



FINAL REPORT

INTERSECTION ANALYSIS AT

**Orange Avenue at
Gatlin Avenue**

and

**Orange Avenue at
Holden Avenue**

October 2021



October 2021

Intersection Analysis Study for Orange Avenue at Gatlin Avenue & Orange Avenue at Holden Avenue

Prepared for:



Prepared by:



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1 INTRODUCTION

Vanasse Hangen Brustlin, Inc (VHB) was retained by Orange County to conduct an Intersection Analysis Study for the intersections of Orange Avenue at Gatlin Avenue and Orange Avenue at Holden Avenue. The objective of the study is to develop alternative intersection designs and identify other improvements to alleviate current and anticipated operational and safety issues within the study limits. The study area is shown in **Figure 1**. In addition to the study intersections of Orange Avenue at Gatlin Avenue and Orange Avenue at Holden Avenue, **Figure 1** also shows the Lake Gatlin Road because a potential future improvement will utilize this road. The current work effort is a continuation of the recently submitted study "Intersection Analysis for Orange Avenue at Gatlin Avenue and Orange Avenue at Holden Avenue", dated March 2021 (previous study).

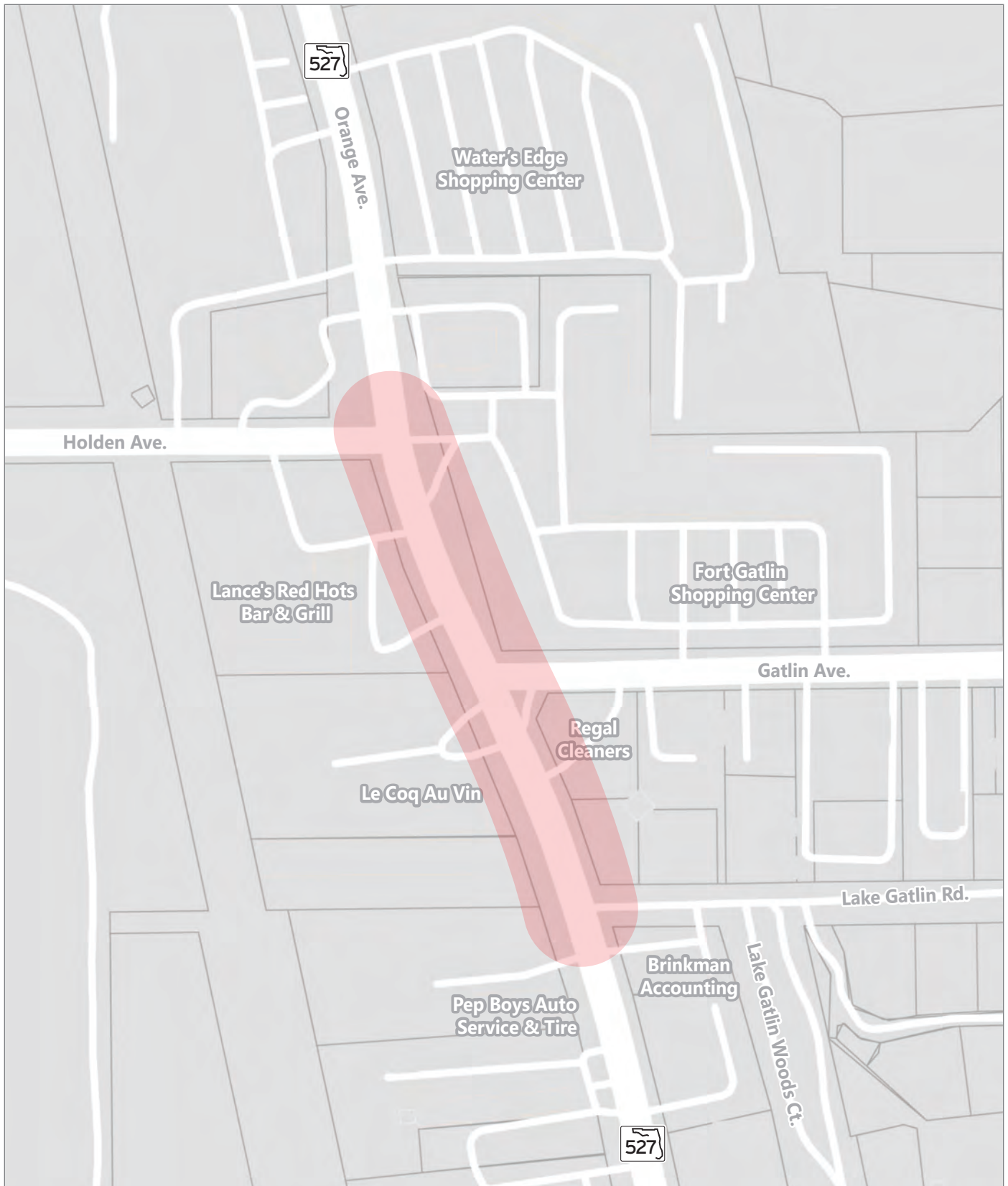
Orange Avenue is an urban principal arterial with regional importance and connects the City of Edgewood and Downtown Orlando. Under the existing conditions, the congestion and associated delay are due to the existing offset intersection configuration, heavy turning traffic from/to Orange Avenue to side streets (Holden Avenue and Gatlin Avenue), and limited existing left-turn storage lengths along Orange Avenue.

Under the current conditions, the queue for the northbound left turn movement at Orange Avenue and Holden Avenue exceeds the available storage length and spills into the northbound through lane south of Gatlin Avenue. Excessive queues are also observed along Holden Avenue (for the eastbound approach) and Gatlin Avenue (for the westbound approach). The other movements are observed to operate with minimum impact during both AM and PM peak hours.

The two signalized study intersections are approximately 350-feet apart from each other. The SunRail crossing on Holden Avenue (Florida Department of Transportation [FDOT] Railroad Crossing No. 622311), located approximately 300-feet west of Orange Avenue, also contributes to the intersection delays during the morning and afternoon peak hours. Based on the existing published SunRail schedule, there are a total of four crossings (two trains each for the northbound and southbound routes) during both the morning (7-8 AM) and afternoon (5-6 PM) peak hours at the study location.

The distribution service center for Boise Cascade Building Materials is also located on Holden Avenue approximately 700-feet west of Orange Avenue. This distribution service center provides access for heavy trucks to/from Holden Avenue.

The purpose of this memorandum is to present the previous studies review, existing (2019) turning movement counts (TMCs) and future (2025 and 2040) turning movement volumes (TMVs), existing travel patterns (origin-destination [OD] data) at the study intersections, historical crash analysis for ten years, future operational analysis summaries for the existing conditions, short-term and long-term alternatives, and safety evaluation of the future alternatives. The objective of this study is to develop design concepts for the long-term alternatives and benefit-cost (B/C) ratios using operational benefits and planning-level cost estimates.



Location



Intersect

Figure 1

Location Map
Intersection Analysis for Orange
Avenue/Holden Avenue &
Orange Avenue/Gatlin Avenue

2 PREVIOUS STUDIES REVIEW

Per discussions with the City of Edgewood, the study intersections have been the subject of previous studies dating back to 1973. This section presents a review of previous studies and recommendations related to the study intersections. Following is a summary of the historical timeline of previous/related studies and/or meetings.

- **1973:** Orange County Board of County Commission Meeting Minutes, December 11, 1973 – Orange County Board of County Commissioners (BCC) discussed the widening of Holden Avenue from Rio Grande Avenue to Orange Avenue.
- **1988:** Orange County Board of County Commission Meeting Minutes, April 18, 1988 – the BCC discussed right-of-way (ROW) reservation and Preliminary Engineering Study for widening Holden Avenue from Orange Blossom Trail to Orange Avenue.
- **1999:** Orange County Roadway Corridor Analysis for Holden improvements.
- **2001:** City of Edgewood Community Master Plan – the Master Plan included alternatives for realigning the Holden Avenue and Gatlin Avenue intersections at SR 527/Orange Avenue.
- **2009:** Qualitative Assessment for SR 527 at Gatlin and Holden Avenue Study #1, Work Order #52, July 2009 – the assessment included a series of short-term geometric improvements at Orange Avenue and Gatlin/Holden Avenues.
- **2010:** Orange County SYNCHRO Analysis – this analysis compared 2010 existing conditions with proposed intersection modifications at Orange Avenue and Holden/Gatlin Avenues.
- **2015:** Conceptual Design Study, SR 527 (Orange Avenue) from Gatlin Avenue to Holden Avenue (FPID 433648-1-32-01), March 2015 – this study included a series of design recommendations for the SR 527 corridor and at the intersections of Holden Avenue and Gatlin Avenue.
- **2017:** MetroPlan Orlando, Orange Avenue Corridor Master Plan Summary, August 2017 – this study included short-, mid-, and long-term improvements, including a grid alternative

which would extend Holden Avenue across Orange Avenue to a new north-south street that would connect to Gatlin Avenue, and extend Gatlin Avenue across Orange Avenue to a new north-south street that would connect to Holden Avenue.

- **2018:** FDOT Signal Timing Report, SR 527 from Office Court to Drennen Road, May 2018 – this study summarizes the signal retiming efforts for 12 intersections along SR 527, from Office Court to Drennen Road. It was recommended that the detections at the intersection of Holden Avenue/Orange Avenue be further investigated.
- **2019:** Orange County Realignment Concept Plan review comments – this document includes a review of the Orange Avenue-Holden Avenue-Gatlin Avenue Intersection Realignment Concept Plan.
- **2021:** MetroPlan Orlando, Orlando Urban Area FY 2026/27 – 2034/35 Prioritized Project List (Adopted July 7, 2021) – The Orange Avenue corridor from Holden Avenue to Gatlin Avenue is identified for safety improvements totaling \$10.5 million.

Appendix A includes more detailed summaries of the available documents listed above. The summary of previous studies includes applicable recommendations to address the traffic operations at the study locations, and alternatives that were proposed in those studies.

3 EXISTING CONDITIONS

3.1 Existing (2019) Traffic Volumes

Due to the ongoing COVID-19 pandemic, the year 2019 traffic volumes were forecasted using TMCs from recently completed studies. FDOT District 5 performed signal retiming on Orange Avenue in 2018 with TMCs collected in the field in October 2017. The 8-hour TMCs for the study intersections of Orange Avenue at Gatlin Avenue and Orange Avenue at Holden Avenue obtained from this signal retiming report are included in **Appendix B**.

To develop the year 2019 TMCs from the year 2017 TMCs, a growth rate was calculated using Bureau of Economic and Business Research (BEBR) estimates and historical traffic trends. The summary is provided below.

1. Based on BEBR estimates for Orange County, an annual growth rate of 2.7% was observed between 2017 and 2019 population estimates. An annual growth rate of 2.1% was observed between 2017 and 2019 population estimates for the City of Orlando (see **Table 1**).

Table 1: BEBR Population Estimates

Year	Orange County	City of Orlando
2017	1,313,880	279,789
2018	1,349,597	285,099
2019	1,386,080	291,800
Growth Rate	2.8%	2.1%

2. The historical count (2017 – 2019) information obtained from 2019 Florida Traffic Online (FTO) for Cosites #750175 and #750537 on Orange Avenue and historical count (2017 – 2019) information obtained from Orange County for Station#187 on Holden Avenue and Station # 323 on Gatlin Avenue are summarized in **Table 2**.
3. **An annual growth rate of 2.8% is recommended to forecast the 2019 TMCs.** This growth rate depicts the average growth rates derived from the historical traffic counts

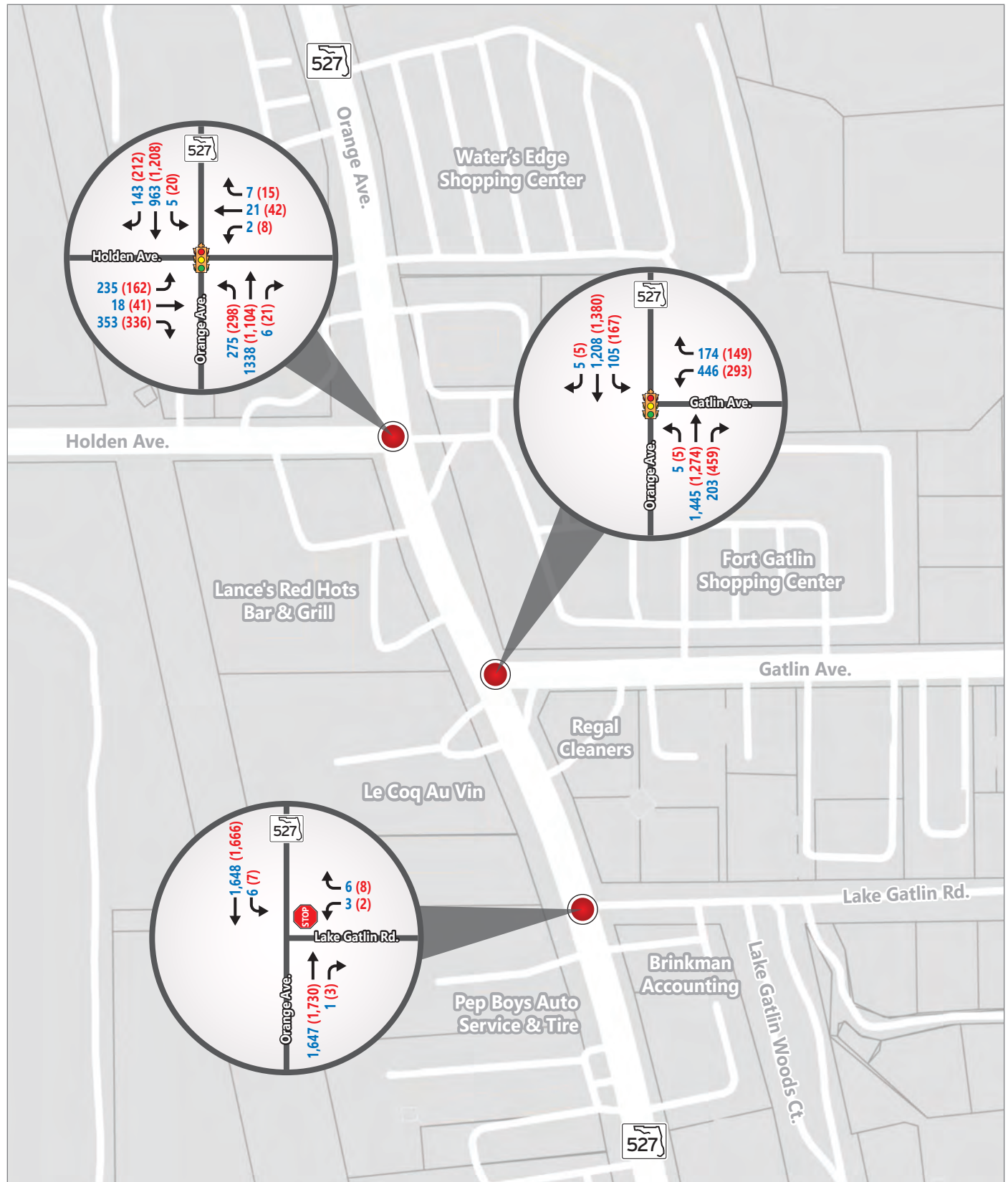
(2017-2019) and BEBR population estimates for the City of Orlando (2017-2019) and Orange County (2017-2019).

Table 2: Historical Traffic Trends Summary

Year	Orange Avenue north of Holden Avenue (Cosite 750175)	Orange Avenue south of Gatlin Avenue (Cosite 750537)	Holden Avenue west of Orange Avenue (Station – 187)	Gatlin Avenue east of Orange Avenue (Station – 323)
2017	36,439	42,000	16,000	8,559
2018	37,064	43,000	17,140	8,711
2019	38,138	44,500	17,335	9,307
Annual Growth Rate	2.3%	3.0%	4.2%	4.4%

Figure 2 shows the year 2019 estimated TMVs for the study intersections. The following observations are noted from the estimated year 2019 TMVs.

- The eastbound right turning and northbound left turning movements are heavy during both AM and PM peak hours at the intersection of Orange Avenue and Holden Avenue.
- The westbound left turning movement in the AM peak hour and northbound right turning movement in the PM peak hour are heavy at the intersection of Orange Avenue and Gatlin Avenue.
- Northbound is the predominant peak direction in the AM peak hour along Orange Avenue, which shifts to southbound in the PM peak hour.



AM (PM) Turning Movement Volumes



Stop-Controlled Intersection



Signalized Intersection



Figure 2

Year 2019 Estimated Turning Movement Volumes

Intersection Analysis for Orange Avenue/
Holden Avenue & Orange Ave/Gatlin
Avenue

3.2 OD Study

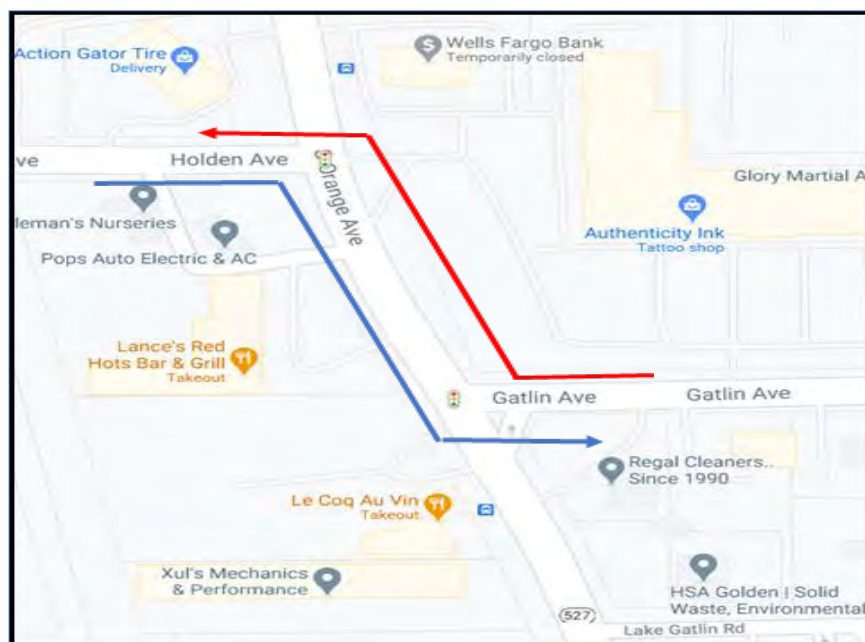
An OD study was performed at study intersections in September 2020 to understand the percentage of vehicles completing the following two travel patterns. This information will help evaluate the Holden Avenue realignment alternative. The OD results are included in **Appendix C**.

- Turning westbound right at Orange Avenue and Gatlin Avenue and immediately turning northbound left at Orange Avenue and Holden Avenue.
- Turning eastbound right at Orange Avenue and Holden Avenue and immediately turning southbound left at Orange Avenue and Gatlin Avenue.

Figure 3 depicts the existing OD patterns between the study intersections. Based on the OD study, it was determined that

- Approximately 30% of eastbound right turning traffic at Orange Avenue and Holden Avenue intersection immediately turns southbound left turn onto Gatlin Avenue, depicted as a blue line in **Figure 3**.
- Approximately 70% of westbound right turning traffic at Orange Avenue & Gatlin Avenue intersection immediately turn northbound left turn onto Holden Avenue, depicted by the red line in **Figure 3**.

Figure 3: Field-Collected OD Patterns



4 HISTORICAL CRASH ANALYSIS

The latest available ten years of crash data within the study area from July 1, 2011 to June 30, 2021 were provided by Orange County. A total of 517 crashes were reported within the study area, including the intersections of Orange Avenue with Gatlin Avenue, Holden Avenue, and Lake Gatlin Road. 235 of the crashes occurred at the Holden Avenue intersection, 249 occurred at the Gatlin Avenue intersection, and the remaining 33 crashes occurred at the Lake Gatlin Road intersection. The crashes were analyzed to identify possible crash patterns within the study area.

As for the severity, injuries accounted for 23% of the crashes while the remaining crashes resulted in property damage only. No fatalities were recorded in the ten-year study period. A low occurrence of pedestrian or bicyclist crashes was recorded with only one of each reported out of 517 crashes. The major crash types were rear-end accounting for 43% of crashes, sideswipe for 20% of crashes, and left-turn for 18% of crashes. Five crashes involved alcohol and one involved drug usage. **Figure 4** illustrates a heat map of the crashes over the ten-year period for the study area. The heat map is based on the location details provided within the crash data source (Signal Four Analytics) and is approximate. The heat map helps to visually identify a cluster of crashes within the study area and was prepared using the ArcGIS Maps for PowerBI tool.

Figure 4: Crash Heat Map of the Study Area (2011-2021)

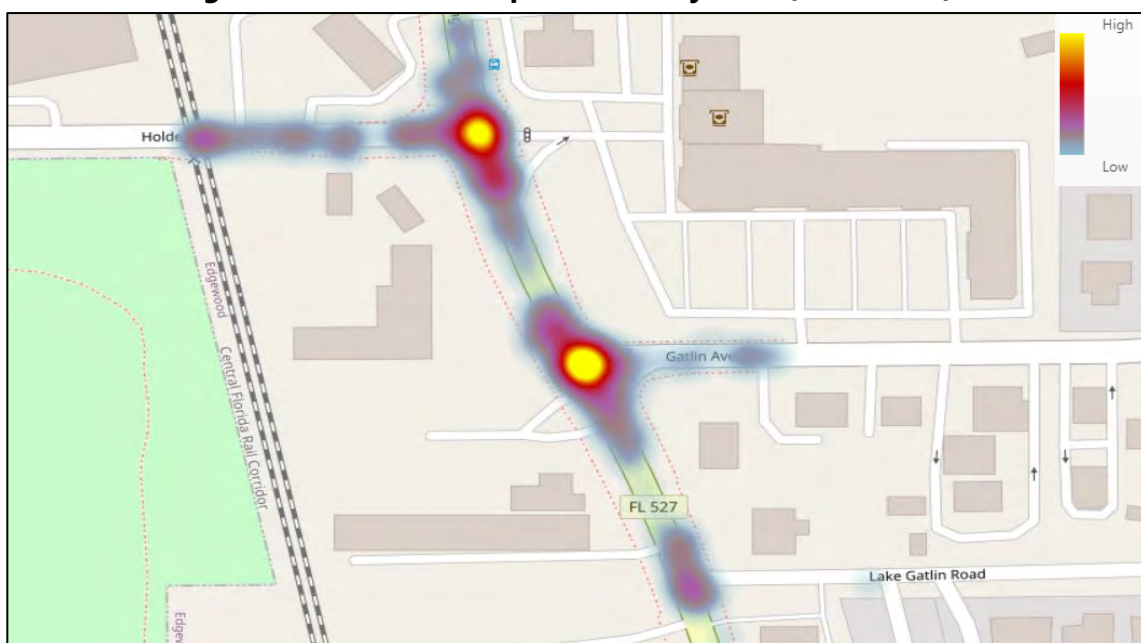
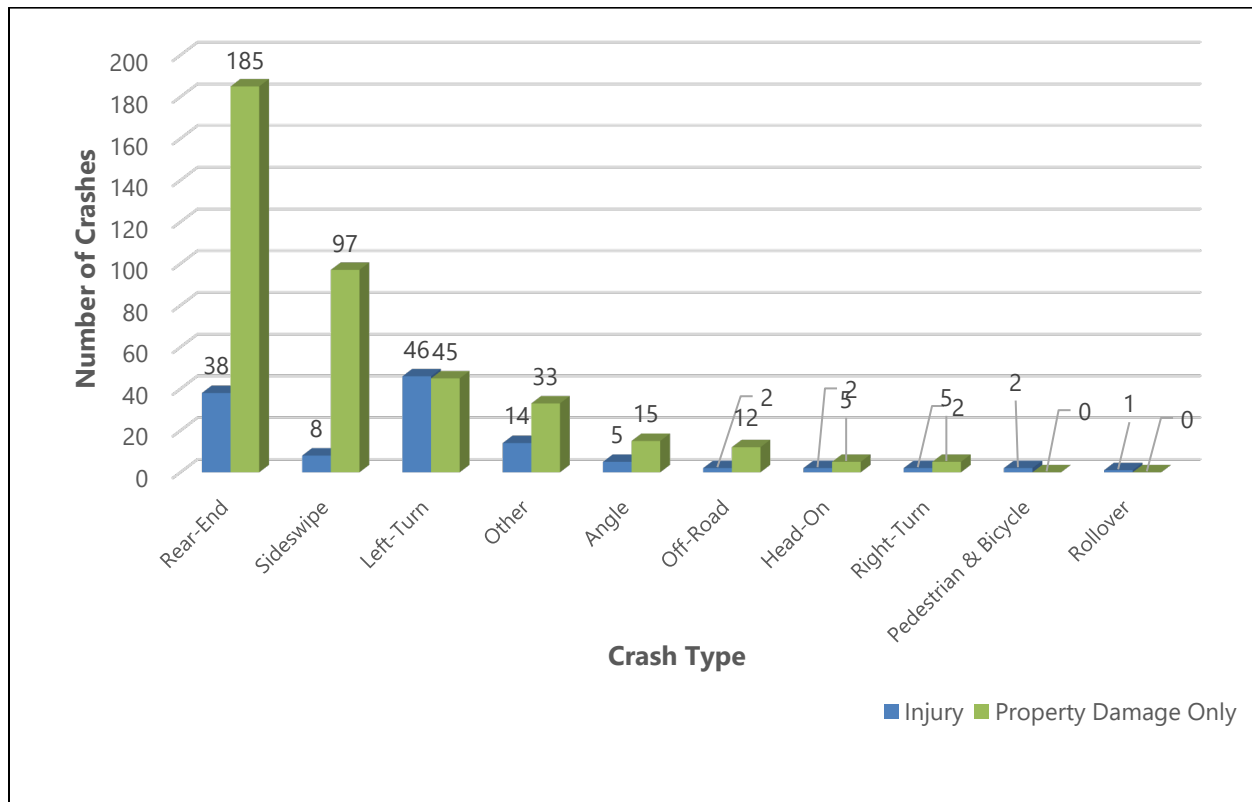


Figure 5 describes all 517 crashes by type and severity. The following sections describe the crash characteristics by intersection and include an overview of pedestrian and cyclist crashes. The raw crash data is included in **Appendix D**.

Figure 5: Crashes Summary by Type and Severity for the Study Area (2011-2021)



4.1 Crash Summary by Intersection

4.1.1 Orange Avenue and Holden Avenue

In total, 235 crashes were recorded within the influence area of the intersection of Orange Avenue and Holden Avenue. The predominant crash types were rear-end (110), left-turn (38), and sideswipe (38) crashes. Both pedestrian and bicycle crashes occurred within the area of this intersection. Of the 235 total crashes at this intersection, 54 resulted in injury with the remaining 181 causing property damage only. The majority of the crashes occurred in dry pavement conditions (200) and daylight (178) conditions. Alcohol and drugs played a role in three (3) crashes.

Table 3 describes the crash circumstances by year.

Table 3: Crash Summary – Orange Avenue and Holden Avenue

Year	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	Total	Proportion
Crash Type													
Rear-End	0	7	9	15	15	18	11	9	14	8	4	110	47%
Head-On	0	1	0	0	0	1	0	1	0	0	0	3	1%
Sideswipe	0	2	5	5	3	6	5	6	3	3	0	38	16%
Angle	1	0	1	1	0	2	1	2	0	1	1	10	4%
Left-Turn	2	1	0	4	3	6	4	6	7	2	3	38	16%
Right-Turn	0	0	0	1	0	0	0	1	0	0	0	2	1%
Off-Road	0	0	0	0	1	0	1	0	4	0	1	7	3%
Pedestrian & Bicycle	0	0	1	0	0	0	0	0	0	1	0	2	1%
Other	0	1	2	6	1	7	1	1	2	4	0	25	11%
Total	3	12	18	32	23	40	23	26	30	19	9	235	100%
Crash Severity													
Injury	1	0	4	6	5	8	4	8	8	6	4	54	23%
Property Damage Only	2	12	14	26	18	32	19	18	22	13	5	181	77%
Total	3	12	18	32	23	40	23	26	30	19	9	235	100%
Pavement Condition													
Wet	0	1	6	10	2	8	1	0	4	2	1	35	15%
Dry	3	11	12	22	21	32	22	26	26	17	8	200	85%
Total	3	12	18	32	23	40	23	26	30	19	9	235	100%
Light Condition													
Daylight	3	10	15	21	21	28	16	20	22	15	7	178	76%
Dusk	0	0	0	2	0	1	1	0	2	1	1	8	3%
Dawn	0	0	0	0	0	1	1	0	0	0	0	2	1%
Dark	0	2	3	9	2	10	5	6	6	3	1	47	20%
Total	3	12	18	32	23	40	23	26	30	19	9	235	100%

Note: The crash period is from July 1, 2011 to June 30, 2021, the years 2011 and 2021 are not full

4.1.2 Orange Avenue and Gatlin Avenue

249 of the 517 total crashes were recorded at the adjacent intersection of Orange Avenue and Gatlin Avenue. The crash types included 98 rear-end, 61 sideswipe, 50 left-turn, and 19 other crashes. Of the 249 crashes, 60 resulted in injury while 189 resulted in property damage only. Conditions were dry for 217 crashes and in daylight for 200 crashes. There were no pedestrian or bicycle-related crashes, while alcohol was a factor accounting for three of the crashes. **Table 4** describes the crash circumstances by year.

Table 4: Crash Summary – Orange Avenue and Gatlin Avenue

	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	Total	Proportion
Crash Type													
Rear End	1	12	13	9	11	12	18	9	7	4	2	98	39%
Head On	0	0	0	0	1	1	0	0	0	0	0	2	1%
Sideswipe	1	6	6	6	8	10	6	4	10	3	1	61	24%
Roll Over	0	0	0	0	0	0	0	1	0	0	0	1	1%
Angle	0	1	0	0	2	1	1	0	0	1	0	6	2%
Left Turn	1	8	1	4	3	3	2	8	13	1	6	50	20%
Right Turn	0	0	0	0	1	0	2	0	0	1	1	5	2%
Off Road	0	0	0	1	0	0	0	1	2	1	2	7	3%
Other	0	3	0	4	2	3	5	0	1	1	0	19	8%
Total	3	30	20	24	28	30	34	23	33	12	12	249	100%
Crash Severity													
Injury	1	9	5	7	3	6	4	9	8	2	6	60	24%
Property Damage Only	2	21	15	17	25	24	30	14	25	10	6	189	76%
Total	3	30	20	24	28	30	34	23	33	12	12	249	100%
Pavement Condition													
Wet	0	2	5	6	4	5	2	2	4	0	2	32	13%
Dry	3	28	15	18	24	25	32	21	29	12	10	217	87%
Total	3	30	20	24	28	30	34	23	33	12	12	249	100%
Light Condition													
Daylight	2	25	18	24	25	27	21	15	25	9	9	200	80%
Dusk	0	1	0	0	0	1	3	0	1	1	0	7	3%
Dawn	0	0	0	0	0	0	0	1	0	0	0	1	1%
Dark	1	4	2	0	3	2	10	7	7	2	3	41	16%
Total	3	30	20	24	28	30	34	23	33	12	12	249	100%

Note: The crash period is from July 1, 2011 to June 30, 2021, the years 2011 and 2021 are not full

4.1.3 Orange Avenue and Lake Gatlin Road

Of the 517 total crashes, 33 were reported at the intersection of Orange Avenue and Lake Gatlin Road. These crashes included 15 rear-end, six sideswipe, and four angle crashes. Six of the crashes resulted in injury, while the remaining 27 crashes caused property damage only. 26 of the crashes occurred in dry conditions and 29 of them occurred in daylight.

There were no pedestrian or bicycle-related crashes at this intersection and there were also no drug or alcohol-related incidents. The following **Table 5** describes the circumstances by year.

Table 5: Crash Summary – Orange Avenue and Lake Gatlin Road

Year	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	Total	Proportion
Crash Type													
Rear End	0	1	1	1	2	5	1	1	3	0	0	15	45%
Head On	0	0	0	0	1	0	1	0	0	0	0	2	6%
Sideswipe	0	0	0	0	1	0	1	1	2	0	1	6	18%
Angle	0	0	0	0	0	2	0	0	1	1	0	4	12%
Left Turn	0	0	0	0	1	0	1	1	0	0	0	3	9%
Other	0	0	0	0	0	0	1	0	1	1	0	3	9%
Total	0	1	1	1	5	7	5	3	7	2	1	33	100%
Crash Severity													
Injury	0	0	0	0	2	2	0	0	1	1	0	6	18%
Property Damage Only	0	1	1	1	3	5	5	3	6	1	1	27	82%
Total	0	1	1	1	5	7	5	3	7	2	1	33	100%
Pavement Condition													
Wet	0	0	0	0	2	1	1	0	3	0	0	7	21%
Dry	0	1	1	1	3	6	4	3	4	2	1	26	79%
Total	0	1	1	1	5	7	5	3	7	2	1	33	100%
Light Condition													
Daylight	0	1	1	1	5	7	4	2	6	2	0	29	88%
Dusk	0	0	0	0	0	0	0	0	1	0	0	1	3%
Dawn	0	0	0	0	0	0	0	1	0	0	0	1	3%
Dark	0	0	0	0	0	0	1	0	0	0	1	2	6%
Total	0	1	1	1	5	7	5	3	7	2	1	33	100%

Note: The crash period is from July 1, 2011 to June 30, 2021, the years 2011 and 2021 are not full

4.2 Overview of Pedestrian and Bicycle Crashes

A total of two bicycle and pedestrian-related crashes occurred during the study period, neither of which resulted in a fatality. One pedestrian crash was recorded at the study intersection of Orange Avenue and Holden Avenue, resulting in injury. One bicycle crash at the intersection of Orange Avenue and Holden Avenue resulted in injury. Of these two, the pedestrian crash occurred in 2013,

while the bicycle crash occurred in 2020. The following **Table 6** describes the crash circumstances in chronological order:

Table 6: Pedestrian and Cyclist Crash Summary

Condition	Vehicle Orientation	Location	Description
Crash #83295366			
Dry/ Daytime	Westbound	East of railroad	A vehicle traveling westbound along Holden Avenue struck a roadway worker holding a stop sign in the middle of the roadway between the railroad and intersection with Orange Avenue. The worker was transported to the hospital.
Crash #83855964			
Dry/ Dark-Lighted	Northbound	In intersection	A vehicle turning left from northbound Orange Avenue onto Holden Avenue struck a bicycle traveling southbound along Orange Avenue within the intersection. The vehicle entered the intersection with a flashing yellow signal. The bicyclist was transported to the hospital.

4.3 Historical Crash Patterns

Based on the crash conditions and types at the three intersections, the following patterns are noted at the study intersections:

- The low number of pedestrian and bicycle-related (two) crashes over a ten-year crash period is most likely because of the minimal pedestrian/bicycle activity at the study intersections.
- The proportion (of the total number) of crashes is approximately equal at the two main study intersections (Orange Avenue at Holden Avenue – 46% and Orange Avenue at Gatlin Avenue – 48%). A significant portion of these crashes was the result of rear-end crashes which are typical of the stop-and-go traffic at signalized intersections.
- Rear-end, left-turn, and sideswipe crashes were the most common crash types at all three intersections. Of these major crash types, around half of the left-turn crashes resulted in injuries, underscoring the severity associated with left-turn crashes.

5 FUTURE TRAFFIC

The development of 2040 future traffic projections for the study corridors requires the examination of historical growth, proposed development levels within the corridor vicinity, and a basic understanding of local traffic circulation patterns and travel characteristics of the corridor. As such, the following sources were used to derive reasonable future traffic forecasts for the study corridor. All growth rates referred to in this section are linear annual rates unless otherwise stated.

1. **Travel Demand Model:** The latest adopted Central Florida Regional Planning Model (CFRPM) version 6.1 was used in the traffic forecasting process (**Table 7**).
2. **Historical Traffic Trends Analysis:** Historical traffic trends (linear growth) analysis based on least squares regression analysis was conducted for the study roadways using traffic data from 2017 FTO (**Table 8**).
3. **Population Projections:** The population estimates from BEBR, Florida Population Studies, Bulletin 180 were used (**Table 9**).
4. **Programmed and Planned Improvements:** Based on the latest adopted MetroPlan Orlando 2040 Long Range Transportation Plan (LRTP), amended on 12/13/2019, and Transportation Improvement Program (TIP), amended on 09/09/2020, there are no capacity improvements projects along Orange Avenue in the vicinity of the study area. As such, CFRPM version 6.1 confirms the same along Orange Avenue, Holden Avenue, and Gatlin Avenue near the study area.

Table 7: CFRPM Model Growth Rate Summary

Location	2010	2040	Growth Rate
Orange Avenue, north of Holden Avenue	39,779	44,803	0.4%
Orange Avenue b/w Holden Avenue & Gatlin Avenue	44,141	49,852	0.4%
Orange Avenue, south of Gatlin Avenue	43,007	49,546	0.5%
Holden Avenue, west of Orange Avenue	15,977	18,153	0.5%
Gatlin Avenue, east of Orange Avenue	13,792	16,797	0.7%
Average	0.5%		

Table 8: Historical Traffic Trends Summary

Station	2019 AADT (Actual)	2040 AADT (Trends)	Growth Rate	R ² Value
Orange Avenue, north of Holden Avenue	38,138	40,800	0.33%	53.23%
Orange Avenue, south of Gatlin Avenue	44,500	52,700	0.88%	70.42%
Holden Avenue, west of Orange Avenue	17,335	30,900	3.73%	97.17%
Gatlin Avenue, east of Orange Avenue	9,307	14,100	2.45%	70.71%

Table 9: Population Analysis Summary - Orange County

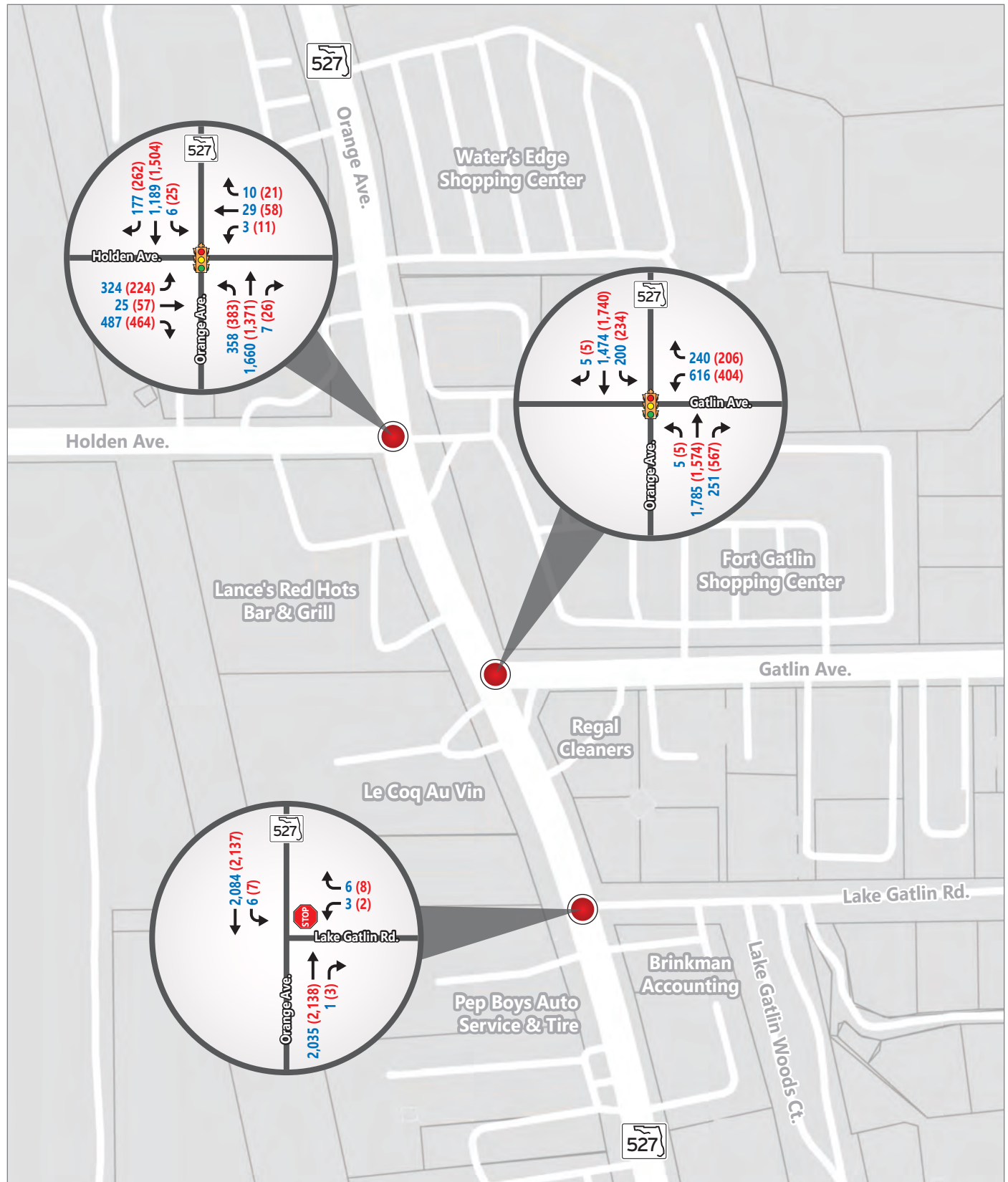
Projection Type	2019 Estimate	2040 Projection	Growth Rate
BEBR Low Projection	1,386,080	1,584,300	0.68%
BEBR Medium Projection	1,386,080	1,888,700	1.73%
BEBR High Projection	1,386,080	2,188,600	2.76%

5.1 Recommended Growth Rates

Based on the above-mentioned growth rates from various sources, input from the County, and the fact that the study roadways will not be widened by 2040, the following recommended growth rates are used to derive the year 2040 TMVs at the study intersections:

- **A growth rate of 1.12%** (average of model-based growth rates for Orange Avenue [0.50%] and BEBR medium projection-based growth rate [1.73%]) is used for Orange Avenue.
- **A growth rate of 1.81%** (average of model-based growth rates for Holden Avenue and Gatlin Avenue [0.60%], trends-based growth rates for Holden Avenue and Gatlin Avenue [3.09%], and BEBR medium projection-based growth rate [1.73%]) is used for Holden Avenue and Gatlin Avenue.

The supporting documents including CFRPM 6.1 model plots, historical trends spreadsheets, and BEBR population estimates are included in **Appendix E**. **Figure 6** depicts forecasted 2040 AM and PM TMVs for the No-Build Alternative.



AM (PM) Turning Movement Volumes



Stop-Controlled Intersection



Signalized Intersection



Figure 6

**Future Year 2040 No Build
Turning Movement Volumes**
Intersection Analysis for Orange
Avenue/Holden Avenue &
Orange Ave/Gatlin Avenue

6 CONSIDERED ALTERNATIVES

Based on the input received from Orange County and the City of Edgewood, and a preliminary evaluation of the study needs and objectives, traffic data, and anticipated traffic operational efficiency and safety improvements, one short-term and three long-term alternatives are evaluated in this study. Also, a Stage 1 Intersection Control Evaluation (ICE) was conducted to evaluate a range of viable long-term traffic control options (including the existing signal configuration) for the study intersections of Orange Avenue at Holden Avenue and Orange Avenue at Gatlin Avenue.

6.1 Short-term Alternative

A short-term alternative is evaluated that can be built in the field before construction funding can be secured for the long-term alternative. The short-term alternative was evaluated for the year 2025 and is based on the improvements suggested by the County. **Figure 7** shows the year 2025 AM and PM TMVs for the study intersections derived using growth rates described in Section 5.2. Please refer to the next section for details on the short-term alternative improvements.

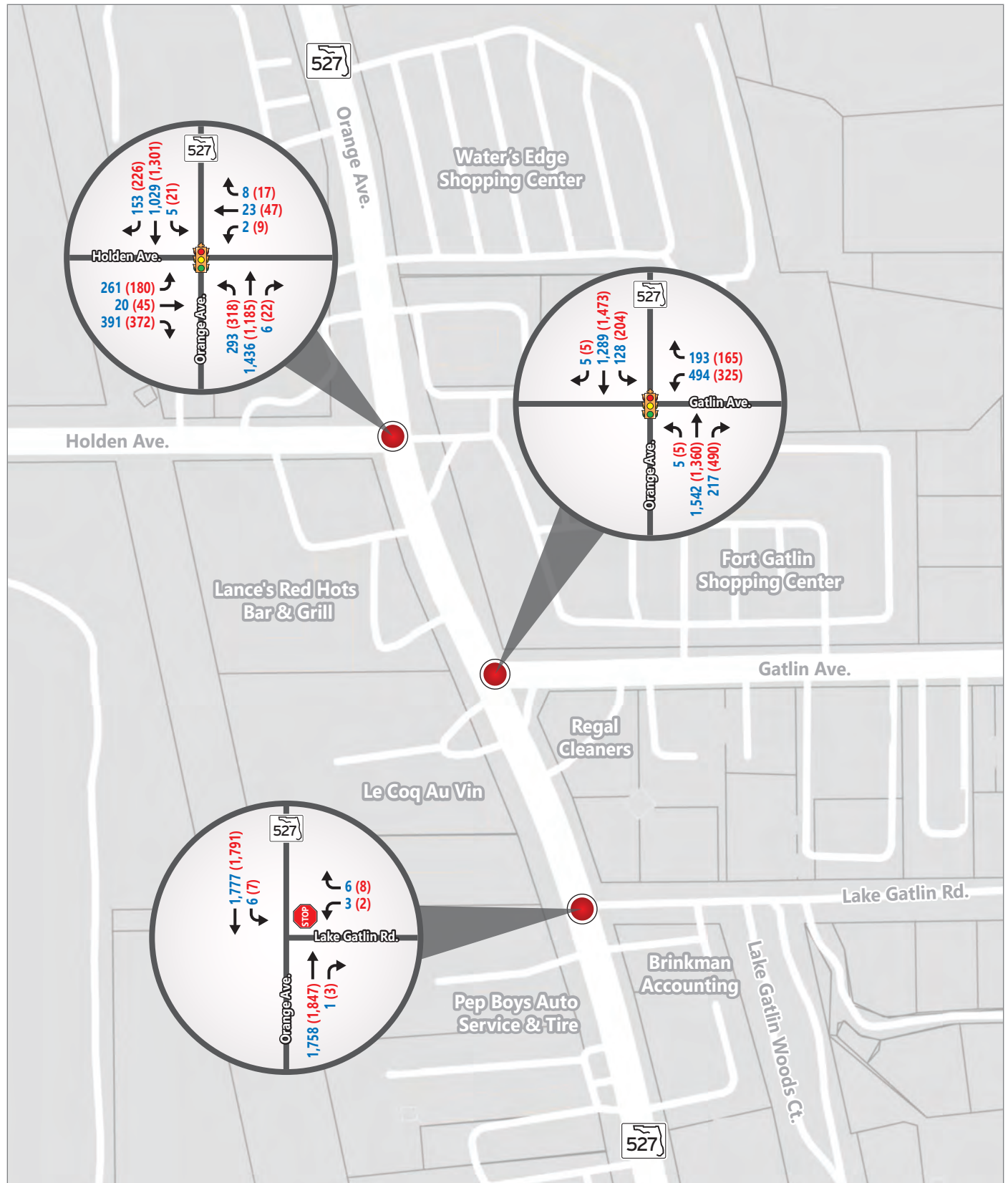
6.2 Long-term Alternatives

6.2.1 ICE (Stage 1) Summary

As part of the initial screening for reasonable long-term alternatives, a Stage 1 ICE was conducted at the two study intersections.

- Orange Avenue and Holden Avenue
- Orange Avenue and Gatlin Avenue

The purpose of the ICE Analysis is to determine viable candidates for intersection control based on capacity, safety, and geometric constraints. As part of this process, FDOT modified Capacity Analysis at Junctions (CAP-X) and Safety Performance for ICE (SPICE) tools were used to identify the first set of potential alternatives at the study intersections that can accommodate 2040 volumes.



AM (PM) Turning Movement Volumes



Stop-Controlled Intersection



Signalized Intersection



Figure 7

**Future Year 2025
Turning Movement Volumes -
Short-term Alternative**
Intersection Analysis for Orange
Avenue/Holden Avenue & Orange
Avenue/Gatlin Avenue

The existing issues because of the offset intersection configuration and previously evaluated future long-term alternatives were taken into consideration in the ICE process.

6.2.1.1 Data Sources

The intersection geometry, existing and future AADTs, and future (2040) turning movement volumes were used in the ICE process. For this purpose, existing year (2019), opening year (2025), and design year (2045) AADTs were used based on the recommended growth rates discussed in Section 5.2. For the ICE, in cases where the AADT along a roadway differed on either side of the intersection, the larger AADT was used to keep the analysis conservative. Truck factors for the intersection approaches were based on the FTO for Orange Avenue, Holden Avenue, Gatlin Avenue.

6.2.1.2 Analysis

Orange Avenue and Holden Avenue

For the Stage 1 ICE of this intersection, the options for viable control strategies are limited due to the proximity of the intersection at Orange Avenue and Gatlin Avenue and ROW needs on Orange Avenue and existing operational issues. The following control strategies were evaluated:

- Signalized Intersection
- Roundabout
- Quadrant Roadway Intersection (QRI)

A QRI is chosen as one of the alternatives because it meets the study objectives, does not require two-lane U-turns on Orange Avenue, and is consistent with the stakeholder input. As mentioned before, each control strategy was evaluated for capacity and multimodal performance using the CAP-X tool and for safety using the SPICE tool. The results of the analysis are shown in the table below.

Table 10: ICE Stage 1 Summary – Orange Avenue and Holden Avenue

Control Strategy	Capacity (v/c)		Multimodal Score	SPICE Ranking*
	2040 AM	2040 PM		
Signalized Intersection	0.73	0.79	4.8	2
Roundabout	1.10	1.33	5.6	1
Quadrant Roadway	0.58	0.62	4.4	-

Note: SPICE ranking is not considered because the future AADT for Orange Avenue is outside of Safety Performance Function (SPF) development range for a roundabout and not available for a QRI

As shown in the table, the roundabout does not meet the projected capacity needs of the intersection. Based on the results of the capacity and safety analysis, both the Signalized Intersection and the Quadrant Roadway can accommodate projected traffic volumes. Therefore, the QRI is the preferred option given that it is consistent with the previously evaluated long-term alternatives (which are discussed in the next section).

Orange Avenue and Gatlin Avenue

For the Stage 1 ICE of this intersection, the options for viable control strategies are limited due to the proximity of the intersection at Orange Avenue and Gatlin Avenue and ROW needs on Orange Avenue and existing operational issues. The following control strategies were evaluated:

- Signalized Intersection
- Roundabout
- QRI

A QRI is chosen as one of the alternatives because it meets the study objectives, does not require two-lane U-turns on Orange Avenue, and is consistent with the stakeholder input. Again, each control strategy was evaluated for capacity and multimodal performance using the CAP-X tool and for safety using the SPICE tool. The results of the analysis are shown in the table below.

As shown in the table, the roundabout does not meet the projected capacity needs of the intersection. Based on the results of the capacity and safety analysis, both the Signalized Intersection and the Quadrant Roadway can accommodate projected traffic volumes. Therefore, the QRI is the preferred option given that it is consistent with the previously evaluated long-term alternatives (which are discussed in the next section).

Table 11: ICE Stage 1 Summary – Orange Avenue and Gatlin Avenue

Control Strategy	Capacity (v/c)		Multimodal Score	SPICE Ranking*
	2040 AM	2040 PM		
Signalized Intersection	0.84	0.74	4.8	2
Roundabout	2.58	1.38	5.6	1
Quadrant Roadway	0.77	0.70	4.4	-

Note: SPICE ranking is not considered because the future AADT for Orange Avenue is outside of Safety Performance Function (SPF) development range for a roundabout and not available for a QRI

The supporting documentation for the ICE Stage 1 is provided in **Appendix F**.

6.2.2 Long-term Options

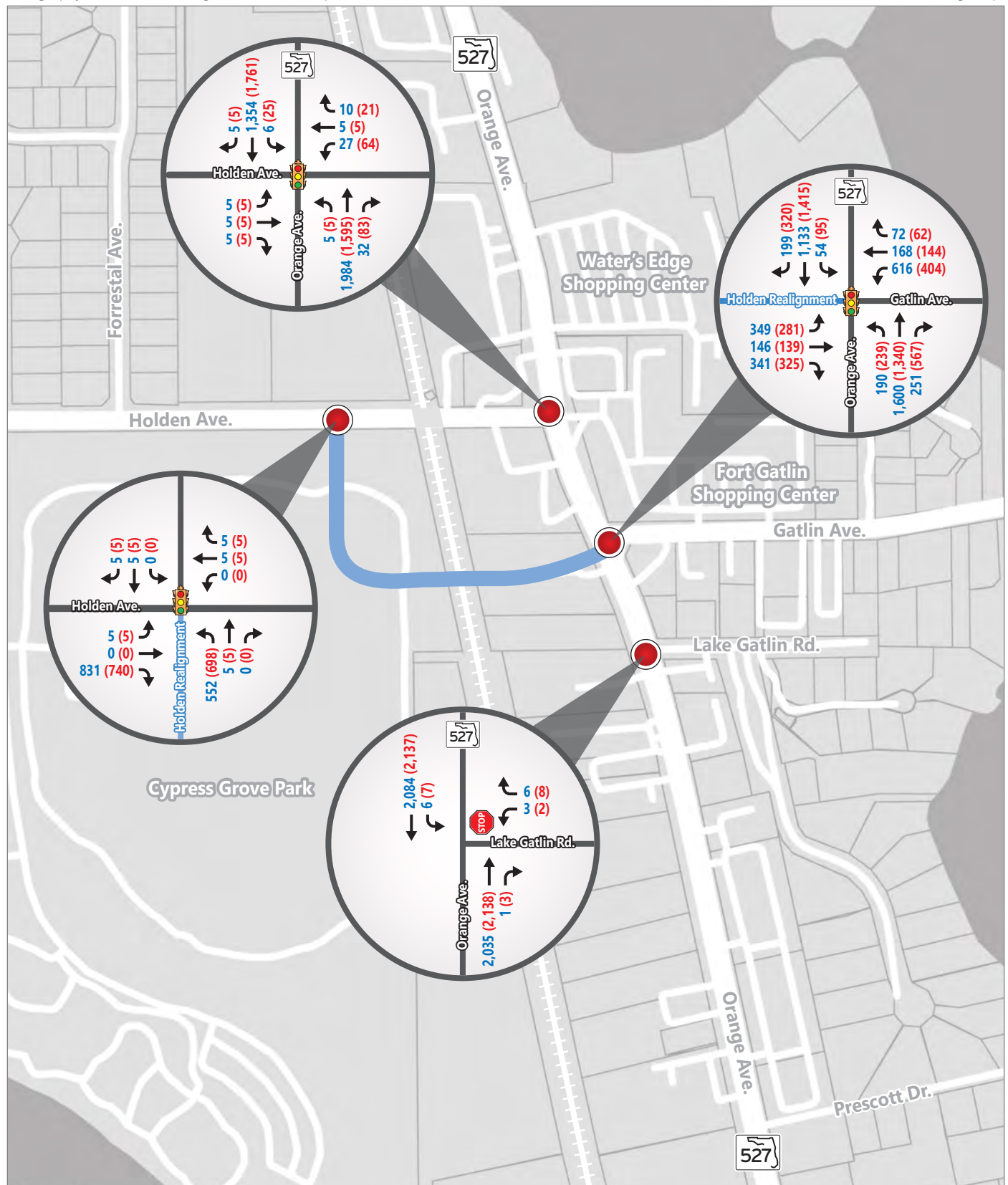
Three long-term alternatives are evaluated for this study for the year 2040 traffic conditions as described below:

- **Holden Avenue Realignment/Gatlin Avenue Extension Alternative with 1 Rail Crossing (Future Alternative 1):** This alternative was developed based on the input from the County and City, and the assumption that the existing rail crossing along Holden Avenue will be closed to support the opening of the new rail crossing along realigned Holden Avenue. As part of this alternative, Holden Avenue will be realigned to form a plus intersection at the existing Orange Avenue and Gatlin Avenue intersection. The realignment is anticipated to help mitigate the existing and anticipated congestion and associated delay at the offset intersections. It should be noted the term “Holden Avenue Realignment” is used interchangeably with the term “Gatlin Avenue Extension”.
- **Holden Avenue Realignment/Gatlin Avenue Extension Alternative with 2 Rail Crossings (Future Alternative 2):** This alternative was developed based on the input from the County and City, and the assumption that the existing rail crossing along Holden Avenue will stay open along with the new rail crossing along realigned Holden Avenue. The existing rail crossing along Fairlane Avenue must be closed to support the opening of the new rail crossing along realigned Holden Avenue. As part of this alternative, Holden Avenue will be realigned to form a plus intersection at the existing Orange Avenue and Gatlin Avenue intersection like the Future Alternative 1. However, traffic will be circulated

using both the existing Holden Avenue and Holden Avenue Realignment to minimize ROW impacts and provide improved operational LOS.

- **Quadrant Intersection Alternative using Lake Gatlin Road (Future Alternative 3):** This alternative proposes to use Lake Gatlin Road for the movements between Orange Avenue and Gatlin Avenue. The main idea is to eliminate the existing southbound left turn lane at Orange Avenue and Gatlin Avenue intersection and instead use Lake Gatlin Road for this movement. This will help provide two northbound left turn lanes and improve signal efficiency at the intersection of Orange Avenue. Besides, a portion of the westbound left and northbound right turn movements that currently use the intersection at Orange Avenue and Gatlin Avenue will use Orange Avenue and Lake Gatlin Road intersection.

Figures 8 through 10 show the year 2040 AM and PM TMVs for Future Alternatives 1, 2, 3, respectively. These volumes are derived using the 2040 volumes shown in **Figure 6** and results of the OD Study (Section 3) and rerouting them to satisfy the assumptions of each of the future alternatives. For minor local movements, a volume of five vehicles is used. Please refer to the next section for details on the long-term alternatives' improvements.



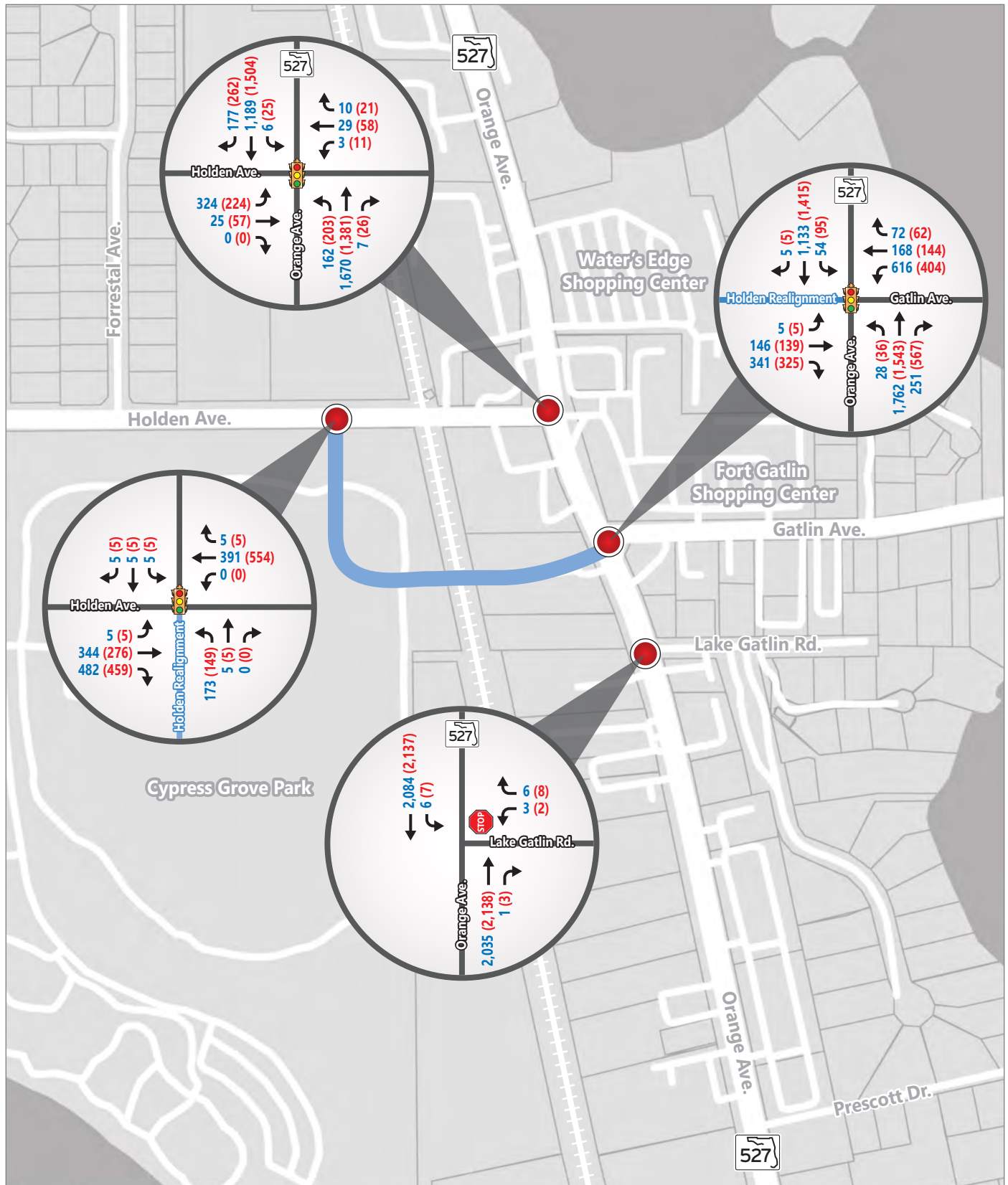
- AM (PM)** Turning Movement Volumes
- Stop-Controlled Intersection
- Signalized Intersection
- Holden Ave. Realignment



Figure 8

**Year 2040 Long-term Future
Alternative 1 Turning Movement
Volumes**

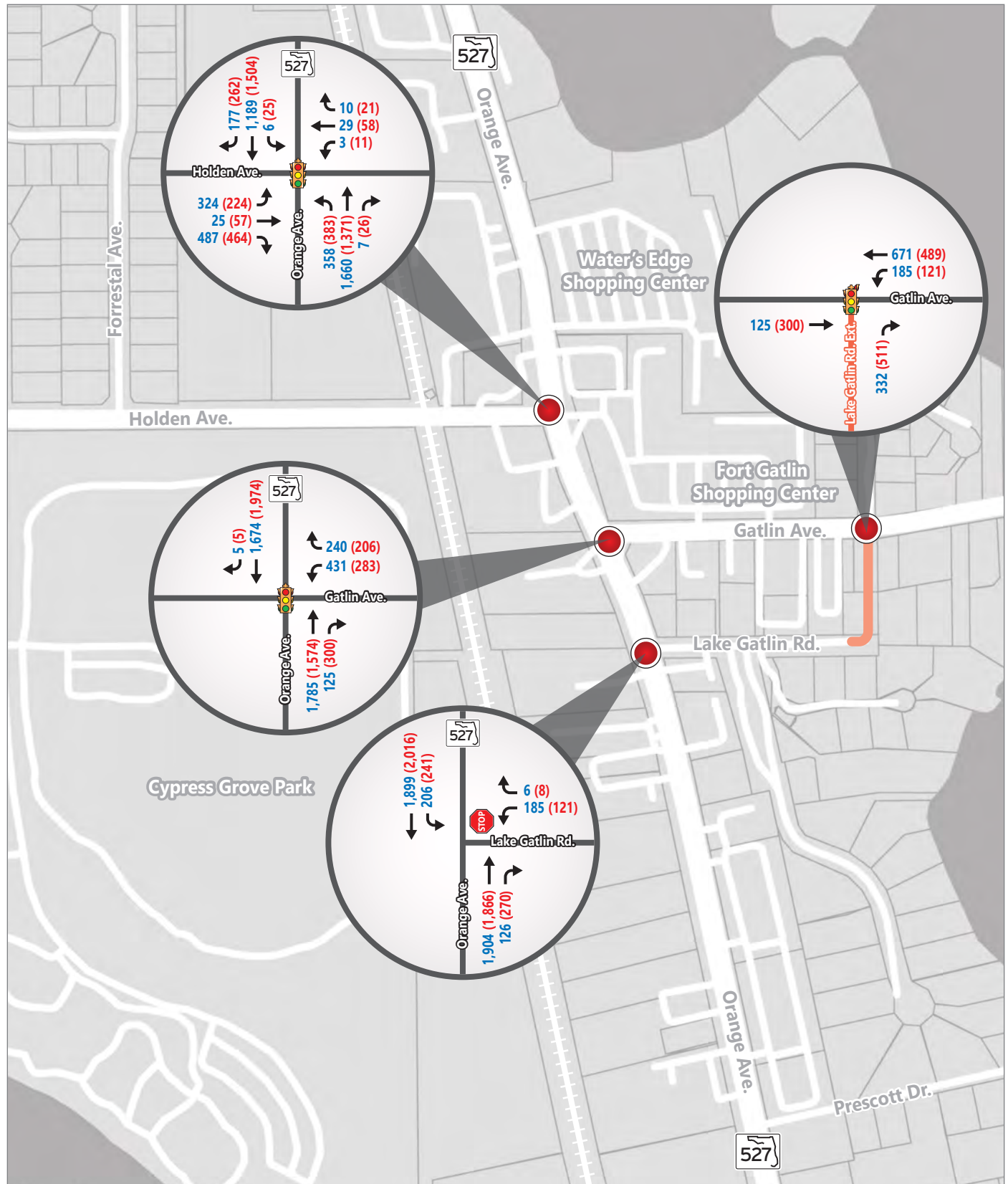
Intersection Analysis for Orange
Avenue/Holden Avenue & Orange
Ave/Gatlin Avenue



- AM (PM)** Turning Movement Volumes
- Stop-Controlled Intersection
- Signalized Intersection
- Holden Ave. Realignment



Figure 9
Year 2040 Long-term Future
Alternative 2 Turning Movement
Volumes
 Intersection Analysis for Orange
 Avenue/Holden Avenue & Orange
 Ave/Gatlin Avenue



- AM (PM) Turning Movement Volumes
- Stop-Controlled Intersection
- Signalized Intersection
- Lake Gatlin Rd. Extension



Figure 10

**Year 2040 Long-term Future
Alternative 3 Turning Movement
Volumes**

Intersection Analysis for Orange
Avenue/Holden Avenue & Orange
Avenue/Gatlin Avenue

6.3 Assessment of the Proposed Holden Avenue Realignment

6.3.1 Project Basic Survey Services

VHB performed a topographic survey for the proposed realignment route. The survey mapped the intersection of Orange Avenue and Gatlin Avenue to include 200 feet east along Gatlin Avenue and 200 feet north and south along Orange Avenue. Additional coverage extended 25 feet outside of the ROW. VHB also mapped the proposed realignment route and obtained topographic data for a 100 feet wide swath as it runs west from Orange Avenue and then northerly to the connection with Holden Avenue where VHB mapped Holden Avenue 100 feet east and west of the proposed connection. Topographic data were obtained within the Holden Avenue ROW and extended 25 feet outside of it. The survey was accomplished through on-the-ground measurements and was performed and documented following the Standards of Practice as established for Surveyors and Mappers within Florida's Administrative Code, Chapter 5J-17.050, .051, .052, and .053.

6.3.2 Project Basic Drainage Analysis

Existing Conditions

The project lies within the Lake Jessamine Sub-Basin of the Boggy Creek Basin. The overall project is within the St. Johns River Water Management District (SJRWMD). According to the Natural Resource Conservation Service (NRCS), the soils within the project limits are classified as follows: Tavares Fine Sand-Urban Land Complex (48) and Urban Land (50). The Tavares Fine Sand is moderately well-drained with a depth to the high-water table of approximately 3.5 to 6.0 feet. According to the Orange County Flood Insurance Rate Map (FIRM) Panels 12095C0410F and 12095C0430, both dated September 25, 2009, the project is not within a 100-year floodplain. Therefore, no floodplain impacts are anticipated. It should be noted there are existing permits for Cypress Grove Park (27401-1, -2, and -3). The existing stormwater system for the park consists of dry retention ponds.

Proposed Conditions

For future conditions (long-term alternatives), Future Alternative 1 was considered to keep the preliminary drainage analysis conservative. In the proposed condition, the stormwater runoff will be collected and conveyed to a proposed stormwater pond via a closed storm sewer system.

Curb inlets will be placed along the roadway to collect stormwater runoff from the roadway. Given the soil conditions and based on information from Cypress Grove Park, it appears the proposed pond would be a dry retention system. The overall project is approximately 4.23 acres in size based on the conceptual right of way width that varies from 30' to 87'. Approximately 1.93 acres is impervious, and 2.31 acres is pervious. The required treatment volume (assuming an on-line dry retention pond) is approximately 0.35 acre-feet. The estimated pond size would be approximately 0.98 acres. This assumes a depth of approximately 3 feet. These numbers are preliminary and are subject to change once the project moves to design and additional data are available. For example, detailed geotechnical information will determine whether the stormwater pond is wet detention or a dry retention pond.

SJRWMD Permitting

Given the nature of the project, it is anticipated the project would require an Individual Environmental Resource Permit (ERP) from the SJRWMD. As the project continues toward design, it should be confirmed through a pre-application meeting with representatives of the SJRWMD. The stormwater computations are provided in **Appendix H**.

6.4 Preliminary Roadway Design

Please note that the basic survey services and drainage analysis were conducted for Future Alternatives 1 and 2 only. Anticipated impacts of the proposed long-term alternatives (Future Alternatives 1, 2, and 3) and on the adjacent properties including Cypress Grove Park and Railroad (located west of Orange Avenue) are determined. This study utilized The American Association of State Highway and Transportation Officials' (AASHTO's) Chapter 5.3 "Local Streets in Urban Areas" for Holden Avenue and Lake Gatlin Road as the basis for horizontal design criteria supplemented with standards the City may have or want to incorporate into the proposed alignment. The latest Florida Department of Transportation [FDOT] Design Manual (FDM) was utilized for Orange Avenue.

The design speed is not currently set, but given the existing constraints, the design will initially begin with 25 mph for Lake Gatlin Road under Alternative 3.

For the alternatives which require Holden Avenue widening, it was assumed that the roadway widening will be allowed through the railroad crossing. The vertical design was not performed since this assignment was not surveyed. Additionally, Future Alternatives 1 and 2 were revisited to accommodate the required storage lengths for the turn lanes on the eastbound approach (which may require widening through the proposed/existing rail crossings).

6.4.1 Impacts to the Cypress Grove Park

The Orange County Parks and Recreation Division identified the following impacts to the acreage and functionality of Cypress Grove Park for Future Alternative 1. This alternative was used to determine the worst-case impacts to the park.

- The park will lose approximately four acres of wooded park land.
- The road and retention pond would be located in the front northeast corner of the park and impact around 60 trees including Live Oaks which provide a buffer to the park from the road. This tree canopy helps lessen heat island effects and protects wildlife habitat.
- The irrigation well serving 28 irrigation zones will need to be relocated within the park.
- Approximately 1,250 Linear Feet (LF) of decorative aluminum fencing will need to be relocated along with the concrete walking exercise loop.
- The walking loop will be reduced in length by 135 LF from approximately 835 LF to 700 LF. Relocating the walking loop will reduce the multi-purpose field area which would displace sports activities and reduce overflow parking for events.

The design concepts for the future alternatives are provided in **Appendix G**.

6.5 Railroad and Project Coordination

As part of the previous study (and included in this report), the team coordinated with the stakeholders including Orange County, City of Edgewood, FDOT (District 5 and Central Office Railroad coordinators), SunRail, and Central Florida Rail Corridor.

The primary intent of these coordination efforts was to make everyone aware of the study, determine the feasibility of adding a new railroad crossing south of the existing Holden Avenue railroad crossing (crossing #622311), and discuss future alternatives and analysis results. The memorandum describing these activities is provided in **Appendix I**.

7 TRAFFIC OPERATIONAL ANALYSIS

Synchro 11 was used to perform the LOS operational analyses at the study intersections for the existing (2019), short-term (2025), and long-term (2040) conditions. Also, the year 2030 intersection analyses were conducted (but not summarized in the report) for B/C analysis (which is described in the next section). Since new intersections are added in the long-term alternatives, both intersection and network-wide measures of effectiveness (MOEs) are provided for an accurate comparison of the future alternatives. The Synchro outputs for all the analysis years are provided in **Appendix J**.

7.1 Existing (2019) Conditions

The year 2019 AM and PM peak hour TMVs (**Figure 3**) along with existing intersection geometry (**Figure 11**) and signal timings were used in the intersection LOS analysis. A summary of the existing LOS analysis for the study intersections is included in **Table 12**.

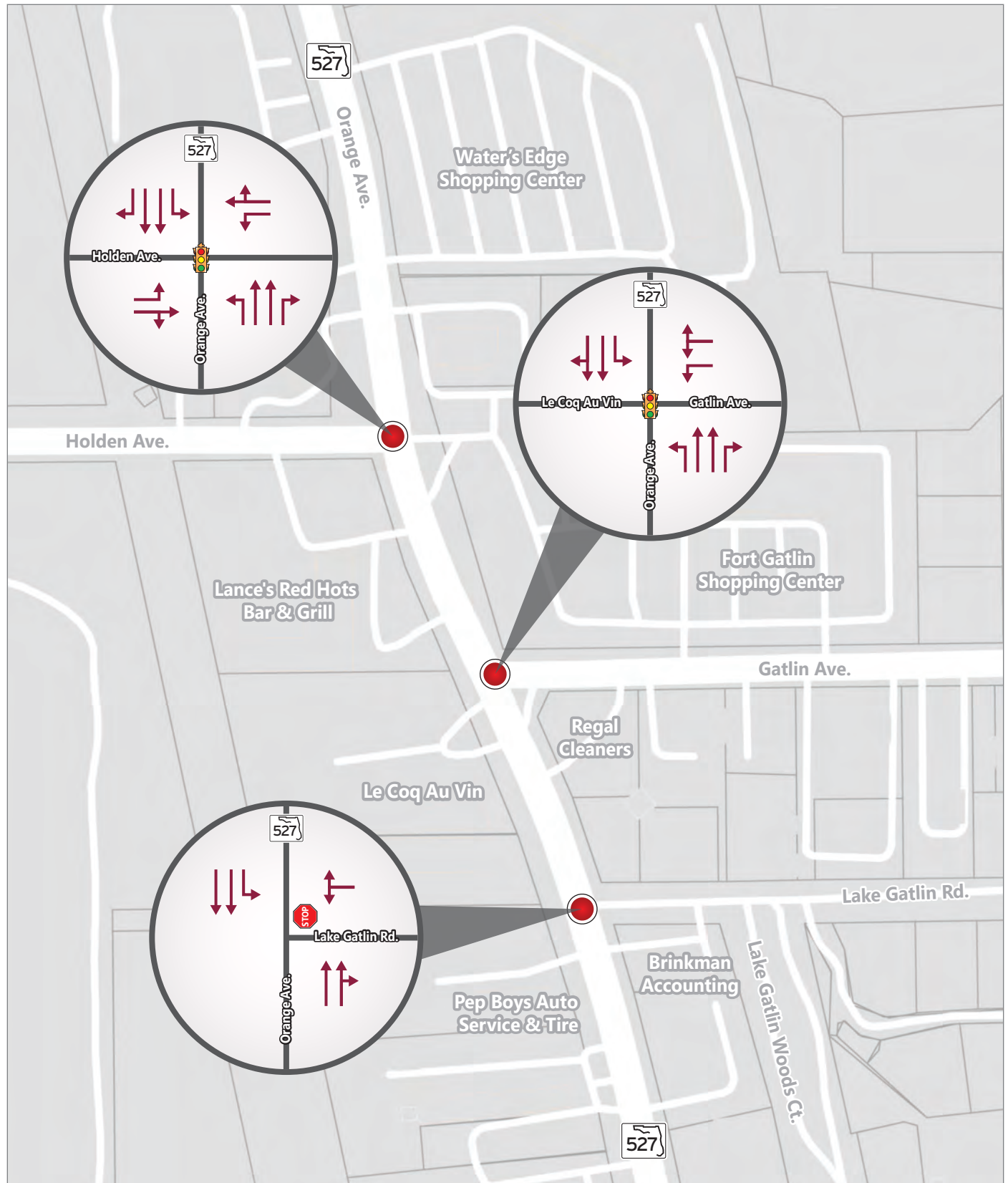
As shown in **Table 12**, the following are noted:

- Both the study intersections operate at overall LOS D or better in the existing conditions. The most likely reason is the very low delays for the heavy northbound and southbound through movements along Orange Avenue at both study intersections.
- As observed in the field, the following movements operate at LOS F in the existing conditions:
 - Eastbound left turn (AM and PM) and northbound left turn (PM) at Orange Avenue and Holden Avenue.
 - Westbound left turn (PM) at Orange Avenue and Gatlin Avenue.
- Under the current conditions, the queue for the northbound left turn movement at Orange Avenue and Holden Avenue exceeds the available storage length and spills into the northbound through lane south of Gatlin Avenue. Excessive queues are also observed along Holden Avenue (for the eastbound approach) and Gatlin Avenue (for the westbound approach). The other movements are observed to operate with minimum impact during both AM and PM peak hours.

Table 12: Existing Year 2019 AM & PM Peak Hour Intersection Analysis Summary

Study Intersection	Movement	2019 AM Peak		2019 PM Peak	
		Delay	LOS	Delay	LOS
Orange Avenue & Holden Avenue	EBL	140.1	F	146.5	F
	EBT	25.0	C	57.3	E
	EBR	25.0	C	0.0	A
	WBL	67.0	E	82.2	F
	WBT	61.6	E	76.3	E
	WBR	61.6	E	76.3	E
	NBL	56.7	E	103.6	F
	NBT	2.7	A	4.1	A
	NBR	0.0	A	0.0	A
	SBL	11.4	B	10.9	B
	SBT	33.4	C	40.1	D
	SBR	2.0	A	8.2	A
	Overall	28.5	C	39.3	D
Orange Avenue & Gatlin Avenue	WBL	75.8	E	93.2	F
	WBT	42.5	D	36.4	D
	WBR	42.5	D	36.4	D
	NBL	11.6	B	8.0	A
	NBT	34.0	C	22.6	C
	NBR	8.6	A	7.1	A
	SBL	42.3	D	20.2	C
	SBT	26.3	C	11.2	B
	SBR	26.3	C	11.2	B
	Overall	34.7	C	21.5	C

Note: Red highlighted text shows LOS F



Lane Geometry

Stop-Controlled Intersection

Signalized Intersection



Figure 11

Existing Intersection Geometry
Intersection Analysis for Orange
Avenue/Holden Avenue &
Orange Avenue/Gatlin Avenue

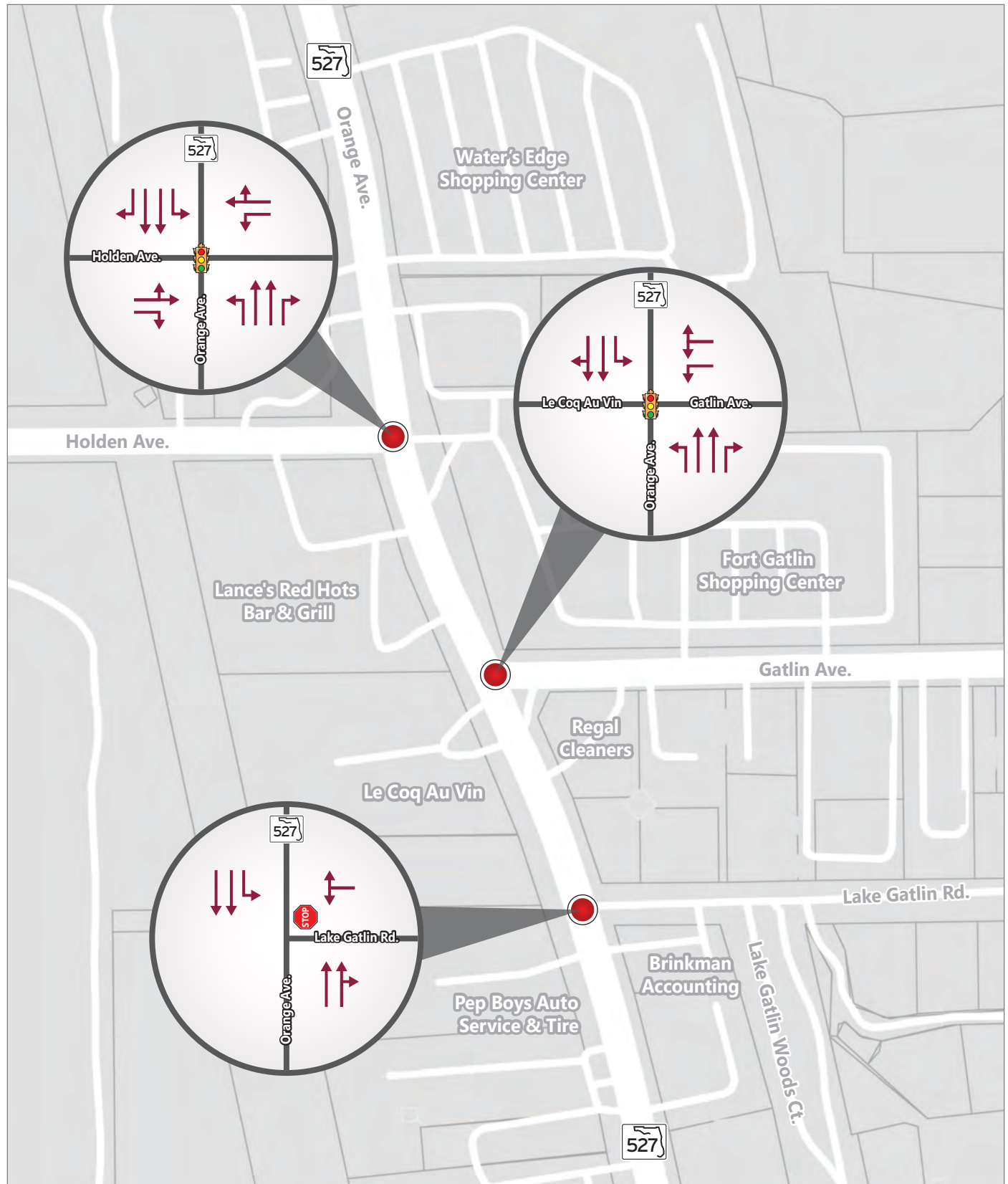
7.2 Short-term (2025) Conditions

As described in Section 6.1, a short-term alternative is evaluated that can be built in the field before construction funding can be secured for the long-term alternative. For this study, the short-term alternative is evaluated for the year 2025 and is based on the improvements suggested by the County and signal timings provided by FDOT. The following improvements are considered at the intersection of Orange Avenue and Holden Avenue for the short-term alternative.

- Modify the existing exclusive eastbound left turn only lane to a shared through-left turn lane and the existing shared through-right turn lane to a right turn only lane.
- Introduce an overlap between the eastbound right turn and northbound left turn movements.

Figure 12 shows the intersection geometry for the short-term alternative. The year 2025 AM and PM peak hour turning movement volumes (**Figure 7**) along with short-term intersection geometry were used in the intersection LOS analysis. The signal timings are optimized using Synchro software. A summary of the year 2025 LOS analysis for the No-Build and Short-term alternatives is included in **Table 13**. **Figure 13** illustrates the improvement in overall intersection delay in the short-term alternative compared to the No-Build alternative. The following are noted from **Table 13** and **Figure 13**:

- The overall intersection delay at both the study intersections has reduced in the short-term alternative compared to the No-Build alternative because of the following:
 - The lane repurposing modification of the eastbound approach at Orange Avenue and Holden Avenue will help provide efficient use of the green time and thereby reduce the delay for the critical eastbound left and through movements.
 - There was a reduction in delay for the other critical movement (northbound left turn) at Orange Avenue and Holden Avenue in the PM peak hour because of the short-term alternative improvements.
 - The intersection cycle length and split optimization have also caused an improvement in the overall delay ranging from 3-18% at the study intersections.



Lane Geometry



Stop-Controlled Intersection



Signalized Intersection



Figure 12

Short-term Alternative Intersection Geometry

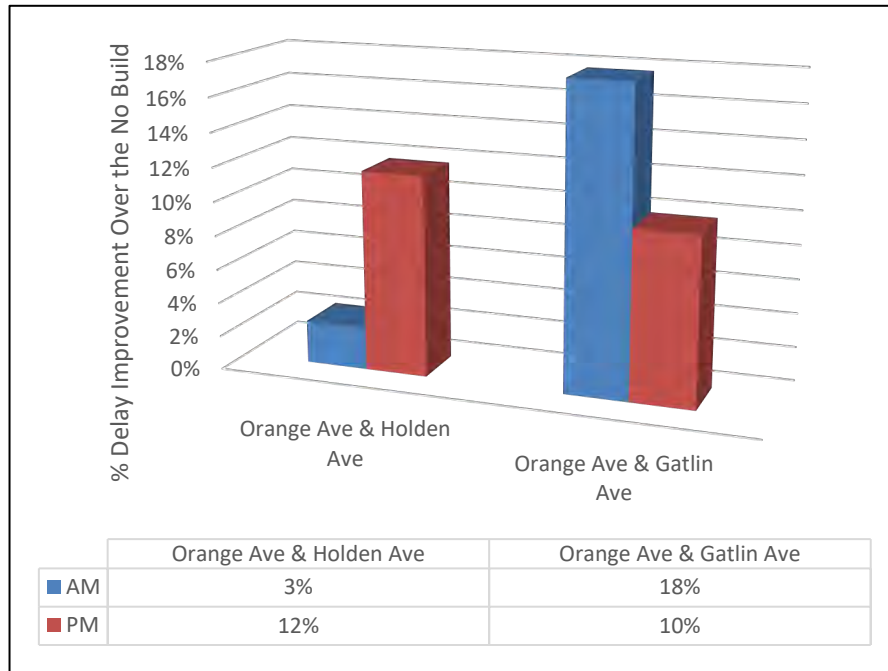
Intersection Analysis for Orange Avenue/Holden Avenue & Orange Avenue/Gatlin Avenue

Table 13: Year 2025 AM & PM Peak Hour Intersection Analysis Summary for the Short-term Alternative

Study Intersection	Movement	AM Peak				PM Peak			
		No-Build		Build		No-Build		Build	
		Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS
Orange Avenue & Holden Avenue	EBL	178.8	F	69.4	E	145.0	F	94.2	F
	EBT	37.0	D	69.4	E	67.4	E	94.2	F
	EBR	37.0	D	21.5	C	67.4	E	27.8	C
	WBL	67.0	E	66.0	E	82.3	F	86.7	F
	WBT	61.7	E	60.2	E	73.2	E	87.0	F
	WBR	61.7	E	60.2	E	73.2	E	87.0	F
	NBL	70.2	E	106.7	F	168.1	F	88.0	F
	NBT	3.6	A	4.0	A	4.5	A	6.9	A
	NBR	0.0	A	0.0	A	0.0	A	0.0	A
	SBL	11.6	B	25.6	C	11.2	B	19.3	B
	SBT	38.0	D	56.8	E	43.5	D	61.9	E
	SBR	2.8	A	3.4	A	9.2	A	7.2	A
	Overall	35.7	D	34.8	C	47.4	D	41.8	D
Orange Avenue & Gatlin Avenue	WBL	78.0	E	66.4	E	95.1	F	87.9	F
	WBT	43.6	D	37.3	D	38.8	D	51.7	D
	WBR	43.6	D	37.3	D	0.0	A	51.7	D
	NBL	12.0	B	21.0	C	8.8	A	8.4	A
	NBT	43.3	D	42.2	D	29.6	C	27.3	C
	NBR	10.0	A	3.0	A	9.8	A	2.3	A
	SBL	57.1	E	43.1	D	44.8	D	44.9	D
	SBT	33.0	C	19.5	B	12.2	B	9.3	A
	SBR	33.0	C	19.5	B	0.0	A	9.3	A
	Overall	41.6	D	34.2	C	26.3	C	23.7	C

Note: Red highlighted text shows LOS F

Figure 13: Percent Intersection Delay Improvement in the Short-term Alternative over the No-Build Alternative



7.2.1 Year of Failure Analysis for the Short-term Alternative

A planning-level year of failure analysis was conducted for the study area to determine a period for which the short-term improvements will provide the target LOS “D” at all the study intersections. For this analysis, the following assumptions are used:

- Since the study intersections are along Orange Avenue (which is a State roadway), the corresponding target LOS “D” is used.
- The overall intersection LOS (delay) is used.
- The critical intersection of Orange Avenue and Holden Avenue (which has an overall intersection delay of 41.8 (LOS D) in the year 2025 PM peak hour) for the PM peak hour is used.
- The volumes were increased incrementally to test the future conditions after the year 2025.

Based on this analysis, the short-term improvements are anticipated to provide an overall LOS “D” at the study intersections till the year 2035. The year 2035 PM peak hour results are provided in **Appendix J**.

However, it should be noted the certain individual intersection movements will still operate at LOS "F", even though the overall intersection stands at LOS "D" through the year 2035.

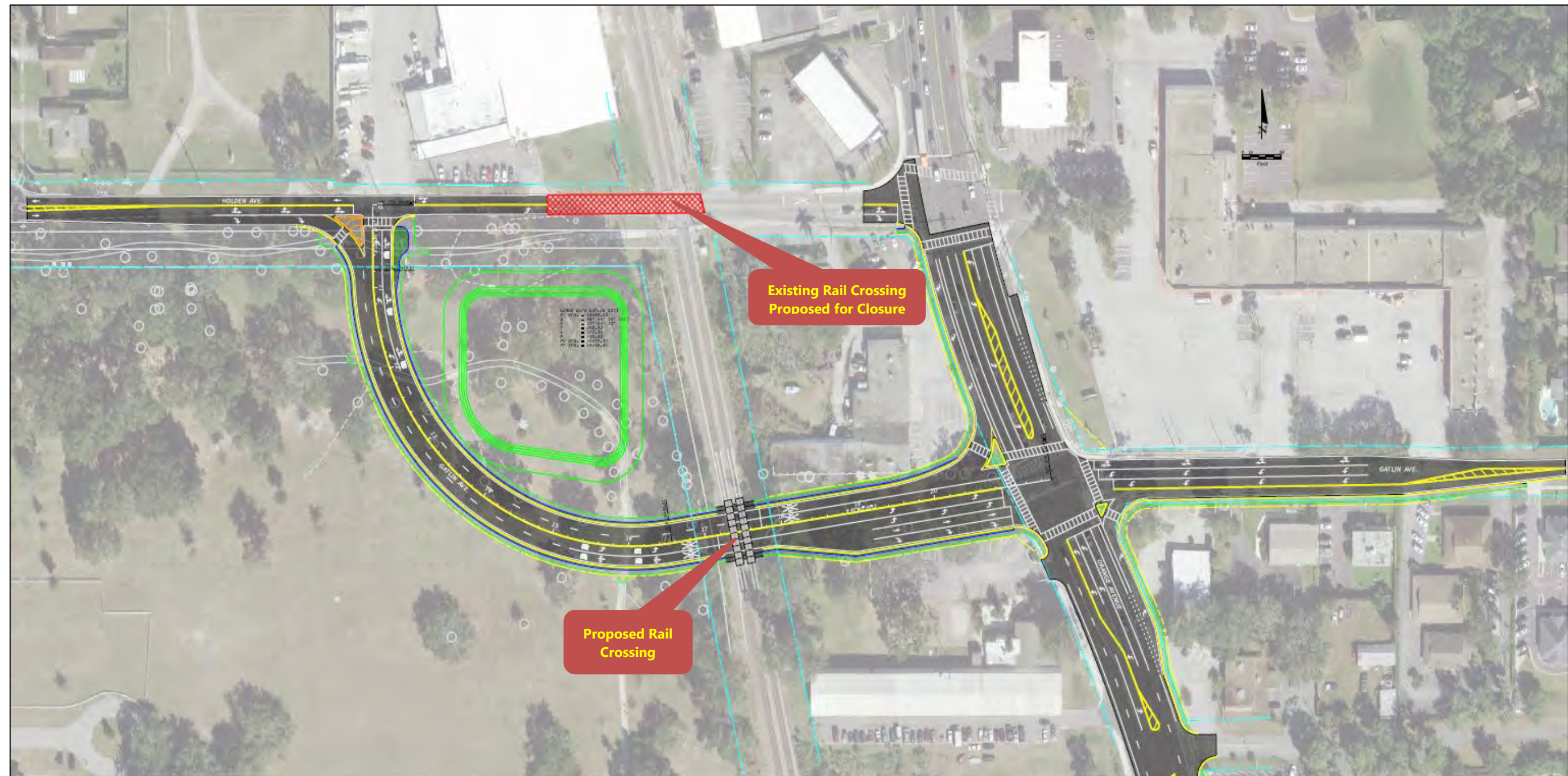
7.3 Long-term Alternatives

As described in Section 6.2, three long-term alternatives are evaluated for this study for the year 2040 traffic conditions. A No-Build alternative is also evaluated for comparison purposes. The No-Build alternative for the year 2040 will keep the existing roadway and intersection configuration within the study limits but incorporate the improvements from the short-term alternative at the intersection of Orange Avenue and Holden Avenue. This section provides the operational analysis results for each of these long-term alternatives. Per the approved scope, this study has developed design concepts for all future alternatives. The design for Future Alternatives 1 and 2 was based on the field survey results. The field survey results helped establish the boundaries of the proposed corridor and lay out a proper railroad crossing. The survey also helped identify modifications needed for Cypress Grove Park.

7.3.1 Holden Avenue Realignment/Gatlin Avenue Extension Alternative with 1 Rail Crossing (Future Alternative 1)

As part of this alternative, Holden Avenue will be realigned to form a plus intersection at the existing Orange Avenue and Gatlin Avenue intersection and the existing rail crossing along Holden Avenue will be closed to support the opening of the new rail crossing along realigned Holden Avenue. The design concept is shown in **Figure 14**. As shown in this concept, the existing signal at Orange Avenue and Holden Avenue will still be operational, albeit for the local movements on Holden Avenue and Business Center east of Orange Avenue. However, a new signal at Holden Avenue and Holden Avenue Realignment/Distribution Service Center Driveway (Boise Cascade Building Materials) will be introduced. Also, since the existing rail crossing along Holden Avenue will be closed, there will not be through movements along Holden Avenue between this new signal and Orange Avenue. All the current movements that occur at Orange Avenue and Holden Avenue intersection will instead use Orange Avenue at Holden Avenue Realignment/Gatlin Avenue (new plus intersection).

Figure 14: Design Concept – Future Alternative 1



Potential Roadway Impacts

The following impacts are anticipated within the study limits in this alternative.

- Additional ROW will be needed on Orange Avenue between Holden Avenue and Lake Gatlin Road to accommodate the exclusive southbound right turn lane and an additional northbound left turn lane at the new plus intersection.
- Additional ROW will be needed through Cypress Grove Park for the Holden Avenue Realignment. The existing parcels in the northwest and southwest corners of the new plus intersection will also be impacted.
- Gatlin Avenue will need to be widened to provide additional turn lane improvements.

7.3.2 Holden Avenue Realignment/Gatlin Avenue Extension Alternative with 2 Rail Crossings (Future Alternative 2)

As part of this alternative, Holden Avenue will be realigned to form a plus intersection at the existing Orange Avenue and Gatlin Avenue intersection. Under this alternative, the existing rail crossing on Holden Avenue will stay open along with the new rail crossing on the realigned Holden Avenue. The design concept is shown in **Figure 15**.

As shown in this figure, a new signal at Holden Avenue and Holden Avenue Realignment/Distribution Service Center Driveway (Boise Cascade Building Materials) will be introduced. Unlike Future Alternative 1, both the existing signal at Orange Avenue and Holden Avenue and the new plus intersection will be used to circulate the traffic for an efficient design. The following important changes are proposed:

- Much of the northbound left turn movement will still occur at Orange Avenue at Holden Avenue. A small portion of this movement will use the northbound left turn lane at the new plus intersection. For this study, it was assumed that 85% of the northbound left turning traffic will use the signal at Orange Avenue and Holden Avenue, and the remaining 15% will use the new plus intersection.
- The eastbound left turn will still occur at Orange Avenue at Holden Avenue
- The eastbound right turn movement will occur at the new plus intersection

- Since most of the eastbound right turn movement will now occur at the new plus intersection, the eastbound approach is modified to an exclusive left turn lane and a shared left-through-right turn lane.
- The following movements will use the eastbound and westbound through lanes at the new plus intersection:
 - Eastbound right turn from Holden Avenue onto Orange Avenue and an immediate southbound left turn from Orange Avenue onto Gatlin Avenue will now use the eastbound through lane
 - Westbound right turn from Gatlin Avenue onto Orange Avenue and an immediate northbound left turn onto Holden Avenue from Orange Avenue will now use the westbound through lane

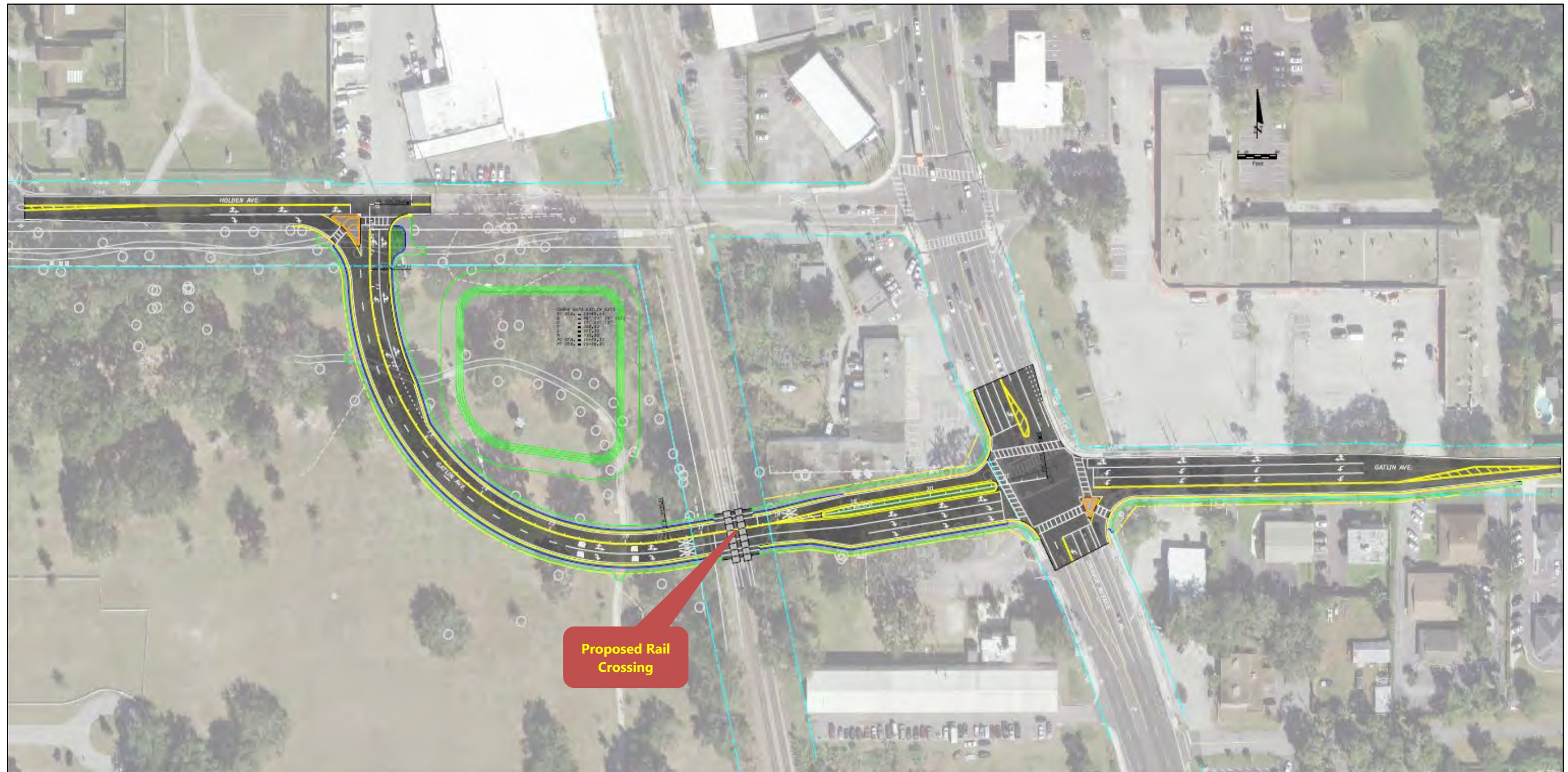
The main advantage of this alternative (compared to Future Alternative 1) is the efficiency of traffic circulation and a smaller intersection footprint at the new plus intersection.

Potential Roadway Impacts

The following impacts are anticipated within the study limits in this alternative.

- Additional ROW needs on Orange Avenue within the study limits are not anticipated.
- Additional ROW will be needed through Cypress Grove Park for the Holden Avenue Realignment. The existing parcels in the northwest and southwest corners of the Orange Avenue and Holden Avenue Realignment/Gatlin Avenue intersection will also be impacted.
- Gatlin Avenue will need to be widened to provide additional turn lane improvements.

Figure 15: Design Concept – Future Alternative 2



7.3.3 Quadrant Intersection Alternative using Lake Gatlin Road (Future Alternative 3):

This alternative proposes to use Lake Gatlin Road for the movements between Orange Avenue and Gatlin Avenue. The existing southbound left turn lane at Orange Avenue and Gatlin Avenue intersection will be eliminated and Lake Gatlin Road will instead be used for this movement. The design concept is shown in **Figure 16**.

The following should be noted for this alternative:

- The southbound left turn movement at Orange Avenue at Gatlin Avenue will be eliminated and will have to use Lake Gatlin Road. For this change to occur, new signals at Orange Avenue and Lake Gatlin Road and Gatlin Avenue, and Lake Gatlin Road Extension will have to be introduced.
- The northbound left turn into Le Coq Au Vin Restaurant must be eliminated for signal efficiency.
- Two northbound left turn lanes at Orange Avenue and Holden Avenue are included since the southbound left turn movement at Orange Avenue at Gatlin Avenue will be eliminated. However, for this to occur, two westbound receiving lanes must be provided along Holden Avenue which requires widening through the railroad crossing on Holden Avenue. Besides, the eastbound approach must be widened to accommodate the proposed turn lane improvements Orange Avenue and Holden Avenue intersection.
- The existing northbound right turn and westbound left turn movements at Orange Avenue and Gatlin Avenue are assumed to be distributed to the new signal at Orange Avenue and Lake Gatlin Road. For this study, it was assumed that 70% of the westbound left turning traffic will use the signal at Orange Avenue and Gatlin Avenue, and the remaining 30% will use the new signal at Orange Avenue and Lake Gatlin Road. Also, it was assumed that 50% of the northbound right turning traffic will use the signal at Orange Avenue and Gatlin Avenue, and the remaining 50% will use the new signal at Orange Avenue and Lake Gatlin Road.

Figure 16: Design Concept - Future Alternative 3



Potential Roadway Impacts

The following impacts are anticipated within the study limits in this alternative.

- Additional ROW is anticipated on Orange Avenue south of Lake Gatlin Road to provide an exclusive northbound right turn lane.
- Additional ROW will be needed in the southeast quadrant of Orange Avenue and Gatlin Avenue intersection to extend the existing Lake Gatlin Road to Gatlin Avenue.
- Holden Avenue will need to be widened in both directions to accommodate the turn lane improvements in the eastbound approach and provide two receiving lanes for the northbound left turn lane at Orange Avenue and Holden Avenue intersection.
- Gatlin Avenue will need to be widened to provide additional turn lane improvements.

7.3.4 Operational Analysis Summary

The year 2040 AM and PM peak hour turning movement volumes along with proposed intersection geometries were used in the intersection LOS analysis. The signal timings are optimized using Synchro software. **Figures 17 and 18** illustrate the networkwide delays for each of the future alternatives and the delay improvement for each of the build alternatives over the No-Build alternative, respectively. A summary of the year 2040 LOS analysis for the No-Build and the three long-term alternatives is included in **Table 14**. Since all the long-term alternatives introduce either one or two new signals, network-wide MOEs are provided in **Table 15** for an apples-to-apples comparison.

Figure 17: Networkwide Delays for the Future Alternatives

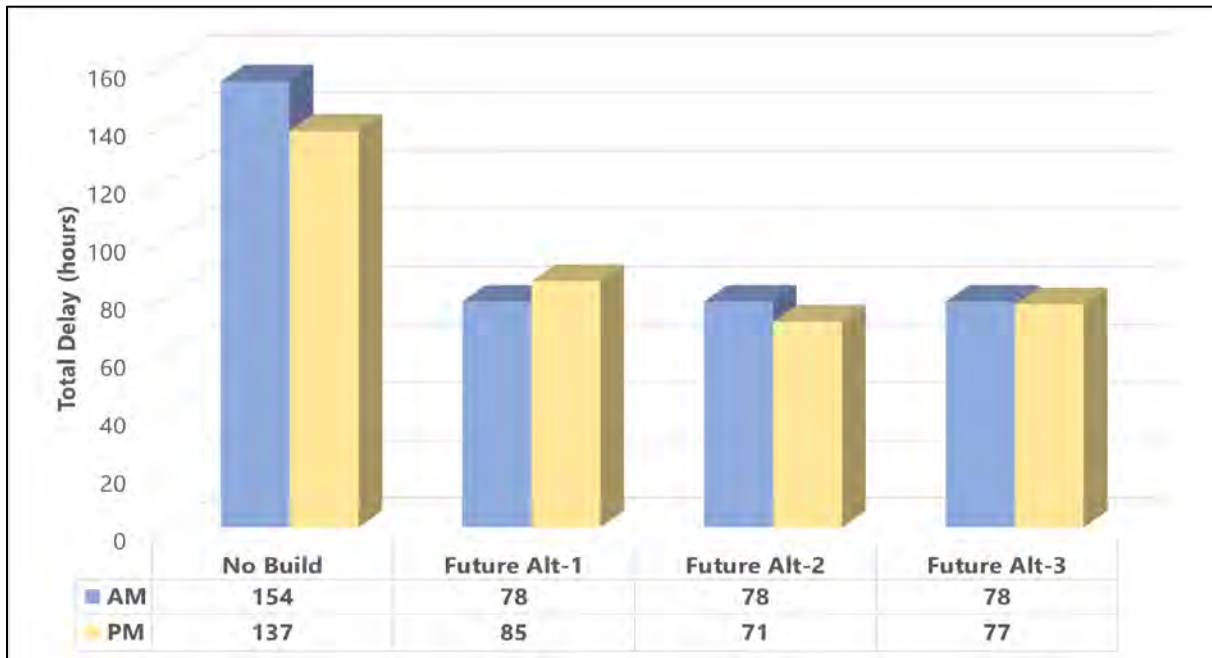
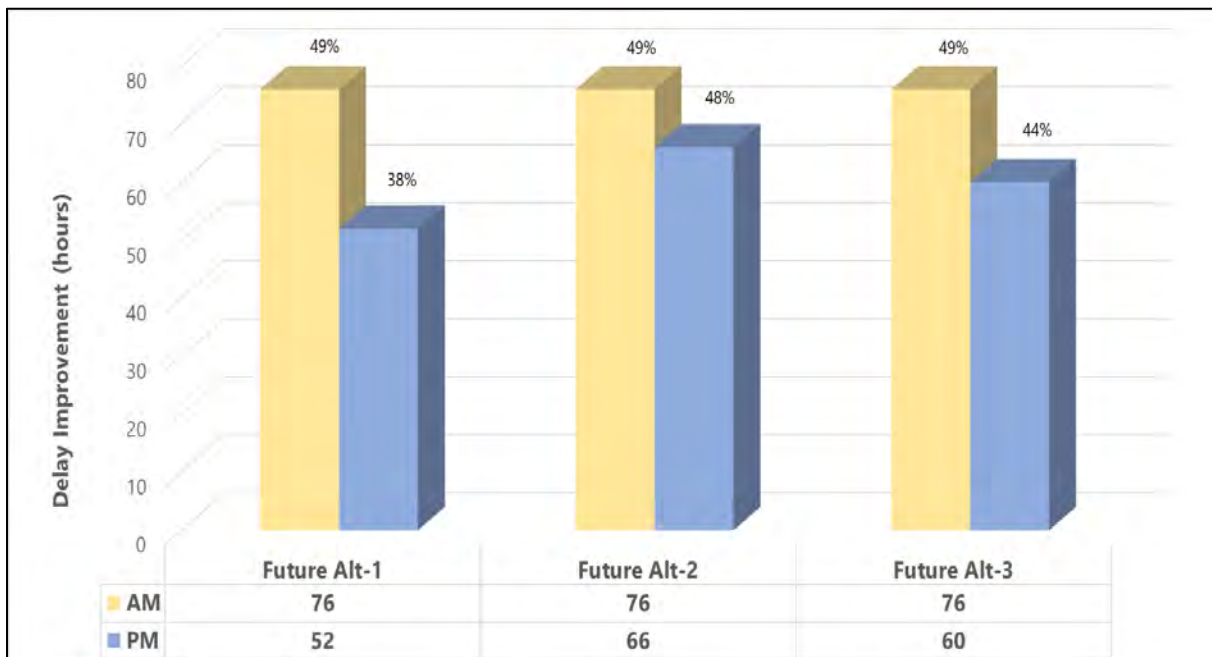


Figure 18: Networkwide Delay Improvement in the Long-term Alternatives over the No-Build Alternative



The following conclusions are noted based on **Table 15 and Figure 17**.

- All the Build long-term alternatives show that all the study intersections operate within LOS "D" or better condition.
- All the long-term alternatives show significant improvement in both the networkwide MOEs as well as individual movement delays over the No-Build alternative.
- In the year 2040 AM peak hour, all the build alternatives provide a comparable reduction in total delay. Future Alternative 2 provides the highest delay reduction in the PM peak hour. The same is true regarding the performance index for future alternatives.

Table 14: Year 2040 AM & PM Peak Hour Intersection Analysis Summary for the Long-term Alternatives

Study Intersection	AM Peak								PM Peak							
	No Build		Holden Ave Realignment with 1 Rail Crossing (Future Alt-1)		Holden Ave Realignment with 2 Rail Crossings (Future Alt-2)		Quadrant Intersection using Lake Gatlin Rd (Future Alt-3)		No Build		Holden Ave Realignment with 1 Rail Crossing (Future Alt-1)		Holden Ave Realignment with 2 Rail Crossings (Future Alt-2)		Quadrant Intersection using Lake Gatlin Rd (Future Alt-3)	
	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS
Orange Ave & Holden Ave	59.9	E	5.5	A	16.2	B	24.9	C	69.3	E	8.1	A	22.9	C	21.7	C
Orange Ave & Gatlin Ave	64.7	E	47.9	D	45.2	D	12.4	B	39.8	D	47.4	D	31.5	C	9.1	A
Holden Ave & Holden Ave Realignment			12.8	B	9.8	A					15.4	B	12.7	B		
Orange Ave & Lake Gatlin Rd							26.4	C							21.6	C
Gatlin Ave & Lake Gatlin Rd							4.8	A							13.2	B

Notes:
1) Blank cells indicate that the movement does not exist in the corresponding alternative.
2) Synchro-based overall intersection LOS and delay are shown.

Table 15: Year 2040 AM & PM Peak Hour Networkwide MOE Summary for the Long-term Alternatives

Network MOE	AM				PM			
	No-Build	Holden Avenue Realignment with 1 Rail Crossing (Future Alt-1)	Holden Avenue Realignment with 2 Rail Crossings (Future Alt-2)	Quadrant Intersection using Lake Gatlin Road (Future Alt-3)	No-Build	Holden Avenue Realignment with 1 Rail Crossing (Future Alt-1)	Holden Avenue Realignment with 2 Rail Crossings (Future Alt-2)	Quadrant Intersection using Lake Gatlin Road (Future Alt-3)
Total Delay (hour)	154	78	78	78	137	85	71	77
Vehicle Stops	5,022	5,087	5,055	6,033	5,253	5,185	5,493	5,951
Average Speed (mph)	9	15	15	15	10	15	16	16
Fuel Consumed (gallons)	222	172	168	183	217	183	173	186
Performance Index (PI)	168	93	92	95	152	99	86	93

Notes:

1) PI is defined as $[(D*1) + (St*10)]/3600$, where D = Total Delay (seconds) and St = Vehicle Stops

2) The lower the PI, the better the operational efficiency.

8 B/C ANALYSIS

A B/C analysis was performed for the short- and long-term alternatives based on traffic operational benefits derived using delay savings. For the short-term alternative, benefits are calculated for 10 years between 2021 and 2030 (included). For the long-term alternatives, the benefits are calculated between 2030 and 2050 (improvements will last for 20 years based on FDOT guidance). Initially, benefits are calculated for the years 2025, 2030, and 2040 conditions. Then the benefits for the other years are interpolated (extrapolated) using the appropriate values.

8.1 Traffic Operational Benefits

To estimate the operational benefits of the proposed intersection improvements, Synchro reported networkwide total delay (vehicle-hours) values are used. The benefits are defined in terms of annualized cost savings associated with a reduction in the total delay values. The benefits are calculated for six hours (3 AM and 3 PM hours) in a day and 300 days in a year accounting for reduced benefits anticipated due to lower traffic volumes during the off-peak hours and weekends. The latest value of delay time per hour (\$20.17) for the year 2020 was obtained from “The Mobility Data for Orlando” published by Texas A&M University.

8.2 Improvement Construction Costs

The estimated costs of the proposed improvements separated by each Build alternative were determined for this study. The estimated cost for the short-term alternative is based on FDOT 12-month moving statewide average unit prices for the period between June 1, 2020 and May 31, 2021. A signal retiming cost of \$8,000 was also added to the short-term alternative cost. The estimated costs for the long-term alternatives are based on FDOT Long Range Estimating (LRE) System. Please note that ROW costs are not estimated for the long-term alternatives.

Table 16 summarizes the B/C analysis for the study alternatives. The analysis yields a high B/C ratio of 44.7 for the short-term alternative because of the low-cost improvements. The analysis yields B/C ratios of 12.1, 17.4, and 16.8 for the long-term alternatives. The calculated B/C ratio for each of the build alternatives (short- and long-term) indicates that the anticipated benefits outweigh the estimated costs for the proposed modification, with benefits derived through

reduced costs associated with lower delay. Other benefits such as reduced fuel consumption and improved safety were not considered in the analysis. The operational annual user benefits calculations and improvement costs are provided in **Appendix K**. As illustrated in **Table 16**, Future Alternative 2 provides the best B/C ratio.

Table 16: B/C Analysis Summary

Network Alternative	Estimated Cost	B/C Ratio
Short-term Alternative	\$24,000	44.7
Long-term Alternatives		
Future Alternative 1	\$3,741,739	12.1
Future Alternative 2	\$2,888,699	17.4
Future Alternative 3	\$2,863,435	16.8

Notes:

- 1) The service life was kept at 10 years for the short-term alternative and 20 years for the long-term alternatives*
- 2) Traffic operational annual user benefits (derived using total delay savings) are calculated for 20 years with 300 days in a year and with 3 hours each of AM and PM peak periods in a day*
- 3) The value of delay time per hour is based on "The mobility data for Orlando" published by Texas A&M University*
- 4) Estimated construction cost does not include right-of-way estimate*

9 HSM PREDICTIVE SAFETY ANALYSIS

Since SPICE and Crash modification factors (CMFs) from the CMF Clearinghouse are not available for a QRI or the hybrid QRI options (Future Alternatives) that are discussed in this study, predictive safety analysis is used to forecast changes in safety outcomes between the No-Build and Future Alternative 1 for the long-term conditions. The changes in safety outcomes for Future Alternatives 2 and 3 are expected to be similar to that of Future Alternative 1. In addition, crash reduction percentages from the CMF Clearinghouse, FHWA, Handbook of Road Safety Measures, and FDOT are also discussed for individual safety improvements not accounted for in the basic predictive analysis.

A Highway Safety Manual (HSM) Safety analysis was conducted using the HSM worksheet for Urban and Suburban Arterials for the No-Build and Future Alternative 1 using predictive crash methods to quantify and compare the potential future crashes under these scenarios. The predictive method can account for several intersection and roadway segment improvements, like turn lane additions at intersections, incorporation of raised medians, right turn on red restrictions, left turn phasing at signals, signalization, intersection, and corridor lighting. The associated calculations and supporting documentation are presented in **Appendix L**.

Based on predictive safety analysis, Future Alternative 1 (compared to the No-Build condition) is anticipated to:

- **Reduce the total number of crashes within the study area by approximately 80 crashes over 20 years or 4 crashes per year, and**
- **Save approximately \$9.8 Million over 20 years (assuming an average crash cost of \$123,000 from the 2021 FDOT Design Manual)**

9.1 Safety Benefits of Other Countermeasures

The following list provides a summary of the possible crash reduction percentages and qualitative discussion for individual safety improvements that can be applied in the Build alternatives (some of which are not accounted for in the basic predictive analysis).

- Permissive to protected left turns are anticipated to result in:
 - 6% reduction in all crash types (source: CMFclearinghouse.org).
- Although a specific crash reduction factor is not available for a QRI, it has six fewer conflict points than a traditional intersection.
- All the Future Build alternatives will help improve signal coordination because the movements are simpler compared to the No-Build alternative. As such several studies have shown both safety and operational benefits of improved signal coordination.
- Enhanced roadway/intersection lighting:
 - Installation of lighting at intersections has been linked to a 38% reduction in dark condition crashes and a 42-59% reduction in vehicle/pedestrian crashes under dark conditions (source: Handbook of Road Safety Measures).
- High friction surface treatments:
 - Increased Pavement Friction is one of twenty of FHWA's proven safety countermeasures. The application of this treatment has been linked to a 52% reduction in wet road crashes and a 24% reduction in curve-related crashes.
- Tightened intersection corners (where feasible) will reduce vehicle turning speeds and therefore improve pedestrian and bicycle safety.
- In the information guide for signalized intersections published by FHWA, the addition of turn (left or right) lanes is identified as one of the treatments for vehicle movements at intersections to address an overrepresentation of rear-end collisions under congested conditions and excessive queueing and/or delay for one (or more) approach movements. Extension of turn lanes is also widely used for the same purposes. Based on the crash reduction factors published by FDOT, the extension and addition of turn lanes have the following safety benefits:
 - Exclusive right turn lane: 11% reduction (all crash types)
 - Additional left turn lane: 4% reduction (all crash types)
 - Extend storage: 11% reduction (all crash types)

10 STUDY CONCLUSIONS

The objective of the study is to develop alternative intersection designs and identify other improvements to alleviate current and anticipated operational and safety issues at the study intersections of Orange Avenue at Gatlin Avenue and Orange Avenue at Holden Avenue. Under the existing conditions, the congestion and associated delay are due to the existing offset intersection configuration, heavy turning traffic from/to Orange Avenue to side streets (Holden Avenue and Gatlin Avenue), and limited existing turn lane storage lengths along Orange Avenue and side streets. The queue for the northbound left turn movement at Orange Avenue and Holden Avenue exceeds the available storage length and spills into the northbound through lane south of Gatlin Avenue. Excessive queues are also observed along Holden Avenue (for the eastbound approach) and Gatlin Avenue (for the westbound approach). The other movements are observed to operate with minimum impact during both AM and PM peak hours.

Based on the input received from Orange County and the City of Edgewood, and an evaluation of the study needs and objectives, traffic data, and anticipated traffic operational efficiency and safety improvements, this study evaluated one short- and three long-term alternatives.

10.1 Short-term Alternative

- A short-term alternative is evaluated that can be built in the field before construction funding can be secured for the long-term alternative. The short-term alternative was evaluated for the year 2025 and is based on the improvements suggested by the County and signal timings provided by FDOT.
 - Modify the existing exclusive eastbound left turn only lane to a shared through-left turn lane and the existing shared through-right turn lane to a right turn only lane.
 - Introduce an overlap between the eastbound right turn and northbound left turn movements.
 - Modify signal timings to provide an extra phase within a cycle for the northbound left turning movement at Orange Avenue and Holden Avenue

- A year of failure analysis was conducted for short-term improvements to determine the period for which these improvements will provide the target LOS “D” at all the study intersections. **Based on this analysis, the short-term improvements are anticipated to provide an overall LOS “D” (not individual movements) at the study intersections till the year 2035.**
- The B/C analysis yielded a high ratio of 44.7 for this alternative because of the low-cost improvements. The calculated B/C ratio indicates that the anticipated benefits outweigh the estimated costs for the proposed modification, with benefits derived through reduced costs associated with lower delay.

10.2 Long-term Alternatives

Three long-term alternatives are evaluated for this study for the year 2040 traffic conditions as described below:

- **Holden Avenue Realignment Alternative with 1 Rail Crossing (Future Alternative 1):**
This alternative was developed based on the input from the County and City, and the assumption that the existing rail crossing along Holden Avenue will be closed to support the opening of a new rail crossing along realigned Holden Avenue. As part of this alternative, Holden Avenue will be realigned to form a plus intersection at the existing Orange Avenue and Gatlin Avenue intersection. The realignment is anticipated to help mitigate the existing and anticipated congestion and associated delay at the offset intersections.
- **Holden Avenue Realignment Alternative with 2 Rail Crossings (Future Alternative 2):**
This alternative was developed based on the input from the County and City, and the assumption that the existing rail crossing along Holden Avenue will stay open along with the new rail crossing along realigned Holden Avenue. An existing rail crossing at a different location (e.g., along Fairlane Avenue) must be closed to support the opening of the new rail crossing along realigned Holden Avenue. As part of this alternative, Holden Avenue will be realigned to form a plus intersection at the existing Orange Avenue and Gatlin Avenue intersection like the Future Alternative 1. However, the traffic will be circulated

using both the existing Holden Avenue and Holden Avenue Realignment to minimize ROW impacts and provide improved operational LOS.

- **Quadrant Intersection Alternative using Lake Gatlin Road (Future Alternative 3):** This alternative proposes to use Lake Gatlin Road for the movements between Orange Avenue and Gatlin Avenue. The main idea is to eliminate the existing southbound left turn lane at Orange- Avenue and Gatlin Avenue intersection and instead use Lake Gatlin Road for this movement. This will help provide two northbound left turn lanes and improve signal efficiency at the intersection of Orange Avenue. Besides, a portion of the westbound left and northbound right turn movements that currently use the intersection at Orange Avenue and Gatlin Avenue will use Orange Avenue and Lake Gatlin Road intersection.

The following **Table 17** provides the summary for these three long-term alternatives. As shown in **Table 17**, Future Alternative 2 has the best operational efficiency (based on 2040 analysis results) and B/C ratio compared to the other alternatives.

In addition to providing operational benefits, the long-term alternatives are anticipated to provide safety benefits (see Section 9) with a reduced number of crashes compared to the No-Build alternatives.

Table 17: Long-term Alternatives Summary

Network Alternative	Year 2040 Performance Index (PI) [AM/PM /Average]	B/C Ratio	Potential Roadway Impacts
Holden Avenue Realignment with 1 Rail Crossing (Future Alt-1)	93/99/96	12.1	<ul style="list-style-type: none"> • Anticipated on Orange Avenue (between Holden Avenue and Lake Gatlin Road) and the side streets and through Cypress Grove Park (located south of Holden Avenue and west of Orange Avenue) • Will need a four-lane typical section on Holden Avenue Realignment • A new railroad crossing must be provided, but the existing one can be closed • Will add 1 new signal
Holden Avenue Realignment with 2 Rail Crossings (Future Alt-2)	92/86/89	17.4	<ul style="list-style-type: none"> • Not anticipated on Orange Avenue, but anticipated on the side streets and through Cypress Grove Park (located south of Holden Avenue and west of Orange Avenue) • A new railroad crossing must be provided, but the existing one cannot be closed • To meet FDOT guidelines for railroad crossings, an existing railroad crossing at a different location must be closed • Will add 1 new signal
Quadrant Intersection using Lake Gatlin Road (Future Alt-3)	95/93/94	16.8	<ul style="list-style-type: none"> • Anticipated on Orange Avenue (south of Lake Gatlin Road), side streets, and the southeast quadrant of Orange Avenue and Gatlin Avenue intersection (for the extension of Lake Gatlin Road to Gatlin Avenue) • Will not need closing or opening of railroad crossings • Will need roadway widening on Holden Avenue through the railroad crossing to accommodate the receiving lanes for the recommended dual NB lefts at Orange Avenue and Holden Avenue intersection (WB) and turn lane improvements (EB) • Will add 2 new signals

11 APPENDICES

Intersection Analysis Study for Orange Avenue/Gatlin Avenue & Orange Avenue/Holden Avenue

Appendix A: Review of Previous Studies Memorandum

Previous Studies Review

Project Description

Orange County is conducting an analysis of additional alternative intersection designs for the SR 527/Orange Avenue corridor from South of Gatlin Avenue to North of Holden Avenue. This study builds on the previous work effort documented in the recently submitted "Intersection Analysis for Orange Avenue at Gatlin Avenue and Orange Avenue at Holden Avenue" report dated March 2021.

The objective of this study is to develop one additional alternative intersection design, a design concept for Alternative 3 (as documented in the previous study dated March 2021), update design concepts for future Alternatives 1 and 2, and cost estimates for the short-term improvement and all the three long-term alternatives for the study area.

This memorandum focuses on the review of previous studies and recommendations related to the study intersections.

Timeline of Previous Studies

Per discussions with the City of Edgewood, this intersection has been the subject of previous studies dating back to 1973. Following is a summary of the historical timeline of previous/related studies and/or meetings.

- 1973: Orange County Board of County Commission Meeting Minutes, December 11, 1973 – Orange County Board of County Commissioners (BCC) discussed widening of Holden Avenue from Rio Grande Avenue to Orange Avenue.
- 1988: Orange County Board of County Commission Meeting Minutes, April 18, 1988 – the BCC discussed ROW reservation and Preliminary Engineering Study for widening Holden Avenue from Orange Blossom Trail to Orange Avenue.
- 1999: Orange County Roadway Corridor Analysis for Holden improvements.
- 2001: City of Edgewood Community Master Plan – the Master Plan included alternatives for realigning the Holden Avenue and Gatlin Avenue intersections at SR 527/Orange Avenue.

- 2009: Qualitative Assessment for SR 527 at Gatlin and Holden Avenue Study #1, Work Order #52, July 2009 – the assessment included a series of short-term geometric improvements at Orange Avenue and Gatlin/Holden Avenues.
- 2010: Orange County SYNCHRO Analysis – this analysis compared 2010 existing conditions with proposed intersection modifications at Orange Avenue and Holden/Gatlin Avenues.
- 2015: Conceptual Design Study, SR 527 (Orange Avenue) from Gatlin Avenue to Holden Avenue (FPID 433648-1-32-01), March 2015 – this study included a series of design recommendations for the SR 527 corridor and at the intersections of Holden Avenue and Gatlin Avenue.
- 2017: MetroPlan Orlando, Orange Avenue Corridor Master Plan Summary, August 2017 – this study included short-, mid-, and long-term improvements, including a grid alternative which would extend Holden Avenue across Orange Avenue to a new north-south street that would connect to Gatlin Avenue, and extend Gatlin Avenue across Orange Avenue to a new north-south street that would connect to Holden Avenue.
- 2018: FDOT Signal Timing Report, SR 527 from Office Court to Drennen Road, May 2018 – this study summarizes the signal retiming efforts for 12 intersections along SR 527, from Office Court to Drennen Road. It was recommended that the detections at the intersection of Holden Avenue/Orange Avenue be further investigated.
- 2019: Orange County Realignment Concept Plan review comments – this document includes a review of the Orange Avenue-Holden Avenue-Gatlin Avenue Intersection Realignment Concept Plan.
- 2021: MetroPlan Orlando, Orlando Urban Area FY 2026/27 – 2034/35 Prioritized Project List (Adopted July 7, 2021) – The Orange Avenue corridor from Holden Avenue to Gatlin Avenue is identified for safety improvements totaling \$10.5 million.

Existing Studies and Plans

The following section includes more detailed summaries of the available documents listed in the previous section. The summary of previous studies includes applicable recommendations to address the traffic operations at the study locations, and alternatives that were proposed in those studies.

1973: Orange County Board of County Commission Meeting Minutes, December 11, 1973

The Orange County BCC held a meeting on December 11, 1973 in reference to the widening of Holden Avenue from Rio Grande Avenue to Orange Avenue (relevant pages are included in Appendix A).

As part of this meeting, the Board directed the County's Right-Of-Way Department to proceed with obtaining the necessary rights-of-way for the widening of Holden Avenue.

1988: Orange County Board of County Commission Meeting Minutes, April 18, 1988, Meeting

The Orange County BCC held a meeting on April 18, 1988 (relevant pages are included in Appendix B). As part of this meeting, the results of the preliminary engineering study for Holden Avenue improvements-

from Orange Blossom Trail to Orange Avenue were presented to the Commission and general public in attendance. The study recommendation included widening Holden Avenue from Orange Blossom Trail to Orange Avenue.

The BCC then voted on whether or not to adopt a proposed resolution that would approve a map of right of way preservation for Holden Avenue from Orange Blossom Trail to Orange Avenue on certain properties.

Six out of the seven Commissioners voted to defer any decision to widen Holden Avenue for five years.

1999: Orange County Roadway Corridor Analysis for Holden Avenue

This timeline document was brought to our attention by the City of Edgewood regarding a 1999 Roadway Corridor Analysis initiated by Orange County to assess improvements along Holden Avenue.

It should be noted that this document could not be located at the time of this study.

2001: City of Edgewood Community Master Plan

The City of Edgewood Community Master Plan was adopted on February 26, 2001 (relevant pages are included in Appendix C). The Master Plan defines the City's vision for future development and identifies transportation investment projects. The following sections reference the study intersections.

- Section 4.4, Traffic Accident Data, notes that the intersections of Orange/Holden and Orange/Gatlin Avenues have higher than expected crash rates.
- Section 4.6, Gatlin/Holden Intersection Alternatives, references four transportation alternatives for the Gatlin/Holden intersections, including the following:
 - Alternative 1: Realign Gatlin Avenue to create a four-way intersection at existing Holden Avenue
 - Alternative 2: Realign Holden Avenue to create a four-way intersection at existing Gatlin Avenue
 - Alternative 3: Create a Town Square between the intersections of Gatlin and Holden Avenues along Orange Avenue
 - Alternative 4: Town quadrant intersections at both Gatlin and Holden Avenues, which would remove left turn movements from Orange Avenue. Under this alternative, traffic would move along Orange Avenue and around two quadrants established northeast of the Orange/Holden intersection and southwest of the Orange/Gatlin intersection.

Each alternative was ranked on a scale from "very poor" to "very good", on several criteria including level of service, capacity, pedestrians, safety, access, etc. Based on the ranking, Alternatives 3 and 4 were ranked highest, with Alternative 4 as the preferred alternative because it eliminates weaving conflicts, and it discourages east-west movements from Gatlin Avenue to Holden Avenue, and vice versa. It was noted that this alternative was desirable because it helps maintain the roads as local streets and not regional thoroughfares.

2009: Qualitative Assessment for SR 527 (Orange Avenue) at Gatlin and Holden Avenue

This report was prepared by GMB Engineers & Planners, Inc. on behalf of FDOT District 5, in July 2009 and entails a qualitative assessment, based on field observations of the traffic flow conditions occurring on SR 527 and Holden Avenue and Gatlin Avenue (relevant pages are included in Appendix D) The purpose of the qualitative assessment was to evaluate prevailing operating conditions and traffic flow patterns and identify areas where improvements would be potentially beneficial for safety and efficiency reasons.

Based on an analysis of three conditions (No-Build, Build #1 and Build #2), the study recommends implementing Build #1, which includes the following geometric improvements:

- Introduce side-by-side northbound and southbound left-turn lanes extending on SR 527 between Holden Avenue and Gatlin Avenue.
- Eliminate the southbound continuous green lane on SR 527 approaching Gatlin Avenue.
- Bring the continuous green lane under signal control to mitigate four angle crashes without adversely affecting the operational efficiency of the intersection.
- Increase the storage length capacity of the northbound left-turn operation at Holden Avenue and the southbound left-turn operation at Gatlin Avenue by introducing side-by-side northbound and southbound left-turn lanes to mitigate the queue spillbacks that reduce the through lane capacity of SR 527.
- Provide a left-turn storage lane to accommodate the northbound left turn movement into the Le Coq Au Vin restaurant on Gatlin Avenue.
- Rebuild the traffic signal at the Holden Avenue intersection and modify the traffic signal at Gatlin Avenue.
- Change the existing protected/permissive left-turn operation for both the northbound and southbound approaches at Holden Avenue to a protected only operation.
- Replace the pedestrian signal assembly serving the SR 527 crosswalk located at the northwest corner of the Holden Avenue intersection.
- Retime the traffic signals at the Holden Avenue and Gatlin Avenue intersections due to these geometric and operational improvements.

2010: Orange County SYNCHRO Analysis

In 2010, Orange County conducted a SYNCHRO analysis for the two intersections along Orange Avenue - Orange Avenue at Holden Avenue and Orange Avenue at Gatlin Avenue ((relevant pages are included in Appendix E).

The analysis used 2010 PM peak hour turning movement counts to compare existing conditions with geometric modifications at the two intersections, as depicted in Appendix E, Table 1. Based on the analysis, both intersections operate at LOS F under 2010 existing conditions, and would operate at a LOS C under the 2010 proposed configurations.

2015: Florida Department of Transportation Conceptual Design Study SR 527 (Orange Avenue) from Gatlin Avenue to Holden Avenue [FPID 433648-1-32-01]

This report was prepared by Comprehensive Engineering Services, Inc, in March 2015 to analyze the local agency (City of Edgewood and Orange County) proposed improvements developed to address operational and safety concerns at SR 527 from Gatlin Avenue to Holden Avenue (relevant pages are included in Appendix F). The existing conditions, local agency proposed modifications and supplemental data led to additional design modifications. Based on the results of the analyses, supplemented with the operational and queue findings from the field assessments, the following design recommendations were provided for the SR 527 corridor and the intersections of Holden Avenue and Gatlin Avenue. It was recommended that these improvements be implemented, as permissible by available right-of-way or any other restrictions related to constructability, construction cost or the concerns of local agencies or business owners:

- Widening SR 527 (Orange Avenue) to provide side-by-side left turn lanes between the Holden Avenue and Gatlin Avenue intersections.
- Implementing signal control on the existing southbound outside continuous green lane at the Gatlin Avenue intersection.
- Installing a signalized pedestrian crosswalk across the north leg of the Gatlin Avenue intersection and across the south leg of the Holden Avenue intersection to enhance pedestrian accessibility across SR 527.
- Reassigning the westbound Gatlin Avenue approach lanes to SR 527 to provide an exclusive left turn lane and a shared left / right turn lane. Additionally, restriping along this approach should consider the extension of the existing left turn lane to help facilitate the queue lengths.
- If feasible, installing a signalized northbound left turn lane along SR 527 at the Gatlin Avenue intersection to serve Le Coq Au Vin Restaurant. If completed, the addition of a striped taper at the beginning of the northbound left turn lane to Holden Avenue is also recommended to prevent drivers and queues from extending into the northbound left turn lane at Gatlin Avenue.
- Installing a southbound right turn lane along SR 527 at the Holden Avenue intersection. Maintain the existing side street approach lane geometry along Holden Avenue.
- Maintaining the existing approach lane geometry along the Fort Gatlin Shopping Center exit driveway.
- Per Florida Department of Transportation preferences, install four-section left turn signal displays along the SR 527 approaches to Holden Avenue and Gatlin Avenue.
- Conduct signal retiming at the Holden Avenue and Gatlin Avenue intersections to account for the final geometric changes and signalization preferences in addition to the new signalized pedestrian crossings. The retiming effort should include railroad preemption timings and related signal phasing sequences.
- Consider the implementation of a railroad pre-empted northbound permissive left turn restriction at the Holden Avenue intersection.

2017: Orange Avenue Corridor Master Plan Summary

The Orange Avenue Corridor Master Plan Summary was prepared by Kittelson and Associates in August 2017 (relevant pages are included in Appendix G). The study was initiated by MetroPlan Orlando and the

City of Edgewood to establish Orange Avenue (SR 527) as a livable and walkable multi-modal urban thoroughfare. This study establishes a corridor vision and identifies implementation actions to address network efficiency, safety, and livability within the context of future transportation needs.

The study corridor includes a 2.4-mile long section of Orange Avenue from Pineloch Avenue to Hoffner Avenue. The Gatlin/Holden Avenue intersection is located near the middle of the corridor.

The Corridor Master Plan included 11 recommended short-, mid-, and long-term improvements, summarized in the Orange Avenue Corridor Master Plan, Cost Estimation Matrix. Recommendation # 2, Orange Avenue Intersection Improvements (Gatlin Avenue to Holden Avenue) includes the following recommended improvements:

- Recommendations from FDOT Intersection Study in 2015 – widen the pavement for lengthened side by-side left turn lanes along Orange Avenue to service Gatlin Avenue and Holden Avenue. Remove the outside southbound continuous lane on Orange Avenue, pavement widening, milling and resurfacing of the roadway, introducing mast arm signals, upgrading pedestrian features, and drainage improvements.
- Implement a grid alternative which would extend Holden Avenue across Orange Avenue to a new north-south street that would connect to Gatlin Avenue. Gatlin Avenue would extend across Orange Avenue to a new north-south street that would connect to Holden Avenue. The new “grid” would form the primary structure for circulation for local traffic and regional traffic. Additional new streets would be connected in concert with private redevelopment to further create a system of streets in the town center.

2018: Signal Timing Report, SR 527 from Office Court to Drennen Road

The SR 527 Signal Timing Report was prepared by HDR Engineering, Inc. on May 21, 2018, on behalf of FDOT District 5 (relevant pages are included in Appendix H). The study summarizes the signal retiming efforts for 12 intersections along SR 527, from Office Court to Drennen Road, in Orange County, Florida.

As noted in the report, the SR 527 corridor previously ran as one system for all periods. To improve the distinct traffic flow along the corridor, especially in the AM and PM periods, the corridor was divided into two systems (Zone A and Zone B). The Gatlin and Holden Avenue intersections fall within Zone A.

After implementing the signal re-timings, it was observed that the new timings reduced unnecessary stops between the Gatlin Avenue and Holden Avenue intersections, improved progression on eastbound Oakridge Road between SR 527 northbound and SR 527 southbound intersections, provided adequate split times, and enhanced system progression along SR 527.

It was recommended that the detections at the intersection of Holden Avenue/Orange Avenue be further investigated, as the southbound left detection was activated every cycle while the northbound left movement was holding for the entire split.

2019: Orange County Realignment Concept Plan review comments

This document was prepared by the Orange County Planning, Environmental and Development Services Department Transportation Planning Division and is dated May 30, 2019 (relevant pages are included in Appendix I). The document includes a review of the Orange Avenue-Holden Avenue-Gatlin Avenue Intersection Realignment Concept Plan prepared by CPH, Inc. The concept plan shows a realigned Gatlin

Avenue, extending west across Orange Avenue, and ending at Holden Avenue, west of the existing railroad corridor.

The comments included references to design speed of the realigned roadway, right of way limits, sidewalks, railroad crossing, vehicle storage lengths, roadway curve radii, lighting and drainage considerations.

1.1 APPENDIX A - 1973: Orange County Board of County
Commission Meeting Minutes, December 11, 1973

Prelim. Plan Silver Pines	<p>Upon motion by Commissioner Benham, seconded by Commissioner Martin, and carried, the Board removed from the table the Preliminary Development Plan of Silver Pines, P-D, regarding the southerly access to Hernandes Drive, Sarazen Drive, and Golf Club Parkway for consideration.</p> <p>A motion was made by Commissioner Benham, seconded by Commissioner Thomas, and carried, that the Board concurs with the recommendations of the County Traffic Engineer and Public Works Director in the solution to the traffic problem created in Silver Pines P-D relative to the intersections of Hernandes Drive, Sarazen Drive and Golf Club Parkway.</p>
Sewer Line Easement South of Oak Ridge Road	<p>Upon motion by Commissioner Poe, seconded by Commissioner Thomas, and carried, the Board accepted appraisal in the amount of \$3,200 for sewer line easement in section 21, township 23 South, range 29 East, South of Oak Ridge Road, and approved payment of appraisal fee in the amount of \$500.00 to Cooper & Jones, Incorporated.</p>
Right-Of-Way Rio Grande & Holden Aves.	<p>Upon motion by Commissioner Benham, seconded by Commissioner Poe, and carried, the Board directed the Right-Of-Way Department to proceed with obtaining the necessary rights-of-way for the widening of Holden Avenue between Rio Grande and Orange Avenue.</p>
Right-Of-Way Frieda Ave.	<p>Upon motion by Commissioner Poe, seconded by Commissioner Thomas, and carried, the Board accepted the following right-of-way agreements and utility and drainage easement, and further ordered the Clerk to record same:</p> <p>Harold Newman & Ella Marie Newman - Sunshine Gardens, Lot 1, Block A</p> <p>American Pioneer Properties, Inc. - Section 2, 22S, 29E - along North right-of-way line of Frieda Avenue</p>
Bel Air Avenue	<p>Mr. Florian Jane, Administrative Assistant, appeared before the Board and outlined stipulation requested by property owner conditioning the granting of right of way for Bel Air Avenue:</p>

1.2 APPENDIX B - 1988: Orange County Board of County
Commission Meeting Minutes, April 18, 1988, Meeting

6. The developer shall execute an interim wastewater facilities agreement with the County providing terms and conditions acceptable to the County and which incorporate substantially the above conditions.
7. The grant of this Special Exception constitutes only land use approval for the use of the land for the interim wastewater facilities and shall not be construed as granting any vested right to the developer or act as an estoppel against the County in the enforcement of other applicable County Rules, Regulations, Laws, Ordinances, and Resolutions.

Zoning Department Conditions of Approval

1. A 100-foot setback shall be provided along the East property line up to the conservation area. The first 50 feet adjacent to the east line shall be used as a landscape buffer only, and shall contain scattered vegetation.
2. The applicant shall enter into a private agreement with the County which specifies ownership and maintenance of the facilities, and when such facilities would be discontinued.

Planning Department Conditions of Approval

1. Conditions of Approval #2 and #7(DRC Minutes dated 01/14/88 on file in Zoning Department Evidence File) of the approved Orange Lake County Club P-D Amendment to the Land Use Plan.
2. Prior to construction plan approval, the conservation area shall be verified by the Planning Department. The verified flag line shall be surveyed and the survey submitted to the planning Department.
3. Maintain a 200-foot natural buffer between the conservation area and the perc-ponds.

PUBLIC HEARING

Consider Right-of-Way Reservation Map and Preliminary Engineering Study for Holden Avenue from Orange Blossom Trail to Orange Avenue - District #1

Notice was given that the Orange County Commission would hold a public hearing to consider:

The results of the preliminary engineering study for Holden Avenue improvements from Orange Blossom Trail to Orange Avenue and to adopt a resolution approving a map of right-of-way reservation for Holden Avenue from Orange Blossom Trail to Orange Avenue on property more particularly described as follows:

Commence at the northwest corner of the northeast 1/4 Section 15, Township 23 South, Range 29 East, Orange County Florida; thence N 89°22'25"E along the north line of said NE 1/4, a distance of 571.18 feet for a POINT OF BEGINNING; thence N 00°37'35" W 40.50 feet; thence N 85°49'33"E 250.48 feet; thence N 89°22'25"E 444.23 feet; thence N 44°33'36"E 28.38 feet to a point on the westerly R/W line of Orange Blossom Trail(U.S. 441); thence N 81°47'09"E 90.88 feet to a point on the easterly R/W line of said U.S. 441; thence S 45°26'24"E 28.19 feet; thence N 89°22'25"E 210.67 feet;

thence S 86°48'44"E 255.57 feet; thence N 89°22'25"E 40.00 feet to the point of curvature of a curve concave southerly and having a radius of 2,342.83 feet; thence easterly, along the arc of said curve, through a central angle of 05°29'12", a distance of 224.35 feet to a point of reverse curvature of a curve concave northerly and having a radius of 2,240.83 feet; thence easterly, along the arc of said curve, through a central angle of 05°29'12", a distance of 214.58 feet to a point on the existing northerly R/W line of Holden Avenue and the point of tangency; thence N 89°22'25"E 323.36 feet along said northerly R/W line to the southeast corner of Lot 1, Block B or Holden Grove, as recorded in Plat Book W, Page 16, Public Records of Orange County, Florida, thence N 00°13'47"W along the easterly line of said Lot 1 a distance of 23.00 feet to the southwest corner of Lot 1, Raymor Manor, as recorded in Plat Book Y, Page 16, Public Records of Orange County, Florida; thence N 89°33'05"E 264.00 feet to the southeast corner of Lot 21, of said Raymor Manor; thence S 00°13'55"E along the west line of Lot 23, Lake Holden Gardens as recorded in Plat Book Q, Page 140, Public Records of Orange County, Florida a distance of 23.00 to the southwest corner thereof; thence N 89°33'05"E, along the aforesaid northerly R/W line of Holden Avenue a distance of 1,943.25 feet to the point of curvature of a curve concave northerly and having a radius of 2,240.83 feet; thence departing said northerly R/W line, run easterly, along the arc of said curve, through a central angle of 05°51'32", a distance of 229.14 feet, to the point of reverse curvature of a curve, concave southerly and having a radius of 2,342.83 feet; thence easterly, along the arc of said curve, through a central angle of 05°14'41", a distance of 214.46 feet to a point on the west line of the SE 1/4 of Section 11, Township 23 South, Range 29 East; thence S 00°08'24"E along said west line 3.81 feet to a point on the northerly R/W line of Holden Avenue; thence N 89°39'59"E along said northerly R/W line a distance of 1,370.73 feet to a point on the arc of a curve, concave southerly and having a radius of 2,342.83 feet; thence departing said northerly R/W line from a tangent bearing of S 86°59'06"E, run easterly along the arc of said curve, through a central angle 19°28'42", a distance of 796.47 feet to the point of tangency; thence S 67°30'24"E 128.16 feet; thence N 56°04'48"E 33.19 feet; thence N 00°20'01"W 130.85 feet to a point on the southerly R/W line of Holden Avenue; thence S 89°39'59"W along said southerly R/W line 230.36 feet to a point on the arc of a curve concave northerly and having a radius of 50.00 feet; thence departing said southerly R/W line run westerly, along the arc of said curve, through a central angle of 173°06'28", a distance of 151.07 feet to the point of tangency; thence N 00°20'01"W a distance of 54.00 feet to a point on the northerly R/W line of Holden Avenue; thence N 89°39'59"E, along said northerly R/W line 610.00 feet; thence S 00°20'01"E 54.00 feet to the point of a curvature of a curve, concave northerly and having a radius of 50.00 feet; thence westerly along the arc of said curve, through a central angle of 173°06'28", a distance of 151.07 feet to a point on the southerly R/W line of Holden Avenue; thence S 89°39'59" W along said southerly R/W line 120.36 feet; thence departing said R/W line run S 00°20'01"E 171.10 feet; thence S 33°55'12"E 24.99 feet; thence S 67°30'24"E 27.00 feet to the point of curvature of a curve concave northerly and having a radius of 1,381.39 feet; thence easterly along the arc of said curve, through a central angle of 29°06'59", a distance of 701.99 feet to

a point on the curve; thence N 29°00'00"E 32.65 feet; thence N 25°39'06"W 104.47 feet to a point on the arc of a curve concave easterly and having a radius of 939.11 feet; thence from a tangent bearing of N 25°51'12"W, run northerly along the arc of said curve, through a central angle of 11°42'46" a distance of 191.98 feet to a point on the southerly R/W line of Holden Avenue; thence S 89°28'40"W along said southerly R/W line 170.73 feet to a point on the arc of a curve concave easterly and having a radius of 50.00 feet; thence run along the arc of said curve, through a central angle of 286°15'37" a distance of 249.81 feet to a point on the northerly R/W line of Holden Avenue; thence N 89°28'40"E along said northerly R/W line 143.11 feet; thence N 39°49'18"E 25.89 feet to a point on the arc of a curve concave easterly and having a radius of 934.11 feet; thence from a tangent bearing of N 09°13'21"W, run northerly along the arc of said curve, through a central angle of 01°46'48", a distance of 29.02 feet to a point on the curve; thence N 80°31'10" E 126.15 feet to a point on the arc of a curve concave easterly and having a radius of 1,377.69 feet; thence from a tangent bearing of S 09°28'50"E, run southerly along the arc of said curve, through a central angle of 17°30'36", a distance of 421.04 feet to a point on the northerly R/W line of Gatlin Avenue; thence N 89°26'43"E along said northerly R/W line 542.35 feet; thence departing said northerly R/W line run S 00°33'19"E 60.00 feet to a point on the southerly R/W line of Gatlin Avenue; thence departing said southerly R/W line of Gatlin Avenue, run S 84°30'33"W 220.82 feet to a point on the arc of a curve concave southerly and having a radius of 1,588.02 feet; thence from a tangent bearing of S 89°26'43"W, run westerly along the arc of said curve through a central angle of 09°22'39" a distance of 259.91 feet; thence S 27°00'00"W 21.63 feet to a point on the arc of a curve concave southwesterly and having a radius of 1,482.69 feet; thence from a tangent bearing of S 24°46'25"E, run southerly along the arc of said curve, through a central angle of 08°24'06" a distance of 217.41 feet to the point of tangency; thence S 16°22'19"E 153.10 feet to the point of curvature of a curve concave southwesterly and having a radius of 2,914.93 feet; thence run southerly along the arc of said curve, through a central angle of 02°24'00" a distance of 122.10 feet to a point on the curve; thence S 76°01'42"W a distance of 115.00 feet to a point on the arc of a curve concave southwesterly having a radius of 2,799.93 feet; thence from a tangent bearing of N 13°58'19"W, run northerly along the arc of said curve, through a central angle of 02°24'00" a distance of 117.28 feet to the point of tangency; thence N 16°22'19"W 153.10 feet to the point of curvature of a curve concave southwesterly and having a radius of 1,367.69 feet; thence run northerly, along the arc of said curve, through a central angle of 07°52'23" a distance of 187.93 feet; thence N 62°00'00"W 56.33 feet to a point on the arc of a curve concave northerly having a radius of 1,505.39 feet; thence from a tangent bearing of S 81°58'38"W run westerly along the arc of said curve, through a central angle of 10°59'55" a distance of 288.98 feet to a point on the arc of a curve concave northerly, and having a radius of 2,054.87 feet; thence from a tangent bearing of N 81°40'28"W, run northwesterly along the arc of said curve, through a central angle of 14°10'04", a distance of 508.11 feet to the point of tangency; thence N 67°30'24"W 265.26 feet to the point of curvature of a curve concave southerly, and having a radius of 2,242.83 feet; thence run

northwesterly along the arc of said curve, through a central angle of 20°32'47", a distance of 804.28 feet to a point on the curve; thence N 86°37'49"W 89.44 feet; thence S 89°39'59"W 1,204.20 feet to the northwest corner of Lot 3, Jassamine Glen, as recorded in Plat Book 20, Page 59, Public records of Orange County, Florida; thence S 00°08'24" E along the west line of said Lot 3 a distance of 4.00 feet to a point on the arc of a curve concave southerly, and having a radius of 2,242.83 feet; thence from a tangent bearing of S 89°39'59"W, run westerly along the arc of said curve, through a central angle of 05°58'26", a distance of 233.85 feet to the point of reverse curvature of a curve concave northerly, and having a radius of 2,340.83 feet; thence run westerly along the arc of said curve, through a central angle of 05°51'32", a distance of 239.40 feet to the point of tangency; thence S 89°33'05"W 2,207.81 feet; thence S 89°22'25"W 322.49 feet to the point of curvature of a curve concave northerly and having a radius of 2,340.83 feet; thence run westerly along the arc of said curve, through a central angle of 04°28'26", a distance of 182.78 feet to the point of reverse curvature of a curve concave southerly and having a radius of 2,253.83 feet; thence run westerly along the arc of said curve, through a central angle of 04°28'26", a distance of 175.99 feet; thence S 89°22'25"W 581.35 feet; thence S 38°15'39"W a distance of 32.12 feet to a point on the easterly R/W line of Orange Blossom Trail(U.S. 441); thence departing said easterly R/W line, run S 85°22'17"W 100.29 feet to a point on the westerly R/W line of said U.S. 441; thence departing said westerly R/W line run N 45°26'24"W 28.19 feet; thence S 89°22'25"W 153.43 feet; thence N 86°48'44"W 180.40 feet; thence N 87°48'15"W 355.43 feet; thence N 00°37'35"W 38.50 feet to the POINT OF BEGINNING.

Legal description of retention pond

Commence at the northwest corner of Lot 3, Jessamine Glen as recorded in Plat Book 20, Page 59, Public Records of Orange County Florida; thence S 00°08'24"E along the west line of said Lot 3, a distance of 4.00 feet to a point on the arc of a curve concave southerly and having a radius of 2,242.83 feet; thence from a tangent bearing of S 89°39'59"W, run westerly along the arc of said curve 233.85 feet to the point of reverse curvature of a curve concave northerly and having a radius of 2,340.83 feet; thence run westerly along the arc of said curve, through a central angle of 00°56'32", a distance of 38.50 feet to the POINT OF BEGINNING; thence S 00°26'55"E 583.61 feet; thence S 89°33'05"W 250.00 feet; thence N 00°26'55"W 575.00 feet; thence N 89°33'05"E 49.38 feet to the point of curvature of a curve concave northerly and having a radius of 2,340.83 feet; thence run westerly along the arc of said curve, through a central angle of 04°55'00", a distance of 200.87 feet to the POINT OF BEGINNING.

A public hearing was held; a court reporter was present and the Chairman asked Deputy Clerk Mary Jo Garrison to read the Notice of Appeal into official record.

The following people presented the results of the study:

1. Ed Williams, Director of Planning & Development, discussed the land use that would be affected by the project.

2. Bill Wythe, Assistant Manager - Highway Construction, presented the historical background on the placement of this project in the program, and staff recommendations for Commission approval.
3. Greg Smith, Greiner, Inc., presented a traffic study for the project.
4. Mark Callahan, Greiner, Inc., responded to origin and destination of the study.

The following people were present and spoke in opposition to the project:

1. Barbara Bozeman, 5299 Jessamine Lane, Orlando
2. Sandra DePorter, 1140 Holden Avenue, Orlando
3. Kevin Shaughnessy, 668 Viscaya Avenue, Orlando
4. Dr. Robert Morris, P.E., Florida, Transportation Planner from Maryland.

Exhibit I was entered into the records by the opposition.

Upon a motion by Commissioner Chapin, seconded by Commissioner Marston, and carried with Commissioners Chapin, Marston, Carter, and Treadway voting AYE, Commissioner Dorman voting NO, by voice vote, the Commission voted to defer any decision on the widening of Holden Avenue for five years.

PUBLIC HEARING

Ordinance Amending GMP; Policy 2.51, 1.4, 1.1.5, and Future Land Use

Notice was given that the Orange County Commission would hold a public hearing to consider an ordinance amending various Growth Management Policy Ordinances as follows:

AN ORDINANCE AMENDING THE ORANGE COUNTY GROWTH MANAGEMENT POLICY, OTHERWISE KNOWN AS ORANGE COUNTY ORDINANCE NO. 80-5, AS AMENDED BY ORANGE COUNTY ORDINANCE NOS. 81-12, 81-22, 82-15, 82-16, 82-21, 82-23, 82-24, 82-25, 82-27, 82-28, 83-43, 83-44, 84-1, 85-23, 86-10, 86-14, 86-19, AND 87-11, 87-33, AND 88-3; AMENDING POLICY 2.5.1 OF THE DEVELOPMENT FRAMEWORK ELEMENT; AMENDING POLICY 1.4 OF THE CONSERVATION ELEMENT; CREATING POLICY 14.4.3 OF THE FUTURE LAND USE ELEMENT; AMENDING POLICY 1.1.5 OF THE SEWER AND WATER ELEMENT; AMENDING THE FUTURE LAND USE POLICY GUIDE MAP; PROVIDING FOR SEVERABILITY; AND PROVIDING AN EFFECTIVE DATE.

A public hearing was held; Planning and Development Director Ed Williams reviewed the proposed amendments to the ordinance and requested that each change be voted upon separately and one motion to adopt the ordinance.

Upon a motion by Commissioner Marston, seconded by Commissioner Dorman, and carried with all commissioners present and voting AYE by voice vote, the Commission approved the change to Policy 1.1.5.

David Marsh, Director of Community Development for the city of Maitland, was present and expressed opposition to Section 14.4.3.

Upon a motion by Commissioner Marston, seconded by Commissioner Carter, and carried with all commissioners present and voting AYE by voice vote, the Commission denied the change to Policy 14.4.3.

1.3 APPENDIX C - 2001: City of Edgewood Community Master Plan

4.6 Gatlin/Holden Intersection Alternatives

Orange Avenue is an important regional roadway. This plan is focused on balancing Orange Avenue's regional responsibility with its role of improving the livability of the City of Edgewood.

During the study process it was clear from the City of Orlando and the City of Edgewood officials, as well as the residents, business owners and property owners in Edgewood, that they support transportation strategies that would allow Orange Avenue to function as a regional roadway without being required to be widened to six lanes. Specific transportation strategies supported include the developing of a regional rail system, developing an access management plan for Orange Avenue, and improving Orange Avenue traffic flow at the Holden and Gatlin intersections without encouraging east-west travel on Holden and Gatlin.

The largest traffic bottleneck in the City of Edgewood occurs around the intersections of Orange Avenue with Gatlin and Holden Avenues. The offset that exists between Gatlin and Holden has resulted in the need for two signals. However, the short distance between these signals and the high traffic volumes along Orange Avenue have resulted in severe congestion during peak hours.

As part of the study, transportation solutions for the Gatlin/Holden intersections were developed and tested; this section summarizes the evaluation of these options from a traffic circulation perspective. Complete technical analysis is available at Edgewood City Hall, titled as Technical Memo 2. Urban design factors and impacts on buildings and property access were also taken into account when selecting the preferred alternative; these considerations will be discussed later.

Four alternatives were explored:

1. *realign Gatlin Avenue to create four-way intersection at existing Holden Avenue;*
2. *realign Holden Avenue to create four-way intersection at existing Gatlin Avenue;*
3. *town square; and*
4. *town quadrant intersections at both Gatlin and Holden Avenues.*



Orange Avenue looking north showing Gatlin and Holden intersections



Aerial view of Orange Avenue at Holden Avenue and Gatlin Avenue looking northeast toward Fort Gatlin Shopping Center

Using the current turning movement counts collected for the intersections of Holden Avenue and Gatlin Avenue along Orange Avenue, a traffic flow operations analysis was performed to establish the operating characteristics for the alternatives being tested. The operational analysis was performed for AM, midday and PM peak periods using TRANSYT7F arterial analysis software.

For each of these alternatives, traffic volumes were obtained by rerouting the traffic based on the various movements allowed at the individual intersections. To obtain the optimum cycle length and individual phase timings, TRANSYT7F software was used under the optimization mode for each alternative.

TRANSYT7F software was used because it can account for the dynamic effects of traffic flow through closely spaced signalized intersections, as is the case with Holden Avenue and Gatlin Avenue. The operating characteristics are measured in terms of Volume to Capacity (V/C) Ratio, Delay and Level of Service (LOS). These measures are summarized for the four alternatives in the Appendix on pages 84 through 91. A general summary table is also included at the end of this section on page 40.

In addition to these measures, queuing conditions at critical movements are also discussed for each alternative. Because of the physical limits of turning lanes at various critical locations, it is important to evaluate vehicular queuing relative to the physical capacity of the turning lane. In other words, even if the model estimates that a certain number of cars will queue in the left turn lane, there might not be enough actual storage room in the lane for all the vehicles.

The descriptions of each alternative along with descriptions of the operating characteristics during the peak periods are briefly discussed on the following pages.



Aerial view of Orange Avenue at Holden Avenue and Gatlin Avenue looking west toward Cypress Grove Park



Existing Orange Avenue configuration at Holden and Gatlin



Existing transportation issues at Orange, Holden, and Gatlin intersections

Alternative 1-Realigned Gatlin Avenue (four-way intersection at existing Holden Avenue)

To eliminate the need for two signalized intersections, this alternative would realign Gatlin Avenue to the north so that it lines up with the existing Orange Avenue/Holden Avenue intersection at the entrance to Fort Gatlin Shopping Center. The existing Orange Avenue/Gatlin Avenue intersection would remain, but would be unsignalized and controlled by a STOP sign along the existing Gatlin Avenue. Additionally, no left turns would be allowed; these turning movements would occur instead at the four-way signal at the intersection of Orange Avenue, Holden Avenue and the realigned Gatlin Avenue.

The turning movement volumes for the three periods analyzed are included as part of the Appendix on page 84.

Traffic Movements

This alternative would result in the following changes to the existing circulation pattern:

- Traffic moving westbound along Gatlin Avenue would use the realigned roadway section to either continue straight onto Holden Avenue or to turn left or right onto Orange Avenue.
- Southbound traffic from Orange Avenue would use the realigned roadway section to turn left onto Gatlin Avenue. This intersection would be served by a traffic signal.
- Traffic moving from Holden Avenue to Gatlin Avenue would no longer have to turn right at Orange Avenue. Instead, the traffic would continue straight onto the realigned Gatlin Avenue.



Proposed configuration with the realigned Gatlin Avenue

Alternative 1-Realigned Gatlin Avenue Evaluation

Overall, the intersection would operate at Levels of Service D, C and E during the AM, midday and PM peak hours respectively. For the PM peak period, which currently experiences the greatest congestion, this alternative provides a slight improvement over existing conditions. However, this alternative would still result in unacceptable operating conditions for several movements. Two of the three movements along eastbound Holden Avenue exhibit a Level of Service E or F during all of the peak hours. Additionally, both the northbound and southbound left-turn movements exhibit a Level of Service F during the PM peak hour. For all three periods, several movements exhibit a queuing problem by exceeding the available storage capacity. This situation causes potential safety conflicts with the adjacent lanes. These results are analyzed in greater detail in the Appendix on page 85.



Transportation issues associated with realigning Gatlin Avenue

Alternative 2-Realigned Holden Avenue (four-way intersection at existing Gatlin Avenue)

This alternative is similar to Alternative 1, except that Holden Avenue would be realigned to the south so that it lines up with the existing Orange Avenue/Gatlin Avenue intersection. The existing Orange Avenue/Holden Avenue intersection would remain, but would be unsignalized and controlled by a STOP sign along the existing Holden Avenue. Additionally, no left turns would be allowed; these turning movements would occur instead at the four-way signal at the intersection of Orange Avenue, Gatlin Avenue and the realigned Holden Avenue.

The turning movement volumes for the three periods analyzed are included as part of the Appendix on page 86.

Traffic Movements

This alternative would result in the following changes to the existing circulation pattern:

- Traffic moving eastbound along Holden Avenue would use the realigned roadway section to either continue straight onto Gatlin Avenue or to turn left or right onto Orange Avenue.
- Northbound traffic from Orange Avenue would use the realigned roadway section to turn left onto Holden Avenue. This intersection would be served by a traffic signal.
- Traffic moving from Gatlin Avenue to Holden Avenue would no longer have to turn right at Orange Avenue. Instead, the traffic would continue straight onto the realigned Holden Avenue.



Proposed configuration with the realigned Holden Avenue

Alternative 2-Realigned Holden Avenue Evaluation

Overall, the intersection would operate at Levels of Service D, C and E during the AM, midday and PM peak hours respectively. For the PM peak period, which currently experiences the greatest congestion, this alternative provides a slight improvement over existing conditions. However, this alternative would still result in unacceptable operating conditions for several movements. Two of the three movements along westbound Gatlin Avenue exhibit a Level of Service E or F during all of the peak hours. Additionally, both the northbound and southbound left turn movements exhibit a Level of Service F during the PM peak hour. For all three periods, several movements exhibit a queuing problem by exceeding the available storage capacity. This situation causes potential safety conflicts with the adjacent lanes. These results are analyzed in greater detail in the Appendix on page 87.



Transportation issues associated with realigning Holden Avenue

Alternative 3-Town Square

This alternative creates a town square between the intersections of Gatlin and Holden Avenues along Orange Avenue. Gatlin and Holden Avenues would remain in their current locations, but additional street segments would be added to create a block on either side of Orange Avenue. Traffic would circulate around the square in a counterclockwise direction, with Orange Avenue remaining as a two-way road.

Under this alternative, traffic signals would exist at both the Orange/Holden and Orange/Gatlin intersections; however, left turns would not be allowed from Orange Avenue. Instead, these movements would occur by redirecting traffic right, around the square, to cross Orange Avenue.

The turning movement volumes for the three periods analyzed are included as part of the Appendix on page 88.

Traffic Movements

This alternative would result in the following changes to the existing circulation pattern:

- Traffic moving eastbound along Holden Avenue would turn right upon reaching the square and travel around the southwest portion to reach the signal at Orange Avenue. From this signal, vehicles would either continue straight onto Gatlin Avenue or turn left or right onto Orange Avenue.
- Similarly, traffic moving westbound along Gatlin Avenue would turn right upon reaching the square and travel around the northeast portion to reach the signal at Orange Avenue. From this signal, vehicles would either continue straight onto Holden Avenue or turn left or right onto Orange Avenue.
- To turn east onto Gatlin Avenue from southbound Orange Avenue, traffic would turn right at Holden Avenue and continue around the west side of the square. At the next signal, this traffic would continue straight onto Gatlin Avenue.
- To turn west onto Holden Avenue from northbound Orange Avenue, traffic would turn right at Gatlin Avenue and continue around the east side of the square. At the next signal, this traffic would continue straight onto Holden Avenue.

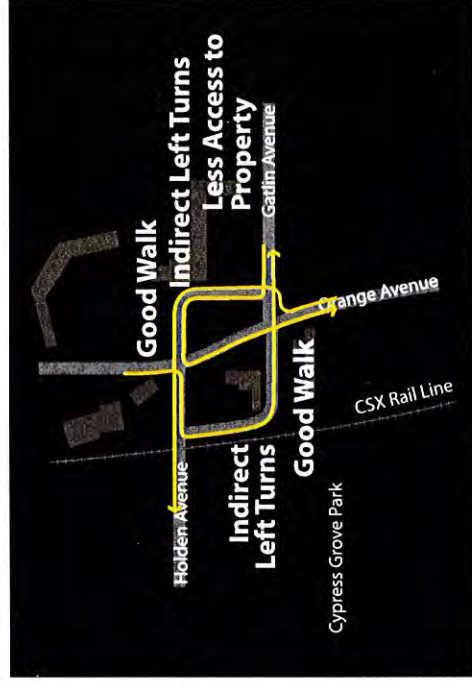


Proposed configuration with the Town Square concept

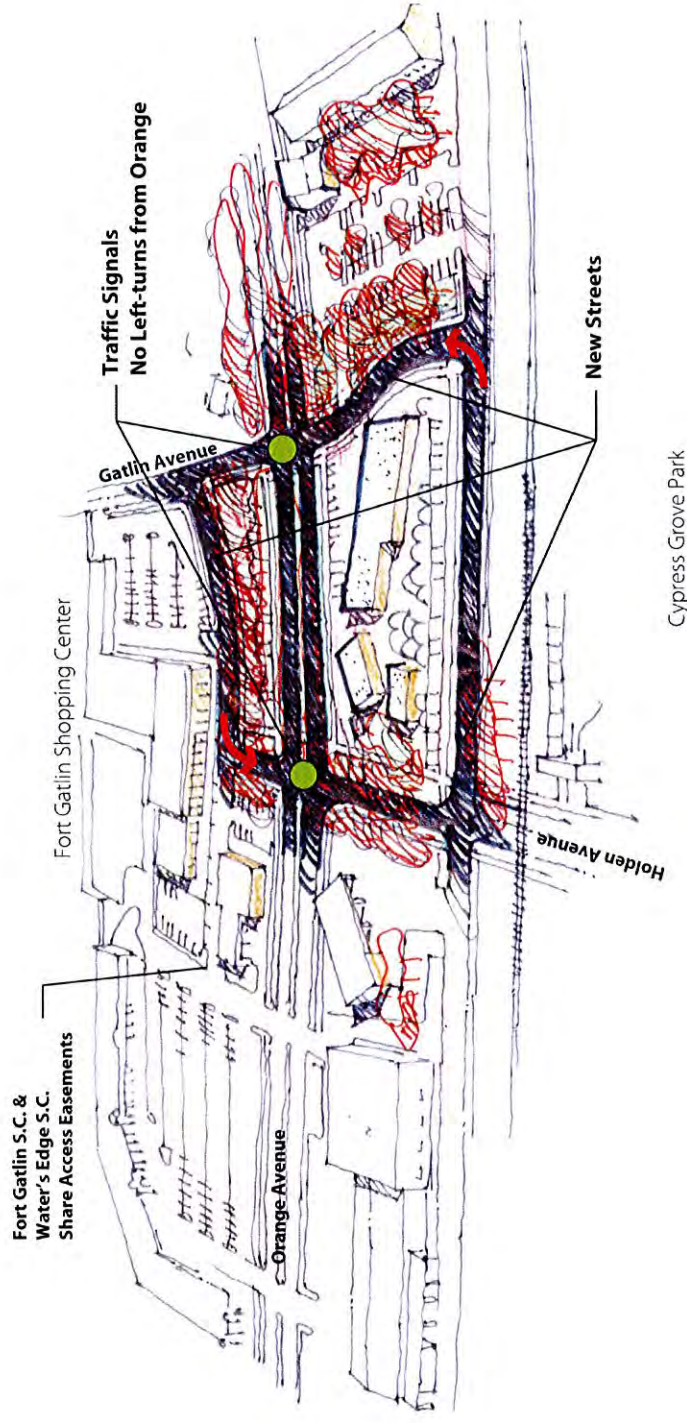
Alternative 3-Town Square Evaluation

Overall, both signalized intersections operate at Level of Service (LOS) B during each of the peak hours. When compared to the existing conditions, this alternative provides a substantial improvement to the overall system. Unlike Alternatives 1 and 2, this alternative would not result in unacceptable operating conditions for any movements. However, two movements under this alternative exhibit a queuing problem during the PM peak hour by exceeding the available storage capacity. This situation causes potential safety conflicts with the adjacent lanes. These results are analyzed in greater detail in the Appendix on page 89.

Under this alternative, there exists the potential for weaving conflicts along the Town Square as vehicles are both merging and changing lanes. The weaving problem occurs where the square intersects Gatlin Avenue, with a similar problem where the square intersects Holden Avenue. As traffic from Gatlin Avenue enters the square from the right (outside), there will also be traffic continuing around the square from the left (inside) lane. However, some of the Gatlin Avenue traffic will need to enter the left lane in order to turn left at Orange Ave. Additionally, some of the traffic continuing around the square will need to move to the outside in order to turn right at Orange Avenue. Based on the traffic volumes, traffic along Gatlin and Holden Avenues should be required to yield before entering the Town Square.



Transportation issues associated with the Town Square Concept



Alternative 4-Town Quadrants

This alternative is similar to the Town Square alternative in that it removes left turn movements from Orange Avenue. Instead, this traffic will move along Orange Avenue and around two quadrants established northeast of the Orange/Holden intersection and southwest of the Orange/Gatlin intersection. Unlike the one-way Town Square, the newly created quadrants will consist of two-way streets.

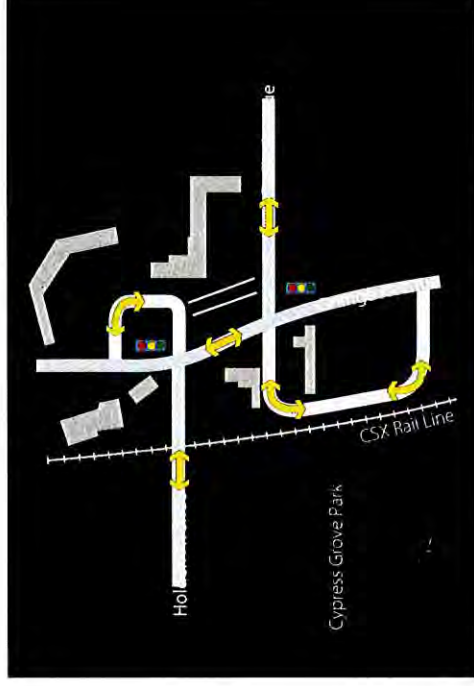
Gatlin and Holden Avenues would remain in their existing locations, and signals would remain at both intersections.

The turning movement volumes for the three periods analyzed are included as part of the Appendix on page 90.

Traffic Movements

This alternative would result in the following changes to the existing circulation pattern:

- To turn west on Holden Avenue from northbound Orange Avenue, traffic would go through the Orange/Holden signal and turn right at the newly created street. From there, traffic would go around the block and continue straight onto Holden Avenue.
- To turn east on Gatlin Avenue from southbound Orange Avenue, traffic would go through the Orange/Gatlin signal and turn right at the newly created street. From there, traffic would go around the block and continue straight onto Gatlin Avenue.

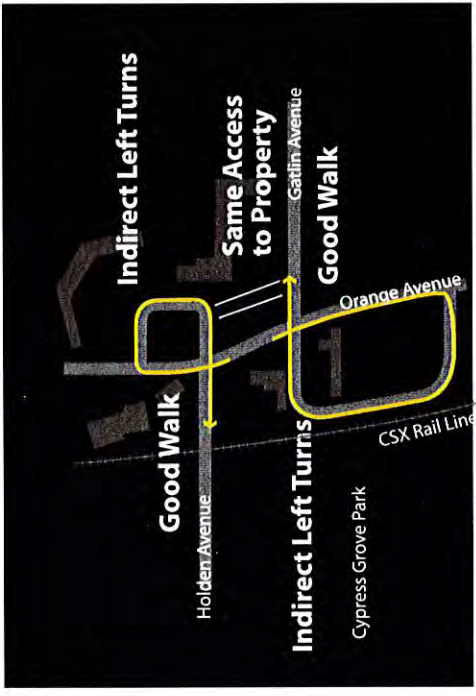


Proposed configuration with the Town Quadrants concept

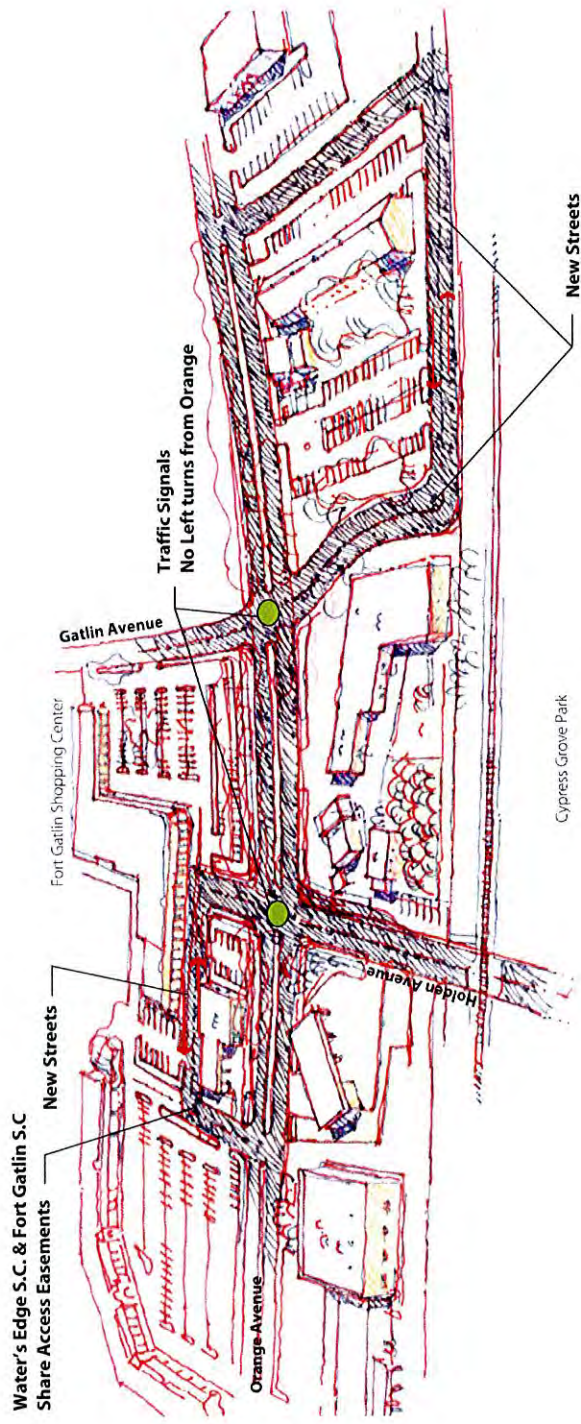
Alternative 4-Town Quadrants Evaluation

For the PM peak period, the intersection of Holden Avenue and Orange Avenue operates at Level of Service (LOS) C, while the intersection of Gatlin Avenue and Orange Avenue operates at Level of Service A. These results are described in greater detail in the Appendix on page 91.

When compared to the existing conditions, this alternative provides a substantial improvement to the overall system. Unlike Alternatives 1 and 2, this alternative would not result in unacceptable operating conditions for any movements. Also, this alternative does not result in any potential weaving conflicts.



Transportation issues with Town Quadrants concept



Transportation Analysis

Summary










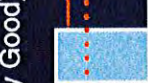
From a traffic standpoint, Alternatives 3 and 4 are best in improving flow along Orange Avenue and reducing congestion in this area--they result in the lowest intersection delay and the best levels of service.

These two alternatives are also best for improving pedestrian circulation in the area for several reasons. By removing left turn movements from Orange Avenue, they allow the introduction of a center median (to replace the left turn lanes) which can serve as a refuge island.

These alternatives also allow shorter signal cycles, resulting in a shorter wait for pedestrians crossing the street.

Although the Town Square alternative results in the best overall traffic improvement, the Town Quadrants alternative has an advantage in that no potential weaving conflicts are created. The quadrant alternative has an added advantage of discouraging east-west movements from Gatlin Avenue to Holden Avenue and vice versa. This is desirable because it helps maintain these roads as local streets and not regional thoroughfares.

Summary Table

	Existing	Alternative 1 Realigned Gatlin Ave.	Alternative 2 Realigned Holden Ave.	Alternative 3 Town Square	Alternative 4 Town Quadrants
Intersection					
PM Peak Level of Service (LOS)	(Very Poor)	(Poor)	(Poor)	(Very Good)	(Very Good)
Orange Avenue Capacity					
Holden / Gatlin Movement	(Poor)	(Fair)	(Fair)	(Very Good)	(Very Good)
Pedestrians	Fair	Very Good	Very Good	Fair	Fair
Safety	Very Poor	Poor	Poor	Very Good	Very Good
	Very Poor	Good	Good	Fair	Very Good
Gateway, Town Center	Poor	Very Poor	Very Good	Very Good	Very Good
New Frontage	Poor	Good	Good	Very Good	Very Good
Property Access	Poor	Fair	Very Good	Fair	Good
West East	Good	Good	Fair	Poor	Fair

1.4 APPENDIX D - 2009: Qualitative Assessment for SR 527 (Orange Avenue) at Gatlin and Holden Avenue

**QUALITATIVE ASSESSMENT
For
SR 527 (Orange Avenue) at Gatlin Avenue and
Holden Avenue**

**Study #1
Work Order #52**

**ORANGE COUNTY
SECTION 75040
MP (10.699-10.772)**

Prepared for:

The Florida Department of Transportation

Districtwide Continuing Service Contract for Traffic Operations
Financial Project No. 237988-1-32-07
Contract No. C-8L46

Prepared by:

**GMB ENGINEERS & PLANNERS, INC.
Orlando, FL**

July 2009


Professional Engineer Dante A. Gabriel
P.E. #37271
July 28, 2009

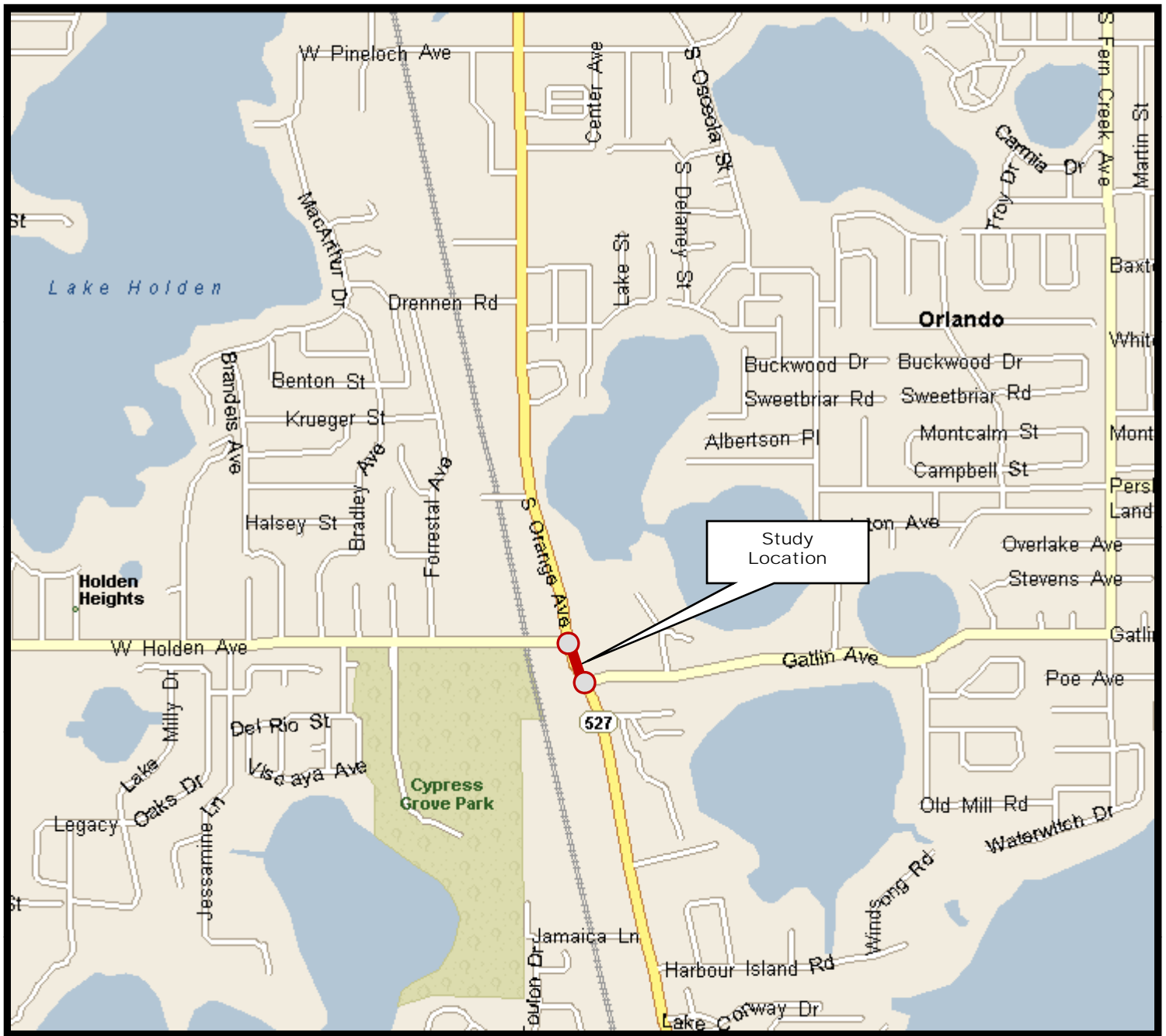


Figure 1

GMB Engineers & Planners, Inc.

Location Map
 SR 527 (Orange Avenue) at Gatlin Avenue and Holden Avenue
 Orange County
 Section 75040
 MP 10.699 - 10.772

QUALITATIVE ASSESSMENT

A qualitative assessment based on field observations of the traffic flow conditions occurring on SR 527 (Orange Avenue) and its intersections with Gatlin Avenue and Holden Avenue were performed by a registered professional engineer during the a.m. and p.m. peak hours. The purpose of the qualitative assessment was to evaluate prevailing operating conditions and traffic flow patterns, and identify areas where improvements would be potentially beneficial for safety and efficiency reasons. Specifically, this study explores potential minor geometric improvements along SR 527 between Gatlin Avenue and Holden Avenue for safety and efficiency reasons. The existing geometry is illustrated in the condition diagram and the following observations were noted:

1. SR 527 is oriented in a north-south alignment. SR 527 is a four-lane divided urban arterial with a 12-ft. continuous center turn lane extending along the study section. The surrounding land uses consist of urban infill developments with strip commercial and office uses. Holden Avenue and Gatlin Avenue are spaced approximately 350-ft. apart measured from stop bar to stop bar with Holden Avenue forming the northern intersection. Adjacent traffic signals are located at Drennen Drive approximately 3,100 ft. north of Holden Avenue and at E. Mary Jess Road approximately 5,100 ft. south of Gatlin Avenue. The nearest signalized intersection on Holden Avenue is at US 17/92 (Orange Blossom Trail) approximately 7,000 ft. to the west. There are no signalized intersections on Gatlin Avenue in the vicinity of the study intersection. SR 527 features marked bicycle lanes in the northbound and southbound directions.
2. Lynx operates bus service on SR 527. There is a northbound bus stop located just north of Holden Avenue and a southbound bus stop south of Gatlin Avenue. The bus stop at the northeast quadrant of Holden Avenue also features a shelter.
3. The quality of the road surface and pavement markings is in average condition. The pedestrian signal assembly serving the SR 527 crosswalk located at the northwest corner is not functioning. The Don't Walk display is not working.
4. According to crash records obtained by the Department from the City of Edgewood, there were thirty nine crashes reported at the intersection during the latest 12-month period covering January 1, 2008 to December 31, 2008. The crashes consisted of eleven rear-end crashes, ten angle crashes, five side swipe crashes, nine left-turn crashes, two right-turn crashes, one vehicle ran off road, and one vehicle backed into a trailing vehicle. Total property damage was estimated to \$143,040 and three of the crashes led to five injuries. Of the thirty nine crashes, fifteen crashes were cited for careless driving, seven for failing to yield right-of-way, eight for following too closely, one for improper backing, three for improper turn, two for disregarding traffic signal, one for exceeding safe speed limit, one for improper lane change and one crash for no improper driving. Out of thirty nine crashes, four crashes occurred on wet pavement conditions while five crashes occurred at night.

Of the thirty nine crashes, twenty two crashes occurred at or near the Holden Avenue intersection, fifteen crashes occurred at or near Gatlin Avenue, and two crashes involved vehicles exiting one of the driveways located on the west side of SR 527 between the two intersections. Three of the crashes at Gatlin Avenue can be attributed to the continuous green lane as the westbound vehicles from Gatlin Avenue tried to merge into or cross the outside southbound lane. One of the angle crashes at Gatlin Avenue involved a westbound vehicle trying to enter the restaurant on the east side and got hit by a southbound vehicle on the continuous green lane.

SR 527 at Holden Avenue

5. Vehicles were observed moving at or below the posted limit of 40 mph on SR 527 during the peak hours. Vehicles were observed arriving in platoons on both the northbound and southbound approaches. The side streets were observed to experience random arrivals during the peak hours.
6. This intersection forms a four-legged intersection, with Holden Avenue approaching from the west and the Fort Gatlin shopping center driveway approaching from the east. Holden Avenue is a two-lane rural design collector type roadway. The intersection features two through lanes and one left-turn lane serving the northbound and southbound approaches. The northbound approach features a supplemental right-turn lane into the retail plaza. Both the eastbound and westbound approaches feature two lanes striped for one left-turn and one through/right-turn operation. Gatlin Plaza is strip retail establishment with driveway connections to the Holden Avenue intersection and to Gatlin Avenue east of SR 527.
7. The intersection is controlled with a traffic signal with overhead displays supported by concrete strain poles oriented in a diagonal span. The traffic signal operates under modified SOP 10 with protected/permissive left-turn operation on the northbound, southbound and eastbound approaches while the westbound approach operates under permissive left-turn operation. There are sidewalks on both sides of SR 527 and on the south side of Holden Avenue. Special emphasis crosswalks are provided across the north, east and west legs of the intersection.
8. Eight-hour turning movement counts were collected at the intersections encompassing the 7:00 a.m. – 9:00 a.m., 11:00 a.m. – 1:00 p.m. and 3:00 p.m. – 7:00 p.m. period during a regular weekday. The counts revealed a directional flow pattern with the northbound direction exhibiting higher traffic flows during the a.m. peak hour which reverses to a southbound directional flow during the p.m. peak hour. Traffic flows on the eastbound approach of Holden Avenue range between 368 and 600 vph with the maximum flows occurring during the p.m. count period. The westbound flow was observed ranging between 14 and 120 vph. Traffic counts were also collected for the four driveways located to the west side of Orange Avenue between Holden Avenue and Gatlin Avenue. The driveways generated 23 vehicles entering and six vehicles exiting to and from the northbound lanes of SR 527; and 100 vehicles entering and 109 vehicles exiting to and from the southbound lanes during the 8-hour count period. The driveways serving Le Coq Au Vin were counted as part of Gatlin Avenue intersection.

Turning movement and pedestrian counts are provided in the appendix section of this report. A total of 39 pedestrians crossed SR 527 at the Holden Avenue intersection during the 8-hour count period. Turning movement patterns at the Holden Avenue intersection consist of the following:

SR 527 at Holden Avenue				
	NB	SB	EB	WB
Left-Turn/U-turns	16.3%	1.9%	34.5%	19.9%
Through	82.1%	86.7%	6.6%	43.0%
Right Turn	1.6%	11.4%	58.9%	37.1%

9. During the a.m. peak hour period, the northbound traffic flow was observed to experience sustained vehicle arrivals. Northbound vehicles were able to clear Gatlin Avenue and Holden Avenue with minimal delay. Northbound left-turning vehicles at Holden Avenue are able to proceed during the permissive phase due to the presence of gaps in the southbound traffic stream during the a.m. peak hour and as such, they are able to proceed with their turns with minimal delay and queuing. During the p.m. peak hour period, the northbound left-turn vehicles at the Holden Avenue intersection were observed forming a standing queue. Because the southbound directional flow during the p.m. creates few gaps in the traffic stream, the northbound left-turning vehicles are unable to proceed during the permissive phase resulting in phase failures. Due to the northbound left-turn phase failures, the northbound left-turn queues were observed extending into the inside through lane and upstream into the Gatlin Avenue intersection resulting in a reduction in the throughput capacity of northbound SR 527. This condition persisted through the p.m. peak hour period. Driver sightline from the northbound left-turn lane is restricted when southbound left-turn vehicles occupy the southbound left-turn lane.
10. The southbound traffic flow was observed to be high during the p.m. peak hour. Occasional phase failures were observed on the southbound approach at Holden Avenue. Once past Holden Avenue, the majority of the southbound vehicles were observed favoring the outside lane to use the continuous green lane. Last minute lane switches were observed occurring occasionally over the double white line separator especially when the signal turns red facing the southbound approach at Gatlin Avenue. Because the continuous green lane serves sustained flows, lane switching from the inside through lane does not occur frequently. The southbound left-turn vehicles at the Holden Avenue intersection were observed to be minimal and were able to clear the intersection with minimal delay. Driver sightline from the southbound left-turn lane at Holden Avenue was observed to be adequate.
11. The westbound vehicles exiting from the Fort Gatlin shopping center were observed to be minimal. A maximum queue length of three vehicles was observed on the westbound left-turn lane and two vehicles on the through lane. Driver sightline from the driveway was observed to be adequate.
12. The eastbound traffic flow at Holden Avenue was observed to be moderately high during the a.m. peak hour. Eastbound right-turn vehicles were able to perform right turn on red maneuvers due to the presence of gaps in the southbound traffic stream and adequate driver sightline. A maximum queue

length of nine vehicles was observed on the through/right-turn lane and six vehicles on the left-turn lane. During the p.m. peak hour, the eastbound movement experienced extended queuing. Queues were observed extending approximately 2,500 feet upstream of the intersection, way beyond the CSX railroad crossing located approximately 300 ft. from the intersection. Phase failures were observed facing the eastbound movement.

SR 527 at Gatlin Avenue

13. This intersection is t-shaped, with Gatlin Avenue approaching from the east. Gatlin Avenue is a two-lane local collector facility. The intersection features two through lanes in the northbound and southbound approaches. The southbound approach features one supplemental left-turn lane and the northbound approach features one supplemental right-turn lane. The southbound left-turn lane at Gatlin Avenue and the northbound left turn lane at Holden Avenue are developed from the center turn lane forming a back-to-back left-turn configuration with left-turn storage capacities of 100-ft. each with a 50-ft. taper. The intersection features a continuous green lane in the southbound direction. Appropriate pavement markings consisting of double 8-inch solid white lines with 18-inch chevron markings delineate the continuous green lane condition. The westbound approach features two lanes striped for left-turn and a right-turn lane. The Le Coq Au Vin restaurant is located west of the intersection with an access driveway located south of and offset approximately 70 ft. to Gatlin Avenue.
14. The intersection is controlled by a traffic signal with overhead displays supported by concrete strain poles oriented in a diagonal span. The traffic signal operates under SOP 12 with protected/permissive southbound left-turn operation. Sidewalks are present on both sides of SR 527 and Gatlin Avenue. Special emphasis crosswalk is provided crossing the east leg.
15. Eight-hour turning movement counts collected at the intersection revealed a directional flow pattern with the northbound direction exhibiting higher traffic flows during the a.m. peak hour which reverses to a southbound directional flow during the p.m. peak hour. The westbound volume at Gatlin Avenue was observed to be higher during the a.m. peak hour and the traffic flows were observed to range between 256 and 513 vph. A total of 39 vehicles (11 westbound thru + 27 southbound right turns + one northbound left-turn) entered the Le Coq Au Vin driveway while six vehicles exited (all right turns) during the 8-hour count period.

Turning movement and pedestrian counts are provided in the appendix section of this report. A total of 14 pedestrians crossed SR 527 at Gatlin Avenue intersection during the 8-hour count period. Turning movement patterns at the Gatlin Avenue intersection consist of the following:

SR 527 at Gatlin Avenue				
	NB	SB	EB	WB
Left-Turn/U-turns	0.0%	9.3%	0.0%	64.7%
Through	84.0%	90.5%	0.0%	0.4%
Right Turn	16.0%	0.2%	100.0%	34.9%

16. As stated previously in the report, the queues on the inside SR 527 northbound lane at Holden Avenue extend into Gatlin Avenue, northbound vehicles were observed favoring the outside through lane inducing occasional lane switching from the middle of the queue. Extended queue lengths reaching up to 900 ft. from the Gatlin Avenue intersection were observed occurring on the northbound lanes during the p.m. peak hour. In addition, the northbound right-turning volume sustained consistent arrivals. These vehicles are able to proceed through their turns during the green interval; however, when the signal turns red, queues formed behind the stop bar preventing the right turning vehicles to enter the right-turn lane into Gatlin Avenue.
17. The southbound left-turn volume at Gatlin Avenue was observed to be moderately high during the a.m. peak hour and light to moderate during the p.m. peak hour. Occasional queue spillage into the southbound through lane was observed during both the a.m. and p.m. peak hours which contributed to the lane changing maneuvers to the outside lane on the southbound approach. Drivers waiting at the southbound left-turn lane have a clear view of approaching vehicles from the opposite northbound direction.
18. The westbound volume at Gatlin Avenue was observed to be high during the a.m. peak hour. Vehicles were able to clear the intersection in a single cycle; however, occasional phase failures were observed during brief periods during the peak hour. The westbound left-turn vehicles were observed turning into the inside receiving lane on southbound SR 527 as drivers are familiar with the presence of the continuous green lane; occasionally, vehicles were observed switching to the outside lane downstream of the continuous green lane separator markings with no appreciable safety impediments. During the p.m. peak hour, westbound right-turning vehicles wanting to make a northbound left-turn into Holden Avenue were observed experiencing the same queuing problems occurring in the inside northbound through lane.
19. Vehicular traffic exiting the Le Coq Au Vin restaurant across Gatlin Avenue was observed to be minimal during the peak hours. Two eastbound right-turning vehicles were observed during the p.m. peak hour.
20. An operational analysis was conducted for the a.m. and p.m. peak periods using the SYNCHRO traffic analysis software to compare traffic flow characteristics between three operating scenarios:
 - a. Existing Scenario (No Build condition): Existing geometry and collected peak hour turning movement volumes were used in the analysis. Although the mainline left turning movements at Holden Avenue and Gatlin Avenue operate in a protected-permissive operation, we simulated the p.m. condition with protected only lefts because left-turn

maneuvers during the permissive phase cannot be accomplished due to dense opposing traffic flows.

- b. Build Condition #1: Construct separate northbound and southbound left-turn lanes on SR 527 extending between Holden Avenue and Gatlin Avenue; eliminate the southbound continuous green lane; introduce one northbound left-turn lane at Gatlin Avenue to facilitate turns into the Le Coq Au Vin restaurant. The geometric improvements are achieved by converting the northbound right-turn lane at both the intersections to function as the outside through lane and shifting the existing alignment of the northbound through lanes to the east. In addition, the southbound lanes between Holden Avenue and Gatlin Avenue were shifted slightly to the west by eliminating the Chevron markings provided for the continuous green lane. The through lanes were maintained at a minimum width of 11 ft. Finally, the mainline left-turn operation at both intersections was changed to a protected only operation.
- c. Build Condition #2: This condition is similar to Build Condition #1 with the northbound left-turn lane at Gatlin Avenue converted as a third through lane forming an extension of the northbound left-turn lane into Holden Avenue, i.e., prohibited left-turns into the restaurant. To simulate this third through lane condition, a 0.8 lane utilization factor was applied to the northbound lanes yielding a reasonable capacity equivalent to 2.3 through lanes (as opposed to 3 through lanes without the lane utilization factor).

To quantify the results, similar operational cycle length was maintained for the three scenarios. Performance indicators generated by SYNCHRO for the three scenarios are summarized below:

Table 1 AM Peak Hour Conditions											
		Intersection		Eastbound		Westbound		Northbound		Southbound	
		L O S	DELAY	LOS	DELAY	LOS	DELAY	LOS	DELAY	LOS	DELAY
			Seconds		Seconds		Seconds		Seconds		Seconds
SR 527 at Holden Avenue	No Build Condition	B	17.0	C	28.3	D	43.4	B	11.9	C	20.6
	Build Condition #1	B	17.7	C	29.9	D	44.9	A	7.9	C	29.2
	Build Condition #2	B	17.5	C	29.9	D	44.9	A	7.4	C	29.3
SR 527 at Gatlin Avenue	No Build Condition	C	26.3	NA		D	47.8	C	22.7	B	13.8
	Build Condition #1	D	37.2	C	24.0	E	59.6	D	46.0	B	12.7
	Build Condition #2	C	27.9	C	21.8	D	50.3	C	31.5	A	11.4

Table 2 PM Peak Hour Conditions											
		Intersection		Eastbound		Westbound		Northbound		Southbound	
		LOS	DELAY	LOS	DELAY	LOS	DELAY	LOS	DELAY	LOS	DELAY
			Seconds		Seconds		Seconds		Seconds		Seconds
SR 527 at Holden Avenue	No Build Condition	D	39.0	E	72.1	E	78.1	C	22.3	D	38.6
	Build Condition #1	C	32.6	E	58.3	F	96.5	B	12.5	D	35.9
	Build Condition #2	C	32.7	E	58.3	F	96.5	B	12.8	D	35.9
SR 527 at Gatlin Avenue	No Build Condition	C	21.1	NA		D	44.0	B	17.9	B	18.2
	Build Condition #1	C	23.2	C	30.3	E	57.1	C	30.8	B	10.2
	Build Condition #2	C	21.3	C	27.0	D	50.7	C	27.9	A	10.0

The analysis indicates that the two build alternatives for Holden Avenue yield lower intersection delay during the p.m. peak hour while maintaining relatively the same delay levels during the a.m. peak hour when compared with the No Build condition. Build Condition #1 exhibits similar MOE's when compared with Build Condition #2 due to a similar geometric configuration and operating characteristics. At Gatlin Avenue, overall intersection delay increases due to the elimination of the northbound right-turn lane. The elimination of southbound continuous green lane has a minor effect on the MOEs. At Gatlin Avenue, the Build Condition #1 achieves very similar operating characteristics as Build Condition #2.

During the p.m. peak hour at Holden Avenue, the existing northbound left-turn movement experiences a 374 ft. queue length (at 95% probability) which validates the observations where queues block the inside through lane and spill into Gatlin Avenue. The predicted queue lengths (at 95% probability) in the northbound left-turn lane at Holden Avenue is 249 ft. in Build Condition #1 and 288 ft. in Build Condition #2, both of which could be accommodated within the northbound left-turn storage length.

21. Based on observations of traffic flow patterns and demand, volume counts, crash records, and field qualitative assessment at the intersection, this report recommends the following:
 - a. Consider implementing the Build Condition #1 geometric improvements illustrated in the conceptual improvement diagram shown in Figure 4. These improvements involve introducing side-by-side northbound and southbound left-turn lanes extending on SR 527 between Holden Avenue and Gatlin Avenue; and eliminating the southbound continuous green lane on SR 527 approaching Gatlin Avenue. Bringing the continuous green lane under signal control would mitigate four angle crashes without adversely affecting the operational efficiency of the intersection. The side-by-side left-turn lanes would effectively increase the storage length capacity of the northbound left-turn operation at Holden Avenue and the southbound left-turn operation at Gatlin Avenue and would mitigate the queue spillbacks that reduce the through lane capacity of SR 527. It also provides a left-turn storage lane to accommodate the northbound left turn movement into the Le Coq Au Vin restaurant on Gatlin Avenue.

Implement these improvements within existing right-of-way. Coordinate the impacts and potential relocation of utilities along the east side of Holden Avenue affected by these improvements.

- b. Rebuild the traffic signal at the Holden Avenue intersection as a result of the impact to the existing joint use pole located at the northeast corner. Modify the traffic signal at Gatlin Avenue to effect the elimination of the southbound continuous green lane and permissive left-turn operation.
- c. We also recommend that the existing protected/permissive left-turn operation for both the northbound and southbound approaches at Holden Avenue should be changed to a protected only operation. The protected left-turn only operation would mitigate the occurrence of four northbound left-turn crashes in 2008. The intersection operates in a *de facto* protected left-turn only operation during the peak hours since acceptable gaps are few and far in between.
- d. The pedestrian signal assembly serving the SR 527 crosswalk located at the northwest corner should be replaced.
- e. Retime the traffic signals at the Holden Avenue and Gatlin Avenue intersections due to these geometric and operational improvements.

SR 527 at Holden Avenue
East Approach



Exhibit 1: Looking west into the intersection along Shopping Center



Exhibit 2: Looking east from the intersection along Shopping Center

SR 527 at Holden Avenue
West Approach



Exhibit 3: Looking east into the intersection along Holden Avenue



Exhibit 4: Looking west from the intersection along Holden Avenue

SR 527 at Holden Avenue
North Approach



Exhibit 5: Looking south into the intersection along SR 527



Exhibit 6: Looking north from the intersection along SR 527

SR 527 at Holden Avenue
South Approach



Exhibit 7: Looking north into the intersection along the SR 527



Exhibit 8: Looking south from the intersection along the SR 527

SR 527 at Gatlin Avenue
East Approach



Exhibit 9: Looking west into the intersection along Gatlin Avenue



Exhibit 10: Looking east from the intersection along Gatlin Avenue

SR 527 at Gatlin Avenue
North Approach



Exhibit 11: Looking south into the intersection along SR 527



Exhibit 12: Looking north from the intersection along SR 527

SR 527 at Gatlin Avenue

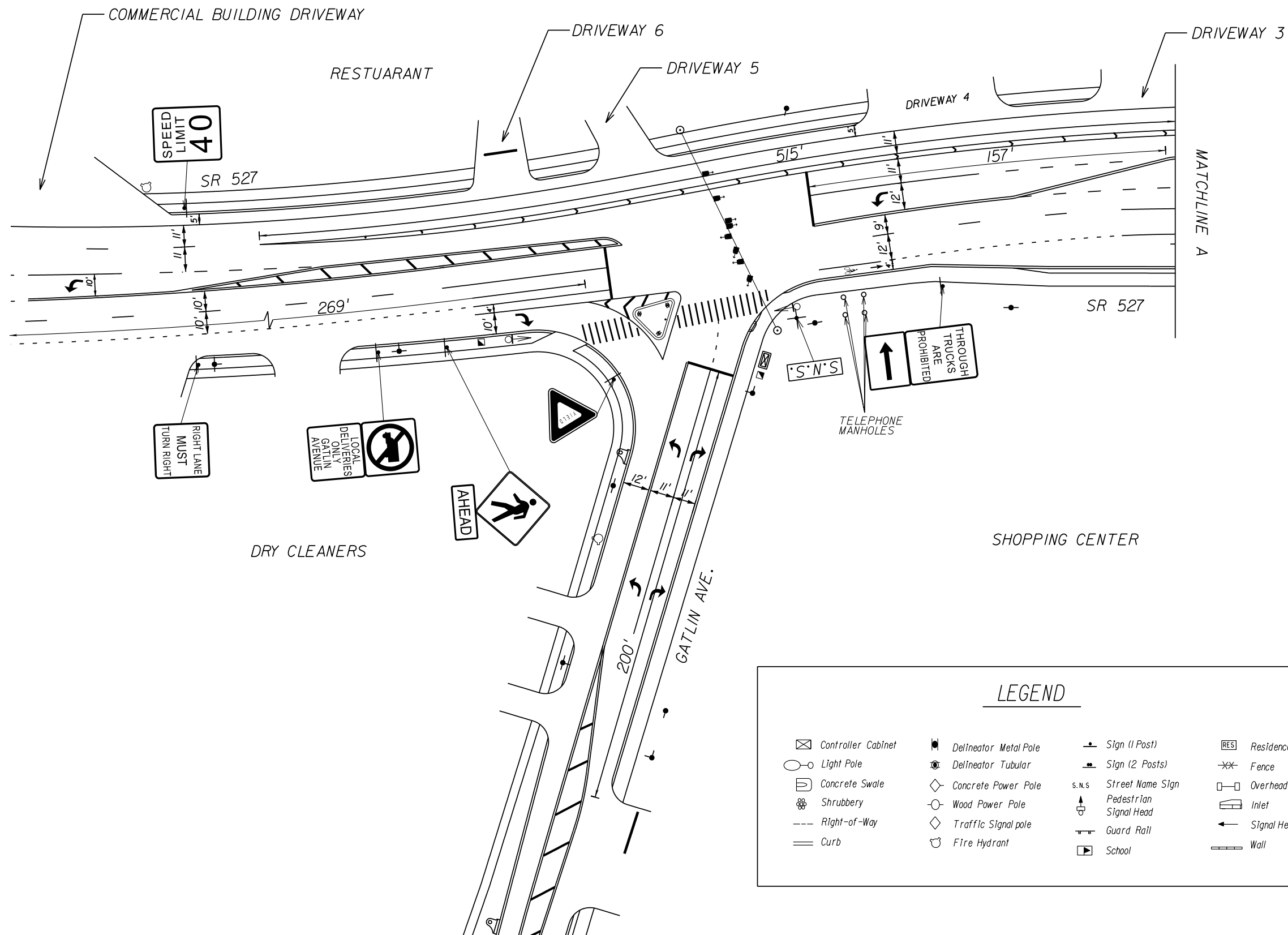
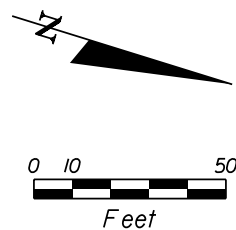
South Approach



Exhibit 13: Looking north into the intersection along the SR 527



Exhibit 14: Looking south from the intersection along the SR 527



LEGEND			
	Controller Cabinet		Sign (1 Post)
	Light Pole		Sign (2 Posts)
	Concrete Swale		S.N.S. Street Name Sign
	Shrubbery		Pedestrian Signal Head
	Right-of-Way		Guard Rail
	Curb		School
	Delineator Metal Pole		Residence
	Delineator Tubular		Fence
	Concrete Power Pole		Overhead Sign
	Wood Power Pole		Inlet
	Traffic Signal pole		Signal Head
	Fire Hydrant		Wall

REVISIONS				 <div>GMB Engineers & Planners, Inc. 2602 E. Livingston St Orlando, FL 32803 Phone: 407-898-5424 Fax: 407-898-5425</div>	STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION			CONDITION DIAGRAM SR 527 AT GATLIN AVE	FIGURE NO.
DATE	DESCRIPTION	DATE	DESCRIPTION		ROAD NO.	COUNTY	FINANCIAL PROJECT ID		2A
					SR 527	ORANGE	06-154.52		

LEGEND

Controller Cabinet

Light Pole

Concrete Swale

Shrubbery

Right-of-Way

Curb

Delineator Metal Pole

Delineator Tubular

Concrete Power Pole

Wood Power Pole

Traffic Signal pole

Fire Hydrant

Sign (1 Post)

Sign (2 Posts)

Street Name Sign

Pedestrian Signal Head

Guard Rail

School

Residence

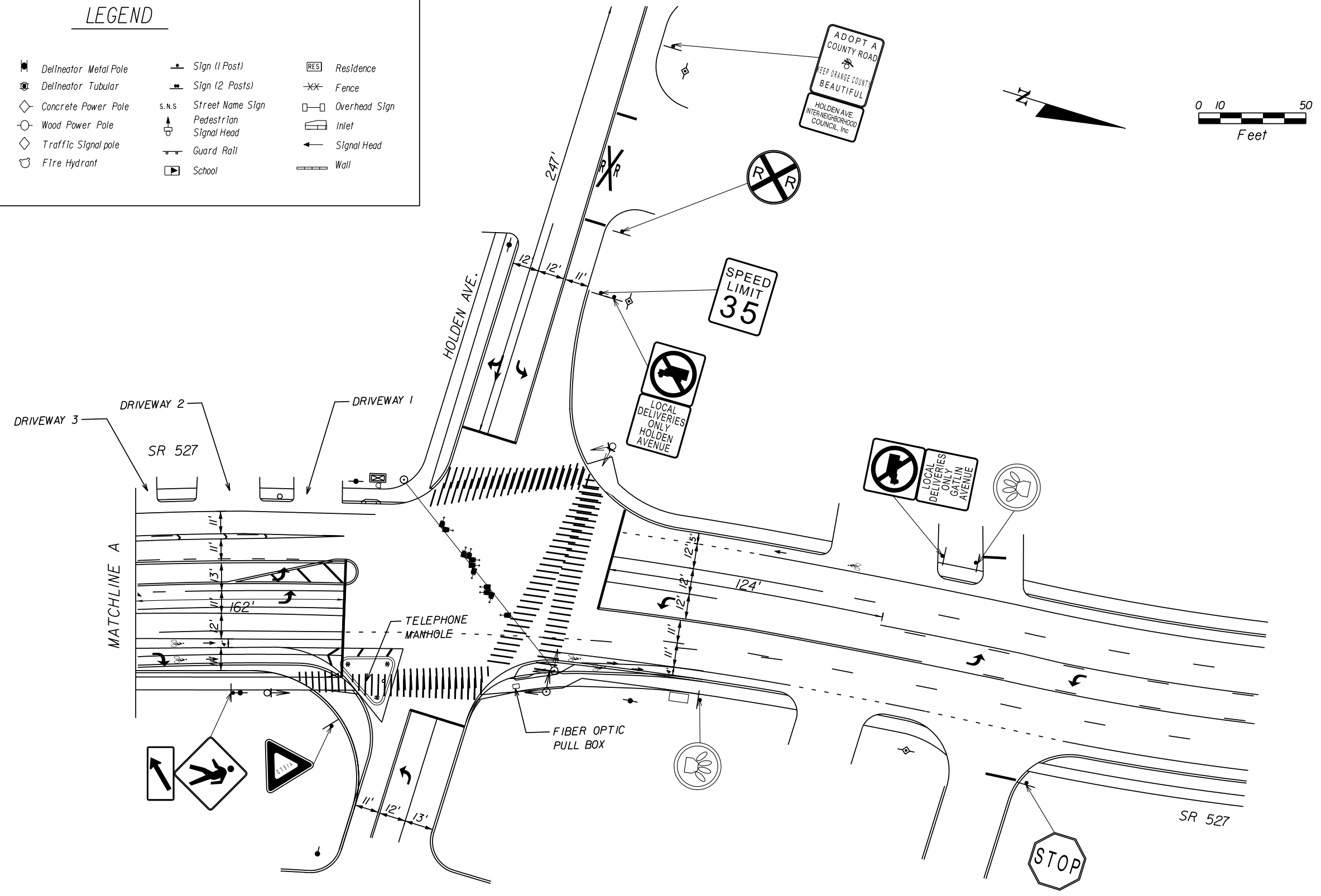
Fence

Overhead Sign

Inlet

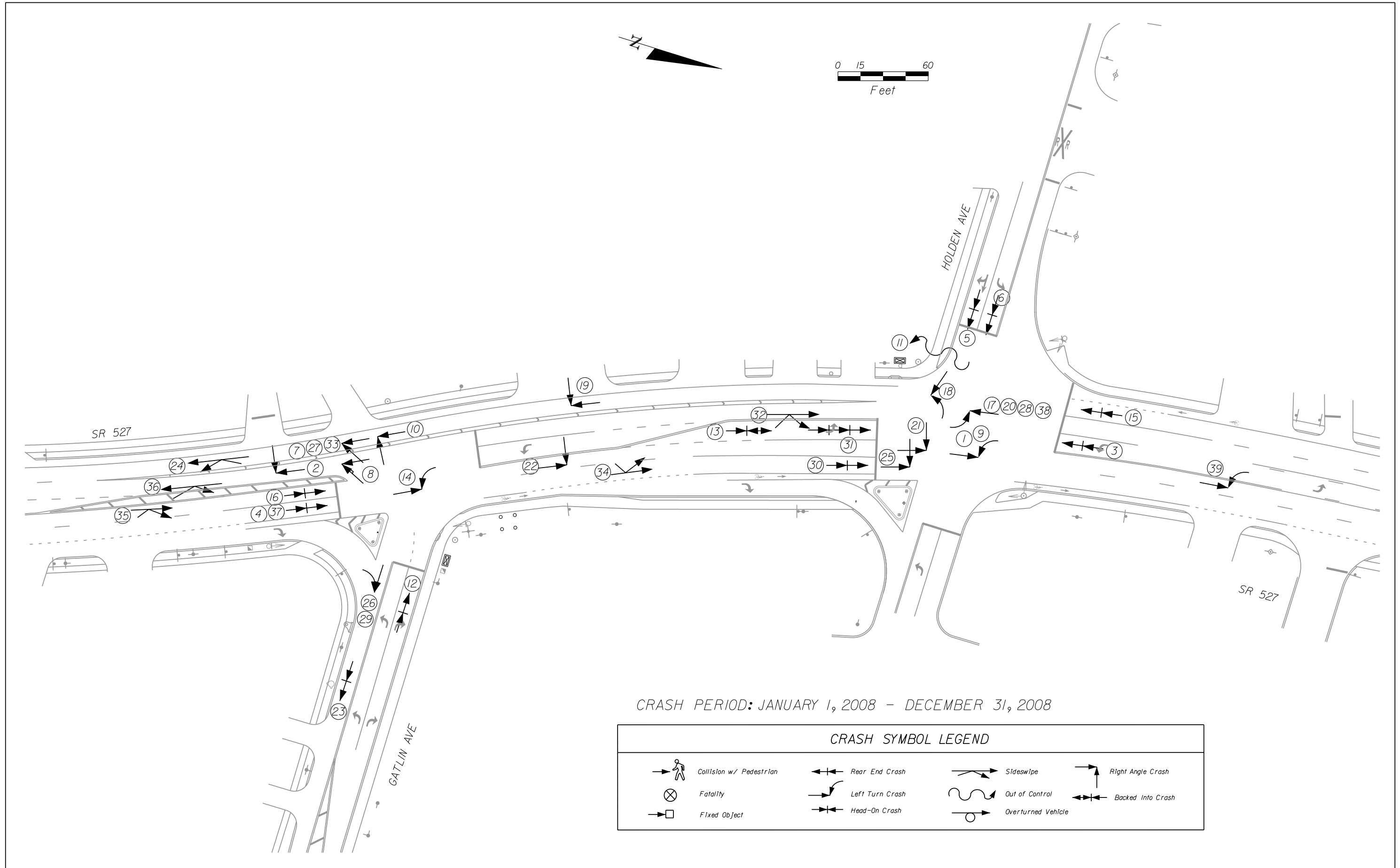
Signal Head

Wall



REVISIONS				<div><div><div>ENGINEERS & PLANNERS, INC.</div><div>GMB</div></div><div>GMB Engineers & Planners, Inc. 2602 E. Livingston St Orlando, FL 32803 Phone: 407-898-5424 Fax: 407-898-5425</div></div>	STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION			CONDITION DIAGRAM SR 527 AT HOLDEN AVE	FIGURE NO. 2B
DATE	DESCRIPTION	DATE	DESCRIPTION		ROAD NO.	COUNTY	FINANCIAL PROJECT ID		
					SR 527	ORANGE	06-154.52		

TABLE 3											
COLLISION SUMMARY											
MAJOR ROUTE: SR 527								COUNTY: ORANGE			
INTERSECTING ROUTE: GATLIN AVENUE AND HOLDEN AVE								ENGINEER: SRK			
STUDY PERIOD: 1-Jan-08 TO 31-Dec-08											
CRASH REF. NO.	DATE	DAY	TIME	CRASH TYPE	FATAL	INJURY	PROPERTY DAMAGE	DAY/ NIGHT	WET/ DRY	CONTRIBUTING CAUSE	
1	01/28/08	Monday	3:30 PM	LEFT TURN	0	0	\$3,000	DAY	DRY	FTYRW	
2	01/29/08	Tuesday	10:12 PM	ANGLE	0	0	\$2,000	NIGHT	DRY	FTYRW	
3	01/30/08	Wednesday	3:45 PM	REAR END	0	0	\$2,500	DAY	DRY	CARELESS DRIVING	
4	02/16/08	Saturday	11:21 PM	REAR END	0	0	\$0	NIGHT	N/A	CARELESS DRIVING	
5	03/14/08	Friday	8:52 AM	REAR END	0	1	\$1,000	DAY	DRY	CARELESS DRIVING	
6	03/20/08	Thursday	9:40 AM	REAR END	0	0	\$1,600	DAY	WET	FOLLOWED TOO CLOSELY	
7	04/14/08	Monday	10:24 AM	ANGLE	0	0	\$500	DAY	DRY	CARELESS DRIVING	
8	04/17/08	Thursday	10:00 AM	ANGLE	0	0	\$1,500	DAY	DRY	DISREGARDED TRAFFIC SIGNAL	
9	04/17/08	Thursday	6:37 PM	LEFT TURN	0	0	\$20,000	DAY	DRY	FTYRW	
10	04/18/08	Friday	1:36 PM	ANGLE	0	0	\$2,250	DAY	DRY	FTYRW	
11	04/19/08	Saturday	4:21 AM	RAN OFF ROAD	0	2	\$20,000	NIGHT	DRY	EXCEEDED SAFE SPEED LIMIT	
12	04/29/08	Tuesday	11:50 AM	REAR END	0	0	\$1,800	DAY	DRY	FOLLOWED TOO CLOSELY	
13	05/06/08	Tuesday	5:45 PM	BACKED INTO	0	0	\$1,000	DAY	DRY	IMPROPER BACKING	
14	05/15/08	Thursday	8:30 PM	LEFT TURN	0	0	\$40	NIGHT	DRY	CARELESS DRIVING	
15	05/20/08	Tuesday	10:07 AM	REAR END	0	0	\$3,300	DAY	WET	FOLLOWED TOO CLOSELY	
16	05/24/08	Saturday	4:00 PM	REAR END	0	0	\$2,000	DAY	DRY	FOLLOWED TOO CLOSELY	
17	05/29/08	Thursday	11:33 AM	LEFT TURN	0	0	\$3,500	DAY	DRY	FOLLOWED TOO CLOSELY	
18	06/18/08	Wednesday	10:47 AM	LEFT TURN	0	0	\$1,000	DAY	DRY	IMPROPER TURN	
19	06/20/08	Friday	12:34 PM	ANGLE	0	2	\$4,000	DAY	DRY	CARELESS DRIVING	
20	06/24/08	Tuesday	10:35 AM	LEFT TURN	0	0	\$2,800	DAY	DRY	CARELESS DRIVING	
21	07/09/08	Wednesday	3:25 PM	ANGLE	0	0	\$8,500	DAY	DRY	NO IMPROPER DRIVING	
22	07/10/08	Thursday	3:19 PM	ANGLE	0	0	\$5,500	DAY	DRY	CARELESS DRIVING	
23	07/18/08	Friday	3:16 PM	REAR END	0	0	\$4,000	DAY	WET	FOLLOWED TOO CLOSELY	
24	07/21/08	Monday	12:38 PM	SIDE SWIPE	0	0	\$500	DAY	DRY	CARELESS DRIVING	
25	07/21/08	Monday	6:25 PM	ANGLE	0	0	\$3,500	DAY	DRY	DISREGARDED TRAFFIC SIGNAL	
26	07/29/08	Tuesday	7:38 PM	RIGHT TURN	0	0	\$1,000	DAY	DRY	FTYRW	
27	08/22/08	Friday	12:55 PM	ANGLE	0	0	\$1,500	DAY	WET	CARELESS DRIVING	
28	08/25/08	Monday	1:55 PM	LEFT TURN	0	0	\$2,000	DAY	DRY	CARELESS DRIVING	
29	08/26/08	Tuesday	9:30 AM	RIGHT TURN	0	0	\$3,000	DAY	DRY	FTYRW	
30	09/06/08	Saturday	7:54 PM	REAR END	0	0	\$3,000	NIGHT	DRY	FOLLOWED TOO CLOSELY	
31	09/10/08	Wednesday	11:45 AM	REAR END	0	0	\$10,500	DAY	DRY	CARELESS DRIVING	
32	09/12/08	Friday	5:00 PM	SIDE SWIPE	0	0	\$5,000	DAY	DRY	CARELESS DRIVING	
33	09/14/08	Sunday	6:22 PM	ANGLE	0	0	\$6,000	DAY	DRY	FTYRW	
34	10/02/08	Thursday	6:01 PM	SIDE SWIPE	0	0	\$1,600	DAY	DRY	IMPROPER LANE CHANGE	
35	11/04/08	Tuesday	5:40 PM	SIDE SWIPE	0	0	\$3,400	DAY	DRY	CARELESS DRIVING	
36	11/04/08	Tuesday	5:56 PM	SIDE SWIPE	0	0	\$3,500	DAY	DRY	CARELESS DRIVING	
37	11/13/08	Thursday	11:00 AM	REAR END	0	0	\$1,600	DAY	DRY	FOLLOWED TOO CLOSELY	
38	12/19/08	Friday	2:00 PM	LEFT TURN	0	0	\$1,850	DAY	DRY	IMPROPER TURN	
39	12/26/08	Friday	2:43 PM	LEFT TURN	0	0	\$3,300	DAY	DRY	IMPROPER TURN	
Total					0	3	\$143,040				
				CRASH TYPE							
TOTAL CRASHES	FATAL	INJURY	PROP. DAMAGE	PED / BIKE	ANGLE	LEFT TURN	RIGHT TURN	REAR END	SIDESWIPE	RAN OFF ROAD	OTHER
39	0	5	38	0	10	9	2	11	5	1	1
	0%	13%	97%	0%	26%	23%	5%	28%	13%	3%	3%
					CONTRIBUTING CAUSE						
ONE VEHICLE	TIME OF DAY		ROAD CONDITION		NO IMPROPER DRIVING	CARELESS DRIVING	FTYRW	IMPROPER LANE CHANGE	DUI	DISREGARDED TRAFFIC SIGNAL	OTHER
	DAY	NIGHT	WET	DRY							
0	34	5	4	35	1	15	7	1	0	2	13
0%	87%	13%	10%	90%	3%	38%	18%	3%	0%	5%	33%



CRASH PERIOD: JANUARY 1, 2008 - DECEMBER 31, 2008

CRASH SYMBOL LEGEND			
	Collision w/ Pedestrian		Rear End Crash
	Fatality		Left Turn Crash
	Fixed Object		Head-On Crash
			Slideswipe
			Out of Control
			Overturned Vehicle
			Right Angle Crash
			Backed Into Crash

REVISIONS			
DATE	DESCRIPTION	DATE	DESCRIPTION



GMB Engineers & Planners, Inc.
2602 E. Livingston St
Orlando, FL 32803
Phone: 407-898-5424 Fax: 407-898-5425

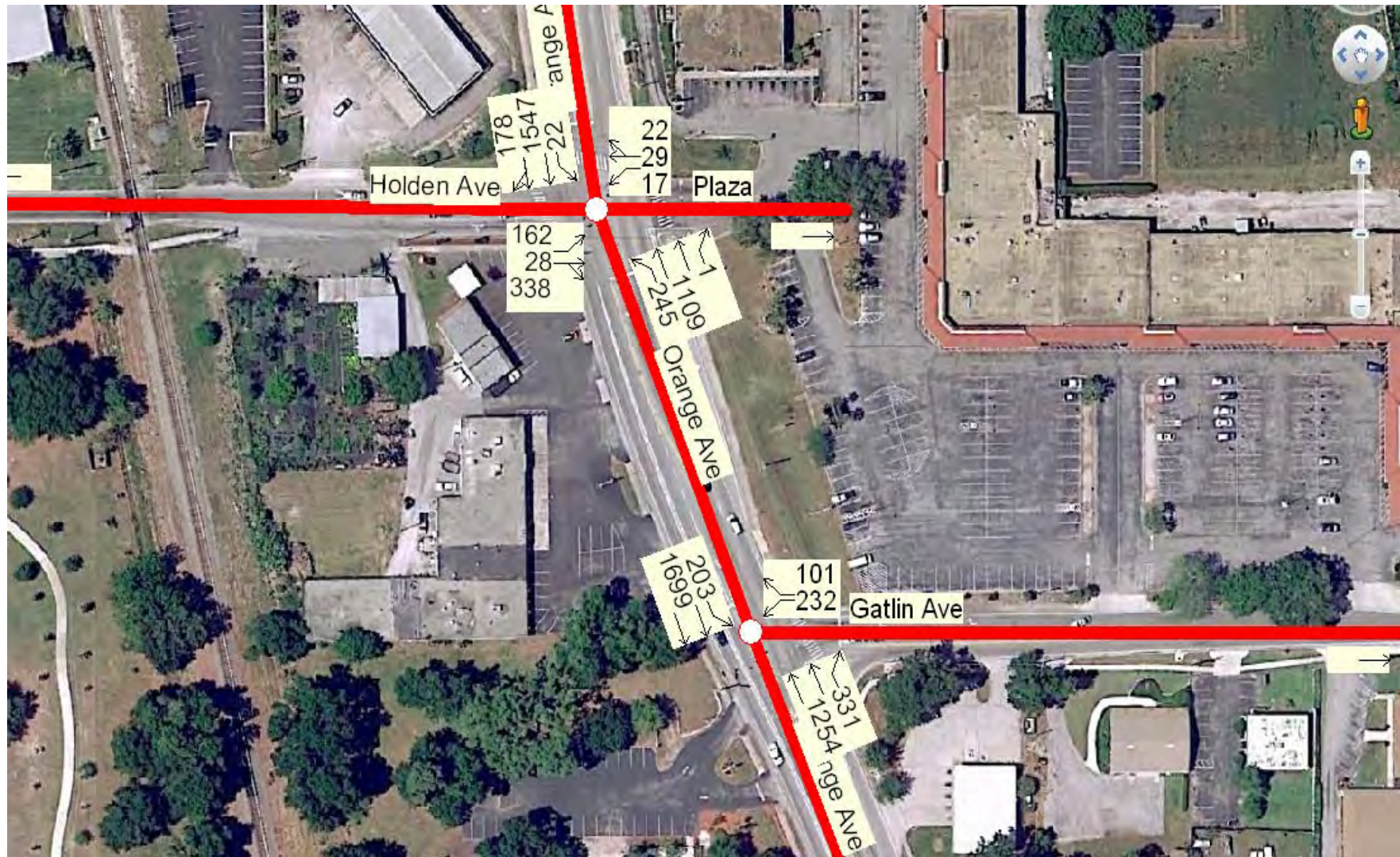
STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION		
ROAD NO.	COUNTY	FINANCIAL PROJECT ID
SR 527	ORANGE	06-154.52

CRASH DIAGRAM
SR 527 AT GATLIN AVE
AND HOLDEN AVE

FIGURE NO.
3

1.5 APPENDIX E - 2010: Orange County SYNCHRO Analysis

Orange Avenue @ Holden Ave/Gatlin Ave **2010 PM Peak Hour - Turning Movement Counts – Existing Conditions**



2010 PM Peak Hour - Turning Movement Counts – Proposed Conditions



Table 1
Scenario Analysis for Orange Avenue @ Holden Ave/Gatlin Ave
2010 PM Peak Hour Analysis

Orange Ave @ Holden Ave											
Movement	Existing Geometry	EXISTING CONDITIONS				Movement	Proposed Geometry	PROPOSED CONDITIONS			
		Volume (vph)	Delay/Veh (sec)	LOS	95% Queue (ft)			Volume (vph)	Delay/Veh (sec)	LOS	95% Queue (ft)
EBL	Exclusive	162	68.3	E	254	EBL	Shared Thru-Left	162	52.3	D	256
EBT	Shared	28	68.6	E	500	EBT		28	47.2	D	
EBR	Thru-Right	338	83.8	F		EBR	Exclusive	338	31.0	C	258
WBL	Exclusive	17	48.5	D	48	WBL ¹	NA	NA	NA	NA	NA
WBT	Shared	29	51.1	D	74	WBT ¹	NA	NA	NA	NA	NA
WBR	Thru-Right	22	29.8	C		WBR	Exclusive	22	0.4	A	0
NBL ³	Exclusive	245	95.0	F	129	NBL ²	Exclusive	274	27.6	C	260
NBT	Exclusive	1109	22.0	C	378	NBT	Shared Thru-Right	1109	3.2	A	51
NBR	Exclusive	1	0.0	A	0	NBR		1	4.3	A	
SBL	Exclusive	22	931.8	F	140	SBL	Exclusive	22	51.6	D	31
SBT	Shared	1547	1041.1	F	533	SBT	Shared Thru-Right	1547	27.5	C	592
SBR	Thru-Right	178	1014.9	F		SBR		178	22.6	C	
Overall		3698	439.8	F		Overall		3681	21.2	C	
Orange Ave @ Gatlin Ave											
Movement	Existing Geometry	EXISTING CONDITIONS				Movement	Proposed Geometry	PROPOSED CONDITIONS			
		Volume (vph)	Delay/Veh (sec)	LOS	95% Queue (ft)			Volume (vph)	Delay/Veh (sec)	LOS	95% Queue (ft)
WBL	Exclusive	232	315.8	F	163	WBL ²	Exclusive	249	56.2	E	274
WBR	Exclusive	101	238.5	F	529	WBLR ²	Shared LR ⁴	130	41.5	D	
NBT	Exclusive	1254	176.8	F	564	NBT	Exclusive	1254	30.4	C	476
NBR	Exclusive	331	128.4	F	344	NBR	Exclusive	331	14.3	B	235
SBL ³	Exclusive	203	109.5	F	134	SBL	Exclusive	203	41.4	D	237
SBT	Exclusive	1699	31.5	C	363	SBT ⁴	Exclusive	1699	5.1	A	165
Overall		3820	123.4	F		Overall		3866	20.6	C	

NOTES:

- 1 WBL & WBT movements @ Holden Ave are eliminated due to the conversion of the Plaza Entrance into a Right-out access.
 - 2 NBL Volume @ Holden Ave, WBL & WBLR Volume @ Gatlin Ave reflect the rerouted traffic from the Plaza.
 - 3 Shaded & Bold cells represent existing back to back storage length of 100 ft.
 - 4 Southbound continuous thru movement is eliminated for safety purposes and due to the conversion of the WBR Lane at Gatlin Ave to a shared Left-Right Lane.
- * This table should be read in conjunction with the Simtraffic output sheets which reflect the optimized signal timings.

Summary of All Intervals

Start Time	4:45
End Time	6:00
Total Time (min)	75
Time Recorded (min)	60
# of Intervals	2
# of Recorded Intvls	1
Vehs Entered	3497
Vehs Exited	3473
Starting Vehs	130
Ending Vehs	154
Denied Entry Before	50
Denied Entry After	777
Travel Distance (mi)	875
Travel Time (hr)	499.4
Total Delay (hr)	472.1
Total Stops	5979
Fuel Used (gal)	390.5

Interval #0 Information Seeding

Start Time	4:45
End Time	5:00
Total Time (min)	15
Volumes adjusted by Growth Factors.	
No data recorded this interval.	

Interval #1 Information Recording

Start Time	5:00
End Time	6:00
Total Time (min)	60
Volumes adjusted by Growth Factors.	
Vehs Entered	3497
Vehs Exited	3473
Starting Vehs	130
Ending Vehs	154
Denied Entry Before	50
Denied Entry After	777
Travel Distance (mi)	875
Travel Time (hr)	499.4
Total Delay (hr)	472.1
Total Stops	5979
Fuel Used (gal)	390.5

1: Gatlin Ave & Orange Ave Performance by movement

Movement	WBL	WBR	NBT	NBR	SBL	SBT	All
Total Delay (hr)	18.5	6.8	56.1	10.3	4.5	10.7	106.9
Delay / Veh (s)	315.8	238.5	176.8	128.4	109.5	31.5	123.4
Travel Time (hr)	19.3	7.3	59.3	11.2	4.9	13.1	115.1
Avg Speed (mph)	1	2	4	8	2	6	4

2: Holden Ave & Orange Ave Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR	All
Total Delay (hr)	2.8	0.6	7.5	0.2	0.4	0.1	6.7	6.0	4.1	301.6	33.0	363.1
Delay / Veh (s)	68.3	68.6	83.8	48.5	51.1	29.8	95.0	22.0	931.8	1041.1	1014.9	439.8
Travel Time (hr)	3.3	0.7	8.8	0.2	0.4	0.2	7.3	7.7	4.2	304.4	33.4	370.6
Avg Speed (mph)	4	4	3	2	2	3	2	8	3	3	3	4

Total Network Performance

Total Delay (hr)	472.1
Delay / Veh (s)	487.7
Travel Time (hr)	499.4
Avg Speed (mph)	6

Intersection: 1: Gatlin Ave & Orange Ave

Movement	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	L	R	T	T	R	L	T	T
Maximum Queue (ft)	160	474	549	559	295	126	372	354
Average Queue (ft)	158	455	541	544	119	124	306	293
95th Queue (ft)	163	529	564	558	344	134	363	335
Link Distance (ft)		460	532	532			267	267
Upstream Blk Time (%)		45	33	30			26	22
Queuing Penalty (veh)		0	0	0			245	208
Storage Bay Dist (ft)	135				250	100		
Storage Blk Time (%)	83			44	0	46	36	
Queuing Penalty (veh)	84			146	0	393	73	

Intersection: 2: Holden Ave & Orange Ave

Movement	EB	EB	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	L	TR	L	TR	L	T	T	L	T	TR
Maximum Queue (ft)	244	452	54	74	126	373	354	161	541	541
Average Queue (ft)	136	317	16	37	124	327	259	39	523	522
95th Queue (ft)	254	500	48	74	129	378	370	140	530	533
Link Distance (ft)		437		142		267	267		507	507
Upstream Blk Time (%)		12				32	2		66	57
Queuing Penalty (veh)		0				215	16		0	0
Storage Bay Dist (ft)	200		100		100			135		
Storage Blk Time (%)	0	34			59	11	3		69	
Queuing Penalty (veh)	1	55			326	27	0		15	

Network Summary

Network wide Queuing Penalty: 1803

Intersection: 1: Gatlin Ave & Orange Ave

Phase	1	2	3	4	5	6	7	8
Movement(s) Served	SBL NBT	WBL	EBTL	NBL	SBTL	EBL	WBL	
Maximum Green (s)	16.0	67.0	4.0	29.0	14.0	69.0	16.0	17.0
Minimum Green (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Recall	Max C-Max	Min	None	Max	C-Max	Min	None	
Avg. Green (s)	16.0	68.0	4.0	28.0	14.0	70.0	15.0	17.0
g/C Ratio	0.11	0.49	0.03	0.20	0.10	0.50	0.11	0.12
Cycles Skipped (%)	0	0	0	0	0	0	0	0
Cycles @ Minimum (%)	0	0	100	0	0	0	4	0
Cycles Maxed Out (%)	100	100	100	84	100	100	84	100
Cycles with Peds (%)	0	4	0	0	0	0	0	0

Controller Summary

Average Cycle Length (s): 140.0
Number of Complete Cycles : 24

Summary of All Intervals

Start Time	4:45
End Time	6:00
Total Time (min)	75
Time Recorded (min)	60
# of Intervals	2
# of Recorded Intvls	1
Vehs Entered	4213
Vehs Exited	4204
Starting Vehs	80
Ending Vehs	89
Denied Entry Before	1
Denied Entry After	0
Travel Distance (mi)	1883
Travel Time (hr)	100.5
Total Delay (hr)	46.4
Total Stops	3449
Fuel Used (gal)	178.7

Interval #0 Information Seeding

Start Time	4:45
End Time	5:00
Total Time (min)	15
Volumes adjusted by Growth Factors.	
No data recorded this interval.	

Interval #1 Information Recording

Start Time	5:00
End Time	6:00
Total Time (min)	60
Volumes adjusted by Growth Factors.	
Vehs Entered	4213
Vehs Exited	4204
Starting Vehs	80
Ending Vehs	89
Denied Entry Before	1
Denied Entry After	0
Travel Distance (mi)	1883
Travel Time (hr)	100.5
Total Delay (hr)	46.4
Total Stops	3449
Fuel Used (gal)	178.7

1: Gatlin Ave & Orange Ave Performance by movement

Movement	WBL	WBR	NBT	NBR	SBL	SBT	All
Total Delay (hr)	3.7	1.4	10.6	1.3	2.4	2.4	21.8
Delay / Veh (s)	56.2	41.5	30.4	14.3	41.4	5.1	20.6
Travel Time (hr)	4.6	1.9	16.9	3.1	2.9	5.6	34.9
Avg Speed (mph)	4	6	15	25	5	20	14

2: Holden Ave & Orange Ave Performance by movement

Movement	EBL	EBT	EBR	WBR	NBL	NBT	NBR	SBL	SBT	SBR	All
Total Delay (hr)	2.2	0.4	2.9	0.0	2.0	1.0	0.0	0.2	11.5	1.1	21.4
Delay / Veh (s)	52.3	47.2	31.0	0.4	27.6	3.2	4.3	51.6	27.5	22.6	21.2
Travel Time (hr)	3.0	0.6	4.8	0.0	2.8	3.0	0.0	0.4	21.3	2.5	38.4
Avg Speed (mph)	8	8	11	13	7	25	19	12	18	18	16

Total Network Performance

Total Delay (hr)	46.4
Delay / Veh (s)	39.7
Travel Time (hr)	100.5
Avg Speed (mph)	19

Intersection: 1: Gatlin Ave & Orange Ave

Movement	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	L	LR	T	T	R	L	T	T
Maximum Queue (ft)	187	308	507	518	276	283	281	176
Average Queue (ft)	110	176	334	282	55	136	75	77
95th Queue (ft)	185	274	476	427	235	237	165	149
Link Distance (ft)		451	983	983			281	281
Upstream Blk Time (%)						1	0	
Queuing Penalty (veh)						0	0	
Storage Bay Dist (ft)	150				250	335		
Storage Blk Time (%)	1	16		6	0	1	0	
Queuing Penalty (veh)	3	20		21	0	12	0	

Intersection: 2: Holden Ave & Orange Ave

Movement	EB	EB	NB	NB	NB	SB	SB	SB
Directions Served	LT	R	L	T	TR	L	T	TR
Maximum Queue (ft)	358	275	260	50	71	43	621	530
Average Queue (ft)	139	144	163	18	16	9	396	342
95th Queue (ft)	256	258	260	46	51	31	592	529
Link Distance (ft)	755			281	281		1317	1317
Upstream Blk Time (%)								
Queuing Penalty (veh)								
Storage Bay Dist (ft)		250	335			135		
Storage Blk Time (%)	0	2					27	
Queuing Penalty (veh)	1	3					6	

Network Summary

Network wide Queuing Penalty: 66

Intersection: 1: Gatlin Ave & Orange Ave

Phase	1	2	6	8
Movement(s) Served	SBL	NBT	SBTL	WBL
Maximum Green (s)	21.0	53.0	79.0	21.0
Minimum Green (s)	4.0	4.0	4.0	4.0
Recall	Max	C-Max	C-Max	Min
Avg. Green (s)	23.1	53.0	81.1	18.9
g/C Ratio	0.21	0.48	0.74	0.17
Cycles Skipped (%)	0	0	0	0
Cycles @ Minimum (%)	0	0	0	0
Cycles Maxed Out (%)	100	100	100	72
Cycles with Peds (%)	0	3	0	0

Controller Summary

Average Cycle Length (s): 110.0

Number of Complete Cycles : 32

Intersection: 2: Holden Ave & Orange Ave

Phase	2	4	5	6	7
Movement(s) Served	NBTL	EBT	NBL	SBTL	EBL
Maximum Green (s)	83.0	17.0	17.0	61.0	17.0
Minimum Green (s)	4.0	4.0	4.0	4.0	4.0
Recall	C-Max	Min	Max	C-Max	Min
Avg. Green (s)	85.0	15.1	17.0	63.1	15.1
g/C Ratio	0.77	0.14	0.15	0.57	0.14
Cycles Skipped (%)	0	0	0	0	0
Cycles @ Minimum (%)	0	0	0	0	0
Cycles Maxed Out (%)	100	50	100	100	50
Cycles with Peds (%)	0	0	0	0	0

Controller Summary

Average Cycle Length (s): 110.0

Number of Complete Cycles : 32

1.6 APPENDIX F - 2015: Florida Department of Transportation
Conceptual Design Study SR 527 (Orange Avenue) from
Gatlin Avenue to Holden Avenue [FPID 433648-1-32-01]

CONCEPTUAL DESIGN STUDY

**SR 527 (Orange Avenue) from Gatlin Avenue
to Holden Avenue [FPID 433648-1-32-01]**
City of Edgewood, Orange County, Florida



Prepared by:

**Comprehensive Engineering Services, Inc.
201 South Orange Avenue, Suite 1300
Orlando, Florida 32801**

March 2015

3. LOCAL AGENCY PROPOSED IMPROVEMENTS:

In an effort to address operational and safety concerns, the City of Edgewood and Orange County developed a series of improvements to be considered to improve safety and operations. These measures are summarized below and are graphically represented in Appendix I, which was prepared by Orange County and the City of Edgewood as part of this earlier evaluation.

Local Agency Proposed Modifications:

- Widen SR 527 and reconstruct curb line and sidewalk along the northbound approach to Gatlin Avenue to shift the northbound through lanes east and allow for reconstruction of the existing northbound right turn lane onto Gatlin Avenue.
- Reassign the westbound approach lanes along Gatlin Avenue from exclusive left and right turn lanes to an exclusive left turn lane and a shared left / right turn lane.
- Remove southbound continuous green lane at the Gatlin Avenue intersection by signaling the outside through lane coincident with the inside through lane.
- Provide signalized pedestrian crosswalks across SR 527 at the Gatlin Avenue intersection (across the north and south legs of the intersection).
- Widen roadway and reconstruct curb line and sidewalk along the east side of SR 527 between Holden Avenue and Gatlin Avenue to provide side-by-side left turn lanes at these respective intersections. The existing exclusive northbound right turn lane into the Fort Gatlin Shopping Center will also be removed by this modification.
- Reconstruct driveway connection exiting the Fort Gatlin Shopping Center (opposite the Holden Avenue approach) to institute right-turn-only control.
- Reassign the eastbound approach lanes along Holden Avenue from an exclusive left and shared right / through lane to a shared left / through lane and an exclusive right turn lane.

In regard to the signal timings at the intersections, all basic timings (minimum green, extension, yellow and all red intervals) were modified to reflect current FDOT District preferences and to account for the general geometric and signalization modifications under consideration. The existing signal phasing sequences and cycle lengths were retained however the split times were programmed to optimize due to the geometric modifications proposed.

The proposed access modification exiting the Fort Gatlin Shopping Center (opposite Holden Avenue) will impact local traffic conditions and circulation. It was assumed as part of the assessments that of those vehicles impacted by these changes, 60% would alternatively utilize the Gatlin Avenue intersection to access SR 527 and 40% would continue to use the exit driveway opposite Holden Avenue (but would be required to make a U-turn on SR 527).

The operational results derived from Synchro Software are summarized in Table 13 on the following page and the detailed results are included as Appendix J.

TABLE 13: Local Agency Design Operational Conditions

Intersection / Movement		Factor	AM Peak Hour	Midday Hour	Afternoon Hour	PM Peak Hour
Holden Avenue Intersection						
Current Programmed Cycle Length:			175"	120"	120"	175"
Overall Intersection Delay (Level of Service):			27.6" (C)	23.2" (C)	21.2" (C)	45.7" (D)
Eastbound Approach	Ave. Delay (LOS)		60" (E)	50" (D)	44" (D)	69" (E)
	v/c Ratio		0.68	0.64	0.60	0.79
	Queue Length*		510'	250'	230'	710'
Westbound Approach	Ave. Delay (LOS)		0" (A)	0" (A)	0" (A)	0" (A)
	v/c Ratio		0.02	0.04	0.03	0.04
	Queue Length*		0'	0'	0'	0'
Northbound Left Turn	Ave. Delay (LOS)		51" (D)	46" (D)	42" (D)	161" (F)
	v/c Ratio		0.72	0.71	0.71	0.95
	Queue Length*		260'+	210'	190'+	510'+
Northbound Through / Right	Ave. Delay (LOS)		8" (A)	7" (A)	7" (A)	6" (A)
	v/c Ratio		0.63	0.49	0.50	0.54
	Queue Length*		200'	140'	130'	80'
Southbound Through / Right	Ave. Delay (LOS)		31" (C)	24" (C)	24" (C)	48" (D)
	v/c Ratio		0.61	0.73	0.72	0.94
	Queue Length*		660'	570'	560'	1000'
Gatlin Avenue Intersection						
Current Programmed Cycle Length:			175"	120"	120"	175"
Overall Intersection Delay (Level of Service):			32.8" (C)	11.4" (B)	16.4" (B)	22.9" (C)
Westbound Approach	Ave. Delay (LOS)		74" (E)	40" (D)	51" (D)	75" (E)
	v/c Ratio		0.90	0.72	0.78	0.83
	Queue Length*		440'	120'	160'	270'
Northbound Through	Ave. Delay (LOS)		32" (C)	13" (B)	19" (B)	24" (C)
	v/c Ratio		0.75	0.60	0.75	0.67
	Queue Length*		840'	320'	430'	730'
Southbound Left Turn	Ave. Delay (LOS)		50" (D)	8" (A)	37" (D)	45" (D)
	v/c Ratio		0.68	0.38	0.66	0.77
	Queue Length*		100'	25'	100'+	180'+
Southbound Through	Ave. Delay (LOS)		15" (B)	4" (A)	5" (A)	9" (A)
	v/c Ratio		0.62	0.50	0.55	0.60
	Queue Length*		290'	100'	110'	280'+

* Synchro-Estimated 95th Percentile Back-of-Queue (Includes Adjustments for Storage Lane)

+ Calculated 95th Percentile Conditions Over-Capacity; Queues May be Longer

4. DESIGN ALTERNATIVE:

Based on the operational analysis results of existing conditions and the local agency proposed improvements, in combination with analysis of the supplemental data collection efforts associated with this study, the following design modifications to the existing conditions were alternatively evaluated and these improvements are depicted in Appendix K. Implementation of these improvements will require further analysis to verify that sufficient right-of-way is available and to ensure that no other unforeseen restrictions on design or operations will emerge.

Alternative Design Proposed Modifications:

- Reassign the westbound approach lanes along Gatlin Avenue from exclusive left and right turn lanes to an exclusive left turn lane and a shared left / right turn lane.
- Remove southbound continuous green lane at the Gatlin Avenue intersection by signaling the outside through lane coincident with the inside through lane.
- Provide a signalized pedestrian crosswalk across the north leg of SR 527 at the Gatlin Avenue intersection.
- Install a signalized northbound left turn lane along SR 527 at the Gatlin Avenue intersection to provide direct access to the Le Coq Au Vin Restaurant from northbound SR 527.
- Widen roadway and reconstruct curb line and sidewalk along the west side of SR 527 between Holden Avenue and Gatlin Avenue to provide side-by-side left turn lanes at these respective intersections. The addition of a striped taper at the beginning of the northbound left turn lane to Holden Avenue is also recommended to prevent drivers and queues from extending into the northbound left turn lane at Gatlin Avenue.
- Install an additional signalized pedestrian crosswalk across SR 527 at the Holden Avenue intersection (across the south leg of the intersection).
- Construct a southbound right turn lane along SR 527 at the Holden Avenue intersection.
- Install four-section left turn signal displays and control along the SR 527 approaches to Holden Avenue and Gatlin Avenue. This will permit programmed termination of the permissive left turn signal phases from SR 527 during special events or for certain periods of the day, as necessary.

In regard to the signal timings at the intersections, all basic timings (minimum green, extension, yellow and all red intervals) were again modified to reflect current FDOT District preferences and to account for the conceptual geometric and signalization modifications under consideration. The final, actual design plans will ultimately serve as the basis for the final timings to be implemented. The existing signal phasing sequences and cycle lengths were retained however the split times were programmed to optimize due to the geometric modifications proposed.

A minimal number of vehicles were assumed to utilize the proposed northbound left turn lane into the Le Coq Au Vin Restaurant for the weekday analysis hours reviewed. Typical weekday operating hours for the restaurant are from 5:30 PM to 10:00 PM.

The operational results derived from Synchro Software are summarized in Table 14 on the following page and the detailed results are included as Appendix L.

TABLE 14: Alternative Design Operational Conditions

Intersection / Movement		Factor	AM Peak Hour	Midday Hour	Afternoon Hour	PM Peak Hour
Holden Avenue Intersection						
Current Programmed Cycle Length:			175"	120"	120"	175"
Overall Intersection Delay (Level of Service):			23.8" (C)	22.4" (C)	18.6" (B)	43.0" (D)
Eastbound Approach	Ave. Delay (LOS)		41" (D)	50" (D)	39" (D)	71" (E)
	v/c Ratio		0.71	0.77	0.74	0.91
	Queue Length*		290'	170'+	160'	520'
Westbound Approach	Ave. Delay (LOS)		69" (E)	43" (D)	45" (D)	74" (E)
	v/c Ratio		0.40	0.46	0.41	0.46
	Queue Length*		40'	30'	60'	130'
Northbound Left Turn	Ave. Delay (LOS)		43" (D)	31" (C)	27" (C)	134" (F)
	v/c Ratio		0.66	0.60	0.60	0.92
	Queue Length*		240'+	140'	120'+	460'+
Northbound Through	Ave. Delay (LOS)		8" (A)	7" (A)	4" (A)	8" (A)
	v/c Ratio		0.65	0.50	0.51	0.57
	Queue Length*		200'	110'	50'	90'
Southbound Left Turn	Ave. Delay (LOS)		13" (B)	9" (A)	8" (A)	14" (B)
	v/c Ratio		0.06	0.10	0.06	0.17
	Queue Length*		25'	25'	25'	25'
Southbound Through	Ave. Delay (LOS)		33" (C)	26" (C)	25" (C)	46" (D)
	v/c Ratio		0.56	0.67	0.66	0.87
	Queue Length*		580'	500'	490'	890'
Gatlin Avenue Intersection						
Current Programmed Cycle Length:			175"	120"	120"	175"
Overall Intersection Delay (Level of Service):			29.9" (C)	11.2" (B)	16.3" (B)	21.5" (C)
Westbound Approach	Ave. Delay (LOS)		70" (E)	41" (D)	52" (D)	73" (E)
	v/c Ratio		0.90	0.72	0.79	0.82
	Queue Length*		400'	120'	150'	250'
Northbound Through	Ave. Delay (LOS)		31" (C)	13" (B)	18" (B)	23" (C)
	v/c Ratio		0.74	0.60	0.74	0.67
	Queue Length*		840'	310'	430'	710'
Southbound Left Turn	Ave. Delay (LOS)		51" (D)	11" (B)	36" (D)	53" (D)
	v/c Ratio		0.64	0.38	0.62	0.75
	Queue Length*		100'	50'+	110'	230'+
Southbound Through	Ave. Delay (LOS)		9" (A)	3" (A)	6" (A)	6" (A)
	v/c Ratio		0.62	0.52	0.56	0.59
	Queue Length*		230'	100'	190'	240'

* Synchro-Estimated 95th Percentile Back-of-Queue (Includes Adjustments for Storage Lane)

+ Calculated 95th Percentile Conditions Over-Capacity; Queues May be Longer

5. DESIGN COMPARISONS:

The intersection operational results for the existing conditions, local agency proposed improvements (Local Agency Concept) and the design alternative (Alternative Design Concept) were compared to identify relative operational impacts and identify any additional areas of concern.

As reflected in Tables 12 through 14, the intersection Levels of Service (LOS) effectively stayed consistent for each intersection and for each proposed conceptual design plan. As previously noted, the existing cycle lengths were maintained for each alternative design however, adjustments to the basic timings (yellow plus all-red) to meet current FDOT District preferences and proposed geometric conditions were applied.

HOLDEN AVENUE INTERSECTION:

The geometry proposed in the Local Agency Concept included a right-turn-only condition exiting the Fort Gatlin Shopping Center. Although this effectively eliminated delays for this movement, the access restriction imposed by this design is anticipated to generate undesirable rerouting by patrons exiting the shopping center and will contribute more traffic activity to the critical movement volumes at the Holden Avenue intersection (southbound through and northbound left turns). This modification also supported the proposed reassignment of the Holden Avenue approach lanes to include an exclusive right turn lane. The presence of an exclusive right turn lane and the ability to provide a signalized right turn overlap with the northbound left turn movement ultimately did not generate a notable improvement to operations along this approach as right-turn-on-red movements are currently permitted and the volume of impeding through vehicles is so low that they have a minimal affect on right turn delay. Reassigning the eastbound Holden Avenue approach to include a shared left / through lane is not recommended as this geometry would support split side street phasing which would generate additional intersection delays. The volume of eastbound left turning vehicles from Holden Avenue supports the existing protected-permissive left turn phasing control.

The proposed southbound right turn lane at the Holden Avenue intersection is anticipated to improve overall intersection operations as evidenced by the modeling output data. The added capacity provided by this lane in combination with the optimization results in split timing reductions of between 12% and 27% for the southbound approach movement (when compared to the local agency improvements). The queue lengths for the southbound through movement along SR 527 approaching Holden Avenue are also shown to reduce by approximately 12%, which will enhance efficiency and turn lane accessibility.

GATLIN AVENUE INTERSECTION:

Conversion of the southbound outside through lane from continuous green control to full signal control was presented as part of both design concepts to alleviate safety concerns (and documented crashes). Providing full signal control of this lane will also permit the installation of a signalized pedestrian crosswalk across SR 527 at the intersection. As reflected in Tables 12 through 14, the operational and queue impacts to the southbound approach to Gatlin Avenue are anticipated to be minimal, and this is influenced primarily by coordination with the Holden Avenue signal.

Both design concepts also proposed reassigning the two westbound Gatlin Avenue approach lanes to an exclusive left turn lane and a shared left / right turn lane. Current lane assignments consist of a single left turn lane and a single right turn lane. With existing left turn demands of nearly 400 during the morning peak hour and over 250 during the evening peak hour, an increase in left turn capacity would be beneficial.

The installation of a signalized northbound left turn lane to provide direct access into Le Coq Au Vin Restaurant is anticipated to generate negligible impacts to intersection operations and capacity. Although the number of vehicles entering the restaurant from northbound SR 527 is unknown, the restaurant's typical weekday operating hours are from 5:30 to 10:00 PM, which essentially begins after the evening peak traffic hour of 4:45 to 5:45 PM.

LEFT TURN LANES BETWEEN INTERSECTIONS:

Widening along SR 527 between Gatlin Avenue and Holden Avenue was presented in both design concepts to provide side-by-side left turn lanes between the intersections. This configuration would extend both left turn lanes and provide significant increases in left turn queue storage capacity. The need for additional storage capacity was presented earlier in Figure 5 which showed that during the morning and evening peak periods, an average of approximately 40% of northbound left turn queues at Holden Avenue fit in the current northbound left turn lane and approximately 65% of the southbound left turn queues at Gatlin Avenue fit in the current southbound left turn lane. In consideration of the geometric and timing modifications noted in this study, under morning and evening peak hour traffic demands, the northbound left turn lane at Holden Avenue is anticipated to store approximately 70% of its left turn queues and the southbound left turn lane at Gatlin Avenue is anticipated to store nearly 100% of its left turn queues.

Reducing the frequency of left turn queues extending beyond their designated turn lane and into the adjacent through lane will increase operational efficiency of the left turn movements and will increase capacity of the adjacent through lanes. With regard to safety, the potential for related rear end and sideswipe crashes approaching the intersections will be reduced and sight distances for permissive left turning vehicles will be improved as the potential for turning through a stopped queue will be minimized.

6. DESIGN RECOMMENDATIONS:

Based on the results of the aforementioned software analyses and comparisons, supplemented with the operational and queue findings derived from the field assessments, the following design recommendations are provided for the SR 527 subject corridor and the intersections of Holden Avenue and Gatlin Avenue. These improvements should be implemented, as permissible by available right-of-way or any other restrictions related to constructability, construction cost or the concerns of local agencies or business owners:

- Widen SR 527 (Orange Avenue) to provide side-by-side left turn lanes between the Holden Avenue and Gatlin Avenue intersections.
- Implement signal control on the existing southbound outside continuous green lane at the Gatlin Avenue intersection.
- Install a signalized pedestrian crosswalk across the north leg of the Gatlin Avenue intersection and across the south leg of the Holden Avenue intersection to enhance pedestrian accessibility across SR 527.
- Reassign the westbound Gatlin Avenue approach lanes to SR 527 to provide an exclusive left turn lane and a shared left / right turn lane. Additionally, restriping along this approach should consider the extension of the existing left turn lane to help facilitate the queue lengths.
- If feasible, install a signalized northbound left turn lane along SR 527 at the Gatlin Avenue intersection to serve Le Coq Au Vin Restaurant. If completed, the addition of a striped taper at the beginning of the northbound left turn lane to Holden Avenue is also recommended to prevent drivers and queues from extending into the northbound left turn lane at Gatlin Avenue.
- Install a southbound right turn lane along SR 527 at the Holden Avenue intersection.
- Maintain the existing side street approach lane geometry along Holden Avenue.
- Maintain the existing approach lane geometry along the Fort Gatlin Shopping Center exit driveway.
- Per Florida Department of Transportation preferences, install four-section left turn signal displays along the SR 527 approaches to Holden Avenue and Gatlin Avenue.
- Conduct signal retiming at the Holden Avenue and Gatlin Avenue intersections to account for the final geometric changes and signalization preferences in addition to the new signalized pedestrian crossings. The retiming effort should include railroad pre-emption timings and related signal phasing sequences.
- Consider the implementation of a railroad pre-empted northbound permissive left turn restriction at the Holden Avenue intersection.

1.7 APPENDIX G - 2017: Orange Avenue Corridor Master Plan Summary



CORRIDOR MASTER PLAN SUMMARY | AUGUST 2017

Prepared by:



Prepared for:



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Executive Summary

Introduction

MetroPlan Orlando and the City of Edgewood initiated the Orange Avenue Corridor Study to establish Orange Avenue (SR 527) as a livable and walkable multi-modal urban thoroughfare. This study establishes a corridor vision and identifies implementation actions to address network efficiency, safety, and livability within the context of future transportation needs. The study was completed in collaboration with Florida Department of Transportation (FDOT) District Five and other local and regional agency partners. This study provides a framework for improved mobility as part of a planning effort that engages residents, business owners, and others who use the Orange Avenue corridor.

The corridor study area is 2.4 miles and includes Orange Avenue (SR 527) from Pineloch Avenue in the City of Orlando (northern limit) to Hoffner Avenue in unincorporated Orange County (southern limit). FDOT District Five has responsibility for the roadway for the entire length of the study area. Beyond the roadway itself, the study area falls within three jurisdictions: the City of Orlando (0.3 miles), unincorporated Orange County (0.4 miles) and the City of Edgewood (1.7 miles), with the majority of the corridor frontage within the City of Edgewood.

The study process engaged the project stakeholders, including residents, business owners, elected and appointed officials, and partner agencies. A project visioning team (PVT) was established to facilitate interagency coordination and provide input regarding the corridor analysis, improvement alternatives and recommendations. The PVT members consisted of representatives from Florida Department of Transportation, LYNX, City of Edgewood, City of Orlando and Orange County.

In addition to the PVT meetings, a series of public forums were held at the City of Edgewood Farmer's Market in October of 2015, a series of one-on-one interviews with residents and merchants along the corridor, public meetings with the Edgewood City Council and Planning and Zoning Board, and a series of public meetings with the MetroPlan Orlando Committees and Boards.

Corridor Planning Background

A series of previous studies were reviewed and summarized to help guide previous efforts within and adjacent to the study area. The City of Edgewood completed a master plan in 2001 and the plan focused planning efforts for the City to become "a more livable Edgewood, where pedestrians, cyclists, transit users and motorists peacefully coexist."



Existing Conditions / Two-Way Typical Section

Among the many things identified in the master plan that were still relevant for this project include the formation of a town center adjacent to the Holden Avenue, Orange Avenue, and Gatlin Avenue Intersections, and the beautification of Orange Avenue. In 2014, the City of Edgewood worked with the Urban Land Institute's TAP to update the master plan to include aspects of market viability, enhanced connectivity, and sound funding strategies.

Similar corridor planning studies have been completed for segments of Orange Avenue to the north (within the City of Orlando) and to the south (within Pine Castle, Belle Isle and unincorporated Orange County). Both plans focused on enhancing safety, aesthetics, and multimodal mobility. The purpose of the projects was to provide a safe and efficient multi-modal transportation corridor that serves a wide array of users, including the business community, while providing and enhancing livability consistent with the future vision for the area. They both also included specific improvements that can be advanced near-term through local agency participation and/or by FDOT as 3-R (Resurfacing, Restoration and Rehabilitation) projects, safety enhancements or push-button projects.

Finally, the FDOT conducted an intersection study for the Holden Avenue, Orange Avenue, and Gatlin Road intersections. This implementation plan proposes to widen the pavement for lengthened side-by-side left turn lanes along Orange Ave to service Gatlin Ave and Holden Ave. Other improvements include: the removal of the outside southbound continuous lane on Orange Avenue, pavement widening, milling and resurfacing of the roadway, introducing mast arm signals, upgrading pedestrian features, and drainage improvements.



Existing Conditions / One-Way Typical Section

Existing Conditions Review

The existing land use and transportation conditions in the corridor study area were examined. Between Mandalay Road and Pineloch Avenue, Orange Avenue has a five-lane typical section, with two 11' through lanes in each direction, a 12' two-way left turn lane, and 4.5' bike lanes in both directions. From Hoffner Avenue to Mandalay Road the corridor consists of a one-way pair, with Orange Avenue carrying southbound traffic and Hansel Avenue carrying northbound traffic.

Within this portion of the corridor, the typical section for both streets consists of two 12' through lanes, a 13' left-turn lane, and 5' bike lanes in both directions. Additional traffic analysis is detailed below:

Volumes/Freight Traffic – Orange Avenue serves as a primary north-south arterial connecting downtown Orlando (and Interstate 4 via Michigan Avenue) with industrial areas in Taft. Orange Avenue is also a primary freight corridor. Traffic counts collected in 2015 show an average daily volume of 36,900 vehicles north of the Holden/Gatlin intersections, and 41,500 vehicles south of the Holden/Gatlin intersections. Approximately 7.8 percent of the total traffic along Orange Avenue is from heavy vehicles.

Speed – Orange Avenue has a posted speed limit of 40 miles per hour throughout the study area. The speed data showed that southbound Orange Avenue between Drennen Road and Holden Avenue has a high occurrence of excessive speeding, with almost 13 percent of drivers traveling at 50 miles per hour or greater (i.e., 10+ miles per hour above the speed limit).

Level of Service - The comprehensive plans for Edgewood, Orlando and Orange County have established a Level of Service (LOS) standard of "E" for Orange Avenue.

All signalized intersections with the exception of the Holden/Gatlin intersections operate at LOS D or better for existing conditions. The Holden/Gatlin intersections operate at LOS E and F, with queues from that can extend ½ mile in each direction during the morning and afternoon peak periods.

Safety Analysis – Crash data for the period from January 2012 to October 2015 was analyzed for the corridor. During this period, there were 587 reported crashes. The Holden/Gatlin intersections are the most common location for vehicle crashes, accounting for over 20% of the total.

Pedestrian and Bicycle Analysis – While sidewalks are present along both sides of the corridor for its length, there are several locations with deficiencies that include substandard sidewalk widths, significant cracks in the sidewalk, and obstructions such as signs and utility poles. Orange Avenue has bike lanes along both sides of the street that range in width from 4.5' to 5'. Data regarding cycling trips along the corridor was collected from Strava, a mobile GPS app for recording cycling and running activity, and shows that Orange Avenue has a higher number of bicycle trips when compared to parallel north-south corridors.

Transit Conditions – The Orange Avenue corridor is served by three LYNX bus routes: Route 7 (S. Orange Avenue/Florida Mall), Route 11 (S. Orange Avenue/Orlando International Airport) and Route 18 (S. Orange Avenue/Kissimmee). Together, these three routes provide four buses per hour in each direction. While the SunRail corridor runs parallel to Orange Avenue within the study area, there are no SunRail stops within the study area. Based on LYNX standards, three bus stop locations lack facilities that are warranted: south of Pineloch Avenue, west side of street (shelter), north of Suddath Road, east side of street (shelter), and north of Mary Jess Road, east side of Hansel Avenue (bench).

Access Management – While some cross-access connections exist between parcels, the City of Edgewood currently does not allow commercial driveways to connect to residential streets. Additionally, many parcels maintain multiple curb cuts or a continuous driveway apron along the Orange Avenue frontage which not only contributes to the congestion and some of the rear-end crashes on Orange Avenue, it also makes the walking environment less comfortable and limits the space available for landscaping, either within a median or adjacent to the right of way.

Land Use – The majority of the frontage along the Orange Avenue corridor is for commercial land uses, consisting of a mixture of office, strip retail and industrial. Similar land uses are found along the adjacent segments of Orange Avenue to the north and south of the study area.

Purpose and Need

Based on the existing conditions analysis and stakeholder input, the project's purpose is defined to address the following problems:

- Traffic congestion at Holden/Gatlin intersections
- Crash frequency at Holden/Gatlin intersection
- Unfriendly environment for pedestrians and bicyclists
- Inconsistent amenities for transit users
- Lack of consistent aesthetics and landscaping
- Inconsistent land use policies

These identified problems have been used as part of the development and evaluation of improvement alternatives along the corridor. The following table summarizes the evaluation measures associated with each need.

Need	Evaluation Measure
1. Reduce vehicle speeds between traffic signals.	<ul style="list-style-type: none"> • Vehicle lanes are not wider than the FDOT minimum standard. • Long-term land use patterns support reducing the posted speed limit below 40 mph.
2. Improve the safety and comfort of pedestrians and bicyclists traveling along and through the corridor.	<ul style="list-style-type: none"> • Number of sidewalk obstructions • Number of signalized and/or marked pedestrian crossings • Average spacing between driveway openings • Number of wide driveway openings (>30') • % of bike lane with buffer from travel lane
3. Reduce vehicle delays through the Holden and Gatlin intersections.	<ul style="list-style-type: none"> • Current corridor travel time • Year 2035 corridor travel time
4. Provide consistent, safe and comfortable facilities for transit users.	<ul style="list-style-type: none"> • Number of transit stops within 100 feet of a marked pedestrian crossing • Number of high-ridership bus stops with a transit shelter • Number of bus stops receiving ADA improvements
5. Use streetscape improvements to establish a corridor identity and promote redevelopment.	<ul style="list-style-type: none"> • Length of corridor able to accommodate street trees • Total median length • Number of gateway opportunities • Number of cross access easements • Number of driveway closures

A Plan for Change – Recommended Improvements

Based on the existing conditions, the issues and concerns, and utilizing the evaluation measures, the following recommended improvements were proposed within a structure of short-, mid-, and long-term implementation timeline.

Short-Term

Orange Avenue – One-Way Pair Segments (Hoffner Avenue to Mandalay Road)

As a part of the FDOT 3R Project, the one-way segments could be restriped to include on-street parking and buffered bike lanes.

Orange Avenue –Two-Way Segment (Mandalay Road to Pineloch Avenue)

As part of the FDOT 3R Project from East Grant Street to approximately Mandalay Road, the two-way segment will be restriped to narrow the existing two-way left turn lane to 11' and appropriate the 1' to the bike lanes, widening them to 5' each.

Holden/Gatlin/Orange Intersections and the LYNX Bus Stop Relocation

The current FDOT improvement project for the intersections of Holden Avenue, Gatlin Avenue, and Orange Avenue will reduce queue lengths and delay through the intersections. In addition to this project, this study recommends a short-term improvement to move the existing LYNX bus stop, just north of the Fort Gatlin Shopping Center Entrance to a location just south of the Entrance.

Streetscape Beautification Gateway

It is recommended that in addition to the FDOT 3R Project, the City of Edgewood work with the FDOT to increase the size of the existing median between Stratemeyer Drive and Mandalay Road.

Orange Avenue Right-of-Way Study

Based on the long term vision for Orange Avenue additional right-of-way will be needed to implement the proposed concept design. The existing right-of-way within the two-way segment varies, therefore a more detailed right-of-way study is recommended to conduct a short-term study to survey and evaluate the feasibility of attaining the required right-of-way for the long term vision.

Mid-Term

Modification of Land Development Regulations

The historic use of the properties as primarily auto-oriented commercial has led to a development pattern that utilizes long, skinny buildings, typically with one-bay of parking in the front addressing Orange Avenue. The style of recent development along Orange Avenue in Orlando was preferred to the existing patterns in Orange County and within the City of Edgewood. Both the City of Edgewood and Orange County have been working on updating their respective land development regulations to include more urban form patterns observed in the study area. Particular focus should be given to land development regulations that encourage cross-access easements that allow users to exit to side streets, and encourage driveway consolidation on fronting properties.

In addition to those access-based measures, each agency should consider implementing parcel standards similar to the City of Orlando, specifically requiring “build-to” limits as opposed to “setback” requirements.

Adoption of Right-of-Way and/or Easement Dedication in the Comprehensive Master Plan

The study recommends that in concert with the right-of-way and easement study, each agency adopt a plan for the required space as part of their Comprehensive Master Plan. This will codify the desire for beautified landscape corridor and assist the various agencies in attaining funding from various State and Federal sources to implement corridor master plan.

Mid-Term and Long-Term

Orange Avenue – (Hoffner Avenue to Pineloch Avenue)

Beginning in the mid-term, it is recommended that the City of Edgewood adopt the previously mentioned urban form standards, the long-term master plan “The Grid,” and the Right-of-Way Dedication Plan. A master plan and the acquisition of right-of-way through the redevelopment / land development process is needed to fully implement the long term solutions proposed in this study, including landscaped medians, wider / safer pedestrian elements, and redevelopment in the City of Edgewater that promotes a more livable and walkable environment with new structures built up to the street and additional easement areas from the back of right-of-way for increased landscape and hardscape treatments. The typical section for one-way pair segment would maintain the buffered bike lane and the travel lanes, but remove some of the striped on-street parking along the left-side of the street in favor of spot curb extensions with street trees and green infrastructure such as rain gardens. The two-way segment features a landscape median, buffered bike lanes, and landscape and hardscape improvements on each side of the right of way. To accommodate these features, the curb-to-curb width would need to increase by 13’ from 65’ to 78’ overall. In the mid-term, a more refined conceptual design should be completed using the short-term Right-of-Way Study to determine the full impact of desired planted median and additional landscape and buffered bike lane elements. Over the long term, this project will be implemented through the acquisition of landscape easements, the purchasing of right-of-way, and the eventual redevelopment of properties throughout the corridor.

Long-Term

Implementation of the Public Portion of the “The Grid” Redevelopment Alternative

Beyond the FDOT improvements to the intersections, the City of Edgewood envisions this location to be a potential space for a town center. This area was discussed numerous times during the stakeholder outreach and the City of Edgewood Council meetings as a location that will see redevelopment on a larger scale and since this is also a fairly congested area, the study recommends the

“The Grid” street network alternative. This alternative examined extending Holden Avenue across Orange Avenue to a new north-south street that will connect to Gatlin Avenue. Gatlin Avenue would extend across Orange Avenue to a new north-south street that will connect to Holden Avenue. This new “grid” would form the primary structure for circulation for local traffic and regional traffic.

Additional new streets would be connected in concert with private redevelopment to further create a system of streets that would process all the traffic in this new town center. The proposed street network will allow for a wider variety of development potential because of a mix of block types that could handle various densities allowed by the City’s Comprehensive Master Plan.

Cost for Next Steps		
	Concept/ Planning Study	Construction
Total Short Term	\$186,000	\$220,000
Total Mid Term	\$744,833*	\$0
Total Long Term	\$2,474,704	\$7,261,481

Conclusions

The study encompasses the initial planning steps in the life-cycle of a project. The recommendations presented are based on the purpose and needs identified as part of the study. Several of the recommendations can be addressed on a case by case basis and will require further concept development as a separate next step in the process. The planning information and recommendations documented in this study will also be a public resource to community members, developers and others interested in transportation plans and how the area is expected to change. It will be used to track progress and follow up on recommendations made to address stated needs. Modest lower cost improvements may be considered and undertaken as funding becomes available. Recommendations that advance through private development will include right-of-way reservation, mitigation of traffic impacts of new development, and site design that incorporates local street and path connections, and other amenities, in support of bicycling, walking, and managing stormwater. Most improvements will be implemented over several years. The recommendations presented will also be reevaluated at the time of funding availability, to ensure that the best transportation solution is developed based on changes to land-use, traffic operations or prevailing best practice.

5 Purpose and Need

Purpose and Need

Based on the existing conditions analysis and stakeholder input, the project's Purpose and Need have been defined to address the following problems:

- **Traffic congestion at Holden/Gatlin intersections** – The existing conditions traffic analysis showed that significant traffic queuing occur at the Holden/Gatlin intersections. These backups occur in both the northbound and southbound directions during the morning and afternoon peak periods. With the growth in traffic forecast for Orange Avenue, the queues are expected to increase.
- **Crash frequency at Holden/Gatlin intersections** – The crash analysis showed a high occurrence of crashes at the Holden/Gatlin intersections, more than the other signalized intersections along the corridor combined. Many of the crashes at this location were rear-end and sideswipe collisions.
- **Unfriendly environment for pedestrians and bicyclists** – For most of the corridor, pedestrians and bicyclists have little or no buffer from moving traffic. Bike lane widths do not meet FDOT's recommended minimum standard, and sidewalks in several areas are obstructed by signage. Additionally, there are limited opportunities for safe, protected crossings of Orange Avenue.
- **Inconsistent amenities for transit users** – Many bus stops along the corridor lack benches and shelters for waiting passengers. In several locations, these facilities are warranted based on LYNX's ridership standards, but do not exist.
- **Aesthetics and landscaping** – The Orange Avenue corridor currently contains minimal trees or other landscaping; this is due in part to the lack of a median and limited right-of-way width. There is a need to provide accommodations for additional trees and landscaping within or adjacent to the right-of-way to improve corridor aesthetics.

- **Land use policies** – The City of Edgewood desires a more urban development pattern along the corridor as parcels redevelop, particularly around the Holden/Gatlin intersections. As part of the integrated land use/transportation vision for the corridor, there is a need to revisit existing standards that are not consistent with this vision.

These key issues have been used as part of the development and evaluation of improvement alternatives along the corridor. The following table summarizes the evaluation measures associated with each need.

Need	Evaluation Measure
1. Reduce vehicle speeds between traffic signals.	<ul style="list-style-type: none"> • Vehicle lanes are not wider than the FDOT minimum standard. • Long-term land use patterns support reducing the posted speed limit below 40 mph.
2. Improve the safety and comfort of pedestrians and bicyclists traveling along and through the corridor.	<ul style="list-style-type: none"> • Number of sidewalk obstructions • Number of signalized and/or marked pedestrian crossings • Average spacing between driveway openings • Number of wide driveway openings (>30') • % of bike lane with buffer from travel lane
3. Reduce vehicle delays through the Holden and Gatlin intersections.	<ul style="list-style-type: none"> • Current corridor travel time • Year 2035 corridor travel time
4. Provide consistent, safe and comfortable facilities for transit users.	<ul style="list-style-type: none"> • Number of transit stops within 100 feet of a marked pedestrian crossing • Number of high-ridership bus stops with a transit shelter • Number of bus stops receiving ADA improvements
5. Use streetscape improvements to establish a corridor identity and promote redevelopment.	<ul style="list-style-type: none"> • Length of corridor able to accommodate street trees • Total median length • Number of gateway opportunities • Number of cross access easements • Number of driveway closures

6 A Plan for Change

A Plan for Change

Recommended Improvements

Based on the existing conditions, the issues and concerns, and utilizing the evaluation measures, the following recommended improvements were proposed within a structure of short-, mid-, and long-term implementation timeline.

Orange Avenue Corridor Master Plan | Cost Estimation Matrix

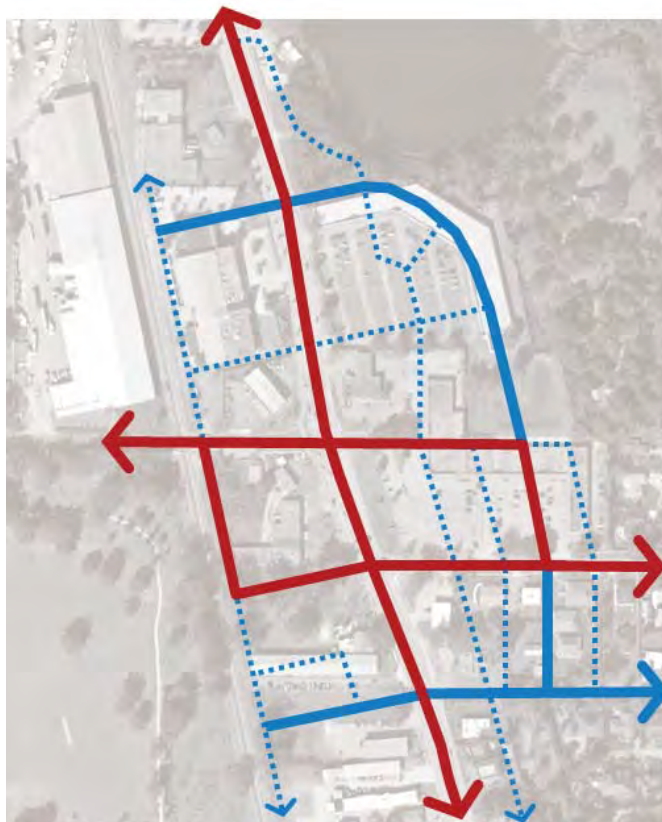
No.	Recommendation	Concern/Issues Addressed	Prior Action	Next Steps	Target Term
1	Orange Avenue Restriping (Mandalay Rd to Pineloch Ave)	Mobility Safety, Multimodal Alternatives	Input on FDOT 3R Project	None	Now
2	Orange Avenue Intersection Improvements (Gatlin Ave to Holden Ave)	Mobility Safety, Access Management, Multimodal Alternatives, Traffic Congestion	None	None	Now
3	Orange Avenue Restriping (Hoffner Ave to Mandalay Rd)	Mobility Safety, Multimodal Alternatives	Input on FDOT 3R Project	None	Now
4	Expansion/Beautification of Orange Avenue Median (Between Stratemeyer Dr and Mandalay Rd)	Streetscape Beautification Gateway	None	Concept Design; Coordination with FDOT 3R Project (Recommendation #3)	Short
5	Orange Avenue Right-of-Way Study	Mobility Safety, Streetscape Beautification, Access Management, Multimodal Alternatives	None	Survey; Scoping	Short
6	LYNX Bus Stop Relocation	Mobility Safety, Multimodal Alternatives	None	Coordination w/ LYNX	Short
7	Modify City of Edgewood Land Development Regulations (LDR)	Mobility Safety, Streetscape Beautification, Access Management, Redevelopment Opportunities, Multimodal Alternatives, Traffic Congestion	None	Draft LDR Policies as per Final Orange Avenue Corridor Master Plan Report	Mid
8	Adoption of ROW/Easement Dedication Map in Agency Comprehensive Master Plan	Mobility Safety, Streetscape Beautification, Access Management, Multimodal Alternatives	Recommendation #5	Orange Avenue Right-of-Way Study (Recommendation 5)	Mid
9	Orange Avenue Streetscape Concept Design Study (Hoffner Rd to Pineloch Ave)	Mobility Safety, Streetscape Beautification, Access Management, Multimodal Alternatives, Traffic Congestion	Recommendation #5 Recommendation #7	Scope Concept Design Study	Mid
10	Orange Avenue Streetscape & Feasibility Study (Hoffner Ave to Pineloch Ave)	Mobility Safety, Streetscape Beautification, Access Management, Redevelopment Opportunities, Multimodal Alternatives, Traffic Congestion"	Recommendation #7 Recommendation #8 Recommendation #9	Concept Design; Moving Curb, Adding ROW/ Easement for Sidewalk + Landscape Area Curb Extensions + Bulb-Outs	Long
11	Implement Public ROW Aspect of Alternative One "The Grid" - Redevelopment at Holden/Gatlin/Orange	Mobility Safety, Streetscape Beautification, Access Management, Redevelopment Opportunities, Multimodal Alternatives, Traffic Congestion	Recommendation #7 Recommendation #8 Recommendation #9 Property Acquisition Master Developer Partnerships	Concept Design New Primary Streets connecting Holden & Gatlin on Redeveloped Property (Both sides of Orange Avenue)	Long

Holden/Gatlin/Orange Intersections

Beyond the FDOT improvements to the intersections (Recommendation #2), the City of Edgewood envisions this location to be a potential space for a town center. Three of the four quadrants of the intersection are owned by three owners and overall size of each parcel allow for assembly and redevelopment to occur faster than most other properties within the study area. Since this area may see redevelopment on a larger scale and since this is also a fairly congested area, the study examined three street network alternatives based on discussion with stakeholders, the public, and the City.

"The Grid"

The Grid alternative examined extending Holden Avenue across Orange Avenue to a new north-south street that will connect to Gatlin Avenue. Gatlin Avenue would extend across Orange Avenue to a new north-south street that will connect to Holden Avenue.



"The Grid" alternative

This new "grid" would form the primary structure for circulation for local traffic and regional traffic. Additional new streets would be connected in concert with private redevelopment to further create a system of streets that would process all the traffic in this new town center.

"Connect Holden"

The Connect Holden alternative extended Holden across Orange Avenue to a roundabout that would connect additional roadways built as part of the private redevelopment, and then move southward and connect with the existing Gatlin Avenue prior to reaching the residential areas. Additional network would be required within the private redevelopment as well as a finer network of alleys and secondary streets to ensure connectivity.



"Connect Holden" alternative

Preferred Alternative

Based on a number of factors including phasing feasibility and overall travel time impacts, “The Grid” was selected as the preferred redevelopment alternative for the Holden Avenue, Orange Avenue, and Gatlin Avenue Intersections (Recommendation #11). The street network will allow for a wider variety of development potential because of a mix of block types that could handle various densities allowed by the City’s Comprehensive Master Plan. The potential redevelopment would be easier to phase because proposed new streets align along existing property lines. The preferred alternative also focuses both on Orange Avenue and the waterfront of Lake Jennie Jewel making it a desired location for a “downtown” Edgewood.

The proposed redevelopment master plan was created using the existing allowable densities and height restrictions in the City of Edgewood’s Comprehensive Master Plan. However, the plan also used the proposed regulations with regards to setbacks, access management, and cross-access easement connecting to the residential streets. The plan also incorporates conceptual stormwater management for all of the developable area.

From a travel time comparison, a traffic model was created using the densities and heights in the proposed plan to model the impacts of the baseline 2035 scenario and the “The Grid” alternative. For the northbound traffic, “The Grid” alternative saw an overall 19 second improvement in the AM/PM peak times and for the southbound traffic, the same alternative saw a net 27 second improvement.



Preferred Alternative conceptual rendering

7 Conclusion

Conclusion

MetroPlan Orlando and the City of Edgewood initiated the Orange Avenue Corridor Study to establish Orange Avenue (SR 527) as livable and walkable multi-modal urban thoroughfare. The Orange Avenue Corridor Study was completed in collaboration with Florida Department of Transportation (FDOT) District Five, the responsible agency for the roadway, and other local and regional agency partners. This study provides a framework for improved mobility as part of a planning effort that engages residents, business owners, and others who use the Orange Avenue corridor.

The Orange Avenue Corridor Planning Study considered the impacts and benefits of each recommendation. The recommendations were generated from the purpose and needs established through the public process of the project. Those needs included:

- Relieving traffic congestion at Holden/Orange/Gatlin intersections
- Reducing the crash frequency at Holden/Orange/Gatlin intersections
- Building a more friendly environment for pedestrians and bicyclists
- Standardizing amenities throughout the corridor
- Beautifying the aesthetics of the corridor through landscape and hardscape enhancements
- Revisiting the regulatory land use policies to bring them in line with the long-term vision of the corridor.

The study encompasses the initial planning steps in the life-cycle of a project. Recommendations identified in the study will require further concept development as a separate next step in the process. Several of the recommendations can be addressed on a case by case basis and will require further concept development as a separate next step in the process. Because of the substantial scale and amount of improvements proposed in some of the recommendations, they were organized into short-, mid-, and long-term timeframes. The recommendations are summarized as follows:

Short-Term

- Orange Avenue Restriping from Mandalay Road to Pineloch Avenue (already underway as part of an FDOT 3R project)
- Orange Avenue Intersection Improvements at Holden Avenue and Gatlin Road (already underway as part of an FDOT intersection project)
- Orange Avenue Restriping from Hoffner Ave to Mandalay Rd (already underway as part of an FDOT 3R project)
- Expansion/Beautification of the Orange Avenue Median between Stratemeyer Drive and Mandalay Road
- Orange Avenue Right-of-Way Study from Mandalay Road to Pineloch Avenue
- LYNX Bus Stop Relocation at Orange Avenue and the Fort Gatlin Shopping Center Entrance

Mid-Term

- Modify City of Edgewood Land Development Regulations (LDR)
- Adoption of ROW/Easement Dedication Map in each Agency's Comprehensive Master Plan
- Orange Avenue Streetscape Concept Design Study (Hoffner Rd to Pineloch Ave)

Long-Term

- Orange Avenue Streetscape & Feasibility Study (Hoffner Ave to Pineloch Ave)
- Implement Public ROW Aspect of Alternative One "The Grid" - Redevelopment at Holden/Gatlin/Orange Intersection and Adjacent Properties

The planning information and recommendations documented in this study will also be a public resource to community members, developers and others interested in transportation plans and how the area is expected to change. It will be used to track progress and follow up on recommendations made to address stated needs.



1.8 APPENDIX H - 2018: Signal Timing Report, SR 527 from
Office Court to Drennen Road

Signal Retiming Report

Orange County

SR 527 from Office Court to Drennen Road

Contract No: C9V31
Work Order 1 (Study No.10)
FM No. 440412-1-32-02

Prepared for



District 5

Prepared by

HDR Engineering Inc.
Orlando, Florida

May 21, 2018



Engineer of Record: Richard Atta-Armah
P.E. No 57961

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 527 (Study No.10) – Signal Retiming Report

LOCATION: Orange County , Florida

CLIENT: FDOT District 5

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: Richard Atta-Armah, PE

P.E. NO: 57961

DATE: May 21, 2018



SIGNATURE: _____

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 - Peak Observations
 - Existing Synchro MOEs
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 - Time of Day Table
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 - Optimized Synchro MOEs
 - Optimized Time Space Diagrams
- APPENDIX A - *Data Collection and Existing Timings*

1. Executive Summary

The Florida Department of Transportation has retained HDR to provide services for retiming a total of twelve (12) intersections, along SR 527 from Office Court to Drennen Road in Orange County, Florida. Study methods and analyses are consistent with the Manual on Uniform Traffic Studies (MUTS), Manual on Uniform Traffic Control Devices (MUTCD), the Highway Capacity Manual (HCM) and FDOT District 5 guidelines and preferences.

Signal Retiming Efforts

This report summarizes the traffic signal retiming efforts, makes recommendations based on the study, and documents the retiming efforts. The process includes:

- Data Collection (seven day and turning movement counts, intersection inventories and existing timing data).
- Field reviews to observe and understand intersection and system wide traffic flow, system wide and intersection operational malfunctions and deficiencies.
- Model and calibrate existing conditions as baseline for analyses.
- Update local controller timings, develop coordination timing plans for weekday periods, implement, fine-tune and post implementation monitoring.
- Evaluate and make immediate short term recommendations needed to provide additional benefits.
- Document work performed on this project.

Summarized Recommendations and Conclusion

- The SR 527 project corridor was implemented on January 23, 2018. Due to construction activities follow up implementation efforts were done for the intersections along SR 527 at Gatlin Avenue and Holden Avenue on April 12, 2108, when construction and inspections were completed.
- The SR 527 corridor used to run as one system for all periods in the pre-implemented conditions. To improve the distinct traffic flow along the corridor, especially in the AM and PM periods, the corridor was divided into two systems (Zone A and Zone B). The project intersections along this corridor are maintained by Orange County, City of Belle Isle and City of Edgewood. Continued coordination between these agencies are necessary to ensure that the project intersections operate as a system.
- The intersections of Fairlane Avenue, Oak Ridge Road and Hoffner Avenue along SR 527 northbound, are impacted by adjacent schools in the area. Consequently, significant pedestrians crossed intersections during school times. For this reason, we increased the split times above the pedestrian times to allow turning vehicles yielding to pedestrians and the through traffic behind turning vehicles to clear the intersection.
- During the PM period, southbound traffic queues starting from the intersection at Sand Lake Road blocked the eastbound movement at the intersection Office Court/SR 527. Further actions

to prevent vehicles from blocking the intersection may be required. In addition, the detection for the eastbound movement (phase 8) was observed to activate erratically.

- At the intersection of Holden Avenue/Orange Avenue, the southbound left detection was activated every cycle while the northbound left movement was holding for the entire split. Investigation on the detections at this intersection is recommended.
- The implemented timings have reduced unnecessary stops between Gatlin Avenue and Holden Avenue intersections, improved progression on eastbound Oakridge Road between SR 527 northbound and SR 527 southbound intersections, provided adequate split times, and enhanced system progression along the SR 527 artery.

The following table provides a summary of existing and implemented cycle lengths along the project corridor:

Time of Day	Cycle Lengths (seconds) – Gatlin Avenue to Drennen Road (Zone A)	
	Existing	Implemented
AM	130	150
MIDDAY	150	110
PM	160	170

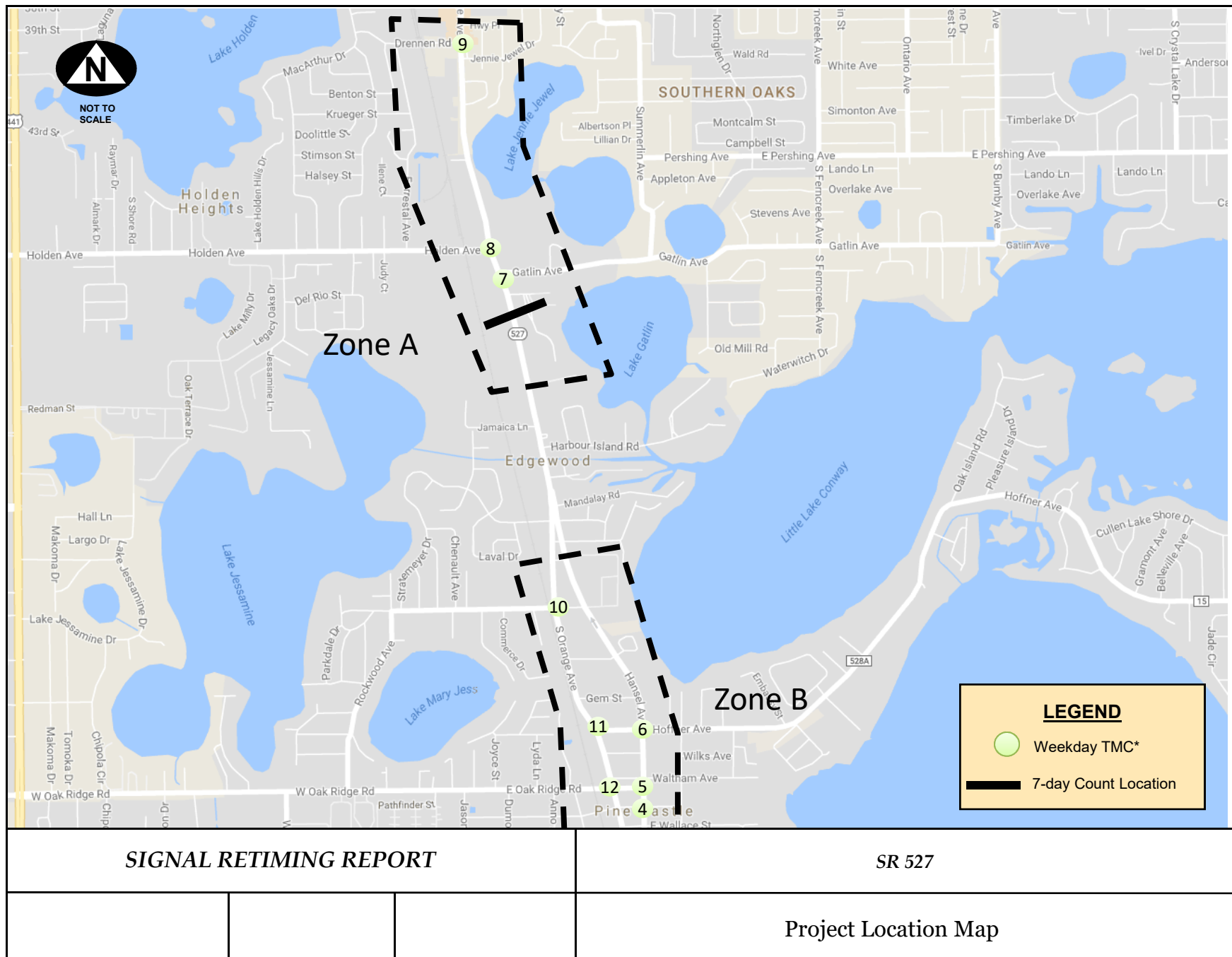
Time of Day	Cycle Lengths (seconds) – Office Court to Mary Jess Road (Zone B)	
	Existing	Implemented
AM	110	130
MIDDAY	100	110
PM	140	150

2. Project Intersections

The project intersections are located along the SR 527 arterial as identified in the table below:

Int. No.	Arterial	Cross Street	Zone	Maintenance Agency
1	SR 527 (Orange Avenue)	Office Court	B	Orange County
2	SR 527 (Orange Avenue)	Nela Avenue/Glen Rose Avenue	B	Orange County
3	SR 527 (Orange Avenue)	Lancaster Road	B	Orange County
4	SR 527 NB (Hansel Avenue)	Fairlane Avenue	B	City of Belle Isle*
5	SR 527 NB (Hansel Avenue)	Oak Ridge Road	B	City of Belle Isle*
6	SR 527 NB (Hansel Avenue)	Hoffner Avenue	B	Orange County
7	SR 527 (Orange Avenue)	Gatlin Avenue	A	City of Edgewood*
8	SR 527 (Orange Avenue)	Holden Avenue	A	City of Edgewood*
9	SR 527 (Orange Avenue)	Drennen Road	A	Orange County
10	SR 527 SB (Orange Avenue)	Mary Jess Road	B	City of Edgewood*
11	SR 527 SB (Orange Avenue)	Hoffner Road	B	Orange County
12	SR 527 SB (Orange Avenue)	Oak Ridge Road	B	Orange County

* Maintained by Control Specialists Company.



3. Data Collection

Seven Day Counts

Seven-Day Counts were conducted by Adams Traffic, Inc. beginning October 2017 at two locations on SR 527. The seven day counts have been summarized and shown in graphs in Section 5 of the report, while the raw data with the seven day counts are included in Appendix A.

Turning Movement Counts

Weekday turning movement counts (TMCs) were conducted by Adams Traffic, Inc. beginning October 2017 for the AM, MIDDAY, and PM periods for project intersections along SR 527. The specific count locations are shown in the project location map in Section 2 of the report.

Raw turning movement counts were adjusted for peak hour and seasonal traffic variation. These counts are summarized and documented in this section, while the raw TMCs are included in Appendix A.

Field Data Collection

Field data collection for intersection inventories, lane configurations, crosswalk distances, speed limits, traffic queue lengths, and peak hour traffic observation was done in September 2017.

4. Existing Conditions

Existing Timings

Existing signal timing plans for all the project intersections were obtained from Orange County, City of Edgewood, and City of Belle Isle. These timings are included in Appendix A.

Intersection Configuration and Link-node Diagram

Link-node diagrams consisting of storage distances, phases, signal phasing sequence, speed limits and other relevant information required for analysis are included in this section. Intersection sketches reflecting the lane configuration follow the link-node. The crosswalk distance and distance from the pedestrian button to the crosswalk are shown in the optimized timing sheets.

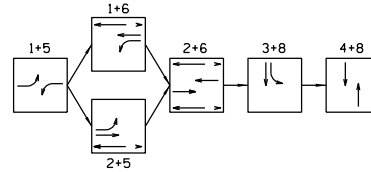
Peak Observations

Field traffic observations along the project corridor were done to identify system traffic flow characteristics and intersection deficiencies at all project intersections in last week of September. Additionally, traffic queues were field recorded for the following intersections:

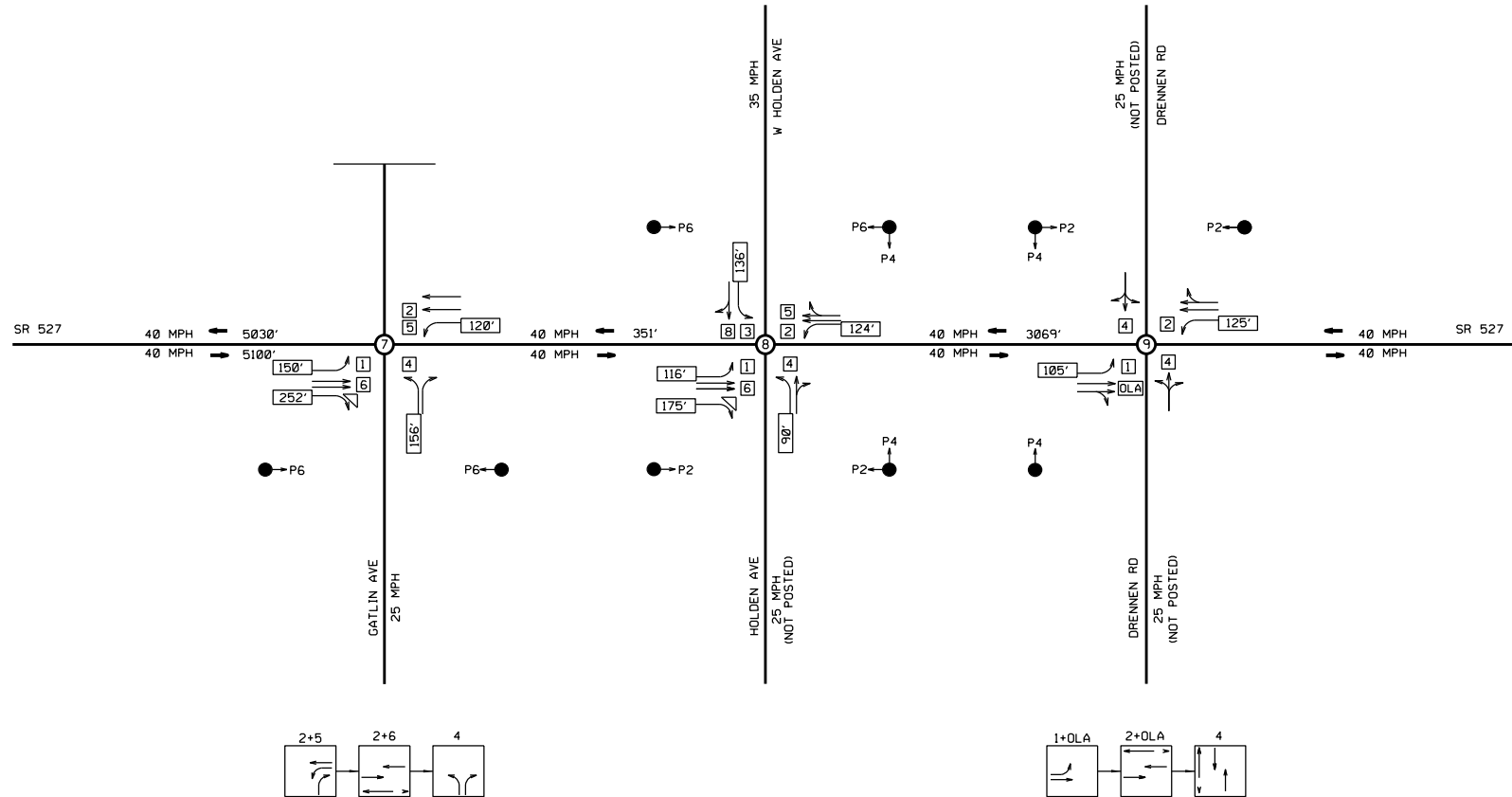
- SR 527 NB (Hansel Avenue) at Oak Ridge Road
- SR 527 (Orange Ave) at Gatlin Avenue
- SR 527 (Orange Ave) at Holden Avenue
- SR 527 SB (Orange Avenue) at Oak Ridge Road

Measure of Effectiveness

The Synchro Measures of Effectiveness PM for existing conditions are provided in the appendices.



NOT TO SCALE



NODE NO.
STORAGE LENGTH
MOVEMENT NO.
SIGNAL OPERATING PLAN
LD

①
315'
2
LANE DROP

SIGNAL OPERATING PLAN
PEDESTRIAN SIGNAL
LANE GEOMETRY



HDR Engineering, Inc.
315 E. Robinson Street, Suite 400
Orlando, FL 32801-1949
(407) 426-4200
www.hdrinc.com
Certificate of Authorization No. 4213

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
SR 527	ORANGE	440412-1-32-02

LINK NODE DIAGRAM
DISTRICTWIDE TSM&O

#USER#

#DATE#

#TIME#

#FILE#

Turning Movement Count Field Data Sheet & Sketch

Date: 10/18/17

Count Times: 7-9am; 11:30am-1:30pm; 2-6pm

Major Street: SR 527 (Orange Avenue)

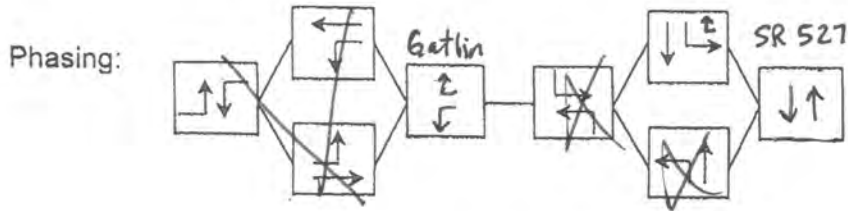
Direction: N-S Speed Limit: 40 mph

Minor Street: Gatlin Avenue

Direction: E-W Speed Limit: 25 mph

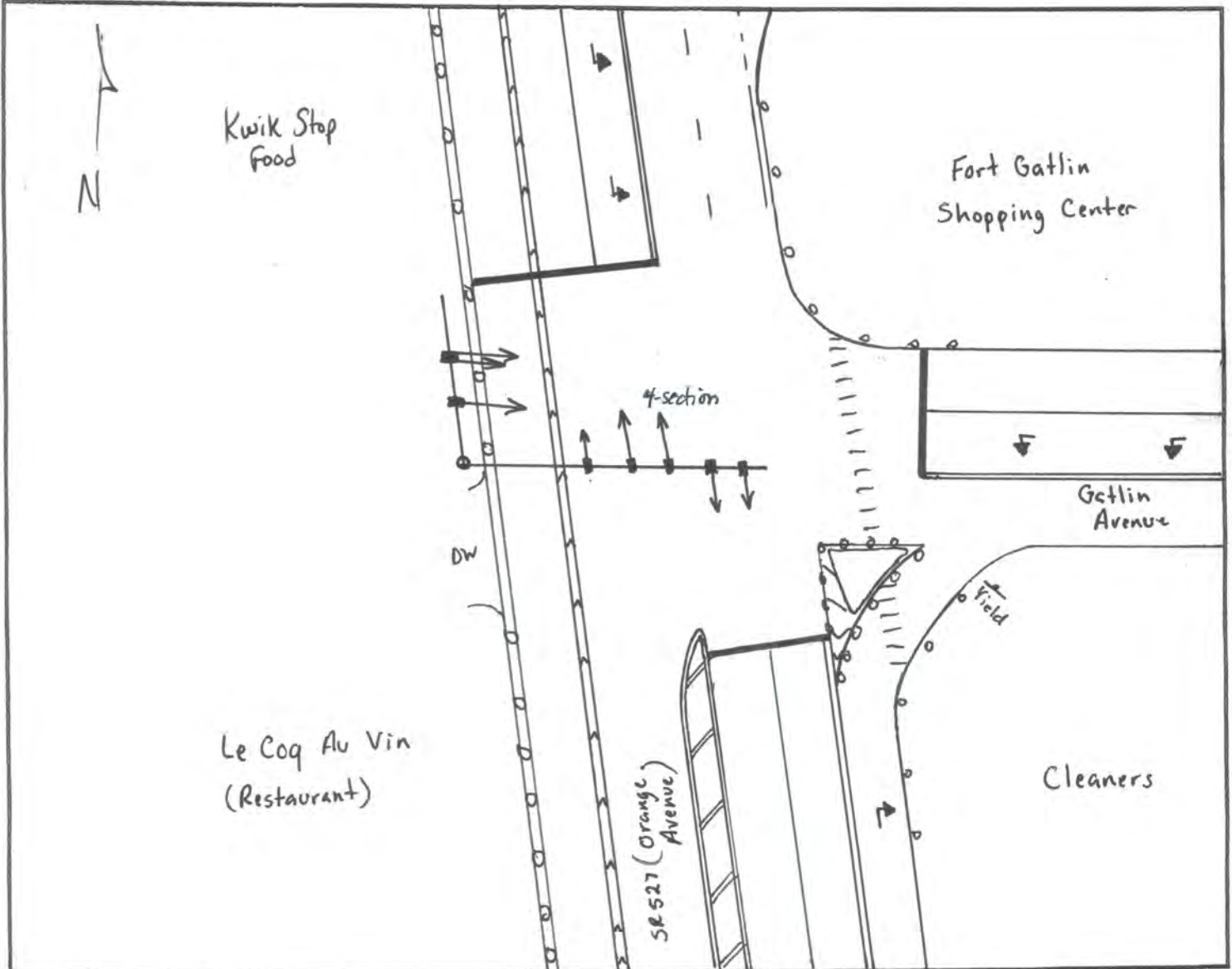
City/County: Orlando / Orange

Weather: On/Off Rain 11:30am-1:30pm



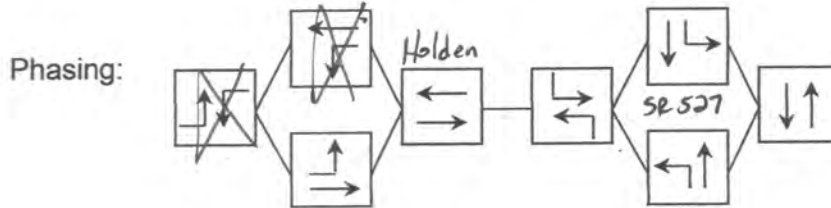
* Under Construction *

Intersection Sketch

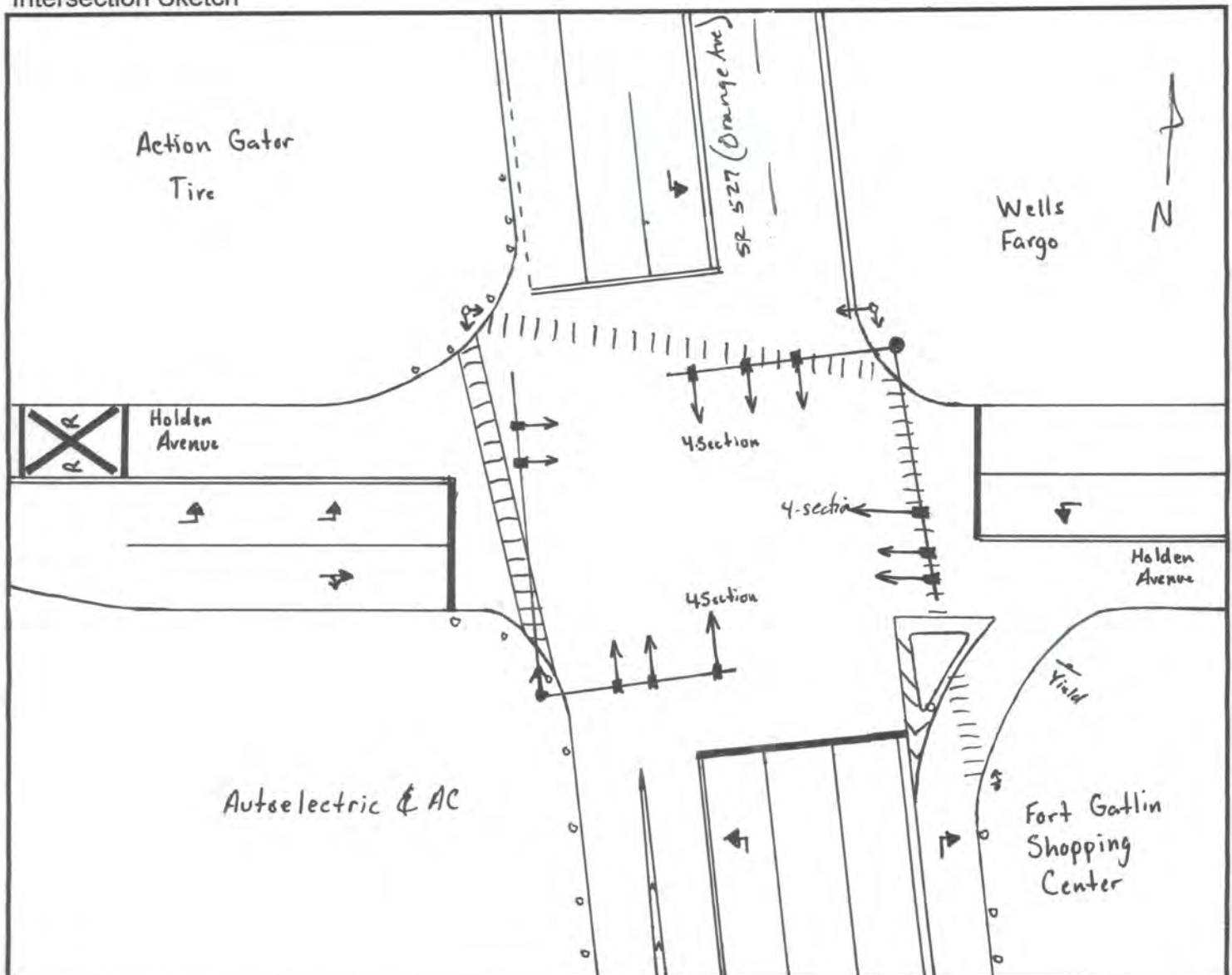


Turning Movement Count Field Data Sheet & Sketch

Date: 10/18/17 Count Times: 7-9am; 11:30am-1:30pm; 2-6pm
 Major Street: SR 527 (Orange Avenue) Direction: N-S Speed Limit: 40 mph
 Minor Street: Holden Avenue Direction: E-W Speed Limit: 35 mph
 City/County: Orlando / Orange Weather: On/Off Rain 11:30am - 1:30pm



Intersection Sketch



6. Optimized Timings

Local Timings

The local timings for “initial”, “extension”, recall mode, were evaluated and updated if necessary during the implementation stage. Pedestrian crosswalk distances, and button to curb distances were field measured for all locations.

Yellow Clearance

Vehicle clearance intervals were calculated using the November 2016 revision of section 3.6 of the Traffic Engineering Manual. The table below provides the yellow clearance interval uses, derived from the ITE formula, for this signal retiming project for zero percent grade.

Florida Yellow Change Interval (0.0 % Grade)*	
Posted Speed (mph)	Yellow Interval (Seconds)
25	3.4
30	3.7
35	4.0
40	4.4
45	4.8
50	5.1
55	5.5
60	5.9
65	6.0
* For approach grades other than 0%, use ITE Formula.	

TEM, Table 3.6-1

ITE Formula

$$Y = t + \frac{1.47v}{2(a+Gg)}$$

Where:

Y= length of yellow interval, sec.

t = perception-reaction time, (Use 1.4 sec.).

v= speed of approaching vehicles, in mph.

a= deceleration rate in response to the onset of a yellow indication. (Use 10ft/sec²)

g = acceleration due to gravity. (Use 32.2 ft/sec²)

G= grade, with uphill positive and downhill negative. (Percent grade /100)

All Red

All red clearance intervals were calculated using section 3.6 of the revised Traffic Engineering Manual methodology dated 11/2016, and FDOT D5 preference using 25 mph turning speed for left turn phases. A 1.0 second reduction due to reaction time delay from the conflicting movement, per the National Cooperative Highway Research Program (NCHRP) Report 731 recommendation has been applied. However a minimum of 2.0 seconds value has been maintained for all movements. These values are documented in the local and system timing sheets in Section 6.

System Timings and Assumptions

Prior to optimization and adjustment using engineering judgment, design traffic volumes entering each intersection were compared with traffic arriving at the corresponding downstream intersection. Where there were considerable variations, they were adjusted accordingly in the model. For this reason, the volumes used in the SYNCHRO analysis may be different to the intersection design volumes shown.

Coordination Timings

The optimization of the system timings was achieved through the iterative SYNCHRO runs for cycle length evaluation and split optimization. Tru-Traffic was utilized to maximize the progression bandwidth.

System Timing Plans

The following are the coordinated timing sheets followed by the SYNCHRO Measures of Effectiveness for the implemented system timing plans.

ORANGE COUNTY TRAFFIC SIGNAL TIMING SHEET

Intersection: Orange Ave (SR 527) at Gatlin Ave

Int. #

7

Node

Equipment: Siemens m50

Date:

5/21/2018

Address:

BASIC TIMING

Phase	1	2	3	4	5	6	7	8
Direction	NBL	SB		WB	SBL	NB		
Min Green (sec)	5	15		5	5	15		
Vehicle Gap (sec)	3.0	2.5		3.0	3.0	2.5		
Max Green 1 (sec)	15	50		20	15	50		
Max Green 2 (sec)								
Yellow Change Interval (sec)	4.4	4.5		3.4	4.5	4.4		
Red Clearance Interval (sec)	2.0	2.0		2.0	2.0	2.0		
Walk (sec)				7		7		
Flash Don't Walk (sec)				23		13		
Min Split (sec)	12	22		36	12	27		
Recall/Memory		SF/LK		NL	NL	SF/LK		
Detector Delay (sec)								
Detector Switching								
Dual Entry								
Overlap								
Flash								
Speed (mph)	40	40		25	40	40		
Approach Grades (%)	-0.4%	-1.0%		-2.0%	-1.0%	-0.4%		
Veh Traversed Distance (ft)	50	61		69	87	94		
Ped Crossing Distance (ft)				77		38		
Ped Clearance (sec)				22		11		
Ped-button to curb (ft)				13		13		
Ped-button to far curb (ft)				90		51		
Ped Clearance to far curb (sec)				30		17		

COORDINATION PLANS

Coordination Pattern	1/1/1	2/1/1	3/1/1			Day	Time	Pattern
Cycle	150	110	170			1	0:01	FREE
Split 1	18	18	20			1	10:00	2/1/1
Split 2	80	63	105			1	19:30	FREE
Split 3	0	0	0			2	0:01	FREE
Split 4	52	29	45			2	6:00	1/1/1
Split 5	21	20	35			2	9:00	2/1/1
Split 6	77	61	90			2	13:15	3/1/1
Split 7	0	0	0			2	18:30	2/1/1
Split 8	0	0	0			2	20:30	FREE
Offset	113	59	0			7	0:01	FREE
Lagging Phases	0/0/0/0	0/0/0/0	0/0/0/0			7	9:00	2/1/1
Source Day	Equate 1	Equate 2	Equate 3	Equate 4	Equate 5	7	19:45	FREE
(Sunday) 1								
(Monday) 2	3	4	5	6				
(Saturday) 7								

Notes:

- Offset referenced to start of mainstreet green
- Use Plan Force-offs
- Use Max Inhibit during coordination

All Patterns

1	2	4
5	6	

ORANGE COUNTY TRAFFIC SIGNAL TIMING SHEET

Intersection: Orange Ave (SR 527) at Holden Ave
 Equipment: Siemens m50

Int. # 8 Node
 Date: 5/21/2018 Address: 1

BASIC TIMING

Phase	1	2	3	4	5	6	7	8
Direction	NBL	SB	EBL	WB	SBL	NB		EB
Min Green (sec)	5	15	5	5	5	15		5
Vehicle Gap (sec)	3.0	2.5	3.0	3.0	3.0	2.5		3.0
Max Green 1 (sec)	15	50	20	20	15	50		20
Max Green 2 (sec)								
Yellow Change Interval (sec)	4.4	4.4	4.1	3.4	4.4	4.4		4.1
Red Clearance Interval (sec)	2.5	2.5	3.3	3.3	2.5	2.5		3.3
Walk (sec)		7		7		7		7
Flash Don't Walk (sec)		22		29		13		23
Min Split (sec)	12	36	13	43	12	27		38
Recall/Memory	NL	MIN/LK	NL	NL	NL	MIN/LK		NL
Detector Delay (sec)								
Detector Switching								
Dual Entry								
Overlap								
Flash								
Speed (mph)	40	40	35	25	40	40		35
Approach Grades (%)	-0.1%	0.1%	-1.1%	-2.5%	0.1%	-0.1%		-1.1%
Veh Traversed Distance (ft)	91	113	97	114	107	116		106
Ped Crossing Distance (ft)		74		100		44		79
Ped Clearance (sec)		22		29		13		23
Ped-button to curb (ft)		12		14		19		21
Ped-button to far curb (ft)		86		114		63		100
Ped Clearance to far curb (sec)		29		38		21		34

COORDINATION PLANS

Coordination Pattern	1/1/1	2/1/1	3/1/1			Day	Time	Pattern
Cycle	150	110	170			1	0:01	FREE
Split 1	34	23	35			1	10:00	2/1/1
Split 2	72	48	90			1	19:30	FREE
Split 3	26	21	20			2	0:01	FREE
Split 4	18	18	25			2	6:00	1/1/1
Split 5	18	18	20			2	9:00	2/1/1
Split 6	88	53	105			2	13:15	3/1/1
Split 7	0	0	0			2	18:30	2/1/1
Split 8	44	39	45			2	20:30	FREE
Offset	141	69	1			7	0:01	FREE
Lagging Phases	0/0/0/0	0/0/0/0	0/0/0/0			7	9:00	2/1/1
Source Day	Equate 1	Equate 2	Equate 3	Equate 4	Equate 5	7	19:45	FREE
(Sunday) 1								
(Monday) 2	3	4	5	6				
(Saturday) 7								

Notes:



















- Offset referenced to start of mainstreet green
- Use Plan Force-offs
- Use Max Inhibit during coordination
- Max Recall on Phase 1 during Pattern 1/1/1

All Patterns			
1	2	3	4
5	6		8

SYNCHRO-HCM Measures of Effectiveness: Optimized AM Period












Lanes, Volumes, Timings
7: Orange Ave & Gatlin Ave

05/03/2018

											
Lane Group	WBL2	WBL	WBR	NBL	NBT	NBR	SBL	SBT	SBR	NEL	NER
Lane Configurations											
Traffic Volume (vph)	460	0	180	0	1491	209	108	1247	0	0	0
Future Volume (vph)	460	0	180	0	1491	209	108	1247	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)		156	0	150		252	266		0	0	0
Storage Lanes		1	0	1		1	1		0	0	0
Taper Length (ft)		25		25			25			25	
Lane Util. Factor	0.95	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00
Frt		0.912				0.850					
Flt Protected	0.950	0.980					0.950				
Satd. Flow (prot)	1681	1582	0	1863	3539	1583	1770	3539	0	0	0
Flt Permitted	0.950	0.980					0.950				
Satd. Flow (perm)	1681	1582	0	1863	3539	1583	1770	3539	0	0	0
Right Turn on Red			Yes			Yes			Yes		
Satd. Flow (RTOR)		72				134					
Link Speed (mph)		25			40			40		30	
Link Distance (ft)		1000			3693			351		630	
Travel Time (s)		27.3			62.9			6.0		14.3	
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)	500	0	196	0	1621	227	117	1355	0	0	0
Shared Lane Traffic (%)	28%										
Lane Group Flow (vph)	360	336	0	0	1621	227	117	1355	0	0	0
Turn Type	Prot	Prot		Prot	NA	Perm	Prot	NA			
Protected Phases	4	4		1	6		5	2			
Permitted Phases						6					
Detector Phase	4	4		1	6	6	5	2			
Switch Phase											
Minimum Initial (s)	7.0	7.0		5.0	15.0	15.0	5.0	15.0			
Minimum Split (s)	18.0	18.0		18.0	39.4	39.4	18.0	22.5			
Total Split (s)	52.0	52.0		18.0	77.0	77.0	21.0	80.0			
Total Split (%)	34.7%	34.7%		12.0%	51.3%	51.3%	14.0%	53.3%			
Maximum Green (s)	46.6	46.6		11.6	70.6	70.6	14.5	73.5			
Yellow Time (s)	3.4	3.4		4.4	4.4	4.4	4.5	4.5			
All-Red Time (s)	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			
Total Lost Time (s)	5.4	5.4		6.4	6.4	6.4	6.5	6.5			
Lead/Lag				Lead	Lag	Lag	Lead	Lag			
Lead-Lag Optimize?				Yes	Yes	Yes	Yes	Yes			
Vehicle Extension (s)	3.0	3.0		3.0	2.5	2.5	3.0	2.5			
Recall Mode	None	None		None	C-Max	C-Max	None	C-Max			
Walk Time (s)					7.0	7.0					
Flash Dont Walk (s)					11.0	11.0					
Pedestrian Calls (#/hr)					0	0					
Act Effct Green (s)	37.5	37.5			80.1	80.1	14.1	100.6			
Actuated g/C Ratio	0.25	0.25			0.53	0.53	0.09	0.67			
v/c Ratio	0.86	0.75			0.86	0.25	0.70	0.57			
Control Delay	72.8	50.4			37.1	9.5	79.2	12.6			
Queue Delay	0.0	0.0			2.3	0.0	0.0	4.0			
Total Delay	72.8	50.4			39.4	9.5	79.2	16.6			

Lanes, Volumes, Timings
7: Orange Ave & Gatlin Ave

05/03/2018

											
Lane Group	WBL2	WBL	WBR	NBL	NBT	NBR	SBL	SBT	SBR	NEL	NER
LOS	E	D			D	A	E	B			
Approach Delay		62.0			35.7			21.6			
Approach LOS		E			D			C			
Queue Length 50th (ft)	355	256			716	45	111	262			
Queue Length 95th (ft)	453	353			#980	107	m#175	395			
Internal Link Dist (ft)		920			3613			271		550	
Turn Bay Length (ft)	156	156				252	266				
Base Capacity (vph)	522	541			1889	907	181	2374			
Starvation Cap Reductn	0	0			0	0	0	915			
Spillback Cap Reductn	0	2			155	0	0	0			
Storage Cap Reductn	0	0			0	0	0	0			
Reduced v/c Ratio	0.69	0.62			0.93	0.25	0.65	0.93			

Intersection Summary

Area Type: Other

Cycle Length: 150

Actuated Cycle Length: 150

Offset: 113 (75%), Referenced to phase 2:SBT and 6:NBT, Start of 1st Green

Natural Cycle: 90

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.86

Intersection Signal Delay: 35.1

Intersection LOS: D

Intersection Capacity Utilization 80.7%

ICU Level of Service D

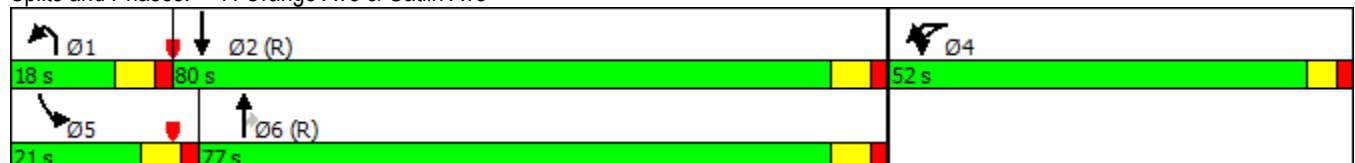
Analysis Period (min) 15

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

Queue shown is maximum after two cycles.























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

Splits and Phases: 7: Orange Ave & Gatlin Ave



Lanes, Volumes, Timings
8: Orange Ave & Holden Ave













05/03/2018

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	243	19	364	2	22	8	283	1351	7	5	985	147
Future Volume (vph)	243	19	364	2	22	8	283	1351	7	5	985	147
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	136		0	90		0	217		175	124		0
Storage Lanes	1		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		0.858			0.959				0.850		0.981	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	1598	0	1770	1786	0	1770	3539	1583	1770	3472	0
Flt Permitted	0.950			0.580			0.950			0.950		
Satd. Flow (perm)	1770	1598	0	1080	1786	0	1770	3539	1583	1770	3472	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		210			9				186			17
Link Speed (mph)		35			25			40				40
Link Distance (ft)		1000			540			351				3069
Travel Time (s)		19.5			14.7			6.0				52.3
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)	264	21	396	2	24	9	308	1468	8	5	1071	160
Shared Lane Traffic (%)												
Lane Group Flow (vph)	264	417	0	2	33	0	308	1468	8	5	1231	0
Turn Type	Prot	NA		Perm	NA		Prot	NA	Perm	Prot	NA	
Protected Phases	3	8			4		5	2		1	6	
Permitted Phases				4					2			
Detector Phase	3	8		4	4		5	2	2	1	6	
Switch Phase												
Minimum Initial (s)	5.0	7.0		7.0	7.0		5.0	15.0	15.0	5.0	15.0	
Minimum Split (s)	18.0	18.0		18.0	18.0		11.9	39.9	39.9	18.0	33.9	
Total Split (s)	26.0	44.0		18.0	18.0		18.0	72.0	72.0	34.0	88.0	
Total Split (%)	17.3%	29.3%		12.0%	12.0%		12.0%	48.0%	48.0%	22.7%	58.7%	
Maximum Green (s)	18.6	36.6		11.3	11.3		11.1	65.1	65.1	27.1	81.1	
Yellow Time (s)	4.1	4.1		3.4	3.4		4.4	4.4	4.4	4.4	4.4	
All-Red Time (s)	3.3	3.3		3.3	3.3		2.5	2.5	2.5	2.5	2.5	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	7.4	7.4		6.7	6.7		6.9	6.9	6.9	6.9	6.9	
Lead/Lag	Lead			Lag	Lag		Lead	Lag	Lag	Lead	Lag	
Lead-Lag Optimize?	Yes			Yes	Yes		Yes	Yes	Yes	Yes	Yes	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	2.5	2.5	3.0	2.5	
Recall Mode	None	None		None	None		None	C-Max	C-Max	None	C-Max	
Walk Time (s)								7.0	7.0			7.0
Flash Dont Walk (s)								22.0	22.0			13.0
Pedestrian Calls (#/hr)								0	0			0
Act Effect Green (s)	18.6	30.8		8.3	8.3		16.9	102.1	102.1	6.1	81.1	
Actuated g/C Ratio	0.12	0.21		0.06	0.06		0.11	0.68	0.68	0.04	0.54	
v/c Ratio	1.21	0.84		0.03	0.31		1.56	0.61	0.01	0.07	0.65	
Control Delay	180.7	43.4		67.0	60.4		304.7	6.4	0.0	95.2	18.6	
Queue Delay	0.0	32.6		0.0	0.0		0.0	2.6	0.0	0.0	0.0	
Total Delay	180.7	76.0		67.0	60.4		304.7	9.1	0.0	95.2	18.6	

Lanes, Volumes, Timings

8: Orange Ave & Holden Ave

05/03/2018

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
LOS	F	E		E	E		F	A	A	F	B	
Approach Delay		116.6			60.8			60.1			19.0	
Approach LOS		F			E			E			B	
Queue Length 50th (ft)	~313	205		2	23		~440	18	0	4	435	
Queue Length 95th (ft)	#500	336		11	59		m#603	825	m0	m9	493	
Internal Link Dist (ft)		920			460			271			2989	
Turn Bay Length (ft)	136			90			217		175	124		
Base Capacity (vph)	219	548		81	142		198	2408	1136	319	1885	
Starvation Cap Reductn	0	0		0	0		0	787	0	0	0	
Spillback Cap Reductn	0	147		0	0		0	0	0	0	1	
Storage Cap Reductn	0	0		0	0		0	0	0	0	0	
Reduced v/c Ratio	1.21	1.04		0.02	0.23		1.56	0.91	0.01	0.02	0.65	

Intersection Summary

Area Type: Other

Cycle Length: 150

Actuated Cycle Length: 150

Offset: 141 (94%), Referenced to phase 2:NBT and 6:SBT, Start of 1st Green

Natural Cycle: 125

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.56

Intersection Signal Delay: 56.8

Intersection LOS: E

Intersection Capacity Utilization 88.8%

ICU Level of Service E

Analysis Period (min) 15

~ Volume exceeds capacity, queue is theoretically infinite.

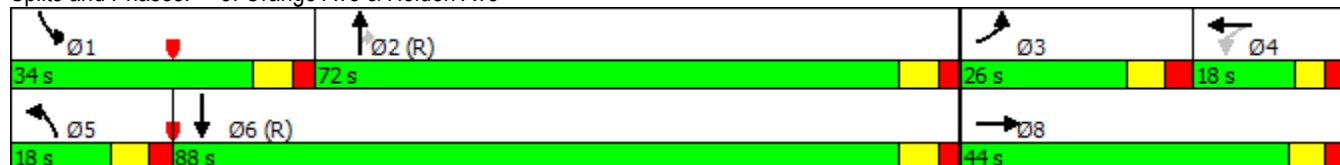
Queue shown is maximum after two cycles.

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

Queue shown is maximum after two cycles.

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



















Splits and Phases: 8: Orange Ave & Holden Ave



SYNCHRO-HCM Measures of Effectiveness: Optimized MD Period












Lanes, Volumes, Timings
7: Orange Ave & Gatlin Ave

05/16/2018

											
Lane Group	WBL2	WBL	WBR	NBL	NBT	NBR	SBL	SBT	SBR	NEL	NER
Lane Configurations											
Traffic Volume (vph)	199	0	134	0	1168	217	111	1180	0	0	0
Future Volume (vph)	199	0	134	0	1168	217	111	1180	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)		156	0	150		252	120		0	0	0
Storage Lanes		0	0	1		1	1		0	0	0
Taper Length (ft)		25		25			25			25	
Lane Util. Factor	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00
Frt		0.850				0.850					
Flt Protected	0.950						0.950				
Satd. Flow (prot)	1770	1583	0	1863	3539	1583	1770	3539	0	0	0
Flt Permitted	0.950						0.950				
Satd. Flow (perm)	1770	1583	0	1863	3539	1583	1770	3539	0	0	0
Right Turn on Red			Yes			Yes			Yes		
Satd. Flow (RTOR)		220				236					
Link Speed (mph)		25			40			40		30	
Link Distance (ft)		1000			3693			351		447	
Travel Time (s)		27.3			62.9			6.0		10.2	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	216	0	146	0	1270	236	121	1283	0	0	0
Shared Lane Traffic (%)											
Lane Group Flow (vph)	216	146	0	0	1270	236	121	1283	0	0	0
Turn Type	Prot	Prot		Prot	NA	Perm	Prot	NA			
Protected Phases	4	4		1	6		5	2			
Permitted Phases						6					
Detector Phase	4	4		1	6	6	5	2			
Switch Phase											
Minimum Initial (s)	7.0	7.0		5.0	15.0	15.0	5.0	15.0			
Minimum Split (s)	18.0	18.0		18.0	39.5	39.5	18.0	22.5			
Total Split (s)	29.0	29.0		18.0	61.0	61.0	20.0	63.0			
Total Split (%)	26.4%	26.4%		16.4%	55.5%	55.5%	18.2%	57.3%			
Maximum Green (s)	23.6	23.6		11.6	54.6	54.6	13.5	56.5			
Yellow Time (s)	3.4	3.4		4.4	4.4	4.4	4.5	4.5			
All-Red Time (s)	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			
Total Lost Time (s)	5.4	5.4		6.4	6.4	6.4	6.5	6.5			
Lead/Lag				Lead	Lag	Lag	Lead	Lag			
Lead-Lag Optimize?				Yes	Yes	Yes	Yes	Yes			
Vehicle Extension (s)	3.0	3.0		3.0	2.5	2.5	3.0	2.5			
Recall Mode	None	None		None	C-Max	C-Max	None	C-Max			
Walk Time (s)					7.0	7.0					
Flash Dont Walk (s)					11.0	11.0					
Pedestrian Calls (#/hr)					0	0					
Act Effct Green (s)	18.3	18.3			61.5	61.5	12.0	79.8			
Actuated g/C Ratio	0.17	0.17			0.56	0.56	0.11	0.73			
v/c Ratio	0.74	0.33			0.64	0.24	0.63	0.50			
Control Delay	58.1	2.7			13.8	2.3	59.5	4.6			
Queue Delay	0.0	0.0			0.0	0.0	0.0	0.7			
Total Delay	58.1	2.7			13.9	2.3	59.5	5.3			

Lanes, Volumes, Timings
7: Orange Ave & Gatlin Ave

05/16/2018

											
Lane Group	WBL2	WBL	WBR	NBL	NBT	NBR	SBL	SBT	SBR	NEL	NER
LOS	E	A			B	A	E	A			
Approach Delay		35.8			12.1			10.0			
Approach LOS		D			B			A			
Queue Length 50th (ft)	146	0			224	12	90	83			
Queue Length 95th (ft)	217	8			280	m19	m113	m134			
Internal Link Dist (ft)		920			3613			271		367	
Turn Bay Length (ft)	156	156				252	120				
Base Capacity (vph)	379	512			1978	988	221	2568			
Starvation Cap Reductn	0	0			0	0	0	839			
Spillback Cap Reductn	0	2			35	0	0	0			
Storage Cap Reductn	0	0			0	0	0	0			
Reduced v/c Ratio	0.57	0.29			0.65	0.24	0.55	0.74			

Intersection Summary

Area Type: Other

Cycle Length: 110

Actuated Cycle Length: 110

Offset: 59 (54%), Referenced to phase 2:SBT and 6:NBT, Start of 1st Green

Natural Cycle: 80

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.74

Intersection Signal Delay: 13.8

Intersection LOS: B





Intersection Capacity Utilization 64.7%

ICU Level of Service C

Analysis Period (min) 15























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

Splits and Phases: 7: Orange Ave & Gatlin Ave

 Ø1	 Ø2 (R)	 Ø4
18 s	63 s	29 s
 Ø5	 Ø6 (R)	
20 s	61 s	

Lanes, Volumes, Timings
8: Orange Ave & Holden Ave













05/16/2018

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	197	28	240	10	33	27	239	1015	25	16	995	160
Future Volume (vph)	197	28	240	10	33	27	239	1015	25	16	995	160
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	136		0	90		0	116		175	124		0
Storage Lanes	1		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		0.865			0.933				0.850		0.979	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	1611	0	1770	1738	0	1770	3539	1583	1770	3465	0
Flt Permitted	0.950			0.582			0.950			0.950		
Satd. Flow (perm)	1770	1611	0	1084	1738	0	1770	3539	1583	1770	3465	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		249			29				185			19
Link Speed (mph)		35			25			40				40
Link Distance (ft)		1000			540			351				3069
Travel Time (s)		19.5			14.7			6.0				52.3
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)	214	30	261	11	36	29	260	1103	27	17	1082	174
Shared Lane Traffic (%)												
Lane Group Flow (vph)	214	291	0	11	65	0	260	1103	27	17	1256	0
Turn Type	Prot	NA		Perm	NA		Prot	NA	custom	Prot	NA	
Protected Phases	3	8			4		1	6		5	2	
Permitted Phases				4					2			
Detector Phase	3	8		4	4		1	6	2	5	2	
Switch Phase												
Minimum Initial (s)	5.0	7.0		7.0	7.0		5.0	15.0	15.0	5.0	15.0	
Minimum Split (s)	18.0	18.0		18.0	18.0		18.0	33.4	39.4	18.0	39.4	
Total Split (s)	21.0	39.0		18.0	18.0		23.0	53.0	48.0	18.0	48.0	
Total Split (%)	19.1%	35.5%		16.4%	16.4%		20.9%	48.2%	43.6%	16.4%	43.6%	
Maximum Green (s)	13.6	31.6		11.3	11.3		16.1	46.1	41.1	11.1	41.1	
Yellow Time (s)	4.1	4.1		3.4	3.4		4.4	4.4	4.4	4.4	4.4	
All-Red Time (s)	3.3	3.3		3.3	3.3		2.5	2.5	2.5	2.5	2.5	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	7.4	7.4		6.7	6.7		6.9	6.9	6.9	6.9	6.9	
Lead/Lag	Lead			Lag	Lag		Lead	Lag	Lag	Lead	Lag	
Lead-Lag Optimize?	Yes			Yes	Yes		Yes	Yes	Yes	Yes	Yes	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	2.5	2.5	3.0	2.5	
Recall Mode	None	None		None	None		None	C-Max	C-Max	None	C-Max	
Walk Time (s)								7.0	7.0		7.0	
Flash Dont Walk (s)								13.0	22.0		22.0	
Pedestrian Calls (#/hr)								0	0		0	
Act Effect Green (s)	13.6	26.0		8.4	8.4		19.2	63.8	43.6	6.7	43.6	
Actuated g/C Ratio	0.12	0.24		0.08	0.08		0.17	0.58	0.40	0.06	0.40	
v/c Ratio	0.98	0.51		0.13	0.41		0.84	0.54	0.04	0.16	0.91	
Control Delay	105.6	9.8		49.9	37.3		81.5	6.2	0.1	65.6	32.8	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.2	0.0	0.0	0.0	
Total Delay	105.6	9.8		49.9	37.3		81.5	6.3	0.1	65.6	32.8	

Lanes, Volumes, Timings

8: Orange Ave & Holden Ave

05/16/2018

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
LOS	F	A		D	D		F	A	A	E	C	
Approach Delay		50.4			39.1			20.3			33.2	
Approach LOS		D			D			C			C	
Queue Length 50th (ft)	153	23		7	25		170	32	0	10	462	
Queue Length 95th (ft)	#306	92		25	67		#368	84	m0	m19	#612	
Internal Link Dist (ft)		920			460			271			2989	
Turn Bay Length (ft)	136			90			116		175	124		
Base Capacity (vph)	218	640		111	204		308	2054	739	178	1384	
Starvation Cap Reductn	0	0		0	0		0	251	0	0	0	
Spillback Cap Reductn	0	0		0	0		0	0	0	0	0	
Storage Cap Reductn	0	0		0	0		0	0	0	0	0	
Reduced v/c Ratio	0.98	0.45		0.10	0.32		0.84	0.61	0.04	0.10	0.91	

Intersection Summary

Area Type: Other

Cycle Length: 110

Actuated Cycle Length: 110

Offset: 69 (63%), Referenced to phase 2:SBT and 6:NBT, Start of 1st Green

Natural Cycle: 105

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.98

Intersection Signal Delay: 30.5

Intersection LOS: C

Intersection Capacity Utilization 81.1%

ICU Level of Service D

Analysis Period (min) 15

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

Queue shown is maximum after two cycles.

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



















Splits and Phases: 8: Orange Ave & Holden Ave



SYNCHRO-HCM Measures of Effectiveness: Optimized PM Period













Lanes, Volumes, Timings
7: Orange Ave & Gatlin Ave

05/03/2018

											
Lane Group	WBL2	WBL	WBR	NBL	NBT	NBR	SBL	SBT	SBR	NEL	NER
Lane Configurations											
Traffic Volume (vph)	302	0	133	0	1315	474	172	1425	0	0	0
Future Volume (vph)	302	0	133	0	1315	474	172	1425	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)		156	0	150		252	266		0	0	0
Storage Lanes		0	0	1		1	1		0	0	0
Taper Length (ft)		25		25			51			25	
Lane Util. Factor	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	0.95	1.00	1.00
Frt		0.850				0.850					
Flt Protected	0.950						0.950				
Satd. Flow (prot)	1770	1583	0	1863	3539	1583	1770	3539	0	0	0
Flt Permitted	0.950						0.950				
Satd. Flow (perm)	1770	1583	0	1863	3539	1583	1770	3539	0	0	0
Right Turn on Red			Yes			Yes			Yes		
Satd. Flow (RTOR)		245				316					
Link Speed (mph)		25			40			40		30	
Link Distance (ft)		1000			3693			351		298	
Travel Time (s)		27.3			62.9			6.0		6.8	
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)	328	0	145	0	1429	515	187	1549	0	0	0
Shared Lane Traffic (%)											
Lane Group Flow (vph)	328	145	0	0	1429	515	187	1549	0	0	0
Turn Type	Perm	Prot		Prot	NA	Perm	Prot	NA			
Protected Phases		4		1	6		5	2			
Permitted Phases	4					6					
Detector Phase	4	4		1	6	6	5	2			
Switch Phase											
Minimum Initial (s)	7.0	7.0		5.0	15.0	15.0	5.0	15.0			
Minimum Split (s)	34.4	34.4		18.0	39.4	39.4	22.5	22.5			
Total Split (s)	45.0	45.0		20.0	90.0	90.0	35.0	105.0			
Total Split (%)	26.5%	26.5%		11.8%	52.9%	52.9%	20.6%	61.8%			
Maximum Green (s)	39.6	39.6		13.6	83.6	83.6	28.5	98.5			
Yellow Time (s)	3.4	3.4		4.4	4.4	4.4	4.5	4.5			
All-Red Time (s)	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			
Total Lost Time (s)	5.4	5.4		6.4	6.4	6.4	6.5	6.5			
Lead/Lag				Lead	Lag	Lag	Lead	Lag			
Lead-Lag Optimize?				Yes	Yes	Yes	Yes	Yes			
Vehicle Extension (s)	3.0	3.0		3.0	2.5	2.5	3.0	2.5			
Recall Mode	None	None		None	C-Max	C-Max	None	C-Max			
Walk Time (s)	7.0	7.0			7.0	7.0					
Flash Dont Walk (s)	22.0	22.0			11.0	11.0					
Pedestrian Calls (#/hr)	0	0			0	0					
Act Effct Green (s)	35.3	35.3			93.7	93.7	22.7	122.8			
Actuated g/C Ratio	0.21	0.21			0.55	0.55	0.13	0.72			
v/c Ratio	0.89	0.28			0.73	0.51	0.79	0.61			
Control Delay	91.4	1.3			33.2	11.1	101.8	5.2			
Queue Delay	0.0	1.0			3.6	0.0	3.2	1.0			
Total Delay	91.4	2.3			36.8	11.1	105.0	6.2			

Lanes, Volumes, Timings
7: Orange Ave & Gatlin Ave

05/03/2018

												
Lane Group	WBL2	WBL	WBR	NBL	NBT	NBR	SBL	SBT	SBR	NEL	NER	
LOS	F	A			D	B	F	A				
Approach Delay		64.1			30.0			16.9				
Approach LOS		E			C			B				
Queue Length 50th (ft)	355	0			636	129	218	145				
Queue Length 95th (ft)	#491	0			805	255	m263	219				
Internal Link Dist (ft)		920			3613			271		218		
Turn Bay Length (ft)	156	156				252	266					
Base Capacity (vph)	412	556			1950	1014	296	2556				
Starvation Cap Reductn	0	0			0	0	48	679				
Spillback Cap Reductn	0	229			420	0	0	0				
Storage Cap Reductn	0	0			0	0	0	0				
Reduced v/c Ratio	0.80	0.44			0.93	0.51	0.75	0.83				

Intersection Summary

Area Type: Other

Cycle Length: 170

Actuated Cycle Length: 170

Offset: 0 (0%), Referenced to phase 2:SBT and 6:NBT, Start of 1st Green

Natural Cycle: 100

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.89

Intersection Signal Delay: 28.4

Intersection LOS: C

Intersection Capacity Utilization 77.9%

ICU Level of Service D

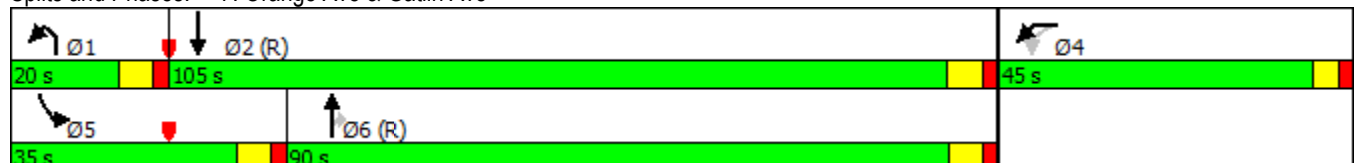
Analysis Period (min) 15

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

Queue shown is maximum after two cycles.























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

Splits and Phases: 7: Orange Ave & Gatlin Ave



Lanes, Volumes, Timings
8: Orange Ave & Holden Ave

05/03/2018

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	146	43	347	9	44	15	277	1130	22	21	1213	116
Future Volume (vph)	146	43	347	9	44	15	277	1130	22	21	1213	116
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	136		0	90		0	217		175	124		0
Storage Lanes	1		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		0.867			0.962				0.850		0.987	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	1615	0	1770	1792	0	1770	3539	1583	1770	3493	0
Flt Permitted	0.950			0.317			0.950			0.950		
Satd. Flow (perm)	1770	1615	0	590	1792	0	1770	3539	1583	1770	3493	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		218			8				120			8
Link Speed (mph)		35			25			40			40	
Link Distance (ft)		1000			540			351			3069	
Travel Time (s)		19.5			14.7			6.0			52.3	
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)	159	47	377	10	48	16	301	1228	24	23	1318	126
Shared Lane Traffic (%)												
Lane Group Flow (vph)	159	424	0	10	64	0	301	1228	24	23	1444	0
Turn Type	Prot	NA		Perm	NA		Prot	NA	Perm	Prot	NA	
Protected Phases	3	8			4		1	6		5	2	
Permitted Phases				4					6			
Detector Phase	3	8		4	4		1	6	6	5	2	
Switch Phase												
Minimum Initial (s)	5.0	7.0		7.0	7.0		5.0	15.0	15.0	5.0	15.0	
Minimum Split (s)	18.0	18.0		18.0	18.0		18.0	39.9	39.9	18.0	39.9	
Total Split (s)	20.0	45.0		25.0	25.0		35.0	105.0	105.0	20.0	90.0	
Total Split (%)	11.8%	26.5%		14.7%	14.7%		20.6%	61.8%	61.8%	11.8%	52.9%	
Maximum Green (s)	12.6	37.6		18.3	18.3		28.1	98.1	98.1	13.1	83.1	
Yellow Time (s)	4.1	4.1		3.4	3.4		4.4	4.4	4.4	4.4	4.4	
All-Red Time (s)	3.3	3.3		3.3	3.3		2.5	2.5	2.5	2.5	2.5	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	7.4	7.4		6.7	6.7		6.9	6.9	6.9	6.9	6.9	
Lead/Lag	Lead			Lag	Lag		Lead	Lag	Lag	Lead	Lag	
Lead-Lag Optimize?	Yes			Yes	Yes		Yes	Yes	Yes	Yes	Yes	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	2.5	2.5	3.0	2.5	
Recall Mode	None	None		None	None		None	C-Max	C-Max	None	C-Max	
Walk Time (s)								7.0	7.0		7.0	
Flash Dont Walk (s)								22.0	22.0		22.0	
Pedestrian Calls (#/hr)								0	0		0	
Act Effect Green (s)	12.6	31.9		12.6	12.6		33.4	114.3	114.3	7.7	83.5	
Actuated g/C Ratio	0.07	0.19		0.07	0.07		0.20	0.67	0.67	0.05	0.49	
v/c Ratio	1.21	0.88		0.23	0.46		0.87	0.52	0.02	0.29	0.84	
Control Delay	208.1	52.3		84.0	74.8		114.0	3.2	0.0	110.2	34.8	
Queue Delay	0.0	6.5		0.0	0.0		55.1	0.2	0.0	0.0	0.1	
Total Delay	208.1	58.9		84.0	74.8		169.0	3.4	0.0	110.2	34.9	


SR 527 Optimized PM Plan 5:00 pm 11/28/2017 PM Opt
HDR Engineering

Synchro 9 Report
Page 17

Lanes, Volumes, Timings

8: Orange Ave & Holden Ave

05/03/2018

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
LOS	F	E		F	E		F	A	A	F	C	
Approach Delay		99.6			76.1			35.5			36.1	
Approach LOS		F			E			D			D	
Queue Length 50th (ft)	~215	246		11	61		353	46	0	24	797	
Queue Length 95th (ft)	#377	381		33	113		#573	55	m0	m35	913	
Internal Link Dist (ft)		920			460			271			2989	
Turn Bay Length (ft)	136			90			217		175	124		
Base Capacity (vph)	131	526		63	200		347	2379	1103	136	1720	
Starvation Cap Reductn	0	0		0	0		126	402	0	0	0	
Spillback Cap Reductn	0	66		0	0		0	0	0	0	17	
Storage Cap Reductn	0	0		0	0		0	0	0	0	0	
Reduced v/c Ratio	1.21	0.92		0.16	0.32		1.36	0.62	0.02	0.17	0.85	

Intersection Summary

Area Type: Other

Cycle Length: 170

Actuated Cycle Length: 170

Offset: 1 (1%), Referenced to phase 2:SBT and 6:NBT, Start of 1st Green

Natural Cycle: 115

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.21

Intersection Signal Delay: 46.7

Intersection LOS: D

Intersection Capacity Utilization 93.9%

ICU Level of Service F

Analysis Period (min) 15

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

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

Queue shown is maximum after two cycles.

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

Splits and Phases: 8: Orange Ave & Holden Ave



1.9 APPENDIX I - 2019: Orange County Realignment Concept Plan review comments

Orange Avenue-Holden Avenue-Gatlin Avenue Intersection Realignment Concept Plan

The concept plan includes the realignment of Holden Avenue south to Gatlin Avenue at Orange Avenue. Holden Avenue has a posted speed of 35 MPH and Gatlin Avenue has a posted speed of 25 MPH. The plan illustrates the realignment of 24' of pavement allowing one 12' travel lane in each direction with an eastbound intersection configuration of one shared left-through lane and a dedicated right turn lane (both 12' width. The geometry of the realignment includes two curves with inside edge of pavement radii of 100' separated by a tangent of approximately 225'. The realignment sets up an intersection deflection of approximately 4.5 degrees. Other observations include:

1. The designer should disclose the design speed of the proposed realignment.
2. The designer should show the limits of the proposed right-of-way.
3. I presume the existing railroad crossing (including sidewalks) will be closed/eliminated with a cul-de-sac installed on the east side of the tracks on Holden Avenue. Coordination with FDOT is required to determine the mitigation required for creating a new railroad crossing. The designer did not disclose what will happen to the existing traffic signal at Holden Avenue.
4. Railroad crossings shall be consistent with FDOT standards (PPL Chapter 6, DS Index 560, FDM 220, MUTCD Chapter 8 and others as applicable)
5. Storage lengths of the eastbound turn lanes should be verified based on projections of current turning movement counts and microsimulation.
6. The proposed tangent length between the curves appears to be adequate.
7. The proposed intersection deflection appears to be adequate. Maximum deflection is 6 degrees at 35 MPH, FDG Table 212.7.1.
8. The existing traffic splitter island on Gatlin Avenue will have to be modified to receive the eastbound through movement from the realignment.
9. Curve radii of 100' does not meet FDOT criteria (DS Index 511) for Holden Avenue's current design speed (assume the current design speed is 35-40 MPH). Based on a design speed of 35 MPH the resulting maximum reverse crown curve (0.02 Superelevation) radii is 546'.
10. Sidewalks will be required on both sides of the realignment with connections to the existing sidewalks on Orange Avenue and the sidewalk on the south side of Holden Avenue. The sidewalk on the north side of the realignment should terminate at the nearest driveway on the north side of Holden Avenue. Additional right-of-way may be needed for the sidewalk connection on the north side of the realignment at Orange Avenue,
11. Drainage considerations are not illustrated on this concept plan. If curb and gutter is proposed then stormwater treatment and a positive drainage outfall is required. If curb and gutter is not proposed then appropriate shoulder pavement, swales, treatment and positive outfall is required.
12. Roadway lighting (LED) should be considered.



Intersection Analysis Study for Orange Avenue/Gatlin Avenue & Orange Avenue/Holden Avenue

Appendix B: Traffic Data

8-HOUR TURNING MOVEMENT COUNT
(Weekday)

**SR 527 at Gatlin Avenue
Orange County**

Prepared for:

TSM&O Continuing Services
Florida Department of Transportation – District Five
719 South Woodland Boulevard
Deland, Florida 32720

Prime Consultant:
HDR Engineering, Inc.
Financial Project No.: 440412-1-32-02
FDOT Contract No.: C-9V31
TWO No. 1 - Study No. 10

Prepared by:
Adams Traffic, Inc.
Certificate of Authorization License No. 8959
2404 Airport Road, Suite 2
Plant City, FL 33563

October 2017



Turning Movement Count Field Data Sheet & Sketch

Date: 10/18/17

Count Times: 7-9am; 11:30am-1:30pm; 2-6pm

Major Street: SR 527 (Orange Avenue)

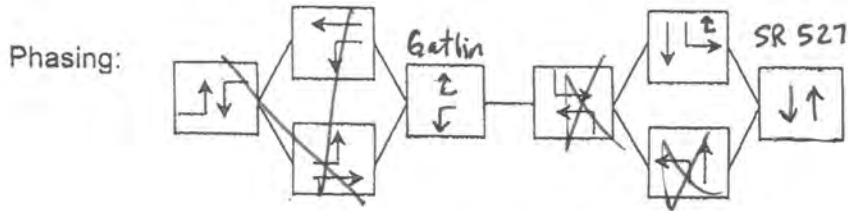
Direction: N-S Speed Limit: 40 mph

Minor Street: Gatlin Avenue

Direction: E-W Speed Limit: 25 mph

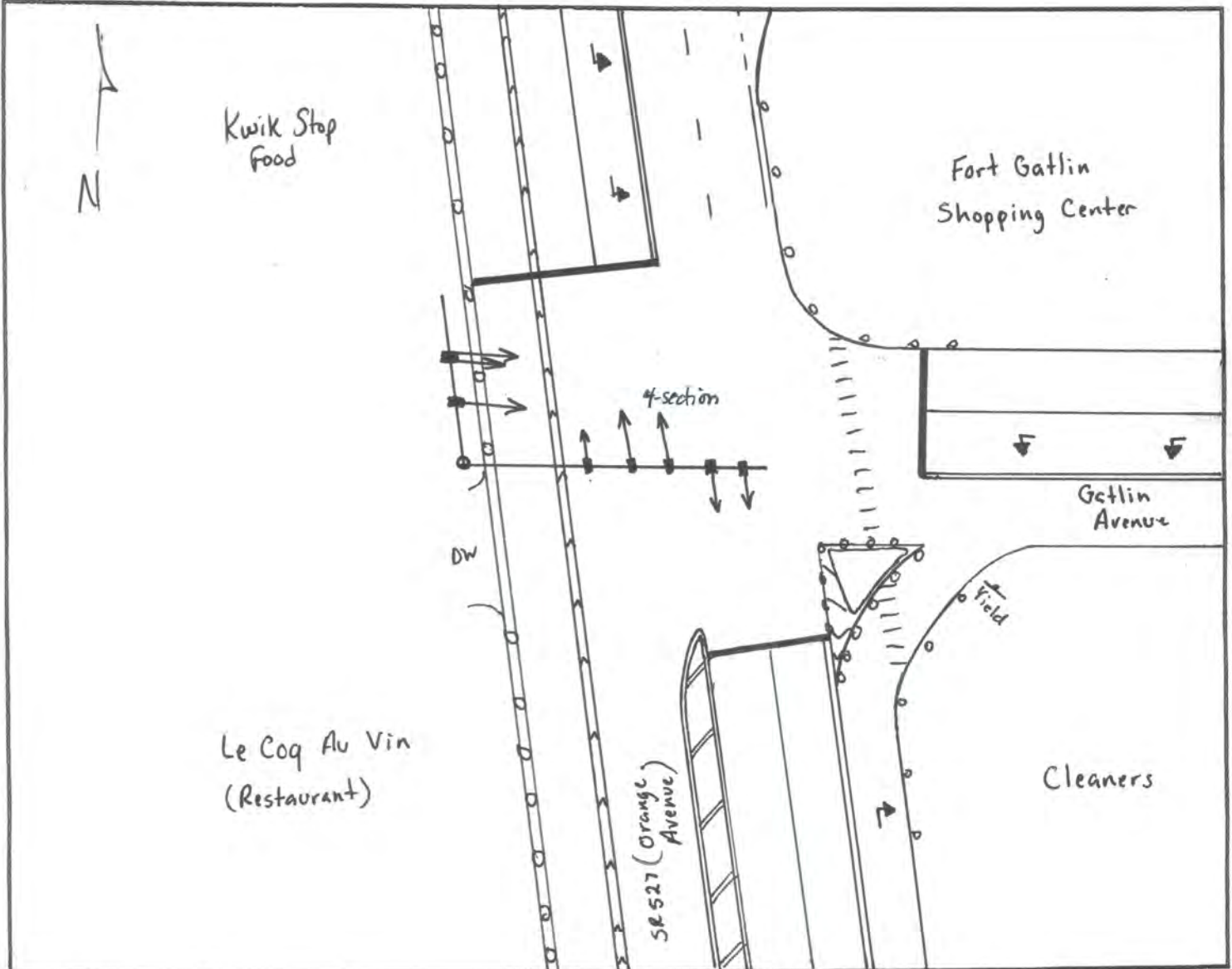
City/County: Orlando / Orange

Weather: On/Off Rain 11:30am-1:30pm



* Under Construction *

Intersection Sketch



Intersection Turning Movement Count

City/County: Orlando/Orange
Weather: On/Off Rain 11:30-1:30
Comments:

File Name : SR527&Gatlin
Site Code : 1701010
Start Date : 10/18/2017
Page No : 1

Groups Printed- Passenger Vehicles - Heavy Vehicles - UTurns

Start Time	SR 527 Southbound					GATLIN AVENUE Westbound					SR 527 Northbound					Int. Total
	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	
07:00 AM	18	220	0	0	238	80	0	27	4	111	0	347	19	9	375	724
07:15 AM	29	301	0	0	330	88	0	20	15	123	0	384	28	8	420	873
07:30 AM	18	331	0	0	349	106	0	24	11	141	0	345	30	14	389	879
07:45 AM	25	263	0	0	288	112	0	33	9	154	0	300	37	19	356	798
Total	90	1115	0	0	1205	386	0	104	39	529	0	1376	114	50	1540	3274
08:00 AM	27	249	0	0	276	116	0	35	18	169	0	339	34	22	395	840
08:15 AM	26	257	0	0	283	78	0	25	11	114	0	273	32	14	319	716
08:30 AM	24	289	0	0	313	105	0	22	14	141	0	311	47	20	378	832
08:45 AM	28	243	0	0	271	73	0	44	12	129	0	317	22	13	352	752
Total	105	1038	0	0	1143	372	0	126	55	553	0	1240	135	69	1444	3140
*** BREAK ***																
11:30 AM	22	225	0	0	247	51	0	19	16	86	0	239	23	13	275	608
11:45 AM	25	262	0	0	287	34	0	21	13	68	0	282	30	15	327	682
Total	47	487	0	0	534	85	0	40	29	154	0	521	53	28	602	1290
12:00 PM	27	274	0	0	301	42	0	13	11	66	0	265	40	15	320	687
12:15 PM	24	285	0	0	309	47	0	18	10	75	0	282	32	14	328	712
12:30 PM	26	262	0	0	288	60	0	26	11	97	0	243	33	20	296	681
12:45 PM	23	222	0	0	245	56	0	27	7	90	0	279	26	13	318	653
Total	100	1043	0	0	1143	205	0	84	39	328	0	1069	131	62	1262	2733
01:00 PM	20	308	0	0	328	52	0	23	8	83	1	265	21	15	302	713
01:15 PM	24	299	0	0	323	58	0	18	6	82	0	227	26	23	276	681
*** BREAK ***																
Total	44	607	0	0	651	110	0	41	14	165	1	492	47	38	578	1394
02:00 PM	28	267	0	0	295	58	0	19	7	84	0	262	51	20	333	712
02:15 PM	31	297	0	0	328	52	0	14	5	71	0	292	38	19	349	748
02:30 PM	27	290	0	0	317	57	0	19	14	90	0	311	43	18	372	779
02:45 PM	27	300	0	0	327	44	0	11	11	66	0	261	46	12	319	712
Total	113	1154	0	0	1267	211	0	63	37	311	0	1126	178	69	1373	2951
03:00 PM	41	263	0	0	304	66	0	12	13	91	0	244	28	17	289	684
03:15 PM	29	310	0	0	339	40	0	9	6	55	0	325	40	20	385	779
03:30 PM	43	316	0	0	359	43	0	12	11	66	0	292	55	29	376	801
03:45 PM	35	362	0	0	397	53	0	9	12	74	0	265	66	19	350	821
Total	148	1251	0	0	1399	202	0	42	42	286	0	1126	189	85	1400	3085
04:00 PM	36	362	0	0	398	72	0	29	4	105	0	292	50	33	375	878
04:15 PM	44	316	0	0	360	66	0	16	10	92	0	242	53	24	319	771
04:30 PM	32	385	0	0	417	60	0	15	8	83	0	305	63	40	408	908
04:45 PM	31	335	0	0	366	58	0	21	7	86	0	265	66	35	366	818
Total	143	1398	0	0	1541	256	0	81	29	366	0	1104	232	132	1468	3375
05:00 PM	48	298	0	0	346	75	0	10	12	97	0	276	66	48	390	833
05:15 PM	35	342	0	0	377	62	0	22	15	99	0	300	91	31	422	898
05:30 PM	44	331	0	0	375	64	0	19	11	94	0	312	55	35	402	871
05:45 PM	31	336	0	0	367	76	0	22	11	109	0	318	59	50	427	903
Total	158	1307	0	0	1465	277	0	73	49	399	0	1206	271	164	1641	3505
Grand Total	948	9400	0	0	10348	2104	0	654	333	3091	1	9260	1350	697	11308	24747
Apprch %	9.2	90.8	0	0		68.1	0	21.2	10.8		0	81.9	11.9	6.2		
Total %	3.8	38	0	0	41.8	8.5	0	2.6	1.3	12.5	0	37.4	5.5	2.8	45.7	
Passenger Vehicles	932	8944	0	0	9876	2073	0	646	328	3047	0	8874	1335	690	10899	23822
% Passenger Vehicles	98.3	95.1	0	0	95.4	98.5	0	98.8	98.5	98.6	0	95.8	98.9	99	96.4	96.3
Heavy Vehicles	15	456	0	0	471	31	0	8	5	44	0	386	15	7	408	923
% Heavy Vehicles	1.6	4.9	0	0	4.6	1.5	0	1.2	1.5	1.4	0	4.2	1.1	1	3.6	3.7
UTurns	1	0	0	0	1	0	0	0	0	0	1	0	0	0	1	2
% UTurns	0.1	0	0	0	0	0	0	0	0	0	100	0	0	0	0	0

Intersection Turning Movement Count

Start Time	SR 527 Southbound					GATLIN AVENUE Westbound					SR 527 Northbound					Int. Total
	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	

Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1

Peak Hour for Entire Intersection Begins at 07:15 AM

07:15 AM	29	301	0	0	330	88	0	20	15	123	0	384	28	8	420	873
07:30 AM	18	331	0	0	349	106	0	24	11	141	0	345	30	14	389	879
07:45 AM	25	263	0	0	288	112	0	33	9	154	0	300	37	19	356	798
08:00 AM	27	249	0	0	276	116	0	35	18	169	0	339	34	22	395	840
Total Volume	99	1144	0	0	1243	422	0	112	53	587	0	1368	129	63	1560	3390
% App. Total	8	92	0	0		71.9	0	19.1	9		0	87.7	8.3	4		
PHF	.853	.864	.000	.000	.890	.909	.000	.800	.736	.868	.000	.891	.872	.716	.929	.964
Passenger Vehicles	97	1090	0	0	1187	415	0	111	52	578	0	1312	127	62	1501	3266
% Passenger Vehicles	98.0	95.3	0	0	95.5	98.3	0	99.1	98.1	98.5	0	95.9	98.4	98.4	96.2	96.3
Heavy Vehicles	2	54	0	0	56	7	0	1	1	9	0	56	2	1	59	124
% Heavy Vehicles	2.0	4.7	0	0	4.5	1.7	0	0.9	1.9	1.5	0	4.1	1.6	1.6	3.8	3.7
UTurns	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% UTurns	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1

Peak Hour for Each Approach Begins at:

	07:15 AM					07:15 AM					07:15 AM				
+0 mins.	29	301	0	0	330	88	0	20	15	123	0	384	28	8	420
+15 mins.	18	331	0	0	349	106	0	24	11	141	0	345	30	14	389
+30 mins.	25	263	0	0	288	112	0	33	9	154	0	300	37	19	356
+45 mins.	27	249	0	0	276	116	0	35	18	169	0	339	34	22	395
Total Volume	99	1144	0	0	1243	422	0	112	53	587	0	1368	129	63	1560
% App. Total	8	92	0	0		71.9	0	19.1	9		0	87.7	8.3	4	
PHF	.853	.864	.000	.000	.890	.909	.000	.800	.736	.868	.000	.891	.872	.716	.929
Passenger Vehicles	97	1090	0	0	1187	415	0	111	52	578	0	1312	127	62	1501
% Passenger Vehicles	98	95.3	0	0	95.5	98.3	0	99.1	98.1	98.5	0	95.9	98.4	98.4	96.2
Heavy Vehicles	2	54	0	0	56	7	0	1	1	9	0	56	2	1	59
% Heavy Vehicles	2	4.7	0	0	4.5	1.7	0	0.9	1.9	1.5	0	4.1	1.6	1.6	3.8
UTurns	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% UTurns	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Peak Hour Analysis From 11:30 AM to 01:15 PM - Peak 1 of 1

Peak Hour for Entire Intersection Begins at 11:45 AM

11:45 AM	25	262	0	0	287	34	0	21	13	68	0	282	30	15	327	682
12:00 PM	27	274	0	0	301	42	0	13	11	66	0	265	40	15	320	687
12:15 PM	24	285	0	0	309	47	0	18	10	75	0	282	32	14	328	712
12:30 PM	26	262	0	0	288	60	0	26	11	97	0	243	33	20	296	681
Total Volume	102	1083	0	0	1185	183	0	78	45	306	0	1072	135	64	1271	2762
% App. Total	8.6	91.4	0	0		59.8	0	25.5	14.7		0	84.3	10.6	5		
PHF	.944	.950	.000	.000	.959	.763	.000	.750	.865	.789	.000	.950	.844	.800	.969	.970
Passenger Vehicles	100	1009	0	0	1109	182	0	77	45	304	0	1014	131	63	1208	2621
% Passenger Vehicles	98.0	93.2	0	0	93.6	99.5	0	98.7	100	99.3	0	94.6	97.0	98.4	95.0	94.9
Heavy Vehicles	2	74	0	0	76	1	0	1	0	2	0	58	4	1	63	141
% Heavy Vehicles	2.0	6.8	0	0	6.4	0.5	0	1.3	0	0.7	0	5.4	3.0	1.6	5.0	5.1
UTurns	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% UTurns	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Peak Hour Analysis From 11:30 AM to 01:15 PM - Peak 1 of 1

Peak Hour for Each Approach Begins at:

	11:45 AM					12:30 PM					11:45 AM				
+0 mins.	25	262	0	0	287	60	0	26	11	97	0	282	30	15	327
+15 mins.	27	274	0	0	301	56	0	27	7	90	0	265	40	15	320
+30 mins.	24	285	0	0	309	52	0	23	8	83	0	282	32	14	328
+45 mins.	26	262	0	0	288	58	0	18	6	82	0	243	33	20	296
Total Volume	102	1083	0	0	1185	226	0	94	32	352	0	1072	135	64	1271
% App. Total	8.6	91.4	0	0		64.2	0	26.7	9.1		0	84.3	10.6	5	
PHF	.944	.950	.000	.000	.959	.942	.000	.870	.727	.907	.000	.950	.844	.800	.969
Passenger Vehicles	100	1009	0	0	1109	223	0	92	31	346	0	1014	131	63	1208

Intersection Turning Movement Count

% Passenger Vehicles	98	93.2	0	0	93.6	98.7	0	97.9	96.9	98.3	0	94.6	97	98.4	95
Heavy Vehicles	2	74	0	0	76	3	0	2	1	6	0	58	4	1	63
% Heavy Vehicles	2	6.8	0	0	6.4	1.3	0	2.1	3.1	1.7	0	5.4	3	1.6	5
UTurns	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% UTurns	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Peak Hour Analysis From 02:00 PM to 05:45 PM - Peak 1 of 1															
Peak Hour for Entire Intersection Begins at 05:00 PM															
05:00 PM	48	298	0	0	346	75	0	10	12	97	0	276	66	48	390
05:15 PM	35	342	0	0	377	62	0	22	15	99	0	300	91	31	422
05:30 PM	44	331	0	0	375	64	0	19	11	94	0	312	55	35	402
05:45 PM	31	336	0	0	367	76	0	22	11	109	0	318	59	50	427
Total Volume	158	1307	0	0	1465	277	0	73	49	399	0	1206	271	164	1641
% App. Total	10.8	89.2	0	0		69.4	0	18.3	12.3		0	73.5	16.5	10	
PHF	.823	.955	.000	.000	.971	.911	.000	.830	.817	.915	.000	.948	.745	.820	.961
Passenger Vehicles	158	1269	0	0	1427	277	0	73	48	398	0	1174	271	164	1609
% Passenger Vehicles	100	97.1	0	0	97.4	100	0	100	98.0	99.7	0	97.3	100	100	98.0
Heavy Vehicles	0	38	0	0	38	0	0	0	1	1	0	32	0	0	32
% Heavy Vehicles	0	2.9	0	0	2.6	0	0	0	2.0	0.3	0	2.7	0	0	2.0
UTurns	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% UTurns	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Peak Hour Analysis From 02:00 PM to 05:45 PM - Peak 1 of 1

Peak Hour for Each Approach Begins at:

	03:45 PM					05:00 PM					05:00 PM				
+0 mins.	35	362	0	0	397	75	0	10	12	97	0	276	66	48	390
+15 mins.	36	362	0	0	398	62	0	22	15	99	0	300	91	31	422
+30 mins.	44	316	0	0	360	64	0	19	11	94	0	312	55	35	402
+45 mins.	32	385	0	0	417	76	0	22	11	109	0	318	59	50	427
Total Volume	147	1425	0	0	1572	277	0	73	49	399	0	1206	271	164	1641
% App. Total	9.4	90.6	0	0		69.4	0	18.3	12.3		0	73.5	16.5	10	
PHF	.835	.925	.000	.000	.942	.911	.000	.830	.817	.915	.000	.948	.745	.820	.961
Passenger Vehicles	146	1362	0	0	1508	277	0	73	48	398	0	1174	271	164	1609
% Passenger Vehicles	99.3	95.6	0	0	95.9	100	0	100	98	99.7	0	97.3	100	100	98
Heavy Vehicles	1	63	0	0	64	0	0	0	1	1	0	32	0	0	32
% Heavy Vehicles	0.7	4.4	0	0	4.1	0	0	0	2	0.3	0	2.7	0	0	2
UTurns	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% UTurns	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Intersection Turning Movement Count

City/County: Orlando/Orange
 Weather: On/Off Rain 11:30-1:30
 Comments:

File Name : SR527&Gatlin
 Site Code : 1701010
 Start Date : 10/18/2017
 Page No : 1

Groups Printed- Passenger Vehicles																
Start Time	SR 527 Southbound					GATLIN AVENUE Westbound					SR 527 Northbound					Int. Total
	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	
07:00 AM	17	212	0	0	229	79	0	27	4	110	0	331	19	9	359	698
07:15 AM	28	291	0	0	319	87	0	19	15	121	0	369	26	8	403	843
07:30 AM	18	319	0	0	337	104	0	24	10	138	0	338	30	14	382	857
07:45 AM	25	253	0	0	278	110	0	33	9	152	0	284	37	19	340	770
Total	88	1075	0	0	1163	380	0	103	38	521	0	1322	112	50	1484	3168
08:00 AM	26	227	0	0	253	114	0	35	18	167	0	321	34	21	376	796
08:15 AM	25	244	0	0	269	78	0	24	11	113	0	265	31	14	310	692
08:30 AM	22	268	0	0	290	103	0	21	14	138	0	291	46	20	357	785
08:45 AM	28	233	0	0	261	73	0	43	12	128	0	297	22	13	332	721
Total	101	972	0	0	1073	368	0	123	55	546	0	1174	133	68	1375	2994
*** BREAK ***																
11:30 AM	21	208	0	0	229	48	0	19	15	82	0	225	23	13	261	572
11:45 AM	25	248	0	0	273	34	0	21	13	68	0	271	29	15	315	656
Total	46	456	0	0	502	82	0	40	28	150	0	496	52	28	576	1228
12:00 PM	25	252	0	0	277	42	0	13	11	66	0	250	38	15	303	646
12:15 PM	24	266	0	0	290	46	0	18	10	74	0	269	32	14	315	679
12:30 PM	26	243	0	0	269	60	0	25	11	96	0	224	32	19	275	640
12:45 PM	23	206	0	0	229	56	0	27	6	89	0	269	25	12	306	624
Total	98	967	0	0	1065	204	0	83	38	325	0	1012	127	60	1199	2589
01:00 PM	19	288	0	0	307	51	0	23	8	82	0	255	21	15	291	680
01:15 PM	22	288	0	0	310	56	0	17	6	79	0	217	25	23	265	654
*** BREAK ***																
Total	41	576	0	0	617	107	0	40	14	161	0	472	46	38	556	1334
02:00 PM	27	254	0	0	281	55	0	19	6	80	0	249	49	20	318	679
02:15 PM	31	272	0	0	303	52	0	14	5	71	0	275	37	19	331	705
02:30 PM	26	281	0	0	307	56	0	18	14	88	0	290	43	18	351	746
02:45 PM	27	284	0	0	311	43	0	11	11	65	0	252	46	12	310	686
Total	111	1091	0	0	1202	206	0	62	36	304	0	1066	175	69	1310	2816
03:00 PM	41	255	0	0	296	65	0	12	13	90	0	237	28	17	282	668
03:15 PM	28	292	0	0	320	39	0	9	6	54	0	315	40	20	375	749
03:30 PM	43	299	0	0	342	42	0	12	11	65	0	280	55	29	364	771
03:45 PM	35	343	0	0	378	51	0	9	12	72	0	260	65	18	343	793
Total	147	1189	0	0	1336	197	0	42	42	281	0	1092	188	84	1364	2981
04:00 PM	35	346	0	0	381	72	0	29	4	105	0	284	50	33	367	853
04:15 PM	44	301	0	0	345	65	0	15	10	90	0	236	52	24	312	747
04:30 PM	32	372	0	0	404	58	0	15	8	81	0	297	63	40	400	885
04:45 PM	31	330	0	0	361	57	0	21	7	85	0	249	66	32	347	793
Total	142	1349	0	0	1491	252	0	80	29	361	0	1066	231	129	1426	3278
05:00 PM	48	291	0	0	339	75	0	10	12	97	0	267	66	48	381	817
05:15 PM	35	332	0	0	367	62	0	22	15	99	0	293	91	31	415	881
05:30 PM	44	319	0	0	363	64	0	19	10	93	0	304	55	35	394	850
05:45 PM	31	327	0	0	358	76	0	22	11	109	0	310	59	50	419	886
Total	158	1269	0	0	1427	277	0	73	48	398	0	1174	271	164	1609	3434
Grand Total	932	8944	0	0	9876	2073	0	646	328	3047	0	8874	1335	690	10899	23822
Apprch %	9.4	90.6	0	0		68	0	21.2	10.8		0	81.4	12.2	6.3		
Total %	3.9	37.5	0	0	41.5	8.7	0	2.7	1.4	12.8	0	37.3	5.6	2.9	45.8	

Intersection Turning Movement Count

City/County: Orlando/Orange
 Weather: On/Off Rain 11:30-1:30
 Comments:

File Name : SR527&Gatlin
 Site Code : 1701010
 Start Date : 10/18/2017
 Page No : 2

	SR 527 Southbound					GATLIN AVENUE Westbound					SR 527 Northbound					
Start Time	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																
Peak Hour for Entire Intersection Begins at 07:15 AM																
07:15 AM	28	291	0	0	319	87	0	19	15	121	0	369	26	8	403	843
07:30 AM	18	319	0	0	337	104	0	24	10	138	0	338	30	14	382	857
07:45 AM	25	253	0	0	278	110	0	33	9	152	0	284	37	19	340	770
08:00 AM	26	227	0	0	253	114	0	35	18	167	0	321	34	21	376	796
Total Volume	97	1090	0	0	1187	415	0	111	52	578	0	1312	127	62	1501	3266
% App. Total	8.2	91.8	0	0		71.8	0	19.2	9		0	87.4	8.5	4.1		
PHF	.866	.854	.000	.000	.881	.910	.000	.793	.722	.865	.000	.889	.858	.738	.931	.953

Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1

Peak Hour for Each Approach Begins at:

	07:15 AM					07:15 AM					07:15 AM					
+0 mins.	28	291	0	0	319	87	0	19	15	121	0	369	26	8	403	
+15 mins.	18	319	0	0	337	104	0	24	10	138	0	338	30	14	382	
+30 mins.	25	253	0	0	278	110	0	33	9	152	0	284	37	19	340	
+45 mins.	26	227	0	0	253	114	0	35	18	167	0	321	34	21	376	
Total Volume	97	1090	0	0	1187	415	0	111	52	578	0	1312	127	62	1501	
% App. Total	8.2	91.8	0	0		71.8	0	19.2	9		0	87.4	8.5	4.1		
PHF	.866	.854	.000	.000	.881	.910	.000	.793	.722	.865	.000	.889	.858	.738	.931	

Peak Hour Analysis From 11:30 AM to 01:15 PM - Peak 1 of 1

Peak Hour for Entire Intersection Begins at 12:15 PM

12:15 PM	24	266	0	0	290	46	0	18	10	74	0	269	32	14	315	679
12:30 PM	26	243	0	0	269	60	0	25	11	96	0	224	32	19	275	640
12:45 PM	23	206	0	0	229	56	0	27	6	89	0	269	25	12	306	624
01:00 PM	19	288	0	0	307	51	0	23	8	82	0	255	21	15	291	680
Total Volume	92	1003	0	0	1095	213	0	93	35	341	0	1017	110	60	1187	2623
% App. Total	8.4	91.6	0	0		62.5	0	27.3	10.3		0	85.7	9.3	5.1		
PHF	.885	.871	.000	.000	.892	.888	.000	.861	.795	.888	.000	.945	.859	.789	.942	.964

Peak Hour Analysis From 11:30 AM to 01:15 PM - Peak 1 of 1

Peak Hour for Each Approach Begins at:

	12:30 PM					12:30 PM					11:45 AM					
+0 mins.	26	243	0	0	269	60	0	25	11	96	0	271	29	15	315	
+15 mins.	23	206	0	0	229	56	0	27	6	89	0	250	38	15	303	
+30 mins.	19	288	0	0	307	51	0	23	8	82	0	269	32	14	315	
+45 mins.	22	288	0	0	310	56	0	17	6	79	0	224	32	19	275	
Total Volume	90	1025	0	0	1115	223	0	92	31	346	0	1014	131	63	1208	
% App. Total	8.1	91.9	0	0		64.5	0	26.6	9		0	83.9	10.8	5.2		
PHF	.865	.890	.000	.000	.899	.929	.000	.852	.705	.901	.000	.935	.862	.829	.959	

Peak Hour Analysis From 02:00 PM to 05:45 PM - Peak 1 of 1

Peak Hour for Entire Intersection Begins at 05:00 PM

05:00 PM	48	291	0	0	339	75	0	10	12	97	0	267	66	48	381	817
05:15 PM	35	332	0	0	367	62	0	22	15	99	0	293	91	31	415	881
05:30 PM	44	319	0	0	363	64	0	19	10	93	0	304	55	35	394	850
05:45 PM	31	327	0	0	358	76	0	22	11	109	0	310	59	50	419	886
Total Volume	158	1269	0	0	1427	277	0	73	48	398	0	1174	271	164	1609	3434
% App. Total	11.1	88.9	0	0		69.6	0	18.3	12.1		0	73	16.8	10.2		
PHF	.823	.956	.000	.000	.972	.911	.000	.830	.800	.913	.000	.947	.745	.820	.960	.969

Peak Hour Analysis From 02:00 PM to 05:45 PM - Peak 1 of 1

Peak Hour for Each Approach Begins at:

	03:45 PM					05:00 PM					05:00 PM					
+0 mins.	35	343	0	0	378	75	0	10	12	97	0	267	66	48	381	
+15 mins.	35	346	0	0	381	62	0	22	15	99	0	293	91	31	415	
+30 mins.	44	301	0	0	345	64	0	19	10	93	0	304	55	35	394	
+45 mins.	32	372	0	0	404	76	0	22	11	109	0	310	59	50	419	
Total Volume	146	1362	0	0	1508	277	0	73	48	398	0	1174	271	164	1609	
% App. Total	9.7	90.3	0	0		69.6	0	18.3	12.1		0	73	16.8	10.2		
PHF	.830	.915	.000	.000	.933	.911	.000	.830	.800	.913	.000	.947	.745	.820	.960	

Intersection Turning Movement Count

City/County: Orlando/Orange
 Weather: On/Off Rain 11:30-1:30
 Comments:

File Name : SR527&Gatlin
 Site Code : 1701010
 Start Date : 10/18/2017
 Page No : 1

Groups Printed- Heavy Vehicles																	
	SR 527 Southbound					GATLIN AVENUE Westbound					SR 527 Northbound						
Start Time	Left	Thru	Right	RTOR	App- Total	Left	Thru	Right	RTOR	App- Total	Left	Thru	Right	RTOR	App- Total	Int. Total	
07:00 AM	1	8	0	0	9	1	0	0	0	1	0	16	0	0	16	26	
07:15 AM	1	10	0	0	11	1	0	1	0	2	0	15	2	0	17	30	
07:30 AM	0	12	0	0	12	2	0	0	1	3	0	7	0	0	7	22	
07:45 AM	0	10	0	0	10	2	0	0	0	2	0	16	0	0	16	28	
Total	2	40	0	0	42	6	0	1	1	8	0	54	2	0	56	106	
08:00 AM	1	22	0	0	23	2	0	0	0	2	0	18	0	1	19	44	
08:15 AM	1	13	0	0	14	0	0	1	0	1	0	8	1	0	9	24	
08:30 AM	2	21	0	0	23	2	0	1	0	3	0	20	1	0	21	47	
08:45 AM	0	10	0	0	10	0	0	1	0	1	0	20	0	0	20	31	
Total	4	66	0	0	70	4	0	3	0	7	0	66	2	1	69	146	
*** BREAK ***																	
11:30 AM	1	17	0	0	18	3	0	0	1	4	0	14	0	0	14	36	
11:45 AM	0	14	0	0	14	0	0	0	0	0	0	11	1	0	12	26	
Total	1	31	0	0	32	3	0	0	1	4	0	25	1	0	26	62	
12:00 PM	2	22	0	0	24	0	0	0	0	0	0	15	2	0	17	41	
12:15 PM	0	19	0	0	19	1	0	0	0	1	0	13	0	0	13	33	
12:30 PM	0	19	0	0	19	0	0	1	0	1	0	19	1	1	21	41	
12:45 PM	0	16	0	0	16	0	0	0	1	1	0	10	1	1	12	29	
Total	2	76	0	0	78	1	0	1	1	3	0	57	4	2	63	144	
01:00 PM	1	20	0	0	21	1	0	0	0	1	0	10	0	0	10	32	
01:15 PM	2	11	0	0	13	2	0	1	0	3	0	10	1	0	11	27	
*** BREAK ***																	
Total	3	31	0	0	34	3	0	1	0	4	0	20	1	0	21	59	
02:00 PM	0	13	0	0	13	3	0	0	1	4	0	13	2	0	15	32	
02:15 PM	0	25	0	0	25	0	0	0	0	0	0	17	1	0	18	43	
02:30 PM	1	9	0	0	10	1	0	1	0	2	0	21	0	0	21	33	
02:45 PM	0	16	0	0	16	1	0	0	0	1	0	9	0	0	9	26	
Total	1	63	0	0	64	5	0	1	1	7	0	60	3	0	63	134	
03:00 PM	0	8	0	0	8	1	0	0	0	1	0	7	0	0	7	16	
03:15 PM	1	18	0	0	19	1	0	0	0	1	0	10	0	0	10	30	
03:30 PM	0	17	0	0	17	1	0	0	0	1	0	12	0	0	12	30	
03:45 PM	0	19	0	0	19	2	0	0	0	2	0	5	1	1	7	28	
Total	1	62	0	0	63	5	0	0	0	5	0	34	1	1	36	104	
04:00 PM	1	16	0	0	17	0	0	0	0	0	0	8	0	0	8	25	
04:15 PM	0	15	0	0	15	1	0	1	0	2	0	6	1	0	7	24	
04:30 PM	0	13	0	0	13	2	0	0	0	2	0	8	0	0	8	23	
04:45 PM	0	5	0	0	5	1	0	0	0	1	0	16	0	3	19	25	
Total	1	49	0	0	50	4	0	1	0	5	0	38	1	3	42	97	
05:00 PM	0	7	0	0	7	0	0	0	0	0	0	9	0	0	9	16	
05:15 PM	0	10	0	0	10	0	0	0	0	0	0	7	0	0	7	17	
05:30 PM	0	12	0	0	12	0	0	0	1	1	0	8	0	0	8	21	
05:45 PM	0	9	0	0	9	0	0	0	0	0	0	8	0	0	8	17	
Total	0	38	0	0	38	0	0	0	1	1	0	32	0	0	32	71	
Grand Total	15	456	0	0	471	31	0	8	5	44	0	386	15	7	408	923	
Apprch %	3.2	96.8	0	0		70.5	0	18.2	11.4		0	94.6	3.7	1.7			
Total %	1.6	49.4	0	0	51	3.4	0	0.9	0.5	4.8	0	41.8	1.6	0.8	44.2		

Intersection Turning Movement Count

City/County: Orlando/Orange
 Weather: On/Off Rain 11:30-1:30
 Comments:

File Name : SR527&Gatlin
 Site Code : 1701010
 Start Date : 10/18/2017
 Page No : 2

	SR 527 Southbound					GATLIN AVENUE Westbound					SR 527 Northbound					
Start Time	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																
Peak Hour for Entire Intersection Begins at 08:00 AM																
08:00 AM	1	22	0	0	23	2	0	0	0	2	0	18	0	1	19	44
08:15 AM	1	13	0	0	14	0	0	1	0	1	0	8	1	0	9	24
08:30 AM	2	21	0	0	23	2	0	1	0	3	0	20	1	0	21	47
08:45 AM	0	10	0	0	10	0	0	1	0	1	0	20	0	0	20	31
Total Volume	4	66	0	0	70	4	0	3	0	7	0	66	2	1	69	146
% App. Total	5.7	94.3	0	0		57.1	0	42.9	0		0	95.7	2.9	1.4		
PHF	.500	.750	.000	.000	.761	.500	.000	.750	.000	.583	.000	.825	.500	.250	.821	.777

Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1

Peak Hour for Each Approach Begins at:

	07:45 AM					07:15 AM					08:00 AM					
+0 mins.	0	10	0	0	10	1	0	1	0	2	0	18	0	1	19	
+15 mins.	1	22	0	0	23	2	0	0	1	3	0	8	1	0	9	
+30 mins.	1	13	0	0	14	2	0	0	0	2	0	20	1	0	21	
+45 mins.	2	21	0	0	23	2	0	0	0	2	0	20	0	0	20	
Total Volume	4	66	0	0	70	7	0	1	1	9	0	66	2	1	69	
% App. Total	5.7	94.3	0	0		77.8	0	11.1	11.1		0	95.7	2.9	1.4		
PHF	.500	.750	.000	.000	.761	.875	.000	.250	.250	.750	.000	.825	.500	.250	.821	

Peak Hour Analysis From 11:30 AM to 01:15 PM - Peak 1 of 1

Peak Hour for Entire Intersection Begins at 12:00 PM

12:00 PM	2	22	0	0	24	0	0	0	0	0	0	15	2	0	17	41
12:15 PM	0	19	0	0	19	1	0	0	0	1	0	13	0	0	13	33
12:30 PM	0	19	0	0	19	0	0	1	0	1	0	19	1	1	21	41
12:45 PM	0	16	0	0	16	0	0	0	1	1	0	10	1	1	12	29
Total Volume	2	76	0	0	78	1	0	1	1	3	0	57	4	2	63	144
% App. Total	2.6	97.4	0	0		33.3	0	33.3	33.3		0	90.5	6.3	3.2		
PHF	.250	.864	.000	.000	.813	.250	.000	.250	.250	.750	.000	.750	.500	.500	.750	.878

Peak Hour Analysis From 11:30 AM to 01:15 PM - Peak 1 of 1

Peak Hour for Each Approach Begins at:

	12:00 PM					12:30 PM					11:45 AM					
+0 mins.	2	22	0	0	24	0	0	1	0	1	0	11	1	0	12	
+15 mins.	0	19	0	0	19	0	0	0	1	1	0	15	2	0	17	
+30 mins.	0	19	0	0	19	1	0	0	0	1	0	13	0	0	13	
+45 mins.	0	16	0	0	16	2	0	1	0	3	0	19	1	1	21	
Total Volume	2	76	0	0	78	3	0	2	1	6	0	58	4	1	63	
% App. Total	2.6	97.4	0	0		50	0	33.3	16.7		0	92.1	6.3	1.6		
PHF	.250	.864	.000	.000	.813	.375	.000	.500	.250	.500	.000	.763	.500	.250	.750	

Peak Hour Analysis From 02:00 PM to 05:45 PM - Peak 1 of 1

Peak Hour for Entire Intersection Begins at 02:00 PM

02:00 PM	0	13	0	0	13	3	0	0	1	4	0	13	2	0	15	32
02:15 PM	0	25	0	0	25	0	0	0	0	0	0	17	1	0	18	43
02:30 PM	1	9	0	0	10	1	0	1	0	2	0	21	0	0	21	33
02:45 PM	0	16	0	0	16	1	0	0	0	1	0	9	0	0	9	26
Total Volume	1	63	0	0	64	5	0	1	1	7	0	60	3	0	63	134
% App. Total	1.6	98.4	0	0		71.4	0	14.3	14.3		0	95.2	4.8	0		
PHF	.250	.630	.000	.000	.640	.417	.000	.250	.250	.438	.000	.714	.375	.000	.750	.779

Peak Hour Analysis From 02:00 PM to 05:45 PM - Peak 1 of 1

Peak Hour for Each Approach Begins at:

	03:15 PM					02:00 PM					02:00 PM					
+0 mins.	1	18	0	0	19	3	0	0	1	4	0	13	2	0	15	
+15 mins.	0	17	0	0	17	0	0	0	0	0	0	17	1	0	18	
+30 mins.	0	19	0	0	19	1	0	1	0	2	0	21	0	0	21	
+45 mins.	1	16	0	0	17	1	0	0	0	1	0	9	0	0	9	
Total Volume	2	70	0	0	72	5	0	1	1	7	0	60	3	0	63	
% App. Total	2.8	97.2	0	0		71.4	0	14.3	14.3		0	95.2	4.8	0		
PHF	.500	.921	.000	.000	.947	.417	.000	.250	.250	.438	.000	.714	.375	.000	.750	

Intersection Turning Movement Count

City/County: Orlando/Orange
Weather: On/Off Rain 11:30-1:30
Comments:

File Name : SR527&Gatlin
Site Code : 1701010
Start Date : 10/18/2017
Page No : 1

Groups Printed- UTurns																	
	SR 527 Southbound					GATLIN AVENUE Westbound					SR 527 Northbound						
Start Time	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Int. Total	
*** BREAK ***																	
01:00 PM	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	1	
*** BREAK ***																	
Total	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	1	
02:00 PM	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1	
*** BREAK ***																	
Total	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1	
*** BREAK ***																	
Grand Total	1	0	0	0	1	0	0	0	0	0	1	0	0	0	1	2	
Apprch %	100	0	0	0		0	0	0	0		100	0	0	0			
Total %	50	0	0	0	50	0	0	0	0	0	50	0	0	0	50		

	SR 527 Southbound					GATLIN AVENUE Westbound					SR 527 Northbound					
Start Time	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																
Peak Hour for Entire Intersection Begins at 07:00 AM																
07:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% App. Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PHF	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000

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

	07:00 AM					07:00 AM					07:00 AM				
+0 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+15 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+30 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+45 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% App. Total	0	0	0	0		0	0	0	0		0	0	0	0	
PHF	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000

Peak Hour Analysis From 11:30 AM to 01:15 PM - Peak 1 of 1
Peak Hour for Entire Intersection Begins at 12:15 PM

	11:30 AM					11:30 AM					12:15 PM				
12:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
01:00 PM	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1
Total Volume	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1
% App. Total	0	0	0	0		0	0	0	0		100	0	0	0	
PHF	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.250	.000	.000	.000	.250

Peak Hour Analysis From 11:30 AM to 01:15 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	11:30 AM					11:30 AM					12:15 PM				
+0 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+15 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+30 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+45 mins.	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1
Total Volume	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1
% App. Total	0	0	0	0		0	0	0	0		100	0	0	0	
PHF	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.250	.000	.000	.000	.250

Intersection Turning Movement Count

City/County: Orlando/Orange
 Weather: On/Off Rain 11:30-1:30
 Comments:

File Name : SR527&Gatlin
 Site Code : 1701010
 Start Date : 10/18/2017
 Page No : 2

	SR 527 Southbound					GATLIN AVENUE Westbound					SR 527 Northbound					
Start Time	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Int. Total
Peak Hour Analysis From 02:00 PM to 05:45 PM - Peak 1 of 1																
Peak Hour for Entire Intersection Begins at 02:00 PM																
02:00 PM	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1
02:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
02:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
02:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1
% App. Total	100	0	0	0		0	0	0	0		0	0	0	0		
PHF	.250	.000	.000	.000	.250	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.250

Peak Hour Analysis From 02:00 PM to 05:45 PM - Peak 1 of 1

Peak Hour for Each Approach Begins at:

	02:00 PM					02:00 PM					02:00 PM				
+0 mins.	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0
+15 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+30 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+45 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0
% App. Total	100	0	0	0		0	0	0	0		0	0	0	0	
PHF	.250	.000	.000	.000	.250	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000

Intersection Pedestrian & Bicycle Count

Date: 10/18/17

Day: Wednesday

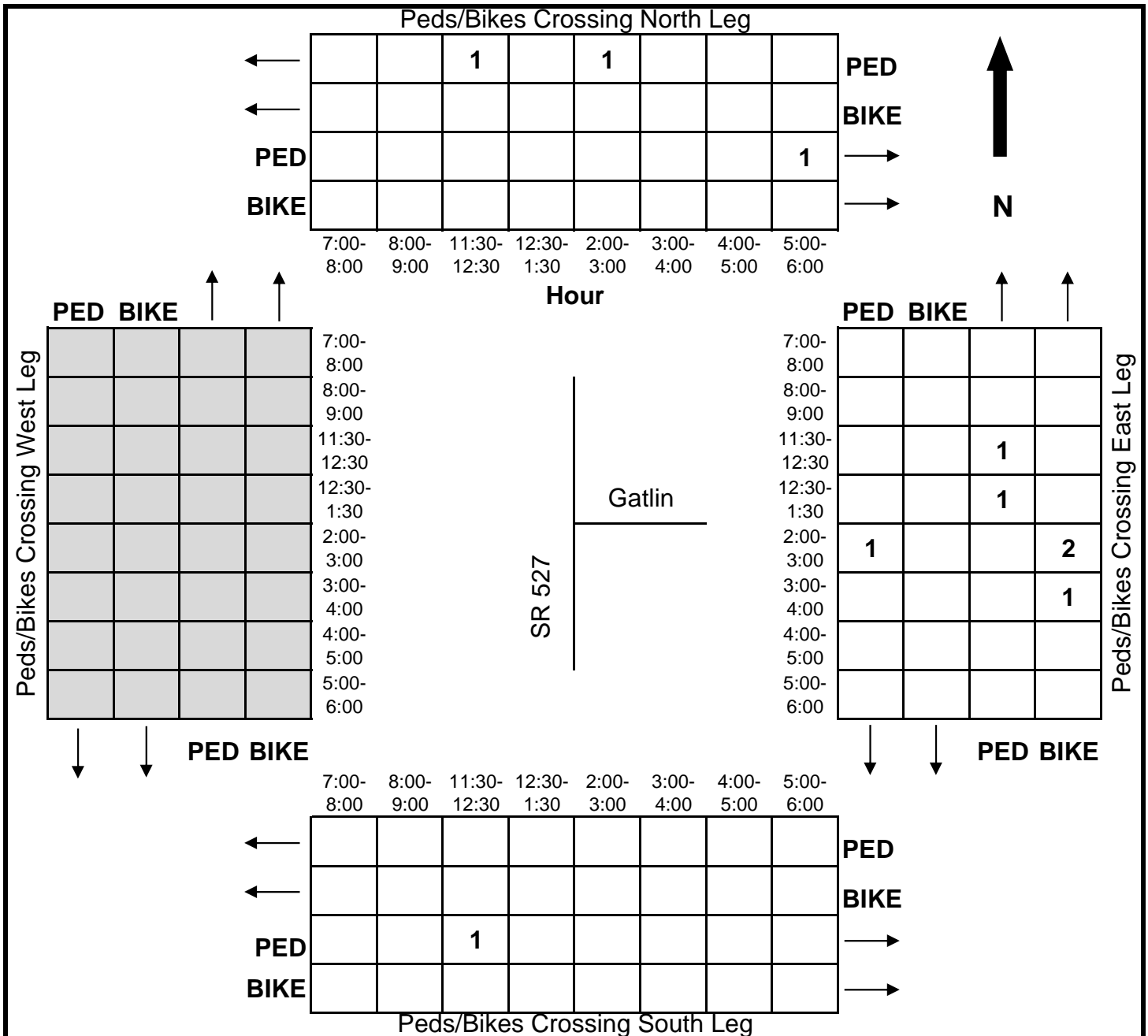
Count Times: 7-9am; 11:30am-1:30pm; 2-6pm

Weather: On/Off Rain

Intersection: SR 527 at Gatlin Avenue 11:30am-1:30pm

Comments: _____

C - Child under 12; S - Senior 65 or over; D - Physical Disability



8-HOUR TURNING MOVEMENT COUNT
(Weekday)

**SR 527 at Holden Avenue
Orange County**

Prepared for:

TSM&O Continuing Services
Florida Department of Transportation – District Five
719 South Woodland Boulevard
Deland, Florida 32720

Prime Consultant:
HDR Engineering, Inc.
Financial Project No.: 440412-1-32-02
FDOT Contract No.: C-9V31
TWO No. 1 - Study No. 10

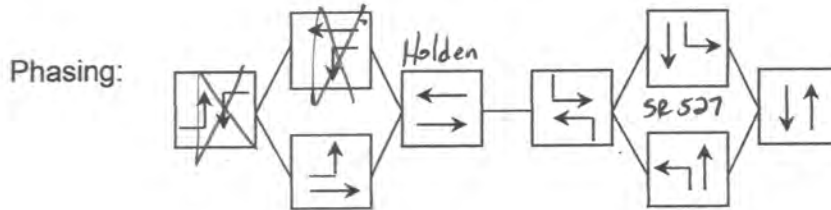
Prepared by:
Adams Traffic, Inc.
Certificate of Authorization License No. 8959
2404 Airport Road, Suite 2
Plant City, FL 33563

October 2017

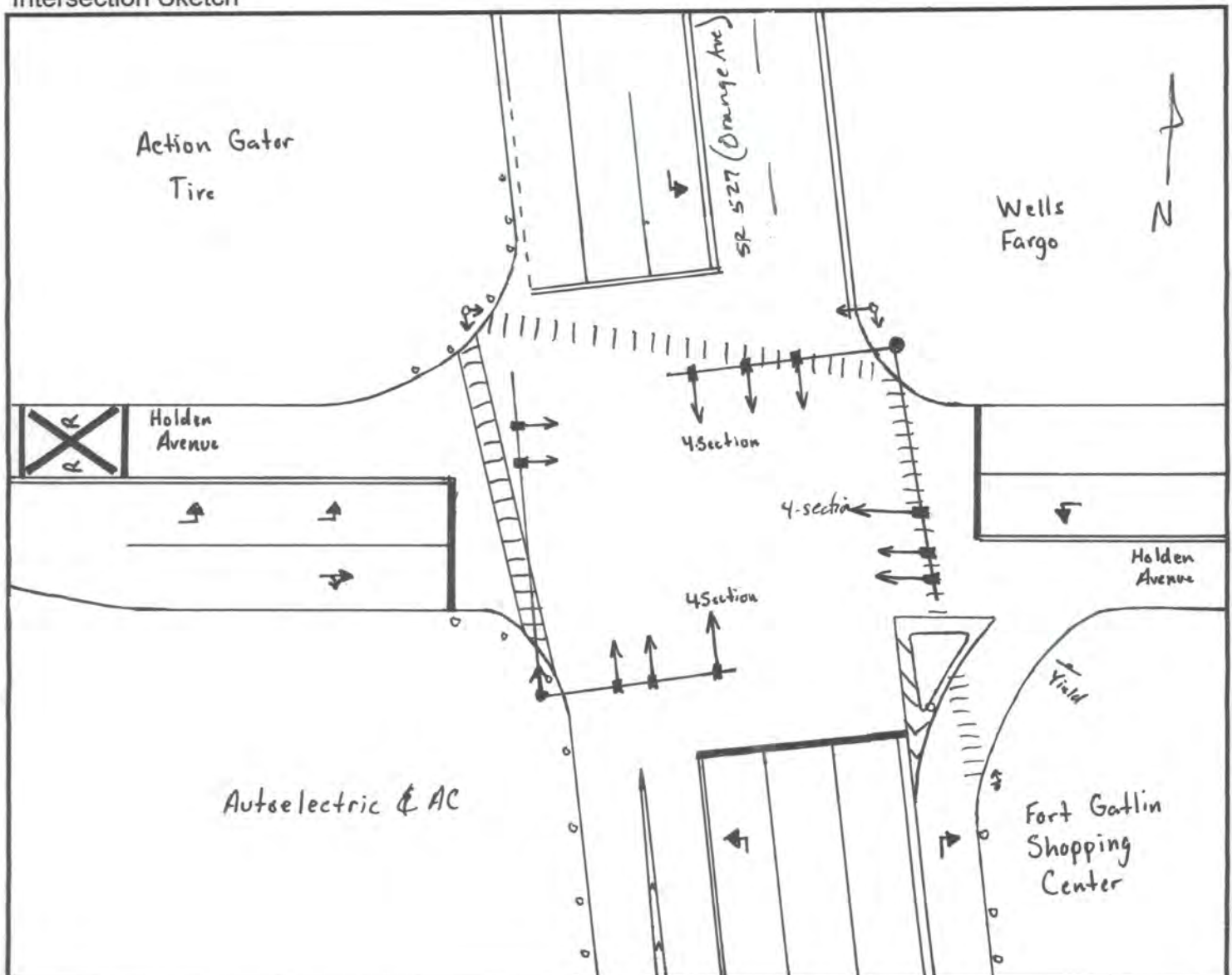


Turning Movement Count Field Data Sheet & Sketch

Date: 10/18/17 Count Times: 7-9am; 11:30am-1:30pm; 2-6pm
 Major Street: SR 527 (Orange Avenue) Direction: N-S Speed Limit: 40 mph
 Minor Street: Holden Avenue Direction: E-W Speed Limit: 35 mph
 City/County: Orlando / Orange Weather: On/Off Rain 11:30am - 1:30pm



Intersection Sketch



Intersection Turning Movement Count

City/County: Orlando/Orange
Weather: On/Off Rain 11:30-1:30
Comments:

File Name : SR527&Holden
Site Code : 1701010
Start Date : 10/18/2017
Page No : 1

Groups Printed- Passenger Vehicles - Heavy Vehicles - UTurns

Start Time	SR 527 Southbound					DRIVEWAY Westbound					SR 527 Northbound					HOLDEN AVENUE Eastbound					Int. Total
	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	
07:00 AM	1	186	24	2	213	0	4	1	1	6	49	327	0	0	376	41	2	29	25	97	692
07:15 AM	0	231	29	3	263	0	3	0	0	3	58	359	1	0	418	66	3	58	41	168	852
07:30 AM	2	251	42	1	296	0	3	1	1	5	60	308	0	1	369	50	4	52	39	145	815
07:45 AM	1	209	26	0	236	2	9	3	1	15	76	262	1	0	339	68	5	52	31	156	746
Total	4	877	121	6	1008	2	19	5	3	29	243	1256	2	1	1502	225	14	191	136	566	3105
08:00 AM	2	213	32	2	249	0	5	1	0	6	66	310	3	0	379	39	5	42	19	105	739
08:15 AM	6	183	26	2	217	1	1	2	2	6	49	243	1	0	293	54	1	43	23	121	637
08:30 AM	1	245	35	2	283	1	10	0	1	12	58	286	4	0	348	43	5	41	21	110	753
08:45 AM	1	173	29	1	204	1	6	4	3	14	82	269	2	1	354	57	7	50	38	152	724
Total	10	814	122	7	953	3	22	7	6	38	255	1108	10	1	1374	193	18	176	101	488	2853
*** BREAK ***																					
11:30 AM	3	193	42	6	244	2	8	1	6	17	51	205	2	2	260	50	2	33	28	113	634
11:45 AM	2	239	25	4	270	1	13	3	3	20	66	256	3	4	329	39	10	49	22	120	739
Total	5	432	67	10	514	3	21	4	9	37	117	461	5	6	589	89	12	82	50	233	1373
12:00 PM	1	184	37	5	227	2	8	4	0	14	52	227	4	2	285	32	14	38	8	92	618
12:15 PM	1	238	33	3	275	5	10	3	0	18	43	251	5	1	300	39	8	45	17	109	702
12:30 PM	9	230	37	3	279	1	8	5	1	15	58	202	1	4	265	48	5	42	10	105	664
12:45 PM	4	212	32	5	253	2	8	5	2	17	63	253	1	1	318	49	7	32	13	101	689
Total	15	864	139	16	1034	10	34	17	3	64	216	933	11	8	1168	168	34	157	48	407	2673
01:00 PM	1	233	32	2	268	1	4	2	7	14	55	225	10	0	290	45	6	45	16	112	684
01:15 PM	4	227	34	3	268	6	6	5	1	18	42	179	4	3	228	37	11	48	21	117	631
*** BREAK ***																					
Total	5	460	66	5	536	7	10	7	8	32	97	404	14	3	518	82	17	93	37	229	1315
02:00 PM	1	220	36	1	258	1	16	4	3	24	56	204	8	0	268	38	8	48	12	106	656
02:15 PM	4	241	45	1	291	3	15	3	0	21	57	243	6	2	308	43	4	58	22	127	747
02:30 PM	1	242	42	3	288	0	1	0	2	3	55	274	2	0	331	40	6	45	19	110	732
02:45 PM	2	244	43	2	291	0	9	0	4	13	59	218	3	0	280	37	8	46	14	105	689
Total	8	947	166	7	1128	4	41	7	9	61	227	939	19	2	1187	158	26	197	67	448	2824
03:00 PM	2	189	25	2	218	2	10	1	1	14	59	199	6	0	264	40	4	60	30	134	630
03:15 PM	0	255	37	1	293	1	5	2	0	8	64	273	1	0	338	37	8	42	29	116	755
03:30 PM	1	265	31	1	298	1	8	4	3	16	67	243	6	1	317	34	6	58	20	118	749
03:45 PM	4	296	25	0	325	2	11	3	2	18	53	226	5	0	284	36	4	41	32	113	740
Total	7	1005	118	4	1134	6	34	10	6	56	243	941	18	1	1203	147	22	201	111	481	2874
04:00 PM	3	314	34	1	352	5	9	0	0	14	51	241	5	3	300	35	8	57	21	121	787
04:15 PM	4	266	34	1	305	2	14	3	1	20	72	208	5	0	285	28	10	66	33	137	747
04:30 PM	6	293	37	0	336	1	12	2	4	19	57	250	9	2	318	33	9	48	41	131	804
04:45 PM	6	285	24	1	316	2	15	6	1	24	67	215	7	0	289	26	12	27	27	92	721
Total	19	1158	129	3	1309	10	50	11	6	77	247	914	26	5	1192	122	39	198	122	481	3059

Intersection Turning Movement Count

City/County: Orlando/Orange
Weather: On/Off Rain 11:30-1:30
Comments:

File Name : SR527&Holden
Site Code : 1701010
Start Date : 10/18/2017
Page No : 2

Groups Printed- Passenger Vehicles - Heavy Vehicles - UTurns

	SR 527 Southbound					DRIVEWAY Westbound					SR 527 Northbound					HOLDEN AVENUE Eastbound					Int. Total
Start Time	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	
05:00 PM	4	231	26	2	263	2	11	1	2	16	60	232	1	1	294	38	13	69	35	155	728
05:15 PM	6	348	25	3	382	1	12	2	1	16	67	266	8	2	343	30	10	28	35	103	844
05:30 PM	2	230	17	2	251	4	11	3	1	19	66	241	2	1	310	38	9	47	32	126	706
05:45 PM	7	304	29	2	342	1	6	2	2	11	61	298	2	3	364	28	7	51	21	107	824
Total	19	1113	97	9	1238	8	40	8	6	62	254	1037	13	7	1311	134	39	195	123	491	3102
Grand Total	92	7670	1025	67	8854	53	271	76	56	456	1899	7993	118	34	10044	1318	221	1490	795	3824	23178
Apprch %	1	86.6	11.6	0.8		11.6	59.4	16.7	12.3		18.9	79.6	1.2	0.3		34.5	5.8	39	20.8		
Total %	0.4	33.1	4.4	0.3	38.2	0.2	1.2	0.3	0.2	2	8.2	34.5	0.5	0.1	43.3	5.7	1	6.4	3.4	16.5	
Passenger Vehicles	91	7261	1002	62	8416	52	269	75	56	452	1857	7641	116	33	9647	1292	220	1442	778	3732	22247
% Passenger Vehicles	98.9	94.7	97.8	92.5	95.1	98.1	99.3	98.7	100	99.1	97.8	95.6	98.3	97.1	96	98	99.5	96.8	97.9	97.6	96
Heavy Vehicles	0	409	23	5	437	1	2	1	0	4	42	352	2	1	397	26	1	48	17	92	930
% Heavy Vehicles	0	5.3	2.2	7.5	4.9	1.9	0.7	1.3	0	0.9	2.2	4.4	1.7	2.9	4	2	0.5	3.2	2.1	2.4	4
UTurns	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
% UTurns	1.1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

	SR 527 Southbound					DRIVEWAY Westbound					SR 527 Northbound					HOLDEN AVENUE Eastbound					Int. Total
Start Time	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:15 AM																					
07:15 AM	0	231	29	3	263	0	3	0	0	3	58	359	1	0	418	66	3	58	41	168	852
07:30 AM	2	251	42	1	296	0	3	1	1	5	60	308	0	1	369	50	4	52	39	145	815
07:45 AM	1	209	26	0	236	2	9	3	1	15	76	262	1	0	339	68	5	52	31	156	746
08:00 AM	2	213	32	2	249	0	5	1	0	6	66	310	3	0	379	39	5	42	19	105	739
Total Volume	5	904	129	6	1044	2	20	5	2	29	260	1239	5	1	1505	223	17	204	130	574	3152
% App. Total	0.5	86.6	12.4	0.6		6.9	69	17.2	6.9		17.3	82.3	0.3	0.1		38.9	3	35.5	22.6		
PHF	.625	.900	.768	.500	.882	.250	.556	.417	.500	.483	.855	.863	.417	.250	.900	.820	.850	.879	.793	.854	.925
Passenger Vehicles	5	850	125	4	984	2	20	5	2	29	256	1186	4	1	1447	220	17	200	128	565	3025
% Passenger Vehicles	100	94.0	96.9	66.7	94.3	100	100	100	100	100	98.5	95.7	80.0	100	96.1	98.7	100	98.0	98.5	98.4	96.0
Heavy Vehicles	0	54	4	2	60	0	0	0	0	0	4	53	1	0	58	3	0	4	2	9	127
% Heavy Vehicles	0	6.0	3.1	33.3	5.7	0	0	0	0	0	1.5	4.3	20.0	0	3.9	1.3	0	2.0	1.5	1.6	4.0
UTurns	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% UTurns	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Intersection Turning Movement Count

City/County: Orlando/Orange
 Weather: On/Off Rain 11:30-1:30
 Comments:

File Name : SR527&Holden
 Site Code : 1701010
 Start Date : 10/18/2017
 Page No : 3

	SR 527 Southbound					DRIVEWAY Westbound					SR 527 Northbound					HOLDEN AVENUE Eastbound					
Start Time	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																					
Peak Hour for Each Approach Begins at:																					
	07:15 AM					07:45 AM					07:15 AM					07:15 AM					
+0 mins.	0	231	29	3	263	2	9	3	1	15	58	359	1	0	418	66	3	58	41	168	
+15 mins.	2	251	42	1	296	0	5	1	0	6	60	308	0	1	369	50	4	52	39	145	
+30 mins.	1	209	26	0	236	1	1	2	2	6	76	262	1	0	339	68	5	52	31	156	
+45 mins.	2	213	32	2	249	1	10	0	1	12	66	310	3	0	379	39	5	42	19	105	
Total Volume	5	904	129	6	1044	4	25	6	4	39	260	1239	5	1	1505	223	17	204	130	574	
% App. Total	0.5	86.6	12.4	0.6		10.3	64.1	15.4	10.3		17.3	82.3	0.3	0.1		38.9	3	35.5	22.6		
PHF	.625	.900	.768	.500	.882	.500	.625	.500	.500	.650	.855	.863	.417	.250	.900	.820	.850	.879	.793	.854	
Passenger Vehicles	5	850	125	4	984	4	25	6	4	39	256	1186	4	1	1447	220	17	200	128	565	
% Passenger Vehicles	100	94	96.9	66.7	94.3	100	100	100	100	100	98.5	95.7	80	100	96.1	98.7	100	98	98.5	98.4	
Heavy Vehicles	0	54	4	2	60	0	0	0	0	0	4	53	1	0	58	3	0	4	2	9	
% Heavy Vehicles	0	6	3.1	33.3	5.7	0	0	0	0	0	1.5	4.3	20	0	3.9	1.3	0	2	1.5	1.6	
UTurns	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
% UTurns	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Peak Hour Analysis From 11:30 AM to 01:15 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 12:15 PM																					
12:15 PM	1	238	33	3	275	5	10	3	0	18	43	251	5	1	300	39	8	45	17	109	702
12:30 PM	9	230	37	3	279	1	8	5	1	15	58	202	1	4	265	48	5	42	10	105	664
12:45 PM	4	212	32	5	253	2	8	5	2	17	63	253	1	1	318	49	7	32	13	101	689
01:00 PM	1	233	32	2	268	1	4	2	7	14	55	225	10	0	290	45	6	45	16	112	684
Total Volume	15	913	134	13	1075	9	30	15	10	64	219	931	17	6	1173	181	26	164	56	427	2739
% App. Total	1.4	84.9	12.5	1.2		14.1	46.9	23.4	15.6		18.7	79.4	1.4	0.5		42.4	6.1	38.4	13.1		
PHF	.417	.959	.905	.650	.963	.450	.750	.750	.357	.889	.869	.920	.425	.375	.922	.923	.813	.911	.824	.953	.975
Passenger Vehicles	14	848	130	13	1005	9	30	14	10	63	212	884	17	6	1119	177	26	157	54	414	2601
% Passenger Vehicles	93.3	92.9	97.0	100	93.5	100	100	93.3	100	98.4	96.8	95.0	100	100	95.4	97.8	100	95.7	96.4	97.0	95.0
Heavy Vehicles	0	65	4	0	69	0	0	1	0	1	7	47	0	0	54	4	0	7	2	13	137
% Heavy Vehicles	0	7.1	3.0	0	6.4	0	0	6.7	0	1.6	3.2	5.0	0	0	4.6	2.2	0	4.3	3.6	3.0	5.0
UTurns	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
% UTurns	6.7	0	0	0	0.1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0

Intersection Turning Movement Count

City/County: Orlando/Orange
Weather: On/Off Rain 11:30-1:30
Comments:

File Name : SR527&Holden
Site Code : 1701010
Start Date : 10/18/2017
Page No : 4

	SR 527 Southbound					DRIVEWAY Westbound					SR 527 Northbound					HOLDEN AVENUE Eastbound					
Start Time	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Int. Total

Peak Hour Analysis From 11:30 AM to 01:15 PM - Peak 1 of 1

Peak Hour for Each Approach Begins at:

	12:15 PM					11:30 AM					11:45 AM					12:30 PM				
+0 mins.	1	238	33	3	275	2	8	1	6	17	66	256	3	4	329	48	5	42	10	105
+15 mins.	9	230	37	3	279	1	13	3	3	20	52	227	4	2	285	49	7	32	13	101
+30 mins.	4	212	32	5	253	2	8	4	0	14	43	251	5	1	300	45	6	45	16	112
+45 mins.	1	233	32	2	268	5	10	3	0	18	58	202	1	4	265	37	11	48	21	117
Total Volume	15	913	134	13	1075	10	39	11	9	69	219	936	13	11	1179	179	29	167	60	435
% App. Total	1.4	84.9	12.5	1.2		14.5	56.5	15.9	13		18.6	79.4	1.1	0.9		41.1	6.7	38.4	13.8	
PHF	.417	.959	.905	.650	.963	.500	.750	.688	.375	.863	.830	.914	.650	.688	.896	.913	.659	.870	.714	.929
Passenger Vehicles	14	848	130	13	1005	10	39	11	9	69	213	886	13	11	1123	175	29	160	58	422
% Passenger Vehicles	93.3	92.9	97	100	93.5	100	100	100	100	100	97.3	94.7	100	100	95.3	97.8	100	95.8	96.7	97
Heavy Vehicles	0	65	4	0	69	0	0	0	0	0	6	50	0	0	56	4	0	7	2	13
% Heavy Vehicles	0	7.1	3	0	6.4	0	0	0	0	0	2.7	5.3	0	0	4.7	2.2	0	4.2	3.3	3
UTurns	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% UTurns	6.7	0	0	0	0.1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Peak Hour Analysis From 02:00 PM to 05:45 PM - Peak 1 of 1

Peak Hour for Entire Intersection Begins at 05:00 PM

	05:00 PM	05:15 PM	05:30 PM	05:45 PM	Total Volume	% App. Total	PHF	Passenger Vehicles	% Passenger Vehicles	Heavy Vehicles	% Heavy Vehicles	UTurns	% UTurns
	4	6	2	7	19	1.5	.679	19	100	0	0	0	0
	231	348	230	304	1113	89.9	.800	1078	96.9	35	3.1	0	0
	26	25	17	29	97	7.8	.836	97	100	0	0	0	0
	2	3	2	2	9	0.7	.750	9	100	0	0	0	0
	263	382	251	342	1238		.810	1203	97.2	35	2.8	0	0
	2	1	4	1	8	12.9	.500	8	100	0	0	0	0
	11	16	19	11	62	64.5	.833	40	100	0	0	0	0
	1	2	3	2	6	12.9	.667	8	100	0	0	0	0
	16	16	19	11	62	9.7	.750	6	100	0	0	0	0
	60	67	66	61	254	19.4	.948	251	98.8	3	1.2	0	0
	232	266	241	298	1037	79.1	.870	1010	97.4	27	2.6	0	0
	1	8	2	2	13	1	.406	13	100	0	0	0	0
	1	2	1	3	7	0.5	.583	7	100	0	0	0	0
	294	343	310	364	1311		.900	1281	97.7	30	2.3	0	0
	38	30	38	28	134	27.3	.882	134	100	0	0	0	0
	13	10	9	7	39	7.9	.750	39	100	0	0	0	0
	69	28	47	51	195	39.7	.707	193	99.0	2	1.0	0	0
	35	35	32	21	123	25.1	.879	122	99.2	1	0.8	0	0
	155	103	126	107	491		.792	488	99.4	3	0.6	0	0
	728	844	706	824	3102		.919	3034	97.8	68	2.2	0	0

Intersection Turning Movement Count

City/County: Orlando/Orange
 Weather: On/Off Rain 11:30-1:30
 Comments:

File Name : SR527&Holden
 Site Code : 1701010
 Start Date : 10/18/2017
 Page No : 5

	SR 527 Southbound					DRIVEWAY Westbound					SR 527 Northbound					HOLDEN AVENUE Eastbound					
Start Time	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Int. Total
Peak Hour Analysis From 02:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Each Approach Begins at:																					
	03:45 PM					04:15 PM					05:00 PM					04:15 PM					
+0 mins.	4	296	25	0	325	2	14	3	1	20	60	232	1	1	294	28	10	66	33	137	
+15 mins.	3	314	34	1	352	1	12	2	4	19	67	266	8	2	343	33	9	48	41	131	
+30 mins.	4	266	34	1	305	2	15	6	1	24	66	241	2	1	310	26	12	27	27	92	
+45 mins.	6	293	37	0	336	2	11	1	2	16	61	298	2	3	364	38	13	69	35	155	
Total Volume	17	1169	130	2	1318	7	52	12	8	79	254	1037	13	7	1311	125	44	210	136	515	
% App. Total	1.3	88.7	9.9	0.2		8.9	65.8	15.2	10.1		19.4	79.1	1	0.5		24.3	8.5	40.8	26.4		
PHF	.708	.931	.878	.500	.936	.875	.867	.500	.500	.823	.948	.870	.406	.583	.900	.822	.846	.761	.829	.831	
Passenger Vehicles	17	1112	127	2	1258	7	50	12	8	77	251	1010	13	7	1281	125	44	208	134	511	
% Passenger Vehicles	100	95.1	97.7	100	95.4	100	96.2	100	100	97.5	98.8	97.4	100	100	97.7	100	100	99	98.5	99.2	
Heavy Vehicles	0	57	3	0	60	0	2	0	0	2	3	27	0	0	30	0	0	2	2	4	
% Heavy Vehicles	0	4.9	2.3	0	4.6	0	3.8	0	0	2.5	1.2	2.6	0	0	2.3	0	0	1	1.5	0.8	
UTurns	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
% UTurns	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	

Intersection Turning Movement Count

City/County: Orlando/Orange
Weather: On/Off Rain 11:30-1:30
Comments:

File Name : SR527&Holden
Site Code : 1701010
Start Date : 10/18/2017
Page No : 1

Groups Printed- Passenger Vehicles

	SR 527 Southbound					DRIVEWAY Westbound					SR 527 Northbound					HOLDEN AVENUE Eastbound					Int. Total
Start Time	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	
07:00 AM	1	180	24	2	207	0	4	1	1	6	48	311	0	0	359	39	2	27	25	93	665
07:15 AM	0	219	28	2	249	0	3	0	0	3	57	345	0	0	402	66	3	58	41	168	822
07:30 AM	2	240	39	1	282	0	3	1	1	5	58	302	0	1	361	49	4	51	39	143	791
07:45 AM	1	198	26	0	225	2	9	3	1	15	75	249	1	0	325	68	5	52	31	156	721
Total	4	837	117	5	963	2	19	5	3	29	238	1207	1	1	1447	222	14	188	136	560	2999
08:00 AM	2	193	32	1	228	0	5	1	0	6	66	290	3	0	359	37	5	39	17	98	691
08:15 AM	6	174	25	2	207	1	1	2	2	6	47	236	1	0	284	53	1	41	21	116	613
08:30 AM	1	229	35	2	267	1	10	0	1	12	58	267	3	0	328	41	5	38	20	104	711
08:45 AM	1	167	28	1	197	1	6	4	3	14	80	250	2	0	332	55	7	46	37	145	688
Total	10	763	120	6	899	3	22	7	6	38	251	1043	9	0	1303	186	18	164	95	463	2703
*** BREAK ***																					
11:30 AM	3	179	41	6	229	2	8	1	6	17	50	190	2	2	244	47	2	31	28	108	598
11:45 AM	2	220	24	4	250	1	13	3	3	20	65	246	3	4	318	38	10	49	21	118	706
Total	5	399	65	10	479	3	21	4	9	37	115	436	5	6	562	85	12	80	49	226	1304
12:00 PM	1	167	37	5	210	2	8	4	0	14	51	213	4	2	270	32	14	34	8	88	582
12:15 PM	1	223	33	3	260	5	10	3	0	18	42	239	5	1	287	37	8	44	16	105	670
12:30 PM	8	213	36	3	260	1	8	4	1	14	55	188	1	4	248	47	5	41	10	103	625
12:45 PM	4	197	31	5	237	2	8	5	2	17	60	242	1	1	304	49	7	29	13	98	656
Total	14	800	137	16	967	10	34	16	3	63	208	882	11	8	1109	165	34	148	47	394	2533
01:00 PM	1	215	30	2	248	1	4	2	7	14	55	215	10	0	280	44	6	43	15	108	650
01:15 PM	4	215	33	2	254	6	6	5	1	18	42	169	4	3	218	35	11	47	20	113	603
*** BREAK ***																					
Total	5	430	63	4	502	7	10	7	8	32	97	384	14	3	498	79	17	90	35	221	1253
02:00 PM	1	209	35	0	245	1	16	4	3	24	55	191	8	0	254	36	8	48	12	104	627
02:15 PM	4	219	44	0	267	2	15	3	0	20	52	231	6	2	291	43	4	56	21	124	702
02:30 PM	1	233	39	3	276	0	1	0	2	3	51	255	2	0	308	40	5	43	19	107	694
02:45 PM	2	233	42	2	279	0	9	0	4	13	59	209	3	0	271	37	8	43	12	100	663
Total	8	894	160	5	1067	3	41	7	9	60	217	886	19	2	1124	156	25	190	64	435	2686
03:00 PM	2	180	24	2	208	2	10	1	1	14	59	193	6	0	258	38	4	60	30	132	612
03:15 PM	0	238	37	1	276	1	5	2	0	8	63	264	1	0	328	37	8	40	28	113	725
03:30 PM	1	251	31	1	284	1	8	4	3	16	64	233	6	1	304	33	6	55	20	114	718
03:45 PM	4	279	25	0	308	2	11	3	2	18	53	221	5	0	279	36	4	39	32	111	716
Total	7	948	117	4	1076	6	34	10	6	56	239	911	18	1	1169	144	22	194	110	470	2771
04:00 PM	3	298	32	1	334	5	9	0	0	14	50	234	5	3	292	34	8	56	21	119	759
04:15 PM	4	253	33	1	291	2	13	3	1	19	71	203	5	0	279	28	10	64	33	135	724
04:30 PM	6	282	37	0	325	1	11	2	4	18	57	242	9	2	310	33	9	48	40	130	783
04:45 PM	6	279	24	1	310	2	15	6	1	24	63	203	7	0	273	26	12	27	26	91	698
Total	19	1112	126	3	1260	10	48	11	6	75	241	882	26	5	1154	121	39	195	120	475	2964

Intersection Turning Movement Count

City/County: Orlando/Orange
Weather: On/Off Rain 11:30-1:30
Comments:

File Name : SR527&Holden
Site Code : 1701010
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Groups Printed- Passenger Vehicles

	SR 527 Southbound					DRIVEWAY Westbound					SR 527 Northbound					HOLDEN AVENUE Eastbound					
Start Time	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Int. Total
05:00 PM	4	224	26	2	256	2	11	1	2	16	59	224	1	1	285	38	13	69	35	155	712
05:15 PM	6	335	25	3	369	1	12	2	1	16	67	259	8	2	336	30	10	26	35	101	822
05:30 PM	2	224	17	2	245	4	11	3	1	19	64	236	2	1	303	38	9	47	31	125	692
05:45 PM	7	295	29	2	333	1	6	2	2	11	61	291	2	3	357	28	7	51	21	107	808
Total	19	1078	97	9	1203	8	40	8	6	62	251	1010	13	7	1281	134	39	193	122	488	3034
Grand Total	91	7261	1002	62	8416	52	269	75	56	452	1857	7641	116	33	9647	1292	220	1442	778	3732	22247
Apprch %	1.1	86.3	11.9	0.7		11.5	59.5	16.6	12.4		19.2	79.2	1.2	0.3		34.6	5.9	38.6	20.8		
Total %	0.4	32.6	4.5	0.3	37.8	0.2	1.2	0.3	0.3	2	8.3	34.3	0.5	0.1	43.4	5.8	1	6.5	3.5	16.8	

	SR 527 Southbound					DRIVEWAY Westbound					SR 527 Northbound					HOLDEN AVENUE Eastbound					
Start Time	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:15 AM																					
07:15 AM	0	219	28	2	249	0	3	0	0	3	57	345	0	0	402	66	3	58	41	168	822
07:30 AM	2	240	39	1	282	0	3	1	1	5	58	302	0	1	361	49	4	51	39	143	791
07:45 AM	1	198	26	0	225	2	9	3	1	15	75	249	1	0	325	68	5	52	31	156	721
08:00 AM	2	193	32	1	228	0	5	1	0	6	66	290	3	0	359	37	5	39	17	98	691
Total Volume	5	850	125	4	984	2	20	5	2	29	256	1186	4	1	1447	220	17	200	128	565	3025
% App. Total	0.5	86.4	12.7	0.4		6.9	69	17.2	6.9		17.7	82	0.3	0.1		38.9	3	35.4	22.7		
PHF	.625	.885	.801	.500	.872	.250	.556	.417	.500	.483	.853	.859	.333	.250	.900	.809	.850	.862	.780	.841	.920

Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1

Peak Hour for Each Approach Begins at:

	07:15 AM					07:45 AM					07:00 AM					07:15 AM				
+0 mins.	0	219	28	2	249	2	9	3	1	15	48	311	0	0	359	66	3	58	41	168
+15 mins.	2	240	39	1	282	0	5	1	0	6	57	345	0	0	402	49	4	51	39	143
+30 mins.	1	198	26	0	225	1	1	2	2	6	58	302	0	1	361	68	5	52	31	156
+45 mins.	2	193	32	1	228	1	10	0	1	12	75	249	1	0	325	37	5	39	17	98
Total Volume	5	850	125	4	984	4	25	6	4	39	238	1207	1	1	1447	220	17	200	128	565
% App. Total	0.5	86.4	12.7	0.4		10.3	64.1	15.4	10.3		16.4	83.4	0.1	0.1		38.9	3	35.4	22.7	
PHF	.625	.885	.801	.500	.872	.500	.625	.500	.500	.650	.793	.875	.250	.250	.900	.809	.850	.862	.780	.841

Peak Hour Analysis From 11:30 AM to 01:15 PM - Peak 1 of 1

Peak Hour for Entire Intersection Begins at 12:15 PM

12:15 PM	1	223	33	3	260	5	10	3	0	18	42	239	5	1	287	37	8	44	16	105	670
12:30 PM	8	213	36	3	260	1	8	4	1	14	55	188	1	4	248	47	5	41	10	103	625
12:45 PM	4	197	31	5	237	2	8	5	2	17	60	242	1	1	304	49	7	29	13	98	656
01:00 PM	1	215	30	2	248	1	4	2	7	14	55	215	10	0	280	44	6	43	15	108	650
Total Volume	14	848	130	13	1005	9	30	14	10	63	212	884	17	6	1119	177	26	157	54	414	2601
% App. Total	1.4	84.4	12.9	1.3		14.3	47.6	22.2	15.9		18.9	79	1.5	0.5		42.8	6.3	37.9	13		
PHF	.438	.951	.903	.650	.966	.450	.750	.700	.357	.875	.883	.913	.425	.375	.920	.903	.813	.892	.844	.958	.971

Intersection Turning Movement Count

City/County: Orlando/Orange
 Weather: On/Off Rain 11:30-1:30
 Comments:

File Name : SR527&Holden
 Site Code : 1701010
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	SR 527 Southbound					DRIVEWAY Westbound					SR 527 Northbound					HOLDEN AVENUE Eastbound					
Start Time	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Int. Total

Peak Hour Analysis From 11:30 AM to 01:15 PM - Peak 1 of 1

Peak Hour for Each Approach Begins at:

	12:15 PM					11:30 AM					11:45 AM					12:30 PM				
+0 mins.	1	223	33	3	260	2	8	1	6	17	65	246	3	4	318	47	5	41	10	103
+15 mins.	8	213	36	3	260	1	13	3	3	20	51	213	4	2	270	49	7	29	13	98
+30 mins.	4	197	31	5	237	2	8	4	0	14	42	239	5	1	287	44	6	43	15	108
+45 mins.	1	215	30	2	248	5	10	3	0	18	55	188	1	4	248	35	11	47	20	113
Total Volume	14	848	130	13	1005	10	39	11	9	69	213	886	13	11	1123	175	29	160	58	422
% App. Total	1.4	84.4	12.9	1.3		14.5	56.5	15.9	1.3		19	78.9	1.2	1		41.5	6.9	37.9	13.7	
PHF	.438	.951	.903	.650	.966	.500	.750	.688	.375	.863	.819	.900	.650	.688	.883	.893	.659	.851	.725	.934

Peak Hour Analysis From 02:00 PM to 05:45 PM - Peak 1 of 1

Peak Hour for Entire Intersection Begins at 05:00 PM

	05:00 PM	05:15 PM	05:30 PM	05:45 PM	Total Volume	% App. Total	PHF	2	11	1	2	16	59	224	1	1	285	38	13	69	35	155	712
	4	224	26	2	256			1	12	2	1	16	67	259	8	2	336	30	10	26	35	101	822
	6	335	25	3	369			4	11	3	1	19	64	236	2	1	303	38	9	47	31	125	692
	7	295	29	2	333			1	6	2	2	11	61	291	2	3	357	28	7	51	21	107	808
Total Volume	19	1078	97	9	1203			8	40	8	6	62	251	1010	13	7	1281	134	39	193	122	488	3034
% App. Total	1.6	89.6	8.1	0.7				12.9	64.5	12.9	9.7		19.6	78.8	1	0.5		27.5	8	39.5	25		
PHF	.679	.804	.836	.750	.815			.500	.833	.667	.750	.816	.937	.868	.406	.583	.897	.882	.750	.699	.871	.787	.923

Peak Hour Analysis From 02:00 PM to 05:45 PM - Peak 1 of 1

Peak Hour for Each Approach Begins at:

	04:00 PM					04:15 PM					05:00 PM					04:15 PM				
+0 mins.	3	298	32	1	334	2	13	3	1	19	59	224	1	1	285	28	10	64	33	135
+15 mins.	4	253	33	1	291	1	11	2	4	18	67	259	8	2	336	33	9	48	40	130
+30 mins.	6	282	37	0	325	2	15	6	1	24	64	236	2	1	303	26	12	27	26	91
+45 mins.	6	279	24	1	310	2	11	1	2	16	61	291	2	3	357	38	13	69	35	155
Total Volume	19	1112	126	3	1260	7	50	12	8	77	251	1010	13	7	1281	125	44	208	134	511
% App. Total	1.5	88.3	10	0.2		9.1	64.9	15.6	10.4		19.6	78.8	1	0.5		24.5	8.6	40.7	26.2	
PHF	.792	.933	.851	.750	.943	.875	.833	.500	.500	.802	.937	.868	.406	.583	.897	.822	.846	.754	.838	.824

Intersection Turning Movement Count

City/County: Orlando/Orange
Weather: On/Off Rain 11:30-1:30
Comments:

File Name : SR527&Holden
Site Code : 1701010
Start Date : 10/18/2017
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Groups Printed- Heavy Vehicles

	SR 527 Southbound					DRIVEWAY Westbound					SR 527 Northbound					HOLDEN AVENUE Eastbound					Int. Total
Start Time	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	
07:00 AM	0	6	0	0	6	0	0	0	0	0	1	16	0	0	17	2	0	2	0	4	27
07:15 AM	0	12	1	1	14	0	0	0	0	0	1	14	1	0	16	0	0	0	0	0	30
07:30 AM	0	11	3	0	14	0	0	0	0	0	2	6	0	0	8	1	0	1	0	2	24
07:45 AM	0	11	0	0	11	0	0	0	0	0	1	13	0	0	14	0	0	0	0	0	25
Total	0	40	4	1	45	0	0	0	0	0	5	49	1	0	55	3	0	3	0	6	106
08:00 AM	0	20	0	1	21	0	0	0	0	0	0	20	0	0	20	2	0	3	2	7	48
08:15 AM	0	9	1	0	10	0	0	0	0	0	2	7	0	0	9	1	0	2	2	5	24
08:30 AM	0	16	0	0	16	0	0	0	0	0	0	19	1	0	20	2	0	3	1	6	42
08:45 AM	0	6	1	0	7	0	0	0	0	0	2	19	0	1	22	2	0	4	1	7	36
Total	0	51	2	1	54	0	0	0	0	0	4	65	1	1	71	7	0	12	6	25	150
*** BREAK ***																					
11:30 AM	0	14	1	0	15	0	0	0	0	0	1	15	0	0	16	3	0	2	0	5	36
11:45 AM	0	19	1	0	20	0	0	0	0	0	1	10	0	0	11	1	0	0	1	2	33
Total	0	33	2	0	35	0	0	0	0	0	2	25	0	0	27	4	0	2	1	7	69
12:00 PM	0	17	0	0	17	0	0	0	0	0	1	14	0	0	15	0	0	4	0	4	36
12:15 PM	0	15	0	0	15	0	0	0	0	0	1	12	0	0	13	2	0	1	1	4	32
12:30 PM	0	17	1	0	18	0	0	1	0	1	3	14	0	0	17	1	0	1	0	2	38
12:45 PM	0	15	1	0	16	0	0	0	0	0	3	11	0	0	14	0	0	3	0	3	33
Total	0	64	2	0	66	0	0	1	0	1	8	51	0	0	59	3	0	9	1	13	139
01:00 PM	0	18	2	0	20	0	0	0	0	0	0	10	0	0	10	1	0	2	1	4	34
01:15 PM	0	12	1	1	14	0	0	0	0	0	0	10	0	0	10	2	0	1	1	4	28
*** BREAK ***																					
Total	0	30	3	1	34	0	0	0	0	0	0	20	0	0	20	3	0	3	2	8	62
02:00 PM	0	11	1	1	13	0	0	0	0	0	1	13	0	0	14	2	0	0	0	2	29
02:15 PM	0	22	1	1	24	1	0	0	0	1	5	12	0	0	17	0	0	2	1	3	45
02:30 PM	0	9	3	0	12	0	0	0	0	0	4	19	0	0	23	0	1	2	0	3	38
02:45 PM	0	11	1	0	12	0	0	0	0	0	0	9	0	0	9	0	0	3	2	5	26
Total	0	53	6	2	61	1	0	0	0	1	10	53	0	0	63	2	1	7	3	13	138
03:00 PM	0	9	1	0	10	0	0	0	0	0	0	6	0	0	6	2	0	0	0	2	18
03:15 PM	0	17	0	0	17	0	0	0	0	0	1	9	0	0	10	0	0	2	1	3	30
03:30 PM	0	14	0	0	14	0	0	0	0	0	3	10	0	0	13	1	0	3	0	4	31
03:45 PM	0	17	0	0	17	0	0	0	0	0	0	5	0	0	5	0	0	2	0	2	24
Total	0	57	1	0	58	0	0	0	0	0	4	30	0	0	34	3	0	7	1	11	103
04:00 PM	0	16	2	0	18	0	0	0	0	0	1	7	0	0	8	1	0	1	0	2	28
04:15 PM	0	13	1	0	14	0	1	0	0	1	1	5	0	0	6	0	0	2	0	2	23
04:30 PM	0	11	0	0	11	0	1	0	0	1	0	8	0	0	8	0	0	0	1	1	21
04:45 PM	0	6	0	0	6	0	0	0	0	0	4	12	0	0	16	0	0	0	1	1	23
Total	0	46	3	0	49	0	2	0	0	2	6	32	0	0	38	1	0	3	2	6	95

Intersection Turning Movement Count

City/County: Orlando/Orange
 Weather: On/Off Rain 11:30-1:30
 Comments:

File Name : SR527&Holden
 Site Code : 1701010
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Groups Printed- Heavy Vehicles

	SR 527 Southbound					DRIVEWAY Westbound					SR 527 Northbound					HOLDEN AVENUE Eastbound					
Start Time	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Int. Total
05:00 PM	0	7	0	0	7	0	0	0	0	0	1	8	0	0	9	0	0	0	0	0	16
05:15 PM	0	13	0	0	13	0	0	0	0	0	0	7	0	0	7	0	0	2	0	2	22
05:30 PM	0	6	0	0	6	0	0	0	0	0	2	5	0	0	7	0	0	0	1	1	14
05:45 PM	0	9	0	0	9	0	0	0	0	0	0	7	0	0	7	0	0	0	0	0	16
Total	0	35	0	0	35	0	0	0	0	0	3	27	0	0	30	0	0	2	1	3	68
Grand Total	0	409	23	5	437	1	2	1	0	4	42	352	2	1	397	26	1	48	17	92	930
Apprch %	0	93.6	5.3	1.1		25	50	25	0		10.6	88.7	0.5	0.3		28.3	1.1	52.2	18.5		
Total %	0	44	2.5	0.5	47	0.1	0.2	0.1	0	0.4	4.5	37.8	0.2	0.1	42.7	2.8	0.1	5.2	1.8	9.9	

	SR 527 Southbound					DRIVEWAY Westbound					SR 527 Northbound					HOLDEN AVENUE Eastbound					Int. Total
Start Time	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	
08:00 AM	0	20	0	1	21	0	0	0	0	0	0	20	0	0	20	2	0	3	2	7	48
08:15 AM	0	9	1	0	10	0	0	0	0	0	2	7	0	0	9	1	0	2	2	5	24
08:30 AM	0	16	0	0	16	0	0	0	0	0	0	19	1	0	20	2	0	3	1	6	42
08:45 AM	0	6	1	0	7	0	0	0	0	0	2	19	0	1	22	2	0	4	1	7	36
Total Volume	0	51	2	1	54	0	0	0	0	0	4	65	1	1	71	7	0	12	6	25	150
% App. Total	0	94.4	3.7	1.9		0	0	0	0		5.6	91.5	1.4	1.4		28	0	48	24		
PHF	.000	.638	.500	.250	.643	.000	.000	.000	.000	.000	.500	.813	.250	.250	.807	.875	.000	.750	.750	.893	.781

Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1

Peak Hour for Entire Intersection Begins at 08:00 AM

	07:15 AM					07:00 AM					08:00 AM					08:00 AM					Int. Total
+0 mins.	0	12	1	1	14	0	0	0	0	0	0	20	0	0	20	2	0	3	2	7	
+15 mins.	0	11	3	0	14	0	0	0	0	0	2	7	0	0	9	1	0	2	2	5	
+30 mins.	0	11	0	0	11	0	0	0	0	0	0	19	1	0	20	2	0	3	1	6	
+45 mins.	0	20	0	1	21	0	0	0	0	0	2	19	0	1	22	2	0	4	1	7	
Total Volume	0	54	4	2	60	0	0	0	0	0	4	65	1	1	71	7	0	12	6	25	
% App. Total	0	90	6.7	3.3		0	0	0	0		5.6	91.5	1.4	1.4		28	0	48	24		
PHF	.000	.675	.333	.500	.714	.000	.000	.000	.000	.000	.500	.813	.250	.250	.807	.875	.000	.750	.750	.893	

Peak Hour Analysis From 11:30 AM to 01:15 PM - Peak 1 of 1

Peak Hour for Entire Intersection Begins at 11:45 AM

	11:45 AM					12:00 PM					12:15 PM					12:30 PM					Int. Total
11:45 AM	0	19	1	0	20	0	0	0	0	0	1	10	0	0	11	1	0	0	1	2	33
12:00 PM	0	17	0	0	17	0	0	0	0	0	1	14	0	0	15	0	0	4	0	4	36
12:15 PM	0	15	0	0	15	0	0	0	0	0	1	12	0	0	13	2	0	1	1	4	32
12:30 PM	0	17	1	0	18	0	0	1	0	1	3	14	0	0	17	1	0	1	0	2	38
Total Volume	0	68	2	0	70	0	0	1	0	1	6	50	0	0	56	4	0	6	2	12	139
% App. Total	0	97.1	2.9	0		0	0	100	0		10.7	89.3	0	0		33.3	0	50	16.7		
PHF	.000	.895	.500	.000	.875	.000	.000	.250	.000	.250	.500	.893	.000	.000	.824	.500	.000	.375	.500	.750	.914

Intersection Turning Movement Count

City/County: Orlando/Orange
 Weather: On/Off Rain 11:30-1:30
 Comments:

File Name : SR527&Holden
 Site Code : 1701010
 Start Date : 10/18/2017
 Page No : 3

	SR 527 Southbound					DRIVEWAY Westbound					SR 527 Northbound					HOLDEN AVENUE Eastbound					
Start Time	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Int. Total

Peak Hour Analysis From 11:30 AM to 01:15 PM - Peak 1 of 1

Peak Hour for Each Approach Begins at:

	11:45 AM					11:45 AM					12:00 PM					11:30 AM					
+0 mins.	0	19	1	0	20	0	0	0	0	0	1	14	0	0	15	3	0	2	0	5	
+15 mins.	0	17	0	0	17	0	0	0	0	0	1	12	0	0	13	1	0	0	1	2	
+30 mins.	0	15	0	0	15	0	0	0	0	0	3	14	0	0	17	0	0	4	0	4	
+45 mins.	0	17	1	0	18	0	0	1	0	1	3	11	0	0	14	2	0	1	1	4	
Total Volume	0	68	2	0	70	0	0	1	0	1	8	51	0	0	59	6	0	7	2	15	
% App. Total	0	97.1	2.9	0		0	0	100	0		13.6	86.4	0	0		40	0	46.7	13.3		
PHF	.000	.895	.500	.000	.875	.000	.000	.250	.000	.250	.667	.911	.000	.000	.868	.500	.000	.438	.500	.750	

Peak Hour Analysis From 02:00 PM to 05:45 PM - Peak 1 of 1

Peak Hour for Entire Intersection Begins at 02:00 PM

	02:00 PM					02:15 PM					02:30 PM					02:45 PM					
02:00 PM	0	11	1	1	13	0	0	0	0	0	1	13	0	0	14	2	0	0	0	2	29
02:15 PM	0	22	1	1	24	1	0	0	0	1	5	12	0	0	17	0	0	2	1	3	45
02:30 PM	0	9	3	0	12	0	0	0	0	0	4	19	0	0	23	0	1	2	0	3	38
02:45 PM	0	11	1	0	12	0	0	0	0	0	0	9	0	0	9	0	0	3	2	5	26
Total Volume	0	53	6	2	61	1	0	0	0	1	10	53	0	0	63	2	1	7	3	13	138
% App. Total	0	86.9	9.8	3.3		100	0	0	0		15.9	84.1	0	0		15.4	7.7	53.8	23.1		
PHF	.000	.602	.500	.500	.635	.250	.000	.000	.000	.250	.500	.697	.000	.000	.685	.250	.250	.583	.375	.650	.767

Peak Hour Analysis From 02:00 PM to 05:45 PM - Peak 1 of 1

Peak Hour for Each Approach Begins at:

	03:15 PM					03:45 PM					02:00 PM					02:45 PM					
+0 mins.	0	17	0	0	17	0	0	0	0	0	1	13	0	0	14	0	0	3	2	5	
+15 mins.	0	14	0	0	14	0	0	0	0	0	5	12	0	0	17	2	0	0	0	2	
+30 mins.	0	17	0	0	17	0	1	0	0	1	4	19	0	0	23	0	0	2	1	3	
+45 mins.	0	16	2	0	18	0	1	0	0	1	0	9	0	0	9	1	0	3	0	4	
Total Volume	0	64	2	0	66	0	2	0	0	2	10	53	0	0	63	3	0	8	3	14	
% App. Total	0	97	3	0		0	100	0	0		15.9	84.1	0	0		21.4	0	57.1	21.4		
PHF	.000	.941	.250	.000	.917	.000	.500	.000	.000	.500	.500	.697	.000	.000	.685	.375	.000	.667	.375	.700	

Intersection Turning Movement Count

City/County: Orlando/Orange
Weather: On/Off Rain 11:30-1:30
Comments:

File Name : SR527&Holden
Site Code : 1701010
Start Date : 10/18/2017
Page No : 1

Groups Printed- UTurns

	SR 527 Southbound					DRIVEWAY Westbound					SR 527 Northbound					HOLDEN AVENUE Eastbound					
Start Time	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Int. Total
*** BREAK ***																					
12:30 PM	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
*** BREAK ***																					
Total	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
*** BREAK ***																					
Grand Total	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
Apprch %	100	0	0	0		0	0	0	0		0	0	0	0		0	0	0	0		
Total %	100	0	0	0	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	

	SR 527 Southbound					DRIVEWAY Westbound					SR 527 Northbound					HOLDEN AVENUE Eastbound					
Start Time	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:00 AM																					
07:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% App. Total	0	0	0	0		0	0	0	0		0	0	0	0		0	0	0	0		
PHF	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000

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

	07:00 AM					07:00 AM					07:00 AM					07:00 AM				
+0 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+15 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+30 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+45 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% App. Total	0	0	0	0		0	0	0	0		0	0	0	0		0	0	0	0	
PHF	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000

Intersection Turning Movement Count

City/County: Orlando/Orange
 Weather: On/Off Rain 11:30-1:30
 Comments:

File Name : SR527&Holden
 Site Code : 1701010
 Start Date : 10/18/2017
 Page No : 2

	SR 527 Southbound					DRIVEWAY Westbound					SR 527 Northbound					HOLDEN AVENUE Eastbound					
Start Time	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Int. Total
Peak Hour Analysis From 11:30 AM to 01:15 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 11:45 AM																					
11:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:30 PM	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
Total Volume	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
% App. Total	100	0	0	0		0	0	0	0		0	0	0	0		0	0	0	0		
PHF	.250	.000	.000	.000	.250	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.250

Peak Hour Analysis From 11:30 AM to 01:15 PM - Peak 1 of 1
 Peak Hour for Each Approach Begins at:

	11:45 AM					11:30 AM					11:30 AM					11:30 AM				
+0 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+15 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+30 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+45 mins.	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% App. Total	100	0	0	0		0	0	0	0		0	0	0	0		0	0	0	0	
PHF	.250	.000	.000	.000	.250	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000

Peak Hour Analysis From 02:00 PM to 05:45 PM - Peak 1 of 1
 Peak Hour for Entire Intersection Begins at 02:00 PM

	02:00 PM					02:00 PM					02:00 PM					02:00 PM				
02:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
02:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
02:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
02:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% App. Total	0	0	0	0		0	0	0	0		0	0	0	0		0	0	0	0	
PHF	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000

Peak Hour Analysis From 02:00 PM to 05:45 PM - Peak 1 of 1
 Peak Hour for Each Approach Begins at:

	02:00 PM					02:00 PM					02:00 PM					02:00 PM				
+0 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+15 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+30 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+45 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% App. Total	0	0	0	0		0	0	0	0		0	0	0	0		0	0	0	0	
PHF	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000

Intersection Pedestrian & Bicycle Count

Date: 10/18/17

Day: Wednesday

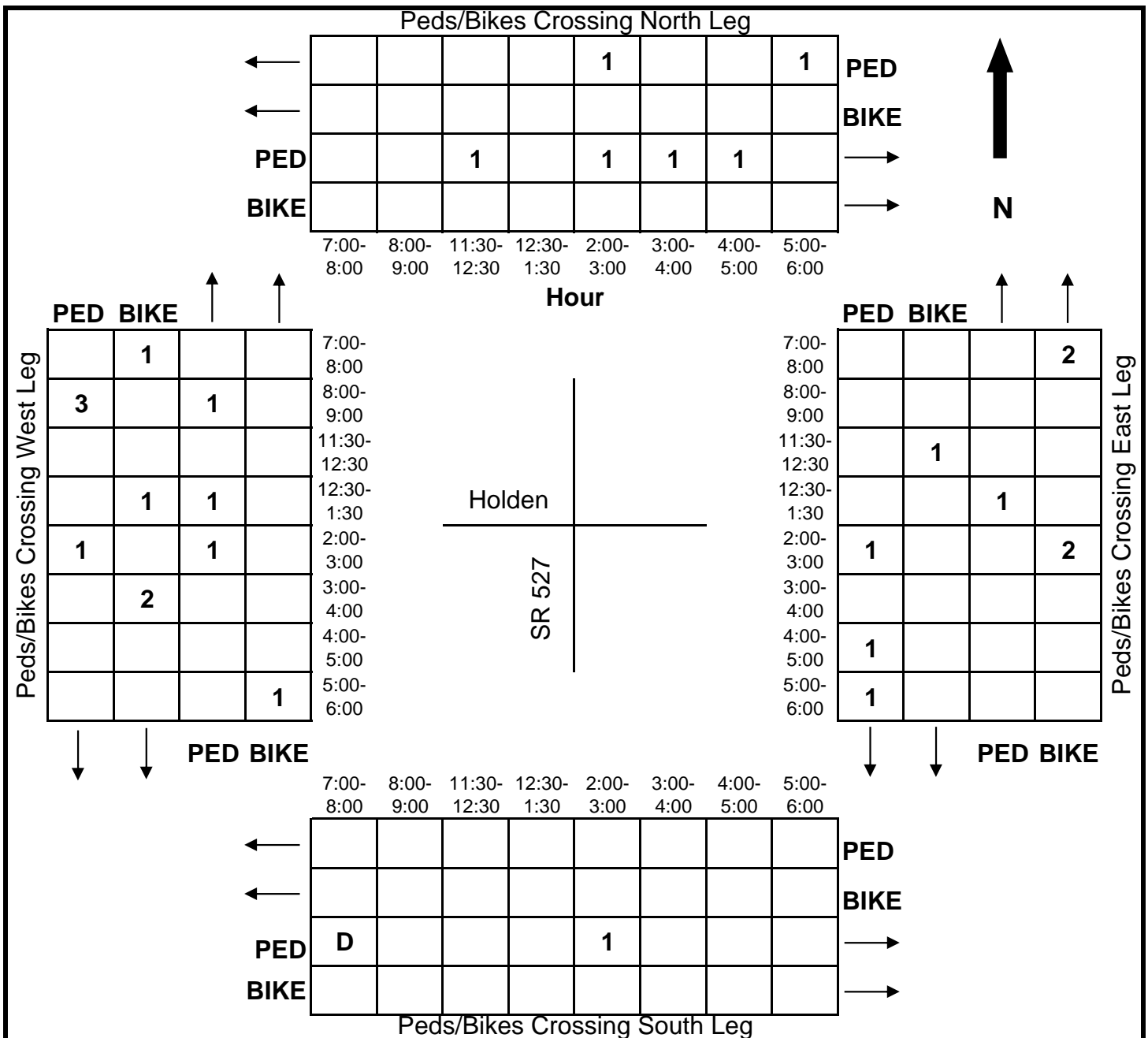
Count Times: 7-9am; 11:30am-1:30pm; 2-6pm

Weather: On/Off Rain

Intersection: SR 527 at Holden Avenue 11:30am-1:30pm

Comments: _____

C - Child under 12; S - Senior 65 or over; D - Physical Disability



Intersection Analysis Study for Orange Avenue/Gatlin Avenue & Orange Avenue/Holden Avenue

Appendix C: OD Study Results

Origin-Destination Patterns - 9/2/2020

EBR at Holden Ave & SBL at Gatlin Ave

Time	EBR	EBR + SBL	%
7:00AM - 7:15AM	60	9	15.00%
7:15AM - 7:30AM	69	18	26.09%
7:30AM - 7:45AM	67	22	32.84%
7:45AM - 8:00AM	54	11	20.37%
8:00AM - 8:15AM	79	21	26.58%
8:15AM - 8:30AM	55	16	29.09%
8:30AM - 8:45AM	62	19	30.65%
8:45AM - 9:00AM	60	12	20.00%

	EBR	SBL	
7:00AM - 8:00AM	250	60	24.00%
7:15AM - 8:15AM	269	72	26.77%
7:30AM - 8:30AM	255	70	27.45%
7:45AM - 8:45AM	250	67	26.80%
8:00AM - 9:00AM	256	68	26.56%

WBR at Gatlin Ave & NBL at Holden Ave

Time	WBR	WBR + NBL	%
7:00AM - 7:15AM	29	20	68.97%
7:15AM - 7:30AM	25	21	84.00%
7:30AM - 7:45AM	30	25	83.33%
7:45AM - 8:00AM	26	20	76.92%
8:00AM - 8:15AM	34	27	79.41%
8:15AM - 8:30AM	23	17	73.91%
8:30AM - 8:45AM	36	24	66.67%
8:45AM - 9:00AM	27	15	55.56%

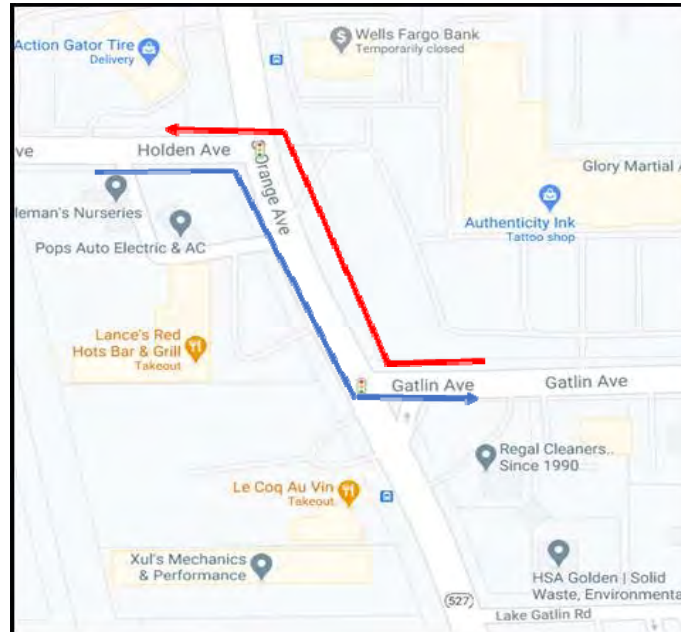
7:00AM - 8:00AM	110	86	78.18%
7:15AM - 8:15AM	115	93	80.87%
7:30AM - 8:30AM	113	89	78.76%
7:45AM - 8:45AM	119	88	73.95%
8:00AM - 9:00AM	120	83	69.17%

Time	EBR	EBR + SBL	%
4:00PM - 4:15PM	73	29	39.73%
4:15PM - 4:30PM	85	34	40.00%
4:30PM - 4:45PM	81	26	32.10%
4:45PM - 5:00PM	82	29	35.37%
5:00PM - 5:15PM	66	26	39.39%
5:15PM - 5:30PM	64	24	37.50%
5:30PM - 5:45PM	72	28	38.89%
5:45PM - 6:00PM	65	19	29.23%

4:00PM - 5:00PM	321	118	36.76%
4:15PM - 5:15PM	314	115	36.62%
4:30PM - 5:30PM	293	105	35.84%
4:45PM - 5:45PM	284	107	37.68%
5:00PM - 6:00PM	267	97	36.33%

Time	WBR	WBR + NBL	%
4:00PM - 4:15PM	32	22	68.75%
4:15PM - 4:30PM	20	8	40.00%
4:30PM - 4:45PM	24	16	66.67%
4:45PM - 5:00PM	19	11	57.89%
5:00PM - 5:15PM	27	18	66.67%
5:15PM - 5:30PM	25	19	76.00%
5:30PM - 5:45PM	26	14	53.85%
5:45PM - 6:00PM	26	16	61.54%

4:00PM - 5:00PM	95	57	60.00%
4:15PM - 5:15PM	90	53	58.89%
4:30PM - 5:30PM	95	64	67.37%
4:45PM - 5:45PM	97	62	63.92%
5:00PM - 6:00PM	104	67	64.42%



Intersection Analysis Study for Orange Avenue/Gatlin Avenue & Orange Avenue/Holden Avenue

Appendix D: Historical Crash Data

Crash Data Summary - Orange Avenue and Holden Avenue

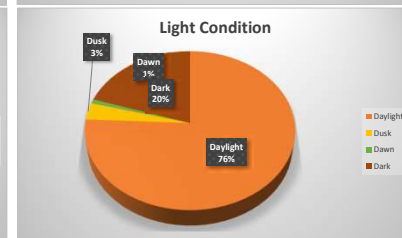
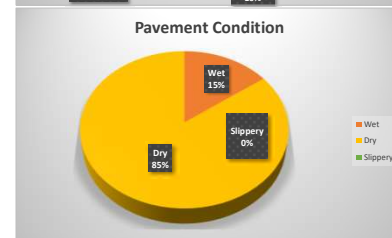
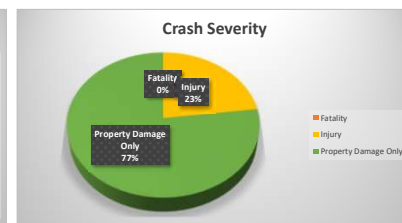
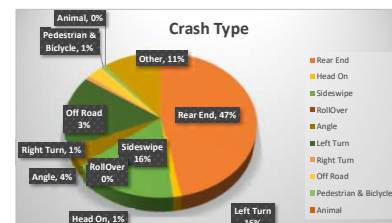
Crash Type	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	Total	Proportion
Rear End	0	7	9	15	15	18	11	9	14	8	4	110	47%
Head On	0	1	0	0	0	1	0	1	0	0	0	3	1%
Sideswipe	0	2	5	5	3	6	5	6	3	3	0	38	16%
RollOver	0	0	0	0	0	0	0	0	0	0	0	0	0%
Angle	1	0	1	1	0	2	1	2	0	1	1	10	4%
Left Turn	2	1	0	4	3	6	4	6	7	2	3	38	16%
Right Turn	0	0	0	1	0	0	0	1	0	0	0	2	1%
Off Road	0	0	0	0	1	0	1	0	4	0	1	7	3%
Pedestrian & Bicycle	0	0	1	0	0	0	0	0	0	1	0	2	1%
Animal	0	0	0	0	0	0	0	0	0	0	0	0	0%
Other	0	1	2	6	1	7	1	1	2	4	0	25	11%
Total	3	12	18	32	23	40	23	26	30	19	9	235	100%

Crash Severity	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	Total	Proportion
Fatality	0	0	0	0	0	0	0	0	0	0	0	0	0%
Injury	1	0	4	6	5	8	4	8	8	6	4	54	23%
Property Damage Only	2	12	14	26	18	32	19	18	22	13	5	181	77%
Total	3	12	18	32	23	40	23	26	30	19	9	235	100%

Pavement Condition	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	Total	Proportion
Wet	0	1	6	10	2	8	1	0	4	2	1	35	15%
Dry	3	11	12	22	21	32	22	26	26	17	8	200	85%
Other	0	0	0	0	0	0	0	0	0	0	0	0	0%
Total	3	12	18	32	23	40	23	26	30	19	9	235	100%

Light Condition	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	Total	Proportion
Daylight	3	10	15	21	21	28	16	20	22	15	7	178	76%
Dusk	0	0	0	2	0	1	1	0	2	1	1	8	3%
Dawn	0	0	0	0	0	1	1	0	0	0	0	2	1%
Dark	0	2	3	9	2	10	5	6	6	3	1	47	20%
Total	3	12	18	32	23	40	23	26	30	19	9	235	100%

Under the Influence	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	Total	Proportion
Alcohol	0	0	0	1	0	0	1	0	0	0	0	2	1%
Drugs	0	0	0	0	0	0	1	0	0	0	0	1	0%
Total	0	0	0	1	0	0	2	0	0	0	0	3	1%



Crash Data Summary - Orange Avenue and Holden Avenue

No.	Crash ID	Date	Day	Time	Hour	Year	Crash Type	Crash Severity	Fatalities	Injuries	Property Damage	Day/Night	Wet/Dry
1	83855927	12/30/2019	Monday	5:35 PM	17	2019	Off Road	Property Damage Only	0	0	\$500	Dusk	Dry
2	83855805	3/4/2019	Monday	3:44 PM	15	2019	Rear End	Property Damage Only	0	0	\$1,500	Daylight	Dry
3	83855077	1/14/2014	Tuesday	10:37 AM	10	2014	Left Turn	Injury	0	2	\$4,500	Daylight	Wet
4	83855704	5/27/2018	Sunday	9:15 PM	21	2018	Rear End	Injury	0	3	\$3,000	Dark - Not Lighted	Dry
5	82148115	3/15/2012	Thursday	5:02 PM	17	2012	Other	Property Damage Only	0	0	\$1,000	Daylight	Dry
6	83855845	6/13/2019	Thursday	9:57 AM	09	2019	Sideswipe	Injury	0	1	\$1,500	Daylight	Wet
7	83855095	2/17/2014	Monday	8:04 AM	08	2014	Rear End	Property Damage Only	0	0	\$0	Daylight	Dry
8	83855888	9/27/2019	Friday	8:30 AM	08	2019	Rear End	Property Damage Only	0	0	\$1,200	Daylight	Dry
9	83799887	5/16/2014	Friday	12:51 PM	12	2014	Rear End	Property Damage Only	0	0	\$1,300	Daylight	Dry
10	24261028	12/21/2020	Monday	9:19 AM	09	2020	Sideswipe	Injury	0	1	\$2,000	Daylight	Dry
11	83855793	2/8/2019	Friday	4:34 PM	16	2019	Other	Property Damage Only	0	0	\$200	Daylight	Dry
12	88101021	3/1/2019	Friday	9:43 AM	09	2019	Rear End	Property Damage Only	0	0	\$1,900	Daylight	Dry
13	83855039	9/18/2013	Wednesday	4:20 PM	16	2013	Sideswipe	Property Damage Only	0	0	\$2,500	Daylight	Wet
14	83855141	6/28/2014	Saturday	6:15 PM	18	2014	Rear End	Property Damage Only	0	0	\$0	Daylight	Dry
15	83855586	6/17/2017	Saturday	2:15 PM	14	2017	Rear End	Property Damage Only	0	0	\$1,000	Daylight	Dry
16	83855814	3/24/2019	Sunday	3:50 PM	15	2019	Other	Injury	0	3	\$3,000	Daylight	Dry
17	83855774	12/22/2018	Saturday	9:40 AM	09	2018	Rear End	Injury	0	1	\$2,000	Daylight	Dry
18	83855227	3/9/2015	Monday	12:21 PM	12	2015	Left Turn	Property Damage Only	0	0	\$4,500	Daylight	Dry
19	83855469	10/17/2016	Monday	11:15 AM	11	2016	Other	Property Damage Only	0	0	\$1,000	Daylight	Dry
20	24261078	5/28/2021	Friday	3:46 PM	15	2021	Off Road	Property Damage Only	0	0	\$1,500	Daylight	Dry
21	83855930	1/8/2020	Wednesday	8:03 AM	08	2020	Other	Injury	0	1	\$500	Daylight	Dry
22	83855899	10/17/2019	Thursday	8:19 AM	08	2019	Off Road	Property Damage Only	0	0	\$0	Daylight	Dry
23	24261072	5/20/2021	Thursday	7:55 AM	07	2021	Rear End	Property Damage Only	0	0	\$2,000	Daylight	Dry
24	83855989	8/7/2020	Friday	6:25 PM	18	2020	Rear End	Property Damage Only	0	0	\$1,000	Daylight	Wet
25	83855869	8/7/2019	Wednesday	4:52 PM	16	2019	Rear End	Injury	0	1	\$2,000	Daylight	Wet
26	83855668	2/24/2018	Saturday	2:11 PM	14	2018	Angle	Property Damage Only	0	0	\$1,250	Daylight	Dry
27	83855649	12/19/2017	Tuesday	8:45 AM	08	2017	Left Turn	Property Damage Only	0	0	\$3,000	Daylight	Dry
28	83855711	6/18/2018	Monday	6:20 PM	18	2018	Sideswipe	Property Damage Only	0	0	\$1,500	Daylight	Dry
29	82148337	9/28/2012	Friday	8:34 AM	08	2012	Rear End	Property Damage Only	0	0	\$0	Daylight	Dry
30	83855750	10/15/2018	Monday	2:34 PM	14	2018	Left Turn	Property Damage Only	0	0	\$20,000	Daylight	Dry
31	83855190	12/8/2014	Monday	5:45 PM	17	2014	Rear End	Property Damage Only	0	0	\$0	Dark - Not Lighted	Wet
32	87129632	12/6/2017	Wednesday	4:19 PM	16	2017	Left Turn	Property Damage Only	0	0	\$3,500	Dusk	Dry
33	24129045	11/18/2020	Wednesday	7:41 AM	07	2020	Rear End	Property Damage Only	0	0	\$3,000	Daylight	Dry
34	83855868	8/7/2019	Wednesday	2:45 PM	14	2019	Rear End	Property Damage Only	0	0	\$2,000	Daylight	Dry
35	83855344	12/23/2015	Wednesday	8:45 AM	08	2015	Rear End	Property Damage Only	0	0	\$0	Daylight	Dry
36	83855572	5/15/2017	Monday	10:50 AM	10	2017	Sideswipe	Property Damage Only	0	0	\$0	Daylight	Dry
37	85481756	3/7/2017	Tuesday	4:20 PM	16	2017	Rear End	Property Damage Only	0	0	\$3,300	Daylight	Dry
38	83295366	3/19/2013	Tuesday	7:35 AM	07	2013	Pedestrian	Injury	0	1	\$1,000	Daylight	Dry
39	83855532	2/24/2017	Friday	4:20 PM	16	2017	Rear End	Property Damage Only	0	0	\$1,500	Daylight	Dry
40	83855576	5/22/2017	Monday	11:22 AM	11	2017	Other	Property Damage Only	0	0	\$5,000	Daylight	Dry
41	83855544	3/15/2017	Wednesday	10:47 AM	10	2017	Angle	Property Damage Only	0	0	\$0	Daylight	Dry
42	83855960	3/26/2020	Thursday	5:00 PM	17	2020	Angle	Property Damage Only	0	0	\$3,500	Daylight	Dry
43	83855904	10/27/2019	Sunday	7:32 PM	19	2019	Left Turn	Property Damage Only	0	0	\$2,000	Dark - Lighted	Dry
44	83855313	10/21/2015	Wednesday	10:15 AM	10	2015	Rear End	Property Damage Only	0	0	\$0	Daylight	Dry

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No.	Crash ID	Date	Day	Time	Hour	Year	Crash Type	Crash Severity	Fatalities	Injuries	Property Damage	Day/Night	Wet/Dry
45	83855731	8/27/2018	Monday	8:57 AM	08	2018	Rear End	Property Damage Only	0	0	\$2,000	Daylight	Dry
46	83855742	9/25/2018	Tuesday	7:20 AM	07	2018	Rear End	Property Damage Only	0	0	\$4,000	Daylight	Dry
47	83855725	8/16/2018	Thursday	1:36 PM	13	2018	Unknown	Injury	0	1	\$9,000	Daylight	Dry
48	83855745	10/5/2018	Friday	1:55 PM	13	2018	Left Turn	Property Damage Only	0	0	\$2,500	Daylight	Dry
49	83855097	2/17/2014	Monday	9:00 PM	21	2014	Angle	Property Damage Only	0	0	\$1,500	Dark - Lighted	Dry
50	82148834	11/24/2012	Saturday	3:30 PM	15	2012	Rear End	Property Damage Only	0	0	\$0	Daylight	Dry
51	83855439	8/4/2016	Thursday	8:15 AM	08	2016	Other	Injury	0	1	\$1,500	Daylight	Dry
52	83855559	4/7/2017	Friday	9:55 AM	09	2017	Sideswipe	Property Damage Only	0	0	\$0	Daylight	Dry
53	83855512	1/24/2017	Tuesday	8:45 AM	08	2017	Rear End	Property Damage Only	0	0	\$0	Daylight	Dry
54	83855496	12/23/2016	Friday	12:51 PM	12	2016	Angle	Injury	0	1	\$14,000	Daylight	Dry
55	83855879	8/30/2019	Friday	2:08 PM	14	2019	Rear End	Property Damage Only	0	0	\$1,500	Daylight	Dry
56	83855335	12/1/2015	Tuesday	5:04 PM	17	2015	Rear End	Property Damage Only	0	0	\$0	Daylight	Dry
57	83855461	9/9/2016	Friday	8:57 AM	08	2016	Other	Property Damage Only	0	0	\$0	Daylight	Dry
58	83855964	4/20/2020	Monday	6:05 AM	06	2020	Bicycle	Injury	0	1	\$1,000	Dark - Lighted	Dry
59	83855895	10/5/2019	Saturday	10:25 AM	10	2019	Off Road	Property Damage Only	0	0	\$250	Daylight	Dry
60	83855972	5/27/2020	Wednesday	1:45 PM	13	2020	Other	Property Damage Only	0	0	\$1,500	Daylight	Dry
61	83855820	4/7/2019	Sunday	6:49 PM	18	2019	Rear End	Property Damage Only	0	0	\$200	Daylight	Dry
62	7134560	1/26/2016	Tuesday	3:35 PM	15	2016	Rear End	Property Damage Only	0	0	\$0	Daylight	Dry
63	83855733	8/31/2018	Friday	8:27 AM	08	2018	Rear End	Property Damage Only	0	0	\$600	Daylight	Dry
64	83855052	10/27/2013	Sunday	2:30 PM	14	2013	Angle	Injury	0	1	\$4,500	Daylight	Dry
65	11829021	2/3/2013	Sunday	11:10 AM	11	2013	Rear End	Property Damage Only	0	0	\$2,500	Daylight	Dry
66	83855769	12/4/2018	Tuesday	6:20 PM	18	2018	Sideswipe	Property Damage Only	0	0	\$3,000	Dark - Unknown Lighting	Dry
67	24261038	1/27/2021	Wednesday	6:06 PM	18	2021	Left Turn	Injury	0	2	\$16,000	Dusk	Dry
68	88309126	5/28/2021	Friday	4:12 PM	16	2021	Angle	Property Damage Only	0	0	\$100	Daylight	Dry
69	83855423	7/8/2016	Friday	12:11 PM	12	2016	Other	Property Damage Only	0	0	\$0	Daylight	Dry
70	87211549	4/17/2018	Tuesday	6:12 PM	18	2018	Rear End	Property Damage Only	0	0	\$2,000	Daylight	Dry
71	83855785	1/22/2019	Tuesday	7:20 PM	19	2019	Left Turn	Property Damage Only	0	0	\$1,000	Dark - Lighted	Dry
72	83855029	8/7/2013	Wednesday	4:36 PM	16	2013	Rear End	Property Damage Only	0	0	\$0	Daylight	Wet
73	85308664	4/30/2016	Saturday	3:10 AM	03	2016	Rear End	Property Damage Only	0	0	\$2,000	Dark - Lighted	Dry
74	7134559	1/25/2016	Monday	6:45 AM	06	2016	Rear End	Property Damage Only	0	0	\$3,500	Dawn	Dry
75	84478237	8/7/2014	Thursday	3:48 PM	15	2014	Other	Property Damage Only	0	0	\$800	Daylight	Wet
76	83855528	2/20/2017	Monday	10:59 AM	10	2017	Off Road	Property Damage Only	0	0	\$2,000	Daylight	Dry
77	83855337	12/2/2015	Wednesday	7:00 PM	19	2015	Rear End	Property Damage Only	0	0	\$2,000	Dark - Not Lighted	Wet
78	83855476	10/26/2016	Wednesday	10:05 PM	22	2016	Left Turn	Property Damage Only	0	0	\$6,000	Dark - Lighted	Dry
79	83855483	11/19/2016	Saturday	4:14 PM	16	2016	Left Turn	Property Damage Only	0	0	\$0	Daylight	Dry
80	83855465	9/26/2016	Monday	5:46 AM	05	2016	Rear End	Injury	0	1	\$5,000	Dark - Not Lighted	Dry
81	83855181	10/31/2014	Friday	3:01 AM	03	2014	Other	Property Damage Only	0	0	\$1,000	Dark - Lighted	Wet
82	83855085	1/29/2014	Wednesday	9:19 PM	21	2014	Left Turn	Property Damage Only	0	0	\$0	Dark - Lighted	Wet
83	83855257	6/3/2015	Wednesday	8:05 AM	08	2015	Rear End	Property Damage Only	0	0	\$0	Daylight	Dry
84	7133951	3/17/2016	Thursday	10:45 AM	10	2016	Rear End	Property Damage Only	0	0	\$0	Daylight	Dry
85	83855116	4/8/2014	Tuesday	3:36 PM	15	2014	Sideswipe	Property Damage Only	0	0	\$0	Daylight	Wet
86	24261080	6/7/2021	Monday	9:35 AM	09	2021	Rear End	Property Damage Only	0	0	\$1,000	Daylight	Dry
87	83855801	2/24/2019	Sunday	2:54 PM	14	2019	Rear End	Property Damage Only	0	0	\$2,000	Daylight	Dry
88	82148837	1/14/2013	Monday	10:10 AM	10	2013	Other	Injury	0	1	\$250	Daylight	Dry
89	87182088	3/24/2018	Saturday	2:22 PM	14	2018	Angle	Property Damage Only	0	0	\$1,500	Daylight	Dry
90	83855945	2/24/2020	Monday	4:45 PM	16	2020	Unknown	Property Damage Only	0	0	\$1,000	Daylight	Dry
91	87152582	2/12/2018	Monday	7:14 PM	19	2018	Left Turn	Property Damage Only	0	0	\$1,000	Dark - Lighted	Dry
92	24261046	2/18/2021	Thursday	1:18 PM	13	2021	Rear End	Injury	0	2	\$5,000	Daylight	Dry
93	83855619	10/2/2017	Monday	8:03 PM	20	2017	Rear End	Property Damage Only	0	0	\$850	Dark - Lighted	Dry

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No.	Crash ID	Date	Day	Time	Hour	Year	Crash Type	Crash Severity	Fatalities	Injuries	Property Damage	Day/Night	Wet/Dry
94	83855392	5/4/2016	Wednesday	12:38 PM	12	2016	Other	Property Damage Only	0	0	\$0	Daylight	Wet
95	83855823	4/17/2019	Wednesday	10:58 PM	22	2019	Rear End	Property Damage Only	0	0	\$7,500	Dark - Lighted	Dry
96	83855163	1/27/2014	Monday	9:44 PM	21	2014	Rear End	Injury	0	1	\$1,500	Dark - Lighted	Dry
97	85345419	6/23/2016	Thursday	7:44 AM	07	2016	Left Turn	Property Damage Only	0	0	\$4,000	Daylight	Dry
98	83855339	12/4/2015	Friday	7:40 AM	07	2015	Rear End	Property Damage Only	0	0	\$0	Daylight	Wet
99	83855050	10/16/2013	Wednesday	9:01 AM	09	2013	Sideswipe	Property Damage Only	0	0	\$0	Daylight	Dry
100	83855188	11/26/2014	Wednesday	8:43 AM	08	2014	Sideswipe	Property Damage Only	0	0	\$0	Daylight	Wet
101	83855389	4/28/2016	Thursday	6:25 PM	18	2016	Other	Property Damage Only	0	0	\$2,000	Daylight	Wet
102	83855365	2/9/2016	Tuesday	12:55 PM	12	2016	Rear End	Property Damage Only	0	0	\$0	Daylight	Dry
103	83855394	5/9/2016	Monday	7:57 PM	19	2016	Angle	Injury	0	1	\$500	Dark - Lighted	Dry
104	83855186	11/15/2014	Saturday	11:14 PM	23	2014	Other	Injury	0	1	\$1,800	Dark - Lighted	Dry
105	83855261	6/18/2015	Thursday	1:07 PM	13	2015	Rear End	Property Damage Only	0	0	\$0	Daylight	Dry
106	83855270	7/9/2015	Thursday	1:50 PM	13	2015	Rear End	Property Damage Only	0	0	\$0	Daylight	Dry
107	83855468	10/8/2016	Saturday	3:37 PM	15	2016	Rear End	Property Damage Only	0	0	\$0	Daylight	Dry
108	83855372	2/23/2016	Tuesday	3:45 PM	15	2016	Sideswipe	Property Damage Only	0	0	\$500	Daylight	Dry
109	83855843	6/8/2019	Saturday	7:30 PM	19	2019	Rear End	Property Damage Only	0	0	\$1,300	Dusk	Wet
110	83855625	10/15/2017	Sunday	3:54 PM	15	2017	Sideswipe	Property Damage Only	0	0	\$2,100	Daylight	Dry
111	83855629	10/23/2017	Monday	10:41 PM	22	2017	Sideswipe	Injury	0	1	\$500	Dark - Lighted	Wet
112	83855728	8/21/2018	Tuesday	6:50 AM	06	2018	Sideswipe	Property Damage Only	0	0	\$750	Daylight	Dry
113	83855329	11/9/2015	Monday	2:40 PM	14	2015	Rear End	Property Damage Only	0	0	\$0	Daylight	Dry
114	83855642	12/7/2017	Thursday	6:01 PM	18	2017	Left Turn	Injury	0	2	\$26,000	Dark - Lighted	Dry
115	83855145	7/7/2014	Monday	11:07 AM	11	2014	Rear End	Property Damage Only	0	0	\$2,000	Daylight	Dry
116	85435722	12/6/2016	Tuesday	2:52 PM	14	2016	Rear End	Property Damage Only	0	0	\$2,800	Daylight	Wet
118	83855933	1/17/2020	Friday	7:34 AM	07	2020	Other	Property Damage Only	0	0	\$1,500	Daylight	Dry
119	83855400	5/20/2016	Friday	11:20 PM	23	2016	Rear End	Property Damage Only	0	0	\$0	Dark - Lighted	Dry
120	82148736	1/8/2013	Tuesday	11:39 AM	11	2013	Rear End	Injury	0	1	\$2,300	Daylight	Dry
121	24261081	6/12/2021	Saturday	2:34 PM	14	2021	Left Turn	Injury	0	2	\$10,000	Daylight	Dry
122	85285021	2/23/2016	Tuesday	8:36 PM	20	2016	Left Turn	Injury	0	2	\$1,500	Dark - Lighted	Dry
123	82148718	12/21/2012	Friday	9:46 AM	09	2012	Rear End	Property Damage Only	0	0	\$0	Daylight	Dry
124	83855088	1/31/2014	Friday	8:48 PM	20	2014	Left Turn	Injury	0	2	\$13,000	Dark - Not Lighted	Wet
125	83855001	4/3/2013	Wednesday	11:02 PM	23	2013	Rear End	Property Damage Only	0	0	\$0	Dark - Not Lighted	Wet
126	83855056	11/16/2013	Saturday	6:02 AM	06	2013	Rear End	Property Damage Only	0	0	\$0	Dark - Lighted	Wet
127	83654243	7/18/2013	Thursday	4:08 PM	16	2013	Other	Property Damage Only	0	0	\$2,500	Daylight	Dry
128	83855121	4/14/2014	Monday	2:10 PM	14	2014	Rear End	Property Damage Only	0	0	\$0	Daylight	Dry
129	83855420	7/2/2016	Saturday	4:43 PM	16	2016	Rear End	Property Damage Only	0	0	\$0	Daylight	Wet
130	83648106	7/25/2013	Thursday	1:30 PM	13	2013	Rear End	Property Damage Only	0	0	\$500	Daylight	Wet
131	83855358	1/26/2016	Tuesday	6:32 PM	18	2016	Head On	Property Damage Only	0	0	\$0	Dark - Lighted	Dry
132	83855949	3/3/2020	Tuesday	10:55 AM	10	2020	Left Turn	Injury	0	1	\$11,000	Daylight	Dry
133	83855595	7/8/2017	Saturday	6:15 AM	06	2017	Rear End	Property Damage Only	0	0	\$0	Dawn	Dry
134	83855937	1/23/2020	Thursday	6:23 PM	18	2020	Sideswipe	Property Damage Only	0	0	\$1,000	Dark - Lighted	Wet
135	83855796	2/14/2019	Thursday	2:30 PM	14	2019	Sideswipe	Property Damage Only	0	0	\$4,000	Daylight	Dry
136	83855872	8/15/2019	Thursday	5:23 PM	17	2019	Sideswipe	Property Damage Only	0	0	\$1,300	Daylight	Dry
137	83855438	8/3/2016	Wednesday	3:20 PM	15	2016	Rear End	Property Damage Only	0	0	\$0	Daylight	Wet
138	83855266	6/30/2015	Tuesday	8:51 PM	20	2015	Rear End	Property Damage Only	0	0	\$0	Dark - Lighted	Dry
139	83855342	12/15/2015	Tuesday	1:04 PM	13	2015	Rear End	Injury	0	1	\$1,000	Daylight	Dry
140	24129036	11/4/2020	Wednesday	7:38 AM	07	2020	Sideswipe	Property Damage Only	0	0	\$2,000	Daylight	Dry
141	83855757	10/30/2018	Tuesday	7:00 PM	19	2018	Head On	Property Damage Only	0	0	\$4,500	Dark - Lighted	Dry
142	83855347	12/30/2015	Wednesday	2:20 PM	14	2015	Rear End	Property Damage Only	0	0	\$0	Daylight	Dry
143	83855499	12/28/2016	Wednesday	4:53 PM	16	2016	Sideswipe	Property Damage Only	0	0	\$12,000	Daylight	Dry
144	83855102	3/6/2014	Thursday	5:58 PM	17	2014	Sideswipe	Property Damage Only	0	0	\$0	Daylight	Dry

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No.	Crash ID	Date	Day	Time	Hour	Year	Crash Type	Crash Severity	Fatalities	Injuries	Property Damage	Day/Night	Wet/Dry
145	83855262	6/19/2015	Friday	7:30 AM	07	2015	Off Road	Injury	0	4	\$3,500	Daylight	Dry
146	83855434	7/29/2016	Friday	8:18 PM	20	2016	Rear End	Property Damage Only	0	0	\$0	Dusk	Wet
147	83855429	7/21/2016	Thursday	4:00 PM	16	2016	Rear End	Injury	0	6	\$3,000	Daylight	Wet
148	82148340	10/18/2012	Thursday	10:47 AM	10	2012	Sideswipe	Property Damage Only	0	0	\$0	Daylight	Dry
149	83855193	12/11/2014	Thursday	3:18 PM	15	2014	Rear End	Property Damage Only	0	0	\$0	Daylight	Dry
150	83855942	2/17/2020	Monday	11:41 AM	11	2020	Rear End	Property Damage Only	0	0	\$4,000	Daylight	Dry
151	83855692	4/24/2018	Tuesday	6:54 AM	06	2018	Sideswipe	Injury	0	1	\$1,500	Daylight	Dry
152	83855398	5/18/2016	Wednesday	5:08 PM	17	2016	Sideswipe	Property Damage Only	0	0	\$2,000	Daylight	Dry
153	83855396	5/13/2016	Friday	1:56 PM	13	2016	Sideswipe	Property Damage Only	0	0	\$0	Daylight	Dry
154	11829040	3/30/2012	Friday	1:29 PM	13	2012	Sideswipe	Property Damage Only	0	0	\$2,000	Daylight	Dry
155	83855087	1/31/2014	Friday	7:54 AM	07	2014	Rear End	Property Damage Only	0	0	\$0	Daylight	Wet
156	83855909	11/12/2019	Tuesday	9:35 AM	09	2019	Left Turn	Injury	0	1	\$9,000	Daylight	Dry
157	83855233	4/6/2015	Monday	12:04 PM	12	2015	Sideswipe	Property Damage Only	0	0	\$0	Daylight	Dry
158	83855057	11/19/2013	Tuesday	8:31 AM	08	2013	Rear End	Property Damage Only	0	0	\$0	Daylight	Dry
159	83855072	1/10/2014	Friday	8:39 AM	08	2014	Rear End	Property Damage Only	0	0	\$0	Daylight	Wet
160	83855999	9/3/2020	Thursday	2:50 PM	14	2020	Rear End	Injury	0	1	\$4,000	Daylight	Dry
161	83855198	12/22/2014	Monday	5:00 PM	17	2014	Other	Property Damage Only	0	0	\$0	Dusk	Dry
162	83855666	2/15/2018	Thursday	2:40 PM	14	2018	Left Turn	Property Damage Only	0	0	\$500	Daylight	Dry
163	83855278	8/8/2015	Saturday	5:35 PM	17	2015	Rear End	Property Damage Only	0	0	\$0	Daylight	Dry
164	88236916	10/22/2019	Tuesday	3:33 PM	15	2019	Left Turn	Injury	0	1	\$2,500	Daylight	Dry
165	83855093	2/12/2014	Wednesday	9:58 AM	09	2014	Rear End	Property Damage Only	0	0	\$0	Daylight	Dry
166	85310919	4/5/2016	Tuesday	5:45 PM	17	2016	Other	Property Damage Only	0	0	\$3,000	Daylight	Dry
167	83823491	6/6/2014	Friday	7:23 PM	19	2014	Rear End	Property Damage Only	0	0	\$200	Daylight	Dry
168	83855643	12/8/2017	Friday	4:35 PM	16	2017	Rear End	Property Damage Only	0	0	\$1,000	Daylight	Dry
169	83855521	2/9/2017	Thursday	6:38 PM	18	2017	Left Turn	Property Damage Only	0	0	\$0	Dark - Lighted	Dry
170	83855800	2/23/2019	Saturday	9:00 AM	09	2019	Rear End	Property Damage Only	0	0	\$2,000	Daylight	Dry
171	83855958	3/18/2020	Wednesday	7:35 PM	19	2020	Rear End	Property Damage Only	0	0	\$1,000	Dusk	Dry
172	83855457	9/1/2016	Thursday	4:40 PM	16	2016	Left Turn	Property Damage Only	0	0	\$0	Daylight	Dry
173	24129026	9/24/2020	Thursday	6:24 PM	18	2020	Rear End	Property Damage Only	0	0	\$6,000	Daylight	Dry
174	83855065	12/16/2013	Monday	3:10 PM	15	2013	Sideswipe	Property Damage Only	0	0	\$2,500	Daylight	Dry
175	83855397	5/18/2016	Wednesday	8:59 PM	20	2016	Left Turn	Injury	0	1	\$1,500	Dark - Lighted	Dry
176	83855696	5/1/2018	Tuesday	2:15 AM	02	2018	Sideswipe	Injury	0	1	\$4,000	Daylight	Dry
177	87182968	5/4/2018	Friday	9:32 PM	21	2018	Right Turn	Property Damage Only	0	0	\$1,500	Dark - Lighted	Dry
178	83855689	4/18/2018	Wednesday	4:49 PM	16	2018	Left Turn	Injury	0	2	\$8,000	Daylight	Dry
179	82148113	3/6/2012	Tuesday	5:25 PM	17	2012	Rear End	Property Damage Only	0	0	\$2,000	Daylight	Dry
180	83855180	10/26/2014	Sunday	1:03 AM	01	2014	Other	Injury	0	1	\$2,500	Dark - Lighted	Dry
181	83823496	6/8/2014	Sunday	1:18 PM	13	2014	Right Turn	Property Damage Only	0	0	\$3,000	Daylight	Dry
182	82148656	3/16/2013	Saturday	9:53 PM	21	2013	Rear End	Property Damage Only	0	0	\$0	Dark - Lighted	Dry
183	83855271	7/10/2015	Friday	12:38 PM	12	2015	Left Turn	Property Damage Only	0	0	\$0	Daylight	Dry
184	24261059	4/2/2021	Friday	7:01 PM	19	2021	Rear End	Property Damage Only	0	0	\$2,500	Daylight	Dry
185	11829044	5/16/2012	Wednesday	12:00 PM	12	2012	Rear End	Property Damage Only	0	0	\$800	Daylight	Dry
186	83855444	8/9/2016	Tuesday	11:59 AM	11	2016	Rear End	Injury	0	2	\$0	Daylight	Dry
187	83855471	10/20/2016	Thursday	1:58 PM	13	2016	Sideswipe	Property Damage Only	0	0	\$0	Daylight	Dry
188	83855778	1/6/2019	Sunday	4:30 PM	16	2019	Rear End	Injury	0	3	\$1,000	Daylight	Dry
189	24129047	11/23/2020	Monday	11:10 AM	11	2020	Rear End	Property Damage Only	0	0	\$2,500	Daylight	Dry
190	83855359	1/28/2016	Thursday	3:00 PM	15	2016	Rear End	Property Damage Only	0	0	\$0	Daylight	Wet
191	83855908	11/10/2019	Sunday	9:45 PM	21	2019	Rear End	Property Damage Only	0	0	\$1,050	Dark - Lighted	Dry
192	83855125	4/16/2014	Wednesday	10:00 AM	10	2014	Sideswipe	Property Damage Only	0	0	\$0	Daylight	Dry
193	83855809	3/7/2019	Thursday	9:21 PM	21	2019	Left Turn	Injury	0	1	\$10,000	Dark - Lighted	Dry
194	83855021	7/16/2013	Tuesday	2:10 PM	14	2013	Rear End	Property Damage Only	0	0	\$0	Daylight	Wet

Crash Data Summary - Orange Avenue and Holden Avenue

No.	Crash ID	Date	Day	Time	Hour	Year	Crash Type	Crash Severity	Fatalities	Injuries	Property Damage	Day/Night	Wet/Dry
195	83855241	4/29/2015	Wednesday	4:20 PM	16	2015	Rear End	Injury	0	1	\$4,500	Daylight	Dry
196	83855427	7/17/2016	Sunday	11:30 PM	23	2016	Sideswipe	Property Damage Only	0	0	\$1,000	Dark - Lighted	Dry
197	83855043	9/30/2013	Monday	11:30 AM	11	2013	Sideswipe	Property Damage Only	0	0	\$500	Daylight	Dry
198	83855730	8/27/2018	Monday	2:33 AM	02	2018	Left Turn	Injury	0	1	\$12,000	Dark - Lighted	Dry
199	83855126	4/23/2014	Wednesday	6:31 AM	06	2014	Rear End	Property Damage Only	0	0	\$0	Dusk	Dry
200	83855567	4/21/2017	Friday	4:28 AM	04	2017	Rear End	Injury	0	1	\$1,000	Dark - Not Lighted	Dry
201	83855505	1/12/2017	Thursday	8:03 AM	08	2017	Rear End	Property Damage Only	0	0	\$0	Daylight	Dry
202	83855326	11/5/2015	Thursday	10:33 AM	10	2015	Left Turn	Injury	0	1	\$12,000	Daylight	Dry
203	83855755	10/28/2018	Sunday	9:13 AM	09	2018	Sideswipe	Property Damage Only	0	0	\$2,500	Daylight	Dry
204	82148709	7/18/2012	Wednesday	9:16 PM	21	2012	Left Turn	Property Damage Only	0	0	\$0	Dark - Lighted	Dry
205	83855189	11/29/2014	Saturday	9:48 PM	21	2014	Left Turn	Injury	0	1	\$23,800	Dark - Not Lighted	Dry
206	82832913	10/6/2011	Thursday	6:05 PM	18	2011	Left Turn	Property Damage Only	0	0	\$800	Daylight	Dry
207	82148721	4/30/2012	Monday	8:25 AM	08	2012	Rear End	Property Damage Only	0	0	\$1,500	Daylight	Dry
208	83855502	1/5/2017	Thursday	1:25 PM	13	2017	Rear End	Injury	0	1	\$3,500	Daylight	Dry
209	83855866	8/2/2019	Friday	5:32 PM	17	2019	Rear End	Property Damage Only	0	0	\$1,000	Daylight	Wet
210	83855330	11/11/2015	Wednesday	10:10 AM	10	2015	Sideswipe	Injury	0	3	\$11,000	Daylight	Dry
211	83855756	10/29/2018	Monday	3:12 PM	15	2018	Rear End	Property Damage Only	0	0	\$6,500	Daylight	Dry
212	83700527	10/25/2013	Friday	1:50 PM	13	2013	Sideswipe	Property Damage Only	0	0	\$500	Daylight	Dry
213	83855409	6/12/2016	Sunday	11:15 AM	11	2016	Rear End	Property Damage Only	0	0	\$0	Daylight	Dry
214	24261030	12/22/2020	Tuesday	7:00 PM	19	2020	Left Turn	Injury	0	1	\$12,000	Dark - Lighted	Dry
215	87195197	4/7/2018	Saturday	11:20 AM	11	2018	Rear End	Property Damage Only	0	0	\$1,050	Daylight	Dry
216	83855112	3/26/2014	Wednesday	4:04 PM	16	2014	Rear End	Property Damage Only	0	0	\$0	Daylight	Dry
217	83855369	2/12/2016	Friday	4:28 PM	16	2016	Rear End	Property Damage Only	0	0	\$0	Daylight	Dry
218	83855133	5/5/2014	Monday	2:44 PM	14	2014	Rear End	Property Damage Only	0	0	\$0	Daylight	Dry
219	24261086	6/24/2021	Thursday	9:01 PM	21	2021	Left Turn	Injury	0	1	\$23,000	Dark - Lighted	Wet
220	83855548	3/20/2017	Monday	5:00 PM	17	2017	Sideswipe	Property Damage Only	0	0	\$0	Daylight	Dry
221	82148302	7/5/2011	Tuesday	2:59 PM	14	2011	Left Turn	Injury	0	1	\$13,800	Daylight	Dry
222	83855982	7/13/2020	Monday	3:16 PM	15	2020	Rear End	Property Damage Only	0	0	\$400	Daylight	Dry
223	82148168	9/8/2012	Saturday	4:55 PM	16	2012	Head On	Property Damage Only	0	0	\$0	Daylight	Dry
224	83855926	12/23/2019	Monday	8:50 AM	08	2019	Left Turn	Property Damage Only	0	0	\$10,000	Daylight	Dry
225	83855762	11/3/2018	Saturday	11:24 AM	11	2018	Rear End	Injury	0	1	\$13,000	Daylight	Dry
226	83855118	4/11/2014	Friday	1:48 PM	13	2014	Sideswipe	Property Damage Only	0	0	\$0	Daylight	Dry
227	83855391	5/3/2016	Tuesday	9:17 PM	21	2016	Rear End	Property Damage Only	0	0	\$0	Dark - Lighted	Dry
228	83855587	6/21/2017	Wednesday	5:13 PM	17	2017	Rear End	Property Damage Only	0	0	\$3,300	Daylight	Dry
229	83855276	7/15/2015	Wednesday	7:09 PM	19	2015	Rear End	Property Damage Only	0	0	\$600	Daylight	Dry
230	83855268	7/8/2015	Wednesday	8:45 AM	08	2015	Sideswipe	Property Damage Only	0	0	\$0	Daylight	Dry
231	82148708	6/7/2012	Thursday	9:56 PM	21	2012	Rear End	Property Damage Only	0	0	\$2,900	Dark - Lighted	Wet
232	82148073	7/12/2011	Tuesday	6:01 PM	18	2011	Angle	Property Damage Only	0	0	\$8,500	Daylight	Dry
233	83855878	8/24/2019	Saturday	3:58 PM	15	2019	Off Road	Injury	0	1	\$9,000	Daylight	Dry
234	83855170	9/16/2014	Tuesday	8:51 AM	08	2014	Other	Property Damage Only	0	0	\$3,500	Daylight	Dry
235	83855310	10/10/2015	Saturday	2:15 PM	14	2015	Other	Property Damage Only	0	0	\$3,500	Daylight	Dry

Crash Data Summary - Orange Avenue and Gatlin Avenue

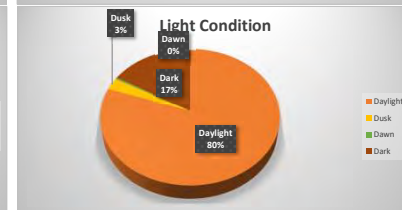
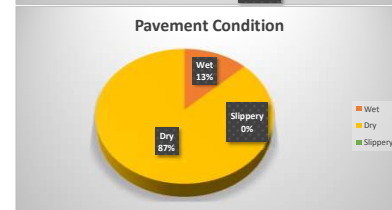
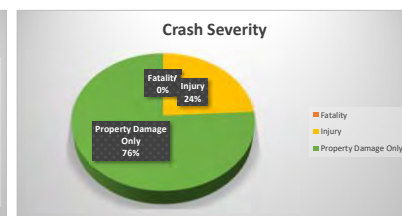
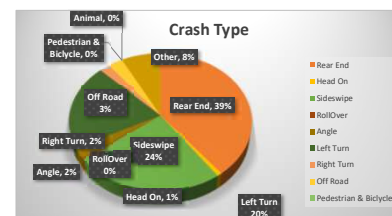
Crash Type	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	Total	Proportion
Rear End	1	12	13	9	11	12	18	9	7	4	2	98	39%
Head On	0	0	0	0	1	1	0	0	0	0	0	2	1%
Sideswipe	1	6	6	6	8	10	6	4	10	3	1	61	24%
RollOver	0	0	0	0	0	0	0	1	0	0	0	1	0%
Angle	0	1	0	0	2	1	1	0	0	1	0	6	2%
Left Turn	1	8	1	4	3	3	2	8	13	1	6	50	20%
Right Turn	0	0	0	0	1	0	2	0	0	1	1	5	2%
Off Road	0	0	0	1	0	0	0	1	2	1	2	7	3%
Pedestrian & Bicycle	0	0	0	0	0	0	0	0	0	0	0	0	0%
Animal	0	0	0	0	0	0	0	0	0	0	0	0	0%
Other	0	3	0	4	2	3	5	0	1	1	0	19	8%
Total	3	30	20	24	28	30	34	23	33	12	12	249	100%

Crash Severity	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	Total	Proportion
Fatality	0	0	0	0	0	0	0	0	0	0	0	0	0%
Injury	1	9	5	7	3	6	4	9	8	2	6	60	24%
Property Damage Only	2	21	15	17	25	24	30	14	25	10	6	189	76%
Total	3	30	20	24	28	30	34	23	33	12	12	249	100%

Pavement Condition	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	Total	Proportion
Wet	0	2	5	6	4	5	2	2	4	0	2	32	13%
Dry	3	28	15	18	24	25	32	21	29	12	10	217	87%
Other	0	0	0	0	0	0	0	0	0	0	0	0	0%
Total	3	30	20	24	28	30	34	23	33	12	12	249	100%

Light Condition	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	Total	Proportion
Daylight	2	25	18	24	25	27	21	15	25	9	9	200	80%
Dusk	0	1	0	0	0	1	3	0	1	1	0	7	3%
Dawn	0	0	0	0	0	0	0	1	0	0	0	1	0%
Dark	1	4	2	0	3	2	10	7	7	2	3	41	16%
Total	3	30	20	24	28	30	34	23	33	12	12	249	100%

Under the Influence	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	Total	Proportion
Alcohol	0	0	0	0	1	1	0	0	0	0	1	3	1%
Drugs	0	0	0	0	0	0	0	0	0	0	0	0	0%
Total	0	0	0	0	1	1	0	0	0	0	1	3	1%



Crash Data Summary - Orange Avenue and Gatlin Avenue

No.	Crash ID	Date	Day	Time	Hour	Year	Crash Type	Crash Severity	Fatalities	Injuries	Property Damage	Day/Night	Wet/Dry
1	83855546	3/17/2017	Friday	7:19 PM	19	2017	Rear End	Property Damage Only	0	0	\$0	Dusk	Dry
2	85463009	1/27/2017	Friday	9:55 PM	21	2017	Unknown	Property Damage Only	0	0	\$6,000	Dark - Lighted	Dry
3	83855913	11/16/2019	Saturday	3:33 AM	03	2019	Off Road	Property Damage Only	0	0	\$2,500	Dark - Lighted	Dry
4	83855061	11/27/2013	Wednesday	8:27 AM	08	2013	Rear End	Property Damage Only	0	0	\$0	Daylight	Wet
5	24261036	1/24/2021	Sunday	4:43 PM	16	2021	Off Road	Property Damage Only	0	0	\$2,000	Daylight	Dry
6	83855564	4/14/2017	Friday	6:35 AM	06	2017	Sideswipe	Property Damage Only	0	0	\$0	Daylight	Dry
7	85554201	7/26/2017	Wednesday	5:05 PM	17	2017	Other	Property Damage Only	0	0	\$3,000	Daylight	Dry
8	83855752	10/22/2018	Monday	6:00 PM	18	2018	Sideswipe	Property Damage Only	0	0	\$3,000	Daylight	Dry
9	24261082	6/14/2021	Monday	8:39 PM	20	2021	Left Turn	Injury	0	1	\$12,000	Dark - Lighted	Wet
10	83855744	9/30/2018	Sunday	7:40 PM	19	2018	Left Turn	Injury	0	1	\$18,000	Dark - Lighted	Dry
11	83855020	7/10/2013	Wednesday	8:58 AM	08	2013	Rear End	Property Damage Only	0	0	\$0	Daylight	Dry
12	83855957	3/18/2020	Wednesday	1:13 PM	13	2020	Rear End	Property Damage Only	0	0	\$400	Daylight	Dry
13	83855377	3/9/2016	Wednesday	3:55 PM	15	2016	Left Turn	Injury	0	1	\$1,500	Daylight	Dry
14	24261074	5/23/2021	Sunday	2:38 AM	02	2021	Off Road	Property Damage Only	0	0	\$3,000	Dark - Not Lighted	Dry
15	83855537	2/28/2017	Tuesday	3:28 PM	15	2017	Rear End	Property Damage Only	0	0	\$0	Daylight	Dry
16	83855454	8/20/2016	Saturday	4:31 PM	16	2016	Sideswipe	Property Damage Only	0	0	\$250	Daylight	Dry
17	24261045	2/17/2021	Wednesday	11:38 AM	11	2021	Left Turn	Injury	0	2	\$5,000	Daylight	Dry
18	83855771	12/6/2018	Thursday	8:31 PM	20	2018	Off Road	Property Damage Only	0	0	\$3,200	Dark - Lighted	Dry
19	83855853	7/3/2019	Wednesday	5:40 PM	17	2019	Off Road	Property Damage Only	0	0	\$500	Daylight	Dry
20	24129031	10/12/2020	Monday	1:43 PM	13	2020	Off Road	Property Damage Only	0	0	\$4,000	Daylight	Dry
21	24129027	9/30/2020	Wednesday	5:49 PM	17	2020	Right Turn	Injury	0	1	\$10,000	Daylight	Dry
22	83855522	2/12/2017	Sunday	6:01 PM	18	2017	Right Turn	Property Damage Only	0	0	\$0	Daylight	Dry
23	24261090	6/30/2021	Wednesday	5:47 PM	17	2021	Left Turn	Injury	0	3	\$7,000	Daylight	Wet
24	83855293	9/16/2015	Wednesday	1:16 PM	13	2015	Left Turn	Property Damage Only	0	0	\$0	Daylight	Dry
25	83855804	3/1/2019	Friday	4:47 PM	16	2019	Rear End	Property Damage Only	0	0	\$3,000	Daylight	Dry
26	83855574	5/18/2017	Thursday	2:39 PM	14	2017	Sideswipe	Property Damage Only	0	0	\$0	Daylight	Dry
27	83855680	4/5/2018	Thursday	9:45 PM	21	2018	Sideswipe	Property Damage Only	0	0	\$650	Dark - Lighted	Dry
28	83855856	7/22/2019	Monday	12:15 PM	12	2019	Left Turn	Injury	0	1	\$5,500	Daylight	Dry
29	85197799	10/8/2015	Thursday	4:45 PM	16	2015	Rear End	Property Damage Only	0	0	\$1,500	Daylight	Dry
30	83855363	2/2/2016	Tuesday	2:44 PM	14	2016	Other	Injury	0	1	\$5,000	Daylight	Dry
31	83855203	1/6/2015	Tuesday	2:15 PM	14	2015	Left Turn	Property Damage Only	0	0	\$0	Daylight	Dry
32	24261071	5/19/2021	Wednesday	3:00 PM	15	2021	Left Turn	Injury	0	3	\$22,000	Daylight	Dry
33	83856000	11/30/2020	Monday	3:28 PM	15	2020	Rear End	Property Damage Only	0	0	\$4,000	Daylight	Dry
34	83855932	1/14/2020	Tuesday	6:10 PM	18	2020	Other	Property Damage Only	0	0	\$1,100	Dusk	Dry
35	83855722	8/15/2018	Wednesday	4:50 PM	16	2018	Left Turn	Property Damage Only	0	0	\$19,000	Daylight	Dry
36	83855842	6/7/2019	Friday	1:05 PM	13	2019	Sideswipe	Property Damage Only	0	0	\$5,000	Daylight	Dry
37	83855179	10/23/2014	Thursday	4:24 PM	16	2014	Other	Property Damage Only	0	0	\$0	Daylight	Dry
38	83855724	8/16/2018	Thursday	8:10 AM	08	2018	Rear End	Property Damage Only	0	0	\$1,500	Daylight	Dry
39	88462829	2/23/2021	Tuesday	6:25 AM	06	2021	Right Turn	Property Damage Only	0	0	\$400	Daylight	Dry
40	24261049	3/11/2021	Thursday	9:07 AM	09	2021	Rear End	Property Damage Only	0	0	\$1,500	Daylight	Dry
41	83855865	8/2/2019	Friday	3:55 PM	15	2019	Rear End	Property Damage Only	0	0	\$1,000	Daylight	Wet
42	83855251	5/18/2015	Monday	8:48 AM	08	2015	Rear End	Injury	0	1	\$400	Daylight	Dry
43	83855432	7/27/2016	Wednesday	8:17 AM	08	2016	Rear End	Property Damage Only	0	0	\$0	Daylight	Dry
44	83855538	3/2/2017	Thursday	5:38 PM	17	2017	Rear End	Injury	0	1	\$5,800	Daylight	Dry
45	83855565	4/17/2017	Monday	7:39 PM	19	2017	Rear End	Property Damage Only	0	0	\$0	Dusk	Dry
46	83855428	7/21/2016	Thursday	4:10 PM	16	2016	Rear End	Property Damage Only	0	0	\$0	Daylight	Wet
47	83855543	3/13/2017	Monday	9:28 PM	21	2017	Rear End	Property Damage Only	0	0	\$0	Dark - Lighted	Wet
48	83855172	9/30/2014	Tuesday	3:51 PM	15	2014	Other	Property Damage Only	0	0	\$1,198	Daylight	Dry
49	83855691	4/23/2018	Monday	8:45 AM	08	2018	Rear End	Property Damage Only	0	0	\$2,200	Daylight	Dry

Crash Data Summary - Orange Avenue and Gatlin Avenue

No.	Crash ID	Date	Day	Time	Hour	Year	Crash Type	Crash Severity	Fatalities	Injuries	Property Damage	Day/Night	Wet/Dry
50	82148690	2/25/2012	Saturday	8:28 PM	20	2012	Left Turn	Property Damage Only	0	0	\$2,000	Dark - Lighted	Dry
51	82148706	4/11/2012	Wednesday	12:21 PM	12	2012	Rear End	Injury	0	1	\$2,000	Daylight	Dry
52	82148712	9/23/2012	Sunday	7:55 PM	19	2012	Left Turn	Property Damage Only	0	0	\$0	Dark - Lighted	Dry
53	82148727	9/12/2012	Wednesday	7:46 AM	07	2012	Rear End	Injury	0	1	\$1,600	Daylight	Dry
54	83855129	4/28/2014	Monday	6:10 PM	18	2014	Rear End	Property Damage Only	0	0	\$0	Daylight	Dry
55	83855153	7/19/2014	Saturday	5:50 PM	17	2014	Other	Injury	0	1	\$200	Daylight	Dry
56	83855177	10/17/2014	Friday	4:24 PM	16	2014	Sideswipe	Property Damage Only	0	0	\$0	Daylight	Dry
57	83855031	8/14/2013	Wednesday	8:38 AM	08	2013	Left Turn	Injury	0	2	\$15,500	Daylight	Dry
58	83855069	12/30/2013	Monday	2:18 PM	14	2013	Sideswipe	Property Damage Only	0	0	\$0	Daylight	Dry
59	83855529	2/23/2017	Thursday	8:01 AM	08	2017	Sideswipe	Injury	0	1	\$3,100	Daylight	Dry
60	83855535	2/27/2017	Monday	3:36 PM	15	2017	Sideswipe	Property Damage Only	0	0	\$0	Daylight	Dry
61	83855600	7/21/2017	Friday	2:18 PM	14	2017	Rear End	Property Damage Only	0	0	\$2,000	Daylight	Dry
62	83855281	8/10/2015	Monday	2:07 AM	02	2015	Rear End	Injury	0	2	\$3,000	Daylight	Dry
63	83855287	8/27/2015	Thursday	4:15 PM	16	2015	Sideswipe	Property Damage Only	0	0	\$0	Daylight	Dry
64	83855685	4/17/2018	Tuesday	4:19 PM	16	2018	Left Turn	Injury	0	1	\$6,250	Daylight	Dry
65	83855772	12/7/2018	Friday	8:48 PM	20	2018	Left Turn	Injury	0	1	\$8,000	Dark - Lighted	Dry
66	83855167	9/10/2014	Wednesday	4:23 PM	16	2014	Other	Injury	0	1	\$6,000	Daylight	Dry
67	83855716	7/12/2018	Thursday	3:07 PM	15	2018	Left Turn	Injury	0	1	\$1,100	Daylight	Dry
68	83855568	4/25/2017	Tuesday	7:20 PM	19	2017	Rear End	Injury	0	2	\$1,800	Daylight	Dry
69	83855230	3/17/2015	Tuesday	2:31 PM	14	2015	Rear End	Property Damage Only	0	0	\$2,000	Daylight	Dry
70	83855333	11/16/2015	Monday	2:56 PM	14	2015	Rear End	Property Damage Only	0	0	\$0	Daylight	Dry
71	83855404	5/27/2016	Friday	2:55 PM	14	2016	Rear End	Property Damage Only	0	0	\$0	Daylight	Dry
72	83855741	9/21/2018	Friday	1:47 PM	13	2018	Rear End	Injury	0	2	\$1,700	Daylight	Dry
73	24261050	3/11/2021	Thursday	8:58 AM	08	2021	Rear End	Injury	0	2	\$9,500	Daylight	Dry
74	83855887	9/24/2019	Tuesday	9:45 PM	21	2019	Rear End	Injury	0	1	\$2,000	Dark - Lighted	Dry
75	83855952	3/11/2020	Wednesday	4:49 PM	16	2020	Sideswipe	Property Damage Only	0	0	\$2,000	Daylight	Dry
76	85219819	12/8/2015	Tuesday	7:10 PM	19	2015	Rear End	Property Damage Only	0	0	\$1,000	Dark - Not Lighted	Dry
77	82148090	11/19/2011	Saturday	9:30 PM	21	2011	Sideswipe	Property Damage Only	0	0	\$500	Dark - Lighted	Dry
78	82148117	5/29/2012	Tuesday	6:15 PM	18	2012	Angle	Injury	0	1	\$16,000	Daylight	Wet
79	83855591	7/4/2017	Tuesday	4:11 AM	04	2017	Left Turn	Property Damage Only	0	0	\$5,500	Dark - Not Lighted	Dry
80	7134564	2/8/2016	Monday	2:05 PM	14	2016	Other	Property Damage Only	0	0	\$3,500	Daylight	Dry
81	83855473	10/22/2016	Saturday	10:20 AM	10	2016	Left Turn	Injury	0	4	\$12,000	Daylight	Dry
82	83855433	7/27/2016	Wednesday	4:57 PM	16	2016	Rear End	Property Damage Only	0	0	\$0	Daylight	Dry
83	83855748	10/18/2018	Thursday	6:41 AM	06	2018	Left Turn	Injury	0	1	\$13,000	Dawn	Dry
84	83855309	10/9/2015	Friday	8:44 AM	08	2015	Rear End	Property Damage Only	0	0	\$5,000	Daylight	Dry
85	82148339	10/4/2012	Thursday	2:38 PM	14	2012	Sideswipe	Property Damage Only	0	0	\$0	Daylight	Dry
86	83855033	9/5/2013	Thursday	10:01 AM	10	2013	Sideswipe	Injury	0	1	\$6,000	Daylight	Dry
87	83855815	3/26/2019	Tuesday	6:40 PM	18	2019	Left Turn	Property Damage Only	0	0	\$3,000	Daylight	Dry
88	83855699	5/4/2018	Friday	10:16 PM	22	2018	Left Turn	Injury	0	1	\$7,500	Dark - Lighted	Dry
89	87159905	2/9/2018	Friday	4:48 AM	04	2018	Rollover	Injury	0	1	\$1,500	Dark - Not Lighted	Dry
90	83855071	1/9/2014	Thursday	4:23 PM	16	2014	Off Road	Property Damage Only	0	0	\$1,000	Daylight	Wet
91	83855848	6/19/2019	Wednesday	10:46 AM	10	2019	Unknown	Property Damage Only	0	0	\$2,000	Daylight	Dry
92	83855594	7/7/2017	Friday	6:30 PM	18	2017	Rear End	Property Damage Only	0	0	\$0	Daylight	Dry
93	83855414	6/29/2016	Wednesday	2:44 PM	14	2016	Sideswipe	Property Damage Only	0	0	\$0	Daylight	Dry
94	11829043	5/3/2012	Thursday	2:45 PM	14	2012	Rear End	Property Damage Only	0	0	\$4,750	Daylight	Dry
95	83855323	11/3/2015	Tuesday	10:40 AM	10	2015	Rear End	Property Damage Only	0	0	\$3,000	Daylight	Dry
96	83855944	2/21/2020	Friday	12:40 PM	12	2020	Sideswipe	Property Damage Only	0	0	\$750	Daylight	Dry
97	82148726	8/21/2012	Tuesday	1:22 PM	13	2012	Rear End	Property Damage Only	0	0	\$0	Daylight	Dry
98	83855060	11/27/2013	Wednesday	8:27 AM	08	2013	Rear End	Property Damage Only	0	0	\$0	Daylight	Wet
99	83855511	1/20/2017	Friday	5:05 PM	17	2017	Rear End	Property Damage Only	0	0	\$0	Daylight	Dry

Crash Data Summary - Orange Avenue and Gatlin Avenue

No.	Crash ID	Date	Day	Time	Hour	Year	Crash Type	Crash Severity	Fatalities	Injuries	Property Damage	Day/Night	Wet/Dry
100	83855117	4/9/2014	Wednesday	3:16 PM	15	2014	Rear End	Property Damage Only	0	0	\$0	Daylight	Dry
101	82148719	12/25/2012	Tuesday	10:23 PM	22	2012	Other	Injury	0	1	\$2,000	Dark - Lighted	Dry
102	83855162	8/21/2014	Thursday	7:35 AM	07	2014	Left Turn	Injury	0	1	\$500	Daylight	Dry
103	83855636	11/14/2017	Tuesday	4:54 PM	16	2017	Right Turn	Property Damage Only	0	0	\$700	Dusk	Dry
104	83855503	1/8/2017	Sunday	11:14 AM	11	2017	Rear End	Property Damage Only	0	0	\$0	Dark - Lighted	Dry
105	88080638	3/11/2019	Monday	4:14 PM	16	2019	Sideswipe	Property Damage Only	0	0	\$400	Daylight	Dry
106	83855289	9/2/2015	Wednesday	9:00 AM	09	2015	Other	Property Damage Only	0	0	\$0	Daylight	Dry
107	83855308	10/7/2015	Wednesday	1:25 PM	13	2015	Sideswipe	Property Damage Only	0	0	\$0	Daylight	Dry
108	83855412	6/22/2016	Wednesday	8:56 AM	08	2016	Sideswipe	Property Damage Only	0	0	\$0	Daylight	Dry
109	82148083	4/2/2013	Tuesday	2:47 PM	14	2013	Rear End	Injury	0	1	\$1,500	Daylight	Dry
110	83855786	1/29/2019	Tuesday	4:45 PM	16	2019	Left Turn	Injury	0	1	\$3,000	Daylight	Dry
111	83855445	8/9/2016	Tuesday	7:26 PM	19	2016	Rear End	Injury	0	1	\$1,250	Dusk	Wet
112	83855922	12/10/2019	Tuesday	7:32 PM	19	2019	Left Turn	Property Damage Only	0	0	\$50	Dark - Lighted	Wet
113	83855835	5/20/2019	Monday	6:30 PM	18	2019	Left Turn	Property Damage Only	0	0	\$2,500	Daylight	Dry
114	83855252	5/19/2015	Tuesday	11:50 AM	11	2015	Sideswipe	Property Damage Only	0	0	\$0	Daylight	Dry
115	83855100	3/5/2014	Wednesday	5:38 PM	17	2014	Rear End	Property Damage Only	0	0	\$0	Daylight	Dry
116	82148835	1/4/2013	Friday	9:10 AM	09	2013	Rear End	Property Damage Only	0	0	\$2,000	Daylight	Wet
118	83855830	5/3/2019	Friday	6:15 PM	18	2019	Sideswipe	Property Damage Only	0	0	\$1,000	Daylight	Dry
119	82148735	1/7/2013	Monday	11:15 AM	11	2013	Rear End	Property Damage Only	0	0	\$0	Daylight	Dry
120	83855706	5/31/2018	Thursday	6:45 PM	18	2018	Left Turn	Injury	0	1	\$5,000	Daylight	Wet
121	83855464	9/22/2016	Thursday	3:13 PM	15	2016	Sideswipe	Property Damage Only	0	0	\$2,000	Daylight	Dry
122	83855034	9/6/2013	Friday	1:18 PM	13	2013	Rear End	Property Damage Only	0	0	\$0	Daylight	Dry
123	83855042	9/25/2013	Wednesday	9:40 PM	21	2013	Rear End	Property Damage Only	0	0	\$0	Dark - Lighted	Dry
124	82148116	5/1/2012	Tuesday	5:30 PM	17	2012	Sideswipe	Property Damage Only	0	0	\$5,000	Daylight	Dry
125	82148158	3/2/2012	Friday	5:47 PM	17	2012	Rear End	Injury	0	1	\$1,500	Daylight	Dry
126	11829067	4/13/2012	Friday	10:15 AM	10	2012	Other	Injury	0	1	\$1,000	Daylight	Dry
127	83855138	6/5/2014	Thursday	11:25 AM	11	2014	Rear End	Property Damage Only	0	0	\$0	Daylight	Dry
128	82264259	7/21/2011	Thursday	4:16 PM	16	2011	Rear End	Property Damage Only	0	0	\$0	Daylight	Dry
129	83855348	1/3/2016	Sunday	5:00 PM	17	2016	Rear End	Property Damage Only	0	0	\$0	Daylight	Wet
130	83855384	4/15/2016	Friday	7:05 PM	19	2016	Angle	Property Damage Only	0	0	\$0	Daylight	Dry
131	83855667	2/22/2018	Thursday	7:31 AM	07	2018	Sideswipe	Property Damage Only	0	0	\$2,000	Daylight	Dry
132	88236948	11/5/2019	Tuesday	9:23 PM	21	2019	Left Turn	Property Damage Only	0	0	\$7,000	Daylight	Wet
133	83855388	4/22/2016	Friday	6:05 PM	18	2016	Rear End	Property Damage Only	0	0	\$0	Daylight	Dry
134	83855402	5/23/2016	Monday	12:18 PM	12	2016	Rear End	Injury	0	1	\$9,000	Daylight	Dry
135	83855491	12/18/2016	Sunday	1:57 PM	13	2016	Sideswipe	Property Damage Only	0	0	\$0	Daylight	Dry
136	83855490	12/14/2016	Wednesday	10:53 AM	10	2016	Sideswipe	Property Damage Only	0	0	\$0	Daylight	Dry
137	83855373	2/27/2016	Saturday	6:58 PM	18	2016	Head On	Injury	0	1	\$3,000	Dark - Lighted	Dry
138	85440838	2/15/2017	Wednesday	8:42 AM	08	2017	Rear End	Property Damage Only	0	0	\$2,000	Daylight	Dry
139	83855143	7/1/2014	Tuesday	8:30 AM	08	2014	Sideswipe	Property Damage Only	0	0	\$0	Daylight	Dry
140	11829019	1/9/2013	Wednesday	4:05 PM	16	2013	Rear End	Property Damage Only	0	0	\$0	Daylight	Dry
141	83855320	10/28/2015	Wednesday	1:30 PM	13	2015	Other	Property Damage Only	0	0	\$3,500	Daylight	Wet
142	83855890	9/28/2019	Saturday	1:40 PM	13	2019	Rear End	Property Damage Only	0	0	\$800	Daylight	Dry
143	83855713	6/21/2018	Thursday	11:05 AM	11	2018	Rear End	Property Damage Only	0	0	\$1,750	Daylight	Wet
144	83855301	9/25/2015	Friday	5:21 PM	17	2015	Rear End	Property Damage Only	0	0	\$0	Daylight	Wet
145	83855160	8/12/2014	Tuesday	2:38 PM	14	2014	Rear End	Property Damage Only	0	0	\$250	Daylight	Wet
146	83855882	9/16/2019	Monday	6:13 AM	06	2019	Left Turn	Injury	0	1	\$20,000	Dark - Lighted	Dry
147	82148079	8/10/2012	Friday	10:42 AM	10	2012	Rear End	Property Damage Only	0	0	\$0	Daylight	Dry
148	82148162	6/10/2012	Sunday	5:28 PM	17	2012	Left Turn	Property Damage Only	0	0	\$3,500	Daylight	Dry
149	83855602	7/21/2017	Friday	6:55 PM	18	2017	Rear End	Property Damage Only	0	0	\$1,500	Daylight	Dry
150	83855726	8/17/2018	Friday	8:25 AM	08	2018	Rear End	Property Damage Only	0	0	\$9,000	Daylight	Dry

Crash Data Summary - Orange Avenue and Gatlin Avenue

No.	Crash ID	Date	Day	Time	Hour	Year	Crash Type	Crash Severity	Fatalities	Injuries	Property Damage	Day/Night	Wet/Dry
151	11829042	4/27/2012	Friday	3:53 PM	15	2012	Rear End	Property Damage Only	0	0	\$650	Daylight	Dry
152	83855036	9/16/2013	Monday	3:24 PM	15	2013	Sideswipe	Property Damage Only	0	0	\$0	Daylight	Dry
153	83855517	1/31/2017	Tuesday	8:24 AM	08	2017	Sideswipe	Property Damage Only	0	0	\$0	Daylight	Dry
154	83855221	2/25/2015	Wednesday	8:27 AM	08	2015	Rear End	Property Damage Only	0	0	\$1,250	Daylight	Dry
155	83855096	2/17/2014	Monday	2:25 PM	14	2014	Sideswipe	Property Damage Only	0	0	\$3,500	Daylight	Dry
156	82148725	8/15/2012	Wednesday	3:44 PM	15	2012	Rear End	Injury	0	1	\$6,500	Daylight	Dry
157	82148716	11/7/2012	Wednesday	10:15 PM	22	2012	Sideswipe	Property Damage Only	0	0	\$2,000	Dark - Lighted	Dry
158	82148172	11/14/2012	Wednesday	11:25 AM	11	2012	Rear End	Property Damage Only	0	0	\$0	Daylight	Dry
159	83855067	12/23/2013	Monday	6:30 PM	18	2013	Rear End	Property Damage Only	0	0	\$0	Dark - Lighted	Dry
160	82148338	10/3/2012	Wednesday	7:02 AM	07	2012	Rear End	Property Damage Only	0	0	\$0	Dusk	Wet
161	83855673	3/13/2018	Tuesday	11:53 AM	11	2018	Sideswipe	Property Damage Only	0	0	\$3,500	Daylight	Dry
162	83855917	11/26/2019	Tuesday	5:15 PM	17	2019	Rear End	Property Damage Only	0	0	\$3,500	Dusk	Dry
163	83855935	1/22/2020	Wednesday	9:00 AM	09	2020	Sideswipe	Property Damage Only	0	0	\$2,000	Daylight	Dry
164	83855086	1/30/2014	Thursday	4:32 PM	16	2014	Sideswipe	Property Damage Only	0	0	\$0	Daylight	Wet
165	83855829	5/1/2019	Wednesday	10:27 AM	10	2019	Sideswipe	Property Damage Only	0	0	\$1,000	Daylight	Dry
166	82148328	8/15/2011	Monday	3:18 PM	15	2011	Left Turn	Injury	0	1	\$2,500	Daylight	Dry
167	83855018	6/28/2013	Friday	5:00 PM	17	2013	Sideswipe	Property Damage Only	0	0	\$0	Daylight	Wet
168	24261033	12/31/2020	Thursday	7:20 PM	19	2020	Angle	Property Damage Only	0	0	\$2,000	Dark - Lighted	Dry
169	83855918	11/27/2019	Wednesday	4:26 PM	16	2019	Sideswipe	Property Damage Only	0	0	\$4,000	Daylight	Dry
170	83855142	6/30/2014	Monday	1:38 PM	13	2014	Rear End	Property Damage Only	0	0	\$0	Daylight	Wet
171	83855210	1/29/2015	Thursday	6:35 AM	06	2015	Angle	Property Damage Only	0	0	\$15,000	Dark - Lighted	Dry
172	83855258	6/3/2015	Wednesday	10:54 PM	22	2015	Sideswipe	Property Damage Only	0	0	\$0	Dark - Lighted	Dry
173	83855577	5/23/2017	Tuesday	9:16 AM	09	2017	Sideswipe	Property Damage Only	0	0	\$0	Daylight	Dry
174	11829017	12/26/2012	Wednesday	8:29 AM	08	2012	Left Turn	Property Damage Only	0	0	\$0	Daylight	Dry
175	83855200	12/30/2014	Tuesday	9:27 AM	09	2014	Left Turn	Injury	0	2	\$10,000	Daylight	Wet
176	83855605	8/4/2017	Friday	10:01 AM	10	2017	Rear End	Property Damage Only	0	0	\$4,000	Daylight	Dry
177	83855648	12/14/2017	Thursday	6:50 PM	18	2017	Other	Property Damage Only	0	0	\$1,000	Dark - Not Lighted	Dry
178	83855523	2/13/2017	Monday	4:59 PM	16	2017	Rear End	Property Damage Only	0	0	\$0	Daylight	Dry
179	83855286	8/27/2015	Thursday	1:38 PM	13	2015	Rear End	Property Damage Only	0	0	\$0	Daylight	Wet
180	83855346	12/27/2015	Sunday	3:34 PM	15	2015	Sideswipe	Property Damage Only	0	0	\$0	Daylight	Dry
181	83855379	3/18/2016	Friday	1:20 PM	13	2016	Other	Property Damage Only	0	0	\$0	Daylight	Dry
182	83855430	7/23/2016	Saturday	11:29 PM	23	2016	Rear End	Property Damage Only	0	0	\$0	Dark - Lighted	Wet
183	83855863	7/29/2019	Monday	3:10 PM	15	2019	Sideswipe	Property Damage Only	0	0	\$2,250	Daylight	Dry
184	82148733	12/10/2012	Monday	1:27 PM	13	2012	Left Turn	Property Damage Only	0	0	\$0	Daylight	Dry
185	83855378	3/17/2016	Thursday	3:18 PM	15	2016	Rear End	Property Damage Only	0	0	\$0	Daylight	Dry
186	83855901	10/18/2019	Friday	5:48 PM	17	2019	Sideswipe	Property Damage Only	0	0	\$6,000	Daylight	Dry
187	83855867	8/4/2019	Sunday	10:38 AM	10	2019	Sideswipe	Property Damage Only	0	0	\$5,000	Daylight	Dry
188	83855905	11/3/2019	Sunday	1:12 AM	01	2019	Left Turn	Property Damage Only	0	0	\$18,000	Dark - Lighted	Dry
189	83855828	4/29/2019	Monday	1:43 PM	13	2019	Left Turn	Injury	0	1	\$5,500	Daylight	Dry
190	83855260	6/15/2015	Monday	9:50 AM	09	2015	Sideswipe	Property Damage Only	0	0	\$4,000	Daylight	Dry
191	83855332	11/16/2015	Monday	2:30 AM	02	2015	Sideswipe	Property Damage Only	0	0	\$0	Daylight	Dry
192	83855862	7/29/2019	Monday	10:00 AM	10	2019	Sideswipe	Property Damage Only	0	0	\$3,500	Daylight	Dry
193	82148159	3/14/2012	Wednesday	11:37 AM	11	2012	Left Turn	Property Damage Only	0	0	\$3,500	Daylight	Dry
194	83855822	4/16/2019	Tuesday	3:30 PM	15	2019	Rear End	Property Damage Only	0	0	\$350	Daylight	Dry
195	83855941	2/4/2020	Tuesday	11:40 AM	11	2020	Rear End	Property Damage Only	0	0	\$1,250	Daylight	Dry
196	24261044	2/8/2021	Monday	11:49 AM	11	2021	Sideswipe	Property Damage Only	0	0	\$2,250	Daylight	Dry
197	83855721	8/15/2018	Wednesday	5:10 PM	17	2018	Rear End	Property Damage Only	0	0	\$1,000	Daylight	Dry
198	82148335	9/6/2012	Thursday	11:01 AM	11	2012	Rear End	Property Damage Only	0	0	\$0	Daylight	Dry
199	83855857	7/22/2019	Monday	3:55 PM	15	2019	Left Turn	Property Damage Only	0	0	\$10,000	Daylight	Dry
200	83855134	5/7/2014	Wednesday	4:49 PM	16	2014	Left Turn	Injury	0	3	\$11,000	Daylight	Dry

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No.	Crash ID	Date	Day	Time	Hour	Year	Crash Type	Crash Severity	Fatalities	Injuries	Property Damage	Day/Night	Wet/Dry
201	82148121	9/1/2012	Saturday	7:01 PM	19	2012	Sideswipe	Property Damage Only	0	0	\$0	Daylight	Dry
202	82148160	5/7/2012	Monday	6:03 PM	18	2012	Left Turn	Injury	0	1	\$3,000	Daylight	Dry
203	83855244	5/8/2015	Friday	8:02 AM	08	2015	Left Turn	Property Damage Only	0	0	\$0	Daylight	Dry
204	83855269	7/8/2015	Wednesday	9:45 AM	09	2015	Right Turn	Injury	0	1	\$2,400	Daylight	Dry
205	83855017	6/20/2013	Thursday	8:52 AM	08	2013	Rear End	Property Damage Only	0	0	\$0	Daylight	Dry
206	83855597	7/18/2017	Tuesday	11:04 AM	11	2017	Rear End	Property Damage Only	0	0	\$1,500	Daylight	Dry
207	83855633	11/9/2017	Thursday	6:03 PM	18	2017	Left Turn	Property Damage Only	0	0	\$550	Dark - Lighted	Dry
208	83855510	1/16/2017	Monday	10:23 AM	10	2017	Rear End	Property Damage Only	0	0	\$0	Daylight	Dry
209	83855665	2/15/2018	Thursday	7:35 AM	07	2018	Rear End	Property Damage Only	0	0	\$600	Daylight	Dry
210	83855898	10/16/2019	Wednesday	11:30 PM	23	2019	Left Turn	Injury	0	3	\$15,000	Dark - Lighted	Dry
211	83855873	8/17/2019	Saturday	12:20 PM	12	2019	Left Turn	Property Damage Only	0	0	\$8,000	Daylight	Dry
212	83855991	8/12/2020	Wednesday	9:34 AM	09	2020	Left Turn	Injury	0	1	\$9,000	Daylight	Dry
213	83855196	12/19/2014	Friday	2:34 PM	14	2014	Left Turn	Injury	0	1	\$3,000	Daylight	Dry
214	83855005	5/3/2013	Friday	10:45 AM	10	2013	Sideswipe	Property Damage Only	0	0	\$0	Daylight	Dry
215	83855596	7/8/2017	Saturday	5:03 AM	05	2017	Angle	Injury	0	1	\$15,000	Dark - Lighted	Dry
216	83855807	3/7/2019	Thursday	2:46 PM	14	2019	Sideswipe	Property Damage Only	0	0	\$2,000	Daylight	Dry
217	83855192	12/10/2014	Wednesday	3:40 PM	15	2014	Rear End	Property Damage Only	0	0	\$2,250	Daylight	Dry
218	83855557	4/3/2017	Monday	10:56 PM	22	2017	Rear End	Property Damage Only	0	0	\$0	Dark - Lighted	Dry
219	24261052	3/12/2021	Friday	3:09 PM	15	2021	Left Turn	Property Damage Only	0	0	\$500	Daylight	Dry
220	83855871	8/11/2019	Sunday	6:57 PM	18	2019	Rear End	Injury	0	1	\$600	Daylight	Dry
221	83855101	3/5/2014	Wednesday	5:31 PM	17	2014	Sideswipe	Property Damage Only	0	0	\$6,000	Daylight	Dry
222	24129040	11/6/2020	Friday	6:00 PM	18	2020	Rear End	Property Damage Only	0	0	\$3,500	Dark - Lighted	Dry
223	82148170	10/9/2012	Tuesday	6:28 PM	18	2012	Sideswipe	Property Damage Only	0	0	\$0	Daylight	Dry
224	83855556	4/3/2017	Monday	7:40 AM	07	2017	Rear End	Property Damage Only	0	0	\$0	Daylight	Dry
225	83855078	1/15/2014	Wednesday	8:40 AM	08	2014	Sideswipe	Property Damage Only	0	0	\$2,000	Daylight	Dry
226	83855165	9/4/2014	Thursday	11:08 AM	11	2014	Rear End	Property Damage Only	0	0	\$0	Daylight	Dry
227	83855253	5/23/2015	Saturday	6:30 PM	18	2015	Angle	Property Damage Only	0	0	\$0	Daylight	Dry
228	83855010	5/23/2013	Thursday	4:00 PM	16	2013	Sideswipe	Property Damage Only	0	0	\$0	Daylight	Dry
229	83855516	1/30/2017	Monday	8:05 PM	20	2017	Unknown	Property Damage Only	0	0	\$0	Dark - Lighted	Dry
230	83855303	9/29/2015	Tuesday	10:26 AM	10	2015	Head On	Property Damage Only	0	0	\$0	Daylight	Wet
231	83855485	11/29/2016	Tuesday	1:30 PM	13	2016	Left Turn	Property Damage Only	0	0	\$0	Daylight	Dry
232	11829039	3/22/2012	Thursday	1:52 PM	13	2012	Sideswipe	Property Damage Only	0	0	\$1,500	Daylight	Dry
233	83855474	10/25/2016	Tuesday	10:11 AM	10	2016	Sideswipe	Property Damage Only	0	0	\$0	Daylight	Dry
234	83855350	1/6/2016	Wednesday	9:20 AM	09	2016	Sideswipe	Property Damage Only	0	0	\$500	Daylight	Wet
235	24261089	6/29/2021	Tuesday	11:40 PM	23	2021	Left Turn	Injury	0	1	\$6,000	Dark - Lighted	Dry
236	83855273	7/14/2015	Tuesday	10:10 AM	10	2015	Sideswipe	Property Damage Only	0	0	\$0	Daylight	Dry
237	83855588	6/21/2017	Wednesday	9:07 PM	21	2017	Other	Property Damage Only	0	0	\$500	Dark - Lighted	Wet
238	11829063	2/17/2012	Friday	11:40 AM	11	2012	Rear End	Injury	0	1	\$2,100	Daylight	Dry
239	83855084	1/29/2014	Wednesday	7:27 AM	07	2014	Rear End	Injury	0	1	\$2,000	Daylight	Wet
240	83855925	12/21/2019	Saturday	6:12 PM	18	2019	Left Turn	Injury	0	1	\$10,000	Dark - Lighted	Wet
241	82148506	5/29/2013	Wednesday	10:30 AM	10	2013	Rear End	Injury	0	3	\$1,600	Daylight	Wet
242	83855751	10/15/2018	Monday	7:43 PM	19	2018	Rear End	Property Damage Only	0	0	\$1,700	Dark - Lighted	Dry
243	83855406	6/3/2016	Friday	10:10 AM	10	2016	Rear End	Property Damage Only	0	0	\$250	Daylight	Dry
244	82148776	9/24/2012	Monday	2:30 PM	14	2012	Left Turn	Property Damage Only	0	0	\$0	Daylight	Dry
245	83855424	7/11/2016	Monday	11:29 AM	11	2016	Rear End	Property Damage Only	0	0	\$1,200	Daylight	Dry
246	83855368	2/12/2016	Friday	7:54 AM	07	2016	Sideswipe	Property Damage Only	0	0	\$0	Daylight	Dry
247	83855051	10/18/2013	Friday	2:35 PM	14	2013	Rear End	Injury	0	1	\$1,200	Daylight	Dry
248	83855488	12/7/2016	Wednesday	3:40 PM	15	2016	Sideswipe	Property Damage Only	0	0	\$500	Daylight	Dry
249	82148730	11/17/2012	Saturday	10:34 AM	10	2012	Other	Property Damage Only	0	0	\$1,500	Daylight	Dry

Crash Data Summary - Orange Avenue and Lake Gatlin Road

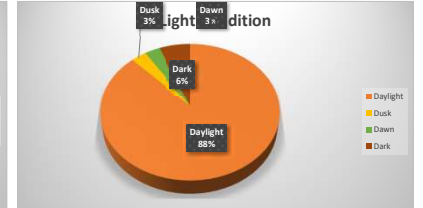
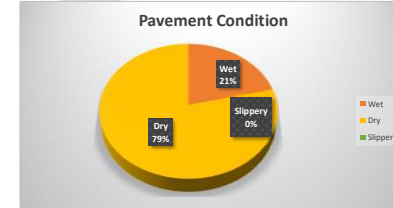
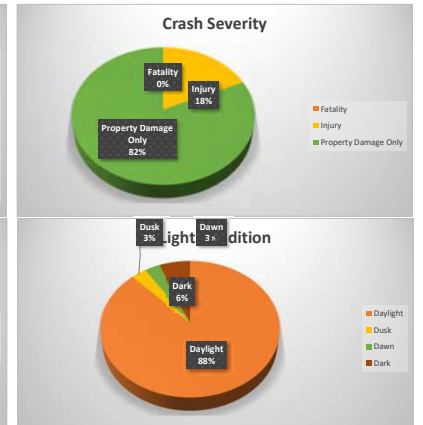
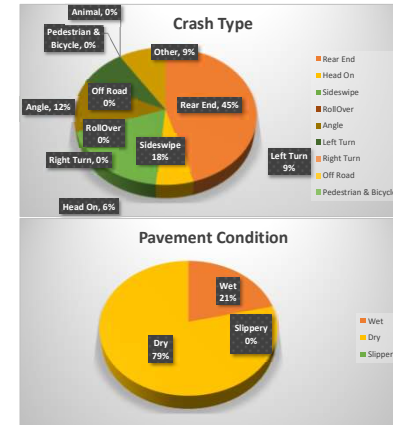
Crash Type	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	Total	Proportion
Rear End	0	1	1	0	2	5	1	1	3	0	0	15	45%
Head On	0	0	0	0	1	0	1	0	0	0	0	2	6%
Sideswipe	0	0	0	0	1	0	1	1	2	0	1	6	18%
RollOver	0	0	0	0	0	0	0	0	0	0	0	0	0%
Angle	0	0	0	0	0	2	0	0	1	1	0	4	12%
Left Turn	0	0	0	0	1	0	1	1	0	0	0	3	9%
Right Turn	0	0	0	0	0	0	0	0	0	0	0	0	0%
Off Road	0	0	0	0	0	0	0	0	0	0	0	0	0%
Pedestrian & Bicycle	0	0	0	0	0	0	0	0	0	0	0	0	0%
Animal	0	0	0	0	0	0	0	0	0	0	0	0	0%
Other	0	0	0	0	0	0	1	0	1	1	0	3	9%
Total	0	1	1	1	5	7	5	3	7	2	1	33	100%

Crash Severity	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	Total	Proportion
Fatality	0	0	0	0	0	0	0	0	0	0	0	0	0%
Injury	0	0	0	0	2	2	0	0	1	1	0	6	18%
Property Damage Only	0	1	1	1	3	5	5	3	6	1	1	27	82%
Total	0	1	1	1	5	7	5	3	7	2	1	33	100%

Pavement Condition	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	Total	Proportion
Wet	0	0	0	0	2	1	1	0	3	0	0	7	21%
Dry	0	1	1	1	3	6	4	3	4	2	1	26	79%
Other	0	0	0	0	0	0	0	0	0	0	0	0	0%
Total	0	1	1	1	5	7	5	3	7	2	1	33	100%

Light Condition	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	Total	Proportion
Daylight	0	1	1	1	5	7	4	2	6	2	0	29	88%
Dusk	0	0	0	0	0	0	0	0	1	0	0	1	3%
Dawn	0	0	0	0	0	0	0	1	0	0	0	1	3%
Dark	0	0	0	0	0	0	1	0	0	0	1	2	6%
Total	0	1	1	1	5	7	5	3	7	2	1	33	100%

Under the Influence	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	Total	Proportion
Alcohol	0	0	0	0	0	0	0	0	0	0	0	0	0%
Drugs	0	0	0	0	0	0	0	0	0	0	0	0	0%
Total	0	0	0	0	0	0	0	0	0	0	0	0	0%



Crash Data Summary - Orange Avenue and Lake Gatlin Road

No.	Crash ID	Date	Day	Time	Hour	Year	Crash Type	Crash Severity	Fatalities	Injuries	Property Damage	Day/Night	Wet/Dry
1	83855795	2/13/2019	Wednesday	12:14 PM	12	2019	Sideswipe	Property Damage Only	0	0	\$3,600	Daylight	Wet
2	83855655	1/9/2018	Tuesday	12:34 PM	12	2018	Left Turn	Property Damage Only	0	0	\$1,500	Daylight	Dry
3	82148082	4/2/2013	Tuesday	2:08 PM	14	2013	Rear End	Property Damage Only	0	0	\$0	Daylight	Dry
4	83855601	7/21/2017	Friday	5:45 PM	17	2017	Sideswipe	Property Damage Only	0	0	\$1,000	Daylight	Wet
5	83855494	12/22/2016	Thursday	1:00 PM	13	2016	Rear End	Property Damage Only	0	0	\$0	Daylight	Dry
6	83855463	9/18/2016	Sunday	1:10 PM	13	2016	Rear End	Injury	0	1	\$5,000	Daylight	Dry
7	83855928	1/2/2020	Thursday	1:59 PM	13	2020	Angle	Property Damage Only	0	0	\$7,000	Daylight	Dry
8	83855295	9/21/2015	Monday	4:34 PM	16	2015	Left Turn	Property Damage Only	0	0	\$0	Daylight	Dry
9	24261067	5/9/2021	Sunday	9:18 PM	21	2021	Sideswipe	Property Damage Only	0	0	\$2,000	Dark - Lighted	Dry
10	83855659	1/26/2018	Friday	10:35 AM	10	2018	Sideswipe	Property Damage Only	0	0	\$100	Daylight	Dry
11	83855635	11/13/2017	Monday	6:17 PM	18	2017	Left Turn	Property Damage Only	0	0	\$3,600	Dark - Lighted	Dry
12	83855208	1/19/2015	Monday	9:36 AM	09	2015	Sideswipe	Property Damage Only	0	0	\$950	Daylight	Dry
13	83855209	1/19/2015	Monday	8:57 AM	08	2015	Head On	Injury	0	1	\$95,700	Daylight	Dry
14	83855437	8/1/2016	Monday	4:02 PM	16	2016	Angle	Property Damage Only	0	0	\$0	Daylight	Dry
15	83855799	2/21/2019	Thursday	1:30 PM	13	2019	Rear End	Property Damage Only	0	0	\$1,500	Daylight	Wet
16	83855580	5/25/2017	Thursday	10:49 AM	10	2017	Rear End	Property Damage Only	0	0	\$0	Daylight	Dry
17	83855891	9/30/2019	Monday	7:05 PM	19	2019	Rear End	Property Damage Only	0	0	\$8,000	Dusk	Wet
18	83855583	6/3/2017	Saturday	12:01 PM	12	2017	Other	Property Damage Only	0	0	\$0	Daylight	Dry
19	83855367	2/11/2016	Thursday	4:54 PM	16	2016	Angle	Property Damage Only	0	0	\$0	Daylight	Dry
20	83855370	2/16/2016	Tuesday	11:00 AM	11	2016	Rear End	Property Damage Only	0	0	\$0	Daylight	Dry
21	83855840	6/3/2019	Monday	8:53 AM	08	2019	Sideswipe	Property Damage Only	0	0	\$2,000	Daylight	Dry
22	82148076	1/20/2012	Friday	5:23 PM	17	2012	Rear End	Property Damage Only	0	0	\$2,500	Daylight	Dry
23	83855223	2/28/2015	Saturday	11:20 AM	11	2015	Rear End	Property Damage Only	0	0	\$4,000	Daylight	Wet
24	83855834	5/16/2019	Thursday	5:29 PM	17	2019	Other	Injury	0	1	\$1,500	Daylight	Dry
25	83855417	7/1/2016	Friday	5:03 PM	17	2016	Rear End	Injury	0	1	\$2,000	Daylight	Wet
26	83855569	4/26/2017	Wednesday	12:41 PM	12	2017	Head On	Property Damage Only	0	0	\$0	Daylight	Dry
27	83855777	1/5/2019	Saturday	11:49 AM	11	2019	Rear End	Property Damage Only	0	0	\$200	Daylight	Dry
28	83855813	3/18/2019	Monday	4:26 PM	16	2019	Angle	Property Damage Only	0	0	\$3,000	Daylight	Dry
29	83855343	12/18/2015	Friday	9:40 AM	09	2015	Rear End	Injury	0	1	\$2,750	Daylight	Wet
30	83855664	2/13/2018	Tuesday	7:19 AM	07	2018	Rear End	Property Damage Only	0	0	\$3,000	Dawn	Dry
31	83855466	9/28/2016	Wednesday	11:54 AM	11	2016	Rear End	Property Damage Only	0	0	\$0	Daylight	Dry
32	83855943	2/18/2020	Tuesday	6:13 PM	18	2020	Unknown	Injury	0	1	\$4,000	Daylight	Dry
33	83855099	2/27/2014	Thursday	4:30 PM	16	2014	Rear End	Property Damage Only	0	0	\$0	Daylight	Dry

Intersection Analysis Study for Orange Avenue/Gatlin Avenue & Orange Avenue/Holden Avenue

Appendix E: Supporting Documentation for Traffic Forecasts

Table 1. Estimates of Population by County and City in Florida, 2017

(Continued)

County, City, and State	April 1 2017 Estimate	Total Change 2010–2017	April 1 2010 Census	Revenue Sharing Use Only	
				Inmates	Estimates less Inmates April 1, 2017
Monroe County	76,889	3,799	73,090	24	76,865
Islamorada, Village of Islands	6,326	207	6,119	0	6,326
Key Colony Beach	803	6	797	0	803
Key West	24,597	-52	24,649	0	24,597
Layton	186	2	184	0	186
Marathon	8,775	478	8,297	0	8,775
UNINCORPORATED	36,202	3,158	33,044	24	36,178
Nassau County	80,456	7,142	73,314	72	80,384
Callahan	1,292	169	1,123	0	1,292
Fernandina Beach	12,550	1,063	11,487	24	12,526
Hilliard	2,953	-133	3,086	0	2,953
UNINCORPORATED	63,661	6,043	57,618	48	63,613
Okaloosa County	195,488	14,666	180,822	1,377	194,111
Cinco Bayou	405	22	383	0	405
Crestview	24,561	3,583	20,978	0	24,561
Destin	13,116	811	12,305	0	13,116
Fort Walton Beach	20,886	1,379	19,507	0	20,886
Laurel Hill	551	14	537	0	551
Mary Esther	3,973	122	3,851	0	3,973
Niceville	14,442	1,693	12,749	0	14,442
Shalimar	813	96	717	0	813
Valparaiso	5,246	210	5,036	0	5,246
UNINCORPORATED	111,495	6,736	104,759	1,377	110,118
Okeechobee County	41,140	1,144	39,996	2,422	38,718
Okeechobee	5,566	-55	5,621	0	5,566
UNINCORPORATED	35,574	1,199	34,375	2,422	33,152
Orange County	1,313,880	167,924	1,145,956	3,305	1,310,575
Apopka	49,750	8,208	41,542	0	49,750
Bay Lake	23	-24	47	0	23
Belle Isle	6,701	713	5,988	0	6,701
Eatonville	2,305	146	2,159	29	2,276
Edgewood	2,643	140	2,503	0	2,643
Lake Buena Vista	22	12	10	0	22
Maitland	17,401	1,650	15,751	0	17,401
Oakland	2,658	120	2,538	0	2,658
Ocoee	43,072	7,493	35,579	0	43,072
Orlando	279,789	41,489	238,300	656	279,133
Windermere	2,887	425	2,462	0	2,887
Winter Garden	42,959	8,391	34,568	0	42,959
Winter Park	29,317	1,465	27,852	0	29,317
UNINCORPORATED	834,353	97,696	736,657	2,620	831,733

Table 1. Estimates of Population by County and City in Florida, 2018

(Continued)

County, City, and State	April 1 2018 Estimate	Total Change 2010–2018	April 1 2010 Census	Revenue Sharing Use Only	
				Inmates	Estimates less Inmates April 1, 2018
Miami-Dade County* (Continued)					
South Miami	12,664	1,007	11,657	0	12,664
Sunny Isles Beach	22,505	1,673	20,832	0	22,505
Surfside	5,934	190	5,744	0	5,934
Sweetwater	21,499	8,000	13,499	0	21,499
Virginia Gardens	2,433	58	2,375	0	2,433
West Miami	7,806	1,841	5,965	0	7,806
UNINCORPORATED*	1,203,732	94,308	1,109,424	6,811	1,196,921
Monroe County					
Islamorada, Village of Islands	5,990	-129	6,119	0	5,990
Key Colony Beach	758	-39	797	0	758
Key West	24,509	-140	24,649	0	24,509
Layton	182	-2	184	0	182
Marathon	8,235	-62	8,297	0	8,235
UNINCORPORATED	34,266	1,222	33,044	0	34,266
Nassau County					
Callahan	1,305	182	1,123	0	1,305
Fernandina Beach	12,761	1,274	11,487	24	12,737
Hilliard	2,990	-96	3,086	0	2,990
UNINCORPORATED	65,692	8,074	57,618	48	65,644
Okaloosa County					
Cinco Bayou	404	21	383	0	404
Crestview	25,001	4,023	20,978	0	25,001
Destin	13,289	984	12,305	0	13,289
Fort Walton Beach	20,830	1,323	19,507	0	20,830
Laurel Hill	551	14	537	0	551
Mary Esther	3,971	120	3,851	0	3,971
Niceville	14,508	1,759	12,749	0	14,508
Shalimar	817	100	717	0	817
Valparaiso	5,284	248	5,036	0	5,284
UNINCORPORATED	113,497	8,738	104,759	1,377	112,120
Okeechobee County					
Okeechobee	5,561	-60	5,621	0	5,561
UNINCORPORATED	35,559	1,184	34,375	2,370	33,189
Orange County					
Apopka	51,676	10,134	41,542	0	51,676
Bay Lake	22	-25	47	0	22
Belle Isle	6,944	956	5,988	0	6,944
Eatonville	2,323	164	2,159	31	2,292
Edgewood	2,712	209	2,503	0	2,712
Lake Buena Vista	24	14	10	0	24

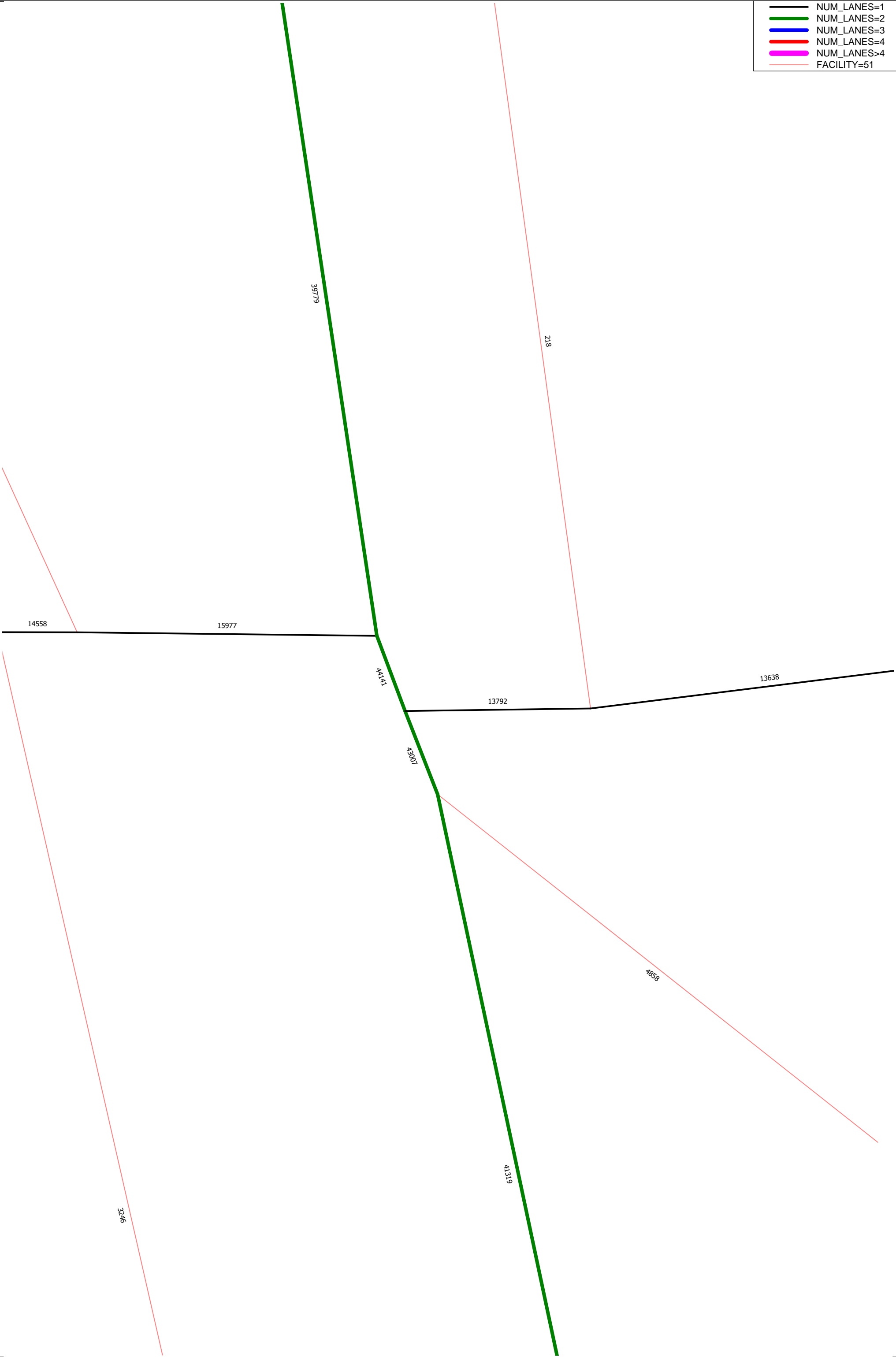
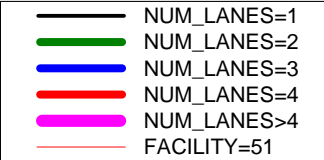
Table 1. Estimates of Population by County and City in Florida, 2019

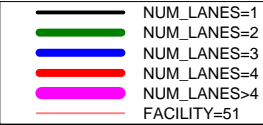
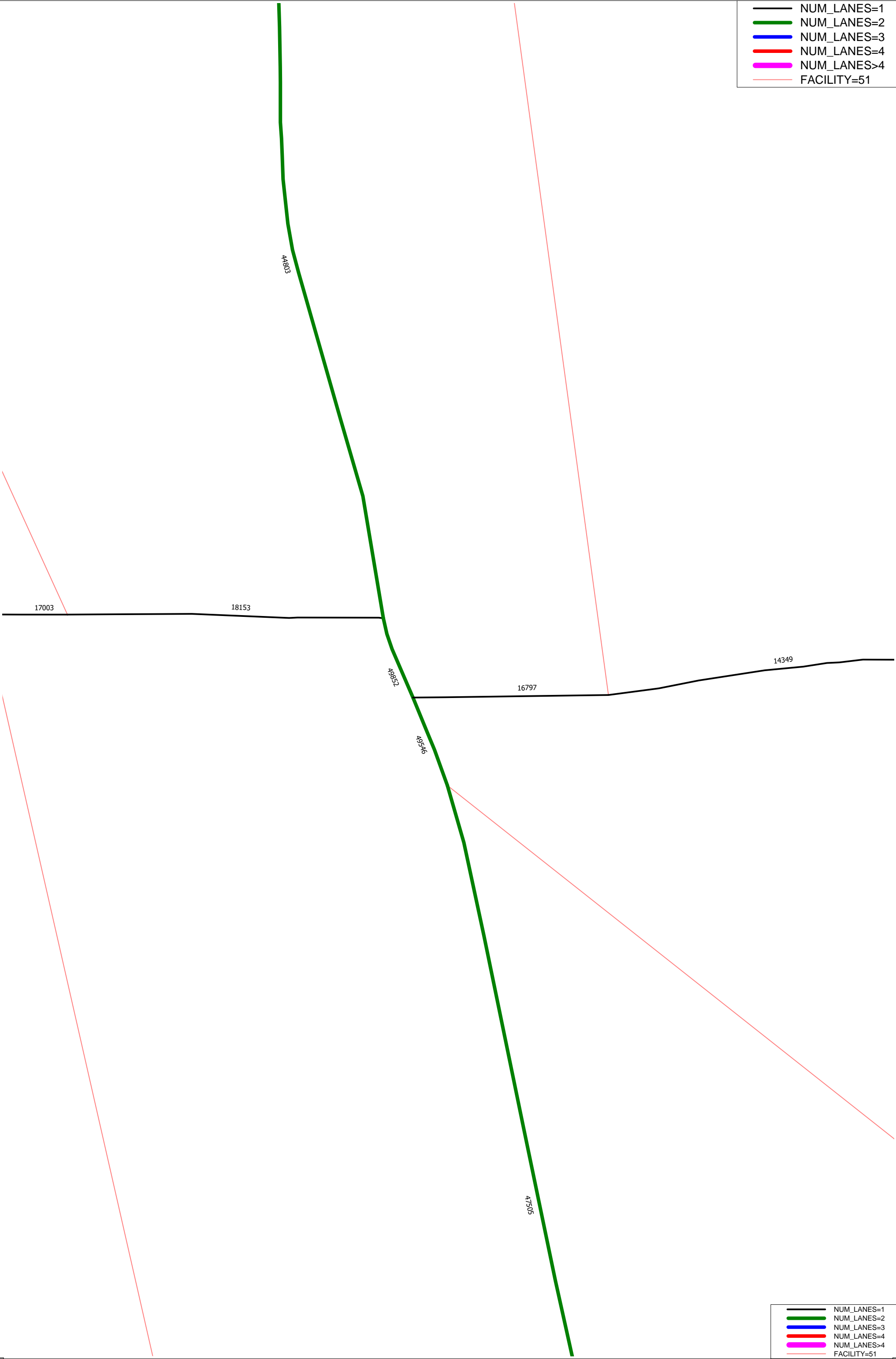
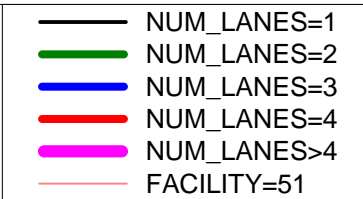
(Continued)

County, City, and State	April 1 2019 Estimate	Total Change 2010–2019	April 1 2010 Census	Revenue Sharing Use Only	
				Inmates	Estimates less Inmates April 1, 2019
Miami-Dade County* (Continued)					
South Miami	12,965	1,308	11,657	0	12,965
Sunny Isles Beach	23,253	2,421	20,832	0	23,253
Surfside	6,015	271	5,744	0	6,015
Sweetwater	22,328	8,829	13,499	0	22,328
Virginia Gardens	2,441	66	2,375	0	2,441
West Miami	7,828	1,863	5,965	0	7,828
UNINCORPORATED*	1,212,200	102,776	1,109,424	6,738	1,205,462
Monroe County					
Islamorada, Village of Islands	6,211	92	6,119	0	6,211
Key Colony Beach	760	-37	797	0	760
Key West	25,171	522	24,649	0	25,171
Layton	183	-1	184	0	183
Marathon	8,593	296	8,297	0	8,593
UNINCORPORATED	35,294	2,250	33,044	0	35,294
Nassau County					
Callahan	1,315	192	1,123	0	1,315
Fernandina Beach	12,915	1,428	11,487	24	12,891
Hilliard	3,036	-50	3,086	0	3,036
UNINCORPORATED	67,804	10,186	57,618	48	67,756
Okaloosa County					
Cinco Bayou	417	34	383	0	417
Crestview	25,675	4,697	20,978	0	25,675
Destin	13,441	1,136	12,305	0	13,441
Fort Walton Beach	20,940	1,433	19,507	0	20,940
Laurel Hill	578	41	537	0	578
Mary Esther	4,013	162	3,851	0	4,013
Niceville	14,693	1,944	12,749	0	14,693
Shalimar	839	122	717	0	839
Valparaiso	5,339	303	5,036	0	5,339
UNINCORPORATED	115,579	10,820	104,759	1,343	114,236
Okeechobee County					
Okeechobee	41,808	1,812	39,996	2,414	39,394
UNINCORPORATED	5,603	-18	5,621	0	5,603
UNINCORPORATED	36,205	1,830	34,375	2,414	33,791
Orange County					
Apopka	1,386,080	240,124	1,145,956	3,877	1,382,203
Bay Lake	52,404	10,862	41,542	0	52,404
Belle Isle	15	-32	47	0	15
Eatonville	7,365	1,377	5,988	0	7,365
Edgewood	2,348	189	2,159	61	2,287
Lake Buena Vista	2,717	214	2,503	0	2,717
	24	14	10	0	24

Projections of Florida Population by County, 2020–2045, with Estimates for 2019 (continued)

County and State	Estimates April 1, 2019	Projections, April 1					
		2020	2025	2030	2035	2040	2045
MIAMI-DADE	2,812,130						
Low		2,734,000	2,815,500	2,873,400	2,917,900	2,938,500	2,944,500
Medium		2,849,900	3,022,600	3,167,900	3,294,700	3,399,200	3,489,900
High		2,961,800	3,214,300	3,458,200	3,679,000	3,875,800	4,057,700
MONROE	76,212						
Low		73,200	71,500	69,800	68,100	66,400	64,700
Medium		76,300	76,500	76,800	77,100	77,400	77,700
High		79,300	81,900	84,500	87,000	89,200	91,400
NASSAU	85,070						
Low		81,600	86,200	89,400	91,200	92,100	92,500
Medium		86,900	95,800	103,100	109,100	114,300	118,900
High		92,100	104,300	116,100	127,200	137,500	148,000
OKALOOSA	201,514						
Low		195,500	199,600	202,500	203,600	203,900	203,900
Medium		203,800	214,300	223,300	230,400	236,600	242,300
High		211,800	227,900	243,700	256,800	269,000	280,900
OKEECHOBEE	41,808						
Low		40,400	40,600	40,400	40,200	39,800	39,400
Medium		42,100	43,400	44,400	45,300	46,000	46,700
High		43,800	46,500	48,900	51,300	53,500	55,700
ORANGE	1,386,080						
Low		1,346,300	1,439,500	1,504,600	1,548,500	1,584,300	1,610,900
Medium		1,418,900	1,573,000	1,696,800	1,797,400	1,888,700	1,972,200
High		1,488,000	1,686,200	1,869,600	2,029,700	2,188,600	2,344,100
OSCEOLA	370,552						
Low		361,000	406,300	442,500	469,700	491,000	508,900
Medium		384,800	452,100	510,200	558,900	602,200	642,600
High		407,000	488,400	568,000	640,700	711,600	783,900
PALM BEACH	1,447,857						
Low		1,406,300	1,441,300	1,465,900	1,483,700	1,494,900	1,497,500
Medium		1,465,800	1,547,200	1,616,500	1,676,600	1,729,500	1,775,200
High		1,523,500	1,645,400	1,764,200	1,870,700	1,971,800	2,063,600
PASCO	527,122						
Low		515,300	545,800	569,400	585,600	597,100	605,200
Medium		537,300	586,100	626,800	659,200	686,700	711,000
High		558,300	623,100	685,200	738,300	787,600	833,900
PINELLAS	978,045						
Low		955,000	962,400	962,500	957,600	953,600	948,200
Medium		984,900	1,014,400	1,035,600	1,051,300	1,066,600	1,080,600
High		1,014,100	1,069,900	1,120,200	1,158,700	1,197,400	1,233,300
POLK	690,606						
Low		668,200	701,500	723,800	737,600	745,000	748,800
Medium		704,100	766,400	817,000	858,000	893,100	924,700
High		738,500	821,700	899,500	966,700	1,029,200	1,089,600
PUTNAM	73,268						
Low		70,400	68,700	66,900	65,300	63,500	61,800
Medium		73,300	73,600	73,700	73,900	74,100	74,300
High		76,300	78,700	81,100	83,400	85,400	87,300
ST. JOHNS	254,412						
Low		247,500	278,000	301,300	318,500	332,400	343,900
Medium		263,900	309,300	347,600	379,400	408,100	434,900
High		279,200	334,200	386,800	434,500	481,800	529,700
ST. LUCIE	309,359						
Low		302,300	319,300	333,800	344,300	352,000	357,600
Medium		315,200	342,900	367,500	387,400	404,400	419,400
High		327,500	364,600	401,700	434,100	464,300	492,800

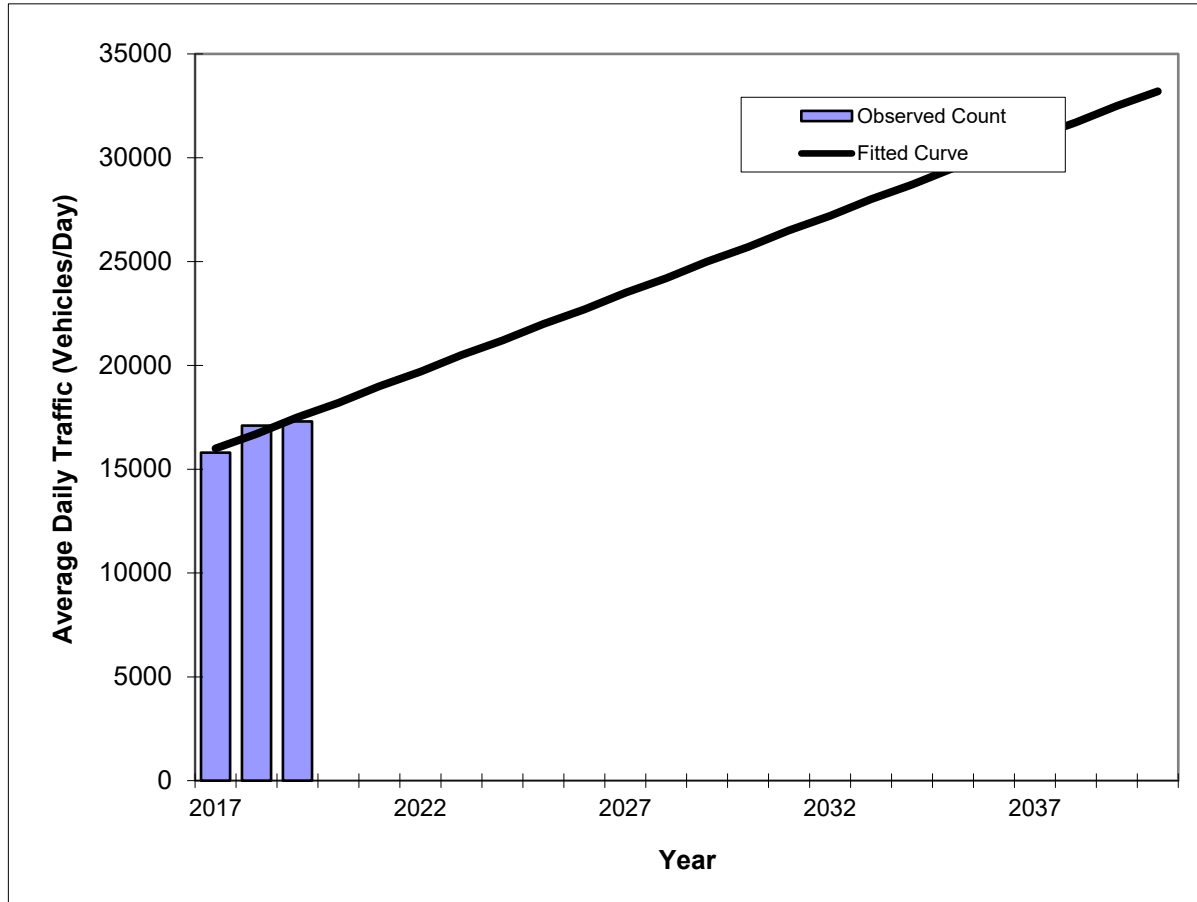




Traffic Trends - V03.a **HOLDEN AVE -- West of Orange Avenue**

FIN#	1234
Location	1

County:	Orange (75)
Station #:	187
Highway:	HOLDEN AVE



Year	Traffic (ADT/AADT)	
	Count*	Trend**
2017	15800	16000
2018	17100	16700
2019	17300	17500
2030 Opening Year Trend		
2030	N/A	25700
2035 Mid-Year Trend		
2035	N/A	29500
2040 Design Year Trend		
2040	N/A	33200
TRANPLAN Forecasts/Trends		

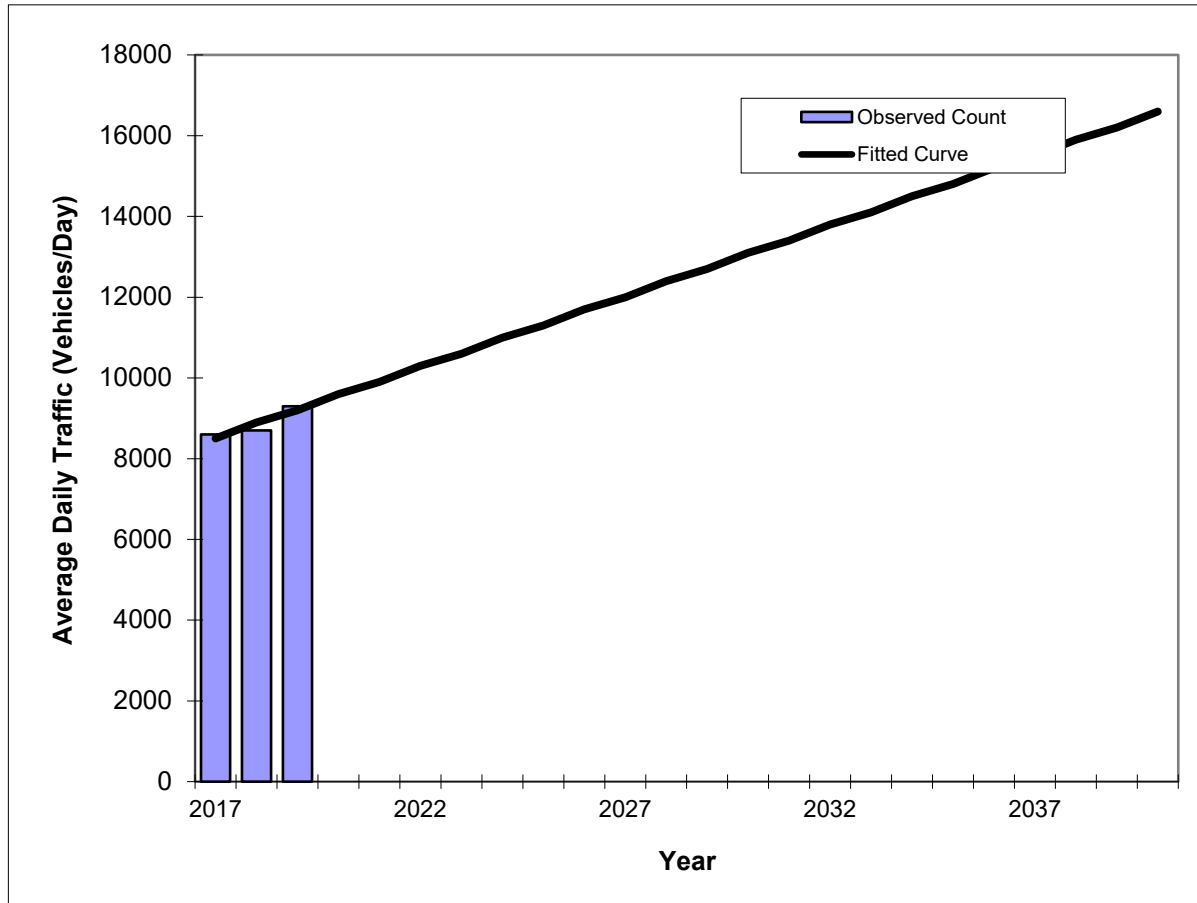
** Annual Trend Increase:	750
Trend R-squared:	84.80%
Trend Annual Historic Growth Rate:	4.69%
Trend Growth Rate (2019 to Design Year):	4.27%
Printed:	13-Oct-20
Straight Line Growth Option	

*Axle-Adjusted

Traffic Trends - V03.a **GATLIN AVE -- East of Orange Avenue**

FIN#	1234
Location	1

County:	Orange (75)
Station #:	323
Highway:	GATLIN AVE



Year	Traffic (ADT/AADT)	
	Count*	Trend**
2017	8600	8500
2018	8700	8900
2019	9300	9200
2030 Opening Year Trend		
2030	N/A	13100
2035 Mid-Year Trend		
2035	N/A	14800
2040 Design Year Trend		
2040	N/A	16600
TRANPLAN Forecasts/Trends		

** Annual Trend Increase:	350
Trend R-squared:	85.47%
Trend Annual Historic Growth Rate:	4.12%
Trend Growth Rate (2019 to Design Year):	3.83%
Printed:	13-Oct-20
Straight Line Growth Option	

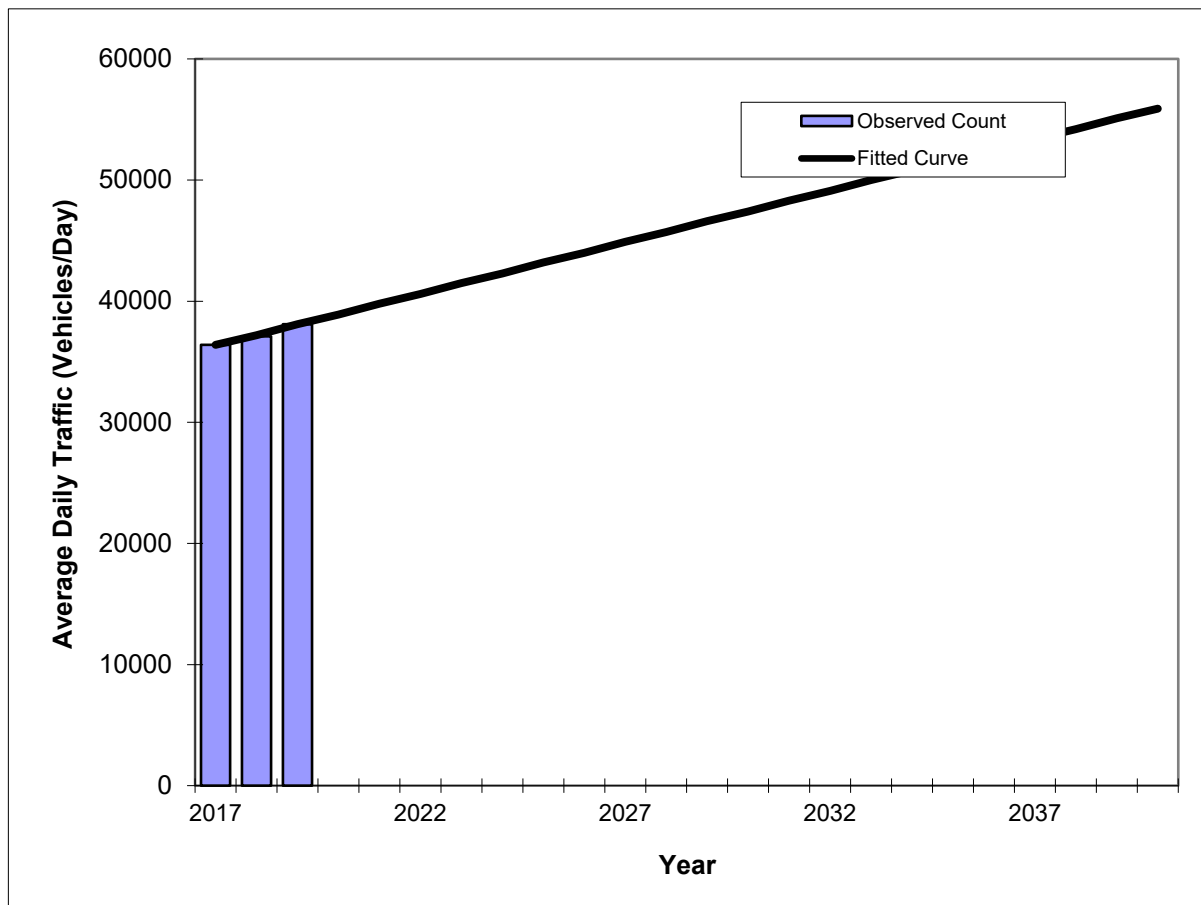
*Axle-Adjusted

Traffic Trends - V03.a

SR 527 -- North of Holden Avenue

FIN#	1234
Location	1

County:	Orange (75)
Station #:	750175
Highway:	SR 527



Year	Traffic (ADT/AADT)	
	Count*	Trend**
2017	36400	36400
2018	37100	37200
2019	38100	38100
2030 Opening Year Trend		
2030	N/A	47400
2035 Mid-Year Trend		
2035	N/A	51700
2040 Design Year Trend		
2040	N/A	55900
TRANPLAN Forecasts/Trends		

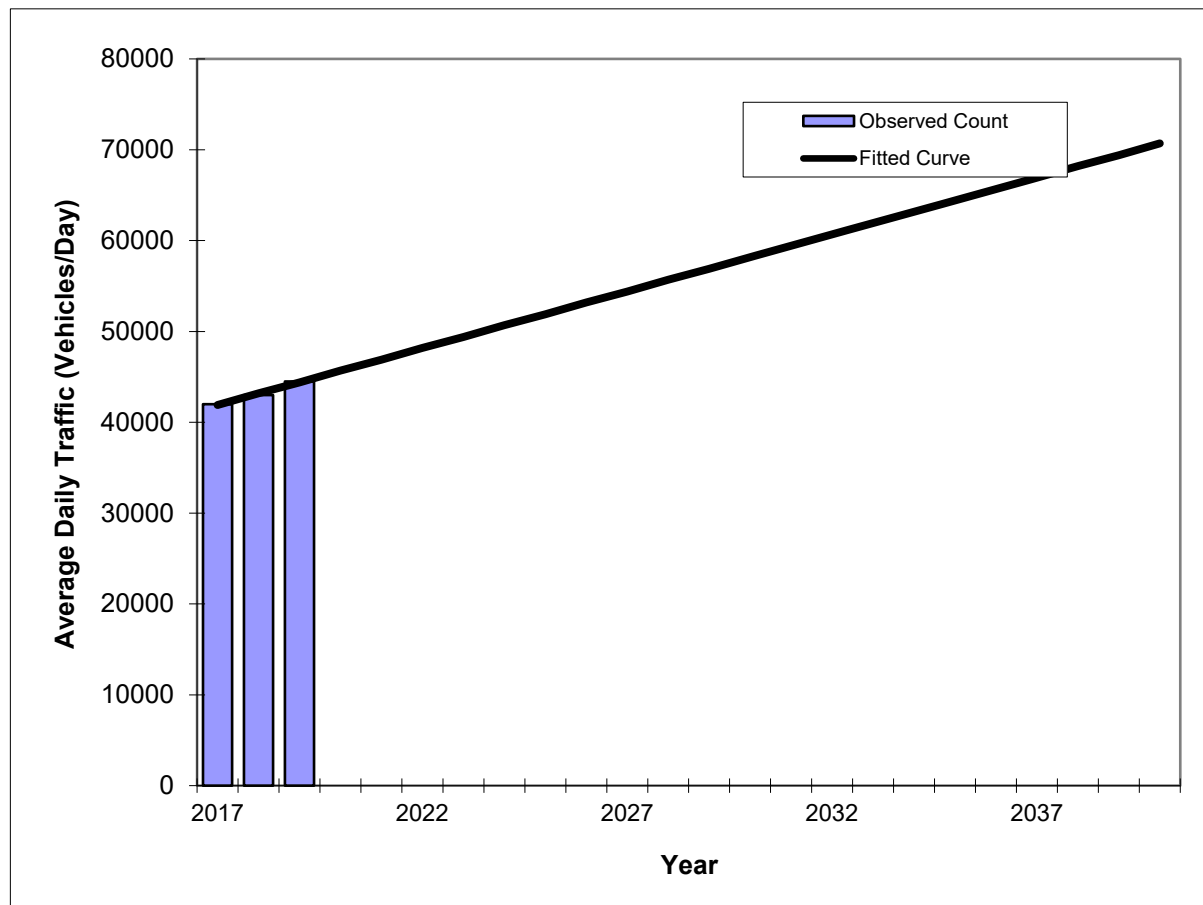
** Annual Trend Increase:	850
Trend R-squared:	98.97%
Trend Annual Historic Growth Rate:	2.34%
Trend Growth Rate (2019 to Design Year):	2.22%
Printed:	13-Oct-20
Straight Line Growth Option	

*Axle-Adjusted

Traffic Trends - V03.a **SR-527 -- south of Gatlin Avenue**

FIN#	1234
Location	1

County:	Orange (75)
Station #:	750537
Highway:	SR-527



Year	Traffic (ADT/AADT)	
	Count*	Trend**
2017	42000	41900
2018	43000	43200
2019	44500	44400
2030 Opening Year Trend		
2030	N/A	58200
2035 Mid-Year Trend		
2035	N/A	64400
2040 Design Year Trend		
2040	N/A	70700
TRANPLAN Forecasts/Trends		

** Annual Trend Increase:	1,250
Trend R-squared:	98.68%
Trend Annual Historic Growth Rate:	2.98%
Trend Growth Rate (2019 to Design Year):	2.82%
Printed:	13-Oct-20
Straight Line Growth Option	

*Axle-Adjusted

Intersection Analysis Study for Orange Avenue/Gatlin Avenue & Orange Avenue/Holden Avenue

Appendix F: ICE Stage 1 Documentation

Florida Department of Transportation
Intersection Control Evaluation (ICE) Form
Stage 1: Screening

Intersection Control Evaluation Form 750-010-003

To fulfill the requirements of Stage 1 (Screening) of FDOT's ICE procedures, complete the following form and append all supporting documentation. Completed forms can be submitted to the District Traffic Operations Engineer (DTOE) and District Design Engineer (DDE) for the project's approval.

Project Name	Orange Ave at Holden Ave & Gatlin Ave Intersection Study			FDOT Project #	-								
Submitted By	VHB	Agency/Company	Orange County		Date	8/10/2021							
Email		FDOT District	District 5	County	Orange								
Project Locality (City/Town/Village)	Edgewood		Project Type	Congestion Mitigation Project									
Project Funding Source	Non-federal	FDOT Context Classification		C3C - Suburban Commercial									
Project Purpose (What is the catalyst for this project and why is it being undertaken?)	The purpose of this project is to develop alternative intersection designs to alleviate the current/anticipated operational and safety issues within the study corridor. Currently, the congestion and associated delay are due to the existing offset intersection configuration, heavy turning traffic from/to Orange Ave to side streets, traffic that turns right from one of the sidestreets and immediately turns left from Orange Ave to the other sidestreet, and limited existing left-turn storage lengths along Orange Ave.												
Project Setting Description (Describe the area surrounding the intersection)	The area immediately surrounding the intersection is commercial. To the west a railroad runs parallel to Orange Ave. To the south of Holden Ave and west of Orange Ave, Cypress Grove Park is located. To the north of Holden Ave and west of Orange Ave, the distribution center for Boise Cascade Building Materials is located which provides access to heavy trucks from Holden Ave.												
Multimodal Context (Describe the pedestrian, bicycle, and transit activity in the area and the potential for activity based on surrounding land uses and development patterns)	Based on the existing counts and existing/future land uses, the pedestrian and bicycle usage is expected to be minimal. Orange Ave is a major transit route and three transit routes pass through the area in the existing conditions. There are no transit routes on Holden Ave.												

Major Street Information											
Route #:	SR 527	Route Name(s)	Orange Ave				Milepost	10.772			
Existing Control Type	Signal		Existing AADT	39,000	Design Year AADT		49,000				
Design Vehicle	Florida Interstate Semitrailer (WB-62FL)		Control Vehicle	Florida Interstate Semitrailer (WB-62FL)							
Primary Functional Classification			Urban Principal Arterial			Design Speed (mph)		40			
Secondary Functional Classification (if app.)						Target Speed (mph) [if app.]		40			
Approach #1	Direction	Northbound	Number of Lanes		Study Period #1 Traffic Volumes		Study Period #2 Traffic Volumes				
	Sidewalks along	Both sides of the approach	Left-Turn	2							
	Crosswalk on Approach?	Yes	Left-Through	0	Weekday AM Peak		Weekday PM Peak				
	On-Street Bike Facilities?	Yes	Through	2	Left	358	Left	383			
	Multi-Use Path?	No	Left-Through-Right	0	Through	1,660	Through	1,371			
	Scheduled Bus Service?	Yes	Through-Right	0	Right	7	Right	26			
	Bus Stop on Approach?	No	Right-Turn	1	Daily Truck %		10.0%				
Approach #2	Direction	Southbound	Number of Lanes		Study Period #1 Traffic Volumes		Study Period #2 Traffic Volumes				
	Sidewalks along:	Both sides of the approach	Left-Turn	1							
	Crosswalk on Approach?	Yes	Left-Through	0	Weekday AM Peak		Weekday PM Peak				
	On-Street Bike Facilities?	Yes	Through	2	Left	6	Left	25			
	Multi-Use Path?	No	Left-Through-Right	0	Through	1,189	Through	1,504			
	Scheduled Bus Service?	Yes	Through-Right	0	Right	177	Right	262			
	Bus Stop on Approach?	No	Right-Turn	1	Daily Truck %		10.0%				

Minor Street Information									
Route #:	-	Route Name(s)	Holden Ave				Milepost (if app.)		
Existing Control Type	Signal		Existing AADT	17,000		Design Year AADT	25,000		
Design Vehicle	Florida Interstate Semitrailer (WB-62FL)		Control Vehicle	Florida Interstate Semitrailer (WB-62FL)					
Primary Functional Classification			Urban Minor Arterial			Design Speed (mph)		35	
Secondary Functional Classification (if app.)						Target Speed (mph) [if app.]			
Approach #1	Direction	Eastbound	Number of Lanes		Study Period #1 Traffic Volumes		Study Period #2 Traffic Volumes		
	Sidewalks along:	Both sides of the approach	Left-Turn	2					
	Crosswalk on Approach?	Yes	Left-Through	0	Weekday AM Peak		Weekday PM Peak		
	On-Street Bike Facilities?	No	Through	1	Left	324	Left	224	
	Multi-Use Path?	No	Left-Through-Right	0	Through	25	Through	57	
	Scheduled Bus Service?	No	Through-Right	0	Right	487	Right	464	
	Bus Stop on Approach?	No	Right-Turn	1	Daily Truck %		4.0%		
Approach #2	Direction	Westbound	Number of Lanes		Study Period #1 Traffic Volumes		Study Period #2 Traffic Volumes		
	Sidewalks along:	Neither side of the approach	Left-Turn	1					
	Crosswalk on Approach?	Yes	Left-Through		Weekday AM Peak		Weekday PM Peak		
	On-Street Bike Facilities?	No	Through		Left	3	Left	11	
	Multi-Use Path?	No	Left-Through-Right		Through	29	Through	58	
	Scheduled Bus Service?	No	Through-Right	1	Right	10	Right	21	
	Bus Stop on Approach?	No	Right-Turn		Daily Truck %		2.0%		
Approach #3	Direction		Number of Lanes		Study Period #1 Traffic Volumes		Study Period #2 Traffic Volumes		
	Sidewalks along:		Left-Turn						
	Crosswalk on Approach?		Left-Through		Weekday AM Peak		Weekday PM Peak		
	On-Street Bike Facilities?		Through		Left		Left		
	Multi-Use Path?		Left-Through-Right		Through		Through		
	Scheduled Bus Service?		Through-Right		Right		Right		
	Bus Stop on Approach?		Right-Turn		Daily Truck %				

Crash History (Existing Intersections Only)	
Append the most recent five-years of crash data for the intersection from the CAR System. If the crash data evidences any issues relating to safety performance, discuss briefly here:	
235 crashes occurred at the intersection from 2011 to 2021 (54 of which caused injuries, there were no fatalities). The predominant crash types are rear-end, left turn and sideswipe crashes. Crash rate is higher than statewide crash rate for a similar intersection type (based on CAR database crash rates for 2012-16).	

Control Strategy Evaluation						
Provide a brief justification as to why each of the following control strategies should be advanced or not. Justification should consider potential environmental impacts.						
Control Strategy	CAP-X Outputs			SPICE Ranking	Strategy to Be Advanced?	Justification
	V/C Ratio		Multimodal Score			
	Weekday AM Peak	Weekday PM Peak				
Two-Way Stop-Controlled	-	-	-	-	No	
All-Way Stop-Controlled	-	-	-	-	No	
Signalized Control	0.73	0.79	4.8	-	No	QRI is preferred given the existing traffic patterns and anticipated ROW needs. Spice ranking is not valid because of the lack of comparable alternatives.
Roundabout	1.10	1.33	5.6	-	No	
Median U-Turn	-	-	-	-	No	
RCUT (Signalized)					No	
RCUT (Unsignalized)	-	-	-	-	No	
Jughandle				-	No	
Displaced Left-Turn	-	-	-	-	No	
Continuous Green Tee	-	-	-	-	No	
Quadrant Roadway	0.58	0.62	4.4		No	Provides adequate capacity and safety. Spice ranking is not available for a QRI.
Partial MUT	-	-	-	-	No	
Partial DLT	-	-	-	-	No	

Resolution					
<i>To be filled out by FDOT District Traffic Operations Engineer and District Design Engineer</i>					
Project Determination					
Comments					
DOT E Name		Signature		Date	
DDE Name		Signature		Date	

Florida Department of Transportation
Intersection Control Evaluation (ICE) Form
Stage 1: Screening

Intersection Control Evaluation Form 750-010-003

To fulfill the requirements of Stage 1 (Screening) of FDOT's ICE procedures, complete the following form and append all supporting documentation. Completed forms can be submitted to the District Traffic Operations Engineer (DTOE) and District Design Engineer (DDE) for the project's approval.

Project Name	Orange Ave at Holden Ave & Gatlin Ave Intersection Study			FDOT Project #	-								
Submitted By	VHB	Agency/Company	Orange County		Date	8/10/2021							
Email		FDOT District	District 5	County	Orange								
Project Locality (City/Town/Village)	Edgewood		Project Type	Congestion Mitigation Project									
Project Funding Source	Non-federal	FDOT Context Classification		C3C - Suburban Commercial									
Project Purpose (What is the catalyst for this project and why is it being undertaken?)	The purpose of this project is to develop alternative intersection designs to alleviate the current/anticipated operational and safety issues within the study corridor. Currently, the congestion and associated delay are due to the existing offset intersection configuration, heavy turning traffic from/to Orange Ave to side streets, traffic that turns right from one of the sidestreets and immediately turns left from Orange Ave to the other sidestreet, and limited existing left-turn storage lengths along Orange Ave.												
Project Setting Description (Describe the area surrounding the intersection)	The area immediately surrounding the intersection is commercial. To the west a railroad runs parallel to Orange Ave. To the west of Gatlin Ave and west of Orange Ave, Cypress Grove Park is located. To the north of Holden Ave and west of Orange Ave, the distribution center for Boise Cascade Building Materials is located which provides access to heavy trucks from Holden Ave.												
Multimodal Context (Describe the pedestrian, bicycle, and transit activity in the area and the potential for activity based on surrounding land uses and development patterns)	Based on the existing counts and existing/future land uses, the pedestrian and bicycle usage is expected to be minimal. Orange Ave is a major transit route and three transit routes pass through the area in the existing conditions. There are no transit routes on Gatlin Ave.												

Major Street Information											
Route #:	SR 527	Route Name(s)	Orange Ave				Milepost	10.699			
Existing Control Type	Signal		Existing AADT	44,500	Design Year AADT		57,000				
Design Vehicle	Florida Interstate Semitrailer (WB-62FL)		Control Vehicle	Florida Interstate Semitrailer (WB-62FL)							
Primary Functional Classification		Urban Principal Arterial			Design Speed (mph)		40				
Secondary Functional Classification (if app.)					Target Speed (mph) [if app.]		40				
Approach #1	Direction	Northbound	Number of Lanes		Study Period #1 Traffic Volumes		Study Period #2 Traffic Volumes				
	Sidewalks along	Both sides of the approach	Left-Turn	0							
	Crosswalk on Approach?	Yes	Left-Through	0	Weekday AM Peak		Weekday PM Peak				
	On-Street Bike Facilities?	Yes	Through	2	Left	0	Left	0			
	Multi-Use Path?	No	Left-Through-Right	0	Through	1,785	Through	1,574			
	Scheduled Bus Service?	Yes	Through-Right	0	Right	251	Right	567			
	Bus Stop on Approach?	No	Right-Turn	1	Daily Truck %		10.0%				
Approach #2	Direction	Southbound	Number of Lanes		Study Period #1 Traffic Volumes		Study Period #2 Traffic Volumes				
	Sidewalks along:	Both sides of the approach	Left-Turn	1							
	Crosswalk on Approach?	Yes	Left-Through	0	Weekday AM Peak		Weekday PM Peak				
	On-Street Bike Facilities?	Yes	Through	2	Left	200	Left	234			
	Multi-Use Path?	No	Left-Through-Right	0	Through	1,474	Through	1,740			
	Scheduled Bus Service?	Yes	Through-Right	0	Right	0	Right	0			
	Bus Stop on Approach?	No	Right-Turn	0	Daily Truck %		10.0%				

Minor Street Information									
Route #:	-	Route Name(s)	Gatlin Ave				Milepost (if app.)		
Existing Control Type	Signal		Existing AADT	9,300		Design Year AADT		14,000	
Design Vehicle	City Transit Bus (CITY-BUS)			Control Vehicle	City Transit Bus (CITY-BUS)				
Primary Functional Classification			Urban Minor Collector			Design Speed (mph)		25	
Secondary Functional Classification (if app.)						Target Speed (mph) [if app.]			
Approach #1	Direction	Westbound		Number of Lanes		Study Period #1 Traffic Volumes		Study Period #2 Traffic Volumes	
	Sidewalks along:	Both sides of the approach		Left-Turn	2				
	Crosswalk on Approach?	Yes		Left-Through	0	Weekday AM Peak		Weekday PM Peak	
	On-Street Bike Facilities?	No		Through	0	Left	616	Left	404
	Multi-Use Path?	No		Left-Through-Right	0	Through	0	Through	0
	Scheduled Bus Service?	No		Through-Right	1	Right	487	Right	206
	Bus Stop on Approach?	No		Right-Turn	0	Daily Truck %		4.0%	
Approach #2	Direction			Number of Lanes		Study Period #1 Traffic Volumes		Study Period #2 Traffic Volumes	
	Sidewalks along:			Left-Turn					
	Crosswalk on Approach?			Left-Through		Weekday AM Peak		Weekday PM Peak	
	On-Street Bike Facilities?			Through		Left		Left	
	Multi-Use Path?			Left-Through-Right		Through		Through	
	Scheduled Bus Service?			Through-Right		Right		Right	
	Bus Stop on Approach?			Right-Turn		Daily Truck %			
Approach #3	Direction			Number of Lanes		Study Period #1 Traffic Volumes		Study Period #2 Traffic Volumes	
	Sidewalks along:			Left-Turn					
	Crosswalk on Approach?			Left-Through		Weekday AM Peak		Weekday PM Peak	
	On-Street Bike Facilities?			Through		Left		Left	
	Multi-Use Path?			Left-Through-Right		Through		Through	
	Scheduled Bus Service?			Through-Right		Right		Right	
	Bus Stop on Approach?			Right-Turn		Daily Truck %			

Crash History (Existing Intersections Only)	
<p>Append the most recent five-years of crash data for the intersection from the CAR System. If the crash data evidences any issues relating to safety performance, discuss briefly here:</p> <p>249 crashes occurred at the intersection from 2011 to 2021 (60 of which caused injuries, there were no fatalities). The predominant crash types are rear-end, sideswipe and left turn crashes. Crash rate is higher than statewide crash rate for a similar intersection type (based on CAR database crash rates for 2012-16).</p>	





Control Strategy Evaluation						
Provide a brief justification as to why each of the following control strategies should be advanced or not. Justification should consider potential environmental impacts.						
Control Strategy	CAP-X Outputs			SPICE Ranking	Strategy to Be Advanced?	Justification
	V/C Ratio		Multimodal Score			
	Weekday AM Peak	Weekday PM Peak				
Two-Way Stop-Controlled	-	-	-	-	No	
All-Way Stop-Controlled	-	-	-	-	No	
Signalized Control	0.84	0.74	4.8	-	No	QRI is preferred given the existing traffic patterns and anticipated ROW needs. Spice ranking is not valid because of the lack of comparable alternatives.
Roundabout	2.58	1.38	5.6	-	No	Does not provide adequate capacity. Spice ranking is not valid (projected AADT is outside the SPF range for a roundabout).
Median U-Turn	-	-	-	-	No	
RCUT (Signalized)					No	
RCUT (Unsignalized)	-	-	-	-	No	
Jughandle				-	No	
Displaced Left-Turn	-	-	-	-	No	
Continuous Green Tee	-	-	-	-	No	
Quadrant Roadway	0.77	0.70	4.4		No	Provides adequate capacity and safety. Spice ranking is not available for a QRI.
Partial MUT	-	-	-	-	No	
Partial DLT	-	-	-	-	No	

Resolution					
To be filled out by FDOT District Traffic Operations Engineer and District Design Engineer					
Project Determination					
Comments					
DOT E Name		Signature		Date	
DDE Name		Signature		Date	

Capacity Analysis for Planning of Junctions

Detailed Report - Page 1 of 4

Project Name:	Orange Ave at Holden Ave
Project Number:	NA
Location:	Orange County, FL
Date:	2040 AM
Number of Intersection Legs:	4
Major Street Direction:	North-South

Traffic Volume Demand						
	Volume (Veh/hr)				Percent (%)	
	U-Turn 	Left 	Thru 	Right 	Heavy Vehicles	Volume Growth
Eastbound	0	324	25	487	3.00%	0.00%
Westbound	0	3	29	10	3.00%	0.00%
Southbound	0	6	1189	177	1.00%	0.00%
Northbound	0	358	1660	7	1.00%	0.00%
Adjustment Factor	0.80	0.95		0.85		
Suggested	0.80	0.95		0.85		
Truck to PCE Factor				Suggested = 2.00		2.00
FDOT Context Zone		C3C-Suburban Commercial				
Critical Lane Volume Threshold		2-phase signal		Suggested = 1800		1800
		3-phase signal		Suggested = 1750		1750
		4-phase signal		Suggested = 1700		1700

Capacity Analysis for Planning of Junctions

Detailed Report - Page 2 of 4

Number of Lanes for Non-roundabout Intersections																	
TYPE OF INTERSECTION	Sheet	Northbound				Southbound				Eastbound				Westbound			
		U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Traffic Signal	FULL	/	2	2	1	/	1	2	1	/	2	1	1	/	1	1	0
Quadrant Roadway	S-W	/	0	0	0	/	/	0	0	/	0	0	0	/	0	0	0

Number of Lanes for Interchanges																	
TYPE OF INTERCHANGE	Sheet	Northbound				Southbound				Eastbound				Westbound			
		U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R

Capacity Analysis for Planning of Junctions

Detailed Report - Page 3 of 4

Results for Non-roundabout Intersections

TYPE OF INTERSECTION	Sheet	Zone 1 (North)		Zone 2 (South)		Zone 3 (East)		Zone 4 (West)		Zone 5 (Center)		Overall v/c Ratio	Pedestrian Accommodations	Bicycle Accommodations	Transit Accommodations
		CLV	V/C	CLV	V/C	CLV	V/C	CLV	V/C	CLV	V/C				
Traffic Signal	FULL									1248	0.73	0.73	Fair	Fair	Good
Quadrant Roadway	S-W			1018	0.58			986	0.56	872	0.48	0.58	Fair	Fair	Fair

Capacity Analysis for Planning of Junctions

Detailed Report - Page 4 of 4

Results for Roundabouts

TYPE OF ROUNDABOUT	Zone 1 (North)			Zone 3 (East)			Zone 2 (South)			Zone 4 (West)			Overall v/c Ratio	Pedestrian Accommodations	Bicycle Accommodations	Transit Accommodations
	Lane 1	Lane 2	Lane 3	Lane 1	Lane 2	Lane 3	Lane 1	Lane 2	Lane 3	Lane 1	Lane 2	Lane 3				
<u>2 X 2</u>	<u>0.73</u>	0.76		<u>0.14</u>	<u>0.13</u>		1.05	1.10		0.85	1.04		1.10	Fair	Good	Good





Results for Interchanges

TYPE OF INTERCHANGE	Sheet	Zone 1 (Rt Mrg)		Zone 2 (Lt Mrg)		Zone 3 (Ctr. 1)		Zone 4 (Ctr. 2)		Zone 5 (Lt Mrg)		Zone 6 (Rt Mrg)		Overall v/c Ratio	Pedestrian Accommodations	Bicycle Accommodations	Transit Accommodations
		CLV	V/C	CLV	V/C	CLV	V/C	CLV	V/C	CLV	V/C	CLV	V/C				

Capacity Analysis for Planning of Junctions

Detailed Report - Page 1 of 4

Project Name:	Orange Ave at Gatlin Ave
Project Number:	NA
Location:	Orange County, FL
Date:	2040 PM
Number of Intersection Legs:	3
Major Street Direction:	North-South

Traffic Volume Demand						
	Volume (Veh/hr)				Percent (%)	
	U-Turn 	Left 	Thru 	Right 	Heavy Vehicles	Volume Growth
Eastbound	0	0	0	0	1.00%	0.00%
Westbound	0	616	0	240	1.00%	0.00%
Southbound	0	200	1474	0	3.00%	0.00%
Northbound	0	0	1785	251	3.00%	0.00%
Adjustment Factor	0.80	0.95		0.85		
Suggested	0.80	0.95		0.85		
Truck to PCE Factor				Suggested = 2.00		2.00
FDOT Context Zone		C3C-Suburban Commercial				
Critical Lane Volume Threshold		2-phase signal		Suggested = 1800		1800
		3-phase signal		Suggested = 1750		1750
		4-phase signal		Suggested = 1700		1700

Capacity Analysis for Planning of Junctions

Detailed Report - Page 2 of 4

Number of Lanes for Non-roundabout Intersections																	
TYPE OF INTERSECTION	Sheet	Northbound				Southbound				Eastbound				Westbound			
		U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Traffic Signal	<u>FULL</u>	/	0	2	1	/	1	2	0	/	0	0	0	/	2	1	0
Quadrant Roadway	<u>S-E</u>	/	0	0	0	/	0	0	0	/	/	0	0	/	0	0	0

Number of Lanes for Interchanges																	
TYPE OF INTERCHANGE	Sheet	Northbound				Southbound				Eastbound				Westbound			
		U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R

Capacity Analysis for Planning of Junctions

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Results for Non-roundabout Intersections															
TYPE OF INTERSECTION	Sheet	Zone 1 (North)		Zone 2 (South)		Zone 3 (East)		Zone 4 (West)		Zone 5 (Center)		Overall v/c Ratio	Pedestrian Accommodations	Bicycle Accommodations	Transit Accommodations
		CLV	V/C	CLV	V/C	CLV	V/C	CLV	V/C	CLV	V/C				
Traffic Signal	FULL									1475	0.84	0.84	Fair	Fair	Good
Quadrant Roadway	S-E			1355	0.77	327	0.19			1204	0.67	0.77	Fair	Fair	Fair

Capacity Analysis for Planning of Junctions

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Results for Roundabouts

TYPE OF ROUNDABOUT	Zone 1 (North)			Zone 3 (East)			Zone 2 (South)			Zone 4 (West)			Overall v/c Ratio	Pedestrian Accommodations	Bicycle Accommodations	Transit Accommodations
	Lane 1	Lane 2	Lane 3	Lane 1	Lane 2	Lane 3	Lane 1	Lane 2	Lane 3	Lane 1	Lane 2	Lane 3				
<u>2 X 2</u>	<u>1.10</u>	<u>1.13</u>		<u>2.58</u>	<u>0.84</u>		<u>0.91</u>	<u>0.96</u>		<u>0.00</u>	<u>0.00</u>		2.58	Fair	Good	Good





Results for Interchanges

TYPE OF INTERCHANGE	Sheet	Zone 1 (Rt Mrg)		Zone 2 (Lt Mrg)		Zone 3 (Ctr. 1)		Zone 4 (Ctr. 2)		Zone 5 (Lt Mrg)		Zone 6 (Rt Mrg)		Overall v/c Ratio	Pedestrian Accommodations	Bicycle Accommodations	Transit Accommodations
		CLV	V/C	CLV	V/C	CLV	V/C	CLV	V/C	CLV	V/C	CLV	V/C				

Capacity Analysis for Planning of Junctions

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Project Name:	Orange Ave at Holden Ave
Project Number:	NA
Location:	Orange County, FL
Date:	2040 PM
Number of Intersection Legs:	4
Major Street Direction:	North-South

Traffic Volume Demand						
	Volume (Veh/hr)				Percent (%)	
	U-Turn 	Left 	Thru 	Right 	Heavy Vehicles	Volume Growth
Eastbound	0	224	57	464	3.00%	0.00%
Westbound	0	11	58	21	3.00%	0.00%
Southbound	0	25	1504	262	1.00%	0.00%
Northbound	0	383	1371	26	1.00%	0.00%
Adjustment Factor	0.80	0.95		0.85		
Suggested	0.80	0.95		0.85		
Truck to PCE Factor				Suggested = 2.00		2.00
FDOT Context Zone		C3C-Suburban Commercial				
Critical Lane Volume Threshold		2-phase signal		Suggested = 1800		1800
		3-phase signal		Suggested = 1750		1750
		4-phase signal		Suggested = 1700		1700

Capacity Analysis for Planning of Junctions

Detailed Report - Page 2 of 4

Number of Lanes for Non-roundabout Intersections																	
TYPE OF INTERSECTION	Sheet	Northbound				Southbound				Eastbound				Westbound			
		U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Traffic Signal	FULL	/	2	2	1	/	1	2	1	/	2	1	1	/	1	1	0
Quadrant Roadway	S-W	/	0	0	0	/	/	0	0	/	0	0	0	/	0	0	0

Number of Lanes for Interchanges																	
TYPE OF INTERCHANGE	Sheet	Northbound				Southbound				Eastbound				Westbound			
		U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R

Capacity Analysis for Planning of Junctions

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Results for Non-roundabout Intersections

TYPE OF INTERSECTION	Sheet	Zone 1 (North)		Zone 2 (South)		Zone 3 (East)		Zone 4 (West)		Zone 5 (Center)		Overall v/c Ratio	Pedestrian Accommodations	Bicycle Accommodations	Transit Accommodations
		CLV	V/C	CLV	V/C	CLV	V/C	CLV	V/C	CLV	V/C				
Traffic Signal	FULL									1344	0.79	0.79	Fair	Fair	Good
Quadrant Roadway	S-W			1085	0.62			846	0.48	856	0.48	0.62	Fair	Fair	Fair

Capacity Analysis for Planning of Junctions

Detailed Report - Page 4 of 4

Results for Roundabouts

TYPE OF ROUNDABOUT	Zone 1 (North)			Zone 3 (East)			Zone 2 (South)			Zone 4 (West)			Overall v/c Ratio	Pedestrian Accommodations	Bicycle Accommodations	Transit Accommodations
	Lane 1	Lane 2	Lane 3	Lane 1	Lane 2	Lane 3	Lane 1	Lane 2	Lane 3	Lane 1	Lane 2	Lane 3				
<u>2 X 2</u>	<u>1.01</u>	<u>1.05</u>		<u>0.22</u>	<u>0.20</u>		<u>0.88</u>	<u>0.92</u>		<u>0.95</u>	<u>1.33</u>		1.33	Fair	Good	Good





Results for Interchanges

TYPE OF INTERCHANGE	Sheet	Zone 1 (Rt Mrg)		Zone 2 (Lt Mrg)		Zone 3 (Ctr. 1)		Zone 4 (Ctr. 2)		Zone 5 (Lt Mrg)		Zone 6 (Rt Mrg)		Overall v/c Ratio	Pedestrian Accommodations	Bicycle Accommodations	Transit Accommodations
		CLV	V/C	CLV	V/C	CLV	V/C	CLV	V/C	CLV	V/C	CLV	V/C				

Capacity Analysis for Planning of Junctions

Detailed Report - Page 1 of 4

Project Name:	Orange Ave at Gatlin Ave
Project Number:	NA
Location:	Orange County, FL
Date:	2040 PM
Number of Intersection Legs:	3
Major Street Direction:	North-South

Traffic Volume Demand						
	Volume (Veh/hr)				Percent (%)	
	U-Turn 	Left 	Thru 	Right 	Heavy Vehicles	Volume Growth
Eastbound	0	0	0	0	1.00%	0.00%
Westbound	0	404	0	206	1.00%	0.00%
Southbound	0	234	1740	0	3.00%	0.00%
Northbound	0	0	1574	567	3.00%	0.00%
Adjustment Factor	0.80	0.95		0.85		
Suggested	0.80	0.95		0.85		
Truck to PCE Factor				Suggested = 2.00		2.00
FDOT Context Zone		C3C-Suburban Commercial				
Critical Lane Volume Threshold		2-phase signal		Suggested = 1800		1800
		3-phase signal		Suggested = 1750		1750
		4-phase signal		Suggested = 1700		1700

Capacity Analysis for Planning of Junctions

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Number of Lanes for Non-roundabout Intersections																	
TYPE OF INTERSECTION	Sheet	Northbound				Southbound				Eastbound				Westbound			
		U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Traffic Signal	FULL	/	0	2	1	/	1	2	0	/	0	0	0	/	2	1	0
Quadrant Roadway	S-E	/	0	0	0	/	0	0	0	/	/	0	0	/	0	0	0

Number of Lanes for Interchanges																	
TYPE OF INTERCHANGE	Sheet	Northbound				Southbound				Eastbound				Westbound			
		U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R

Capacity Analysis for Planning of Junctions

Detailed Report - Page 3 of 4

Results for Non-roundabout Intersections

TYPE OF INTERSECTION	Sheet	Zone 1 (North)		Zone 2 (South)		Zone 3 (East)		Zone 4 (West)		Zone 5 (Center)		Overall v/c Ratio	Pedestrian Accommodations	Bicycle Accommodations	Transit Accommodations
		CLV	V/C	CLV	V/C	CLV	V/C	CLV	V/C	CLV	V/C				
Traffic Signal	FULL									1292	<u>0.74</u>	0.74	Fair	Fair	Good
Quadrant Roadway	S-E			1207	<u>0.69</u>	486	<u>0.28</u>			1261	<u>0.70</u>	0.70	Fair	Fair	Fair

Capacity Analysis for Planning of Junctions

Detailed Report - Page 4 of 4

Results for Roundabouts

TYPE OF ROUNDABOUT	Zone 1 (North)			Zone 3 (East)			Zone 2 (South)			Zone 4 (West)			Overall v/c Ratio	Pedestrian Accommodations	Bicycle Accommodations	Transit Accommodations
	Lane 1	Lane 2	Lane 3	Lane 1	Lane 2	Lane 3	Lane 1	Lane 2	Lane 3	Lane 1	Lane 2	Lane 3				
<u>2 X 2</u>	1.06	1.11		1.38	0.60		0.99	1.04		0.00	0.00		1.38	Fair	Good	Good

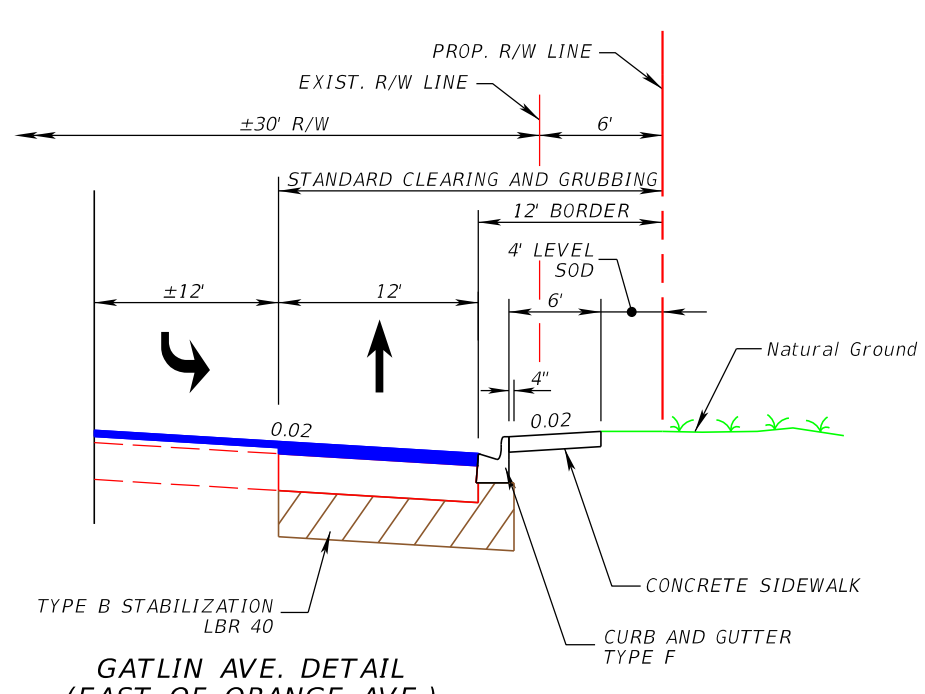
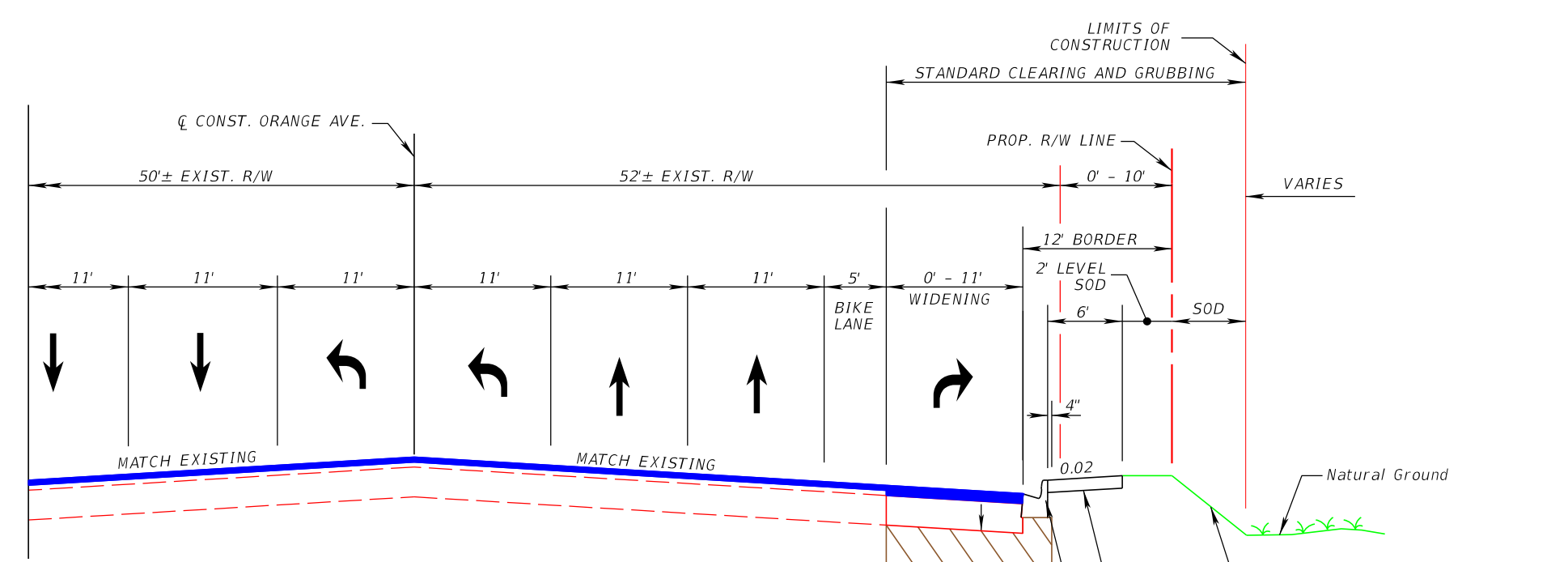
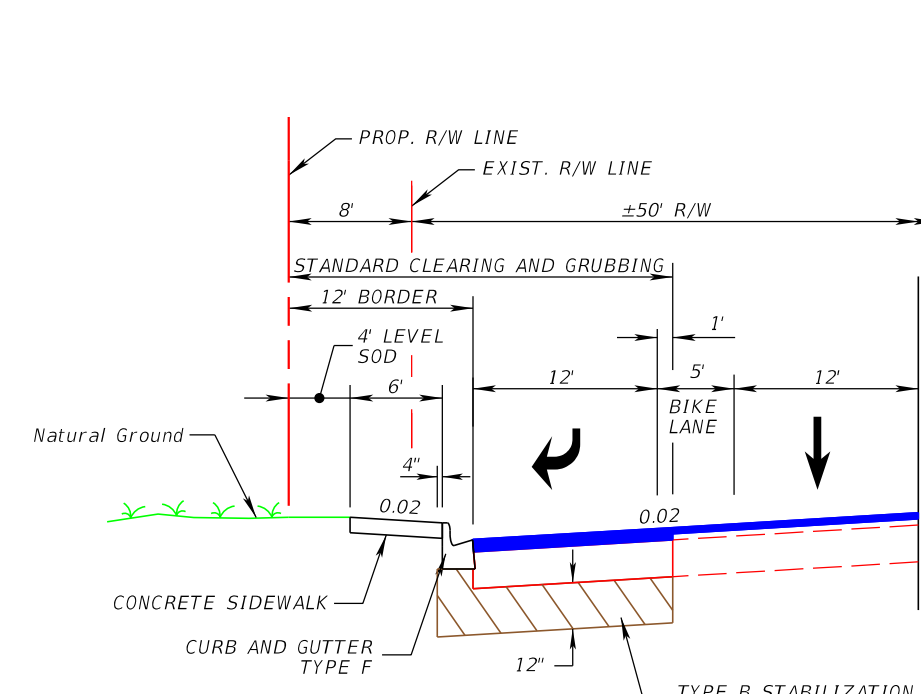
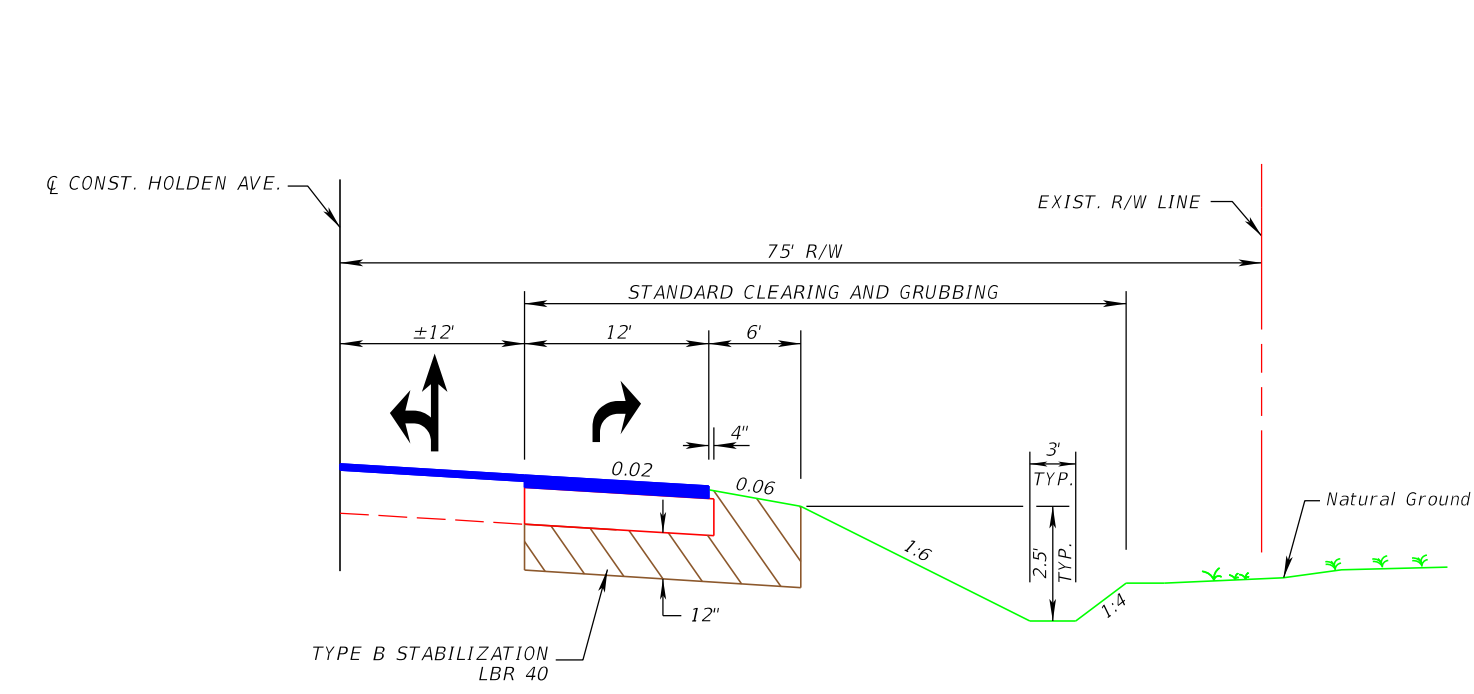
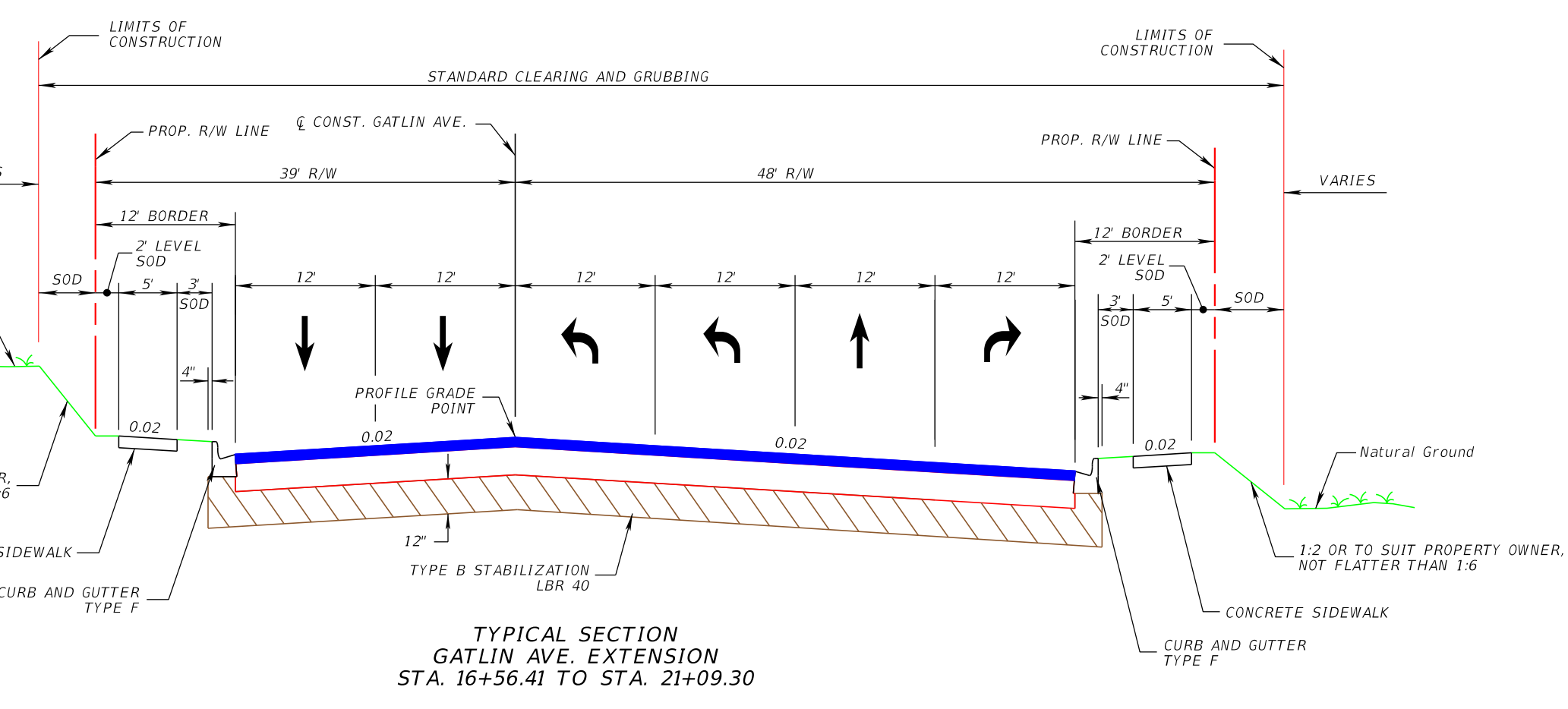
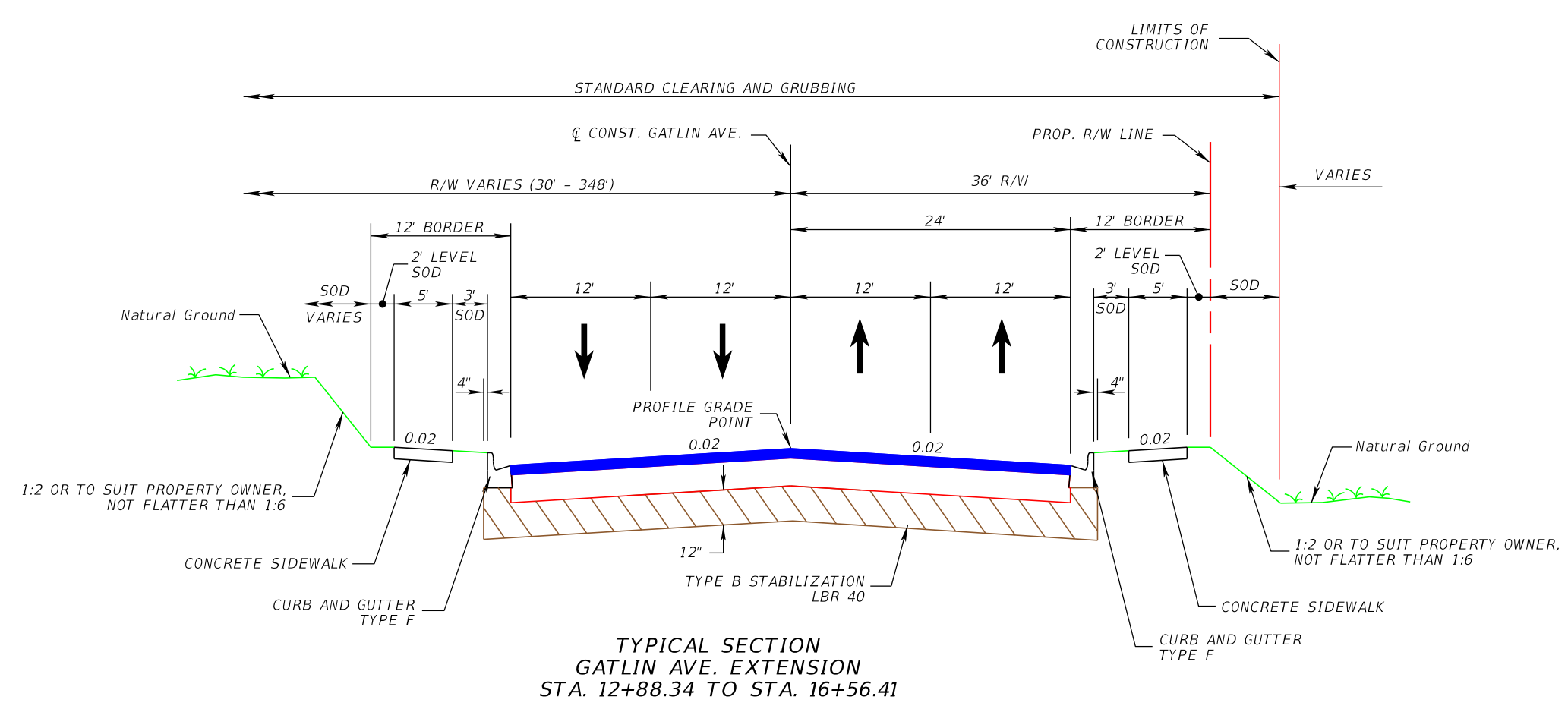
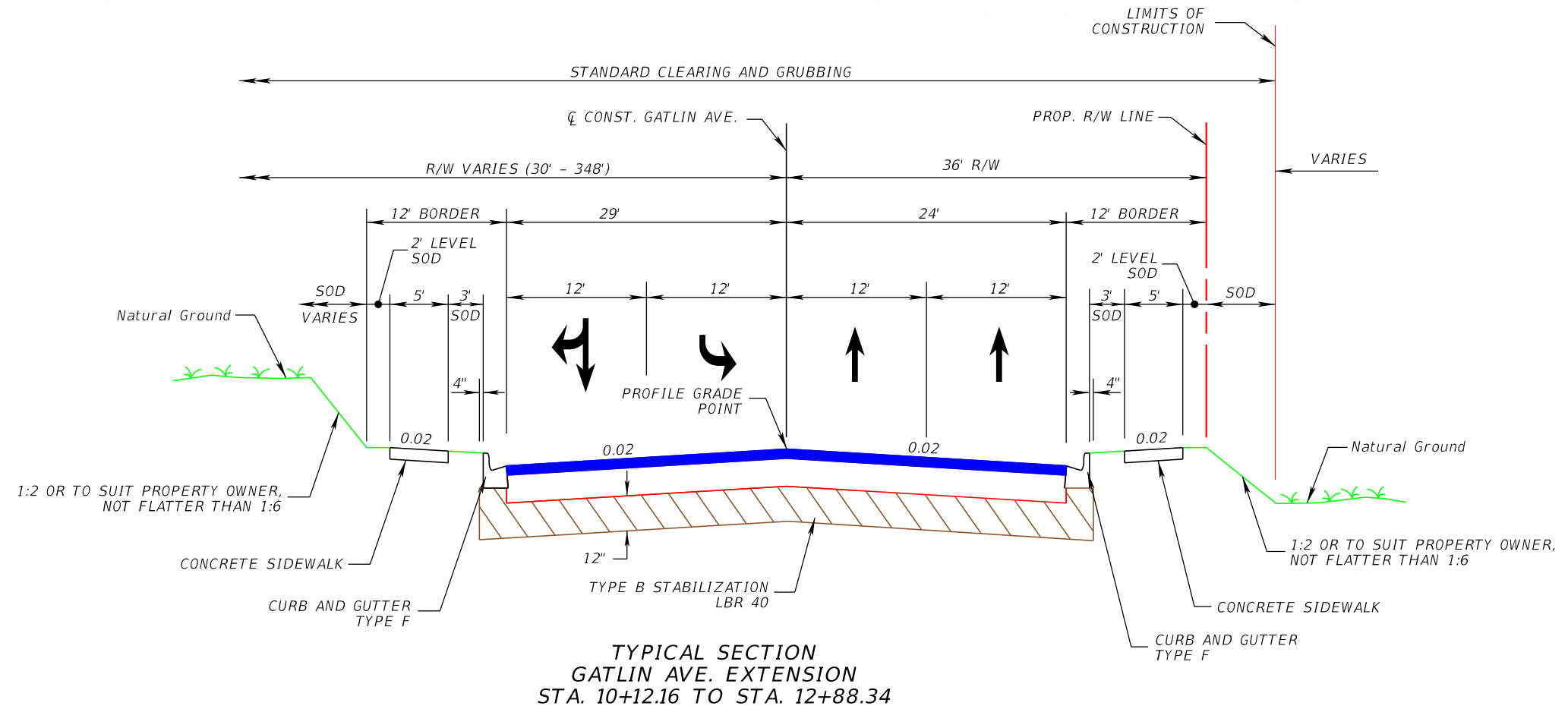
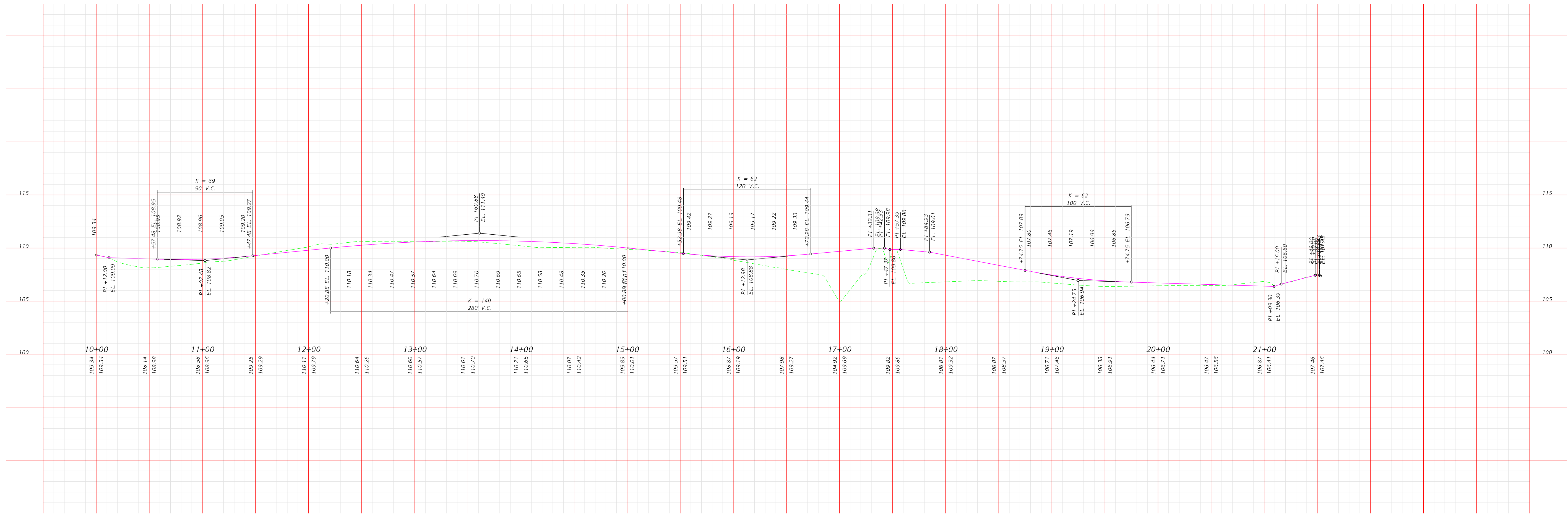
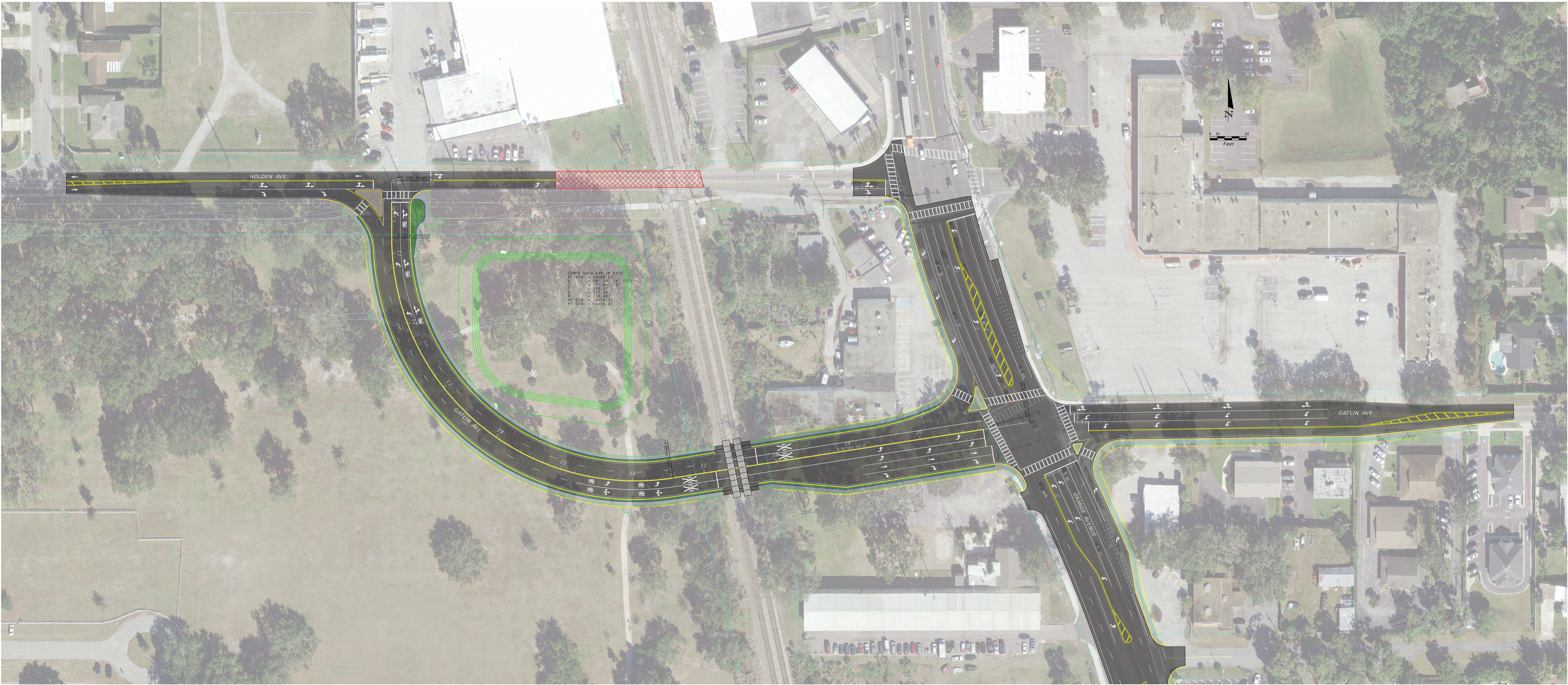
Results for Interchanges

TYPE OF INTERCHANGE	Sheet	Zone 1 (Rt Mrg)		Zone 2 (Lt Mrg)		Zone 3 (Ctr. 1)		Zone 4 (Ctr. 2)		Zone 5 (Lt Mrg)		Zone 6 (Rt Mrg)		Overall v/c Ratio	Pedestrian Accommodations	Bicycle Accommodations	Transit Accommodations
		CLV	V/C	CLV	V/C	CLV	V/C	CLV	V/C	CLV	V/C	CLV	V/C				

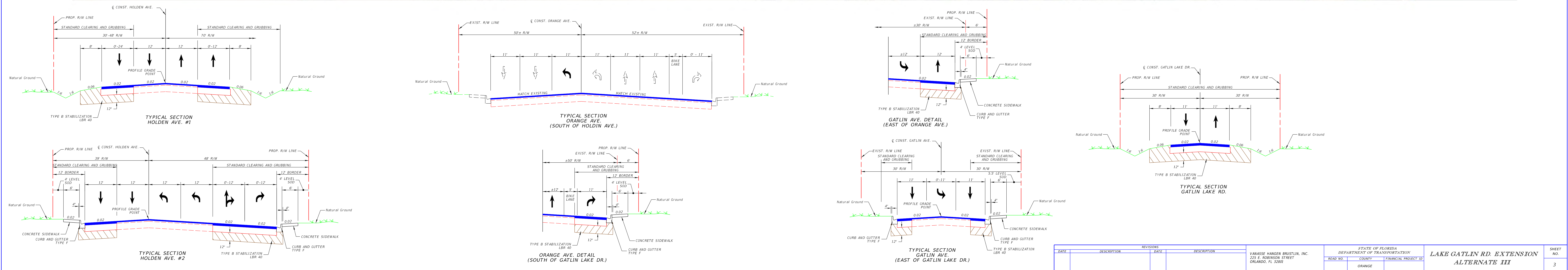
Federal Highway Administration (FHWA)								
Safety Performance for Intersection Control Evaluation Tool								
Results								
Summary of crash prediction results for each alternative								
Project Information								
Project Name:	Orange Ave at Holden Ave & Gatlin Ave Intersection Study			Intersection Type		At-Grade Intersections		
Intersection:	Orange Ave at Holden Ave			Opening Year		2025		
Agency:	VHB			Design Year		2040		
Project Reference:				Facility Type		On Urban and Suburban Arterial		
City:	Orlando			Number of Legs		4-leg		
State:	FL			1-Way/2-Way		2-way Intersecting 2-way		
Date:	8/10/2021			# of Major Street Lanes (both directions)		5 or fewer		
Analyst:	VHB			Major Street Approach Speed		Less than 55 mph		
Crash Prediction Summary								
Control Strategy		Crash Type	Opening Year	Design Year	Total Project Life Cycle	Rank	AADT Within Prediction Range?	Source of Prediction
Traffic Signal (Alt)		Total	16.08	20.61	293.29	2	Yes	Calibrated SPF
		Fatal & Injury	5.93	7.65	108.52			
2-lane Roundabout		Total	23.57	30.07	428.80	1	No	Uncalibrated SPF
		Fatal & Injury	4.78	6.25	88.13			

Intersection Analysis Study for Orange Avenue/Gatlin Avenue & Orange Avenue/Holden Avenue

Appendix G: Design Concepts – Long-term Alternatives



REVISIONS		DESCRIPTION		STATE OF FLORIDA		GATLIN AVE. EXTENSION		SHEET NO.
DATE	DESCRIPTION	DATE	DESCRIPTION	NAME	COUNT	FINANCIAL PROJECT ID	ALTERNATE 1	
08/08/20				VANESSA HANSEN BRUTLIN, INC. 221 E. ROBINSON STREET ORLANDO, FL 32801	ORANGE			1



Intersection Analysis Study for Orange Avenue/Gatlin Avenue & Orange Avenue/Holden Avenue

Appendix H: Stormwater Computations

Stormwater Computations

Project: Gatlin Ave Exetnsion By: CF Date: 7/20/2021
Location: Orange County Checked: HM Date: 7/20/2021

Water Quality

Pond Type: On-Line Dry Retention
Greater 1.0 inches of runoff (Option 1) or 1.25 inches of runoff from the
SJRWMD Requirement: impervious
area + 0.5 inches of runoff (Option 2)

Design Criteria 1:	0.35	acre-ft	Governs
Design Criteria 2:	0.29	acre-ft	

Required Water Quality Volume =	0.35	acre-ft
--	-------------	----------------

Runoff Volume

RV = Q* Basin Area

$$Q = \frac{(P - 0.2S)^2}{(P + 0.8S)}$$

$$S = \frac{1000}{CN} - 10$$

P = 8.6 inches (25-year 24-hour storm)

S = 5.10

Q = 4.53 inches

RV =	1.60	acre-ft
-------------	-------------	----------------

WORKSHEET 2: Runoff curve number and runoff

Project:
Location:

Gatlin Ave Exetnsion
Orange County

By:
Checked:

CF
HM

Date:

7/20/2021
7/20/2021

Circle One:

Present
Permitted

Developed

Basin 1

1. Runoff curve number (CN)

Soil name and hydrologic group (appendix A)	Cover description (cover type, treatment, and hydrologic condition, percent impervious area ratio)	CN			<div><div><div></div><div></div><div></div></div><div>Area</div><div>acres mi² %</div></div>	
		Table 2-2	Fig 2-3	Fig 2-4		
Type A	Proposed Impervious Area - Roadway and Sidewalk	98			1.10	107.47
Type A	Dry Retention Pond Bottom	100			0.83	82.66
Type A	Open Space (Good)	39			2.31	89.96
Use only one CN source per line.					Totals = 4.23	280.09

CN (weighted) = total product/total area =

280.09

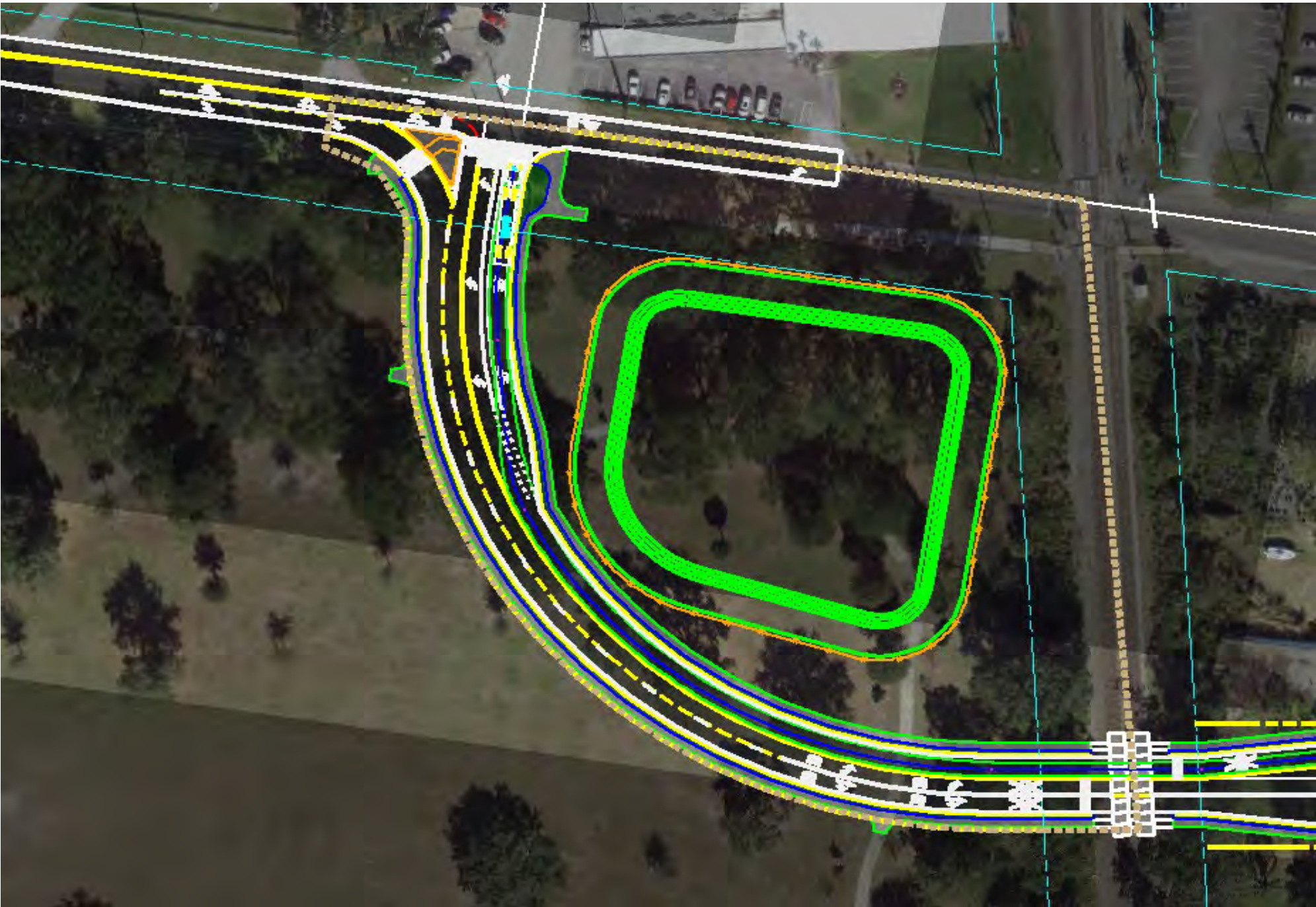
4.23

=

66.22

Use CN =

66



Project: Gatlin Blvd.
Location: Orange County

By: CF
Checked: HM

Date: 7/20/2021
Date: 7/20/2021

Circle One: Present

Developed

Pond

STAGE-STORAGE (NGVD Datum)

	Stage	Area		Incremental Storage	Cumulative Storage
	ft	ft ²	ac	ac-ft	ac-ft
Bottom	106.0	36007	0.83	0.00	0.00
	107.0	38186	0.88	0.85	0.85
	108.0	40422	0.93	0.90	1.75
Top of Bank	109.0	42714	0.98	0.95	2.71

Water Quality Volume Required = 0.35 ac- ft @ 106.41 ft

Runoff Volume Required = 1.60 ac- ft @ 107.83 ft (Weir Elevation)

Note: Per Orange County criteria, the pond is assumed to have a fence.
Therefore, the pond will have a 20' maintenance berm and have 1:3
side slopes.

Intersection Analysis Study for Orange Avenue/Gatlin Avenue & Orange Avenue/Holden Avenue

Appendix I: Railroad and Project Coordination Memorandum

Railroad & Project Coordination

1.1 Project Description

The intent of this study is to identify improvements to help mitigate the existing congestion and associated delay at the offset intersections of Orange Avenue/Gatlin Avenue and Orange Avenue/Holden Avenue. The existing traffic-related issues are due to the existing offset intersection configuration. As a result, there are heavy vehicle turning movements from/to Orange Avenue to/from the side streets, with limited existing left turn storage lengths.

As part of this study, the following tasks are conducted: traffic analysis of existing year conditions, develop future year traffic forecasts, conduct future traffic analysis including the realignment of Holden Avenue/Gatlin Avenue to form a 4-legged intersection, and provide preliminary design, drainage, and survey analyses, and conduct railroad/project coordination for the realignment option.

This memo summarizes the railroad and project coordination efforts.

1.2 Railroad Coordination

On Friday, September 11, 2020, Orange County Transportation Planning Division hosted a Webex meeting with FDOT (District 5 and Central Office Railroad coordinators), Central Florida Rail Corridor (CFRC), SunRail and the City of Edgewood to coordinate activities regarding the proposed Gatlin Avenue and Holden Avenue Realignment at Orange Avenue. The Meeting notes are included in the attached appendix.

The primary intent of the meeting was to make everyone aware of the study, and to determine the feasibility of adding a new railroad crossing south of the existing Holden Avenue railroad crossing (crossing #622311). Based on the ensuing discussion, it was determined that a new opening would require submittal of a railroad opening application to FDOT Central Office. Additionally, per Florida Administrative Code (FAC) rule 14-57.012, in order to open a new railroad crossing, at least one existing railroad crossing will need to be closed, requiring the need for submittal of an accompanying railroad closing application.

The City of Edgewood noted that in previous years when the Kelsey Road railroad crossing was closed, it was never replaced by a new crossing, and that a replacement crossing was essentially “banked” for a future date. It was later determined that the Department does not “bank” railroad crossings, and that it could not be used for the Gatlin Avenue realigned roadway.

1.3 Project Coordination

Throughout the study, three technical meetings were held between Orange County and the consulting project team regarding the proposed realignment and related intersection improvements on August 27, 2020, October 6, 2020 and February 4, 2021. Following is a summary of each meeting.

1.3.1. Project Coordination Meeting #1

Project coordination meeting #1 was held on August 27, 2020. This initial meeting included a discussion of the project tasks and immediate needs. This included discussion of the following:

- Coordination with FDOT Central Office's Rail Coordinator Greg Breaston regarding railroad crossing opening and closing requirements.
 - Determine the spacing requirements for two railroad crossings.
 - The geometric configuration of the Orange Avenue and Holden Avenue intersection should include a shared northbound left-turn lane and exclusive northbound right-turn lane in the analyses.
 - Consider the truck traffic from the Boise Cascade trucking company in the analyses.
-

1.3.2. Project Coordination Meeting #2

Project coordination meeting #2 was held on October 6, 2020. This meeting included the following discussion topics:

- Rail Opening and Closing Applications – the applications require a traffic operations and safety analysis, with traffic issues evaluated for the railroad crossing, train traffic movements, and railroad preemption, as well as numerous other data and analysis related to train operations, crossing costs, installation and maintenance, and emergency vehicle impacts.
 - Many of the above items are not currently part of the current scope of services.
 - Alternatives for analyses – in addition to the two realignment alternatives (one and two railroad crossing alternatives), a third alternative without realigning Holden/Gatlin Avenues was requested for inclusion in the study analysis. The third alternative includes geometric improvements along Orange Avenue and the extension of Lake Gatlin Road.
-

1.3.3. Project Coordination Meeting #3

Project coordination meeting #3 was held on February 4, 2021. This meeting included a summary overview of the analyses for the three alternatives.

- Alternative 3 discussion
 - This alternative produced the best results in terms of delay and would not require additional pavement along Orange Avenue between Lake Gatlin Road and Holden Avenue.

- This option will require two receiving lanes on Holden Avenue. The two lanes would transition down to one lane near the railroad crossing...preferably after the crossing.
- The Orange Avenue and Gatlin Avenue intersection would need to be modified to address vehicle storage for the northbound left-turn movement at Orange Avenue and Gatlin Avenue.
- Access to Le Coq Au Vin would be rerouted thru Lake Gatlin Road to Gatlin Avenue to Orange Avenue.
- VHB will run the long-term analyses in SimTraffic to compare to SYNCHRO results.
- Alternative 2 discussion
 - This alternative includes keeping the existing rail crossing and adding a new crossing, which require closing an existing railroad crossing.
 - The proposed alignment of Gatlin Avenue (or Holden Ave Realignment) would tie into Holden Avenue via a T-intersection at the Boise Cascade access, providing direct access to the truck traffic.
 - The realignment is proposed at a 35-mph design speed, consistent with the speed limit on Holden Avenue.
 - This alignment would not require additional right-of-way along Orange Ave but will require improvements on the side streets.
- Alternative 1 discussion
 - This alternative requires additional right-of-way along Orange Avenue in addition to the improvements on the side streets.

The project coordination meeting summaries are included in the attached appendix.

APPENDIX

Date: September 11, 2020

**Summary
Prepared By:** Rohan Sadhai

Meeting Type: WebEx Meeting

VHB Project No.: 62876.17

Project Name: Orange County Gatlin Avenue/
Holden Avenue Realignment

Attendees:

Orange County

- Renzo Nastasi
- Hatem Abou-Senna (Orange County PM)

City of Edgewood

- John Dowless
- Bea Meeks
- Ellen Hardgrove

FDOT/CFRC/SunRail

- Rob Stapleton (FDOT Central Office)

- Jim Ganey (FDOT District 5)
- Rob McDaniel (CFRC)
- George Gault (SunRail/AECOM)

Consultant Team

- Babuji Ambikapathy (VHB Project Manager)
 - Raj Pemmanaboina (VHB)
 - Srinivas Kandala (VHB)
 - Keith Stimpson (VHB)
 - Rohan Sadhai (Asha Planning)
-

On Friday, September 11, 2020, Orange County Transportation Planning Division hosted a Webex meeting with FDOT, Central Florida Rail Corridor (CFRC), SunRail and the City of Edgewood to coordinate activities regarding the proposed Gatlin Avenue and Holden Avenue Realignment at Orange Avenue. Following is a summary of the meeting.

The project team began the meeting with a brief overview of the study area and project background. The overview included proposed hi-level realignment alternatives, discussion of roadway design speeds, impacts to local establishments (i.e. Boise Cascade trucking and Le Coq Au Vin restaurant), and potential short-long term alternatives. The proposed realigned Holden Avenue would require a new railroad crossing at the SunRail corridor, approximately 350-feet south of the existing Holden Avenue railroad crossing (crossing #622311).

The following items were discussed:

- The initial questions from the project team included the following:
 - FAC rule 14-57.012 states that in order to open a new railroad crossing, at least one railroad crossing will need to be closed. Would it be ok to keep the Holden Avenue crossing open and close another railroad crossing approximately 1.6 miles to the south at Fairlane Avenue south of Oak Ridge Road?
 - Can two railroad crossings exist within 350-feet of each other (including the existing Holden Avenue crossing and the proposed Gatlin Avenue crossing)?

- When discussing the option of keeping both the Holden Avenue and new Gatlin Avenue railroad crossings, Jim Ganey noted that location generally does not matter along the SunRail corridor as long as it is at a minimum a one to one opening and closing trade-off – for every one railroad crossing opening, there needs to be at least one closing.
- Rob Stapleton later mentioned that the FRA prefers crossings at least 1,000-feet apart unless there is a one to one swap. He suggested that the applications be filed, and provide justification for the need of the closely spaced crossing.
- John Dowless mentioned that when the Kelsey Road railroad crossing was closed, it was never replaced by a new crossing. A new replacement crossing was essentially banked for a future date.
- Jim Ganey said he would look into the records to see the status of the crossing and if that new crossing could be used for the Holden Avenue realigned roadway.
- If the new crossing was never used, it would eliminate the need for any additional closings.
- Regarding proposed development at the southwest corner of the Orange Avenue and Gatlin Avenue intersection, Ellen mentioned that it is only in the discussion stages. Nothing has been formally submitted by the developer.
 - Because this development would be approved based on the City of Edgewood's land use requirements, Renzo requested that the proposed development be removed from future presentations.
 - From the County's perspective, Orange County's primary concern is the roadway realignment.
- Renzo concluded the meeting by suggesting that the City should start coordinating with FDOT and MetroPlan to set the stage for future funding for this project. The earlier the project makes it into the MetroPlan's project priority list and FDOT Work Program, the higher the chances for moving the project towards construction.

Action Items

- Jim Ganey will research the Kelsey Road railroad crossing closure, and the status of the related "banked" opening.
- The VHB Team will continue refining the proposed alternatives.
- The VHB Team will fill the application for the new opening.
- VHB to send a copy of the presentation to the meeting attendees. - **A copy of the power point was submitted on 9/11/2020. This action item is considered complete.**

Date: October 6, 2020

Summary Rohan Sadhai and Raj
Prepared By: Pemmanaboina

Via Skype: WebEx Meeting

VHB Project No.: 62876.17

Project Name: Orange County Gatlin Avenue/
Holden Avenue Realignment

Attendees:

Orange County

- Hatem Abou-Senna (Orange County PM)
- Ahmed Elalfy

Consultant Team

- Babuji Ambikapathy (VHB Project Manager)

- Raj Pemmanaboina (VHB)
 - Srinivas Kandala (VHB)
 - Keith Stimpson (VHB)
 - Rohan Sadhai (Asha Planning)
-

On Tuesday, October 6, 2020, Orange County Transportation Planning Division and VHB held a Webex meeting to discuss proposed Gatlin Avenue and Holden Avenue Realignment alternatives, as well as the rail opening and closing applications. Following is a summary of key discussion points from the meeting.

- Rail Opening Application
 - The application requires a traffic operations and safety analysis, with traffic issues evaluated for the railroad crossing, train traffic movements, and railroad preemption, as well as numerous other data and analysis related to train operations, crossing costs, installation and maintenance, and emergency vehicle impacts.
 - Many of the above items are not currently part of the current scope of services.
 - It was recommended that the team revisit the applications after the evaluation of alternatives is complete. The items in the applications will be completed to the extent practicable, following the current scope of services.
 - Hatem/Orange County asked to include “City of Edgewood” as Applicant in the Rail Crossing application.
- Alternatives
 - VHB presented a new median U-turn alternative that will modify the existing southbound left-turn at Orange Avenue and Gatlin Ave intersection to occur as a u-turn at the Lake Gatlin Road intersection.
 - After some discussion, it was determined that the Team would analyze the following three primary alternatives. Median U-turn alternative will not be evaluated.

- Two Holden Avenue realignment alternatives as follows:
 - Two railroad crossings (Holden Avenue and Gatlin Avenue)
 - One new railroad crossing (close Holden Avenue and open Gatlin Avenue)
 - Both alternatives include variations along Holden Avenue and how Boise Cascade would access Holden Avenue
 - Design & Survey tasks will be conducted for one Holden Avenue realignment alternative
- Lake Gatlin Road Alternative
 - Modify the existing southbound left-turn at Orange Avenue and Gatlin Ave intersection to occur using the Lake Gatlin Road extension

Action Items

- VHB to refine alternatives and analyses within the next four weeks and will provide the results for discussion with the County/City.
- Orange County will provide the short-term alternative configuration (already provided, but will be confirmed based on the meeting with FDOT to be held next week)

Date: February 4, 2021

**Summary
Prepared By:** VHB/Rohan Sadhai

Via Skype: WebEx Meeting

VHB Project No.: 62876.17

Project Name: Orange County Gatlin Avenue/
Holden Avenue Realignment

Attendees:

Orange County

- Hatem Abou-Senna (Orange County PM)
- Ahmed Elalfy

Consultant Team

- Babuji Ambikapathy (VHB Project Manager)
 - Raj Pemmanaboina (VHB)
 - Srinivas Kandala (VHB)
 - Rohan Sadhai (Asha Planning)
-

On Thursday, February 4, 2021, Orange County Transportation Planning Division and VHB held a WebEx meeting to discuss the proposed Gatlin Avenue and Holden Avenue Realignment alternatives. Following is a summary of key discussion points from the meeting.

- VHB presented results of analyses for the no-build and three build alternatives.
- The recommended FDOT signal timings were used for the short-term (2025) and long-term No Build (2040) analyses.
 - Hatem mentioned that the FDOT signal timings should include an EB-Left protected phase, per discussions with FDOT. VHB has already taken this into account in the analysis.
- There was discussion of the failure year for the short-term improvements (changing the existing left and shared-through right to shared left-through and right only lanes on the eastbound approach along Holden Ave).
 - VHB interpolated the delay values between the year 2025 and the year 2040 at the study intersections. This analysis showed the study intersections reach LOS (just more than 55 seconds per vehicle) by year 2033.
 - VHB to run additional analysis with interpolated volumes instead of delay values to determine an accurate year for intersection failure (LOS E).
- VHB provided an overview of the three long term alternatives, which include the following:
 - Alternative 1 – Holden Avenue realignment with one railroad crossing
 - Alternative 2 – Holden Avenue realignment with two railroad crossings
 - Alternative 3 – Lake Gatlin Road extension

- Alternative 3 discussion
 - This alternative produced the best results in terms of delay.
 - Would not require additional pavement along Orange Avenue between Lake Gatlin Road and Holden Avenue.
 - All proposed improvements will fit inside the existing paved area, which includes two proposed NB-left turn lanes onto Holden Avenue.
 - This option will require two receiving lanes on Holden Avenue. The two lanes would transition down to one lane near the railroad crossing...preferably after the crossing.
 - The Orange Avenue and Gatlin Avenue intersection should be modified to show two NB through lanes, instead of having additional storage (for the NB left turn movement at Orange Ave and Gatlin Ave) via a 3rd NB through on Orange Ave south of Gatlin Ave.
 - Access to Le Coq Au Vin would be rerouted thru Lake Gatlin Road to Gatlin Avenue to Orange Avenue. A NB-left turn lane is not being proposed along Orange Avenue for Le Coq Au Vin.
 - Hatem requested that VHB run the long-term analyses in SimTraffic to compare to SYNCHRO results. VHB will run the test analyses.
- Alternative 2 discussion
 - This alternative includes keeping existing rail crossing and adding a new crossing.
 - Would require closing an existing railroad crossing.
 - The proposed alignment of Gatlin Avenue (or Holden Ave Realignment) would tie into Holden Avenue via a T-intersection at the Boise Cascade access, providing direct access to the truck traffic.
 - The realignment is proposed at a 35-mph design speed, consistent with the speed limit on Holden Avenue.
 - This alignment would not require additional right-of-way along Orange Ave but will require improvements on the sidestreets.
- Alternative 1 discussion
 - This alternative requires additional right-of-way along Orange Avenue in addition to the improvements on the sidestreets.
- It was noted that Orange County will not support Alternatives 1 and 2 with the realigned Holden Avenue passing through the existing park. Orange County will not pay for obtaining right-of-way through the park.
 - The option is available if the City of Edgewood or MetroPlan funds the park right-of-way.

- Miscellaneous discussion
 - The draft report has a tentative due date of February 19, 2021.
 - Renzo would like to present the study to the Orange County Administrator.
 - Additional presentations would include the City of Edgewood and FDOT.
- VHB's purchase order for this project expires March 1, 2021.
- In reference to the Rail Opening Application for Alternative 2, it was noted this alternative requires the closing of an existing railroad crossing, which also require an analysis to assess the impacts of the closing. Orange County noted that it would be the City of Edgewood's responsibility to submit the application. Orange County would provide this study to attach to the application.

Action Items

- VHB to modify the long-term analyses per today's discussion and complete the draft report for a submittal date of February 19, 2021.























Intersection Analysis Study for Orange Avenue/Gatlin Avenue & Orange Avenue/Holden Avenue

Appendix J: FDOT Signal Timings, Existing and Future Synchro Outputs

Existing Conditions













Lanes, Volumes, Timings
3: Orange Ave & Holden Ave/WF Plaza

Existing
Timing Plan: AM

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	235	18	353	2	21	7	275	1338	6	5	963	143
Future Volume (vph)	235	18	353	2	21	7	275	1338	6	5	963	143
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		100	0		0	210		110	100		180
Storage Lanes	1		1	1		0	1		1	1		1
Taper Length (ft)	75			75			55			0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	*0.80	0.95	1.00	1.00	0.95	1.00
Frt		0.857			0.961				0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1787	1598	0	1805	1826	0	1416	3471	1346	1805	3406	1553
Flt Permitted	0.301			0.606			0.141			0.166		
Satd. Flow (perm)	566	1598	0	1151	1826	0	210	3471	1346	315	3406	1553
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		292			8				136			186
Link Speed (mph)		35			25			40			40	
Link Distance (ft)		1253			242			408			1614	
Travel Time (s)		24.4			6.6			7.0			27.5	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles (%)	1%	0%	2%	0%	0%	0%	2%	4%	20%	0%	6%	4%
Adj. Flow (vph)	253	19	380	2	23	8	296	1439	6	5	1035	154
Shared Lane Traffic (%)												
Lane Group Flow (vph)	253	399	0	2	31	0	296	1439	6	5	1035	154
Turn Type	pm+pt	NA		Perm	NA		pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	3	8			4		1	6		5	2	
Permitted Phases	8			4			6		6	2		2
Detector Phase	3	8		4	4		1	6	6	5	2	2
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		5.0	15.0	15.0	5.0	15.0	15.0
Minimum Split (s)	14.0	38.0		18.0	18.0		12.0	26.9	26.9	11.9	36.0	36.0
Total Split (s)	26.0	44.0		18.0	18.0		34.0	88.0	88.0	18.0	72.0	72.0
Total Split (%)	17.3%	29.3%		12.0%	12.0%		22.7%	58.7%	58.7%	12.0%	48.0%	48.0%
Yellow Time (s)	4.1	4.1		3.4	3.4		4.4	4.4	4.4	4.4	4.4	4.4
All-Red Time (s)	3.3	3.3		3.3	3.3		2.5	2.5	2.5	2.5	2.5	2.5
Lost Time Adjust (s)	3.0	3.0		0.0	0.0		3.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	10.4	10.4		6.7	6.7		9.9	6.9	6.9	6.9	6.9	6.9
Lead/Lag	Lead			Lag	Lag		Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes			Yes	Yes		Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None		None	None		None	C-Max	C-Max	None	C-Max	C-Max
Act Effect Green (s)	27.6	27.6		7.7	7.7		102.1	102.5	102.5	77.1	71.4	71.4
Actuated g/C Ratio	0.18	0.18		0.05	0.05		0.68	0.68	0.68	0.51	0.48	0.48
v/c Ratio	1.10	0.75		0.03	0.31		0.89	0.61	0.01	0.02	0.64	0.18
Control Delay	140.1	24.3		67.0	61.6		55.5	2.1	0.0	11.4	33.4	2.0
Queue Delay	0.0	0.7		0.0	0.0		1.2	0.6	0.0	0.0	0.0	0.0
Total Delay	140.1	25.0		67.0	61.6		56.7	2.7	0.0	11.4	33.4	2.0
LOS	F	C		E	E		E	A	A	B	C	A
Approach Delay		69.7			61.9			11.9			29.2	
Approach LOS		E			E			B			C	
Queue Length 50th (ft)	~251	97		2	22		176	24	0	1	426	0

Lanes, Volumes, Timings
3: Orange Ave & Holden Ave/WF Plaza

Existing
Timing Plan: AM

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 95th (ft)	#368	220		11	57		m#362	34	m0	7	510	24
Internal Link Dist (ft)		1173			162			328			1534	
Turn Bay Length (ft)							210		110	100		180
Base Capacity (vph)	230	584		86	144		347	2372	962	283	1621	836
Starvation Cap Reductn	0	0		0	0		7	492	0	0	0	0
Spillback Cap Reductn	0	38		0	0		0	0	0	0	0	0
Storage Cap Reductn	0	0		0	0		0	0	0	0	0	0
Reduced v/c Ratio	1.10	0.73		0.02	0.22		0.87	0.77	0.01	0.02	0.64	0.18

Intersection Summary

Area Type: Other

Cycle Length: 150

Actuated Cycle Length: 150

Offset: 141 (94%), Referenced to phase 2:SBTL and 6:NBTL, Start of Green

Natural Cycle: 100

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.10

Intersection Signal Delay: 28.5

Intersection LOS: C

Intersection Capacity Utilization 87.3%

ICU Level of Service E

Analysis Period (min) 15

* User Entered Value

~ Volume exceeds capacity, queue is theoretically infinite.

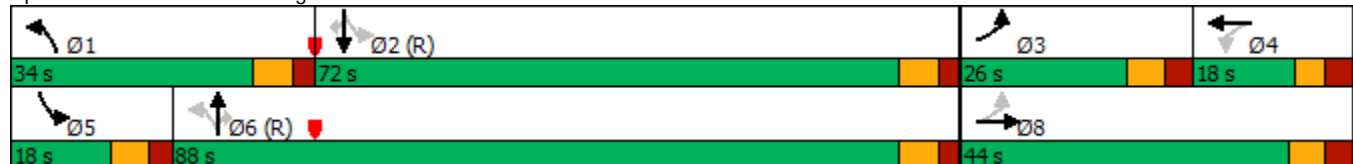
Queue shown is maximum after two cycles.

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

Queue shown is maximum after two cycles.










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

Splits and Phases: 3: Orange Ave & Holden Ave/WF Plaza















Lanes, Volumes, Timings
6: Orange Ave & Le Coq Au Vin/Gatlin Ave

Existing
Timing Plan: AM

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	446	0	174	5	1445	203	105	1208	5
Future Volume (vph)	0	0	0	446	0	174	5	1445	203	105	1208	5
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	300		0	100		0	0		0
Storage Lanes	0		0	1		0	1		1	1		0
Taper Length (ft)	75			75			50			100		
Lane Util. Factor	1.00	1.00	1.00	*0.80	0.95	1.00	1.00	0.95	1.00	1.00	0.95	0.95
Frt					0.913				0.850		0.999	
Flt Protected				0.950	0.980		0.950			0.950		
Satd. Flow (prot)	0	0	0	1416	1592	0	1805	3471	1583	1770	3435	0
Flt Permitted				0.950	0.980		0.097			0.077		
Satd. Flow (perm)	0	0	0	1416	1592	0	184	3471	1583	143	3435	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)					72				133			
Link Speed (mph)		25			25			40			40	
Link Distance (ft)		312			824			319			408	
Travel Time (s)		8.5			22.5			5.4			7.0	
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles (%)	2%	2%	2%	2%	0%	1%	0%	4%	2%	2%	5%	0%
Adj. Flow (vph)	0	0	0	465	0	181	5	1505	211	109	1258	5
Shared Lane Traffic (%)				28%								
Lane Group Flow (vph)	0	0	0	335	311	0	5	1505	211	109	1263	0
Turn Type				Split	NA		pm+pt	NA	Perm	pm+pt	NA	
Protected Phases				4	4		1	6		5	2	
Permitted Phases							6	6	6	2		
Detector Phase				4	4		1	6	6	5	2	
Switch Phase												
Minimum Initial (s)				5.0	5.0		5.0	15.0	15.0	5.0	15.0	
Minimum Split (s)				36.0	36.0		12.0	27.0	27.0	12.0	22.0	
Total Split (s)				52.0	52.0		18.0	77.0	77.0	21.0	80.0	
Total Split (%)				34.7%	34.7%		12.0%	51.3%	51.3%	14.0%	53.3%	
Yellow Time (s)				3.4	3.4		4.4	4.4	4.4	4.5	4.5	
All-Red Time (s)				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	
Total Lost Time (s)				5.4	5.4		6.4	6.4	6.4	6.5	6.5	
Lead/Lag							Lead	Lag	Lag	Lead	Lag	
Lead-Lag Optimize?							Yes	Yes	Yes	Yes	Yes	
Recall Mode				None	None		Max	C-Max	C-Max	None	C-Max	
Act Effct Green (s)				40.4	40.4		94.2	80.9	80.9	83.9	73.5	
Actuated g/C Ratio				0.27	0.27		0.63	0.54	0.54	0.56	0.49	
v/c Ratio				0.88	0.65		0.02	0.80	0.23	0.57	0.75	
Control Delay				75.8	42.5		11.6	34.0	8.6	42.3	24.3	
Queue Delay				0.0	0.0		0.0	0.0	0.0	0.0	2.0	
Total Delay				75.8	42.5		11.6	34.0	8.6	42.3	26.3	
LOS				E	D		B	C	A	D	C	
Approach Delay					59.8			30.8			27.6	
Approach LOS					E			C			C	
Queue Length 50th (ft)				387	216		2	632	37	67	238	

Lanes, Volumes, Timings 6: Orange Ave & Le Coq Au Vin/Gatlin Ave

Existing
Timing Plan: AM

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 95th (ft)				531	317		8	#833	95	m129	361	
Internal Link Dist (ft)		232			744			239			328	
Turn Bay Length (ft)				300			100					
Base Capacity (vph)				439	544		308	1871	915	241	1683	
Starvation Cap Reductn				0	0		0	0	0	0	266	
Spillback Cap Reductn				0	0		0	11	0	0	0	
Storage Cap Reductn				0	0		0	0	0	0	0	
Reduced v/c Ratio				0.76	0.57		0.02	0.81	0.23	0.45	0.89	

Intersection Summary

Area Type: Other

Cycle Length: 150

Actuated Cycle Length: 150

Offset: 113 (75%), Referenced to phase 2:SBTL and 6:NBTL, Start of Green

Natural Cycle: 90

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.88

Intersection Signal Delay: 34.7

Intersection LOS: C

Intersection Capacity Utilization 78.7%

ICU Level of Service D

Analysis Period (min) 15

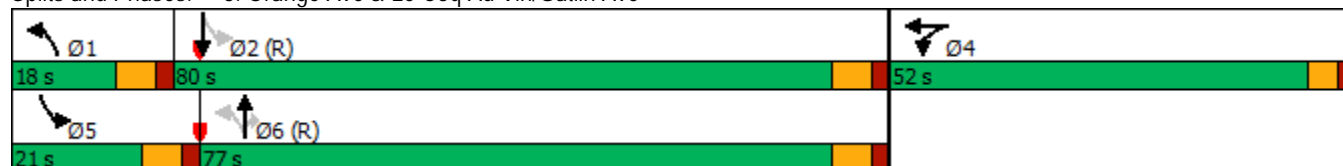
* User Entered Value

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

Queue shown is maximum after two cycles.























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

Splits and Phases: 6: Orange Ave & Le Coq Au Vin/Gatlin Ave















Lanes, Volumes, Timings
3: Orange Ave & Holden Ave/WF Plaza

Existing
Timing Plan: PM

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	162	41	336	8	42	15	298	1104	21	20	1208	212
Future Volume (vph)	162	41	336	8	42	15	298	1104	21	20	1208	212
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		100	0		0	210		110	100		180
Storage Lanes	1		1	1		0	1		1	1		1
Taper Length (ft)	75			75			55			0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	*0.80	0.95	1.00	1.00	0.95	1.00
Frt		0.866			0.961				0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1805	1631	0	1805	1773	0	1430	3505	1615	1805	3438	1583
Flt Permitted	0.316			0.336			0.076			0.235		
Satd. Flow (perm)	600	1631	0	638	1773	0	114	3505	1615	446	3438	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		216			8				120			164
Link Speed (mph)		35			25			40			40	
Link Distance (ft)		1251			242			407			1614	
Travel Time (s)		24.4			6.6			6.9			27.5	
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
Heavy Vehicles (%)	0%	0%	1%	0%	4%	0%	1%	3%	0%	0%	5%	2%
Adj. Flow (vph)	176	45	365	9	46	16	324	1200	23	22	1313	230
Shared Lane Traffic (%)												
Lane Group Flow (vph)	176	410	0	9	62	0	324	1200	23	22	1313	230
Turn Type	pm+pt	NA		Perm	NA		pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	3	8			4		1	6		5	2	
Permitted Phases	8			4			6		6	2		2
Detector Phase	3	8		4	4		1	6	6	5	2	2
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		5.0	15.0	15.0	5.0	15.0	15.0
Minimum Split (s)	14.0	38.0		42.7	42.7		12.0	26.9	26.9	11.9	36.0	36.0
Total Split (s)	20.0	45.0		25.0	25.0		35.0	105.0	105.0	20.0	90.0	90.0
Total Split (%)	11.8%	26.5%		14.7%	14.7%		20.6%	61.8%	61.8%	11.8%	52.9%	52.9%
Maximum Green (s)	12.6	37.6		18.3	18.3		28.1	98.1	98.1	13.1	83.1	83.1
Yellow Time (s)	4.1	4.1		3.4	3.4		4.4	4.4	4.4	4.4	4.4	4.4
All-Red Time (s)	3.3	3.3		3.3	3.3		2.5	2.5	2.5	2.5	2.5	2.5
Lost Time Adjust (s)	3.0	3.0		0.0	0.0		3.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	10.4	10.4		6.7	6.7		9.9	6.9	6.9	6.9	6.9	6.9
Lead/Lag	Lead			Lag	Lag		Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes			Yes	Yes		Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	2.5	2.5	3.0	2.5	2.5
Recall Mode	None	None		None	None		None	C-Max	C-Max	None	C-Max	C-Max
Walk Time (s)		7.0		7.0	7.0			7.0	7.0		7.0	7.0
Flash Dont Walk (s)		23.0		29.0	29.0			13.0	13.0		22.0	22.0
Pedestrian Calls (#/hr)		5		5	5			5	5		5	5
Act Effect Green (s)	28.2	28.2		11.9	11.9		121.5	116.5	116.5	89.2	83.1	83.1
Actuated g/C Ratio	0.17	0.17		0.07	0.07		0.71	0.69	0.69	0.52	0.49	0.49
v/c Ratio	1.05	0.91		0.20	0.47		1.00	0.50	0.02	0.08	0.78	0.27
Control Delay	146.5	57.3		82.2	76.3		103.6	4.0	0.0	10.9	40.1	8.2
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.1	0.0	0.0	0.0	0.0

Lanes, Volumes, Timings
3: Orange Ave & Holden Ave/WF Plaza

Existing
Timing Plan: PM

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Delay	146.5	57.3		82.2	76.3		103.6	4.1	0.0	10.9	40.1	8.2
LOS	F	E		F	E		F	A	A	B	D	A
Approach Delay		84.1			77.0			24.9			35.0	
Approach LOS		F			E			C			C	
Queue Length 50th (ft)	~202	235		10	59		343	56	0	6	627	39
Queue Length 95th (ft)	#334	#372		31	110		#646	64	m0	17	722	94
Internal Link Dist (ft)		1171			162			327			1534	
Turn Bay Length (ft)							210		110	100		180
Base Capacity (vph)	167	503		68	197		325	2401	1144	357	1680	857
Starvation Cap Reductn	0	0		0	0		0	329	0	0	0	0
Spillback Cap Reductn	0	0		0	0		0	0	0	0	0	0
Storage Cap Reductn	0	0		0	0		0	0	0	0	0	0
Reduced v/c Ratio	1.05	0.82		0.13	0.31		1.00	0.58	0.02	0.06	0.78	0.27

Intersection Summary

Area Type: Other

Cycle Length: 170

Actuated Cycle Length: 170

Offset: 1 (1%), Referenced to phase 2:SBTL and 6:NBTL, Start of Green

Natural Cycle: 145

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.05

Intersection Signal Delay: 39.3

Intersection LOS: D

Intersection Capacity Utilization 95.5%

ICU Level of Service F

Analysis Period (min) 15

Description: Orange Ave and Holden Ave

* User Entered Value

~ Volume exceeds capacity, queue is theoretically infinite.

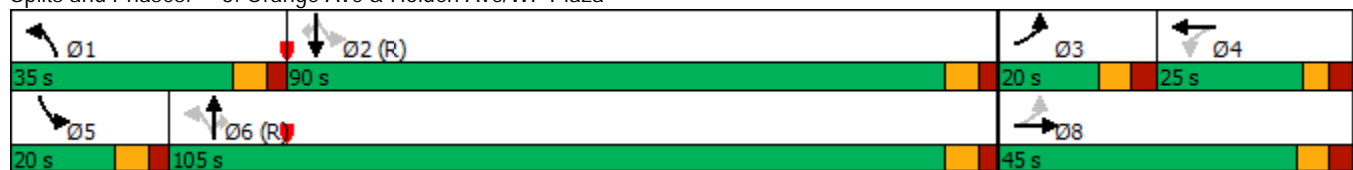
Queue shown is maximum after two cycles.

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

Queue shown is maximum after two cycles.









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

Splits and Phases: 3: Orange Ave & Holden Ave/WF Plaza















Lanes, Volumes, Timings
6: Orange Ave & Le Coq Au Vin/Gatlin Ave

Existing
Timing Plan: PM

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	293	0	149	5	1274	459	167	1380	5
Future Volume (vph)	0	0	0	293	0	149	5	1274	459	167	1380	5
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	325		0	100		0	0		0
Storage Lanes	0		0	1		0	1		1	1		0
Taper Length (ft)	75			75			50			100		
Lane Util. Factor	1.00	1.00	1.00	*0.80	0.95	1.00	1.00	0.95	1.00	1.00	0.95	0.95
Frt					0.894				0.850		0.999	
Flt Protected				0.950	0.986		0.950			0.950		
Satd. Flow (prot)	0	0	0	1444	1580	0	1805	3505	1615	1787	3468	0
Flt Permitted				0.950	0.986		0.096			0.153		
Satd. Flow (perm)	0	0	0	1444	1580	0	182	3505	1615	288	3468	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)					105				314			
Link Speed (mph)		25			25			40			40	
Link Distance (ft)		312			824			319			407	
Travel Time (s)		8.5			22.5			5.4			6.9	
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Heavy Vehicles (%)	2%	2%	2%	0%	0%	1%	0%	3%	0%	1%	4%	0%
Adj. Flow (vph)	0	0	0	302	0	154	5	1313	473	172	1423	5
Shared Lane Traffic (%)				21%								
Lane Group Flow (vph)	0	0	0	239	217	0	5	1313	473	172	1428	0
Turn Type				Split	NA		pm+pt	NA	Perm	pm+pt	NA	
Protected Phases				4	4		1	6		5	2	
Permitted Phases							6	6	6	2		
Detector Phase				4	4		1	6	6	5	2	
Switch Phase												
Minimum Initial (s)				5.0	5.0		5.0	15.0	15.0	5.0	15.0	
Minimum Split (s)				35.4	35.4		12.0	27.0	27.0	12.0	22.0	
Total Split (s)				45.0	45.0		20.0	90.0	90.0	35.0	105.0	
Total Split (%)				26.5%	26.5%		11.8%	52.9%	52.9%	20.6%	61.8%	
Maximum Green (s)				39.6	39.6		13.6	83.6	83.6	28.5	98.5	
Yellow Time (s)				3.4	3.4		4.4	4.4	4.4	4.5	4.5	
All-Red Time (s)				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	
Total Lost Time (s)				5.4	5.4		6.4	6.4	6.4	6.5	6.5	
Lead/Lag							Lead	Lag	Lag	Lead	Lag	
Lead-Lag Optimize?							Yes	Yes	Yes	Yes	Yes	
Vehicle Extension (s)				3.0	3.0		3.0	2.5	2.5	3.0	2.5	
Recall Mode				None	None		Max	C-Max	C-Max	None	C-Max	
Walk Time (s)				7.0	7.0			7.0	7.0			
Flash Dont Walk (s)				23.0	23.0			13.0	13.0			
Pedestrian Calls (#/hr)				5	5			5	5			
Act Effect Green (s)				32.8	32.8		121.2	105.6	105.6	111.8	98.5	
Actuated g/C Ratio				0.19	0.19		0.71	0.62	0.62	0.66	0.58	
v/c Ratio				0.86	0.56		0.02	0.60	0.42	0.56	0.71	
Control Delay				93.2	35.9		8.0	22.6	7.1	20.2	10.9	
Queue Delay				0.0	0.5		0.0	0.0	0.0	0.0	0.3	

Lanes, Volumes, Timings
6: Orange Ave & Le Coq Au Vin/Gatlin Ave

Existing
Timing Plan: PM

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Delay				93.2	36.4		8.0	22.6	7.1	20.2	11.2	
LOS				F	D		A	C	A	C	B	
Approach Delay					66.2			18.5			12.1	
Approach LOS					E			B			B	
Queue Length 50th (ft)				322	117		1	456	75	42	165	
Queue Length 95th (ft)				443	208		6	634	181	m95	191	
Internal Link Dist (ft)		232			744			239			327	
Turn Bay Length (ft)				325			100					
Base Capacity (vph)				336	448		324	2177	1122	460	2009	
Starvation Cap Reductn				0	0		0	0	0	0	156	
Spillback Cap Reductn				0	53		0	6	0	0	0	
Storage Cap Reductn				0	0		0	0	0	0	0	
Reduced v/c Ratio				0.71	0.55		0.02	0.60	0.42	0.37	0.77	

Intersection Summary

Area Type: Other

Cycle Length: 170

Actuated Cycle Length: 170

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

Natural Cycle: 90

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.86

Intersection Signal Delay: 21.5

Intersection LOS: C

Intersection Capacity Utilization 72.4%

ICU Level of Service C

Analysis Period (min) 15

Description: Orange Ave and Gatlin Ave

* User Entered Value

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

Splits and Phases: 6: Orange Ave & Le Coq Au Vin/Gatlin Ave



Year 2025 Conditions & Year 2030 Network MOEs

City of Edgewood - Intersection Timing Sheet													
Intersection: Orange Ave (SR 527) at Holden Ave				Int ID: 8		Modification Date: 12/18/2020		Initial Operation Date: 9/11/2019					
Controller Mfr: Siemens Eagle				Controller Model: m50				Software Version:					
Part I	Actuated Timing Information												
Phase	Ø1	Ø2	Ø3	Ø4	Ø5	Ø6	Ø7	Ø8	Ø9	Other(B)	OVL P E = Ø1 & Ø9		
Direction	NBL	SBT	EBL	WB	SBL	NBT		EBT	NBL				
Initial	5	15	5	5	5	15		5	5				
Passage	3.0	2.5	3.0	3.0	3.0	2.5		3.0	3.0				
Max1	15	50	20	20	15	50		20	15				
Max2													
Yellow	4.4	4.4	4.1	3.4	4.4	4.4		4.1	4.4				
All Red	2.5	2.5	3.3	3.3	2.5	2.5		3.3	2.5				
Walk		7		7		7		7					
Ped Clear		22		29		13		23					
Recall		Min				Min							
Flash Pattern	DARK	RED	DARK	RED	DARK	RED		RED	DARK				
Left-Turn Type	PT/FYA		PT/PM		PT/FYA				PT/FYA				
Detect Type	Video	Video	Video	Video	Video	Video		Video	Video				
Preemption Notes:													
Part II	Coordinated Timing Information												
PATTERN	Split Times								###	= Coordination Ref. Phase			
D/S/O	Ø1	Ø2	Ø3	Ø4	Ø5	Ø6	Ø7	Ø8	Ø9	Cycle	Offset	Seq	Lag LT φ
1/1/1	28	61 (MAX)	26	20	20	84 (MAX)	0	46	15	150	141	4	5,9
2/1/1	19	41 (MAX)	20	15	18	57 (MAX)	0	35	15	110	69	4	5,9
3/1/1	28	80 (MAX)	20	20	20	110 (MAX)	0	40	22	170	1	4	5,9
Day Plan Schedule													
Schedule Notes Day 1 = Sun Day 2= Mon-Fri Day 7 = Sat Equate Day 2 to 3-6	Day Plan 1			Day Plan 2			Day Plan 7						
	Start	End	D/S/O	Start	End	D/S/O	Start	End	D/S/O				
	0:01	10:00	0/0/4	0:01	6:00	0/0/4	0:01	9:00	0/0/4				
	10:00	19:30	2/1/1	6:00	9:00	1/1/1	9:00	19:45	2/1/1				
	19:30	0:00	0/0/4	13:15	18:30	3/1/1	19:45	0:00	0/0/4				
				18:30	20:30	2/1/1							
				20:30	0:00	0/0/4							
Schedule Notes													
	Start	End	D/S/O	Start	End	D/S/O	Start	End	D/S/O				
Part III General Notes / Additional Settings Used													
General Coordination Data													
Operation Mode: 1=Auto Offset Mode: 0=Beg Grn Coord Mode: 0=Perm. Force Mode: 0=Plan Max Mode: 0=Inh Max Dwell: 0													
Correction Mode: 2=Shtwy Yield Period: 0													
Prepared By: Atkins					Approved By:								

City of Edgewood - Intersection Timing Sheet

<div style="display: flex; justify-content: space-between;"> Intersection: Orange Ave (SR 527) at Gatlin Ave Int ID: 7 Modification Date: 12/18/2020 Initial Operation Date: 9/11/2019 </div>											
Controller Mfr: Siemens Eagle				Controller Model: m50				Software Version:			

Part I

Actuated Timing Information										
Phase	Ø1	Ø2	Ø3	Ø4	Ø5	Ø6	Ø7	Ø8	Other(A)	Other(B)
Direction	NBL	SBT		WBTL	SBL	NBT				
Initial	5	15		5	5	15				
Passage	3.0	2.5		3.0	3.0	2.5				
Max1	15	50		20	15	50				
Max2										
Yellow	4.4	4.5		3.4	4.5	4.4				
All Red	2.0	2.0		2.0	2.0	2.0				
Walk				7		7				
Ped Clear				23		13				
Recall		Min				Min				
Flash Pattern	DARK	RED		RED	DARK	RED				
Left-Turn Type	PT/FYA			PROT	PT/FYA					
Detect Type	Video	Video		Video	Video	Video				

Preemption
 Notes:

Part II

PATTERN D/S/O	Split Times								###	= Coordination Ref. Phase			
	Ø1	Ø2	Ø3	Ø4	Ø5	Ø6	Ø7	Ø8		Cycle	Offset	Seq	Lag LT φ
1/1/1	18	80 (MAX)	0	52	21	77 (MAX)	0	0	0	150	133	4	5
2/1/1	18	62 (MAX)	0	30	19	61 (MAX)	0	0	0	110	61	4	5
3/1/1	20	105 (MAX)	0	45	26	99 (MAX)	0	0	0	170	166	4	5

Day Plan Schedule

Schedule Notes	Day Plan 1			Day Plan 2			Day Plan 7		
	Start	End	D/S/O	Start	End	D/S/O	Start	End	D/S/O
Day 1 = Sun	0:01	10:00	0/0/4	0:01	6:00	0/0/4	0:01	9:00	0/0/4
Day 2 = Mon-Fri	10:00	19:30	2/1/1	6:00	13:15	1/1/1	9:00	19:45	2/1/1
Day 7 = Sat	19:30	0:00	0/0/4	13:15	18:30	3/1/1	19:45	0:00	0/0/4
Equate Day 2 to 3-6				18:30	20:30	2/1/1			
				20:30	0:00	0/0/4			

Schedule Notes									
	Start	End	D/S/O	Start	End	D/S/O	Start	End	D/S/O























Part III

General Notes / Additional Settings Used	
General Coordination Data Operation Mode: 1=Auto Offset Mode: 0=Beg Grn Coord Mode: 0=Perm. Force Mode: 0=Plan Max Mode: 0=Inh Max Dwell: 0 Correction Mode: 2=Shtwy Yield Period: 0 Ø5 Detector Switching: Off Ø5 Delay: 5 sec	
Prepared By: Atkins	Approved By:

Phasings

3: Orange Ave & Holden Ave/WF Plaza

2025 No_Build
timing Plan: AM

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	261	20	391	2	23	8	293	1436	6	5	1029	153
Future Volume (vph)	261	20	391	2	23	8	293	1436	6	5	1029	153
Satd. Flow (prot)	1787	1598	0	1805	1824	0	1416	3471	1346	1805	3406	1553
Flt Permitted	0.296			0.588			0.103			0.146		
Satd. Flow (perm)	557	1598	0	1117	1824	0	153	3471	1346	277	3406	1553
Satd. Flow (RTOR)		285			9				136			186
Lane Group Flow (vph)	281	442	0	2	34	0	315	1544	6	5	1106	165
Turn Type	pm+pt	NA		Perm	NA		pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	3	8			4		1	6		5	2	
Permitted Phases	8			4			6		6	2		2
Total Split (s)	26.0	44.0		18.0	18.0		34.0	88.0	88.0	18.0	72.0	72.0
Total Lost Time (s)	10.4	10.4		6.7	6.7		9.9	6.9	6.9	6.9	6.9	6.9
Act Effect Green (s)	27.7	27.7		7.9	7.9		102.0	102.4	102.4	72.6	66.9	66.9
Actuated g/C Ratio	0.18	0.18		0.05	0.05		0.68	0.68	0.68	0.48	0.45	0.45
v/c Ratio	1.22	0.84		0.03	0.33		0.92	0.65	0.01	0.03	0.73	0.21
Control Delay	178.8	34.7		67.0	61.7		68.4	2.7	0.0	11.6	38.0	2.8
Queue Delay	0.0	2.2		0.0	0.0		1.8	0.9	0.0	0.0	0.0	0.0
Total Delay	178.8	37.0		67.0	61.7		70.2	3.6	0.0	11.6	38.0	2.8
LOS	F	D		E	E		E	A	A	B	D	A
Approach Delay		92.1			62.0			14.8			33.4	
Approach LOS		F			E			B			C	

Intersection Summary

Cycle Length: 150

Actuated Cycle Length: 150

Offset: 141 (94%), Referenced to phase 2:SBTL and 6:NBTL, Start of Green

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.22

Intersection Signal Delay: 35.7

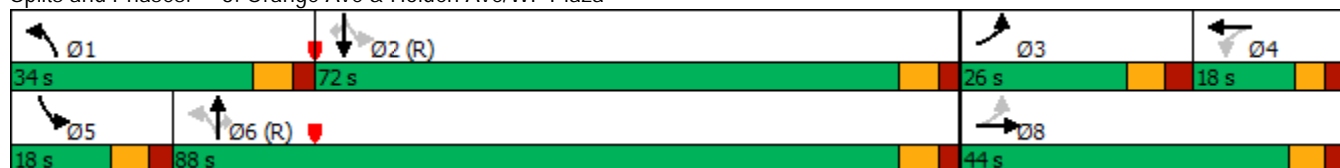
Intersection LOS: D

Intersection Capacity Utilization 92.6%

ICU Level of Service F

Analysis Period (min) 15

Splits and Phases: 3: Orange Ave & Holden Ave/WF Plaza



Phasings
6: Orange Ave & Le Coq Au Vin/Gatlin Ave

2025 No_Build
timing Plan: AM

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	494	0	193	5	1542	217	128	1289	5
Future Volume (vph)	0	0	0	494	0	193	5	1542	217	128	1289	5
Satd. Flow (prot)	0	0	0	1416	1592	0	1805	3471	1583	1770	3435	0
Flt Permitted				0.950	0.980		0.080			0.054		
Satd. Flow (perm)	0	0	0	1416	1592	0	152	3471	1583	101	3435	0
Satd. Flow (RTOR)					72				133			
Lane Group Flow (vph)	0	0	0	371	345	0	5	1606	226	133	1348	0
Turn Type				Split	NA		pm+pt	NA	Perm	pm+pt	NA	
Protected Phases				4	4		1	6		5	2	
Permitted Phases							6	6	6	2		
Total Split (s)				52.0	52.0		18.0	77.0	77.0	21.0	80.0	
Total Lost Time (s)				5.4	5.4		6.4	6.4	6.4	6.5	6.5	
Act Effect Green (s)				43.2	43.2		89.7	76.8	76.8	85.1	73.5	
Actuated g/C Ratio				0.29	0.29		0.60	0.51	0.51	0.57	0.49	
v/c Ratio				0.91	0.68		0.02	0.90	0.26	0.72	0.80	
Control Delay				78.0	43.6		12.0	42.5	10.0	57.1	27.5	
Queue Delay				0.0	0.0		0.0	0.8	0.0	0.0	5.5	
Total Delay				78.0	43.6		12.0	43.3	10.0	57.1	33.0	
LOS				E	D		B	D	A	E	C	
Approach Delay					61.4			39.1			35.1	
Approach LOS					E			D			D	

Intersection Summary

Cycle Length: 150

Actuated Cycle Length: 150

Offset: 113 (75%), Referenced to phase 2:SBTL and 6:NBTL, Start of Green

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.91

Intersection Signal Delay: 41.6

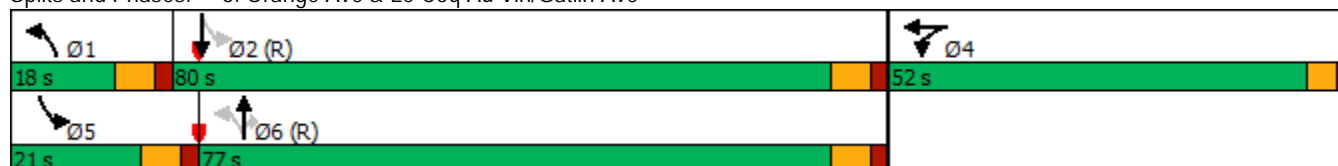
Intersection LOS: D

Intersection Capacity Utilization 84.5%

ICU Level of Service E

Analysis Period (min) 15

Splits and Phases: 6: Orange Ave & Le Coq Au Vin/Gatlin Ave

























Network Totals

Number of Intersections	3
Total Delay (hr)	81
Stops (#)	4087
Average Speed (mph)	13
Total Travel Time (hr)	121
Distance Traveled (mi)	1529
Fuel Consumed (gal)	151
Fuel Economy (mpg)	10.1
Unserved Vehicles (#)	46
Vehicles in dilemma zone (#)	183
Performance Index	92.1

Phasings

Orange Ave/Holden Ave/Gatlin Ave Intersection Analysis

2025 Short_term_Build_AM

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	261	20	391	2	23	8	293	1436	6	5	1029	153
Future Volume (vph)	261	20	391	2	23	8	293	1436	6	5	1029	153
Satd. Flow (prot)	0	1800	1583	1805	1824	0	1416	3471	1346	1805	3406	1553
Flt Permitted		0.717		0.556			0.062			0.124		
Satd. Flow (perm)	0	1350	1583	1056	1824	0	92	3471	1346	236	3406	1553
Satd. Flow (RTOR)			28		9				131			127
Lane Group Flow (vph)	0	303	420	2	34	0	315	1544	6	5	1106	165
Turn Type	pm+pt	NA	pm+ov	Perm	NA		pm+pt	NA	Perm	pm+pt	NA	pm+ov
Protected Phases	3	8	1 9		4		1 9	6		5	2	3
Permitted Phases	8		8	4			6		6	2		2
Total Split (s)	26.0	46.0		20.0	20.0			84.0	84.0	20.0	61.0	26.0
Total Lost Time (s)		7.4		6.7	6.7			6.9	6.9	6.9	6.9	7.4
Act Effect Green (s)		35.4	82.1	8.3	8.3		94.3	96.3	96.3	61.1	54.1	76.5
Actuated g/C Ratio		0.24	0.55	0.06	0.06		0.63	0.64	0.64	0.41	0.36	0.51
v/c Ratio		0.78	0.48	0.03	0.31		1.09	0.69	0.01	0.03	0.90	0.19
Control Delay		69.4	21.5	66.0	60.2		106.7	2.9	0.0	25.6	56.4	3.4
Queue Delay		0.0	0.0	0.0	0.0		0.0	1.1	0.0	0.0	0.4	0.0
Total Delay		69.4	21.5	66.0	60.2		106.7	4.0	0.0	25.6	56.8	3.4
LOS		E	C	E	E		F	A	A	C	E	A
Approach Delay		41.6			60.5			21.3			49.8	
Approach LOS		D			E			C			D	

Intersection Summary

Cycle Length: 150

Actuated Cycle Length: 150

Offset: 141 (94%), Referenced to phase 2:SBTL and 6:NBTL, Start of Green

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.09

Intersection Signal Delay: 34.8

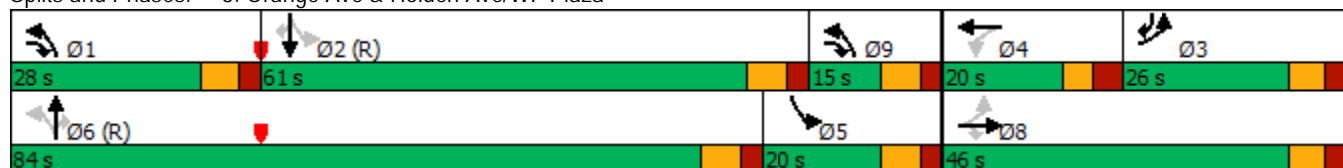
Intersection LOS: C

Intersection Capacity Utilization 87.0%

ICU Level of Service E

Analysis Period (min) 15

Splits and Phases: 3: Orange Ave & Holden Ave/WF Plaza























Lane Group	Ø1	Ø9
Lane Configurations		
Traffic Volume (vph)		
Future Volume (vph)		
Satd. Flow (prot)		
Flt Permitted		
Satd. Flow (perm)		
Satd. Flow (RTOR)		
Lane Group Flow (vph)		
Turn Type		
Protected Phases	1	9
Permitted Phases		
Total Split (s)	28.0	15.0
Total Lost Time (s)		
Act Effect Green (s)		
Actuated g/C Ratio		
v/c Ratio		
Control Delay		
Queue Delay		
Total Delay		
LOS		
Approach Delay		
Approach LOS		
Intersection Summary		

Phasings

Orange Ave/Holden Ave/Gatlin Ave Intersection Analysis

2025 Short_term_Build_AM

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	494	0	193	5	1542	217	128	1289	5
Future Volume (vph)	0	0	0	494	0	193	5	1542	217	128	1289	5
Satd. Flow (prot)	0	0	0	1681	1592	0	1805	3471	1583	1770	3435	0
Flt Permitted				0.950	0.980		0.068			0.068		
Satd. Flow (perm)	0	0	0	1681	1592	0	129	3471	1583	127	3435	0
Satd. Flow (RTOR)					119							
Lane Group Flow (vph)	0	0	0	371	345	0	5	1606	226	133	1348	0
Turn Type				Split	NA		pm+pt	NA	pm+ov	pm+pt	NA	
Protected Phases				4	4		1	6	4	5	2	
Permitted Phases							6	6	6	2		
Total Split (s)				52.0	52.0		18.0	77.0	52.0	21.0	80.0	
Total Lost Time (s)				5.4	5.4		6.4	6.4	5.4	6.5	6.5	
Act Effect Green (s)				40.3	40.3		76.9	76.9	123.6	73.5	73.5	
Actuated g/C Ratio				0.27	0.27		0.51	0.51	0.82	0.49	0.49	
v/c Ratio				0.82	0.67		0.02	0.90	0.17	0.60	0.80	
Control Delay				66.4	37.3		21.0	42.2	3.0	43.1	17.0	
Queue Delay				0.0	0.0		0.0	0.0	0.0	0.0	2.5	
Total Delay				66.4	37.3		21.0	42.2	3.0	43.1	19.5	
LOS				E	D		C	D	A	D	B	
Approach Delay					52.4			37.3			21.6	
Approach LOS					D			D			C	

Intersection Summary

Cycle Length: 150

Actuated Cycle Length: 150

Offset: 133 (89%), Referenced to phase 2:SBTL and 6:NBTL, Start of Green

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.90

Intersection Signal Delay: 34.2

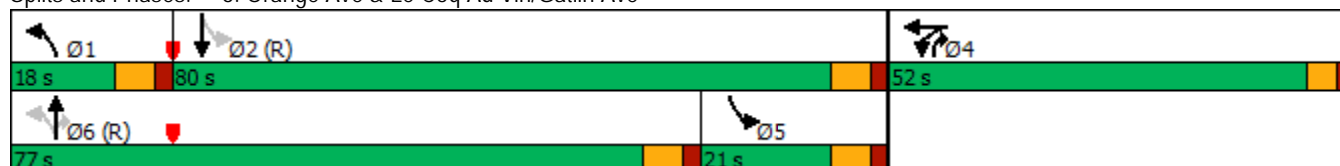
Intersection LOS: C

Intersection Capacity Utilization 84.5%

ICU Level of Service E

Analysis Period (min) 15

Splits and Phases: 6: Orange Ave & Le Coq Au Vin/Gatlin Ave

























Network Totals

Number of Intersections	3
Total Delay (hr)	72
Stops (#)	4173
Average Speed (mph)	14
Total Travel Time (hr)	112
Distance Traveled (mi)	1529
Fuel Consumed (gal)	145
Fuel Economy (mpg)	10.5
Unserved Vehicles (#)	23
Vehicles in dilemma zone (#)	119
Performance Index	83.6

Phasings

3: Orange Ave & Holden Ave/WF Plaza

2025 No_Build_PM

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	180	45	372	9	47	17	318	1185	22	21	1301	226
Future Volume (vph)	180	45	372	9	47	17	318	1185	22	21	1301	226
Satd. Flow (prot)	1805	1631	0	1805	1773	0	1430	3505	1615	1805	3438	1583
Flt Permitted	0.356			0.284			0.054			0.215		
Satd. Flow (perm)	676	1631	0	540	1773	0	81	3505	1615	408	3438	1583
Satd. Flow (RTOR)		219			8				120			164
Lane Group Flow (vph)	196	453	0	10	69	0	346	1288	24	23	1414	246
Turn Type	pm+pt	NA		Perm	NA		pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	3	8			4		1	6		5	2	
Permitted Phases	8			4			6		6	2		2
Total Split (s)	20.0	45.0		25.0	25.0		35.0	105.0	105.0	20.0	90.0	90.0
Total Lost Time (s)	10.4	10.4		6.7	6.7		9.9	6.9	6.9	6.9	6.9	6.9
Act Effect Green (s)	30.4	30.4		14.1	14.1		119.3	114.2	114.2	89.3	83.1	83.1
Actuated g/C Ratio	0.18	0.18		0.08	0.08		0.70	0.67	0.67	0.53	0.49	0.49
v/c Ratio	1.07	0.96		0.22	0.45		1.20	0.55	0.02	0.09	0.84	0.29
Control Delay	145.0	67.4		82.3	73.2		168.1	4.3	0.0	11.2	43.5	9.2
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.2	0.0	0.0	0.0	0.0
Total Delay	145.0	67.4		82.3	73.2		168.1	4.5	0.0	11.2	43.5	9.2
LOS	F	E		F	E		F	A	A	B	D	A
Approach Delay		90.8			74.4			38.6			38.1	
Approach LOS		F			E			D			D	

Intersection Summary

Cycle Length: 170

Actuated Cycle Length: 170

Offset: 1 (1%), Referenced to phase 2:SBTL and 6:NBTL, Start of Green

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.20

Intersection Signal Delay: 47.4

Intersection LOS: D

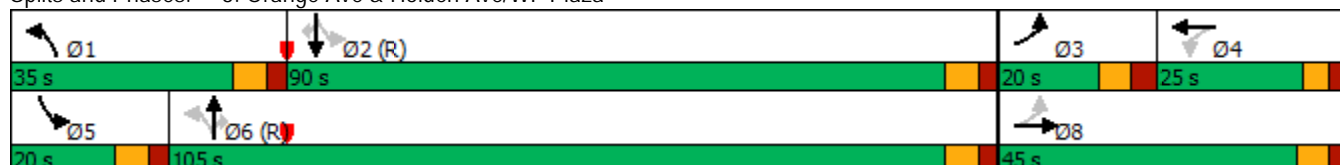
Intersection Capacity Utilization 101.6%

ICU Level of Service G

Analysis Period (min) 15

Description: Orange Ave and Holden Ave










Splits and Phases: 3: Orange Ave & Holden Ave/WF Plaza



Phasings

6: Orange Ave & Le Coq Au Vin/Gatlin Ave

2025 No_Build_PM

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	325	0	165	5	1360	490	204	1473	5
Future Volume (vph)	0	0	0	325	0	165	5	1360	490	204	1473	5
Satd. Flow (prot)	0	0	0	1444	1580	0	1805	3505	1615	1787	3472	0
Flt Permitted				0.950	0.986		0.082			0.106		
Satd. Flow (perm)	0	0	0	1444	1580	0	156	3505	1615	199	3472	0
Satd. Flow (RTOR)					105				314			
Lane Group Flow (vph)	0	0	0	265	240	0	5	1402	505	210	1524	0
Turn Type				Split	NA		pm+pt	NA	Perm	pm+pt	NA	
Protected Phases				4	4		1	6		5	2	
Permitted Phases							6	6	6	2		
Total Split (s)				45.0	45.0		20.0	90.0	90.0	35.0	105.0	
Total Lost Time (s)				5.4	5.4		6.4	6.4	6.4	6.5	6.5	
Act Effect Green (s)				35.1	35.1		114.0	98.0	98.0	115.4	98.5	
Actuated g/C Ratio				0.21	0.21		0.67	0.58	0.58	0.68	0.58	
v/c Ratio				0.89	0.59		0.02	0.69	0.48	0.68	0.76	
Control Delay				95.1	38.8		8.8	29.6	9.8	44.8	11.6	
Queue Delay				0.0	0.0		0.0	0.0	0.0	0.1	0.6	
Total Delay				95.1	38.8		8.8	29.6	9.8	44.8	12.2	
LOS				F	D		A	C	A	D	B	
Approach Delay					68.3			24.3			16.2	
Approach LOS					E			C			B	

Intersection Summary

Cycle Length: 170

Actuated Cycle Length: 170

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

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.89

Intersection Signal Delay: 26.3

Intersection LOS: C

Intersection Capacity Utilization 78.2%

ICU Level of Service D

Analysis Period (min) 15

Description: Orange Ave and Gatlin Ave

Splits and Phases: 6: Orange Ave & Le Coq Au Vin/Gatlin Ave



Network Totals























Number of Intersections	3
Total Delay (hr)	79
Stops (#)	3786
Average Speed (mph)	13
Total Travel Time (hr)	121
Distance Traveled (mi)	1625
Fuel Consumed (gal)	151
Fuel Economy (mpg)	10.8
Unserved Vehicles (#)	62
Vehicles in dilemma zone (#)	165
Performance Index	89.2

Phasings

Orange Ave/Holden Ave/Gatlin Ave Intersection Analysis

2025 Short_term_Build_PM

08/27/2021

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	180	45	372	9	47	17	318	1185	22	21	1301	226
Future Volume (vph)	180	45	372	9	47	17	318	1185	22	21	1301	226
Satd. Flow (prot)	0	1828	1599	1805	1773	0	1430	3505	1615	1805	3438	1583
Flt Permitted		0.722		0.374			0.048			0.215		
Satd. Flow (perm)	0	1372	1599	711	1773	0	72	3505	1615	408	3438	1583
Satd. Flow (RTOR)			176		8				116			115
Lane Group Flow (vph)	0	245	404	10	69	0	346	1288	24	23	1414	246
Turn Type	pm+pt	NA	custom	Perm	NA		pm+pt	NA	Perm	pm+pt	NA	pm+ov
Protected Phases	3	8	1		4		19	6		5	2	3
Permitted Phases	8		8	4			6		6	2		2
Total Split (s)	20.0	40.0	28.0	20.0	20.0			110.0	110.0	20.0	80.0	20.0
Total Lost Time (s)		7.4	6.9	6.7	6.7			6.9	6.9	6.9	6.9	7.4
Act Effect Green (s)		31.1	61.1	10.7	10.7		121.7	112.6	112.6	83.2	73.1	86.3
Actuated g/C Ratio		0.18	0.36	0.06	0.06		0.72	0.66	0.66	0.49	0.43	0.51
v/c Ratio		0.85	0.59	0.23	0.58		0.98	0.55	0.02	0.08	0.96	0.29
Control Delay		94.2	27.8	86.7	87.0		88.0	6.7	0.0	19.3	61.9	7.2
Queue Delay		0.0	0.0	0.0	0.0		0.0	0.2	0.0	0.0	0.0	0.0
Total Delay		94.2	27.8	86.7	87.0		88.0	6.9	0.0	19.3	61.9	7.2
LOS		F	C	F	F		F	A	A	B	E	A
Approach Delay		52.9			87.0			23.7			53.3	
Approach LOS		D			F			C			D	

Intersection Summary

Cycle Length: 170

Actuated Cycle Length: 170

Offset: 1 (1%), Referenced to phase 2:SBTL and 6:NBTL, Start of Green

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.98

Intersection Signal Delay: 41.8

Intersection LOS: D

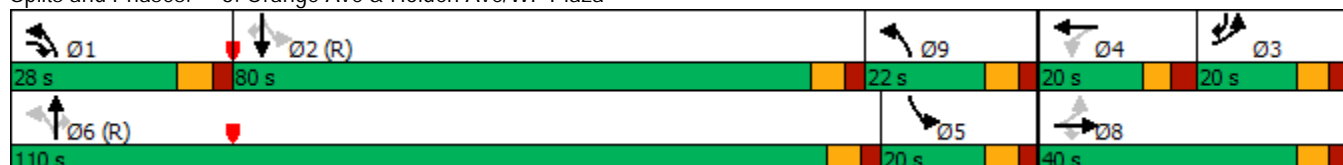
Intersection Capacity Utilization 90.2%

ICU Level of Service E

Analysis Period (min) 15

Description: Orange Ave and Holden Ave

Splits and Phases: 3: Orange Ave & Holden Ave/WF Plaza























Lane Group	Ø9
Lane Configurations	
Traffic Volume (vph)	
Future Volume (vph)	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Satd. Flow (RTOR)	
Lane Group Flow (vph)	
Turn Type	
Protected Phases	9
Permitted Phases	
Total Split (s)	22.0
Total Lost Time (s)	
Act Effct Green (s)	
Actuated g/C Ratio	
v/c Ratio	
Control Delay	
Queue Delay	
Total Delay	
LOS	
Approach Delay	
Approach LOS	
Intersection Summary	

Phasings

Orange Ave/Holden Ave/Gatlin Ave Intersection Analysis

2025 Short_term_Build_PM

08/27/2021

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	325	0	165	5	1360	490	204	1473	5
Future Volume (vph)	0	0	0	325	0	165	5	1360	490	204	1473	5
Satd. Flow (prot)	0	0	0	1444	1580	0	1805	3505	1615	1787	3472	0
Flt Permitted				0.950	0.985		0.080			0.113		
Satd. Flow (perm)	0	0	0	1444	1580	0	152	3505	1615	213	3472	0
Satd. Flow (RTOR)					64				246			
Lane Group Flow (vph)	0	0	0	261	244	0	5	1402	505	210	1524	0
Turn Type				Split	NA		pm+pt	NA	pm+ov	pm+pt	NA	
Protected Phases				4	4		1	6	4	5	2	
Permitted Phases							6	6	6	2		
Total Split (s)				45.0	45.0		20.0	99.0	45.0	26.0	105.0	
Total Lost Time (s)				5.4	5.4		6.4	6.4	5.4	6.5	6.5	
Act Effect Green (s)				36.3	36.3		115.0	100.3	142.9	113.7	98.5	
Actuated g/C Ratio				0.21	0.21		0.68	0.59	0.84	0.67	0.58	
v/c Ratio				0.85	0.63		0.02	0.68	0.36	0.74	0.76	
Control Delay				87.9	51.4		8.4	27.3	2.3	44.6	7.5	
Queue Delay				0.0	0.3		0.0	0.0	0.0	0.3	1.8	
Total Delay				87.9	51.7		8.4	27.3	2.3	44.9	9.3	
LOS				F	D		A	C	A	D	A	
Approach Delay					70.4			20.6			13.6	
Approach LOS					E			C			B	

Intersection Summary

Cycle Length: 170

Actuated Cycle Length: 170

Offset: 166 (98%), Referenced to phase 2:SBTL and 6:NBTL, Start of Green

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.85

Intersection Signal Delay: 23.7

Intersection LOS: C

Intersection Capacity Utilization 78.2%

ICU Level of Service D

Analysis Period (min) 15

Description: Orange Ave and Gatlin Ave

Splits and Phases: 6: Orange Ave & Le Coq Au Vin/Gatlin Ave



Network Totals

Number of Intersections	3
Total Delay (hr)	70
Stops (#)	3950
Average Speed (mph)	14
Total Travel Time (hr)	112
Distance Traveled (mi)	1625
Fuel Consumed (gal)	146
Fuel Economy (mpg)	11.1
Unserved Vehicles (#)	0
Vehicles in dilemma zone (#)	113
Performance Index	81.1

Network Totals

Number of Intersections	3
Total Delay (hr)	100
Stops (#)	4771
Average Speed (mph)	11
Total Travel Time (hr)	143
Distance Traveled (mi)	1618
Fuel Consumed (gal)	175
Fuel Economy (mpg)	9.3
Unserved Vehicles (#)	82
Vehicles in dilemma zone (#)	188
Performance Index	113.2

Network Totals

Number of Intersections	3
Total Delay (hr)	93
Stops (#)	4813
Average Speed (mph)	12
Total Travel Time (hr)	135
Distance Traveled (mi)	1618
Fuel Consumed (gal)	170
Fuel Economy (mpg)	9.5
Unserved Vehicles (#)	25
Vehicles in dilemma zone (#)	210
Performance Index	105.9

Network Totals

Number of Intersections	3
Total Delay (hr)	100
Stops (#)	4222
Average Speed (mph)	12
Total Travel Time (hr)	145
Distance Traveled (mi)	1722
Fuel Consumed (gal)	174
Fuel Economy (mpg)	9.9
Unserved Vehicles (#)	117
Vehicles in dilemma zone (#)	187
Performance Index	112.2

Network Totals























Number of Intersections	3
Total Delay (hr)	91
Stops (#)	4572
Average Speed (mph)	13
Total Travel Time (hr)	135
Distance Traveled (mi)	1722
Fuel Consumed (gal)	170
Fuel Economy (mpg)	10.1
Unserved Vehicles (#)	64
Vehicles in dilemma zone (#)	172
Performance Index	103.2

**Year of Failure Analysis
Year 2035 PM Peak Hour Output**

Phasings
3: Orange Ave & Holden Ave/WF Plaza

2035 Short_term_Build_PM

08/31/2021

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	209	53	433	10	54	19	351	1318	25	24	1413	250
Future Volume (vph)	209	53	433	10	54	19	351	1318	25	24	1413	250
Satd. Flow (prot)	0	1828	1599	1805	1774	0	1430	3505	1615	1805	3438	1583
Flt Permitted		0.689		0.354			0.048			0.160		
Satd. Flow (perm)	0	1309	1599	673	1774	0	72	3505	1615	304	3438	1583
Satd. Flow (RTOR)			172		8				116			117
Lane Group Flow (vph)	0	285	471	11	80	0	382	1433	27	26	1536	272
Turn Type	pm+pt	NA	custom	Perm	NA		pm+pt	NA	Perm	pm+pt	NA	pm+ov
Protected Phases	3	8	1		4		19	6		5	2	3
Permitted Phases	8		8	4			6		6	2		2
Total Split (s)	20.0	40.0	28.0	20.0	20.0			110.0	110.0	20.0	80.0	20.0
Total Lost Time (s)		7.4	6.9	6.7	6.7			6.9	6.9	6.9	6.9	7.4
Act Effect Green (s)		32.6	61.1	11.3	11.3		120.2	111.1	111.1	83.2	73.1	87.2
Actuated g/C Ratio		0.19	0.36	0.07	0.07		0.71	0.65	0.65	0.49	0.43	0.51
v/c Ratio		0.97	0.69	0.25	0.65		1.12	0.63	0.02	0.11	1.04	0.31
Control Delay		112.1	34.4	88.2	92.2		124.7	7.6	0.0	20.7	80.8	7.8
Queue Delay		0.0	0.0	0.0	0.0		0.0	0.4	0.0	0.0	0.8	0.0
Total Delay		112.1	34.4	88.2	92.2		124.7	8.0	0.0	20.7	81.6	7.8
LOS		F	C	F	F		F	A	A	C	F	A
Approach Delay		63.7			91.7			32.1			69.8	
Approach LOS		E			F			C			E	

Intersection Summary

Cycle Length: 170

Actuated Cycle Length: 170

Offset: 1 (1%), Referenced to phase 2:SBTL and 6:NBTL, Start of Green

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.12

Intersection Signal Delay: 53.8

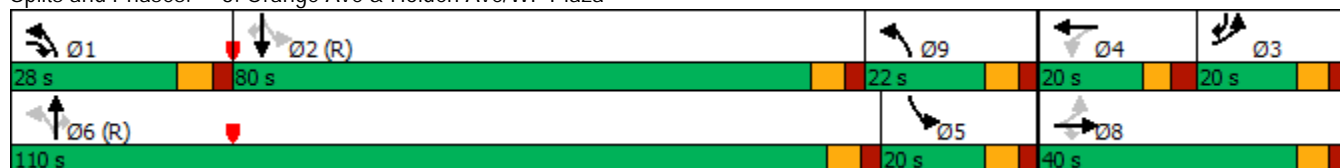
Intersection LOS: D

Intersection Capacity Utilization 97.2%

ICU Level of Service F

Analysis Period (min) 15

Splits and Phases: 3: Orange Ave & Holden Ave/WF Plaza



Lane Group	Ø9
Lane Configurations	
Traffic Volume (vph)	
Future Volume (vph)	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Satd. Flow (RTOR)	
Lane Group Flow (vph)	
Turn Type	
Protected Phases	9
Permitted Phases	
Total Split (s)	22.0
Total Lost Time (s)	
Act Effct Green (s)	
Actuated g/C Ratio	
v/c Ratio	
Control Delay	
Queue Delay	
Total Delay	
LOS	
Approach Delay	
Approach LOS	
Intersection Summary	

Phasings
6: Orange Ave & Le Coq Au Vin/Gatlin Ave

2035 Short_term_Build_PM

08/31/2021

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	378	0	192	5	1502	541	224	1627	5
Future Volume (vph)	0	0	0	378	0	192	5	1502	541	224	1627	5
Satd. Flow (prot)	0	0	0	1444	1580	0	1805	3505	1615	1787	3472	0
Flt Permitted				0.950	0.985		0.055			0.065		
Satd. Flow (perm)	0	0	0	1444	1580	0	104	3505	1615	122	3472	0
Satd. Flow (RTOR)					64				151			
Lane Group Flow (vph)	0	0	0	304	284	0	5	1548	558	231	1682	0
Turn Type				Split	NA		pm+pt	NA	pm+ov	pm+pt	NA	
Protected Phases				4	4		1	6	4	5	2	
Permitted Phases							6	6	6	2		
Total Split (s)				45.0	45.0		20.0	99.0	45.0	26.0	105.0	
Total Lost Time (s)				5.4	5.4		6.4	6.4	5.4	6.5	6.5	
Act Effect Green (s)				38.6	38.6		109.3	94.7	139.7	116.9	98.5	
Actuated g/C Ratio				0.23	0.23		0.64	0.56	0.82	0.69	0.58	
v/c Ratio				0.93	0.70		0.02	0.79	0.41	0.88	0.84	
Control Delay				98.0	56.0		8.6	34.2	3.8	70.2	8.5	
Queue Delay				0.0	1.5		0.0	0.1	0.0	0.9	8.3	
Total Delay				98.0	57.5		8.6	34.3	3.8	71.1	16.8	
LOS				F	E		A	C	A	E	B	
Approach Delay					78.4			26.2			23.4	
Approach LOS					E			C			C	

Intersection Summary

Cycle Length: 170

Actuated Cycle Length: 170

Offset: 166 (98%), Referenced to phase 2:SBTL and 6:NBTL, Start of Green

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.93

Intersection Signal Delay: 31.7

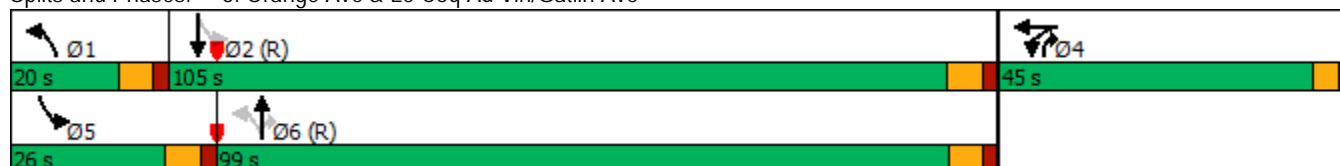
Intersection LOS: C

Intersection Capacity Utilization 85.5%

ICU Level of Service E

Analysis Period (min) 15

Splits and Phases: 6: Orange Ave & Le Coq Au Vin/Gatlin Ave



Year 2040 Conditions

Network Totals

Number of Intersections	3
Total Delay (hr)	93
Stops (#)	4813
Average Speed (mph)	12
Total Travel Time (hr)	135
Distance Traveled (mi)	1618
Fuel Consumed (gal)	170
Fuel Economy (mpg)	9.5
Unserved Vehicles (#)	25
Vehicles in dilemma zone (#)	210
Performance Index	105.9

Measures of Effectiveness

2030 Long_term_Build 1 (HodelAveRealignmentWith1RailCrossing)_AM

Network Totals

Number of Intersections	4
Total Delay (hr)	61
Stops (#)	4352
Average Speed (mph)	16
Total Travel Time (hr)	109
Distance Traveled (mi)	1771
Fuel Consumed (gal)	146
Fuel Economy (mpg)	12.2
Unserved Vehicles (#)	0
Vehicles in dilemma zone (#)	141
Performance Index	72.8

Measures of Effectiveness

2030 Long_term_Build 1 (HodelAveRealignmentWith2RailCrossings)_AM

Network Totals

Number of Intersections	4
Total Delay (hr)	59
Stops (#)	4294
Average Speed (mph)	16
Total Travel Time (hr)	105
Distance Traveled (mi)	1692
Fuel Consumed (gal)	141
Fuel Economy (mpg)	12.0
Unserved Vehicles (#)	0
Vehicles in dilemma zone (#)	163
Performance Index	71.2

Measures of Effectiveness

2030 Long_term_Build 3 (QuadIntersectionusingLakeGatlinRd)_AM

Network Totals

Number of Intersections	4
Total Delay (hr)	62
Stops (#)	4829
Average Speed (mph)	16
Total Travel Time (hr)	111
Distance Traveled (mi)	1810
Fuel Consumed (gal)	154
Fuel Economy (mpg)	11.8
Unserved Vehicles (#)	0
Vehicles in dilemma zone (#)	312
Performance Index	75.1

Network Totals

Number of Intersections	3
Total Delay (hr)	91
Stops (#)	4572
Average Speed (mph)	13
Total Travel Time (hr)	135
Distance Traveled (mi)	1722
Fuel Consumed (gal)	170
Fuel Economy (mpg)	10.1
Unserved Vehicles (#)	64
Vehicles in dilemma zone (#)	172
Performance Index	103.2

Measures of Effectiveness

2030 Long_term_Build 1 (HodelAveRealignmentWith1RailCrossing)_PM

Network Totals

Number of Intersections	4
Total Delay (hr)	60
Stops (#)	4382
Average Speed (mph)	17
Total Travel Time (hr)	110
Distance Traveled (mi)	1896
Fuel Consumed (gal)	150
Fuel Economy (mpg)	12.6
Unserved Vehicles (#)	0
Vehicles in dilemma zone (#)	151
Performance Index	72.0

Measures of Effectiveness

2030 Long_term_Build 2 (HodelAveRealignmentWith2RailCrossings)_PM

Network Totals

Number of Intersections	4
Total Delay (hr)	59
Stops (#)	4457
Average Speed (mph)	17
Total Travel Time (hr)	107
Distance Traveled (mi)	1811
Fuel Consumed (gal)	148
Fuel Economy (mpg)	12.2
Unserved Vehicles (#)	0
Vehicles in dilemma zone (#)	123
Performance Index	71.3

Measures of Effectiveness

2040 Long_term_Build 3 (QuadIntersectionusingLakeGatlinRd)_PM























Network Totals

Number of Intersections	4
Total Delay (hr)	58
Stops (#)	4687
Average Speed (mph)	17
Total Travel Time (hr)	111
Distance Traveled (mi)	1933
Fuel Consumed (gal)	154
Fuel Economy (mpg)	12.6
Unserved Vehicles (#)	0
Vehicles in dilemma zone (#)	233
Performance Index	71.4

Phasings

Orange Ave/Holden Ave/Gatlin Ave Intersection Analysis

2040 No_Build_AM

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	324	25	487	3	29	10	358	1660	7	6	1189	177
Future Volume (vph)	324	25	487	3	29	10	358	1660	7	6	1189	177
Satd. Flow (prot)	0	1800	1583	1805	1826	0	1416	3471	1346	1805	3406	1553
Flt Permitted		0.711		0.421			0.069			0.097		
Satd. Flow (perm)	0	1338	1583	800	1826	0	103	3471	1346	184	3406	1553
Satd. Flow (RTOR)			28		10				131			127
Lane Group Flow (vph)	0	375	524	3	42	0	385	1785	8	6	1278	190
Turn Type	pm+pt	NA	pm+ov	Perm	NA		pm+pt	NA	Perm	pm+pt	NA	pm+ov
Protected Phases	3	8	19		4		19	6		5	2	3
Permitted Phases	8		8	4			6		6	2		2
Total Split (s)	14.0	44.0		30.0	30.0			93.0	93.0	13.0	55.0	14.0
Total Lost Time (s)		7.4		6.7	6.7			6.9	6.9	6.9	6.9	7.4
Act Effect Green (s)		36.6	88.1	10.6	10.6		94.1	96.5	96.5	53.7	48.1	69.4
Actuated g/C Ratio		0.24	0.59	0.07	0.07		0.63	0.64	0.64	0.36	0.32	0.46
v/c Ratio		0.95	0.56	0.05	0.30		1.14	0.80	0.01	0.05	1.17	0.24
Control Delay		91.6	20.6	61.3	56.2		119.3	3.9	0.0	29.8	131.2	5.8
Queue Delay		0.0	0.0	0.0	0.0		0.7	3.1	0.0	0.0	0.0	0.0
Total Delay		91.6	20.6	61.3	56.2		120.0	7.1	0.0	29.8	131.2	5.8
LOS		F	C	E	E		F	A	A	C	F	A
Approach Delay		50.2			56.5			27.0			114.6	
Approach LOS		D			E			C			F	

Intersection Summary

Cycle Length: 150

Actuated Cycle Length: 150

Offset: 7 (5%), Referenced to phase 2:SBTL and 6:NBTL, Start of Green

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.17

Intersection Signal Delay: 59.9











Intersection LOS: E

Intersection Capacity Utilization 98.8%

ICU Level of Service F

Analysis Period (min) 15

Splits and Phases: 3: Orange Ave & Holden Ave/WF Plaza





















				
Ø1	Ø2 (R)	Ø9	Ø4	Ø3
38 s	55 s	13 s	30 s	14 s
				
Ø6 (R)		Ø5	Ø8	
93 s		13 s	44 s	

Lane Group	Ø1	Ø9
Lane Configurations		
Traffic Volume (vph)		
Future Volume (vph)		
Satd. Flow (prot)		
Flt Permitted		
Satd. Flow (perm)		
Satd. Flow (RTOR)		
Lane Group Flow (vph)		
Turn Type		
Protected Phases	1	9
Permitted Phases		
Total Split (s)	38.0	13.0
Total Lost Time (s)		
Act Effct Green (s)		
Actuated g/C Ratio		
v/c Ratio		
Control Delay		
Queue Delay		
Total Delay		
LOS		
Approach Delay		
Approach LOS		
Intersection Summary		

Phasings

Orange Ave/Holden Ave/Gatlin Ave Intersection Analysis

2040 No_Build_AM

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	616	0	240	5	1785	251	200	1474	5
Future Volume (vph)	0	0	0	616	0	240	5	1785	251	200	1474	5
Satd. Flow (prot)	0	0	0	1416	1591	0	1805	3471	1583	1770	3439	0
Flt Permitted				0.950	0.979		0.057			0.057		
Satd. Flow (perm)	0	0	0	1416	1591	0	108	3471	1583	106	3439	0
Satd. Flow (RTOR)					119				64			
Lane Group Flow (vph)	0	0	0	462	430	0	5	1859	261	208	1540	0
Turn Type				Split	NA		pm+pt	NA	pm+ov	pm+pt	NA	
Protected Phases				4	4		1	6	4	5	2	
Permitted Phases							6	6	6	2		
Total Split (s)				51.0	51.0		12.0	82.0	51.0	17.0	87.0	
Total Lost Time (s)				5.4	5.4		6.4	6.4	5.4	6.5	6.5	
Act Effect Green (s)				45.6	45.6		75.6	75.6	127.6	80.5	80.5	
Actuated g/C Ratio				0.30	0.30		0.50	0.50	0.85	0.54	0.54	
v/c Ratio				1.07	0.76		0.04	1.06	0.19	1.20	0.83	
Control Delay				113.4	43.5		19.2	76.6	1.8	140.6	15.4	
Queue Delay				0.0	0.8		0.0	15.5	0.0	0.0	7.9	
Total Delay				113.4	44.3		19.2	92.1	1.8	140.6	23.3	
LOS				F	D		B	F	A	F	C	
Approach Delay					80.1			80.8			37.3	
Approach LOS					F			F			D	

Intersection Summary

Cycle Length: 150

Actuated Cycle Length: 150

Offset: 136 (91%), Referenced to phase 2:SBTL and 6:NBTL, Start of Green

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.20

Intersection Signal Delay: 64.7

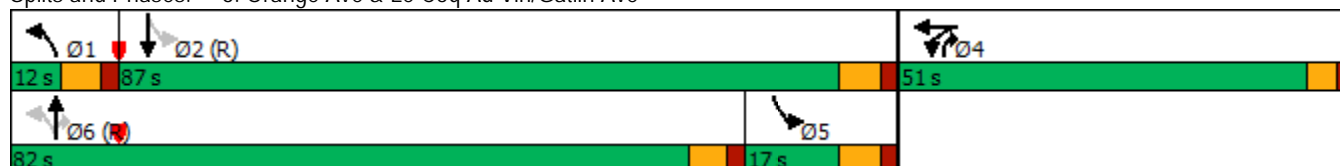
Intersection LOS: E

Intersection Capacity Utilization 100.1%

ICU Level of Service G

Analysis Period (min) 15























Splits and Phases: 6: Orange Ave & Le Coq Au Vin/Gatlin Ave



Network Totals

Number of Intersections	3
Total Delay (hr)	154
Stops (#)	5022
Average Speed (mph)	9
Total Travel Time (hr)	201
Distance Traveled (mi)	1798
Fuel Consumed (gal)	222
Fuel Economy (mpg)	8.1
Unserved Vehicles (#)	387
Vehicles in dilemma zone (#)	122
Performance Index	167.5

Phasings 2040 Long_term_Build 1 (HodelAveRealignmentWith1RailCrossing)_AM
3: Orange Ave & Holden Ave/WF Plaza

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	5	5	5	27	5	10	5	1984	32	6	1354	5
Future Volume (vph)	5	5	5	27	5	10	5	1984	32	6	1354	5
Satd. Flow (prot)	0	1845	1583	1805	1710	0	1770	3471	1346	1805	3406	1553
Flt Permitted		0.839		0.751			0.152			0.067		
Satd. Flow (perm)	0	1586	1583	1427	1710	0	283	3471	1346	127	3406	1553
Satd. Flow (RTOR)			129		10				136			
Lane Group Flow (vph)	0	10	5	28	15	0	5	2067	33	6	1410	5
Turn Type	pm+pt	NA	Perm	Perm	NA		pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	3	8			4		1	6		5	2	
Permitted Phases	8		8	4			6		6	2		2
Total Split (s)	14.0	38.0	38.0	24.0	24.0		12.0	100.1	100.1	11.9	100.0	100.0
Total Lost Time (s)		7.4	7.4	6.7	6.7		6.9	6.9	6.9	6.9	6.9	6.9
Act Effect Green (s)		11.7	11.7	12.2	12.2		124.2	125.6	125.6	124.2	125.6	125.6
Actuated g/C Ratio		0.08	0.08	0.08	0.08		0.83	0.84	0.84	0.83	0.84	0.84
v/c Ratio		0.08	0.02	0.24	0.10		0.02	0.71	0.03	0.04	0.49	0.00
Control Delay		59.5	0.2	65.1	33.8		4.8	3.0	0.0	8.2	7.1	6.6
Queue Delay		0.0	0.0	0.0	0.0		0.0	0.2	0.0	0.0	0.2	0.0
Total Delay		59.5	0.2	65.1	33.8		4.8	3.2	0.0	8.2	7.2	6.6
LOS		E	A	E	C		A	A	A	A	A	A
Approach Delay		39.7			54.2			3.1			7.2	
Approach LOS		D			D			A			A	

Intersection Summary

Cycle Length: 150

Actuated Cycle Length: 150

Offset: 125 (83%), Referenced to phase 2:SBTL and 6:NBTL, Start of Green

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.71

Intersection Signal Delay: 5.5

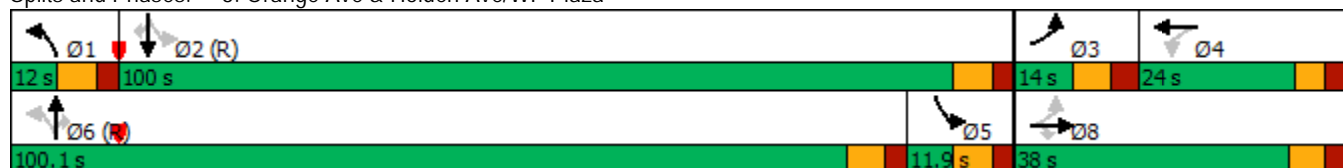
Intersection LOS: A

Intersection Capacity Utilization 74.3%
























ICU Level of Service D

Analysis Period (min) 15

Splits and Phases: 3: Orange Ave & Holden Ave/WF Plaza



Phasings 2040 Long_term_Build 1 (HodelAveRealignmentWith1RailCrossing)_AM
6: Orange Ave & Holden Realignment/Gatlin Ave

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	349	146	341	616	168	72	190	1600	251	54	1133	199
Future Volume (vph)	349	146	341	616	168	72	190	1600	251	54	1133	199
Satd. Flow (prot)	3433	1863	1583	3433	1809	0	3502	3471	1583	1770	3438	1615
Flt Permitted	0.950			0.950			0.950			0.063		
Satd. Flow (perm)	3433	1863	1583	3433	1809	0	3502	3471	1583	117	3438	1615
Satd. Flow (RTOR)			151		13				225			186
Lane Group Flow (vph)	364	152	355	642	250	0	198	1667	261	56	1180	207
Turn Type	Prot	NA	pm+ov	Prot	NA		Prot	NA	pm+ov	pm+pt	NA	pm+ov
Protected Phases	3	8	1	7	4		1	6	7	5	2	3
Permitted Phases			8						6	2		2
Total Split (s)	22.3	23.1	24.8	34.6	35.4		24.8	80.8	34.6	11.5	67.5	22.3
Total Lost Time (s)	5.4	5.4	6.4	5.4	5.4		6.4	6.4	5.4	6.5	6.5	5.4
Act Effect Green (s)	20.8	16.0	28.9	29.2	24.3		14.0	78.4	114.0	67.2	67.2	89.1
Actuated g/C Ratio	0.14	0.11	0.19	0.19	0.16		0.09	0.52	0.76	0.45	0.45	0.59
v/c Ratio	0.76	0.77	0.83	0.96	0.82		0.61	0.92	0.21	0.52	0.77	0.20
Control Delay	69.3	79.4	31.5	85.8	78.5		73.1	43.0	1.5	57.1	34.0	1.8
Queue Delay	0.5	0.0	0.0	0.0	0.0		0.0	0.1	0.0	0.0	1.4	0.2
Total Delay	69.8	79.4	31.5	85.8	78.5		73.1	43.1	1.5	57.1	35.4	2.0
LOS	E	E	C	F	E		E	D	A	E	D	A
Approach Delay		55.8			83.8			40.8			31.5	
Approach LOS		E			F			D			C	

Intersection Summary

Cycle Length: 150

Actuated Cycle Length: 150

Offset: 5 (3%), Referenced to phase 2:SBTL and 6:NBT, Start of Green

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.96

Intersection Signal Delay: 47.9

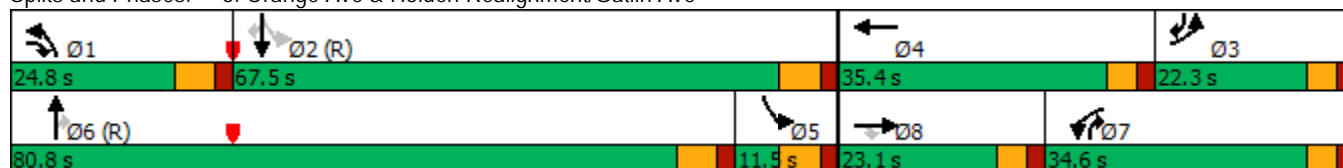
Intersection LOS: D

Intersection Capacity Utilization 93.4%




















ICU Level of Service F

Analysis Period (min) 15

Splits and Phases: 6: Orange Ave & Holden Realignment/Gatlin Ave



Phasings 2040 Long_term_Build 1 (HodelAveRealignmentWith1RailCrossing)_AM
11: Holden Realignment & Holden Ave

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	5	0	831	0	5	5	552	5	0	0	5	5
Future Volume (vph)	5	0	831	0	5	5	552	5	0	0	5	5
Satd. Flow (prot)	1770	0	1583	0	1736	0	1770	1863	0	0	1736	0
Flt Permitted	0.751						0.751					
Satd. Flow (perm)	1399	0	1583	0	1736	0	1399	1863	0	0	1736	0
Satd. Flow (RTOR)			903		5						5	
Lane Group Flow (vph)	5	0	903	0	10	0	600	5	0	0	10	0
Turn Type	Perm		Perm		NA		Perm	NA			NA	
Protected Phases					8			2				6
Permitted Phases	4		4	8			2					
Total Split (s)	31.0		31.0	31.0	31.0		44.0	44.0			44.0	
Total Lost Time (s)	6.0		6.0		6.0		6.0	6.0			6.0	
Act Effect Green (s)	15.0		15.0		15.0		48.0	48.0			48.0	
Actuated g/C Ratio	0.20		0.20		0.20		0.64	0.64			0.64	
v/c Ratio	0.02		0.87		0.03		0.67	0.00			0.01	
Control Delay	19.4		12.3		15.1		13.6	4.2			6.3	
Queue Delay	0.0		0.0		0.0		0.0	0.0			0.0	
Total Delay	19.4		12.3		15.1		13.6	4.2			6.3	
LOS	B		B		B		B	A			A	
Approach Delay		12.3			15.1			13.5			6.3	
Approach LOS		B			B			B			A	

Intersection Summary

Cycle Length: 75

Actuated Cycle Length: 75

Offset: 4 (5%), Referenced to phase 2:NBTL, Start of Green

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.87

Intersection Signal Delay: 12.8





Intersection LOS: B

Intersection Capacity Utilization 83.1%

ICU Level of Service E

Analysis Period (min) 15























Splits and Phases: 11: Holden Realignment & Holden Ave

 Ø2 (R)	 Ø4
44 s	31 s
 Ø6	 Ø8
44 s	31 s

Network Totals

Number of Intersections	4
Total Delay (hr)	78
Stops (#)	5087
Average Speed (mph)	15
Total Travel Time (hr)	132
Distance Traveled (mi)	1962
Fuel Consumed (gal)	172
Fuel Economy (mpg)	11.4
Unserved Vehicles (#)	0
Vehicles in dilemma zone (#)	150
Performance Index	92.6

Phasings 2040 Long_term_Build 1 (HodelAveRealignmentWith2RailCrossings)_AM
3: Orange Ave & Holden Ave/WF Plaza

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	324	25	0	3	29	10	162	1670	7	6	1189	177
Future Volume (vph)	324	25	0	3	29	10	162	1670	7	6	1189	177
Satd. Flow (prot)	1698	1716	0	1805	1828	0	1770	3471	1346	1805	3406	1553
Flt Permitted	0.731	0.728		0.625			0.149			0.099		
Satd. Flow (perm)	1306	1303	0	1188	1828	0	278	3471	1346	188	3406	1553
Satd. Flow (RTOR)					8				123			123
Lane Group Flow (vph)	183	181	0	3	40	0	169	1740	7	6	1239	184
Turn Type	pm+pt	NA		Perm	NA		pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	3	8			4		1	6		5	2	
Permitted Phases	8			4			6		6	2		2
Total Split (s)	25.0	40.3		15.3	15.3		24.0	107.7	107.7	12.0	95.7	95.7
Total Lost Time (s)	7.4	7.4		6.7	6.7		6.9	6.9	6.9	6.9	6.9	6.9
Act Effect Green (s)	26.4	26.4		7.5	7.5		116.9	116.9	116.9	101.7	101.7	101.7
Actuated g/C Ratio	0.16	0.16		0.05	0.05		0.73	0.73	0.73	0.64	0.64	0.64
v/c Ratio	0.73	0.72		0.05	0.43		0.56	0.69	0.01	0.04	0.57	0.18
Control Delay	72.6	71.7		74.0	75.1		14.4	1.7	0.0	15.7	19.3	5.5
Queue Delay	0.0	0.0		0.0	0.0		0.3	0.4	0.0	0.0	0.0	0.0
Total Delay	72.6	71.7		74.0	75.1		14.7	2.1	0.0	15.7	19.3	5.5
LOS	E	E		E	E		B	A	A	B	B	A
Approach Delay		72.2			75.1			3.2			17.5	
Approach LOS		E			E			A			B	

Intersection Summary

Cycle Length: 160

Actuated Cycle Length: 160

Offset: 35 (22%), Referenced to phase 2:SBTL and 6:NBTL, Start of Green

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.73

Intersection Signal Delay: 16.2

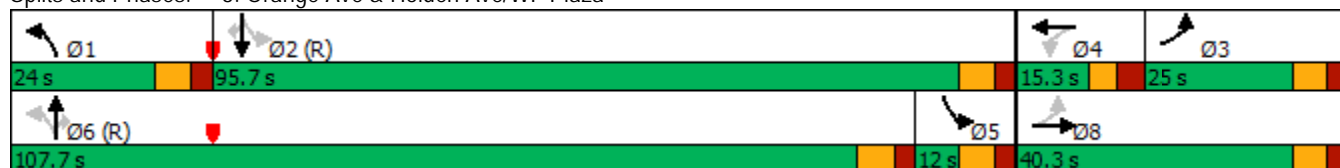
Intersection LOS: B

Intersection Capacity Utilization 84.3%























ICU Level of Service E

Analysis Period (min) 15

Splits and Phases: 3: Orange Ave & Holden Ave/WF Plaza



Phasings 2040 Long_term_Build 1 (HodelAveRealignmentWith2RailCrossings)_AM
6: Orange Ave & Holden Realignment/Gatlin Ave

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	5	146	341	616	168	72	28	1762	251	54	1133	5
Future Volume (vph)	5	146	341	616	168	72	28	1762	251	54	1133	5
Satd. Flow (prot)	0	1859	2787	3433	1809	0	1805	3471	1583	1770	3435	0
Flt Permitted		0.998		0.950			0.118			0.050		
Satd. Flow (perm)	0	1859	2787	3433	1809	0	224	3471	1583	93	3435	0
Satd. Flow (RTOR)			104		12				149			
Lane Group Flow (vph)	0	157	355	642	250	0	29	1835	261	56	1185	0
Turn Type	Split	NA	pt+ov	Split	NA		pm+pt	NA	pm+ov	pm+pt	NA	
Protected Phases	8	8	8 1	4	4		1	6	4	5	2	
Permitted Phases							6		6	2		
Total Split (s)	19.0	19.0		36.0	36.0		26.8	93.5	36.0	11.5	78.2	
Total Lost Time (s)		5.4		5.4	5.4		6.4	6.4	5.4	6.5	6.5	
Act Effect Green (s)		13.6	28.3	30.6	30.6		89.4	89.4	122.1	83.8	83.8	
Actuated g/C Ratio		0.08	0.18	0.19	0.19		0.56	0.56	0.76	0.52	0.52	
v/c Ratio		0.99	0.61	0.98	0.70		0.14	0.95	0.21	0.55	0.66	
Control Delay		137.2	47.1	93.7	69.3		18.4	44.9	1.7	45.3	11.9	
Queue Delay		0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.1	
Total Delay		137.2	47.1	93.7	69.3		18.4	44.9	1.7	45.3	12.0	
LOS		F	D	F	E		B	D	A	D	B	
Approach Delay		74.7			86.9			39.2			13.5	
Approach LOS		E			F			D			B	

Intersection Summary

Cycle Length: 160

Actuated Cycle Length: 160

Offset: 44 (28%), Referenced to phase 2:SBTL and 6:NBTL, Start of Green

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.99

Intersection Signal Delay: 45.2

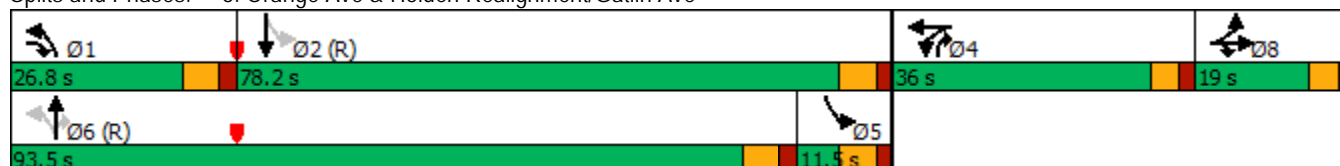
Intersection LOS: D

Intersection Capacity Utilization 88.6%




















ICU Level of Service E

Analysis Period (min) 15

Splits and Phases: 6: Orange Ave & Holden Realignment/Gatlin Ave



Phasings 2040 Long_term_Build 1 (HodelAveRealignmentWith2RailCrossings)_AM
11: Holden Realignment & Holden Ave

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	5	344	482	0	363	5	196	5	0	5	5	5
Future Volume (vph)	5	344	482	0	363	5	196	5	0	5	5	5
Satd. Flow (prot)	0	1861	1583	0	1859	0	1770	1863	0	0	1750	0
Flt Permitted		0.996					0.748				0.939	
Satd. Flow (perm)	0	1855	1583	0	1859	0	1393	1863	0	0	1670	0
Satd. Flow (RTOR)			524		1						5	
Lane Group Flow (vph)	0	379	524	0	400	0	213	5	0	0	15	0
Turn Type	Perm	NA	Perm		NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4		4	8			2			6		
Total Split (s)	49.0	49.0	49.0	49.0	49.0		31.0	31.0		31.0	31.0	
Total Lost Time (s)		6.0	6.0		6.0		6.0	6.0			6.0	
Act Effect Green (s)		50.6	50.6		50.6		17.4	17.4			17.4	
Actuated g/C Ratio		0.63	0.63		0.63		0.22	0.22			0.22	
v/c Ratio		0.32	0.44		0.34		0.70	0.01			0.04	
Control Delay		8.7	2.2		6.7		35.5	8.4			17.9	
Queue Delay		0.0	0.0		0.0		0.0	0.0			0.0	
Total Delay		8.7	2.2		6.7		35.5	8.4			17.9	
LOS		A	A		A		D	A			B	
Approach Delay		4.9			6.7			34.9			17.9	
Approach LOS		A			A			C			B	

Intersection Summary

Cycle Length: 80

Actuated Cycle Length: 80

Offset: 28 (35%), Referenced to phase 4:EBTL and 8:WBTL, Start of Green

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.70

Intersection Signal Delay: 9.8

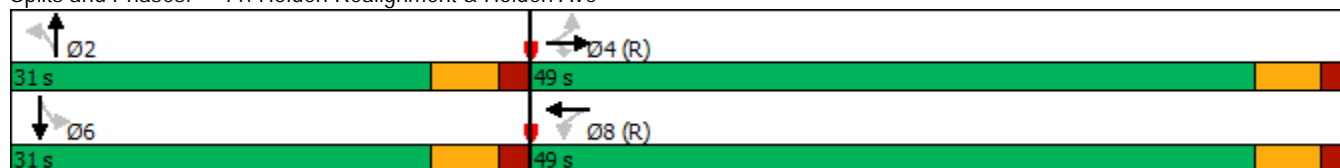
Intersection LOS: A

Intersection Capacity Utilization 72.6%

ICU Level of Service C

Analysis Period (min) 15
























Splits and Phases: 11: Holden Realignment & Holden Ave



Network Totals

Number of Intersections	4
Total Delay (hr)	78
Stops (#)	5055
Average Speed (mph)	15
Total Travel Time (hr)	128
Distance Traveled (mi)	1880
Fuel Consumed (gal)	168
Fuel Economy (mpg)	11.2
Unserved Vehicles (#)	0
Vehicles in dilemma zone (#)	179
Performance Index	91.7

Phasings 2040 Long_term_Build 3 (QuadIntersectionusingLakeGatlinRd)_AM
3: Orange Ave & Holden Ave/WF Plaza 08/27/2021

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	324	25	487	3	29	10	358	1660	7	6	1189	177
Future Volume (vph)	324	25	487	3	29	10	358	1660	7	6	1189	177
Satd. Flow (prot)	3467	1532	1504	1805	1828	0	3433	3471	1346	1805	3406	1553
Flt Permitted	0.950			0.889			0.950			0.061		
Satd. Flow (perm)	3467	1532	1504	1689	1828	0	3433	3471	1346	116	3406	1553
Satd. Flow (RTOR)		206	206		9				146			199
Lane Group Flow (vph)	338	269	264	3	40	0	373	1729	7	6	1239	184
Turn Type	Prot	NA	Prot	Perm	NA		Prot	NA	Perm	pm+pt	NA	Perm
Protected Phases	3	8	8		4		1	6		5	2	
Permitted Phases				4					6	2		2
Total Split (s)	26.0	38.0	38.0	12.0	12.0		27.0	90.1	90.1	11.9	75.0	75.0
Total Lost Time (s)	7.4	7.4	7.4	6.7	6.7		6.9	6.9	6.9	6.9	6.9	6.9
Act Effect Green (s)	17.4	27.2	27.2	5.6	5.6		18.8	96.1	96.1	77.8	72.8	72.8
Actuated g/C Ratio	0.12	0.19	0.19	0.04	0.04		0.13	0.69	0.69	0.56	0.52	0.52
v/c Ratio	0.79	0.58	0.58	0.04	0.49		0.81	0.73	0.01	0.05	0.70	0.20
Control Delay	73.1	17.8	17.3	66.7	74.4		74.3	4.5	0.0	11.0	29.3	2.5
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.9	0.0	0.0	0.0	0.0
Total Delay	73.1	17.8	17.3	66.7	74.4		74.3	5.3	0.0	11.0	29.3	2.5
LOS	E	B	B	E	E		E	A	A	B	C	A
Approach Delay		39.1			73.9			17.5			25.8	
Approach LOS		D			E			B			C	

Intersection Summary

Cycle Length: 140

Actuated Cycle Length: 140

Offset: 139 (99%), Referenced to phase 2:SBTL and 6:NBT, Start of Green

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.81

Intersection Signal Delay: 24.9

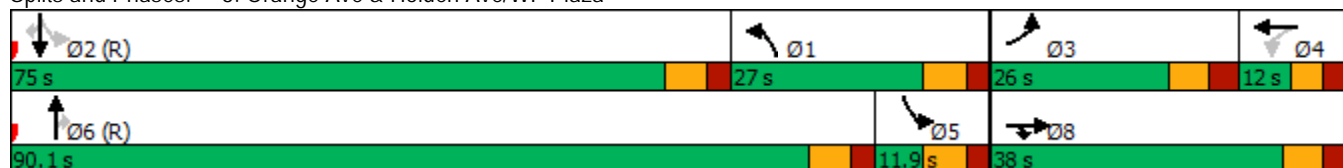
Intersection LOS: C



















Intersection Capacity Utilization 83.6%

ICU Level of Service E

Analysis Period (min) 15

Splits and Phases: 3: Orange Ave & Holden Ave/WF Plaza



												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	431	0	240	0	1785	125	0	1674	5
Future Volume (vph)	0	0	0	431	0	240	0	1785	125	0	1674	5
Satd. Flow (prot)	0	0	0	3433	0	1599	0	3471	1583	0	3439	0
Flt Permitted				0.950								
Satd. Flow (perm)	0	0	0	3433	0	1599	0	3471	1583	0	3439	0
Satd. Flow (RTOR)						27						
Lane Group Flow (vph)	0	0	0	449	0	250	0	1859	130	0	1749	0
Turn Type				Prot		Perm		NA	pm+ov		NA	
Protected Phases				4				6	4		2	
Permitted Phases						4		6	6			
Total Split (s)				38.2		38.2		101.8	38.2		101.8	
Total Lost Time (s)				5.4		5.4		6.4	5.4		6.5	
Act Effect Green (s)				25.5		25.5		102.7	140.0		102.6	
Actuated g/C Ratio				0.18		0.18		0.73	1.00		0.73	
v/c Ratio				0.72		0.80		0.73	0.08		0.69	
Control Delay				60.1		65.1		1.9	0.0		4.5	
Queue Delay				0.0		0.0		0.1	0.0		0.1	
Total Delay				60.1		65.1		2.0	0.0		4.7	
LOS				E		E		A	A		A	
Approach Delay					61.9			1.8			4.7	
Approach LOS					E			A			A	

Intersection Summary

Cycle Length: 140

Actuated Cycle Length: 140

Offset: 120 (86%), Referenced to phase 2:SBT and 6:NBT, Start of Green

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.80

Intersection Signal Delay: 12.4


Intersection LOS: B







Intersection Capacity Utilization 74.0%

ICU Level of Service D

Analysis Period (min) 15

Splits and Phases: 6: Orange Ave & Le Coq Au Vin/Gatlin Ave

			
Ø2 (R)		Ø6 (R)	Ø4
101.8 s		101.8 s	38.2 s

	WBL	WBR	NBT	NBR	SBL	SBT
Lane Group						
Lane Configurations						
Traffic Volume (vph)	185	6	1904	126	206	1899
Future Volume (vph)	185	6	1904	126	206	1899
Satd. Flow (prot)	1770	1583	3539	1583	1770	3539
Flt Permitted	0.950				0.043	
Satd. Flow (perm)	1770	1583	3539	1583	80	3539
Satd. Flow (RTOR)		6		81		
Lane Group Flow (vph)	193	6	1983	131	215	1978
Turn Type	Prot	Perm	NA	pm+ov	pm+pt	NA
Protected Phases	8		2	8	1	6
Permitted Phases		8		2	6	
Total Split (s)	25.0	25.0	93.0	25.0	22.0	115.0
Total Lost Time (s)	6.0	6.0	6.0	6.0	6.0	6.0
Act Effect Green (s)	17.9	17.9	88.1	112.0	110.1	110.1
Actuated g/C Ratio	0.13	0.13	0.63	0.80	0.79	0.79
v/c Ratio	0.85	0.03	0.89	0.10	0.84	0.71
Control Delay	88.3	30.8	28.6	1.4	66.2	6.4
Queue Delay	0.0	0.0	0.0	0.0	75.8	0.7
Total Delay	88.3	30.8	28.6	1.4	142.0	7.2
LOS	F	C	C	A	F	A
Approach Delay	86.6		26.9			20.4
Approach LOS	F		C			C

Intersection Summary

Cycle Length: 140

Actuated Cycle Length: 140

Offset: 126 (90%), Referenced to phase 2:NBT and 6:SBTL, Start of Green

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.89

Intersection Signal Delay: 26.4

Intersection LOS: C

Intersection Capacity Utilization 89.3%

ICU Level of Service E

Analysis Period (min) 15

Splits and Phases: 8: Orange Ave & Lake Gatlin Rd



	→	↘	↙	←	↖	↗	
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR	Ø8
Lane Configurations	↑		↘	↑		↗	
Traffic Volume (vph)	125	0	185	671	0	332	
Future Volume (vph)	125	0	185	671	0	332	
Satd. Flow (prot)	1863	0	1770	1863	0	1611	
Flt Permitted			0.670				
Satd. Flow (perm)	1863	0	1248	1863	0	1611	
Satd. Flow (RTOR)						738	
Lane Group Flow (vph)	136	0	201	729	0	361	
Turn Type	NA		pm+pt	NA		pt+ov	
Protected Phases	2		1	6		1 8	8
Permitted Phases			6			8	
Total Split (s)	37.0		22.0	59.0			11.0
Total Lost Time (s)	6.0		6.0	6.0			
Act Effect Green (s)	31.0		53.0	53.0		27.0	
Actuated g/C Ratio	0.44		0.76	0.76		0.39	
v/c Ratio	0.16		0.19	0.52		0.34	
Control Delay	11.2		3.0	4.9		3.1	
Queue Delay	0.0		0.0	0.0		0.0	
Total Delay	11.2		3.0	4.9		3.1	
LOS	B		A	A		A	
Approach Delay	11.2			4.5	3.1		
Approach LOS	B			A	A		

Intersection Summary

Cycle Length: 70

Actuated Cycle Length: 70

Offset: 7 (10%), Referenced to phase 2:EBT and 6:WBTL, Start of Green

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.52

Intersection Signal Delay: 4.8

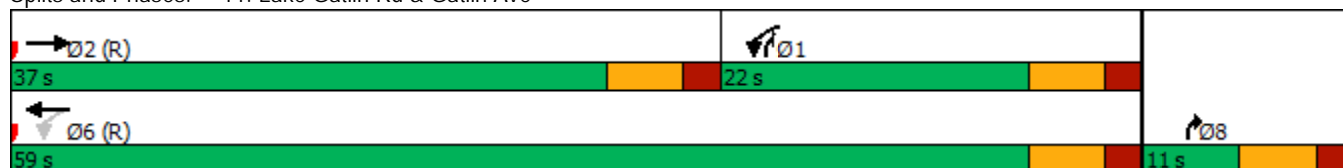
Intersection LOS: A

Intersection Capacity Utilization 40.3%

ICU Level of Service A

Analysis Period (min) 15

Splits and Phases: 11: Lake Gatlin Rd & Gatlin Ave

























Network Totals

Number of Intersections	4
Total Delay (hr)	78
Stops (#)	6033
Average Speed (mph)	15
Total Travel Time (hr)	133
Distance Traveled (mi)	2011
Fuel Consumed (gal)	183
Fuel Economy (mpg)	11.0
Unserved Vehicles (#)	0
Vehicles in dilemma zone (#)	343
Performance Index	94.5

Phasings

3: Orange Ave & Holden Ave/WF Plaza

2040 No_Build_PM

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	224	57	464	11	58	21	383	1371	26	25	1504	262
Future Volume (vph)	224	57	464	11	58	21	383	1371	26	25	1504	262
Satd. Flow (prot)	0	1828	1599	1805	1772	0	1430	3505	1615	1805	3438	1583
Flt Permitted		0.669		0.312			0.050			0.175		
Satd. Flow (perm)	0	1271	1599	593	1772	0	75	3505	1615	332	3438	1583
Satd. Flow (RTOR)			25		9				116			112
Lane Group Flow (vph)	0	305	504	12	86	0	416	1490	28	27	1635	285
Turn Type	pm+pt	NA	pm+ov	Perm	NA		pm+pt	NA	Perm	pm+pt	NA	pm+ov
Protected Phases	3	8	19		4		19	6		5	2	3
Permitted Phases	8		8	4			6		6	2		2
Total Split (s)	15.0	40.0		25.0	25.0			117.0	117.0	13.0	78.0	15.0
Total Lost Time (s)		7.4		6.7	6.7			6.9	6.9	6.9	6.9	6.9
Act Effect Green (s)		32.6	85.1	12.8	12.8		119.0	115.3	115.3	77.0	71.1	84.7
Actuated g/C Ratio		0.19	0.50	0.08	0.08		0.70	0.68	0.68	0.45	0.42	0.50
v/c Ratio		1.07	0.62	0.27	0.61		1.17	0.63	0.02	0.13	1.14	0.34
Control Delay		135.1	33.2	87.3	85.2		149.7	6.6	0.0	26.5	115.5	9.5
Queue Delay		0.0	0.2	0.0	0.0		0.0	0.7	0.0	0.0	0.0	0.0
Total Delay		135.1	33.4	87.3	85.2		149.8	7.3	0.0	26.5	115.5	9.5
LOS		F	C	F	F		F	A	A	C	F	A
Approach Delay		71.8			85.5			37.8			98.7	
Approach LOS		E			F			D			F	

Intersection Summary

Cycle Length: 170

Actuated Cycle Length: 170

Offset: 169 (99%), Referenced to phase 2:SBTL and 6:NBTL, Start of Green

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.17

Intersection Signal Delay: 69.3

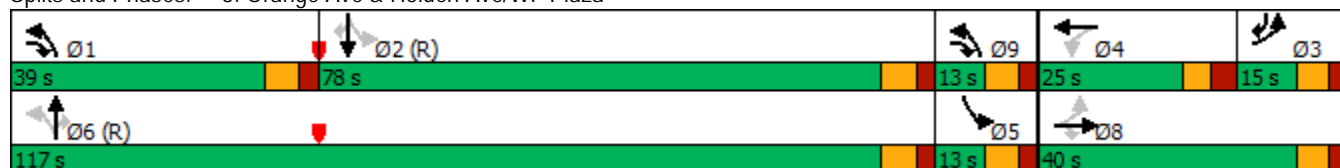
Intersection LOS: E

Intersection Capacity Utilization 102.5%

ICU Level of Service G

Analysis Period (min) 15

Splits and Phases: 3: Orange Ave & Holden Ave/WF Plaza



Lane Group	Ø1	Ø9
Lane Configurations		
Traffic Volume (vph)		
Future Volume (vph)		
Satd. Flow (prot)		
Flt Permitted		
Satd. Flow (perm)		
Satd. Flow (RTOR)		
Lane Group Flow (vph)		
Turn Type		
Protected Phases	1	9
Permitted Phases		
Total Split (s)	39.0	13.0
Total Lost Time (s)		
Act Effect Green (s)		
Actuated g/C Ratio		
v/c Ratio		
Control Delay		
Queue Delay		
Total Delay		
LOS		
Approach Delay		
Approach LOS		
Intersection Summary		

Phasings
6: Orange Ave & Le Coq Au Vin/Gatlin Ave

2040 No_Build_PM

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	404	0	206	5	1574	567	234	1740	5
Future Volume (vph)	0	0	0	404	0	206	5	1574	567	234	1740	5
Satd. Flow (prot)	0	0	0	1444	1580	0	1805	3505	1615	1787	3472	0
Flt Permitted				0.950	0.986		0.046			0.042		
Satd. Flow (perm)	0	0	0	1444	1580	0	87	3505	1615	79	3472	0
Satd. Flow (RTOR)					105				120			
Lane Group Flow (vph)	0	0	0	329	299	0	5	1623	585	241	1799	0
Turn Type				Split	NA		pm+pt	NA	pm+ov	pm+pt	NA	
Protected Phases				4	4		1	6	4	5	2	
Permitted Phases							6	6	6	2		
Total Split (s)				50.0	50.0		12.0	93.0	50.0	27.0	108.0	
Total Lost Time (s)				5.4	5.4		6.4	6.4	6.4	6.5	6.5	
Act Effect Green (s)				43.1	43.1		95.7	88.6	137.0	114.8	101.5	
Actuated g/C Ratio				0.25	0.25		0.56	0.52	0.81	0.68	0.60	
v/c Ratio				0.90	0.63		0.04	0.89	0.44	0.95	0.87	
Control Delay				88.6	41.8		11.6	44.1	4.9	82.9	12.1	
Queue Delay				0.0	32.4		0.0	0.5	0.0	1.7	14.0	
Total Delay				88.6	74.2		11.6	44.6	4.9	84.6	26.2	
LOS				F	E		B	D	A	F	C	
Approach Delay					81.7			34.0			33.1	
Approach LOS					F			C			C	

Intersection Summary

Cycle Length: 170

Actuated Cycle Length: 170

Offset: 160 (94%), Referenced to phase 2:SBTL and 6:NBTL, Start of Green

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.95

Intersection Signal Delay: 39.8

Intersection LOS: D

Intersection Capacity Utilization 89.2%

ICU Level of Service E

Analysis Period (min) 15























Splits and Phases: 6: Orange Ave & Le Coq Au Vin/Gatlin Ave



Network Totals

Number of Intersections	3
Total Delay (hr)	137
Stops (#)	5253
Average Speed (mph)	10
Total Travel Time (hr)	187
Distance Traveled (mi)	1907
Fuel Consumed (gal)	217
Fuel Economy (mpg)	8.8
Unserved Vehicles (#)	252
Vehicles in dilemma zone (#)	184
Performance Index	151.9

Phasings 2040 Long_term_Build 1 (HodelAveRealignmentWith1RailCrossing)_PM
3: Orange Ave & Holden Ave/WF Plaza

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	5	5	5	64	5	21	5	1595	83	25	1761	5
Future Volume (vph)	5	5	5	64	5	21	5	1595	83	25	1761	5
Satd. Flow (prot)	0	1854	1599	1805	1656	0	1787	3505	1615	1805	3438	1583
Flt Permitted		0.854		0.751			0.080			0.119		
Satd. Flow (perm)	0	1623	1599	1427	1656	0	150	3505	1615	226	3438	1583
Satd. Flow (RTOR)			129		22				136			
Lane Group Flow (vph)	0	10	5	66	27	0	5	1644	86	26	1815	5
Turn Type	pm+pt	NA	Perm	Perm	NA		pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	3	8			4		1	6		5	2	
Permitted Phases	8		8	4			6		6	2		2
Total Split (s)	14.0	38.0	38.0	24.0	24.0		12.0	100.0	100.0	12.0	100.0	100.0
Total Lost Time (s)		7.4	7.4	6.7	6.7		6.9	6.9	6.9	6.9	6.9	6.9
Act Effect Green (s)		14.0	14.0	14.9	14.9		117.0	118.4	118.4	121.7	123.1	123.1
Actuated g/C Ratio		0.09	0.09	0.10	0.10		0.78	0.79	0.79	0.81	0.82	0.82
v/c Ratio		0.07	0.02	0.47	0.15		0.03	0.59	0.07	0.11	0.64	0.00
Control Delay		57.0	0.2	71.8	24.9		4.8	2.1	0.1	8.7	10.3	7.0
Queue Delay		0.0	0.0	0.0	0.0		0.0	0.1	0.0	0.0	0.7	0.0
Total Delay		57.0	0.2	71.8	24.9		4.8	2.2	0.1	8.7	11.0	7.0
LOS		E	A	E	C		A	A	A	A	B	A
Approach Delay		38.1			58.2			2.1			11.0	
Approach LOS		D			E			A			B	

Intersection Summary

Cycle Length: 150

Actuated Cycle Length: 150

Offset: 149 (99%), Referenced to phase 2:SBTL and 6:NBTL, Start of Green

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.64

Intersection Signal Delay: 8.1

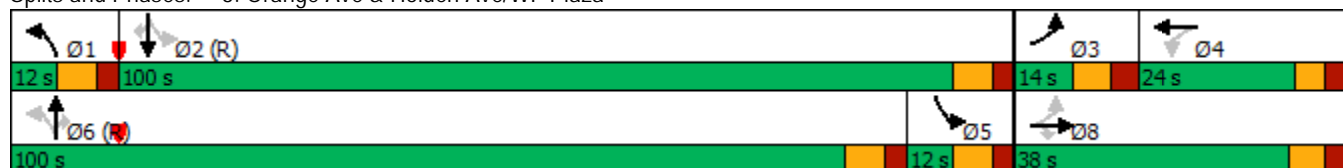
Intersection LOS: A

Intersection Capacity Utilization 74.5%
























ICU Level of Service D

Analysis Period (min) 15

Splits and Phases: 3: Orange Ave & Holden Ave/WF Plaza



Phasings 2040 Long_term_Build 1 (HodelAveRealignmentWith1RailCrossing)_PM
6: Orange Ave & Holden Realignment/Gatlin Ave

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	281	139	325	404	144	62	239	1340	567	95	1415	320
Future Volume (vph)	281	139	325	404	144	62	239	1340	567	95	1415	320
Satd. Flow (prot)	3433	1863	1583	3502	1809	0	3502	3505	1615	1787	3471	1615
Flt Permitted	0.950			0.950			0.950			0.145		
Satd. Flow (perm)	3433	1863	1583	3502	1809	0	3502	3505	1615	273	3471	1615
Satd. Flow (RTOR)			111		13				325			261
Lane Group Flow (vph)	290	143	335	416	212	0	246	1381	585	98	1459	330
Turn Type	Prot	NA	pm+ov	Prot	NA		Prot	NA	pm+ov	pm+pt	NA	pm+ov
Protected Phases	3	8	1	7	4		1	6	7	5	2	3
Permitted Phases			8						6	2		2
Total Split (s)	20.0	28.2	19.0	27.2	35.4		19.0	81.6	27.2	13.0	75.6	20.0
Total Lost Time (s)	5.4	5.4	6.4	5.4	5.4		6.4	6.4	5.4	6.5	6.5	5.4
Act Effect Green (s)	17.1	17.9	41.4	21.2	22.0		18.1	80.7	102.9	69.1	69.1	87.3
Actuated g/C Ratio	0.11	0.12	0.28	0.14	0.15		0.12	0.54	0.69	0.46	0.46	0.58
v/c Ratio	0.74	0.64	0.65	0.84	0.77		0.58	0.73	0.48	0.51	0.91	0.31
Control Delay	68.5	66.9	33.6	78.4	75.2		69.5	30.3	3.9	35.9	39.1	2.1
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	33.3	0.4
Total Delay	68.5	66.9	33.6	78.4	75.2		69.5	30.3	3.9	35.9	72.4	2.5
LOS	E	E	C	E	E		E	C	A	D	E	A
Approach Delay		53.0			77.3			27.7			58.3	
Approach LOS		D			E			C			E	

Intersection Summary

Cycle Length: 150

Actuated Cycle Length: 150

Offset: 25 (17%), Referenced to phase 2:SBTL and 6:NBT, Start of Green

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.91

Intersection Signal Delay: 47.4

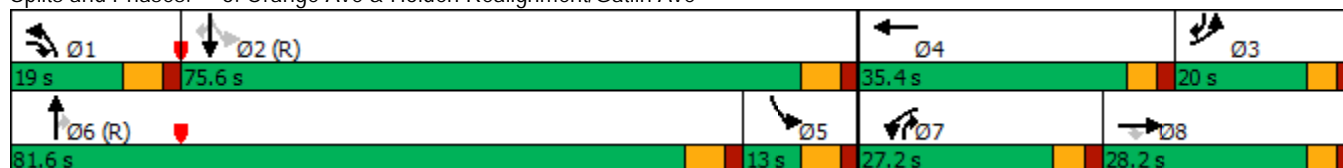
Intersection LOS: D

Intersection Capacity Utilization 86.0%



















ICU Level of Service E

Analysis Period (min) 15

Splits and Phases: 6: Orange Ave & Holden Realignment/Gatlin Ave



Phasings 2040 Long_term_Build 1 (HodelAveRealignmentWith1RailCrossing)_PM
11: Holden Realignment & Holden Ave

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	5	0	740	0	5	5	698	5	0	0	5	5
Future Volume (vph)	5	0	740	0	5	5	698	5	0	0	5	5
Satd. Flow (prot)	1770	0	1583	0	1736	0	1770	1863	0	0	1736	0
Flt Permitted	0.751						0.751					
Satd. Flow (perm)	1399	0	1583	0	1736	0	1399	1863	0	0	1736	0
Satd. Flow (RTOR)			804		5						5	
Lane Group Flow (vph)	5	0	804	0	10	0	759	5	0	0	10	0
Turn Type	Perm		Perm		NA		Perm	NA			NA	
Protected Phases					8			2				6
Permitted Phases	4		4	8			2					
Total Split (s)	50.0		50.0	50.0	50.0		100.0	100.0			100.0	
Total Lost Time (s)	6.0		6.0		6.0		6.0	6.0			6.0	
Act Effect Green (s)	18.1		18.1		18.1		119.9	119.9			119.9	
Actuated g/C Ratio	0.12		0.12		0.12		0.80	0.80			0.80	
v/c Ratio	0.03		0.90		0.05		0.68	0.00			0.01	
Control Delay	49.6		16.9		35.1		13.6	4.6			4.8	
Queue Delay	0.0		0.0		0.0		0.0	0.0			0.0	
Total Delay	49.6		16.9		35.1		13.6	4.6			4.8	
LOS	D		B		D		B	A			A	
Approach Delay		17.1			35.1			13.5			4.8	
Approach LOS		B			D			B			A	

Intersection Summary

Cycle Length: 150

Actuated Cycle Length: 150

Offset: 137 (91%), Referenced to phase 2:NBTL, Start of Green

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.90

Intersection Signal Delay: 15.4

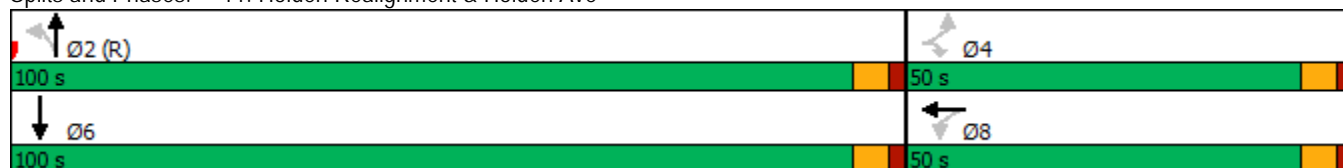
Intersection LOS: B

Intersection Capacity Utilization 77.5%

ICU Level of Service D

Analysis Period (min) 15























Splits and Phases: 11: Holden Realignment & Holden Ave



Network Totals

Number of Intersections	4
Total Delay (hr)	85
Stops (#)	5185
Average Speed (mph)	15
Total Travel Time (hr)	141
Distance Traveled (mi)	2105
Fuel Consumed (gal)	183
Fuel Economy (mpg)	11.5
Unserved Vehicles (#)	0
Vehicles in dilemma zone (#)	168
Performance Index	99.0

Phasings 2040 Long_term_Build 2 (HodelAveRealignmentWith2RailCrossings)_PM
3: Orange Ave & Holden Ave/WF Plaza

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	224	57	0	11	58	21	203	1381	26	25	1504	262
Future Volume (vph)	224	57	0	11	58	21	203	1381	26	25	1504	262
Satd. Flow (prot)	1715	1753	0	1805	1772	0	1787	3505	1615	1805	3438	1583
Flt Permitted	0.689	0.753		0.358			0.086			0.131		
Satd. Flow (perm)	1244	1359	0	680	1772	0	162	3505	1615	249	3438	1583
Satd. Flow (RTOR)					9				123			170
Lane Group Flow (vph)	143	147	0	11	82	0	209	1424	27	26	1551	270
Turn Type	pm+pt	NA		Perm	NA		pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	3	8			4		1	6		5	2	
Permitted Phases	8			4			6		6	2		2
Total Split (s)	16.0	38.0		22.0	22.0		29.0	110.0	110.0	12.0	93.0	93.0
Total Lost Time (s)	7.4	7.4		6.7	6.7		6.9	6.9	6.9	6.9	6.9	6.9
Act Effect Green (s)	24.6	24.6		11.7	11.7		121.1	113.9	113.9	101.5	96.4	96.4
Actuated g/C Ratio	0.15	0.15		0.07	0.07		0.76	0.71	0.71	0.63	0.60	0.60
v/c Ratio	0.68	0.66		0.22	0.60		0.69	0.57	0.02	0.13	0.75	0.26
Control Delay	74.9	71.8		78.9	81.0		45.2	1.1	0.0	9.5	27.5	6.9
Queue Delay	0.0	0.0		0.0	0.0		16.0	0.5	0.0	0.0	0.2	0.0
Total Delay	74.9	71.8		78.9	81.0		61.2	1.6	0.0	9.5	27.7	6.9
LOS	E	E		E	F		E	A	A	A	C	A
Approach Delay		73.3			80.8			9.1			24.4	
Approach LOS		E			F			A			C	

Intersection Summary

Cycle Length: 160

Actuated Cycle Length: 160

Offset: 134 (84%), Referenced to phase 2:SBTL and 6:NBTL, Start of Green

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.75

Intersection Signal Delay: 22.9

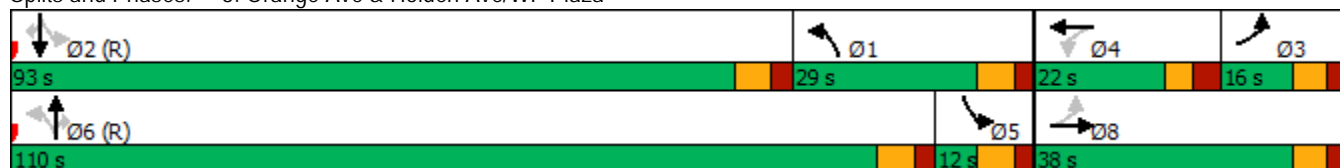
Intersection LOS: C

Intersection Capacity Utilization 84.9%























ICU Level of Service E

Analysis Period (min) 15

Splits and Phases: 3: Orange Ave & Holden Ave/WF Plaza



Phasings 2040 Long_term_Build 2 (HodelAveRealignmentWith2RailCrossings)_PM
6: Orange Ave & Holden Realignment/Gatlin Ave

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	5	139	325	404	144	62	36	1543	567	95	1415	5
Future Volume (vph)	5	139	325	404	144	62	36	1543	567	95	1415	5
Satd. Flow (prot)	0	1859	2787	3502	1809	0	1805	3505	1615	1787	3468	0
Flt Permitted		0.998		0.950			0.052			0.069		
Satd. Flow (perm)	0	1859	2787	3502	1809	0	99	3505	1615	130	3468	0
Satd. Flow (RTOR)			104		12				157			
Lane Group Flow (vph)	0	148	335	416	212	0	37	1591	585	98	1464	0
Turn Type	Split	NA	pm+ov	Split	NA		pm+pt	NA	pm+ov	pm+pt	NA	
Protected Phases	8	8	1	4	4		1	6	4	5	2	
Permitted Phases			8				6		6	2		
Total Split (s)	19.0	19.0	25.0	35.5	35.5		25.0	90.9	35.5	14.6	80.5	
Total Lost Time (s)		5.4	6.4	5.4	5.4		6.4	6.4	5.4	6.5	6.5	
Act Effect Green (s)		14.4	28.1	28.0	28.0		85.8	85.8	114.8	85.6	85.6	
Actuated g/C Ratio		0.09	0.18	0.18	0.18		0.54	0.54	0.72	0.54	0.54	
v/c Ratio		0.88	0.58	0.68	0.65		0.26	0.85	0.49	0.64	0.79	
Control Delay		112.4	44.5	67.7	67.5		22.9	37.3	4.8	36.7	8.7	
Queue Delay		0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.4	
Total Delay		112.4	44.5	67.7	67.5		22.9	37.3	4.8	36.7	9.1	
LOS		F	D	E	E		C	D	A	D	A	
Approach Delay		65.3			67.6			28.5			10.8	
Approach LOS		E			E			C			B	

Intersection Summary

Cycle Length: 160

Actuated Cycle Length: 160

Offset: 153 (96%), Referenced to phase 2:SBTL and 6:NBTL, Start of Green

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.88

Intersection Signal Delay: 31.5








Intersection LOS: C

Intersection Capacity Utilization 86.8%




















ICU Level of Service E

Analysis Period (min) 15

Splits and Phases: 6: Orange Ave & Holden Realignment/Gatlin Ave

				
Ø1	Ø2 (R)		Ø4	Ø8
25 s	80.5 s		35.5 s	19 s
				
Ø6 (R)		Ø5		
90.9 s		14.6 s		

Phasings 2040 Long_term_Build 2 (HodelAveRealignmentWith2RailCrossings)_PM
11: Holden Realignment & Holden Ave

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	5	276	459	0	518	5	180	5	0	5	5	5
Future Volume (vph)	5	276	459	0	518	5	180	5	0	5	5	5
Satd. Flow (prot)	0	1861	1583	0	1861	0	1770	1863	0	0	1750	0
Flt Permitted		0.992					0.748				0.944	
Satd. Flow (perm)	0	1848	1583	0	1861	0	1393	1863	0	0	1679	0
Satd. Flow (RTOR)			499		1						5	
Lane Group Flow (vph)	0	305	499	0	568	0	196	5	0	0	15	0
Turn Type	Perm	NA	Perm		NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4		4				2			6		
Total Split (s)	110.0	110.0	110.0		110.0		50.0	50.0		50.0	50.0	
Total Lost Time (s)		6.0	6.0		6.0		6.0	6.0			6.0	
Act Effect Green (s)		120.0	120.0		120.0		28.0	28.0			28.0	
Actuated g/C Ratio		0.75	0.75		0.75		0.18	0.18			0.18	
v/c Ratio		0.22	0.38		0.41		0.81	0.02			0.05	
Control Delay		7.1	1.5		6.8		63.7	29.4			38.5	
Queue Delay		0.0	0.0		0.3		0.0	0.0			0.0	
Total Delay		7.1	1.5		7.1		63.7	29.4			38.5	
LOS		A	A		A		E	C			D	
Approach Delay		3.6			7.1			62.8			38.5	
Approach LOS		A			A			E			D	

Intersection Summary

Cycle Length: 160

Actuated Cycle Length: 160

Offset: 17 (11%), Referenced to phase 4:EBTL and 8:WBT, Start of Green

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.81

Intersection Signal Delay: 12.7

Intersection LOS: B

Intersection Capacity Utilization 54.2%

ICU Level of Service A

Analysis Period (min) 15
























Splits and Phases: 11: Holden Realignment & Holden Ave



Network Totals

Number of Intersections	4
Total Delay (hr)	71
Stops (#)	5493
Average Speed (mph)	16
Total Travel Time (hr)	124
Distance Traveled (mi)	2009
Fuel Consumed (gal)	173
Fuel Economy (mpg)	11.6
Unserved Vehicles (#)	0
Vehicles in dilemma zone (#)	137
Performance Index	86.0

Phasings 2040 Long_term_Build 3 (QuadIntersectionusingLakeGatlinRd)_PM
3: Orange Ave & Holden Ave/WF Plaza

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	224	57	464	11	58	21	383	1371	26	25	1504	262
Future Volume (vph)	224	57	464	11	58	21	383	1371	26	25	1504	262
Satd. Flow (prot)	3502	1580	1519	1805	1772	0	3467	3505	1615	1805	3438	1583
Flt Permitted	0.704			0.364			0.950			0.121		
Satd. Flow (perm)	2595	1580	1519	692	1772	0	3467	3505	1615	230	3438	1583
Satd. Flow (RTOR)		120	164		11				140			194
Lane Group Flow (vph)	231	274	263	11	82	0	395	1413	27	26	1551	270
Turn Type	pm+pt	NA	Prot	Perm	NA		Prot	NA	Perm	pm+pt	NA	Perm
Protected Phases	3	8	8		4		1	6		5	2	
Permitted Phases	8			4					6	2		2
Total Split (s)	14.0	38.0	38.0	24.0	24.0		25.0	90.0	90.0	12.0	77.0	77.0
Total Lost Time (s)	7.4	7.4	7.4	6.7	6.7		6.9	6.9	6.9	6.9	6.9	6.9
Act Effect Green (s)	23.8	23.8	23.8	11.0	11.0		17.9	94.7	94.7	82.3	77.2	77.2
Actuated g/C Ratio	0.17	0.17	0.17	0.08	0.08		0.13	0.68	0.68	0.59	0.55	0.55
v/c Ratio	0.48	0.75	0.67	0.20	0.55		0.89	0.60	0.02	0.14	0.82	0.28
Control Delay	55.8	43.1	28.4	67.2	66.5		79.2	2.4	0.0	10.5	31.0	6.0
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.2	0.0	0.0	0.0	0.0
Total Delay	55.8	43.1	28.4	67.2	66.5		79.2	2.6	0.0	10.5	31.0	6.0
LOS	E	D	C	E	E		E	A	A	B	C	A
Approach Delay		41.9			66.6			19.0			27.1	
Approach LOS		D			E			B			C	

Intersection Summary

Cycle Length: 140

Actuated Cycle Length: 140

Offset: 17 (12%), Referenced to phase 2:SBTL and 6:NBT, Start of Green

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.89

Intersection Signal Delay: 27.1

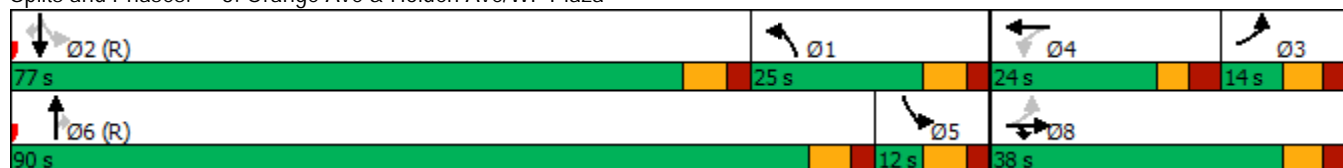
Intersection LOS: C

Intersection Capacity Utilization 83.2%



















ICU Level of Service E

Analysis Period (min) 15

Splits and Phases: 3: Orange Ave & Holden Ave/WF Plaza



Phasings 2040 Long_term_Build 3 (QuadIntersectionusingLakeGatlinRd)_PM
6: Orange Ave & Le Coq Au Vin/Gatlin Ave

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	283	0	206	0	1574	300	0	1974	5
Future Volume (vph)	0	0	0	283	0	206	0	1574	300	0	1974	5
Satd. Flow (prot)	0	0	0	3502	0	1599	0	3505	1615	0	3471	0
Flt Permitted				0.950								
Satd. Flow (perm)	0	0	0	3502	0	1599	0	3505	1615	0	3471	0
Satd. Flow (RTOR)						49						
Lane Group Flow (vph)	0	0	0	292	0	212	0	1623	309	0	2040	0
Turn Type				Prot		Perm		NA	pm+ov		NA	
Protected Phases				4				6	4		2	
Permitted Phases						4		6	6			
Total Split (s)				35.4		35.4		104.6	35.4		104.6	
Total Lost Time (s)				5.4		5.4		6.4	5.4		6.5	
Act Effect Green (s)				20.9		20.9		107.3	140.0		107.2	
Actuated g/C Ratio				0.15		0.15		0.77	1.00		0.77	
v/c Ratio				0.56		0.76		0.60	0.19		0.77	
Control Delay				58.9		58.9		0.5	0.1		4.8	
Queue Delay				0.1		0.0		0.2	0.0		0.2	
Total Delay				58.9		58.9		0.7	0.1		4.9	
LOS				E		E		A	A		A	
Approach Delay					58.9			0.6			4.9	
Approach LOS					E			A			A	

Intersection Summary

Cycle Length: 140

Actuated Cycle Length: 140

Offset: 136 (97%), Referenced to phase 2:SBT and 6:NBT, Start of Green

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.77

Intersection Signal Delay: 9.1


Intersection LOS: A

Intersection Capacity Utilization 71.5%













ICU Level of Service C

Analysis Period (min) 15

Splits and Phases: 6: Orange Ave & Le Coq Au Vin/Gatlin Ave

	
Ø2 (R)	Ø4
104.6 s	35.4 s
	
Ø6 (R)	
104.6 s	

Phasings 2040 Long_term_Build 3 (QuadIntersectionusingLakeGatlinRd)_PM
8: Orange Ave & Lake Gatlin Rd

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	121	8	1866	270	241	2016
Future Volume (vph)	121	8	1866	270	241	2016
Satd. Flow (prot)	1770	1583	3539	1583	1770	3539
Flt Permitted	0.950				0.042	
Satd. Flow (perm)	1770	1583	3539	1583	78	3539
Satd. Flow (RTOR)		8		154		
Lane Group Flow (vph)	125	8	1924	278	248	2078
Turn Type	Prot	Perm	NA	pm+ov	pm+pt	NA
Protected Phases	8		2	8	1	6
Permitted Phases		8		2	6	
Total Split (s)	20.0	20.0	94.0	20.0	26.0	120.0
Total Lost Time (s)	6.0	6.0	6.0	6.0	6.0	6.0
Act Effect Green (s)	13.0	13.0	89.0	108.0	115.0	115.0
Actuated g/C Ratio	0.09	0.09	0.64	0.77	0.82	0.82
v/c Ratio	0.76	0.05	0.86	0.22	0.81	0.72
Control Delay	81.9	26.8	25.6	2.3	55.0	3.0
Queue Delay	0.0	0.0	0.0	0.0	74.9	0.8
Total Delay	81.9	26.8	25.6	2.3	130.0	3.8
LOS	F	C	C	A	F	A
Approach Delay	78.6		22.7			17.3
Approach LOS	E		C			B

Intersection Summary

Cycle Length: 140

Actuated Cycle Length: 140

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

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.86

Intersection Signal Delay: 21.6

Intersection LOS: C

Intersection Capacity Utilization 86.6%

ICU Level of Service E

Analysis Period (min) 15

Splits and Phases: 8: Orange Ave & Lake Gatlin Rd



Phasings 2040 Long_term_Build 3 (QuadIntersectionusingLakeGatlinRd)_PM
11: Lake Gatlin Rd & Gatlin Ave

	→	↘	↙	←	↖	↗	
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR	Ø8
Lane Configurations	↑		↘	↑		↗	
Traffic Volume (vph)	300	0	121	489	0	511	
Future Volume (vph)	300	0	121	489	0	511	
Satd. Flow (prot)	1863	0	1770	1863	0	1611	
Flt Permitted			0.411				
Satd. Flow (perm)	1863	0	766	1863	0	1611	
Satd. Flow (RTOR)						269	
Lane Group Flow (vph)	326	0	132	532	0	555	
Turn Type	NA		pm+pt	NA		pt+ov	
Protected Phases	2		1	6		1 8	8
Permitted Phases			6			8	
Total Split (s)	27.2		11.0	38.2			31.8
Total Lost Time (s)	6.0		6.0	6.0			
Act Effect Green (s)	28.2		41.3	41.3		29.8	
Actuated g/C Ratio	0.40		0.59	0.59		0.43	
v/c Ratio	0.43		0.24	0.48		0.66	
Control Delay	17.5		9.4	11.8		13.0	
Queue Delay	0.0		0.0	0.0		0.0	
Total Delay	17.5		9.4	11.8		13.0	
LOS	B		A	B		B	
Approach Delay	17.5			11.3	13.0		
Approach LOS	B			B	B		

Intersection Summary

Cycle Length: 70

Actuated Cycle Length: 70

Offset: 41 (59%), Referenced to phase 2:EBT and 6:WBTL, Start of Green

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.66

Intersection Signal Delay: 13.2

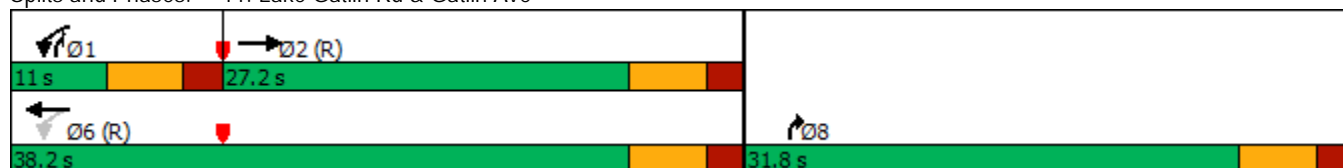
Intersection LOS: B

Intersection Capacity Utilization 57.4%

ICU Level of Service B

Analysis Period (min) 15

Splits and Phases: 11: Lake Gatlin Rd & Gatlin Ave



Network Totals

Number of Intersections	4
Total Delay (hr)	77
Stops (#)	5951
Average Speed (mph)	16
Total Travel Time (hr)	135
Distance Traveled (mi)	2145
Fuel Consumed (gal)	186
Fuel Economy (mpg)	11.6
Unserved Vehicles (#)	0
Vehicles in dilemma zone (#)	272
Performance Index	93.1

Intersection Analysis Study for Orange Avenue/Gatlin Avenue & Orange Avenue/Holden Avenue

Appendix K: Cost Estimates & B/C Calculations

PRELIMINARY COST ESTIMATE

Orange Avenue at Holden Avenue Short-term Modifications

Orange County, Florida

Pay Item	Pay Item Description	Unit	Quantity	Unit Price	Total Cost
632-7-1	SIGNAL CABLE- NEW OR RECONSTRUCTED INTERSECTION, FURNISH & INSTALL	PI	1	\$6,160.00	\$6,160.00
650-1-19	VEHICULAR TRAFFIC SIGNAL, FURNISH & INSTALL ALUMINUM, 5 SECTION CLUSTER, 1 WAY	AS	3	\$760.00	\$2,280.00
650-1-60	VEHICULAR TRAFFIC SIGNAL, REMOVE- POLES TO REMAIN	AS	4	\$150.00	\$600.00
670-5-400	TRAFFIC CONTROLLER ASSEMBLY, MODIFY	AS	1	\$2,025.00	\$2,025.00
711-11-170	THERMOPLASTIC, STANDARD, WHITE, ARROW	EA	4	\$65.00	\$260.00
711-17-1	THERMOPLASTIC, REMOVE EXISTING THERMOPLASTIC PAVEMENT MARKINGS SURFACE TO REMAIN	SF	90	\$1.10	\$99.00

SubTotal \$11,424.00

Maintenance of Traffic 10% \$1,142.40

Mobilization 10% \$1,256.64

Project Unknowns 20% \$2,284.80

Retiming - \$8,000.00

Total \$24,107.84

Notes:

1. Unit prices based on current FDOT 12 Month Moving Statewide Averages - 6/1/2020 TO 5/31/2021

Date: 8/25/2021 7:22:59 AM

FDOT Long Range Estimating System - Production

R3: Project Details by Sequence Report

Project: 101010-1-52-01

Letting Date: 01/2099

Description: VHB Project# 62876.17

District: 05 County: 75 ORANGE

Market Area: 08 Units: English

Contract Class: Lump Sum Project: N

Design/Build: N Project Length: 0.217 MI

Project Manager:

Version 42 Project Grand Total

\$3,741,738.78

Description: Holden/Gatlin Alt1

Sequence: 1 NUU - New Construction, Undivided, Urban

Net Length: 0.208 MI
1,098 LF

Description: Gatlin Extension

EARTHWORK COMPONENT

User Input Data

Description	Value
Standard Clearing and Grubbing Limits L/R	36.00 / 36.00
Incidental Clearing and Grubbing Area	1.18
Alignment Number	1
Distance	0.208
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
Front Slope L/R	2 to 1 / 2 to 1
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	1.82	AC	\$42,822.21	\$77,936.42
110-1-1	CLEARING & GRUBBING	1.18	AC	\$42,822.21	\$50,530.21
120-6	EMBANKMENT	3,842.21	CY	\$16.05	\$61,667.47

Earthwork Component Total

\$190,134.10

ROADWAY COMPONENT

User Input Data

Description	Value
Number of Lanes	4
Roadway Pavement Width L/R	24.00 / 24.00
Structural Spread Rate	165
Friction Course Spread Rate	165

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
----------	-------------	----------	------	------------	-----------------

160-4	TYPE B STABILIZATION	6,486.94 SY	\$12.84	\$83,292.31
285-709	OPTIONAL BASE,BASE GROUP 09	5,857.28 SY	\$31.94	\$187,081.52
334-1-13	SUPERPAVE ASPHALTIC CONC, TRAFFIC C	483.23 TN	\$106.33	\$51,381.85
337-7-83	ASPH CONC FC,TRAFFIC C,FC- 12.5,PG 76-22	483.23 TN	\$135.40	\$65,429.34

X-Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
160-4	TYPE B STABILIZATION	1,269.00 SY	\$12.84	\$16,293.96
285-709	OPTIONAL BASE,BASE GROUP 09	1,269.00 SY	\$31.94	\$40,531.86
334-1-13	SUPERPAVE ASPHALTIC CONC, TRAFFIC C	105.00 TN	\$106.33	\$11,164.65
337-7-83	ASPH CONC FC,TRAFFIC C,FC- 12.5,PG 76-22	105.00 TN	\$135.40	\$14,217.00

Pavement Marking Subcomponent

Description	Value
Include Thermo/Tape/Other	N
Pavement Type	Asphalt
Solid Stripe No. of Paint Applications	2
Solid Stripe No. of Stripes	4
Skip Stripe No. of Paint Applications	2
Skip Stripe No. of Stripes	3

Pay Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
706-1-1	RAISED PAVMT MARK, TYPE B W/O FINAL SURF	140.00 EA	\$8.07	\$1,129.80
710-11-101	PAINTED PAVT MARK,STD,WHITE,SOLID,6"	1.66 GM	\$1,129.51	\$1,874.99
710-11-131	PAINTED PAVT MARK,STD,WHITE,SKIP, 6"	1.25 GM	\$522.40	\$653.00

Roadway Component Total

\$473,050.28

SHOULDER COMPONENT**User Input Data**

Description	Value
Total Outside Shoulder Width L/R	12.25 / 12.25
Total Outside Shoulder Perf. Turf Width L/R	5.00 / 5.00
Sidewalk Width L/R	5.00 / 5.00

Pay Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
520-1-10	CONCRETE CURB & GUTTER, TYPE F	1,098.24 LF	\$30.17	\$33,133.90
520-1-10	CONCRETE CURB & GUTTER, TYPE F	1,098.24 LF	\$30.17	\$33,133.90
522-1	CONCRETE SIDEWALK AND DRIVEWAYS, 4"	1,220.27 SY	\$46.93	\$57,267.27
570-1-1	PERFORMANCE TURF	1,220.27 SY	\$3.34	\$4,075.70

X-Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
160-4	TYPE B STABILIZATION	570.00 SY	\$12.84	\$7,318.80
Erosion Control				
Pay Items				
Pay item	Description	Quantity Unit	Unit Price	Extended Amount
104-10-3	SEDIMENT BARRIER	2,196.48 LF	\$1.41	\$3,097.04
104-11	FLOATING TURBIDITY BARRIER	52.00 LF	\$13.96	\$725.92
104-12	STAKED TURBIDITY BARRIER-NYL REINF PVC	52.00 LF	\$7.43	\$386.36
104-15	SOIL TRACKING PREVENTION DEVICE	1.00 EA	\$3,739.20	\$3,739.20
104-18	INLET PROTECTION SYSTEM	11.00 EA	\$101.69	\$1,118.59
107-1	LITTER REMOVAL	2.52 AC	\$30.97	\$78.04
107-2	MOWING	2.52 AC	\$66.81	\$168.36
Shoulder Component Total				\$144,243.08

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	\$5,283.95	\$42,271.60
425-1-451	INLETS, CURB, TYPE J-5, <10'	3.00 EA	\$7,864.79	\$23,594.37
425-1-521	INLETS, DT BOT, TYPE C, <10'	2.00 EA	\$3,944.41	\$7,888.82
425-2-41	MANHOLES, P-7, <10'	2.00 EA	\$4,534.68	\$9,069.36
430-175-124	PIPE CULV, OPT MATL, ROUND, 24"S/CD	488.00 LF	\$107.19	\$52,308.72
430-175-136	PIPE CULV, OPT MATL, ROUND, 36"S/CD	48.00 LF	\$157.83	\$7,575.84
430-175-148	PIPE CULV, OPT MATL, ROUND, 48"S/CD	1,040.00 LF	\$253.87	\$264,024.80
570-1-1	PERFORMANCE TURF	63.23 SY	\$3.34	\$211.19

Retention Basin 1

Description	Value
Size	1 AC
Multiplier	1
Depth	3.00
Description	

Pay Items				
Pay item	Description	Quantity Unit	Unit Price	Extended Amount
110-1-1	CLEARING & GRUBBING	1.00 AC	\$42,822.21	\$42,822.21
120-1	REGULAR EXCAVATION	4,840.00 CY	\$15.11	\$73,132.40
425-1-541	INLETS, DT BOT, TYPE D, <10'	1.00 EA	\$5,017.52	\$5,017.52
425-2-71	MANHOLES, J-7, <10'	1.00 EA	\$7,984.73	\$7,984.73
430-175-142	PIPE CULV, OPT MATL, ROUND, 42"S/CD	56.00 LF	\$244.50	\$13,692.00
430-175-160	PIPE CULV, OPT MATL, ROUND, 60"S/CD	200.00 LF	\$800.00	\$160,000.00
550-10-220	FENCING, TYPE B, 5.1-6.0', STANDARD	840.00 LF	\$23.16	\$19,454.40
550-60-234		1.00 EA	\$4,061.00	\$4,061.00

570-1-1	FENCE GATE,TYP B,SLIDE/CANT,18.1-20'OPEN PERFORMANCE TURF	4,840.00 SY	\$3.34	\$16,165.60
Drainage Component Total				\$749,274.56

SIGNING COMPONENT**Pay Items**

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
700-1-11	SINGLE POST SIGN, F&I GM, <12 SF	5.00	AS	\$408.41	\$2,042.05
700-1-12	SINGLE POST SIGN, F&I GM, 12-20 SF	1.00	AS	\$1,381.32	\$1,381.32
700-2-15	MULTI- POST SIGN, F&I GM, 51-100 SF	1.00	AS	\$7,353.09	\$7,353.09
Signing Component Total					\$10,776.46

Sequence 1 Total	\$1,567,478.48
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Sequence: 2 WUR - Widen/Resurface, Undivided, Rural**Net Length:** 0.128 MI
673 LF**Description:** Holden**EARTHWORK COMPONENT****User Input Data**

Description	Value
Standard Clearing and Grubbing Limits L/R	0.00 / 0.00
Incidental Clearing and Grubbing Area	0.34
Alignment Number	1
Distance	0.128
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 Outside Shoulder Cross Slope L/R	6.00 % / 6.00 %
Front Slope L/R	6 to 1 / 6 to 1
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	0.34	AC	\$42,822.21	\$14,559.55
Earthwork Component Total					\$14,559.55

ROADWAY COMPONENT**User Input Data**

Description	Value
Number of Lanes	2
Existing Roadway Pavement Width L/R	12.00 / 12.00
Structural Spread Rate	165
Friction Course Spread Rate	165
Widened Outside Pavement Width L/R	0.00 / 4.00
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	1,496.00	SY	\$12.84	\$19,208.64
285-709	OPTIONAL BASE,BASE GROUP 09	323.88	SY	\$31.94	\$10,344.73
327-70-6	MILLING EXIST ASPH PAVT,1 1/2" AVG DEPTH	1,795.20	SY	\$4.00	\$7,180.80
334-1-13	SUPERPAVE ASPHALTIC CONC, TRAFFIC C	24.68	TN	\$106.33	\$2,624.22
337-7-83	ASPH CONC FC,TRAFFIC C,FC-12.5,PG 76-22	148.10	TN	\$135.40	\$20,052.74
337-7-83	ASPH CONC FC,TRAFFIC C,FC-12.5,PG 76-22	24.68	TN	\$135.40	\$3,341.67

Pavement Marking Subcomponent

Description	Value
Include Thermo/Tape/Other	N
Pavement Type	Asphalt
Solid Stripe No. of Paint Applications	2
Solid Stripe No. of Stripes	2
Skip Stripe No. of Paint Applications	2
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	17.00 EA	\$8.07	\$137.19
710-11-101	PAINTED PAVT MARK,STD,WHITE,SOLID,6"	0.51 GM	\$1,129.51	\$576.05
710-11-231	PAINTED PAVT MARK,STD,YELLOW,SKIP,6"	0.26 GM	\$484.67	\$126.01
Roadway Component Total				\$63,592.05

SHOULDER COMPONENT**User Input Data**

Description	Value
Existing Total Outside Shoulder Width L/R	6.00 / 6.00
New Total Outside Shoulder Width L/R	8.00 / 8.00
Total Outside Shoulder Perf. Turf Width L/R	8.00 / 8.00
Existing Paved Outside Shoulder Width L/R	0.00 / 0.00
New Paved Outside Shoulder Width L/R	0.00 / 0.00
Structural Spread Rate	0
Friction Course Spread Rate	110
Total Width (T) / 8" Overlap (O)	T
Rumble Strips 1/2 No. of Sides	0

Pay Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
570-1-1	PERFORMANCE TURF	1,196.80 SY	\$3.34	\$3,997.31

Erosion Control**Pay Items**

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
104-10-3	SEDIMENT BARRIER	1,548.36 LF	\$1.41	\$2,183.19
104-11	FLOATING TURBIDITY BARRIER	12.75 LF	\$13.96	\$177.99
104-12	STAKED TURBIDITY BARRIER- NYL REINF PVC	12.75 LF	\$7.43	\$94.73
104-15	SOIL TRACKING PREVENTION DEVICE	1.00 EA	\$3,739.20	\$3,739.20
104-18	INLET PROTECTION SYSTEM	1.00 EA	\$101.69	\$101.69
107-1	LITTER REMOVAL	0.31 AC	\$30.97	\$9.60
107-2	MOWING	0.31 AC	\$66.81	\$20.71
Shoulder Component Total				\$10,324.42

DRAINAGE COMPONENT**Pay Items**

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
430-174-124	PIPE CULV, OPT MATL, ROUND,24"SD	24.00	LF	\$128.31	\$3,079.44
430-175-136	PIPE CULV, OPT MATL, ROUND, 36"S/CD	16.00	LF	\$157.83	\$2,525.28
430-984-129	MITERED END SECT, OPTIONAL RD, 24" SD	2.00	EA	\$2,085.19	\$4,170.38
570-1-1	PERFORMANCE TURF	51.51	SY	\$3.34	\$172.04
Drainage Component Total					\$9,947.14

SIGNING COMPONENT**Pay Items**

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
700-1-11	SINGLE POST SIGN, F&I GM, <12 SF	1.00	AS	\$408.41	\$408.41
700-1-12	SINGLE POST SIGN, F&I GM, 12-20 SF	3.00	AS	\$1,381.32	\$4,143.96
700-1-50	SINGLE POST SIGN, RELOCATE	1.00	AS	\$286.33	\$286.33
700-1-60	SINGLE POST SIGN, REMOVE	3.00	AS	\$46.14	\$138.42
700-2-13	MULTI- POST SIGN, F&I GM, 21-30 SF	1.00	AS	\$4,245.89	\$4,245.89
700-2-60	MULTI- POST SIGN, REMOVE	1.00	AS	\$719.24	\$719.24
Signing Component Total					\$9,942.25

Sequence 2 Total	\$108,365.41
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Sequence: 3 WUU - Widen/Resurface, Undivided, Urban**Net Length:** 0.196 MI
1,034 LF**Description:** Orange**EARTHWORK COMPONENT****User Input Data**

Description	Value
Standard Clearing and Grubbing Limits L/R	0.00 / 0.00
Incidental Clearing and Grubbing Area	0.34
Alignment Number	1
Distance	0.196
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 Outside Shoulder Cross Slope L/R	2.00 % / 2.00 %
Front Slope L/R	6 to 1 / 6 to 1
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	0.34	AC	\$42,822.21	\$14,559.55
Earthwork Component Total					\$14,559.55

ROADWAY COMPONENT**User Input Data**

Description	Value
Number of Lanes	5
Existing Roadway Pavement Width L/R	30.00 / 30.00
Structural Spread Rate	165
Friction Course Spread Rate	165
Widened Outside Pavement Width L/R	3.00 / 5.00
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	1,511.68	SY	\$12.84	\$19,409.97
285-709	OPTIONAL BASE,BASE GROUP 09	994.77	SY	\$31.94	\$31,772.95
327-70-6	MILLING EXIST ASPH PAVT,1 1/2" AVG DEPTH	6,892.16	SY	\$4.00	\$27,568.64
334-1-13	SUPERPAVE ASPHALTIC CONC, TRAFFIC C	568.60	TN	\$106.33	\$60,459.24
334-1-13	SUPERPAVE ASPHALTIC CONC, TRAFFIC C	75.81	TN	\$106.33	\$8,060.88
337-7-83	ASPH CONC FC,TRAFFIC C,FC-12.5,PG 76-22	568.60	TN	\$135.40	\$76,988.44
337-7-83	ASPH CONC FC,TRAFFIC C,FC-12.5,PG 76-22	75.81	TN	\$135.40	\$10,264.67

X-Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
327-70-6	MILLING EXIST ASPH PAVT,1 1/2" AVG DEPTH	1,527.00 SY	\$4.00	\$6,108.00
337-7-83	ASPH CONC FC,TRAFFIC C,FC-12.5,PG 76-22	126.00 TN	\$135.40	\$17,060.40

Pavement Marking Subcomponent

Description	Value
Include Thermo/Tape/Other	N
Pavement Type	Asphalt
Solid Stripe No. of Paint Applications	2
Solid Stripe No. of Stripes	4
Skip Stripe No. of Paint Applications	2
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	159.00 EA	\$8.07	\$1,283.13
710-11-101	PAINTED PAVT MARK,STD,WHITE,SOLID,6"	1.57 GM	\$1,129.51	\$1,773.33
710-11-131	PAINTED PAVT MARK,STD,WHITE,SKIP, 6"	1.57 GM	\$522.40	\$820.17
Roadway Component Total				\$261,569.83

SHOULDER COMPONENT**User Input Data**

Description	Value
Existing Total Outside Shoulder Width L/R	12.25 / 12.25
New Total Outside Shoulder Width L/R	12.25 / 12.25
Total Outside Shoulder Perf. Turf Width L/R	5.00 / 5.00
Sidewalk Width L/R	5.00 / 5.00

X-Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
160-4	TYPE B STABILIZATION	136.00 SY	\$12.84	\$1,746.24
520-1-10	CONCRETE CURB & GUTTER, TYPE F	846.00 LF	\$30.17	\$25,523.82
522-1	CONCRETE SIDEWALK AND DRIVEWAYS, 4"	526.00 SY	\$46.93	\$24,685.18
Shoulder Component Total				\$51,955.24

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	\$5,283.95	\$42,271.60

425-1-451	INLETS, CURB, TYPE J-5, <10'	2.00 EA	\$7,864.79	\$15,729.58
425-1-521	INLETS, DT BOT, TYPE C, <10'	1.00 EA	\$3,944.41	\$3,944.41
425-2-41	MANHOLES, P-7, <10'	1.00 EA	\$4,534.68	\$4,534.68
430-175-124	PIPE CULV, OPT MATL, ROUND, 24"S/CD	384.00 LF	\$107.19	\$41,160.96
430-175-148	PIPE CULV, OPT MATL, ROUND, 48"S/CD	984.00 LF	\$253.87	\$249,808.08
570-1-1	PERFORMANCE TURF	59.52 SY	\$3.34	\$198.80
Drainage Component Total				\$357,648.11

SIGNING COMPONENT**Pay Items**

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
700-1-11	SINGLE POST SIGN, F&I GM, <12 SF	4.00 AS	\$408.41	\$1,633.64
700-1-12	SINGLE POST SIGN, F&I GM, 12-20 SF	1.00 AS	\$1,381.32	\$1,381.32
700-1-50	SINGLE POST SIGN, RELOCATE	1.00 AS	\$286.33	\$286.33
700-1-60	SINGLE POST SIGN, REMOVE	4.00 AS	\$46.14	\$184.56
700-2-14	MULTI- POST SIGN, F&I GM, 31-50 SF	1.00 AS	\$5,498.16	\$5,498.16
700-2-60	MULTI- POST SIGN, REMOVE	1.00 AS	\$719.24	\$719.24
Signing Component Total				\$9,703.25

SIGNALIZATIONS COMPONENT**Signalization 1****Description**

Type

Multiplier

Description

Value

4 Lane Mast Arm

1

Pay Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
630-2-11	CONDUIT, F& I, OPEN TRENCH	750.00 LF	\$10.10	\$7,575.00
630-2-12	CONDUIT, F& I, DIRECTIONAL BORE	250.00 LF	\$22.26	\$5,565.00
632-7-1	SIGNAL CABLE- NEW OR RECO, FUR & INSTALL	1.00 PI	\$7,052.94	\$7,052.94
635-2-11	PULL & SPLICE BOX, F&I, 13" x 24"	16.00 EA	\$749.76	\$11,996.16
639-1-112	ELECTRICAL POWER SRV,F&I,OH,M,PUR BY CON	1.00 AS	\$3,630.05	\$3,630.05
639-2-1	ELECTRICAL SERVICE WIRE, F&I	60.00 LF	\$5.61	\$336.60
649-21-10	STEEL MAST ARM ASSEMBLY, F&I, 60'	4.00 EA	\$46,167.56	\$184,670.24
650-1-14	VEH TRAF SIGNAL,F&I ALUMINUM, 3 S 1 W	12.00 AS	\$1,084.03	\$13,008.36
653-1-11	PEDESTRIAN SIGNAL, F&I LED COUNT, 1 WAY	8.00 AS	\$628.79	\$5,030.32
660-1-102	LOOP DETECTOR INDUCTIVE, F&I, TYPE 2	12.00 EA	\$405.04	\$4,860.48

660-2-106	LOOP ASSEMBLY, F&I, TYPE F	12.00 AS	\$1,106.37	\$13,276.44
665-1-11	PEDESTRIAN DETECTOR, F&I, STANDARD	8.00 EA	\$251.93	\$2,015.44
670-5-111	TRAF CNTL ASSEM, F&I, NEMA, 1 PREEMPT	1.00 AS	\$27,083.56	\$27,083.56
700-3-101	SIGN PANEL, F&I GM, UP TO 12 SF	4.00 EA	\$211.85	\$847.40

Interconnect Subcomponent

Description	Value
Type	U
Length of Fiber Run	380.00
Number of Intersections	2
Percentage of Underpavement Conduit	10.00

Pay Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
633-1-122	FIBER OPTIC CABLE, F&I, UG, 13-48	380.00 LF	\$2.82	\$1,071.60
660-2-102	LOOP ASSEMBLY, F&I, TYPE B	8.00 AS	\$1,005.75	\$8,046.00
Signalizations Component Total				\$296,065.59

Sequence 3 Total	\$991,501.57
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Sequence: 4 WUU - Widen/Resurface, Undivided, Urban**Net Length:** 0.118 MI
625 LF**Description:** Gatlin**EARTHWORK COMPONENT****User Input Data**

Description	Value
Standard Clearing and Grubbing Limits L/R	0.00 / 0.00
Incidental Clearing and Grubbing Area	0.36
Alignment Number	1
Distance	0.118
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 Outside Shoulder Cross Slope L/R	2.00 % / 2.00 %
Front Slope L/R	6 to 1 / 6 to 1
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	0.36	AC	\$42,822.21	\$15,416.00
Earthwork Component Total					\$15,416.00

ROADWAY COMPONENT**User Input Data**

Description	Value
Number of Lanes	2
Existing Roadway Pavement Width L/R	12.00 / 12.00
Structural Spread Rate	0
Friction Course Spread Rate	165
Widened Outside Pavement Width L/R	0.00 / 13.00
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	1,082.21	SY	\$12.84	\$13,895.58
285-709	OPTIONAL BASE,BASE GROUP 09	925.92	SY	\$31.94	\$29,573.88
327-70-6	MILLING EXIST ASPH PAVT,1 1/2" AVG DEPTH	1,667.07	SY	\$4.00	\$6,668.28
334-1-13	SUPERPAVE ASPHALTIC CONC, TRAFFIC C	74.50	TN	\$106.33	\$7,921.58
337-7-83	ASPH CONC FC,TRAFFIC C,FC-12.5,PG 76-22	137.53	TN	\$135.40	\$18,621.56
337-7-83	ASPH CONC FC,TRAFFIC C,FC-12.5,PG 76-22	74.50	TN	\$135.40	\$10,087.30

X-Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
327-70-6	MILLING EXIST ASPH PAVT, 1 1/2" AVG DEPTH	449.00 SY	\$4.00	\$1,796.00
337-7-83	ASPH CONC FC, TRAFFIC C, FC-12.5, PG 76-22	37.00 TN	\$135.40	\$5,009.80

Pavement Marking Subcomponent

Description	Value
Include Thermo/Tape/Other	N
Pavement Type	Asphalt
Solid Stripe No. of Paint Applications	2
Solid Stripe No. of Stripes	4
Skip Stripe No. of Paint Applications	2
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	16.00 EA	\$8.07	\$129.12
710-11-101	PAINTED PAVT MARK, STD, WHITE, SOLID, 6"	0.95 GM	\$1,129.51	\$1,073.03
710-11-131	PAINTED PAVT MARK, STD, WHITE, SKIP, 6"	0.24 GM	\$522.40	\$125.38
Roadway Component Total				\$94,901.52

SHOULDER COMPONENT**User Input Data**

Description	Value
Existing Total Outside Shoulder Width L/R	12.25 / 12.25
New Total Outside Shoulder Width L/R	12.25 / 12.25
Total Outside Shoulder Perf. Turf Width L/R	5.00 / 5.00
Sidewalk Width L/R	5.00 / 5.00

X-Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
160-4	TYPE B STABILIZATION	160.00 SY	\$12.84	\$2,054.40
520-1-10	CONCRETE CURB & GUTTER, TYPE F	618.00 LF	\$30.17	\$18,645.06
522-1	CONCRETE SIDEWALK AND DRIVEWAYS, 4"	373.00 SY	\$46.93	\$17,504.89
Shoulder Component Total				\$38,204.35

DRAINAGE COMPONENT**Pay Items**

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
425-1-351	INLETS, CURB, TYPE P-5, <10'	5.00 EA	\$5,283.95	\$26,419.75
425-1-451	INLETS, CURB, TYPE J-5, <10'	2.00 EA	\$7,864.79	\$15,729.58
425-1-521	INLETS, DT BOT, TYPE C, <10'	1.00 EA	\$3,944.41	\$3,944.41

425-2-41	MANHOLES, P-7, <10'	1.00 EA	\$4,534.68	\$4,534.68
430-175-124	PIPE CULV, OPT MATL, ROUND, 24"S/CD	232.00 LF	\$107.19	\$24,868.08
430-175-148	PIPE CULV, OPT MATL, ROUND, 48"S/CD	592.00 LF	\$253.87	\$150,291.04
570-1-1	PERFORMANCE TURF	35.99 SY	\$3.34	\$120.21
Drainage Component Total				\$225,907.75

SIGNING COMPONENT**Pay Items**

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
700-1-11	SINGLE POST SIGN, F&I GM, <12 SF	3.00 AS	\$408.41	\$1,225.23
700-1-12	SINGLE POST SIGN, F&I GM, 12-20 SF	1.00 AS	\$1,381.32	\$1,381.32
700-1-50	SINGLE POST SIGN, RELOCATE	1.00 AS	\$286.33	\$286.33
700-1-60	SINGLE POST SIGN, REMOVE	3.00 AS	\$46.14	\$138.42
700-2-14	MULTI- POST SIGN, F&I GM, 31-50 SF	1.00 AS	\$5,498.16	\$5,498.16
700-2-60	MULTI- POST SIGN, REMOVE	1.00 AS	\$719.24	\$719.24
Signing Component Total				\$9,248.70

Sequence 4 Total	\$383,678.32
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Date: 8/25/2021 7:23:00 AM

FDOT Long Range Estimating System - Production

R3: Project Details by Sequence Report

Project: 101010-1-52-01

Letting Date: 01/2099

Description: VHB Project# 62876.17

District: 05 County: 75 ORANGE

Market Area: 08 Units: English

Contract Class: Lump Sum Project: N

Design/Build: N Project Length: 0.217 MI

Project Manager:

Version 42 Project Grand Total

\$3,741,738.78

Description: Holden/Gatlin Alt1

Project Sequences Subtotal**\$3,051,023.78**

102-1	Maintenance of Traffic	10.00 %	\$305,102.38
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101-1	Mobilization	10.00 %	\$335,612.62
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Project Sequences Total**\$3,691,738.78**

Project Unknowns	0.00 %	\$0.00
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Design/Build	0.00 %	\$0.00
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Non-Bid Components:

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
999-25	INITIAL CONTINGENCY AMOUNT (DO NOT BID)		LS	\$50,000.00	\$50,000.00

Project Non-Bid Subtotal**\$50,000.00****Version 42 Project Grand Total****\$3,741,738.78**

Date: 8/25/2021 7:26:49 AM

FDOT Long Range Estimating System - Production

R3: Project Details by Sequence Report

Project: 101010-1-52-01**Letting Date:** 01/2099**Description:** VHB Project# 62876.17**District:** 05 **County:** 75 ORANGE**Market Area:** 08 **Units:** English**Contract Class:** Lump Sum Project: N**Design/Build:** N **Project Length:** 0.217 MI**Project Manager:****Version 43 Project Grand Total****\$2,888,698.94****Description:** Holden/Gatlin Alt2**Sequence:** 1 NUU - New Construction, Undivided, Urban**Net Length:** 0.208 MI
1,098 LF**Description:** Gatlin Extension

EARTHWORK COMPONENT

User Input Data

Description	Value
Standard Clearing and Grubbing Limits L/R	24.00 / 36.00
Incidental Clearing and Grubbing Area	1.49
Alignment Number	1
Distance	0.208
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
Front Slope L/R	2 to 1 / 2 to 1
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	1.51	AC	\$42,822.21	\$64,661.54
110-1-1	CLEARING & GRUBBING	1.49	AC	\$42,822.21	\$63,805.09
120-6	EMBANKMENT	3,680.32	CY	\$16.05	\$59,069.14

Earthwork Component Total**\$187,535.77**

ROADWAY COMPONENT

User Input Data

Description	Value
Number of Lanes	4
Roadway Pavement Width L/R	12.00 / 24.00
Structural Spread Rate	165
Friction Course Spread Rate	165

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
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160-4	TYPE B STABILIZATION	5,022.62 SY	\$12.84	\$64,490.44
285-709	OPTIONAL BASE,BASE GROUP 09	4,392.96 SY	\$31.94	\$140,311.14
334-1-13	SUPERPAVE ASPHALTIC CONC, TRAFFIC C	362.42 TN	\$106.33	\$38,536.12
337-7-83	ASPH CONC FC,TRAFFIC C,FC- 12.5,PG 76-22	362.42 TN	\$135.40	\$49,071.67

X-Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
160-4	TYPE B STABILIZATION	468.00 SY	\$12.84	\$6,009.12
285-709	OPTIONAL BASE,BASE GROUP 09	468.00 SY	\$31.94	\$14,947.92
334-1-13	SUPERPAVE ASPHALTIC CONC, TRAFFIC C	39.00 TN	\$106.33	\$4,146.87
337-7-83	ASPH CONC FC,TRAFFIC C,FC- 12.5,PG 76-22	39.00 TN	\$135.40	\$5,280.60
520-1-10	CONCRETE CURB & GUTTER, TYPE F	569.00 LF	\$30.17	\$17,166.73

Pavement Marking Subcomponent

Description	Value
Include Thermo/Tape/Other	N
Pavement Type	Asphalt
Solid Stripe No. of Paint Applications	2
Solid Stripe No. of Stripes	4
Skip Stripe No. of Paint Applications	2
Skip Stripe No. of Stripes	3

Pay Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
706-1-1	RAISED PAVMT MARK, TYPE B W/O FINAL SURF	140.00 EA	\$8.07	\$1,129.80
710-11-101	PAINTED PAVT MARK,STD,WHITE,SOLID,6"	1.66 GM	\$1,129.51	\$1,874.99
710-11-131	PAINTED PAVT MARK,STD,WHITE,SKIP, 6"	1.25 GM	\$522.40	\$653.00
Roadway Component Total				\$343,618.40

SHOULDER COMPONENT**User Input Data**

Description	Value
Total Outside Shoulder Width L/R	12.25 / 12.25
Total Outside Shoulder Perf. Turf Width L/R	5.00 / 5.00
Sidewalk Width L/R	5.00 / 5.00

Pay Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
520-1-10	CONCRETE CURB & GUTTER, TYPE F	1,098.24 LF	\$30.17	\$33,133.90
520-1-10	CONCRETE CURB & GUTTER, TYPE F	1,098.24 LF	\$30.17	\$33,133.90
522-1	CONCRETE SIDEWALK AND DRIVEWAYS, 4"	1,220.27 SY	\$46.93	\$57,267.27
570-1-1	PERFORMANCE TURF	1,220.27 SY	\$3.34	\$4,075.70

X-Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
160-4	TYPE B STABILIZATION	569.00	SY	\$12.84	\$7,305.96

Erosion Control**Pay Items**

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
104-10-3	SEDIMENT BARRIER	2,196.48	LF	\$1.41	\$3,097.04
104-11	FLOATING TURBIDITY BARRIER	52.00	LF	\$13.96	\$725.92
104-12	STAKED TURBIDITY BARRIER-NYL REINF PVC	52.00	LF	\$7.43	\$386.36
104-15	SOIL TRACKING PREVENTION DEVICE	1.00	EA	\$3,739.20	\$3,739.20
104-18	INLET PROTECTION SYSTEM	11.00	EA	\$101.69	\$1,118.59
107-1	LITTER REMOVAL	2.52	AC	\$30.97	\$78.04
107-2	MOWING	2.52	AC	\$66.81	\$168.36

Shoulder Component Total

\$144,230.24

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	\$5,283.95	\$42,271.60
425-1-451	INLETS, CURB, TYPE J-5, <10'	3.00	EA	\$7,864.79	\$23,594.37
425-1-521	INLETS, DT BOT, TYPE C, <10'	2.00	EA	\$3,944.41	\$7,888.82
425-2-41	MANHOLES, P-7, <10'	2.00	EA	\$4,534.68	\$9,069.36
430-175-124	PIPE CULV, OPT MATL, ROUND, 24"S/CD	488.00	LF	\$107.19	\$52,308.72
430-175-136	PIPE CULV, OPT MATL, ROUND, 36"S/CD	48.00	LF	\$157.83	\$7,575.84
430-175-148	PIPE CULV, OPT MATL, ROUND, 48"S/CD	1,040.00	LF	\$253.87	\$264,024.80
570-1-1	PERFORMANCE TURF	63.23	SY	\$3.34	\$211.19

Retention Basin 1

Description	Value
Size	1 AC
Multiplier	1
Depth	3.00
Description	

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
110-1-1	CLEARING & GRUBBING	1.00	AC	\$42,822.21	\$42,822.21
120-1	REGULAR EXCAVATION	4,840.00	CY	\$15.11	\$73,132.40
425-1-541	INLETS, DT BOT, TYPE D, <10'	1.00	EA	\$5,017.52	\$5,017.52
425-2-71	MANHOLES, J-7, <10'	1.00	EA	\$7,984.73	\$7,984.73
430-175-142	PIPE CULV, OPT MATL, ROUND, 42"S/CD	56.00	LF	\$244.50	\$13,692.00
430-175-160	PIPE CULV, OPT MATL, ROUND, 60"S/CD	200.00	LF	\$800.00	\$160,000.00
550-10-220		840.00	LF	\$23.16	\$19,454.40

	FENCING, TYPE B, 5.1-6.0', STANDARD			
550-60-234	FENCE GATE,TYP B,SLIDE/CANT,18.1-20'OPEN	1.00 EA	\$4,061.00	\$4,061.00
570-1-1	PERFORMANCE TURF	4,840.00 SY	\$3.34	\$16,165.60
Drainage Component Total				\$749,274.56

SIGNING COMPONENT**Pay Items**

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
700-1-11	SINGLE POST SIGN, F&I GM, <12 SF	5.00	AS	\$408.41	\$2,042.05
700-1-12	SINGLE POST SIGN, F&I GM, 12-20 SF	1.00	AS	\$1,381.32	\$1,381.32
700-2-15	MULTI- POST SIGN, F&I GM, 51- 100 SF	1.00	AS	\$7,353.09	\$7,353.09
Signing Component Total					\$10,776.46

Sequence 1 Total	\$1,435,435.43
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Sequence: 2 WUR - Widen/Resurface, Undivided, Rural**Net Length:** 0.100 MI
526 LF**Description:** Holden**EARTHWORK COMPONENT****User Input Data**

Description	Value
Standard Clearing and Grubbing Limits L/R	0.00 / 0.00
Incidental Clearing and Grubbing Area	0.34
Alignment Number	1
Distance	0.128
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 Outside Shoulder Cross Slope L/R	6.00 % / 6.00 %
Front Slope L/R	6 to 1 / 6 to 1
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	0.34	AC	\$42,822.21	\$14,559.55
Earthwork Component Total					\$14,559.55

ROADWAY COMPONENT**User Input Data**

Description	Value
Number of Lanes	2
Existing Roadway Pavement Width L/R	12.00 / 12.00
Structural Spread Rate	165
Friction Course Spread Rate	165
Widened Outside Pavement Width L/R	0.00 / 4.00
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	1,168.64	SY	\$12.84	\$15,005.34
285-709	OPTIONAL BASE,BASE GROUP 09	253.01	SY	\$31.94	\$8,081.14
327-70-6	MILLING EXIST ASPH PAVT,1 1/2" AVG DEPTH	1,402.37	SY	\$4.00	\$5,609.48
334-1-13	SUPERPAVE ASPHALTIC CONC, TRAFFIC C	19.28	TN	\$106.33	\$2,050.04
337-7-83	ASPH CONC FC,TRAFFIC C,FC-12.5,PG 76-22	115.70	TN	\$135.40	\$15,665.78
337-7-83	ASPH CONC FC,TRAFFIC C,FC-12.5,PG 76-22	19.28	TN	\$135.40	\$2,610.51

Pavement Marking Subcomponent

Description	Value
Include Thermo/Tape/Other	N
Pavement Type	Asphalt
Solid Stripe No. of Paint Applications	2
Solid Stripe No. of Stripes	2
Skip Stripe No. of Paint Applications	2
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	13.00	EA	\$8.07	\$104.91
710-11-101	PAINTED PAVT MARK,STD,WHITE,SOLID,6"	0.40	GM	\$1,129.51	\$451.80
710-11-231	PAINTED PAVT MARK,STD,YELLOW,SKIP,6"	0.20	GM	\$484.67	\$96.93
Roadway Component Total					\$49,675.95

SHOULDER COMPONENT**User Input Data**

Description	Value
Existing Total Outside Shoulder Width L/R	6.00 / 6.00
New Total Outside Shoulder Width L/R	8.00 / 8.00
Total Outside Shoulder Perf. Turf Width L/R	8.00 / 8.00
Existing Paved Outside Shoulder Width L/R	0.00 / 0.00
New Paved Outside 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 1/2 No. of Sides	0

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
570-1-1	PERFORMANCE TURF	934.91	SY	\$3.34	\$3,122.60

Erosion Control**Pay Items**

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
104-10-3	SEDIMENT BARRIER	1,209.54	LF	\$1.41	\$1,705.45
104-11	FLOATING TURBIDITY BARRIER	9.96	LF	\$13.96	\$139.04
104-12	STAKED TURBIDITY BARRIER- NYL REINF PVC	9.96	LF	\$7.43	\$74.00
104-15	SOIL TRACKING PREVENTION DEVICE	1.00	EA	\$3,739.20	\$3,739.20
104-18	INLET PROTECTION SYSTEM	1.00	EA	\$101.69	\$101.69
107-1	LITTER REMOVAL	0.24	AC	\$30.97	\$7.43
107-2	MOWING	0.24	AC	\$66.81	\$16.03
Shoulder Component Total					\$8,905.45

DRAINAGE COMPONENT**Pay Items**

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
430-174-124	PIPE CULV, OPT MATL, ROUND,24"SD	16.00 LF	\$128.31	\$2,052.96
430-175-136	PIPE CULV, OPT MATL, ROUND, 36"S/CD	8.00 LF	\$157.83	\$1,262.64
430-984-129	MITERED END SECT, OPTIONAL RD, 24" SD	1.00 EA	\$2,085.19	\$2,085.19
570-1-1	PERFORMANCE TURF	40.24 SY	\$3.34	\$134.40
Drainage Component Total				\$5,535.19

SIGNING COMPONENT**Pay Items**

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
700-1-11	SINGLE POST SIGN, F&I GM, <12 SF	1.00 AS	\$408.41	\$408.41
700-1-12	SINGLE POST SIGN, F&I GM, 12-20 SF	2.00 AS	\$1,381.32	\$2,762.64
700-1-50	SINGLE POST SIGN, RELOCATE	1.00 AS	\$286.33	\$286.33
700-1-60	SINGLE POST SIGN, REMOVE	2.00 AS	\$46.14	\$92.28
700-2-13	MULTI- POST SIGN, F&I GM, 21-30 SF	1.00 AS	\$4,245.89	\$4,245.89
700-2-60	MULTI- POST SIGN, REMOVE	1.00 AS	\$719.24	\$719.24
Signing Component Total				\$8,514.79

Sequence 2 Total	\$87,190.93
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Sequence: 3 WUU - Widen/Resurface, Undivided, Urban**Net Length:** 0.046 MI
240 LF**Description:** Orange**EARTHWORK COMPONENT****User Input Data**

Description	Value
Standard Clearing and Grubbing Limits L/R	0.00 / 0.00
Incidental Clearing and Grubbing Area	0.02
Alignment Number	1
Distance	0.196
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 Outside Shoulder Cross Slope L/R	2.00 % / 2.00 %
Front Slope L/R	6 to 1 / 6 to 1
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	0.02 AC	\$42,822.21	\$856.44
Earthwork Component Total				\$856.44

ROADWAY COMPONENT**User Input Data**

Description	Value
Number of Lanes	5
Existing Roadway Pavement Width L/R	30.00 / 30.00
Structural Spread Rate	165
Friction Course Spread Rate	165
Widened Outside Pavement Width L/R	0.00 / 0.00
Widened Structural Spread Rate	0
Widened Friction Course Spread Rate	165

Pay Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
327-70-6	MILLING EXIST ASPH PAVT, 1 1/2" AVG DEPTH	1,601.60 SY	\$4.00	\$6,406.40
334-1-13	SUPERPAVE ASPHALTIC CONC, TRAFFIC C	132.13 TN	\$106.33	\$14,049.38
337-7-83	ASPH CONC FC, TRAFFIC C, FC-12.5, PG 76-22	132.13 TN	\$135.40	\$17,890.40

X-Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
327-70-6	MILLING EXIST ASPH PAVT, 1 1/2" AVG DEPTH	12.00 SY	\$4.00	\$48.00

337-7-83	ASPH CONC FC,TRAFFIC C,FC-12.5,PG 76-22	1.01 TN	\$135.40	\$136.75
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Pavement Marking Subcomponent

Description	Value
Include Thermo/Tape/Other	N
Pavement Type	Asphalt
Solid Stripe No. of Paint Applications	2
Solid Stripe No. of Stripes	4
Skip Stripe No. of Paint Applications	2
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	37.00 EA	\$8.07	\$298.59
710-11-101	PAINTED PAVT MARK,STD,WHITE,SOLID,6"	0.36 GM	\$1,129.51	\$406.62
710-11-131	PAINTED PAVT MARK,STD,WHITE,SKIP, 6"	0.36 GM	\$522.40	\$188.06
Roadway Component Total				\$39,424.21

SHOULDER COMPONENT**User Input Data**

Description	Value
Existing Total Outside Shoulder Width L/R	12.25 / 12.25
New Total Outside Shoulder Width L/R	12.25 / 12.25
Total Outside Shoulder Perf. Turf Width L/R	5.00 / 5.00
Sidewalk Width L/R	5.00 / 5.00

X-Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
160-4	TYPE B STABILIZATION	14.00 SY	\$12.84	\$179.76
520-1-10	CONCRETE CURB & GUTTER, TYPE F	52.00 LF	\$30.17	\$1,568.84
522-1	CONCRETE SIDEWALK AND DRIVEWAYS, 4"	35.00 SY	\$46.93	\$1,642.55
Shoulder Component Total				\$3,391.15

DRAINAGE COMPONENT**Pay Items**

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
425-1-351	INLETS, CURB, TYPE P-5, <10'	2.00 EA	\$5,283.95	\$10,567.90
425-1-451	INLETS, CURB, TYPE J-5, <10'	1.00 EA	\$7,864.79	\$7,864.79
425-1-521	INLETS, DT BOT, TYPE C, <10'	1.00 EA	\$3,944.41	\$3,944.41
425-2-41	MANHOLES, P-7, <10'	1.00 EA	\$4,534.68	\$4,534.68
430-175-124	PIPE CULV, OPT MATL, ROUND, 24"S/CD	96.00 LF	\$107.19	\$10,290.24

430-175-148	PIPE CULV, OPT MATL, ROUND, 48"S/CD	232.00 LF	\$253.87	\$58,897.84
570-1-1	PERFORMANCE TURF	13.83 SY	\$3.34	\$46.19
Drainage Component Total				\$96,146.05

SIGNING COMPONENT**Pay Items**

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
700-1-11	SINGLE POST SIGN, F&I GM, <12 SF	1.00 AS	\$408.41	\$408.41
700-1-12	SINGLE POST SIGN, F&I GM, 12-20 SF	1.00 AS	\$1,381.32	\$1,381.32
700-1-50	SINGLE POST SIGN, RELOCATE	1.00 AS	\$286.33	\$286.33
700-1-60	SINGLE POST SIGN, REMOVE	1.00 AS	\$46.14	\$46.14
700-2-14	MULTI- POST SIGN, F&I GM, 31-50 SF	1.00 AS	\$5,498.16	\$5,498.16
700-2-60	MULTI- POST SIGN, REMOVE	1.00 AS	\$719.24	\$719.24
Signing Component Total				\$8,339.60

SIGNALIZATIONS COMPONENT**Signalization 1****Description**

Type

Multiplier

Description

Value

4 Lane Mast Arm

1

Pay Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
630-2-11	CONDUIT, F& I, OPEN TRENCH	750.00 LF	\$10.10	\$7,575.00
630-2-12	CONDUIT, F& I, DIRECTIONAL BORE	250.00 LF	\$22.26	\$5,565.00
632-7-1	SIGNAL CABLE- NEW OR RECO, FUR & INSTALL	1.00 PI	\$7,052.94	\$7,052.94
635-2-11	PULL & SPLICE BOX, F&I, 13" x 24"	16.00 EA	\$749.76	\$11,996.16
639-1-112	ELECTRICAL POWER SRV,F&I,OH,M,PUR BY CON	1.00 AS	\$3,630.05	\$3,630.05
639-2-1	ELECTRICAL SERVICE WIRE, F&I	60.00 LF	\$5.61	\$336.60
649-21-10	STEEL MAST ARM ASSEMBLY, F&I, 60'	4.00 EA	\$46,167.56	\$184,670.24
650-1-14	VEH TRAF SIGNAL,F&I ALUMINUM, 3 S 1 W	12.00 AS	\$1,084.03	\$13,008.36
653-1-11	PEDESTRIAN SIGNAL, F&I LED COUNT, 1 WAY	8.00 AS	\$628.79	\$5,030.32
660-1-102	LOOP DETECTOR INDUCTIVE, F&I, TYPE 2	12.00 EA	\$405.04	\$4,860.48
660-2-106	LOOP ASSEMBLY, F&I, TYPE F	12.00 AS	\$1,106.37	\$13,276.44
665-1-11	PEDESTRIAN DETECTOR, F&I, STANDARD	8.00 EA	\$251.93	\$2,015.44
670-5-111	TRAF CNTL ASSEM, F&I, NEMA, 1 PREEMPT	1.00 AS	\$27,083.56	\$27,083.56

700-3-101	SIGN PANEL, F&I GM, UP TO 12 SF	4.00 EA	\$211.85	\$847.40
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Interconnect Subcomponent

Description	Value
Type	U
Length of Fiber Run	380.00
Number of Intersections	2
Percentage of Underpavement Conduit	10.00

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
633-1-122	FIBER OPTIC CABLE, F&I, UG,13-48	380.00	LF	\$2.82	\$1,071.60
660-2-102	LOOP ASSEMBLY, F&I, TYPE B	8.00	AS	\$1,005.75	\$8,046.00

Signalizations Component Total	\$296,065.59
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Sequence 3 Total	\$444,223.04
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Sequence: 4 WUU - Widen/Resurface, Undivided, Urban**Net Length:** 0.118 MI
625 LF**Description:** Gatlin**EARTHWORK COMPONENT****User Input Data**

Description	Value
Standard Clearing and Grubbing Limits L/R	0.00 / 0.00
Incidental Clearing and Grubbing Area	0.36
Alignment Number	1
Distance	0.118
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 Outside Shoulder Cross Slope L/R	2.00 % / 2.00 %
Front Slope L/R	6 to 1 / 6 to 1
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	0.36	AC	\$42,822.21	\$15,416.00
Earthwork Component Total					\$15,416.00

ROADWAY COMPONENT**User Input Data**

Description	Value
Number of Lanes	2
Existing Roadway Pavement Width L/R	12.00 / 12.00
Structural Spread Rate	0
Friction Course Spread Rate	165
Widened Outside Pavement Width L/R	0.00 / 12.00
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	1,012.75	SY	\$12.84	\$13,003.71
285-709	OPTIONAL BASE,BASE GROUP 09	856.46	SY	\$31.94	\$27,355.33
327-70-6	MILLING EXIST ASPH PAVT,1 1/2" AVG DEPTH	1,667.07	SY	\$4.00	\$6,668.28
334-1-13	SUPERPAVE ASPHALTIC CONC, TRAFFIC C	68.77	TN	\$106.33	\$7,312.31
337-7-83	ASPH CONC FC,TRAFFIC C,FC-12.5,PG 76-22	137.53	TN	\$135.40	\$18,621.56
337-7-83	ASPH CONC FC,TRAFFIC C,FC-12.5,PG 76-22	68.77	TN	\$135.40	\$9,311.46

X-Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
327-70-6	MILLING EXIST ASPH PAVT, 1 1/2" AVG DEPTH	449.00	SY	\$4.00	\$1,796.00
337-7-83	ASPH CONC FC, TRAFFIC C, FC-12.5, PG 76-22	37.00	TN	\$135.40	\$5,009.80

Pavement Marking Subcomponent

Description	Value
Include Thermo/Tape/Other	N
Pavement Type	Asphalt
Solid Stripe No. of Paint Applications	2
Solid Stripe No. of Stripes	4
Skip Stripe No. of Paint Applications	2
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	16.00	EA	\$8.07	\$129.12
710-11-101	PAINTED PAVT MARK, STD, WHITE, SOLID, 6"	0.95	GM	\$1,129.51	\$1,073.03
710-11-131	PAINTED PAVT MARK, STD, WHITE, SKIP, 6"	0.24	GM	\$522.40	\$125.38
Roadway Component Total					\$90,405.98

SHOULDER COMPONENT**User Input Data**

Description	Value
Existing Total Outside Shoulder Width L/R	12.25 / 12.25
New Total Outside Shoulder Width L/R	12.25 / 12.25
Total Outside Shoulder Perf. Turf Width L/R	5.00 / 5.00
Sidewalk Width L/R	5.00 / 5.00

X-Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
160-4	TYPE B STABILIZATION	160.00	SY	\$12.84	\$2,054.40
520-1-10	CONCRETE CURB & GUTTER, TYPE F	618.00	LF	\$30.17	\$18,645.06
522-1	CONCRETE SIDEWALK AND DRIVEWAYS, 4"	373.00	SY	\$46.93	\$17,504.89
Shoulder Component Total					\$38,204.35

DRAINAGE COMPONENT**Pay Items**

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
425-1-351	INLETS, CURB, TYPE P-5, <10'	5.00	EA	\$5,283.95	\$26,419.75
425-1-451	INLETS, CURB, TYPE J-5, <10'	2.00	EA	\$7,864.79	\$15,729.58
425-1-521	INLETS, DT BOT, TYPE C, <10'	1.00	EA	\$3,944.41	\$3,944.41

425-2-41	MANHOLES, P-7, <10'	1.00 EA	\$4,534.68	\$4,534.68
430-175-124	PIPE CULV, OPT MATL, ROUND, 24"S/CD	232.00 LF	\$107.19	\$24,868.08
430-175-148	PIPE CULV, OPT MATL, ROUND, 48"S/CD	592.00 LF	\$253.87	\$150,291.04
570-1-1	PERFORMANCE TURF	35.99 SY	\$3.34	\$120.21
Drainage Component Total				\$225,907.75

SIGNING COMPONENT**Pay Items**

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
700-1-11	SINGLE POST SIGN, F&I GM, <12 SF	3.00 AS	\$408.41	\$1,225.23
700-1-12	SINGLE POST SIGN, F&I GM, 12-20 SF	1.00 AS	\$1,381.32	\$1,381.32
700-1-50	SINGLE POST SIGN, RELOCATE	1.00 AS	\$286.33	\$286.33
700-1-60	SINGLE POST SIGN, REMOVE	3.00 AS	\$46.14	\$138.42
700-2-14	MULTI- POST SIGN, F&I GM, 31-50 SF	1.00 AS	\$5,498.16	\$5,498.16
700-2-60	MULTI- POST SIGN, REMOVE	1.00 AS	\$719.24	\$719.24
Signing Component Total				\$9,248.70

Sequence 4 Total	\$379,182.78
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Date: 8/25/2021 7:26:49 AM

FDOT Long Range Estimating System - Production

R3: Project Details by Sequence Report

Project: 101010-1-52-01

Letting Date: 01/2099

Description: VHB Project# 62876.17

District: 05 County: 75 ORANGE

Market Area: 08 Units: English

Contract Class: Lump Sum Project: N

Design/Build: N Project Length: 0.217 MI

Project Manager:

Version 43 Project Grand Total

\$2,888,698.94

Description: Holden/Gatlin Alt2

Project Sequences Subtotal**\$2,346,032.18**

102-1	Maintenance of Traffic	10.00 %	\$234,603.22
101-1	Mobilization	10.00 %	\$258,063.54

Project Sequences Total**\$2,838,698.94**

Project Unknowns	0.00 %	\$0.00
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	\$50,000.00	\$50,000.00

Project Non-Bid Subtotal**\$50,000.00****Version 43 Project Grand Total****\$2,888,698.94**

Date: 8/25/2021 8:42:34 AM

FDOT Long Range Estimating System - Production

R3: Project Details by Sequence Report

Project: 101010-1-52-01

Letting Date: 01/2099

Description: VHB Project# 62876.17

District: 05 County: 75 ORANGE

Market Area: 08 Units: English

Contract Class: Lump Sum Project: N

Design/Build: N Project Length: 0.217 MI

Project Manager:

Version 44 Project Grand Total

\$2,863,434.99

Description: Holden/Gatlin Alt3

Sequence: 1 NUR - New Construction, Undivided, Rural

Net Length: 0.163 MI
863 LF

Description: Gatlin Lake

EARTHWORK COMPONENT

User Input Data

Description	Value
Standard Clearing and Grubbing Limits L/R	30.00 / 30.00
Incidental Clearing and Grubbing Area	0.06
Alignment Number	1
Distance	0.163
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
Front Slope L/R	6 to 1 / 6 to 1
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	1.19	AC	\$42,822.21	\$50,958.43
110-1-1	CLEARING & GRUBBING	0.06	AC	\$42,822.21	\$2,569.33
120-6	EMBANKMENT	1,759.53	CY	\$16.05	\$28,240.46
Earthwork Component Total					\$81,768.22

ROADWAY COMPONENT

User Input Data

Description	Value
Number of Lanes	2
Roadway Pavement Width L/R	12.00 / 12.00
Structural Spread Rate	165
Friction Course Spread Rate	165

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
160-4	TYPE B STABILIZATION	3,834.45	SY	\$12.84	\$49,234.34
285-709	OPTIONAL BASE,BASE GROUP 09	2,363.94	SY	\$31.94	\$75,504.24
334-1-13	SUPERPAVE ASPHALTIC CONC, TRAFFIC C	189.81	TN	\$106.33	\$20,182.50
337-7-83	ASPH CONC FC,TRAFFIC C,FC- 12.5,PG 76-22	189.81	TN	\$135.40	\$25,700.27

X-Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
160-4	TYPE B STABILIZATION	273.00	SY	\$12.84	\$3,505.32
285-709	OPTIONAL BASE,BASE GROUP 09	273.00	SY	\$31.94	\$8,719.62
334-1-13	SUPERPAVE ASPHALTIC CONC, TRAFFIC C	23.00	TN	\$106.33	\$2,445.59
337-7-83	ASPH CONC FC,TRAFFIC C,FC- 12.5,PG 76-22	23.00	TN	\$135.40	\$3,114.20

Pavement Marking Subcomponent

Description	Value
Include Thermo/Tape/Other	N
Pavement Type	Asphalt
Solid Stripe No. of Paint Applications	2
Solid Stripe No. of Stripes	2
Skip Stripe No. of Paint Applications	2
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	\$8.07	\$177.54
710-11-101	PAINTED PAVT MARK,STD,WHITE,SOLID,6"	0.65	GM	\$1,129.51	\$734.18
710-11-231	PAINTED PAVT MARK,STD,YELLOW,SKIP,6"	0.33	GM	\$484.67	\$159.94
Roadway Component Total					\$189,477.74

SHOULDER COMPONENT**User Input Data**

Description	Value
Total Outside Shoulder Width L/R	8.00 / 8.00
Total Outside Shoulder Perf. Turf Width L/R	8.00 / 8.00
Paved Outside Shoulder Width L/R	0.00 / 0.00
Structural Spread Rate	110
Friction Course Spread Rate	165
Total Width (T) / 8" Overlap (O)	T
Rumble Strips 1/2 No. of Sides	0

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
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570-1-1	PERFORMANCE TURF	1,533.78 SY	\$3.34	\$5,122.83
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X-Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
160-4	TYPE B STABILIZATION	1,534.00 SY	\$12.84	\$19,696.56

**Erosion Control
Pay Items**

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
104-10-3	SEDIMENT BARRIER	2,243.16 LF	\$1.41	\$3,162.86
104-11	FLOATING TURBIDITY BARRIER	40.85 LF	\$13.96	\$570.27
104-12	STAKED TURBIDITY BARRIER- NYL REINF PVC	40.85 LF	\$7.43	\$303.52
104-15	SOIL TRACKING PREVENTION DEVICE	1.00 EA	\$3,739.20	\$3,739.20
107-1	LITTER REMOVAL	1.98 AC	\$30.97	\$61.32
107-2	MOWING	1.98 AC	\$66.81	\$132.28

Shoulder Component Total

\$32,788.83

DRAINAGE COMPONENT**Pay Items**

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
430-174-124	PIPE CULV, OPT MATL, ROUND,24"SD	136.00 LF	\$128.31	\$17,450.16
430-175-136	PIPE CULV, OPT MATL, ROUND, 36"S/CD	32.00 LF	\$157.83	\$5,050.56
430-984-129	MITERED END SECT, OPTIONAL RD, 24" SD	7.00 EA	\$2,085.19	\$14,596.33
570-1-1	PERFORMANCE TURF	115.03 SY	\$3.34	\$384.20

Drainage Component Total

\$37,481.25

SIGNING COMPONENT**Pay Items**

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
700-1-11	SINGLE POST SIGN, F&I GM, <12 SF	1.00 AS	\$408.41	\$408.41
700-1-12	SINGLE POST SIGN, F&I GM, 12-20 SF	4.00 AS	\$1,381.32	\$5,525.28
700-2-14	MULTI- POST SIGN, F&I GM, 31-50 SF	1.00 AS	\$5,498.16	\$5,498.16

Signing Component Total

\$11,431.85

Sequence 1 Total

\$352,947.89

Sequence: 2 WUR - Widen/Resurface, Undivided, Rural**Net Length:** 0.137 MI
724 LF**Description:** Holden**EARTHWORK COMPONENT****User Input Data**

Description	Value
Standard Clearing and Grubbing Limits L/R	0.00 / 0.00
Incidental Clearing and Grubbing Area	0.78
Alignment Number	1
Distance	0.128
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 Outside Shoulder Cross Slope L/R	6.00 % / 6.00 %
Front Slope L/R	6 to 1 / 6 to 1
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	0.78	AC	\$42,822.21	\$33,401.32
Earthwork Component Total					\$33,401.32

ROADWAY COMPONENT**User Input Data**

Description	Value
Number of Lanes	2
Existing Roadway Pavement Width L/R	12.00 / 12.00
Structural Spread Rate	165
Friction Course Spread Rate	165
Widened Outside Pavement Width L/R	10.00 / 15.00
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	3,297.71	SY	\$12.84	\$42,342.60
285-709	OPTIONAL BASE,BASE GROUP 09	2,063.89	SY	\$31.94	\$65,920.65
327-70-6	MILLING EXIST ASPH PAVT,1 1/2" AVG DEPTH	1,930.37	SY	\$4.00	\$7,721.48
334-1-13	SUPERPAVE ASPHALTIC CONC, TRAFFIC C	165.89	TN	\$106.33	\$17,639.08
337-7-83	ASPH CONC FC,TRAFFIC C,FC-12.5,PG 76-22	159.26	TN	\$135.40	\$21,563.80
337-7-83	ASPH CONC FC,TRAFFIC C,FC-12.5,PG 76-22	165.89	TN	\$135.40	\$22,461.51

X-Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
327-70-6	MILLING EXIST ASPH PAVT,1 1/2" AVG DEPTH	236.00	SY	\$4.00	\$944.00
337-7-83	ASPH CONC FC,TRAFFIC C,FC-12.5,PG 76-22	20.00	TN	\$135.40	\$2,708.00

Pavement Marking Subcomponent

Description	Value
Include Thermo/Tape/Other	N
Pavement Type	Asphalt
Solid Stripe No. of Paint Applications	2
Solid Stripe No. of Stripes	2
Skip Stripe No. of Paint Applications	2
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	19.00	EA	\$8.07	\$153.33
710-11-101	PAINTED PAVT MARK,STD,WHITE,SOLID,6"	0.55	GM	\$1,129.51	\$621.23
710-11-231	PAINTED PAVT MARK,STD,YELLOW,SKIP,6"	0.27	GM	\$484.67	\$130.86
Roadway Component Total					\$182,206.53

SHOULDER COMPONENT**User Input Data**

Description	Value
Existing Total Outside Shoulder Width L/R	6.00 / 6.00
New Total Outside Shoulder Width L/R	8.00 / 8.00
Total Outside Shoulder Perf. Turf Width L/R	8.00 / 8.00
Existing Paved Outside Shoulder Width L/R	0.00 / 0.00
New Paved Outside 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 1/2 No. of Sides	0

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
570-1-1	PERFORMANCE TURF	1,286.91	SY	\$3.34	\$4,298.28

X-Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
160-4	TYPE B STABILIZATION	115.00	SY	\$12.84	\$1,476.60
520-1-10	CONCRETE CURB & GUTTER, TYPE F	444.00	LF	\$30.17	\$13,395.48
522-1	CONCRETE SIDEWALK AND DRIVEWAYS, 4"	453.00	SY	\$46.93	\$21,259.29

Erosion Control**Pay Items**

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
104-10-3	SEDIMENT BARRIER	1,664.94 LF	\$1.41	\$2,347.57
104-11	FLOATING TURBIDITY BARRIER	13.71 LF	\$13.96	\$191.39
104-12	STAKED TURBIDITY BARRIER-NYL REINF PVC	13.71 LF	\$7.43	\$101.87
104-15	SOIL TRACKING PREVENTION DEVICE	1.00 EA	\$3,739.20	\$3,739.20
104-18	INLET PROTECTION SYSTEM	1.00 EA	\$101.69	\$101.69
107-1	LITTER REMOVAL	0.33 AC	\$30.97	\$10.22
107-2	MOWING	0.33 AC	\$66.81	\$22.05
Shoulder Component Total				\$46,943.63

DRAINAGE COMPONENT**Pay Items**

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
430-174-124	PIPE CULV, OPT MATL, ROUND,24"SD	24.00 LF	\$128.31	\$3,079.44
430-175-136	PIPE CULV, OPT MATL, ROUND, 36"S/CD	8.00 LF	\$157.83	\$1,262.64
430-984-129	MITERED END SECT, OPTIONAL RD, 24" SD	2.00 EA	\$2,085.19	\$4,170.38
570-1-1	PERFORMANCE TURF	55.39 SY	\$3.34	\$185.00
Drainage Component Total				\$8,697.46

SIGNING COMPONENT**Pay Items**

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
700-1-11	SINGLE POST SIGN, F&I GM, <12 SF	1.00 AS	\$408.41	\$408.41
700-1-12	SINGLE POST SIGN, F&I GM, 12-20 SF	3.00 AS	\$1,381.32	\$4,143.96
700-1-50	SINGLE POST SIGN, RELOCATE	1.00 AS	\$286.33	\$286.33
700-1-60	SINGLE POST SIGN, REMOVE	3.00 AS	\$46.14	\$138.42
700-2-13	MULTI- POST SIGN, F&I GM, 21-30 SF	1.00 AS	\$4,245.89	\$4,245.89
700-2-60	MULTI- POST SIGN, REMOVE	1.00 AS	\$719.24	\$719.24
Signing Component Total				\$9,942.25

Sequence 2 Total	\$281,191.19
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Sequence: 3 WUU - Widen/Resurface, Undivided, Urban**Net Length:** 0.196 MI
1,034 LF**Description:** Orange**EARTHWORK COMPONENT****User Input Data**

Description	Value
Standard Clearing and Grubbing Limits L/R	0.00 / 0.00
Incidental Clearing and Grubbing Area	0.34
Alignment Number	1
Distance	0.196
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 Outside Shoulder Cross Slope L/R	2.00 % / 2.00 %
Front Slope L/R	6 to 1 / 6 to 1
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	0.34	AC	\$42,822.21	\$14,559.55
Earthwork Component Total					\$14,559.55

ROADWAY COMPONENT**User Input Data**

Description	Value
Number of Lanes	5
Existing Roadway Pavement Width L/R	30.00 / 30.00
Structural Spread Rate	165
Friction Course Spread Rate	165
Widened Outside 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
327-70-6	MILLING EXIST ASPH PAVT, 1 1/2" AVG DEPTH	6,892.16	SY	\$4.00	\$27,568.64
334-1-13	SUPERPAVE ASPHALTIC CONC, TRAFFIC C	568.60	TN	\$106.33	\$60,459.24
337-7-83	ASPH CONC FC, TRAFFIC C, FC-12.5, PG 76-22	568.60	TN	\$135.40	\$76,988.44

X-Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
160-4	TYPE B STABILIZATION	252.00	SY	\$12.84	\$3,235.68
285-709	OPTIONAL BASE, BASE GROUP 09	252.00	SY	\$31.94	\$8,048.88

327-70-6	MILLING EXIST ASPH PAVT, 1 1/2" AVG DEPTH	1,512.00 SY	\$4.00	\$6,048.00
334-1-13	SUPERPAVE ASPHALTIC CONC, TRAFFIC C	21.00 TN	\$106.33	\$2,232.93
337-7-83	ASPH CONC FC, TRAFFIC C, FC-12.5, PG 76-22	146.00 TN	\$135.40	\$19,768.40

Pavement Marking Subcomponent

Description	Value
Include Thermo/Tape/Other	N
Pavement Type	Asphalt
Solid Stripe No. of Paint Applications	2
Solid Stripe No. of Stripes	4
Skip Stripe No. of Paint Applications	2
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	159.00 EA	\$8.07	\$1,283.13
710-11-101	PAINTED PAVT MARK, STD, WHITE, SOLID, 6"	1.57 GM	\$1,129.51	\$1,773.33
710-11-131	PAINTED PAVT MARK, STD, WHITE, SKIP, 6"	1.57 GM	\$522.40	\$820.17
Roadway Component Total				\$208,226.84

SHOULDER COMPONENT**User Input Data**

Description	Value
Existing Total Outside Shoulder Width L/R	12.25 / 12.25
New Total Outside Shoulder Width L/R	12.25 / 12.25
Total Outside Shoulder Perf. Turf Width L/R	5.00 / 5.00
Sidewalk Width L/R	5.00 / 5.00

X-Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
160-4	TYPE B STABILIZATION	41.00 SY	\$12.84	\$526.44
520-1-7	CONCRETE CURB & GUTTER, TYPE E	261.00 LF	\$28.08	\$7,328.88
520-1-10	CONCRETE CURB & GUTTER, TYPE F	158.00 LF	\$30.17	\$4,766.86
522-1	CONCRETE SIDEWALK AND DRIVEWAYS, 4"	113.00 SY	\$46.93	\$5,303.09
Shoulder Component Total				\$17,925.27

DRAINAGE COMPONENT**Pay Items**

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
425-1-351	INLETS, CURB, TYPE P-5, <10'	1.00 EA	\$5,283.95	\$5,283.95

430-175-124	PIPE CULV, OPT MATL, ROUND, 24"S/CD	16.00 LF	\$107.19	\$1,715.04
Drainage Component Total				\$6,998.99

SIGNING COMPONENT**Pay Items**

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
700-1-11	SINGLE POST SIGN, F&I GM, <12 SF	4.00 AS	\$408.41	\$1,633.64
700-1-12	SINGLE POST SIGN, F&I GM, 12-20 SF	1.00 AS	\$1,381.32	\$1,381.32
700-1-50	SINGLE POST SIGN, RELOCATE	1.00 AS	\$286.33	\$286.33
700-1-60	SINGLE POST SIGN, REMOVE	4.00 AS	\$46.14	\$184.56
700-2-14	MULTI- POST SIGN, F&I GM, 31-50 SF	1.00 AS	\$5,498.16	\$5,498.16
700-2-60	MULTI- POST SIGN, REMOVE	1.00 AS	\$719.24	\$719.24
Signing Component Total				\$9,703.25

SIGNALIZATIONS COMPONENT**Signalization 1**

Description	Value
Type	4 Lane Mast Arm
Multiplier	1
Description	@Holden

Pay Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
630-2-11	CONDUIT, F& I, OPEN TRENCH	750.00 LF	\$10.10	\$7,575.00
630-2-12	CONDUIT, F& I, DIRECTIONAL BORE	250.00 LF	\$22.26	\$5,565.00
632-7-1	SIGNAL CABLE- NEW OR RECO, FUR & INSTALL	1.00 PI	\$7,052.94	\$7,052.94
635-2-11	PULL & SPLICE BOX, F&I, 13" x 24"	16.00 EA	\$749.76	\$11,996.16
639-1-112	ELECTRICAL POWER SRV,F&I,OH,M,PUR BY CON	1.00 AS	\$3,630.05	\$3,630.05
639-2-1	ELECTRICAL SERVICE WIRE, F&I	60.00 LF	\$5.61	\$336.60
649-21-10	STEEL MAST ARM ASSEMBLY, F&I, 60'	1.00 EA	\$46,167.56	\$46,167.56
650-1-14	VEH TRAF SIGNAL,F&I ALUMINUM, 3 S 1 W	12.00 AS	\$1,084.03	\$13,008.36
653-1-11	PEDESTRIAN SIGNAL, F&I LED COUNT, 1 WAY	8.00 AS	\$628.79	\$5,030.32
660-1-102	LOOP DETECTOR INDUCTIVE, F&I, TYPE 2	12.00 EA	\$405.04	\$4,860.48
660-2-106	LOOP ASSEMBLY, F&I, TYPE F	12.00 AS	\$1,106.37	\$13,276.44
665-1-11	PEDESTRIAN DETECTOR, F&I, STANDARD	2.00 EA	\$251.93	\$503.86
670-5-111	TRAF CNTL ASSEM, F&I, NEMA, 1 PREEMPT	1.00 AS	\$27,083.56	\$27,083.56
700-3-101	SIGN PANEL, F&I GM, UP TO 12 SF	4.00 EA	\$211.85	\$847.40

Signalization 2**Description**

Type

Multiplier

Description

@ Gatlin

Value

4 Lane Mast Arm

1

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
630-2-11	CONDUIT, F& I, OPEN TRENCH	750.00	LF	\$10.10	\$7,575.00
630-2-12	CONDUIT, F& I, DIRECTIONAL BORE	250.00	LF	\$22.26	\$5,565.00
632-7-1	SIGNAL CABLE- NEW OR RECO, FUR & INSTALL	1.00	PI	\$7,052.94	\$7,052.94
635-2-11	PULL & SPLICE BOX, F&I, 13" x 24"	16.00	EA	\$749.76	\$11,996.16
639-1-112	ELECTRICAL POWER SRV,F&I,OH,M,PUR BY CON	1.00	AS	\$3,630.05	\$3,630.05
639-2-1	ELECTRICAL SERVICE WIRE, F&I	60.00	LF	\$5.61	\$336.60
650-1-14	VEH TRAF SIGNAL,F&I ALUMINUM, 3 S 1 W	12.00	AS	\$1,084.03	\$13,008.36
653-1-11	PEDESTRIAN SIGNAL, F&I LED COUNT, 1 WAY	8.00	AS	\$628.79	\$5,030.32
660-1-102	LOOP DETECTOR INDUCTIVE, F&I, TYPE 2	12.00	EA	\$405.04	\$4,860.48
660-2-106	LOOP ASSEMBLY, F&I, TYPE F	12.00	AS	\$1,106.37	\$13,276.44
665-1-11	PEDESTRIAN DETECTOR, F&I, STANDARD	4.00	EA	\$251.93	\$1,007.72
670-5-111	TRAF CNTL ASSEM, F&I, NEMA, 1 PREEMPT	1.00	AS	\$27,083.56	\$27,083.56
700-3-101	SIGN PANEL, F&I GM, UP TO 12 SF	4.00	EA	\$211.85	\$847.40

Signalization 3**Description**

Type

Multiplier

Description

@ Gatlin Lake

Value

4 Lane Mast Arm

1

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
630-2-11	CONDUIT, F& I, OPEN TRENCH	750.00	LF	\$10.10	\$7,575.00
630-2-12	CONDUIT, F& I, DIRECTIONAL BORE	250.00	LF	\$22.26	\$5,565.00
632-7-1	SIGNAL CABLE- NEW OR RECO, FUR & INSTALL	1.00	PI	\$7,052.94	\$7,052.94
635-2-11	PULL & SPLICE BOX, F&I, 13" x 24"	16.00	EA	\$749.76	\$11,996.16
639-1-112	ELECTRICAL POWER SRV,F&I,OH,M,PUR BY CON	1.00	AS	\$3,630.05	\$3,630.05
639-2-1	ELECTRICAL SERVICE WIRE, F&I	60.00	LF	\$5.61	\$336.60
649-21-10	STEEL MAST ARM ASSEMBLY, F&I, 60'	1.00	EA	\$46,167.56	\$46,167.56
650-1-14	VEH TRAF SIGNAL,F&I ALUMINUM, 3 S 1 W	12.00	AS	\$1,084.03	\$13,008.36
653-1-11		8.00	AS	\$628.79	\$5,030.32

	PEDESTRIAN SIGNAL, F&I LED COUNT, 1 WAY			
660-1-102	LOOP DETECTOR INDUCTIVE, F&I, TYPE 2	12.00 EA	\$405.04	\$4,860.48
660-2-106	LOOP ASSEMBLY, F&I, TYPE F	12.00 AS	\$1,106.37	\$13,276.44
665-1-11	PEDESTRIAN DETECTOR, F&I, STANDARD	2.00 EA	\$251.93	\$503.86
670-5-111	TRAF CNTL ASSEM, F&I, NEMA, 1 PREEMPT	1.00 AS	\$27,083.56	\$27,083.56
700-3-101	SIGN PANEL, F&I GM, UP TO 12 SF	2.00 EA	\$211.85	\$423.70

Interconnect Subcomponent

Description	Value
Type	U
Length of Fiber Run	959.00
Number of Intersections	2
Percentage of Underpavement Conduit	10.00

Pay Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
633-1-122	FIBER OPTIC CABLE, F&I, UG,13-48	380.00 LF	\$2.82	\$1,071.60
660-2-102	LOOP ASSEMBLY, F&I, TYPE B	8.00 AS	\$1,005.75	\$8,046.00
Signalizations Component Total				\$403,831.39

Sequence 3 Total	\$661,245.29
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Sequence: 4 WUU - Widen/Resurface, Undivided, Urban**Net Length:** 0.118 MI
625 LF**Description:** Gatlin 1**Special** @Orange**Conditions:****EARTHWORK COMPONENT****User Input Data**

Description	Value
Standard Clearing and Grubbing Limits L/R	0.00 / 0.00
Incidental Clearing and Grubbing Area	0.36
Alignment Number	1
Distance	0.118
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 Outside Shoulder Cross Slope L/R	2.00 % / 2.00 %
Front Slope L/R	6 to 1 / 6 to 1
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	0.36	AC	\$42,822.21	\$15,416.00
Earthwork Component Total					\$15,416.00

ROADWAY COMPONENT**User Input Data**

Description	Value
Number of Lanes	2
Existing Roadway Pavement Width L/R	12.00 / 12.00
Structural Spread Rate	0
Friction Course Spread Rate	165
Widened Outside Pavement Width L/R	0.00 / 13.00
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	1,082.21	SY	\$12.84	\$13,895.58
285-709	OPTIONAL BASE,BASE GROUP 09	925.92	SY	\$31.94	\$29,573.88
327-70-6	MILLING EXIST ASPH PAVT,1 1/2" AVG DEPTH	1,667.07	SY	\$4.00	\$6,668.28
334-1-13	SUPERPAVE ASPHALTIC CONC, TRAFFIC C	74.50	TN	\$106.33	\$7,921.58
337-7-83	ASPH CONC FC,TRAFFIC C,FC-12.5,PG 76-22	137.53	TN	\$135.40	\$18,621.56
337-7-83	ASPH CONC FC,TRAFFIC C,FC-12.5,PG 76-22	74.50	TN	\$135.40	\$10,087.30

X-Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
327-70-6	MILLING EXIST ASPH PAVT,1 1/2" AVG DEPTH	449.00 SY	\$4.00	\$1,796.00
337-7-83	ASPH CONC FC,TRAFFIC C,FC-12.5,PG 76-22	37.00 TN	\$135.40	\$5,009.80

Pavement Marking Subcomponent

Description	Value
Include Thermo/Tape/Other	N
Pavement Type	Asphalt
Solid Stripe No. of Paint Applications	2
Solid Stripe No. of Stripes	4
Skip Stripe No. of Paint Applications	2
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	16.00 EA	\$8.07	\$129.12
710-11-101	PAINTED PAVT MARK,STD,WHITE,SOLID,6"	0.95 GM	\$1,129.51	\$1,073.03
710-11-131	PAINTED PAVT MARK,STD,WHITE,SKIP, 6"	0.24 GM	\$522.40	\$125.38
Roadway Component Total				\$94,901.52

SHOULDER COMPONENT**User Input Data**

Description	Value
Existing Total Outside Shoulder Width L/R	12.25 / 12.25
New Total Outside Shoulder Width L/R	12.25 / 12.25
Total Outside Shoulder Perf. Turf Width L/R	5.00 / 5.00
Sidewalk Width L/R	5.00 / 5.00

X-Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
160-4	TYPE B STABILIZATION	160.00 SY	\$12.84	\$2,054.40
520-1-10	CONCRETE CURB & GUTTER, TYPE F	618.00 LF	\$30.17	\$18,645.06
522-1	CONCRETE SIDEWALK AND DRIVEWAYS, 4"	373.00 SY	\$46.93	\$17,504.89
Shoulder Component Total				\$38,204.35

DRAINAGE COMPONENT**Pay Items**

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
425-1-351	INLETS, CURB, TYPE P-5, <10'	5.00 EA	\$5,283.95	\$26,419.75

425-1-451	INLETS, CURB, TYPE J-5, <10'	2.00 EA	\$7,864.79	\$15,729.58
425-1-521	INLETS, DT BOT, TYPE C, <10'	1.00 EA	\$3,944.41	\$3,944.41
425-2-41	MANHOLES, P-7, <10'	1.00 EA	\$4,534.68	\$4,534.68
430-175-124	PIPE CULV, OPT MATL, ROUND, 24"S/CD	232.00 LF	\$107.19	\$24,868.08
430-175-148	PIPE CULV, OPT MATL, ROUND, 48"S/CD	592.00 LF	\$253.87	\$150,291.04
570-1-1	PERFORMANCE TURF	35.99 SY	\$3.34	\$120.21
Drainage Component Total				\$225,907.75

SIGNING COMPONENT**Pay Items**

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
700-1-11	SINGLE POST SIGN, F&I GM, <12 SF	3.00	AS	\$408.41	\$1,225.23
700-1-12	SINGLE POST SIGN, F&I GM, 12-20 SF	1.00	AS	\$1,381.32	\$1,381.32
700-1-50	SINGLE POST SIGN, RELOCATE	1.00	AS	\$286.33	\$286.33
700-1-60	SINGLE POST SIGN, REMOVE	3.00	AS	\$46.14	\$138.42
700-2-14	MULTI- POST SIGN, F&I GM, 31-50 SF	1.00	AS	\$5,498.16	\$5,498.16
700-2-60	MULTI- POST SIGN, REMOVE	1.00	AS	\$719.24	\$719.24
Signing Component Total					\$9,248.70

Sequence 4 Total				\$383,678.32
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Sequence: 5 WUU - Widen/Resurface, Undivided, Urban**Net Length:** 0.092 MI
488 LF**Description:** Gatlin 2**Special** @Gatlin Lake**Conditions:****EARTHWORK COMPONENT****User Input Data**

Description	Value
Standard Clearing and Grubbing Limits L/R	15.00 / 17.00
Incidental Clearing and Grubbing Area	0.00
Alignment Number	1
Distance	0.092
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 Outside Shoulder Cross Slope L/R	2.00 % / 2.00 %
Front Slope L/R	6 to 1 / 6 to 1
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	0.36	AC	\$42,822.21	\$15,416.00
Earthwork Component Total					\$15,416.00

ROADWAY COMPONENT**User Input Data**

Description	Value
Number of Lanes	2
Existing Roadway Pavement Width L/R	11.00 / 11.00
Structural Spread Rate	0
Friction Course Spread Rate	165
Widened Outside Pavement Width L/R	4.00 / 4.00
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	713.38	SY	\$12.84	\$9,159.80
285-709	OPTIONAL BASE,BASE GROUP 09	469.44	SY	\$31.94	\$14,993.91
327-70-5	MILLING EXIST ASPH PAVT, 2" AVG DEPTH	1,192.58	SY	\$4.62	\$5,509.72
334-1-13	SUPERPAVE ASPHALTIC CONC, TRAFFIC C	35.78	TN	\$106.33	\$3,804.49
337-7-83	ASPH CONC FC,TRAFFIC C,FC-12.5,PG 76-22	98.39	TN	\$135.40	\$13,322.01
337-7-83	ASPH CONC FC,TRAFFIC C,FC-12.5,PG 76-22	35.78	TN	\$135.40	\$4,844.61

Pavement Marking Subcomponent

Description	Value
Include Thermo/Tape/Other	N
Pavement Type	Asphalt
Solid Stripe No. of Paint Applications	2
Solid Stripe No. of Stripes	4
Skip Stripe No. of Paint Applications	2
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	12.00 EA	\$8.07	\$96.84
710-11-101	PAINTED PAVT MARK,STD,WHITE,SOLID,6"	0.74 GM	\$1,129.51	\$835.84
710-11-131	PAINTED PAVT MARK,STD,WHITE,SKIP, 6"	0.18 GM	\$522.40	\$94.03
Roadway Component Total				\$52,661.25

SHOULDER COMPONENT**User Input Data**

Description	Value
Existing Total Outside Shoulder Width L/R	12.25 / 12.25
New Total Outside Shoulder Width L/R	7.25 / 12.25
Total Outside Shoulder Perf. Turf Width L/R	5.00 / 5.00
Sidewalk Width L/R	0.00 / 5.00

Pay Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
520-1-10	CONCRETE CURB & GUTTER, TYPE F	487.87 LF	\$30.17	\$14,719.04
520-1-10	CONCRETE CURB & GUTTER, TYPE F	487.87 LF	\$30.17	\$14,719.04
522-1	CONCRETE SIDEWALK AND DRIVEWAYS, 4"	271.04 SY	\$46.93	\$12,719.91
570-1-1	PERFORMANCE TURF	542.08 SY	\$3.34	\$1,810.55

X-Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
160-4	TYPE B STABILIZATION	205.00 SY	\$12.84	\$2,632.20

Erosion Control**Pay Items**

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
104-10-3	SEDIMENT BARRIER	975.74 LF	\$1.41	\$1,375.79
104-11	FLOATING TURBIDITY BARRIER	9.24 LF	\$13.96	\$128.99
104-12	STAKED TURBIDITY BARRIER-NYL REINF PVC	9.24 LF	\$7.43	\$68.65

104-15	SOIL TRACKING PREVENTION DEVICE	1.00 EA	\$3,739.20	\$3,739.20
104-18	INLET PROTECTION SYSTEM	5.00 EA	\$101.69	\$508.45
107-1	LITTER REMOVAL	0.43 AC	\$30.97	\$13.32
107-2	MOWING	0.43 AC	\$66.81	\$28.73

Shoulder Component Total

\$52,463.86

DRAINAGE COMPONENT**Pay Items**

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
425-1-351	INLETS, CURB, TYPE P-5, <10'	4.00 EA	\$5,283.95	\$21,135.80
425-1-451	INLETS, CURB, TYPE J-5, <10'	1.00 EA	\$7,864.79	\$7,864.79
425-1-521	INLETS, DT BOT, TYPE C, <10'	1.00 EA	\$3,944.41	\$3,944.41
425-2-41	MANHOLES, P-7, <10'	1.00 EA	\$4,534.68	\$4,534.68
430-175-124	PIPE CULV, OPT MATL, ROUND, 24"S/CD	184.00 LF	\$107.19	\$19,722.96
430-175-148	PIPE CULV, OPT MATL, ROUND, 48"S/CD	464.00 LF	\$253.87	\$117,795.68
570-1-1	PERFORMANCE TURF	28.09 SY	\$3.34	\$93.82

Drainage Component Total

\$175,092.14

SIGNING COMPONENT**Pay Items**

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
700-1-11	SINGLE POST SIGN, F&I GM, <12 SF	2.00 AS	\$408.41	\$816.82
700-1-12	SINGLE POST SIGN, F&I GM, 12-20 SF	1.00 AS	\$1,381.32	\$1,381.32
700-1-50	SINGLE POST SIGN, RELOCATE	1.00 AS	\$286.33	\$286.33
700-1-60	SINGLE POST SIGN, REMOVE	2.00 AS	\$46.14	\$92.28
700-2-14	MULTI- POST SIGN, F&I GM, 31-50 SF	1.00 AS	\$5,498.16	\$5,498.16
700-2-60	MULTI- POST SIGN, REMOVE	1.00 AS	\$719.24	\$719.24

Signing Component Total

\$8,794.15

SIGNALIZATIONS COMPONENT**Signalization 1****Description**

Type

Multiplier

Description

Value

2 Lane Mast Arm

1

@Gatlin Lake

Pay Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
630-2-11	CONDUIT, F& I, OPEN TRENCH	800.00 LF	\$10.10	\$8,080.00
630-2-12		200.00 LF	\$22.26	\$4,452.00

	CONDUIT, F&I, DIRECTIONAL BORE			
632-7-1	SIGNAL CABLE- NEW OR RECO, FUR & INSTALL	1.00 PI	\$7,052.94	\$7,052.94
633-3-11	FIBER OPTIC CONN HDWR, SPLICE ENCLOSURE	2.00 EA	\$920.62	\$1,841.24
635-2-11	PULL & SPLICE BOX, F&I, 13" x 24"	12.00 EA	\$749.76	\$8,997.12
639-1-112	ELECTRICAL POWER SRV,F&I,OH,M,PUR BY CON	1.00 AS	\$3,630.05	\$3,630.05
639-2-1	ELECTRICAL SERVICE WIRE, F&I	60.00 LF	\$5.61	\$336.60
649-21-4	STEEL MAST ARM ASSEMBLY, F&I, 40'- 30'	4.00 EA	\$62,883.15	\$251,532.60
650-1-14	VEH TRAF SIGNAL,F&I ALUMINUM, 3 S 1 W	8.00 AS	\$1,084.03	\$8,672.24
653-1-11	PEDESTRIAN SIGNAL, F&I LED COUNT, 1 WAY	8.00 AS	\$628.79	\$5,030.32
660-1-102	LOOP DETECTOR INDUCTIVE, F&I, TYPE 2	8.00 EA	\$405.04	\$3,240.32
660-2-106	LOOP ASSEMBLY, F&I, TYPE F	8.00 AS	\$1,106.37	\$8,850.96
665-1-11	PEDESTRIAN DETECTOR, F&I, STANDARD	8.00 EA	\$251.93	\$2,015.44
670-5-111	TRAF CNTL ASSEM, F&I, NEMA, 1 PREEMPT	1.00 AS	\$27,083.56	\$27,083.56
700-3-101	SIGN PANEL, F&I GM, UP TO 12 SF	4.00 EA	\$211.85	\$847.40
Signalizations Component Total				\$341,662.79
Sequence 5 Total				\$646,090.19

Date: 8/25/2021 8:42:35 AM

FDOT Long Range Estimating System - Production

R3: Project Details by Sequence Report

Project: 101010-1-52-01

Letting Date: 01/2099

Description: VHB Project# 62876.17

District: 05 County: 75 ORANGE

Market Area: 08 Units: English

Contract Class: Lump Sum Project: N

Design/Build: N Project Length: 0.217 MI

Project Manager:

Version 44 Project Grand Total

\$2,863,434.99

Description: Holden/Gatlin Alt3

Project Sequences Subtotal**\$2,325,152.88**

102-1	Maintenance of Traffic	10.00 %	\$232,515.29
101-1	Mobilization	10.00 %	\$255,766.82

Project Sequences Total**\$2,813,434.99**

Project Unknowns	0.00 %	\$0.00
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	\$50,000.00	\$50,000.00

Project Non-Bid Subtotal**\$50,000.00****Version 44 Project Grand Total****\$2,863,434.99**

B/C Calculation for Short-term Alternative								
Network MOE	2025				2030			
	2025 NB AM	2025 Build1 AM	2025 NB PM	2025 Build 1 PM	2030 NB AM	2030 Short-term AM	2030 NB PM	2030 Short-term PM
Total Delay (hour)	81	72	79	70	100	93	100	91
Estimated Daily Savings (hours)	18				16			
Daily User Benefit by MOE	363				323			
Daily User Benefit Total	363.06				322.72			
Annual User Benefit	108,918				96,816			
Interpolation for other years								
2021	118,600							
2022	116,179							
2023	113,759							
2024	111,338							
2025	108,918							
2026	106,498							
2027	104,077							
2028	101,657							
2029	99,236							
2030	96,816							
Total Benefits	1,077,078							
Total Cost	24,108							
B/C	\$44.7							

B/C Calculation for Future Alternative 1								
Network MOE	2030				2040			
	NB	B	NB	B	NB	B	NB	B
Total Delay (hour)	93	61	91	60	154	78	137	85
Estimated Daily Savings (hours)	189				384			
Daily User Benefit by MOE	3,812				7,745			
Daily User Benefit Total	3812.13				7745.28			
Annual User Benefit	1,143,639				2,323,584			
Interpolation for other years								
2030	1,143,639							
2031	1,261,634							
2032	1,379,628							
2033	1,497,623							
2034	1,615,617							
2035	1,733,612							
2036	1,851,606							
2037	1,969,601							
2038	2,087,595							
2039	2,205,590							
2040	2,323,584							
2041	2,441,579							
2042	2,559,573							
2043	2,677,568							
2044	2,795,562							
2045	2,913,557							
2046	3,031,551							
2047	3,149,546							
2048	3,267,540							
2049	3,385,535							
Total Benefits	45,291,735							
Total Cost	3,741,739							
B/C	\$12.1							

B/C Calculation for Future Alternative 2								
Network MOE	2030				2040			
	NB	B	NB	B	NB	B	NB	B
Total Delay (hour)	93	59	91	59	154	78	137	71
Estimated Daily Savings (hours)	198				426			
Daily User Benefit by MOE	3,994				8,592			
Daily User Benefit Total	3993.66				8592.42			
Annual User Benefit	1,198,098				2,577,726			
Interpolation for other years								
2030	1,198,098							
2031	1,336,061							
2032	1,474,024							
2033	1,611,986							
2034	1,749,949							
2035	1,887,912							
2036	2,025,875							
2037	2,163,838							
2038	2,301,800							
2039	2,439,763							
2040	2,577,726							
2041	2,715,689							
2042	2,853,652							
2043	2,991,614							
2044	3,129,577							
2045	3,267,540							
2046	3,405,503							
2047	3,543,466							
2048	3,681,428							
2049	3,819,391							
Total Benefits	50,174,892							
Total Cost	2,888,699							
B/C	\$17.4							

B/C Calculation for Future Alternative 3								
Network MOE	2030				2040			
	NB	B	NB	B	NB	B	NB	B
Total Delay (hour)	93	62	91	58	154	78	137	77
Estimated Daily Savings (hours)	192				408			
Daily User Benefit by MOE	3,873				8,229			
Daily User Benefit Total	3872.64				8229.36			
Annual User Benefit	1,161,792				2,468,808			
Interpolation for other years								
2030	1,161,792							
2031	1,292,494							
2032	1,423,195							
2033	1,553,897							
2034	1,684,598							
2035	1,815,300							
2036	1,946,002							
2037	2,076,703							
2038	2,207,405							
2039	2,338,106							
2040	2,468,808							
2041	2,599,510							
2042	2,730,211							
2043	2,860,913							
2044	2,991,614							
2045	3,122,316							
2046	3,253,018							
2047	3,383,719							
2048	3,514,421							
2049	3,645,122							
Total Benefits	48,069,144							
Total Cost	2,863,435							
B/C	\$16.8							

Intersection Analysis Study for Orange Avenue/Gatlin Avenue & Orange Avenue/Holden Avenue

Appendix L: HSM Analysis Summary & Supporting Documentation

HSM Predictive Safety Analysis - Crash Cost Savings Calculation

Annual Predicted Number of Crashes (HSM)	Year	
	2030	2040
Alternative		
No-Build	12.90	14.80
Future Alternative 1	9.60	11.00

Interpolation for Other Years - Annual Predicted Number of Crashes		
Year	No-Build	Future Alternative 1
2030	12.90	9.60
2031	13.09	9.74
2032	13.28	9.88
2033	13.47	10.02
2034	13.66	10.16
2035	13.85	10.30
2036	14.04	10.44
2037	14.23	10.58
2038	14.42	10.72
2039	14.61	10.86
2040	14.80	11.00
2041	14.99	11.14
2042	15.18	11.28
2043	15.37	11.42
2044	15.56	11.56
2045	15.75	11.70
2046	15.94	11.84
2047	16.13	11.98
2048	16.32	12.12
2049	16.51	12.26
2050	16.70	12.40
Total Predicted Number of Crashes	310.80	231.00
Reduction from No-Build	79.80	
Average Crash Cost for Urban Roadways (FDM)	\$123,253.00	
Total Crash Cost Savings	\$9,835,589.40	

122.6.1 Historical Crash Method (HCM)

This method can be used for sites with a crash history. It is the ratio (benefit/cost) of the estimated annual reduction in crash costs to the estimated annual increase in combined construction and maintenance costs. The annualized conversion will show whether the projected expenditure of funds for the crash benefit will exceed the direct cost for the improvement.

The HCM uses the **Highway Safety Improvement Program Guideline (HSIPG)** cost per crash by facility type in **Table 122.6.1** to estimate benefit to society, while the cost to society is estimated by the expected cost of right of way, construction, and maintenance.

Table 122.6.1 FDOT Average Crash Costs by Facility Type

Type Facility	Divided Roadway			Undivided Roadway		
	Urban	Suburban	Rural	Urban	Suburban	Rural
2-3 Lanes	\$107,732	\$201,527	\$355,183	\$124,618	\$267,397	\$523,727
4-5 Lanes	\$123,406	\$225,315	\$473,637	\$112,896	\$190,276	n/a
6+ Lanes	\$123,598	\$166,258	\$451,492	\$41,650	n/a	n/a
Interstate	\$153,130	n/a	\$327,385	n/a	n/a	n/a
Turnpike	\$128,253	n/a	\$255,662	n/a	n/a	n/a
Notes: (1) Average Cost/Crash: \$159,093 (2) The above values were derived from 2013 through 2017 traffic crash and injury severity data for crashes on state roads in Florida using the formulation described in <i>FHWA Technical Advisory "Motor Vehicle Accident Costs", T7570.2, dated October 31, 1994</i> . Base costs derived from a memorandum from USDOT: "Guidance on Treatment of the Economic Value of a Statistical Life (VSL) in the U.S. Department of Transportation Analyses", dated August 8, 2016 updating the value of life saved from \$9.4 million to \$9.6 million for 2015 data with a growth factor applied to increase the base cost to \$9.7 million in the current analyses. Costs are computed for the actively state-maintained State Highway System (SHS) only. (3) Link to Revised Departmental Guidance 2013						

When utilizing predictive methods or crash severity distributions for analysis, the following crash severity level costs should be used: