT), % | - | Adjusted Cpacity ($c_{adj}$), pc/h/ln | 2400 |
| Tractor-Trailers (TT), % | - | Volume-to-Capacity Ratio (v/c) | 0.21 |
| Passenger Car Equivalent ($E_T$) | 2.000 | | |

## Speed and Density

| | | | |
|---|---|---|---|
| Lane Width Adjustment ($f_{LW}$) | 0.0 | Average Speed (S), mi/h | 73.7 |
| Right-Side Lateral Clearance Adj. ($f_{RLC}$) | 0.0 | Density (D), pc/mi/ln | 6.9 |
| Total Ramp Density Adjustment | 1.3 | Level of Service (LOS) | A |
| Adjusted Free-Flow Speed ($FFS_{adj}$), mi/h | 73.7 | | |

# HCS7 Basic Freeway Report

## Project Information

| | | | |
|---|---|---|---|
| Analyst | Justin Garland | Date | 12/1/2020 |
| Agency | FDOT | Analysis Year | 2025 |
| Jurisdiction | D2 | Time Period Analyzed | Opening AM |
| Project Description | I-10 WB West of 129 | | |

## Geometric Data

| | | | |
|---|---|---|---|
| Number of Lanes, ln | 2 | Terrain Type | Level |
| Segment Length (L), ft | - | Percent Grade, % | - |
| Measured or Base Free-Flow Speed | Base | Grade Length, mi | - |
| Base Free-Flow Speed (BFFS), mi/h | 75.0 | Total Ramp Density (TRD), ramps/mi | 0.33 |
| Lane Width, ft | 12 | Free-Flow Speed (FFS), mi/h | 73.7 |
| Right-Side Lateral Clearance, ft | 10 | | |

## Adjustment Factors

| | | | |
|---|---|---|---|
| Driver Population | All Familiar | Final Speed Adjustment Factor (SAF) | 1.000 |
| Weather Type | Non-Severe Weather | Final Capacity Adjustment Factor (CAF) | 1.000 |
| Incident Type | No Incident | Demand Adjustment Factor (DAF) | 1.000 |

## Demand and Capacity

| | | | |
|---|---|---|---|
| Demand Volume veh/h | 718 | Heavy Vehicle Adjustment Factor ($f_{HV}$) | 0.883 |
| Peak Hour Factor | 0.92 | Flow Rate ($V_p$), pc/h/ln | 442 |
| Total Trucks, % | 13.20 | Capacity (c), pc/h/ln | 2400 |
| Single-Unit Trucks (SUT), % | - | Adjusted Cpacity ($c_{adj}$), pc/h/ln | 2400 |
| Tractor-Trailers (TT), % | - | Volume-to-Capacity Ratio (v/c) | 0.18 |
| Passenger Car Equivalent ($E_T$) | 2.000 | | |

## Speed and Density

| | | | |
|---|---|---|---|
| Lane Width Adjustment ($f_{LW}$) | 0.0 | Average Speed (S), mi/h | 73.7 |
| Right-Side Lateral Clearance Adj. ($f_{RLC}$) | 0.0 | Density (D), pc/mi/ln | 6.0 |
| Total Ramp Density Adjustment | 1.3 | Level of Service (LOS) | A |
| Adjusted Free-Flow Speed ($FFS_{adj}$), mi/h | 73.7 | | |

# HCS7 Freeway Merge Report

## Project Information

| | | | |
|---|---|---|---|
| Analyst | Justin Garland | Date | 12/15/2021 |
| Agency | FDOT | Analysis Year | 2025 |
| Jurisdiction | D2 | Time Period Analyzed | Opening PM |
| Project Description | I-10 at 129 - EB Merge | | |

## Geometric Data

| | Freeway | Ramp |
|---|---|---|
| Number of Lanes (N) | 2 | 1 |
| Free-Flow Speed (FFS), mi/h | 75.0 | 35.0 |
| Segment Length (L) / Acceleration Length ($L_A$), ft | 1500 | 300 |
| Terrain Type | Level | Level |
| Percent Grade, % | - | - |
| Segment Type / Ramp Side | Freeway | Right |

## Adjustment Factors

| | | |
|---|---|---|
| Driver Population | All Familiar | All Familiar |
| Weather Type | Non-Severe Weather | Non-Severe Weather |
| Incident Type | No Incident | - |
| Final Speed Adjustment Factor (SAF) | 1.000 | 1.000 |
| Final Capacity Adjustment Factor (CAF) | 1.000 | 1.000 |
| Demand Adjustment Factor (DAF) | 1.000 | 1.000 |

## Demand and Capacity

| | | |
|---|---|---|
| Demand Volume ($V_i$), veh/h | 1184 | 238 |
| Peak Hour Factor (PHF) | 0.92 | 0.92 |
| Total Trucks, % | 13.20 | 2.80 |
| Single-Unit Trucks (SUT), % | - | - |
| Tractor-Trailers (TT), % | - | - |
| Heavy Vehicle Adjustment Factor ($f_{HV}$) | 0.883 | 0.973 |
| Flow Rate ($v_i$), pc/h | 1457 | 266 |
| Capacity (c), pc/h | 4800 | 2000 |
| Volume-to-Capacity Ratio (v/c) | 0.36 | 0.13 |

## Speed and Density

| | | | |
|---|---|---|---|
| Upstream Equilibrium Distance ($L_{EQ}$), ft | - | Density in Ramp Influence Area ($D_R$), pc/mi/ln | 17.0 |
| Distance to Upstream Ramp ($L_{UP}$), ft | - | Speed Index ($M_S$) | 0.322 |
| Downstream Equilibrium Distance ($L_{EQ}$), ft | - | Flow Outer Lanes ($v_{OA}$), pc/h/ln | - |
| Distance to Downstream Ramp ($L_{DOWN}$), ft | - | On-Ramp Influence Area Speed ($S_R$), mi/h | 64.4 |
| Prop. Freeway Vehicles in Lane 1 and 2 ($P_{FM}$) | 1.000 | Outer Lanes Freeway Speed ($S_O$), mi/h | - |
| Flow in Lanes 1 and 2 ($v_{12}$), pc/h | 1457 | Ramp Junction Speed (S), mi/h | 64.4 |
| Flow Entering Ramp-Infl. Area ($v_{R12}$), pc/h | 1723 | Average Density (D), pc/mi/ln | 13.4 |
| Level of Service (LOS) | B | | |

# HCS7 Freeway Merge Report

## Project Information

| | | | |
|---|---|---|---|
| Analyst | Justin Garland | Date | 12/15/2021 |
| Agency | FDOT | Analysis Year | 2025 |
| Jurisdiction | D2 | Time Period Analyzed | Opening PM |
| Project Description | I-10 at 129 - WB Merge | | |

## Geometric Data

| | Freeway | Ramp |
|---|---|---|
| Number of Lanes (N) | 2 | 1 |
| Free-Flow Speed (FFS), mi/h | 75.0 | 35.0 |
| Segment Length (L) / Acceleration Length ($L_A$), ft | 1500 | 500 |
| Terrain Type | Level | Level |
| Percent Grade, % | - | - |
| Segment Type / Ramp Side | Freeway | Right |

## Adjustment Factors

| | | |
|---|---|---|
| Driver Population | All Familiar | All Familiar |
| Weather Type | Non-Severe Weather | Non-Severe Weather |
| Incident Type | No Incident | - |
| Final Speed Adjustment Factor (SAF) | 1.000 | 1.000 |
| Final Capacity Adjustment Factor (CAF) | 1.000 | 1.000 |
| Demand Adjustment Factor (DAF) | 1.000 | 1.000 |

## Demand and Capacity

| | | |
|---|---|---|
| Demand Volume ($V_i$), veh/h | 1256 | 153 |
| Peak Hour Factor (PHF) | 0.92 | 0.92 |
| Total Trucks, % | 13.20 | 2.80 |
| Single-Unit Trucks (SUT), % | - | - |
| Tractor-Trailers (TT), % | - | - |
| Heavy Vehicle Adjustment Factor ($f_{HV}$) | 0.883 | 0.973 |
| Flow Rate ($v_i$), pc/h | 1546 | 171 |
| Capacity (c), pc/h | 4800 | 2000 |
| Volume-to-Capacity Ratio (v/c) | 0.36 | 0.09 |

## Speed and Density

| | | | |
|---|---|---|---|
| Upstream Equilibrium Distance ($L_{EQ}$), ft | - | Density in Ramp Influence Area ($D_R$), pc/mi/ln | 15.7 |
| Distance to Upstream Ramp ($L_{UP}$), ft | - | Speed Index ($M_S$) | 0.308 |
| Downstream Equilibrium Distance ($L_{EQ}$), ft | - | Flow Outer Lanes ($v_{OA}$), pc/h/ln | - |
| Distance to Downstream Ramp ($L_{DOWN}$), ft | - | On-Ramp Influence Area Speed ($S_R$), mi/h | 64.8 |
| Prop. Freeway Vehicles in Lane 1 and 2 ($P_{FM}$) | 1.000 | Outer Lanes Freeway Speed ($S_O$), mi/h | - |
| Flow in Lanes 1 and 2 ($v_{12}$), pc/h | 1546 | Ramp Junction Speed (S), mi/h | 64.8 |
| Flow Entering Ramp-Infl. Area ($v_{R12}$), pc/h | 1717 | Average Density (D), pc/mi/ln | 13.2 |
| Level of Service (LOS) | B | | |

# HCS7 Freeway Diverge Report

## Project Information

| | | | |
|---|---|---|---|
| Analyst | Justin Garland | Date | 12/8/2020 |
| Agency | FDOT | Analysis Year | 2025 |
| Jurisdiction | D2 | Time Period Analyzed | Opening PM |
| Project Description | I-10 at 129 - EB Diverge | | |

## Geometric Data

| | Freeway | Ramp |
|---|---|---|
| Number of Lanes (N) | 2 | 1 |
| Free-Flow Speed (FFS), mi/h | 75.0 | 35.0 |
| Segment Length (L) / Deceleration Length ($L_D$), ft | 1500 | 200 |
| Terrain Type | Level | Level |
| Percent Grade, % | - | - |
| Segment Type / Ramp Side | Highway/CD Roadway | Right |

## Adjustment Factors

| | | |
|---|---|---|
| Driver Population | All Familiar | All Familiar |
| Weather Type | Non-Severe Weather | Non-Severe Weather |
| Incident Type | No Incident | - |
| Final Speed Adjustment Factor (SAF) | 1.000 | 1.000 |
| Final Capacity Adjustment Factor (CAF) | 1.000 | 1.000 |
| Demand Adjustment Factor (DAF) | 1.000 | 1.000 |

## Demand and Capacity

| | | |
|---|---|---|
| Demand Volume ($V_i$), veh/h | 1328 | 144 |
| Peak Hour Factor (PHF) | 0.92 | 0.92 |
| Total Trucks, % | 13.20 | 2.80 |
| Single-Unit Trucks (SUT), % | - | - |
| Tractor-Trailers (TT), % | - | - |
| Heavy Vehicle Adjustment Factor ($f_{HV}$) | 0.883 | 0.973 |
| Flow Rate ($v_i$), pc/h | 1635 | 161 |
| Capacity (c), pc/h | 4400 | 2000 |
| Volume-to-Capacity Ratio (v/c) | 0.37 | 0.08 |

## Speed and Density

| | | | |
|---|---|---|---|
| Upstream Equilibrium Distance ($L_{EQ}$), ft | - | Density in Ramp Influence Area ($D_R$), pc/mi/ln | 16.5 |
| Distance to Upstream Ramp ($L_{UP}$), ft | - | Speed Index ($D_S$) | 0.442 |
| Downstream Equilibrium Distance ($L_{EQ}$), ft | - | Flow Outer Lanes ($v_{OA}$), pc/h/ln | - |
| Distance to Downstream Ramp ($L_{DOWN}$), ft | - | Off-Ramp Influence Area Speed ($S_R$), mi/h | 60.4 |
| Prop. Freeway Vehicles in Lane 1 and 2 ($P_{FD}$) | 1.000 | Outer Lanes Freeway Speed ($S_O$), mi/h | - |
| Flow in Lanes 1 and 2 ($v_{12}$), pc/h | 1635 | Ramp Junction Speed (S), mi/h | 60.4 |
| Flow Entering Ramp-Infl. Area ($v_{R12}$), pc/h | - | Average Density (D), pc/mi/ln | 13.5 |
| Level of Service (LOS) | B | | |

# HCS7 Freeway Diverge Report

## Project Information

| | | | |
|---|---|---|---|
| Analyst | Justin Garland | Date | 12/8/2020 |
| Agency | FDOT | Analysis Year | 2025 |
| Jurisdiction | D2 | Time Period Analyzed | Opening PM |
| Project Description | I-10 at 129 - WB Diverge | | |

## Geometric Data

| | Freeway | Ramp |
|---|---|---|
| Number of Lanes (N) | 2 | 1 |
| Free-Flow Speed (FFS), mi/h | 75.0 | 35.0 |
| Segment Length (L) / Deceleration Length ($L_D$), ft | 1500 | 200 |
| Terrain Type | Level | Level |
| Percent Grade, % | - | - |
| Segment Type / Ramp Side | Highway/CD Roadway | Right |

## Adjustment Factors

| | | |
|---|---|---|
| Driver Population | All Familiar | All Familiar |
| Weather Type | Non-Severe Weather | Non-Severe Weather |
| Incident Type | No Incident | - |
| Final Speed Adjustment Factor (SAF) | 1.000 | 1.000 |
| Final Capacity Adjustment Factor (CAF) | 1.000 | 1.000 |
| Demand Adjustment Factor (DAF) | 1.000 | 1.000 |

## Demand and Capacity

| | | |
|---|---|---|
| Demand Volume ($V_i$), veh/h | 1500 | 244 |
| Peak Hour Factor (PHF) | 0.92 | 0.92 |
| Total Trucks, % | 13.20 | 2.80 |
| Single-Unit Trucks (SUT), % | - | - |
| Tractor-Trailers (TT), % | - | - |
| Heavy Vehicle Adjustment Factor ($f_{HV}$) | 0.883 | 0.973 |
| Flow Rate ($v_i$), pc/h | 1846 | 273 |
| Capacity (c), pc/h | 4400 | 2000 |
| Volume-to-Capacity Ratio (v/c) | 0.42 | 0.14 |

## Speed and Density

| | | | |
|---|---|---|---|
| Upstream Equilibrium Distance ($L_{EQ}$), ft | - | Density in Ramp Influence Area ($D_R$), pc/mi/ln | 18.3 |
| Distance to Upstream Ramp ($L_{UP}$), ft | - | Speed Index ($D_S$) | 0.453 |
| Downstream Equilibrium Distance ($L_{EQ}$), ft | - | Flow Outer Lanes ($v_{OA}$), pc/h/ln | - |
| Distance to Downstream Ramp ($L_{DOWN}$), ft | - | Off-Ramp Influence Area Speed ($S_R$), mi/h | 60.1 |
| Prop. Freeway Vehicles in Lane 1 and 2 ($P_{FD}$) | 1.000 | Outer Lanes Freeway Speed ($S_O$), mi/h | - |
| Flow in Lanes 1 and 2 ($v_{12}$), pc/h | 1846 | Ramp Junction Speed (S), mi/h | 60.1 |
| Flow Entering Ramp-Infl. Area ($v_{R12}$), pc/h | - | Average Density (D), pc/mi/ln | 15.4 |
| Level of Service (LOS) | B | | |

# HCS7 Basic Freeway Report

## Project Information

| | | | |
|---|---|---|---|
| Analyst | Justin Garland | Date | 12/1/2020 |
| Agency | FDOT | Analysis Year | 2025 |
| Jurisdiction | D2 | Time Period Analyzed | Opening PM |
| Project Description | I-10 EB East of 129 | | |

## Geometric Data

| | | | |
|---|---|---|---|
| Number of Lanes, ln | 2 | Terrain Type | Level |
| Segment Length (L), ft | - | Percent Grade, % | - |
| Measured or Base Free-Flow Speed | Base | Grade Length, mi | - |
| Base Free-Flow Speed (BFFS), mi/h | 75.0 | Total Ramp Density (TRD), ramps/mi | 0.33 |
| Lane Width, ft | 12 | Free-Flow Speed (FFS), mi/h | 73.7 |
| Right-Side Lateral Clearance, ft | 10 | | |

## Adjustment Factors

| | | | |
|---|---|---|---|
| Driver Population | All Familiar | Final Speed Adjustment Factor (SAF) | 1.000 |
| Weather Type | Non-Severe Weather | Final Capacity Adjustment Factor (CAF) | 1.000 |
| Incident Type | No Incident | Demand Adjustment Factor (DAF) | 1.000 |

## Demand and Capacity

| | | | |
|---|---|---|---|
| Demand Volume veh/h | 1423 | Heavy Vehicle Adjustment Factor ($f_{HV}$) | 0.883 |
| Peak Hour Factor | 0.92 | Flow Rate ($V_p$), pc/h/ln | 876 |
| Total Trucks, % | 13.20 | Capacity (c), pc/h/ln | 2400 |
| Single-Unit Trucks (SUT), % | - | Adjusted Cpacity ($c_{adj}$), pc/h/ln | 2400 |
| Tractor-Trailers (TT), % | - | Volume-to-Capacity Ratio (v/c) | 0.37 |
| Passenger Car Equivalent ($E_T$) | 2.000 | | |

## Speed and Density

| | | | |
|---|---|---|---|
| Lane Width Adjustment ($f_{LW}$) | 0.0 | Average Speed (S), mi/h | 73.7 |
| Right-Side Lateral Clearance Adj. ($f_{RLC}$) | 0.0 | Density (D), pc/mi/ln | 11.9 |
| Total Ramp Density Adjustment | 1.3 | Level of Service (LOS) | B |
| Adjusted Free-Flow Speed ($FFS_{adj}$), mi/h | 73.7 | | |

# HCS7 Basic Freeway Report

## Project Information

| | | | |
|---|---|---|---|
| Analyst | Justin Garland | Date | 12/1/2020 |
| Agency | FDOT | Analysis Year | 2020 |
| Jurisdiction | D2 | Time Period Analyzed | Opening PM |
| Project Description | I-10 EB West of 129 | | |

## Geometric Data

| | | | |
|---|---|---|---|
| Number of Lanes, ln | 2 | Terrain Type | Level |
| Segment Length (L), ft | - | Percent Grade, % | - |
| Measured or Base Free-Flow Speed | Base | Grade Length, mi | - |
| Base Free-Flow Speed (BFFS), mi/h | 75.0 | Total Ramp Density (TRD), ramps/mi | 0.33 |
| Lane Width, ft | 12 | Free-Flow Speed (FFS), mi/h | 73.7 |
| Right-Side Lateral Clearance, ft | 10 | | |

## Adjustment Factors

| | | | |
|---|---|---|---|
| Driver Population | All Familiar | Final Speed Adjustment Factor (SAF) | 1.000 |
| Weather Type | Non-Severe Weather | Final Capacity Adjustment Factor (CAF) | 1.000 |
| Incident Type | No Incident | Demand Adjustment Factor (DAF) | 1.000 |

## Demand and Capacity

| | | | |
|---|---|---|---|
| Demand Volume veh/h | 1328 | Heavy Vehicle Adjustment Factor ($f_{HV}$) | 0.883 |
| Peak Hour Factor | 0.92 | Flow Rate ($V_p$), pc/h/ln | 818 |
| Total Trucks, % | 13.20 | Capacity (c), pc/h/ln | 2400 |
| Single-Unit Trucks (SUT), % | - | Adjusted Cpacity ($c_{adj}$), pc/h/ln | 2400 |
| Tractor-Trailers (TT), % | - | Volume-to-Capacity Ratio (v/c) | 0.34 |
| Passenger Car Equivalent ($E_T$) | 2.000 | | |

## Speed and Density

| | | | |
|---|---|---|---|
| Lane Width Adjustment ($f_{LW}$) | 0.0 | Average Speed (S), mi/h | 73.7 |
| Right-Side Lateral Clearance Adj. ($f_{RLC}$) | 0.0 | Density (D), pc/mi/ln | 11.1 |
| Total Ramp Density Adjustment | 1.3 | Level of Service (LOS) | B |
| Adjusted Free-Flow Speed ($FFS_{adj}$), mi/h | 73.7 | | |

# HCS7 Basic Freeway Report

## Project Information

| | | | |
|---|---|---|---|
| Analyst | Justin Garland | Date | 12/1/2020 |
| Agency | FDOT | Analysis Year | 2025 |
| Jurisdiction | D2 | Time Period Analyzed | Opening PM |
| Project Description | I-10 WB East of 129 | | |

## Geometric Data

| | | | |
|---|---|---|---|
| Number of Lanes, ln | 2 | Terrain Type | Level |
| Segment Length (L), ft | - | Percent Grade, % | - |
| Measured or Base Free-Flow Speed | Base | Grade Length, mi | - |
| Base Free-Flow Speed (BFFS), mi/h | 75.0 | Total Ramp Density (TRD), ramps/mi | 0.33 |
| Lane Width, ft | 12 | Free-Flow Speed (FFS), mi/h | 73.7 |
| Right-Side Lateral Clearance, ft | 10 | | |

## Adjustment Factors

| | | | |
|---|---|---|---|
| Driver Population | All Familiar | Final Speed Adjustment Factor (SAF) | 1.000 |
| Weather Type | Non-Severe Weather | Final Capacity Adjustment Factor (CAF) | 1.000 |
| Incident Type | No Incident | Demand Adjustment Factor (DAF) | 1.000 |

## Demand and Capacity

| | | | |
|---|---|---|---|
| Demand Volume veh/h | 1500 | Heavy Vehicle Adjustment Factor ($f_{HV}$) | 0.883 |
| Peak Hour Factor | 0.92 | Flow Rate ($V_p$), pc/h/ln | 923 |
| Total Trucks, % | 13.20 | Capacity (c), pc/h/ln | 2400 |
| Single-Unit Trucks (SUT), % | - | Adjusted Cpacity ($c_{adj}$), pc/h/ln | 2400 |
| Tractor-Trailers (TT), % | - | Volume-to-Capacity Ratio (v/c) | 0.38 |
| Passenger Car Equivalent ($E_T$) | 2.000 | | |

## Speed and Density

| | | | |
|---|---|---|---|
| Lane Width Adjustment ($f_{LW}$) | 0.0 | Average Speed (S), mi/h | 73.7 |
| Right-Side Lateral Clearance Adj. ($f_{RLC}$) | 0.0 | Density (D), pc/mi/ln | 12.5 |
| Total Ramp Density Adjustment | 1.3 | Level of Service (LOS) | B |
| Adjusted Free-Flow Speed ($FFS_{adj}$), mi/h | 73.7 | | |

# HCS7 Basic Freeway Report

## Project Information

| | | | |
|---|---|---|---|
| Analyst | Justin Garland | Date | 12/1/2020 |
| Agency | FDOT | Analysis Year | 2025 |
| Jurisdiction | D2 | Time Period Analyzed | Opening PM |
| Project Description | I-10 WB West of 129 | | |

## Geometric Data

| | | | |
|---|---|---|---|
| Number of Lanes, ln | 2 | Terrain Type | Level |
| Segment Length (L), ft | - | Percent Grade, % | - |
| Measured or Base Free-Flow Speed | Base | Grade Length, mi | - |
| Base Free-Flow Speed (BFFS), mi/h | 75.0 | Total Ramp Density (TRD), ramps/mi | 0.33 |
| Lane Width, ft | 12 | Free-Flow Speed (FFS), mi/h | 73.7 |
| Right-Side Lateral Clearance, ft | 10 | | |

## Adjustment Factors

| | | | |
|---|---|---|---|
| Driver Population | All Familiar | Final Speed Adjustment Factor (SAF) | 1.000 |
| Weather Type | Non-Severe Weather | Final Capacity Adjustment Factor (CAF) | 1.000 |
| Incident Type | No Incident | Demand Adjustment Factor (DAF) | 1.000 |

## Demand and Capacity

| | | | |
|---|---|---|---|
| Demand Volume veh/h | 1408 | Heavy Vehicle Adjustment Factor ($f_{HV}$) | 0.883 |
| Peak Hour Factor | 0.92 | Flow Rate ($V_p$), pc/h/ln | 866 |
| Total Trucks, % | 13.20 | Capacity (c), pc/h/ln | 2400 |
| Single-Unit Trucks (SUT), % | - | Adjusted Cpacity ($c_{adj}$), pc/h/ln | 2400 |
| Tractor-Trailers (TT), % | - | Volume-to-Capacity Ratio (v/c) | 0.36 |
| Passenger Car Equivalent ($E_T$) | 2.000 | | |

## Speed and Density

| | | | |
|---|---|---|---|
| Lane Width Adjustment ($f_{LW}$) | 0.0 | Average Speed (S), mi/h | 73.7 |
| Right-Side Lateral Clearance Adj. ($f_{RLC}$) | 0.0 | Density (D), pc/mi/ln | 11.8 |
| Total Ramp Density Adjustment | 1.3 | Level of Service (LOS) | B |
| Adjusted Free-Flow Speed ($FFS_{adj}$), mi/h | 73.7 | | |

# HCS7 Freeway Merge Report

## Project Information

| | | | |
|---|---|---|---|
| Analyst | Justin Garland | Date | 12/15/2021 |
| Agency | FDOT | Analysis Year | 2045 |
| Jurisdiction | D2 | Time Period Analyzed | Design AM |
| Project Description | I-10 at 129 - EB Merge | | |

## Geometric Data

| | Freeway | Ramp |
|---|---|---|
| Number of Lanes (N) | 2 | 1 |
| Free-Flow Speed (FFS), mi/h | 75.0 | 35.0 |
| Segment Length (L) / Acceleration Length ($L_A$), ft | 1500 | 300 |
| Terrain Type | Level | Level |
| Percent Grade, % | - | - |
| Segment Type / Ramp Side | Freeway | Right |

## Adjustment Factors

| | | |
|---|---|---|
| Driver Population | All Familiar | All Familiar |
| Weather Type | Non-Severe Weather | Non-Severe Weather |
| Incident Type | No Incident | - |
| Final Speed Adjustment Factor (SAF) | 1.000 | 1.000 |
| Final Capacity Adjustment Factor (CAF) | 1.000 | 1.000 |
| Demand Adjustment Factor (DAF) | 1.000 | 1.000 |

## Demand and Capacity

| | | |
|---|---|---|
| Demand Volume ($V_i$), veh/h | 869 | 328 |
| Peak Hour Factor (PHF) | 0.92 | 0.92 |
| Total Trucks, % | 13.20 | 2.80 |
| Single-Unit Trucks (SUT), % | - | - |
| Tractor-Trailers (TT), % | - | - |
| Heavy Vehicle Adjustment Factor ($f_{HV}$) | 0.883 | 0.973 |
| Flow Rate ($v_i$), pc/h | 1070 | 366 |
| Capacity (c), pc/h | 4800 | 2000 |
| Volume-to-Capacity Ratio (v/c) | 0.30 | 0.18 |

## Speed and Density

| | | | |
|---|---|---|---|
| Upstream Equilibrium Distance ($L_{EQ}$), ft | - | Density in Ramp Influence Area ($D_R$), pc/mi/ln | 14.7 |
| Distance to Upstream Ramp ($L_{UP}$), ft | - | Speed Index ($M_S$) | 0.316 |
| Downstream Equilibrium Distance ($L_{EQ}$), ft | - | Flow Outer Lanes ($v_{OA}$), pc/h/ln | - |
| Distance to Downstream Ramp ($L_{DOWN}$), ft | - | On-Ramp Influence Area Speed ($S_R$), mi/h | 64.6 |
| Prop. Freeway Vehicles in Lane 1 and 2 ($P_{FM}$) | 1.000 | Outer Lanes Freeway Speed ($S_O$), mi/h | - |
| Flow in Lanes 1 and 2 ($v_{12}$), pc/h | 1070 | Ramp Junction Speed (S), mi/h | 64.6 |
| Flow Entering Ramp-Infl. Area ($v_{R12}$), pc/h | 1436 | Average Density (D), pc/mi/ln | 11.1 |
| Level of Service (LOS) | B | | |

# HCS7 Freeway Merge Report

## Project Information

| | | | |
|---|---|---|---|
| Analyst | Justin Garland | Date | 12/15/2021 |
| Agency | FDOT | Analysis Year | 2045 |
| Jurisdiction | D2 | Time Period Analyzed | Design AM |
| Project Description | I-10 at 129 - WB Merge | | |

## Geometric Data

| | Freeway | Ramp |
|---|---|---|
| Number of Lanes (N) | 2 | 1 |
| Free-Flow Speed (FFS), mi/h | 75.0 | 35.0 |
| Segment Length (L) / Acceleration Length ($L_A$), ft | 1500 | 500 |
| Terrain Type | Level | Level |
| Percent Grade, % | - | - |
| Segment Type / Ramp Side | Freeway | Right |

## Adjustment Factors

| | | |
|---|---|---|
| Driver Population | All Familiar | All Familiar |
| Weather Type | Non-Severe Weather | Non-Severe Weather |
| Incident Type | No Incident | - |
| Final Speed Adjustment Factor (SAF) | 1.000 | 1.000 |
| Final Capacity Adjustment Factor (CAF) | 1.000 | 1.000 |
| Demand Adjustment Factor (DAF) | 1.000 | 1.000 |

## Demand and Capacity

| | | |
|---|---|---|
| Demand Volume ($V_i$), veh/h | 876 | 131 |
| Peak Hour Factor (PHF) | 0.92 | 0.92 |
| Total Trucks, % | 13.20 | 2.80 |
| Single-Unit Trucks (SUT), % | - | - |
| Tractor-Trailers (TT), % | - | - |
| Heavy Vehicle Adjustment Factor ($f_{HV}$) | 0.883 | 0.973 |
| Flow Rate ($v_i$), pc/h | 1078 | 146 |
| Capacity (c), pc/h | 4800 | 2000 |
| Volume-to-Capacity Ratio (v/c) | 0.26 | 0.07 |

## Speed and Density

| | | | |
|---|---|---|---|
| Upstream Equilibrium Distance ($L_{EQ}$), ft | - | Density in Ramp Influence Area ($D_R$), pc/mi/ln | 11.9 |
| Distance to Upstream Ramp ($L_{UP}$), ft | - | Speed Index ($M_S$) | 0.299 |
| Downstream Equilibrium Distance ($L_{EQ}$), ft | - | Flow Outer Lanes ($v_{OA}$), pc/h/ln | - |
| Distance to Downstream Ramp ($L_{DOWN}$), ft | - | On-Ramp Influence Area Speed ($S_R$), mi/h | 65.1 |
| Prop. Freeway Vehicles in Lane 1 and 2 ($P_{FM}$) | 1.000 | Outer Lanes Freeway Speed ($S_O$), mi/h | - |
| Flow in Lanes 1 and 2 ($v_{12}$), pc/h | 1078 | Ramp Junction Speed (S), mi/h | 65.1 |
| Flow Entering Ramp-Infl. Area ($v_{R12}$), pc/h | 1224 | Average Density (D), pc/mi/ln | 9.4 |
| Level of Service (LOS) | B | | |

# HCS7 Freeway Diverge Report

## Project Information

| | | | |
|---|---|---|---|
| Analyst | Justin Garland | Date | 12/8/2020 |
| Agency | FDOT | Analysis Year | 2045 |
| Jurisdiction | D2 | Time Period Analyzed | Design AM |
| Project Description | I-10 at 129 - EB Diverge | | |

## Geometric Data

| | Freeway | Ramp |
|---|---|---|
| Number of Lanes (N) | 2 | 1 |
| Free-Flow Speed (FFS), mi/h | 75.0 | 35.0 |
| Segment Length (L) / Deceleration Length ($L_D$), ft | 1500 | 200 |
| Terrain Type | Level | Level |
| Percent Grade, % | - | - |
| Segment Type / Ramp Side | Highway/CD Roadway | Right |

## Adjustment Factors

| | | |
|---|---|---|
| Driver Population | All Familiar | All Familiar |
| Weather Type | Non-Severe Weather | Non-Severe Weather |
| Incident Type | No Incident | - |
| Final Speed Adjustment Factor (SAF) | 1.000 | 1.000 |
| Final Capacity Adjustment Factor (CAF) | 1.000 | 1.000 |
| Demand Adjustment Factor (DAF) | 1.000 | 1.000 |

## Demand and Capacity

| | | |
|---|---|---|
| Demand Volume ($V_i$), veh/h | 1011 | 142 |
| Peak Hour Factor (PHF) | 0.92 | 0.92 |
| Total Trucks, % | 13.20 | 2.80 |
| Single-Unit Trucks (SUT), % | - | - |
| Tractor-Trailers (TT), % | - | - |
| Heavy Vehicle Adjustment Factor ($f_{HV}$) | 0.883 | 0.973 |
| Flow Rate ($v_i$), pc/h | 1245 | 159 |
| Capacity (c), pc/h | 4400 | 2000 |
| Volume-to-Capacity Ratio (v/c) | 0.28 | 0.08 |

## Speed and Density

| | | | |
|---|---|---|---|
| Upstream Equilibrium Distance ($L_{EQ}$), ft | - | Density in Ramp Influence Area ($D_R$), pc/mi/ln | 13.2 |
| Distance to Upstream Ramp ($L_{UP}$), ft | - | Speed Index ($D_S$) | 0.442 |
| Downstream Equilibrium Distance ($L_{EQ}$), ft | - | Flow Outer Lanes ($v_{OA}$), pc/h/ln | - |
| Distance to Downstream Ramp ($L_{DOWN}$), ft | - | Off-Ramp Influence Area Speed ($S_R$), mi/h | 60.4 |
| Prop. Freeway Vehicles in Lane 1 and 2 ($P_{FD}$) | 1.000 | Outer Lanes Freeway Speed ($S_O$), mi/h | - |
| Flow in Lanes 1 and 2 ($v_{12}$), pc/h | 1245 | Ramp Junction Speed (S), mi/h | 60.4 |
| Flow Entering Ramp-Infl. Area ($v_{R12}$), pc/h | - | Average Density (D), pc/mi/ln | 10.3 |
| Level of Service (LOS) | B | | |

# HCS7 Freeway Diverge Report

## Project Information

| | | | |
|---|---|---|---|
| Analyst | Justin Garland | Date | 12/8/2020 |
| Agency | FDOT | Analysis Year | 2045 |
| Jurisdiction | D2 | Time Period Analyzed | Design AM |
| Project Description | I-10 at 129 - WB Diverge | | |

## Geometric Data

| | Freeway | Ramp |
|---|---|---|
| Number of Lanes (N) | 2 | 1 |
| Free-Flow Speed (FFS), mi/h | 75.0 | 35.0 |
| Segment Length (L) / Deceleration Length ($L_D$), ft | 1500 | 200 |
| Terrain Type | Level | Level |
| Percent Grade, % | - | - |
| Segment Type / Ramp Side | Highway/CD Roadway | Right |

## Adjustment Factors

| | | |
|---|---|---|
| Driver Population | All Familiar | All Familiar |
| Weather Type | Non-Severe Weather | Non-Severe Weather |
| Incident Type | No Incident | - |
| Final Speed Adjustment Factor (SAF) | 1.000 | 1.000 |
| Final Capacity Adjustment Factor (CAF) | 1.000 | 1.000 |
| Demand Adjustment Factor (DAF) | 1.000 | 1.000 |

## Demand and Capacity

| | | |
|---|---|---|
| Demand Volume ($V_i$), veh/h | 1150 | 274 |
| Peak Hour Factor (PHF) | 0.92 | 0.92 |
| Total Trucks, % | 13.20 | 2.80 |
| Single-Unit Trucks (SUT), % | - | - |
| Tractor-Trailers (TT), % | - | - |
| Heavy Vehicle Adjustment Factor ($f_{HV}$) | 0.883 | 0.973 |
| Flow Rate ($v_i$), pc/h | 1416 | 306 |
| Capacity (c), pc/h | 4400 | 2000 |
| Volume-to-Capacity Ratio (v/c) | 0.32 | 0.15 |

## Speed and Density

| | | | |
|---|---|---|---|
| Upstream Equilibrium Distance ($L_{EQ}$), ft | - | Density in Ramp Influence Area ($D_R$), pc/mi/ln | 14.6 |
| Distance to Upstream Ramp ($L_{UP}$), ft | - | Speed Index ($D_S$) | 0.456 |
| Downstream Equilibrium Distance ($L_{EQ}$), ft | - | Flow Outer Lanes ($v_{OA}$), pc/h/ln | - |
| Distance to Downstream Ramp ($L_{DOWN}$), ft | - | Off-Ramp Influence Area Speed ($S_R$), mi/h | 60.0 |
| Prop. Freeway Vehicles in Lane 1 and 2 ($P_{FD}$) | 1.000 | Outer Lanes Freeway Speed ($S_O$), mi/h | - |
| Flow in Lanes 1 and 2 ($v_{12}$), pc/h | 1416 | Ramp Junction Speed (S), mi/h | 60.0 |
| Flow Entering Ramp-Infl. Area ($v_{R12}$), pc/h | - | Average Density (D), pc/mi/ln | 11.8 |
| Level of Service (LOS) | B | | |

# HCS7 Basic Freeway Report

## Project Information

| | | | |
|---|---|---|---|
| Analyst | Justin Garland | Date | 12/1/2020 |
| Agency | FDOT | Analysis Year | 2045 |
| Jurisdiction | D2 | Time Period Analyzed | Design AM |
| Project Description | I-10 EB East of 129 | | |

## Geometric Data

| | | | |
|---|---|---|---|
| Number of Lanes, ln | 2 | Terrain Type | Level |
| Segment Length (L), ft | - | Percent Grade, % | - |
| Measured or Base Free-Flow Speed | Base | Grade Length, mi | - |
| Base Free-Flow Speed (BFFS), mi/h | 75.0 | Total Ramp Density (TRD), ramps/mi | 0.33 |
| Lane Width, ft | 12 | Free-Flow Speed (FFS), mi/h | 73.7 |
| Right-Side Lateral Clearance, ft | 10 | | |

## Adjustment Factors

| | | | |
|---|---|---|---|
| Driver Population | All Familiar | Final Speed Adjustment Factor (SAF) | 1.000 |
| Weather Type | Non-Severe Weather | Final Capacity Adjustment Factor (CAF) | 1.000 |
| Incident Type | No Incident | Demand Adjustment Factor (DAF) | 1.000 |

## Demand and Capacity

| | | | |
|---|---|---|---|
| Demand Volume veh/h | 1197 | Heavy Vehicle Adjustment Factor ($f_{HV}$) | 0.883 |
| Peak Hour Factor | 0.92 | Flow Rate ($V_p$), pc/h/ln | 736 |
| Total Trucks, % | 13.20 | Capacity (c), pc/h/ln | 2400 |
| Single-Unit Trucks (SUT), % | - | Adjusted Cpacity ($c_{adj}$), pc/h/ln | 2400 |
| Tractor-Trailers (TT), % | - | Volume-to-Capacity Ratio (v/c) | 0.31 |
| Passenger Car Equivalent ($E_T$) | 2.000 | | |

## Speed and Density

| | | | |
|---|---|---|---|
| Lane Width Adjustment ($f_{LW}$) | 0.0 | Average Speed (S), mi/h | 73.7 |
| Right-Side Lateral Clearance Adj. ($f_{RLC}$) | 0.0 | Density (D), pc/mi/ln | 10.0 |
| Total Ramp Density Adjustment | 1.3 | Level of Service (LOS) | A |
| Adjusted Free-Flow Speed ($FFS_{adj}$), mi/h | 73.7 | | |

# HCS7 Basic Freeway Report

## Project Information

| | | | |
|---|---|---|---|
| Analyst | Justin Garland | Date | 12/1/2020 |
| Agency | FDOT | Analysis Year | 2045 |
| Jurisdiction | D2 | Time Period Analyzed | Design AM |
| Project Description | I-10 EB West of 129 | | |

## Geometric Data

| | | | |
|---|---|---|---|
| Number of Lanes, ln | 2 | Terrain Type | Level |
| Segment Length (L), ft | - | Percent Grade, % | - |
| Measured or Base Free-Flow Speed | Base | Grade Length, mi | - |
| Base Free-Flow Speed (BFFS), mi/h | 75.0 | Total Ramp Density (TRD), ramps/mi | 0.33 |
| Lane Width, ft | 12 | Free-Flow Speed (FFS), mi/h | 73.7 |
| Right-Side Lateral Clearance, ft | 10 | | |

## Adjustment Factors

| | | | |
|---|---|---|---|
| Driver Population | All Familiar | Final Speed Adjustment Factor (SAF) | 1.000 |
| Weather Type | Non-Severe Weather | Final Capacity Adjustment Factor (CAF) | 1.000 |
| Incident Type | No Incident | Demand Adjustment Factor (DAF) | 1.000 |

## Demand and Capacity

| | | | |
|---|---|---|---|
| Demand Volume veh/h | 1011 | Heavy Vehicle Adjustment Factor ($f_{HV}$) | 0.883 |
| Peak Hour Factor | 0.92 | Flow Rate ($V_p$), pc/h/ln | 622 |
| Total Trucks, % | 13.20 | Capacity (c), pc/h/ln | 2400 |
| Single-Unit Trucks (SUT), % | - | Adjusted Cpacity ($c_{adj}$), pc/h/ln | 2400 |
| Tractor-Trailers (TT), % | - | Volume-to-Capacity Ratio (v/c) | 0.26 |
| Passenger Car Equivalent ($E_T$) | 2.000 | | |

## Speed and Density

| | | | |
|---|---|---|---|
| Lane Width Adjustment ($f_{LW}$) | 0.0 | Average Speed (S), mi/h | 73.7 |
| Right-Side Lateral Clearance Adj. ($f_{RLC}$) | 0.0 | Density (D), pc/mi/ln | 8.4 |
| Total Ramp Density Adjustment | 1.3 | Level of Service (LOS) | A |
| Adjusted Free-Flow Speed ($FFS_{adj}$), mi/h | 73.7 | | |

# HCS7 Basic Freeway Report

## Project Information

| | | | |
|---|---|---|---|
| Analyst | Justin Garland | Date | 12/1/2020 |
| Agency | FDOT | Analysis Year | 2045 |
| Jurisdiction | D2 | Time Period Analyzed | Design AM |
| Project Description | I-10 WB East of 129 | | |

## Geometric Data

| | | | |
|---|---|---|---|
| Number of Lanes, ln | 2 | Terrain Type | Level |
| Segment Length (L), ft | - | Percent Grade, % | - |
| Measured or Base Free-Flow Speed | Base | Grade Length, mi | - |
| Base Free-Flow Speed (BFFS), mi/h | 75.0 | Total Ramp Density (TRD), ramps/mi | 0.33 |
| Lane Width, ft | 12 | Free-Flow Speed (FFS), mi/h | 73.7 |
| Right-Side Lateral Clearance, ft | 10 | | |

## Adjustment Factors

| | | | |
|---|---|---|---|
| Driver Population | All Familiar | Final Speed Adjustment Factor (SAF) | 1.000 |
| Weather Type | Non-Severe Weather | Final Capacity Adjustment Factor (CAF) | 1.000 |
| Incident Type | No Incident | Demand Adjustment Factor (DAF) | 1.000 |

## Demand and Capacity

| | | | |
|---|---|---|---|
| Demand Volume veh/h | 1150 | Heavy Vehicle Adjustment Factor ($f_{HV}$) | 0.883 |
| Peak Hour Factor | 0.92 | Flow Rate ($V_p$), pc/h/ln | 708 |
| Total Trucks, % | 13.20 | Capacity (c), pc/h/ln | 2400 |
| Single-Unit Trucks (SUT), % | - | Adjusted Cpacity ($c_{adj}$), pc/h/ln | 2400 |
| Tractor-Trailers (TT), % | - | Volume-to-Capacity Ratio (v/c) | 0.30 |
| Passenger Car Equivalent ($E_T$) | 2.000 | | |

## Speed and Density

| | | | |
|---|---|---|---|
| Lane Width Adjustment ($f_{LW}$) | 0.0 | Average Speed (S), mi/h | 73.7 |
| Right-Side Lateral Clearance Adj. ($f_{RLC}$) | 0.0 | Density (D), pc/mi/ln | 9.6 |
| Total Ramp Density Adjustment | 1.3 | Level of Service (LOS) | A |
| Adjusted Free-Flow Speed ($FFS_{adj}$), mi/h | 73.7 | | |

# HCS7 Basic Freeway Report

## Project Information

| | | | |
|---|---|---|---|
| Analyst | Justin Garland | Date | 12/1/2020 |
| Agency | FDOT | Analysis Year | 2045 |
| Jurisdiction | D2 | Time Period Analyzed | Design AM |
| Project Description | I-10 WB West of 129 | | |

## Geometric Data

| | | | |
|---|---|---|---|
| Number of Lanes, ln | 2 | Terrain Type | Level |
| Segment Length (L), ft | - | Percent Grade, % | - |
| Measured or Base Free-Flow Speed | Base | Grade Length, mi | - |
| Base Free-Flow Speed (BFFS), mi/h | 75.0 | Total Ramp Density (TRD), ramps/mi | 0.33 |
| Lane Width, ft | 12 | Free-Flow Speed (FFS), mi/h | 73.7 |
| Right-Side Lateral Clearance, ft | 10 | | |

## Adjustment Factors

| | | | |
|---|---|---|---|
| Driver Population | All Familiar | Final Speed Adjustment Factor (SAF) | 1.000 |
| Weather Type | Non-Severe Weather | Final Capacity Adjustment Factor (CAF) | 1.000 |
| Incident Type | No Incident | Demand Adjustment Factor (DAF) | 1.000 |

## Demand and Capacity

| | | | |
|---|---|---|---|
| Demand Volume veh/h | 1006 | Heavy Vehicle Adjustment Factor ($f_{HV}$) | 0.883 |
| Peak Hour Factor | 0.92 | Flow Rate ($V_p$), pc/h/ln | 619 |
| Total Trucks, % | 13.20 | Capacity (c), pc/h/ln | 2400 |
| Single-Unit Trucks (SUT), % | - | Adjusted Cpacity ($c_{adj}$), pc/h/ln | 2400 |
| Tractor-Trailers (TT), % | - | Volume-to-Capacity Ratio (v/c) | 0.26 |
| Passenger Car Equivalent ($E_T$) | 2.000 | | |

## Speed and Density

| | | | |
|---|---|---|---|
| Lane Width Adjustment ($f_{LW}$) | 0.0 | Average Speed (S), mi/h | 73.7 |
| Right-Side Lateral Clearance Adj. ($f_{RLC}$) | 0.0 | Density (D), pc/mi/ln | 8.4 |
| Total Ramp Density Adjustment | 1.3 | Level of Service (LOS) | A |
| Adjusted Free-Flow Speed ($FFS_{adj}$), mi/h | 73.7 | | |

# HCS7 Freeway Merge Report

## Project Information

| | | | |
|---|---|---|---|
| Analyst | Justin Garland | Date | 12/15/2021 |
| Agency | FDOT | Analysis Year | 2045 |
| Jurisdiction | D2 | Time Period Analyzed | Design PM |
| Project Description | I-10 at 129 - EB Merge | | |

## Geometric Data

| | Freeway | Ramp |
|---|---|---|
| Number of Lanes (N) | 2 | 1 |
| Free-Flow Speed (FFS), mi/h | 75.0 | 35.0 |
| Segment Length (L) / Acceleration Length ($L_A$), ft | 1500 | 300 |
| Terrain Type | Level | Level |
| Percent Grade, % | - | - |
| Segment Type / Ramp Side | Freeway | Right |

## Adjustment Factors

| | | |
|---|---|---|
| Driver Population | All Familiar | All Familiar |
| Weather Type | Non-Severe Weather | Non-Severe Weather |
| Incident Type | No Incident | - |
| Final Speed Adjustment Factor (SAF) | 1.000 | 1.000 |
| Final Capacity Adjustment Factor (CAF) | 1.000 | 1.000 |
| Demand Adjustment Factor (DAF) | 1.000 | 1.000 |

## Demand and Capacity

| | | |
|---|---|---|
| Demand Volume ($V_i$), veh/h | 1658 | 334 |
| Peak Hour Factor (PHF) | 0.92 | 0.92 |
| Total Trucks, % | 13.20 | 2.80 |
| Single-Unit Trucks (SUT), % | - | - |
| Tractor-Trailers (TT), % | - | - |
| Heavy Vehicle Adjustment Factor ($f_{HV}$) | 0.883 | 0.973 |
| Flow Rate ($v_i$), pc/h | 2041 | 373 |
| Capacity (c), pc/h | 4800 | 2000 |
| Volume-to-Capacity Ratio (v/c) | 0.50 | 0.19 |

## Speed and Density

| | | | |
|---|---|---|---|
| Upstream Equilibrium Distance ($L_{EQ}$), ft | - | Density in Ramp Influence Area ($D_R$), pc/mi/ln | 22.3 |
| Distance to Upstream Ramp ($L_{UP}$), ft | - | Speed Index ($M_S$) | 0.344 |
| Downstream Equilibrium Distance ($L_{EQ}$), ft | - | Flow Outer Lanes ($v_{OA}$), pc/h/ln | - |
| Distance to Downstream Ramp ($L_{DOWN}$), ft | - | On-Ramp Influence Area Speed ($S_R$), mi/h | 63.6 |
| Prop. Freeway Vehicles in Lane 1 and 2 ($P_{FM}$) | 1.000 | Outer Lanes Freeway Speed ($S_O$), mi/h | - |
| Flow in Lanes 1 and 2 ($v_{12}$), pc/h | 2041 | Ramp Junction Speed (S), mi/h | 63.6 |
| Flow Entering Ramp-Infl. Area ($v_{R12}$), pc/h | 2414 | Average Density (D), pc/mi/ln | 19.0 |
| Level of Service (LOS) | C | | |

# HCS7 Freeway Merge Report

## Project Information

| | | | |
|---|---|---|---|
| Analyst | Justin Garland | Date | 12/15/2021 |
| Agency | FDOT | Analysis Year | 2045 |
| Jurisdiction | D2 | Time Period Analyzed | Design PM |
| Project Description | I-10 at 129 - WB Merge | | |

## Geometric Data

| | Freeway | Ramp |
|---|---|---|
| Number of Lanes (N) | 2 | 1 |
| Free-Flow Speed (FFS), mi/h | 75.0 | 35.0 |
| Segment Length (L) / Acceleration Length ($L_A$), ft | 1500 | 500 |
| Terrain Type | Level | Level |
| Percent Grade, % | - | - |
| Segment Type / Ramp Side | Freeway | Right |

## Adjustment Factors

| | | |
|---|---|---|
| Driver Population | All Familiar | All Familiar |
| Weather Type | Non-Severe Weather | Non-Severe Weather |
| Incident Type | No Incident | - |
| Final Speed Adjustment Factor (SAF) | 1.000 | 1.000 |
| Final Capacity Adjustment Factor (CAF) | 1.000 | 1.000 |
| Demand Adjustment Factor (DAF) | 1.000 | 1.000 |

## Demand and Capacity

| | | |
|---|---|---|
| Demand Volume ($V_i$), veh/h | 1758 | 214 |
| Peak Hour Factor (PHF) | 0.92 | 0.92 |
| Total Trucks, % | 13.20 | 2.80 |
| Single-Unit Trucks (SUT), % | - | - |
| Tractor-Trailers (TT), % | - | - |
| Heavy Vehicle Adjustment Factor ($f_{HV}$) | 0.883 | 0.973 |
| Flow Rate ($v_i$), pc/h | 2164 | 239 |
| Capacity (c), pc/h | 4800 | 2000 |
| Volume-to-Capacity Ratio (v/c) | 0.50 | 0.12 |

## Speed and Density

| | | | |
|---|---|---|---|
| Upstream Equilibrium Distance ($L_{EQ}$), ft | - | Density in Ramp Influence Area ($D_R$), pc/mi/ln | 21.0 |
| Distance to Upstream Ramp ($L_{UP}$), ft | - | Speed Index ($M_S$) | 0.329 |
| Downstream Equilibrium Distance ($L_{EQ}$), ft | - | Flow Outer Lanes ($v_{OA}$), pc/h/ln | - |
| Distance to Downstream Ramp ($L_{DOWN}$), ft | - | On-Ramp Influence Area Speed ($S_R$), mi/h | 64.1 |
| Prop. Freeway Vehicles in Lane 1 and 2 ($P_{FM}$) | 1.000 | Outer Lanes Freeway Speed ($S_O$), mi/h | - |
| Flow in Lanes 1 and 2 ($v_{12}$), pc/h | 2164 | Ramp Junction Speed (S), mi/h | 64.1 |
| Flow Entering Ramp-Infl. Area ($v_{R12}$), pc/h | 2403 | Average Density (D), pc/mi/ln | 18.7 |
| Level of Service (LOS) | C | | |

# HCS7 Freeway Diverge Report

## Project Information

| | | | |
|---|---|---|---|
| Analyst | Justin Garland | Date | 12/8/2020 |
| Agency | FDOT | Analysis Year | 2045 |
| Jurisdiction | D2 | Time Period Analyzed | Design PM |
| Project Description | I-10 at 129 - EB Diverge | | |

## Geometric Data

| | Freeway | Ramp |
|---|---|---|
| Number of Lanes (N) | 2 | 1 |
| Free-Flow Speed (FFS), mi/h | 75.0 | 35.0 |
| Segment Length (L) / Deceleration Length ($L_D$), ft | 1500 | 200 |
| Terrain Type | Level | Level |
| Percent Grade, % | - | - |
| Segment Type / Ramp Side | Highway/CD Roadway | Right |

## Adjustment Factors

| | | |
|---|---|---|
| Driver Population | All Familiar | All Familiar |
| Weather Type | Non-Severe Weather | Non-Severe Weather |
| Incident Type | No Incident | - |
| Final Speed Adjustment Factor (SAF) | 1.000 | 1.000 |
| Final Capacity Adjustment Factor (CAF) | 1.000 | 1.000 |
| Demand Adjustment Factor (DAF) | 1.000 | 1.000 |

## Demand and Capacity

| | | |
|---|---|---|
| Demand Volume ($V_i$), veh/h | 1860 | 202 |
| Peak Hour Factor (PHF) | 0.92 | 0.92 |
| Total Trucks, % | 13.20 | 2.80 |
| Single-Unit Trucks (SUT), % | - | - |
| Tractor-Trailers (TT), % | - | - |
| Heavy Vehicle Adjustment Factor ($f_{HV}$) | 0.883 | 0.973 |
| Flow Rate ($v_i$), pc/h | 2290 | 226 |
| Capacity (c), pc/h | 4400 | 2000 |
| Volume-to-Capacity Ratio (v/c) | 0.52 | 0.11 |

## Speed and Density

| | | | |
|---|---|---|---|
| Upstream Equilibrium Distance ($L_{EQ}$), ft | - | Density in Ramp Influence Area ($D_R$), pc/mi/ln | 22.1 |
| Distance to Upstream Ramp ($L_{UP}$), ft | - | Speed Index ($D_S$) | 0.448 |
| Downstream Equilibrium Distance ($L_{EQ}$), ft | - | Flow Outer Lanes ($v_{OA}$), pc/h/ln | - |
| Distance to Downstream Ramp ($L_{DOWN}$), ft | - | Off-Ramp Influence Area Speed ($S_R$), mi/h | 60.2 |
| Prop. Freeway Vehicles in Lane 1 and 2 ($P_{FD}$) | 1.000 | Outer Lanes Freeway Speed ($S_O$), mi/h | - |
| Flow in Lanes 1 and 2 ($v_{12}$), pc/h | 2290 | Ramp Junction Speed (S), mi/h | 60.2 |
| Flow Entering Ramp-Infl. Area ($v_{R12}$), pc/h | - | Average Density (D), pc/mi/ln | 19.0 |
| Level of Service (LOS) | C | | |

# HCS7 Freeway Diverge Report

## Project Information

| | | | |
|---|---|---|---|
| Analyst | Justin Garland | Date | 12/8/2020 |
| Agency | FDOT | Analysis Year | 2045 |
| Jurisdiction | D2 | Time Period Analyzed | Design PM |
| Project Description | I-10 at 129 - WB Diverge | | |

## Geometric Data

| | Freeway | Ramp |
|---|---|---|
| Number of Lanes (N) | 2 | 1 |
| Free-Flow Speed (FFS), mi/h | 75.0 | 35.0 |
| Segment Length (L) / Deceleration Length ($L_D$), ft | 1500 | 200 |
| Terrain Type | Level | Level |
| Percent Grade, % | - | - |
| Segment Type / Ramp Side | Highway/CD Roadway | Right |

## Adjustment Factors

| | | |
|---|---|---|
| Driver Population | All Familiar | All Familiar |
| Weather Type | Non-Severe Weather | Non-Severe Weather |
| Incident Type | No Incident | - |
| Final Speed Adjustment Factor (SAF) | 1.000 | 1.000 |
| Final Capacity Adjustment Factor (CAF) | 1.000 | 1.000 |
| Demand Adjustment Factor (DAF) | 1.000 | 1.000 |

## Demand and Capacity

| | | |
|---|---|---|
| Demand Volume ($V_i$), veh/h | 2100 | 342 |
| Peak Hour Factor (PHF) | 0.92 | 0.92 |
| Total Trucks, % | 13.20 | 2.80 |
| Single-Unit Trucks (SUT), % | - | - |
| Tractor-Trailers (TT), % | - | - |
| Heavy Vehicle Adjustment Factor ($f_{HV}$) | 0.883 | 0.973 |
| Flow Rate ($v_i$), pc/h | 2585 | 382 |
| Capacity (c), pc/h | 4400 | 2000 |
| Volume-to-Capacity Ratio (v/c) | 0.59 | 0.19 |

## Speed and Density

| | | | |
|---|---|---|---|
| Upstream Equilibrium Distance ($L_{EQ}$), ft | - | Density in Ramp Influence Area ($D_R$), pc/mi/ln | 24.7 |
| Distance to Upstream Ramp ($L_{UP}$), ft | - | Speed Index ($D_S$) | 0.462 |
| Downstream Equilibrium Distance ($L_{EQ}$), ft | - | Flow Outer Lanes ($v_{OA}$), pc/h/ln | - |
| Distance to Downstream Ramp ($L_{DOWN}$), ft | - | Off-Ramp Influence Area Speed ($S_R$), mi/h | 59.8 |
| Prop. Freeway Vehicles in Lane 1 and 2 ($P_{FD}$) | 1.000 | Outer Lanes Freeway Speed ($S_O$), mi/h | - |
| Flow in Lanes 1 and 2 ($v_{12}$), pc/h | 2585 | Ramp Junction Speed (S), mi/h | 59.8 |
| Flow Entering Ramp-Infl. Area ($v_{R12}$), pc/h | - | Average Density (D), pc/mi/ln | 21.6 |
| Level of Service (LOS) | C | | |

# HCS7 Basic Freeway Report

## Project Information

| | | | |
|---|---|---|---|
| Analyst | Justin Garland | Date | 12/1/2020 |
| Agency | FDOT | Analysis Year | 2045 |
| Jurisdiction | D2 | Time Period Analyzed | Design PM |
| Project Description | I-10 EB East of 129 | | |

## Geometric Data

| | | | |
|---|---|---|---|
| Number of Lanes, ln | 2 | Terrain Type | Level |
| Segment Length (L), ft | - | Percent Grade, % | - |
| Measured or Base Free-Flow Speed | Base | Grade Length, mi | - |
| Base Free-Flow Speed (BFFS), mi/h | 75.0 | Total Ramp Density (TRD), ramps/mi | 0.33 |
| Lane Width, ft | 12 | Free-Flow Speed (FFS), mi/h | 73.7 |
| Right-Side Lateral Clearance, ft | 10 | | |

## Adjustment Factors

| | | | |
|---|---|---|---|
| Driver Population | All Familiar | Final Speed Adjustment Factor (SAF) | 1.000 |
| Weather Type | Non-Severe Weather | Final Capacity Adjustment Factor (CAF) | 1.000 |
| Incident Type | No Incident | Demand Adjustment Factor (DAF) | 1.000 |

## Demand and Capacity

| | | | |
|---|---|---|---|
| Demand Volume veh/h | 1993 | Heavy Vehicle Adjustment Factor ($f_{HV}$) | 0.883 |
| Peak Hour Factor | 0.92 | Flow Rate ($V_p$), pc/h/ln | 1226 |
| Total Trucks, % | 13.20 | Capacity (c), pc/h/ln | 2400 |
| Single-Unit Trucks (SUT), % | - | Adjusted Cpacity ($c_{adj}$), pc/h/ln | 2400 |
| Tractor-Trailers (TT), % | - | Volume-to-Capacity Ratio (v/c) | 0.51 |
| Passenger Car Equivalent ($E_T$) | 2.000 | | |

## Speed and Density

| | | | |
|---|---|---|---|
| Lane Width Adjustment ($f_{LW}$) | 0.0 | Average Speed (S), mi/h | 73.4 |
| Right-Side Lateral Clearance Adj. ($f_{RLC}$) | 0.0 | Density (D), pc/mi/ln | 16.7 |
| Total Ramp Density Adjustment | 1.3 | Level of Service (LOS) | B |
| Adjusted Free-Flow Speed ($FFS_{adj}$), mi/h | 73.7 | | |

# HCS7 Basic Freeway Report

## Project Information

| | | | |
|---|---|---|---|
| Analyst | Justin Garland | Date | 12/1/2020 |
| Agency | FDOT | Analysis Year | 2045 |
| Jurisdiction | D2 | Time Period Analyzed | Design PM |
| Project Description | I-10 EB West of 129 | | |

## Geometric Data

| | | | |
|---|---|---|---|
| Number of Lanes, ln | 2 | Terrain Type | Level |
| Segment Length (L), ft | - | Percent Grade, % | - |
| Measured or Base Free-Flow Speed | Base | Grade Length, mi | - |
| Base Free-Flow Speed (BFFS), mi/h | 75.0 | Total Ramp Density (TRD), ramps/mi | 0.33 |
| Lane Width, ft | 12 | Free-Flow Speed (FFS), mi/h | 73.7 |
| Right-Side Lateral Clearance, ft | 10 | | |

## Adjustment Factors

| | | | |
|---|---|---|---|
| Driver Population | All Familiar | Final Speed Adjustment Factor (SAF) | 1.000 |
| Weather Type | Non-Severe Weather | Final Capacity Adjustment Factor (CAF) | 1.000 |
| Incident Type | No Incident | Demand Adjustment Factor (DAF) | 1.000 |

## Demand and Capacity

| | | | |
|---|---|---|---|
| Demand Volume veh/h | 1860 | Heavy Vehicle Adjustment Factor ($f_{HV}$) | 0.883 |
| Peak Hour Factor | 0.92 | Flow Rate ($V_p$), pc/h/ln | 1145 |
| Total Trucks, % | 13.20 | Capacity (c), pc/h/ln | 2400 |
| Single-Unit Trucks (SUT), % | - | Adjusted Cpacity ($c_{adj}$), pc/h/ln | 2400 |
| Tractor-Trailers (TT), % | - | Volume-to-Capacity Ratio (v/c) | 0.48 |
| Passenger Car Equivalent ($E_T$) | 2.000 | | |

## Speed and Density

| | | | |
|---|---|---|---|
| Lane Width Adjustment ($f_{LW}$) | 0.0 | Average Speed (S), mi/h | 73.6 |
| Right-Side Lateral Clearance Adj. ($f_{RLC}$) | 0.0 | Density (D), pc/mi/ln | 15.6 |
| Total Ramp Density Adjustment | 1.3 | Level of Service (LOS) | B |
| Adjusted Free-Flow Speed ($FFS_{adj}$), mi/h | 73.7 | | |

# HCS7 Basic Freeway Report

## Project Information

| | | | |
|---|---|---|---|
| Analyst | Justin Garland | Date | 12/1/2020 |
| Agency | FDOT | Analysis Year | 2045 |
| Jurisdiction | D2 | Time Period Analyzed | Design PM |
| Project Description | I-10 WB East of 129 | | |

## Geometric Data

| | | | |
|---|---|---|---|
| Number of Lanes, ln | 2 | Terrain Type | Level |
| Segment Length (L), ft | - | Percent Grade, % | - |
| Measured or Base Free-Flow Speed | Base | Grade Length, mi | - |
| Base Free-Flow Speed (BFFS), mi/h | 75.0 | Total Ramp Density (TRD), ramps/mi | 0.33 |
| Lane Width, ft | 12 | Free-Flow Speed (FFS), mi/h | 73.7 |
| Right-Side Lateral Clearance, ft | 10 | | |

## Adjustment Factors

| | | | |
|---|---|---|---|
| Driver Population | All Familiar | Final Speed Adjustment Factor (SAF) | 1.000 |
| Weather Type | Non-Severe Weather | Final Capacity Adjustment Factor (CAF) | 1.000 |
| Incident Type | No Incident | Demand Adjustment Factor (DAF) | 1.000 |

## Demand and Capacity

| | | | |
|---|---|---|---|
| Demand Volume veh/h | 2100 | Heavy Vehicle Adjustment Factor ($f_{HV}$) | 0.883 |
| Peak Hour Factor | 0.92 | Flow Rate ($V_p$), pc/h/ln | 1292 |
| Total Trucks, % | 13.20 | Capacity (c), pc/h/ln | 2400 |
| Single-Unit Trucks (SUT), % | - | Adjusted Cpacity ($c_{adj}$), pc/h/ln | 2400 |
| Tractor-Trailers (TT), % | - | Volume-to-Capacity Ratio (v/c) | 0.54 |
| Passenger Car Equivalent ($E_T$) | 2.000 | | |

## Speed and Density

| | | | |
|---|---|---|---|
| Lane Width Adjustment ($f_{LW}$) | 0.0 | Average Speed (S), mi/h | 73.1 |
| Right-Side Lateral Clearance Adj. ($f_{RLC}$) | 0.0 | Density (D), pc/mi/ln | 17.7 |
| Total Ramp Density Adjustment | 1.3 | Level of Service (LOS) | B |
| Adjusted Free-Flow Speed ($FFS_{adj}$), mi/h | 73.7 | | |

# HCS7 Basic Freeway Report

## Project Information

| | | | |
|---|---|---|---|
| Analyst | Justin Garland | Date | 12/1/2020 |
| Agency | FDOT | Analysis Year | 2045 |
| Jurisdiction | D2 | Time Period Analyzed | Design PM |
| Project Description | I-10 WB West of 129 | | |

## Geometric Data

| | | | |
|---|---|---|---|
| Number of Lanes, ln | 2 | Terrain Type | Level |
| Segment Length (L), ft | - | Percent Grade, % | - |
| Measured or Base Free-Flow Speed | Base | Grade Length, mi | - |
| Base Free-Flow Speed (BFFS), mi/h | 75.0 | Total Ramp Density (TRD), ramps/mi | 0.33 |
| Lane Width, ft | 12 | Free-Flow Speed (FFS), mi/h | 73.7 |
| Right-Side Lateral Clearance, ft | 10 | | |

## Adjustment Factors

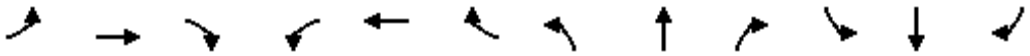
| | | | |
|---|---|---|---|
| Driver Population | All Familiar | Final Speed Adjustment Factor (SAF) | 1.000 |
| Weather Type | Non-Severe Weather | Final Capacity Adjustment Factor (CAF) | 1.000 |
| Incident Type | No Incident | Demand Adjustment Factor (DAF) | 1.000 |

## Demand and Capacity

| | | | |
|---|---|---|---|
| Demand Volume veh/h | 1971 | Heavy Vehicle Adjustment Factor ($f_{HV}$) | 0.883 |
| Peak Hour Factor | 0.92 | Flow Rate ($V_p$), pc/h/ln | 1213 |
| Total Trucks, % | 13.20 | Capacity (c), pc/h/ln | 2400 |
| Single-Unit Trucks (SUT), % | - | Adjusted Cpacity ($c_{adj}$), pc/h/ln | 2400 |
| Tractor-Trailers (TT), % | - | Volume-to-Capacity Ratio (v/c) | 0.51 |
| Passenger Car Equivalent ($E_T$) | 2.000 | | |

## Speed and Density

| | | | |
|---|---|---|---|
| Lane Width Adjustment ($f_{LW}$) | 0.0 | Average Speed (S), mi/h | 73.4 |
| Right-Side Lateral Clearance Adj. ($f_{RLC}$) | 0.0 | Density (D), pc/mi/ln | 16.5 |
| Total Ramp Density Adjustment | 1.3 | Level of Service (LOS) | B |
| Adjusted Free-Flow Speed ($FFS_{adj}$), mi/h | 73.7 | | |



| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 15 | 3 | 8 | 21 | 2 | 28 | 9 | 385 | 19 | 53 | 410 | 7 |
| Future Volume (vph) | 15 | 3 | 8 | 21 | 2 | 28 | 9 | 385 | 19 | 53 | 410 | 7 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Storage Length (ft) | 250 | | 0 | 60 | | 0 | 250 | | 500 | 245 | | 0 |
| Storage Lanes | 0 | | 0 | 1 | | 0 | 1 | | 1 | 1 | | 0 |
| Taper Length (ft) | 25 | | | 25 | | | 25 | | | 25 | | |
| Lane Util. Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 0.95 |
| Frt | | 0.957 | | | 0.859 | | | | 0.850 | | 0.997 | |
| Flt Protected | | 0.972 | | 0.950 | | | 0.950 | | | 0.950 | | |
| Satd. Flow (prot) | 0 | 1716 | 0 | 1752 | 1585 | 0 | 1752 | 3505 | 1568 | 1752 | 3494 | 0 |
| Flt Permitted | | 0.805 | | 0.952 | | | 0.490 | | | 0.457 | | |
| Satd. Flow (perm) | 0 | 1421 | 0 | 1756 | 1585 | 0 | 904 | 3505 | 1568 | 843 | 3494 | 0 |
| Right Turn on Red | | | Yes | | | Yes | | | Yes | | | Yes |
| Satd. Flow (RTOR) | | 9 | | | 30 | | | | 93 | | 2 | |
| Link Speed (mph) | | 30 | | | 30 | | | 45 | | | 45 | |
| Link Distance (ft) | | 516 | | | 277 | | | 761 | | | 1628 | |
| Travel Time (s) | | 11.7 | | | 6.3 | | | 11.5 | | | 24.7 | |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Adj. Flow (vph) | 16 | 3 | 9 | 23 | 2 | 30 | 10 | 418 | 21 | 58 | 446 | 8 |
| Shared Lane Traffic (%) | | | | | | | | | | | | |
| Lane Group Flow (vph) | 0 | 28 | 0 | 23 | 32 | 0 | 10 | 418 | 21 | 58 | 454 | 0 |
| Enter Blocked Intersection | No | No | No | No | No | No | No | No | No | No | No | No |
| Lane Alignment | Left | Left | Right | Left | Left | Right | Left | Left | Right | Left | Left | Right |
| Median Width(ft) | | 0 | | | 12 | | | 12 | | | 15 | |
| Link Offset(ft) | | 0 | | | 0 | | | 0 | | | 0 | |
| Crosswalk Width(ft) | | 16 | | | 16 | | | 16 | | | 16 | |
| Two way Left Turn Lane | | | | | | | | | | | | |
| Headway 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 |
| Turning Speed (mph) | 15 | | 9 | 15 | | 9 | 15 | | 9 | 15 | | 9 |
| Turn Type | Perm | NA | | Perm | NA | | pm+pt | NA | Perm | pm+pt | NA | |
| Protected Phases | | 4 | | | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | 4 | | | 8 | | | 2 | | 2 | 6 | | |
| Detector Phase | 4 | 4 | | 8 | 8 | | 5 | 2 | 2 | 1 | 6 | |
| Switch Phase | | | | | | | | | | | | |
| Minimum Initial (s) | 6.0 | 6.0 | | 6.0 | 6.0 | | 6.0 | 15.0 | 15.0 | 6.0 | 15.0 | |
| Minimum Split (s) | 39.0 | 39.0 | | 12.0 | 12.0 | | 13.0 | 40.0 | 40.0 | 13.0 | 33.0 | |
| Total Split (s) | 39.0 | 39.0 | | 31.0 | 31.0 | | 22.0 | 52.0 | 52.0 | 22.0 | 52.0 | |
| Total Split (%) | 34.5% | 34.5% | | 27.4% | 27.4% | | 19.5% | 46.0% | 46.0% | 19.5% | 46.0% | |
| Maximum Green (s) | 33.2 | 33.2 | | 25.2 | 25.2 | | 15.2 | 45.2 | 45.2 | 15.2 | 45.2 | |
| Yellow Time (s) | 3.8 | 3.8 | | 3.8 | 3.8 | | 4.8 | 4.8 | 4.8 | 4.8 | 4.8 | |
| 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) | | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | |
| Total Lost Time (s) | | 5.8 | | 5.8 | 5.8 | | 6.8 | 6.8 | 6.8 | 6.8 | 6.8 | |
| Lead/Lag | | | | | | | Lead | Lag | Lag | Lead | Lag | |
| Lead-Lag Optimize? | | | | | | | Yes | Yes | Yes | Yes | Yes | |
| Vehicle Extension (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| Recall Mode | None | None | | None | None | | None | Min | Min | None | Min | |
| Walk Time (s) | 7.0 | 7.0 | | | | | | 7.0 | 7.0 | | 7.0 | |

| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Flash Dont Walk (s) | 26.0 | 26.0 | | | | | | 26.0 | 26.0 | | 19.0 | |
| Pedestrian Calls (#/hr) | 0 | 0 | | | | | | 0 | 0 | | 0 | |
| Act Effct Green (s) | | 7.4 | | 7.5 | 7.5 | | 26.6 | 26.3 | 26.3 | 29.7 | 31.6 | |
| Actuated g/C Ratio | | 0.16 | | 0.17 | 0.17 | | 0.59 | 0.58 | 0.58 | 0.66 | 0.70 | |
| v/c Ratio | | 0.12 | | 0.08 | 0.11 | | 0.02 | 0.20 | 0.02 | 0.08 | 0.18 | |
| Control Delay | | 16.5 | | 19.1 | 10.0 | | 5.0 | 11.2 | 0.1 | 4.7 | 6.8 | |
| Queue Delay | | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | |
| Total Delay | | 16.5 | | 19.1 | 10.0 | | 5.0 | 11.2 | 0.1 | 4.7 | 6.8 | |
| LOS | | B | | B | A | | A | B | A | A | A | |
| Approach Delay | | 16.5 | | | 13.8 | | | 10.5 | | | 6.5 | |
| Approach LOS | | B | | | B | | | B | | | A | |
| Queue Length 50th (ft) | | 5 | | 6 | 1 | | 1 | 48 | 0 | 6 | 26 | |
| Queue Length 95th (ft) | | 23 | | 22 | 19 | | 5 | 84 | 0 | 17 | 88 | |
| Internal Link Dist (ft) | | 436 | | | 197 | | | 681 | | | 1548 | |
| Turn Bay Length (ft) | | | | 60 | | | 250 | | 500 | 245 | | |
| Base Capacity (vph) | | 1077 | | 1328 | 1206 | | 910 | 3290 | 1477 | 889 | 3280 | |
| 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 | | 0.03 | | 0.02 | 0.03 | | 0.01 | 0.13 | 0.01 | 0.07 | 0.14 | |

## Intersection Summary

Area Type: Other
Cycle Length: 113
Actuated Cycle Length: 45
Natural Cycle: 95
Control Type: Semi Act-Uncoord
Maximum v/c Ratio: 0.20
Intersection Signal Delay: 8.9 Intersection LOS: A
Intersection Capacity Utilization 41.8% ICU Level of Service A
Analysis Period (min) 15

Splits and Phases: 4: 68th Terrace & 129

| Movement | WBL | WBR | NBL | NBT | NBR | SBL | SBT | SBR | SEL2 | SEL | SER |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | |
| Traffic Volume (veh/h) | 0 | 0 | 0 | 278 | 150 | 58 | 422 | 0 | 42 | 0 | 48 |
| Future Volume (Veh/h) | 0 | 0 | 0 | 278 | 150 | 58 | 422 | 0 | 42 | 0 | 48 |
| Sign Control | Stop | | | Free | | | Free | | | Stop | |
| Grade | 0% | | | 0% | | | 0% | | | 0% | |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Hourly flow rate (vph) | 0 | 0 | 0 | 302 | 163 | 63 | 459 | 0 | 46 | 0 | 52 |
| Pedestrians | | | | | | | | | | | |
| Lane Width (ft) | | | | | | | | | | | |
| Walking Speed (ft/s) | | | | | | | | | | | |
| Percent Blockage | | | | | | | | | | | |
| Right turn flare (veh) | | | | | | | | | | | |
| Median type | | | | None | | | None | | | | |
| Median storage veh) | | | | | | | | | | | |
| Upstream signal (ft) | | | | | | | | | | | |
| pX, platoon unblocked | | | | | | | | | | | |
| vC, conflicting volume | 658 | 887 | 459 | | | 302 | | | 736 | 887 | 230 |
| vC1, stage 1 conf vol | | | | | | | | | | | |
| vC2, stage 2 conf vol | | | | | | | | | | | |
| vCu, unblocked vol | 658 | 887 | 459 | | | 302 | | | 736 | 887 | 230 |
| tC, single (s) | 7.6 | 6.6 | 4.2 | | | 4.2 | | | 7.6 | 6.6 | 7.0 |
| tC, 2 stage (s) | | | | | | | | | | | |
| tF (s) | 3.5 | 4.0 | 2.2 | | | 2.2 | | | 3.5 | 4.0 | 3.3 |
| p0 queue free % | 100 | 100 | 100 | | | 95 | | | 84 | 100 | 93 |
| cM capacity (veh/h) | 312 | 266 | 1091 | | | 1249 | | | 293 | 266 | 770 |

| Direction, Lane # | NB 1 | NB 2 | NB 3 | SB 1 | SB 2 | SB 3 | SE 1 |
|---|---|---|---|---|---|---|---|
| Volume Total | 151 | 151 | 163 | 63 | 230 | 230 | 98 |
| Volume Left | 0 | 0 | 0 | 63 | 0 | 0 | 46 |
| Volume Right | 0 | 0 | 163 | 0 | 0 | 0 | 52 |
| cSH | 1700 | 1700 | 1700 | 1249 | 1700 | 1700 | 437 |
| Volume to Capacity | 0.09 | 0.09 | 0.10 | 0.05 | 0.14 | 0.14 | 0.22 |
| Queue Length 95th (ft) | 0 | 0 | 0 | 4 | 0 | 0 | 21 |
| Control Delay (s) | 0.0 | 0.0 | 0.0 | 8.0 | 0.0 | 0.0 | 15.6 |
| Lane LOS | | | | A | | | C |
| Approach Delay (s) | 0.0 | | | 1.0 | | | 15.6 |
| Approach LOS | | | | | | | C |

| Intersection Summary | | | | |
|---|---|---|---|---|
| Average Delay | 1.9 | | | |
| Intersection Capacity Utilization | 34.5% | ICU Level of Service | | A |
| Analysis Period (min) | 15 | | | |

| Movement | EBL | EBR | NBL | NBT | NBR | SBL | SBT | SBR | NWL2 | NWL | NWR |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | |
| Traffic Volume (veh/h) | 0 | 0 | 38 | 282 | 0 | 0 | 356 | 45 | 124 | 0 | 50 |
| Future Volume (Veh/h) | 0 | 0 | 38 | 282 | 0 | 0 | 356 | 45 | 124 | 0 | 50 |
| Sign Control | Stop | | | Free | | | Free | | | Stop | |
| Grade | 0% | | | 0% | | | 0% | | | 0% | |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Hourly flow rate (vph) | 0 | 0 | 41 | 307 | 0 | 0 | 387 | 49 | 135 | 0 | 54 |
| Pedestrians | | | | | | | | | | | |
| Lane Width (ft) | | | | | | | | | | | |
| Walking Speed (ft/s) | | | | | | | | | | | |
| Percent Blockage | | | | | | | | | | | |
| Right turn flare (veh) | | | | | | | | | | | |
| Median type | | | | None | | | None | | | | |
| Median storage veh) | | | | | | | | | | | |
| Upstream signal (ft) | | | | | | | | | | | |
| pX, platoon unblocked | | | | | | | | | | | |
| vC, conflicting volume | 647 | 800 | 387 | | | 307 | | | 582 | 776 | 154 |
| vC1, stage 1 conf vol | | | | | | | | | | | |
| vC2, stage 2 conf vol | | | | | | | | | | | |
| vCu, unblocked vol | 647 | 800 | 387 | | | 307 | | | 582 | 776 | 154 |
| tC, single (s) | 7.6 | 6.6 | 4.2 | | | 4.2 | | | 7.6 | 6.6 | 7.0 |
| tC, 2 stage (s) | | | | | | | | | | | |
| tF (s) | 3.5 | 4.0 | 2.2 | | | 2.2 | | | 3.5 | 4.0 | 3.3 |
| p0 queue free % | 100 | 100 | 96 | | | 100 | | | 65 | 100 | 94 |
| cM capacity (veh/h) | 323 | 303 | 1161 | | | 1243 | | | 383 | 314 | 862 |

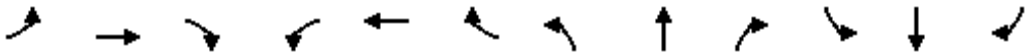
| Direction, Lane # | NB 1 | NB 2 | NB 3 | SB 1 | SB 2 | NW 1 |
|---|---|---|---|---|---|---|
| Volume Total | 41 | 154 | 154 | 258 | 178 | 189 |
| Volume Left | 41 | 0 | 0 | 0 | 0 | 135 |
| Volume Right | 0 | 0 | 0 | 0 | 49 | 54 |
| cSH | 1161 | 1700 | 1700 | 1700 | 1700 | 456 |
| Volume to Capacity | 0.04 | 0.09 | 0.09 | 0.15 | 0.10 | 0.41 |
| Queue Length 95th (ft) | 3 | 0 | 0 | 0 | 0 | 50 |
| Control Delay (s) | 8.2 | 0.0 | 0.0 | 0.0 | 0.0 | 18.4 |
| Lane LOS | A | | | | | C |
| Approach Delay (s) | 1.0 | | | 0.0 | | 18.4 |
| Approach LOS | | | | | | C |

| Intersection Summary | | | | |
|---|---|---|---|---|
| Average Delay | 3.9 | | | |
| Intersection Capacity Utilization | 34.5% | ICU Level of Service | | A |
| Analysis Period (min) | 15 | | | |

| Movement | WBL | WBR | NBT | NBR | SBL | SBT |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Traffic Volume (veh/h) | 118 | 23 | 189 | 1 | 18 | 283 |
| Future Volume (Veh/h) | 118 | 23 | 189 | 1 | 18 | 283 |
| Sign Control | Stop | | Free | | | Free |
| Grade | 0% | | 0% | | | 0% |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Hourly flow rate (vph) | 128 | 25 | 205 | 1 | 20 | 308 |
| Pedestrians | | | | | | |
| Lane Width (ft) | | | | | | |
| Walking Speed (ft/s) | | | | | | |
| Percent Blockage | | | | | | |
| Right turn flare (veh) | | 2 | | | | |
| Median type | | | None | | | None |
| Median storage veh) | | | | | | |
| Upstream signal (ft) | | | | | | |
| pX, platoon unblocked | | | | | | |
| vC, conflicting volume | 554 | 206 | | | 206 | |
| vC1, stage 1 conf vol | | | | | | |
| vC2, stage 2 conf vol | | | | | | |
| vCu, unblocked vol | 554 | 206 | | | 206 | |
| tC, single (s) | 6.4 | 6.2 | | | 4.1 | |
| tC, 2 stage (s) | | | | | | |
| tF (s) | 3.5 | 3.3 | | | 2.2 | |
| p0 queue free % | 74 | 97 | | | 99 | |
| cM capacity (veh/h) | 485 | 833 | | | 1359 | |

| Direction, Lane # | WB 1 | NB 1 | SB 1 | SB 2 |
|---|---|---|---|---|
| Volume Total | 153 | 206 | 20 | 308 |
| Volume Left | 128 | 0 | 20 | 0 |
| Volume Right | 25 | 1 | 0 | 0 |
| cSH | 579 | 1700 | 1359 | 1700 |
| Volume to Capacity | 0.26 | 0.12 | 0.01 | 0.18 |
| Queue Length 95th (ft) | 26 | 0 | 1 | 0 |
| Control Delay (s) | 14.2 | 0.0 | 7.7 | 0.0 |
| Lane LOS | B | | A | |
| Approach Delay (s) | 14.2 | 0.0 | 0.5 | |
| Approach LOS | B | | | |

| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 3.4 | | |
| Intersection Capacity Utilization | 28.2% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |



| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 14 | 3 | 21 | 49 | 1 | 72 | 53 | 433 | 32 | 97 | 336 | 17 |
| Future Volume (vph) | 14 | 3 | 21 | 49 | 1 | 72 | 53 | 433 | 32 | 97 | 336 | 17 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Storage Length (ft) | 250 | | 0 | 60 | | 60 | 250 | | 500 | 245 | | 0 |
| Storage Lanes | 0 | | 0 | 1 | | 0 | 1 | | 1 | 1 | | 0 |
| Taper Length (ft) | 25 | | | 25 | | | 25 | | | 25 | | |
| Lane Util. Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 0.95 |
| Frt | | 0.924 | | | 0.852 | | | | 0.850 | | 0.993 | |
| Flt Protected | | 0.982 | | 0.950 | | | 0.950 | | | 0.950 | | |
| Satd. Flow (prot) | 0 | 1674 | 0 | 1752 | 1572 | 0 | 1752 | 3505 | 1568 | 1752 | 3480 | 0 |
| Flt Permitted | | 0.846 | | 0.730 | | | 0.525 | | | 0.445 | | |
| Satd. Flow (perm) | 0 | 1442 | 0 | 1347 | 1572 | 0 | 968 | 3505 | 1568 | 821 | 3480 | 0 |
| Right Turn on Red | | | Yes | | | Yes | | | Yes | | | Yes |
| Satd. Flow (RTOR) | | 23 | | | 78 | | | | 93 | | 5 | |
| Link Speed (mph) | | 30 | | | 30 | | | 45 | | | 45 | |
| Link Distance (ft) | | 516 | | | 277 | | | 761 | | | 1628 | |
| Travel Time (s) | | 11.7 | | | 6.3 | | | 11.5 | | | 24.7 | |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Adj. Flow (vph) | 15 | 3 | 23 | 53 | 1 | 78 | 58 | 471 | 35 | 105 | 365 | 18 |
| Shared Lane Traffic (%) | | | | | | | | | | | | |
| Lane Group Flow (vph) | 0 | 41 | 0 | 53 | 79 | 0 | 58 | 471 | 35 | 105 | 383 | 0 |
| Enter Blocked Intersection | No | No | No | No | No | No | No | No | No | No | No | No |
| Lane Alignment | Left | Left | Right | Left | Left | Right | Left | Left | Right | Left | Left | Right |
| Median Width(ft) | | 0 | | | 12 | | | 12 | | | 15 | |
| Link Offset(ft) | | 0 | | | 0 | | | 0 | | | 0 | |
| Crosswalk Width(ft) | | 16 | | | 16 | | | 16 | | | 16 | |
| Two way Left Turn Lane | | | | | | | | | | | | |
| Headway 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 |
| Turning Speed (mph) | 15 | | 9 | 15 | | 9 | 15 | | 9 | 15 | | 9 |
| Turn Type | Perm | NA | | Perm | NA | | pm+pt | NA | Perm | pm+pt | NA | |
| Protected Phases | | 4 | | | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | 4 | | | 8 | | | 2 | | 2 | 6 | | |
| Detector Phase | 4 | 4 | | 8 | 8 | | 5 | 2 | 2 | 1 | 6 | |
| Switch Phase | | | | | | | | | | | | |
| Minimum Initial (s) | 6.0 | 6.0 | | 6.0 | 6.0 | | 6.0 | 15.0 | 15.0 | 6.0 | 15.0 | |
| Minimum Split (s) | 39.0 | 39.0 | | 12.0 | 12.0 | | 13.0 | 40.0 | 40.0 | 13.0 | 33.0 | |
| Total Split (s) | 39.0 | 39.0 | | 31.0 | 31.0 | | 22.0 | 52.0 | 52.0 | 22.0 | 52.0 | |
| Total Split (%) | 34.5% | 34.5% | | 27.4% | 27.4% | | 19.5% | 46.0% | 46.0% | 19.5% | 46.0% | |
| Maximum Green (s) | 33.2 | 33.2 | | 25.2 | 25.2 | | 15.2 | 45.2 | 45.2 | 15.2 | 45.2 | |
| Yellow Time (s) | 3.8 | 3.8 | | 3.8 | 3.8 | | 4.8 | 4.8 | 4.8 | 4.8 | 4.8 | |
| 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) | | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | |
| Total Lost Time (s) | | 5.8 | | 5.8 | 5.8 | | 6.8 | 6.8 | 6.8 | 6.8 | 6.8 | |
| Lead/Lag | | | | | | | Lead | Lag | Lag | Lead | Lag | |
| Lead-Lag Optimize? | | | | | | | Yes | Yes | Yes | Yes | Yes | |
| Vehicle Extension (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| Recall Mode | None | None | | None | None | | None | Min | Min | None | Min | |
| Walk Time (s) | 7.0 | 7.0 | | | | | | 7.0 | 7.0 | | 7.0 | |

| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Flash Dont Walk (s) | 26.0 | 26.0 | | | | | | 26.0 | 26.0 | | 19.0 | |
| Pedestrian Calls (#/hr) | 0 | 0 | | | | | | 0 | 0 | | 0 | |
| Act Effct Green (s) | | 8.7 | | 8.7 | 8.7 | | 26.0 | 22.0 | 22.0 | 28.1 | 25.2 | |
| Actuated g/C Ratio | | 0.17 | | 0.17 | 0.17 | | 0.52 | 0.44 | 0.44 | 0.56 | 0.51 | |
| v/c Ratio | | 0.15 | | 0.23 | 0.23 | | 0.09 | 0.30 | 0.05 | 0.17 | 0.22 | |
| Control Delay | | 13.7 | | 22.0 | 8.0 | | 5.8 | 14.6 | 0.2 | 6.1 | 12.3 | |
| Queue Delay | | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | |
| Total Delay | | 13.7 | | 22.0 | 8.0 | | 5.8 | 14.6 | 0.2 | 6.1 | 12.3 | |
| LOS | | B | | C | A | | A | B | A | A | B | |
| Approach Delay | | 13.7 | | | 13.7 | | | 12.8 | | | 10.9 | |
| Approach LOS | | B | | | B | | | B | | | B | |
| Queue Length 50th (ft) | | 5 | | 14 | 0 | | 6 | 59 | 0 | 12 | 45 | |
| Queue Length 95th (ft) | | 27 | | 42 | 30 | | 19 | 104 | 2 | 30 | 83 | |
| Internal Link Dist (ft) | | 436 | | | 197 | | | 681 | | | 1548 | |
| Turn Bay Length (ft) | | | | 60 | | | 250 | | 500 | 245 | | |
| Base Capacity (vph) | | 993 | | 921 | 1099 | | 854 | 3102 | 1398 | 810 | 3081 | |
| 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 | | 0.04 | | 0.06 | 0.07 | | 0.07 | 0.15 | 0.03 | 0.13 | 0.12 | |

| Intersection Summary | | | |
|---|---|---|---|
| Area Type: | Other | | |
| Cycle Length: 113 | | | |
| Actuated Cycle Length: 49.8 | | | |
| Natural Cycle: 95 | | | |
| Control Type: Semi Act-Uncoord | | | |
| Maximum v/c Ratio: 0.30 | | | |
| Intersection Signal Delay: 12.2 | | Intersection LOS: B | |
| Intersection Capacity Utilization 42.9% | | ICU Level of Service A | |
| Analysis Period (min) 15 | | | |

Splits and Phases: 4: 68th Terrace & 129

| Movement | WBL | WBR | NBL | NBT | NBR | SBL | SBT | SBR | SEL2 | SEL | SER |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | |
| Traffic Volume (veh/h) | 0 | 0 | 0 | 380 | 139 | 72 | 391 | 0 | 69 | 0 | 59 |
| Future Volume (Veh/h) | 0 | 0 | 0 | 380 | 139 | 72 | 391 | 0 | 69 | 0 | 59 |
| Sign Control | Stop | | | Free | | | Free | | | Stop | |
| Grade | 0% | | | 0% | | | 0% | | | 0% | |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Hourly flow rate (vph) | 0 | 0 | 0 | 413 | 151 | 78 | 425 | 0 | 75 | 0 | 64 |
| Pedestrians | | | | | | | | | | | |
| Lane Width (ft) | | | | | | | | | | | |
| Walking Speed (ft/s) | | | | | | | | | | | |
| Percent Blockage | | | | | | | | | | | |
| Right turn flare (veh) | | | | | | | | | | | |
| Median type | | | | None | | | None | | | | |
| Median storage veh) | | | | | | | | | | | |
| Upstream signal (ft) | | | | | | | | | | | |
| pX, platoon unblocked | | | | | | | | | | | |
| vC, conflicting volume | 782 | 994 | 425 | | | 413 | | | 788 | 994 | 212 |
| vC1, stage 1 conf vol | | | | | | | | | | | |
| vC2, stage 2 conf vol | | | | | | | | | | | |
| vCu, unblocked vol | 782 | 994 | 425 | | | 413 | | | 788 | 994 | 212 |
| tC, single (s) | 7.6 | 6.6 | 4.2 | | | 4.2 | | | 7.6 | 6.6 | 7.0 |
| tC, 2 stage (s) | | | | | | | | | | | |
| tF (s) | 3.5 | 4.0 | 2.2 | | | 2.2 | | | 3.5 | 4.0 | 3.3 |
| p0 queue free % | 100 | 100 | 100 | | | 93 | | | 72 | 100 | 92 |
| cM capacity (veh/h) | 246 | 225 | 1124 | | | 1135 | | | 265 | 225 | 790 |

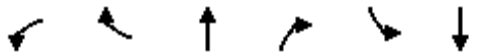
| Direction, Lane # | NB 1 | NB 2 | NB 3 | SB 1 | SB 2 | SB 3 | SE 1 |
|---|---|---|---|---|---|---|---|
| Volume Total | 206 | 206 | 151 | 78 | 212 | 212 | 139 |
| Volume Left | 0 | 0 | 0 | 78 | 0 | 0 | 75 |
| Volume Right | 0 | 0 | 151 | 0 | 0 | 0 | 64 |
| cSH | 1700 | 1700 | 1700 | 1135 | 1700 | 1700 | 382 |
| Volume to Capacity | 0.12 | 0.12 | 0.09 | 0.07 | 0.13 | 0.13 | 0.36 |
| Queue Length 95th (ft) | 0 | 0 | 0 | 6 | 0 | 0 | 41 |
| Control Delay (s) | 0.0 | 0.0 | 0.0 | 8.4 | 0.0 | 0.0 | 19.7 |
| Lane LOS | | | | A | | | C |
| Approach Delay (s) | 0.0 | | | 1.3 | | | 19.7 |
| Approach LOS | | | | | | | C |

| Intersection Summary | | | | |
|---|---|---|---|---|
| Average Delay | 2.8 | | | |
| Intersection Capacity Utilization | 37.8% | ICU Level of Service | | A |
| Analysis Period (min) | 15 | | | |

| Movement | EBL | EBR | NBL | NBT | NBR | SBL | SBT | SBR | NWL2 | NWL | NWR |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | |
| Traffic Volume (veh/h) | 0 | 0 | 59 | 390 | 0 | 0 | 340 | 77 | 123 | 0 | 94 |
| Future Volume (Veh/h) | 0 | 0 | 59 | 390 | 0 | 0 | 340 | 77 | 123 | 0 | 94 |
| Sign Control | Stop | | | Free | | | Free | | | Stop | |
| Grade | 0% | | | 0% | | | 0% | | | 0% | |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Hourly flow rate (vph) | 0 | 0 | 64 | 424 | 0 | 0 | 370 | 84 | 134 | 0 | 102 |
| Pedestrians | | | | | | | | | | | |
| Lane Width (ft) | | | | | | | | | | | |
| Walking Speed (ft/s) | | | | | | | | | | | |
| Percent Blockage | | | | | | | | | | | |
| Right turn flare (veh) | | | | | | | | | | | |
| Median type | | | | None | | | None | | | | |
| Median storage veh) | | | | | | | | | | | |
| Upstream signal (ft) | | | | | | | | | | | |
| pX, platoon unblocked | | | | | | | | | | | |
| vC, conflicting volume | 752 | 964 | 370 | | | 424 | | | 737 | 922 | 212 |
| vC1, stage 1 conf vol | | | | | | | | | | | |
| vC2, stage 2 conf vol | | | | | | | | | | | |
| vCu, unblocked vol | 752 | 964 | 370 | | | 424 | | | 737 | 922 | 212 |
| tC, single (s) | 7.6 | 6.6 | 4.2 | | | 4.2 | | | 7.6 | 6.6 | 7.0 |
| tC, 2 stage (s) | | | | | | | | | | | |
| tF (s) | 3.5 | 4.0 | 2.2 | | | 2.2 | | | 3.5 | 4.0 | 3.3 |
| p0 queue free % | 100 | 100 | 95 | | | 100 | | | 54 | 100 | 87 |
| cM capacity (veh/h) | 248 | 238 | 1178 | | | 1125 | | | 292 | 252 | 790 |

| Direction, Lane # | NB 1 | NB 2 | NB 3 | SB 1 | SB 2 | NW 1 |
|---|---|---|---|---|---|---|
| Volume Total | 64 | 212 | 212 | 247 | 207 | 236 |
| Volume Left | 64 | 0 | 0 | 0 | 0 | 134 |
| Volume Right | 0 | 0 | 0 | 0 | 84 | 102 |
| cSH | 1178 | 1700 | 1700 | 1700 | 1700 | 401 |
| Volume to Capacity | 0.05 | 0.12 | 0.12 | 0.15 | 0.12 | 0.59 |
| Queue Length 95th (ft) | 4 | 0 | 0 | 0 | 0 | 91 |
| Control Delay (s) | 8.2 | 0.0 | 0.0 | 0.0 | 0.0 | 26.0 |
| Lane LOS | A | | | | | D |
| Approach Delay (s) | 1.1 | | | 0.0 | | 26.0 |
| Approach LOS | | | | | | D |

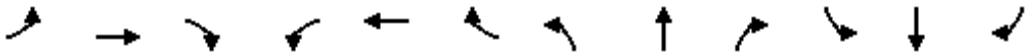
| Intersection Summary | | | | |
|---|---|---|---|---|
| Average Delay | 5.7 | | | |
| Intersection Capacity Utilization | 37.8% | ICU Level of Service | | A |
| Analysis Period (min) | 15 | | | |



| Movement | WBL | WBR | NBT | NBR | SBL | SBT |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Traffic Volume (veh/h) | 159 | 24 | 310 | 2 | 10 | 258 |
| Future Volume (Veh/h) | 159 | 24 | 310 | 2 | 10 | 258 |
| Sign Control | Stop | | Free | | | Free |
| Grade | 0% | | 0% | | | 0% |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Hourly flow rate (vph) | 173 | 26 | 337 | 2 | 11 | 280 |
| Pedestrians | | | | | | |
| Lane Width (ft) | | | | | | |
| Walking Speed (ft/s) | | | | | | |
| Percent Blockage | | | | | | |
| Right turn flare (veh) | | 2 | | | | |
| Median type | | | None | | | None |
| Median storage veh) | | | | | | |
| Upstream signal (ft) | | | | | | |
| pX, platoon unblocked | | | | | | |
| vC, conflicting volume | 640 | 338 | | | 339 | |
| vC1, stage 1 conf vol | | | | | | |
| vC2, stage 2 conf vol | | | | | | |
| vCu, unblocked vol | 640 | 338 | | | 339 | |
| tC, single (s) | 6.4 | 6.2 | | | 4.1 | |
| tC, 2 stage (s) | | | | | | |
| tF (s) | 3.5 | 3.3 | | | 2.2 | |
| p0 queue free % | 60 | 96 | | | 99 | |
| cM capacity (veh/h) | 434 | 702 | | | 1215 | |

| Direction, Lane # | WB 1 | NB 1 | SB 1 | SB 2 |
|---|---|---|---|---|
| Volume Total | 199 | 339 | 11 | 280 |
| Volume Left | 173 | 0 | 11 | 0 |
| Volume Right | 26 | 2 | 0 | 0 |
| cSH | 499 | 1700 | 1215 | 1700 |
| Volume to Capacity | 0.40 | 0.20 | 0.01 | 0.16 |
| Queue Length 95th (ft) | 47 | 0 | 1 | 0 |
| Control Delay (s) | 17.6 | 0.0 | 8.0 | 0.0 |
| Lane LOS | C | | A | |
| Approach Delay (s) | 17.6 | 0.0 | 0.3 | |
| Approach LOS | C | | | |

| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 4.3 | | |
| Intersection Capacity Utilization | 31.9% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |



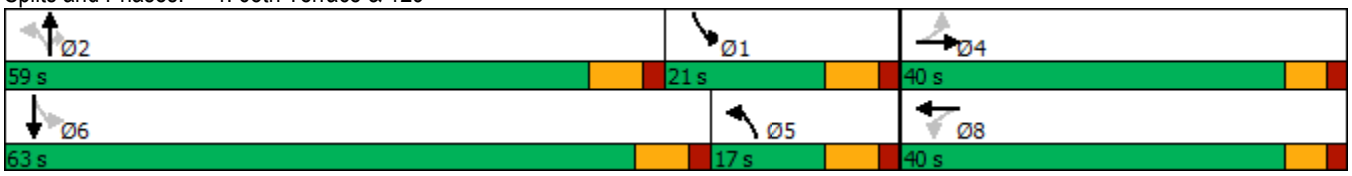
| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 17 | 4 | 9 | 23 | 3 | 31 | 10 | 432 | 22 | 60 | 461 | 7 |
| Future Volume (vph) | 17 | 4 | 9 | 23 | 3 | 31 | 10 | 432 | 22 | 60 | 461 | 7 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Storage Length (ft) | 250 | | 0 | 60 | | 0 | 250 | | 500 | 245 | | 0 |
| Storage Lanes | 0 | | 0 | 1 | | 0 | 1 | | 1 | 1 | | 0 |
| Taper Length (ft) | 25 | | | 25 | | | 25 | | | 25 | | |
| Lane Util. Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 0.95 |
| Frt | | 0.958 | | | 0.862 | | | | 0.850 | | 0.998 | |
| Flt Protected | | 0.973 | | 0.950 | | | 0.950 | | | 0.950 | | |
| Satd. Flow (prot) | 0 | 1719 | 0 | 1752 | 1590 | 0 | 1752 | 3505 | 1568 | 1752 | 3498 | 0 |
| Flt Permitted | | 0.805 | | 0.930 | | | 0.465 | | | 0.483 | | |
| Satd. Flow (perm) | 0 | 1423 | 0 | 1716 | 1590 | 0 | 858 | 3505 | 1568 | 891 | 3498 | 0 |
| Right Turn on Red | | | Yes | | | Yes | | | Yes | | | Yes |
| Satd. Flow (RTOR) | | 10 | | | 34 | | | | 87 | | 2 | |
| Link Speed (mph) | | 30 | | | 30 | | | 45 | | | 45 | |
| Link Distance (ft) | | 516 | | | 277 | | | 761 | | | 1628 | |
| Travel Time (s) | | 11.7 | | | 6.3 | | | 11.5 | | | 24.7 | |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Adj. Flow (vph) | 18 | 4 | 10 | 25 | 3 | 34 | 11 | 470 | 24 | 65 | 501 | 8 |
| Shared Lane Traffic (%) | | | | | | | | | | | | |
| Lane Group Flow (vph) | 0 | 32 | 0 | 25 | 37 | 0 | 11 | 470 | 24 | 65 | 509 | 0 |
| Enter Blocked Intersection | No | No | No | No | No | No | No | No | No | No | No | No |
| Lane Alignment | Left | Left | Right | Left | Left | Right | Left | Left | Right | Left | Left | Right |
| Median Width(ft) | | 0 | | | 12 | | | 12 | | | 15 | |
| Link Offset(ft) | | 0 | | | 0 | | | 0 | | | 0 | |
| Crosswalk Width(ft) | | 16 | | | 16 | | | 16 | | | 16 | |
| Two way Left Turn Lane | | | | | | | | | | | | |
| Headway 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 |
| Turning Speed (mph) | 15 | | 9 | 15 | | 9 | 15 | | 9 | 15 | | 9 |
| Turn Type | Perm | NA | | Perm | NA | | pm+pt | NA | Perm | pm+pt | NA | |
| Protected Phases | | 4 | | | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | 4 | | | 8 | | | 2 | | 2 | 6 | | |
| Detector Phase | 4 | 4 | | 8 | 8 | | 5 | 2 | 2 | 1 | 6 | |
| Switch Phase | | | | | | | | | | | | |
| Minimum Initial (s) | 6.0 | 6.0 | | 6.0 | 6.0 | | 6.0 | 15.0 | 15.0 | 6.0 | 15.0 | |
| Minimum Split (s) | 39.0 | 39.0 | | 12.0 | 12.0 | | 13.0 | 40.0 | 40.0 | 13.0 | 33.0 | |
| Total Split (s) | 40.0 | 40.0 | | 40.0 | 40.0 | | 17.0 | 59.0 | 59.0 | 21.0 | 63.0 | |
| Total Split (%) | 33.3% | 33.3% | | 33.3% | 33.3% | | 14.2% | 49.2% | 49.2% | 17.5% | 52.5% | |
| Maximum Green (s) | 34.2 | 34.2 | | 34.2 | 34.2 | | 10.2 | 52.2 | 52.2 | 14.2 | 56.2 | |
| Yellow Time (s) | 3.8 | 3.8 | | 3.8 | 3.8 | | 4.8 | 4.8 | 4.8 | 4.8 | 4.8 | |
| 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) | | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | |
| Total Lost Time (s) | | 5.8 | | 5.8 | 5.8 | | 6.8 | 6.8 | 6.8 | 6.8 | 6.8 | |
| Lead/Lag | | | | | | | Lag | Lead | Lead | Lag | Lead | |
| Lead-Lag Optimize? | | | | | | | Yes | Yes | Yes | Yes | Yes | |
| Vehicle Extension (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| Recall Mode | None | None | | None | None | | None | Min | Min | None | Min | |
| Walk Time (s) | 7.0 | 7.0 | | | | | | 7.0 | 7.0 | | 7.0 | |

| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Flash Dont Walk (s) | 26.0 | 26.0 | | | | | | 26.0 | 26.0 | | 19.0 | |
| Pedestrian Calls (#/hr) | 0 | 0 | | | | | | 0 | 0 | | 0 | |
| Act Effct Green (s) | | 7.5 | | 7.6 | 7.6 | | 26.0 | 25.9 | 25.9 | 28.7 | 30.9 | |
| Actuated g/C Ratio | | 0.17 | | 0.17 | 0.17 | | 0.59 | 0.59 | 0.59 | 0.65 | 0.70 | |
| v/c Ratio | | 0.13 | | 0.09 | 0.12 | | 0.02 | 0.23 | 0.03 | 0.09 | 0.21 | |
| Control Delay | | 16.2 | | 18.9 | 9.7 | | 5.1 | 11.0 | 0.0 | 5.1 | 6.8 | |
| Queue Delay | | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | |
| Total Delay | | 16.2 | | 18.9 | 9.7 | | 5.1 | 11.0 | 0.0 | 5.1 | 6.8 | |
| LOS | | B | | B | A | | A | B | A | A | A | |
| Approach Delay | | 16.2 | | | 13.4 | | | 10.3 | | | 6.6 | |
| Approach LOS | | B | | | B | | | B | | | A | |
| Queue Length 50th (ft) | | 5 | | 6 | 1 | | 1 | 54 | 0 | 7 | 30 | |
| Queue Length 95th (ft) | | 25 | | 23 | 20 | | 6 | 92 | 0 | 19 | 97 | |
| Internal Link Dist (ft) | | 436 | | | 197 | | | 681 | | | 1548 | |
| Turn Bay Length (ft) | | | | 60 | | | 250 | | 500 | 245 | | |
| Base Capacity (vph) | | 1138 | | 1369 | 1276 | | 757 | 3501 | 1566 | 945 | 3498 | |
| 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 | | 0.03 | | 0.02 | 0.03 | | 0.01 | 0.13 | 0.02 | 0.07 | 0.15 | |

## Intersection Summary

Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 44.1
Natural Cycle: 95
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.23
Intersection Signal Delay: 8.8 Intersection LOS: A
Intersection Capacity Utilization 42.5% ICU Level of Service A
Analysis Period (min) 15

Splits and Phases: 4: 68th Terrace & 129



| Movement | WBL | WBR | NBL | NBT | NBR | SBL | SBT | SBR | SEL2 | SEL | SER |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | |
| Traffic Volume (veh/h) | 0 | 0 | 0 | 312 | 168 | 66 | 474 | 0 | 47 | 0 | 54 |
| Future Volume (Veh/h) | 0 | 0 | 0 | 312 | 168 | 66 | 474 | 0 | 47 | 0 | 54 |
| Sign Control | Stop | | | Free | | | Free | | | Stop | |
| Grade | 0% | | | 0% | | | 0% | | | 0% | |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Hourly flow rate (vph) | 0 | 0 | 0 | 339 | 183 | 72 | 515 | 0 | 51 | 0 | 59 |
| Pedestrians | | | | | | | | | | | |
| Lane Width (ft) | | | | | | | | | | | |
| Walking Speed (ft/s) | | | | | | | | | | | |
| Percent Blockage | | | | | | | | | | | |
| Right turn flare (veh) | | | | | | | | | | | |
| Median type | | | | None | | | None | | | | |
| Median storage veh) | | | | | | | | | | | |
| Upstream signal (ft) | | | | | | | | | | | |
| pX, platoon unblocked | | | | | | | | | | | |
| vC, conflicting volume | 740 | 998 | 515 | | | 339 | | | 828 | 998 | 258 |
| vC1, stage 1 conf vol | | | | | | | | | | | |
| vC2, stage 2 conf vol | | | | | | | | | | | |
| vCu, unblocked vol | 740 | 998 | 515 | | | 339 | | | 828 | 998 | 258 |
| tC, single (s) | 7.6 | 6.6 | 4.2 | | | 4.2 | | | 7.6 | 6.6 | 7.0 |
| tC, 2 stage (s) | | | | | | | | | | | |
| tF (s) | 3.5 | 4.0 | 2.2 | | | 2.2 | | | 3.5 | 4.0 | 3.3 |
| p0 queue free % | 100 | 100 | 100 | | | 94 | | | 80 | 100 | 92 |
| cM capacity (veh/h) | 266 | 226 | 1040 | | | 1210 | | | 250 | 226 | 738 |

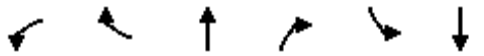
| Direction, Lane # | NB 1 | NB 2 | NB 3 | SB 1 | SB 2 | SB 3 | SE 1 |
|---|---|---|---|---|---|---|---|
| Volume Total | 170 | 170 | 183 | 72 | 258 | 258 | 110 |
| Volume Left | 0 | 0 | 0 | 72 | 0 | 0 | 51 |
| Volume Right | 0 | 0 | 183 | 0 | 0 | 0 | 59 |
| cSH | 1700 | 1700 | 1700 | 1210 | 1700 | 1700 | 387 |
| Volume to Capacity | 0.10 | 0.10 | 0.11 | 0.06 | 0.15 | 0.15 | 0.28 |
| Queue Length 95th (ft) | 0 | 0 | 0 | 5 | 0 | 0 | 29 |
| Control Delay (s) | 0.0 | 0.0 | 0.0 | 8.2 | 0.0 | 0.0 | 18.0 |
| Lane LOS | | | | A | | | C |
| Approach Delay (s) | 0.0 | | | 1.0 | | | 18.0 |
| Approach LOS | | | | | | | C |

| Intersection Summary | | | | |
|---|---|---|---|---|
| Average Delay | 2.1 | | | |
| Intersection Capacity Utilization | 37.3% | ICU Level of Service | | A |
| Analysis Period (min) | 15 | | | |

| Movement | EBL | EBR | NBL | NBT | NBR | SBL | SBT | SBR | NWL2 | NWL | NWR |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | |
| Traffic Volume (veh/h) | 0 | 0 | 43 | 316 | 0 | 0 | 400 | 51 | 140 | 0 | 57 |
| Future Volume (Veh/h) | 0 | 0 | 43 | 316 | 0 | 0 | 400 | 51 | 140 | 0 | 57 |
| Sign Control | Stop | | | Free | | | Free | | | Stop | |
| Grade | 0% | | | 0% | | | 0% | | | 0% | |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Hourly flow rate (vph) | 0 | 0 | 47 | 343 | 0 | 0 | 435 | 55 | 152 | 0 | 62 |
| Pedestrians | | | | | | | | | | | |
| Lane Width (ft) | | | | | | | | | | | |
| Walking Speed (ft/s) | | | | | | | | | | | |
| Percent Blockage | | | | | | | | | | | |
| Right turn flare (veh) | | | | | | | | | | | |
| Median type | | | | None | | | None | | | | |
| Median storage veh) | | | | | | | | | | | |
| Upstream signal (ft) | | | | | | | | | | | |
| pX, platoon unblocked | | | | | | | | | | | |
| vC, conflicting volume | 728 | 900 | 435 | | | 343 | | | 654 | 872 | 172 |
| vC1, stage 1 conf vol | | | | | | | | | | | |
| vC2, stage 2 conf vol | | | | | | | | | | | |
| vCu, unblocked vol | 728 | 900 | 435 | | | 343 | | | 654 | 872 | 172 |
| tC, single (s) | 7.6 | 6.6 | 4.2 | | | 4.2 | | | 7.6 | 6.6 | 7.0 |
| tC, 2 stage (s) | | | | | | | | | | | |
| tF (s) | 3.5 | 4.0 | 2.2 | | | 2.2 | | | 3.5 | 4.0 | 3.3 |
| p0 queue free % | 100 | 100 | 96 | | | 100 | | | 55 | 100 | 93 |
| cM capacity (veh/h) | 277 | 264 | 1114 | | | 1206 | | | 338 | 274 | 839 |

| Direction, Lane # | NB 1 | NB 2 | NB 3 | SB 1 | SB 2 | NW 1 |
|---|---|---|---|---|---|---|
| Volume Total | 47 | 172 | 172 | 290 | 200 | 214 |
| Volume Left | 47 | 0 | 0 | 0 | 0 | 152 |
| Volume Right | 0 | 0 | 0 | 0 | 55 | 62 |
| cSH | 1114 | 1700 | 1700 | 1700 | 1700 | 409 |
| Volume to Capacity | 0.04 | 0.10 | 0.10 | 0.17 | 0.12 | 0.52 |
| Queue Length 95th (ft) | 3 | 0 | 0 | 0 | 0 | 73 |
| Control Delay (s) | 8.4 | 0.0 | 0.0 | 0.0 | 0.0 | 23.1 |
| Lane LOS | A | | | | | C |
| Approach Delay (s) | 1.0 | | | 0.0 | | 23.1 |
| Approach LOS | | | | | | C |

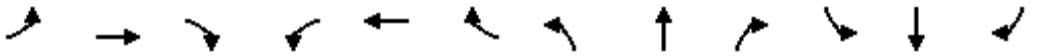
| Intersection Summary | | | | |
|---|---|---|---|---|
| Average Delay | 4.9 | | | |
| Intersection Capacity Utilization | 37.3% | ICU Level of Service | | A |
| Analysis Period (min) | 15 | | | |



| Movement | WBL | WBR | NBT | NBR | SBL | SBT |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Traffic Volume (veh/h) | 133 | 25 | 211 | 2 | 21 | 318 |
| Future Volume (Veh/h) | 133 | 25 | 211 | 2 | 21 | 318 |
| Sign Control | Stop | | Free | | | Free |
| Grade | 0% | | 0% | | | 0% |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Hourly flow rate (vph) | 145 | 27 | 229 | 2 | 23 | 346 |
| Pedestrians | | | | | | |
| Lane Width (ft) | | | | | | |
| Walking Speed (ft/s) | | | | | | |
| Percent Blockage | | | | | | |
| Right turn flare (veh) | | 2 | | | | |
| Median type | | | None | | | None |
| Median storage veh) | | | | | | |
| Upstream signal (ft) | | | | | | |
| pX, platoon unblocked | | | | | | |
| vC, conflicting volume | 622 | 230 | | | 231 | |
| vC1, stage 1 conf vol | | | | | | |
| vC2, stage 2 conf vol | | | | | | |
| vCu, unblocked vol | 622 | 230 | | | 231 | |
| tC, single (s) | 6.4 | 6.2 | | | 4.1 | |
| tC, 2 stage (s) | | | | | | |
| tF (s) | 3.5 | 3.3 | | | 2.2 | |
| p0 queue free % | 67 | 97 | | | 98 | |
| cM capacity (veh/h) | 441 | 807 | | | 1331 | |

| Direction, Lane # | WB 1 | NB 1 | SB 1 | SB 2 |
|---|---|---|---|---|
| Volume Total | 172 | 231 | 23 | 346 |
| Volume Left | 145 | 0 | 23 | 0 |
| Volume Right | 27 | 2 | 0 | 0 |
| cSH | 523 | 1700 | 1331 | 1700 |
| Volume to Capacity | 0.33 | 0.14 | 0.02 | 0.20 |
| Queue Length 95th (ft) | 36 | 0 | 1 | 0 |
| Control Delay (s) | 15.9 | 0.0 | 7.8 | 0.0 |
| Lane LOS | C | | A | |
| Approach Delay (s) | 15.9 | 0.0 | 0.5 | |
| Approach LOS | C | | | |

| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 3.8 | | |
| Intersection Capacity Utilization | 31.5% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |



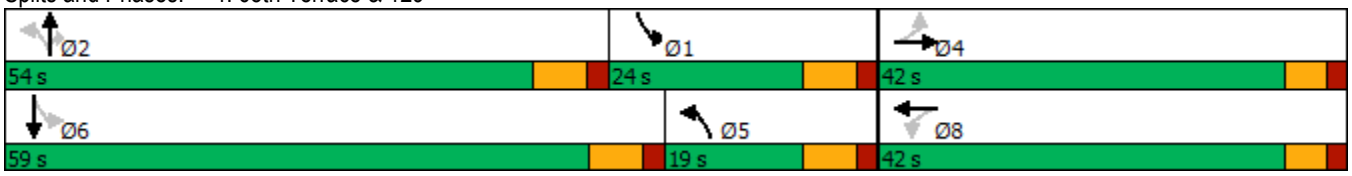
| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 16 | 4 | 23 | 55 | 2 | 81 | 60 | 488 | 36 | 109 | 378 | 20 |
| Future Volume (vph) | 16 | 4 | 23 | 55 | 2 | 81 | 60 | 488 | 36 | 109 | 378 | 20 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Storage Length (ft) | 250 | | 0 | 60 | | 0 | 250 | | 500 | 245 | | 0 |
| Storage Lanes | 0 | | 0 | 1 | | 0 | 1 | | 1 | 1 | | 0 |
| Taper Length (ft) | 25 | | | 25 | | | 25 | | | 25 | | |
| Lane Util. Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 0.95 |
| Frt | | 0.927 | | | 0.853 | | | | 0.850 | | 0.992 | |
| Flt Protected | | 0.982 | | 0.950 | | | 0.950 | | | 0.950 | | |
| Satd. Flow (prot) | 0 | 1679 | 0 | 1752 | 1573 | 0 | 1752 | 3505 | 1568 | 1752 | 3477 | 0 |
| Flt Permitted | | 0.840 | | 0.727 | | | 0.500 | | | 0.455 | | |
| Satd. Flow (perm) | 0 | 1436 | 0 | 1341 | 1573 | 0 | 922 | 3505 | 1568 | 839 | 3477 | 0 |
| Right Turn on Red | | | Yes | | | Yes | | | Yes | | | Yes |
| Satd. Flow (RTOR) | | 25 | | | 88 | | | | 87 | | 6 | |
| Link Speed (mph) | | 30 | | | 30 | | | 45 | | | 45 | |
| Link Distance (ft) | | 516 | | | 277 | | | 761 | | | 1628 | |
| Travel Time (s) | | 11.7 | | | 6.3 | | | 11.5 | | | 24.7 | |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Adj. Flow (vph) | 17 | 4 | 25 | 60 | 2 | 88 | 65 | 530 | 39 | 118 | 411 | 22 |
| Shared Lane Traffic (%) | | | | | | | | | | | | |
| Lane Group Flow (vph) | 0 | 46 | 0 | 60 | 90 | 0 | 65 | 530 | 39 | 118 | 433 | 0 |
| Enter Blocked Intersection | No | No | No | No | No | No | No | No | No | No | No | No |
| Lane Alignment | Left | Left | Right | Left | Left | Right | Left | Left | Right | Left | Left | Right |
| Median Width(ft) | | 0 | | | 12 | | | 12 | | | 15 | |
| Link Offset(ft) | | 0 | | | 0 | | | 0 | | | 0 | |
| Crosswalk Width(ft) | | 16 | | | 16 | | | 16 | | | 16 | |
| Two way Left Turn Lane | | | | | | | | | | | | |
| Headway 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 |
| Turning Speed (mph) | 15 | | 9 | 15 | | 9 | 15 | | 9 | 15 | | 9 |
| Turn Type | Perm | NA | | Perm | NA | | pm+pt | NA | Perm | pm+pt | NA | |
| Protected Phases | | 4 | | | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | 4 | | | 8 | | | 2 | | 2 | 6 | | |
| Detector Phase | 4 | 4 | | 8 | 8 | | 5 | 2 | 2 | 1 | 6 | |
| Switch Phase | | | | | | | | | | | | |
| Minimum Initial (s) | 6.0 | 6.0 | | 6.0 | 6.0 | | 6.0 | 15.0 | 15.0 | 6.0 | 15.0 | |
| Minimum Split (s) | 39.0 | 39.0 | | 12.0 | 12.0 | | 13.0 | 40.0 | 40.0 | 13.0 | 33.0 | |
| Total Split (s) | 42.0 | 42.0 | | 42.0 | 42.0 | | 19.0 | 54.0 | 54.0 | 24.0 | 59.0 | |
| Total Split (%) | 35.0% | 35.0% | | 35.0% | 35.0% | | 15.8% | 45.0% | 45.0% | 20.0% | 49.2% | |
| Maximum Green (s) | 36.2 | 36.2 | | 36.2 | 36.2 | | 12.2 | 47.2 | 47.2 | 17.2 | 52.2 | |
| Yellow Time (s) | 3.8 | 3.8 | | 3.8 | 3.8 | | 4.8 | 4.8 | 4.8 | 4.8 | 4.8 | |
| 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) | | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | |
| Total Lost Time (s) | | 5.8 | | 5.8 | 5.8 | | 6.8 | 6.8 | 6.8 | 6.8 | 6.8 | |
| Lead/Lag | | | | | | | Lag | Lead | Lead | Lag | Lead | |
| Lead-Lag Optimize? | | | | | | | Yes | Yes | Yes | Yes | Yes | |
| Vehicle Extension (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| Recall Mode | None | None | | None | None | | None | Min | Min | None | Min | |
| Walk Time (s) | 7.0 | 7.0 | | | | | | 7.0 | 7.0 | | 7.0 | |

| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Flash Dont Walk (s) | 26.0 | 26.0 | | | | | | 26.0 | 26.0 | | 19.0 | |
| Pedestrian Calls (#/hr) | 0 | 0 | | | | | | 0 | 0 | | 0 | |
| Act Effct Green (s) | | 8.9 | | 8.9 | 8.9 | | 26.5 | 22.4 | 22.4 | 26.4 | 24.3 | |
| Actuated g/C Ratio | | 0.18 | | 0.18 | 0.18 | | 0.54 | 0.45 | 0.45 | 0.53 | 0.49 | |
| v/c Ratio | | 0.16 | | 0.25 | 0.25 | | 0.10 | 0.33 | 0.05 | 0.20 | 0.25 | |
| Control Delay | | 13.4 | | 21.8 | 7.8 | | 6.1 | 14.1 | 1.0 | 7.5 | 13.1 | |
| Queue Delay | | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | |
| Total Delay | | 13.4 | | 21.8 | 7.8 | | 6.1 | 14.1 | 1.0 | 7.5 | 13.1 | |
| LOS | | B | | C | A | | A | B | A | A | B | |
| Approach Delay | | 13.4 | | | 13.4 | | | 12.4 | | | 11.9 | |
| Approach LOS | | B | | | B | | | B | | | B | |
| Queue Length 50th (ft) | | 5 | | 15 | 1 | | 7 | 66 | 0 | 14 | 51 | |
| Queue Length 95th (ft) | | 29 | | 45 | 31 | | 21 | 111 | 5 | 34 | 97 | |
| Internal Link Dist (ft) | | 436 | | | 197 | | | 681 | | | 1548 | |
| Turn Bay Length (ft) | | | | 60 | | | 250 | | 500 | 245 | | |
| Base Capacity (vph) | | 1083 | | 1006 | 1202 | | 765 | 3232 | 1452 | 905 | 3396 | |
| 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 | | 0.04 | | 0.06 | 0.07 | | 0.08 | 0.16 | 0.03 | 0.13 | 0.13 | |

## Intersection Summary

Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 49.4
Natural Cycle: 95
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.33
Intersection Signal Delay: 12.4 Intersection LOS: B
Intersection Capacity Utilization 44.9% ICU Level of Service A
Analysis Period (min) 15

Splits and Phases: 4: 68th Terrace & 129



| Movement | WBL | WBR | NBL | NBT | NBR | SBL | SBT | SBR | SEL2 | SEL | SER |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | |
| Traffic Volume (veh/h) | 0 | 0 | 0 | 428 | 157 | 81 | 440 | 0 | 77 | 0 | 67 |
| Future Volume (Veh/h) | 0 | 0 | 0 | 428 | 157 | 81 | 440 | 0 | 77 | 0 | 67 |
| Sign Control | Stop | | | Free | | | Free | | | Stop | |
| Grade | 0% | | | 0% | | | 0% | | | 0% | |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Hourly flow rate (vph) | 0 | 0 | 0 | 465 | 171 | 88 | 478 | 0 | 84 | 0 | 73 |
| Pedestrians | | | | | | | | | | | |
| Lane Width (ft) | | | | | | | | | | | |
| Walking Speed (ft/s) | | | | | | | | | | | |
| Percent Blockage | | | | | | | | | | | |
| Right turn flare (veh) | | | | | | | | | | | |
| Median type | | | | None | | | None | | | | |
| Median storage veh) | | | | | | | | | | | |
| Upstream signal (ft) | | | | | | | | | | | |
| pX, platoon unblocked | | | | | | | | | | | |
| vC, conflicting volume | 880 | 1119 | 478 | | | 465 | | | 886 | 1119 | 239 |
| vC1, stage 1 conf vol | | | | | | | | | | | |
| vC2, stage 2 conf vol | | | | | | | | | | | |
| vCu, unblocked vol | 880 | 1119 | 478 | | | 465 | | | 886 | 1119 | 239 |
| tC, single (s) | 7.6 | 6.6 | 4.2 | | | 4.2 | | | 7.6 | 6.6 | 7.0 |
| tC, 2 stage (s) | | | | | | | | | | | |
| tF (s) | 3.5 | 4.0 | 2.2 | | | 2.2 | | | 3.5 | 4.0 | 3.3 |
| p0 queue free % | 100 | 100 | 100 | | | 92 | | | 62 | 100 | 90 |
| cM capacity (veh/h) | 203 | 187 | 1074 | | | 1086 | | | 223 | 187 | 759 |

| Direction, Lane # | NB 1 | NB 2 | NB 3 | SB 1 | SB 2 | SB 3 | SE 1 |
|---|---|---|---|---|---|---|---|
| Volume Total | 232 | 232 | 171 | 88 | 239 | 239 | 157 |
| Volume Left | 0 | 0 | 0 | 88 | 0 | 0 | 84 |
| Volume Right | 0 | 0 | 171 | 0 | 0 | 0 | 73 |
| cSH | 1700 | 1700 | 1700 | 1086 | 1700 | 1700 | 331 |
| Volume to Capacity | 0.14 | 0.14 | 0.10 | 0.08 | 0.14 | 0.14 | 0.47 |
| Queue Length 95th (ft) | 0 | 0 | 0 | 7 | 0 | 0 | 61 |
| Control Delay (s) | 0.0 | 0.0 | 0.0 | 8.6 | 0.0 | 0.0 | 25.3 |
| Lane LOS | | | | A | | | D |
| Approach Delay (s) | 0.0 | | | 1.3 | | | 25.3 |
| Approach LOS | | | | | | | D |

| Intersection Summary | | | | |
|---|---|---|---|---|
| Average Delay | 3.5 | | | |
| Intersection Capacity Utilization | 41.2% | ICU Level of Service | A | |
| Analysis Period (min) | 15 | | | |

| Movement | EBL | EBR | NBL | NBT | NBR | SBL | SBT | SBR | NWL2 | NWL | NWR |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | |
| Traffic Volume (veh/h) | 0 | 0 | 67 | 438 | 0 | 0 | 383 | 86 | 138 | 0 | 106 |
| Future Volume (Veh/h) | 0 | 0 | 67 | 438 | 0 | 0 | 383 | 86 | 138 | 0 | 106 |
| Sign Control | Stop | | | Free | | | Free | | | Stop | |
| Grade | 0% | | | 0% | | | 0% | | | 0% | |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Hourly flow rate (vph) | 0 | 0 | 73 | 476 | 0 | 0 | 416 | 93 | 150 | 0 | 115 |
| Pedestrians | | | | | | | | | | | |
| Lane Width (ft) | | | | | | | | | | | |
| Walking Speed (ft/s) | | | | | | | | | | | |
| Percent Blockage | | | | | | | | | | | |
| Right turn flare (veh) | | | | | | | | | | | |
| Median type | | | | None | | | None | | | | |
| Median storage veh) | | | | | | | | | | | |
| Upstream signal (ft) | | | | | | | | | | | |
| pX, platoon unblocked | | | | | | | | | | | |
| vC, conflicting volume | 846 | 1084 | 416 | | | 476 | | | 830 | 1038 | 238 |
| vC1, stage 1 conf vol | | | | | | | | | | | |
| vC2, stage 2 conf vol | | | | | | | | | | | |
| vCu, unblocked vol | 846 | 1084 | 416 | | | 476 | | | 830 | 1038 | 238 |
| tC, single (s) | 7.6 | 6.6 | 4.2 | | | 4.2 | | | 7.6 | 6.6 | 7.0 |
| tC, 2 stage (s) | | | | | | | | | | | |
| tF (s) | 3.5 | 4.0 | 2.2 | | | 2.2 | | | 3.5 | 4.0 | 3.3 |
| p0 queue free % | 100 | 100 | 94 | | | 100 | | | 40 | 100 | 85 |
| cM capacity (veh/h) | 205 | 200 | 1132 | | | 1075 | | | 248 | 213 | 760 |

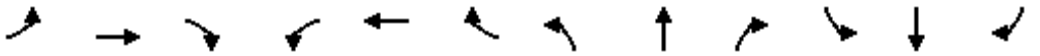
| Direction, Lane # | NB 1 | NB 2 | NB 3 | SB 1 | SB 2 | NW 1 |
|---|---|---|---|---|---|---|
| Volume Total | 73 | 238 | 238 | 277 | 232 | 265 |
| Volume Left | 73 | 0 | 0 | 0 | 0 | 150 |
| Volume Right | 0 | 0 | 0 | 0 | 93 | 115 |
| cSH | 1132 | 1700 | 1700 | 1700 | 1700 | 350 |
| Volume to Capacity | 0.06 | 0.14 | 0.14 | 0.16 | 0.14 | 0.76 |
| Queue Length 95th (ft) | 5 | 0 | 0 | 0 | 0 | 149 |
| Control Delay (s) | 8.4 | 0.0 | 0.0 | 0.0 | 0.0 | 41.1 |
| Lane LOS | A | | | | | E |
| Approach Delay (s) | 1.1 | | | 0.0 | | 41.1 |
| Approach LOS | | | | | | E |

| Intersection Summary | | | | |
|---|---|---|---|---|
| Average Delay | 8.7 | | | |
| Intersection Capacity Utilization | 41.2% | ICU Level of Service | | A |
| Analysis Period (min) | 15 | | | |

| Movement | WBL | WBR | NBT | NBR | SBL | SBT |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Traffic Volume (veh/h) | 179 | 26 | 347 | 3 | 12 | 290 |
| Future Volume (Veh/h) | 179 | 26 | 347 | 3 | 12 | 290 |
| Sign Control | Stop | | Free | | | Free |
| Grade | 0% | | 0% | | | 0% |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Hourly flow rate (vph) | 195 | 28 | 377 | 3 | 13 | 315 |
| Pedestrians | | | | | | |
| Lane Width (ft) | | | | | | |
| Walking Speed (ft/s) | | | | | | |
| Percent Blockage | | | | | | |
| Right turn flare (veh) | | 2 | | | | |
| Median type | | | None | | | None |
| Median storage veh) | | | | | | |
| Upstream signal (ft) | | | | | | |
| pX, platoon unblocked | | | | | | |
| vC, conflicting volume | 720 | 378 | | | 380 | |
| vC1, stage 1 conf vol | | | | | | |
| vC2, stage 2 conf vol | | | | | | |
| vCu, unblocked vol | 720 | 378 | | | 380 | |
| tC, single (s) | 6.4 | 6.2 | | | 4.1 | |
| tC, 2 stage (s) | | | | | | |
| tF (s) | 3.5 | 3.3 | | | 2.2 | |
| p0 queue free % | 50 | 96 | | | 99 | |
| cM capacity (veh/h) | 389 | 666 | | | 1173 | |

| Direction, Lane # | WB 1 | NB 1 | SB 1 | SB 2 |
|---|---|---|---|---|
| Volume Total | 223 | 380 | 13 | 315 |
| Volume Left | 195 | 0 | 13 | 0 |
| Volume Right | 28 | 3 | 0 | 0 |
| cSH | 445 | 1700 | 1173 | 1700 |
| Volume to Capacity | 0.50 | 0.22 | 0.01 | 0.19 |
| Queue Length 95th (ft) | 69 | 0 | 1 | 0 |
| Control Delay (s) | 21.6 | 0.0 | 8.1 | 0.0 |
| Lane LOS | C | | A | |
| Approach Delay (s) | 21.6 | 0.0 | 0.3 | |
| Approach LOS | C | | | |

| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 5.3 | | |
| Intersection Capacity Utilization | 35.0% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |



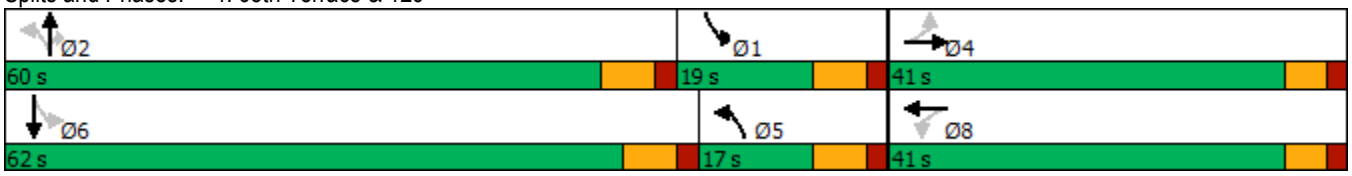
| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 24 | 6 | 13 | 32 | 5 | 44 | 15 | 606 | 31 | 83 | 646 | 10 |
| Future Volume (vph) | 24 | 6 | 13 | 32 | 5 | 44 | 15 | 606 | 31 | 83 | 646 | 10 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Storage Length (ft) | 250 | | 0 | 60 | | 0 | 250 | | 500 | 245 | | 0 |
| Storage Lanes | 0 | | 0 | 1 | | 0 | 1 | | 1 | 1 | | 0 |
| Taper Length (ft) | 25 | | | 25 | | | 25 | | | 25 | | |
| Lane Util. Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 0.95 |
| Frt | | 0.960 | | | 0.864 | | | | 0.850 | | 0.998 | |
| Flt Protected | | 0.973 | | 0.950 | | | 0.950 | | | 0.950 | | |
| Satd. Flow (prot) | 0 | 1723 | 0 | 1752 | 1594 | 0 | 1752 | 3505 | 1568 | 1752 | 3498 | 0 |
| Flt Permitted | | 0.799 | | 0.870 | | | 0.381 | | | 0.385 | | |
| Satd. Flow (perm) | 0 | 1415 | 0 | 1605 | 1594 | 0 | 703 | 3505 | 1568 | 710 | 3498 | 0 |
| Right Turn on Red | | | Yes | | | Yes | | | Yes | | | Yes |
| Satd. Flow (RTOR) | | 14 | | | 48 | | | | 87 | | 2 | |
| Link Speed (mph) | | 30 | | | 30 | | | 45 | | | 45 | |
| Link Distance (ft) | | 516 | | | 277 | | | 761 | | | 1628 | |
| Travel Time (s) | | 11.7 | | | 6.3 | | | 11.5 | | | 24.7 | |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Adj. Flow (vph) | 26 | 7 | 14 | 35 | 5 | 48 | 16 | 659 | 34 | 90 | 702 | 11 |
| Shared Lane Traffic (%) | | | | | | | | | | | | |
| Lane Group Flow (vph) | 0 | 47 | 0 | 35 | 53 | 0 | 16 | 659 | 34 | 90 | 713 | 0 |
| Enter Blocked Intersection | No | No | No | No | No | No | No | No | No | No | No | No |
| Lane Alignment | Left | Left | Right | Left | Left | Right | Left | Left | Right | Left | Left | Right |
| Median Width(ft) | | 0 | | | 12 | | | 12 | | | 15 | |
| Link Offset(ft) | | 0 | | | 0 | | | 0 | | | 0 | |
| Crosswalk Width(ft) | | 16 | | | 16 | | | 16 | | | 16 | |
| Two way Left Turn Lane | | | | | | | | | | | | |
| Headway 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 |
| Turning Speed (mph) | 15 | | 9 | 15 | | 9 | 15 | | 9 | 15 | | 9 |
| Turn Type | Perm | NA | | Perm | NA | | pm+pt | NA | Perm | pm+pt | NA | |
| Protected Phases | | 4 | | | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | 4 | | | 8 | | | 2 | | 2 | 6 | | |
| Detector Phase | 4 | 4 | | 8 | 8 | | 5 | 2 | 2 | 1 | 6 | |
| Switch Phase | | | | | | | | | | | | |
| Minimum Initial (s) | 6.0 | 6.0 | | 6.0 | 6.0 | | 6.0 | 15.0 | 15.0 | 6.0 | 15.0 | |
| Minimum Split (s) | 39.0 | 39.0 | | 12.0 | 12.0 | | 13.0 | 40.0 | 40.0 | 13.0 | 33.0 | |
| Total Split (s) | 41.0 | 41.0 | | 41.0 | 41.0 | | 17.0 | 60.0 | 60.0 | 19.0 | 62.0 | |
| Total Split (%) | 34.2% | 34.2% | | 34.2% | 34.2% | | 14.2% | 50.0% | 50.0% | 15.8% | 51.7% | |
| Maximum Green (s) | 35.2 | 35.2 | | 35.2 | 35.2 | | 10.2 | 53.2 | 53.2 | 12.2 | 55.2 | |
| Yellow Time (s) | 3.8 | 3.8 | | 3.8 | 3.8 | | 4.8 | 4.8 | 4.8 | 4.8 | 4.8 | |
| 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) | | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | |
| Total Lost Time (s) | | 5.8 | | 5.8 | 5.8 | | 6.8 | 6.8 | 6.8 | 6.8 | 6.8 | |
| Lead/Lag | | | | | | | Lag | Lead | Lead | Lag | Lead | |
| Lead-Lag Optimize? | | | | | | | Yes | Yes | Yes | Yes | Yes | |
| Vehicle Extension (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| Recall Mode | None | None | | None | None | | None | Min | Min | None | Min | |
| Walk Time (s) | 7.0 | 7.0 | | | | | | 7.0 | 7.0 | | 7.0 | |

| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Flash Dont Walk (s) | 26.0 | 26.0 | | | | | | 26.0 | 26.0 | | 19.0 | |
| Pedestrian Calls (#/hr) | 0 | 0 | | | | | | 0 | 0 | | 0 | |
| Act Effct Green (s) | | 8.2 | | 8.2 | 8.2 | | 27.4 | 24.0 | 24.0 | 31.9 | 34.3 | |
| Actuated g/C Ratio | | 0.17 | | 0.17 | 0.17 | | 0.58 | 0.50 | 0.50 | 0.67 | 0.72 | |
| v/c Ratio | | 0.19 | | 0.13 | 0.17 | | 0.03 | 0.37 | 0.04 | 0.14 | 0.28 | |
| Control Delay | | 18.1 | | 21.4 | 10.1 | | 5.1 | 12.3 | 0.4 | 5.5 | 6.8 | |
| Queue Delay | | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | |
| Total Delay | | 18.1 | | 21.4 | 10.1 | | 5.1 | 12.3 | 0.4 | 5.5 | 6.8 | |
| LOS | | B | | C | B | | A | B | A | A | A | |
| Approach Delay | | 18.1 | | | 14.6 | | | 11.5 | | | 6.7 | |
| Approach LOS | | B | | | B | | | B | | | A | |
| Queue Length 50th (ft) | | 9 | | 9 | 1 | | 2 | 82 | 0 | 10 | 47 | |
| Queue Length 95th (ft) | | 36 | | 33 | 27 | | 7 | 134 | 2 | 25 | 143 | |
| Internal Link Dist (ft) | | 436 | | | 197 | | | 681 | | | 1548 | |
| Turn Bay Length (ft) | | | | 60 | | | 250 | | 500 | 245 | | |
| Base Capacity (vph) | | 1099 | | 1243 | 1246 | | 682 | 3402 | 1525 | 820 | 3437 | |
| 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 | | 0.04 | | 0.03 | 0.04 | | 0.02 | 0.19 | 0.02 | 0.11 | 0.21 | |

## Intersection Summary

Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 47.6
Natural Cycle: 95
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.37
Intersection Signal Delay: 9.5 Intersection LOS: A
Intersection Capacity Utilization 48.4% ICU Level of Service A
Analysis Period (min) 15

Splits and Phases: 4: 68th Terrace & 129



| Movement | WBL | WBR | NBL | NBT | NBR | SBL | SBT | SBR | SEL2 | SEL | SER |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | |
| Traffic Volume (veh/h) | 0 | 0 | 0 | 438 | 236 | 92 | 663 | 0 | 66 | 0 | 76 |
| Future Volume (Veh/h) | 0 | 0 | 0 | 438 | 236 | 92 | 663 | 0 | 66 | 0 | 76 |
| Sign Control | Stop | | | Free | | | Free | | | Stop | |
| Grade | 0% | | | 0% | | | 0% | | | 0% | |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Hourly flow rate (vph) | 0 | 0 | 0 | 476 | 257 | 100 | 721 | 0 | 72 | 0 | 83 |
| Pedestrians | | | | | | | | | | | |
| Lane Width (ft) | | | | | | | | | | | |
| Walking Speed (ft/s) | | | | | | | | | | | |
| Percent Blockage | | | | | | | | | | | |
| Right turn flare (veh) | | | | | | | | | | | |
| Median type | | | | None | | | None | | | | |
| Median storage veh) | | | | | | | | | | | |
| Upstream signal (ft) | | | | | | | | | | | |
| pX, platoon unblocked | | | | | | | | | | | |
| vC, conflicting volume | 1036 | 1397 | 721 | | | 476 | | | 1159 | 1397 | 360 |
| vC1, stage 1 conf vol | | | | | | | | | | | |
| vC2, stage 2 conf vol | | | | | | | | | | | |
| vCu, unblocked vol | 1036 | 1397 | 721 | | | 476 | | | 1159 | 1397 | 360 |
| tC, single (s) | 7.6 | 6.6 | 4.2 | | | 4.2 | | | 7.6 | 6.6 | 7.0 |
| tC, 2 stage (s) | | | | | | | | | | | |
| tF (s) | 3.5 | 4.0 | 2.2 | | | 2.2 | | | 3.5 | 4.0 | 3.3 |
| p0 queue free % | 100 | 100 | 100 | | | 91 | | | 48 | 100 | 87 |
| cM capacity (veh/h) | 149 | 126 | 870 | | | 1075 | | | 139 | 126 | 633 |

| Direction, Lane # | NB 1 | NB 2 | NB 3 | SB 1 | SB 2 | SB 3 | SE 1 |
|---|---|---|---|---|---|---|---|
| Volume Total | 238 | 238 | 257 | 100 | 360 | 360 | 155 |
| Volume Left | 0 | 0 | 0 | 100 | 0 | 0 | 72 |
| Volume Right | 0 | 0 | 257 | 0 | 0 | 0 | 83 |
| cSH | 1700 | 1700 | 1700 | 1075 | 1700 | 1700 | 239 |
| Volume to Capacity | 0.14 | 0.14 | 0.15 | 0.09 | 0.21 | 0.21 | 0.65 |
| Queue Length 95th (ft) | 0 | 0 | 0 | 8 | 0 | 0 | 100 |
| Control Delay (s) | 0.0 | 0.0 | 0.0 | 8.7 | 0.0 | 0.0 | 44.2 |
| Lane LOS | | | | A | | | E |
| Approach Delay (s) | 0.0 | | | 1.1 | | | 44.2 |
| Approach LOS | | | | | | | E |

| Intersection Summary | | | | |
|---|---|---|---|---|
| Average Delay | 4.5 | | | |
| Intersection Capacity Utilization | 46.7% | ICU Level of Service | | A |
| Analysis Period (min) | 15 | | | |

| Movement | EBL | EBR | NBL | NBT | NBR | SBL | SBT | SBR | NWL2 | NWL | NWR |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | |
| Traffic Volume (veh/h) | 0 | 0 | 60 | 444 | 0 | 0 | 560 | 71 | 195 | 0 | 79 |
| Future Volume (Veh/h) | 0 | 0 | 60 | 444 | 0 | 0 | 560 | 71 | 195 | 0 | 79 |
| Sign Control | Stop | | | Free | | | Free | | | Stop | |
| Grade | 0% | | | 0% | | | 0% | | | 0% | |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Hourly flow rate (vph) | 0 | 0 | 65 | 483 | 0 | 0 | 609 | 77 | 212 | 0 | 86 |
| Pedestrians | | | | | | | | | | | |
| Lane Width (ft) | | | | | | | | | | | |
| Walking Speed (ft/s) | | | | | | | | | | | |
| Percent Blockage | | | | | | | | | | | |
| Right turn flare (veh) | | | | | | | | | | | |
| Median type | | | | None | | | None | | | | |
| Median storage veh) | | | | | | | | | | | |
| Upstream signal (ft) | | | | | | | | | | | |
| pX, platoon unblocked | | | | | | | | | | | |
| vC, conflicting volume | 1019 | 1260 | 609 | | | 483 | | | 918 | 1222 | 242 |
| vC1, stage 1 conf vol | | | | | | | | | | | |
| vC2, stage 2 conf vol | | | | | | | | | | | |
| vCu, unblocked vol | 1019 | 1260 | 609 | | | 483 | | | 918 | 1222 | 242 |
| tC, single (s) | 7.6 | 6.6 | 4.2 | | | 4.2 | | | 7.6 | 6.6 | 7.0 |
| tC, 2 stage (s) | | | | | | | | | | | |
| tF (s) | 3.5 | 4.0 | 2.2 | | | 2.2 | | | 3.5 | 4.0 | 3.3 |
| p0 queue free % | 100 | 100 | 93 | | | 100 | | | 1 | 100 | 89 |
| cM capacity (veh/h) | 159 | 156 | 959 | | | 1069 | | | 214 | 165 | 756 |

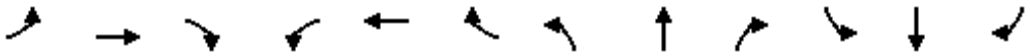
| Direction, Lane # | NB 1 | NB 2 | NB 3 | SB 1 | SB 2 | NW 1 |
|---|---|---|---|---|---|---|
| Volume Total | 65 | 242 | 242 | 406 | 280 | 298 |
| Volume Left | 65 | 0 | 0 | 0 | 0 | 212 |
| Volume Right | 0 | 0 | 0 | 0 | 77 | 86 |
| cSH | 959 | 1700 | 1700 | 1700 | 1700 | 269 |
| Volume to Capacity | 0.07 | 0.14 | 0.14 | 0.24 | 0.16 | 1.11 |
| Queue Length 95th (ft) | 5 | 0 | 0 | 0 | 0 | 313 |
| Control Delay (s) | 9.0 | 0.0 | 0.0 | 0.0 | 0.0 | 127.4 |
| Lane LOS | A | | | | | F |
| Approach Delay (s) | 1.1 | | | 0.0 | | 127.4 |
| Approach LOS | | | | | | F |

| Intersection Summary | | | | |
|---|---|---|---|---|
| Average Delay | 25.2 | | | |
| Intersection Capacity Utilization | 46.7% | ICU Level of Service | | A |
| Analysis Period (min) | 15 | | | |

| Movement | WBL | WBR | NBT | NBR | SBL | SBT |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Traffic Volume (veh/h) | 186 | 36 | 295 | 3 | 29 | 445 |
| Future Volume (Veh/h) | 186 | 36 | 295 | 3 | 29 | 445 |
| Sign Control | Stop | | Free | | | Free |
| Grade | 0% | | 0% | | | 0% |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Hourly flow rate (vph) | 202 | 39 | 321 | 3 | 32 | 484 |
| Pedestrians | | | | | | |
| Lane Width (ft) | | | | | | |
| Walking Speed (ft/s) | | | | | | |
| Percent Blockage | | | | | | |
| Right turn flare (veh) | | 2 | | | | |
| Median type | | | None | | | None |
| Median storage veh) | | | | | | |
| Upstream signal (ft) | | | | | | |
| pX, platoon unblocked | | | | | | |
| vC, conflicting volume | 870 | 322 | | | 324 | |
| vC1, stage 1 conf vol | | | | | | |
| vC2, stage 2 conf vol | | | | | | |
| vCu, unblocked vol | 870 | 322 | | | 324 | |
| tC, single (s) | 6.4 | 6.2 | | | 4.1 | |
| tC, 2 stage (s) | | | | | | |
| tF (s) | 3.5 | 3.3 | | | 2.2 | |
| p0 queue free % | 35 | 95 | | | 97 | |
| cM capacity (veh/h) | 312 | 716 | | | 1230 | |

| Direction, Lane # | WB 1 | NB 1 | SB 1 | SB 2 |
|---|---|---|---|---|
| Volume Total | 241 | 324 | 32 | 484 |
| Volume Left | 202 | 0 | 32 | 0 |
| Volume Right | 39 | 3 | 0 | 0 |
| cSH | 363 | 1700 | 1230 | 1700 |
| Volume to Capacity | 0.66 | 0.19 | 0.03 | 0.28 |
| Queue Length 95th (ft) | 114 | 0 | 2 | 0 |
| Control Delay (s) | 32.5 | 0.0 | 8.0 | 0.0 |
| Lane LOS | D | | A | |
| Approach Delay (s) | 32.5 | 0.0 | 0.5 | |
| Approach LOS | D | | | |

| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 7.5 | | |
| Intersection Capacity Utilization | 40.4% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |

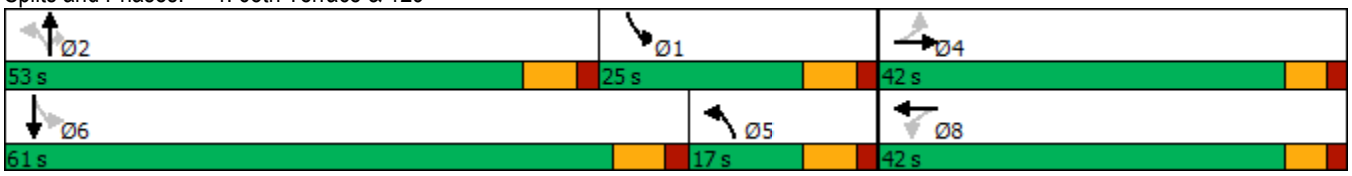


| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 22 | 6 | 32 | 77 | 3 | 113 | 84 | 684 | 50 | 153 | 531 | 27 |
| Future Volume (vph) | 22 | 6 | 32 | 77 | 3 | 113 | 84 | 684 | 50 | 153 | 531 | 27 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Storage Length (ft) | 250 | | 0 | 60 | | 0 | 250 | | 500 | 245 | | 0 |
| Storage Lanes | 0 | | 0 | 1 | | 0 | 1 | | 1 | 1 | | 0 |
| Taper Length (ft) | 25 | | | 25 | | | 25 | | | 25 | | |
| Lane Util. Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 0.95 |
| Frt | | 0.928 | | | 0.854 | | | | 0.850 | | 0.993 | |
| Flt Protected | | 0.982 | | 0.950 | | | 0.950 | | | 0.950 | | |
| Satd. Flow (prot) | 0 | 1681 | 0 | 1752 | 1575 | 0 | 1752 | 3505 | 1568 | 1752 | 3480 | 0 |
| Flt Permitted | | 0.838 | | 0.714 | | | 0.396 | | | 0.302 | | |
| Satd. Flow (perm) | 0 | 1435 | 0 | 1317 | 1575 | 0 | 730 | 3505 | 1568 | 557 | 3480 | 0 |
| Right Turn on Red | | | Yes | | | Yes | | | Yes | | | Yes |
| Satd. Flow (RTOR) | | 35 | | | 123 | | | | 149 | | 5 | |
| Link Speed (mph) | | 30 | | | 30 | | | 45 | | | 45 | |
| Link Distance (ft) | | 516 | | | 277 | | | 761 | | | 1628 | |
| Travel Time (s) | | 11.7 | | | 6.3 | | | 11.5 | | | 24.7 | |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Adj. Flow (vph) | 24 | 7 | 35 | 84 | 3 | 123 | 91 | 743 | 54 | 166 | 577 | 29 |
| Shared Lane Traffic (%) | | | | | | | | | | | | |
| Lane Group Flow (vph) | 0 | 66 | 0 | 84 | 126 | 0 | 91 | 743 | 54 | 166 | 606 | 0 |
| Enter Blocked Intersection | No | No | No | No | No | No | No | No | No | No | No | No |
| Lane Alignment | Left | Left | Right | Left | Left | Right | Left | Left | Right | Left | Left | Right |
| Median Width(ft) | | 0 | | | 12 | | | 12 | | | 15 | |
| Link Offset(ft) | | 0 | | | 0 | | | 0 | | | 0 | |
| Crosswalk Width(ft) | | 16 | | | 16 | | | 16 | | | 16 | |
| Two way Left Turn Lane | | | | | | | | | | | | |
| Headway 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 |
| Turning Speed (mph) | 15 | | 9 | 15 | | 9 | 15 | | 9 | 15 | | 9 |
| Turn Type | Perm | NA | | Perm | NA | | pm+pt | NA | Perm | pm+pt | NA | |
| Protected Phases | | 4 | | | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | 4 | | | 8 | | | 2 | | 2 | 6 | | |
| Detector Phase | 4 | 4 | | 8 | 8 | | 5 | 2 | 2 | 1 | 6 | |
| Switch Phase | | | | | | | | | | | | |
| Minimum Initial (s) | 6.0 | 6.0 | | 6.0 | 6.0 | | 6.0 | 15.0 | 15.0 | 6.0 | 15.0 | |
| Minimum Split (s) | 39.0 | 39.0 | | 12.0 | 12.0 | | 13.0 | 40.0 | 40.0 | 13.0 | 33.0 | |
| Total Split (s) | 42.0 | 42.0 | | 42.0 | 42.0 | | 17.0 | 53.0 | 53.0 | 25.0 | 61.0 | |
| Total Split (%) | 35.0% | 35.0% | | 35.0% | 35.0% | | 14.2% | 44.2% | 44.2% | 20.8% | 50.8% | |
| Maximum Green (s) | 36.2 | 36.2 | | 36.2 | 36.2 | | 10.2 | 46.2 | 46.2 | 18.2 | 54.2 | |
| Yellow Time (s) | 3.8 | 3.8 | | 3.8 | 3.8 | | 4.8 | 4.8 | 4.8 | 4.8 | 4.8 | |
| 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) | | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | |
| Total Lost Time (s) | | 5.8 | | 5.8 | 5.8 | | 6.8 | 6.8 | 6.8 | 6.8 | 6.8 | |
| Lead/Lag | | | | | | | Lag | Lead | Lead | Lag | Lead | |
| Lead-Lag Optimize? | | | | | | | Yes | Yes | Yes | Yes | Yes | |
| Vehicle Extension (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| Recall Mode | None | None | | None | None | | None | Min | Min | None | Min | |
| Walk Time (s) | 7.0 | 7.0 | | | | | | 7.0 | 7.0 | | 7.0 | |

| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Flash Dont Walk (s) | 26.0 | 26.0 | | | | | | 26.0 | 26.0 | | 19.0 | |
| Pedestrian Calls (#/hr) | 0 | 0 | | | | | | 0 | 0 | | 0 | |
| Act Effct Green (s) | | 10.4 | | 10.4 | 10.4 | | 30.3 | 20.8 | 20.8 | 28.1 | 22.1 | |
| Actuated g/C Ratio | | 0.18 | | 0.18 | 0.18 | | 0.52 | 0.35 | 0.35 | 0.48 | 0.38 | |
| v/c Ratio | | 0.23 | | 0.36 | 0.33 | | 0.17 | 0.60 | 0.08 | 0.39 | 0.46 | |
| Control Delay | | 15.5 | | 27.5 | 8.4 | | 6.8 | 17.9 | 0.2 | 11.7 | 17.0 | |
| Queue Delay | | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | |
| Total Delay | | 15.5 | | 27.5 | 8.4 | | 6.8 | 17.9 | 0.2 | 11.7 | 17.0 | |
| LOS | | B | | C | A | | A | B | A | B | B | |
| Approach Delay | | 15.5 | | | 16.1 | | | 15.7 | | | 15.9 | |
| Approach LOS | | B | | | B | | | B | | | B | |
| Queue Length 50th (ft) | | 9 | | 25 | 1 | | 11 | 105 | 0 | 21 | 88 | |
| Queue Length 95th (ft) | | 43 | | 71 | 42 | | 30 | 182 | 0 | 51 | 154 | |
| Internal Link Dist (ft) | | 436 | | | 197 | | | 681 | | | 1548 | |
| Turn Bay Length (ft) | | | | 60 | | | 250 | | 500 | 245 | | |
| Base Capacity (vph) | | 918 | | 830 | 1039 | | 582 | 2821 | 1291 | 750 | 3179 | |
| 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 | | 0.07 | | 0.10 | 0.12 | | 0.16 | 0.26 | 0.04 | 0.22 | 0.19 | |

| Intersection Summary | | | |
|---|---|---|---|
| Area Type: | Other | | |
| Cycle Length: 120 | | | |
| Actuated Cycle Length: 58.6 | | | |
| Natural Cycle: 95 | | | |
| Control Type: Actuated-Uncoordinated | | | |
| Maximum v/c Ratio: 0.60 | | | |
| Intersection Signal Delay: 15.8 | | Intersection LOS: B | |
| Intersection Capacity Utilization 53.7% | | ICU Level of Service A | |
| Analysis Period (min) 15 | | | |

Splits and Phases: 4: 68th Terrace & 129



| Movement | WBL | WBR | NBL | NBT | NBR | SBL | SBT | SBR | SEL2 | SEL | SER |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | |
| Traffic Volume (veh/h) | 0 | 0 | 0 | 598 | 221 | 113 | 617 | 0 | 108 | 0 | 94 |
| Future Volume (Veh/h) | 0 | 0 | 0 | 598 | 221 | 113 | 617 | 0 | 108 | 0 | 94 |
| Sign Control | Stop | | | Free | | | Free | | | Stop | |
| Grade | 0% | | | 0% | | | 0% | | | 0% | |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Hourly flow rate (vph) | 0 | 0 | 0 | 650 | 240 | 123 | 671 | 0 | 117 | 0 | 102 |
| Pedestrians | | | | | | | | | | | |
| Lane Width (ft) | | | | | | | | | | | |
| Walking Speed (ft/s) | | | | | | | | | | | |
| Percent Blockage | | | | | | | | | | | |
| Right turn flare (veh) | | | | | | | | | | | |
| Median type | | | | None | | | None | | | | |
| Median storage veh) | | | | | | | | | | | |
| Upstream signal (ft) | | | | | | | | | | | |
| pX, platoon unblocked | | | | | | | | | | | |
| vC, conflicting volume | 1232 | 1567 | 671 | | | 650 | | | 1242 | 1567 | 336 |
| vC1, stage 1 conf vol | | | | | | | | | | | |
| vC2, stage 2 conf vol | | | | | | | | | | | |
| vCu, unblocked vol | 1232 | 1567 | 671 | | | 650 | | | 1242 | 1567 | 336 |
| tC, single (s) | 7.6 | 6.6 | 4.2 | | | 4.2 | | | 7.6 | 6.6 | 7.0 |
| tC, 2 stage (s) | | | | | | | | | | | |
| tF (s) | 3.5 | 4.0 | 2.2 | | | 2.2 | | | 3.5 | 4.0 | 3.3 |
| p0 queue free % | 100 | 100 | 100 | | | 87 | | | 0 | 100 | 84 |
| cM capacity (veh/h) | 100 | 95 | 909 | | | 925 | | | 117 | 95 | 657 |

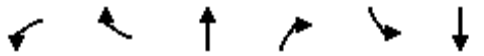
| Direction, Lane # | NB 1 | NB 2 | NB 3 | SB 1 | SB 2 | SB 3 | SE 1 |
|---|---|---|---|---|---|---|---|
| Volume Total | 325 | 325 | 240 | 123 | 336 | 336 | 219 |
| Volume Left | 0 | 0 | 0 | 123 | 0 | 0 | 117 |
| Volume Right | 0 | 0 | 240 | 0 | 0 | 0 | 102 |
| cSH | 1700 | 1700 | 1700 | 925 | 1700 | 1700 | 189 |
| Volume to Capacity | 0.19 | 0.19 | 0.14 | 0.13 | 0.20 | 0.20 | 1.16 |
| Queue Length 95th (ft) | 0 | 0 | 0 | 11 | 0 | 0 | 278 |
| Control Delay (s) | 0.0 | 0.0 | 0.0 | 9.5 | 0.0 | 0.0 | 165.2 |
| Lane LOS | | | | A | | | F |
| Approach Delay (s) | 0.0 | | | 1.5 | | | 165.2 |
| Approach LOS | | | | | | | F |

| Intersection Summary | | | | |
|---|---|---|---|---|
| Average Delay | 19.6 | | | |
| Intersection Capacity Utilization | 53.7% | ICU Level of Service | | A |
| Analysis Period (min) | 15 | | | |

| Movement | EBL | EBR | NBL | NBT | NBR | SBL | SBT | SBR | NWL2 | NWL | NWR |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | |
| Traffic Volume (veh/h) | 0 | 0 | 93 | 613 | 0 | 0 | 536 | 121 | 194 | 0 | 149 |
| Future Volume (Veh/h) | 0 | 0 | 93 | 613 | 0 | 0 | 536 | 121 | 194 | 0 | 149 |
| Sign Control | Stop | | | Free | | | Free | | | Stop | |
| Grade | 0% | | | 0% | | | 0% | | | 0% | |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Hourly flow rate (vph) | 0 | 0 | 101 | 666 | 0 | 0 | 583 | 132 | 211 | 0 | 162 |
| Pedestrians | | | | | | | | | | | |
| Lane Width (ft) | | | | | | | | | | | |
| Walking Speed (ft/s) | | | | | | | | | | | |
| Percent Blockage | | | | | | | | | | | |
| Right turn flare (veh) | | | | | | | | | | | |
| Median type | | | | None | | | None | | | | |
| Median storage veh) | | | | | | | | | | | |
| Upstream signal (ft) | | | | | | | | | | | |
| pX, platoon unblocked | | | | | | | | | | | |
| vC, conflicting volume | 1184 | 1517 | 583 | | | 666 | | | 1160 | 1451 | 333 |
| vC1, stage 1 conf vol | | | | | | | | | | | |
| vC2, stage 2 conf vol | | | | | | | | | | | |
| vCu, unblocked vol | 1184 | 1517 | 583 | | | 666 | | | 1160 | 1451 | 333 |
| tC, single (s) | 7.6 | 6.6 | 4.2 | | | 4.2 | | | 7.6 | 6.6 | 7.0 |
| tC, 2 stage (s) | | | | | | | | | | | |
| tF (s) | 3.5 | 4.0 | 2.2 | | | 2.2 | | | 3.5 | 4.0 | 3.3 |
| p0 queue free % | 100 | 100 | 90 | | | 100 | | | 0 | 100 | 75 |
| cM capacity (veh/h) | 100 | 105 | 981 | | | 913 | | | 138 | 115 | 660 |

| Direction, Lane # | NB 1 | NB 2 | NB 3 | SB 1 | SB 2 | NW 1 |
|---|---|---|---|---|---|---|
| Volume Total | 101 | 333 | 333 | 389 | 326 | 373 |
| Volume Left | 101 | 0 | 0 | 0 | 0 | 211 |
| Volume Right | 0 | 0 | 0 | 0 | 132 | 162 |
| cSH | 981 | 1700 | 1700 | 1700 | 1700 | 210 |
| Volume to Capacity | 0.10 | 0.20 | 0.20 | 0.23 | 0.19 | 1.78 |
| Queue Length 95th (ft) | 9 | 0 | 0 | 0 | 0 | 645 |
| Control Delay (s) | 9.1 | 0.0 | 0.0 | 0.0 | 0.0 | 407.5 |
| Lane LOS | A | | | | | F |
| Approach Delay (s) | 1.2 | | | 0.0 | | 407.5 |
| Approach LOS | | | | | | F |

| Intersection Summary | | | | |
|---|---|---|---|---|
| Average Delay | 82.4 | | | |
| Intersection Capacity Utilization | 53.7% | ICU Level of Service | A | |
| Analysis Period (min) | 15 | | | |



| Movement | WBL | WBR | NBT | NBR | SBL | SBT |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Traffic Volume (veh/h) | 250 | 37 | 486 | 5 | 16 | 407 |
| Future Volume (Veh/h) | 250 | 37 | 486 | 5 | 16 | 407 |
| Sign Control | Stop | | Free | | | Free |
| Grade | 0% | | 0% | | | 0% |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Hourly flow rate (vph) | 272 | 40 | 528 | 5 | 17 | 442 |
| Pedestrians | | | | | | |
| Lane Width (ft) | | | | | | |
| Walking Speed (ft/s) | | | | | | |
| Percent Blockage | | | | | | |
| Right turn flare (veh) | | 2 | | | | |
| Median type | | | None | | | None |
| Median storage veh) | | | | | | |
| Upstream signal (ft) | | | | | | |
| pX, platoon unblocked | | | | | | |
| vC, conflicting volume | 1006 | 530 | | | 533 | |
| vC1, stage 1 conf vol | | | | | | |
| vC2, stage 2 conf vol | | | | | | |
| vCu, unblocked vol | 1006 | 530 | | | 533 | |
| tC, single (s) | 6.4 | 6.2 | | | 4.1 | |
| tC, 2 stage (s) | | | | | | |
| tF (s) | 3.5 | 3.3 | | | 2.2 | |
| p0 queue free % | 0 | 93 | | | 98 | |
| cM capacity (veh/h) | 262 | 547 | | | 1030 | |

| Direction, Lane # | WB 1 | NB 1 | SB 1 | SB 2 |
|---|---|---|---|---|
| Volume Total | 312 | 533 | 17 | 442 |
| Volume Left | 272 | 0 | 17 | 0 |
| Volume Right | 40 | 5 | 0 | 0 |
| cSH | 285 | 1700 | 1030 | 1700 |
| Volume to Capacity | 1.10 | 0.31 | 0.02 | 0.26 |
| Queue Length 95th (ft) | 316 | 0 | 1 | 0 |
| Control Delay (s) | 121.1 | 0.0 | 8.6 | 0.0 |
| Lane LOS | F | | A | |
| Approach Delay (s) | 121.1 | 0.0 | 0.3 | |
| Approach LOS | F | | | |

| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 29.1 | | |
| Intersection Capacity Utilization | 46.4% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |

# APPENDIX C

Existing Signal Timings

# SIGNAL RETIMING REPORT
## Vehicle and Pedestrian Interval Updates

SUWANNEE COUNTY

SR 10 (US 90), SR 249, SR 51 (US 129) and SR 20 (US 27) in Suwannee County

Contract Number C-9837
FPN 211083-2-32
HDR No 237013

Prepared for:

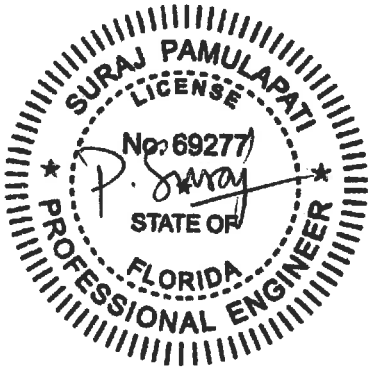
FDOT

District 2

Prepared by:

HDR
Orlando, Florida

July 31, 2015




Engineer of Record: Suraj Pamulapati
P.E. No 69277

## PROFESSIONAL ENGINEER ENDORSEMENT

I hereby certify that I am a registered professional engineer in the State of Florida practicing with HDR Engineering, Inc., a corporation, authorized to operate as an engineering business, Certification of Authorization No. 00004213, by the State of Florida Department of Professional Regulation, Board of Professional Engineers, and I have prepared or approved the methodology, analysis, conclusions and recommendations hereby reported for:

PROJECT: SR 10 (US 90), SR 249, SR 51 (US 129) and SR 20 (US 27) in Suwannee County – Vehicle and Pedestrian Intervals Update Report

LOCATION: Suwannee County, Florida

CLIENT: FDOT District Two

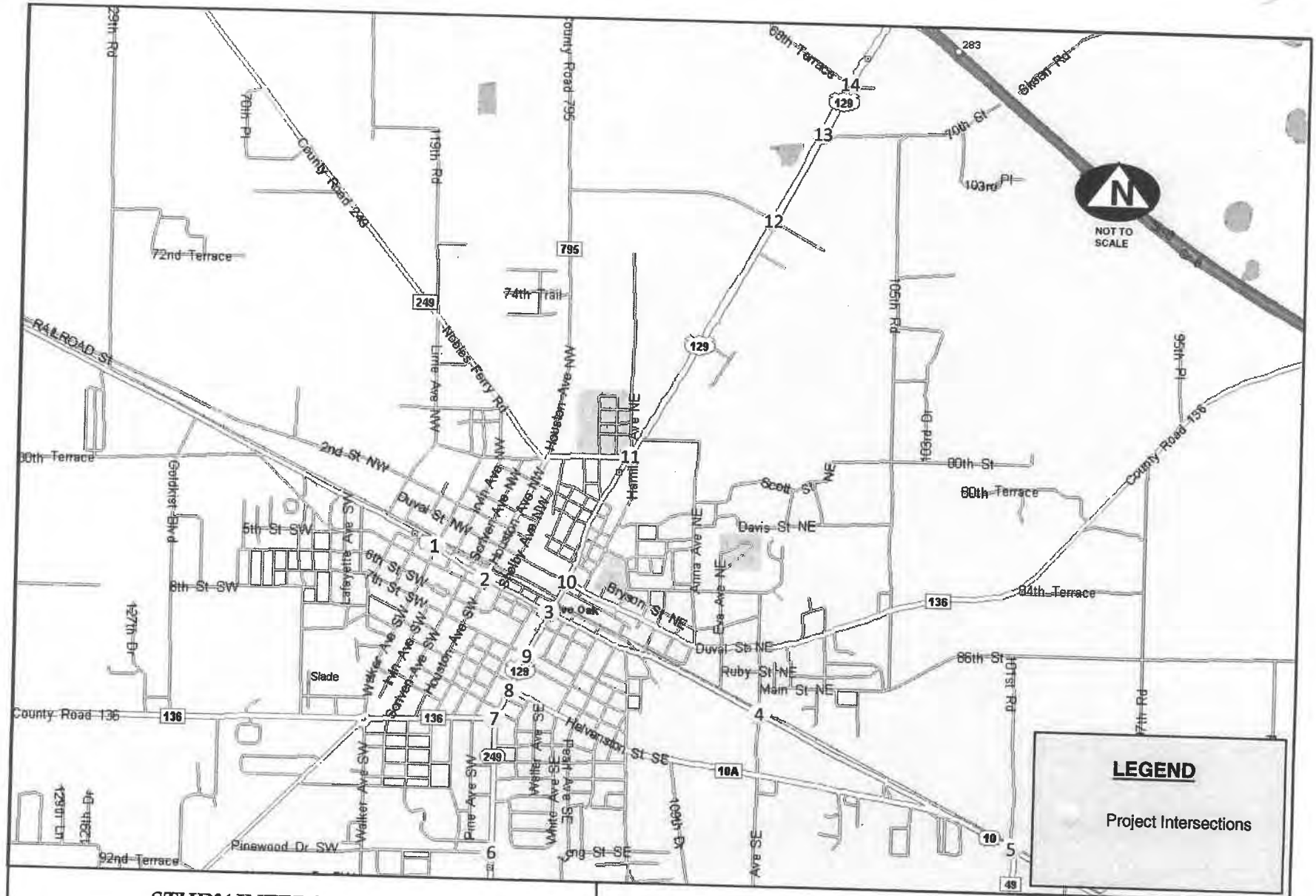
I acknowledge that the procedures and references used to develop the results contained in this report are standard to the professional practice of transportation engineering, as applied through professional judgment and experience.

NAME: Suraj Pamulapati, PE

P.E. NO: 69277

DATE: July 31, 2015

SIGNATURE: 




| | | | |
|---|---|---|---|
| *STUDY INTERSECTIONS* | | | *SR 10 (US 90), SR 249 and SR 51 (US 129)*<br>*Suwannee County, FL* |
| | | | Project Location Map |

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION - DISTRICT TWO
Vehicle and Pedestrian Intervals Update - SR 10 (US 90), SR 249, SR 51 (US 129) and SR 20 (US 27) in Suwannee County
FIN 211083-2-32, C-9837

| | |
|---|---|
| Designed By: | S.P. |
| Date: | 7/30/2015 |
| Checked By: | R.A.A. |
| Date: | 7/30/2015 |

| | | | | | |
|---|---|---|---|---|---|
| Roadway ID | 37040000 | Mile Post | | Node | 12 |
| Sig ID | | Controller | Econolite 2070 ATC | System ID | |
| Maj. Street | US 129 | Orientation | N-S | SOP | 10 |
| Min. Street | 72nd Trace | Orientation | E-W | | |

**Pedestrians**

| Movement # (Controller Phase Ø ) | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | Notes |
|---|---|---|---|---|---|---|---|---|---|
| Direction | SBL | NB | WBL | EB | NBL | SB | EBL | WB | |
| Speed Limit (mph) | 45 | 45 | 35 | 35 | 45 | 45 | 35 | 35 | |
| Vehicle Traversed Width | 104 | 104 | 118 | 120 | 94 | 102 | 116 | 120 | |
| Ped-X (curb to curb) | | 95 | | | | | | | |
| Crossing Time | | 28 | | | | | | | |
| Ped-X (button to curb) | | 34 | | | | | | | |
| Ped-X (ped det to far curb) | | 129 | | | | | | | |
| Crossing Time | | 43 | | | | | | | |
| Approach Grades | 0.0% | -1.2% | -1.3% | -0.7% | -1.2% | 0.0% | -0.7% | -1.3% | |

**Controller Timings (seconds)**

| Movement # (Controller Phase Ø ) | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | Notes |
|---|---|---|---|---|---|---|---|---|---|
| Direction | SBL | NB | WBL | EB | NBL | SB | EBL | WB | |
| Turn Type | Prot/Perm | | Prot/Perm | | Prot/Perm | | Prot/Perm | | |
| Min Green | 6 | 18 | 6 | 8 | 6 | 18 | 6 | 8 | |
| Ext | 3.0 | 8.0 | 3.0 | 3.0 | 3.0 | 8.0 | 3.0 | 3.0 | |
| Yellow Change | 4.8 | 4.9 | 4.1 | 4.1 | 4.9 | 4.9 | 4.1 | 4.1 | |
| Red Clearance | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | |
| Max I | 15 | 50 | 30 | 30 | 15 | 50 | 30 | 30 | |
| Max II | 15 | 50 | 30 | 30 | 15 | 50 | 30 | 30 | |
| Walk | | 9 | | | | | | | |
| Flashing Don't Walk | | 28 | | | | | | | |
| Min Splits | 13.0 | 44.0 | 13.0 | 15.0 | 13.0 | 25.0 | 13.0 | 15.0 | |
| Detector Memory | | | | | | | | | |
| Det. Cross Switch. | | | | | | | | | |
| Recall | | Min | | | | Min | | | |
| CNA | | | | | | | | | |
| Coord Phase | | | | | | | | | |

**Non-Coordination Timings (seconds)**

| Plan | Pattern | Status | Splits | | | | | | | | Cycle Length | Offset A | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | | | |
| | | | | | | | | | | | | | |
| | | | | | | | | | | | | | |
| | | | | | | | | | | | | | |
| | | | | | | | | | | | | | |

Notes:

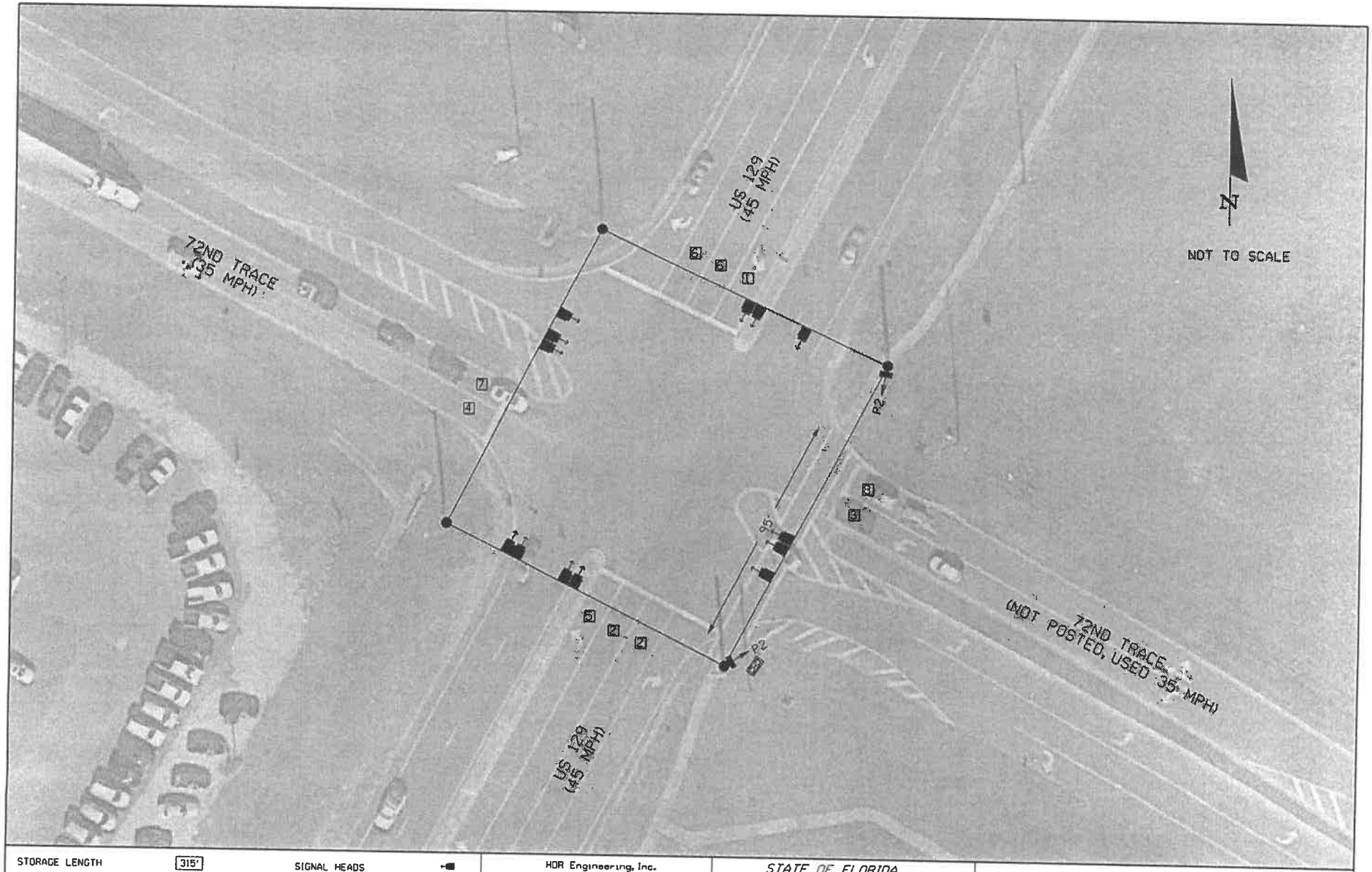
1) Intersection operates in free mode at all times

Signal Phasing - All Plans

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

**Controller Timings Legend**

| | |
|---|---|
| | Updated timings |
| | Existing timings |




| | | | |
|---|---|---|---|
| STORAGE LENGTH | 315' | SIGNAL HEADS | |
| SIGNAL PHASE | 2 | PEDESTRIAN SIGNAL | P6 |
| LD: | LANE DROP | LANE GEOMETRY | |

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Certificate of Authorization No. 4213

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

| ROAD NO. | COUNTY | FINANCIAL PROJECT ID |
|---|---|---|
| SR 10, SR 249<br>SR 51, SR 20 | SUWANNEE | 211083-2-32 |

# SIGNALIZED INTERSECTION SKETCH

$USER$ $DATE$ $TIME$ $FILE$

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION - DISTRICT TWO
Vehicle and Pedestrian Intervals Update - SR 10 (US 90), SR 249, SR 51 (US 129) and SR 20 (US 27) in Suwannee County
FIN 211083-2-32, C-9837

| | |
|---|---|
| Designed By: | S.P. |
| Date: | 7/30/2015 |
| Checked By: | R.A.A. |
| Date: | 7/30/2015 |

| | | | | | |
|---|---|---|---|---|---|
| Roadway ID | 37040000 | Mile Post | | Node | 13 |
| Sig ID | | Controller | MTS 170EX | System ID | |
| Maj. Street | US 129 | Orientation | N-S | SOP | 12 |
| Min. Street | 70th Street | Orientation | E-W | | |

**Pedestrians**

| Movement # (Controller Phase Ø ) | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | Notes |
|---|---|---|---|---|---|---|---|---|---|
| Direction | | SB | | WB | SBL | NB | | | |
| Speed Limit (mph) | | 45 | | 30 | 45 | 45 | | | |
| Vehicle Traversed Width | | 114 | | 108 | 115 | 110 | | | |
| Ped-X (curb to curb) | | | | 84 | | 57 | | | |
| Crossing Time | | | | 24 | | 17 | | | |
| Ped-X (button to curb) | | | | 17 | | 12 | | | |
| Ped-X (ped det to far curb) | | | | 101 | | 69 | | | |
| Crossing Time | | | | 34 | | 23 | | | |
| Approach Grades | | -2.1% | | -3.5% | -2.1% | 0.4% | | | |

**Controller Timings (seconds)**

| Movement # (Controller Phase Ø ) | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | Notes |
|---|---|---|---|---|---|---|---|---|---|
| Direction | | SB | | WB | SBL | NB | | | |
| Turn Type | | | | Perm | Prot/Perm | | | | |
| Min Green | | 18 | | 6 | 6 | 18 | | | |
| Ext | | 4.5 | | 4.0 | 4.0 | 4.5 | | | |
| Yellow Change | | 5.0 | | 3.9 | 5.0 | 5.0 | | | |
| Red Clearance | | 2.0 | | 2.0 | 2.0 | 2.0 | | | |
| Max I | | 45 | | 30 | 15 | 45 | | | |
| Max II | | 0 | | 0 | 0 | 0 | | | |
| Walk | | | | 7 | | 7 | | | |
| Flashing Don't Walk | | | | 24 | | 17 | | | |
| Min Splits | | 25.0 | | 37.0 | 13.0 | 31.0 | | | |
| Detector Memory | | | | | | | | | |
| Det. Cross Switch. | | | | | | | | | |
| Recall | | Min | | | | Min | | | |
| CNA | | | | | | | | | |
| Coord Phase | | | | | | | | | |

**Non-Coordination Timings (seconds)**

| Plan | Pattern | Status | Splits | | | | | | | | Cycle Length | Offset A | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | | | |
| | | | | | | | | | | | | | |
| | | | | | | | | | | | | | |
| | | | | | | | | | | | | | |
| | | | | | | | | | | | | | |

Notes:

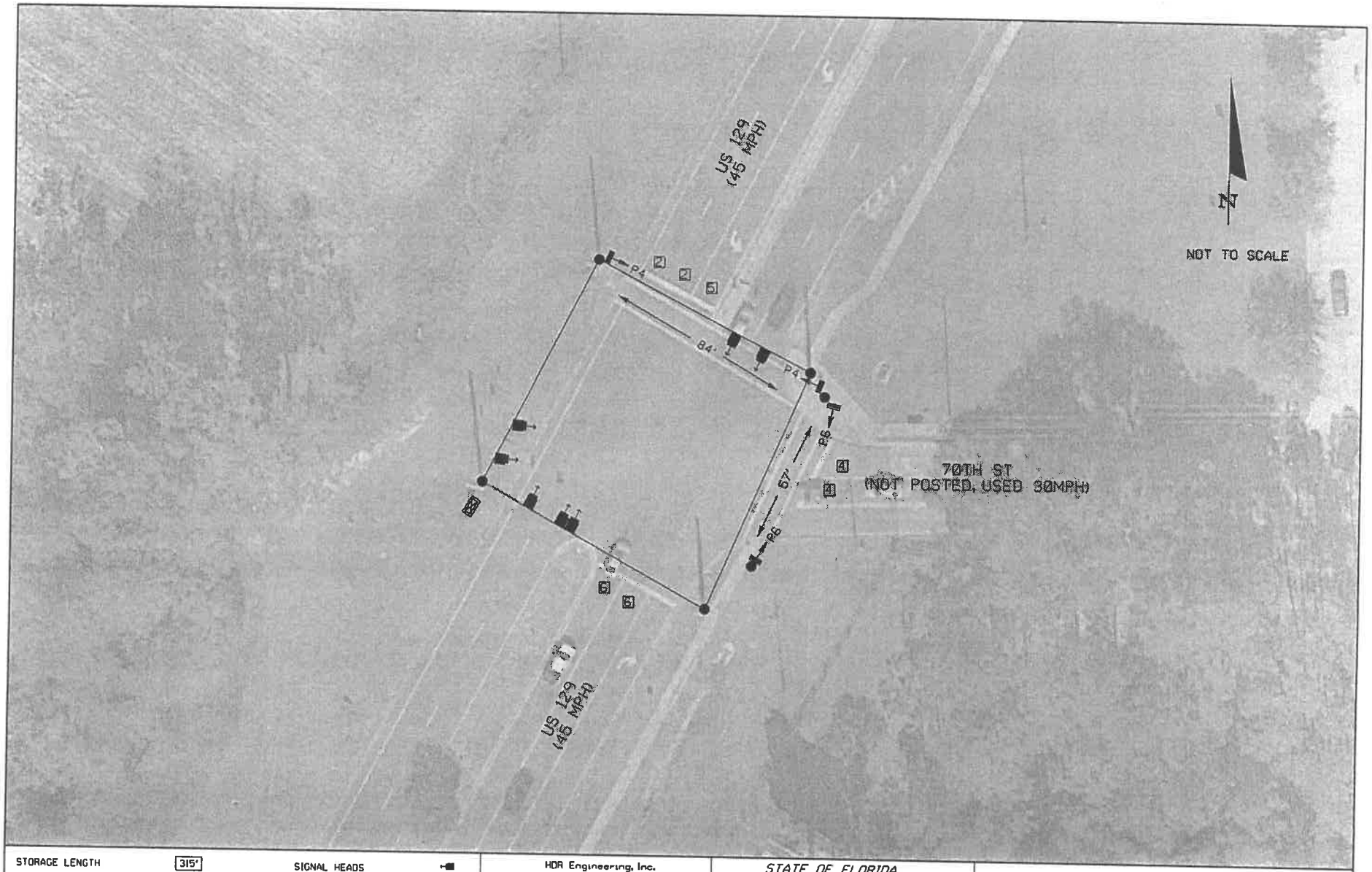
1) Intersection operates in free mode at all times
2) P6 is on Recall mode currently in field

Controller Timings Legend

- Updated timings
- Existing timings

Signal Phasing - All Plans

| | | | |
|---|---|---|---|
| Ring-1 | | 2 | 4 |
| Ring-2 | 5 | 6 | |




| | | | |
|---|---|---|---|
| STORAGE LENGTH | 315' | SIGNAL HEADS | |
| SIGNAL PHASE | 2 | PEDESTRIAN SIGNAL | P6 |
| LD: | LANE DROP | LANE GEOMETRY | |

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STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

| ROAD NO. | COUNTY | FINANCIAL PROJECT ID |
|---|---|---|
| SR 10, SR 249<br>SR 51, SR 20 | SUWANNEE | 211083-2-32 |

# SIGNALIZED INTERSECTION SKETCH

$USER$ $DATE$ $TIME$ $FILE$

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION - DISTRICT TWO
Vehicle and Pedestrian Intervals Update - SR 10 (US 90), SR 249, SR 51 (US 129) and SR 20 (US 27) in Suwannee County
FIN 211083-2-32, C-9837

| | |
|---|---|
| Designed By: | S.P. |
| Date: | 7/30/2015 |
| Checked By: | R.A.A. |
| Date: | 7/30/2015 |

| | | | | | |
|---|---|---|---|---|---|
| Roadway ID | 37040000 | Mile Post | | Node | 14 |
| Sig ID | | Controller | MTS 170ES | System ID | |
| Maj. Street | US 129 | Orientation | N-S | SOP | 7 |
| Min. Street | 68th Terrace | Orientation | E-W | | |

**Pedestrians**

| Movement # (Controller Phase Ø ) | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | Notes |
|---|---|---|---|---|---|---|---|---|---|
| Direction | NBL | SB | | EB | SBL | NB | | WB | |
| Speed Limit (mph) | 45 | 45 | | 30 | 45 | 45 | | 30 | |
| Vehicle Traversed Width | 99 | 113 | | 109 | 88 | 114 | | 109 | |
| Ped-X (curb to curb) | | 64 | | 90 | | 89 | | | |
| Crossing Time | | 19 | | 26 | | 26 | | | *Faulty Display Module |
| Ped-X (button to curb) | | 20 | | 9 | | 21 | | | |
| Ped-X (ped det to far curb) | | 84 | | 99 | | 110 | | | |
| Crossing Time | | 28 | | 33 | | 37 | | | |
| Approach Grades | 0.0% | -0.7% | | 0.5% | -0.7% | 0.0% | | -1.5% | |

**Controller Timings (seconds)**

| Movement # (Controller Phase Ø ) | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | Notes |
|---|---|---|---|---|---|---|---|---|---|
| Direction | NBL | SB | | EB | SBL | NB | | WB | |
| Turn Type | Prot/Perm | | | Perm | Prot/Perm | | | Perm | |
| Min Green | 6 | 15 | | 6 | 6 | 15 | | 6 | |
| Ext | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | | 4.0 | |
| Yellow Change | 4.8 | 4.8 | | 3.8 | 4.8 | 4.8 | | 3.8 | |
| Red Clearance | 2.0 | 2.0 | | 2.0 | 2.0 | 2.0 | | 2.0 | |
| Max I | 15 | 45 | | 25 | 15 | 45 | | 25 | |
| Max II | 0 | 0 | | 0 | 0 | 0 | | 0 | |
| Walk | | 7 | | 7 | | 7 | | | |
| Flashing Don't Walk | | 19 | | 26 | | 26 | | | |
| Min Splits | 13.0 | 33.0 | | 39.0 | 13.0 | 40.0 | | 12.0 | |
| Detector Memory | | | | | | | | | |
| Det. Cross Switch. | | | | | | | | | |
| Recall | | Min | | | | Min | | | |
| CNA | | | | | | | | | |
| Coord Phase | | | | | | | | | |

**Non-Coordination Timings (seconds)**

| Plan | Pattern | Status | Splits | | | | | | | | Cycle Length | Offset A | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | | | |
| | | | | | | | | | | | | | |
| | | | | | | | | | | | | | |
| | | | | | | | | | | | | | |
| | | | | | | | | | | | | | |

Notes:

1) Intersection operates in free mode at all times

**Controller Timings Legend**

| | |
|---|---|
| | Updated timings |
| | Existing timings |

Signal Phasing - All Plans

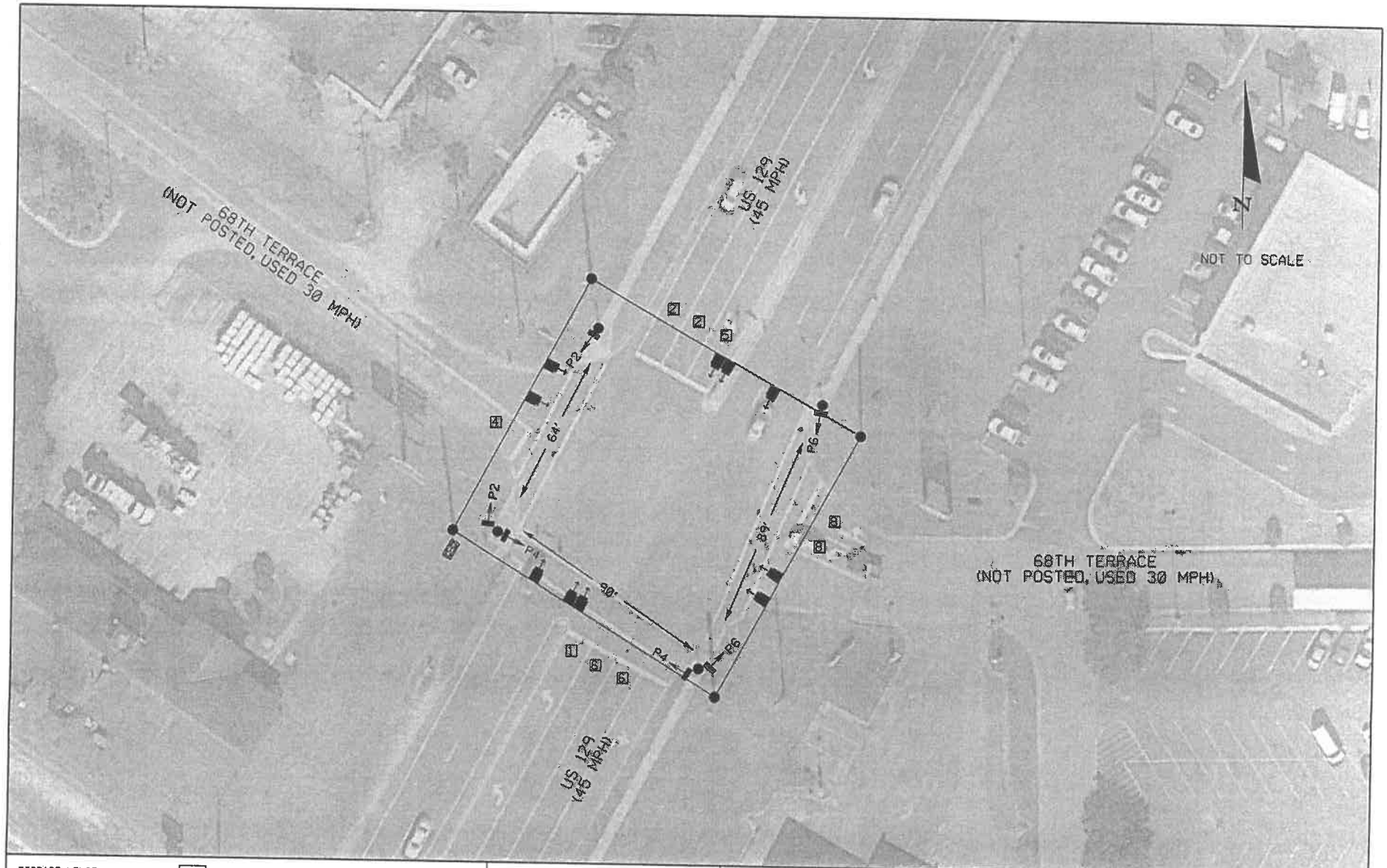
| | | | |
|---|---|---|---|
| Ring-1 | 1 | 2 | 4 |
| Ring-2 | 5 | 6 | 8 |

15 + 6.8 = 21.8 ≈ 22

45 + 6.8 = 51.8 ≈ 52

25 + 5.8 = 30.8 ≈ 31

Cycle = 105 sec




| | | | |
|---|---|---|---|
| STORAGE LENGTH | 315' | SIGNAL HEADS | |
| SIGNAL PHASE | 2 | PEDESTRIAN SIGNAL | PS |
| LD: | LANE DROP | LANE GEOMETRY | |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STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

| ROAD NO. | COUNTY | FINANCIAL PROJECT ID |
|---|---|---|
| SR 10, SR 249<br>SR 51, SR 28 | SUWANNEE | 211083-2-32 |

# SIGNALIZED INTERSECTION SKETCH

$USER$ $DATE$ $TIME$ $FILE$

# APPENDIX D

Raw Crash Data and Project Segment Maps

| Crash Number | Location Mile Post | Roadway Id | Crash Date | Crash Year | On Road | Intersecting Road | First Harmful Event | Manner Of Collision | Light Condition | Weather Condition | Surface Condition | Junction | Site Location | Alcohol Drugs Involvement | Number of Fatalities | Number of Injured | Total Crash Damage Amount | Crash Status |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 833028580 | 0 | 37120011 | 11/26/2017 | 2017 | I 10 | US 129 | Motor Vehicle In Transport | Front To Rear | Daylight | Clear | Dry | Entrance/Exit Ramp | Exit Ramp | No | | 3 | | Q/C Completed - Loc Verified |
| 855295520 | 0 | 37120010 | 8/7/2017 | 2017 | I 10 | US 129 | Motor Vehicle In Transport | Front To Rear | Daylight | Clear | Dry | Entrance/Exit Ramp | Exit Ramp | No | | | 500 | Q/C Completed - Loc Verified |
| 855598880 | 0 | 37120011 | 7/24/2017 | 2017 | I 10 | US 129 | Motor Vehicle In Transport | Front To Rear | Daylight | Clear | Dry | Entrance/Exit Ramp | Exit Ramp | No | | | | Q/C Completed - Loc Verified |
| 820771250 | 0.014 | 37120011 | 6/6/2016 | 2016 | SR 8 | US 129 | Motor Vehicle In Transport | Front To Rear | Daylight | Rain | Wet | Entrance/Exit Ramp | Exit Ramp | No | | 1 | | Q/C Completed - Loc Verified |
| 872398420 | 0.019 | 37120010 | 8/31/2018 | 2018 | I 10 | US 129 | Motor Vehicle In Transport | Front To Rear | Daylight | Cloudy | Dry | Non-Junction | Exit Ramp | No | | | 500 | Q/C Completed - Loc Verified |
| 857869520 | 0.028 | 37120012 | 4/22/2016 | 2016 | I 10 | US 129 | Motor Vehicle In Transport | Other (See Narrative) | Daylight | Rain | Wet | Entrance/Exit Ramp | Entrance Ramp | No | | | | Q/C Completed - Loc Verified |
| 852377880 | 0.038 | 37120012 | 2/5/2016 | 2016 | I 10 | US 129 | Overturn/Rollover | Other (See Narrative) | Daylight | Clear | Dry | Entrance/Exit Ramp | Entrance Ramp | No | | 1 | | Q/C Completed - Loc Verified |
| 854363590 | 0.057 | 37120011 | 12/29/2016 | 2016 | I 10 | US 129 | Jackknife | Other (See Narrative) | Daylight | Cloudy | Wet | Entrance/Exit Ramp | Exit Ramp | No | | | | Q/C Completed - Loc Verified |
| 854901720 | 0.095 | 37120011 | 6/2/2017 | 2017 | I 10 | US 129 | Motor Vehicle In Transport | Front To Rear | Daylight | Clear | Dry | Entrance/Exit Ramp | Entrance Ramp | No | | | 500 | Q/C Completed - Loc Verified |
| 880143870 | 0.115 | 37120009 | 10/20/2018 | 2018 | I 10 | US 129 | Motor Vehicle In Transport | Sideswipe, Same Direction | Daylight | Clear | Dry | Non-Junction | Entrance Ramp | No | | | 500 | Q/C Completed - Loc Verified |
| 853406570 | 0.201 | 37120009 | 6/18/2016 | 2016 | SR 8 | US 129 | Overturn/Rollover | Other (See Narrative) | Dark-Lighted | Clear | Dry | Entrance/Exit Ramp | Entrance Ramp | No | | 1 | | Q/C Completed - Loc Verified |
| 851750640 | 0.218 | 37120010 | 12/2/2015 | 2015 | I 10 | US 129 | Motor Vehicle In Transport | Front To Rear | Daylight | Cloudy | Dry | Entrance/Exit Ramp | Entrance Ramp | No | | 1 | 500 | Q/C Completed - Loc Verified |
| 848591040 | 0.219 | 37120010 | 7/23/2015 | 2015 | I 10 | US 129 | Motor Vehicle In Transport | Front To Rear | Daylight | Clear | Dry | Entrance/Exit Ramp | Entrance Ramp | No | | | | Q/C Completed - Loc Verified |
| 851767860 | 0.223 | 37120010 | 6/20/2016 | 2016 | I 10 | US 129 | Motor Vehicle In Transport | Angle | Daylight | Clear | Dry | Entrance/Exit Ramp | Exit Ramp | No | | 1 | | Q/C Completed - Loc Verified |
| 853001500 | 0.223 | 37120010 | 5/5/2016 | 2016 | I 10 | US 129 | Motor Vehicle In Transport | Front To Rear | Daylight | Clear | Dry | Entrance/Exit Ramp | Exit Ramp | No | | 1 | | Q/C Completed - Loc Verified |
| 854646870 | 0.223 | 37120010 | 2/17/2017 | 2017 | SR 8 | US 129 | Motor Vehicle In Transport | Front To Rear | Daylight | Clear | Dry | Non-Junction | Exit Ramp | Alc | | 1 | | Q/C Completed - Loc Verified |
| 819515270 | 14.208 | 37120000 | 1/3/2018 | 2018 | SR 8 | WB ENT FROM SB SR 51 L | Guardrail Face | Other (See Narrative) | Daylight | Sleet, Hail, Freezing Rain | Ice/Frost | Through Roadway | Bridge | No | | | | Q/C Completed - Loc Verified |
| 855850380 | 14.238 | 37120000 | 11/10/2017 | 2017 | SR 8 | MM 282 | Motor Vehicle In Transport | Front To Rear | Daylight | Clear | Dry | Non-Junction | Not At Intersection/Rrx/Bridge | No | | | | Q/C Completed - Loc Verified |
| 853674040 | 14.35 | 37120000 | 8/10/2016 | 2016 | I 10 | US 129 | Guardrail Face | Other (See Narrative) | Daylight | Rain | Wet | Non-Junction | Not At Intersection/Rrx/Bridge | No | | 1 | | Q/C Completed - Loc Verified |
| 871810670 | 14.361 | 37120000 | 3/9/2018 | 2018 | I 10 | US 129 | Guardrail Face | Other (See Narrative) | Daylight | Clear | Dry | Non-Junction | Not At Intersection/Rrx/Bridge | No | | | | Q/C Completed - Loc Verified |
| 872531550 | 14.483 | 37120000 | 10/8/2018 | 2018 | I 10 | US 129 | Motor Vehicle In Transport | Front To Rear | Daylight | Cloudy | Dry | Non-Junction | Not At Intersection/Rrx/Bridge | No | | | | Q/C Completed - Loc Verified |
| 837616220 | 14.512 | 37120000 | 9/22/2014 | 2014 | SR 8 | US 129 | Motor Vehicle In Transport | Front To Rear | Dark-Not Lighted | Clear | Dry | Non-Junction | Not At Intersection/Rrx/Bridge | No | | 3 | | Q/C Completed - Loc Verified |
| 855134560 | 14.531 | 37120000 | 6/28/2017 | 2017 | SR 8 | US 129 | Guardrail Face | Other (See Narrative) | Daylight | Rain | Wet | Non-Junction | Not At Intersection/Rrx/Bridge | No | | 1 | | Q/C Completed - Loc Verified |
| 880143990 | 14.531 | 37120000 | 11/4/2018 | 2018 | I 10 | US 129 | Guardrail Face | Other (See Narrative) | Daylight | Rain | Wet | Non-Junction | Not At Intersection/Rrx/Bridge | No | | | | Q/C Completed - Loc Verified |
| 853928290 | 14.587 | 37120000 | 11/27/2016 | 2016 | I 10 | US 129 | Motor Vehicle In Transport | Front To Rear | Daylight | Clear | Dry | Non-Junction | Not At Intersection/Rrx/Bridge | No | | | | Q/C Completed - Loc Verified |
| 855186440 | 14.619 | 37120000 | 7/21/2017 | 2017 | SR 8 | US 129 | Guardrail Face | Other (See Narrative) | Daylight | Rain | Wet | Non-Junction | Not At Intersection/Rrx/Bridge | No | | | | Q/C Completed - Loc Verified |
| 851732040 | 14.628 | 37120000 | 11/28/2015 | 2015 | I 10 | US 129 | Motor Vehicle In Transport | Angle | Daylight | Cloudy | Dry | Non-Junction | Not At Intersection/Rrx/Bridge | No | | | | Q/C Completed - Loc Verified |
| 836629790 | 14.675 | 37120000 | 1/27/2014 | 2014 | SR 8 | MILE MARKER #282 | Overturn/Rollover | Other (See Narrative) | Daylight | Clear | Dry | Non-Junction | Not At Intersection/Rrx/Bridge | No | | | | Q/C Completed - Loc Verified |
| 853406760 | 14.675 | 37120000 | 7/17/2016 | 2016 | SR 8 | MM 282 | Guardrail Face | Other (See Narrative) | Dusk | Rain | Wet | Non-Junction | Not At Intersection/Rrx/Bridge | No | | | 500 | Q/C Completed - Loc Verified |
| 853560080 | 14.675 | 37120000 | 10/25/2016 | 2016 | I 10 | MM 282 | Guardrail Face | Other (See Narrative) | Daylight | Clear | Dry | Non-Junction | Not At Intersection/Rrx/Bridge | No | | 1 | | Q/C Completed - Loc Verified |
| 853205050 | 14.676 | 37120000 | 4/25/2016 | 2016 | SR 8 | US 129 | Motor Vehicle In Transport | Front To Rear | Dark-Not Lighted | Clear | Dry | Non-Junction | Not At Intersection/Rrx/Bridge | No | | 2 | | Q/C Completed - Loc Verified |
| 854646800 | 14.676 | 37120000 | 1/26/2017 | 2017 | SR 8 | US 129 | Curb | Other (See Narrative) | Daylight | Cloudy | Wet | Non-Junction | Not At Intersection/Rrx/Bridge | No | | | | Q/C Completed - Loc Verified |
| 871684890 | 14.68 | 37120000 | 6/8/2018 | 2018 | I 10 | EB ENT FROM NB SR 51 R | Guardrail Face | Other (See Narrative) | Daylight | Rain | Wet | Non-Junction | Not At Intersection/Rrx/Bridge | No | | | | Q/C Completed - Loc Verified |
| 837519580 | 14.681 | 37120000 | 5/31/2014 | 2014 | SR 8 | US 129 | Guardrail Face | Other (See Narrative) | Dark-Not Lighted | Rain | Wet | Non-Junction | Not At Intersection/Rrx/Bridge | No | | 5 | 500 | Q/C Completed - Loc Verified |
| 872658430 | 14.681 | 37120000 | 10/8/2018 | 2018 | I 10 | US 129 | Curb | Other (See Narrative) | Daylight | Cloudy | Wet | Non-Junction | Not At Intersection/Rrx/Bridge | No | | | 50 | Q/C Completed - Loc Verified |
| 871067210 | 14.695 | 37120000 | 12/7/2017 | 2017 | I 10 | US 129 | Tree (Standing) | Other (See Narrative) | Daylight | Rain | Wet | Non-Junction | Not At Intersection/Rrx/Bridge | No | | 1 | | Q/C Completed - Loc Verified |
| 854991370 | 14.705 | 37120000 | 6/3/2017 | 2017 | I 10 | CR 136 | Tree (Standing) | Other (See Narrative) | Daylight | Clear | Dry | Non-Junction | Not At Intersection/Rrx/Bridge | No | | 1 | | Q/C Completed - Loc Verified |
| 853707920 | 14.738 | 37120000 | 11/10/2016 | 2016 | SR 8 | MM 282 | Motor Vehicle In Transport | Sideswipe, Same Direction | Daylight | Clear | Dry | Non-Junction | Not At Intersection/Rrx/Bridge | No | | | | Q/C Completed - Loc Verified |
| 871780420 | 14.738 | 37120000 | 5/4/2018 | 2018 | SR 8 | MILE MARKER #282 | Fence | Other (See Narrative) | Daylight | Clear | Dry | Non-Junction | Not At Intersection/Rrx/Bridge | No | | 1 | | Q/C Completed - Loc Verified |
| 837500160 | 14.775 | 37120000 | 2/26/2014 | 2014 | I 10 | MILE MARKER #282 | Guardrail Face | Other (See Narrative) | Daylight | Rain | Wet | Non-Junction | Not At Intersection/Rrx/Bridge | No | | | | Q/C Completed - Loc Verified |
| 838264550 | 14.781 | 37120000 | 2/9/2015 | 2015 | I 10 | US 129 | Other Post, Pole, Or Support | Other (See Narrative) | Dark-Not Lighted | Cloudy | Dry | Non-Junction | Not At Intersection/Rrx/Bridge | No | | 1 | 500 | Q/C Completed - Loc Verified |
| 845611010 | 14.781 | 37120000 | 6/30/2015 | 2015 | I 10 | US 129 | Motor Vehicle In Transport | Front To Rear | Daylight | Rain | Wet | Non-Junction | Not At Intersection/Rrx/Bridge | No | | | | Q/C Completed - Loc Verified |
| 848983600 | 14.781 | 37120000 | 10/19/2015 | 2015 | SR 8 | US 129 | Motor Vehicle In Transport | Sideswipe, Same Direction | Daylight | Clear | Dry | Non-Junction | Not At Intersection/Rrx/Bridge | No | | | 200 | Q/C Completed - Loc Verified |
| 837955940 | 14.881 | 37120000 | 9/5/2015 | 2015 | I 10 | US 129 | Motor Vehicle In Transport | Front To Rear | Daylight | Clear | Dry | Non-Junction | Not At Intersection/Rrx/Bridge | No | | 1 | | Q/C Completed - Loc Verified |
| 871615970 | 14.889 | 37120000 | 1/8/2018 | 2018 | SR 8 | EB ENT FROM NB SR 51 R | Motor Vehicle In Transport | Sideswipe, Same Direction | Daylight | Clear | Dry | Entrance/Exit Ramp | Not At Intersection/Rrx/Bridge | No | | | | Q/C Completed - Loc Verified |
| 853795320 | 26.942 | 37040000 | 11/29/2016 | 2016 | US 129 | 68TH TER | Motor Vehicle In Transport | Sideswipe, Same Direction | Daylight | Clear | Dry | Non-Junction | Not At Intersection/Rrx/Bridge | No | | | 500 | Q/C Completed - Loc Verified |
| 837610040 | 26.985 | 37040000 | 2/13/2014 | 2014 | US 129 | 68TH TERR NW | Motor Vehicle In Transport | Front To Rear | Daylight | Clear | Dry | Intersection-Related | At Intersection | No | | 1 | | Q/C Completed - Loc Verified |
| 853927920 | 26.985 | 37040000 | 10/14/2016 | 2016 | US 129 | 68TH TER | Motor Vehicle In Transport | Front To Rear | Daylight | Clear | Dry | Intersection-Related | Influenced By Intersection | No | | | | Q/C Completed - Loc Verified |
| 836438780 | 26.989 | 37040000 | 1/11/2014 | 2014 | US 129 | 68TH TERR NW | Motor Vehicle In Transport | Angle | Dark-Not Lighted | Cloudy | Wet | Intersection | At Intersection | No | | 2 | | Q/C Completed - Loc Verified |
| 837558360 | 26.989 | 37040000 | 7/10/2014 | 2014 | US 129 | 68TH TERR NW | Motor Vehicle In Transport | Angle | Daylight | Clear | Dry | Intersection | At Intersection | No | | 2 | | Q/C Completed - Loc Verified |
| 837955840 | 26.989 | 37040000 | 7/24/2015 | 2015 | US 129 | 68TH TERR NW | Motor Vehicle In Transport | Angle | Daylight | Rain | Wet | Intersection | At Intersection | No | | | | Q/C Completed - Loc Verified |
| 848848910 | 26.989 | 37040000 | 8/11/2015 | 2015 | US 129 | 68TH TERR NW | Motor Vehicle In Transport | Angle | Dark-Lighted | Cloudy | Dry | Intersection | At Intersection | No | | | 500 | Q/C Completed - Loc Verified |
| 853363650 | 26.989 | 37040000 | 5/25/2016 | 2016 | US 129 | 68TH TER | Motor Vehicle In Transport | Other (See Narrative) | Dusk | Clear | Dry | Intersection | At Intersection | Alc | | | | Q/C Completed - Loc Verified |
| 855180460 | 26.989 | 37040000 | 9/29/2017 | 2017 | US 129 | 68TH TER | Motor Vehicle In Transport | Other (See Narrative) | Daylight | Clear | Dry | Non-Junction | At Intersection | No | | | | Q/C Completed - Loc Verified |
| 856085570 | 26.989 | 37040000 | 5/15/2018 | 2018 | US 129 | 68TH TER | Motor Vehicle In Transport | Angle | Daylight | Rain | Wet | Intersection | At Intersection | No | | 3 | 500 | Q/C Completed - Loc Verified |
| 872876580 | 26.989 | 37040000 | 12/26/2018 | 2018 | US 129 | 68TH TER | Motor Vehicle In Transport | Other (See Narrative) | Dark-Lighted | Clear | Dry | Driveway/Alley Access Related | Driveway Access | No | | 5 | | Q/C Completed - Loc Verified |
| 880408920 | 26.989 | 37040000 | 11/30/2018 | 2018 | US 129 | 68TH TER | Motor Vehicle In Transport | Angle | Daylight | Clear | Dry | Intersection | At Intersection | No | | 1 | | Q/C Completed - Loc Verified |
| 855850670 | 26.998 | 37040000 | 1/6/2018 | 2018 | US 129 | 68TH TER | Overturn/Rollover | Other (See Narrative) | Dark-Lighted | Clear | Dry | Non-Junction | Not At Intersection/Rrx/Bridge | Alc | | | | Q/C Completed - Loc Verified |
| 838264390 | 27.046 | 37040000 | 11/22/2014 | 2014 | US 129 | 68TH TERR NW | Motor Vehicle In Transport | Angle | Daylight | Rain | Wet | Driveway/Alley Access Related | Driveway Access | No | | | | Q/C Completed - Loc Verified |
| 851359270 | 27.046 | 37040000 | 9/12/2015 | 2015 | US 129 | 68TH TERR NW | Motor Vehicle In Transport | Rear To Side | Daylight | Rain | Wet | Driveway/Alley Access Related | Driveway Access | No | | | | Q/C Completed - Loc Verified |
| 854991310 | 27.065 | 37040000 | 5/21/2017 | 2017 | US 129 | 68TH TER | Motor Vehicle In Transport | Angle | Daylight | Clear | Dry | Crossover-Related | Not At Intersection/Rrx/Bridge | No | | | | Q/C Completed - Loc Verified |
| 837799050 | 27.076 | 37040000 | 6/7/2014 | 2014 | US 129 | 68TH TERR NW | Motor Vehicle In Transport | Angle | Daylight | Clear | Dry | Intersection | Driveway Access | No | | | | Q/C Completed - Loc Verified |
| 820384600 | 27.088 | 37040000 | 1/5/2018 | 2018 | US 129 | 68TH TER | Motor Vehicle In Transport | Front To Rear | Daylight | Clear | Dry | Intersection-Related | Driveway Access | No | | | 50 | Q/C Completed - Loc Verified |
| 852255300 | 27.089 | 37040000 | 8/3/2016 | 2016 | US 129 | 68TH TER | Motor Vehicle In Transport | Other (See Narrative) | Daylight | Clear | Dry | Non-Junction | Not At Intersection/Rrx/Bridge | No | | | 100 | Q/C Completed - Loc Verified |
| 871780390 | 27.108 | 37040000 | 4/25/2018 | 2018 | US 129 | 68TH TER | Pedestrian | Other (See Narrative) | Dark-Lighted | Clear | Dry | Non-Junction | Not At Intersection/Rrx/Bridge | No | | | | Q/C Completed - Loc Verified |
| 871810680 | 27.15 | 37040000 | 3/9/2018 | 2018 | US 129 | I 10 | Motor Vehicle In Transport | Angle | Daylight | Clear | Dry | Intersection-Related | Driveway Access | No | | | | Q/C Completed - Loc Verified |
| 837519060 | 27.18 | 37040000 | 1/26/2014 | 2014 | US 129 | 68TH TERR NW | Curb | Other (See Narrative) | Dark-Lighted | Clear | Dry | Non-Junction | Not At Intersection/Rrx/Bridge | Alc | | | | Q/C Completed - Loc Verified |
| 837500480 | 27.181 | 37040000 | 7/11/2014 | 2014 | US 129 | I 10 | Motor Vehicle In Transport | Angle | Daylight | Clear | Dry | Crossover-Related | Driveway Access | No | | | | Q/C Completed - Loc Verified |
| 825488570 | 27.182 | 37040000 | 3/29/2014 | 2014 | US 129 | 68TH TERR NW | Ditch | Front To Front | Dark-Lighted | Cloudy | Wet | Other (See Narrative) | Not At Intersection/Rrx/Bridge | No | | | 500 | Q/C Completed - Loc Verified |
| 825488690 | 27.182 | 37040000 | 6/16/2014 | 2014 | US 129 | 68TH TERR NW | Motor Vehicle In Transport | Sideswipe, Same Direction | Dark-Lighted | Clear | Wet | Non-Junction | Not At Intersection/Rrx/Bridge | No | | | 2 | Q/C Completed - Loc Verified |
| 872339550 | 27.189 | 37040000 | 7/14/2018 | 2018 | US 129 | SR 8 | Overturn/Rollover | Other (See Narrative) | Dawn | Clear | Dry | Non-Junction | Driveway Access | No | | 1 | | Q/C Completed - Loc Verified |
| 845413510 | 27.239 | 37040000 | 4/28/2015 | 2015 | US 129 | I 10 | Motor Vehicle In Transport | Angle | Dark-Lighted | Cloudy | Dry | Driveway/Alley Access Related | Driveway Access | Alc | | 3 | | Q/C Completed - Loc Verified |
| 845610950 | 27.239 | 37040000 | 6/24/2015 | 2015 | US 129 | I 10 | Motor Vehicle In Transport | Angle | Daylight | Clear | Dry | Driveway/Alley Access Related | Driveway Access | No | | 2 | | Q/C Completed - Loc Verified |
| 853559820 | 27.239 | 37040000 | 9/7/2016 | 2016 | US 129 | I 10 | Pedalcycle | Other (See Narrative) | Dawn | Clear | Dry | Driveway/Alley Access Related | Driveway Access | No | | 1 | 305 | Q/C Completed - Loc Verified |

| | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 854444500 | 27.244 | 37040000 | 4/22/2017 | 2017 | US 129 SR 8 | Motor Vehicle In Transport | Angle | Daylight | Clear | Dry | Intersection | Driveway Access | No | | | | | Q/C Completed - Loc Verified |
| 851774970 | 27.27 | 37040000 | 12/20/2015 | 2015 | US 129 SR 8 | Motor Vehicle In Transport | Other (See Narrative) | Daylight | Clear | Dry | Driveway/Alley Access Related | Driveway Access | No | | | 1 | | Q/C Completed - Loc Verified |
| 855988700 | 27.282 | 37040000 | 9/13/2017 | 2017 | US 129 I 10 | Motor Vehicle In Transport | Sideswipe, Opposite Direction | Daylight | Clear | Dry | Non-Junction | Not At Intersection/Rrx/Bridge | No | | | 3 | | Q/C Completed - Loc Verified |
| 853707910 | 27.29 | 37040000 | 11/10/2016 | 2016 | US 129 SR 8 | Motor Vehicle In Transport | Angle | Daylight | Clear | Dry | Intersection | At Intersection | No | | | | 500 | Q/C Completed - Loc Verified |
| 855631180 | 27.29 | 37040000 | 10/14/2017 | 2017 | US 129 SR 8 | Motor Vehicle In Transport | Front To Rear | Dark-Not Lighted | Clear | Dry | Non-Junction | At Intersection | No | | | 1 | | Q/C Completed - Loc Verified |
| 855699780 | 27.29 | 37040000 | 10/6/2017 | 2017 | US 129 I 10 | Motor Vehicle In Transport | Angle | Daylight | Clear | Dry | Intersection | At Intersection | No | | | 2 | | Q/C Completed - Loc Verified |
| 855711810 | 27.29 | 37040000 | 9/8/2017 | 2017 | US 129 SR 8 | Motor Vehicle In Transport | Angle | Daylight | Clear | Dry | Intersection | At Intersection | No | | | | | Q/C Completed - Loc Verified |
| 855991890 | 27.29 | 37040000 | 10/1/2017 | 2017 | US 129 SR 8 | Motor Vehicle In Transport | Angle | Dark-Not Lighted | Cloudy | Dry | Intersection | At Intersection | No | | | 3 | 500 | Q/C Completed - Loc Verified |
| 871601400 | 27.29 | 37040000 | 3/16/2018 | 2018 | US 129 I 10 ENT | Motor Vehicle In Transport | Angle | Daylight | Clear | Dry | Crossover-Related | At Intersection | No | | | | 300 | Q/C Completed - Loc Verified |
| 872757070 | 27.29 | 37040000 | 11/30/2018 | 2018 | US 129 SR 8 ENT | Motor Vehicle In Transport | Angle | Daylight | Cloudy | Dry | Intersection | At Intersection | No | | | | 500 | Q/C Completed - Loc Verified |
| 853535990 | 27.32 | 37040000 | 9/23/2016 | 2016 | US 129 I 10 | Motor Vehicle In Transport | Other (See Narrative) | Daylight | Clear | Dry | Intersection | Not At Intersection/Rrx/Bridge | No | | | 2 | | Q/C Completed - Loc Verified |
| 852443420 | 27.339 | 37040000 | 5/15/2016 | 2016 | US 129 SR 8 | Motor Vehicle In Transport | Angle | Daylight | Clear | Dry | Intersection | At Intersection | No | | | 1 | 500 | Q/C Completed - Loc Verified |
| 845610870 | 27.365 | 37040000 | 6/1/2015 | 2015 | US 129 I 10 | Bridge Overhead Structure | Other (See Narrative) | Dark-Not Lighted | Clear | Dry | Intersection | At Intersection | No | | | | 100 | Q/C Completed - Loc Verified |
| 872793600 | 27.374 | 37040000 | 11/20/2018 | 2018 | US 129 I 10 | Motor Vehicle In Transport | Other (See Narrative) | Daylight | Clear | Dry | Entrance/Exit Ramp | Influenced By Intersection | No | | | | | Q/C Completed - Loc Verified |
| 855631010 | 27.422 | 37040000 | 9/15/2017 | 2017 | SR 51 SR 8 | Motor Vehicle In Transport | Front To Rear | Daylight | Clear | Dry | Non-Junction | Not At Intersection/Rrx/Bridge | No | | | 1 | | Q/C Completed - Loc Verified |
| 845413160 | 27.43 | 37040000 | 2/6/2015 | 2015 | US 129 I 10 | Motor Vehicle In Transport | Angle | Daylight | Clear | Dry | Intersection | At Intersection | No | | | | 500 | Q/C Completed - Loc Verified |
| 851103280 | 27.43 | 37040000 | 4/7/2016 | 2016 | US 129 I 10 | Motor Vehicle In Transport | Other (See Narrative) | Dawn | Clear | Dry | Entrance/Exit Ramp | At Intersection | Drg | 1 | | | | Q/C Completed - Loc Verified |
| 854444560 | 27.43 | 37040000 | 5/7/2017 | 2017 | US 129 SR 8 | Motor Vehicle In Transport | Angle | Daylight | Clear | Dry | Intersection | At Intersection | No | | | | | Q/C Completed - Loc Verified |
| 854646980 | 27.43 | 37040000 | 3/17/2017 | 2017 | US 129 SR 8 | Motor Vehicle In Transport | Front To Front | Daylight | Clear | Dry | Non-Junction | At Intersection | No | | | 1 | 500 | Q/C Completed - Loc Verified |
| 854858810 | 27.43 | 37040000 | 6/9/2017 | 2017 | US 129 I 10 | Motor Vehicle In Transport | Angle | Daylight | Clear | Dry | Intersection | At Intersection | No | | | 4 | | Q/C Completed - Loc Verified |
| 855144710 | 27.43 | 37040000 | 6/7/2017 | 2017 | US 129 SR 8 | Motor Vehicle In Transport | Angle | Daylight | Cloudy | Wet | Intersection | At Intersection | No | | | | | Q/C Completed - Loc Verified |
| 855384810 | 27.43 | 37040000 | 10/18/2017 | 2017 | US 129 I 10 | Motor Vehicle In Transport | Other (See Narrative) | Daylight | Clear | Dry | Non-Junction | At Intersection | No | | | | | Q/C Completed - Loc Verified |
| 855620500 | 27.43 | 37040000 | 9/4/2017 | 2017 | US 129 SR 8 | Motor Vehicle In Transport | Angle | Daylight | Cloudy | Wet | Intersection | At Intersection | No | | | | | Q/C Completed - Loc Verified |
| 855955620 | 27.43 | 37040000 | 11/26/2017 | 2017 | US 129 I 10 | Motor Vehicle In Transport | Angle | Daylight | Clear | Dry | Intersection | At Intersection | No | | | | 100 | Q/C Completed - Loc Verified |
| 855955790 | 27.43 | 37040000 | 6/19/2018 | 2018 | US 129 SR 8 | Motor Vehicle In Transport | Angle | Daylight | Clear | Dry | Intersection | At Intersection | No | | | 1 | | Q/C Completed - Loc Verified |
| 855989190 | 27.43 | 37040000 | 12/22/2017 | 2017 | US 129 I 10 | Motor Vehicle In Transport | Angle | Daylight | Clear | Dry | Non-Junction | At Intersection | No | | | | | Q/C Completed - Loc Verified |
| 871341920 | 27.43 | 37040000 | 3/2/2018 | 2018 | US 129 SR 8 ENT | Motor Vehicle In Transport | Sideswipe, Same Direction | Daylight | Clear | Dry | Intersection-Related | At Intersection | No | | | | 100 | Q/C Completed - Loc Verified |
| 871737440 | 27.43 | 37040000 | 6/22/2018 | 2018 | US 129 SR 8 EXIT | Motor Vehicle In Transport | Other (See Narrative) | Dark-Not Lighted | Clear | Dry | Intersection | At Intersection | No | | | | | Q/C Completed - Loc Verified |
| 871780270 | 27.43 | 37040000 | 3/29/2018 | 2018 | US 129 SR 8 ENT | Motor Vehicle In Transport | Front To Front | Daylight | Clear | Dry | Intersection | At Intersection | No | | | | | Q/C Completed - Loc Verified |
| 872108440 | 27.43 | 37040000 | 7/29/2018 | 2018 | US 129 NB ENT FROM NW SR 8 R | Motor Vehicle In Transport | Front To Front | Dark-Lighted | Clear | Dry | Intersection | At Intersection | No | | | 3 | | Q/C Completed - Loc Verified |
| 853928400 | 27.434 | 37040000 | 12/15/2016 | 2016 | US 129 I 10 | Motor Vehicle In Transport | Angle | Dark-Not Lighted | Clear | Dry | Intersection | At Intersection | No | | | | | Q/C Completed - Loc Verified |
| 854213160 | 27.441 | 37040000 | 1/19/2017 | 2017 | US 129 I 10 | Motor Vehicle In Transport | Angle | Dawn | Fog, Smog, Smoke | Wet | Crossover-Related | Not At Intersection/Rrx/Bridge | No | | | | | Q/C Completed - Loc Verified |
| 852955420 | 27.46 | 37040000 | 6/27/2016 | 2016 | US 129 I 10 | Pedestrian | Other (See Narrative) | Daylight | Clear | Dry | Non-Junction | Not At Intersection/Rrx/Bridge | No | | | 1 | 500 | Q/C Completed - Loc Verified |
| 854321360 | 27.46 | 37040000 | 11/19/2016 | 2016 | US 129 SR 8 | Motor Vehicle In Transport | Other (See Narrative) | Dark-Lighted | Clear | Dry | Intersection | Not At Intersection/Rrx/Bridge | No | | | | 500 | Q/C Completed - Loc Verified |
| 871118800 | 27.46 | 37040000 | 12/7/2017 | 2017 | US 129 I 10 | Motor Vehicle In Transport | Front To Rear | Dark-Lighted | Rain | Wet | Non-Junction | Not At Intersection/Rrx/Bridge | No | | | | | Q/C Completed - Loc Verified |
| 837557920 | 27.465 | 37040000 | 2/25/2014 | 2014 | US 129 I 10 | Overturn/Rollover | Other (See Narrative) | Dark-Not Lighted | Clear | Dry | Non-Junction | Not At Intersection/Rrx/Bridge | No | | | 1 | 300 | Q/C Completed - Loc Verified |
| 871396330 | 27.465 | 37040000 | 4/19/2018 | 2018 | US 129 I 10 | Motor Vehicle In Transport | Other (See Narrative) | Daylight | Clear | Dry | Non-Junction | Not At Intersection/Rrx/Bridge | No | | | | 500 | Q/C Completed - Loc Verified |
| 854213150 | 27.479 | 37040000 | 1/19/2017 | 2017 | US 129 I 10 | Motor Vehicle In Transport | Unknown | Dark-Lighted | Fog, Smog, Smoke | Dry | Non-Junction | Not At Intersection/Rrx/Bridge | No | | | | 500 | Q/C Completed - Loc Verified |
| 825490150 | 27.51 | 37040000 | 4/24/2016 | 2016 | US 129 I 10 | Traffic Sign Support | Other (See Narrative) | Daylight | Clear | Dry | Other (See Narrative) | Not At Intersection/Rrx/Bridge | No | | | | 800 | Q/C Completed - Loc Verified |
| 852255280 | 27.565 | 37040000 | 8/2/2016 | 2016 | US 129 SR 8 | Motor Vehicle In Transport | Other (See Narrative) | Daylight | Clear | Dry | Non-Junction | Not At Intersection/Rrx/Bridge | No | | | | 400 | Q/C Completed - Loc Verified |
| 872223170 | 27.6 | 37040000 | 7/26/2018 | 2018 | US 129 I 10 | Motor Vehicle In Transport | Other (See Narrative) | Daylight | Cloudy | Dry | Non-Junction | Driveway Access | No | | | | 300 | Q/C Completed - Loc Verified |
| 872339690 | 27.606 | 37040000 | 8/6/2018 | 2018 | US 129 I 10 | Motor Vehicle In Transport | Angle | Daylight | Clear | Dry | Intersection | Driveway Access | No | | | | 200 | Q/C Completed - Loc Verified |
| 872756830 | 27.606 | 37040000 | 10/15/2018 | 2018 | US 129 I 10 | Motor Vehicle In Transport | Angle | Daylight | Cloudy | Dry | Intersection | Driveway Access | No | | | | | Q/C Completed - Loc Verified |
| 854749250 | 27.649 | 37040000 | 4/23/2017 | 2017 | US 129 SR 8 | Motor Vehicle In Transport | Angle | Dark-Not Lighted | Clear | Dry | Driveway/Alley Access Related | Driveway Access | No | | | 3 | 500 | Q/C Completed - Loc Verified |


FDOT

# I-10 at SR 51 Interchange Operations Analysis Report

## I-10 Segmentation

Appendix D
Figure 1


FDOT

# I-10 at SR 51 Interchange Operations Analysis Report

## Ramp Segmentation

Appendix D
Figure 2


| | | |
|---|---|---|
| FDOT | I-10 at SR 51 Interchange Operations Analysis Report | SR 51 Segmentation |

Appendix D
Figure 3

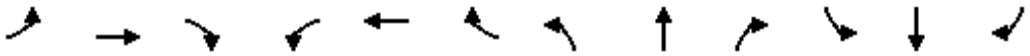
# APPENDIX E

Build Alternative Concept Maps

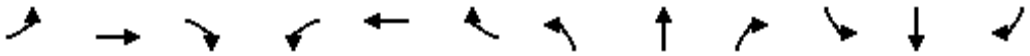

| STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION | | | | I-10 AT US 129 OPERATIONAL IMPROVEMENTS | SHEET NO. |
|---|---|---|---|---|---|
| ROAD NO. | COUNTY | FINANCIAL PROJECT ID | | | |
| SR 10 | SUWANNEE | 445339-1-22-01 | | | |

# APPENDIX F

Build Alternative Opening Year 2025 and Design Year 2045 Synchro Outputs



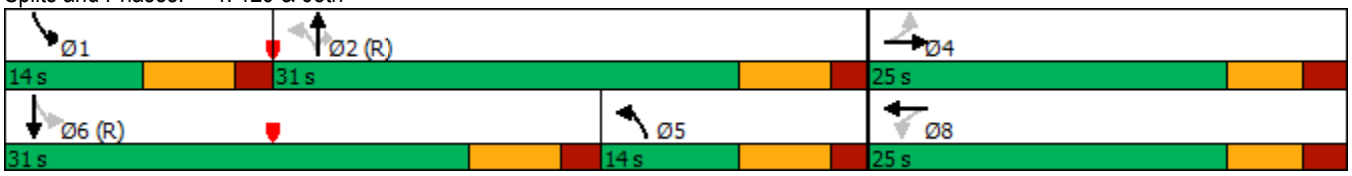
| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 17 | 4 | 9 | 23 | 3 | 31 | 10 | 433 | 22 | 60 | 461 | 7 |
| Future Volume (vph) | 17 | 4 | 9 | 23 | 3 | 31 | 10 | 433 | 22 | 60 | 461 | 7 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Storage Length (ft) | 250 | | 0 | 60 | | 0 | 250 | | 500 | 245 | | 0 |
| Storage Lanes | 0 | | 0 | 1 | | 0 | 1 | | 1 | 1 | | 0 |
| Taper Length (ft) | 25 | | | 25 | | | 25 | | | 25 | | |
| Lane Util. Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 0.95 |
| Frt | | 0.958 | | | 0.862 | | | | 0.850 | | 0.998 | |
| Flt Protected | | 0.973 | | 0.950 | | | 0.950 | | | 0.950 | | |
| Satd. Flow (prot) | 0 | 1719 | 0 | 1752 | 1590 | 0 | 1752 | 3505 | 1568 | 1752 | 3498 | 0 |
| Flt Permitted | | 0.805 | | 0.851 | | | 0.465 | | | 0.399 | | |
| Satd. Flow (perm) | 0 | 1423 | 0 | 1570 | 1590 | 0 | 858 | 3505 | 1568 | 736 | 3498 | 0 |
| Right Turn on Red | | | Yes | | | Yes | | | Yes | | | Yes |
| Satd. Flow (RTOR) | | 10 | | | 34 | | | | 159 | | 2 | |
| Link Speed (mph) | | 35 | | | 35 | | | 45 | | | 45 | |
| Link Distance (ft) | | 516 | | | 277 | | | 761 | | | 1628 | |
| Travel Time (s) | | 10.1 | | | 5.4 | | | 11.5 | | | 24.7 | |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Adj. Flow (vph) | 18 | 4 | 10 | 25 | 3 | 34 | 11 | 471 | 24 | 65 | 501 | 8 |
| Shared Lane Traffic (%) | | | | | | | | | | | | |
| Lane Group Flow (vph) | 0 | 32 | 0 | 25 | 37 | 0 | 11 | 471 | 24 | 65 | 509 | 0 |
| Enter Blocked Intersection | No | No | No | No | No | No | No | No | No | No | No | No |
| Lane Alignment | Left | Left | Right | Left | Left | Right | Left | Left | Right | Left | Left | Right |
| Median Width(ft) | | 12 | | | 12 | | | 12 | | | 15 | |
| Link Offset(ft) | | 0 | | | 0 | | | 0 | | | 0 | |
| Crosswalk Width(ft) | | 16 | | | 16 | | | 16 | | | 16 | |
| Two way Left Turn Lane | | | | | | | | | | | | |
| Headway 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 |
| Turning Speed (mph) | 15 | | 9 | 15 | | 9 | 15 | | 9 | 15 | | 9 |
| Number of Detectors | 1 | 2 | | 1 | 2 | | 1 | 2 | 1 | 1 | 2 | |
| Detector Template | Left | Thru | | Left | Thru | | Left | Thru | Right | Left | Thru | |
| Leading Detector (ft) | 20 | 100 | | 20 | 100 | | 20 | 100 | 20 | 20 | 100 | |
| Trailing Detector (ft) | 0 | 0 | | 0 | 0 | | 0 | 0 | 0 | 0 | 0 | |
| Detector 1 Position(ft) | 0 | 0 | | 0 | 0 | | 0 | 0 | 0 | 0 | 0 | |
| Detector 1 Size(ft) | 20 | 6 | | 20 | 6 | | 20 | 6 | 20 | 20 | 6 | |
| Detector 1 Type | Cl+Ex | Cl+Ex | | Cl+Ex | Cl+Ex | | Cl+Ex | Cl+Ex | Cl+Ex | Cl+Ex | Cl+Ex | |
| Detector 1 Channel | | | | | | | | | | | | |
| Detector 1 Extend (s) | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | |
| Detector 1 Queue (s) | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | |
| Detector 1 Delay (s) | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | |
| Detector 2 Position(ft) | | 94 | | | 94 | | | 94 | | | 94 | |
| Detector 2 Size(ft) | | 6 | | | 6 | | | 6 | | | 6 | |
| Detector 2 Type | | Cl+Ex | | | Cl+Ex | | | Cl+Ex | | | Cl+Ex | |
| Detector 2 Channel | | | | | | | | | | | | |
| Detector 2 Extend (s) | | 0.0 | | | 0.0 | | | 0.0 | | | 0.0 | |
| Turn Type | Perm | NA | | Perm | NA | | pm+pt | NA | Perm | pm+pt | NA | |
| Protected Phases | | 4 | | | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | 4 | | | 8 | | | 2 | | 2 | 6 | | |



| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Detector Phase | 4 | 4 | | 8 | 8 | | 5 | 2 | 2 | 1 | 6 | |
| Switch Phase | | | | | | | | | | | | |
| Minimum Initial (s) | 6.0 | 6.0 | | 6.0 | 6.0 | | 6.0 | 15.0 | 15.0 | 6.0 | 15.0 | |
| Minimum Split (s) | 25.0 | 25.0 | | 25.0 | 25.0 | | 12.8 | 25.2 | 25.2 | 12.8 | 25.2 | |
| Total Split (s) | 25.0 | 25.0 | | 25.0 | 25.0 | | 14.0 | 31.0 | 31.0 | 14.0 | 31.0 | |
| Total Split (%) | 35.7% | 35.7% | | 35.7% | 35.7% | | 20.0% | 44.3% | 44.3% | 20.0% | 44.3% | |
| Maximum Green (s) | 18.6 | 18.6 | | 18.6 | 18.6 | | 7.2 | 24.2 | 24.2 | 7.2 | 24.2 | |
| Yellow Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.8 | 4.8 | 4.8 | 4.8 | 4.8 | |
| All-Red Time (s) | 2.4 | 2.4 | | 2.4 | 2.4 | | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | |
| Lost Time Adjust (s) | | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | |
| Total Lost Time (s) | | 6.4 | | 6.4 | 6.4 | | 6.8 | 6.8 | 6.8 | 6.8 | 6.8 | |
| Lead/Lag | | | | | | | Lag | Lag | Lag | Lead | 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 | |
| Recall Mode | None | None | | None | None | | None | C-Max | C-Max | None | C-Max | |
| Walk Time (s) | 7.0 | 7.0 | | 7.0 | 7.0 | | | 7.0 | 7.0 | | 7.0 | |
| Flash Dont Walk (s) | 11.0 | 11.0 | | 11.0 | 11.0 | | | 11.0 | 11.0 | | 11.0 | |
| Pedestrian Calls (#/hr) | 0 | 0 | | 0 | 0 | | | 0 | 0 | | 0 | |
| Act Effct Green (s) | | 7.1 | | 7.1 | 7.1 | | 49.1 | 49.1 | 49.1 | 51.9 | 54.6 | |
| Actuated g/C Ratio | | 0.10 | | 0.10 | 0.10 | | 0.70 | 0.70 | 0.70 | 0.74 | 0.78 | |
| v/c Ratio | | 0.21 | | 0.16 | 0.19 | | 0.02 | 0.19 | 0.02 | 0.10 | 0.19 | |
| Control Delay | | 25.2 | | 30.4 | 14.3 | | 9.6 | 7.8 | 0.0 | 2.6 | 2.2 | |
| Queue Delay | | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | |
| Total Delay | | 25.2 | | 30.4 | 14.3 | | 9.6 | 7.8 | 0.0 | 2.6 | 2.2 | |
| LOS | | C | | C | B | | A | A | A | A | A | |
| Approach Delay | | 25.2 | | | 20.8 | | | 7.5 | | | 2.2 | |
| Approach LOS | | C | | | C | | | A | | | A | |
| Queue Length 50th (ft) | | 9 | | 10 | 1 | | 2 | 53 | 0 | 4 | 33 | |
| Queue Length 95th (ft) | | 32 | | 31 | 26 | | 10 | 92 | 0 | 20 | 54 | |
| Internal Link Dist (ft) | | 436 | | | 197 | | | 681 | | | 1548 | |
| Turn Bay Length (ft) | | | | 60 | | | 250 | | 500 | 245 | | |
| Base Capacity (vph) | | 385 | | 417 | 447 | | 659 | 2456 | 1146 | 654 | 2730 | |
| 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 | | 0.08 | | 0.06 | 0.08 | | 0.02 | 0.19 | 0.02 | 0.10 | 0.19 | |

| Intersection Summary | | | |
|---|---|---|---|
| Area Type: | Other | | |
| Cycle Length: 70 | | | |
| Actuated Cycle Length: 70 | | | |
| Offset: 48 (69%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green | | | |
| Natural Cycle: 65 | | | |
| Control Type: Actuated-Coordinated | | | |
| Maximum v/c Ratio: 0.21 | | | |
| Intersection Signal Delay: 6.1 | | Intersection LOS: A | |
| Intersection Capacity Utilization 43.0% | | ICU Level of Service A | |
| Analysis Period (min) 15 | | | |

Splits and Phases: 4: 129 & 68th



| Lane Group | WBL | WBR | NBL | NBT | NBR | SBL | SBT | SBR | SEL2 | SEL | SER |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | |
| Traffic Volume (vph) | 0 | 0 | 0 | 313 | 168 | 66 | 474 | 0 | 47 | 0 | 54 |
| Future Volume (vph) | 0 | 0 | 0 | 313 | 168 | 66 | 474 | 0 | 47 | 0 | 54 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Storage Length (ft) | 0 | 0 | 350 | | 320 | 180 | | 0 | | 260 | 300 |
| Storage Lanes | 0 | 0 | 1 | | 1 | 0 | | 0 | | 1 | 1 |
| Taper Length (ft) | 25 | | 25 | | | 25 | | | | 150 | |
| Lane Util. Factor | 1.00 | 1.00 | 1.00 | 0.91 | 1.00 | 1.00 | 0.95 | 1.00 | 0.97 | 1.00 | 1.00 |
| Frt | | | | | | | | | | | |
| Flt Protected | | | | | | 0.950 | | | 0.950 | | |
| Satd. Flow (prot) | 0 | 0 | 0 | 5036 | 1845 | 1752 | 3505 | 0 | 3400 | 0 | 1845 |
| Flt Permitted | | | | | | 0.539 | | | 0.950 | | |
| Satd. Flow (perm) | 0 | 0 | 0 | 5036 | 1845 | 994 | 3505 | 0 | 3400 | 0 | 1845 |
| Right Turn on Red | | | | | Yes | | | Yes | | | Yes |
| Satd. Flow (RTOR) | | | | | 183 | | | | | | 389 |
| Link Speed (mph) | 45 | | | 45 | | | 45 | | | 45 | |
| Link Distance (ft) | 1052 | | | 1628 | | | 552 | | | 836 | |
| Travel Time (s) | 15.9 | | | 24.7 | | | 8.4 | | | 12.7 | |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Adj. Flow (vph) | 0 | 0 | 0 | 340 | 183 | 72 | 515 | 0 | 51 | 0 | 59 |
| Shared Lane Traffic (%) | | | | | | | | | | | |
| Lane Group Flow (vph) | 0 | 0 | 0 | 340 | 183 | 72 | 515 | 0 | 51 | 0 | 59 |
| Enter Blocked Intersection | No | No | No | No | No | No | No | No | No | No | No |
| Lane Alignment | Left | Right | Left | Left | Right | Left | Left | Right | Left | Left | Right |
| Median Width(ft) | 0 | | | 15 | | | 12 | | | 24 | |
| Link Offset(ft) | 0 | | | 0 | | | 0 | | | 0 | |
| Crosswalk Width(ft) | 16 | | | 16 | | | 16 | | | 16 | |
| Two way Left Turn Lane | | | | | | | | | | | |
| Headway Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Turning Speed (mph) | 15 | 9 | 15 | | 9 | 15 | | 9 | 15 | 15 | 9 |
| Number of Detectors | | | | 2 | 1 | 1 | 2 | | 1 | | 1 |
| Detector Template | | | | Thru | Right | Left | Thru | | Left | | Right |
| Leading Detector (ft) | | | | 100 | 20 | 20 | 100 | | 20 | | 20 |
| Trailing Detector (ft) | | | | 0 | 0 | 0 | 0 | | 0 | | 0 |
| Detector 1 Position(ft) | | | | 0 | 0 | 0 | 0 | | 0 | | 0 |
| Detector 1 Size(ft) | | | | 6 | 20 | 20 | 6 | | 20 | | 20 |
| Detector 1 Type | | | | Cl+Ex | Cl+Ex | Cl+Ex | Cl+Ex | | Cl+Ex | | Cl+Ex |
| Detector 1 Channel | | | | | | | | | | | |
| Detector 1 Extend (s) | | | | 0.0 | 0.0 | 0.0 | 0.0 | | 0.0 | | 0.0 |
| Detector 1 Queue (s) | | | | 0.0 | 0.0 | 0.0 | 0.0 | | 0.0 | | 0.0 |
| Detector 1 Delay (s) | | | | 0.0 | 0.0 | 0.0 | 0.0 | | 0.0 | | 0.0 |
| Detector 2 Position(ft) | | | | 94 | | | 94 | | | | |
| Detector 2 Size(ft) | | | | 6 | | | 6 | | | | |
| Detector 2 Type | | | | Cl+Ex | | | Cl+Ex | | | | |
| Detector 2 Channel | | | | | | | | | | | |
| Detector 2 Extend (s) | | | | 0.0 | | | 0.0 | | | | |
| Turn Type | | | | NA | Perm | D.P+P | NA | | Prot | | Perm |
| Protected Phases | | | | 6 | | 5 | 2 | | 3 | | |
| Permitted Phases | | | | | 6 | 6 | | | | | 3 |

| Lane Group | WBL | WBR | NBL | NBT | NBR | SBL | SBT | SBR | SEL2 | SEL | SER |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Detector Phase | | | | 6 | 6 | 5 | 2 | | 3 | | 3 |
| Switch Phase | | | | | | | | | | | |
| Minimum Initial (s) | | | | 15.0 | 15.0 | 6.0 | 15.0 | | 6.0 | | 6.0 |
| Minimum Split (s) | | | | 25.0 | 25.0 | 12.8 | 25.0 | | 12.8 | | 12.8 |
| Total Split (s) | | | | 34.0 | 34.0 | 18.0 | 52.0 | | 18.0 | | 18.0 |
| Total Split (%) | | | | 48.6% | 48.6% | 25.7% | 74.3% | | 25.7% | | 25.7% |
| Maximum Green (s) | | | | 27.2 | 27.2 | 11.2 | 45.2 | | 11.2 | | 11.2 |
| Yellow Time (s) | | | | 4.8 | 4.8 | 4.8 | 4.8 | | 4.8 | | 4.8 |
| All-Red Time (s) | | | | 2.0 | 2.0 | 2.0 | 2.0 | | 2.0 | | 2.0 |
| Lost Time Adjust (s) | | | | 0.0 | 0.0 | 0.0 | 0.0 | | 0.0 | | 0.0 |
| Total Lost Time (s) | | | | 6.8 | 6.8 | 6.8 | 6.8 | | 6.8 | | 6.8 |
| Lead/Lag | | | | Lag | 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 | | | | C-Max | C-Max | None | C-Max | | None | | None |
| Walk Time (s) | | | | 7.0 | 7.0 | | 7.0 | | | | |
| Flash Dont Walk (s) | | | | 11.0 | 11.0 | | 11.0 | | | | |
| Pedestrian Calls (#/hr) | | | | 0 | 0 | | 0 | | | | |
| Act Effct Green (s) | | | | 42.9 | 42.9 | 46.9 | 53.7 | | 6.7 | | 6.7 |
| Actuated g/C Ratio | | | | 0.61 | 0.61 | 0.67 | 0.77 | | 0.10 | | 0.10 |
| v/c Ratio | | | | 0.11 | 0.15 | 0.10 | 0.19 | | 0.16 | | 0.11 |
| Control Delay | | | | 2.8 | 0.4 | 0.7 | 0.6 | | 30.0 | | 0.4 |
| Queue Delay | | | | 0.0 | 0.0 | 0.0 | 0.0 | | 0.0 | | 0.0 |
| Total Delay | | | | 2.8 | 0.4 | 0.7 | 0.6 | | 30.0 | | 0.4 |
| LOS | | | | A | A | A | A | | C | | A |
| Approach Delay | | | | 1.9 | | | 0.6 | | | 14.1 | |
| Approach LOS | | | | A | | | A | | | B | |
| Queue Length 50th (ft) | | | | 3 | 1 | 1 | 2 | | 10 | | 0 |
| Queue Length 95th (ft) | | | | 7 | 0 | 1 | 3 | | 25 | | 0 |
| Internal Link Dist (ft) | 972 | | | 1548 | | | 472 | | | 756 | |
| Turn Bay Length (ft) | | | | | 320 | 180 | | | 260 | | 300 |
| Base Capacity (vph) | | | | 3086 | 1201 | 838 | 2686 | | 544 | | 621 |
| 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 | | | | 0.11 | 0.15 | 0.09 | 0.19 | | 0.09 | | 0.10 |

| Intersection Summary | | | |
|---|---|---|---|
| Area Type: | Other | | |
| Cycle Length: 70 | | | |
| Actuated Cycle Length: 70 | | | |
| Offset: 0 (0%), Referenced to phase 2:SBT and 6:NBSB, Start of Green | | | |
| Natural Cycle: 55 | | | |
| Control Type: Actuated-Coordinated | | | |
| Maximum v/c Ratio: 0.19 | | | |
| Intersection Signal Delay: 2.4 | | Intersection LOS: A | |
| Intersection Capacity Utilization 29.4% | | ICU Level of Service A | |
| Analysis Period (min) 15 | | | |

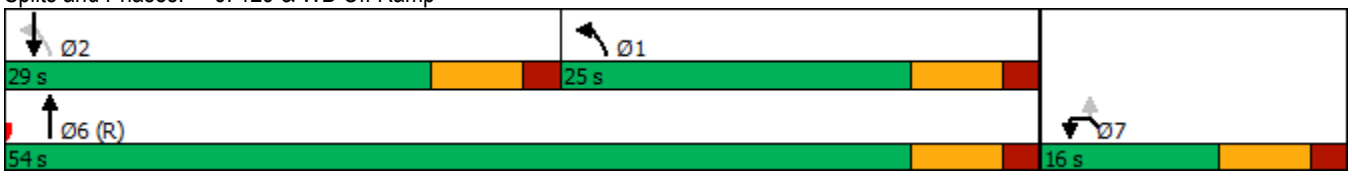
Splits and Phases: 5: 129 & EB Off Ramp

| Lane Group | EBL | EBR | NBL | NBT | NBR | SBL | SBT | SBR | NWL2 | NWL | NWR |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | |
| Traffic Volume (vph) | 0 | 0 | 43 | 317 | 0 | 0 | 400 | 51 | 140 | 0 | 57 |
| Future Volume (vph) | 0 | 0 | 43 | 317 | 0 | 0 | 400 | 51 | 140 | 0 | 57 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Storage Length (ft) | 0 | 0 | 180 | | 0 | 250 | | 110 | | 205 | 245 |
| Storage Lanes | 0 | 0 | 0 | | 0 | 1 | | 0 | | 1 | 1 |
| Taper Length (ft) | 25 | | 25 | | | 25 | | | | 150 | |
| Lane Util. Factor | 1.00 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.91 | 0.91 | 0.97 | 1.00 | 1.00 |
| Frt | | | | | | | 0.983 | | | | |
| Flt Protected | | | 0.950 | | | | | | 0.950 | | |
| Satd. Flow (prot) | 0 | 0 | 1752 | 3505 | 0 | 0 | 4950 | 0 | 3400 | 0 | 1845 |
| Flt Permitted | | | 0.463 | | | | | | 0.950 | | |
| Satd. Flow (perm) | 0 | 0 | 854 | 3505 | 0 | 0 | 4950 | 0 | 3400 | 0 | 1845 |
| Right Turn on Red | | | | | Yes | | | Yes | | | Yes |
| Satd. Flow (RTOR) | | | | | | | 33 | | | | 566 |
| Link Speed (mph) | 45 | | | 45 | | | 45 | | | 45 | |
| Link Distance (ft) | 754 | | | 552 | | | 613 | | | 791 | |
| Travel Time (s) | 11.4 | | | 8.4 | | | 9.3 | | | 12.0 | |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Adj. Flow (vph) | 0 | 0 | 47 | 345 | 0 | 0 | 435 | 55 | 152 | 0 | 62 |
| Shared Lane Traffic (%) | | | | | | | | | | | |
| Lane Group Flow (vph) | 0 | 0 | 47 | 345 | 0 | 0 | 490 | 0 | 152 | 0 | 62 |
| Enter Blocked Intersection | No | No | No | No | No | No | No | No | No | No | No |
| Lane Alignment | Left | Right | Left | L NA | Right | Left | Left | Right | Left | Left | Right |
| Median Width(ft) | 0 | | | 12 | | | 15 | | | 24 | |
| Link Offset(ft) | 0 | | | 0 | | | 0 | | | 0 | |
| Crosswalk Width(ft) | 16 | | | 16 | | | 16 | | | 16 | |
| Two way Left Turn Lane | | | | | | | | | | | |
| Headway Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Turning Speed (mph) | 15 | 9 | 15 | | 9 | 15 | | 9 | 15 | 15 | 9 |
| Number of Detectors | | | 1 | 2 | | | 2 | | 1 | | 1 |
| Detector Template | | | Left | Thru | | | Thru | | Left | | Right |
| Leading Detector (ft) | | | 20 | 100 | | | 100 | | 20 | | 20 |
| Trailing Detector (ft) | | | 0 | 0 | | | 0 | | 0 | | 0 |
| Detector 1 Position(ft) | | | 0 | 0 | | | 0 | | 0 | | 0 |
| Detector 1 Size(ft) | | | 20 | 6 | | | 6 | | 20 | | 20 |
| Detector 1 Type | | | Cl+Ex | Cl+Ex | | | Cl+Ex | | Cl+Ex | | Cl+Ex |
| Detector 1 Channel | | | | | | | | | | | |
| Detector 1 Extend (s) | | | 0.0 | 0.0 | | | 0.0 | | 0.0 | | 0.0 |
| Detector 1 Queue (s) | | | 0.0 | 0.0 | | | 0.0 | | 0.0 | | 0.0 |
| Detector 1 Delay (s) | | | 0.0 | 0.0 | | | 0.0 | | 0.0 | | 0.0 |
| Detector 2 Position(ft) | | | | 94 | | | 94 | | | | |
| Detector 2 Size(ft) | | | | 6 | | | 6 | | | | |
| Detector 2 Type | | | | Cl+Ex | | | Cl+Ex | | | | |
| Detector 2 Channel | | | | | | | | | | | |
| Detector 2 Extend (s) | | | | 0.0 | | | 0.0 | | | | |
| Turn Type | | | D.P+P | NA | | | NA | | Prot | | Perm |
| Protected Phases | | | 1 | 6 | | | 2 | | 7 | | |
| Permitted Phases | | | 2 | | | | | | | | 7 |

| Lane Group | EBL | EBR | NBL | NBT | NBR | SBL | SBT | SBR | NWL2 | NWL | NWR |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Detector Phase | | | 1 | 6 | | | 2 | | 7 | | 7 |
| Switch Phase | | | | | | | | | | | |
| Minimum Initial (s) | | | 6.0 | 15.0 | | | 15.0 | | 6.0 | | 6.0 |
| Minimum Split (s) | | | 25.0 | 25.0 | | | 25.0 | | 12.8 | | 12.8 |
| Total Split (s) | | | 25.0 | 54.0 | | | 29.0 | | 16.0 | | 16.0 |
| Total Split (%) | | | 35.7% | 77.1% | | | 41.4% | | 22.9% | | 22.9% |
| Maximum Green (s) | | | 18.2 | 47.2 | | | 22.2 | | 9.2 | | 9.2 |
| Yellow Time (s) | | | 4.8 | 4.8 | | | 4.8 | | 4.8 | | 4.8 |
| All-Red Time (s) | | | 2.0 | 2.0 | | | 2.0 | | 2.0 | | 2.0 |
| Lost Time Adjust (s) | | | 0.0 | 0.0 | | | 0.0 | | 0.0 | | 0.0 |
| Total Lost Time (s) | | | 6.8 | 6.8 | | | 6.8 | | 6.8 | | 6.8 |
| Lead/Lag | | | Lag | | | | Lead | | | | |
| Lead-Lag Optimize? | | | Yes | | | | Yes | | | | |
| Vehicle Extension (s) | | | 3.0 | 3.0 | | | 3.0 | | 3.0 | | 3.0 |
| Recall Mode | | | Max | C-Max | | | Max | | None | | None |
| Walk Time (s) | | | 7.0 | 7.0 | | | 7.0 | | | | |
| Flash Dont Walk (s) | | | 11.0 | 11.0 | | | 11.0 | | | | |
| Pedestrian Calls (#/hr) | | | 0 | 0 | | | 0 | | | | |
| Act Effct Green (s) | | | 41.5 | 48.3 | | | 23.3 | | 8.1 | | 8.1 |
| Actuated g/C Ratio | | | 0.59 | 0.69 | | | 0.33 | | 0.12 | | 0.12 |
| v/c Ratio | | | 0.06 | 0.14 | | | 0.29 | | 0.39 | | 0.09 |
| Control Delay | | | 0.6 | 0.6 | | | 11.7 | | 31.3 | | 0.2 |
| Queue Delay | | | 0.0 | 0.0 | | | 0.0 | | 0.0 | | 0.0 |
| Total Delay | | | 0.6 | 0.6 | | | 11.7 | | 31.3 | | 0.2 |
| LOS | | | A | A | | | B | | C | | A |
| Approach Delay | | | | 0.6 | | | 11.7 | | | 22.3 | |
| Approach LOS | | | | A | | | B | | | C | |
| Queue Length 50th (ft) | | | 0 | 0 | | | 25 | | 31 | | 0 |
| Queue Length 95th (ft) | | | 1 | 1 | | | 37 | | 56 | | 0 |
| Internal Link Dist (ft) | 674 | | | 472 | | | 533 | | | 711 | |
| Turn Bay Length (ft) | | | 180 | | | | | | 205 | | 245 |
| Base Capacity (vph) | | | 739 | 2418 | | | 1669 | | 446 | | 734 |
| 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 | | | 0.06 | 0.14 | | | 0.29 | | 0.34 | | 0.08 |

| Intersection Summary | | | |
|---|---|---|---|
| Area Type: | Other | | |
| Cycle Length: 70 | | | |
| Actuated Cycle Length: 70 | | | |
| Offset: 68 (97%), Referenced to phase 6:NBT, Start of Green | | | |
| Natural Cycle: 65 | | | |
| Control Type: Actuated-Coordinated | | | |
| Maximum v/c Ratio: 0.39 | | | |
| Intersection Signal Delay: 9.8 | | Intersection LOS: A | |
| Intersection Capacity Utilization 29.4% | | ICU Level of Service A | |
| Analysis Period (min) 15 | | | |

Splits and Phases: 6: 129 & WB Off Ramp



| Movement | WBL | WBR | NBT | NBR | SBL | SBT |
|---|---|---|---|---|---|---|
| Lane Configurations | | | ↑↑ | ↱ | ↰ | ↑↑ |
| Traffic Volume (veh/h) | 0 | 0 | 214 | 160 | 21 | 451 |
| Future Volume (Veh/h) | 0 | 0 | 214 | 160 | 21 | 451 |
| Sign Control | Stop | | Free | | | Free |
| Grade | 0% | | 0% | | | 0% |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Hourly flow rate (vph) | 0 | 0 | 233 | 174 | 23 | 490 |
| Pedestrians | | | | | | |
| Lane Width (ft) | | | | | | |
| Walking Speed (ft/s) | | | | | | |
| Percent Blockage | | | | | | |
| Right turn flare (veh) | | | | | | |
| Median type | | | None | | | None |
| Median storage veh) | | | | | | |
| Upstream signal (ft) | | | 613 | | | 311 |
| pX, platoon unblocked | 0.97 | | | | | |
| vC, conflicting volume | 524 | 116 | | | 233 | |
| vC1, stage 1 conf vol | | | | | | |
| vC2, stage 2 conf vol | | | | | | |
| vCu, unblocked vol | 460 | 116 | | | 233 | |
| tC, single (s) | 6.9 | 7.0 | | | 4.2 | |
| tC, 2 stage (s) | | | | | | |
| tF (s) | 3.5 | 3.3 | | | 2.2 | |
| p0 queue free % | 100 | 100 | | | 98 | |
| cM capacity (veh/h) | 505 | 910 | | | 1324 | |

| Direction, Lane # | NB 1 | NB 2 | NB 3 | SB 1 | SB 2 | SB 3 |
|---|---|---|---|---|---|---|
| Volume Total | 116 | 116 | 174 | 23 | 245 | 245 |
| Volume Left | 0 | 0 | 0 | 23 | 0 | 0 |
| Volume Right | 0 | 0 | 174 | 0 | 0 | 0 |
| cSH | 1700 | 1700 | 1700 | 1324 | 1700 | 1700 |
| Volume to Capacity | 0.07 | 0.07 | 0.10 | 0.02 | 0.14 | 0.14 |
| Queue Length 95th (ft) | 0 | 0 | 0 | 1 | 0 | 0 |
| Control Delay (s) | 0.0 | 0.0 | 0.0 | 7.8 | 0.0 | 0.0 |
| Lane LOS | | | | A | | |
| Approach Delay (s) | 0.0 | | | 0.3 | | |
| Approach LOS | | | | | | |

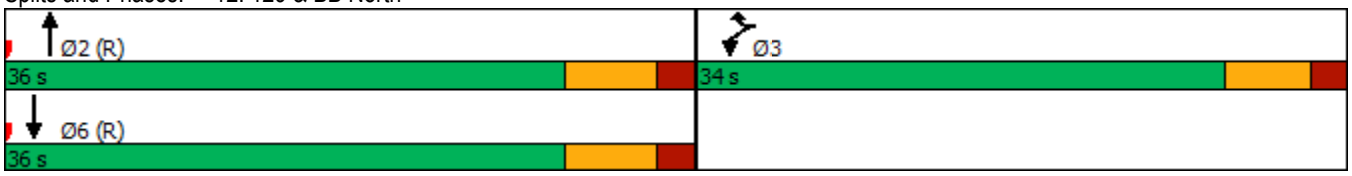
| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 0.2 | | |
| Intersection Capacity Utilization | 19.9% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |

| Lane Group | WBL | WBR | NBT | NBR | SBL | SBT |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Traffic Volume (vph) | 133 | 25 | 212 | 2 | 0 | 339 |
| Future Volume (vph) | 133 | 25 | 212 | 2 | 0 | 339 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Storage Length (ft) | 0 | 60 | | 0 | 310 | |
| Storage Lanes | 1 | 1 | | 0 | 1 | |
| Taper Length (ft) | 25 | | | | 50 | |
| Lane Util. Factor | 1.00 | 1.00 | 0.95 | 0.95 | 1.00 | 0.91 |
| Frt | | 0.850 | 0.999 | | | |
| Flt Protected | 0.950 | | | | | |
| Satd. Flow (prot) | 1752 | 1568 | 3501 | 0 | 0 | 5036 |
| Flt Permitted | 0.950 | | | | | |
| Satd. Flow (perm) | 1752 | 1568 | 3501 | 0 | 0 | 5036 |
| Right Turn on Red | | Yes | | Yes | | |
| Satd. Flow (RTOR) | | 27 | 1 | | | |
| Link Speed (mph) | 30 | | 45 | | | 45 |
| Link Distance (ft) | 196 | | 311 | | | 457 |
| Travel Time (s) | 4.5 | | 4.7 | | | 6.9 |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Adj. Flow (vph) | 145 | 27 | 230 | 2 | 0 | 368 |
| Shared Lane Traffic (%) | | | | | | |
| Lane Group Flow (vph) | 145 | 27 | 232 | 0 | 0 | 368 |
| Enter Blocked Intersection | No | No | No | No | No | No |
| Lane Alignment | Left | Right | Left | Right | Left | Left |
| Median Width(ft) | 12 | | 15 | | | 15 |
| Link Offset(ft) | 0 | | 0 | | | 0 |
| Crosswalk Width(ft) | 16 | | 0 | | | 0 |
| Two way Left Turn Lane | | | | | | |
| Headway Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Turning Speed (mph) | 15 | 9 | | 9 | 15 | |
| Number of Detectors | 1 | 1 | 2 | | | 2 |
| Detector Template | Left | Right | Thru | | | Thru |
| Leading Detector (ft) | 20 | 20 | 100 | | | 100 |
| Trailing Detector (ft) | 0 | 0 | 0 | | | 0 |
| Detector 1 Position(ft) | 0 | 0 | 0 | | | 0 |
| Detector 1 Size(ft) | 20 | 20 | 6 | | | 6 |
| Detector 1 Type | Cl+Ex | Cl+Ex | Cl+Ex | | | Cl+Ex |
| Detector 1 Channel | | | | | | |
| Detector 1 Extend (s) | 0.0 | 0.0 | 0.0 | | | 0.0 |
| Detector 1 Queue (s) | 0.0 | 0.0 | 0.0 | | | 0.0 |
| Detector 1 Delay (s) | 0.0 | 0.0 | 0.0 | | | 0.0 |
| Detector 2 Position(ft) | | | 94 | | | 94 |
| Detector 2 Size(ft) | | | 6 | | | 6 |
| Detector 2 Type | | | Cl+Ex | | | Cl+Ex |
| Detector 2 Channel | | | | | | |
| Detector 2 Extend (s) | | | 0.0 | | | 0.0 |
| Turn Type | Prot | Prot | NA | | | NA |
| Protected Phases | 3 | 3 | 2 | | | 6 |
| Permitted Phases | | | | | | |

| Lane Group | WBL | WBR | NBT | NBR | SBL | SBT |
|---|---|---|---|---|---|---|
| Detector Phase | 3 | 3 | 2 | | | 6 |
| Switch Phase | | | | | | |
| Minimum Initial (s) | 5.0 | 5.0 | 15.0 | | | 15.0 |
| Minimum Split (s) | 11.5 | 11.5 | 25.0 | | | 25.0 |
| Total Split (s) | 34.0 | 34.0 | 36.0 | | | 36.0 |
| Total Split (%) | 48.6% | 48.6% | 51.4% | | | 51.4% |
| Maximum Green (s) | 27.5 | 27.5 | 29.2 | | | 29.2 |
| Yellow Time (s) | 4.5 | 4.5 | 4.8 | | | 4.8 |
| All-Red Time (s) | 2.0 | 2.0 | 2.0 | | | 2.0 |
| Lost Time Adjust (s) | 0.0 | 0.0 | 0.0 | | | 0.0 |
| Total Lost Time (s) | 6.5 | 6.5 | 6.8 | | | 6.8 |
| Lead/Lag | | | | | | |
| Lead-Lag Optimize? | | | | | | |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | | | 3.0 |
| Recall Mode | None | None | C-Min | | | C-Min |
| Walk Time (s) | | | 7.0 | | | 7.0 |
| Flash Dont Walk (s) | | | 11.0 | | | 11.0 |
| Pedestrian Calls (#/hr) | | | 0 | | | 0 |
| Act Effct Green (s) | 11.1 | 11.1 | 49.6 | | | 49.6 |
| Actuated g/C Ratio | 0.16 | 0.16 | 0.71 | | | 0.71 |
| v/c Ratio | 0.52 | 0.10 | 0.09 | | | 0.10 |
| Control Delay | 33.0 | 10.4 | 3.5 | | | 4.9 |
| Queue Delay | 0.0 | 0.0 | 0.0 | | | 0.0 |
| Total Delay | 33.0 | 10.4 | 3.5 | | | 4.9 |
| LOS | C | B | A | | | A |
| Approach Delay | 29.5 | | 3.5 | | | 4.9 |
| Approach LOS | C | | A | | | A |
| Queue Length 50th (ft) | 58 | 0 | 13 | | | 18 |
| Queue Length 95th (ft) | 102 | 18 | 21 | | | 34 |
| Internal Link Dist (ft) | 116 | | 231 | | | 377 |
| Turn Bay Length (ft) | | 60 | | | | |
| Base Capacity (vph) | 688 | 632 | 2480 | | | 3567 |
| Starvation Cap Reductn | 0 | 0 | 0 | | | 0 |
| Spillback Cap Reductn | 0 | 0 | 0 | | | 0 |
| Storage Cap Reductn | 0 | 0 | 0 | | | 0 |
| Reduced v/c Ratio | 0.21 | 0.04 | 0.09 | | | 0.10 |

| Intersection Summary | |
|---|---|
| Area Type: | Other |
| Cycle Length: 70 | |
| Actuated Cycle Length: 70 | |
| Offset: 27 (39%), Referenced to phase 2:NBT and 6:SBT, Start of Green | |
| Natural Cycle: 40 | |
| Control Type: Actuated-Coordinated | |
| Maximum v/c Ratio: 0.52 | |
| Intersection Signal Delay: 9.9 | Intersection LOS: A |
| Intersection Capacity Utilization 31.0% | ICU Level of Service A |
| Analysis Period (min) 15 | |

Splits and Phases: 12: 129 & BB North



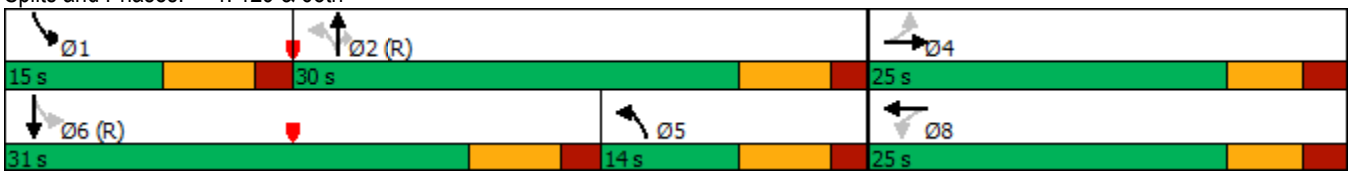
| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 15 | 4 | 23 | 55 | 2 | 81 | 60 | 489 | 36 | 109 | 378 | 20 |
| Future Volume (vph) | 15 | 4 | 23 | 55 | 2 | 81 | 60 | 489 | 36 | 109 | 378 | 20 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Storage Length (ft) | 250 | | 0 | 60 | | 0 | 250 | | 500 | 245 | | 0 |
| Storage Lanes | 0 | | 0 | 1 | | 0 | 1 | | 1 | 1 | | 0 |
| Taper Length (ft) | 25 | | | 25 | | | 25 | | | 25 | | |
| Lane Util. Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 0.95 |
| Frt | | 0.925 | | | 0.853 | | | | 0.850 | | 0.992 | |
| Flt Protected | | 0.983 | | 0.950 | | | 0.950 | | | 0.950 | | |
| Satd. Flow (prot) | 0 | 1677 | 0 | 1752 | 1573 | 0 | 1752 | 3505 | 1568 | 1752 | 3477 | 0 |
| Flt Permitted | | 0.846 | | 0.728 | | | 0.500 | | | 0.356 | | |
| Satd. Flow (perm) | 0 | 1444 | 0 | 1343 | 1573 | 0 | 922 | 3505 | 1568 | 657 | 3477 | 0 |
| Right Turn on Red | | | Yes | | | Yes | | | Yes | | | Yes |
| Satd. Flow (RTOR) | | 25 | | | 88 | | | | 159 | | 8 | |
| Link Speed (mph) | | 35 | | | 35 | | | 45 | | | 45 | |
| Link Distance (ft) | | 516 | | | 277 | | | 761 | | | 1628 | |
| Travel Time (s) | | 10.1 | | | 5.4 | | | 11.5 | | | 24.7 | |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Adj. Flow (vph) | 16 | 4 | 25 | 60 | 2 | 88 | 65 | 532 | 39 | 118 | 411 | 22 |
| Shared Lane Traffic (%) | | | | | | | | | | | | |
| Lane Group Flow (vph) | 0 | 45 | 0 | 60 | 90 | 0 | 65 | 532 | 39 | 118 | 433 | 0 |
| Enter Blocked Intersection | No | No | No | No | No | No | No | No | No | No | No | No |
| Lane Alignment | Left | Left | Right | Left | Left | Right | Left | Left | Right | Left | Left | Right |
| Median Width(ft) | | 12 | | | 12 | | | 12 | | | 15 | |
| Link Offset(ft) | | 0 | | | 0 | | | 0 | | | 0 | |
| Crosswalk Width(ft) | | 16 | | | 16 | | | 16 | | | 16 | |
| Two way Left Turn Lane | | | | | | | | | | | | |
| Headway 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 |
| Turning Speed (mph) | 15 | | 9 | 15 | | 9 | 15 | | 9 | 15 | | 9 |
| Turn Type | Perm | NA | | Perm | NA | | pm+pt | NA | Perm | pm+pt | NA | |
| Protected Phases | | 4 | | | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | 4 | | | 8 | | | 2 | | 2 | 6 | | |
| Detector Phase | 4 | 4 | | 8 | 8 | | 5 | 2 | 2 | 1 | 6 | |
| Switch Phase | | | | | | | | | | | | |
| Minimum Initial (s) | 6.0 | 6.0 | | 6.0 | 6.0 | | 6.0 | 15.0 | 15.0 | 6.0 | 15.0 | |
| Minimum Split (s) | 25.0 | 25.0 | | 25.0 | 25.0 | | 12.8 | 25.2 | 25.2 | 12.8 | 25.2 | |
| Total Split (s) | 25.0 | 25.0 | | 25.0 | 25.0 | | 14.0 | 30.0 | 30.0 | 15.0 | 31.0 | |
| Total Split (%) | 35.7% | 35.7% | | 35.7% | 35.7% | | 20.0% | 42.9% | 42.9% | 21.4% | 44.3% | |
| Maximum Green (s) | 18.6 | 18.6 | | 18.6 | 18.6 | | 7.2 | 23.2 | 23.2 | 8.2 | 24.2 | |
| Yellow Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.8 | 4.8 | 4.8 | 4.8 | 4.8 | |
| All-Red Time (s) | 2.4 | 2.4 | | 2.4 | 2.4 | | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | |
| Lost Time Adjust (s) | | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | |
| Total Lost Time (s) | | 6.4 | | 6.4 | 6.4 | | 6.8 | 6.8 | 6.8 | 6.8 | 6.8 | |
| Lead/Lag | | | | | | | Lag | Lag | Lag | Lead | 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 | |
| Recall Mode | None | None | | None | None | | None | C-Max | C-Max | None | C-Max | |
| Walk Time (s) | 7.0 | 7.0 | | 7.0 | 7.0 | | | 7.0 | 7.0 | | 7.0 | |

| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Flash Dont Walk (s) | 11.0 | 11.0 | | 11.0 | 11.0 | | | 11.0 | 11.0 | | 11.0 | |
| Pedestrian Calls (#/hr) | 0 | 0 | | 0 | 0 | | | 0 | 0 | | 0 | |
| Act Effct Green (s) | | 8.7 | | 8.7 | 8.7 | | 39.6 | 39.6 | 39.6 | 42.2 | 43.5 | |
| Actuated g/C Ratio | | 0.12 | | 0.12 | 0.12 | | 0.57 | 0.57 | 0.57 | 0.60 | 0.62 | |
| v/c Ratio | | 0.22 | | 0.36 | 0.33 | | 0.11 | 0.27 | 0.04 | 0.23 | 0.20 | |
| Control Delay | | 18.4 | | 33.4 | 10.6 | | 13.2 | 11.9 | 0.1 | 4.2 | 2.8 | |
| Queue Delay | | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | |
| Total Delay | | 18.4 | | 33.4 | 10.6 | | 13.2 | 11.9 | 0.1 | 4.2 | 2.8 | |
| LOS | | B | | C | B | | B | B | A | A | A | |
| Approach Delay | | 18.4 | | | 19.7 | | | 11.3 | | | 3.1 | |
| Approach LOS | | B | | | B | | | B | | | A | |
| Queue Length 50th (ft) | | 8 | | 24 | 1 | | 14 | 70 | 0 | 6 | 10 | |
| Queue Length 95th (ft) | | 33 | | 55 | 36 | | 41 | 124 | 0 | 29 | 50 | |
| Internal Link Dist (ft) | | 436 | | | 197 | | | 681 | | | 1548 | |
| Turn Bay Length (ft) | | | | 60 | | | 250 | | 500 | 245 | | |
| Base Capacity (vph) | | 402 | | 356 | 482 | | 588 | 1981 | 955 | 536 | 2165 | |
| 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 | | 0.11 | | 0.17 | 0.19 | | 0.11 | 0.27 | 0.04 | 0.22 | 0.20 | |

## Intersection Summary

Area Type: Other
Cycle Length: 70
Actuated Cycle Length: 70
Offset: 44 (63%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle: 65
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.36
Intersection Signal Delay: 9.2 Intersection LOS: A
Intersection Capacity Utilization 45.3% ICU Level of Service A
Analysis Period (min) 15

Splits and Phases: 4: 129 & 68th



| Lane Group | WBL | WBR | NBL | NBT | NBR | SBL | SBT | SBR | SEL2 | SEL | SER |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | |
| Traffic Volume (vph) | 0 | 0 | 0 | 428 | 157 | 81 | 440 | 0 | 77 | 0 | 67 |
| Future Volume (vph) | 0 | 0 | 0 | 428 | 157 | 81 | 440 | 0 | 77 | 0 | 67 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Storage Length (ft) | 0 | 0 | 350 | | 320 | 180 | | 0 | | 260 | 300 |
| Storage Lanes | 0 | 0 | 1 | | 1 | 0 | | 0 | | 1 | 1 |
| Taper Length (ft) | 25 | | 25 | | | 25 | | | | 150 | |
| Lane Util. Factor | 1.00 | 1.00 | 1.00 | 0.91 | 1.00 | 1.00 | 0.95 | 1.00 | 0.97 | 1.00 | 1.00 |
| Frt | | | | | | | | | | | |
| Flt Protected | | | | | | 0.950 | | | 0.950 | | |
| Satd. Flow (prot) | 0 | 0 | 0 | 5036 | 1845 | 1752 | 3505 | 0 | 3400 | 0 | 1845 |
| Flt Permitted | | | | | | 0.475 | | | 0.950 | | |
| Satd. Flow (perm) | 0 | 0 | 0 | 5036 | 1845 | 876 | 3505 | 0 | 3400 | 0 | 1845 |
| Right Turn on Red | | | | | Yes | | | Yes | | | Yes |
| Satd. Flow (RTOR) | | | | | 171 | | | | | | 420 |
| Link Speed (mph) | 45 | | | 45 | | | 45 | | | 45 | |
| Link Distance (ft) | 1052 | | | 1628 | | | 552 | | | 836 | |
| Travel Time (s) | 15.9 | | | 24.7 | | | 8.4 | | | 12.7 | |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Adj. Flow (vph) | 0 | 0 | 0 | 465 | 171 | 88 | 478 | 0 | 84 | 0 | 73 |
| Shared Lane Traffic (%) | | | | | | | | | | | |
| Lane Group Flow (vph) | 0 | 0 | 0 | 465 | 171 | 88 | 478 | 0 | 84 | 0 | 73 |
| Enter Blocked Intersection | No | No | No | No | No | No | No | No | No | No | No |
| Lane Alignment | Left | Right | Left | Left | Right | Left | Left | Right | Left | Left | Right |
| Median Width(ft) | 0 | | | 15 | | | 12 | | | 24 | |
| Link Offset(ft) | 0 | | | 0 | | | 0 | | | 0 | |
| Crosswalk Width(ft) | 16 | | | 16 | | | 16 | | | 16 | |
| Two way Left Turn Lane | | | | | | | | | | | |
| Headway Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Turning Speed (mph) | 15 | 9 | 15 | | 9 | 15 | | 9 | 15 | 15 | 9 |
| Turn Type | | | | NA | Perm | D.P+P | NA | | Prot | | Perm |
| Protected Phases | | | | 6 | | 5 | 2 | | 3 | | |
| Permitted Phases | | | | | 6 | 6 | | | | | 3 |
| Detector Phase | | | | 6 | 6 | 5 | 2 | | 3 | | 3 |
| Switch Phase | | | | | | | | | | | |
| Minimum Initial (s) | | | | 15.0 | 15.0 | 6.0 | 15.0 | | 6.0 | | 6.0 |
| Minimum Split (s) | | | | 25.0 | 25.0 | 12.8 | 25.0 | | 12.8 | | 12.8 |
| Total Split (s) | | | | 34.0 | 34.0 | 18.0 | 52.0 | | 18.0 | | 18.0 |
| Total Split (%) | | | | 48.6% | 48.6% | 25.7% | 74.3% | | 25.7% | | 25.7% |
| Maximum Green (s) | | | | 27.2 | 27.2 | 11.2 | 45.2 | | 11.2 | | 11.2 |
| Yellow Time (s) | | | | 4.8 | 4.8 | 4.8 | 4.8 | | 4.8 | | 4.8 |
| All-Red Time (s) | | | | 2.0 | 2.0 | 2.0 | 2.0 | | 2.0 | | 2.0 |
| Lost Time Adjust (s) | | | | 0.0 | 0.0 | 0.0 | 0.0 | | 0.0 | | 0.0 |
| Total Lost Time (s) | | | | 6.8 | 6.8 | 6.8 | 6.8 | | 6.8 | | 6.8 |
| Lead/Lag | | | | Lag | 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 | | | | C-Max | C-Max | None | C-Max | | None | | None |
| Walk Time (s) | | | | 7.0 | 7.0 | | 7.0 | | | | |

| Lane Group | WBL | WBR | NBL | NBT | NBR | SBL | SBT | SBR | SEL2 | SEL | SER |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Flash Dont Walk (s) | | | | 11.0 | 11.0 | | 11.0 | | | | |
| Pedestrian Calls (#/hr) | | | | 0 | 0 | | 0 | | | | |
| Act Effct Green (s) | | | | 42.1 | 42.1 | 46.3 | 53.1 | | 7.2 | | 7.2 |
| Actuated g/C Ratio | | | | 0.60 | 0.60 | 0.66 | 0.76 | | 0.10 | | 0.10 |
| v/c Ratio | | | | 0.15 | 0.15 | 0.13 | 0.18 | | 0.24 | | 0.13 |
| Control Delay | | | | 3.0 | 0.7 | 1.3 | 0.6 | | 30.2 | | 0.5 |
| Queue Delay | | | | 0.0 | 0.0 | 0.0 | 0.0 | | 0.0 | | 0.0 |
| Total Delay | | | | 3.0 | 0.7 | 1.3 | 0.6 | | 30.2 | | 0.5 |
| LOS | | | | A | A | A | A | | C | | A |
| Approach Delay | | | | 2.4 | | | 0.7 | | | 16.4 | |
| Approach LOS | | | | A | | | A | | | B | |
| Queue Length 50th (ft) | | | | 6 | 0 | 1 | 3 | | 17 | | 0 |
| Queue Length 95th (ft) | | | | 14 | 0 | 2 | 4 | | 36 | | 0 |
| Internal Link Dist (ft) | 972 | | | 1548 | | | 472 | | | 756 | |
| Turn Bay Length (ft) | | | | | 320 | 180 | | | 260 | | 300 |
| Base Capacity (vph) | | | | 3031 | 1178 | 762 | 2658 | | 544 | | 648 |
| 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 | | | | 0.15 | 0.15 | 0.12 | 0.18 | | 0.15 | | 0.11 |

## Intersection Summary

Area Type: Other
Cycle Length: 70
Actuated Cycle Length: 70
Offset: 0 (0%), Referenced to phase 2:SBT and 6:NBSB, Start of Green
Natural Cycle: 55
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.24
Intersection Signal Delay: 3.3 Intersection LOS: A
Intersection Capacity Utilization 30.4% ICU Level of Service A
Analysis Period (min) 15

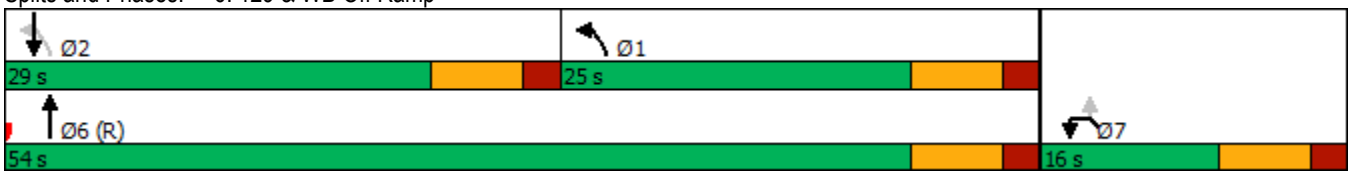
Splits and Phases: 5: 129 & EB Off Ramp

| Lane Group | EBL | EBR | NBL | NBT | NBR | SBL | SBT | SBR | NWL2 | NWL | NWR |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | |
| Traffic Volume (vph) | 0 | 0 | 67 | 438 | 0 | 0 | 383 | 86 | 138 | 0 | 106 |
| Future Volume (vph) | 0 | 0 | 67 | 438 | 0 | 0 | 383 | 86 | 138 | 0 | 106 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Storage Length (ft) | 0 | 0 | 180 | | 0 | 250 | | 250 | | 205 | 245 |
| Storage Lanes | 0 | 0 | 0 | | 0 | 1 | | 0 | | 1 | 1 |
| Taper Length (ft) | 25 | | 25 | | | 25 | | | | 150 | |
| Lane Util. Factor | 1.00 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.91 | 0.91 | 0.97 | 1.00 | 1.00 |
| Frt | | | | | | | 0.973 | | | | |
| Flt Protected | | | 0.950 | | | | | | 0.950 | | |
| Satd. Flow (prot) | 0 | 0 | 1752 | 3505 | 0 | 0 | 4900 | 0 | 3400 | 0 | 1845 |
| Flt Permitted | | | 0.455 | | | | | | 0.950 | | |
| Satd. Flow (perm) | 0 | 0 | 839 | 3505 | 0 | 0 | 4900 | 0 | 3400 | 0 | 1845 |
| Right Turn on Red | | | | | Yes | | | Yes | | | Yes |
| Satd. Flow (RTOR) | | | | | | | 75 | | | | 439 |
| Link Speed (mph) | 45 | | | 45 | | | 45 | | | 45 | |
| Link Distance (ft) | 754 | | | 552 | | | 641 | | | 791 | |
| Travel Time (s) | 11.4 | | | 8.4 | | | 9.7 | | | 12.0 | |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Adj. Flow (vph) | 0 | 0 | 73 | 476 | 0 | 0 | 416 | 93 | 150 | 0 | 115 |
| Shared Lane Traffic (%) | | | | | | | | | | | |
| Lane Group Flow (vph) | 0 | 0 | 73 | 476 | 0 | 0 | 509 | 0 | 150 | 0 | 115 |
| Enter Blocked Intersection | No | No | No | No | No | No | No | No | No | No | No |
| Lane Alignment | Left | Right | Left | L NA | Right | Left | Left | Right | Left | Left | Right |
| Median Width(ft) | 0 | | | 12 | | | 15 | | | 24 | |
| Link Offset(ft) | 0 | | | 0 | | | 0 | | | 0 | |
| Crosswalk Width(ft) | 16 | | | 16 | | | 16 | | | 16 | |
| Two way Left Turn Lane | | | | | | | | | | | |
| Headway Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Turning Speed (mph) | 15 | 9 | 15 | | 9 | 15 | | 9 | 15 | 15 | 9 |
| Turn Type | | | D.P+P | NA | | | NA | | Prot | | Perm |
| Protected Phases | | | 1 | 6 | | | 2 | | 7 | | |
| Permitted Phases | | | 2 | | | | | | | | 7 |
| Detector Phase | | | 1 | 6 | | | 2 | | 7 | | 7 |
| Switch Phase | | | | | | | | | | | |
| Minimum Initial (s) | | | 6.0 | 15.0 | | | 15.0 | | 6.0 | | 6.0 |
| Minimum Split (s) | | | 25.0 | 25.0 | | | 25.0 | | 12.8 | | 12.8 |
| Total Split (s) | | | 25.0 | 54.0 | | | 29.0 | | 16.0 | | 16.0 |
| Total Split (%) | | | 35.7% | 77.1% | | | 41.4% | | 22.9% | | 22.9% |
| Maximum Green (s) | | | 18.2 | 47.2 | | | 22.2 | | 9.2 | | 9.2 |
| Yellow Time (s) | | | 4.8 | 4.8 | | | 4.8 | | 4.8 | | 4.8 |
| All-Red Time (s) | | | 2.0 | 2.0 | | | 2.0 | | 2.0 | | 2.0 |
| Lost Time Adjust (s) | | | 0.0 | 0.0 | | | 0.0 | | 0.0 | | 0.0 |
| Total Lost Time (s) | | | 6.8 | 6.8 | | | 6.8 | | 6.8 | | 6.8 |
| Lead/Lag | | | Lag | | | | Lead | | | | |
| Lead-Lag Optimize? | | | Yes | | | | Yes | | | | |
| Vehicle Extension (s) | | | 3.0 | 3.0 | | | 3.0 | | 3.0 | | 3.0 |
| Recall Mode | | | Max | C-Max | | | Max | | None | | None |
| Walk Time (s) | | | 7.0 | 7.0 | | | 7.0 | | | | |

| Lane Group | EBL | EBR | NBL | NBT | NBR | SBL | SBT | SBR | NWL2 | NWL | NWR |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Flash Dont Walk (s) | | | 11.0 | 11.0 | | | 11.0 | | | | |
| Pedestrian Calls (#/hr) | | | 0 | 0 | | | 0 | | | | |
| Act Effct Green (s) | | | 41.5 | 48.3 | | | 23.3 | | 8.1 | | 8.1 |
| Actuated g/C Ratio | | | 0.59 | 0.69 | | | 0.33 | | 0.12 | | 0.12 |
| v/c Ratio | | | 0.10 | 0.20 | | | 0.30 | | 0.38 | | 0.19 |
| Control Delay | | | 0.9 | 1.0 | | | 9.5 | | 31.2 | | 0.7 |
| Queue Delay | | | 0.0 | 0.0 | | | 0.0 | | 0.0 | | 0.0 |
| Total Delay | | | 0.9 | 1.0 | | | 9.5 | | 31.2 | | 0.7 |
| LOS | | | A | A | | | A | | C | | A |
| Approach Delay | | | | 1.0 | | | 9.5 | | | 18.0 | |
| Approach LOS | | | | A | | | A | | | B | |
| Queue Length 50th (ft) | | | 0 | 1 | | | 22 | | 31 | | 0 |
| Queue Length 95th (ft) | | | 2 | 4 | | | 36 | | 56 | | 0 |
| Internal Link Dist (ft) | 674 | | | 472 | | | 561 | | | 711 | |
| Turn Bay Length (ft) | | | 180 | | | | | | 205 | | 245 |
| Base Capacity (vph) | | | 734 | 2418 | | | 1681 | | 446 | | 623 |
| 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 | | | 0.10 | 0.20 | | | 0.30 | | 0.34 | | 0.18 |

| Intersection Summary | | | |
|---|---|---|---|
| Area Type: | Other | | |
| Cycle Length: 70 | | | |
| Actuated Cycle Length: 70 | | | |
| Offset: 68 (97%), Referenced to phase 6:NBT, Start of Green | | | |
| Natural Cycle: 65 | | | |
| Control Type: Actuated-Coordinated | | | |
| Maximum v/c Ratio: 0.38 | | | |
| Intersection Signal Delay: 7.7 | | Intersection LOS: A | |
| Intersection Capacity Utilization 30.4% | | ICU Level of Service A | |
| Analysis Period (min) 15 | | | |

Splits and Phases: 6: 129 & WB Off Ramp



| Movement | WBL | WBR | NBT | NBR | SBL | SBT |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Traffic Volume (veh/h) | 0 | 0 | 350 | 194 | 12 | 469 |
| Future Volume (Veh/h) | 0 | 0 | 350 | 194 | 12 | 469 |
| Sign Control | Stop | | Free | | | Free |
| Grade | 0% | | 0% | | | 0% |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Hourly flow rate (vph) | 0 | 0 | 380 | 211 | 13 | 510 |
| Pedestrians | | | | | | |
| Lane Width (ft) | | | | | | |
| Walking Speed (ft/s) | | | | | | |
| Percent Blockage | | | | | | |
| Right turn flare (veh) | | | | | | |
| Median type | | | None | | | None |
| Median storage veh) | | | | | | |
| Upstream signal (ft) | | | 641 | | | 283 |
| pX, platoon unblocked | 0.97 | | | | | |
| vC, conflicting volume | 661 | 190 | | | 380 | |
| vC1, stage 1 conf vol | | | | | | |
| vC2, stage 2 conf vol | | | | | | |
| vCu, unblocked vol | 595 | 190 | | | 380 | |
| tC, single (s) | 6.9 | 7.0 | | | 4.2 | |
| tC, 2 stage (s) | | | | | | |
| tF (s) | 3.5 | 3.3 | | | 2.2 | |
| p0 queue free % | 100 | 100 | | | 99 | |
| cM capacity (veh/h) | 417 | 816 | | | 1168 | |

| Direction, Lane # | NB 1 | NB 2 | NB 3 | SB 1 | SB 2 | SB 3 |
|---|---|---|---|---|---|---|
| Volume Total | 190 | 190 | 211 | 13 | 255 | 255 |
| Volume Left | 0 | 0 | 0 | 13 | 0 | 0 |
| Volume Right | 0 | 0 | 211 | 0 | 0 | 0 |
| cSH | 1700 | 1700 | 1700 | 1168 | 1700 | 1700 |
| Volume to Capacity | 0.11 | 0.11 | 0.12 | 0.01 | 0.15 | 0.15 |
| Queue Length 95th (ft) | 0 | 0 | 0 | 1 | 0 | 0 |
| Control Delay (s) | 0.0 | 0.0 | 0.0 | 8.1 | 0.0 | 0.0 |
| Lane LOS | | | | A | | |
| Approach Delay (s) | 0.0 | | | 0.2 | | |
| Approach LOS | | | | | | |

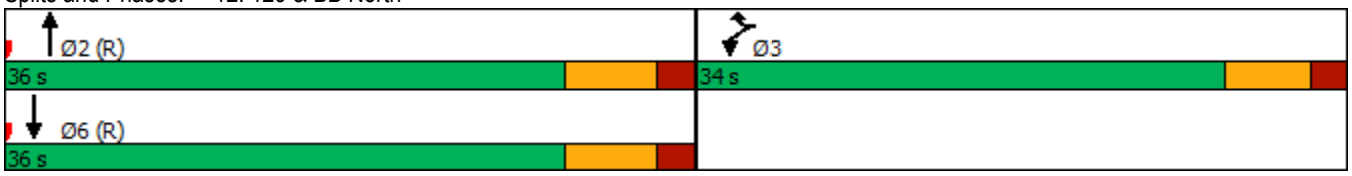
| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 0.1 | | |
| Intersection Capacity Utilization | 22.0% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |

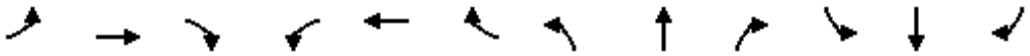
| Lane Group | WBL | WBR | NBT | NBR | SBL | SBT |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Traffic Volume (vph) | 179 | 26 | 347 | 3 | 0 | 302 |
| Future Volume (vph) | 179 | 26 | 347 | 3 | 0 | 302 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Storage Length (ft) | 0 | 60 | | 0 | 310 | |
| Storage Lanes | 1 | 1 | | 0 | 1 | |
| Taper Length (ft) | 25 | | | | 25 | |
| Lane Util. Factor | 1.00 | 1.00 | 0.95 | 0.95 | 1.00 | 0.91 |
| Frt | | 0.850 | 0.999 | | | |
| Flt Protected | 0.950 | | | | | |
| Satd. Flow (prot) | 1752 | 1568 | 3501 | 0 | 0 | 5036 |
| Flt Permitted | 0.950 | | | | | |
| Satd. Flow (perm) | 1752 | 1568 | 3501 | 0 | 0 | 5036 |
| Right Turn on Red | | Yes | | Yes | | |
| Satd. Flow (RTOR) | | 28 | 1 | | | |
| Link Speed (mph) | 30 | | 45 | | | 45 |
| Link Distance (ft) | 196 | | 283 | | | 457 |
| Travel Time (s) | 4.5 | | 4.3 | | | 6.9 |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Adj. Flow (vph) | 195 | 28 | 377 | 3 | 0 | 328 |
| Shared Lane Traffic (%) | | | | | | |
| Lane Group Flow (vph) | 195 | 28 | 380 | 0 | 0 | 328 |
| Enter Blocked Intersection | No | No | No | No | No | No |
| Lane Alignment | Left | Right | Left | Right | Left | Left |
| Median Width(ft) | 12 | | 15 | | | 15 |
| Link Offset(ft) | 0 | | 0 | | | 0 |
| Crosswalk Width(ft) | 16 | | 0 | | | 0 |
| Two way Left Turn Lane | | | | | | |
| Headway Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Turning Speed (mph) | 15 | 9 | | 9 | 15 | |
| Turn Type | Prot | Prot | NA | | | NA |
| Protected Phases | 3 | 3 | 2 | | | 6 |
| Permitted Phases | | | | | | |
| Detector Phase | 3 | 3 | 2 | | | 6 |
| Switch Phase | | | | | | |
| Minimum Initial (s) | 5.0 | 5.0 | 15.0 | | | 15.0 |
| Minimum Split (s) | 11.5 | 11.5 | 25.0 | | | 25.0 |
| Total Split (s) | 34.0 | 34.0 | 36.0 | | | 36.0 |
| Total Split (%) | 48.6% | 48.6% | 51.4% | | | 51.4% |
| Maximum Green (s) | 27.5 | 27.5 | 29.2 | | | 29.2 |
| Yellow Time (s) | 4.5 | 4.5 | 4.8 | | | 4.8 |
| All-Red Time (s) | 2.0 | 2.0 | 2.0 | | | 2.0 |
| Lost Time Adjust (s) | 0.0 | 0.0 | 0.0 | | | 0.0 |
| Total Lost Time (s) | 6.5 | 6.5 | 6.8 | | | 6.8 |
| Lead/Lag | | | | | | |
| Lead-Lag Optimize? | | | | | | |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | | | 3.0 |
| Recall Mode | None | None | C-Min | | | C-Min |
| Walk Time (s) | | | 7.0 | | | 7.0 |

| Lane Group | WBL | WBR | NBT | NBR | SBL | SBT |
|---|---|---|---|---|---|---|
| Flash Dont Walk (s) | | | 11.0 | | | 11.0 |
| Pedestrian Calls (#/hr) | | | 0 | | | 0 |
| Act Effct Green (s) | 13.1 | 13.1 | 43.6 | | | 43.6 |
| Actuated g/C Ratio | 0.19 | 0.19 | 0.62 | | | 0.62 |
| v/c Ratio | 0.59 | 0.09 | 0.17 | | | 0.10 |
| Control Delay | 32.9 | 9.2 | 4.0 | | | 6.1 |
| Queue Delay | 0.0 | 0.0 | 0.0 | | | 0.0 |
| Total Delay | 32.9 | 9.2 | 4.0 | | | 6.1 |
| LOS | C | A | A | | | A |
| Approach Delay | 29.9 | | 4.0 | | | 6.1 |
| Approach LOS | C | | A | | | A |
| Queue Length 50th (ft) | 78 | 0 | 23 | | | 18 |
| Queue Length 95th (ft) | 126 | 17 | 32 | | | 35 |
| Internal Link Dist (ft) | 116 | | 203 | | | 377 |
| Turn Bay Length (ft) | | 60 | | | | |
| Base Capacity (vph) | 688 | 633 | 2179 | | | 3133 |
| Starvation Cap Reductn | 0 | 0 | 0 | | | 0 |
| Spillback Cap Reductn | 0 | 0 | 0 | | | 0 |
| Storage Cap Reductn | 0 | 0 | 0 | | | 0 |
| Reduced v/c Ratio | 0.28 | 0.04 | 0.17 | | | 0.10 |

| Intersection Summary | | | |
|---|---|---|---|
| Area Type: | Other | | |
| Cycle Length: 70 | | | |
| Actuated Cycle Length: 70 | | | |
| Offset: 24 (34%), Referenced to phase 2:NBT and 6:SBT, Start of Green | | | |
| Natural Cycle: 40 | | | |
| Control Type: Actuated-Coordinated | | | |
| Maximum v/c Ratio: 0.59 | | | |
| Intersection Signal Delay: 10.9 | | Intersection LOS: B | |
| Intersection Capacity Utilization 33.5% | | ICU Level of Service A | |
| Analysis Period (min) 15 | | | |

Splits and Phases: 12: 129 & BB North





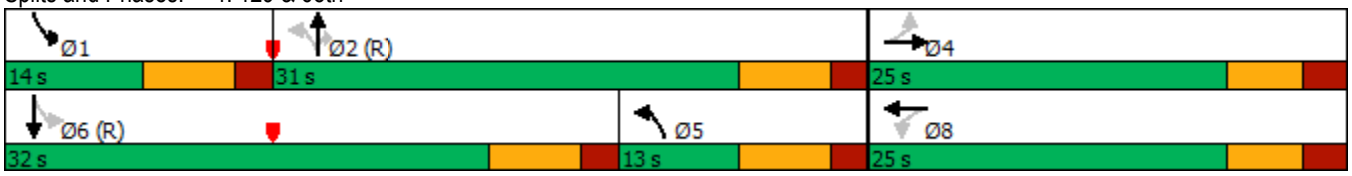
| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 24 | 6 | 13 | 32 | 5 | 44 | 15 | 606 | 31 | 83 | 646 | 10 |
| Future Volume (vph) | 24 | 6 | 13 | 32 | 5 | 44 | 15 | 606 | 31 | 83 | 646 | 10 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Storage Length (ft) | 250 | | 0 | 60 | | 0 | 250 | | 500 | 245 | | 0 |
| Storage Lanes | 0 | | 0 | 1 | | 0 | 1 | | 1 | 1 | | 0 |
| Taper Length (ft) | 25 | | | 25 | | | 25 | | | 25 | | |
| Lane Util. Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 0.95 |
| Frt | | 0.960 | | | 0.864 | | | | 0.850 | | 0.998 | |
| Flt Protected | | 0.973 | | 0.950 | | | 0.950 | | | 0.950 | | |
| Satd. Flow (prot) | 0 | 1723 | 0 | 1752 | 1594 | 0 | 1752 | 3505 | 1568 | 1752 | 3498 | 0 |
| Flt Permitted | | 0.799 | | 0.726 | | | 0.381 | | | 0.317 | | |
| Satd. Flow (perm) | 0 | 1415 | 0 | 1339 | 1594 | 0 | 703 | 3505 | 1568 | 585 | 3498 | 0 |
| Right Turn on Red | | | Yes | | | Yes | | | Yes | | | Yes |
| Satd. Flow (RTOR) | | 14 | | | 48 | | | | 159 | | 2 | |
| Link Speed (mph) | | 35 | | | 35 | | | 45 | | | 45 | |
| Link Distance (ft) | | 516 | | | 277 | | | 761 | | | 1628 | |
| Travel Time (s) | | 10.1 | | | 5.4 | | | 11.5 | | | 24.7 | |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Adj. Flow (vph) | 26 | 7 | 14 | 35 | 5 | 48 | 16 | 659 | 34 | 90 | 702 | 11 |
| Shared Lane Traffic (%) | | | | | | | | | | | | |
| Lane Group Flow (vph) | 0 | 47 | 0 | 35 | 53 | 0 | 16 | 659 | 34 | 90 | 713 | 0 |
| Enter Blocked Intersection | No | No | No | No | No | No | No | No | No | No | No | No |
| Lane Alignment | Left | Left | Right | Left | Left | Right | Left | Left | Right | Left | Left | Right |
| Median Width(ft) | | 12 | | | 12 | | | 12 | | | 15 | |
| Link Offset(ft) | | 0 | | | 0 | | | 0 | | | 0 | |
| Crosswalk Width(ft) | | 16 | | | 16 | | | 16 | | | 16 | |
| Two way Left Turn Lane | | | | | | | | | | | | |
| Headway 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 |
| Turning Speed (mph) | 15 | | 9 | 15 | | 9 | 15 | | 9 | 15 | | 9 |
| Turn Type | Perm | NA | | Perm | NA | | pm+pt | NA | Perm | pm+pt | NA | |
| Protected Phases | | 4 | | | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | 4 | | | 8 | | | 2 | | 2 | 6 | | |
| Detector Phase | 4 | 4 | | 8 | 8 | | 5 | 2 | 2 | 1 | 6 | |
| Switch Phase | | | | | | | | | | | | |
| Minimum Initial (s) | 6.0 | 6.0 | | 6.0 | 6.0 | | 6.0 | 15.0 | 15.0 | 6.0 | 15.0 | |
| Minimum Split (s) | 25.0 | 25.0 | | 25.0 | 25.0 | | 12.8 | 25.2 | 25.2 | 12.8 | 25.2 | |
| Total Split (s) | 25.0 | 25.0 | | 25.0 | 25.0 | | 13.0 | 31.0 | 31.0 | 14.0 | 32.0 | |
| Total Split (%) | 35.7% | 35.7% | | 35.7% | 35.7% | | 18.6% | 44.3% | 44.3% | 20.0% | 45.7% | |
| Maximum Green (s) | 18.6 | 18.6 | | 18.6 | 18.6 | | 6.2 | 24.2 | 24.2 | 7.2 | 25.2 | |
| Yellow Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.8 | 4.8 | 4.8 | 4.8 | 4.8 | |
| All-Red Time (s) | 2.4 | 2.4 | | 2.4 | 2.4 | | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | |
| Lost Time Adjust (s) | | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | |
| Total Lost Time (s) | | 6.4 | | 6.4 | 6.4 | | 6.8 | 6.8 | 6.8 | 6.8 | 6.8 | |
| Lead/Lag | | | | | | | Lag | Lag | Lag | Lead | 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 | |
| Recall Mode | None | None | | None | None | | None | C-Max | C-Max | None | C-Max | |
| Walk Time (s) | 7.0 | 7.0 | | 7.0 | 7.0 | | | 7.0 | 7.0 | | 7.0 | |

| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Flash Dont Walk (s) | 11.0 | 11.0 | | 11.0 | 11.0 | | | 11.0 | 11.0 | | 11.0 | |
| Pedestrian Calls (#/hr) | 0 | 0 | | 0 | 0 | | | 0 | 0 | | 0 | |
| Act Effct Green (s) | | 7.5 | | 7.5 | 7.5 | | 41.8 | 41.8 | 41.8 | 49.2 | 50.5 | |
| Actuated g/C Ratio | | 0.11 | | 0.11 | 0.11 | | 0.60 | 0.60 | 0.60 | 0.70 | 0.72 | |
| v/c Ratio | | 0.29 | | 0.24 | 0.25 | | 0.03 | 0.31 | 0.03 | 0.17 | 0.28 | |
| Control Delay | | 26.2 | | 32.2 | 13.4 | | 10.7 | 10.6 | 0.1 | 2.6 | 2.3 | |
| Queue Delay | | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | |
| Total Delay | | 26.2 | | 32.2 | 13.4 | | 10.7 | 10.6 | 0.1 | 2.6 | 2.3 | |
| LOS | | C | | C | B | | B | B | A | A | A | |
| Approach Delay | | 26.2 | | | 20.9 | | | 10.1 | | | 2.3 | |
| Approach LOS | | C | | | C | | | B | | | A | |
| Queue Length 50th (ft) | | 13 | | 14 | 2 | | 3 | 82 | 0 | 2 | 8 | |
| Queue Length 95th (ft) | | 41 | | 38 | 30 | | 14 | 140 | 0 | 13 | 70 | |
| Internal Link Dist (ft) | | 436 | | | 197 | | | 681 | | | 1548 | |
| Turn Bay Length (ft) | | | | 60 | | | 250 | | 500 | 245 | | |
| Base Capacity (vph) | | 386 | | 355 | 458 | | 499 | 2095 | 1001 | 538 | 2526 | |
| 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 | | 0.12 | | 0.10 | 0.12 | | 0.03 | 0.31 | 0.03 | 0.17 | 0.28 | |

## Intersection Summary

Area Type: Other
Cycle Length: 70
Actuated Cycle Length: 70
Offset: 40 (57%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle: 65
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.31
Intersection Signal Delay: 7.3 Intersection LOS: A
Intersection Capacity Utilization 48.9% ICU Level of Service A
Analysis Period (min) 15

Splits and Phases: 4: 129 & 68th



| Lane Group | WBL | WBR | NBL | NBT | NBR | SBL | SBT | SBR | SEL2 | SEL | SER |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | |
| Traffic Volume (vph) | 0 | 0 | 0 | 438 | 236 | 92 | 663 | 0 | 66 | 0 | 76 |
| Future Volume (vph) | 0 | 0 | 0 | 438 | 236 | 92 | 663 | 0 | 66 | 0 | 76 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Storage Length (ft) | 0 | 0 | 350 | | 320 | 180 | | 0 | | 260 | 300 |
| Storage Lanes | 0 | 0 | 1 | | 1 | 0 | | 0 | | 1 | 1 |
| Taper Length (ft) | 25 | | 25 | | | 25 | | | | 150 | |
| Lane Util. Factor | 1.00 | 1.00 | 1.00 | 0.91 | 1.00 | 1.00 | 0.95 | 1.00 | 0.97 | 1.00 | 1.00 |
| Frt | | | | | | | | | | | |
| Flt Protected | | | | | | 0.950 | | | 0.950 | | |
| Satd. Flow (prot) | 0 | 0 | 0 | 5036 | 1845 | 1752 | 3505 | 0 | 3400 | 0 | 1845 |
| Flt Permitted | | | | | | 0.470 | | | 0.950 | | |
| Satd. Flow (perm) | 0 | 0 | 0 | 5036 | 1845 | 867 | 3505 | 0 | 3400 | 0 | 1845 |
| Right Turn on Red | | | | | Yes | | | Yes | | | Yes |
| Satd. Flow (RTOR) | | | | | 257 | | | | | | 272 |
| Link Speed (mph) | 45 | | | 45 | | | 45 | | | 45 | |
| Link Distance (ft) | 1052 | | | 1628 | | | 552 | | | 836 | |
| Travel Time (s) | 15.9 | | | 24.7 | | | 8.4 | | | 12.7 | |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Adj. Flow (vph) | 0 | 0 | 0 | 476 | 257 | 100 | 721 | 0 | 72 | 0 | 83 |
| Shared Lane Traffic (%) | | | | | | | | | | | |
| Lane Group Flow (vph) | 0 | 0 | 0 | 476 | 257 | 100 | 721 | 0 | 72 | 0 | 83 |
| Enter Blocked Intersection | No | No | No | No | No | No | No | No | No | No | No |
| Lane Alignment | Left | Right | Left | Left | Right | Left | Left | Right | Left | Left | Right |
| Median Width(ft) | 0 | | | 15 | | | 12 | | | 24 | |
| Link Offset(ft) | 0 | | | 0 | | | 0 | | | 0 | |
| Crosswalk Width(ft) | 16 | | | 16 | | | 16 | | | 16 | |
| Two way Left Turn Lane | | | | | | | | | | | |
| Headway Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Turning Speed (mph) | 15 | 9 | 15 | | 9 | 15 | | 9 | 15 | 15 | 9 |
| Turn Type | | | | NA | Perm | D.P+P | NA | | Prot | | Perm |
| Protected Phases | | | | 6 | | 5 | 2 | | 3 | | |
| Permitted Phases | | | | | 6 | 6 | | | | | 3 |
| Detector Phase | | | | 6 | 6 | 5 | 2 | | 3 | | 3 |
| Switch Phase | | | | | | | | | | | |
| Minimum Initial (s) | | | | 15.0 | 15.0 | 6.0 | 15.0 | | 6.0 | | 6.0 |
| Minimum Split (s) | | | | 25.0 | 25.0 | 21.8 | 25.0 | | 12.8 | | 12.8 |
| Total Split (s) | | | | 30.0 | 30.0 | 24.0 | 54.0 | | 16.0 | | 16.0 |
| Total Split (%) | | | | 42.9% | 42.9% | 34.3% | 77.1% | | 22.9% | | 22.9% |
| Maximum Green (s) | | | | 23.2 | 23.2 | 17.2 | 47.2 | | 9.2 | | 9.2 |
| Yellow Time (s) | | | | 4.8 | 4.8 | 4.8 | 4.8 | | 4.8 | | 4.8 |
| All-Red Time (s) | | | | 2.0 | 2.0 | 2.0 | 2.0 | | 2.0 | | 2.0 |
| Lost Time Adjust (s) | | | | 0.0 | 0.0 | 0.0 | 0.0 | | 0.0 | | 0.0 |
| Total Lost Time (s) | | | | 6.8 | 6.8 | 6.8 | 6.8 | | 6.8 | | 6.8 |
| Lead/Lag | | | | Lag | 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 | | | | C-Max | C-Max | None | C-Max | | None | | None |
| Walk Time (s) | | | | 7.0 | 7.0 | | 7.0 | | | | |

| Lane Group | WBL | WBR | NBL | NBT | NBR | SBL | SBT | SBR | SEL2 | SEL | SER |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Flash Dont Walk (s) | | | | 11.0 | 11.0 | | 11.0 | | | | |
| Pedestrian Calls (#/hr) | | | | 0 | 0 | | 0 | | | | |
| Act Effct Green (s) | | | | 42.2 | 42.2 | 46.5 | 53.3 | | 7.0 | | 7.0 |
| Actuated g/C Ratio | | | | 0.60 | 0.60 | 0.66 | 0.76 | | 0.10 | | 0.10 |
| v/c Ratio | | | | 0.16 | 0.21 | 0.15 | 0.27 | | 0.21 | | 0.19 |
| Control Delay | | | | 2.1 | 0.7 | 1.0 | 0.8 | | 30.1 | | 1.0 |
| Queue Delay | | | | 0.0 | 0.0 | 0.0 | 0.0 | | 0.0 | | 0.0 |
| Total Delay | | | | 2.1 | 0.7 | 1.0 | 0.8 | | 30.1 | | 1.0 |
| LOS | | | | A | A | A | A | | C | | A |
| Approach Delay | | | | 1.6 | | | 0.8 | | | 14.5 | |
| Approach LOS | | | | A | | | A | | | B | |
| Queue Length 50th (ft) | | | | 5 | 1 | 1 | 4 | | 14 | | 0 |
| Queue Length 95th (ft) | | | | 9 | 0 | 2 | 5 | | 32 | | 0 |
| Internal Link Dist (ft) | 972 | | | 1548 | | | 472 | | | 756 | |
| Turn Bay Length (ft) | | | | | 320 | 180 | | | 260 | | 300 |
| Base Capacity (vph) | | | | 3036 | 1214 | 861 | 2669 | | 446 | | 478 |
| 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 | | | | 0.16 | 0.21 | 0.12 | 0.27 | | 0.16 | | 0.17 |

| Intersection Summary | | | |
|---|---|---|---|
| Area Type: | Other | | |
| Cycle Length: 70 | | | |
| Actuated Cycle Length: 70 | | | |
| Offset: 68 (97%), Referenced to phase 2:SBT and 6:NBSB, Start of Green | | | |
| Natural Cycle: 60 | | | |
| Control Type: Actuated-Coordinated | | | |
| Maximum v/c Ratio: 0.27 | | | |
| Intersection Signal Delay: 2.4 | | Intersection LOS: A | |
| Intersection Capacity Utilization 34.7% | | ICU Level of Service A | |
| Analysis Period (min) 15 | | | |

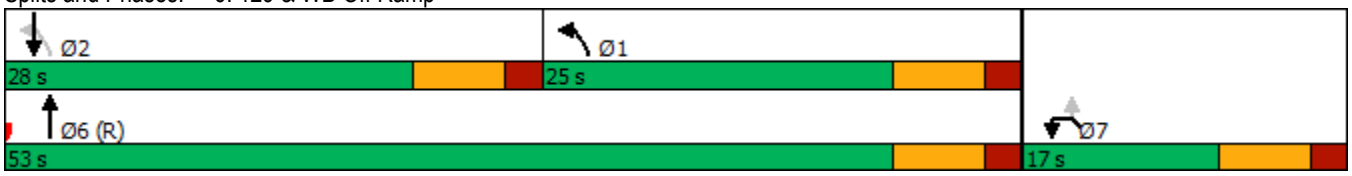
Splits and Phases: 5: 129 & EB Off Ramp

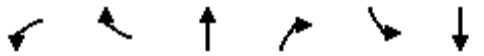
| Lane Group | EBL | EBR | NBL | NBT | NBR | SBL | SBT | SBR | NWL2 | NWL | NWR |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | |
| Traffic Volume (vph) | 0 | 0 | 60 | 444 | 0 | 0 | 560 | 71 | 195 | 0 | 79 |
| Future Volume (vph) | 0 | 0 | 60 | 444 | 0 | 0 | 560 | 71 | 195 | 0 | 79 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Storage Length (ft) | 0 | 0 | 180 | | 0 | 250 | | 250 | | 205 | 245 |
| Storage Lanes | 0 | 0 | 0 | | 0 | 1 | | 0 | | 1 | 1 |
| Taper Length (ft) | 25 | | 25 | | | 25 | | | | 150 | |
| Lane Util. Factor | 1.00 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.91 | 0.91 | 0.97 | 1.00 | 1.00 |
| Frt | | | | | | | 0.983 | | | | |
| Flt Protected | | | 0.950 | | | | | | 0.950 | | |
| Satd. Flow (prot) | 0 | 0 | 1752 | 3505 | 0 | 0 | 4950 | 0 | 3400 | 0 | 1845 |
| Flt Permitted | | | 0.363 | | | | | | 0.950 | | |
| Satd. Flow (perm) | 0 | 0 | 670 | 3505 | 0 | 0 | 4950 | 0 | 3400 | 0 | 1845 |
| Right Turn on Red | | | | | Yes | | | Yes | | | Yes |
| Satd. Flow (RTOR) | | | | | | | 33 | | | | 424 |
| Link Speed (mph) | 45 | | | 45 | | | 45 | | | 45 | |
| Link Distance (ft) | 754 | | | 552 | | | 625 | | | 791 | |
| Travel Time (s) | 11.4 | | | 8.4 | | | 9.5 | | | 12.0 | |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Adj. Flow (vph) | 0 | 0 | 65 | 483 | 0 | 0 | 609 | 77 | 212 | 0 | 86 |
| Shared Lane Traffic (%) | | | | | | | | | | | |
| Lane Group Flow (vph) | 0 | 0 | 65 | 483 | 0 | 0 | 686 | 0 | 212 | 0 | 86 |
| Enter Blocked Intersection | No | No | No | No | No | No | No | No | No | No | No |
| Lane Alignment | Left | Right | Left | L NA | Right | Left | Left | Right | Left | Left | Right |
| Median Width(ft) | 0 | | | 12 | | | 15 | | | 24 | |
| Link Offset(ft) | 0 | | | 0 | | | 0 | | | 0 | |
| Crosswalk Width(ft) | 16 | | | 16 | | | 16 | | | 16 | |
| Two way Left Turn Lane | | | | | | | | | | | |
| Headway Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Turning Speed (mph) | 15 | 9 | 15 | | 9 | 15 | | 9 | 15 | 15 | 9 |
| Turn Type | | | D.P+P | NA | | | NA | | Prot | | Perm |
| Protected Phases | | | 1 | 6 | | | 2 | | 7 | | |
| Permitted Phases | | | 2 | | | | | | | | 7 |
| Detector Phase | | | 1 | 6 | | | 2 | | 7 | | 7 |
| Switch Phase | | | | | | | | | | | |
| Minimum Initial (s) | | | 6.0 | 15.0 | | | 15.0 | | 6.0 | | 6.0 |
| Minimum Split (s) | | | 25.0 | 25.0 | | | 25.0 | | 12.8 | | 12.8 |
| Total Split (s) | | | 25.0 | 53.0 | | | 28.0 | | 17.0 | | 17.0 |
| Total Split (%) | | | 35.7% | 75.7% | | | 40.0% | | 24.3% | | 24.3% |
| Maximum Green (s) | | | 18.2 | 46.2 | | | 21.2 | | 10.2 | | 10.2 |
| Yellow Time (s) | | | 4.8 | 4.8 | | | 4.8 | | 4.8 | | 4.8 |
| All-Red Time (s) | | | 2.0 | 2.0 | | | 2.0 | | 2.0 | | 2.0 |
| Lost Time Adjust (s) | | | 0.0 | 0.0 | | | 0.0 | | 0.0 | | 0.0 |
| Total Lost Time (s) | | | 6.8 | 6.8 | | | 6.8 | | 6.8 | | 6.8 |
| Lead/Lag | | | Lag | | | | Lead | | | | |
| Lead-Lag Optimize? | | | Yes | | | | Yes | | | | |
| Vehicle Extension (s) | | | 3.0 | 3.0 | | | 3.0 | | 3.0 | | 3.0 |
| Recall Mode | | | Max | C-Max | | | Max | | None | | None |
| Walk Time (s) | | | 7.0 | 7.0 | | | 7.0 | | | | |

| Lane Group | EBL | EBR | NBL | NBT | NBR | SBL | SBT | SBR | NWL2 | NWL | NWR |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Flash Dont Walk (s) | | | 11.0 | 11.0 | | | 11.0 | | | | |
| Pedestrian Calls (#/hr) | | | 0 | 0 | | | 0 | | | | |
| Act Effct Green (s) | | | 40.5 | 47.3 | | | 22.3 | | 9.1 | | 9.1 |
| Actuated g/C Ratio | | | 0.58 | 0.68 | | | 0.32 | | 0.13 | | 0.13 |
| v/c Ratio | | | 0.10 | 0.20 | | | 0.43 | | 0.48 | | 0.14 |
| Control Delay | | | 0.8 | 0.8 | | | 13.7 | | 31.8 | | 0.5 |
| Queue Delay | | | 0.0 | 0.0 | | | 0.0 | | 0.0 | | 0.0 |
| Total Delay | | | 0.8 | 0.8 | | | 13.7 | | 31.8 | | 0.5 |
| LOS | | | A | A | | | B | | C | | A |
| Approach Delay | | | | 0.8 | | | 13.7 | | | 22.8 | |
| Approach LOS | | | | A | | | B | | | C | |
| Queue Length 50th (ft) | | | 0 | 0 | | | 67 | | 44 | | 0 |
| Queue Length 95th (ft) | | | 1 | 1 | | | 87 | | 74 | | 0 |
| Internal Link Dist (ft) | 674 | | | 472 | | | 545 | | | 711 | |
| Turn Bay Length (ft) | | | 180 | | | | | | 205 | | 245 |
| Base Capacity (vph) | | | 669 | 2368 | | | 1599 | | 495 | | 631 |
| 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 | | | 0.10 | 0.20 | | | 0.43 | | 0.43 | | 0.14 |

| Intersection Summary | | | |
|---|---|---|---|
| Area Type: | Other | | |
| Cycle Length: 70 | | | |
| Actuated Cycle Length: 70 | | | |
| Offset: 64 (91%), Referenced to phase 6:NBT, Start of Green | | | |
| Natural Cycle: 65 | | | |
| Control Type: Actuated-Coordinated | | | |
| Maximum v/c Ratio: 0.48 | | | |
| Intersection Signal Delay: 10.9 | | Intersection LOS: B | |
| Intersection Capacity Utilization 34.7% | | ICU Level of Service A | |
| Analysis Period (min) 15 | | | |

Splits and Phases: 6: 129 & WB Off Ramp





| Movement | WBL | WBR | NBT | NBR | SBL | SBT |
|---|---|---|---|---|---|---|
| Lane Configurations | | | ↑↑ | ↱ | ↰ | ↑↑ |
| Traffic Volume (veh/h) | 0 | 0 | 298 | 225 | 29 | 631 |
| Future Volume (Veh/h) | 0 | 0 | 298 | 225 | 29 | 631 |
| Sign Control | Stop | | Free | | | Free |
| Grade | 0% | | 0% | | | 0% |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Hourly flow rate (vph) | 0 | 0 | 324 | 245 | 32 | 686 |
| Pedestrians | | | | | | |
| Lane Width (ft) | | | | | | |
| Walking Speed (ft/s) | | | | | | |
| Percent Blockage | | | | | | |
| Right turn flare (veh) | | | | | | |
| Median type | | | None | | | None |
| Median storage veh) | | | | | | |
| Upstream signal (ft) | | | 625 | | | 299 |
| pX, platoon unblocked | 0.95 | | | | | |
| vC, conflicting volume | 731 | 162 | | | 324 | |
| vC1, stage 1 conf vol | | | | | | |
| vC2, stage 2 conf vol | | | | | | |
| vCu, unblocked vol | 611 | 162 | | | 324 | |
| tC, single (s) | 6.9 | 7.0 | | | 4.2 | |
| tC, 2 stage (s) | | | | | | |
| tF (s) | 3.5 | 3.3 | | | 2.2 | |
| p0 queue free % | 100 | 100 | | | 97 | |
| cM capacity (veh/h) | 392 | 851 | | | 1225 | |

| Direction, Lane # | NB 1 | NB 2 | NB 3 | SB 1 | SB 2 | SB 3 |
|---|---|---|---|---|---|---|
| Volume Total | 162 | 162 | 245 | 32 | 343 | 343 |
| Volume Left | 0 | 0 | 0 | 32 | 0 | 0 |
| Volume Right | 0 | 0 | 245 | 0 | 0 | 0 |
| cSH | 1700 | 1700 | 1700 | 1225 | 1700 | 1700 |
| Volume to Capacity | 0.10 | 0.10 | 0.14 | 0.03 | 0.20 | 0.20 |
| Queue Length 95th (ft) | 0 | 0 | 0 | 2 | 0 | 0 |
| Control Delay (s) | 0.0 | 0.0 | 0.0 | 8.0 | 0.0 | 0.0 |
| Lane LOS | | | | A | | |
| Approach Delay (s) | 0.0 | | | 0.4 | | |
| Approach LOS | | | | | | |

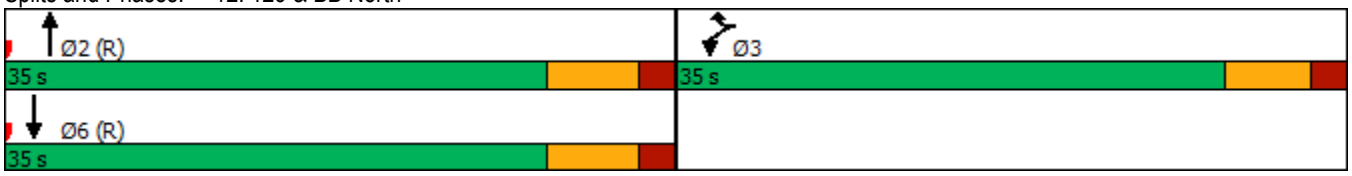
| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 0.2 | | |
| Intersection Capacity Utilization | 23.9% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |

| Lane Group | WBL | WBR | NBT | NBR | SBL | SBT |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Traffic Volume (vph) | 186 | 36 | 295 | 3 | 0 | 474 |
| Future Volume (vph) | 186 | 36 | 295 | 3 | 0 | 474 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Storage Length (ft) | 0 | 60 | | 0 | 310 | |
| Storage Lanes | 1 | 1 | | 0 | 1 | |
| Taper Length (ft) | 25 | | | | 25 | |
| Lane Util. Factor | 1.00 | 1.00 | 0.95 | 0.95 | 1.00 | 0.91 |
| Frt | | 0.850 | 0.999 | | | |
| Flt Protected | 0.950 | | | | | |
| Satd. Flow (prot) | 1752 | 1568 | 3501 | 0 | 0 | 5036 |
| Flt Permitted | 0.950 | | | | | |
| Satd. Flow (perm) | 1752 | 1568 | 3501 | 0 | 0 | 5036 |
| Right Turn on Red | | Yes | | Yes | | |
| Satd. Flow (RTOR) | | 39 | 2 | | | |
| Link Speed (mph) | 30 | | 45 | | | 45 |
| Link Distance (ft) | 196 | | 299 | | | 457 |
| Travel Time (s) | 4.5 | | 4.5 | | | 6.9 |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Adj. Flow (vph) | 202 | 39 | 321 | 3 | 0 | 515 |
| Shared Lane Traffic (%) | | | | | | |
| Lane Group Flow (vph) | 202 | 39 | 324 | 0 | 0 | 515 |
| Enter Blocked Intersection | No | No | No | No | No | No |
| Lane Alignment | Left | Right | Left | Right | Left | Left |
| Median Width(ft) | 12 | | 15 | | | 15 |
| Link Offset(ft) | 0 | | 0 | | | 0 |
| Crosswalk Width(ft) | 16 | | 0 | | | 0 |
| Two way Left Turn Lane | | | | | | |
| Headway Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Turning Speed (mph) | 15 | 9 | | 9 | 15 | |
| Turn Type | Prot | Prot | NA | | | NA |
| Protected Phases | 3 | 3 | 2 | | | 6 |
| Permitted Phases | | | | | | |
| Detector Phase | 3 | 3 | 2 | | | 6 |
| Switch Phase | | | | | | |
| Minimum Initial (s) | 5.0 | 5.0 | 15.0 | | | 15.0 |
| Minimum Split (s) | 11.5 | 11.5 | 25.0 | | | 25.0 |
| Total Split (s) | 35.0 | 35.0 | 35.0 | | | 35.0 |
| Total Split (%) | 50.0% | 50.0% | 50.0% | | | 50.0% |
| Maximum Green (s) | 28.5 | 28.5 | 28.2 | | | 28.2 |
| Yellow Time (s) | 4.5 | 4.5 | 4.8 | | | 4.8 |
| All-Red Time (s) | 2.0 | 2.0 | 2.0 | | | 2.0 |
| Lost Time Adjust (s) | 0.0 | 0.0 | 0.0 | | | 0.0 |
| Total Lost Time (s) | 6.5 | 6.5 | 6.8 | | | 6.8 |
| Lead/Lag | | | | | | |
| Lead-Lag Optimize? | | | | | | |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | | | 3.0 |
| Recall Mode | None | None | C-Min | | | C-Min |
| Walk Time (s) | | | 7.0 | | | 7.0 |

| Lane Group | WBL | WBR | NBT | NBR | SBL | SBT |
|---|---|---|---|---|---|---|
| Flash Dont Walk (s) | | | 11.0 | | | 11.0 |
| Pedestrian Calls (#/hr) | | | 0 | | | 0 |
| Act Effct Green (s) | 13.5 | 13.5 | 43.2 | | | 43.2 |
| Actuated g/C Ratio | 0.19 | 0.19 | 0.62 | | | 0.62 |
| v/c Ratio | 0.60 | 0.12 | 0.15 | | | 0.17 |
| Control Delay | 32.7 | 8.3 | 4.6 | | | 6.4 |
| Queue Delay | 0.0 | 0.0 | 0.0 | | | 0.0 |
| Total Delay | 32.7 | 8.3 | 4.6 | | | 6.4 |
| LOS | C | A | A | | | A |
| Approach Delay | 28.8 | | 4.6 | | | 6.4 |
| Approach LOS | C | | A | | | A |
| Queue Length 50th (ft) | 80 | 0 | 21 | | | 30 |
| Queue Length 95th (ft) | 129 | 21 | 33 | | | 54 |
| Internal Link Dist (ft) | 116 | | 219 | | | 377 |
| Turn Bay Length (ft) | | 60 | | | | |
| Base Capacity (vph) | 713 | 661 | 2163 | | | 3110 |
| Starvation Cap Reductn | 0 | 0 | 0 | | | 0 |
| Spillback Cap Reductn | 0 | 0 | 0 | | | 0 |
| Storage Cap Reductn | 0 | 0 | 0 | | | 0 |
| Reduced v/c Ratio | 0.28 | 0.06 | 0.15 | | | 0.17 |

| Intersection Summary | | | |
|---|---|---|---|
| Area Type: | Other | | |
| Cycle Length: 70 | | | |
| Actuated Cycle Length: 70 | | | |
| Offset: 16 (23%), Referenced to phase 2:NBT and 6:SBT, Start of Green | | | |
| Natural Cycle: 40 | | | |
| Control Type: Actuated-Coordinated | | | |
| Maximum v/c Ratio: 0.60 | | | |
| Intersection Signal Delay: 10.9 | | Intersection LOS: B | |
| Intersection Capacity Utilization 33.9% | | ICU Level of Service A | |
| Analysis Period (min) 15 | | | |

Splits and Phases: 12: 129 & BB North



| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 22 | 6 | 32 | 77 | 3 | 113 | 84 | 684 | 50 | 154 | 530 | 27 |
| Future Volume (vph) | 22 | 6 | 32 | 77 | 3 | 113 | 84 | 684 | 50 | 154 | 530 | 27 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Storage Length (ft) | 250 | | 0 | 60 | | 0 | 250 | | 500 | 245 | | 0 |
| Storage Lanes | 0 | | 0 | 1 | | 0 | 1 | | 1 | 1 | | 0 |
| Taper Length (ft) | 25 | | | 25 | | | 25 | | | 25 | | |
| Lane Util. Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 0.95 |
| Frt | | 0.928 | | | 0.854 | | | | 0.850 | | 0.993 | |
| Flt Protected | | 0.982 | | 0.950 | | | 0.950 | | | 0.950 | | |
| Satd. Flow (prot) | 0 | 1681 | 0 | 1752 | 1575 | 0 | 1752 | 3505 | 1568 | 1752 | 3480 | 0 |
| Flt Permitted | | 0.828 | | 0.714 | | | 0.423 | | | 0.252 | | |
| Satd. Flow (perm) | 0 | 1417 | 0 | 1317 | 1575 | 0 | 780 | 3505 | 1568 | 465 | 3480 | 0 |
| Right Turn on Red | | | Yes | | | Yes | | | Yes | | | Yes |
| Satd. Flow (RTOR) | | 35 | | | 123 | | | | 139 | | 8 | |
| Link Speed (mph) | | 35 | | | 35 | | | 45 | | | 45 | |
| Link Distance (ft) | | 516 | | | 277 | | | 761 | | | 1628 | |
| Travel Time (s) | | 10.1 | | | 5.4 | | | 11.5 | | | 24.7 | |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Adj. Flow (vph) | 24 | 7 | 35 | 84 | 3 | 123 | 91 | 743 | 54 | 167 | 576 | 29 |
| Shared Lane Traffic (%) | | | | | | | | | | | | |
| Lane Group Flow (vph) | 0 | 66 | 0 | 84 | 126 | 0 | 91 | 743 | 54 | 167 | 605 | 0 |
| Enter Blocked Intersection | No | No | No | No | No | No | No | No | No | No | No | No |
| Lane Alignment | Left | Left | Right | Left | Left | Right | Left | Left | Right | Left | Left | Right |
| Median Width(ft) | | 12 | | | 12 | | | 12 | | | 15 | |
| Link Offset(ft) | | 0 | | | 0 | | | 0 | | | 0 | |
| Crosswalk Width(ft) | | 16 | | | 16 | | | 16 | | | 16 | |
| Two way Left Turn Lane | | | | | | | | | | | | |
| Headway 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 |
| Turning Speed (mph) | 15 | | 9 | 15 | | 9 | 15 | | 9 | 15 | | 9 |
| Turn Type | Perm | NA | | Perm | NA | | pm+pt | NA | Perm | pm+pt | NA | |
| Protected Phases | | 4 | | | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | 4 | | | 8 | | | 2 | | 2 | 6 | | |
| Detector Phase | 4 | 4 | | 8 | 8 | | 5 | 2 | 2 | 1 | 6 | |
| Switch Phase | | | | | | | | | | | | |
| Minimum Initial (s) | 6.0 | 6.0 | | 6.0 | 6.0 | | 6.0 | 15.0 | 15.0 | 6.0 | 15.0 | |
| Minimum Split (s) | 25.0 | 25.0 | | 25.0 | 25.0 | | 12.8 | 25.2 | 25.2 | 12.8 | 25.2 | |
| Total Split (s) | 25.0 | 25.0 | | 25.0 | 25.0 | | 13.0 | 36.0 | 36.0 | 19.0 | 42.0 | |
| Total Split (%) | 31.3% | 31.3% | | 31.3% | 31.3% | | 16.3% | 45.0% | 45.0% | 23.8% | 52.5% | |
| Maximum Green (s) | 18.6 | 18.6 | | 18.6 | 18.6 | | 6.2 | 29.2 | 29.2 | 12.2 | 35.2 | |
| Yellow Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.8 | 4.8 | 4.8 | 4.8 | 4.8 | |
| All-Red Time (s) | 2.4 | 2.4 | | 2.4 | 2.4 | | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | |
| Lost Time Adjust (s) | | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | |
| Total Lost Time (s) | | 6.4 | | 6.4 | 6.4 | | 6.8 | 6.8 | 6.8 | 6.8 | 6.8 | |
| Lead/Lag | | | | | | | Lag | Lag | Lag | Lead | 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 | |
| Recall Mode | None | None | | None | None | | None | C-Max | C-Max | None | C-Max | |
| Walk Time (s) | 7.0 | 7.0 | | 7.0 | 7.0 | | | 7.0 | 7.0 | | 7.0 | |

| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Flash Dont Walk (s) | 11.0 | 11.0 | | 11.0 | 11.0 | | | 11.0 | 11.0 | | 11.0 | |
| Pedestrian Calls (#/hr) | 0 | 0 | | 0 | 0 | | | 0 | 0 | | 0 | |
| Act Effct Green (s) | | 10.5 | | 10.5 | 10.5 | | 40.1 | 40.1 | 40.1 | 45.9 | 45.9 | |
| Actuated g/C Ratio | | 0.13 | | 0.13 | 0.13 | | 0.50 | 0.50 | 0.50 | 0.57 | 0.57 | |
| v/c Ratio | | 0.31 | | 0.49 | 0.40 | | 0.20 | 0.42 | 0.06 | 0.40 | 0.30 | |
| Control Delay | | 20.7 | | 41.0 | 10.5 | | 15.3 | 14.8 | 0.1 | 7.1 | 3.6 | |
| Queue Delay | | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | |
| Total Delay | | 20.7 | | 41.0 | 10.5 | | 15.3 | 14.8 | 0.1 | 7.1 | 3.6 | |
| LOS | | C | | D | B | | B | B | A | A | A | |
| Approach Delay | | 20.7 | | | 22.7 | | | 14.0 | | | 4.4 | |
| Approach LOS | | C | | | C | | | B | | | A | |
| Queue Length 50th (ft) | | 14 | | 40 | 1 | | 23 | 116 | 0 | 16 | 52 | |
| Queue Length 95th (ft) | | 46 | | 78 | 45 | | 57 | 198 | 0 | 50 | 72 | |
| Internal Link Dist (ft) | | 436 | | | 197 | | | 681 | | | 1548 | |
| Turn Bay Length (ft) | | | | 60 | | | 250 | | 500 | 245 | | |
| Base Capacity (vph) | | 356 | | 306 | 460 | | 466 | 1754 | 854 | 466 | 2001 | |
| 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 | | 0.19 | | 0.27 | 0.27 | | 0.20 | 0.42 | 0.06 | 0.36 | 0.30 | |

## Intersection Summary

Area Type: Other
Cycle Length: 80
Actuated Cycle Length: 80
Offset: 44 (55%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle: 65
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.49
Intersection Signal Delay: 11.3 Intersection LOS: B
Intersection Capacity Utilization 54.3% ICU Level of Service A
Analysis Period (min) 15

Splits and Phases: 4: 129 & 68th

| Lane Group | WBL | WBR | NBL | NBT | NBR | SBL | SBT | SBR | SEL2 | SEL | SER |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | |
| Traffic Volume (vph) | 0 | 0 | 0 | 598 | 221 | 113 | 617 | 0 | 108 | 0 | 94 |
| Future Volume (vph) | 0 | 0 | 0 | 598 | 221 | 113 | 617 | 0 | 108 | 0 | 94 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Storage Length (ft) | 0 | 0 | 350 | | 320 | 180 | | 0 | | 260 | 300 |
| Storage Lanes | 0 | 0 | 1 | | 1 | 0 | | 0 | | 1 | 1 |
| Taper Length (ft) | 25 | | 25 | | | 25 | | | | 25 | |
| Lane Util. Factor | 1.00 | 1.00 | 1.00 | 0.91 | 1.00 | 1.00 | 0.95 | 1.00 | 0.97 | 1.00 | 1.00 |
| Frt | | | | | | | | | | | |
| Flt Protected | | | | | | 0.950 | | | 0.950 | | |
| Satd. Flow (prot) | 0 | 0 | 0 | 5036 | 1845 | 1752 | 3505 | 0 | 3400 | 0 | 1845 |
| Flt Permitted | | | | | | 0.394 | | | 0.950 | | |
| Satd. Flow (perm) | 0 | 0 | 0 | 5036 | 1845 | 727 | 3505 | 0 | 3400 | 0 | 1845 |
| Right Turn on Red | | | | | Yes | | | Yes | | | Yes |
| Satd. Flow (RTOR) | | | | | 240 | | | | | | 287 |
| Link Speed (mph) | 45 | | | 45 | | | 45 | | | 45 | |
| Link Distance (ft) | 1052 | | | 1628 | | | 552 | | | 836 | |
| Travel Time (s) | 15.9 | | | 24.7 | | | 8.4 | | | 12.7 | |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Adj. Flow (vph) | 0 | 0 | 0 | 650 | 240 | 123 | 671 | 0 | 117 | 0 | 102 |
| Shared Lane Traffic (%) | | | | | | | | | | | |
| Lane Group Flow (vph) | 0 | 0 | 0 | 650 | 240 | 123 | 671 | 0 | 117 | 0 | 102 |
| Enter Blocked Intersection | No | No | No | No | No | No | No | No | No | No | No |
| Lane Alignment | Left | Right | Left | Left | Right | Left | Left | Right | Left | Left | Right |
| Median Width(ft) | 0 | | | 15 | | | 12 | | | 24 | |
| Link Offset(ft) | 0 | | | 0 | | | 0 | | | 0 | |
| Crosswalk Width(ft) | 16 | | | 16 | | | 16 | | | 16 | |
| Two way Left Turn Lane | | | | | | | | | | | |
| Headway Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Turning Speed (mph) | 15 | 9 | 15 | | 9 | 15 | | 9 | 15 | 15 | 9 |
| Turn Type | | | | NA | Perm | D.P+P | NA | | Prot | | Perm |
| Protected Phases | | | | 6 | | 5 | 2 | | 3 | | |
| Permitted Phases | | | | | 6 | 6 | | | | | 3 |
| Detector Phase | | | | 6 | 6 | 5 | 2 | | 3 | | 3 |
| Switch Phase | | | | | | | | | | | |
| Minimum Initial (s) | | | | 15.0 | 15.0 | 6.0 | 15.0 | | 6.0 | | 6.0 |
| Minimum Split (s) | | | | 25.0 | 25.0 | 12.8 | 25.0 | | 12.8 | | 12.8 |
| Total Split (s) | | | | 38.0 | 38.0 | 21.0 | 59.0 | | 21.0 | | 21.0 |
| Total Split (%) | | | | 47.5% | 47.5% | 26.3% | 73.8% | | 26.3% | | 26.3% |
| Maximum Green (s) | | | | 31.2 | 31.2 | 14.2 | 52.2 | | 14.2 | | 14.2 |
| Yellow Time (s) | | | | 4.8 | 4.8 | 4.8 | 4.8 | | 4.8 | | 4.8 |
| All-Red Time (s) | | | | 2.0 | 2.0 | 2.0 | 2.0 | | 2.0 | | 2.0 |
| Lost Time Adjust (s) | | | | 0.0 | 0.0 | 0.0 | 0.0 | | 0.0 | | 0.0 |
| Total Lost Time (s) | | | | 6.8 | 6.8 | 6.8 | 6.8 | | 6.8 | | 6.8 |
| Lead/Lag | | | | Lag | 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 | | | | C-Max | C-Max | None | C-Max | | None | | None |
| Walk Time (s) | | | | 7.0 | 7.0 | | 7.0 | | | | |

| Lane Group | WBL | WBR | NBL | NBT | NBR | SBL | SBT | SBR | SEL2 | SEL | SER |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Flash Dont Walk (s) | | | | 11.0 | 11.0 | | 11.0 | | | | |
| Pedestrian Calls (#/hr) | | | | 0 | 0 | | 0 | | | | |
| Act Effct Green (s) | | | | 46.8 | 46.8 | 52.9 | 58.3 | | 8.1 | | 8.1 |
| Actuated g/C Ratio | | | | 0.58 | 0.58 | 0.66 | 0.73 | | 0.10 | | 0.10 |
| v/c Ratio | | | | 0.22 | 0.20 | 0.22 | 0.26 | | 0.34 | | 0.23 |
| Control Delay | | | | 3.8 | 2.0 | 1.8 | 0.5 | | 35.7 | | 1.2 |
| Queue Delay | | | | 0.0 | 0.0 | 0.0 | 0.0 | | 0.0 | | 0.0 |
| Total Delay | | | | 3.8 | 2.0 | 1.8 | 0.5 | | 35.7 | | 1.2 |
| LOS | | | | A | A | A | A | | D | | A |
| Approach Delay | | | | 3.3 | | | 0.7 | | | 19.6 | |
| Approach LOS | | | | A | | | A | | | B | |
| Queue Length 50th (ft) | | | | 60 | 28 | 1 | 3 | | 28 | | 0 |
| Queue Length 95th (ft) | | | | 7 | 0 | 3 | 3 | | 51 | | 0 |
| Internal Link Dist (ft) | 972 | | | 1548 | | | 472 | | | 756 | |
| Turn Bay Length (ft) | | | | | 320 | 180 | | | 260 | | 300 |
| Base Capacity (vph) | | | | 2947 | 1179 | 708 | 2554 | | 603 | | 563 |
| 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 | | | | 0.22 | 0.20 | 0.17 | 0.26 | | 0.19 | | 0.18 |

| Intersection Summary | | | |
|---|---|---|---|
| Area Type: | Other | | |
| Cycle Length: 80 | | | |
| Actuated Cycle Length: 80 | | | |
| Offset: 0 (0%), Referenced to phase 2:SBT and 6:NBSB, Start of Green | | | |
| Natural Cycle: 55 | | | |
| Control Type: Actuated-Coordinated | | | |
| Maximum v/c Ratio: 0.34 | | | |
| Intersection Signal Delay: 4.1 | | Intersection LOS: A | |
| Intersection Capacity Utilization 37.5% | | ICU Level of Service A | |
| Analysis Period (min) 15 | | | |

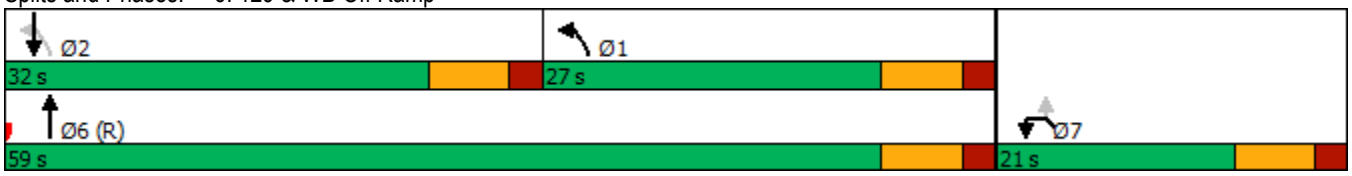
Splits and Phases: 5: 129 & EB Off Ramp

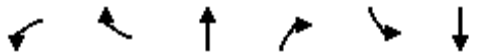
| Lane Group | EBL | EBR | NBL | NBT | NBR | SBL | SBT | SBR | NWL2 | NWL | NWR |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | |
| Traffic Volume (vph) | 0 | 0 | 93 | 613 | 0 | 0 | 536 | 121 | 194 | 0 | 149 |
| Future Volume (vph) | 0 | 0 | 93 | 613 | 0 | 0 | 536 | 121 | 194 | 0 | 149 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Storage Length (ft) | 0 | 0 | 180 | | 0 | 250 | | 250 | | 205 | 245 |
| Storage Lanes | 0 | 0 | 0 | | 0 | 1 | | 0 | | 1 | 1 |
| Taper Length (ft) | 25 | | 25 | | | 25 | | | | 25 | |
| Lane Util. Factor | 1.00 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.91 | 0.91 | 0.97 | 1.00 | 1.00 |
| Frt | | | | | | | 0.972 | | | | |
| Flt Protected | | | 0.950 | | | | | | 0.950 | | |
| Satd. Flow (prot) | 0 | 0 | 1752 | 3505 | 0 | 0 | 4895 | 0 | 3400 | 0 | 1845 |
| Flt Permitted | | | 0.345 | | | | | | 0.950 | | |
| Satd. Flow (perm) | 0 | 0 | 636 | 3505 | 0 | 0 | 4895 | 0 | 3400 | 0 | 1845 |
| Right Turn on Red | | | | | Yes | | | Yes | | | Yes |
| Satd. Flow (RTOR) | | | | | | | 67 | | | | 289 |
| Link Speed (mph) | 45 | | | 45 | | | 45 | | | 45 | |
| Link Distance (ft) | 754 | | | 552 | | | 636 | | | 791 | |
| Travel Time (s) | 11.4 | | | 8.4 | | | 9.6 | | | 12.0 | |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Adj. Flow (vph) | 0 | 0 | 101 | 666 | 0 | 0 | 583 | 132 | 211 | 0 | 162 |
| Shared Lane Traffic (%) | | | | | | | | | | | |
| Lane Group Flow (vph) | 0 | 0 | 101 | 666 | 0 | 0 | 715 | 0 | 211 | 0 | 162 |
| Enter Blocked Intersection | No | No | No | No | No | No | No | No | No | No | No |
| Lane Alignment | Left | Right | Left | L NA | Right | Left | Left | Right | Left | Left | Right |
| Median Width(ft) | 0 | | | 12 | | | 15 | | | 24 | |
| Link Offset(ft) | 0 | | | 0 | | | 0 | | | 0 | |
| Crosswalk Width(ft) | 16 | | | 16 | | | 16 | | | 16 | |
| Two way Left Turn Lane | | | | | | | | | | | |
| Headway Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Turning Speed (mph) | 15 | 9 | 15 | | 9 | 15 | | 9 | 15 | 15 | 9 |
| Turn Type | | | D.P+P | NA | | | NA | | Prot | | Perm |
| Protected Phases | | | 1 | 6 | | | 2 | | 7 | | |
| Permitted Phases | | | 2 | | | | | | | | 7 |
| Detector Phase | | | 1 | 6 | | | 2 | | 7 | | 7 |
| Switch Phase | | | | | | | | | | | |
| Minimum Initial (s) | | | 6.0 | 15.0 | | | 15.0 | | 6.0 | | 6.0 |
| Minimum Split (s) | | | 25.0 | 25.0 | | | 25.0 | | 12.8 | | 12.8 |
| Total Split (s) | | | 27.0 | 59.0 | | | 32.0 | | 21.0 | | 21.0 |
| Total Split (%) | | | 33.8% | 73.8% | | | 40.0% | | 26.3% | | 26.3% |
| Maximum Green (s) | | | 20.2 | 52.2 | | | 25.2 | | 14.2 | | 14.2 |
| Yellow Time (s) | | | 4.8 | 4.8 | | | 4.8 | | 4.8 | | 4.8 |
| All-Red Time (s) | | | 2.0 | 2.0 | | | 2.0 | | 2.0 | | 2.0 |
| Lost Time Adjust (s) | | | 0.0 | 0.0 | | | 0.0 | | 0.0 | | 0.0 |
| Total Lost Time (s) | | | 6.8 | 6.8 | | | 6.8 | | 6.8 | | 6.8 |
| Lead/Lag | | | Lag | | | | Lead | | | | |
| Lead-Lag Optimize? | | | Yes | | | | Yes | | | | |
| Vehicle Extension (s) | | | 3.0 | 3.0 | | | 3.0 | | 3.0 | | 3.0 |
| Recall Mode | | | Max | C-Max | | | Max | | None | | None |
| Walk Time (s) | | | 7.0 | 7.0 | | | 7.0 | | | | |

| Lane Group | EBL | EBR | NBL | NBT | NBR | SBL | SBT | SBR | NWL2 | NWL | NWR |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Flash Dont Walk (s) | | | 11.0 | 11.0 | | | 11.0 | | | | |
| Pedestrian Calls (#/hr) | | | 0 | 0 | | | 0 | | | | |
| Act Effct Green (s) | | | 49.4 | 56.2 | | | 29.2 | | 10.2 | | 10.2 |
| Actuated g/C Ratio | | | 0.62 | 0.70 | | | 0.36 | | 0.13 | | 0.13 |
| v/c Ratio | | | 0.15 | 0.27 | | | 0.39 | | 0.49 | | 0.33 |
| Control Delay | | | 1.8 | 1.7 | | | 11.7 | | 35.9 | | 1.8 |
| Queue Delay | | | 0.0 | 0.0 | | | 0.0 | | 0.0 | | 0.0 |
| Total Delay | | | 1.8 | 1.7 | | | 11.7 | | 35.9 | | 1.8 |
| LOS | | | A | A | | | B | | D | | A |
| Approach Delay | | | | 1.7 | | | 11.7 | | | 21.1 | |
| Approach LOS | | | | A | | | B | | | C | |
| Queue Length 50th (ft) | | | 1 | 3 | | | 75 | | 51 | | 0 |
| Queue Length 95th (ft) | | | 4 | 8 | | | 91 | | 80 | | 0 |
| Internal Link Dist (ft) | 674 | | | 472 | | | 556 | | | 711 | |
| Turn Bay Length (ft) | | | 180 | | | | | | 205 | | 245 |
| Base Capacity (vph) | | | 674 | 2460 | | | 1826 | | 603 | | 565 |
| 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 | | | 0.15 | 0.27 | | | 0.39 | | 0.35 | | 0.29 |

| Intersection Summary | | | |
|---|---|---|---|
| Area Type: | Other | | |
| Cycle Length: 80 | | | |
| Actuated Cycle Length: 80 | | | |
| Offset: 78 (98%), Referenced to phase 6:NBT, Start of Green | | | |
| Natural Cycle: 65 | | | |
| Control Type: Actuated-Coordinated | | | |
| Maximum v/c Ratio: 0.49 | | | |
| Intersection Signal Delay: 9.5 | | Intersection LOS: A | |
| Intersection Capacity Utilization 37.5% | | ICU Level of Service A | |
| Analysis Period (min) 15 | | | |

Splits and Phases: 6: 129 & WB Off Ramp





| Movement | WBL | WBR | NBT | NBR | SBL | SBT |
|---|---|---|---|---|---|---|
| Lane Configurations | | | ↑↑ | ↱ | ↰ | ↑↑ |
| Traffic Volume (veh/h) | 0 | 0 | 491 | 271 | 16 | 657 |
| Future Volume (Veh/h) | 0 | 0 | 491 | 271 | 16 | 657 |
| Sign Control | Stop | | Free | | | Free |
| Grade | 0% | | 0% | | | 0% |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Hourly flow rate (vph) | 0 | 0 | 534 | 295 | 17 | 714 |
| Pedestrians | | | | | | |
| Lane Width (ft) | | | | | | |
| Walking Speed (ft/s) | | | | | | |
| Percent Blockage | | | | | | |
| Right turn flare (veh) | | | | | | |
| Median type | | | None | | | None |
| Median storage veh) | | | | | | |
| Upstream signal (ft) | | | 636 | | | 288 |
| pX, platoon unblocked | 0.95 | | | | | |
| vC, conflicting volume | 925 | 267 | | | 534 | |
| vC1, stage 1 conf vol | | | | | | |
| vC2, stage 2 conf vol | | | | | | |
| vCu, unblocked vol | 825 | 267 | | | 534 | |
| tC, single (s) | 6.9 | 7.0 | | | 4.2 | |
| tC, 2 stage (s) | | | | | | |
| tF (s) | 3.5 | 3.3 | | | 2.2 | |
| p0 queue free % | 100 | 100 | | | 98 | |
| cM capacity (veh/h) | 290 | 728 | | | 1023 | |

| Direction, Lane # | NB 1 | NB 2 | NB 3 | SB 1 | SB 2 | SB 3 |
|---|---|---|---|---|---|---|
| Volume Total | 267 | 267 | 295 | 17 | 357 | 357 |
| Volume Left | 0 | 0 | 0 | 17 | 0 | 0 |
| Volume Right | 0 | 0 | 295 | 0 | 0 | 0 |
| cSH | 1700 | 1700 | 1700 | 1023 | 1700 | 1700 |
| Volume to Capacity | 0.16 | 0.16 | 0.17 | 0.02 | 0.21 | 0.21 |
| Queue Length 95th (ft) | 0 | 0 | 0 | 1 | 0 | 0 |
| Control Delay (s) | 0.0 | 0.0 | 0.0 | 8.6 | 0.0 | 0.0 |
| Lane LOS | | | | A | | |
| Approach Delay (s) | 0.0 | | | 0.2 | | |
| Approach LOS | | | | | | |

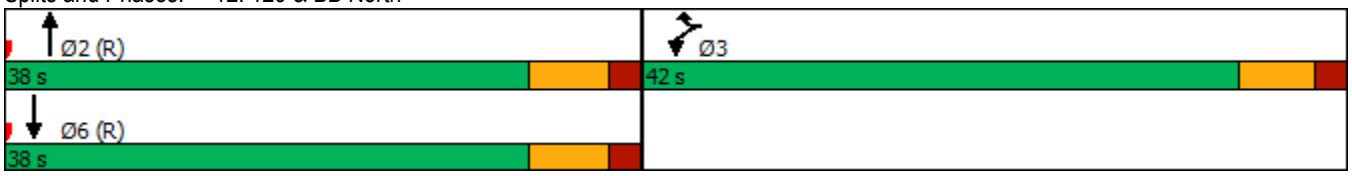
| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 0.1 | | |
| Intersection Capacity Utilization | 26.8% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |

| Lane Group | WBL | WBR | NBT | NBR | SBL | SBT |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Traffic Volume (vph) | 250 | 37 | 486 | 5 | 0 | 423 |
| Future Volume (vph) | 250 | 37 | 486 | 5 | 0 | 423 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Storage Length (ft) | 0 | 60 | | 0 | 310 | |
| Storage Lanes | 1 | 1 | | 0 | 1 | |
| Taper Length (ft) | 25 | | | | 25 | |
| Lane Util. Factor | 1.00 | 1.00 | 0.95 | 0.95 | 1.00 | 0.91 |
| Frt | | 0.850 | 0.999 | | | |
| Flt Protected | 0.950 | | | | | |
| Satd. Flow (prot) | 1752 | 1568 | 3501 | 0 | 0 | 5036 |
| Flt Permitted | 0.950 | | | | | |
| Satd. Flow (perm) | 1752 | 1568 | 3501 | 0 | 0 | 5036 |
| Right Turn on Red | | Yes | | Yes | | |
| Satd. Flow (RTOR) | | 40 | 1 | | | |
| Link Speed (mph) | 30 | | 45 | | | 45 |
| Link Distance (ft) | 196 | | 288 | | | 457 |
| Travel Time (s) | 4.5 | | 4.4 | | | 6.9 |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Adj. Flow (vph) | 272 | 40 | 528 | 5 | 0 | 460 |
| Shared Lane Traffic (%) | | | | | | |
| Lane Group Flow (vph) | 272 | 40 | 533 | 0 | 0 | 460 |
| Enter Blocked Intersection | No | No | No | No | No | No |
| Lane Alignment | Left | Right | Left | Right | Left | Left |
| Median Width(ft) | 12 | | 15 | | | 15 |
| Link Offset(ft) | 0 | | 0 | | | 0 |
| Crosswalk Width(ft) | 16 | | 0 | | | 0 |
| Two way Left Turn Lane | | | | | | |
| Headway Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Turning Speed (mph) | 15 | 9 | | 9 | 15 | |
| Turn Type | Prot | Prot | NA | | | NA |
| Protected Phases | 3 | 3 | 2 | | | 6 |
| Permitted Phases | | | | | | |
| Detector Phase | 3 | 3 | 2 | | | 6 |
| Switch Phase | | | | | | |
| Minimum Initial (s) | 5.0 | 5.0 | 15.0 | | | 15.0 |
| Minimum Split (s) | 11.5 | 11.5 | 25.0 | | | 25.0 |
| Total Split (s) | 42.0 | 42.0 | 38.0 | | | 38.0 |
| Total Split (%) | 52.5% | 52.5% | 47.5% | | | 47.5% |
| Maximum Green (s) | 35.5 | 35.5 | 31.2 | | | 31.2 |
| Yellow Time (s) | 4.5 | 4.5 | 4.8 | | | 4.8 |
| All-Red Time (s) | 2.0 | 2.0 | 2.0 | | | 2.0 |
| Lost Time Adjust (s) | 0.0 | 0.0 | 0.0 | | | 0.0 |
| Total Lost Time (s) | 6.5 | 6.5 | 6.8 | | | 6.8 |
| Lead/Lag | | | | | | |
| Lead-Lag Optimize? | | | | | | |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | | | 3.0 |
| Recall Mode | None | None | C-Min | | | C-Min |
| Walk Time (s) | | | 7.0 | | | 7.0 |

| Lane Group | WBL | WBR | NBT | NBR | SBL | SBT |
|---|---|---|---|---|---|---|
| Flash Dont Walk (s) | | | 11.0 | | | 11.0 |
| Pedestrian Calls (#/hr) | | | 0 | | | 0 |
| Act Effct Green (s) | 18.0 | 18.0 | 48.7 | | | 48.7 |
| Actuated g/C Ratio | 0.22 | 0.22 | 0.61 | | | 0.61 |
| v/c Ratio | 0.69 | 0.10 | 0.25 | | | 0.15 |
| Control Delay | 37.0 | 7.8 | 4.5 | | | 7.7 |
| Queue Delay | 0.0 | 0.0 | 0.0 | | | 0.0 |
| Total Delay | 37.0 | 7.8 | 4.5 | | | 7.7 |
| LOS | D | A | A | | | A |
| Approach Delay | 33.3 | | 4.5 | | | 7.7 |
| Approach LOS | C | | A | | | A |
| Queue Length 50th (ft) | 125 | 0 | 32 | | | 32 |
| Queue Length 95th (ft) | 183 | 21 | 50 | | | 58 |
| Internal Link Dist (ft) | 116 | | 208 | | | 377 |
| Turn Bay Length (ft) | | 60 | | | | |
| Base Capacity (vph) | 777 | 718 | 2129 | | | 3063 |
| Starvation Cap Reductn | 0 | 0 | 0 | | | 0 |
| Spillback Cap Reductn | 0 | 0 | 0 | | | 0 |
| Storage Cap Reductn | 0 | 0 | 0 | | | 0 |
| Reduced v/c Ratio | 0.35 | 0.06 | 0.25 | | | 0.15 |

| Intersection Summary | | | |
|---|---|---|---|
| Area Type: | Other | | |
| Cycle Length: 80 | | | |
| Actuated Cycle Length: 80 | | | |
| Offset: 28 (35%), Referenced to phase 2:NBT and 6:SBT, Start of Green | | | |
| Natural Cycle: 40 | | | |
| Control Type: Actuated-Coordinated | | | |
| Maximum v/c Ratio: 0.69 | | | |
| Intersection Signal Delay: 12.5 | | Intersection LOS: B | |
| Intersection Capacity Utilization 38.5% | | ICU Level of Service A | |
| Analysis Period (min) 15 | | | |

Splits and Phases: 12: 129 & BB North



# APPENDIX G

Safety Analysis – Crash Modification Factors

CRASH MODIFICATION FACTORS CLEARINGHOUSE

# CMF / CRF DETAILS

## CMF ID: 322

## INSTALL A TRAFFIC SIGNAL (MAJOR ROAD SPEED LIMIT AT LEAST 40 MPH)

DESCRIPTION: INSTALL A TRAFFIC SIGNAL (MAJOR ROAD SPEED LIMIT AT LEAST 40 MPH)

PRIOR CONDITION: *NO PRIOR CONDITION(S)*

CATEGORY: INTERSECTION TRAFFIC CONTROL

STUDY: *SAFETY EFFECTS OF LEFT-TURN PHASING SCHEMES AT HIGH-SPEED INTERSECTIONS*, DAVIS AND AUL, 2007

| | |
|---|---|
| **Star Quality Rating:** | ★★★☆☆ |

**Crash Modi cation Factor (CMF)**

| | |
|---|---|
| **Value:** | 0.95 |
| **Adjusted Standard Error:** | 0.09 |
| **Unadjusted Standard Error:** | 0.08 |

**Crash Reduction Factor (CRF)**

| | |
|---|---|
| **Value:** | 5 *(This value indicates a **decrease** in crashes)* |
| **Adjusted Standard Error:** | 9 |
| **Unadjusted Standard Error:** | 8 |

**Applicability**

| | |
|---|---|
| **Crash Type:** | All |
| **Crash Severity:** | All |
| **Roadway Types:** | Not Speci ed |
| **Number of Lanes:** | |
| **Road Division Type:** | |
| **Speed Limit:** | |
| **Area Type:** | Urban |
| **Traf c Volume:** | |
| **Average Traf c Volume:** | |
| **Time of Day:** | |

***If countermeasure is intersection-based***

| | |
|---|---|
| **Intersection Type:** | Roadway/roadway (not interchange related) |
| **Intersection Geometry:** | 4-leg |
| **Traf c Control:** | Stop-controlled |
| **Major Road Traf c Volume:** | |
| **Minor Road Traf c Volume:** | |
| **Average Major Road Volume :** | |
| **Average Minor Road Volume :** | |

**Development Details**

| | |
|---|---|
| **Date Range of Data Used:** | |
| **Municipality:** | |
| **State:** | |
| **Country:** | |
| **Type of Methodology Used:** | Before/after using empirical Bayes or full Bayes |

**Other Details**

| | |
|---|---|
| **Included in Highway Safety Manual?** | Yes. HSM lists this CMF in bold font to indicate that it has the highest reliability since it has an adjusted standard erro less. However, it also includes an asterisk (*) to indicate that the CMF value itself is within the range 0.90 to 1.10, but con dence interval de ned by the CMF ± two times the standard error may contain the value 1.0. This is important t a treatment with such an CMF could potentially result in (a) a reduction in crashes (safety bene t), (b) no change, or ( increase in crashes (safety disbene t). HSM recommends that this CMF should be used with caution. |
| **Date Added to Clearinghouse:** | Dec-01-2009 |
| **Comments:** | Countermeasure name changed to match HSM |

VIEW THE FULL STUDY DETA

EXPORT DETAIL PAGE AS A P

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For more information, contact Karen Scurry at **karen.scurry@dot.gov**

CRASH MODIFICATION FACTORS CLEARINGHOUSE

# CMF / CRF DETAILS

## CMF ID: 323

## INSTALL A TRAFFIC SIGNAL (MAJOR ROAD SPEED LIMIT AT LEAST 40 MPH)

DESCRIPTION: INSTALL A TRAFFIC SIGNAL (MAJOR ROAD SPEED LIMIT AT LEAST 40 MPH)

PRIOR CONDITION: *NO PRIOR CONDITION(S)*

CATEGORY: INTERSECTION TRAFFIC CONTROL

STUDY: *SAFETY EFFECTS OF LEFT-TURN PHASING SCHEMES AT HIGH-SPEED INTERSECTIONS*, DAVIS AND AUL, 2007

| | |
|---|---|
| **Star Quality Rating:** | ★★★★☆ |

**Crash Modi cation Factor (CMF)**

| | |
|---|---|
| **Value:** | 0.33 |
| **Adjusted Standard Error:** | 0.06 |
| **Unadjusted Standard Error:** | 0.05 |

**Crash Reduction Factor (CRF)**

| | |
|---|---|
| **Value:** | 67 *(This value indicates a **decrease** in crashes)* |
| **Adjusted Standard Error:** | 6 |
| **Unadjusted Standard Error:** | 5 |

**Applicability**

| | |
|---|---|
| **Crash Type:** | Angle |
| **Crash Severity:** | All |
| **Roadway Types:** | Not Speci ed |
| **Number of Lanes:** | |
| **Road Division Type:** | |
| **Speed Limit:** | |
| **Area Type:** | Urban |
| **Traf c Volume:** | |
| **Average Traf c Volume:** | |
| **Time of Day:** | |

***If countermeasure is intersection-based***

| | |
|---|---|
| **Intersection Type:** | Roadway/roadway (not interchange related) |
| **Intersection Geometry:** | 4-leg |
| **Traf c Control:** | Stop-controlled |
| **Major Road Traf c Volume:** | |
| **Minor Road Traf c Volume:** | |
| **Average Major Road Volume :** | |
| **Average Minor Road Volume :** | |

**Development Details**

| | |
|---|---|
| **Date Range of Data Used:** | |
| **Municipality:** | |
| **State:** | |
| **Country:** | |
| **Type of Methodology Used:** | Before/after using empirical Bayes or full Bayes |

**Other Details**

| | |
|---|---|
| **Included in Highway Safety Manual?** | Yes. HSM lists this CMF in **bold** font to indicate that it has the highest reliability since it has an adjusted standard erro less. |
| **Date Added to Clearinghouse:** | Dec-01-2009 |
| **Comments:** | Countermeasure name changed to match HSM |

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CRASH MODIFICATION FACTORS CLEARINGHOUSE

# CMF / CRF DETAILS

## CMF ID: 324

## INSTALL A TRAFFIC SIGNAL (MAJOR ROAD SPEED LIMIT AT LEAST 40 MPH)

DESCRIPTION: INSTALL A TRAFFIC SIGNAL (MAJOR ROAD SPEED LIMIT AT LEAST 40 MPH)

PRIOR CONDITION: *NO PRIOR CONDITION(S)*

CATEGORY: INTERSECTION TRAFFIC CONTROL

STUDY: *SAFETY EFFECTS OF LEFT-TURN PHASING SCHEMES AT HIGH-SPEED INTERSECTIONS*, DAVIS AND AUL, 2007

| | |
|---|---|
| **Star Quality Rating:** | ★★★☆☆ |

**Crash Modi cation Factor (CMF)**

| | |
|---|---|
| **Value:** | 2.43 |
| **Adjusted Standard Error:** | 0.37 |
| **Unadjusted Standard Error:** | 0.31 |

**Crash Reduction Factor (CRF)**

| | |
|---|---|
| **Value:** | -143 *(This value indicates an **increase** in crashes)* |
| **Adjusted Standard Error:** | 37 |
| **Unadjusted Standard Error:** | 31 |

**Applicability**

| | |
|---|---|
| **Crash Type:** | Rear end |
| **Crash Severity:** | All |
| **Roadway Types:** | Not Speci ed |
| **Number of Lanes:** | |
| **Road Division Type:** | |
| **Speed Limit:** | |
| **Area Type:** | Urban |
| **Traf c Volume:** | |
| **Average Traf c Volume:** | |
| **Time of Day:** | |

***If countermeasure is intersection-based***

| | |
|---|---|
| **Intersection Type:** | Roadway/roadway (not interchange related) |
| **Intersection Geometry:** | 4-leg |
| **Traf c Control:** | Stop-controlled |
| **Major Road Traf c Volume:** | |
| **Minor Road Traf c Volume:** | |
| **Average Major Road Volume :** | |
| **Average Minor Road Volume :** | |

**Development Details**

| | |
|---|---|
| **Date Range of Data Used:** | |
| **Municipality:** | |
| **State:** | |
| **Country:** | |
| **Type of Methodology Used:** | Before/after using empirical Bayes or full Bayes |

**Other Details**

| | |
|---|---|
| **Included in Highway Safety Manual?** | Yes. HSM lists this CMF in italics font to indicate that it has a lower reliability than bold font CMFs since it has an adju standard error of 0.2 to 0.3. |
| **Date Added to Clearinghouse:** | Dec-01-2009 |
| **Comments:** | Countermeasure name changed to match HSM |

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# APPENDIX H

FDOT Long Range Estimate

Date: 12/27/2021 3:09:37 PM

# FDOT Long Range Estimating System - Production

## R3: Project Details by Sequence Report

**Project:** 443239-1-52-01 **Letting Date:** 03/2025

**Description:** Conceptual estimate for ramp modifications at I-10 and US 129.

**District:** 02 **County:** 37 SUWANNEE **Market Area:** 04 **Units:** English
**Contract Class:** 9 **Lump Sum Project:** N **Design/Build:** Y **Project Length:** 1.000 MI

**Project Manager:** Justin Garland

**Version 9-P Project Grand Total** **$6,142,682.78**

**Description:** 07/13/2021 VC Created by Osiris 9. US 129 widening to four lanes north of I-10. Carry 30' median typical section as far as possible and then taper down to two lanes. No bulbout U-turn.

**Sequence:** 1 WDU - Widen/Resurface, Divided, Urban **Net Length:** 0.403 MI
2,125 LF

**Description:** 4-lane, urban, with 5' bicycle lanes, 6' sidewalks, variable median width.

### EARTHWORK COMPONENT

**User Input Data**

| Description | Value |
|---|---|
| Standard Clearing and Grubbing Limits L/R | 0.00 / 0.00 |
| Incidental Clearing and Grubbing Area | 6.50 |
| | |
| Alignment Number | 1 |
| Distance | 0.000 |
| Top of Structural Course For Begin Section | 102.00 |
| Top of Structural Course For End Section | 102.00 |
| Horizontal Elevation For Begin Section | 100.00 |
| Horizontal Elevation For End Section | 100.00 |
| Existing Front Slope L/R | 6 to 1 / 6 to 1 |
| Existing Median Shoulder Cross Slope L/R | 0.00 % / 0.00 % |
| Existing Outside Shoulder Cross Slope L/R | 6.00 % / 6.00 % |
| Front Slope L/R | 6 to 1 / 6 to 1 |
| Median Shoulder Cross Slope L/R | 0.00 % / 0.00 % |
| Outside Shoulder Cross Slope L/R | 2.00 % / 2.00 % |
| Roadway Cross Slope L/R | 2.00 % / 2.00 % |

**Pay Items**

| Pay item | Description | Quantity | Unit | Unit Price | Extended Amount |
|---|---|---|---|---|---|
| 110-1-1 | CLEARING & GRUBBING | 6.50 | AC | $16,509.96 | $107,314.74 |

**X-Items**

| Pay item | Description | Quantity | Unit | Unit Price | Extended Amount |
|---|---|---|---|---|---|
| 120-1 | REGULAR EXCAVATION | 815.00 | CY | $13.17 | $10,733.55 |
| | **Comment:** Calculated from 3D model. | | | | |

**Earthwork Component Total** $118,048.29

### ROADWAY COMPONENT

**User Input Data**

| Description | Value |
|---|---|
| Number of Lanes | 4 |
| Existing Roadway Pavement Width L/R | 16.20 / 14.87 |
| Structural Spread Rate | 165 |
| Friction Course Spread Rate | 165 |
| Widened Outside Pavement Width L/R | 16.96 / 17.86 |
| Widened Inside Pavement Width L/R | 0.29 / 0.00 |
| Widened Structural Spread Rate | 165 |
| Widened Friction Course Spread Rate | 165 |

**Pay Items**

| Pay item | Description | Quantity | Unit | Unit Price | Extended Amount |
|---|---|---|---|---|---|
| 285-709 | OPTIONAL BASE,BASE GROUP 09 | 8,524.41 | SY | $30.49 | $259,909.26 |
| 327-70-5 | MILLING EXIST ASPH PAVT, 2" AVG DEPTH | 7,336.66 | SY | $2.55 | $18,708.48 |
| 334-1-53 | SUPERPAVE ASPH CONC, TRAF C, PG76-22 | 605.27 | TN | $126.68 | $76,675.60 |
| 334-1-53 | SUPERPAVE ASPH CONC, TRAF C, PG76-22 | 683.98 | TN | $126.68 | $86,646.59 |
| 337-7-83 | ASPH CONC FC,TRAFFIC C,FC-12.5,PG 76-22 | 683.98 | TN | $138.67 | $94,847.51 |
| 337-7-83 | ASPH CONC FC,TRAFFIC C,FC-12.5,PG 76-22 | 605.27 | TN | $138.67 | $83,932.79 |

**Pavement Marking Subcomponent**

| Description | Value |
|---|---|
| Include Thermo/Tape/Other | Y |
| Pavement Type | Asphalt |
| Solid Stripe No. of Paint Applications | 1 |
| Solid Stripe No. of Stripes | 2 |
| Skip Stripe No. of Paint Applications | 1 |
| Skip Stripe No. of Stripes | 2 |

**Pay Items**

| Pay item | Description | Quantity | Unit | Unit Price | Extended Amount |
|---|---|---|---|---|---|
| 706-1-1 | RAISED PAVMT MARK, TYPE B W/O FINAL SURF | 163.00 | EA | $5.16 | $841.08 |
| 710-11-101 | PAINTED PAVT MARK,STD,WHITE,SOLID,6" | 0.80 | GM | $1,098.02 | $878.42 |
| 710-11-131 | PAINTED PAVT MARK,STD,WHITE,SKIP, 6" | 0.80 | GM | $589.46 | $471.57 |
| 711-15-201 | THERMOPLASTIC, STD-OP,YELLOW, SOLID, 6" | 0.80 | GM | $5,632.60 | $4,506.08 |
| 711-16-101 | THERMOPLASTIC, STD-OTH, WHITE, SOLID, 6" | 0.80 | GM | $5,062.19 | $4,049.75 |
| 711-16-131 | THERMOPLASTIC, STD-OTH, WHITE, SKIP, 6" | 0.80 | GM | $1,514.05 | $1,211.24 |
| | **Roadway Component Total** | | | | $632,678.37 |

## SHOULDER COMPONENT

**User Input Data**

| Description | Value |
|---|---|
| Existing Total Outside Shoulder Width L/R | 15.00 / 15.00 |
| New Total Outside Shoulder Width L/R | 8.56 / 8.65 |

| | |
|---|---|
| Total Outside Shoulder Perf. Turf Width L/R | 4.28 / 4.27 |
| Sidewalk Width L/R | 2.03 / 2.13 |

**Pay Items**

| Pay item | Description | Quantity | Unit | Unit Price | Extended Amount |
|---|---|---|---|---|---|
| 522-1 | CONCRETE SIDEWALK AND DRIVEWAYS, 4" | 982.31 | SY | $47.68 | $46,836.54 |
| 570-1-1 | PERFORMANCE TURF | 2,018.94 | SY | $0.49 | $989.28 |

**X-Items**

| Pay item | Description | Quantity | Unit | Unit Price | Extended Amount |
|---|---|---|---|---|---|
| 520-1-10 | CONCRETE CURB & GUTTER, TYPE F | 3,370.00 | LF | $32.02 | $107,907.40 |

**Erosion Control**

**Pay Items**

| Pay item | Description | Quantity | Unit | Unit Price | Extended Amount |
|---|---|---|---|---|---|
| 104-10-3 | SEDIMENT BARRIER | 4,290.00 | LF | $2.25 | $9,652.50 |
| 104-12 | STAKED TURBIDITY BARRIER-NYL REINF PVC | 41.19 | LF | $6.96 | $286.68 |
| 104-15 | SOIL TRACKING PREVENTION DEVICE | 1.00 | EA | $2,968.67 | $2,968.67 |
| 107-1 | LITTER REMOVAL | 3.59 | AC | $22.61 | $81.17 |
| 107-2 | MOWING | 3.59 | AC | $58.81 | $211.13 |

**Shoulder Component Total** $168,933.37

## MEDIAN COMPONENT

**User Input Data**

| Description | Value |
|---|---|
| Total Median Width | 18.00 |
| Performance Turf Width | 11.69 |

**Pay Items**

| Pay item | Description | Quantity | Unit | Unit Price | Extended Amount |
|---|---|---|---|---|---|
| 570-1-2 | PERFORMANCE TURF, SOD | 2,760.40 | SY | $3.50 | $9,661.40 |

**X-Items**

| Pay item | Description | Quantity | Unit | Unit Price | Extended Amount |
|---|---|---|---|---|---|
| 520-1-7 | CONCRETE CURB & GUTTER, TYPE E | 3,270.00 | LF | $20.74 | $67,819.80 |

**Median Component Total** $77,481.20

## DRAINAGE COMPONENT

**Pay Items**

| Pay item | Description | Quantity | Unit | Unit Price | Extended Amount |
|---|---|---|---|---|---|
| 425-1-351 | INLETS, CURB, TYPE P-5, <10' | 7.00 | EA | $5,779.41 | $40,455.87 |
| 430-175-124 | PIPE CULV, OPT MATL, ROUND, 24"S/CD | 2,120.00 | LF | $95.93 | $203,371.60 |
| 570-1-1 | PERFORMANCE TURF | 250.00 | SY | $0.49 | $122.50 |

| | | |
|---|---|---|
| | **Drainage Component Total** | $243,949.97 |

## SIGNING COMPONENT

**Pay Items**

| Pay item | Description | Quantity Unit | Unit Price | Extended Amount |
|---|---|---|---|---|
| 700-1-11 | SINGLE POST SIGN, F&I GM, <12 SF | 30.00 AS | $387.62 | $11,628.60 |
| 700-1-12 | SINGLE POST SIGN, F&I GM, 12-20 SF | 6.00 AS | $954.13 | $5,724.78 |
| 700-1-60 | SINGLE POST SIGN, REMOVE | 12.00 AS | $11.93 | $143.16 |
| 700-2-60 | MULTI- POST SIGN, REMOVE | 1.00 AS | $119.26 | $119.26 |

**X-Items**

| Pay item | Description | Quantity Unit | Unit Price | Extended Amount |
|---|---|---|---|---|
| 700-2-12 | MULTI- POST SIGN, F&I GM, 12-20 SF | 1.00 AS | $3,866.67 | $3,866.67 |
| | **Comment:** All signs updated to reflect conceptual signing plan. | | | |
| 700-2-14 | MULTI- POST SIGN, F&I GM, 31-50 SF | 1.00 AS | $4,784.83 | $4,784.83 |

| | | |
|---|---|---|
| | **Signing Component Total** | $26,267.30 |

## SIGNALIZATIONS COMPONENT

**Signalization 1**

| Description | Value |
|---|---|
| Type | 4 Lane Mast Arm |
| Multiplier | 1 |
| Description | |

**Pay Items**

| Pay item | Description | Quantity Unit | Unit Price | Extended Amount |
|---|---|---|---|---|
| 630-2-11 | CONDUIT, F& I, OPEN TRENCH | 750.00 LF | $5.04 | $3,780.00 |
| 630-2-12 | CONDUIT, F& I, DIRECTIONAL BORE | 250.00 LF | $22.06 | $5,515.00 |
| 632-7-1 | SIGNAL CABLE- NEW OR RECO, FUR & INSTALL | 4.00 PI | $5,366.96 | $21,467.84 |
| 635-2-11 | PULL & SPLICE BOX, F&I, 13" x 24" | 16.00 EA | $653.51 | $10,456.16 |
| 639-1-112 | ELECTRICAL POWER SRV,F&I,OH,M,PUR BY CON | 1.00 AS | $2,870.71 | $2,870.71 |
| 639-2-1 | ELECTRICAL SERVICE WIRE, F&I | 100.00 LF | $5.42 | $542.00 |
| 641-2-11 | PREST CNC POLE,F&I,TYP P-II,PEDESTAL | 2.00 EA | $1,438.45 | $2,876.90 |
| 650-1-14 | VEH TRAF SIGNAL,F&I ALUMINUM, 3 S 1 W | 10.00 AS | $1,037.87 | $10,378.70 |
| 653-1-11 | PEDESTRIAN SIGNAL, F&I LED COUNT, 1 WAY | 2.00 AS | $638.47 | $1,276.94 |
| 660-2-106 | LOOP ASSEMBLY, F&I, TYPE F | 7.00 AS | $1,311.92 | $9,183.44 |
| 665-1-12 | PEDESTRIAN DETECTOR, F&I, ACCESSIBLE | 2.00 EA | $1,501.89 | $3,003.78 |
| 670-5-111 | TRAF CNTL ASSEM, F&I, NEMA, 1 PREEMPT | 1.00 AS | $32,000.00 | $32,000.00 |
| 700-5-21 | INTERNAL ILLUM SIGN, F&I OM, UP TO 12 SF | 3.00 EA | $3,950.00 | $11,850.00 |

**X-Items**

| Pay item | Description | Quantity Unit | Unit Price | Extended Amount |
|---|---|---|---|---|
| 649-21-3 | STEEL MAST ARM ASSEMBLY, F&I, 40' | 1.00 EA | $44,000.00 | $44,000.00 |
| 649-21-13 | STEEL MAST ARM ASSEMBLY, F&I, 60'- 50' | 1.00 EA | $53,977.39 | $53,977.39 |
| | **Signalizations Component Total** | | | $213,178.86 |

**LIGHTING COMPONENT**

**X-Items**

| Pay item | Description | Quantity Unit | Unit Price | Extended Amount |
|---|---|---|---|---|
| 630-2-11 | CONDUIT, F& I, OPEN TRENCH | 500.00 LF | $5.04 | $2,520.00 |
| 635-2-11 | PULL & SPLICE BOX, F&I, 13" x 24" | 4.00 EA | $653.51 | $2,614.04 |
| 639-1-122 | ELECTRICAL POWER SRV,F&I, UG,PUR CONT | 1.00 AS | $3,001.33 | $3,001.33 |
| 715-5-31 | LUMINAIRE & BRACKET ARM, F&I NEW | 2.00 EA | $1,747.43 | $3,494.86 |
| | **Comment:** Lighting for northern busy bee intersection | | | |
| | **Lighting Component Total** | | | $11,630.23 |

**Sequence 1 Total** $1,492,167.59

**Sequence:** 3 MIS - Miscellaneous Construction **Net Length:** 0.331 MI
1,750 LF

**Description:** Interconnect for Signals. Includes both interchange signals and signal at Busy Bee intersection.

**SIGNALIZATIONS COMPONENT**

**Interconnect Subcomponent**

| Description | Value |
|---|---|
| Type | U |
| Length of Fiber Run | 2,000.00 |
| Number of Intersections | 3 |
| Percentage of Underpavement Conduit | 10.00 |

**Pay Items**

| Pay item | Description | Quantity | Unit | Unit Price | Extended Amount |
|---|---|---|---|---|---|
| 630-2-11 | CONDUIT, F& I, OPEN TRENCH | 1,800.00 | LF | $5.04 | $9,072.00 |
| 630-2-12 | CONDUIT, F& I, DIRECTIONAL BORE | 200.00 | LF | $22.06 | $4,412.00 |
| 633-1-122 | FIBER OPTIC CABLE, F&I, UG,13-48 | 2,000.00 | LF | $2.58 | $5,160.00 |
| 635-2-12 | PULL & SPLICE BOX, F&I, 24" X 36" | 3.00 | EA | $1,338.21 | $4,014.63 |
| 635-3-12 | JUNCTION BOX, FURNISH & INSTALL, MOUNTED | 3.00 | EA | $358.16 | $1,074.48 |
| 660-2-102 | LOOP ASSEMBLY, F&I, TYPE B | 12.00 | AS | $1,651.57 | $19,818.84 |
| | **Signalizations Component Total** | | | | $43,551.95 |

**Sequence 3 Total** $43,551.95

**Sequence:** 4 WDU - Widen/Resurface, Divided, Urban **Net Length:** 0.212 MI
1,120 LF

**Description:** US 129 portion of interchange (includes sidewalks) and including all signals for both US 129 and the ramps. Also includes cost for retention basins.

## EARTHWORK COMPONENT

**User Input Data**

| Description | Value |
|---|---|
| Standard Clearing and Grubbing Limits L/R | 0.00 / 0.00 |
| Incidental Clearing and Grubbing Area | 3.00 |
| | |
| Alignment Number | 1 |
| Distance | 0.212 |
| Top of Structural Course For Begin Section | 102.00 |
| Top of Structural Course For End Section | 102.00 |
| Horizontal Elevation For Begin Section | 100.00 |
| Horizontal Elevation For End Section | 100.00 |
| Existing Front Slope L/R | 6 to 1 / 6 to 1 |
| Existing Median Shoulder Cross Slope L/R | 5.00 % / 5.00 % |
| Existing Outside Shoulder Cross Slope L/R | 6.00 % / 6.00 % |
| Front Slope L/R | 6 to 1 / 6 to 1 |
| Median Shoulder Cross Slope L/R | 5.00 % / 5.00 % |
| Outside Shoulder Cross Slope L/R | 6.00 % / 6.00 % |
| Roadway Cross Slope L/R | 2.00 % / 2.00 % |

**Pay Items**

| Pay item | Description | Quantity Unit | Unit Price | Extended Amount |
|---|---|---|---|---|
| 110-1-1 | CLEARING & GRUBBING | 3.00 AC | $16,509.96 | $49,529.88 |
| 120-1 | REGULAR EXCAVATION | 657.52 CY | $13.17 | $8,659.54 |
| 120-2-2 | BORROW EXCAVATION, TRUCK MEASURE | 364.00 CY | $22.39 | $8,149.96 |

**X-Items**

| Pay item | Description | Quantity Unit | Unit Price | Extended Amount |
|---|---|---|---|---|
| 110-1-1 | CLEARING & GRUBBING | 2.27 AC | $16,509.96 | $37,477.61 |
| | **Comment:** clearing for ponds in 4 quadrants of the interchange. | | | |
| 110-4-10 | REMOVAL OF EXIST CONC | 784.00 SY | $25.59 | $20,062.56 |
| | **Comment:** 620 SY of concrete removal for sloped concrete under bridge. 164 SY for concrete removal of barrier wall protecting bridge piers. | | | |
| 120-1 | REGULAR EXCAVATION | 380.00 CY | $13.17 | $5,004.60 |
| | **Comment:** Excavation to remove soil from underneath concrete slopes beneath bridge. Calculated using cross sections from 3D model (5' gravity wall, gutter behind wall, tying up to existing slope at 1:1.5) | | | |
| | **Earthwork Component Total** | | | $128,884.15 |

## ROADWAY COMPONENT

**User Input Data**

| Description | Value |
|---|---|
| Number of Lanes | 6 |
| Existing Roadway Pavement Width L/R | 29.00 / 29.00 |
| Structural Spread Rate | 165 |

| | |
|---|---|
| Friction Course Spread Rate | 165 |
| Widened Outside Pavement Width L/R | 9.63 / 8.82 |
| Widened Inside Pavement Width L/R | 0.85 / 4.14 |
| Widened Structural Spread Rate | 165 |
| Widened Friction Course Spread Rate | 165 |

**Pay Items**

| Pay item | Description | Quantity | Unit | Unit Price | Extended Amount |
|---|---|---|---|---|---|
| 160-4 | TYPE B STABILIZATION | 4,200.82 | SY | $7.81 | $32,808.40 |
| 285-709 | OPTIONAL BASE,BASE GROUP 09 | 3,080.94 | SY | $30.49 | $93,937.86 |
| 327-70-5 | MILLING EXIST ASPH PAVT, 2" AVG DEPTH | 7,217.06 | SY | $2.55 | $18,403.50 |
| 334-1-53 | SUPERPAVE ASPH CONC, TRAF C, PG76-22 | 595.41 | TN | $126.68 | $75,426.54 |
| 334-1-53 | SUPERPAVE ASPH CONC, TRAF C, PG76-22 | 240.63 | TN | $126.68 | $30,483.01 |
| 337-7-83 | ASPH CONC FC,TRAFFIC C,FC-12.5,PG 76-22 | 595.41 | TN | $138.67 | $82,565.50 |
| 337-7-83 | ASPH CONC FC,TRAFFIC C,FC-12.5,PG 76-22 | 240.63 | TN | $138.67 | $33,368.16 |

**X-Items**

| Pay item | Description | Quantity | Unit | Unit Price | Extended Amount |
|---|---|---|---|---|---|
| 400-0-11 | CONC CLASS NS, GRAVITY WALL | 170.00 | CY | $700.27 | $119,045.90 |
| | **Comment:** 5' tall gravity wall (+ 1 into ground) 200' long on both sides of the road under the bridge. | | | | |
| 524-1-1 | CONCRETE DITCH PAVT, NR, 3" | 335.00 | SY | $128.79 | $43,144.65 |
| | **Comment:** Slope pavement for gutter behind 5' gravity wall under bridge and for tying up to existing slope under bridge at 1:1.5. Measured from 3D model. | | | | |

**Pavement Marking Subcomponent**

| Description | Value |
|---|---|
| Include Thermo/Tape/Other | Y |
| Pavement Type | Asphalt |
| Solid Stripe No. of Paint Applications | 1 |
| Solid Stripe No. of Stripes | 4 |
| Skip Stripe No. of Paint Applications | 1 |
| Skip Stripe No. of Stripes | 4 |

**Pay Items**

| Pay item | Description | Quantity | Unit | Unit Price | Extended Amount |
|---|---|---|---|---|---|
| 706-1-1 | RAISED PAVMT MARK, TYPE B W/O FINAL SURF | 143.00 | EA | $5.16 | $737.88 |
| 710-11-101 | PAINTED PAVT MARK,STD,WHITE,SOLID,6" | 0.85 | GM | $1,098.02 | $933.32 |
| 710-11-131 | PAINTED PAVT MARK,STD,WHITE,SKIP, 6" | 0.85 | GM | $589.46 | $501.04 |
| 711-15-201 | THERMOPLASTIC, STD-OP,YELLOW, SOLID, 6" | 0.85 | GM | $5,632.60 | $4,787.71 |
| 711-16-101 | THERMOPLASTIC, STD-OTH, WHITE, SOLID, 6" | 0.85 | GM | $5,062.19 | $4,302.86 |
| 711-16-131 | THERMOPLASTIC, STD-OTH, WHITE, SKIP, 6" | 0.85 | GM | $1,514.05 | $1,286.94 |

| | | |
|---|---|---|
| | **Roadway Component Total** | $541,733.27 |

## SHOULDER COMPONENT

**User Input Data**

| Description | Value |
|---|---|
| Existing Total Outside Shoulder Width L/R | 15.00 / 15.00 |
| New Total Outside Shoulder Width L/R | 13.93 / 13.93 |
| Total Outside Shoulder Perf. Turf Width L/R | 5.93 / 5.93 |
| Sidewalk Width L/R | 5.75 / 5.75 |

**Pay Items**

| Pay item | Description | Quantity | Unit | Unit Price | Extended Amount |
|---|---|---|---|---|---|
| 520-1-10 | CONCRETE CURB & GUTTER, TYPE F | 1,119.89 | LF | $32.02 | $35,858.88 |
| 520-1-10 | CONCRETE CURB & GUTTER, TYPE F | 1,119.89 | LF | $32.02 | $35,858.88 |
| 522-1 | CONCRETE SIDEWALK AND DRIVEWAYS, 4" | 1,430.97 | SY | $47.68 | $68,228.65 |
| 570-1-1 | PERFORMANCE TURF | 1,475.76 | SY | $0.49 | $723.12 |

**Erosion Control**

**Pay Items**

| Pay item | Description | Quantity | Unit | Unit Price | Extended Amount |
|---|---|---|---|---|---|
| 104-10-3 | SEDIMENT BARRIER | 2,239.78 | LF | $2.25 | $5,039.50 |
| 104-11 | FLOATING TURBIDITY BARRIER | 21.21 | LF | $13.74 | $291.43 |
| 104-12 | STAKED TURBIDITY BARRIER-NYL REINF PVC | 21.21 | LF | $6.96 | $147.62 |
| 104-15 | SOIL TRACKING PREVENTION DEVICE | 1.00 | EA | $2,968.67 | $2,968.67 |
| 104-18 | INLET PROTECTION SYSTEM | 10.00 | EA | $116.57 | $1,165.70 |
| 107-1 | LITTER REMOVAL | 1.85 | AC | $22.61 | $41.83 |
| 107-2 | MOWING | 1.85 | AC | $58.81 | $108.80 |

| | | |
|---|---|---|
| | **Shoulder Component Total** | $150,433.09 |

## MEDIAN COMPONENT

**User Input Data**

| Description | Value |
|---|---|
| Total Median Width | 10.40 |
| Performance Turf Width | 2.70 |

**Pay Items**

| Pay item | Description | Quantity | Unit | Unit Price | Extended Amount |
|---|---|---|---|---|---|
| 570-1-1 | PERFORMANCE TURF | 335.97 | SY | $0.49 | $164.63 |

**X-Items**

| Pay item | Description | Quantity | Unit | Unit Price | Extended Amount |
|---|---|---|---|---|---|
| 520-1-7 | CONCRETE CURB & GUTTER, TYPE E | 475.00 | LF | $20.74 | $9,851.50 |
| | **Comment:** Median curb for part of north section. | | | | |
| 520-70 | CONCRETE TRAFFIC SEPARATOR, SP- VAR WIDT | 993.00 | SY | $127.94 | $127,044.42 |

| | | |
|---|---|---|
| | **Median Component Total** | $137,060.55 |

**DRAINAGE COMPONENT**

**Pay Items**

| Pay item | Description | Quantity | Unit | Unit Price | Extended Amount |
|---|---|---|---|---|---|
| 425-1-351 | INLETS, CURB, TYPE P-5, <10' | 8.00 | EA | $5,779.41 | $46,235.28 |
| 425-1-451 | INLETS, CURB, TYPE J-5, <10' | 3.00 | EA | $7,658.15 | $22,974.45 |
| 430-175-124 | PIPE CULV, OPT MATL, ROUND, 24"S/CD | 120.00 | LF | $95.93 | $11,511.60 |
| 430-175-136 | PIPE CULV, OPT MATL, ROUND, 36"S/CD | 40.00 | LF | $142.34 | $5,693.60 |
| 570-1-1 | PERFORMANCE TURF | 100.00 | SY | $0.49 | $49.00 |

**Retention Basin 1**

| Description | Value |
|---|---|
| Size | 1 AC |
| Multiplier | 1 |
| Depth | 2.00 |
| Description | Retention basins in all four quadrants of the interchange. |

**Pay Items**

| Pay item | Description | Quantity | Unit | Unit Price | Extended Amount |
|---|---|---|---|---|---|
| 110-1-1 | CLEARING & GRUBBING | 1.91 | AC | $16,509.96 | $31,534.02 |
| 120-1 | REGULAR EXCAVATION | 5,770.00 | CY | $13.17 | $75,990.90 |
| 570-1-1 | PERFORMANCE TURF | 9,244.00 | SY | $0.49 | $4,529.56 |

**X-Items**

| Pay item | Description | Quantity | Unit | Unit Price | Extended Amount |
|---|---|---|---|---|---|
| 425-1-549 | INLETS, DT BOT, TYPE D, MODIFY | 4.00 | EA | $5,973.84 | $23,895.36 |
| 430-175-124 | PIPE CULV, OPT MATL, ROUND, 24"S/CD | 400.00 | LF | $95.93 | $38,372.00 |
| 430-175-136 | PIPE CULV, OPT MATL, ROUND, 36"S/CD | 400.00 | LF | $142.34 | $56,936.00 |
| 430-982-138 | MITERED END SECT, OPTIONAL RD, 36" CD | 4.00 | EA | $3,486.45 | $13,945.80 |

| | | |
|---|---|---|
| | **Drainage Component Total** | $331,667.57 |

**SIGNING COMPONENT**

**Pay Items**

| Pay item | Description | Quantity | Unit | Unit Price | Extended Amount |
|---|---|---|---|---|---|
| 700-1-11 | SINGLE POST SIGN, F&I GM, <12 SF | 25.00 | AS | $387.62 | $9,690.50 |
| 700-1-12 | SINGLE POST SIGN, F&I GM, 12-20 SF | 3.00 | AS | $954.13 | $2,862.39 |
| 700-1-60 | SINGLE POST SIGN, REMOVE | 7.00 | AS | $11.93 | $83.51 |
| 700-2-60 | MULTI- POST SIGN, REMOVE | 3.00 | AS | $119.26 | $357.78 |

**X-Items**

| Pay item | Description | Quantity | Unit | Unit Price | Extended Amount |
|---|---|---|---|---|---|

| | | | | |
|---|---|---|---|---|
| 700-1-14 | SINGLE POST SIGN, F&I GM, 31+ SF | 4.00 AS | $1,887.21 | $7,548.84 |
| 700-2-12 | MULTI- POST SIGN, F&I GM, 12-20 SF | 4.00 AS | $3,866.67 | $15,466.68 |
| 700-2-14 | MULTI- POST SIGN, F&I GM, 31-50 SF | 1.00 AS | $4,784.83 | $4,784.83 |
| 700-4-140 | OH STATIC SIGN STR, F&I, O BR MOUNT | 2.00 EA | $11,563.50 | $23,127.00 |
| | **Signing Component Total** | | | $63,921.53 |

## SIGNALIZATIONS COMPONENT

**Signalization 1**

| Description | Value |
|---|---|
| Type | 4 Lane Mast Arm |
| Multiplier | 1 |
| Description | Mast arms for I-10 at US 129 intersections. |

**Pay Items**

| Pay item | Description | Quantity Unit | Unit Price | Extended Amount |
|---|---|---|---|---|
| 630-2-11 | CONDUIT, F& I, OPEN TRENCH | 1,500.00 LF | $5.04 | $7,560.00 |
| 630-2-12 | CONDUIT, F& I, DIRECTIONAL BORE | 500.00 LF | $22.06 | $11,030.00 |
| 632-7-1 | SIGNAL CABLE- NEW OR RECO, FUR & INSTALL | 6.00 PI | $5,366.96 | $32,201.76 |
| 635-2-11 | PULL & SPLICE BOX, F&I, 13" x 24" | 30.00 EA | $653.51 | $19,605.30 |
| 639-1-112 | ELECTRICAL POWER SRV,F&I,OH,M,PUR BY CON | 2.00 AS | $2,870.71 | $5,741.42 |
| 639-2-1 | ELECTRICAL SERVICE WIRE, F&I | 60.00 LF | $5.42 | $325.20 |
| 641-2-11 | PREST CNC POLE,F&I,TYP P-II,PEDESTAL | 16.00 EA | $1,438.45 | $23,015.20 |
| 649-21-6 | STEEL MAST ARM ASSEMBLY, F&I, 50' | 2.00 EA | $45,000.00 | $90,000.00 |
| 649-21-8 | STEEL MAST ARM ASSEMBLY, F&I, 50'- 40' | 1.00 EA | $59,731.28 | $59,731.28 |
| 649-21-13 | STEEL MAST ARM ASSEMBLY, F&I, 60'- 50' | 1.00 EA | $53,977.39 | $53,977.39 |
| 650-1-14 | VEH TRAF SIGNAL,F&I ALUMINUM, 3 S 1 W | 18.00 AS | $1,037.87 | $18,681.66 |
| 653-1-11 | PEDESTRIAN SIGNAL, F&I LED COUNT, 1 WAY | 16.00 AS | $638.47 | $10,215.52 |
| 660-2-106 | LOOP ASSEMBLY, F&I, TYPE F | 18.00 AS | $1,311.92 | $23,614.56 |
| 665-1-12 | PEDESTRIAN DETECTOR, F&I, ACCESSIBLE | 16.00 EA | $1,501.89 | $24,030.24 |
| 670-5-111 | TRAF CNTL ASSEM, F&I, NEMA, 1 PREEMPT | 2.00 AS | $32,000.00 | $64,000.00 |
| 700-5-22 | INTERNAL ILLUM SIGN, F&I OM, 12-18 SF | 8.00 EA | $4,260.09 | $34,080.72 |

**X-Items**

| Pay item | Description | Quantity Unit | Unit Price | Extended Amount |
|---|---|---|---|---|
| 650-1-19 | VEH TRAF SIGNAL,F&I ALUMINUM, 5 S CL 1 W | 2.00 AS | $1,689.37 | $3,378.74 |

| | | |
|---|---|---|
| | **Signalizations Component Total** | $481,188.99 |

**MISCELLANEOUS COMPONENT**

**X-Items**

| Pay item | Description | Quantity Unit | Unit Price | Extended Amount |
|---|---|---|---|---|
| 400-8-5 | CONC CLASS V, SUBSTRUCTURE | 40.00 CY | $1,000.00 | $40,000.00 |
| | **Comment:** Concrete to harden/strengthen piers to 600 kip impact resistance (assuming 1ft added radius around piers, 15 ft tall, for 6 piers). | | | |

| | | |
|---|---|---|
| | **Miscellaneous Component Total** | $40,000.00 |

| | |
|---|---|
| **Sequence 4 Total** | $1,874,889.15 |

**Sequence:** 5 WDR - Widen/Resurface, Divided, Rural **Net Length:** 0.057 MI
300 LF

**Description:** I-10 WB on ramps reconstruction.

## EARTHWORK COMPONENT

**User Input Data**

| Description | Value |
|---|---|
| Standard Clearing and Grubbing Limits L/R | 0.00 / 0.00 |
| Incidental Clearing and Grubbing Area | 0.55 |
| | |
| Alignment Number | 1 |
| Distance | 0.057 |
| Top of Structural Course For Begin Section | 100.00 |
| Top of Structural Course For End Section | 100.00 |
| Horizontal Elevation For Begin Section | 100.00 |
| Horizontal Elevation For End Section | 100.00 |
| Existing Front Slope L/R | 6 to 1 / 6 to 1 |
| Existing Median Slope L/R | 6 to 1 / 6 to 1 |
| Existing Median Shoulder Cross Slope L/R | 5.00 % / 5.00 % |
| Existing Outside Shoulder Cross Slope L/R | 6.00 % / 6.00 % |
| Front Slope L/R | 6 to 1 / 6 to 1 |
| Median Slope L/R | 6 to 1 / 6 to 1 |
| Median Shoulder Cross Slope L/R | 5.00 % / 5.00 % |
| Outside Shoulder Cross Slope L/R | 6.00 % / 6.00 % |
| Roadway Cross Slope L/R | 2.00 % / 2.00 % |

**Pay Items**

| Pay item | Description | Quantity | Unit | Unit Price | Extended Amount |
|---|---|---|---|---|---|
| 110-1-1 | CLEARING & GRUBBING | 0.55 | AC | $16,509.96 | $9,080.48 |

**X-Items**

| Pay item | Description | Quantity | Unit | Unit Price | Extended Amount |
|---|---|---|---|---|---|
| 110-4-10 | REMOVAL OF EXIST CONC | 375.00 | SY | $25.59 | $9,596.25 |
| 120-6 | EMBANKMENT | 406.00 | CY | $21.84 | $8,867.04 |
| | **Comment:** From 3D model | | | | |
| | **Earthwork Component Total** | | | | $27,543.77 |

## ROADWAY COMPONENT

**User Input Data**

| Description | Value |
|---|---|
| Number of Lanes | 2 |
| Existing Roadway Pavement Width L/R | 0.00 / 19.11 |
| Structural Spread Rate | 165 |
| Friction Course Spread Rate | 165 |
| Widened Outside Pavement Width L/R | 0.00 / 7.91 |
| Widened Inside Pavement Width L/R | 0.00 / 0.00 |
| Widened Structural Spread Rate | 165 |
| Widened Friction Course Spread Rate | 165 |

**Pay Items**

| Pay item | Description | Quantity | Unit | Unit Price | Extended Amount |
|---|---|---|---|---|---|

| | | | | |
|---|---|---|---|---|
| 160-4 | TYPE B STABILIZATION | 930.04 SY | $7.81 | $7,263.61 |
| 285-709 | OPTIONAL BASE,BASE GROUP 09 | 274.58 SY | $30.49 | $8,371.94 |
| 327-70-5 | MILLING EXIST ASPH PAVT, 2" AVG DEPTH | 636.80 SY | $2.55 | $1,623.84 |
| 334-1-53 | SUPERPAVE ASPH CONC, TRAF C, PG76-22 | 52.54 TN | $126.68 | $6,655.77 |
| 334-1-53 | SUPERPAVE ASPH CONC, TRAF C, PG76-22 | 21.75 TN | $126.68 | $2,755.29 |
| 337-7-83 | ASPH CONC FC,TRAFFIC C,FC-12.5,PG 76-22 | 52.54 TN | $138.67 | $7,285.72 |
| 337-7-83 | ASPH CONC FC,TRAFFIC C,FC-12.5,PG 76-22 | 21.75 TN | $138.67 | $3,016.07 |

**Pavement Marking Subcomponent**

| Description | Value |
|---|---|
| Include Thermo/Tape/Other | Y |
| Pavement Type | Asphalt |
| Solid Stripe No. of Paint Applications | 1 |
| Solid Stripe No. of Stripes | 1 |
| Skip Stripe No. of Paint Applications | 1 |
| Skip Stripe No. of Stripes | 0 |

**Pay Items**

| Pay item | Description | Quantity Unit | Unit Price | Extended Amount |
|---|---|---|---|---|
| 706-1-1 | RAISED PAVMT MARK, TYPE B W/O FINAL SURF | 8.00 EA | $5.16 | $41.28 |
| 710-11-101 | PAINTED PAVT MARK,STD,WHITE,SOLID,6" | 0.06 GM | $1,098.02 | $65.88 |
| 711-15-101 | THERMOPLASTIC, STD-OP, WHITE, SOLID, 6" | 0.06 GM | $5,632.60 | $337.96 |
| 711-15-201 | THERMOPLASTIC, STD-OP,YELLOW, SOLID, 6" | 0.06 GM | $5,632.60 | $337.96 |
| | **Roadway Component Total** | | | $37,755.32 |

**SHOULDER COMPONENT**

**User Input Data**

| Description | Value |
|---|---|
| Existing Total Outside Shoulder Width L/R | 10.00 / 10.00 |
| New Total Outside Shoulder Width L/R | 10.00 / 10.00 |
| Total Outside Shoulder Perf. Turf Width L/R | 8.00 / 5.00 |
| Existing Paved Outside Shoulder Width L/R | 2.00 / 5.00 |
| New Paved Outside Shoulder Width L/R | 2.00 / 5.00 |
| Structural Spread Rate | 110 |
| Friction Course Spread Rate | 80 |
| Total Width (T) / 8" Overlap (O) | T |
| Rumble Strips ï¿½No. of Sides | 0 |

**Pay Items**

| Pay item | Description | Quantity Unit | Unit Price | Extended Amount |
|---|---|---|---|---|
| 285-704 | OPTIONAL BASE,BASE GROUP 04 | 255.25 SY | $19.57 | $4,995.24 |
| 327-70-1 | MILLING EXIST ASPH PAVT, 1" AVG DEPTH | 233.26 SY | $1.43 | $333.56 |

| | | | | |
|---|---|---|---|---|
| 334-1-13 | SUPERPAVE ASPHALTIC CONC, TRAFFIC C | 12.83 TN | $98.15 | $1,259.26 |
| 337-7-25 | ASPH CONC FC,INC BIT,FC-5,PG76-22 | 9.33 TN | $131.80 | $1,229.69 |
| 570-1-1 | PERFORMANCE TURF | 433.19 SY | $0.49 | $212.26 |

**X-Items**

| Pay item | Description | Quantity Unit | Unit Price | Extended Amount |
|---|---|---|---|---|
| 520-1-10 | CONCRETE CURB & GUTTER, TYPE F | 200.00 LF | $32.02 | $6,404.00 |

**Erosion Control Pay Items**

| Pay item | Description | Quantity Unit | Unit Price | Extended Amount |
|---|---|---|---|---|
| 104-10-3 | SEDIMENT BARRIER | 689.78 LF | $2.25 | $1,552.00 |

**Shoulder Component Total** $15,986.02

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## MEDIAN COMPONENT

**User Input Data**

| Description | Value |
|---|---|
| Total Median Width | 7.90 |
| Performance Turf Width | 7.90 |
| New Total Median Shoulder Width L/R | 0.00 / 0.00 |
| New Paved Median Shoulder Width L/R | 0.00 / 0.00 |
| Existing Total Median Shoulder Width L/R | 0.00 / 0.00 |
| Existing Paved Median Shoulder Width L/R | 0.00 / 0.00 |
| Structural Spread Rate | 110 |
| Friction Course Spread Rate | 80 |
| Total Width (T) / 8" Overlap (O) | T |
| Rumble Strips ï¿½No. of Sides | 0 |

**Pay Items**

| Pay item | Description | Quantity Unit | Unit Price | Extended Amount |
|---|---|---|---|---|
| 570-1-1 | PERFORMANCE TURF | 263.25 SY | $0.49 | $128.99 |

**X-Items**

| Pay item | Description | Quantity Unit | Unit Price | Extended Amount |
|---|---|---|---|---|
| 520-1-7 | CONCRETE CURB & GUTTER, TYPE E | 300.00 LF | $20.74 | $6,222.00 |

**Median Component Total** $6,350.99

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## DRAINAGE COMPONENT

**X-Items**

| Pay item | Description | Quantity Unit | Unit Price | Extended Amount |
|---|---|---|---|---|
| 425-1-361 | INLETS, CURB, TYPE P-6, <10' | 1.00 EA | $5,469.37 | $5,469.37 |
| 425-1-521 | INLETS, DT BOT, TYPE C, <10' | 1.00 EA | $2,510.72 | $2,510.72 |

| | | | | |
|---|---|---|---|---|
| 430-174-118 | PIPE CULV, OPT MATL, ROUND,18"SD | 152.00 LF | $93.27 | $14,177.04 |
| | **Drainage Component Total** | | | $22,157.13 |

**SIGNING COMPONENT**

**Pay Items**

| Pay item | Description | Quantity | Unit | Unit Price | Extended Amount |
|---|---|---|---|---|---|
| 700-1-11 | SINGLE POST SIGN, F&I GM, <12 SF | 8.00 | AS | $387.62 | $3,100.96 |

**X-Items**

| Pay item | Description | Quantity | Unit | Unit Price | Extended Amount |
|---|---|---|---|---|---|
| 700-1-60 | SINGLE POST SIGN, REMOVE | 1.00 | AS | $11.93 | $11.93 |
| | **Signing Component Total** | | | | $3,112.89 |

**Sequence 5 Total** $112,906.12

**Sequence:** 6 WDR - Widen/Resurface, Divided, Rural **Net Length:** 0.081 MI 425 LF

**Description:** I-10 WB off ramp reconstruction.

## EARTHWORK COMPONENT

**User Input Data**

| Description | Value |
|---|---|
| Standard Clearing and Grubbing Limits L/R | 0.00 / 0.00 |
| Incidental Clearing and Grubbing Area | 0.90 |
| | |
| Alignment Number | 1 |
| Distance | 0.080 |
| Top of Structural Course For Begin Section | 100.00 |
| Top of Structural Course For End Section | 100.00 |
| Horizontal Elevation For Begin Section | 100.00 |
| Horizontal Elevation For End Section | 100.00 |
| Existing Front Slope L/R | 6 to 1 / 6 to 1 |
| Existing Median Slope L/R | 6 to 1 / 6 to 1 |
| Existing Median Shoulder Cross Slope L/R | 5.00 % / 5.00 % |
| Existing Outside Shoulder Cross Slope L/R | 6.00 % / 6.00 % |
| Front Slope L/R | 6 to 1 / 6 to 1 |
| Median Slope L/R | 6 to 1 / 6 to 1 |
| Median Shoulder Cross Slope L/R | 5.00 % / 5.00 % |
| Outside Shoulder Cross Slope L/R | 6.00 % / 6.00 % |
| Roadway Cross Slope L/R | 2.00 % / 2.00 % |

**Pay Items**

| Pay item | Description | Quantity | Unit | Unit Price | Extended Amount |
|---|---|---|---|---|---|
| 110-1-1 | CLEARING & GRUBBING | 0.90 | AC | $16,509.96 | $14,858.96 |

**X-Items**

| Pay item | Description | Quantity | Unit | Unit Price | Extended Amount |
|---|---|---|---|---|---|
| 110-4-10 | REMOVAL OF EXIST CONC | 400.00 | SY | $25.59 | $10,236.00 |
| 120-6 | EMBANKMENT | 320.00 | CY | $21.84 | $6,988.80 |
| | **Comment:** From 3D model | | | | |
| | **Earthwork Component Total** | | | | $32,083.76 |

## ROADWAY COMPONENT

**User Input Data**

| Description | Value |
|---|---|
| Number of Lanes | 3 |
| Existing Roadway Pavement Width L/R | 0.00 / 21.44 |
| Structural Spread Rate | 165 |
| Friction Course Spread Rate | 165 |
| Widened Outside Pavement Width L/R | 0.00 / 19.31 |
| Widened Inside Pavement Width L/R | 0.00 / 0.00 |
| Widened Structural Spread Rate | 165 |
| Widened Friction Course Spread Rate | 165 |

**Pay Items**

| Pay item | Description | Quantity | Unit | Unit Price | Extended Amount |
|---|---|---|---|---|---|

| | | | | |
|---|---|---|---|---|
| 160-4 | TYPE B STABILIZATION | 1,832.87 SY | $7.81 | $14,314.71 |
| 285-709 | OPTIONAL BASE,BASE GROUP 09 | 927.53 SY | $30.49 | $28,280.39 |
| 327-70-5 | MILLING EXIST ASPH PAVT, 2" AVG DEPTH | 1,012.54 SY | $2.55 | $2,581.98 |
| 334-1-53 | SUPERPAVE ASPH CONC, TRAF C, PG76-22 | 83.53 TN | $126.68 | $10,581.58 |
| 334-1-53 | SUPERPAVE ASPH CONC, TRAF C, PG76-22 | 75.24 TN | $126.68 | $9,531.40 |
| 337-7-83 | ASPH CONC FC,TRAFFIC C,FC-12.5,PG 76-22 | 83.53 TN | $138.67 | $11,583.11 |
| 337-7-83 | ASPH CONC FC,TRAFFIC C,FC-12.5,PG 76-22 | 75.24 TN | $138.67 | $10,433.53 |

**X-Items**

| Pay item | Description | Quantity Unit | Unit Price | Extended Amount |
|---|---|---|---|---|
| 536-73 | GUARDRAIL REMOVAL | 330.00 LF | $4.44 | $1,465.20 |
| 536-85-20 | GUARDRAIL END TREAT-TRAILING ANCHORAGE | 1.00 EA | $1,325.16 | $1,325.16 |
| 536-85-24 | GUARDRAIL END TREATMENT-PARA APP TERM | 1.00 EA | $3,577.97 | $3,577.97 |

**Pavement Marking Subcomponent**

| Description | Value |
|---|---|
| Include Thermo/Tape/Other | Y |
| Pavement Type | Asphalt |
| Solid Stripe No. of Paint Applications | 1 |
| Solid Stripe No. of Stripes | 1 |
| Skip Stripe No. of Paint Applications | 1 |
| Skip Stripe No. of Stripes | 1 |

**Pay Items**

| Pay item | Description | Quantity Unit | Unit Price | Extended Amount |
|---|---|---|---|---|
| 706-1-1 | RAISED PAVMT MARK, TYPE B W/O FINAL SURF | 22.00 EA | $5.16 | $113.52 |
| 710-11-101 | PAINTED PAVT MARK,STD,WHITE,SOLID,6" | 0.08 GM | $1,098.02 | $87.84 |
| 710-11-131 | PAINTED PAVT MARK,STD,WHITE,SKIP, 6" | 0.08 GM | $589.46 | $47.16 |
| 711-15-101 | THERMOPLASTIC, STD-OP, WHITE, SOLID, 6" | 0.08 GM | $5,632.60 | $450.61 |
| 711-15-131 | THERMOPLASTIC, STD-OP, WHITE, SKIP, 6" | 0.08 GM | $1,729.08 | $138.33 |
| 711-15-201 | THERMOPLASTIC, STD-OP,YELLOW, SOLID, 6" | 0.08 GM | $5,632.60 | $450.61 |

**Peripherals Subcomponent**

| Description | Value |
|---|---|
| Off Road Bike Path(s) | 0 |
| Off Road Bike Path Width L/R | 0.00 / 0.00 |
| Bike Path Structural Spread Rate | 0 |
| Noise Barrier Wall Length | 0.00 |
| Noise Barrier Wall Begin Height | 0.00 |
| Noise Barrier Wall End Height | 0.00 |

**Pay Items**

| Pay item | Description | Quantity | Unit | Unit Price | Extended Amount |
|---|---|---|---|---|---|
| 339-1 | MISCELLANEOUS ASPHALT PAVEMENT | 11.67 | TN | $363.47 | $4,241.69 |
| 536-1-1 | GUARDRAIL- ROADWAY, GEN TL-3 | 350.00 | LF | $19.94 | $6,979.00 |
| | **Roadway Component Total** | | | | $106,183.79 |

## SHOULDER COMPONENT

**User Input Data**

| Description | Value |
|---|---|
| Existing Total Outside Shoulder Width L/R | 10.00 / 5.00 |
| New Total Outside Shoulder Width L/R | 10.00 / 9.50 |
| Total Outside Shoulder Perf. Turf Width L/R | 5.00 / 0.00 |
| Existing Paved Outside Shoulder Width L/R | 0.00 / 5.00 |
| New Paved Outside Shoulder Width L/R | 5.00 / 9.50 |
| Structural Spread Rate | 110 |
| Friction Course Spread Rate | 80 |
| Total Width (T) / 8" Overlap (O) | T |
| Rumble Strips ï¿½No. of Sides | 0 |

**Pay Items**

| Pay item | Description | Quantity | Unit | Unit Price | Extended Amount |
|---|---|---|---|---|---|
| 285-704 | OPTIONAL BASE,BASE GROUP 04 | 715.96 | SY | $19.57 | $14,011.34 |
| 327-70-1 | MILLING EXIST ASPH PAVT, 1" AVG DEPTH | 236.13 | SY | $1.43 | $337.67 |
| 334-1-13 | SUPERPAVE ASPHALTIC CONC, TRAFFIC C | 37.66 | TN | $98.15 | $3,696.33 |
| 337-7-25 | ASPH CONC FC,INC BIT,FC-5,PG76-22 | 27.39 | TN | $131.80 | $3,610.00 |
| 570-1-1 | PERFORMANCE TURF | 236.13 | SY | $0.49 | $115.70 |

**X-Items**

| Pay item | Description | Quantity | Unit | Unit Price | Extended Amount |
|---|---|---|---|---|---|
| 520-1-10 | CONCRETE CURB & GUTTER, TYPE F | 160.00 | LF | $32.02 | $5,123.20 |

**Erosion Control**

**Pay Items**

| Pay item | Description | Quantity | Unit | Unit Price | Extended Amount |
|---|---|---|---|---|---|
| 104-10-3 | SEDIMENT BARRIER | 977.59 | LF | $2.25 | $2,199.58 |
| | **Shoulder Component Total** | | | | $29,093.82 |

## MEDIAN COMPONENT

**User Input Data**

| Description | Value |
|---|---|

| | |
|---|---|
| Total Median Width | 2.59 |
| Performance Turf Width | 2.59 |
| New Total Median Shoulder Width L/R | 0.00 / 0.00 |
| New Paved Median Shoulder Width L/R | 0.00 / 0.00 |
| Existing Total Median Shoulder Width L/R | 0.00 / 0.00 |
| Existing Paved Median Shoulder Width L/R | 0.00 / 0.00 |
| Structural Spread Rate | 110 |
| Friction Course Spread Rate | 80 |
| Total Width (T) / 8" Overlap (O) | T |
| Rumble Strips ï¿½No. of Sides | 0 |

**Pay Items**

| Pay item | Description | Quantity | Unit | Unit Price | Extended Amount |
|---|---|---|---|---|---|
| 570-1-1 | PERFORMANCE TURF | 122.32 | SY | $0.49 | $59.94 |

**X-Items**

| Pay item | Description | Quantity | Unit | Unit Price | Extended Amount |
|---|---|---|---|---|---|
| 520-1-7 | CONCRETE CURB & GUTTER, TYPE E | 220.00 | LF | $20.74 | $4,562.80 |
| | **Median Component Total** | | | | $4,622.74 |

**DRAINAGE COMPONENT**

**X-Items**

| Pay item | Description | Quantity | Unit | Unit Price | Extended Amount |
|---|---|---|---|---|---|
| 425-1-361 | INLETS, CURB, TYPE P-6, <10' | 1.00 | EA | $5,469.37 | $5,469.37 |
| 425-1-521 | INLETS, DT BOT, TYPE C, <10' | 1.00 | EA | $2,510.72 | $2,510.72 |
| 430-174-118 | PIPE CULV, OPT MATL, ROUND,18"SD | 152.00 | LF | $93.27 | $14,177.04 |
| | **Drainage Component Total** | | | | $22,157.13 |

**SIGNING COMPONENT**

**Pay Items**

| Pay item | Description | Quantity | Unit | Unit Price | Extended Amount |
|---|---|---|---|---|---|
| 700-1-11 | SINGLE POST SIGN, F&I GM, <12 SF | 10.00 | AS | $387.62 | $3,876.20 |
| 700-1-60 | SINGLE POST SIGN, REMOVE | 7.00 | AS | $11.93 | $83.51 |
| 700-2-60 | MULTI- POST SIGN, REMOVE | 3.00 | AS | $119.26 | $357.78 |

**X-Items**

| Pay item | Description | Quantity | Unit | Unit Price | Extended Amount |
|---|---|---|---|---|---|
| 700-1-22 | SINGLE POST SIGN, F&I BARR MT, 12-20 SF | 2.00 | AS | $2,697.82 | $5,395.64 |
| 700-2-14 | MULTI- POST SIGN, F&I GM, 31-50 SF | 2.00 | AS | $4,784.83 | $9,569.66 |
| 700-2-15 | MULTI- POST SIGN, F&I GM, 51-100 SF | 1.00 | AS | $6,974.43 | $6,974.43 |
| 700-2-50 | MULTI- POST SIGN, RELOCATE | 2.00 | AS | $3,407.13 | $6,814.26 |

| | | | | |
|---|---|---|---|---|
| 700-6-21 | HIGHLIGHTED SIGN, F&I GM-SOLAR, <12 SF | 2.00 AS | $6,041.84 | $12,083.68 |
| | **Signing Component Total** | | | $45,155.16 |
| **Sequence 6 Total** | | | | $239,296.40 |

**Sequence:** 8 WDR - Widen/Resurface, Divided, Rural **Net Length:** 0.057 MI
300 LF

**Description:** I-10 EB on ramps reconstruction.

## EARTHWORK COMPONENT

**User Input Data**

| Description | Value |
|---|---|
| Standard Clearing and Grubbing Limits L/R | 0.00 / 0.00 |
| Incidental Clearing and Grubbing Area | 0.70 |
| | |
| Alignment Number | 1 |
| Distance | 0.057 |
| Top of Structural Course For Begin Section | 100.00 |
| Top of Structural Course For End Section | 100.00 |
| Horizontal Elevation For Begin Section | 100.00 |
| Horizontal Elevation For End Section | 100.00 |
| Existing Front Slope L/R | 6 to 1 / 6 to 1 |
| Existing Median Slope L/R | 6 to 1 / 6 to 1 |
| Existing Median Shoulder Cross Slope L/R | 5.00 % / 5.00 % |
| Existing Outside Shoulder Cross Slope L/R | 6.00 % / 6.00 % |
| Front Slope L/R | 6 to 1 / 6 to 1 |
| Median Slope L/R | 6 to 1 / 6 to 1 |
| Median Shoulder Cross Slope L/R | 5.00 % / 5.00 % |
| Outside Shoulder Cross Slope L/R | 6.00 % / 6.00 % |
| Roadway Cross Slope L/R | 2.00 % / 2.00 % |

**Pay Items**

| Pay item | Description | Quantity | Unit | Unit Price | Extended Amount |
|---|---|---|---|---|---|
| 110-1-1 | CLEARING & GRUBBING | 0.70 | AC | $16,509.96 | $11,556.97 |

**X-Items**

| Pay item | Description | Quantity | Unit | Unit Price | Extended Amount |
|---|---|---|---|---|---|
| 110-4-10 | REMOVAL OF EXIST CONC | 300.00 | SY | $25.59 | $7,677.00 |
| 120-1 | REGULAR EXCAVATION | 36.00 | CY | $13.17 | $474.12 |
| | **Comment:** From 3D model | | | | |
| 120-6 | EMBANKMENT | 895.00 | CY | $21.84 | $19,546.80 |
| | **Comment:** From 3D model | | | | |
| | **Earthwork Component Total** | | | | $39,254.89 |

## ROADWAY COMPONENT

**User Input Data**

| Description | Value |
|---|---|
| Number of Lanes | 2 |
| Existing Roadway Pavement Width L/R | 0.00 / 29.88 |
| Structural Spread Rate | 165 |
| Friction Course Spread Rate | 165 |
| Widened Outside Pavement Width L/R | 0.00 / 8.25 |
| Widened Inside Pavement Width L/R | 0.00 / 0.00 |
| Widened Structural Spread Rate | 165 |
| Widened Friction Course Spread Rate | 165 |

**Pay Items**

| Pay item | Description | Quantity | Unit | Unit Price | Extended Amount |
|---|---|---|---|---|---|
| 160-4 | TYPE B STABILIZATION | 941.37 | SY | $7.81 | $7,352.10 |
| 285-709 | OPTIONAL BASE,BASE GROUP 09 | 285.91 | SY | $30.49 | $8,717.40 |
| 327-70-5 | MILLING EXIST ASPH PAVT, 2" AVG DEPTH | 995.68 | SY | $2.55 | $2,538.98 |
| 334-1-53 | SUPERPAVE ASPH CONC, TRAF C, PG76-22 | 82.14 | TN | $126.68 | $10,405.50 |
| 334-1-53 | SUPERPAVE ASPH CONC, TRAF C, PG76-22 | 22.68 | TN | $126.68 | $2,873.10 |
| 337-7-83 | ASPH CONC FC,TRAFFIC C,FC-12.5,PG 76-22 | 82.14 | TN | $138.67 | $11,390.35 |
| 337-7-83 | ASPH CONC FC,TRAFFIC C,FC-12.5,PG 76-22 | 22.68 | TN | $138.67 | $3,145.04 |

**Pavement Marking Subcomponent**

| Description | Value |
|---|---|
| Include Thermo/Tape/Other | Y |
| Pavement Type | Asphalt |
| Solid Stripe No. of Paint Applications | 1 |
| Solid Stripe No. of Stripes | 1 |
| Skip Stripe No. of Paint Applications | 1 |
| Skip Stripe No. of Stripes | 0 |

**Pay Items**

| Pay item | Description | Quantity | Unit | Unit Price | Extended Amount |
|---|---|---|---|---|---|
| 706-1-1 | RAISED PAVMT MARK, TYPE B W/O FINAL SURF | 8.00 | EA | $5.16 | $41.28 |
| 710-11-101 | PAINTED PAVT MARK,STD,WHITE,SOLID,6" | 0.06 | GM | $1,098.02 | $65.88 |
| 711-15-101 | THERMOPLASTIC, STD-OP, WHITE, SOLID, 6" | 0.06 | GM | $5,632.60 | $337.96 |
| 711-15-201 | THERMOPLASTIC, STD-OP,YELLOW, SOLID, 6" | 0.06 | GM | $5,632.60 | $337.96 |
| | **Roadway Component Total** | | | | $47,205.55 |

**SHOULDER COMPONENT**

**User Input Data**

| Description | Value |
|---|---|
| Existing Total Outside Shoulder Width L/R | 10.00 / 10.00 |
| New Total Outside Shoulder Width L/R | 10.00 / 10.00 |
| Total Outside Shoulder Perf. Turf Width L/R | 10.00 / 5.00 |
| Existing Paved Outside Shoulder Width L/R | 0.00 / 5.00 |
| New Paved Outside Shoulder Width L/R | 0.00 / 5.00 |
| Structural Spread Rate | 110 |
| Friction Course Spread Rate | 80 |
| Total Width (T) / 8" Overlap (O) | T |
| Rumble Strips ï¿½No. of Sides | 0 |

**Pay Items**

| Pay item | Description | Quantity | Unit | Unit Price | Extended Amount |
|---|---|---|---|---|---|
| 285-704 | OPTIONAL BASE,BASE GROUP 04 | 177.61 | SY | $19.57 | $3,475.83 |

| | | | | |
|---|---|---|---|---|
| 327-70-1 | MILLING EXIST ASPH PAVT, 1" AVG DEPTH | 166.61 SY | $1.43 | $238.25 |
| 334-1-13 | SUPERPAVE ASPHALTIC CONC, TRAFFIC C | 9.16 TN | $98.15 | $899.05 |
| 337-7-25 | ASPH CONC FC,INC BIT,FC-5,PG76-22 | 6.66 TN | $131.80 | $877.79 |
| 570-1-1 | PERFORMANCE TURF | 499.84 SY | $0.49 | $244.92 |

**X-Items**

| Pay item | Description | Quantity Unit | Unit Price | Extended Amount |
|---|---|---|---|---|
| 520-1-10 | CONCRETE CURB & GUTTER, TYPE F | 400.00 LF | $32.02 | $12,808.00 |

**Erosion Control Pay Items**

| Pay item | Description | Quantity Unit | Unit Price | Extended Amount |
|---|---|---|---|---|
| 104-10-3 | SEDIMENT BARRIER | 689.78 LF | $2.25 | $1,552.00 |

**Shoulder Component Total** $20,095.85

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**MEDIAN COMPONENT**

**User Input Data**

| Description | Value |
|---|---|
| Total Median Width | 9.09 |
| Performance Turf Width | 9.09 |
| New Total Median Shoulder Width L/R | 0.00 / 0.00 |
| New Paved Median Shoulder Width L/R | 0.00 / 0.00 |
| Existing Total Median Shoulder Width L/R | 0.00 / 0.00 |
| Existing Paved Median Shoulder Width L/R | 0.00 / 0.00 |
| Structural Spread Rate | 110 |
| Friction Course Spread Rate | 80 |
| Total Width (T) / 8" Overlap (O) | T |
| Rumble Strips ï¿½No. of Sides | 0 |

**Pay Items**

| Pay item | Description | Quantity Unit | Unit Price | Extended Amount |
|---|---|---|---|---|
| 570-1-1 | PERFORMANCE TURF | 302.90 SY | $0.49 | $148.42 |

**X-Items**

| Pay item | Description | Quantity Unit | Unit Price | Extended Amount |
|---|---|---|---|---|
| 520-1-7 | CONCRETE CURB & GUTTER, TYPE E | 300.00 LF | $20.74 | $6,222.00 |

**Median Component Total** $6,370.42

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**DRAINAGE COMPONENT**

**X-Items**

| Pay item | Description | Quantity Unit | Unit Price | Extended Amount |
|---|---|---|---|---|

| | | | | |
|---|---|---|---|---|
| 425-1-361 | INLETS, CURB, TYPE P-6, <10' | 1.00 EA | $5,469.37 | $5,469.37 |
| 425-1-521 | INLETS, DT BOT, TYPE C, <10' | 1.00 EA | $2,510.72 | $2,510.72 |
| 430-174-118 | PIPE CULV, OPT MATL, ROUND,18"SD | 152.00 LF | $93.27 | $14,177.04 |
| | **Drainage Component Total** | | | $22,157.13 |

**SIGNING COMPONENT**

**Pay Items**

| Pay item | Description | Quantity | Unit | Unit Price | Extended Amount |
|---|---|---|---|---|---|
| 700-1-11 | SINGLE POST SIGN, F&I GM, <12 SF | 8.00 | AS | $387.62 | $3,100.96 |
| 700-1-60 | SINGLE POST SIGN, REMOVE | 5.00 | AS | $11.93 | $59.65 |
| | **Signing Component Total** | | | | $3,160.61 |

**Sequence 8 Total** $138,244.45

**Sequence:** 9 WDR - Widen/Resurface, Divided, Rural **Net Length:** 0.085 MI
450 LF

**Description:** I-10 EB off ramp reconstruction.

## EARTHWORK COMPONENT

**User Input Data**

| Description | Value |
|---|---|
| Standard Clearing and Grubbing Limits L/R | 0.00 / 0.00 |
| Incidental Clearing and Grubbing Area | 1.00 |
| | |
| Alignment Number | 1 |
| Distance | 0.085 |
| Top of Structural Course For Begin Section | 100.00 |
| Top of Structural Course For End Section | 100.00 |
| Horizontal Elevation For Begin Section | 100.00 |
| Horizontal Elevation For End Section | 100.00 |
| Existing Front Slope L/R | 6 to 1 / 6 to 1 |
| Existing Median Slope L/R | 6 to 1 / 6 to 1 |
| Existing Median Shoulder Cross Slope L/R | 5.00 % / 5.00 % |
| Existing Outside Shoulder Cross Slope L/R | 6.00 % / 6.00 % |
| Front Slope L/R | 6 to 1 / 6 to 1 |
| Median Slope L/R | 6 to 1 / 6 to 1 |
| Median Shoulder Cross Slope L/R | 5.00 % / 5.00 % |
| Outside Shoulder Cross Slope L/R | 6.00 % / 6.00 % |
| Roadway Cross Slope L/R | 2.00 % / 2.00 % |

**Pay Items**

| Pay item | Description | Quantity | Unit | Unit Price | Extended Amount |
|---|---|---|---|---|---|
| 110-1-1 | CLEARING & GRUBBING | 1.00 | AC | $16,509.96 | $16,509.96 |

**X-Items**

| Pay item | Description | Quantity | Unit | Unit Price | Extended Amount |
|---|---|---|---|---|---|
| 110-4-10 | REMOVAL OF EXIST CONC | 235.00 | SY | $25.59 | $6,013.65 |
| 120-6 | EMBANKMENT | 900.00 | CY | $21.84 | $19,656.00 |
| | **Comment:** From 3D model | | | | |
| | **Earthwork Component Total** | | | | $42,179.61 |

## ROADWAY COMPONENT

**User Input Data**

| Description | Value |
|---|---|
| Number of Lanes | 3 |
| Existing Roadway Pavement Width L/R | 0.00 / 20.72 |
| Structural Spread Rate | 165 |
| Friction Course Spread Rate | 165 |
| Widened Outside Pavement Width L/R | 0.00 / 19.09 |
| Widened Inside Pavement Width L/R | 0.00 / 1.30 |
| Widened Structural Spread Rate | 165 |
| Widened Friction Course Spread Rate | 165 |

**Pay Items**

| Pay item | Description | Quantity | Unit | Unit Price | Extended Amount |
|---|---|---|---|---|---|

| | | | | |
|---|---|---|---|---|
| 160-4 | TYPE B STABILIZATION | 1,718.95 SY | $7.81 | $13,425.00 |
| 285-709 | OPTIONAL BASE,BASE GROUP 09 | 1,052.16 SY | $30.49 | $32,080.36 |
| 327-70-5 | MILLING EXIST ASPH PAVT, 2" AVG DEPTH | 1,035.67 SY | $2.55 | $2,640.96 |
| 334-1-53 | SUPERPAVE ASPH CONC, TRAF C, PG76-22 | 85.44 TN | $126.68 | $10,823.54 |
| 334-1-53 | SUPERPAVE ASPH CONC, TRAF C, PG76-22 | 84.08 TN | $126.68 | $10,651.25 |
| 337-7-83 | ASPH CONC FC,TRAFFIC C,FC-12.5,PG 76-22 | 85.44 TN | $138.67 | $11,847.96 |
| 337-7-83 | ASPH CONC FC,TRAFFIC C,FC-12.5,PG 76-22 | 84.08 TN | $138.67 | $11,659.37 |

**X-Items**

| Pay item | Description | Quantity Unit | Unit Price | Extended Amount |
|---|---|---|---|---|
| 536-85-20 | GUARDRAIL END TREAT-TRAILING ANCHORAGE | 1.00 EA | $1,325.16 | $1,325.16 |
| 536-85-24 | GUARDRAIL END TREATMENT-PARA APP TERM | 1.00 EA | $3,577.97 | $3,577.97 |

**Pavement Marking Subcomponent**

| Description | Value |
|---|---|
| Include Thermo/Tape/Other | Y |
| Pavement Type | Asphalt |
| Solid Stripe No. of Paint Applications | 1 |
| Solid Stripe No. of Stripes | 1 |
| Skip Stripe No. of Paint Applications | 1 |
| Skip Stripe No. of Stripes | 1 |

**Pay Items**

| Pay item | Description | Quantity Unit | Unit Price | Extended Amount |
|---|---|---|---|---|
| 706-1-1 | RAISED PAVMT MARK, TYPE B W/O FINAL SURF | 23.00 EA | $5.16 | $118.68 |
| 710-11-101 | PAINTED PAVT MARK,STD,WHITE,SOLID,6" | 0.09 GM | $1,098.02 | $98.82 |
| 710-11-131 | PAINTED PAVT MARK,STD,WHITE,SKIP, 6" | 0.09 GM | $589.46 | $53.05 |
| 711-15-101 | THERMOPLASTIC, STD-OP, WHITE, SOLID, 6" | 0.09 GM | $5,632.60 | $506.93 |
| 711-15-131 | THERMOPLASTIC, STD-OP, WHITE, SKIP, 6" | 0.09 GM | $1,729.08 | $155.62 |
| 711-15-201 | THERMOPLASTIC, STD-OP,YELLOW, SOLID, 6" | 0.09 GM | $5,632.60 | $506.93 |

**Peripherals Subcomponent**

| Description | Value |
|---|---|
| Off Road Bike Path(s) | 0 |
| Off Road Bike Path Width L/R | 0.00 / 0.00 |
| Bike Path Structural Spread Rate | 0 |
| Noise Barrier Wall Length | 0.00 |
| Noise Barrier Wall Begin Height | 0.00 |
| Noise Barrier Wall End Height | 0.00 |

**Pay Items**

| Pay item | Description | Quantity | Unit | Unit Price | Extended Amount |
|---|---|---|---|---|---|
| 339-1 | MISCELLANEOUS ASPHALT PAVEMENT | 11.00 | TN | $363.47 | $3,998.17 |
| 536-1-1 | GUARDRAIL- ROADWAY, GEN TL-3 | 330.00 | LF | $19.94 | $6,580.20 |
| | **Roadway Component Total** | | | | $110,049.97 |

## SHOULDER COMPONENT

**User Input Data**

| Description | Value |
|---|---|
| Existing Total Outside Shoulder Width L/R | 10.00 / 10.00 |
| New Total Outside Shoulder Width L/R | 4.00 / 10.00 |
| Total Outside Shoulder Perf. Turf Width L/R | 0.00 / 0.00 |
| Existing Paved Outside Shoulder Width L/R | 2.00 / 5.00 |
| New Paved Outside Shoulder Width L/R | 4.00 / 10.00 |
| Structural Spread Rate | 110 |
| Friction Course Spread Rate | 80 |
| Total Width (T) / 8" Overlap (O) | T |
| Rumble Strips ï¿½No. of Sides | 0 |

**Pay Items**

| Pay item | Description | Quantity | Unit | Unit Price | Extended Amount |
|---|---|---|---|---|---|
| 285-704 | OPTIONAL BASE,BASE GROUP 04 | 732.77 | SY | $19.57 | $14,340.31 |
| 327-70-1 | MILLING EXIST ASPH PAVT, 1" AVG DEPTH | 349.89 | SY | $1.43 | $500.34 |
| 334-1-13 | SUPERPAVE ASPHALTIC CONC, TRAFFIC C | 38.49 | TN | $98.15 | $3,777.79 |
| 337-7-25 | ASPH CONC FC,INC BIT,FC-5,PG76-22 | 27.99 | TN | $131.80 | $3,689.08 |

**X-Items**

| Pay item | Description | Quantity | Unit | Unit Price | Extended Amount |
|---|---|---|---|---|---|
| 520-1-10 | CONCRETE CURB & GUTTER, TYPE F | 250.00 | LF | $32.02 | $8,005.00 |

**Erosion Control**

**Pay Items**

| Pay item | Description | Quantity | Unit | Unit Price | Extended Amount |
|---|---|---|---|---|---|
| 104-10-3 | SEDIMENT BARRIER | 977.59 | LF | $2.25 | $2,199.58 |
| | **Shoulder Component Total** | | | | $32,512.10 |

## MEDIAN COMPONENT

**User Input Data**

| Description | Value |
|---|---|
| Total Median Width | 3.79 |
| Performance Turf Width | 2.58 |
| New Total Median Shoulder Width L/R | 0.00 / 0.00 |

| | |
|---|---|
| New Paved Median Shoulder Width L/R | 0.00 / 0.00 |
| Existing Total Median Shoulder Width L/R | 0.00 / 0.00 |
| Existing Paved Median Shoulder Width L/R | 0.00 / 0.00 |
| Structural Spread Rate | 110 |
| Friction Course Spread Rate | 80 |
| Total Width (T) / 8" Overlap (O) | T |
| Rumble Strips ï¿½No. of Sides | 0 |

**Pay Items**

| Pay item | Description | Quantity | Unit | Unit Price | Extended Amount |
|---|---|---|---|---|---|
| 570-1-1 | PERFORMANCE TURF | 128.96 | SY | $0.49 | $63.19 |

**X-Items**

| Pay item | Description | Quantity | Unit | Unit Price | Extended Amount |
|---|---|---|---|---|---|
| 520-1-7 | CONCRETE CURB & GUTTER, TYPE E | 160.00 | LF | $20.74 | $3,318.40 |
| | **Median Component Total** | | | | $3,381.59 |

**DRAINAGE COMPONENT**

**X-Items**

| Pay item | Description | Quantity | Unit | Unit Price | Extended Amount |
|---|---|---|---|---|---|
| 425-1-361 | INLETS, CURB, TYPE P-6, <10' | 1.00 | EA | $5,469.37 | $5,469.37 |
| 425-1-521 | INLETS, DT BOT, TYPE C, <10' | 1.00 | EA | $2,510.72 | $2,510.72 |
| 430-174-118 | PIPE CULV, OPT MATL, ROUND,18"SD | 152.00 | LF | $93.27 | $14,177.04 |
| 524-1-1 | CONCRETE DITCH PAVT, NR, 3" | 215.00 | SY | $128.79 | $27,689.85 |
| | **Drainage Component Total** | | | | $49,846.98 |

**SIGNING COMPONENT**

**Pay Items**

| Pay item | Description | Quantity | Unit | Unit Price | Extended Amount |
|---|---|---|---|---|---|
| 700-1-11 | SINGLE POST SIGN, F&I GM, <12 SF | 10.00 | AS | $387.62 | $3,876.20 |
| 700-1-60 | SINGLE POST SIGN, REMOVE | 7.00 | AS | $11.93 | $83.51 |
| 700-2-60 | MULTI- POST SIGN, REMOVE | 3.00 | AS | $119.26 | $357.78 |

**X-Items**

| Pay item | Description | Quantity | Unit | Unit Price | Extended Amount |
|---|---|---|---|---|---|
| 700-1-12 | SINGLE POST SIGN, F&I GM, 12-20 SF | 2.00 | AS | $954.13 | $1,908.26 |
| 700-2-14 | MULTI- POST SIGN, F&I GM, 31-50 SF | 2.00 | AS | $4,784.83 | $9,569.66 |
| 700-2-15 | MULTI- POST SIGN, F&I GM, 51-100 SF | 1.00 | AS | $6,974.43 | $6,974.43 |
| 700-2-50 | MULTI- POST SIGN, RELOCATE | 2.00 | AS | $3,407.13 | $6,814.26 |
| 700-6-21 | HIGHLIGHTED SIGN, F&I GM-SOLAR, <12 SF | 2.00 | AS | $6,041.84 | $12,083.68 |

| | |
|---|---|
| **Signing Component Total** | $41,667.78 |
| **Sequence 9 Total** | $279,638.03 |

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# FDOT Long Range Estimating System - Production

## R3: Project Details by Sequence Report

**Project:** 443239-1-52-01 **Letting Date:** 03/2025

**Description:** Conceptual estimate for ramp modifications at I-10 and US 129.

**District:** 02 **County:** 37 SUWANNEE **Market Area:** 04 **Units:** English
**Contract Class:** 9 **Lump Sum Project:** N **Design/Build:** Y **Project Length:** 1.000 MI

**Project Manager:** Justin Garland

**Version 9-P Project Grand Total** **$6,142,682.78**
**Description:** 07/13/2021 VC Created by Osiris 9. US 129 widening to four lanes north of I-10. Carry 30' median typical section as far as possible and then taper down to two lanes. No bulbout U-turn.

---

| | | | |
|---|---|---|---|
| **Project Sequences Subtotal** | | | **$4,180,693.69** |
| 102-1 | Maintenance of Traffic | 15.00 % | $627,104.05 |
| 101-1 | Mobilization | 10.00 % | $480,779.77 |
| **Project Sequences Total** | | | **$5,288,577.51** |
| Project Unknowns | | 15.00 % | $793,286.63 |
| Design/Build | | 0.00 % | $0.00 |

**Non-Bid Components:**

| Pay item | Description | Quantity | Unit | Unit Price | Extended Amount |
|---|---|---|---|---|---|
| 999-25 | INITIAL CONTINGENCY AMOUNT (DO NOT BID) | | LS | $60,818.64 | $60,818.64 |
| **Project Non-Bid Subtotal** | | | | | **$60,818.64** |
| **Version 9-P Project Grand Total** | | | | | **$6,142,682.78** |

# APPENDIX I

Build Alternative Conceptual Signing Plan

EXISTING SIGN TO REMAIN

EXISTING SIGN TO REMAIN

PROPOSED BRIDGE MOUNTED SIGN

RELOCATE EXISTING SIGN WITH NEW PANEL

RELOCATE EXISTING SIGN WITH NEW PANEL

RELOCATE EXISTING SIGN WITH NEW PANEL

PROPOSED SIGN

PROPOSED SIGN

RELOCATE EXISTING SIGN WITH NEW PANEL

RELOCATE EXISTING SIGN WITH NEW PANEL

PROPOSED BRIDGE MOUNTED SIGN

RELOCATE EXISTING SIGN WITH NEW PANEL

EXISTING SIGN TO REMAIN

EXISTING SIGN TO REMAIN

0 75 300

Feet

## LEGEND:

- EXISTING SINGLE SIGN POST
- EXISTING MULTI-POST SIGN
- PROPOSED SINGLE POST SIGN
- PROPOSED MULTI-POST SIGN
- PROPOSED BRIDGE MOUNTED SIGN

## NOTE:

IN ADDITION TO THE GUIDE SIGNS AND ROUTE SHIELDS SHOWN IN THIS CONCEPTUAL SIGNING PLAN, CONSIDERATION WILL BE GIVEN TO CONVERT EXISTING STATIC "WRONG WAY" SIGNAGE TO ADVANCED WRONG-WAY DRIVING COUNTERMEASURES FOR INTERCHANGE EXIT RAMPS, PER FDOT TRAFFIC ENGINEERING AND OPERATIONS BULLETIN 19-03, ROADWAY DESIGN BULLETIN 19-03, AND CONSTRUCTION BULLETIN 19-01.

| REVISIONS | | | |
|---|---|---|---|
| DATE | DESCRIPTION | DATE | DESCRIPTION |
| | | | |

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

| ROAD NO. | COUNTY | FINANCIAL PROJECT ID |
|---|---|---|
| SR 51 | SUWANNEE | 44323912201 |

# CONCEPTUAL SIGNING PLAN

SHEET NO.

12/15/2021 5:25:39 PM jnoslenian
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