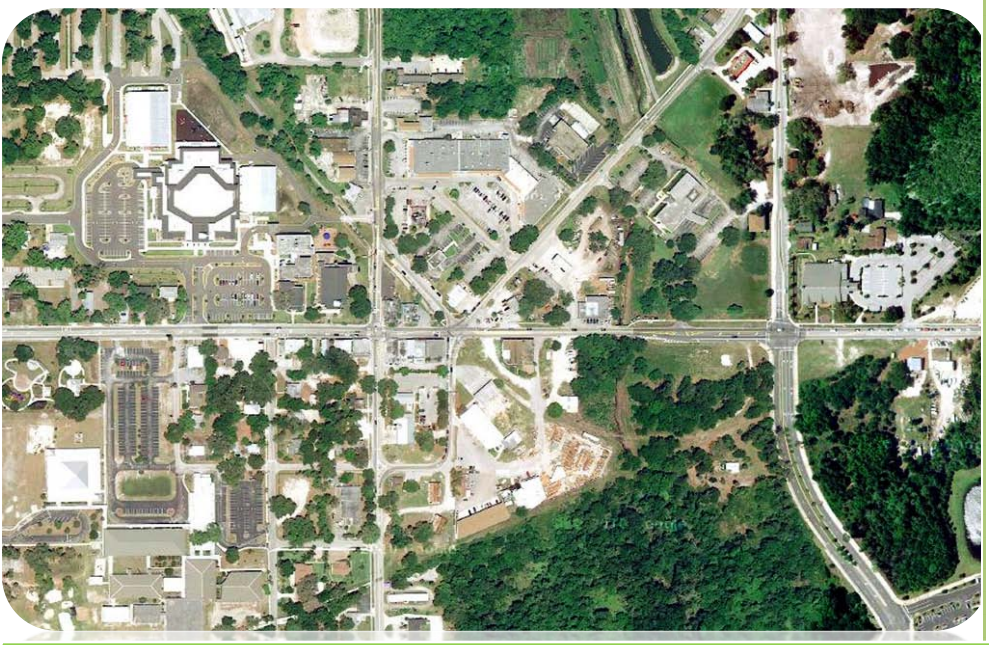
Final Report

2010



SR 426/CR 419 Traffic Analysis & Simulation Study

Prepared by

GMB Engineers & Planners, Inc.

In association with

Inwood Consulting Engineers, Inc.

Submitted to

Seminole County

Traffic Analysis & Simulation for Phase 1A, Phase 1, and PD&E Re Evaluation Phase for SR 426/CR 419 Study Corridor in Oviedo, Seminole County, Florida

Final Report

SR 426 Traffic Analysis & Simulation Study

Traffic Analysis & Simulation for Phase 1A, Phase 1, and PD&E Re-Evaluation Phase for SR 426/CR 419 Study Corridor in Oviedo, Seminole County, Florida

Prepared by:

GMB Engineers & Planners, Inc. — 2602 E Livingston St, Orlando, Florida

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Prepared for:

Seminole County — 9/2/2010

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1 Introduction

Seminole County (County) has retained **GMB Engineers & Planners, Inc.** (GMB) to conduct design traffic analysis and simulation efforts for three (3) phases on SR 426/CR 419 located in the City of Oviedo, Florida. The three (3) phases are 1) Phase 1A, 2) Phase 1, and 3) Project Development & Engineering (PD&E) Re-evaluation Phase. GMB had completed studies for all these three (3) phases in the past. As such, the present effort re-visits these three (3) phases to address certain modifications applied to the previously recommended roadway and intersection geometry. This Final Technical Memorandum is a continuation of the Draft Report that was submitted to the County in July of 2010. This Final Report is completed after addressing the comments received from the County. The comments and responses documentation are provided in **Appendix A** of this report.

The study roadway network for PD&E Re-evaluation on SR 426/CR 419 extends from Pine Avenue to Bishop Avenue and includes SR 434 from just north of Clark Street to just south of Magnolia Street. The study area for the PD&E Re-evaluation phase is illustrated in **Figure** 1. The study roadway network for Phases 1A and 1 on SR 426/ CR 419 extends from just east of Lake Jessup Avenue to just east of Division Street/ Oviedo Boulevard and includes SR 434 from just north of Clark Street to just south of Magnolia Street. As such, the study area considered for Phases 1A and 1 is the roadway network in the vicinity of SR 434 and SR 426/ CR 419 intersection. The study area for the Phases 1A and 1 is illustrated in **Figure** 2.

The main goals of this study are:

1) Evaluate two (2) Build Scenarios as part of Phase 1A and one (1) Build Scenario as part of Phase 1 using various traffic measures of effectiveness (MOEs) for the Year 2010 Design Traffic Conditions.
2) Present the benefits of Phase 1A Build Scenarios and the Phase 1 Build Scenario compared to the No-Build Scenario for the Year 2010 traffic conditions. Also, compare and present the best Build Scenario out of the two (2) Phase 1A Build Scenarios.
3) Re-evaluate the PD&E phase of the study corridor for the Year 2010 and Year 2030 design traffic conditions.

The remainder of this Report is organized into three (3) Chapters, each describing the traffic analysis and simulation efforts performed for the Phase 1A, Phase 1, and PD&E Re-evaluation Phase in that order.

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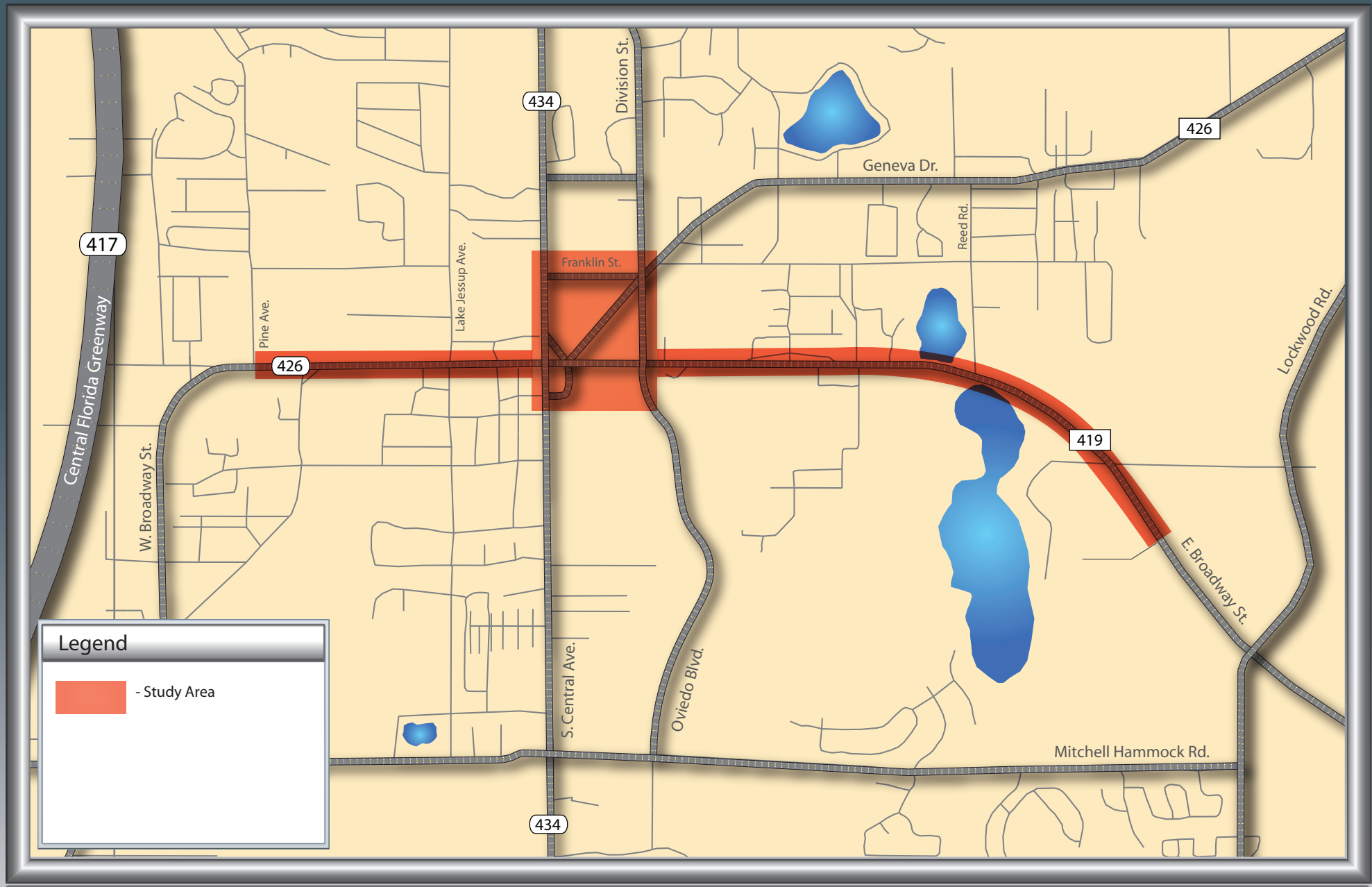

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SR 426 / CR 419
Design Traffic Analysis and Simulation Study
PD&E Re-Evaluation

Figure 1
Study Area Map

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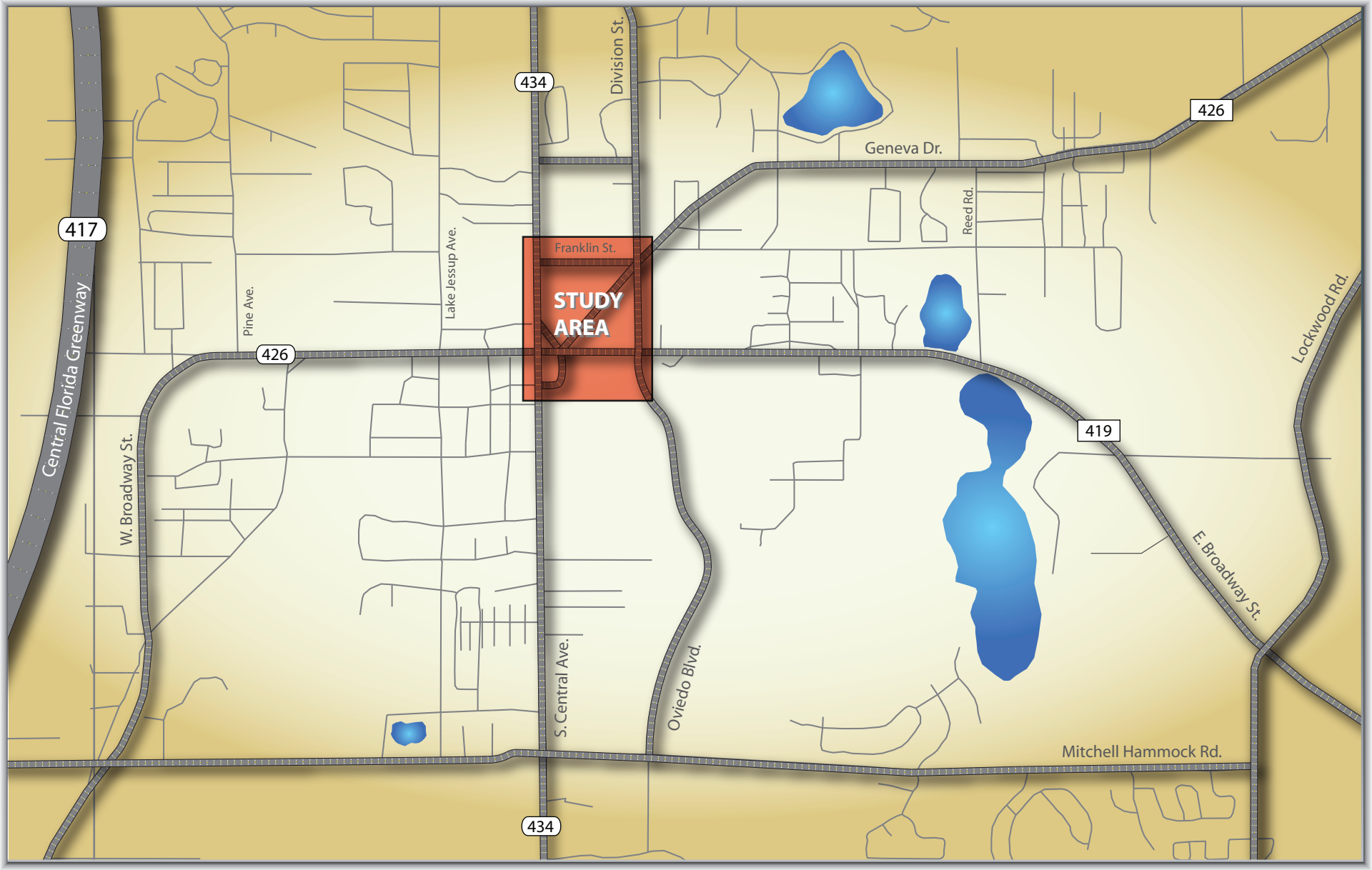

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SR 426 / CR 419
Design Traffic Analysis and Simulation Study
Phase 1 and Phase 1A

Figure 2
Study Area Map

1.1 Background

GMB had completed the Design Traffic Analysis for PD&E study on SR 426/CR 419 in May of 2008 (2008 PD&E Study). The future traffic projections developed as part of the 2008 PD&E study for the Year 2010 and the Design Year 2030 traffic conditions were used for the PD&E Re-evaluation Phase of this study. In the re-evaluation phase, the traffic was re-routed to other roadways in the study area including Oviedo Boulevard, Division Street, SR 434, and CR 419 based on the condition that CR 426 will not intersect with CR 419. More information on the specific changes and assumptions considered in the traffic re-distribution because of these specific changes are described in detail in Chapter 4 of this report.

GMB had also completed SR 426/CR 419 Phase 1 Design Traffic Study in June of 2008 (2008 Phase 1 Study). This study, however mainly focused on the study area near the intersection at SR 434 and SR 426/CR 419 for the Opening Year 2010 traffic conditions. Modifications to the improvements recommended as part of the 2008 PD&E study were evaluated in this study. The traffic projections that were developed as part of the 2008 Phase 1 study were utilized for the current Phases 1A and 1 traffic analysis. More information on the specific changes and assumptions considered in the traffic re-distribution because of these specific changes for current Phases 1A and 1 are described in detail in Chapters 2 and 3, respectively of this report.

The relevant information from the 2008 PD&E Study and the 2008 Phase 1 Study are provided in **Appendix B** of this report.

2 Phase 1A Traffic Analysis

As explained in the Background Section of Chapter 1, the basis for the traffic conditions of this phase is the Phase 1 Design Traffic Study completed by GMB in June of 2008. Two Build Scenarios (Scenarios 1 & 2) were evaluated for the Year 2010 AM and PM design traffic conditions as part of this Phase. The traffic analysis results developed for the No-Build Scenario as part of the Phase 1A Design Traffic Study completed by GMB in May of 2009 (2009 Phase 1A Study) were directly utilized in this study for comparison purposes. The other relevant information from the 2009 Phase 1A Study is provided in **Appendix B** of this report.

Intersection Analysis for the Build Scenarios were performed using the latest SYNCHRO (version 7) traffic analysis software. The traffic simulation efforts for the two (2) Build Scenarios were developed using the latest FHWA developed COSRIM (version 6.2) simulation software.

The descriptions of the two Build Scenarios are provided below.

Build Scenario 1

- SR 426 will remain as a two-lane roadway between Pine Avenue and SR 434.
- CR 419 will remain as a two-lane roadway from SR 434 to Bishop Avenue.
- SR 434, near the intersection at SR 426/ CR 419, will be revised to a two-lane, two-way road. 10 foot width lanes will be provided on SR 434 in the study area.
- The existing signalized intersection of CR 419/ CR 426/ Station Street/ Railroad Street will be converted to a right-in right-out only at both Station Road and CR 426 with no traffic signal.
- Station Street/ Garden Street was modified to a two-lane two-way road.

Build Scenario 2

- SR 426 will remain as a two-lane roadway between Pine Avenue and SR 434.
- CR 419 will remain as a two-lane roadway from SR 434 to Bishop Avenue.

- SR 434, in the vicinity of the intersection at SR 426/ CR 419, will be revised to a two-lane, two-way road. 11 foot width lanes will be provided on SR 434 in the study area.
- The southbound left turn from SR 434 onto CR 419 was prohibited under this scenario. The traffic will be rerouted at SR 434 and Franklin Street and further onto CR 419 and Oviedo Boulevard.
- The existing signalized intersection of CR 419/ CR 426/ Station Street/ Railroad Street was converted to a right-in right-out only at both Station Road and CR 426 with no traffic signal.
- Station Street/ Garden Street was changed as a two-lane two way road

The No-Build geometry figure from the 2009 Phase 1A study is shown as **Figure** 3. The proposed roadway and intersection geometry and traffic controls are shown in **Figures** 4 and 5 for Phase 1A Build Scenarios 1 and 2, respectively.

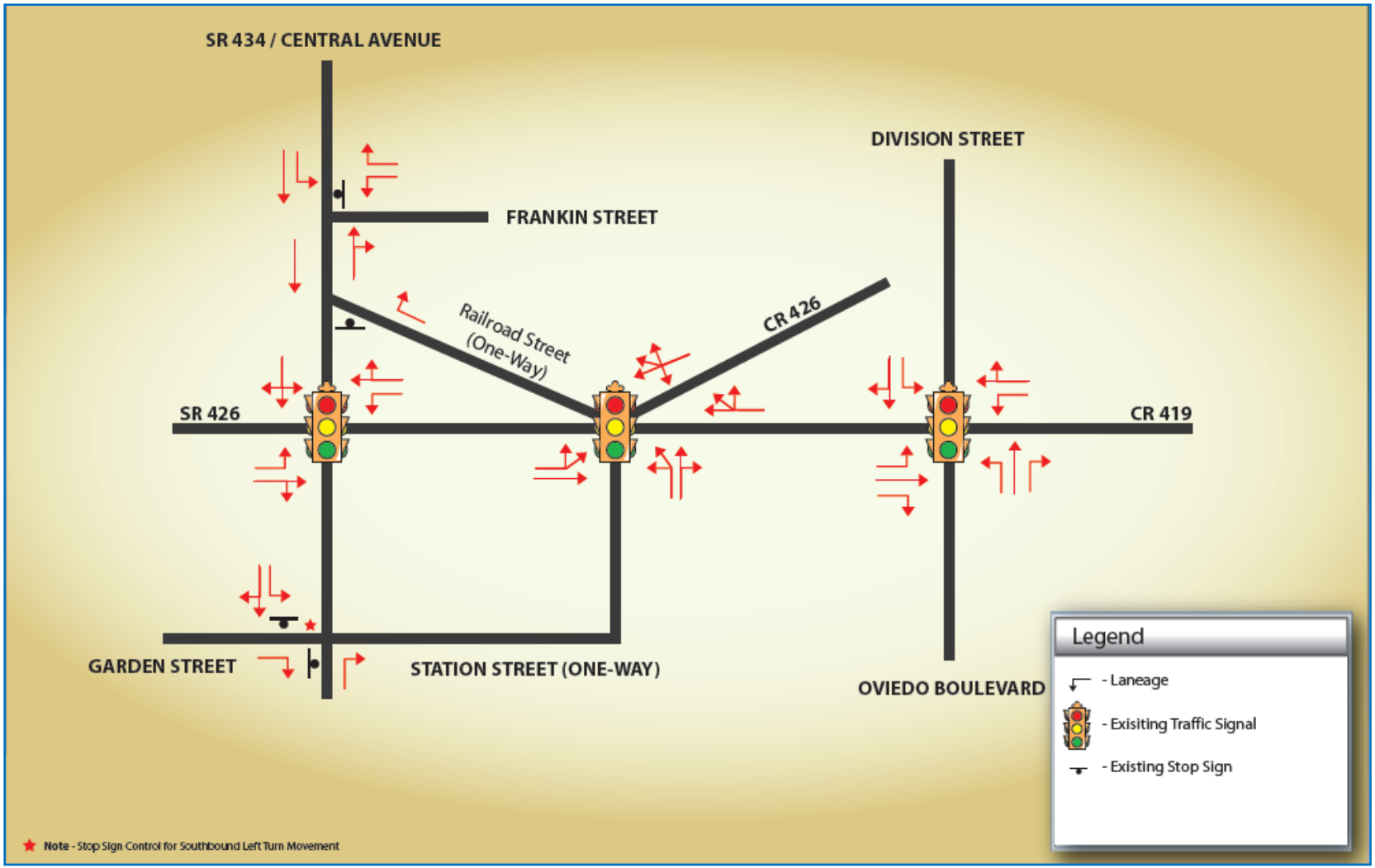

Figure 3: No-Build Scenario Geometry (Source: 2009 Phase 1A Study)

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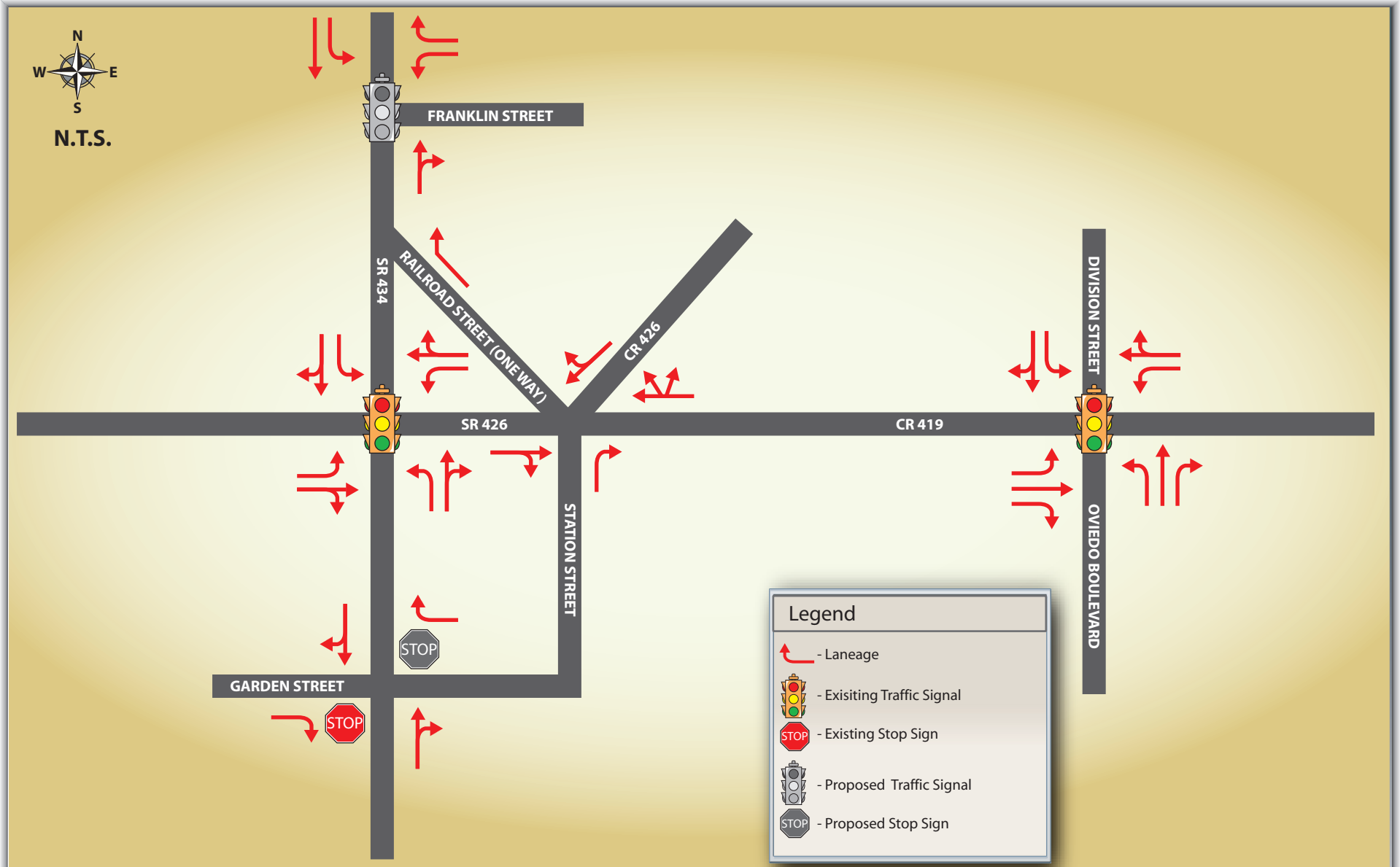

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Prepared with: Inwood Consulting Engineers
Prepared by: GMB Engineers & Planners, Inc.

SR 426 / CR 419
Design Traffic and Simulation Study
Phase 1A

Figure 4
Year 2010 Proposed Build Geometry
Scenario 1

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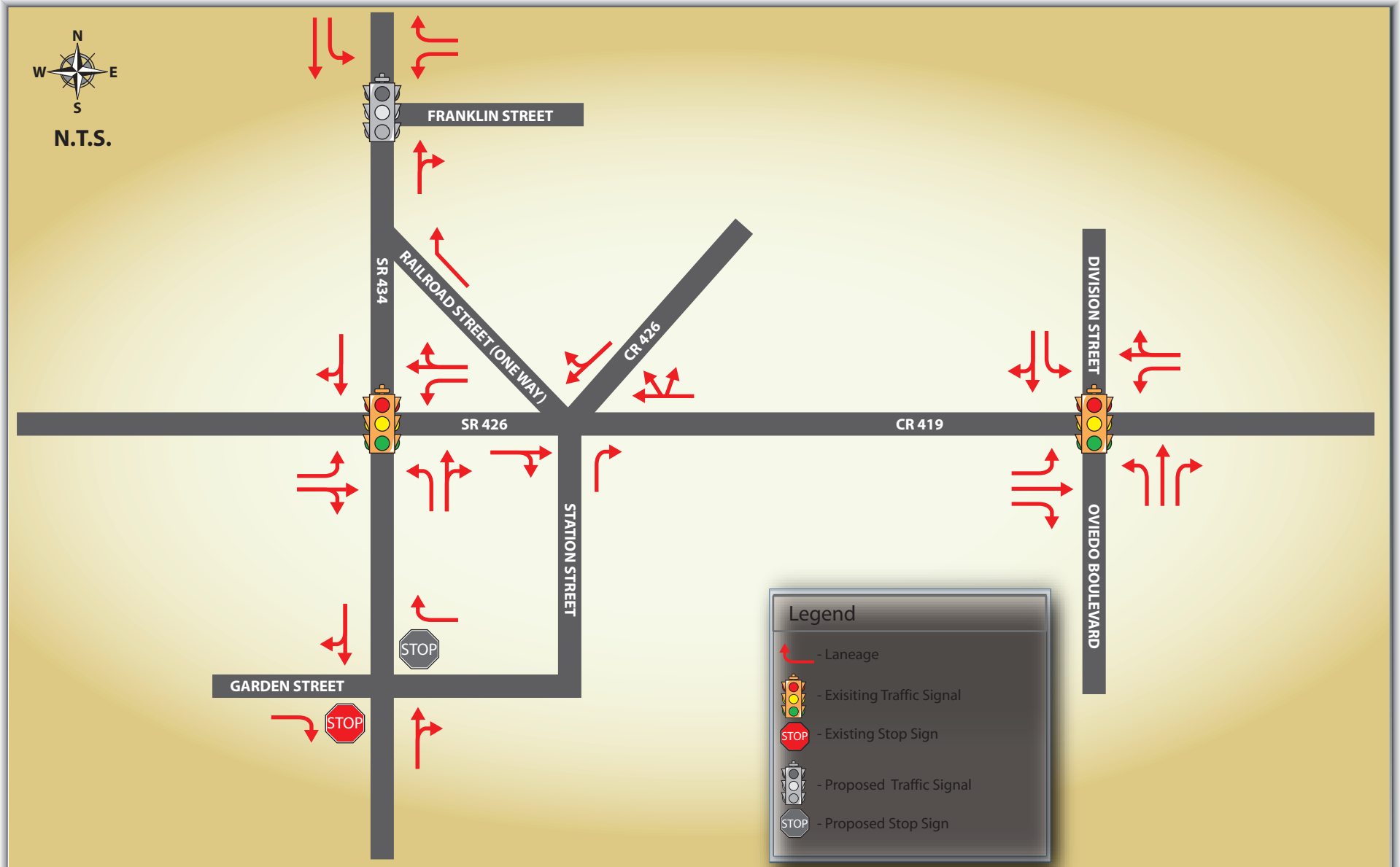

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SR 426 / CR 419
Design Traffic and Simulation Study
Phase 1A

Figure 5
Year 2010 Proposed Build Geometry
Scenario 2

2.1 Adjustments to the Intersection Design Hour Volumes

Since, SR 434 in the vicinity of SR 426/ CR 419 is to remain as two lane roadway in Phase 1A, the following adjustments were applied to the original 2008 Phase 1 Study design hour turning movement counts to better replicate the Phase 1A build conditions.

- 85% of the northbound right turning volumes at the intersection of the SR 434 and SR 426/CR 419 in Phase 1 are now assumed in Phase 1A to take northbound right turn at the intersection of SR 434 and Station Street/Garden Street. Accordingly, the volume modifications were made at all the intersections affected by this change in traffic pattern. These modifications were made in both the AM and PM design hours.

- 50% of the westbound right turning volumes at the intersection of SR 434 and SR 426/ CR 419 in Phase 1 are now assumed to turn right at the intersection of CR 419 and Division Street, utilize Division Street, and then turn right onto northbound SR 434 at the intersection of SR 434 and Franklin Street.

- 50% of the southbound left turning volumes at the intersection of SR 434 and SR 426/ CR 419 in Phase 1 are now assumed to turn left at the intersection of SR 434 and Franklin Street, utilize Franklin Street, and then turn left onto eastbound CR 419 at the intersection of CR 419 and Division Street.

- 100% of the westbound right turning volumes at the intersection of the original realigned Station Street/ CR 426 and CR 419 are now assumed to utilize the westbound right turn at the intersection of Oviedo Boulevard/Division Street and CR 419.

- The southbound left turning traffic at the intersection of the original realigned Station Street/ CR 426 and CR 419 (leading to eastbound through and eastbound right turn movements at the intersection of Oviedo Boulevard/Division Street/CR 419) is now assumed to use the southbound left and through movements at Oviedo Boulevard/Division Street and CR 419.

- 70% of the eastbound left turning traffic at the intersection of the original realigned Station Street/ CR 426 and CR 419 is now assumed to continue on eastbound CR 419 and continue to utilize the eastbound left turn movement at the intersection of CR 419 and Oviedo Boulevard/Division Street. The remaining 30% of this traffic is now assumed to utilize the eastbound left turn movement at the intersection of SR 426/CR 419 and SR 434 and utilize the northbound right turn movement at the intersection of SR 434 and Franklin Street.

Figures 6 and 7 show the Year 2010 AM and PM design hour volumes, respectively, that were developed as part of the 2009 Phase 1A study for the No -Build Scenario. **Figures** 8 and 9 show the Year 2010 AM and PM design hour volumes, respectively for the revised Phase 1A Build Scenario 1. Similarly, **Figures** 10 and 11 show the Year 2010 AM and PM design hour volumes, respectively for the revised Phase 1A Build Scenario 2.

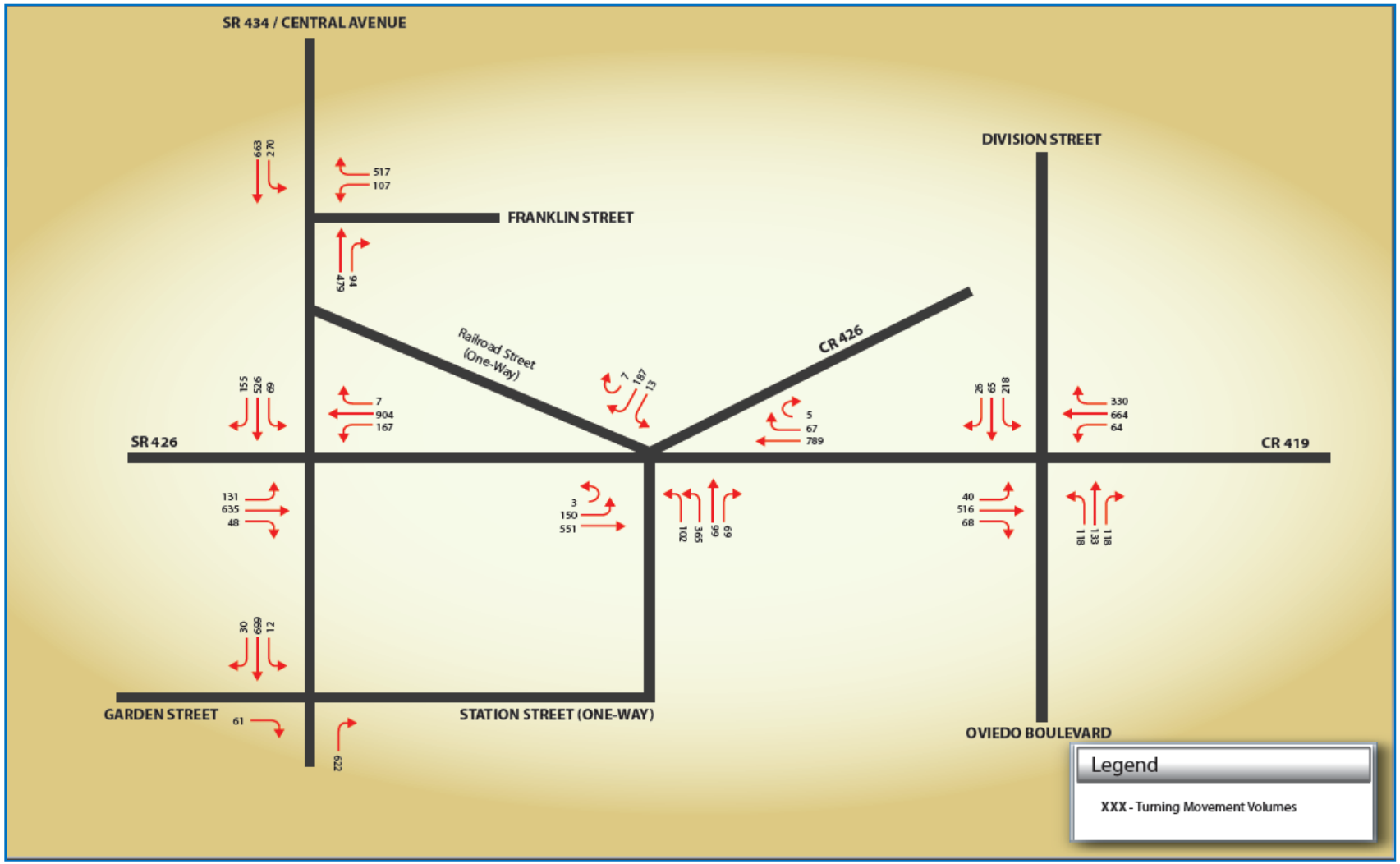

Figure 6: No-Build Scenario Year 2010 AM Design Hour Intersection Turning Movement Counts (Source: 2009 Phase 1A Study)

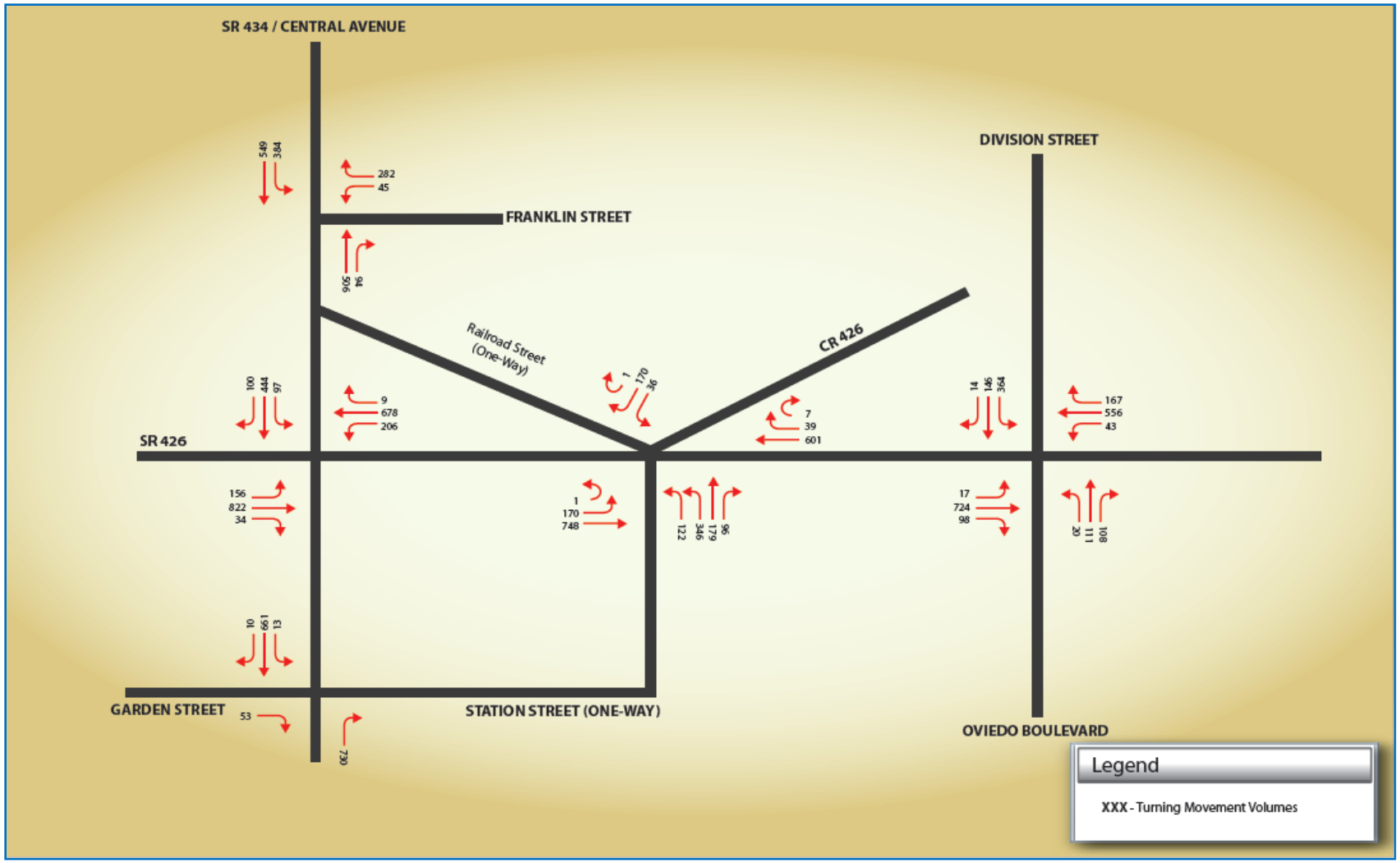

Figure 7: No- Build Scenario Year 2010 PM Design Hour Intersection Turning Movement Counts (Source: 2009 Phase 1A Study)

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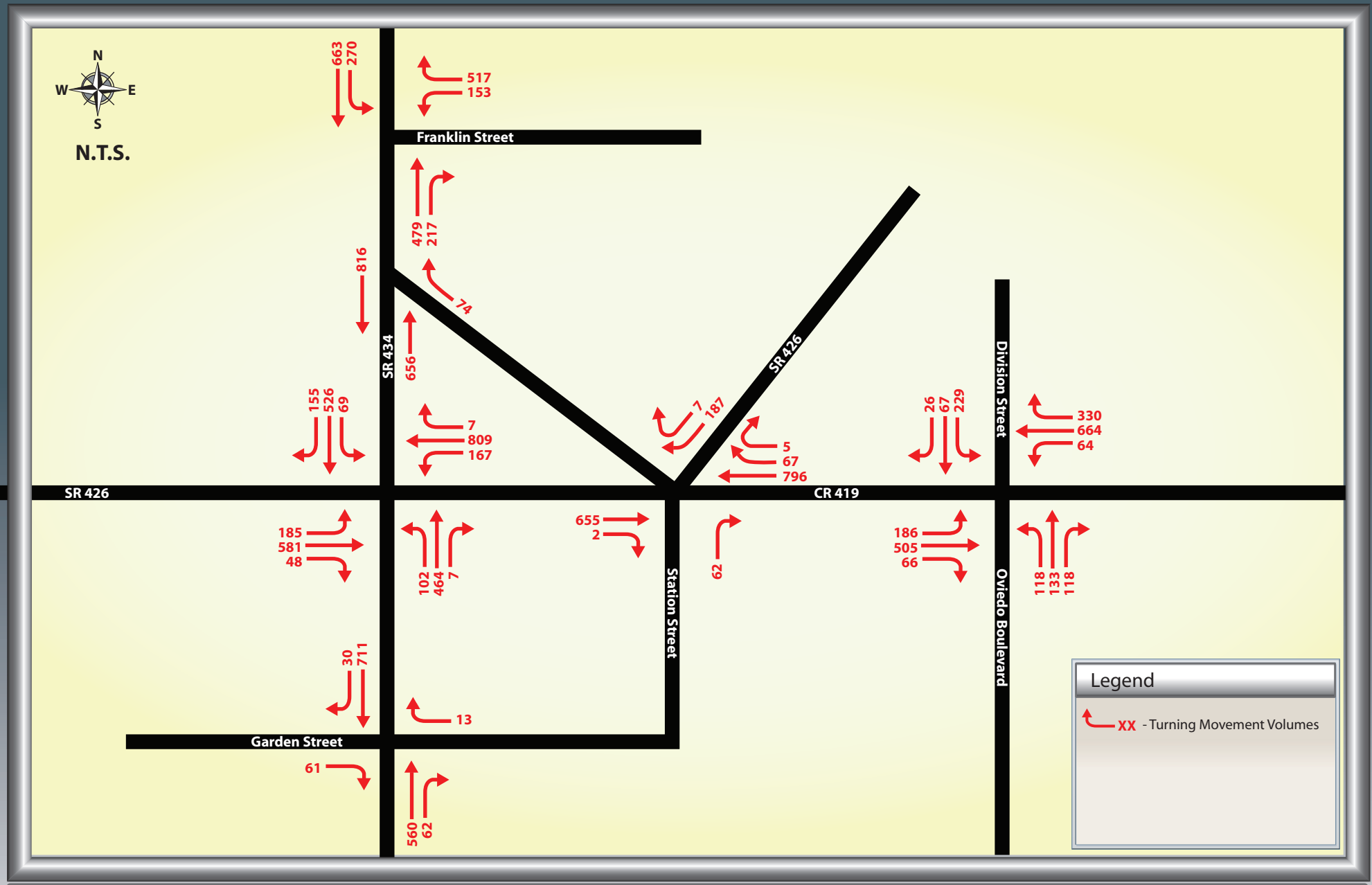

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SR 426/CR 419
Design Traffic and Simulation Study
Phase 1A

Figure 8
Build Scenario 1 - 2010 AM Design Hour Turning Movement Volumes

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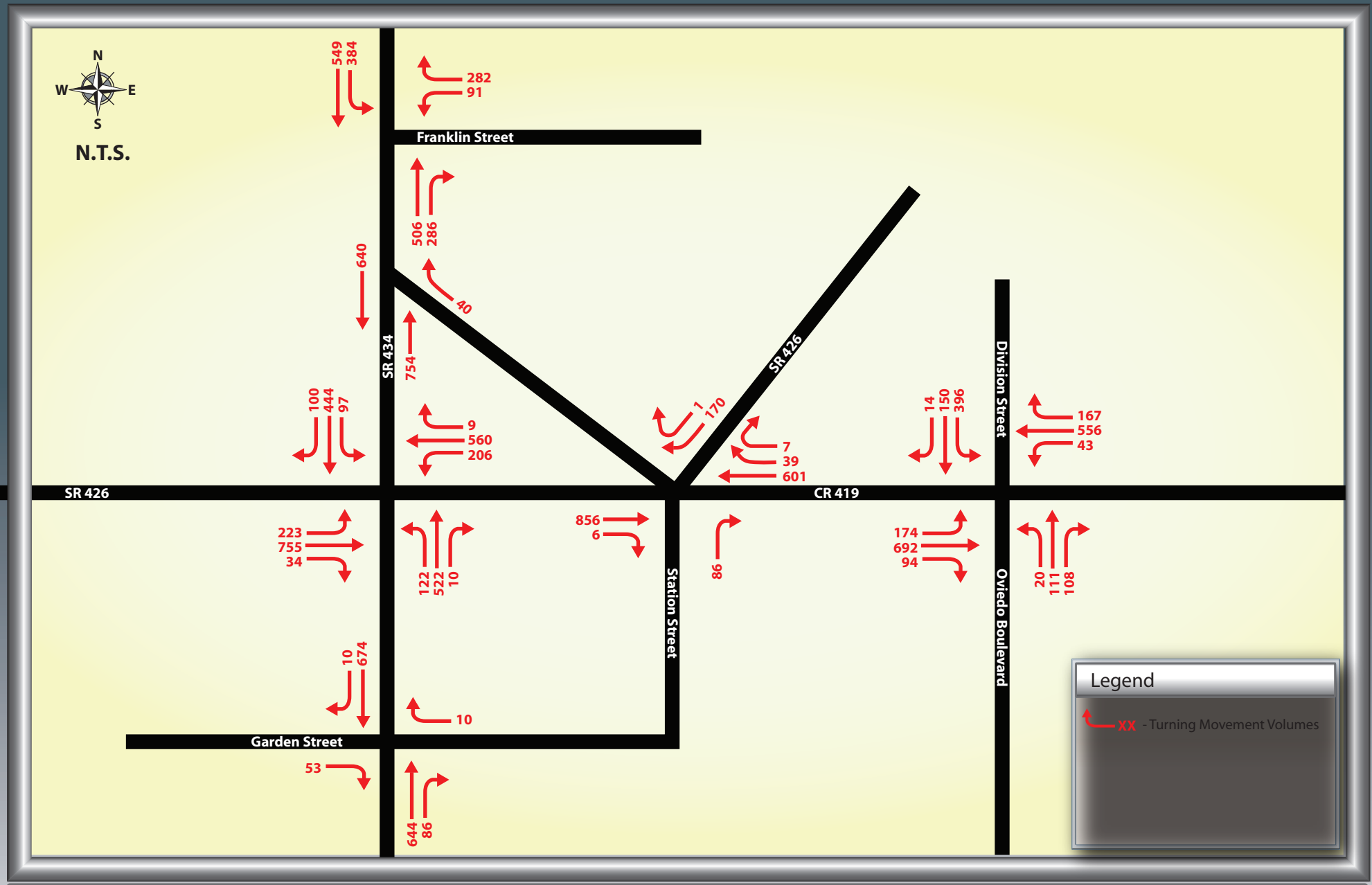

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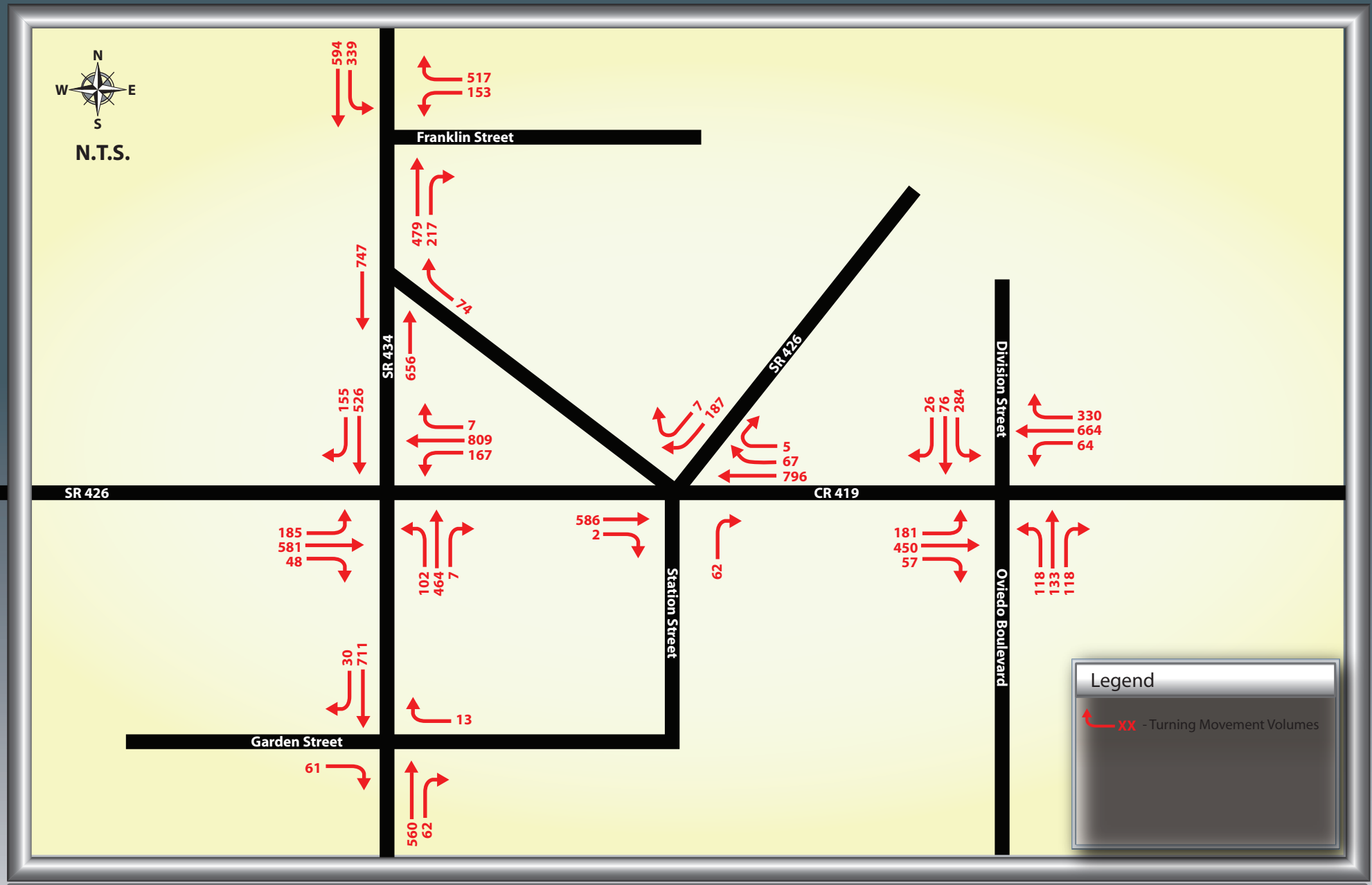
SR 426/CR 419
Design Traffic and Simulation Study
Phase 1A

Figure 9
Build Scenario 1 - 2010 PM Design Hour Turning Movement Volumes

Date Created: 7/12/2010

Project Number: 07-106.05



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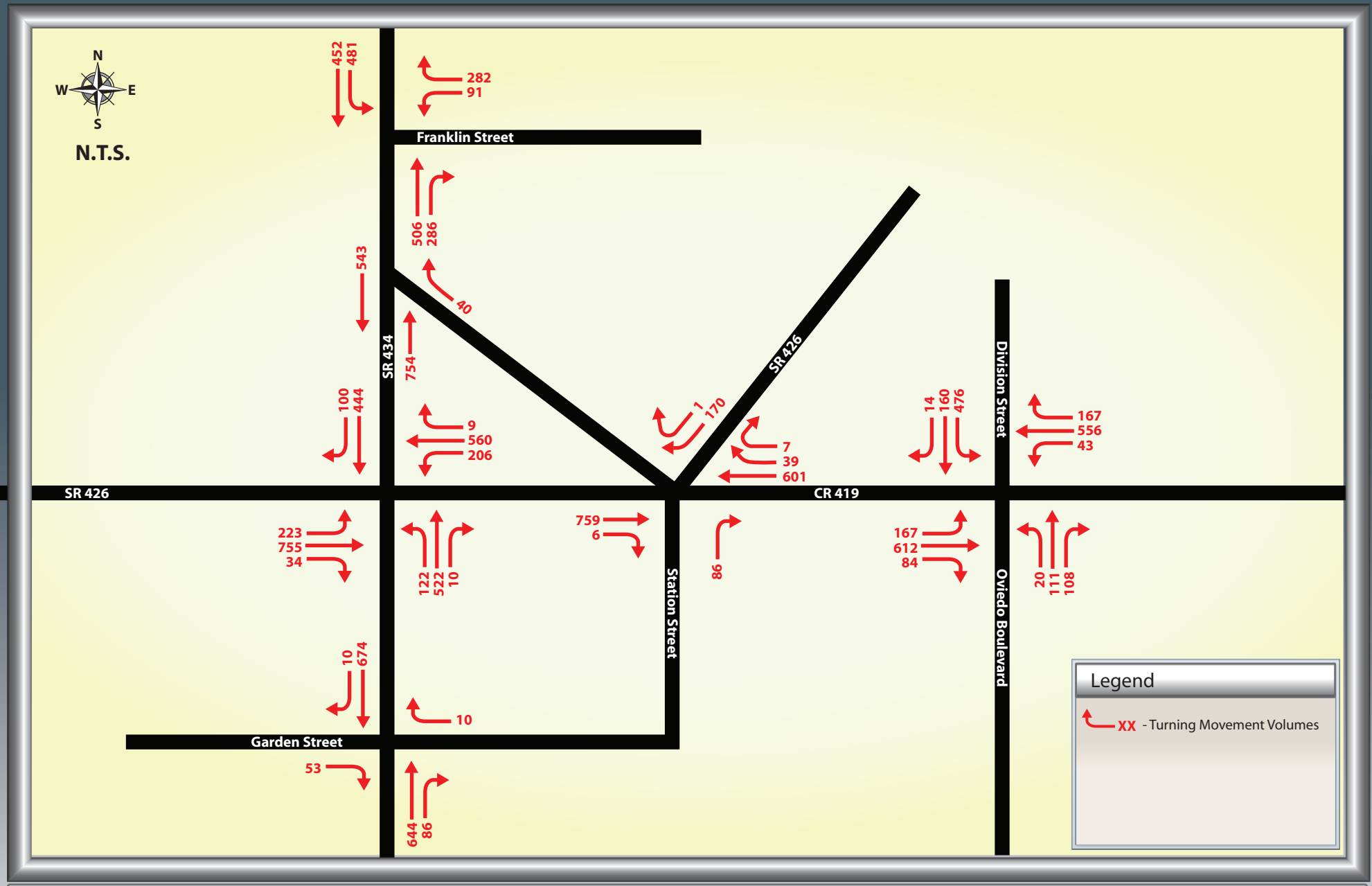
SR 426/CR 419
Design Traffic and Simulation Study
Phase 1A

Figure 10
Build Scenario 2 - 2010 AM Design Hour Turning Movement Volumes

Date Created: 7/12/2010

Project Number: 07-106.05



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Prepared by: GMB Engineers & Planners, Inc.

SR 426/CR 419
Design Traffic and Simulation Study
Phase 1A

Figure 11
Build Scenario 2 - 2010 PM Design Hour Turning Movement Volumes

2.2 Year 2010 Traffic Operational Analysis

This section presents the results of the operational, specifically LOS analyses for the Phase 1A No-Build and Build conditions. All conditions were analyzed using the latest Synchro Software (version 7.0). Specific analysis techniques utilized in this study include unsignalized and signalized intersection LOS analysis. MOE summary **Tables** 1 and 2 comparing the intersection delays, LOS, and V/C ratios for the 2010 AM and PM design traffic conditions, respectively among the three scenarios (No-Build and Build Scenarios) are provided in the following pages.

2.2.1 Year 2010 LOS Analysis - No Build Scenario

To reiterate, all the signalized intersections along SR 426/ CR 419 and SR 434 were projected to fail (LOS F) during the opening year 2010 AM and PM design hour conditions with the exception of the intersection at CR 419 and Division Street. The intersection of CR 419 and Division Street was projected to operate at LOS E and at LOS D during the AM and PM design hours, respectively.

The unsignalized intersection at SR 434 and Garden Street/ Station Street was found to operate at LOS A on the major approach and at LOS C on the minor approach during the AM design hour. The same intersection was projected to operate at LOS A on the major approach and at LOS B on the minor approach during the PM design hour.

The unsignalized intersection at SR 434 and Franklin Street was found to operate at LOS B on the major approach and at LOS F on the minor approach during the AM and PM design hour conditions.

TABLE 1

Year 2010 AM Design Hour Intersection LOS Analysis Results Comparison for Phase 1A

Intersection	No Build Scenario			Build Scenario 1			Build Scenario 2		
	Delay (sec)	LOS	Maximum V/C Ratio	Delay (sec)	LOS	Maximum V/C Ratio	Delay (sec)	LOS	Maximum V/C Ratio
SR 426/ CR 419 @									
SR 434~	375.3	F	2.21	79.3	E	1.14	75.6	E	1.16
Station Street/CR 426[$]	212.1	F	1.44	NAV	NAV	NAV	NAV	NAV	NAV
Division Street/Oviedo Boulevard~	57.3	E	1.08	70.2	E	1.27	69.9	E	1.07
SR 434/ Central Avenue @									
Garden Street/ Station Street*	7.3/15.5	A/C	0.49	0.0/14.2	A/B	0.46	0.0/14.4	A/B	0.46
Franklin Street*[@]	10.2/656.4	B/F	2.37	14.8	B	0.84	17.7	B	0.84

Notes:

1. Intersection LOS and Delay are reported for signalized intersections. In the case of unsignalized intersections, the delay and LOS are reported for major street turn movement /minor street (worst case).

2. No Build Scenario maintains the existing geomtery at the study intersections.

3. SB left turn movement is prohibited in Build Scenario 2 at SR 426/CR 419 and SR 434

4. NAV stands for Not Available.

~ The intersection is currently signalized in the field.

***** The intersection is currently unsignalized in the field.

@ A future traffic signal is proposed at this location.

$ A future stop sign is proposed at this location for the Build Scenario with NB right-in right-out movement only.

TABLE 2

Year 2010 PM Design Hour Intersection LOS Analysis Results Comparison for Phase 1A

Intersection	No Build Scenario			Build Scenario 1			Build Scenario 2		
	Delay (sec)	LOS	Maximum V/C Ratio	Delay (sec)	LOS	Maximum V/C Ratio	Delay (sec)	LOS	Maximum V/C Ratio
SR 426/ CR 419 @									
SR 434~	158.7	F	1.36	74.6	E	1.06	64.2	E	1.07
Station Street/CR 426[$]	237.2	F	1.54	NAV	NAV	NAV	NAV	NAV	NAV
Division Street/Oviedo Boulevard~	42.8	D	0.95	40.4	D	0.93	47.8	D	1.00
SR 434/ Central Avenue @									
Garden Street/ Station Street*	7.2/13.1	A/B	0.45	0.0/13.7	A/B	0.45	0.0/13.7	A/B	0.45
Franklin Street*[@]	11.7/73.2	B/F	1.26	16.0	B	0.80	33.3	C	0.99

Notes:

1. Intersection LOS and Delay are reported for signalized intersections. In the case of unsignalized intersections, the delay and LOS are reported for major street turn movement /minor street (worst case).

2. No Build Scenario maintains the existing geomtery at the study intersections.

3. SB left turn movement is prohibited in Build Scenario 2 at SR 426/CR 419 and SR 434

4. NAV stands for Not Available.

~ The intersection is currently signalized in the field.

***** The intersection is currently unsignalized in the field.

@ A future traffic signal is proposed at this location.

$ A future stop sign is proposed at this location for the Build Scenario with NB right-in right-out movement only.

2.2.2 Year 2010 LOS Analysis – Build Scenarios 1 & 2

Under both these scenarios, all the signalized intersections along SR 426/ CR 419 and SR 434 were projected to operate at LOS E or better during the opening year 2010 AM and PM design hour conditions. The unsignalized intersection at SR 434 and Garden Street/ Station Street was projected to operate at LOS B on the minor approach during the AM and PM design hour conditions.

The Synchro outputs for the intersection LOS analyses for the Phase 1A scenarios are provided in **Appendix C** of this report.

2.2.3 Comparative Analysis – No-Build vs Build Scenarios & Build Scenario 1 vs Build Scenario 2

A comparative analysis of the MOEs was conducted between the No-Build and Build Scenarios and between Build Scenarios 1 and 2 to determine the best Build Scenario that could efficiently handle the projected traffic flow compared to the No-Build Scenario.

As shown in **Table**s 1 and 2, the study intersections operate at better LOS conditions under both the Build Scenarios compared to the No-Build Scenario.

Comparing the MOEs for the two (2) Build Scenarios, the traffic operational efficiency of the overall study area is projected to be better under Build Scenario 2 compared to Build Scenario 1. The traffic is more efficiently distributed in Build Scenario 2 compared to Build Scenario 1 with the left turn prohibition at the intersection of SR 434 and SR 426/CR 419. This fact is reinforced using CORSIM simulation software, which is explained in detail in the next sub-section.

In conclusion, the proposed geometry in the Build scenario 2 will efficiently handle the projected opening year 2010 AM and PM design hour traffic volumes compared to the existing roadway and intersection geometry (No Build scenario) and the proposed build geometry in Build Scenario 1.

2.3 Phase 1A CORSIM Simulation

This study used CORSIM microscopic simulation software as a tool to evaluate the traffic operations for the Phase 1A Build Scenarios for the opening year 2010 AM and PM hour design hour traffic conditions. CORSIM provides an assessment of the traffic operations for each roadway segment in terms of measures of effectiveness, such as travel time, travel speed and delay, etc. CORSIM also provides the total delay in vehicle-hours and average speed in seconds per vehicle for the entire study network depicting how the traffic flows through the study network. The main aim of the CORSIM analysis in this study was to compare the network wide statistics for Phase 1A Scenarios in order to determine whether the improvements under Phase 1A Build Scenarios can operate at better traffic conditions compared to the No-Build Scenario. The CORSIM simulation analysis results for the Year 2010 No Build Scenario and Phase 1A Build Scenarios are provided in **Appendix D** of this report.

Signal optimization software SYNCHRO was used to generate optimized cycle lengths, green time splits for individual phasing and offsets for the opening year 2010 AM and PM design hour volumes for the Build Scenarios. The intersection and roadway geometry along with the design hour turning movement volumes were provided as inputs into SYNCHRO software to obtain the optimized cycle lengths and signal timing for individual phasing. The optimized cycle length along with optimized signal timings for individual phases and offsets resulting from SYNCHRO software for the Build Scenarios were assessed for reasonableness and used as input in the CORSIM analysis. In case of the No Build scenario, the existing signal timings for individual phases and offsets were used in the CORSIM analysis.

The roadway characteristics for the Build Scenario including intersection configurations, lengths of auxiliary lanes and types of traffic control devices, were obtained from the preliminary concept plans developed by the project team.

2.3.1 CORSIM Simulation Analysis

Tables 3 through 5 summarize the MOEs derived from the CORSIM analysis for the No Build, Build Scenario 1, and Build Scenario 2, respectively. Year 2010 design hour and CORSIM model volumes for each approach, Total Network Delay in vehicle-hours, and Average Network Speed in Miles per Hour (MPH) are included in these tables.

As shown in **Table** 3, the total CORSIM model volumes under the No Build scenario at the entry links were approximately 73% and 65% of the projected 2010 design hour volumes for the AM and PM design hours, respectively. The lower percentages clearly indicate the inefficient traffic flow through the study network under the No Build scenario.

The total CORSIM model volumes (Tables 4 and 5) under the Build Scenarios at the entry links were approximately 99% of the projected design hour volumes during the AM and PM design hours. The approximately accurate agreement of the entry link volumes with the projected volumes indicates a smoother traffic flow and efficient traffic operation under both the Phase 1A Build Scenarios compared to the No Build scenario.

2.4 CORSIM Results Comparison and Evaluation

The insignificant difference between the model volumes and the projected year 2010 volumes show the efficient operation of the future network in Phase 1A Build Scenarios. However, to determine the gain in terms of improved traffic flow within the study network under Build Scenario 2 and Build Scenario 1, the overall network output results of total delay (vehicle-hours) and average speed (miles per hour [MPH]) from the two Build scenarios were compared.

Based on the CORSIM overall network output for the 2010 Phase 1A Build Scenario 1, during the AM design hour conditions, a total delay of 108.44 vehicle-hours and an average speed of 14.27 MPH were projected for the network used in the analysis. Similarly, during the 2010 PM design hour conditions under the same scenario, a total delay of 101.60 vehicle-hours and an average speed of 14.74 MPH were reported for the network used in the analysis.

TABLE 3

Year 2010 AM & PM Design Hour CORSIM Model MOEs - No Build Scenario

Roadway Intersections	AM Design Hour			PM Design Hour		
	Design Volume (vehicles)	Model Volume (vehicles)	Design Model % Diff	*Design Volume (vehicles)*	Model Volume (vehicles)	Design Model % Diff
SR 426 @ SR 434						
SB Approach	750	645	-14.0%	641	372	-42.0%
EB Approach	814	726	-10.8%	1,012	680	-32.8%
WB Approach	1,078	642	-40.4%	893	532	-40.4%
CR 419 @ CR 426/ Station Street/ Railroad Street						
NB Approach	635	198	-68.8%	743	281	-62.2%
SB Approach	207	14	-93.2%	207	25	-87.9%
EB Approach	704	512	-27.3%	919	503	-45.3%
WB Approach	861	432	-49.8%	647	369	-43.0%
CR 419 @ Division Street						
NB Approach	369	353	-4.3%	239	229	-4.2%
SB Approach	309	243	-21.4%	524	344	-34.4%
EB Approach	624	546	-12.5%	839	573	-31.7%
WB Approach	1,058	582	-45.0%	766	506	-33.9%
SR 434 @ Station Street						
NB Approach	622	407	-34.6%	730	471	-35.5%
SB Approach	741	589	-20.5%	641	404	-37.0%
EB Approach	61	59	-3.3%	53	52	-1.9%
SR 434 @ Railroad Street						
NB Approach	138	111	-19.6%	165	128	-22.4%
SB Approach	750	655	-12.7%	641	369	-42.4%
WB Approach	442	252	-43.0%	387	215	-44.4%
SR 434 @ Franklin Street						
NB Approach	573	359	-37.3%	600	362	-39.7%
SB Approach	933	871	-6.6%	933	579	-37.9%
WB Approach	624	498	-20.2%	327	324	-0.9%
VOLUMES ENTERING SYSTEM	**4,742**	**3,471**		**4,544**	**2,943**	
TOTAL NETWORK DELAY		**305.28 vehicle-hours**			**339.65 vehicle-hours**	
AVERAGE NETWORK SPEED		**5.80 MPH**			**4.61 MPH**	
% VOLUMES ENTERING SYSTEM		**73.20%**			**64.77%**	

Note:

1. Approach volumes are for all movements.

TABLE 4

Year 2010 AM & PM Design Hour CORSIM Model MOEs - Build Scenario 1

Roadway Intersections	AM Design Hour			PM Design Hour		
	Design Volume (vehicles)	Model Volume (vehicles)	Design Model % Diff	*Design Volume (vehicles)*	Model Volume (vehicles)	Design Model % Diff
SR 426 @ SR 434						
NB Approach	573	578	0.9%	654	655	0.2%
SB Approach	750	760	1.3%	641	649	1.2%
EB Approach	814	810	-0.5%	1,012	985	-2.7%
WB Approach	983	925	-5.9%	775	716	-7.6%
CR 419 @ CR 426/ Station Street/ Railroad Street						
NB Approach	62	55	-11.3%	86	82	-4.7%
SB Approach	194	174	-10.3%	171	169	-1.2%
CR 419 @ Division Street						
NB Approach	369	362	-1.9%	239	232	-2.9%
SB Approach	322	320	-0.6%	560	560	0.0%
EB Approach	757	744	-1.7%	960	942	-1.9%
WB Approach	1,058	1,066	0.8%	766	767	0.1%
SR 434 @ Station Street						
EB Approach	61	59	-3.3%	53	52	-1.9%
SR 434 @ Railroad Street						
WB Approach	74	54	-27.0%	40	34	-15.0%
SR 434 @ Franklin Street						
NB Approach	696	721	3.6%	792	817	3.2%
SB Approach	933	932	-0.1%	933	929	-0.4%
WB Approach	670	663	-1.0%	373	373	0.0%
VOLUMES ENTERING SYSTEM	**4,739**	**4,731**		**4,537**	**4,501**	
TOTAL NETWORK DELAY		**108.44 vehicle-hours**			**101.6 vehicle-hours**	
AVERAGE NETWORK SPEED		**14.27 MPH**			**14.74 MPH**	
% VOLUMES ENTERING SYSTEM		**99.83%**			**99.21%**	

Note:

1. Approach volumes are for all movements.

TABLE 5

Year 2010 AM & PM Design Hour CORSIM Model MOEs - Build Scenario 2

Roadway Intersections	AM Design Hour			PM Design Hour		
	Design Volume (vehicles)	Model Volume (vehicles)	Design Model % Diff	*Design Volume (vehicles)*	Model Volume (vehicles)	Design Model % Diff
SR 426 @ SR 434						
NB Approach	573	567	-1.0%	654.0	649	-0.8%
SB Approach	681	670	-1.6%	544.0	525	-3.5%
EB Approach	814	808	-0.7%	1,012.0	1,002	-1.0%
WB Approach	983	928	-5.6%	775.0	723	-6.7%
CR 419 @ CR 426/ Station Street/ Railroad Street						
NB Approach	62	55	-11.3%	86.0	79	-8.1%
SB Approach	194	181	-6.7%	171.0	169	-1.2%
CR 419 @ Division Street						
NB Approach	369	365	-1.1%	239.0	234	-2.1%
SB Approach	386	384	-0.5%	650.0	644	-0.9%
EB Approach	688	659	-4.2%	863.0	839	-2.8%
WB Approach	1,058	1,058	0.0%	766.0	772	0.8%
SR 434 @ Station Street						
EB Approach	61	59	-3.3%	53.0	52	-1.9%
SR 434 @ Railroad Street						
WB Approach	74	55	-25.7%	40.0	35	-12.5%
SR 434 @ Franklin Street						
NB Approach	696	729	4.7%	792.0	831	4.9%
SB Approach	933	937	0.4%	933.0	927	-0.6%
WB Approach	670	661	-1.3%	373.0	372	-0.3%
VOLUMES ENTERING SYSTEM	**4,803**	**4,780**		**4,627**	**4,600**	
TOTAL NETWORK DELAY		**96.13 vehicle-hours**			**87.02 vehicle-hours**	
AVERAGE NETWORK SPEED		**14.97 MPH**			**15.77 MPH**	
% VOLUMES ENTERING SYSTEM		**99.52%**			**99.42%**	

Note:

1. Approach volumes are for all movements.

For the 2010 Phase 1A Build Scenario 2 conditions, during the AM design hour conditions, a total delay of 96.13 vehicle-hours and an average speed of 14.97 MPH were projected for the network used in the analysis. Similarly, for the 2010 PM design hour conditions under the same scenario, a total delay of 87.02 vehicle hours and an average speed of 15.77 MPH were reported for the network used in the analysis

Therefore, based on the above comparisons, the proposed improvements in Phase 1A Build Scenarios will improve the overall network traffic flow as indicated by the higher average network speeds and lower total network delays compared to the No Build scenario.

Between Build Scenarios 1 and 2, the proposed improvements in Build Scenario 2 will provide better traffic flow as indicated by the slightly higher average network speeds and lower total network delays compared to Build Scenario 1.

Nonetheless, it is important to note that certain movements at the study intersections will still have oversaturated conditions in the Build Scenarios, as evident from the CORSIM animation of the future traffic network.

3 Phase 1 Traffic Analysis

One Build Scenario was evaluated under this Phase for the year 2010 AM and PM design traffic conditions. Phase 1 Build Scenario is similar to Phase 1A Build Scenario 1 in all aspects, with the exception of four-laning of SR 434 just north and south of the intersection with SR 426/CR419. However, in Phase 1 Build Scenario, the lanes on SR 434 are 11 feet wide. As such, the traffic volumes developed for Phase 1A Build Scenario 1 in Chapter 2 were also used for Phase 1 Build Scenario traffic analysis and simulation.

Intersection Analysis for the Build Scenario was performed using the latest SYNCHRO (version 7) traffic analysis software. The traffic simulation efforts for the Build Scenario were developed using the latest FHWA developed COSRIM (version 6.2) simulation software.

The proposed roadway and intersection geometry and traffic controls are shown in **Figure** 12 for Phase 1 Build Scenario.

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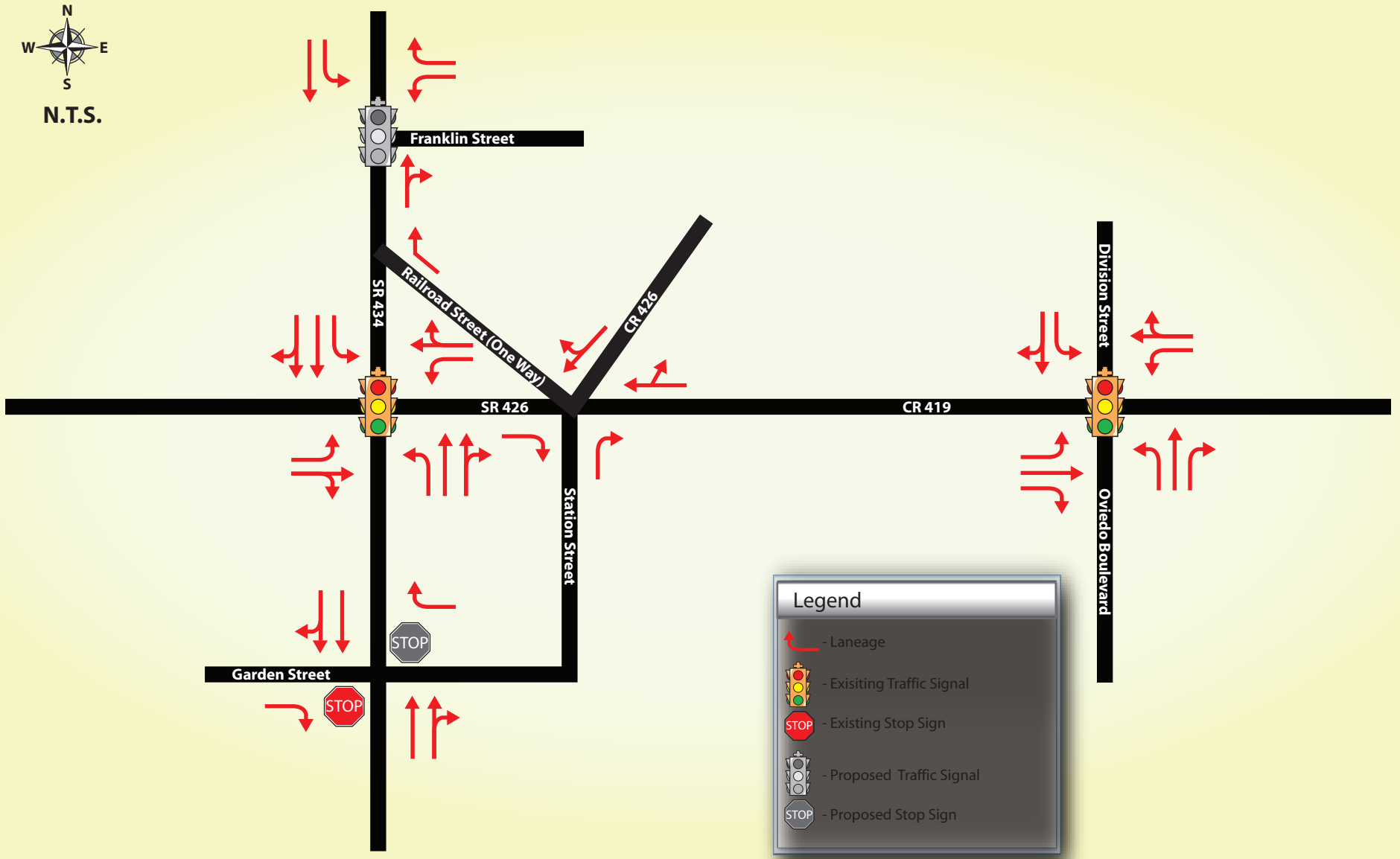


Prepared for: Seminole County
Prepared with: Inwood Consulting Engineers
Prepared by: GMB Engineers & Planners, Inc.

SR 426/CR 419
Design Traffic and Simulation Study
Phase 1

Figure 12
Year 2010 Proposed Build Geometry

3.1 Year 2010 Traffic Operational Analysis

This section presents the results of the operational, specifically LOS analyses for the No-Build and Phase 1 Build conditions. The No-Build Scenario traffic results are explained earlier in Chapter 2 of this report. All conditions were analyzed using the latest Synchro Software (version 7.0). Specific analysis techniques utilized in this study include unsignalized and signalized intersection LOS analysis. **Tables** 6 and 7 summarize the Synchro based MOEs (intersection delays, LOS, and V/C ratios) for the 2010 AM and PM design traffic conditions, respectively for the No-Build and Build Scenarios. For comparison purposes, MOEs for the original Build Scenario that was evaluated as part of the 2008 Phase 1 Study are also included in these tables. It should be noted that the revised Build Scenario evaluated as part of the current study is referred to as the Phase 1 Build Scenario in this report.

3.1.1 Year 2010 LOS Analysis – Build Scenario

Under this Build Scenario, all the signalized intersections along SR 426/ CR 419 and SR 434 were projected to operate at LOS E or better during the opening year 2010 AM and PM design hour conditions. The unsignalized intersection at SR 434 and Garden Street/ Station Street was projected to operate at LOS B on the minor approach during the AM and PM design hour conditions.

The Synchro outputs for the intersection LOS analyses for the Phase 1 Build Scenario are provided in **Appendix E** of this report.

TABLE 6

Year 2010 AM Design Hour Intersection LOS Analysis Results Comparison for Phase 1

Intersection	No Build Scenario			Original Build Scenario			Revised Build Scenario		
	Delay (sec)	LOS	Maximum V/C Ratio	Delay (sec)	LOS	Maximum V/C Ratio	Delay (sec)	LOS	Maximum V/C Ratio
SR 426/ CR 419 @									
SR 434~	375.3	F	2.21	56.3	E	1.01	39.3	D	0.92
Station Street/CR 426$	212.1	F	1.44	0.0/15.6	A/C	0.70	NAV	NAV	NAV
Proposed CR 426 Realignment@	NAP	NAP	NAP	8.5	A	0.72	NAP	NAP	NAP
Division Street/Oviedo Boulevard~	57.3	E	1.08	34.6	C	0.90	60.6	E	1.05
SR 434/ Central Avenue @									
Garden Street/ Station Street*	7.3/15.5	A/C	0.49	0.0/10.5	A/B	0.29	0.0/13.8	A/B	0.39
Franklin Street*@	10.2/656.4	B/F	2.37	16.0	B	0.80	16.1	B	0.84

Notes:

1. Intersection LOS and Delay are reported for signalized intersections. In the case of unsignalized intersections, the delay and LOS are reported for major street turn movement /minor street (worst case).

2. No Build Scenario maintains the existing geomtery at the study intersections.

3. Orginal Phase 1 Build Scenario refers to the Build Scenario evaluated as part of the Phase 1 study completed in June of 2008.

4. NAV stands for Not Available. NAP stands for Not Applicable.

~ The intersection is currently signalized in the field.

***** The intersection is currently unsignalized in the field.

@ A future traffic signal is proposed at this location.

$ A future stop sign is proposed at this location for the revsied Build Scenario with NB right-in right-out movement only.

TABLE 7

Year 2010 PM Design Hour Intersection LOS Analysis Results Comparison for Phase 1

Intersection	No Build Scenario			Origianl Build Scenario			Revised Build Scenario		
	Delay (sec)	LOS	Maximum V/C Ratio	Delay (sec)	LOS	Maximum V/C Ratio	Delay (sec)	LOS	Maximum V/C Ratio
SR 426/ CR 419 @									
SR 434~	158.7	F	1.36	59.9	E	1.03	40.9	E	0.90
Station Street/CR 426$	237.2	F	1.54	0.0/26.1	D	0.67	NAV	NAV	NAV
Proposed CR 426 Realignment@	NAP	NAP	NAP	4.9	A	0.62	NAP	NAP	NAP
Division Street/Oviedo Boulevard~	42.8	D	0.95	27.9	C	0.86	41.4	D	0.98
SR 434/ Central Avenue @									
Garden Street/ Station Street*	7.2/13.1	A/B	0.45	0.0/11.0	A/B	0.28	0.0/11.0	A/B	0.28
Franklin Street*@	11.7/73.2	B/F	1.26	17.5	B	0.77	23.0	C	0.91

Notes:

1. Intersection LOS and Delay are reported for signalized intersections. In the case of unsignalized intersections, the delay and LOS are reported for major street turn movement /minor street (worst case).

2. No Build Scenario maintains the existing geomtery at the study intersections.

3. Orginal Phase 1 Build Scenario refers to the Build Scenario evaluated as part of the Phase 1 study completed in June of 2008.

4. NAV stands for Not Available. NAP stands for Not Applicable.

~ The intersection is currently signalized in the field.

* The intersection is currently unsignalized in the field.

@ A future traffic signal is proposed at this location.

$ A future stop sign is proposed at this location for the revsied Build Scenario with NB right-in right-out movement only.

3.1.2 Comparative Analysis – No-Build vs Build Scenario

As shown in **Tables** 6 and 7, during the year 2010 AM and PM design hours, the study intersections are projected to fail (LOS F) with higher intersection delays and V/C ratios much greater than 1.0 in the No-Build Scenario compared to the Build Scenario.

The unusually high intersection/ approach delays and high V/C ratios at the intersections of SR 434 at SR 426/ CR 419 and CR 419 at CR 419/ Station Street/ Railroad Street during the AM and PM design hours in the No Build scenario indicate extreme oversaturated conditions and poor traffic circulation in the study area. The fairly lower intersection delays and V/C ratios at the study intersections in Phase 1 Build Scenario indicate efficient traffic flow conditions in the study area.

In conclusion, the proposed roadway and intersection geometry in the Phase 1 Build scenario will efficiently handle the projected opening year 2010 AM and PM design hour traffic volumes compared to the existing roadway and intersection geometry (No Build scenario).

3.1.3 Comparative Analysis – Phase 1A Build Scenario 2 vs Phase 1 Build Scenario

Tables 8 and 9 provide a comparison of intersection MOEs for the 2010 AM and PM design hour traffic conditions between Phase 1A Build Scenario 2 (recommended scenario in Phase 1A) and Phase 1 Build Scenario. Based on the results reported in **Table** 8, the study intersections under Phase 1 Build Scenario were projected to operate with better LOS conditions (lower delay and V/C values) compared to Phase 1A Build Scenario 2. In conclusion, the proposed geometry in the Phase Build scenario will more efficiently handle the projected opening year 2010 AM and PM design hour traffic volumes compared to the proposed build geometry in Phase 1A Build Scenario 2.

TABLE 8

Year 2010 AM Design Hour Intersection LOS Analysis Results Comparison between Phase 1A and 1

Intersection	Phase 1A Build Scenario 2			Phase 1 Build Scenario		
	Delay (sec)	LOS	Maximum V/C Ratio	Delay (sec)	LOS	Maximum V/C Ratio
SR 426/ CR 419 @						
SR 434~	75.6	E	1.16	39.3	D	0.92
Station Street/CR 426[$]	NAV	NAV	NAV	NAV	NAV	NAV
Division Street/Oviedo Boulevard~	69.9	E	1.07	60.6	E	1.05
SR 434/ Central Avenue @						
Garden Street/ Station Street*	0.0/14.4	A/B	0.46	0.0/13.8	A/B	0.39
Franklin Street*[@]	17.7	B	0.84	16.1	B	0.84

Notes:

1. Intersection LOS and Delay are reported for signalized intersections. In the case of unsignalized intersections, the delay and LOS are reported for major street turn movement /minor street (worst case).

2. No Build Scenario maintains the existing geomtery at the study intersections.

3. SB left turn movement is prohibited in Build Scenario 2 at SR 426/CR 419 and SR 434

4. NAV stands for Not Available.

~ The intersection is currently signalized in the field.

*** The intersection is currently unsignalized in the field.**

@ A future traffic signal is proposed at this location.

$ A future stop sign is proposed at this location for the Build Scenario with NB right-in right-out movement only.

TABLE 9

Year 2010 PM Design Hour Intersection LOS Analysis Results Comparison between Phase 1A and 1

Intersection	Phase 1A Build Scenario 2			Phase 1 Build Scenario		
	Delay (sec)	LOS	Maximum V/C Ratio	Delay (sec)	LOS	Maximum V/C Ratio
SR 426/ CR 419 @						
SR 434~	64.2	E	1.07	40.9	E	0.90
Station Street/CR 426$	NAV	NAV	NAV	NAV	NAV	NAV
Division Street/Oviedo Boulevard~	47.8	D	1.00	41.4	D	0.98
SR 434/ Central Avenue @						
Garden Street/ Station Street*	0.0/13.7	A/B	0.45	0.0/11.0	A/B	0.28
Franklin Street*@	33.3	C	0.99	23.0	C	0.91

Notes:

1. Intersection LOS and Delay are reported for signalized intersections. In the case of unsignalized intersections, the delay and LOS are reported for major street turn movement /minor street (worst case).

2. No Build Scenario maintains the existing geomtery at the study intersections.

3. SB left turn movement is prohibited in Build Scenario 2 at SR 426/CR 419 and SR 434

4. NAV stands for Not Available.

~ The intersection is currently signalized in the field.

*** The intersection is currently unsignalized in the field.**

@ A future traffic signal is proposed at this location.

$ A future stop sign is proposed at this location for the Build Scenario with NB right-in right-out movement only.

3.2 Phase 1 CORSIM Simulation

This study used CORSIM microscopic simulation software as a tool to evaluate the traffic operations for the Phase 1 Build Scenario for the opening year 2010 AM and PM hour design hour traffic conditions. The main aim of the CORSIM analysis in this study was to compare the network wide statistics and determine whether the improvements under Phase 1 Build Scenario can operate at better traffic conditions compared to the No-Build Scenario and Phase 1A Build Scenario 2. The CORSIM simulation analysis results for the Year 2010 Phase 1 Build Scenario are provided in **Appendix F** of this report.

Signal optimization software SYNCHRO was used to generate optimized cycle lengths, green time splits for individual phasing and offsets for the opening year 2010 AM and PM design hour volumes for the Build Scenario. The intersection and roadway geometry along with the design hour turning movement volumes were provided as inputs into SYNCHRO software to obtain the optimized cycle lengths and signal timing for individual phasing. The optimized cycle length along with optimized signal timings for individual phases and offsets resulting from SYNCHRO software for the Build Scenarios were assessed for reasonableness and used as input in the CORSIM analysis. In case of the No Build scenario, the existing signal timings for individual phases and offsets were used in the CORSIM analysis.

The roadway characteristics for the Build Scenario including intersection configurations, lengths of auxiliary lanes and types of traffic control devices, were obtained from the preliminary concept plans developed by the project team.

3.2.1 CORSIM Simulation Analysis

Table 10 summarizes the MOEs derived from the CORSIM analysis for the Build Scenario. Year 2010 design hour and CORSIM model volumes for each approach, Total Network Delay in vehicle-hours, and Average Network Speed in Miles per Hour (MPH) are included in this table.

TABLE 10

Year 2010 AM & PM Design Hour CORSIM Model MOEs -Phase 1 Build Scenario

Roadway Intersections	AM Design Hour			PM Design Hour		
	Design Volume (vehicles)	Model Volume (vehicles)	Design Model % Diff	*Design Volume (vehicles)*	Model Volume (vehicles)	Design Model % Diff
SR 426 @ SR 434						
NB Approach	573	569	-0.7%	654	642	-1.8%
SB Approach	750	758	1.1%	641	651	1.6%
EB Approach	814	804	-1.2%	1,012	1,011	-0.1%
WB Approach	983	933	-5.1%	775	777	0.3%
CR 419 @ CR 426/ Station Street/ Railroad Street						
NB Approach	62	55	-11.3%	86	79	-8.1%
SB Approach	194	184	-5.2%	171	170	-0.6%
CR 419 @ Division Street						
NB Approach	369	370	0.3%	239	239	0.0%
SB Approach	322	323	0.3%	560	564	0.7%
EB Approach	757	753	-0.5%	960	945	-1.6%
WB Approach	1,058	1,040	-1.7%	766	752	-1.8%
SR 434 @ Station Street						
EB Approach	61	59	-3.3%	53	52	-1.9%
SR 434 @ Railroad Street						
WB Approach	74	56	-24.3%	40	38	-5.0%
SR 434 @ Franklin Street						
NB Approach	696	697	0.1%	792	845	6.7%
SB Approach	933	931	-0.2%	933	922	-1.2%
WB Approach	670	668	-0.3%	373	372	-0.3%
VOLUMES ENTERING SYSTEM	**4,739**	**4,705**		**4,537**	**4,502**	
TOTAL NETWORK DELAY		**77.51 vehicle-hours**			**71.40 vehicle-hours**	
AVERAGE NETWORK SPEED		**17.13 MPH**			**17.67 MPH**	
% VOLUMES ENTERING SYSTEM		**99.28%**			**99.23%**	

Note:

1. Approach volumes are for all movements.

As previously noted in Chapter 2, the total CORSIM model volumes under the No Build scenario at the entry links were approximately 73% and 65% of the projected 2010 design hour volumes for the AM and PM design hours, respectively. The lower percentages clearly indicate the inefficient traffic flow through the study network under the No Build scenario.

The total CORSIM model volumes under the Build Scenario at the entry links were approximately 99% of the projected design hour volumes during the AM and PM design hours. The approximately accurate agreement of the entry link volumes with the projected volumes indicates a smoother traffic flow and efficient traffic operation under Phase 1 Build Scenario compared to the No Build scenario.

3.3 CORSIM Results Comparison and Evaluation

The insignificant difference between the model volumes and the projected year 2010 volumes show the efficient operation of the future network in Phase 1 Build Scenario. To determine the gain in terms of improved traffic flow within the study network under Phase 1 Build Scenario compared to the No-Build Scenario and Phase 1A Build Scenario 2, the overall network output results of total delay (vehicle-hours) and average speed (miles per hour [MPH for these scenarios were compared. The results are reported in **Tables** 11 and 12 for the 2010 AM and PM traffic conditions, respectively.

Based on the CORSIM overall network output for the 2010 Phase 1 Build Scenario, during the AM design hour conditions, a total delay of 77.51 vehicle-hours and an average speed of 17.13 MPH were projected for the network used in the analysis. Similarly, during the 2010 PM design hour conditions under the same scenario, a total delay of 71.40 vehicle-hours and an average speed of 17.67 MPH were reported for the network used in the analysis.

Therefore, based on the comparisons provided in Tables 11 and 12, the proposed improvements in Phase 1 Build Scenario will improve the overall network traffic flow as indicated by the higher average network speeds and lower total network delays compared to the No Build scenario and Phase 1A Build Scenario 2.

TABLE 11

Year 2010 AM Design Hour CORSIM Model Network Wide Statistics Comparison

Statistic	No Build Scenario	Phase 1A Build Scenario 2	Phase 1 Build Scenario
TOTAL NETWORK DELAY	305.28 vehicle-hours	96.13 vehicle-hours	77.51 vehicle-hours
AVERAGE NETWORK SPEED	5.80 MPH	14.97 MPH	17.13 MPH
% VOLUMES ENTERING SYSTEM	73.20%	99.52%	99.28%

TABLE 12

Year 2010 PM Design Hour CORSIM Model Network Wide Statistics Comparison

Statistic	No Build Scenario	Phase 1A Build Scenario 2	Phase 1 Build Scenario
TOTAL NETWORK DELAY	339.65 vehicle-hours	87.02 vehicle-hours	71.40 vehicle-hours
AVERAGE NETWORK SPEED	4.61 MPH	15.77 MPH	17.67 MPH
% VOLUMES ENTERING SYSTEM	64.77%	99.52%	99.23%

4 PD&E Re-evaluation Traffic Analysis

In this phase, Year 2010 and Design Year 2030 AM and PM projected traffic conditions were evaluated. GMB had completed the Design Traffic Analysis for PD&E study on SR 426/CR 419 in May of 2008 (2008 PD&E Study). The future traffic projections developed as part of the 2008 PD&E study for the Year 2010 and the Design Year 2030 traffic conditions were used for the PD&E Re-evaluation Phase of this study. The same study area that was considered in the 2008 PD&E study was considered in this phase.

In the re-evaluation phase, the traffic was re-routed to other roadways in the study area including Oviedo Boulevard, Division Street, SR 434, and CR 419 based on the condition that CR 426 will not intersect with CR 419. It should be noted that with the revised condition incorporated into the PD&E Re-evaluation phase, only the design traffic volumes at the intersections of SR 426/CR 419 at SR 434, CR 419 at Division Street/Oviedo Boulevard, SR 434 at Station Street/Garden Street , and SR 434 at Franklin Street were re-developed. The traffic projections for the remaining study intersections remained the same.

Intersection analysis for the Build Conditions was performed using the latest SYNCHRO (version 7) traffic analysis software. The traffic simulation efforts for the Build Conditions were developed using the latest FHWA developed COSRIM (version 6.2) simulation software.

4.1 Adjustments to the Intersection Design Hour Volumes

The following adjustments were applied to the original 2008 PD&E Study design hour turning movement counts to better replicate the condition where CR 426 will not intersect with CR 419 in the study area.

- 70% of the northbound right turning volumes at the intersection of the original realigned Station Street/ CR 426 and CR 419 are now assumed to utilize the northbound right turn at the intersection of Oviedo Boulevard/Division Street and CR 419.

- 70% of the northbound through traffic at the intersection of the original realigned Station Street/ CR 426 and CR 419 is now assumed to utilize the through movement at the intersection of SR 434 and CR 419 and then continue to utilize the northbound right turn movement at the intersection of SR 434 and Franklin Street. The remaining 30% of this-

traffic is assumed to utilize the right turn movement at the intersection of SR 434 and Station Street and then continue to utilize the eastbound left turn movement at the intersection of CR 419 and Oviedo Boulevard/Division Street.

- The westbound left turning traffic at the intersection of the original realigned Station Street/ CR 426 and CR 419 is now assumed to continue through the intersection and utilize the westbound left turn movement at the intersection of SR 434 and CR 419.

- 100% of the westbound right turning volumes at the intersection of the original realigned Station Street/ CR 426 and CR 419 are now assumed to utilize the westbound right turn at the intersection of Oviedo Boulevard/Division Street and CR 419.

- The southbound left turning traffic at the intersection of the original realigned Station Street/ CR 426 and CR 419 (leading to eastbound through and eastbound right turn movements at the intersection of Oviedo Boulevard/Division Street/CR 419) is now assumed to use the southbound left and through movements at Oviedo Boulevard/Division Street and CR 419.

- 30% of the southbound through traffic at the intersection of the original realigned Station Street/ CR 426 and CR 419 is now assumed to turn right onto westbound CR 419 at Oviedo Boulevard/Division Street and then continue to utilize the westbound left turn movement at the intersection of SR 434 and CR 419. The remaining 70% of this traffic is now assumed to utilize the westbound left turn movement at the intersection of Franklin Street and SR 434.

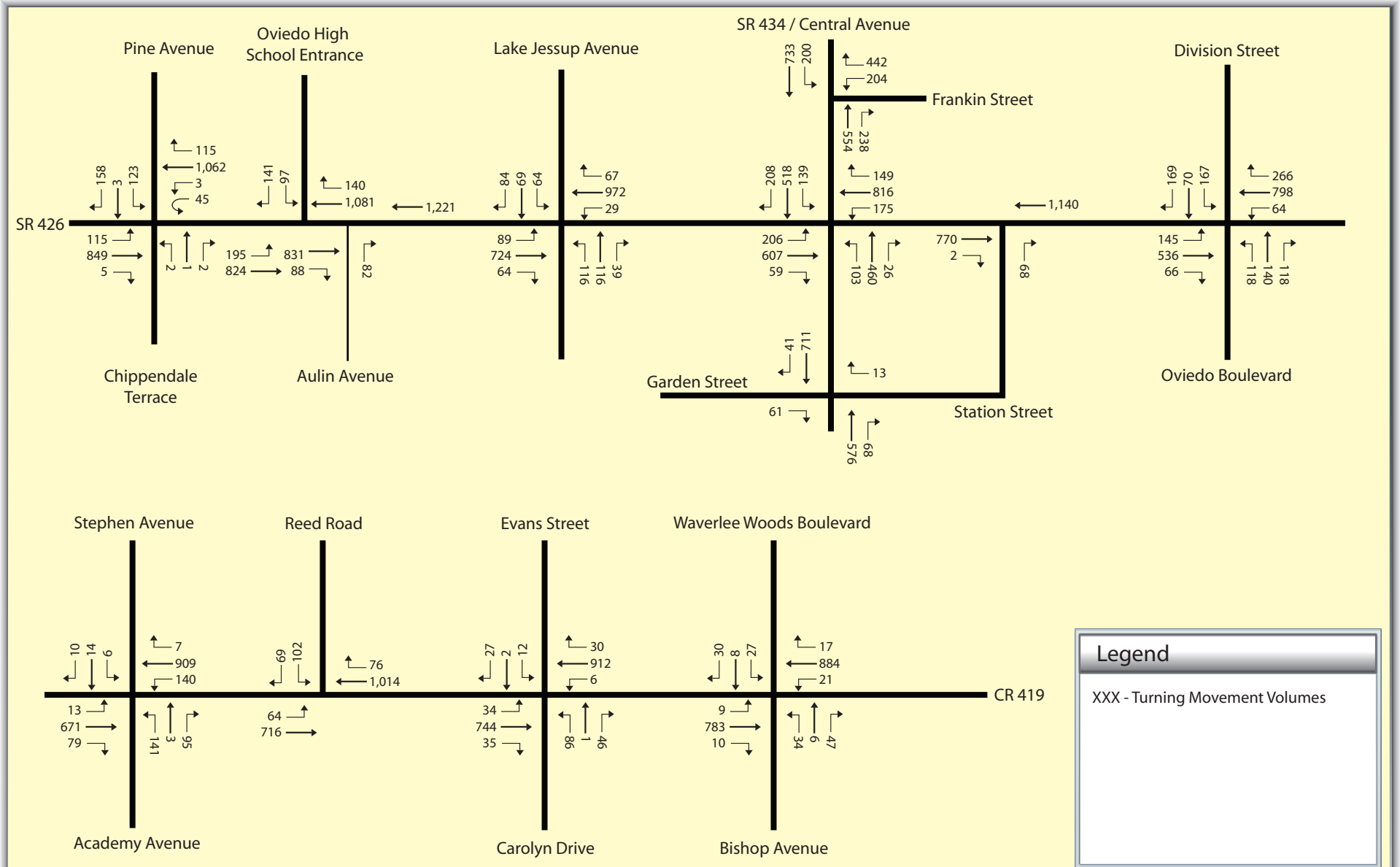
- 70% of the southbound right turning traffic at the intersection of the original realigned Station Street/ CR 426 and CR 419 is now assumed to turn right onto westbound CR 419 at Division Street and then continue to utilize the westbound CR 419. The remaining 30% of this traffic is now assumed to utilize the westbound left turn movement at the intersection of Franklin Street and SR 434.

- 50% of the eastbound left turning traffic at the intersection of the original realigned Station Street/ CR 426 and CR 419 is now assumed to continue on eastbound CR 419 and continue to utilize the eastbound left turn movement at the intersection of CR 419 and Oviedo Boulevard/Division Street. The remaining 50% of this traffic is now assumed to utilize the

eastbound left turn movement at the intersection of SR 426/CR 419 and SR 434 and utilize the northbound right turn movement at the intersection of SR 434 and Franklin Street.

- The intersection of SR 434 and Garden Street/Station Street is converted to a right-in right-out for the side street Garden Street/Station Street and the traffic volumes are appropriately assigned to the intersection of SR 434 and SR 426/CR 419.

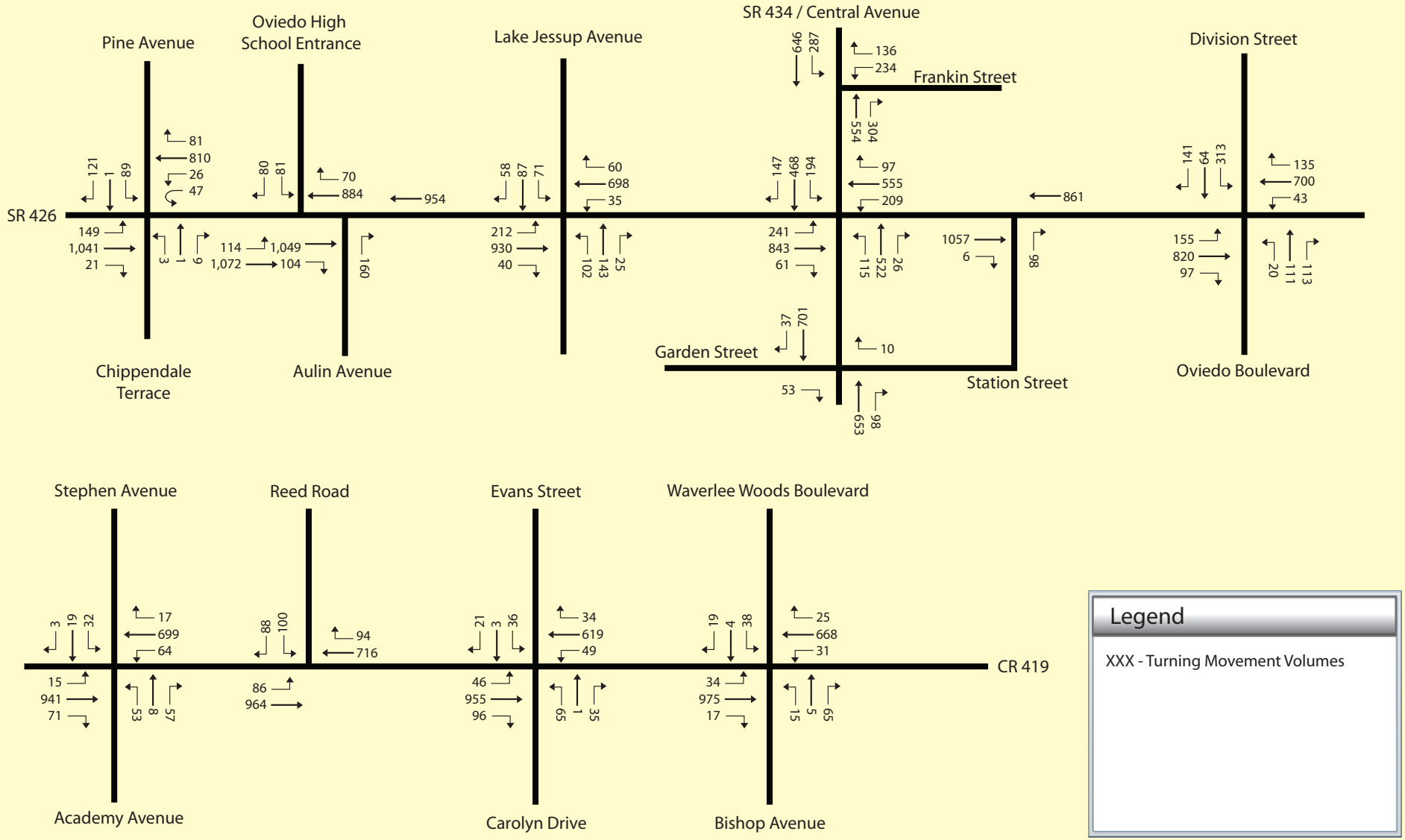
Figures 13 and 14 show the Year 2010 AM and PM design hour volumes, respectively for the revised PD&E Re-evaluation Phase. Similarly, **Figures** 15 and 16 show the Year 2030 AM and PM design hour volumes, respectively for the revised PD&E Re-evaluation Phase.



Prepared for: Seminole County
Prepared with: Inwood Consulting Engineers
Prepared by: GMB Engineers & Planners, Inc.

SR 426 / CR 419
Design Traffic and Simulation Study
PD&E Re-Evaluation

Figure 13
2010 AM Design Hour Build
Turning Movement Volumes



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Prepared with: Inwood Consulting Engineers
Prepared by: GMB Engineers & Planners, Inc.

SR 426 / CR 419
Design Traffic and Simulation Study
PD&E Re-Evaluation

Figure 14
2010 PM Design Hour Build
Turning Movement Volumes

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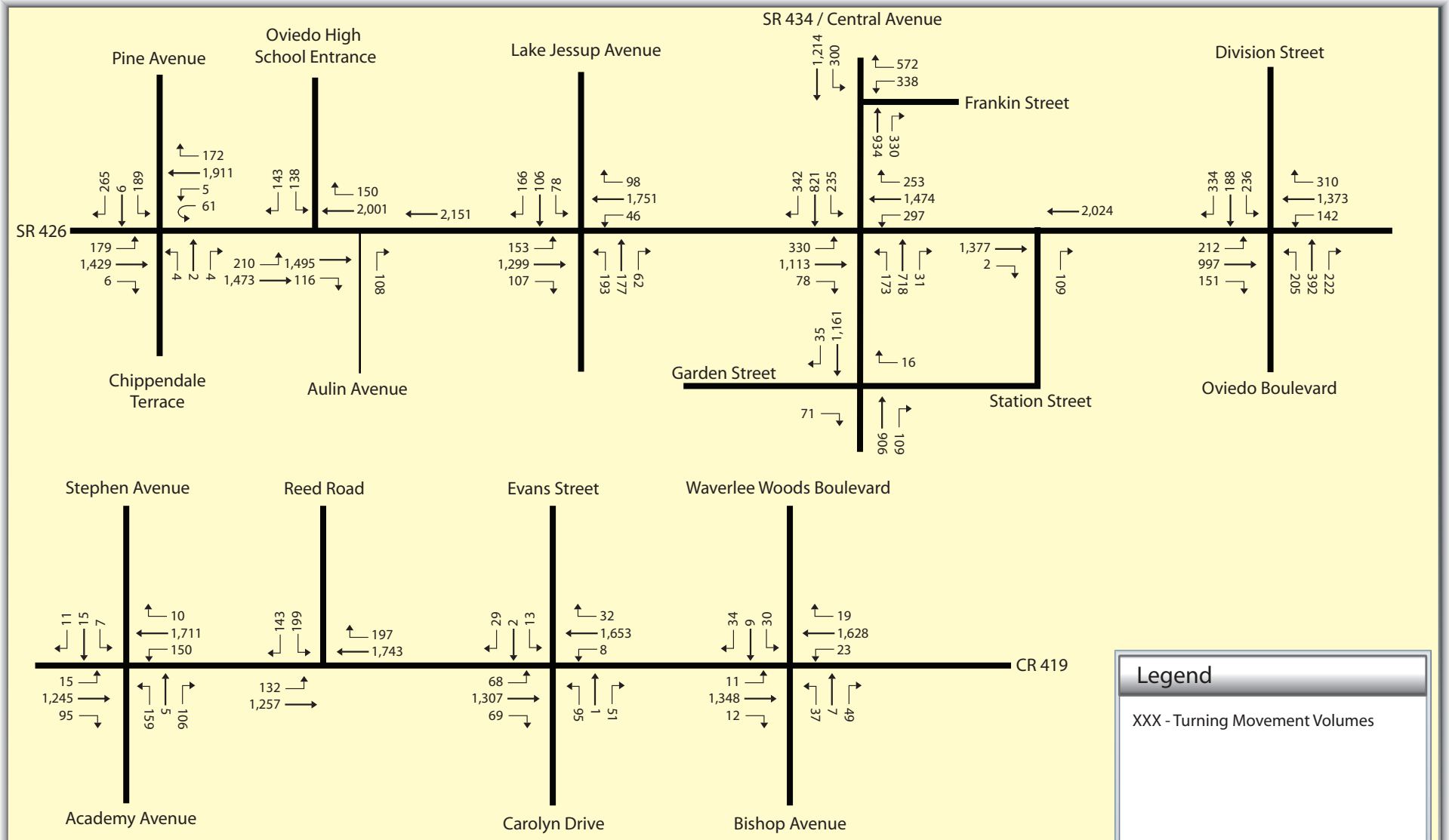

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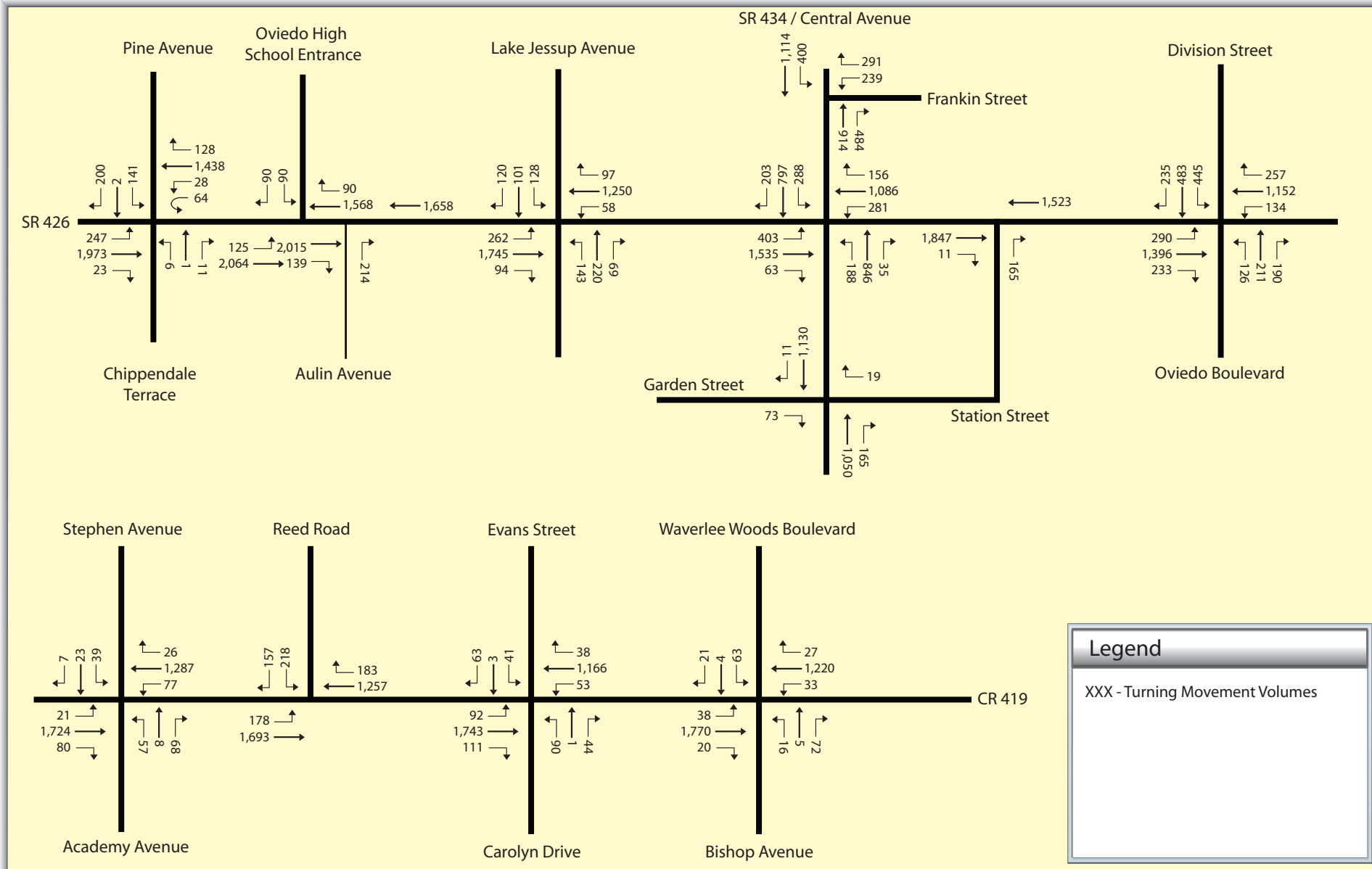
Prepared with: Inwood Consulting Engineers
Prepared by: GMB Engineers & Planners, Inc.

SR 426 / CR 419
Design Traffic and Simulation Study
PD&E Re-Evaluation

Figure 15
2030 AM Design Hour Build
Turning Movement Volumes

Date Created: 7/15/2010

Project Number: 07-106.05



Prepared for: Seminole County
Prepared with: Inwood Consulting Engineers
Prepared by: GMB Engineers & Planners, Inc.

SR 426 / CR 419
Design Traffic and Simulation Study
PD&E Re-Evaluation

Figure 16
2030 PM Design Hour Build
Turning Movement Volumes

4.2 Proposed Build Geometry

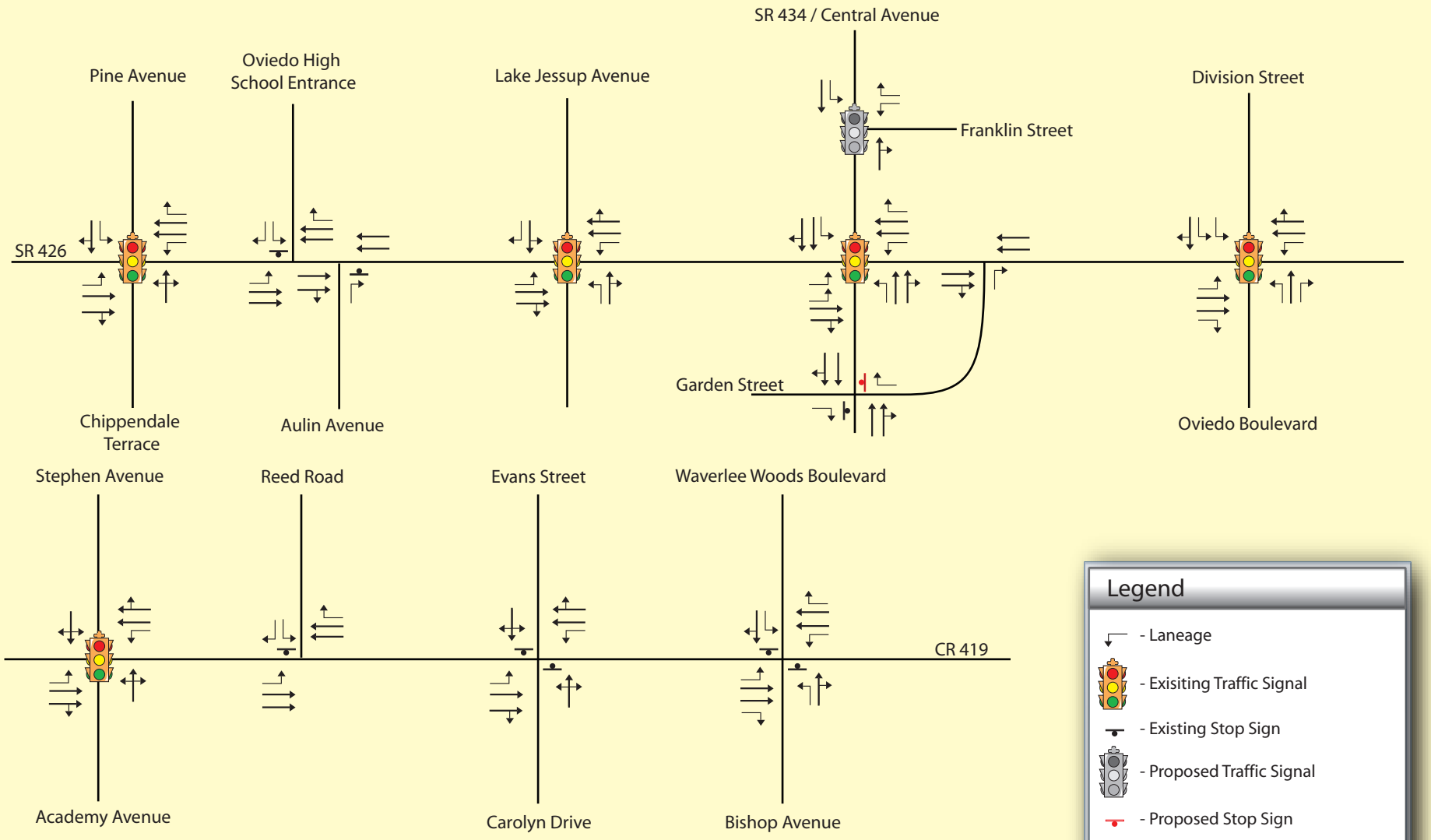
The proposed Build Geometry that was developed as part of the 2008 PD&E study for the Opening Year 2010 traffic conditions was deemed sufficient to handle the Year 2010 traffic projections developed for the Re-evaluation Phase. **Figure** 17 provides the proposed Build Geometry for the Year 2010 traffic conditions for the PD&E Re-evaluation Phase.

However, for the year 2030 design traffic conditions, additional improvements were needed to handle efficiently the traffic projections. The additional turn improvements were recommended based a detailed SYNCHRO intersection analysis, CORSIM simulation analysis, and discussions with the County project staff. **Figure** 18 provides the proposed Build Geometry for the Year 2030 design traffic conditions for the PD&E Re-evaluation Phase.

The build scenario was designed to examine how the widening of SR 426/ CR 419 and different geometric improvements at the study intersections would affect the traffic flow. The primary objective of the build scenario is to improve the future traffic operations along mainline SR 426/ CR 419 during the design hours.

Date Created: 7/15/2010

Project Number: 07-106.01



Prepared for: Seminole County
Prepared with: Inwood Consulting Engineers
Prepared by: GMB Engineers & Planners, Inc.

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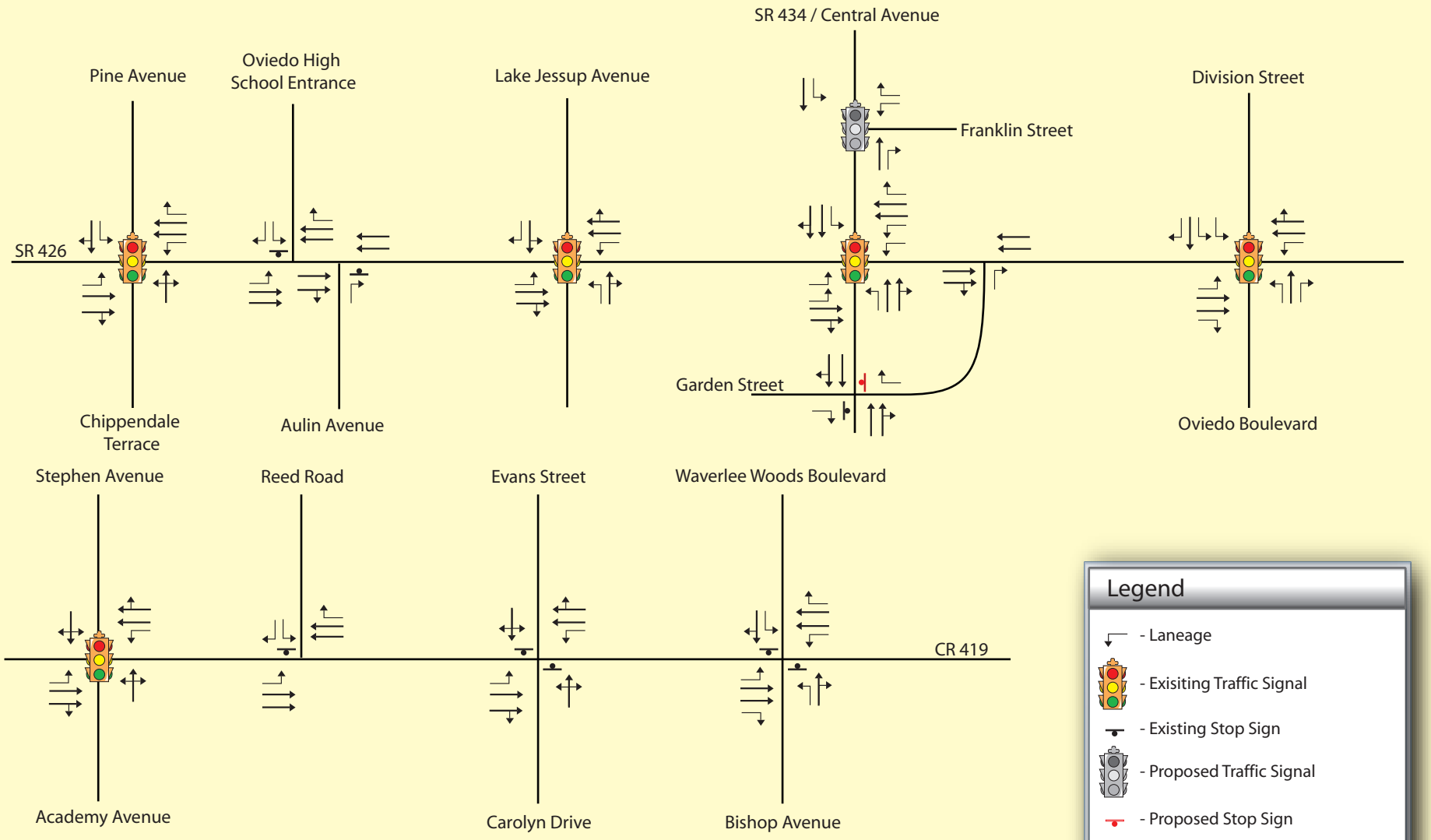
PD&E Re-Evaluation

Figure 17
Year 2010 Proposed Build Geometry

Date Created: 7/15/2010

Project Number: 07-106.01



Prepared for: Seminole County
Prepared with: Inwood Consulting Engineers
Prepared by: GMB Engineers & Planners, Inc.

SR 426 / CR 419
Design Traffic and Simulation Study
PD&E Re-Evaluation

Figure 18
Year 2030 Proposed Build Geometry

4.3 Future Intersection Operational Analysis

Intersection operational analyses were performed for the opening year and design year for the Build condition. All the signalized and unsignalized intersections were analyzed using the latest Synchro software version 7.0.

4.3.1 Opening Year 2010

As shown in **Table** 13, it can be seen that under the Build condition, all the signalized intersections along SR 426/ CR 419 are projected to operate at LOS C or better during the Year 2010 AM and PM design hour conditions. During the Year 2010 AM and PM design hours, all the unsignalized intersections along SR 426/ CR 419 were found to operate at LOS C or better on the major approach and LOS D or better on the minor approach with the exception of few intersections.

The minor approach at the intersection of SR 426 and Oviedo High School Entrance, CR 419 and Reed Road are projected to operate at LOS F and E, respectively during the Year 2010 AM design hour.

Similarly, the minor approach at the intersection of CR 419 and Evans Street/Carolyn Drive is projected to operate at LOS E during the Year 2010 PM. design hour.

TABLE 13
Opening Year 2010 AM & PM Design Hour Intersection LOS and Delay Summary

Intersection	AM Design Hour		PM Design Hour	
	Delay (sec)	LOS	Delay (sec)	LOS
SR 426/ CR 419 @				
Pine Avenue~	15.0	B	18.0	B
Oviedo High School Entrance*	22.9/337.1	C/F	11.5/29.4	B/D
Aulin Avenue*	0.0/11.1	A/B	0.0/10.3	A/B
Lake Jessup Avenue~	22.3	C	27.1	C
SR 434/ Central Avenue~	28.7	C	33.9	C
Station Street@	0.0/9.3	A/A	0.0/10.0	A/A
Division Street/Oviedo Boulevard~	19.9	B	21.8	C
Stephen Avenue/Academy Avenue~	17.8	B	17.1	B
Reed Road*	11.8/39.8	B/E	10.3/31.1	B/D
Evans Street/ Carolyn Drive*	10.6/33.9	B/D	11.4/43.5	B/E
Waverlee Woods Boulevard/ Bishop Avenue*	10.2/27.9	B/D	10.8/29.9	B/D
SR 434/ Central Avenue @				
Station Street/Garden Street*@	0.0/10.6	A/B	0.0/11.1	A/B
Franklin Street**	15.5	B	24.6	C

Notes:

Intersection LOS and Delay are reported for signalized intersections. In the case of unsignalized intersections, the delay and LOS are reported for major street(for left turn)/minor street(worst case).

~ The intersection is currently signalized in the field.

*** The intersection is currently unsignalized in the field.**

**** The Intersection is currently unsignalized and proposed to be signalized in the future.**

@ Proposed NB Right-in Right-out movement at CR 419 and Station Street and EB/WB Right-in Right-out movement at SR 434 and Station Street.

4.3.2 Design Year 2030

4.3.2.1 AM Design Hour

As shown in **Table** 14, it can be seen that under the Build condition, all the signalized intersections along SR 426/ CR 419 and SR 434 are projected to operate at LOS E or better during the Year 2030 AM design hour traffic conditions. During the AM design hour conditions, all the unsignalized intersections along SR 426/ CR 419 are projected to operate at LOS D or better on the major approach with the exception of the unsignalized intersection at Oviedo High School Entrance projected to operate at LOS F. During the same design hour, the minor approaches at all the unsignalized intersections are projected to operate at LOS F with few exceptions. The exceptions include the minor approaches on Aulin Avenue, Station Street, and on Station Street/Garden Street projected to operate at LOS B during the AM design hour.

4.3.2.2 PM Design Hour

As shown in **Table** 14, it can be seen that under the Build condition, all the signalized intersections along SR 426/ CR 419 and SR 434 are projected to operate at LOS E or better during the Year 2030 PM design hour conditions. During the PM design hour conditions, all the unsignalized intersections along SR 426/ CR 419 and SR 434 are projected to operate at LOS C or better on the major approach and LOS F on the minor approach with few exceptions. The exceptions include the minor approaches on Aulin Avenue, Station Street, and on Station Street/Garden Street projected to operate at LOS C, LOS B, and LOS C, respectively during the PM design hour.

The Synchro outputs for the intersection LOS for the Years 2010 and 2030 Build Conditions are provided in **Appendix G**.

TABLE 14

Design Year 2030 AM & PM Design Hour Intersection LOS and Delay Summary

Intersection	AM Design Hour		PM Design Hour	
	Delay (sec)	LOS	Delay (sec)	LOS
SR 426/ CR 419 @				
Pine Avenue~	31.9	C	25.9	C
Oviedo High School Entrance*	275.8/High	F/F	21.6/224.9	C/F
Aulin Avenue*	0.0/10.8	A/B	0.0/21.9	A/C
Lake Jessup Avenue~	42.5	D	66.0	E
SR 434/ Central Avenue~	70.5	E	76.5	E
Station Street@	0.0/10.8	A/B	0.0/13.1	A/B
Division Street/Oviedo Boulevard~	49.9	D	57.2	E
Stephen Avenue/Academy Avenue~	27.9	C	16.9	B
Reed Road*	32.6/High	D/F	19.9/976.6	C/F
Evans Street/ Carolyn Drive*	18.5/487.6	C/F	20.5/High	C/F
Waverlee Woods Boulevard/ Bishop Avenue*	15.6/115.2	C/F	18.3/255.6	C/F
SR 434/ Central Avenue @				
Station Street/Garden Street*@	0.0/12.7	A/B	0.0/14.1	A/B
Franklin Street**	44.4	D	45.7	D

Notes:

Intersection LOS and Delay are reported for signalized intersections. In the case of unsignalized intersections, the delay and LOS are reported for major street(for left turn)/minor street(worst case).

~ The intersection is currently signalized in the field.

*** The intersection is currently unsignalized in the field.**

**** The Intersection is currently unsignalized and proposed to be signalized in the future.**

@ Proposed NB Right-in Right-out movement at CR 419 and Station Street and EB/WB Right-in Right-out movement at SR 434 and Station Street.

4.4 PD&E Re-Evaluation CORSIM Simulation

This study used CORSIM microscopic simulation software as a tool to evaluate the traffic operations for the Build Scenario for the Design year 2030. CORSIM provides an assessment of the traffic operations for each roadway segment in terms of measures of effectiveness, such as travel time, travel speed and delay, etc. As under the 2030 Build Scenario in the 2008 PD&E study, the roadway network in the CORSIM model includes SR 426/ CR 419 from just east of Lake Jessup Avenue to just east of Division Street/ Oviedo Boulevard and SR 434 from just north of Clark Street to just south of Magnolia Street.

4.4.1 Year 2030 Model Network

The Design Year 2030 CORSIM network that was developed for the 2008 PD&E Study was utilized for the present study with the pertinent changes incorporated into the revised network.

4.4.2 Roadway Characteristics

The roadway characteristics for the Build Scenario including intersection configurations, lengths of auxiliary lanes and types of traffic control devices, were obtained from the preliminary concept plans developed by the project team. **Figure** 18 shows the recommended geometric improvements (intersection and roadway) and types of traffic control devices for each intersection studied in this traffic study for the Build Scenario.

4.4.3 Year 2030 Signal Phasing & Timings

Signal optimization software SYNCHRO was used to generate optimized cycle lengths, green time splits for individual phasing and offsets for the design year 2030 AM and PM design hour volumes for the Build Scenario. The intersection and roadway geometry along with the design hour turning movement volumes were provided as inputs into SYNCHRO software to obtain the optimized cycle lengths and signal timing for individual phasing. The optimized cycle length along with optimized signal timings for individual phases and offsets resulting from SYNCHRO software for the Build Scenario were assessed for reasonableness and used as input in the CORSIM analysis.

The signalized intersections along SR 426/ CR 419 at SR 434 and Division Street/ Oviedo Boulevard were continued to operate as part of a coordinated system. The optimization resulted in a system total cycle length of 140 seconds for both the AM and PM design hours.

4.4.4 CORSIM Simulation Analysis

A summary of the MOEs derived from the CORSIM simulation analysis for the Year 2030 Build Scenario during the AM and PM design hour conditions is shown in **Table** 15. The CORSIM output was summarized for each approach for all the study intersections in the study area. Year 2030 design hour and CORSIM model volumes for each approach, Total Network Delay in vehicle-hours, and Average Network Speed in Miles per Hour (MPH) are included in this table.

Based on **Table** 15, it can be seen that the CORSIM Model volumes at the entry links are approximately 96 and 97 percent of the projected 2030 AM and PM design hour volumes, respectively under the Build Scenario. The almost accurate agreement of the entry link volumes with the projected volumes indicates a smooth traffic flow during the design year 2030 AM and PM design hours with the recommended geometry for the study corridor

4.5 CORSIM Evaluation

Although there is no base scenario or a different alternative to compare the travel times and arterial speeds along the study corridor, the negligible difference between the model volumes and the projected year 2030 volumes indicates an efficient operation of the future recommended roadway network. However, it should be noted that certain movements at study intersections in the vicinity of the SR 426/CR 419 and SR 434 study intersection are anticipated to have saturated traffic conditions as evident from the simulation.

Based on the CORSIM overall network output, for the AM design hour conditions, a total delay of 308.61 vehicle-hours and an average speed of 12.14 MPH are projected for the network used in the analysis. Similarly, during the PM design hour conditions, a total delay of 315.99 vehicle-hours and an average speed of 12.32 MPH are projected for the network used in the analysis. This indicates that the network is more saturated during the PM design hour conditions compared to the AM conditions.

The CORSIM output sheets for the AM and PM design hour conditions for the year 2030 are provided in **Appendix H** of this report.

TABLE 15

Year 2030 AM & PM Design Hour CORSIM Model MOEs for the Build Condition

Roadway Intersections	AM Design Hour			PM Design Hour		
	Design Volume (vehicles)	Model Volume (vehicles)	Design Model % Diff	*Design Volume (vehicles)*	Model Volume (vehicles)	Design Model % Diff
SR 426 @ SR 434						
NB Approach	*1,000*	905	-9.5%	*1,119*	962	**-14.0%**
SB Approach	*1,398*	1,393	-0.4%	*1,288*	1,307	1.5%
EB Approach	*1,521*	1,390	-8.6%	*2,001*	1,986	-0.7%
WB Approach	*2,024*	1,950	-3.7%	*1,523*	1,509	-0.9%
CR 419 @ Division Street						
NB Approach	*819*	815	-0.5%	*527*	526	-0.2%
SB Approach	*758*	759	0.1%	*1,163*	1,158	-0.4%
EB Approach	*1,360*	1,431	5.2%	*1,919*	1,954	1.8%
WB Approach	*1,825*	1,738	-4.8%	*1,543*	1,526	-1.1%
SR 434 @ Station Street						
EB Approach	*71*	70	-1.4%	*73*	71	-2.7%
SR 434 @ Franklin Street						
NB Approach	*1,264*	1,173	-7.2%	*1,398*	1,323	-5.4%
SB Approach	*1,514*	1,513	-0.1%	*1,514*	1,502	-0.8%
WB Approach	*910*	909	-0.1%	*530*	520	-1.9%
VOLUMES ENTERING SYSTEM	***8,347***	**8,029**		***8,397***	**8,180**	
TOTAL NETWORK DELAY			**308.61 vehicle-hours**			**315.99 vehicle-hours**
AVERAGE NETWORK SPEED			**12.14 MPH**			**12.32 MPH**
% VOLUMES ENTERING SYSTEM			**96.19%**			**97.42%**

Note:

1. Approach volumes are for all movements.

4.6 Recommended Improvements

Based on the evaluation of operating conditions for the Year 2030 Build Scenario, this study recommends the intersection and roadway geometry improvements under the Build Scenario to improve the traffic flow along SR 426/ CR 419 from Pine Avenue to Bishop Avenue. The proposed improvements are illustrated graphically in **Figure** 18 and listed in **Table** 16.

Table 16: Recommended Improvements by Design Year 2030

Segment/Intersection	Improvement
SR 426/CR 419	Additional EB and WB through lanes from Pine Avenue to just east of Bishop Avenue/Waverlee Woods Boulevard
SR 434	Allow NB movement at SR 434 and SR 426/CR 419. Widen SR 434 to four lanes near the intersection with SR 426/CR 419
SR 426 and Lake Jessup Avenue	Exclusive NB left turn lane
SR 434 and Franklin Street	Exclusive NB right turn lane.
SR 426/ CR 419 and SR 434	Additional EB & WB left turn lanes. Exclusive WB right turn lane.
CR 419 and Division Street/ Oviedo Boulevard	Additional SB left turn lane. Exclusive SB right turn lane
CR 419 and Station Street/CR 426	Disconnect the link between CR 426 and CR 419. Allow right-in right-out movement only along NB movement on Station Street
SR 434 and Station Street/garden Street	Allow right-in right-out movement only on EB and WB movements.

The recommended geometry shown in **Figure** 18 represents the optimum efficient geometry to sustain the projected traffic volumes within the SR 426/ CR 419 corridor through the design year 2030. The recommendations developed as part of study strived to achieve a balance between efficient traffic operations and right-of-way restrictions.

In addition to the above improvements, this study used the red time formula, to develop the storage length requirements at signalized intersections. **Table**s 17 and 18 lists the recommended storage lengths based on the red time formula for the design year 2030 AM and PM design hour conditions. The recommended storage lengths for the turn lanes are shown in yellow color and bold letters.

It should be noted that the specific lengths do not include the taper or deceleration distance (refer to FDOT index 301 to determine the appropriate specific taper and deceleration length). These storage lengths are recommended at locations where these lengths can be achieved. Actual design and implementation of these storage length requirements will be a function of design and the physical practicality of their construction.

TABLE 17

AM Design Hour Recommended Storage Length of Turn Lanes for Signalized Interscetions- Design Year 2030

Turning Movement	Turning Volume (Veh/Hr)	G/C Ratio	Total Cycle Length (Sec)	Number of Turn Lanes	Per Lane Volume (VPHPL)	Percent Trucks	Adjust. Factor	Calc'd Queue Length (ft)	Rec'd Queue Length (ft)
AM Design Hour									
INTERSECTION:		**SR 426/CR 419 & Pine Avenue**							
EB Left	179	0.630	100	1	179	4.00%	1.25	60	**100**
WB Left	66	0.600	100	1	66	4.00%	1.25	24	**100**
WB Right	172	0.570	100	1	172	4.00%	1.25	67	**100**
SB Left	189	0.140	100	1	189	1.00%	1.25	143	**150**
INTERSECTION:		**SR 426/CR 419 & Lake Jessup Avenue**							
EB Left	153	0.600	150	1	153	4.00%	1.25	83	100
WB Left	46	0.550	150	1	46	4.00%	1.25	28	**100**
NB Left	193	0.140	150	1	193	1.00%	1.25	218	**225**
SB Right	166	0.120	150	1	166	1.00%	1.25	192	**200**
INTERSECTION:		**SR 426/CR 419 & SR 434**							
EB Left	330	0.090	150	2	165	4.00%	1.25	203	225
WB Left	297	0.100	150	2	149	4.00%	1.25	181	**200**
WB Right	253	0.410	150	1	253	4.00%	1.25	202	**225**
NB Left	173	0.340	150	1	173	3.14%	1.25	153	**175**
SB Left	235	0.410	150	1	235	3.14%	1.25	186	200
INTERSECTION:		**SR 426/CR 419 & Division Street/Oveido Boulevard**							
EB Left	212	0.620	150	1	212	4.00%	1.25	109	**125**
EB Right	151	0.520	150	1	151	4.00%	1.25	98	**100**
WB Left	142	0.590	150	1	142	4.00%	1.25	79	**100**
NB Left	205	0.290	150	1	205	1.00%	1.25	191	**200**
SB Left	236	0.070	150	2	118	1.00%	1.25	144	150
SB Right	334	0.210	150	1	334	1.00%	1.25	347	**350**
INTERSECTION:		**SR 426/CR 419 & Stephen Avenue/Academy Avenue**							
WB Left	150	0.650	150	1	150	4.00%	1.25	71	**100**
INTERSECTION:		**SR 434 & Franklin Street**							
WB Right	572	0.400	150	1	572	1.00%	1.25	451	**475**
SB Left	300	0.740	150	1	300	3.14%	1.25	105	**125**
NB Right	330	0.550	150	1	330	3.14%	1.25	199	200

Notes:

1. Storage Lengths are calculated based on the following formula: $L = (A)(DHV)(1-G/C)(T+1)(F)/(3600/C)/(N)$

where:

L = storage length
DHV = design hour volume, in vph
G/C = ratio of green time to cycle length
T = percent of heavy vehicles
F = adjustment factor (1.25 to 2)
C = cycle length
N = # of lanes
A = Assumed 25 feet for automobile

2. Recommended storage lengths are shown in shade and bold letters.

3. A minimum storage length of 100 feet is assumed as the recommended length for calculated lengths of less than 100 feet.

TABLE 18

PM Desing Hour Recommended Storage Length of Turn Lanes for Signalized Interscetions- Design Year 2030

Turning Movement	Turning Volume (Veh/Hr)	G/C Ratio	Total Cycle Length (Sec)	Number of Turn Lanes	Per Lane Volume (VPHPL)	Percent Trucks	Adjust. Factor	Calc'd Queue Length (ft)	Rec'd Queue Length (ft)
PM Design Hour									
INTERSECTION:		**SR 426/CR 419 & Pine Avenue**							
EB Left	247	0.650	95	1	247	4.00%	1.25	74	100
WB Left	92	0.540	95	1	92	4.00%	1.25	36	100
WB Right	128	0.510	95	1	128	4.00%	1.25	54	100
SB Left	141	0.130	95	1	141	1.00%	1.25	102	125
INTERSECTION:		**SR 426/CR 419 & Lake Jessup Avenue**							
EB Left	262	0.560	150	1	262	4.00%	1.25	156	**175**
WB Left	58	0.450	150	1	58	4.00%	1.25	43	100
NB Left	143	0.160	150	1	143	1.00%	1.25	158	175
SB Right	120	0.140	150	1	120	1.00%	1.25	136	150
INTERSECTION:		**SR 426/CR 419 & SR 434**							
EB Left	403	0.140	150	2	202	4.00%	1.25	235	**250**
WB Left	281	0.090	150	2	141	4.00%	1.25	173	175
WB Right	156	0.370	150	1	156	4.00%	1.25	133	150
NB Left	188	0.320	150	1	188	3.14%	1.25	172	175
SB Left	288	0.400	150	1	288	3.14%	1.25	232	**250**
INTERSECTION:		**SR 426/CR 419 & Division Street/Oveido Boulevard**							
EB Left	290	0.590	150	1	290	4.00%	1.25	161	**175**
Eb Right	233	0.480	150	1	233	4.00%	1.25	164	**175**
WB Left	134	0.490	150	1	134	4.00%	1.25	93	100
NB Left	126	0.220	150	1	126	1.00%	1.25	129	150
SB Left	445	0.170	150	2	223	1.00%	1.25	243	**250**
SB Right	235	0.280	150	1	235	1.00%	1.25	223	225
INTERSECTION:		**SR 426/CR 419 & Stephen Avenue/Academy Avenue**							
WB Left	77	0.670	150	1	77	4.00%	1.25	34	100
INTERSECTION:		**SR 434 & Franklin Street**							
WB Right	291	0.390	150	1	291	1.00%	1.25	233	250
SB Left	400	0.780	150	1	400	3.14%	1.25	118	125
NB Right	484	0.560	150	1	484	3.14%	1.25	286	**300**

Notes:

1. Storage Lengths are calculated based on the following formula: $L = (A)(DHV)(1-G/C)(T+1)(F) / (3600/C) / (N)$

where:

L = storage length

DHV = design hour volume, in vph

G/C = ratio of green time to cycle length

T = percent of heavy vehicles

F = adjustment factor (1.25 to 2)

C = cycle length

N = # of lanes

A = Assumed 25 feet for automobile

2. Recommended storage lengths are shown in shade and bold letters.

3. A minimum storage length of 100 feet is assumed as the recommended length for calculated lengths of less than 100 feet.

5 APPENDICES

Appendix A *– Comments & Responses Documentation*

Appendix B *– Relevant Information from the 2008 PD&E Study, 2008 Phase 1 Study, and 2009 Phase 1A Study*

Appendix C *– SYNCHRO Intersection Analysis Outputs for Year 2010 Phase 1A No-Build & Build Scenarios*

Appendix D *– CORSIM Simulation Outputs for Year 2010 No-Build Scenario and Phase 1A Build Scenarios*

Appendix E *– SYNCHRO Intersection Analysis Outputs for Year 2010 Original Phase 1 Build Scenario (Source: Year 2008 Phase 1 Study) and Revised Phase 1 Build Scenario (Source: Current Study)*

Appendix F *- CORSIM Simulation Outputs for Year 2010 Phase 1 Build Scenario*

Appendix G *– SYNCHRO Intersection Analysis Outputs for Year 2010 & Year 2030 PD&E Re-Evaluation Build Conditions*

Appendix H *– CORSIM Simulation Outputs for Year 2030 PD&E Re-Evaluation Build Conditions*

Appendix A

Comments & Responses Documentation

From:	Blackadar, Brett
To:	Rajashekar Pemmanaboina
Cc:	Co-Co Wu; Babuji Ambikapathy; Srinivas Kandala
Subject:	RE: SR 426/CR 419 Traffic Analysis Study
Date:	Wednesday, September 01, 2010 9:14:06 AM

Raj,

I reviewed the analysis that you sent below. I think we should proceed with the single left turn scenario since the additional delay is not too significant.

Thanks for all of your work on this project.
Brett W. Blackadar, P.E.
Principal Engineer, Engineering Division
Seminole County Public Works Department
520 W. Lake Mary Blvd, Suite 200
Sanford, FL 32773
Office 407-665-5702
Fax 407-665-5789
BBlackadar@seminolecountyfl.gov
www.seminolecountyfl.gov

From: Rajashekar Pemmanaboina [mailto:rpemmanaboina@gmb.cc]
Sent: Monday, August 30, 2010 1:22 PM
To: Blackadar, Brett
Cc: Co-Co Wu; Babuji Ambikapathy; Srinivas Kandala
Subject: RE: SR 426/CR 419 Traffic Analysis Study

Dear Brett,

Please find attached the CORSIM and Synchro MOE summary tables for the scenarios with single and dual lefts at Franklin/SR 434. I also have attached the corresponding CORSIM simulation files for the revised scenario (single left at Franklin).

SYNCHRO:
To summarize, the overall intersection LOS at Franklin and SR 434 is still LOS D with single left at Franklin and SR 434 as in the scenario with dual lefts at this intersection. However, the LOS for the SB left movement has become LOS F in the scenario with single left compared to LOS E in the scenario with dual lefts. The delay increase is however not very drastic, because of the use of permissive+protected phase in the revised analysis.

CORSIM:
The CORSIM simulation shows a small increase in the overall network delay for the AM & PM peak hours in the revised analysis.

Please let me know if you have any questions.

Regards,

Raj

From: Co-Co Wu [mailto:cwu@inwoodinc.com]
Sent: Thursday, August 26, 2010 9:52 AM
To: Rajashekar Pemmanaboina
Cc: Babuji Ambikapathy; Srinivas Kandala; Blackadar, Brett
Subject: RE: SR 426/CR 419 Traffic Analysis Study

Raj,

Thanks so much. This means that you will need to submit the revised SYNCHRO and CORSIM analysis for Brett's review early next week.

Thanks.
Co-Co

From: Rajashekar Pemmanaboina [mailto:rpemmanaboina@gmb.cc]
Sent: August 26, 2010 9:47
To: Co-Co Wu
Cc: Babuji Ambikapathy; Srinivas Kandala; Blackadar, Brett
Subject: RE: SR 426/CR 419 Traffic Analysis Study

Dear Co-Co,

That should not be a problem. We will get you the final report by next Friday. Please let us know if you have any other questions.

Regards,

Please consider the environment before printing this email

Rajashekar Pemmanaboina P.E./ Traffic Analyst

GMB Engineers & Planners, Inc.
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Orlando, FL Gainesville, FL Ballston Spa, NY

Minority / Disadvantaged Business Enterprise

GMB ENGINEERS AND PLANNERS, INC.

From: Co-Co Wu [mailto:cwu@inwoodinc.com]
Sent: Thursday, August 26, 2010 9:43 AM
To: Rajashekar Pemmanaboina
Cc: Babuji Ambikapathy; Srinivas Kandala; Blackadar, Brett
Subject: RE: SR 426/CR 419 Traffic Analysis Study

Raj,

Please let me know when you can complete the analysis for Brett's review. Tom is scheduling a city council meeting to provide the results of this study. We do not have the time yet. It would be great if we can get the final report competed by next Friday.

Thanks.
Co-Co

From: Rajashekar Pemmanaboina [mailto:rpemmanaboina@gmb.cc]
Sent: August 24, 2010 4:47
To: Blackadar, Brett
Cc: Babuji Ambikapathy; Co-Co Wu; Srinivas Kandala
Subject: RE: SR 426/CR 419 Traffic Analysis Study

Dear Brett,

Thank you for the review. As discussed with Mr. Co-Co Wu, I will revise the 2030 SYNCHRO & CORSIM Network with a Single SB Left Turn Lane at the intersection of SR 434 and Franklin and will send you the revised analysis files as soon as possible. We will submit the final report after you approve the new analysis. As always I appreciate your time in this matter. Please feel free to call or email at any time, if you have any other questions.

Have a good day.

Regards,

Please consider the environment before printing this email

Rajashekar Pemmanaboina P.E. (AZ) / Traffic Engineer

GMB Engineers & Planners, Inc.
2602 E. Livingston Street, Orlando, Fl 32829
Phone: 407-898-5424 X 238
Email: rpemmanaboina@gmb.cc

From: Blackadar, Brett [mailto:BBlackadar@seminolecountyfl.gov]
Sent: Tuesday, August 24, 2010 2:54 PM
To: Rajashekar Pemmanaboina
Cc: Babuji Ambikapathy; Co-Co Wu; Srinivas Kandala
Subject: RE: SR 426/CR 419 Traffic Analysis Study

I apologize for the delay in responding to your email below. I have reviewed your responses and the additional CORSIM files and I don't have any additional comments. I appreciate the detailed responses to my comments.

Have a great week,
Brett W. Blackadar, P.E.

Principal Engineer, Engineering Division
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Office 407-665-5702
Fax 407-665-5789
BBlackadar@seminolecountyfl.gov
www.seminolecountyfl.gov

From: Rajashekar Pemmanaboina [mailto:rpemmanaboina@gmb.cc]
Sent: Wednesday, August 11, 2010 3:10 PM
To: Blackadar, Brett
Cc: Babuji Ambikapathy; Co-Co Wu; Srinivas Kandala
Subject: RE: SR 426/CR 419 Traffic Analysis Study

Dear Blackadar,

Please find attached the document containing our responses to your comments dated August 9, 2010 for the SR 426 Traffic Study. I am attaching the Year 2010 No-Build Scenario CORSIM files and the revised 2010 AM Peak Phase 1A Build Scenario 1 CORSIM file for your use. I have attached the No-Build Scenario figures with the Responses Memo.

Thanks for giving us the opportunity to work with you on this project and I hope we have answered all your concerns. Should you have any questions, please feel free to call or email me at any time.

Regards,

Please consider the environment before printing this email

Rajashekar Pemmanaboina P.E. (AZ) / Traffic Engineer

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Phone: 407-898-5424 X 238
Email: rpemmanaboina@gmb.cc

From: Blackadar, Brett [mailto:BBlackadar@seminolecountyfl.gov]
Sent: Monday, August 09, 2010 2:43 PM
To: Co-Co Wu; Rajashekar Pemmanaboina
Cc: Srinivas Kandala; Babuji Ambikapathy; Radzai, Thomas
Subject: RE: SR 426/CR 419 Traffic Analysis Study

Yes, that is what I meant.

Thanks for clarifying.
Brett W. Blackadar, P.E.
Principal Engineer, Engineering Division
Seminole County Public Works Department
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From: Co-Co Wu [mailto:cwu@inwoodinc.com]
Sent: Monday, August 09, 2010 2:21 PM
To: Blackadar, Brett; Rajashekar Pemmanaboina
Cc: Srinivas Kandala; bambikapathy@gmb.cc; Radzai, Thomas
Subject: RE: SR 426/CR 419 Traffic Analysis Study

Brett,

Please clarify comment No. 7. Did you mean existing CR 426 right out and Railroad Street right-in?

Also, please give me a call. I would like to discuss with you on the operations of the round-about.

Thanks.
Co-Co

From: Blackadar, Brett [mailto:BBlackadar@seminolecountyfl.gov]
Sent: August 09, 2010 10:34
To: Rajashekar Pemmanaboina
Cc: Co-Co Wu; Srinivas Kandala; "Babuji Ambikapathy" <bambikapathy@gmb.cc>; Radzai, Thomas
Subject: RE: SR 426/CR 419 Traffic Analysis Study

Good morning,

I finally got around to finishing my review of the SR 426/CR 419 Traffic Analysis and Simulation Study and the associated CORSIM files. I have the following comments:

1. On pages 5 and 6 of the report, the third bullet states that SR 434 "will remain as a two-lane, two-way road." This should state "will be revised to a …." instead.
2. Tables 1 and 2 compare Build Scenario 1 and 2 with the No-Build condition. However, there are no associated figures that show the No-Build turning volumes. I think that these No-Build figures would be helpful to compare to figures 5-8. Also, I did not receive the CORSIM 2010 No-Build files. Can you email these to me as well? In addition, the appendix to the report does not have the 2010 No-Build sheets either.
3. Tables 1 and 2 have a "N/A" for the intersection of CR 419 and Station Street/CR 426 since the signal will be removed and this intersection will function as a right-in/right-out intersection. It seems to make sense to include the unsignalized intersection delay in this table.
4. Based on the CORSIM analysis, the SB movement at the intersection of CR 419/Station St seems to have significant delay in the 2010 build scenario 1 but not build scenario 2. This doesn't seem to make too much sense since they have the same volume in both scenarios.

5. Tables 3, 4 and 5 shows that the 2010 AM and PM No-Build scenarios have a total network delay of about 300 vehicle-hours while the AM and PM Build Scenarios 1 and 2 have a total network delay closer to 100 vehicle-hours. It doesn't seem to make sense that the No-Build would three times the delay as scenarios 1 and 2 (since no additional lanes of capacity are really being added).
6. In the section regarding the phase 1 analysis, I think it would be a good idea to include a comparison of the new phase 1 (without the CR 426 re-alignment) to the old phase 1. The analysis could be displayed in the same format as Table 6.
7. Why was the SB right-in/right-out connection at CR 419 and Station St removed as part of the 2030 analysis?

8. I compared the results in the updated Table 15 that you sent Co-Co and I with the original 2030 analysis from a couple of years ago. It appears that the total network delay has increase by about 40% in both the AM and PM peak periods. Why would the delay increase this much when the realignment (and associated signalized intersection) is removed from the analysis? Please include a section in the report that discussed the comparison of the new results with the previous study.

Please let me know if you have any questions regarding these comments.
Brett W. Blackadar, P.E.
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From: Rajashekar Pemmanaboina [mailto:rpemmanaboina@gmb.cc]
Sent: Thursday, July 22, 2010 10:04 AM
To: Blackadar, Brett
Cc: Co-Co Wu; Srinivas Kandala
Subject: RE: SR 426/CR 419 Traffic Analysis Study

Dear Blackadar,

In Appendix A of the Draft Report that we had sent last week, we mistakenly included pages from the Draft Version of Phase 1 Report dated May 2008. The Final Version of Phase 1 report was submitted in June 2008 and am attaching a copy of that report with this email.

Also attached are the CORSIM files for the new traffic study. I apologize for any confusion that this might have caused. I will revise the new traffic study once I get all the comments. Should you need anything else, please feel free to contact me at any time.

Have a good day.

Regards,

Rajashekar Pemmanaboina P.E. (AZ) / Traffic Engineer

GMB Engineers & Planners, Inc.
2602 E. Livingston Street, Orlando, Fl 32829
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Email: rpemmanaboina@gmb.cc

From: Blackadar, Brett [mailto:BBlackadar@seminolecountyfl.gov]
Sent: Wednesday, July 21, 2010 4:46 PM
To: Rajashekar Pemmanaboina
Cc: Co-Co Wu
Subject: RE: SR 426/CR 419 Traffic Analysis Study

Raja,

Can you please email me copies of the CORSIM files for the new traffic study you just sent me?

Also, I can't find the Draft Technical Memorandum for the SR 426/CR 419 Phase I Design Traffic Study (dated May 2008). I would like to compare that analysis to the current one (only select pages are in the appendix of your new report). Is it possible for your to email a copy of that report in .pdf format?

Thanks so much for your help,
Brett W. Blackadar, P.E.
Principal Engineer, Engineering Division
Seminole County Public Works Department
520 W. Lake Mary Blvd, Suite 200
Sanford, FL 32773
Office 407-665-5702
Fax 407-665-5789
BBlackadar@seminolecountyfl.gov
www.seminolecountyfl.gov

From: Rajashekar Pemmanaboina [mailto:rpemmanaboina@gmb.cc]
Sent: Friday, July 16, 2010 12:01 PM
To: Blackadar, Brett; Co-Co Wu
Cc: Babuji Ambikapathy; Srinivas Kandala
Subject: SR 426/CR 419 Traffic Analysis Study

Dear Blackadar and Wu,

Just to let you know, We sent each of you a copy of the Draft Report for the SR 426/ CR419 Traffic Analysis Study (Phase 1A, Phase 1, and PD&E Re-Evaluation) this morning. Please let us know if you need anything else.

Regards,

Rajashekar Pemmanaboina P.E. (AZ) / Traffic Engineer

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and Local Officials and employees are public records available to the public and media upon request. Seminole County policy does not differentiate between personal and business emails. E-mail sent on the County system will be considered public and will only be withheld from disclosure if deemed confidential pursuant to State Law.****

****Florida has a very broad Public Records Law. Virtually all written communications to or from State and Local Officials and employees are public records available to the public and media upon request. Seminole County policy does not differentiate between personal and business emails. E-mail sent on the County system will be considered public and will only be withheld from disclosure if deemed confidential pursuant to State Law.****

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GMB ENGINEERS & PLANNERS, INC.

TO: Brett W. Blackadar, P.E.
Principal Engineer, Engineering Division
Seminole County Public Works Department
520 W. Lake Mary Blvd, Suite 200
Sanford, FL 32773

FROM: Rajashekar Pemmanaboina E.I.,

DATE: August 11, 2010

SUBJECT: Responses to Comments - SR 426/CR 419 Design Traffic and Simulation Study (GMB Project No: 07-106.05)

Dear Mr. Blackadar,

The following are GMB's responses to your comments received on August 09, 2010 for the Draft SR 426/CR 419 Traffic Analysis and Simulation Study (submitted on July 16, 2010).

Comment 1. ***On pages 5 and 6 of the report, the third bullet states that SR 434 "will remain as a two-lane, two-way road." This should state "will be revised to a …." instead.***

Response: This comment is acknowledged and necessary changes will be incorporated in the Report.

Comment 2. ***Tables 1 and 2 compare Build Scenario 1 and 2 with the No-Build condition. However, there are no associated figures that show the No-Build turning volumes. I think that these No-Build figures would be helpful to compare to figures 5-8. Also, I did not receive the CORSIM 2010 No-Build files. Can you email these to me as well? In addition, the appendix to the report does not have the 2010 No-Build sheets either.***

Response: Figures related to the year 2010 No-Build Scenario analysis performed as part of the old Phase 1A Study was included in Appendix A. For convenience, we will add the No-Build Figures to the report. The Synchro and CORSIM files and Figures for the No-Build Scenario (AM & PM) are enclosed with this memo for your use.

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Fax: 518.885.5348

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Comment 3. ***Tables 1 and 2 have a "N/A" for the intersection of CR 419 and Station Street/CR 426 since the signal will be removed and this intersection will function as a right-in/right-out intersection. It seems to make sense to include the unsignalized intersection delay in this table.***

Response: This comment is acknowledged and necessary changes will be incorporated in the Report.

Comment 4. ***Based on the CORSIM analysis, the SB movement at the intersection of CR 419/Station St seems to have significant delay in the 2010 build scenario 1 but not build scenario 2. This doesn't seem to make too much sense since they have the same volume in both scenarios.***

Response: The comment is acknowledged. The CORSIM analysis for Build Scenario-1 for the 2010 AM design hour was revised with improved offset values. With the revised analysis, the overall network delay is 108.44 vehicle-hours and the average network speed is 14.27 MPH during AM design hour. Now, the delay (or the percentage of vehicles entering the intersection via SB direction) for the SB movement at CR 419 and Station Street for Build Scenarios 1 and 2 is comparable. The corresponding 2010 AM Design hour CORSIM file for Build Secanrio-1 is enclosed. The table (Table 1) showing the revised results is provided in the next page.

TABLE 1
Year 2010 AM Design Hour CORSIM Model MOEs

Roadway Intersections	*Build Scenario 1*			Build Scenario 2		
	Design Volume (vehicles)	**Model Volume (vehicles)**	**Design Model % Diff**	***Design Volume (vehicles)***	**Model Volume (vehicles)**	**Design Model % Diff**
SR 426 @ SR 434						
NB Approach	*573*	578	0.9%	*573*	567	-1.0%
SB Approach	*750*	760	1.3%	*681*	670	-1.6%
EB Approach	*814*	810	-0.5%	*814*	808	-0.7%
WB Approach	*983*	925	-5.9%	*983*	928	-5.6%
CR 419 @ CR 426/ Station Street/ Railroad Street						
NB Approach	*62*	**55**	**-11.3%**	*62*	**55**	**-11.3%**
SB Approach	*194*	**174**	**-10.3%**	*194*	181	-6.7%
CR 419 @ Division Street						
NB Approach	*369*	362	-1.9%	*369*	365	-1.1%
SB Approach	*322*	320	-0.6%	*386*	384	-0.5%
EB Approach	*757*	744	-1.7%	*688*	659	-4.2%
WB Approach	*1,058*	1,066	0.8%	*1,058*	1,058	0.0%
SR 434 @ Station Street						
EB Approach	*61*	59	-3.3%	*61*	59	-3.3%
SR 434 @ Railroad Street						
WB Approach	*74*	**54**	**-27.0%**	*74*	**55**	**-25.7%**
SR 434 @ Franklin Street						
NB Approach	*696*	721	3.6%	*696*	729	4.7%
SB Approach	*933*	932	-0.1%	*933*	937	0.4%
WB Approach	*670*	663	-1.0%	*670*	661	-1.3%
VOLUMES ENTERING SYSTEM	***4,739***	***4,731***		***4,803***	***4,780***	
TOTAL NETWORK DELAY			**108.44 vehicle-hours**			**96.13 vehicle-hours**
AVERAGE NETWORK SPEED			**14.27 MPH**			**14.97 MPH**
% VOLUMES ENTERING SYSTEM		**99.83%**			**99.52%**	

Comment 5. Tables 3, 4 and 5 shows that the 2010 AM and PM No-Build scenarios have a total network delay of about 300 vehicle-hours while the AM and PM Build Scenarios 1 and 2 have a total network delay closer to 100 vehicle-hours. It does not seem to make sense that the No-Build would three times the delay as scenarios 1 and 2 (since no additional lanes of capacity are really being added).

Response: The No-Build Scenario has three very closely spaced signalized intersections in the study area. It should be noted that the existing signal timings were used for the 2010 No-Build Scenario. This situation with the projected 2010 volumes created over-saturated traffic conditions, which in-turn created high intersection delays. The intersection delays are compounded because of the residual queues, spillovers, and spillbacks during the peak hour.

However, in the Build Scenarios the signalized intersection at CR 419 and Station Street is converted to an unsignalized intersection allowing only right-in right-out movements. This modification removed a major congestion hotspot and helped improve the overall network traffic flow.

Moreover, SYCNHRO results also show delay results similar to the CORSIM results. Below is a table (Table 2) illustrating the Synchro Delay times for the No-Build and Build Scenarios for the AM peak hour. It is important to clarify that the Synchro Intersection Delay Results shown in the report were HCM based results. This was done to be consistent with the results reported in the old Phase 1A Study. The Synchro Files for the No-Build Scenario are enclosed with this memo.

TABLE 2

Year 2010 AM Design Hour Intersection LOS Analysis Results Comparison for Phase 1A

Intersection	No Build Scenario			Build Scenario 1			Build Scenario 2		
	Delay (sec)	LOS	V/C Ratio	Delay (sec)	LOS	V/C Ratio	Delay (sec)	LOS	V/C Ratio
SR 426/ CR 419 @									
SR 434	375.3	F	2.21	79.3	E	1.14	75.6	E	1.16
Station Street/CR 426	212.1	F	1.44	NA	NA	NA	NA	NA	NA
Division Street/Oviedo Boulevard	57.3	E	1.08	70.2	E	1.27	69.9	E	1.07

Comment 6. ***In the section regarding the phase 1 analysis, I think it would be a good idea to include a comparison of the new phase 1 (without the CR 426 re-alignment) to the old phase 1. The analysis could be displayed in the same format as Table 6.***

Response: The comment is acknowledged and the necessary changes will be incorporated in the Report.

Comment 7. ***Why was the SB right-in/right-out connection at CR 419 and Station St removed as part of the 2030 analysis?***

Response: Based on the conversation between Mr. Co-Co Wu (Inwood) and Mr. Brett Blackadar (Seminole County), it was confirmed that there would not be a connection between CR 426 and CR 419 in the 2030 Build Conditions.

Comment 8. ***I compared the results in the updated Table 15 that you sent Co-Co and I with the original 2030 analysis from a couple of years ago. It appears that the total network delay has increase by about 40% in both the AM and PM peak periods. Why would the delay increase this much when the realignment (and associated signalized intersection) is removed from the analysis? Please include a section in the report that discussed the comparison of the new results with the previous study.***

Response: In the revised 2030 Build Conditions (PD&E Re-evaluation), CR 426 no longer intersects with CR 419. Because of this condition, we had to divert the traffic originally using the intersection of CR 419 @ Realigned CR 426 to the intersections of SR 434 @ SR 426/CR 419 and CR 419 @ Division Street. Especially, the EB Left Turn Movement and SB Right Turn Movement increased at these two intersections in the Revised Build Scenario. Because of the new build geometry, there was also an increase in traffic volumes at Franklin and SR 434 (NB right and WB left).

The increased volumes at these three intersections had created saturated traffic conditions (may not be over-saturated) in the study area. The situation created from diverting traffic from Realigned CR 426 to other intersections can be seen in SYNCHRO results too. Especially during the 2030 PM peak hour, the original 2030 Synchro analysis reported a delay of 66.0 seconds/vehicle whereas the revised 2030 analysis reported a delay of 77.0 seconds/vehicle.

A final note: although additional turn lanes were added to handle the increased traffic volumes in the revised analysis, because of the right-of-way restrictions, we did not recommend NB & SB right turns at the intersection of SR 434 and SR 426/CR 419.

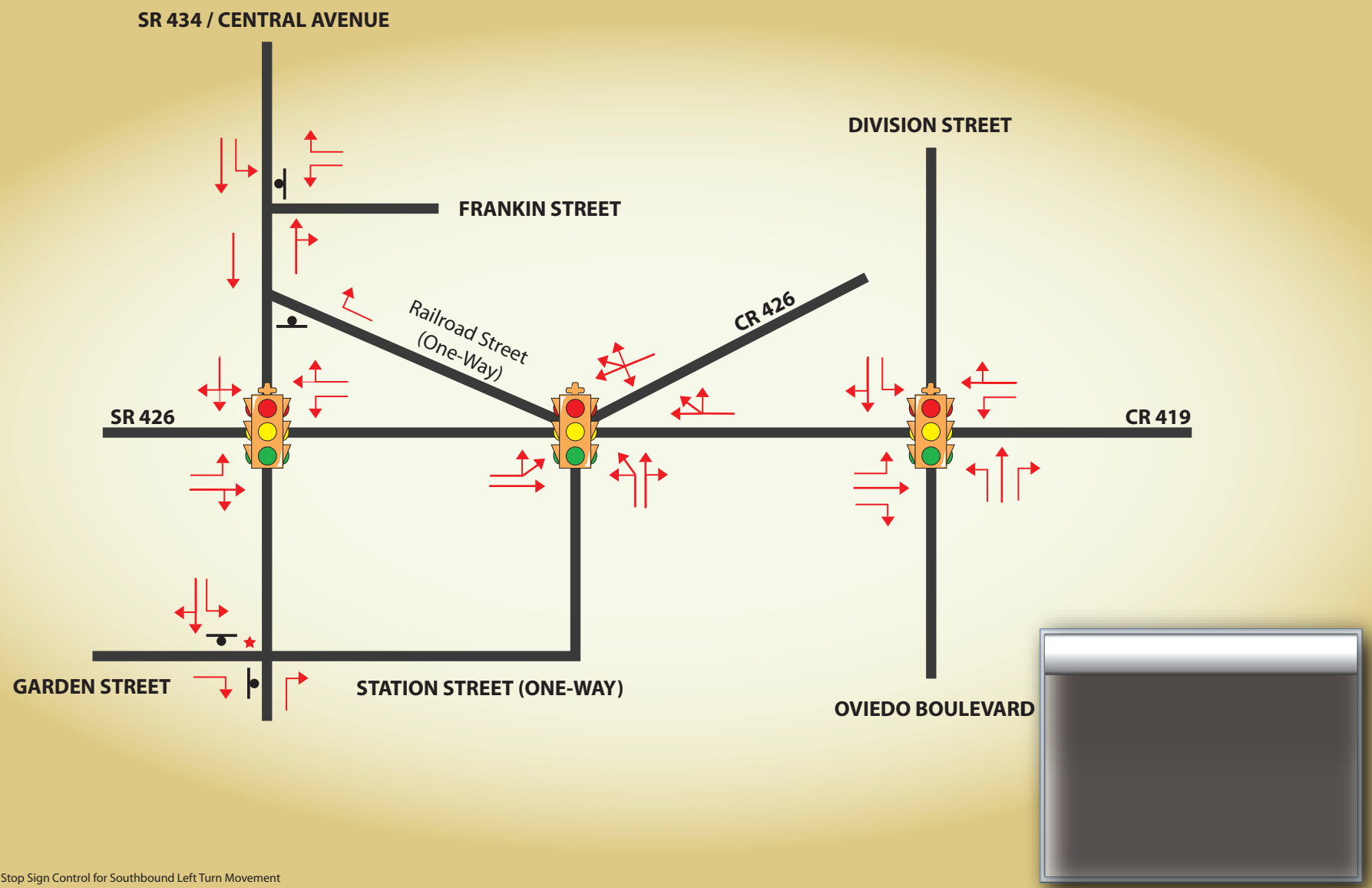
Thanks for giving us the opportunity to assist you in this project. If you have any questions or concerns, please contact me at 407-898-5424, ext. 238.

Attachments:

- Year 2010 No-Build AM & PM Synchro Output Sheets from Old Phase 1A Study
- Year 2010 No-Build Figures: Geometry and Turning Movement Volumes from Old Phase 1A Study

Date Created: 11/16/2007

Project Number: 07-106.01



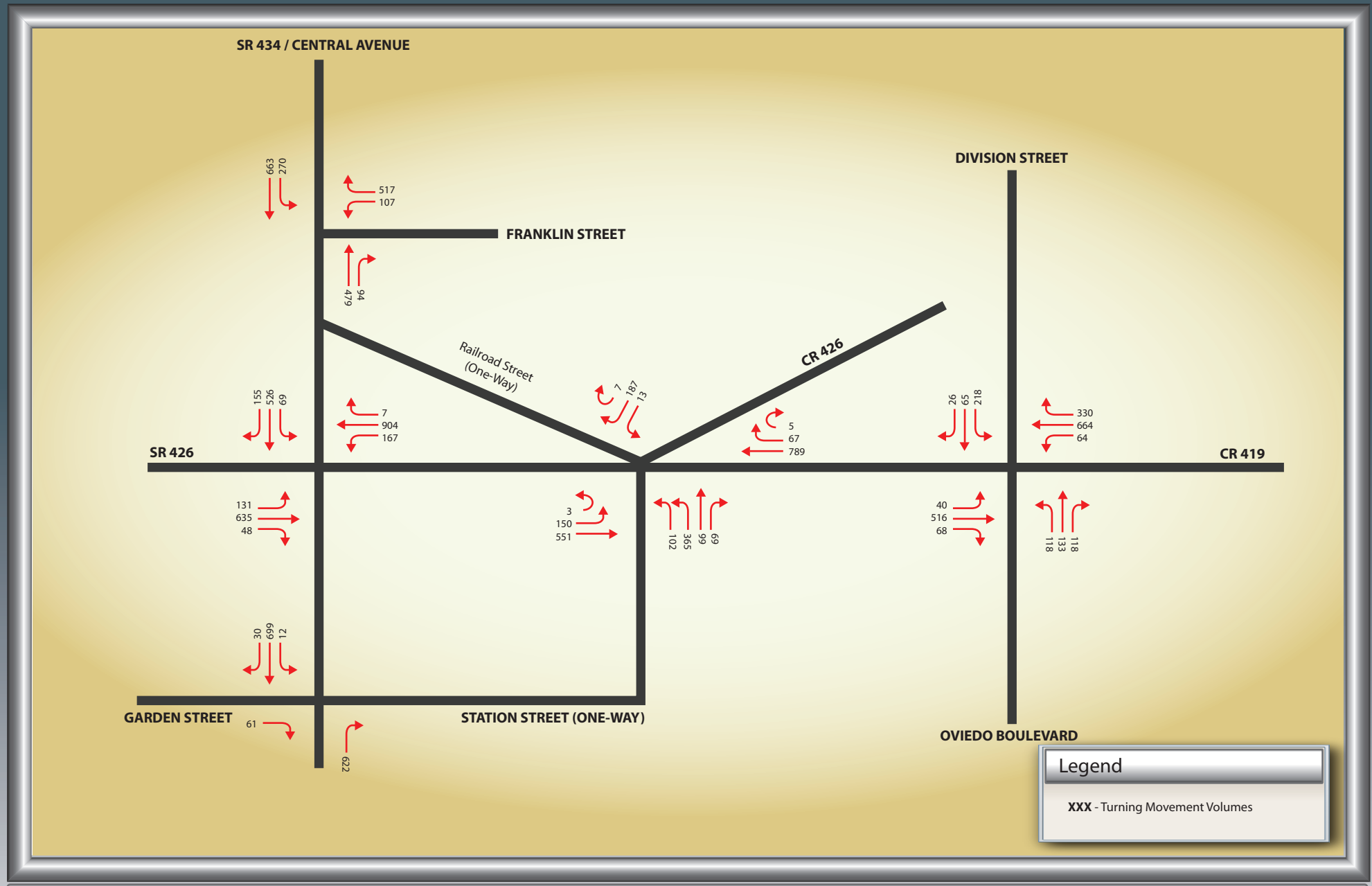
Prepared for: Seminole County
Prepared with: Inwood Consulting Engineers
Prepared by: GMB Engineers & Planners, Inc.

SR 426 / CR 419 Phase 1A Design Traffic Study

Figure 6
Opening Year 2010 No Build Geometry

Date Created: 11/16/2007

Project Number: 07-106.01



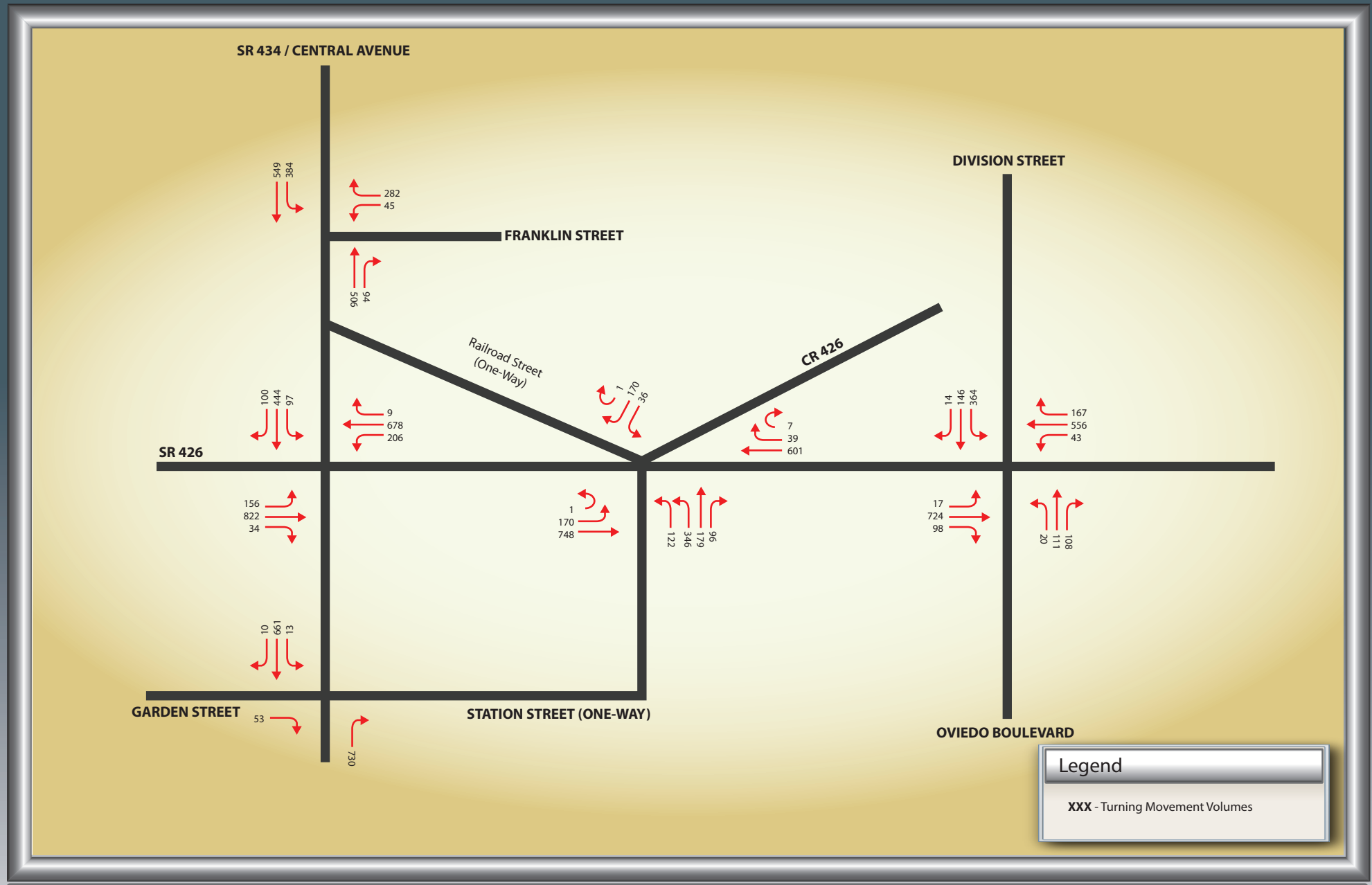
Prepared for: Seminole County
Prepared with: Inwood Consulting Engineers
Prepared by: GMB Engineers & Planners, Inc.

SR 426 / CR 419 Phase 1A Design Traffic Study

Figure 2
Opening Year 2010 AM Design Hour Turning Movement Volumes - No Build Scenario

Date Created: 11/16/2007

Project Number: 07-106.01



Prepared for: Seminole County
Prepared with: Inwood Consulting Engineers
Prepared by: GMB Engineers & Planners, Inc.

SR 426 / CR 419 Phase 1A Design Traffic Study

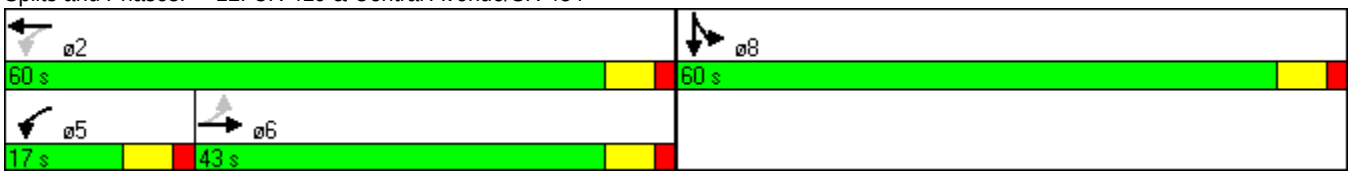
Figure 3
Opening Year 2010 PM Design Hour Turning Movement Volumes - No Build Scenario

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	131	635	48	167	904	7	0	0	0	69	526	155
Satd. Flow (prot)	1736	1809	0	1736	1825	0	0	0	0	0	1784	0
Flt Permitted	0.108			0.092							0.995	
Satd. Flow (perm)	197	1809	0	168	1825	0	0	0	0	0	1784	0
Satd. Flow (RTOR)		3									14	
Lane Group Flow (vph)	135	704	0	172	939	0	0	0	0	0	773	0
Turn Type	Perm			pm+pt						Split		
Protected Phases		6		5	2					8	8	
Permitted Phases	6			2								
Total Split (s)	43.0	43.0	0.0	17.0	60.0	0.0	0.0	0.0	0.0	60.0	60.0	0.0
Total Lost Time (s)	6.5	6.5	4.0	6.5	6.5	4.0	4.0	4.0	4.0	6.5	6.5	4.0
Act Effct Green (s)	36.9	36.9		53.8	53.8						53.2	
Actuated g/C Ratio	0.31	0.31		0.45	0.45						0.44	
v/c Ratio	2.21	1.26		0.82	1.15						0.97	
Control Delay	625.2	167.1		42.6	86.8						57.5	
Queue Delay	0.0	38.6		1.4	155.1						664.4	
Total Delay	625.2	205.7		44.0	242.0						721.9	
LOS	F	F		D	F						F	
Approach Delay		273.2			211.3						721.9	
Approach LOS		F			F						F	

Intersection Summary

Cycle Length: 120
Actuated Cycle Length: 120
Offset: 10 (8%), Referenced to phase 2:WBTL and 6:EBTL, Start of Yellow
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 2.21
Intersection Signal Delay: 375.3 Intersection LOS: F
Intersection Capacity Utilization 116.0% ICU Level of Service H
Analysis Period (min) 15

Splits and Phases: 12: CR 419 & Central Avenue/SR 434

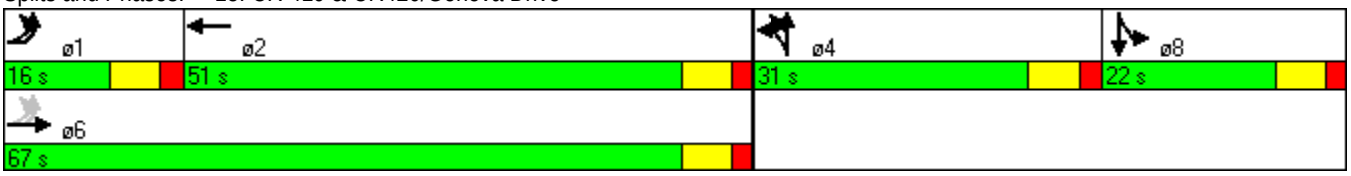


Lane Group	EBL2	EBL	EBT	WBT	WBR	WBR2	NBL2	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Volume (vph)	3	150	551	789	67	5	102	365	99	69	13	0
Satd. Flow (prot)	0	1736	1827	1807	0	0	0	1736	1715	0	0	1621
Flt Permitted		0.078						0.950				0.997
Satd. Flow (perm)	0	142	1827	1807	0	0	0	1736	1715	0	0	1621
Satd. Flow (RTOR)									26			1
Lane Group Flow (vph)	0	166	599	936	0	0	0	508	183	0	0	225
Turn Type	pm+pt	pm+pt					Split	Split			Split	
Protected Phases	1	1	6	2			4	4	4		8	8
Permitted Phases	6	6										
Total Split (s)	16.0	16.0	67.0	51.0	0.0	0.0	31.0	31.0	31.0	0.0	22.0	22.0
Total Lost Time (s)	6.5	6.5	6.5	6.5	4.0	4.0	6.5	6.5	6.5	4.0	6.5	6.5
Act Effct Green (s)		60.5	60.5	44.5				24.5	24.5			15.5
Actuated g/C Ratio		0.50	0.50	0.37				0.20	0.20			0.13
v/c Ratio		0.84	0.65	1.40				1.44	0.49			1.07
Control Delay		54.2	29.4	219.2				247.3	41.5			131.6
Queue Delay		0.0	124.0	29.3				0.0	0.0			260.5
Total Delay		54.2	153.4	248.5				247.3	41.5			392.1
LOS		D	F	F				F	D			F
Approach Delay			131.9	248.5					192.8			392.1
Approach LOS			F	F					F			F

Intersection Summary

Cycle Length: 120
Actuated Cycle Length: 120
Offset: 0 (0%), Referenced to phase 2:WBT and 6:EBTL, Start of Yellow
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.44
Intersection Signal Delay: 212.1 — Intersection LOS: F
Intersection Capacity Utilization 114.6% — ICU Level of Service H
Analysis Period (min) 15

Splits and Phases: 15: CR 419 & CR426/Geneva Drive



Lane Group	SBR	SBR2
Lane Configurations		
Volume (vph)	187	7
Satd. Flow (prot)	0	0
Flt Permitted		
Satd. Flow (perm)	0	0
Satd. Flow (RTOR)		
Lane Group Flow (vph)	0	0
Turn Type		
Protected Phases		
Permitted Phases		
Total Split (s)	0.0	0.0
Total Lost Time (s)	4.0	4.0
Act Effct Green (s)		
Actuated g/C Ratio		
v/c Ratio		
Control Delay		
Queue Delay		
Total Delay		
LOS		
Approach Delay		
Approach LOS		

Intersection Summary

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	40	516	68	64	664	330	118	133	118	218	65	26
Satd. Flow (prot)	1736	1827	1553	1736	1736	0	1736	1827	1553	1736	1750	0
Flt Permitted	0.060			0.336			0.693			0.372		
Satd. Flow (perm)	110	1827	1553	614	1736	0	1266	1827	1553	680	1750	0
Satd. Flow (RTOR)			74		33				128		13	
Lane Group Flow (vph)	43	561	74	70	1081	0	128	145	128	237	99	0
Turn Type	pm+pt		Perm	pm+pt			pm+pt		Perm	pm+pt		
Protected Phases	1	6		5	2		7	4		3	8	
Permitted Phases	6		6	2			4		4	8		
Total Split (s)	12.0	73.0	73.0	12.0	73.0	0.0	15.0	17.0	17.0	18.0	20.0	0.0
Total Lost Time (s)	6.5	6.5	6.5	6.5	6.5	4.0	6.5	6.5	6.5	6.5	6.5	4.0
Act Effct Green (s)	70.9	66.6	66.6	70.9	66.6		19.0	10.5	10.5	25.1	13.6	
Actuated g/C Ratio	0.60	0.57	0.57	0.60	0.57		0.16	0.09	0.09	0.21	0.12	
v/c Ratio	0.30	0.54	0.08	0.17	1.08		0.54	0.88	0.50	0.95	0.46	
Control Delay	13.3	19.0	3.0	8.6	79.8		47.8	99.8	16.1	88.9	50.9	
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Delay	13.3	19.0	3.0	8.6	79.8		47.8	99.8	16.1	88.9	50.9	
LOS	B	B	A	A	E		D	F	B	F	D	
Approach Delay		16.9			75.5			56.5			77.7	
Approach LOS		B			E			E			E	

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 117.6	
Control Type: Semi Act-Uncoord	
Maximum v/c Ratio: 1.08	
Intersection Signal Delay: 57.3	Intersection LOS: E
Intersection Capacity Utilization 91.7%	ICU Level of Service F
Analysis Period (min) 15	

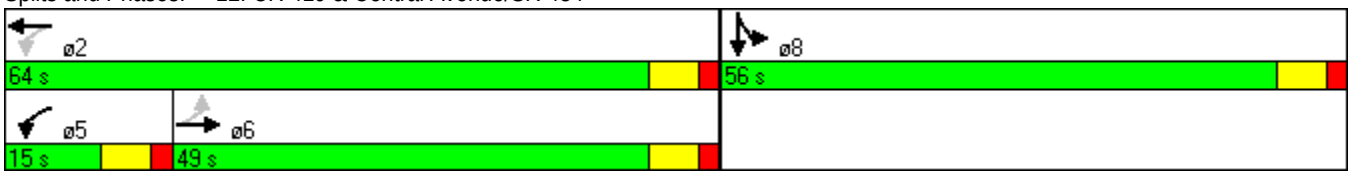
Splits and Phases: 17: CR 419 & Division street

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	156	822	34	206	678	9	0	0	0	97	444	100
Satd. Flow (prot)	1736	1816	0	1736	1823	0	0	0	0	0	1791	0
Flt Permitted	0.257			0.082							0.992	
Satd. Flow (perm)	470	1816	0	150	1823	0	0	0	0	0	1791	0
Satd. Flow (RTOR)		2			1						9	
Lane Group Flow (vph)	159	874	0	210	701	0	0	0	0	0	654	0
Turn Type	Perm			pm+pt						Split		
Protected Phases		6		5	2					8	8	
Permitted Phases	6			2								
Total Split (s)	49.0	49.0	0.0	15.0	64.0	0.0	0.0	0.0	0.0	56.0	56.0	0.0
Total Lost Time (s)	6.5	6.5	4.0	6.5	6.5	4.0	4.0	4.0	4.0	6.5	6.5	4.0
Act Effct Green (s)	42.5	42.5		59.5	59.5						47.5	
Actuated g/C Ratio	0.35	0.35		0.50	0.50						0.40	
v/c Ratio	0.96	1.36		0.99	0.77						0.92	
Control Delay	99.5	203.3		59.6	26.3						52.6	
Queue Delay	0.0	29.6		0.0	181.3						0.6	
Total Delay	99.5	232.9		59.6	207.6						53.2	
LOS	F	F		E	F						D	
Approach Delay		212.4			173.5						53.2	
Approach LOS		F			F						D	

Intersection Summary

Cycle Length: 120
Actuated Cycle Length: 120
Offset: 118 (98%), Referenced to phase 2:WBTL and 6:EBTL, Start of Yellow
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.36
Intersection Signal Delay: 158.7 Intersection LOS: F
Intersection Capacity Utilization 107.8% ICU Level of Service G
Analysis Period (min) 15

Splits and Phases: 12: CR 419 & Central Avenue/SR 434

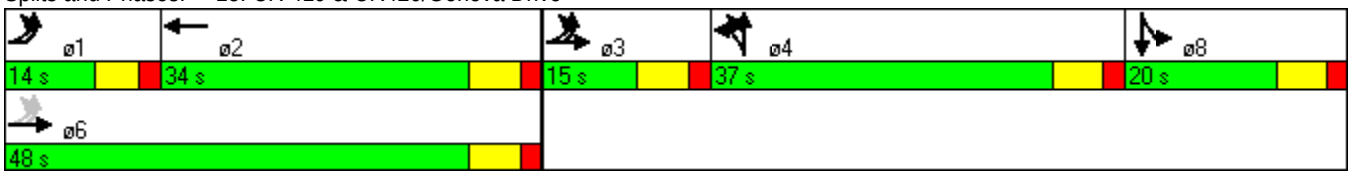


Lane Group	EBL2	EBL	EBT	WBT	WBR	WBR2	NBL2	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Volume (vph)	1	170	748	601	39	7	122	346	179	96	36	0
Satd. Flow (prot)	0	1736	1827	1810	0	0	0	1736	1732	0	0	1639
Flt Permitted		0.119						0.950				0.991
Satd. Flow (perm)	0	217	1827	1810	0	0	0	1736	1732	0	0	1639
Satd. Flow (RTOR)									22			
Lane Group Flow (vph)	0	182	796	687	0	0	0	498	292	0	0	220
Turn Type	custom	custom					Split	Split			Split	
Protected Phases	1 3	1 3	3 6	2			4	4	4		8	8
Permitted Phases	6	6										
Total Split (s)	29.0	29.0	63.0	34.0	0.0	0.0	37.0	37.0	37.0	0.0	20.0	20.0
Total Lost Time (s)	4.0	6.0	6.5	4.5	4.0	4.0	4.0	4.5	4.5	4.0	4.0	4.5
Act Effct Green (s)		51.0	56.5	29.5				32.5	32.5			15.5
Actuated g/C Ratio		0.42	0.47	0.25				0.27	0.27			0.13
v/c Ratio		0.59	0.93	1.54				1.06	0.60			1.04
Control Delay		17.9	12.5	288.4				100.6	41.1			123.0
Queue Delay		0.0	124.1	29.2				153.2	0.0			631.0
Total Delay		17.9	136.6	317.6				253.7	41.1			754.0
LOS		B	F	F				F	D			F
Approach Delay			114.6	317.6					175.1			754.0
Approach LOS			F	F					F			F

Intersection Summary

Cycle Length: 120
Actuated Cycle Length: 120
Offset: 0 (0%), Referenced to phase 2:WBT and 6:EBTL, Start of Yellow
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.54
Intersection Signal Delay: 237.2 — Intersection LOS: F
Intersection Capacity Utilization 98.6% — ICU Level of Service F
Analysis Period (min) 15

Splits and Phases: 15: CR 419 & CR426/Geneva Drive



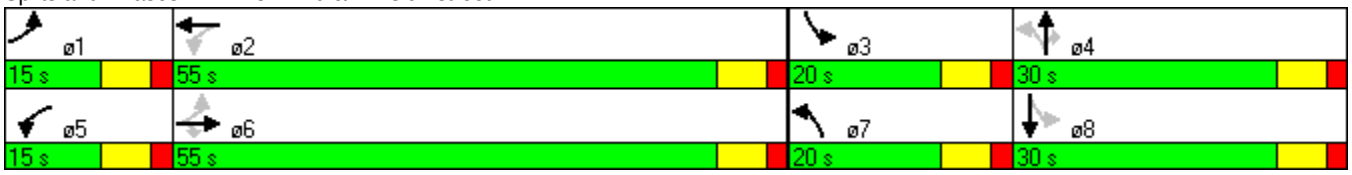
Lane Group	SBR	SBR2	ø1	ø3	ø6
Lane Configurations					
Volume (vph)	170	1			
Satd. Flow (prot)	0	0			
Flt Permitted					
Satd. Flow (perm)	0	0			
Satd. Flow (RTOR)					
Lane Group Flow (vph)	0	0			
Turn Type					
Protected Phases			1	3	6
Permitted Phases					
Total Split (s)	0.0	0.0	14.0	15.0	48.0
Total Lost Time (s)	4.0	4.0			
Act Effct Green (s)					
Actuated g/C Ratio					
v/c Ratio					
Control Delay					
Queue Delay					
Total Delay					
LOS					
Approach Delay					
Approach LOS					

Intersection Summary

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	17	724	98	43	556	167	20	111	108	364	146	14
Satd. Flow (prot)	1736	1827	1553	1736	1763	0	1787	1881	1599	1787	1857	0
Flt Permitted	0.156			0.097			0.653			0.491		
Satd. Flow (perm)	285	1827	1553	177	1763	0	1228	1881	1599	924	1857	0
Satd. Flow (RTOR)			82		14				111		3	
Lane Group Flow (vph)	18	746	101	44	745	0	21	114	111	375	165	0
Turn Type	pm+pt		Perm	pm+pt			pm+pt		Perm	pm+pt		
Protected Phases	1	6		5	2		7	4		3	8	
Permitted Phases	6		6	2			4		4	8		
Total Split (s)	15.0	55.0	55.0	15.0	55.0	0.0	20.0	30.0	30.0	20.0	30.0	0.0
Total Lost Time (s)	6.5	6.5	6.5	6.5	12.0	4.0	6.5	6.5	6.5	6.5	6.5	4.0
Act Effct Green (s)	53.9	48.8	48.8	57.7	49.0		20.1	12.7	12.7	32.5	27.4	
Actuated g/C Ratio	0.51	0.46	0.46	0.55	0.46		0.19	0.12	0.12	0.31	0.26	
v/c Ratio	0.08	0.88	0.13	0.22	0.90		0.08	0.50	0.38	0.95	0.34	
Control Delay	11.5	41.4	6.4	13.2	43.1		27.9	52.6	12.3	69.5	36.9	
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Delay	11.5	41.4	6.4	13.2	43.1		27.9	52.6	12.3	69.5	36.9	
LOS	B	D	A	B	D		C	D	B	E	D	
Approach Delay		36.7			41.4			32.3			59.6	
Approach LOS		D			D			C			E	

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 105.6	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.95	
Intersection Signal Delay: 42.8	Intersection LOS: D
Intersection Capacity Utilization 82.9%	ICU Level of Service E
Analysis Period (min) 15	

Splits and Phases: 17: CR 419 & Division street



Appendix B

Relevant Information from the 2008 PD&E Study, 2008 Phase 1 Study, and 2009 Phase 1A Study

FINAL TECHNICAL MEMORANDUM

SR 426/ CR 419 from Pine Avenue to Bishop Avenue - Design Traffic Study

Prepared for:

SEMINOLE COUNTY

Sanford, Florida

Prepared by:

GMB ENGINEERS & PLANNERS, INC.

Orlando, Florida

With

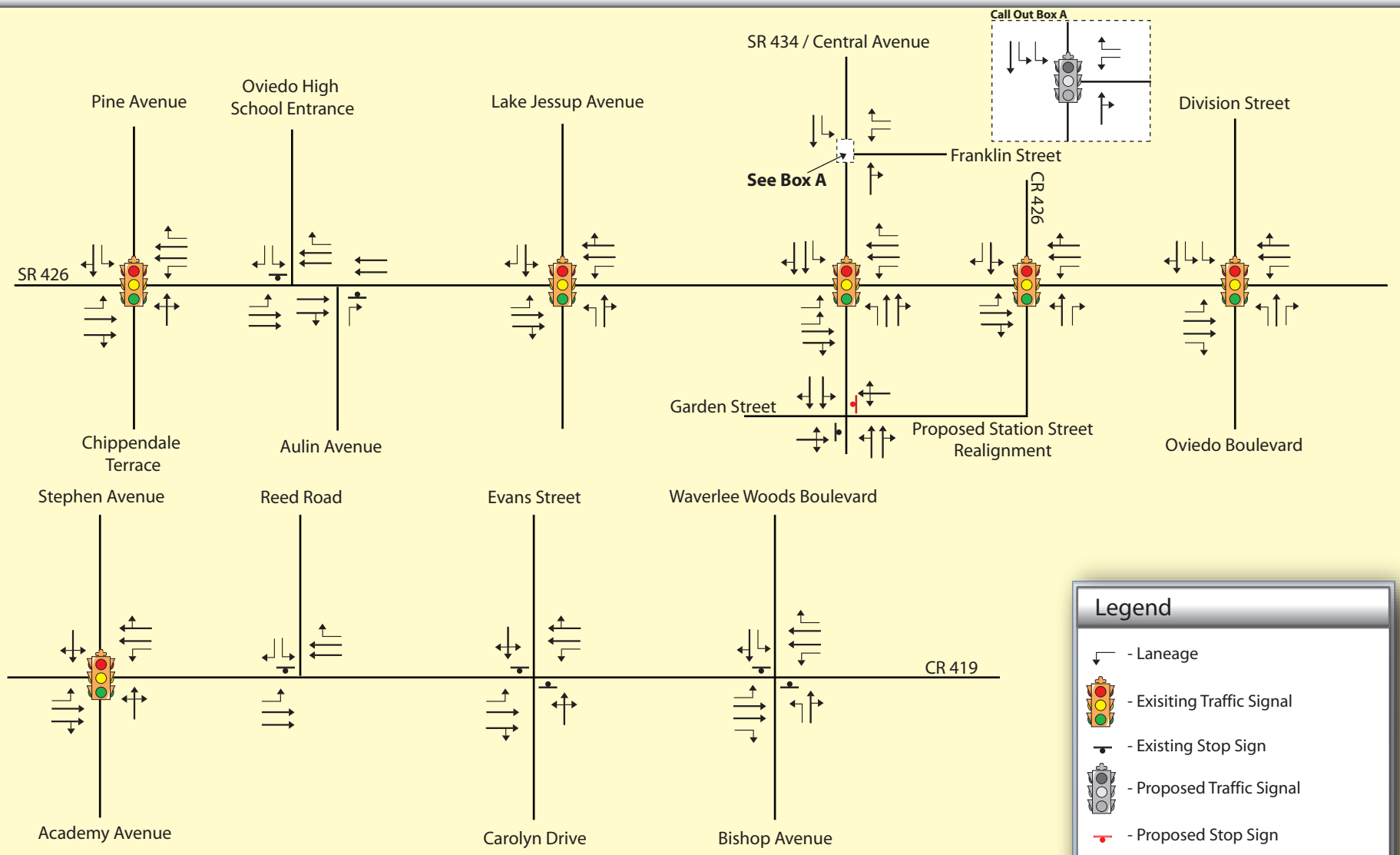
INWOOD CONSULTING ENGINEERS

Oviedo, Florida

June 2008

Date Created: 1/9/2008

Project Number: 07-106.01

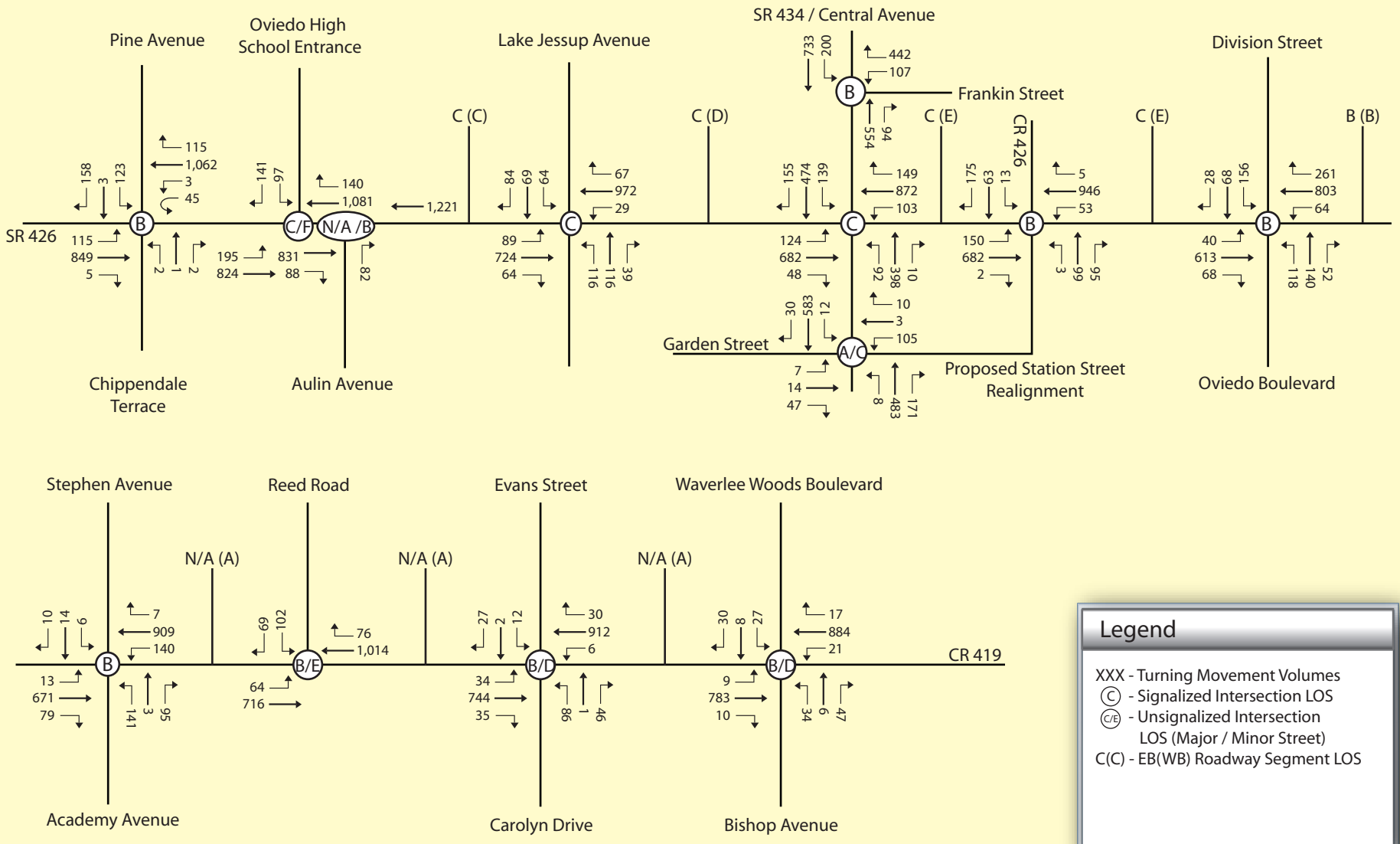


Note - Box A shows an additional southbound left turn lane by the design year 2030 and a proposed traffic signal to be in place by the opening year 2010

Prepared for: Seminole County
Prepared with: Inwood Consulting Engineers
Prepared by: GMB Engineers & Planners, Inc.

SR 426 / CR 419
from Pine Avenue to Bishop Avenue
- Design Traffic Study -

Figure 13
Proposed Build Geometry



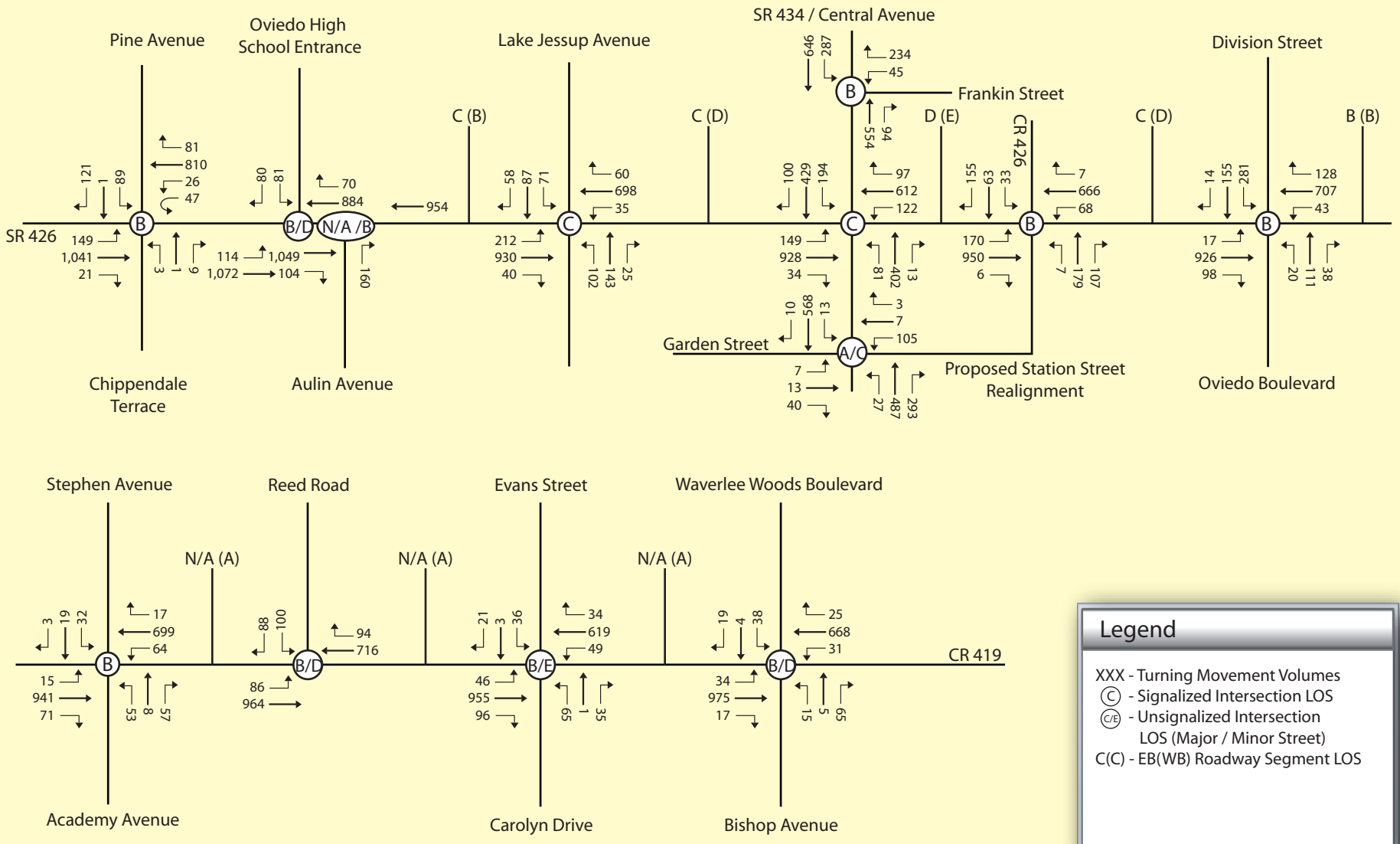
Legend

XXX - Turning Movement Volumes
Ⓒ - Signalized Intersection LOS
Ⓒ/Ⓔ - Unsignalized Intersection LOS (Major / Minor Street)
C(C) - EB(WB) Roadway Segment LOS

Prepared for: Seminole County
Prepared with: Inwood Consulting Engineers
Prepared by: GMB Engineers & Planners, Inc.

SR 426 / CR 419 from Pine Avenue to Bishop Avenue - Design Traffic Study -

Figure 9
Year 2010 AM Design Hour Build Turning Movement Volumes and Intersection and Roadway LOS



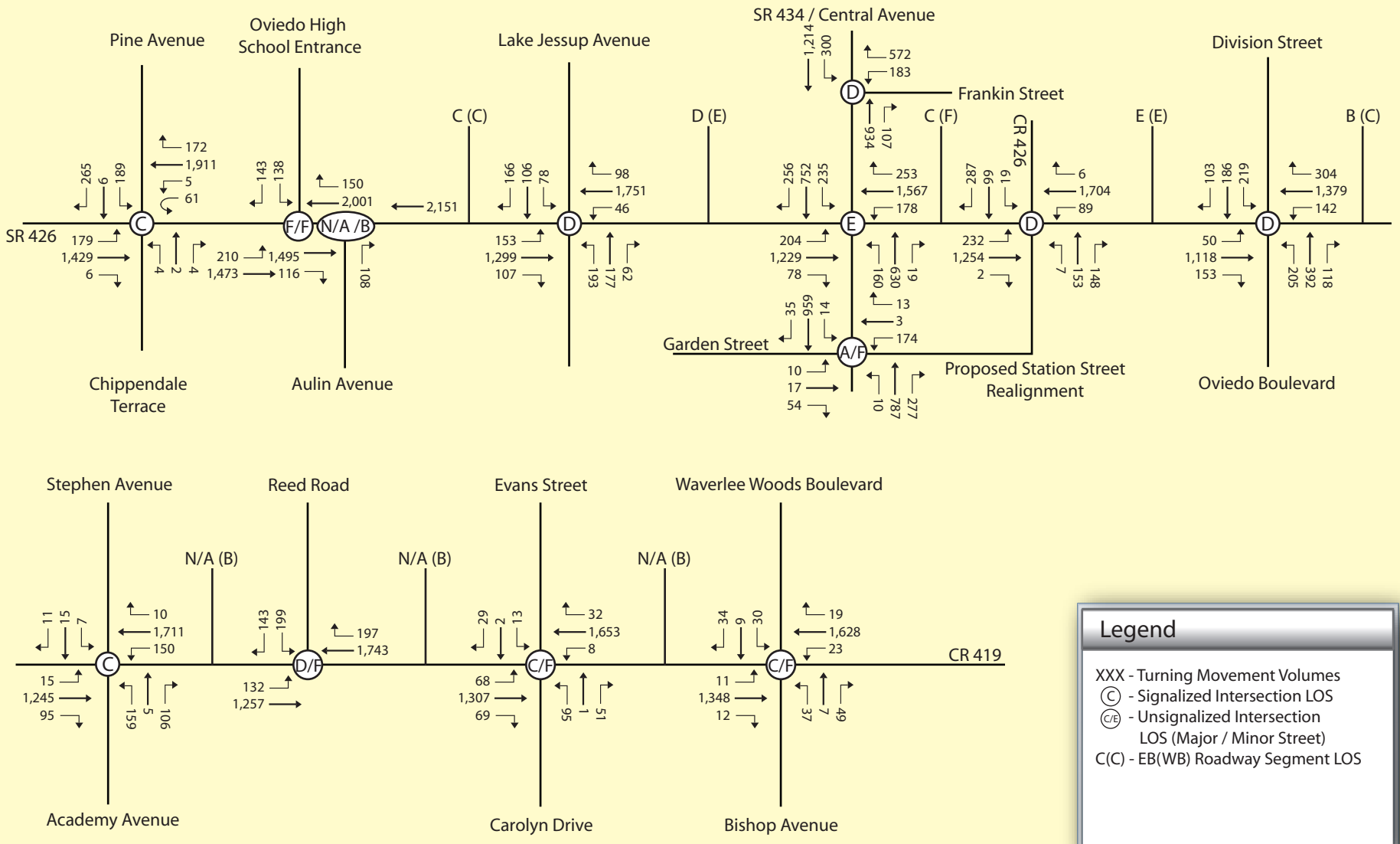
Legend

XXX - Turning Movement Volumes
Ⓒ - Signalized Intersection LOS
Ⓒ/Ⓔ - Unsignalized Intersection LOS (Major / Minor Street)
C(C) - EB(WB) Roadway Segment LOS

Prepared for: Seminole County
Prepared with: Inwood Consulting Engineers
Prepared by: GMB Engineers & Planners, Inc.

SR 426 / CR 419 from Pine Avenue to Bishop Avenue - Design Traffic Study -

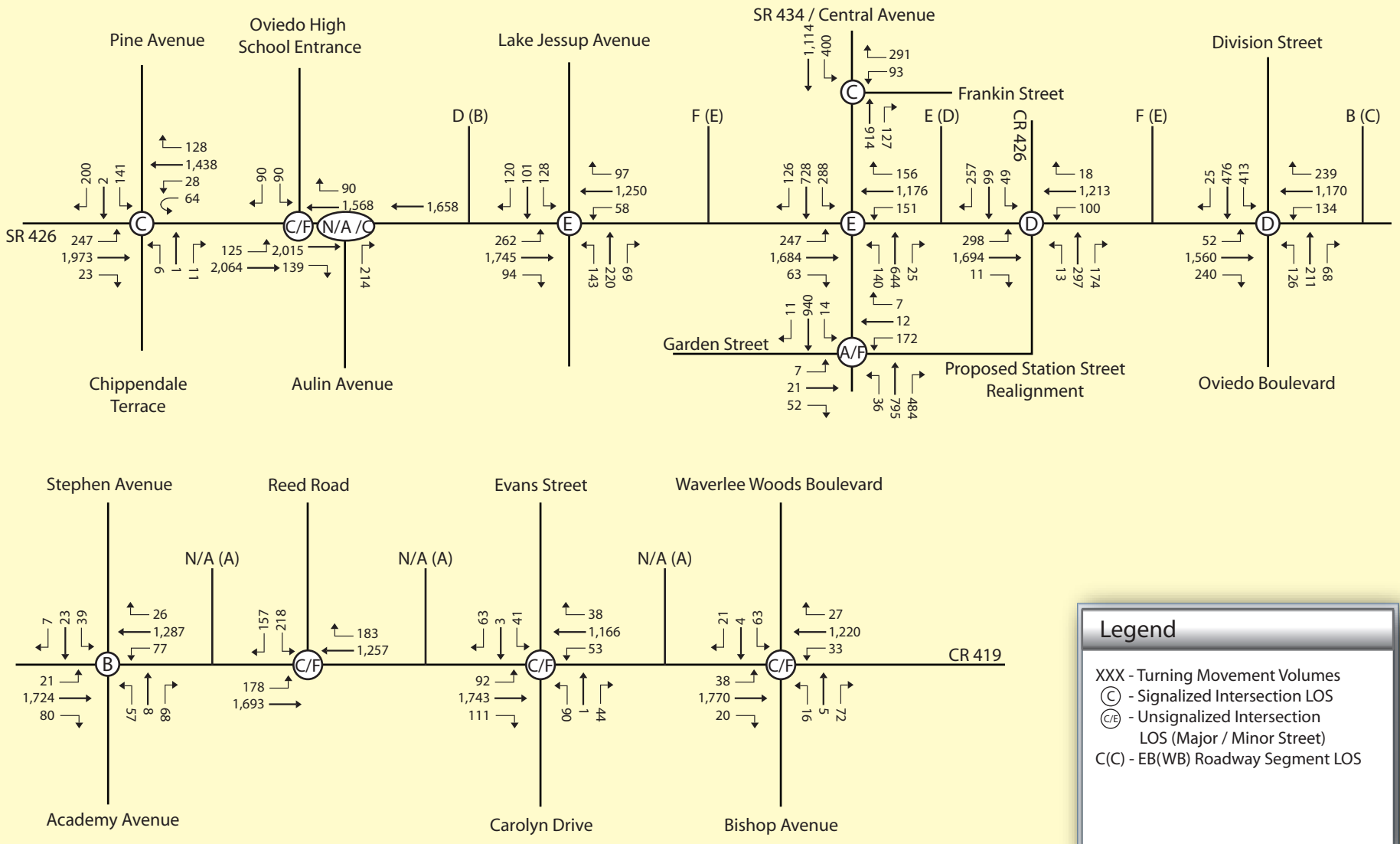
Figure 10
Year 2010 PM Design Hour Build Turning Movement Volumes and Intersection and Roadway LOS



Prepared for: Seminole County
Prepared with: Inwood Consulting Engineers
Prepared by: GMB Engineers & Planners, Inc.

SR 426 / CR 419 from Pine Avenue to Bishop Avenue - Design Traffic Study -

Figure 11
Year 2030 AM Design Hour Build Turning Movement Volumes and Intersection and Roadway LOS



Prepared for: Seminole County
Prepared with: Inwood Consulting Engineers
Prepared by: GMB Engineers & Planners, Inc.

SR 426 / CR 419 from Pine Avenue to Bishop Avenue - Design Traffic Study -

Figure 12
Year 2030 PM Design Hour Build Turning Movement Volumes and Intersection and Roadway LOS

DRAFT TECHNICAL MEMORANDUM

SR 426/ CR 419 Phase I Design Traffic Study

Prepared for:

SEMINOLE COUNTY
Sanford, Florida

Draft Prepared by:

GMB ENGINEERS & PLANNERS, Inc.
Orlando, Florida

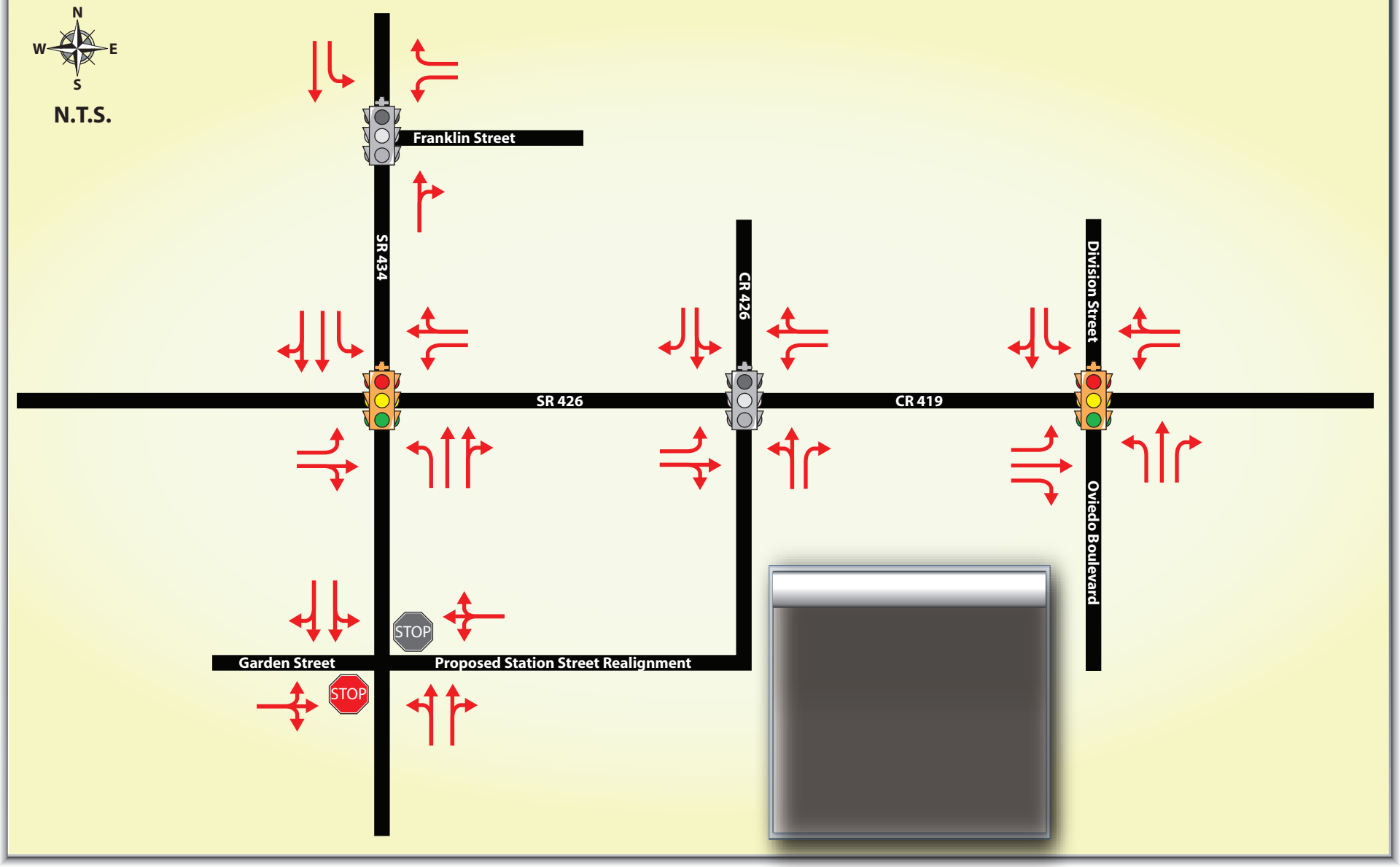
With

INWOOD CONSULTING ENGINEERS
Oviedo, Florida

May 2008

Date Created: 4/14/2008

Project Number: 07-106.02



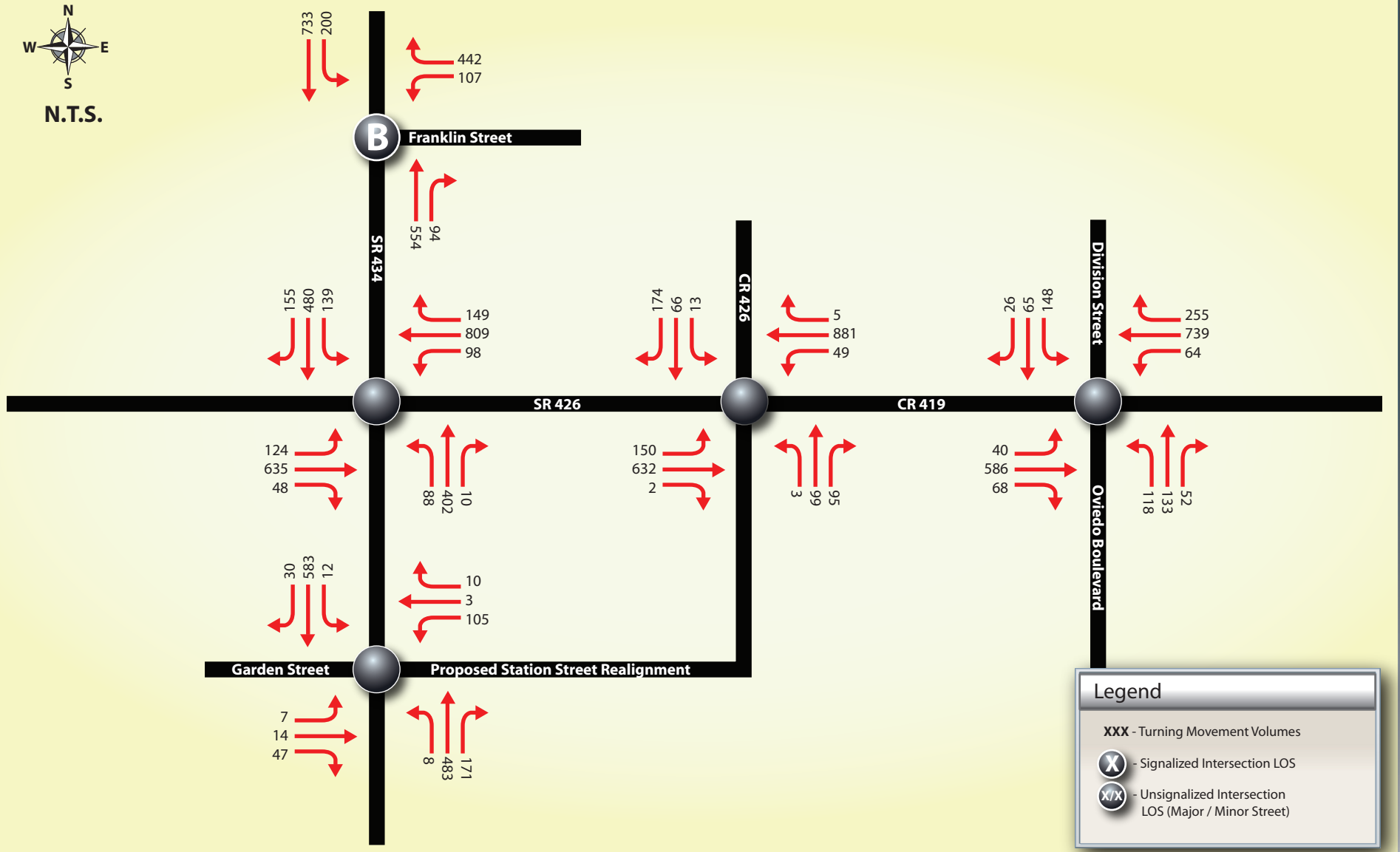
Prepared for: Seminole County
Prepared with: Inwood Consulting Engineers
Prepared by: GMB Engineers & Planners, Inc.

SR 426 / CR 419 Phase I Design Traffic Study

Figure 5
Opening Year 2010 Proposed Geometry

Date Created: 4/14/2008

Project Number: 07-106.02



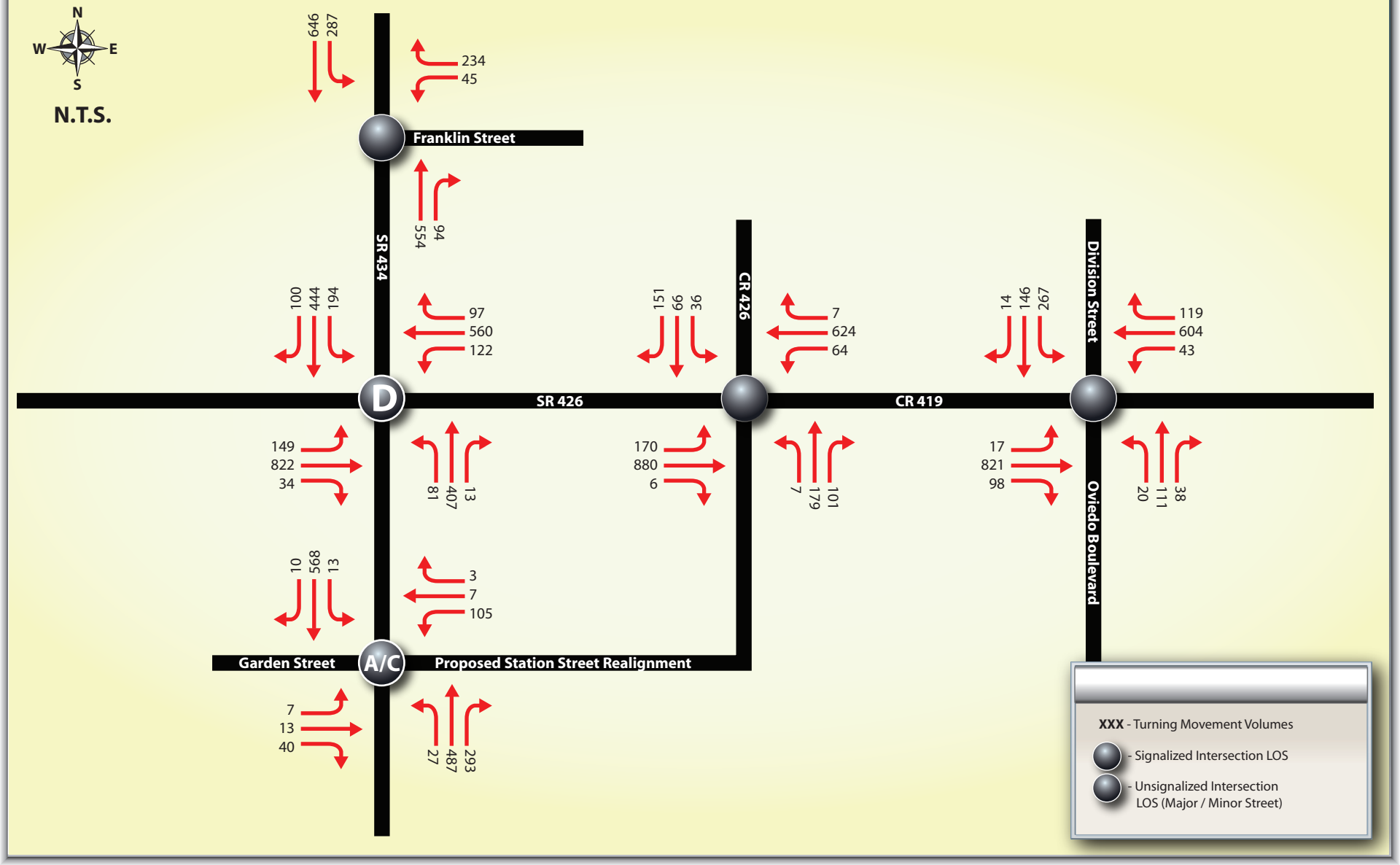
Prepared for: Seminole County
Prepared with: Inwood Consulting Engineers
Prepared by: GMB Engineers & Planners, Inc.

SR 426 / CR 419 Phase I Design Traffic Study

Figure 3
Opening Year 2010 AM Design Hour
Turning Movement Volumes

Date Created: 4/14/2008

Project Number: 07-106.02



Prepared for: Seminole County
Prepared with: Inwood Consulting Engineers
Prepared by: GMB Engineers & Planners, Inc.

SR 426 / CR 419 Phase I Design Traffic Study

Figure 4
Opening Year 2010 PM Design Hour
Turning Movement Volumes

FINAL TECHNICAL MEMORANDUM

SR 426/ CR 419 Phase 1A Design Traffic Study

Prepared for:

SEMINOLE COUNTY
FLORIDA'S NATURAL CHOICE

Sanford, Florida

Final Prepared by:

GMB ENGINEERS AND PLANNERS, INC.

Orlando, Florida

With

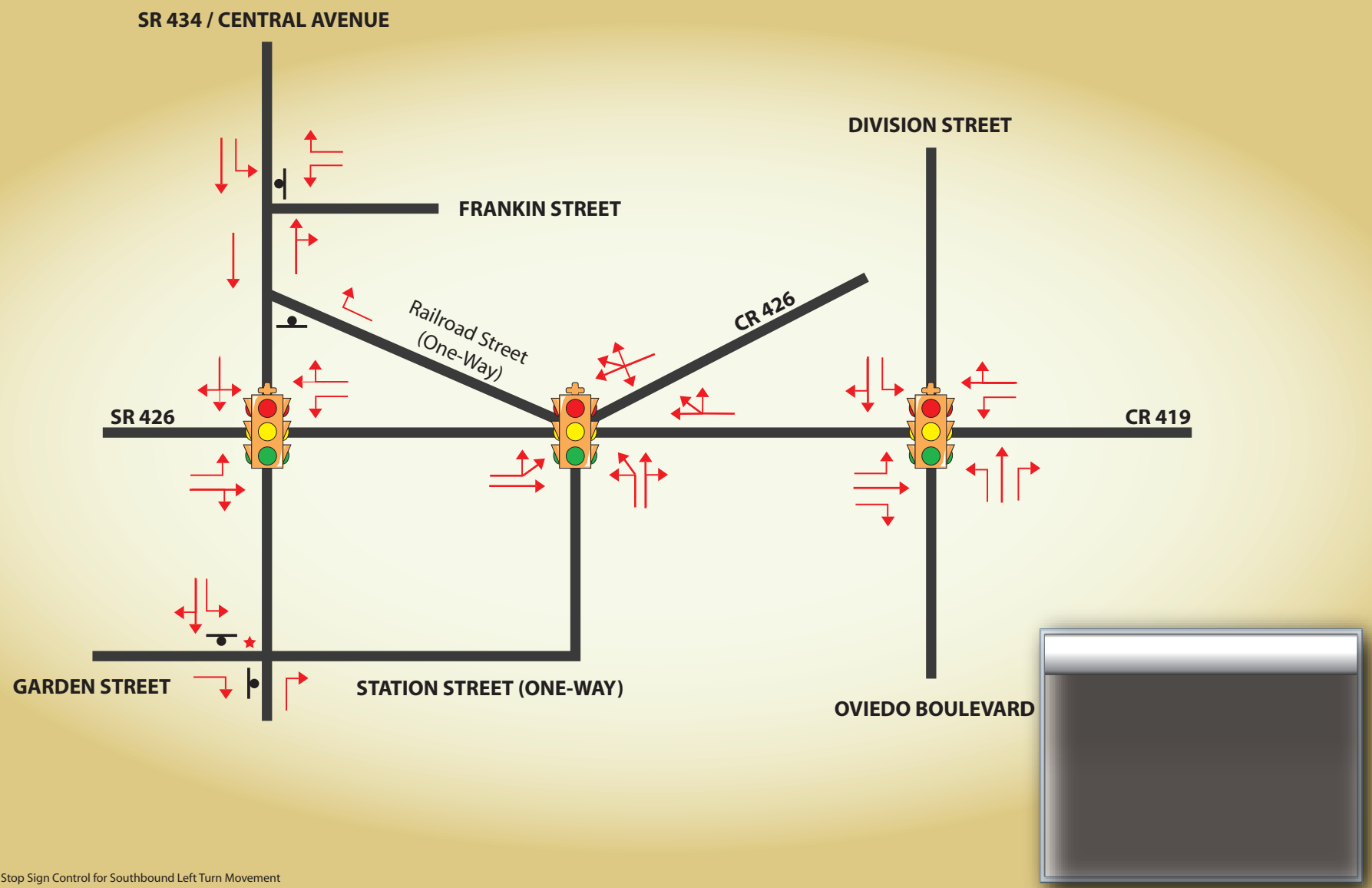
Inwood consulting engineers

Oviedo, Florida

May 2009

Date Created: 11/16/2007

Project Number: 07-106.01



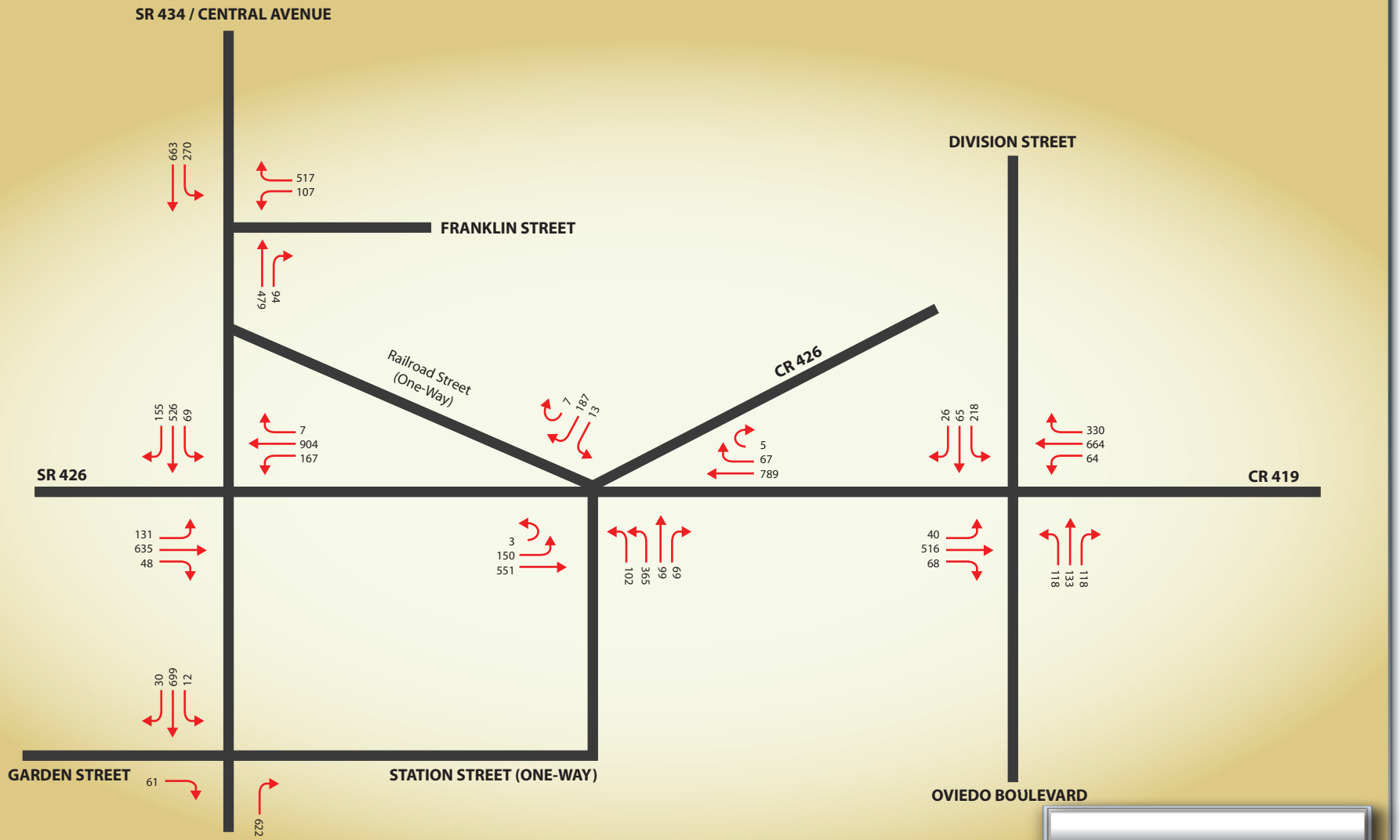
Prepared for: Seminole County
Prepared with: Inwood Consulting Engineers
Prepared by: GMB Engineers & Planners, Inc.

SR 426 / CR 419 Phase 1A Design Traffic Study

Figure 6
Opening Year 2010 No Build Geometry

Date Created: 11/16/2007

Project Number: 07-106.01



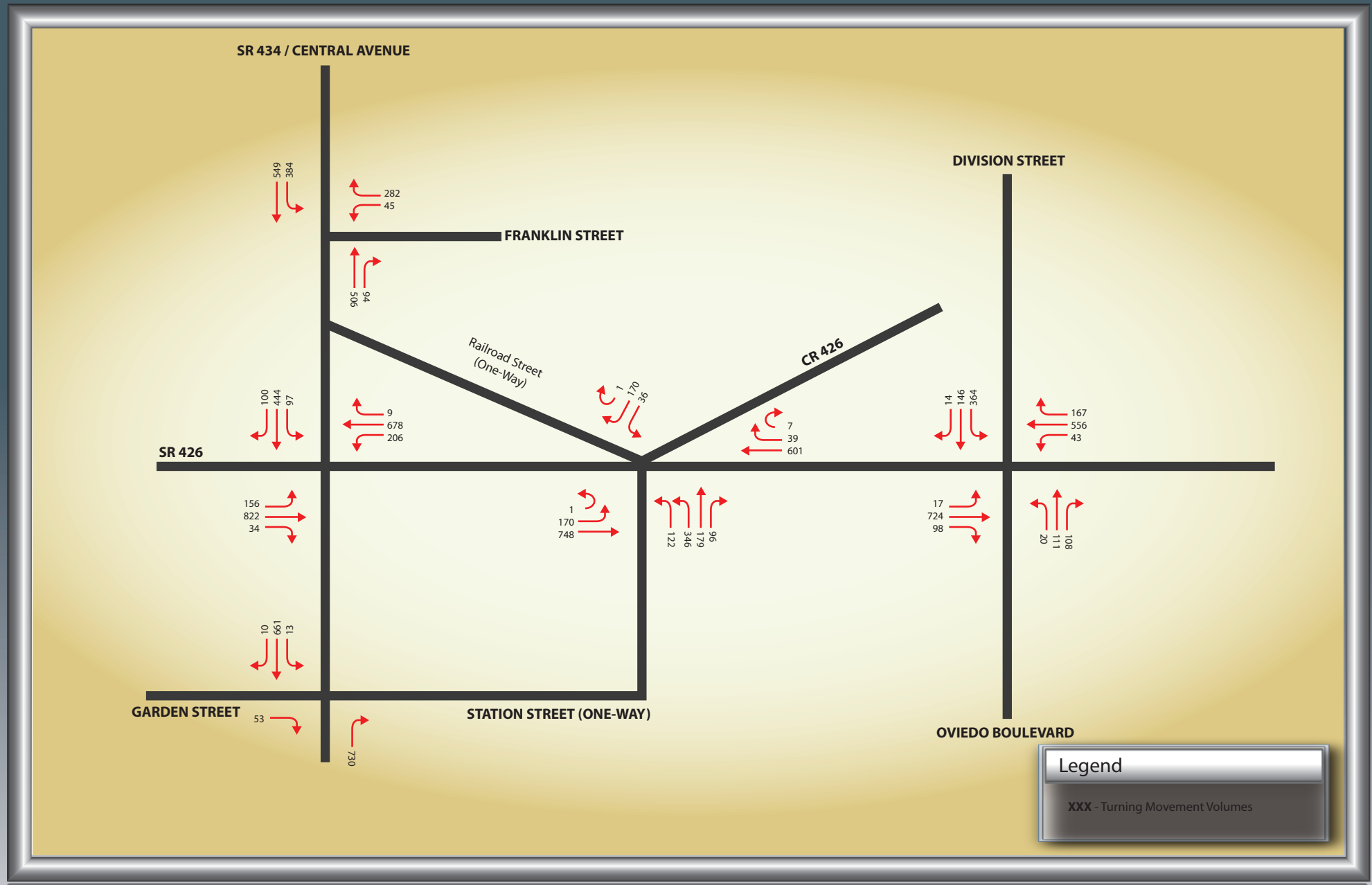
Prepared for: Seminole County
Prepared with: Inwood Consulting Engineers
Prepared by: GMB Engineers & Planners, Inc.

SR 426 / CR 419 Phase 1A Design Traffic Study

Figure 2
Opening Year 2010 AM Design Hour Turning Movement Volumes - No Build Scenario

Date Created: 11/16/2007

Project Number: 07-106.01



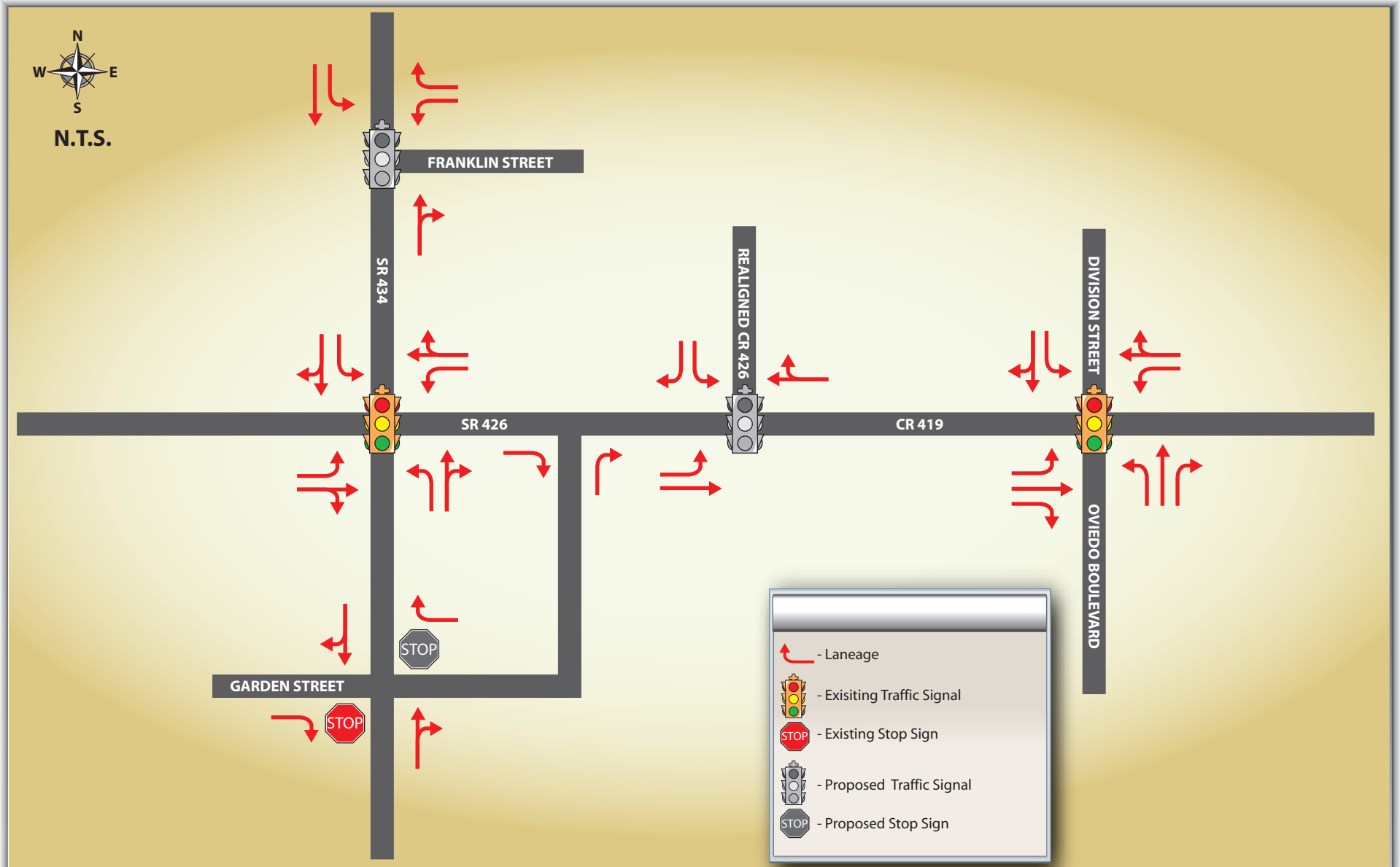
Prepared for: Seminole County
Prepared with: Inwood Consulting Engineers
Prepared by: GMB Engineers & Planners, Inc.

SR 426 / CR 419 Phase 1A Design Traffic Study

Figure 3
Opening Year 2010 PM Design Hour Turning Movement Volumes - No Build Scenario

Date Created: 3/26/2009

Project Number: 07-106.03



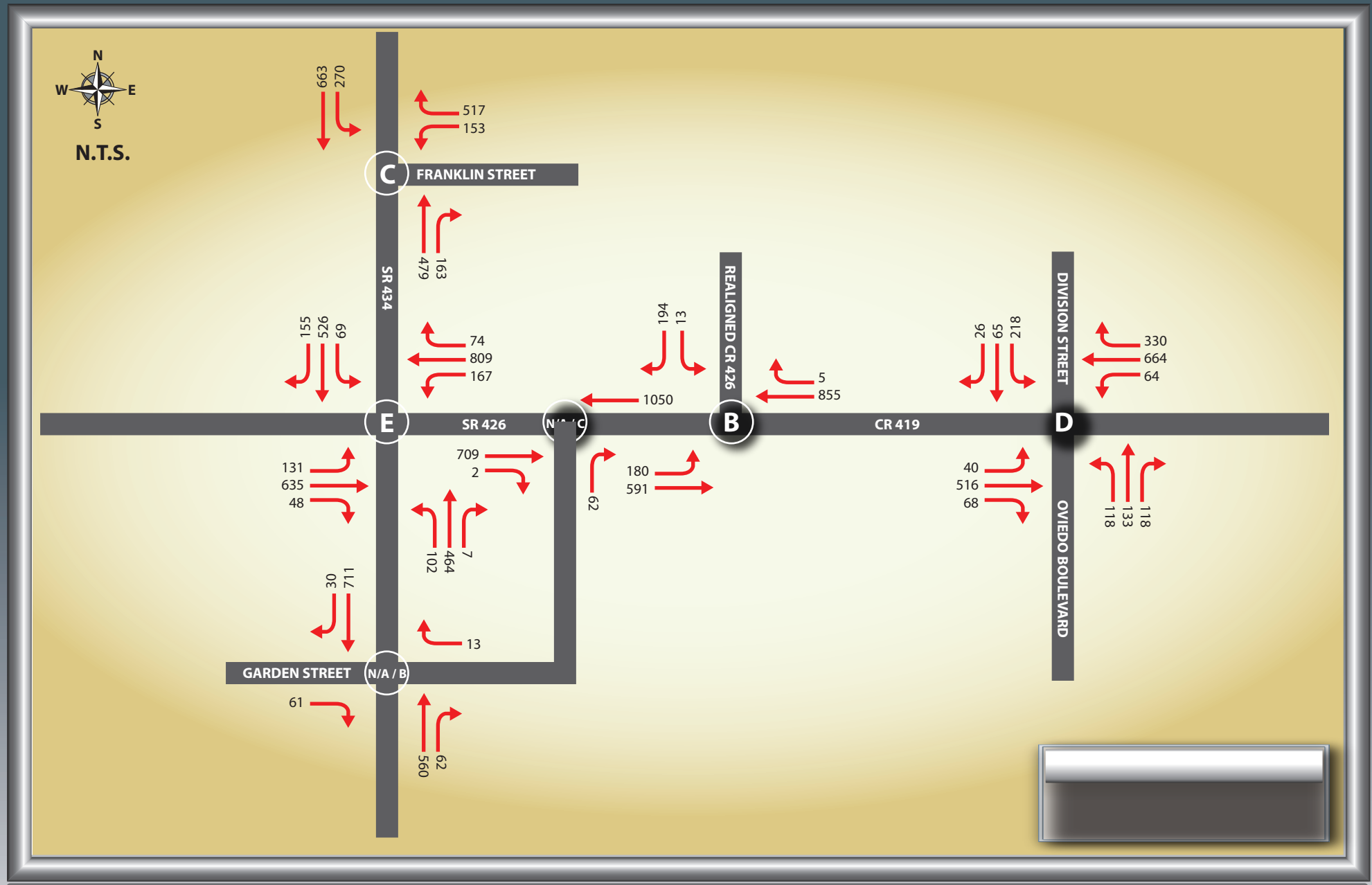
Prepared for: Seminole County
Prepared with: Inwood Consulting Engineers
Prepared by: GMB Engineers & Planners, Inc.

SR 426 / CR 419 Phase 1A Design Traffic Study

Figure 7
Opening Year 2010 Proposed Build Geometry

Date Created: 3/26/2009

Project Number: 07-106.03



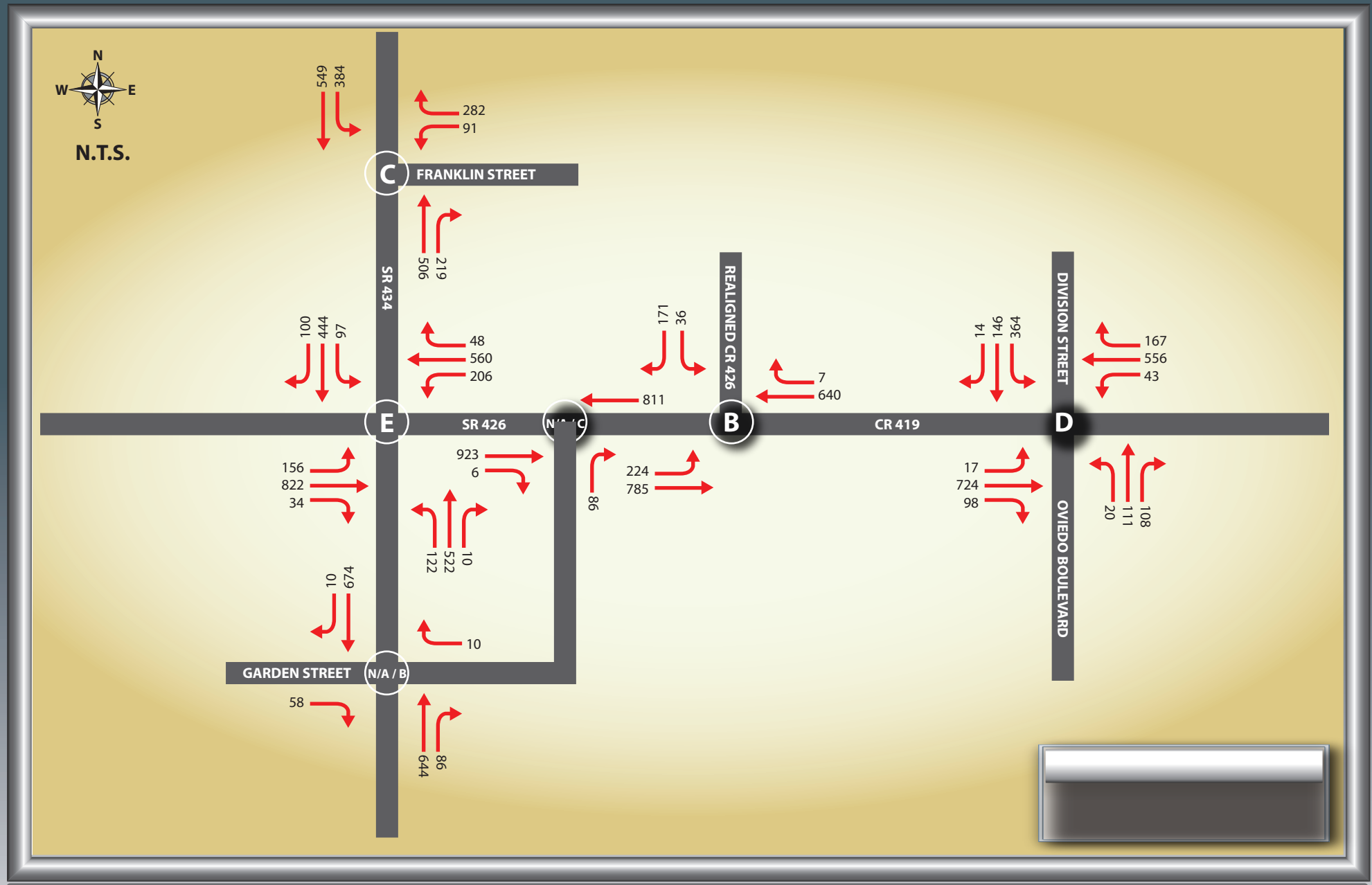
Prepared for: Seminole County
Prepared with: Inwood Consulting Engineers
Prepared by: GMB Engineers & Planners, Inc.

SR 426 / CR 419 Phase 1A Design Traffic Study

Figure 4
Opening Year 2010 AM Design Hour Turning Movement Volumes - Build Scenario

Date Created: 3/26/2009

Project Number: 07-106.03



Prepared for: Seminole County
Prepared with: Inwood Consulting Engineers
Prepared by: GMB Engineers & Planners, Inc.

SR 426 / CR 419 Phase 1A Design Traffic Study

Figure 5
Opening Year 2010 PM Design Hour Turning Movement Volumes - Build Scenario

Appendix C

SYNCHRO Intersection Analysis Outputs for Year 2010 Phase 1A No-Build & Build Scenarios

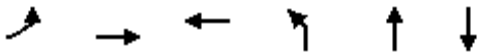
Lane Group	EBL	EBT	WBL	WBT	SBT
Act Effct Green (s)	36.9	36.9	53.8	53.8	53.2
Actuated g/C Ratio	0.31	0.31	0.45	0.45	0.44
v/c Ratio	2.21	1.26	0.82	1.15	0.97
Control Delay	625.2	167.1	42.6	86.8	57.5
Queue Delay	0.0	38.6	1.4	155.1	664.4
Total Delay	625.2	205.7	44.0	242.0	721.9
LOS	F	F	D	F	F
Approach Delay		273.2		211.3	721.9
Approach LOS		F		F	F

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 10 (8%), Referenced to phase 2:WBTL and 6:EBTL, Start of Yellow	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 2.21	
Intersection Signal Delay: 375.3	Intersection LOS: F
Intersection Capacity Utilization 116.0%	ICU Level of Service H
Analysis Period (min) 15	

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (veh/h)	107	517	479	94	270	663
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	113	544	504	99	284	698
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)		7				
Median type			None			None
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	1820	554			603	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1820	554			603	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	0	0			71	
cM capacity (veh/h)	61	534			970	

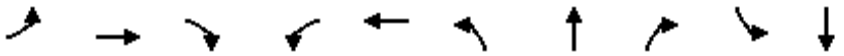
Direction, Lane #	WB 1	NB 1	SB 1	SB 2
Volume Total	657	603	284	698
Volume Left	113	0	284	0
Volume Right	544	99	0	0
cSH	277	1700	970	1700
Volume to Capacity	2.37	0.35	0.29	0.41
Queue Length 95th (ft)	1305	0	31	0
Control Delay (s)	656.4	0.0	10.2	0.0
Lane LOS	F		B	
Approach Delay (s)	656.4	0.0	3.0	
Approach LOS	F			

Intersection Summary			
Average Delay	193.6		
Intersection Capacity Utilization	69.6%	ICU Level of Service	C
Analysis Period (min)	15		



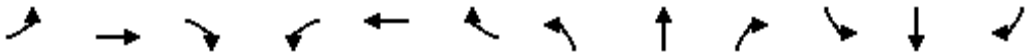
Lane Group	EBL	EBT	WBT	NBL	NBT	SBT
Act Effct Green (s)	60.5	60.5	44.5	24.5	24.5	15.5
Actuated g/C Ratio	0.50	0.50	0.37	0.20	0.20	0.13
v/c Ratio	0.84	0.65	1.40	1.44	0.49	1.07
Control Delay	54.2	29.4	219.2	247.3	41.5	131.6
Queue Delay	0.0	124.0	29.3	0.0	0.0	260.5
Total Delay	54.2	153.4	248.5	247.3	41.5	392.1
LOS	D	F	F	F	D	F
Approach Delay		131.9	248.5		192.8	392.1
Approach LOS		F	F		F	F

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 0 (0%), Referenced to phase 2:WBT and 6:EBTL, Start of Yellow	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 1.44	
Intersection Signal Delay: 212.1	Intersection LOS: F
Intersection Capacity Utilization 114.6%	ICU Level of Service H
Analysis Period (min) 15	



Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Act Effct Green (s)	70.9	66.6	66.6	70.9	66.6	19.0	10.5	10.5	25.1	13.6
Actuated g/C Ratio	0.60	0.57	0.57	0.60	0.57	0.16	0.09	0.09	0.21	0.12
v/c Ratio	0.30	0.54	0.08	0.17	1.08	0.54	0.88	0.50	0.95	0.46
Control Delay	13.3	19.0	3.0	8.6	79.8	47.8	99.8	16.1	88.9	50.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	13.3	19.0	3.0	8.6	79.8	47.8	99.8	16.1	88.9	50.9
LOS	B	B	A	A	E	D	F	B	F	D
Approach Delay		16.9			75.5		56.5			77.7
Approach LOS		B			E		E			E

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 117.6	
Control Type: Semi Act-Uncoord	
Maximum v/c Ratio: 1.08	
Intersection Signal Delay: 57.3	Intersection LOS: E
Intersection Capacity Utilization 91.7%	ICU Level of Service F
Analysis Period (min) 15	



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	0	0	61	0	0	0	0	0	622	12	699	30
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Hourly flow rate (vph)	0	0	70	0	0	0	0	0	715	14	803	34
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)											447	
pX, platoon unblocked	0.57	0.57	0.57	0.57	0.57		0.57					
vC, conflicting volume	1206	848	821	901	866	0	838			0		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	987	363	315	456	394	0	345			0		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	100	83	100	100	100	100			99		
cM capacity (veh/h)	128	319	413	242	307	1079	693			1610		

Direction, Lane #	EB 1	NB 1	SB 1	SB 2
Volume Total	70	715	14	838
Volume Left	0	0	14	0
Volume Right	70	715	0	34
cSH	413	1700	1610	1700
Volume to Capacity	0.17	0.42	0.01	0.49
Queue Length 95th (ft)	15	0	1	0
Control Delay (s)	15.5	0.0	7.3	0.0
Lane LOS	C		A	
Approach Delay (s)	15.5	0.0	0.1	
Approach LOS	C			

Intersection Summary				
Average Delay	0.7			
Intersection Capacity Utilization	49.1%	ICU Level of Service	A	
Analysis Period (min)	15			

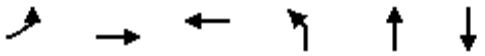
Lane Group	EBL	EBT	WBL	WBT	SBT
Act Effct Green (s)	42.5	42.5	59.5	59.5	47.5
Actuated g/C Ratio	0.35	0.35	0.50	0.50	0.40
v/c Ratio	0.96	1.36	0.99	0.77	0.92
Control Delay	99.5	203.3	59.6	26.3	52.6
Queue Delay	0.0	29.6	0.0	181.3	0.6
Total Delay	99.5	232.9	59.6	207.6	53.2
LOS	F	F	E	F	D
Approach Delay		212.4		173.5	53.2
Approach LOS		F		F	D

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 118 (98%), Referenced to phase 2:WBTL and 6:EBTL, Start of Yellow	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 1.36	
Intersection Signal Delay: 158.7	Intersection LOS: F
Intersection Capacity Utilization 107.8%	ICU Level of Service G
Analysis Period (min) 15	

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (veh/h)	45	282	506	94	384	549
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Hourly flow rate (vph)	48	300	538	100	409	584
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)		7				
Median type			None			None
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	1989	588			638	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1989	588			638	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	0	41			57	
cM capacity (veh/h)	38	511			941	

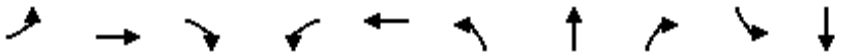
Direction, Lane #	WB 1	NB 1	SB 1	SB 2
Volume Total	348	638	409	584
Volume Left	48	0	409	0
Volume Right	300	100	0	0
cSH	277	1700	941	1700
Volume to Capacity	1.26	0.38	0.43	0.34
Queue Length 95th (ft)	418	0	56	0
Control Delay (s)	73.2	0.0	11.7	0.0
Lane LOS	F		B	
Approach Delay (s)	73.2	0.0	4.8	
Approach LOS	F			

Intersection Summary			
Average Delay	15.3		
Intersection Capacity Utilization	66.9%	ICU Level of Service	C
Analysis Period (min)	15		



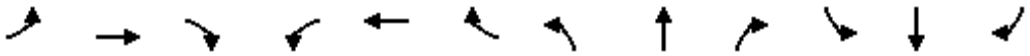
Lane Group	EBL	EBT	WBT	NBL	NBT	SBT
Act Effct Green (s)	51.0	56.5	29.5	32.5	32.5	15.5
Actuated g/C Ratio	0.42	0.47	0.25	0.27	0.27	0.13
v/c Ratio	0.59	0.93	1.54	1.06	0.60	1.04
Control Delay	17.9	12.5	288.4	100.6	41.1	123.0
Queue Delay	0.0	124.1	29.2	153.2	0.0	631.0
Total Delay	17.9	136.6	317.6	253.7	41.1	754.0
LOS	B	F	F	F	D	F
Approach Delay		114.6	317.6		175.1	754.0
Approach LOS		F	F		F	F

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 0 (0%), Referenced to phase 2:WBT and 6:EBTL, Start of Yellow	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 1.54	
Intersection Signal Delay: 237.2	Intersection LOS: F
Intersection Capacity Utilization 98.6%	ICU Level of Service F
Analysis Period (min) 15	



Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Act Effct Green (s)	53.9	48.8	48.8	57.7	49.0	20.1	12.7	12.7	32.5	27.4
Actuated g/C Ratio	0.51	0.46	0.46	0.55	0.46	0.19	0.12	0.12	0.31	0.26
v/c Ratio	0.08	0.88	0.13	0.22	0.90	0.08	0.50	0.38	0.95	0.34
Control Delay	11.5	41.4	6.4	13.2	43.1	27.9	52.6	12.3	69.5	36.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	11.5	41.4	6.4	13.2	43.1	27.9	52.6	12.3	69.5	36.9
LOS	B	D	A	B	D	C	D	B	E	D
Approach Delay		36.7			41.4		32.3			59.6
Approach LOS		D			D		C			E

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 105.6	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.95	
Intersection Signal Delay: 42.8	Intersection LOS: D
Intersection Capacity Utilization 82.9%	ICU Level of Service E
Analysis Period (min) 15	



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	0	0	53	0	0	0	0	0	730	13	661	10
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	0	0	56	0	0	0	0	0	768	14	696	11
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)											447	
pX, platoon unblocked	0.64	0.64	0.64	0.64	0.64		0.64					
vC, conflicting volume	1113	728	701	779	734	0	706			0		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	899	304	261	382	312	0	269			0		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	100	89	100	100	100	100			99		
cM capacity (veh/h)	165	388	498	326	384	1079	831			1617		

Direction, Lane #	EB 1	NB 1	SB 1	SB 2
Volume Total	56	768	14	706
Volume Left	0	0	14	0
Volume Right	56	768	0	11
cSH	498	1700	1617	1700
Volume to Capacity	0.11	0.45	0.01	0.42
Queue Length 95th (ft)	9	0	1	0
Control Delay (s)	13.1	0.0	7.2	0.0
Lane LOS	B		A	
Approach Delay (s)	13.1	0.0	0.1	
Approach LOS	B			

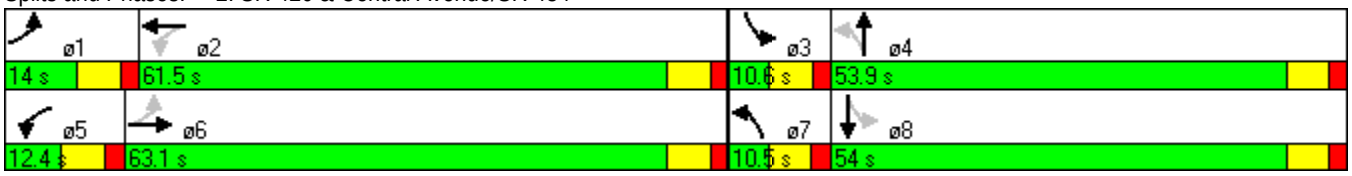
Intersection Summary				
Average Delay	0.5			
Intersection Capacity Utilization	55.2%	ICU Level of Service	B	
Analysis Period (min)	15			

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	185	581	48	167	809	7	102	464	7	69	526	155
Satd. Flow (prot)	1736	1807	0	1736	1825	0	1636	1718	0	1636	1663	0
Flt Permitted	0.069			0.128			0.077			0.233		
Satd. Flow (perm)	126	1807	0	234	1825	0	133	1718	0	401	1663	0
Satd. Flow (RTOR)		4						1			12	
Lane Group Flow (vph)	187	635	0	169	824	0	103	476	0	70	688	0
Turn Type	pm+pt			pm+pt			pm+pt			pm+pt		
Protected Phases	1	6		5	2		7	4		3	8	
Permitted Phases	6			2			4			8		
Total Split (s)	14.0	63.1	0.0	12.4	61.5	0.0	10.5	53.9	0.0	10.6	54.0	0.0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	3.0
Act Effct Green (s)	69.1	59.1		65.9	57.5		57.2	52.0		56.6	50.0	
Actuated g/C Ratio	0.49	0.42		0.47	0.41		0.41	0.37		0.40	0.36	
v/c Ratio	1.06	0.83		0.84	1.10		0.83	0.74		0.32	1.14	
Control Delay	117.1	46.7		46.0	94.6		73.4	47.5		25.2	117.6	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	117.1	46.7		46.0	94.6		73.4	47.5		25.2	117.6	
LOS	F	D		D	F		E	D		C	F	
Approach Delay		62.7			86.4			52.1			109.0	
Approach LOS		E			F			D			F	

Intersection Summary

Cycle Length: 140
Actuated Cycle Length: 140
Offset: 0 (0%), Referenced to phase 2:WBTL and 6:EBTL, Start of Yellow, Master Intersection
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.14
Intersection Signal Delay: 79.3 — Intersection LOS: E
Intersection Capacity Utilization 109.3% — ICU Level of Service H
Analysis Period (min) 15

Splits and Phases: 2: SR 426 & Central Avenue/SR 434

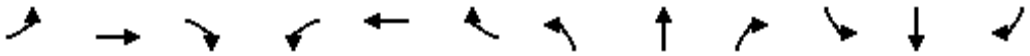


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	186	505	66	64	664	330	118	133	118	229	67	26
Satd. Flow (prot)	1736	1827	1553	1736	1736	0	1787	1881	1599	1787	1804	0
Flt Permitted	0.047			0.408			0.000			0.000		
Satd. Flow (perm)	86	1827	1553	745	1736	0	0	1881	1599	0	1804	0
Satd. Flow (RTOR)			69		30				124		11	
Lane Group Flow (vph)	196	532	69	67	1046	0	124	140	124	241	98	0
Turn Type	pm+pt		Perm	pm+pt			pm+pt		Perm	pm+pt		
Protected Phases	1	6		5	2		7	4		3	8	
Permitted Phases	6		6	2			4		4	8		
Total Split (s)	17.6	91.0	91.0	11.6	85.0	0.0	15.8	17.0	17.0	20.4	21.6	0.0
Total Lost Time (s)	5.5	5.5	5.5	5.5	5.5	3.0	5.5	5.5	5.5	5.5	5.5	3.0
Act Effct Green (s)	97.1	87.8	87.8	85.6	79.5		12.8	11.5	11.5	14.9	13.6	
Actuated g/C Ratio	0.69	0.63	0.63	0.61	0.57		0.09	0.08	0.08	0.11	0.10	
v/c Ratio	0.97	0.46	0.07	0.13	1.05		0.76	0.90	0.51	1.27	0.53	
Control Delay	88.3	15.6	2.7	8.0	71.0		89.6	113.4	17.4	204.2	63.5	
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Delay	88.3	15.6	2.7	8.0	71.0		89.6	113.4	17.4	204.2	63.5	
LOS	F	B	A	A	E		F	F	B	F	E	
Approach Delay		32.3			67.2			75.1			163.5	
Approach LOS		C			E			E			F	

Intersection Summary

Cycle Length: 140
Actuated Cycle Length: 140
Offset: 78 (56%), Referenced to phase 2:WBTL and 6:EBTL, Start of Yellow
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.27
Intersection Signal Delay: 70.2 — Intersection LOS: E
Intersection Capacity Utilization 104.7% — ICU Level of Service G
Analysis Period (min) 15

Splits and Phases: 4: CR 419 & Division street



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	0	0	61	0	0	13	0	560	62	0	711	30
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	0	0	64	0	0	14	0	589	65	0	748	32
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)											447	
pX, platoon unblocked	0.60	0.60	0.60	0.60	0.60		0.60					
vC, conflicting volume	1400	1354	764	1451	1402	622	780			589		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1334	1257	279	1418	1338	622	306			589		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	100	86	100	100	97	100			100		
cM capacity (veh/h)	76	102	455	59	91	483	753			976		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	64	14	655	780
Volume Left	0	0	0	0
Volume Right	64	14	65	32
cSH	455	483	1700	1700
Volume to Capacity	0.14	0.03	0.39	0.46
Queue Length 95th (ft)	11	2	0	0
Control Delay (s)	14.2	12.7	0.0	0.0
Lane LOS	B	B		
Approach Delay (s)	14.2	12.7	0.0	0.0
Approach LOS	B	B		

Intersection Summary				
Average Delay	0.7			
Intersection Capacity Utilization	49.7%	ICU Level of Service	A	
Analysis Period (min)	15			

Movement	NBT	NBR	SBL	SBT	NWL	NWR
Lane Configurations						
Volume (veh/h)	656	0	0	816	0	74
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	691	0	0	859	0	78
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)	323			1007		
pX, platoon unblocked			0.70		0.78	0.70
vC, conflicting volume			691		1549	691
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			336		1097	336
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		100	84
cM capacity (veh/h)			843		181	488

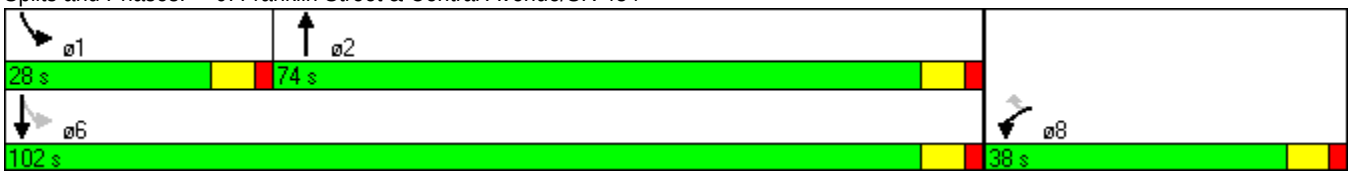
Direction, Lane #	NB 1	SB 1	NW 1
Volume Total	691	859	78
Volume Left	0	0	0
Volume Right	0	0	78
cSH	1700	1700	488
Volume to Capacity	0.41	0.51	0.16
Queue Length 95th (ft)	0	0	12
Control Delay (s)	0.0	0.0	13.8
Lane LOS			B
Approach Delay (s)	0.0	0.0	13.8
Approach LOS			B

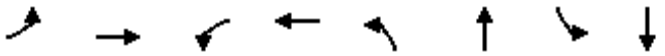
Intersection Summary			
Average Delay	0.7		
Intersection Capacity Utilization	46.3%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (vph)	153	517	479	217	270	663
Satd. Flow (prot)	1787	1599	1767	0	1752	1845
Flt Permitted	0.950				0.233	
Satd. Flow (perm)	1787	1599	1767	0	430	1845
Satd. Flow (RTOR)		480	23			
Lane Group Flow (vph)	161	544	732	0	284	698
Turn Type		Perm			pm+pt	
Protected Phases	8		2		1	6
Permitted Phases		8			6	
Total Split (s)	38.0	38.0	74.0	0.0	28.0	102.0
Total Lost Time (s)	5.5	5.5	5.5	4.0	5.5	5.5
Act Effct Green (s)	20.8	20.8	86.6		108.2	108.2
Actuated g/C Ratio	0.15	0.15	0.62		0.77	0.77
v/c Ratio	0.61	0.84	0.66		0.59	0.49
Control Delay	64.2	20.5	7.7		10.3	8.2
Queue Delay	0.0	0.0	0.0		0.0	0.0
Total Delay	64.2	20.5	7.7		10.3	8.2
LOS	E	C	A		B	A
Approach Delay	30.5		7.7			8.8
Approach LOS	C		A			A

Intersection Summary	
Cycle Length: 140	
Actuated Cycle Length: 140	
Offset: 108 (77%), Referenced to phase 2:NBT and 6:SBTL, Start of Yellow	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.84	
Intersection Signal Delay: 14.8	Intersection LOS: B
Intersection Capacity Utilization 79.6%	ICU Level of Service D
Analysis Period (min) 15	

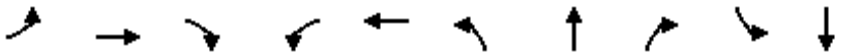
Splits and Phases: 9: Franklin Street & Central Avenue/SR 434





Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Act Effct Green (s)	74.8	59.8	71.2	58.0	52.2	44.2	49.8	43.0
Actuated g/C Ratio	0.53	0.43	0.51	0.41	0.37	0.32	0.36	0.31
v/c Ratio	0.69	1.03	0.96	0.76	0.87	0.99	0.76	1.06
Control Delay	28.7	78.4	87.2	55.8	77.9	83.4	62.9	95.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	28.7	78.4	87.2	55.8	77.9	83.4	62.9	95.7
LOS	C	E	F	E	E	F	E	F
Approach Delay		67.4		64.2		82.4		90.8
Approach LOS		E		E		F		F

Intersection Summary	
Cycle Length: 140	
Actuated Cycle Length: 140	
Offset: 0 (0%), Referenced to phase 2:WBTL and 6:EBTL, Start of Yellow, Master Intersection	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 1.06	
Intersection Signal Delay: 74.6	Intersection LOS: E
Intersection Capacity Utilization 102.7%	ICU Level of Service G
Analysis Period (min) 15	



Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Act Effct Green (s)	83.0	74.4	74.4	73.4	67.3	19.4	11.4	11.4	45.4	37.3
Actuated g/C Ratio	0.59	0.53	0.53	0.52	0.48	0.14	0.08	0.08	0.32	0.27
v/c Ratio	0.87	0.75	0.11	0.20	0.89	0.10	0.76	0.49	0.93	0.35
Control Delay	69.5	10.9	0.4	14.3	46.5	36.0	92.4	17.4	70.4	45.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	69.5	10.9	0.4	14.3	46.5	36.0	92.4	17.4	70.4	45.0
LOS	E	B	A	B	D	D	F	B	E	D
Approach Delay		20.5			44.7		53.8			62.9
Approach LOS		C			D		D			E

Intersection Summary	
Cycle Length: 140	
Actuated Cycle Length: 140	
Offset: 28 (20%), Referenced to phase 2:WBTL and 6:EBTL, Start of Yellow	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.93	
Intersection Signal Delay: 40.4	Intersection LOS: D
Intersection Capacity Utilization 91.4%	ICU Level of Service F
Analysis Period (min) 15	

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	0	0	53	0	0	10	0	644	86	0	674	10
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	0	0	56	0	0	11	0	678	91	0	709	11
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)											447	
pX, platoon unblocked	0.64	0.64	0.64	0.64	0.64		0.64					
vC, conflicting volume	1448	1393	715	1494	1443	723	720			678		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1420	1333	281	1490	1412	723	289			678		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	100	89	100	100	98	100			100		
cM capacity (veh/h)	71	98	485	58	88	423	816			905		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	56	11	768	720
Volume Left	0	0	0	0
Volume Right	56	11	91	11
cSH	485	423	1700	1700
Volume to Capacity	0.11	0.02	0.45	0.42
Queue Length 95th (ft)	8	2	0	0
Control Delay (s)	13.4	13.7	0.0	0.0
Lane LOS	B	B		
Approach Delay (s)	13.4	13.7	0.0	0.0
Approach LOS	B	B		

Intersection Summary				
Average Delay	0.6			
Intersection Capacity Utilization	49.1%	ICU Level of Service	A	
Analysis Period (min)	15			

Movement	NBT	NBR	SBL	SBT	NWL	NWR
Lane Configurations						
Volume (veh/h)	754	0	0	640	0	40
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	794	0	0	674	0	42
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)	323			1007		
pX, platoon unblocked			0.61		0.65	0.61
vC, conflicting volume			794		1467	794
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			351		1211	351
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		100	90
cM capacity (veh/h)			736		129	423

Direction, Lane #	NB 1	SB 1	NW 1
Volume Total	794	674	42
Volume Left	0	0	0
Volume Right	0	0	42
cSH	1700	1700	423
Volume to Capacity	0.47	0.40	0.10
Queue Length 95th (ft)	0	0	7
Control Delay (s)	0.0	0.0	14.5
Lane LOS			B
Approach Delay (s)	0.0	0.0	14.5
Approach LOS			B

Intersection Summary			
Average Delay	0.4		
Intersection Capacity Utilization	49.7%	ICU Level of Service	A
Analysis Period (min)	15		

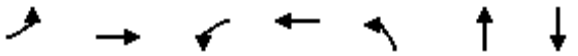
Lane Group	WBL	WBR	NBT	SBL	SBT
Act Effct Green (s)	13.6	13.6	81.9	115.4	115.4
Actuated g/C Ratio	0.10	0.10	0.58	0.82	0.82
v/c Ratio	0.55	0.70	0.80	0.77	0.38
Control Delay	71.6	15.5	11.7	28.8	4.2
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	71.6	15.5	11.7	28.8	4.2
LOS	E	B	B	C	A
Approach Delay	29.2		11.7		14.3
Approach LOS	C		B		B

Intersection Summary	
Cycle Length: 140	
Actuated Cycle Length: 140	
Offset: 106 (76%), Referenced to phase 2:NBT and 6:SBTL, Start of Yellow	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.80	
Intersection Signal Delay: 16.0	Intersection LOS: B
Intersection Capacity Utilization 84.1%	ICU Level of Service E
Analysis Period (min) 15	

Movement	NBT	NBR	SBL	SBT	NWL	NWR
Lane Configurations						
Volume (veh/h)	656	0	0	747	0	74
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	691	0	0	786	0	78
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)	323			1007		
pX, platoon unblocked			0.72		0.78	0.72
vC, conflicting volume			691		1477	691
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			374		1104	374
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		100	84
cM capacity (veh/h)			844		181	480

Direction, Lane #	NB 1	SB 1	NW 1
Volume Total	691	786	78
Volume Left	0	0	0
Volume Right	0	0	78
cSH	1700	1700	480
Volume to Capacity	0.41	0.46	0.16
Queue Length 95th (ft)	0	0	13
Control Delay (s)	0.0	0.0	13.9
Lane LOS			B
Approach Delay (s)	0.0	0.0	13.9
Approach LOS			B

Intersection Summary			
Average Delay	0.7		
Intersection Capacity Utilization	45.8%	ICU Level of Service	A
Analysis Period (min)	15		

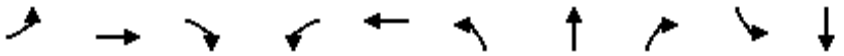


Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBT
Act Effct Green (s)	71.1	61.1	65.9	58.5	59.5	59.5	49.0
Actuated g/C Ratio	0.51	0.44	0.47	0.42	0.42	0.42	0.35
v/c Ratio	1.06	0.80	0.79	1.08	0.82	0.65	1.16
Control Delay	119.4	43.3	31.5	80.6	71.8	37.1	125.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	119.4	43.3	31.5	80.6	71.8	37.1	125.5
LOS	F	D	C	F	E	D	F
Approach Delay		60.6		72.2		43.3	125.5
Approach LOS		E		E		D	F

Intersection Summary	
Cycle Length: 140	
Actuated Cycle Length: 140	
Offset: 0 (0%), Referenced to phase 2:WBTL and 6:EBTL, Start of Yellow, Master Intersection	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 1.16	
Intersection Signal Delay: 75.6	Intersection LOS: E
Intersection Capacity Utilization 109.3%	ICU Level of Service H
Analysis Period (min) 15	

Lane Group	WBL	WBR	NBT	SBL	SBT
Act Effct Green (s)	21.3	21.3	78.7	107.7	107.7
Actuated g/C Ratio	0.15	0.15	0.56	0.77	0.77
v/c Ratio	0.59	0.84	0.73	0.70	0.44
Control Delay	62.7	20.6	13.9	18.1	7.8
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	62.7	20.6	13.9	18.1	7.8
LOS	E	C	B	B	A
Approach Delay	30.2		13.9		11.6
Approach LOS	C		B		B

Intersection Summary	
Cycle Length: 140	
Actuated Cycle Length: 140	
Offset: 107 (76%), Referenced to phase 2:NBT and 6:SBTL, Start of Yellow	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.84	
Intersection Signal Delay: 17.7	Intersection LOS: B
Intersection Capacity Utilization 79.6%	ICU Level of Service D
Analysis Period (min) 15	



Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Act Effct Green (s)	94.5	85.2	85.2	83.4	77.3	22.3	11.5	11.5	34.5	18.2
Actuated g/C Ratio	0.68	0.61	0.61	0.60	0.55	0.16	0.08	0.08	0.25	0.13
v/c Ratio	0.97	0.43	0.06	0.13	1.08	0.51	0.90	0.51	1.07	0.44
Control Delay	73.3	34.9	12.6	8.8	81.8	51.7	113.4	17.4	119.8	57.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	73.3	34.9	12.6	8.8	81.8	51.7	113.4	17.4	119.8	57.2
LOS	E	C	B	A	F	D	F	B	F	E
Approach Delay		43.2			77.4		63.0			103.3
Approach LOS		D			E		E			F

Intersection Summary	
Cycle Length: 140	
Actuated Cycle Length: 140	
Offset: 98 (70%), Referenced to phase 2:WBTL and 6:EBTL, Start of Yellow	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 1.08	
Intersection Signal Delay: 69.9	Intersection LOS: E
Intersection Capacity Utilization 107.5%	ICU Level of Service G
Analysis Period (min) 15	

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	0	0	61	0	0	13	0	560	62	0	711	30
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	0	0	64	0	0	14	0	589	65	0	748	32
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)											447	
pX, platoon unblocked	0.62	0.62	0.62	0.62	0.62		0.62					
vC, conflicting volume	1400	1354	764	1451	1402	622	780			589		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1338	1263	308	1420	1341	622	333			589		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	100	86	100	100	97	100			100		
cM capacity (veh/h)	77	104	449	60	93	483	753			976		

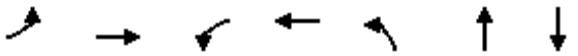
Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	64	14	655	780
Volume Left	0	0	0	0
Volume Right	64	14	65	32
cSH	449	483	1700	1700
Volume to Capacity	0.14	0.03	0.39	0.46
Queue Length 95th (ft)	11	2	0	0
Control Delay (s)	14.4	12.7	0.0	0.0
Lane LOS	B	B		
Approach Delay (s)	14.4	12.7	0.0	0.0
Approach LOS	B	B		

Intersection Summary				
Average Delay	0.7			
Intersection Capacity Utilization	49.7%	ICU Level of Service	A	
Analysis Period (min)	15			

Movement	NBT	NBR	SBL	SBT	NWL	NWR
Lane Configurations						
Volume (veh/h)	754	0	0	543	0	40
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	794	0	0	572	0	42
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)	323			1007		
pX, platoon unblocked			0.64		0.66	0.64
vC, conflicting volume			794		1365	794
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			400		1193	400
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		100	90
cM capacity (veh/h)			737		134	415

Direction, Lane #	NB 1	SB 1	NW 1
Volume Total	794	572	42
Volume Left	0	0	0
Volume Right	0	0	42
cSH	1700	1700	415
Volume to Capacity	0.47	0.34	0.10
Queue Length 95th (ft)	0	0	7
Control Delay (s)	0.0	0.0	14.7
Lane LOS			B
Approach Delay (s)	0.0	0.0	14.7
Approach LOS			B

Intersection Summary			
Average Delay	0.4		
Intersection Capacity Utilization	49.7%	ICU Level of Service	A
Analysis Period (min)	15		

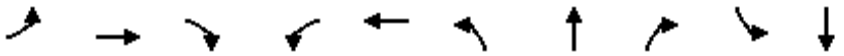


Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBT
Act Effct Green (s)	64.4	50.4	58.0	47.2	46.8	46.8	36.0
Actuated g/C Ratio	0.54	0.42	0.48	0.39	0.39	0.39	0.30
v/c Ratio	0.71	1.04	0.95	0.80	0.82	0.80	1.07
Control Delay	29.2	79.0	63.5	47.1	65.3	43.1	95.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	29.2	79.0	63.5	47.1	65.3	43.1	95.5
LOS	C	E	E	D	E	D	F
Approach Delay		68.0		51.5		47.2	95.5
Approach LOS		E		D		D	F

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 0 (0%), Referenced to phase 2:WBTL and 6:EBTL, Start of Yellow, Master Intersection	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 1.07	
Intersection Signal Delay: 64.2	Intersection LOS: E
Intersection Capacity Utilization 102.7%	ICU Level of Service G
Analysis Period (min) 15	

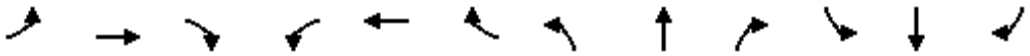
Lane Group	WBL	WBR	NBT	SBL	SBT
Act Effct Green (s)	12.8	12.8	56.4	96.2	96.2
Actuated g/C Ratio	0.11	0.11	0.47	0.80	0.80
v/c Ratio	0.51	0.68	0.99	0.90	0.32
Control Delay	59.2	13.9	41.9	53.2	4.1
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	59.2	13.9	41.9	53.2	4.1
LOS	E	B	D	D	A
Approach Delay	25.0		41.9		29.4
Approach LOS	C		D		C

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 92 (77%), Referenced to phase 2:NBT and 6:SBTL, Start of Yellow	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.99	
Intersection Signal Delay: 33.3	Intersection LOS: C
Intersection Capacity Utilization 89.5%	ICU Level of Service E
Analysis Period (min) 15	



Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Act Effct Green (s)	64.2	56.7	56.7	57.1	51.1	19.1	11.1	11.1	43.1	37.7
Actuated g/C Ratio	0.54	0.47	0.47	0.48	0.43	0.16	0.09	0.09	0.36	0.31
v/c Ratio	0.88	0.75	0.11	0.21	1.00	0.09	0.67	0.45	0.98	0.31
Control Delay	57.9	17.4	1.6	15.2	67.3	28.4	72.4	15.4	72.2	34.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	57.9	17.4	1.6	15.2	67.3	28.4	72.4	15.4	72.2	34.3
LOS	E	B	A	B	E	C	E	B	E	C
Approach Delay		23.7			64.4		43.0			62.1
Approach LOS		C			E		D			E

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 48 (40%), Referenced to phase 2:WBTL and 6:EBTL, Start of Yellow	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 1.00	
Intersection Signal Delay: 47.8	Intersection LOS: D
Intersection Capacity Utilization 95.5%	ICU Level of Service F
Analysis Period (min) 15	



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	0	0	53	0	0	10	0	644	86	0	674	10
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	0	0	56	0	0	11	0	678	91	0	709	11
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)											447	
pX, platoon unblocked	0.65	0.65	0.65	0.65	0.65		0.65					
vC, conflicting volume	1448	1393	715	1494	1443	723	720			678		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1421	1335	296	1490	1413	723	304			678		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	100	88	100	100	98	100			100		
cM capacity (veh/h)	72	99	482	58	89	423	816			905		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	56	11	768	720
Volume Left	0	0	0	0
Volume Right	56	11	91	11
cSH	482	423	1700	1700
Volume to Capacity	0.12	0.02	0.45	0.42
Queue Length 95th (ft)	8	2	0	0
Control Delay (s)	13.4	13.7	0.0	0.0
Lane LOS	B	B		
Approach Delay (s)	13.4	13.7	0.0	0.0
Approach LOS	B	B		

Intersection Summary				
Average Delay	0.6			
Intersection Capacity Utilization	49.1%	ICU Level of Service	A	
Analysis Period (min)	15			

Appendix D

CORSIM Simulation Outputs for Year 2010 No-Build Scenario and Phase 1A Build Scenarios

SR 426/ CR 419 PHASE IA NO BUILD SCENARIO

CORSIM OUTPUT for OPENING YEAR 2010 - AM DESIGN HOUR

NETSIM MOVEMENT SPECIFIC STATISTICS - TABLE I

		VEHICLE-MILE			VEHICLE-TRIPS			SPEED (MPH)			STOPS (PCT)		
		LEFT	THRU	RIGHT	LEFT	THRU	RIGHT	LEFT	THRU	RIGHT	LEFT	THRU	RIGHT
LINK	12, 9)	0.00	166.98	0.00	0	673	0	0.0	25.3	0.0	0.0	0.0	0.0
	14, 36)	0.00	40.58	0.00	0	280	0	0.0	30.1	0.0	0.0	0.0	0.0
(	14, 13)	0.00	160.09	0.00	0	745	0	0.0	33.0	0.0	0.0	0.0	0.0
(	15, 33)	0.00	27.14	0.00	0	222	0	0.0	25.6	0.0	0.0	0.0	0.0
(	17, 19)	0.00	32.37	0.00	0	154	0	0.0	26.7	0.0	0.0	0.0	0.0
(	17, 20)	0.00	159.48	0.00	0	744	0	0.0	25.6	0.0	0.0	0.0	0.0
(	17, 35)	0.00	36.81	0.00	0	358	0	0.0	26.3	0.0	0.0	0.0	0.0
(	22, 16)	0.00	119.62	0.00	0	618	0	0.0	25.5	0.0	0.0	0.0	0.0
(	22, 39)	0.00	0.65	0.00	0	15	0	0.0	23.5	0.0	0.0	0.0	0.0
(	15, 12)	5.68	30.80	0.00	100	542	0	1.8	5.1	0.0	100.0	50.9	0.0
LEFT (	15, 17)	7.22	88.85	13.44	36	443	67	9.3	16.8	23.7	80.6	53.9	46.3
(	12, 22)	1.18	47.34	1.27	14	560	15	8.0	14.9	21.0	71.4	23.6	0.0
(	35, 17)	17.48	5.79	2.32	166	55	22	1.3	1.3	1.3	97.0	100.0	95.5
(	1, 15)	3.90	6.64	3.75	54	92	52	0.4	0.5	0.6	70.4	98.9	100.0
(	17, 15)	0.00	85.84	0.80	0	428	4	0.0	2.6	2.1	0.0	100.0	100.0
(	12, 15)	0.80	28.30	0.00	14	498	0	1.7	3.1	0.0	100.0	67.9	0.0
(	40, 12)	3.67	27.71	8.07	60	453	132	3.3	3.9	3.4	63.3	50.3	61.4
(	19, 17)	20.15	25.88	28.85	95	122	136	4.6	7.1	21.7	97.9	94.3	86.0
(	36, 14)	9.59	0.00	62.75	66	0	432	2.1	0.0	6.0	100.0	0.0	100.0
(	20, 17)	7.10	74.23	43.89	33	345	204	3.6	3.4	3.4	97.0	95.4	94.1
(	39, 22)	0.00	0.00	2.57	0	0	59	0.0	0.0	11.0	0.0	0.0	100.0
(	13, 14)	51.00	137.22	0.00	236	635	0	8.2	6.8	0.0	75.8	69.4	0.0
(	40, 14)	0.00	59.70	8.77	0	313	46	0.0	29.2	26.3	0.0	7.3	4.3
(	33, 15)	1.22	0.00	0.49	10	0	4	0.1	0.0	0.1	100.0	0.0	100.0
(	15, 40)	0.00	0.00	21.04	0	0	252	0.0	0.0	19.2	0.0	0.0	0.0
(	9, 12)	27.29	143.90	8.93	110	580	36	4.3	4.4	4.5	100.0	100.0	100.0
(	12, 40)	0.00	6.79	0.00	0	111	0	0.0	7.3	0.0	0.0	100.0	0.0
(	22, 1)	0.00	22.04	0.00	0	411	0	0.0	2.4	0.0	0.0	67.9	0.0
(	14, 40)	0.00	124.92	0.00	0	655	0	0.0	4.3	0.0	0.0	86.0	0.0
(	16, 22)	0.00	0.00	78.78	0	0	407	0.0	0.0	2.5	0.0	0.0	86.7
(													
(													

SR 426/ CR 419 PHASE IA NO BUILD SCENARIO

CORSIM OUTPUT for OPENING YEAR 2010 - AM DESIGN HOUR

TOTAL VEHICLE- MILE = 2147.67 VEHICLE-HOURS OF: MOVE TIME = 65.00 , DELAY TIME = 305.28 , TOTAL TIME = 370.29

AVERAGE SPEED (MPH)= 5.80 MOVE/TOTAL = 0.18 MINUTES/MILE OF: DELAY TIME = 8.53 , TOTAL TIME = 10.34

NETWORK-WIDE AVERAGE STATISTICS

SR 426/ CR 419 PHASE IA NO BUILD SCENARIO

CORSIM OUTPUT for OPENING YEAR 2010 - PM DESIGN HOUR

NETSIM MOVEMENT SPECIFIC STATISTICS - TABLE I

			VEHICLE-MILE			VEHICLE-TRIPS			SPEED (MPH)			STOPS (PCT)		
			LEFT	THRU	RIGHT	LEFT	THRU	RIGHT	LEFT	THRU	RIGHT	LEFT	THRU	RIGHT
	12,	9)	0.00	110.66	0.00	0	446	0	0.0	25.1	0.0	0.0	0.0	0.0
	14,	36)	0.00	45.35	0.00	0	313	0	0.0	29.4	0.0	0.0	0.0	0.0
LINK	14,	13)	0.00	131.46	0.00	0	611	0	0.0	33.6	0.0	0.0	0.0	0.0
(	15,	33)	0.00	29.35	0.00	0	240	0	0.0	25.6	0.0	0.0	0.0	0.0
(	17,	19)	0.00	42.37	0.00	0	201	0	0.0	26.6	0.0	0.0	0.0	0.0
(	17,	20)	0.00	175.50	0.00	0	818	0	0.0	24.7	0.0	0.0	0.0	0.0
(	17,	35)	0.00	24.27	0.00	0	235	0	0.0	25.6	0.0	0.0	0.0	0.0
(	22,	16)	0.00	84.20	0.00	0	435	0	0.0	25.2	0.0	0.0	0.0	0.0
(	22,	39)	0.00	0.26	0.00	0	6	0	0.0	21.9	0.0	0.0	0.0	0.0
(	15,	12)	6.53	23.12	0.57	115	407	10	1.7	4.1	3.7	100.0	59.2	50.0
(	15,	17)	4.21	98.85	11.83	21	493	59	7.7	16.2	23.9	100.0	45.8	47.5
LEFT	12,	22)	0.76	32.90	0.51	9	389	6	8.6	15.5	14.6	66.7	22.6	16.7
(	35,	17)	24.01	11.48	0.74	228	109	7	1.5	1.4	2.1	100.0	98.2	100.0
(	1,	15)	4.83	10.32	5.12	67	143	71	0.5	0.7	0.9	76.1	100.0	100.0
(	17,	15)	0.00	73.65	0.40	0	367	2	0.0	2.1	2.7	0.0	100.0	100.0
(	12,	15)	0.28	28.30	0.00	5	498	0	1.2	3.0	0.0	100.0	72.1	0.0
(	40,	12)	3.43	16.95	2.39	56	277	39	1.9	1.8	2.2	71.4	71.5	64.1
(	19,	17)	4.03	20.58	23.97	19	97	113	7.7	5.8	20.2	89.5	88.7	84.1
(	36,	14)	6.68	0.00	40.38	46	0	278	4.5	0.0	22.5	100.0	0.0	100.0
(	20,	17)	8.18	77.24	23.45	38	359	109	3.0	2.7	2.8	100.0	100.0	100.0
(	39,	22)	0.00	0.00	2.27	0	0	52	0.0	0.0	13.0	0.0	0.0	100.0
(	13,	14)	54.67	70.45	0.00	253	326	0	3.9	3.0	0.0	92.5	97.9	0.0
(	40,	14)	0.00	58.74	10.30	0	308	54	0.0	26.3	23.7	0.0	11.3	12.3
(	33,	15)	3.06	0.00	0.00	25	0	0	0.1	0.0	0.0	100.0	0.0	0.0
(	15,	40)	0.00	0.00	17.96	0	0	215	0.0	0.0	19.2	0.0	0.0	0.0
(	9,	12)	29.28	135.71	3.72	118	547	15	3.8	3.4	3.6	100.0	100.0	100.0
(	12,	40)	0.00	7.81	0.00	0	128	0	0.0	8.0	0.0	0.0	100.0	0.0
(	22,	1)	0.00	25.69	0.00	0	479	0	0.0	2.8	0.0	0.0	58.0	0.0
(	14,	40)	0.00	70.38	0.00	0	369	0	0.0	2.0	0.0	0.0	100.0	0.0
(	16,	22)	0.00	0.00	91.17	0	0	471	0.0	0.0	2.5	0.0	0.0	100.0
(														
(														

SR 426/ CR 419 PHASE IA NO BUILD SCENARIO

CORSIM OUTPUT for OPENING YEAR 2010 - PM DESIGN HOUR

TOTAL VEHICLE- MILE = 1824.12 VEHICLE-HOURS OF: MOVE TIME = 55.66 , DELAY TIME = 339.65 , TOTAL TIME = 395.32

AVERAGE SPEED (MPH)= 4.61 MOVE/TOTAL = 0.14 MINUTES/MILE OF: DELAY TIME = 11.17 , TOTAL TIME = 13.00

NETWORK-WIDE AVERAGE STATISTICS

Phase 1A 2010 AM Deign Hour Build Scenario 1

1 NETSIM MOVEMENT SPECIFIC STATISTICS - TABLE I

		VEHICLE-MILE			VEHICLE-TRIPS			SPEED (MPH)			STOPS (PCT)		
		LEFT	THRU	RIGHT	LEFT	THRU	RIGHT	LEFT	THRU	RIGHT	LEFT	THRU	RIGHT
	2, 1)	0.00	241.10	0.00	0	973	0	0.0	28.2	0.0	0.0	0.0	0.0
LINK	3, 12)	0.00	1.95	0.00	0	12	0	0.0	28.6	0.0	0.0	0.0	0.0
(	4, 19)	0.00	39.59	0.00	0	188	0	0.0	31.2	0.0	0.0	0.0	0.0
(	4, 5)	0.00	181.56	0.00	0	846	0	0.0	32.7	0.0	0.0	0.0	0.0
(	4, 35)	0.00	65.82	0.00	0	638	0	0.0	28.4	0.0	0.0	0.0	0.0
(	7, 6)	0.00	151.75	0.00	0	784	0	0.0	25.8	0.0	0.0	0.0	0.0
(	7, 39)	0.00	0.96	0.00	0	22	0	0.0	23.8	0.0	0.0	0.0	0.0
(	9, 36)	0.00	66.54	0.00	0	461	0	0.0	29.1	0.0	0.0	0.0	0.0
(	9, 10)	0.00	98.33	0.00	0	1023	0	0.0	30.3	0.0	0.0	0.0	0.0
(	2, 7)	0.00	61.22	1.86	0	724	22	0.0	24.4	20.4	0.0	0.3	4.5
LEFT	20, 4)	30.08	79.74	10.51	186	493	65	7.3	13.3	20.1	100.0	78.5	69.7
(	39, 7)	0.00	0.00	2.57	0	0	59	0.0	0.0	9.3	0.0	0.0	100.0
(	5, 4)	13.77	148.02	67.56	64	688	314	14.6	14.6	14.9	68.8	66.9	69.4
(	35, 4)	24.75	6.11	2.84	235	58	27	3.2	4.8	8.0	99.1	96.6	96.3
(	7, 2)	7.11	41.40	0.42	84	489	5	3.5	6.2	9.1	98.8	74.2	80.0
(	8, 2)	4.71	32.79	8.99	77	536	147	5.7	4.4	4.1	75.3	49.4	56.5
(	3, 2)	13.18	56.89	0.00	174	751	0	4.2	5.8	0.0	96.0	51.1	0.0
(	10, 9)	26.33	64.22	0.00	271	661	0	10.8	22.6	0.0	79.3	28.0	0.0
(	36, 9)	22.08	0.00	74.23	152	0	511	7.3	0.0	17.0	88.8	0.0	84.3
(	14, 3)	0.00	0.00	3.90	0	0	55	0.0	0.0	13.0	0.0	0.0	100.0
(	40, 9)	0.00	72.03	27.65	0	521	200	0.0	18.6	20.4	0.0	19.3	19.0
(	19, 4)	26.30	28.21	22.27	124	133	105	8.8	7.2	21.6	95.2	97.0	97.1
(	20, 3)	0.00	16.50	0.26	0	751	12	0.0	7.6	8.3	0.0	16.2	8.3
(	8, 40)	0.00	38.19	0.00	0	728	0	0.0	25.1	0.0	0.0	0.5	0.0
(	4, 20)	0.00	132.67	0.00	0	821	0	0.0	16.4	0.0	0.0	41.3	0.0
(	3, 20)	0.00	15.86	0.00	0	722	0	0.0	27.6	0.0	0.0	0.0	0.0
(	40, 8)	0.00	40.08	0.00	0	764	0	0.0	7.1	0.0	0.0	32.3	0.0
(	1, 2)	45.65	146.63	8.68	184	591	35	7.9	13.8	16.0	100.0	73.6	71.4
(	6, 7)	0.00	108.97	10.65	0	563	55	0.0	29.7	26.4	0.0	2.1	1.8
(	12, 3)	0.00	0.00	28.31	0	0	174	0.0	0.0	3.0	0.0	0.0	100.0
(	14, 7)	0.00	0.00	0.29	0	0	5	0.0	0.0	7.2	0.0	0.0	100.0
(	7, 14)	0.00	3.22	0.00	0	55	0	0.0	25.9	0.0	0.0	0.0	0.0
(	3, 8)	0.00	0.00	5.27	0	0	54	0.0	0.0	13.8	0.0	0.0	100.0
(	2, 8)	0.00	41.17	0.00	0	673	0	0.0	24.1	0.0	0.0	0.0	0.0
(	3, 14)	0.00	0.00	0.00	0	0	0	0.0	0.0	0.0	0.0	0.0	0.0
(	9, 40)	0.00	108.81	0.00	0	787	0	0.0	18.4	0.0	0.0	18.8	0.0
(	2, 3)	0.00	50.60	0.00	0	668	0	0.0	27.4	0.0	0.0	0.1	0.0
(	1)				0	812	0						
(	5)				0	1057	0						
(	6)				0	620	0						

(8001,
(8005,
(8006,

```
            10)                                 0     931       0
            12)                                 0     186       0
 (8010,     19)                                 0     367       0
            35)                                 0     321       0
(8012,      36)                                 0     669       0
(8019,      39)                                 0      59       0
(8035,
(8036,
(8039,

TOTAL VEHICLE- MILE =      2632.56     VEHICLE-HOURS OF:  MOVE TIME =    75.99 , DELAY TIME =   108.44 , TOTAL TIME =   184.44

AVERAGE SPEED ( MPH)=        14.27     MOVE/TOTAL = 0.41       MINUTES/MILE OF:  DELAY TIME =     2.47 , TOTAL TIME =     4.20

NETWORK-WIDE STATISTICS FOR SCRIPT PROCESSING
                75.99,   108.44,   184.44,      14.27, 0.41,     2.47,     4.20

2632.56
TOTAL CPU TIME FOR SIMULATION =       22.83 SECONDS
TOTAL CPU TIME FOR THIS RUN =       22.83 SECONDS


------------------------------
NETWORK-WIDE AVERAGE STATISTICS
------------------------------
```

Phase 1A 2010 AM Design Hour Build Scenario 2

1 NETSIM MOVEMENT SPECIFIC STATISTICS - TABLE I

LINK		VEHICLE-MILE			VEHICLE-TRIPS			SPEED (MPH)			STOPS (PCT)		
		LEFT	THRU	RIGHT	LEFT	THRU	RIGHT	LEFT	THRU	RIGHT	LEFT	THRU	RIGHT
(2, 3)		0.00	1.95	0.00	0	12	0	0.0	28.5	0.0	0.0	0.0	0.0
(12, 9)		0.00	241.34	0.00	0	974	0	0.0	28.3	0.0	0.0	0.0	0.0
(14, 36)		0.00	79.47	0.00	0	550	0	0.0	28.9	0.0	0.0	0.0	0.0
(14, 13)		0.00	99.30	0.00	0	1033	0	0.0	29.8	0.0	0.0	0.0	0.0
(17, 19)		0.00	41.11	0.00	0	195	0	0.0	31.2	0.0	0.0	0.0	0.0
(17, 20)		0.00	178.76	0.00	0	833	0	0.0	32.6	0.0	0.0	0.0	0.0
(17, 35)		0.00	65.83	0.00	0	638	0	0.0	28.7	0.0	0.0	0.0	0.0
(22, 16)		0.00	147.49	0.00	0	762	0	0.0	25.9	0.0	0.0	0.0	0.0
(22, 39)		0.00	1.09	0.00	0	25	0	0.0	24.2	0.0	0.0	0.0	0.0
(4, 12)		0.00	31.81	9.18	0	520	150	0.0	3.6	4.0	0.0	56.9	58.7
LEFT 5, 2)		0.00	25.43	0.41	0	750	12	0.0	10.7	6.1	0.0	19.9	33.3
(5, 17)		27.42	62.62	8.69	183	418	58	5.5	12.2	18.1	100.0	87.3	81.4
(39, 22)		0.00	0.00	2.57	0	0	59	0.0	0.0	8.8	0.0	0.0	100.0
(12, 22)		0.00	59.61	2.11	0	705	25	0.0	24.4	20.6	0.0	0.4	4.0
(1, 2)		0.00	0.00	3.90	0	0	55	0.0	0.0	12.6	0.0	0.0	100.0
(35, 17)		31.17	7.48	1.79	296	71	17	4.5	5.2	8.3	92.9	93.0	94.1
(13, 14)		33.71	57.32	0.00	347	590	0	8.4	19.9	0.0	82.1	31.5	0.0
(2, 12)		13.18	57.12	0.00	174	754	0	4.6	6.3	0.0	92.0	54.5	0.0
(36, 14)		21.79	0.00	74.23	150	0	511	7.6	0.0	17.3	85.3	0.0	82.4
(19, 17)		26.52	28.64	22.27	125	135	105	11.1	6.4	22.3	92.0	95.6	92.4
(40, 14)		0.00	72.31	28.48	0	523	206	0.0	16.3	17.3	0.0	42.1	42.2
(20, 17)		13.77	146.95	66.91	64	683	311	15.7	13.9	14.5	68.8	69.4	74.3
(22, 12)		6.94	40.64	0.42	82	480	5	4.5	6.8	8.5	98.8	70.6	40.0
(40, 4)		0.00	35.20	0.00	0	671	0	0.0	5.3	0.0	0.0	40.5	0.0
(16, 22)		0.00	109.75	10.65	0	567	55	0.0	29.9	26.4	0.0	0.5	1.8
(2, 5)		0.00	21.80	0.00	0	643	0	0.0	27.4	0.0	0.0	0.2	0.0
(17, 5)		0.00	122.62	0.00	0	819	0	0.0	20.9	0.0	0.0	20.4	0.0
(1, 22)		0.00	0.00	0.00	0	0	0	0.0	0.0	0.0	0.0	0.0	0.0
(4, 40)		0.00	37.98	0.00	0	724	0	0.0	25.2	0.0	0.0	0.3	0.0
(9, 12)		45.40	146.13	8.93	183	589	36	8.9	14.7	14.4	99.5	71.8	75.0
(3, 2)		0.00	0.00	29.45	0	0	181	0.0	0.0	8.9	0.0	0.0	100.0
(22, 1)		0.00	3.22	0.00	0	55	0	0.0	26.0	0.0	0.0	0.0	0.0
(12, 2)		0.00	44.69	0.00	0	590	0	0.0	27.6	0.0	0.0	0.3	0.0
(14, 40)		0.00	97.33	0.00	0	704	0	0.0	15.9	0.0	0.0	22.3	0.0
(2, 1)		0.00	0.00	0.00	0	0	0	0.0	0.0	0.0	0.0	0.0	0.0
(12, 4)		0.00	40.80	0.00	0	667	0	0.0	24.1	0.0	0.0	0.3	0.0
(2, 4)		0.00	0.00	5.36	0	0	55	0.0	0.0	13.8	0.0	0.0	100.0
(3)					0	186	0						
(9)					0	812	0						
(13)					0	931	0						
(8003, 16)					0	620	0						
(8009,													
(8013,													
(8016,													

```
            19)                                   0     367        0
            20)                                   0    1057        0
 (8019,     35)                                   0     384        0
            36)                                   0     669        0
(8020,      39)                                   0      59        0
(8035,
(8036,
(8039,
```

TOTAL VEHICLE- MILE = 2603.07 VEHICLE-HOURS OF: MOVE TIME = 75.02 , DELAY TIME = 101.60 , TOTAL TIME = 176.62

AVERAGE SPEED (MPH)= 14.74 MOVE/TOTAL = 0.42 MINUTES/MILE OF: DELAY TIME = 2.34 , TOTAL TIME = 4.07

NETWORK-WIDE STATISTICS FOR SCRIPT PROCESSING

75.02, 101.60, 176.62, 14.74, 0.42, 2.34, 4.07

2603.07

TOTAL CPU TIME FOR SIMULATION = 22.27 SECONDS

TOTAL CPU TIME FOR THIS RUN = 22.27 SECONDS

0LAST CASE PROCESSED

NETWORK-WIDE AVERAGE STATISTICS

Phase 1A 2010 PM Design Hour Build Scenario 1

1 NETSIM MOVEMENT SPECIFIC STATISTICS - TABLE I

		VEHICLE-MILE			VEHICLE-TRIPS			SPEED (MPH)			STOPS (PCT)		
		LEFT	THRU	RIGHT	LEFT	THRU	RIGHT	LEFT	THRU	RIGHT	LEFT	THRU	RIGHT
	2, 1)	0.00	173.97	0.00	0	702	0	0.0	29.4	0.0	0.0	0.0	0.0
LINK	3, 12)	0.00	0.98	0.00	0	6	0	0.0	29.3	0.0	0.0	0.0	0.0
(	4, 19)	0.00	59.85	0.00	0	284	0	0.0	31.4	0.0	0.0	0.0	0.0
	4, 5)	0.00	252.79	0.00	0	1177	0	0.0	32.8	0.0	0.0	0.0	0.0
(	4, 35)	0.00	46.31	0.00	0	446	0	0.0	28.0	0.0	0.0	0.0	0.0
(	7, 6)	0.00	115.28	0.00	0	698	0	0.0	25.3	0.0	0.0	0.0	0.0
(	7, 39)	0.00	0.30	0.00	0	7	0	0.0	26.1	0.0	0.0	0.0	0.0
(	9, 36)	0.00	95.59	0.00	0	662	0	0.0	28.8	0.0	0.0	0.0	0.0
(	9, 10)	0.00	78.23	0.00	0	811	0	0.0	30.6	0.0	0.0	0.0	0.0
(	2, 7)	0.00	55.40	0.59	0	655	7	0.0	24.4	21.3	0.0	0.6	0.0
LEFT	20, 4)	26.62	96.51	13.17	184	667	91	9.4	18.2	21.9	91.4	21.8	37.4
(	39, 7)	0.00	0.00	2.27	0	0	52	0.0	0.0	9.1	0.0	0.0	100.0
(	5, 4)	10.54	122.21	32.27	49	568	150	14.6	15.8	17.4	87.8	66.0	62.0
(	35, 4)	42.96	15.58	0.42	408	148	4	6.1	7.6	8.2	87.7	74.3	75.0
(	7, 2)	8.38	46.65	0.42	99	551	5	3.2	4.6	5.6	94.9	77.0	60.0
(	8, 2)	6.67	27.04	6.00	109	442	98	2.6	4.3	4.6	98.2	62.0	71.4
(	3, 2)	15.45	37.73	1.06	204	498	14	2.8	5.0	4.5	99.5	66.1	92.9
(	10, 9)	37.50	52.76	0.00	386	543	0	8.7	29.1	0.0	77.2	19.7	0.0
(	36, 9)	14.82	0.00	39.37	102	0	271	6.6	0.0	23.3	94.1	0.0	92.3
(	14, 3)	0.00	0.00	5.81	0	0	82	0.0	0.0	7.1	0.0	0.0	100.0
(	40, 9)	0.00	74.94	38.02	0	542	275	0.0	18.7	19.5	0.0	22.9	20.7
(	19, 4)	4.88	22.91	21.42	23	108	101	13.4	7.9	21.4	87.0	97.2	92.1
(	20, 3)	0.00	21.73	0.23	0	557	6	0.0	19.0	17.7	0.0	4.8	0.0
(	8, 40)	0.00	43.23	0.00	0	824	0	0.0	25.7	0.0	0.0	0.1	0.0
(	4, 20)	0.00	86.37	0.00	0	597	0	0.0	29.2	0.0	0.0	0.3	0.0
(	3, 20)	0.00	36.28	0.00	0	930	0	0.0	27.8	0.0	0.0	0.2	0.0
(	40, 8)	0.00	33.89	0.00	0	646	0	0.0	12.6	0.0	0.0	22.8	0.0
(	1, 2)	57.81	180.62	5.95	233	728	24	8.3	9.2	9.4	98.7	93.7	100.0
(	6, 7)	0.00	107.02	13.21	0	648	80	0.0	21.4	22.3	0.0	22.8	16.2
(	12, 3)	0.00	0.00	27.49	0	0	169	0.0	0.0	12.0	0.0	0.0	100.0
(	14, 7)	0.00	0.00	0.00	0	0	0	0.0	0.0	0.0	0.0	0.0	0.0
(	7, 14)	0.00	4.68	0.00	0	80	0	0.0	25.8	0.0	0.0	0.0	0.0
(	3, 8)	0.00	0.00	3.32	0	0	34	0.0	0.0	9.7	0.0	0.0	100.0
(	2, 8)	0.00	48.67	0.00	0	796	0	0.0	24.0	0.0	0.0	0.4	0.0
(	3, 14)	0.00	0.00	0.00	0	0	0	0.0	0.0	0.0	0.0	0.0	0.0
(	9, 40)	0.00	89.31	0.00	0	646	0	0.0	26.2	0.0	0.0	4.6	0.0
(	2, 3)	0.00	64.00	0.00	0	845	0	0.0	27.7	0.0	0.0	0.1	0.0
(	1)				0	1010	0						
(	5)				0	764	0						
(	6)				0	729	0						

(8001,
(8005,
(8006,

```
            10)                                 0     931        0
            12)                                 0     168        0
 (8010,     19)                                 0     238        0
            35)                                 0     559        0
(8012,      36)                                 0     372        0
(8019,      39)                                 0      52        0
(8035,
(8036,
(8039,
```

TOTAL VEHICLE- MILE = 2528.83 VEHICLE-HOURS OF: MOVE TIME = 72.75 , DELAY TIME = 96.13 , TOTAL TIME = 168.89

AVERAGE SPEED (MPH)= 14.97 MOVE/TOTAL = 0.43 MINUTES/MILE OF: DELAY TIME = 2.28 , TOTAL TIME = 4.01

NETWORK-WIDE STATISTICS FOR SCRIPT PROCESSING

72.75, 96.13, 168.89, 14.97, 0.43, 2.28, 4.01

2528.83

TOTAL CPU TIME FOR SIMULATION = 22.13 SECONDS

TOTAL CPU TIME FOR THIS RUN = 22.13 SECONDS

0LAST CASE PROCESSED

NETWORK-WIDE AVERAGE STATISTICS

Phase 1A 2010 PM Design Hour Build Scenario 2

1 NETSIM MOVEMENT SPECIFIC STATISTICS - TABLE I

		VEHICLE-MILE			VEHICLE-TRIPS			SPEED (MPH)			STOPS (PCT)		
		LEFT	THRU	RIGHT	LEFT	THRU	RIGHT	LEFT	THRU	RIGHT	LEFT	THRU	RIGHT
	2, 3)	0.00	0.98	0.00	0	6	0	0.0	29.0	0.0	0.0	0.0	0.0
LINK	12, 9)	0.00	176.95	0.00	0	714	0	0.0	29.1	0.0	0.0	0.0	0.0
(	14, 36)	0.00	111.27	0.00	0	770	0	0.0	29.0	0.0	0.0	0.0	0.0
	14, 13)	0.00	79.11	0.00	0	820	0	0.0	30.0	0.0	0.0	0.0	0.0
(	17, 19)	0.00	59.68	0.00	0	283	0	0.0	31.6	0.0	0.0	0.0	0.0
(	17, 20)	0.00	253.86	0.00	0	1182	0	0.0	32.8	0.0	0.0	0.0	0.0
(	17, 35)	0.00	44.52	0.00	0	429	0	0.0	28.1	0.0	0.0	0.0	0.0
(	22, 16)	0.00	115.61	0.00	0	700	0	0.0	25.6	0.0	0.0	0.0	0.0
(	22, 39)	0.00	0.35	0.00	0	8	0	0.0	25.6	0.0	0.0	0.0	0.0
(	4, 12)	0.00	26.24	5.87	0	429	96	0.0	3.9	4.3	0.0	75.3	81.2
LEFT	5, 2)	0.00	21.73	0.23	0	557	6	0.0	18.5	17.7	0.0	7.5	0.0
(	5, 17)	24.16	85.52	11.72	167	591	81	8.3	24.7	24.1	88.1	11.5	11.1
(	39, 22)	0.00	0.00	2.27	0	0	52	0.0	0.0	12.0	0.0	0.0	100.0
(	12, 22)	0.00	54.97	0.68	0	650	8	0.0	24.6	21.4	0.0	0.0	0.0
(	1, 2)	0.00	0.00	5.60	0	0	79	0.0	0.0	10.8	0.0	0.0	100.0
(	35, 17)	50.86	16.43	0.53	483	156	5	6.2	8.4	9.5	90.9	73.7	60.0
(	13, 14)	47.80	42.26	0.00	492	435	0	7.5	22.6	0.0	78.3	28.7	0.0
(	2, 12)	15.38	38.33	1.06	203	506	14	3.4	6.7	7.5	93.6	79.6	64.3
(	36, 14)	14.67	0.00	39.37	101	0	271	7.5	0.0	22.2	90.1	0.0	90.8
(	19, 17)	5.30	22.70	21.64	25	107	102	16.1	8.4	20.1	80.0	90.7	98.0
(	40, 14)	0.00	76.04	38.85	0	550	281	0.0	12.1	12.3	0.0	55.3	55.9
(	20, 17)	9.90	123.71	32.49	46	575	151	15.0	14.8	15.6	82.6	73.7	76.8
(	22, 12)	8.38	46.14	0.42	99	545	5	4.7	6.5	10.2	97.0	77.8	80.0
(	40, 4)	0.00	27.75	0.00	0	529	0	0.0	15.1	0.0	0.0	20.2	0.0
(	16, 22)	0.00	107.02	13.38	0	648	81	0.0	29.6	26.7	0.0	2.9	0.0
(	2, 5)	0.00	32.07	0.00	0	822	0	0.0	27.8	0.0	0.0	0.0	0.0
(	17, 5)	0.00	86.51	0.00	0	598	0	0.0	28.1	0.0	0.0	1.5	0.0
(	1, 22)	0.00	0.00	0.00	0	0	0	0.0	0.0	0.0	0.0	0.0	0.0
(	4, 40)	0.00	43.49	0.00	0	829	0	0.0	24.0	0.0	0.0	2.5	0.0
(	9, 12)	58.30	183.60	6.70	235	740	27	10.1	10.2	9.5	98.7	98.5	100.0
(	3, 2)	0.00	0.00	27.49	0	0	169	0.0	0.0	16.4	0.0	0.0	100.0
(	22, 1)	0.00	4.74	0.00	0	81	0	0.0	25.9	0.0	0.0	0.0	0.0
(	12, 2)	0.00	56.28	0.00	0	743	0	0.0	27.8	0.0	0.0	0.0	0.0
(	14, 40)	0.00	73.97	0.00	0	535	0	0.0	27.1	0.0	0.0	1.1	0.0
(	2, 1)	0.00	0.00	0.00	0	0	0	0.0	0.0	0.0	0.0	0.0	0.0
(	12, 4)	0.00	48.67	0.00	0	796	0	0.0	24.1	0.0	0.0	0.0	0.0
(	2, 4)	0.00	0.00	3.41	0	0	35	0.0	0.0	13.9	0.0	0.0	100.0
(	3)				0	168	0						
(													
(													
(8003,													

	9)	0	1010	0
	13)	0	931	0
(8009,	16)	0	729	0
	19)	0	238	0
(8013,	20)	0	764	0
(8016,	35)	0	648	0
(8019,	36)	0	372	0
(8020,	39)	0	52	0
(8035,				
(8036,				
(8039,				

TOTAL VEHICLE- MILE = 2508.31 VEHICLE-HOURS OF: MOVE TIME = 72.01 , DELAY TIME = 87.02 , TOTAL TIME = 159.03

AVERAGE SPEED (MPH)= 15.77 MOVE/TOTAL = 0.45 MINUTES/MILE OF: DELAY TIME = 2.08 , TOTAL TIME = 3.80

NETWORK-WIDE STATISTICS FOR SCRIPT PROCESSING

72.01, 87.02, 159.03, 15.77, 0.45, 2.08, 3.80

2508.31

TOTAL CPU TIME FOR SIMULATION = 21.70 SECONDS

TOTAL CPU TIME FOR THIS RUN = 21.70 SECONDS

0LAST CASE PROCESSED

NETWORK-WIDE AVERAGE STATISTICS

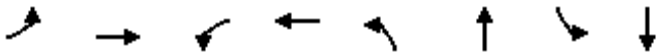
Appendix E

SYNCHRO Intersection Analysis Outputs for Year 2010 Original Phase 1 Build Scenario (Source: Year 2008 Phase 1 Study) and Revised Phase 1 Build Scenario (Source: Current Study)

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (veh/h)	815	2	0	1125	0	26
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	858	2	0	1184	0	27
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)	300			400		
pX, platoon unblocked			0.63		0.81	0.63
vC, conflicting volume			860		2043	859
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			481		1159	480
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		100	93
cM capacity (veh/h)			673		174	366

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	860	1184	27
Volume Left	0	0	0
Volume Right	2	0	27
cSH	1700	1700	366
Volume to Capacity	0.51	0.70	0.07
Queue Length 95th (ft)	0	0	5
Control Delay (s)	0.0	0.0	15.6
Lane LOS			C
Approach Delay (s)	0.0	0.0	15.6
Approach LOS			C

Intersection Summary			
Average Delay	0.2		
Intersection Capacity Utilization	62.5%	ICU Level of Service	B
Analysis Period (min)	15		

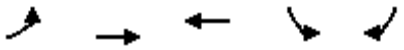


Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Act Effct Green (s)	85.2	76.5	88.4	78.1	32.0	25.3	38.4	28.5
Actuated g/C Ratio	0.61	0.55	0.63	0.56	0.23	0.18	0.27	0.20
v/c Ratio	0.86	0.73	0.54	1.01	0.79	0.85	0.83	1.01
Control Delay	74.4	29.2	11.3	47.2	77.5	68.2	73.4	83.9
Queue Delay	0.0	0.0	0.0	3.2	0.0	0.0	0.0	0.0
Total Delay	74.4	29.2	11.3	50.4	77.5	68.2	73.4	83.9
LOS	E	C	B	D	E	E	E	F
Approach Delay		36.5		44.6		69.8		82.2
Approach LOS		D		D		E		F

Intersection Summary	
Cycle Length: 140	
Actuated Cycle Length: 140	
Offset: 8 (6%), Referenced to phase 2:WBTL and 6:EBTL, Start of Yellow	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 1.01	
Intersection Signal Delay: 56.3	Intersection LOS: E
Intersection Capacity Utilization 99.0%	ICU Level of Service F
Analysis Period (min) 15	

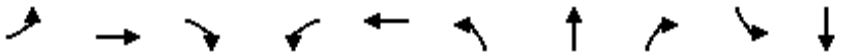
Lane Group	WBL	WBR	NBT	SBL	SBT
Act Effct Green (s)	20.3	20.3	91.0	108.7	108.7
Actuated g/C Ratio	0.14	0.14	0.65	0.78	0.78
v/c Ratio	0.62	0.80	0.65	0.46	0.54
Control Delay	65.8	19.8	13.0	8.0	8.6
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	65.8	19.8	13.0	8.0	8.6
LOS	E	B	B	A	A
Approach Delay	31.7		13.0		8.4
Approach LOS	C		B		A

Intersection Summary	
Cycle Length: 140	
Actuated Cycle Length: 140	
Offset: 110 (79%), Referenced to phase 2:NBT and 6:SBTL, Start of Yellow	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.80	
Intersection Signal Delay: 16.0	Intersection LOS: B
Intersection Capacity Utilization 75.6%	ICU Level of Service D
Analysis Period (min) 15	



Lane Group	EBL	EBT	WBT	SBL	SBR
Act Effct Green (s)	119.6	119.6	104.4	9.4	9.4
Actuated g/C Ratio	0.85	0.85	0.75	0.07	0.07
v/c Ratio	0.49	0.45	0.72	0.12	0.69
Control Delay	8.1	2.7	8.3	61.3	20.2
Queue Delay	0.0	0.2	1.0	0.0	0.3
Total Delay	8.1	2.9	9.4	61.3	20.5
LOS	A	A	A	E	C
Approach Delay		4.0	9.4	23.1	
Approach LOS		A	A	C	

Intersection Summary	
Cycle Length: 140	
Actuated Cycle Length: 140	
Offset: 11 (8%), Referenced to phase 2:WBT and 6:EBTL, Start of Yellow	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.72	
Intersection Signal Delay: 8.5	Intersection LOS: A
Intersection Capacity Utilization 77.1%	ICU Level of Service D
Analysis Period (min) 15	



Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Act Effct Green (s)	97.1	92.2	92.2	97.1	92.2	20.8	12.5	12.5	23.2	13.7
Actuated g/C Ratio	0.69	0.66	0.66	0.69	0.66	0.15	0.09	0.09	0.17	0.10
v/c Ratio	0.23	0.51	0.07	0.14	0.90	0.56	0.83	0.48	0.84	0.51
Control Delay	8.6	12.1	2.3	6.3	32.1	60.7	98.7	16.4	85.8	63.2
Queue Delay	0.0	0.2	0.0	0.0	0.9	0.0	0.0	0.0	0.0	0.0
Total Delay	8.6	12.2	2.3	6.3	33.0	60.7	98.7	16.4	85.8	63.2
LOS	A	B	A	A	C	E	F	B	F	E
Approach Delay		11.1			31.4		60.3			77.3
Approach LOS		B			C		E			E

Intersection Summary	
Cycle Length: 140	
Actuated Cycle Length: 140	
Offset: 1 (1%), Referenced to phase 2:WBTL and 6:EBTL, Start of Yellow	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.90	
Intersection Signal Delay: 34.6	Intersection LOS: C
Intersection Capacity Utilization 84.7%	ICU Level of Service E
Analysis Period (min) 15	

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	0	0	61	0	0	13	0	596	26	0	711	30
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	0	0	64	0	0	14	0	627	27	0	748	32
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								Raised			Raised	
Median storage veh)								1			1	
Upstream signal (ft)											447	
pX, platoon unblocked	0.82	0.82	0.82	0.82	0.82		0.82					
vC, conflicting volume	1092	1392	390	1079	1421	327	780			627		
vC1, stage 1 conf vol	764	764		641	641							
vC2, stage 2 conf vol	327	627		438	780							
vCu, unblocked vol	676	1041	0	661	1077	327	297			627		
tC, single (s)	7.6	6.6	7.0	7.6	6.6	7.0	4.2			4.2		
tC, 2 stage (s)	6.6	5.6		6.6	5.6							
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	100	93	100	100	98	100			100		
cM capacity (veh/h)	399	315	885	352	308	662	1030			937		

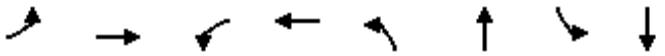
Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	64	14	418	236	499	281
Volume Left	0	0	0	0	0	0
Volume Right	64	14	0	27	0	32
cSH	885	662	1700	1700	1700	1700
Volume to Capacity	0.07	0.02	0.25	0.14	0.29	0.17
Queue Length 95th (ft)	5	1	0	0	0	0
Control Delay (s)	9.4	10.5	0.0	0.0	0.0	0.0
Lane LOS	A	B				
Approach Delay (s)	9.4	10.5	0.0		0.0	
Approach LOS	A	B				

Intersection Summary				
Average Delay	0.5			
Intersection Capacity Utilization	31.1%	ICU Level of Service	A	
Analysis Period (min)	15			

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (veh/h)	1080	6	0	863	0	26
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	1137	6	0	908	0	27
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)	300			400		
pX, platoon unblocked			0.43		0.54	0.43
vC, conflicting volume			1143		2048	1140
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			661		1540	654
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		100	86
cM capacity (veh/h)			390		70	198

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	1143	908	27
Volume Left	0	0	0
Volume Right	6	0	27
cSH	1700	1700	198
Volume to Capacity	0.67	0.53	0.14
Queue Length 95th (ft)	0	0	10
Control Delay (s)	0.0	0.0	26.1
Lane LOS			D
Approach Delay (s)	0.0	0.0	26.1
Approach LOS			D

Intersection Summary			
Average Delay	0.3		
Intersection Capacity Utilization	67.2%	ICU Level of Service	C
Analysis Period (min)	15		

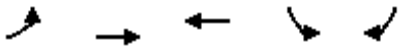


Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Act Effct Green (s)	61.8	52.7	64.6	54.1	25.5	19.1	32.1	22.4
Actuated g/C Ratio	0.56	0.48	0.59	0.49	0.23	0.17	0.29	0.20
v/c Ratio	0.54	1.03	0.94	0.78	0.75	1.02	0.92	0.80
Control Delay	16.4	68.7	69.4	35.0	58.9	87.3	74.4	50.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	16.4	68.7	69.4	35.0	58.9	87.3	74.4	50.0
LOS	B	E	E	C	E	F	E	D
Approach Delay		60.6		43.2		82.5		56.4
Approach LOS		E		D		F		E

Intersection Summary	
Cycle Length: 110	
Actuated Cycle Length: 110	
Offset: 94 (85%), Referenced to phase 2:WBTL and 6:EBTL, Start of Yellow	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 1.03	
Intersection Signal Delay: 59.9	Intersection LOS: E
Intersection Capacity Utilization 99.1%	ICU Level of Service F
Analysis Period (min) 15	

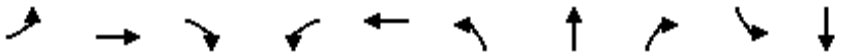
Lane Group	WBL	WBR	NBT	SBL	SBT
Act Effct Green (s)	12.2	12.2	65.2	86.8	86.8
Actuated g/C Ratio	0.11	0.11	0.59	0.79	0.79
v/c Ratio	0.48	0.62	0.77	0.66	0.47
Control Delay	53.4	12.9	25.8	14.6	5.5
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	53.4	12.9	25.8	14.6	5.5
LOS	D	B	C	B	A
Approach Delay	24.2		25.8		8.3
Approach LOS	C		C		A

Intersection Summary	
Cycle Length: 110	
Actuated Cycle Length: 110	
Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBTL, Start of Yellow	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.77	
Intersection Signal Delay: 17.5	Intersection LOS: B
Intersection Capacity Utilization 77.2%	ICU Level of Service D
Analysis Period (min) 15	



Lane Group	EBL	EBT	WBT	SBL	SBR
Act Effct Green (s)	89.6	89.6	74.2	9.4	9.4
Actuated g/C Ratio	0.81	0.81	0.67	0.09	0.09
v/c Ratio	0.46	0.62	0.59	0.26	0.61
Control Delay	2.2	1.5	3.6	50.0	15.8
Queue Delay	0.0	1.0	0.2	0.0	0.0
Total Delay	2.2	2.4	3.8	50.0	15.8
LOS	A	A	A	D	B
Approach Delay		2.4	3.8	21.8	
Approach LOS		A	A	C	

Intersection Summary	
Cycle Length: 110	
Actuated Cycle Length: 110	
Offset: 26 (24%), Referenced to phase 2:WBT and 6:EBTL, Start of Yellow	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.62	
Intersection Signal Delay: 4.9	Intersection LOS: A
Intersection Capacity Utilization 67.0%	ICU Level of Service C
Analysis Period (min) 15	



Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Act Effct Green (s)	65.6	60.8	60.8	67.8	65.4	19.0	11.0	11.0	28.6	23.6
Actuated g/C Ratio	0.60	0.55	0.55	0.62	0.59	0.17	0.10	0.10	0.26	0.21
v/c Ratio	0.07	0.86	0.11	0.27	0.72	0.08	0.62	0.43	0.85	0.42
Control Delay	6.0	21.2	1.1	11.9	21.6	31.6	62.8	14.1	60.9	42.5
Queue Delay	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	6.0	21.3	1.1	11.9	21.6	31.6	62.8	14.1	60.9	42.5
LOS	A	C	A	B	C	C	E	B	E	D
Approach Delay		18.9			21.0		38.2			54.0
Approach LOS		B			C		D			D

Intersection Summary	
Cycle Length: 110	
Actuated Cycle Length: 110	
Offset: 10 (9%), Referenced to phase 2:WBTL and 6:EBTL, Start of Yellow	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.86	
Intersection Signal Delay: 27.9	Intersection LOS: C
Intersection Capacity Utilization 80.1%	ICU Level of Service D
Analysis Period (min) 15	

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	0	0	53	0	0	10	0	704	26	0	674	10
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	0	0	56	0	0	11	0	741	27	0	709	11
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								Raised			Raised	
Median storage veh)								1			1	
Upstream signal (ft)											447	
pX, platoon unblocked	0.87	0.87	0.87	0.87	0.87		0.87					
vC, conflicting volume	1096	1456	360	1165	1475	384	720			741		
vC1, stage 1 conf vol	715	715		755	755							
vC2, stage 2 conf vol	381	741		411	720							
vCu, unblocked vol	801	1217	0	881	1239	384	367			741		
tC, single (s)	7.6	6.6	7.0	7.6	6.6	7.0	4.2			4.2		
tC, 2 stage (s)	6.6	5.6		6.6	5.6							
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	100	94	100	100	98	100			100		
cM capacity (veh/h)	364	282	933	298	278	608	1023			849		

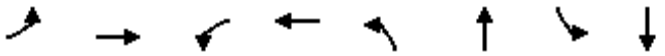
Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	56	11	494	274	473	247
Volume Left	0	0	0	0	0	0
Volume Right	56	11	0	27	0	11
cSH	933	608	1700	1700	1700	1700
Volume to Capacity	0.06	0.02	0.29	0.16	0.28	0.15
Queue Length 95th (ft)	4	1	0	0	0	0
Control Delay (s)	9.1	11.0	0.0	0.0	0.0	0.0
Lane LOS	A	B				
Approach Delay (s)	9.1	11.0	0.0		0.0	
Approach LOS	A	B				

Intersection Summary				
Average Delay	0.4			
Intersection Capacity Utilization	30.3%	ICU Level of Service	A	
Analysis Period (min)	15			

Movement	NBT	NBR	SBL	SBT	NWL	NWR
Lane Configurations						
Volume (veh/h)	656	0	0	750	0	74
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	691	0	0	789	0	78
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)	323			1007		
pX, platoon unblocked			0.88		0.88	0.88
vC, conflicting volume			691		1085	345
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			382		829	0
tC, single (s)			4.2		6.9	7.0
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		100	92
cM capacity (veh/h)			1022		269	951

Direction, Lane #	NB 1	NB 2	SB 1	SB 2	NW 1
Volume Total	345	345	395	395	78
Volume Left	0	0	0	0	0
Volume Right	0	0	0	0	78
cSH	1700	1700	1700	1700	951
Volume to Capacity	0.20	0.20	0.23	0.23	0.08
Queue Length 95th (ft)	0	0	0	0	6
Control Delay (s)	0.0	0.0	0.0	0.0	9.1
Lane LOS					A
Approach Delay (s)	0.0		0.0		9.1
Approach LOS					A

Intersection Summary			
Average Delay	0.5		
Intersection Capacity Utilization	29.4%	ICU Level of Service	A
Analysis Period (min)	15		

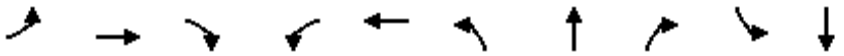


Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Act Effct Green (s)	77.5	67.5	78.5	68.0	36.8	31.2	36.0	29.0
Actuated g/C Ratio	0.60	0.52	0.60	0.52	0.28	0.24	0.28	0.22
v/c Ratio	0.84	0.68	0.47	0.86	0.72	0.59	0.33	0.92
Control Delay	52.6	27.5	10.4	25.6	62.2	47.8	37.3	60.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	52.6	27.5	10.4	25.6	62.2	47.8	37.3	60.8
LOS	D	C	B	C	E	D	D	E
Approach Delay		33.2		23.0		50.3		58.6
Approach LOS		C		C		D		E

Intersection Summary	
Cycle Length: 130	
Actuated Cycle Length: 130	
Offset: 0 (0%), Referenced to phase 2:WBTL and 6:EBTL, Start of Yellow, Master Intersection	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.92	
Intersection Signal Delay: 39.3	Intersection LOS: D
Intersection Capacity Utilization 91.7%	ICU Level of Service F
Analysis Period (min) 15	

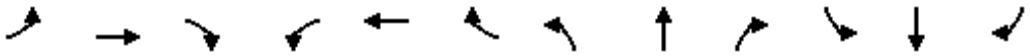
Lane Group	WBL	WBR	NBT	SBL	SBT
Act Effct Green (s)	19.6	19.6	78.5	99.4	99.4
Actuated g/C Ratio	0.15	0.15	0.60	0.76	0.76
v/c Ratio	0.60	0.84	0.68	0.60	0.49
Control Delay	59.6	20.3	13.0	10.6	8.1
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	59.6	20.3	13.0	10.6	8.1
LOS	E	C	B	B	A
Approach Delay	29.3		13.0		8.8
Approach LOS	C		B		A

Intersection Summary	
Cycle Length: 130	
Actuated Cycle Length: 130	
Offset: 95 (73%), Referenced to phase 2:NBT and 6:SBTL, Start of Yellow	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.84	
Intersection Signal Delay: 16.1	Intersection LOS: B
Intersection Capacity Utilization 79.6%	ICU Level of Service D
Analysis Period (min) 15	



Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Act Effct Green (s)	89.5	80.6	80.6	79.4	73.3	20.6	11.5	11.5	26.6	14.5
Actuated g/C Ratio	0.69	0.62	0.62	0.61	0.56	0.16	0.09	0.09	0.20	0.11
v/c Ratio	0.96	0.47	0.07	0.13	1.05	0.51	0.84	0.49	1.03	0.46
Control Delay	78.6	26.0	9.5	7.6	71.5	51.5	96.5	16.2	113.0	55.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	78.6	26.0	9.5	7.6	71.5	51.5	96.5	16.2	113.0	55.1
LOS	E	C	A	A	E	D	F	B	F	E
Approach Delay		37.5			67.6		56.4			96.2
Approach LOS		D			E		E			F

Intersection Summary	
Cycle Length: 130	
Actuated Cycle Length: 130	
Offset: 105 (81%), Referenced to phase 2:WBTL and 6:EBTL, Start of Yellow	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 1.05	
Intersection Signal Delay: 60.6	Intersection LOS: E
Intersection Capacity Utilization 104.7%	ICU Level of Service G
Analysis Period (min) 15	



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	0	0	61	0	0	13	0	560	62	0	711	30
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	0	0	64	0	0	14	0	589	65	0	748	32
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)											447	
pX, platoon unblocked	0.83	0.83	0.83	0.83	0.83		0.83					
vC, conflicting volume	1400	1354	390	1061	1402	622	780			589		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1081	1025	0	673	1083	622	337			589		
tC, single (s)	7.6	6.6	7.0	7.6	6.6	7.0	4.2			4.2		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	100	93	100	100	97	100			100		
cM capacity (veh/h)	137	192	898	261	177	425	1010			968		

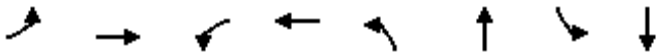
Direction, Lane #	EB 1	WB 1	NB 1	SB 1	SB 2
Volume Total	64	14	655	499	281
Volume Left	0	0	0	0	0
Volume Right	64	14	65	0	32
cSH	898	425	1700	1700	1700
Volume to Capacity	0.07	0.03	0.39	0.29	0.17
Queue Length 95th (ft)	5	2	0	0	0
Control Delay (s)	9.3	13.8	0.0	0.0	0.0
Lane LOS	A	B			
Approach Delay (s)	9.3	13.8	0.0	0.0	
Approach LOS	A	B			

Intersection Summary				
Average Delay	0.5			
Intersection Capacity Utilization	43.2%	ICU Level of Service	A	
Analysis Period (min)	15			

Movement	NBT	NBR	SBL	SBT	NWL	NWR
Lane Configurations						
Volume (veh/h)	754	0	0	640	0	40
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	794	0	0	674	0	42
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)	323			1007		
pX, platoon unblocked			0.86		0.86	0.86
vC, conflicting volume			794		1131	397
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			424		817	0
tC, single (s)			4.2		6.9	7.0
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		100	95
cM capacity (veh/h)			957		266	923

Direction, Lane #	NB 1	NB 2	SB 1	SB 2	NW 1
Volume Total	397	397	337	337	42
Volume Left	0	0	0	0	0
Volume Right	0	0	0	0	42
cSH	1700	1700	1700	1700	923
Volume to Capacity	0.23	0.23	0.20	0.20	0.05
Queue Length 95th (ft)	0	0	0	0	3
Control Delay (s)	0.0	0.0	0.0	0.0	9.1
Lane LOS					A
Approach Delay (s)	0.0		0.0		9.1
Approach LOS					A

Intersection Summary			
Average Delay	0.3		
Intersection Capacity Utilization	30.8%	ICU Level of Service	A
Analysis Period (min)	15		

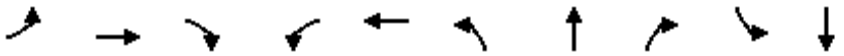


Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Act Effct Green (s)	65.7	53.5	65.1	53.2	29.0	22.0	28.2	21.6
Actuated g/C Ratio	0.60	0.49	0.59	0.48	0.26	0.20	0.26	0.20
v/c Ratio	0.54	0.90	0.79	0.65	0.71	0.79	0.57	0.83
Control Delay	13.8	40.8	33.3	32.3	54.0	51.6	43.6	50.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	13.8	40.8	33.3	32.3	54.0	51.6	43.6	50.0
LOS	B	D	C	C	D	D	D	D
Approach Delay		34.8		32.5		52.0		49.0
Approach LOS		C		C		D		D

Intersection Summary	
Cycle Length: 110	
Actuated Cycle Length: 110	
Offset: 0 (0%), Referenced to phase 2:WBTL and 6:EBTL, Start of Yellow, Master Intersection	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.90	
Intersection Signal Delay: 40.9	Intersection LOS: D
Intersection Capacity Utilization 88.8%	ICU Level of Service E
Analysis Period (min) 15	

Lane Group	WBL	WBR	NBT	SBL	SBT
Act Effct Green (s)	12.3	12.3	56.2	86.7	86.7
Actuated g/C Ratio	0.11	0.11	0.51	0.79	0.79
v/c Ratio	0.48	0.67	0.91	0.83	0.40
Control Delay	53.2	13.1	26.7	41.7	4.9
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	53.2	13.1	26.7	41.7	4.9
LOS	D	B	C	D	A
Approach Delay	22.9		26.7		20.0
Approach LOS	C		C		C

Intersection Summary	
Cycle Length: 110	
Actuated Cycle Length: 110	
Offset: 84 (76%), Referenced to phase 2:NBT and 6:SBTL, Start of Yellow	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.91	
Intersection Signal Delay: 23.0	Intersection LOS: C
Intersection Capacity Utilization 84.1%	ICU Level of Service E
Analysis Period (min) 15	



Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Act Effct Green (s)	61.2	53.7	53.7	54.1	48.1	19.1	11.1	11.1	36.1	30.7
Actuated g/C Ratio	0.56	0.49	0.49	0.49	0.44	0.17	0.10	0.10	0.33	0.28
v/c Ratio	0.84	0.82	0.12	0.25	0.98	0.08	0.62	0.43	0.93	0.33
Control Delay	54.7	19.0	1.1	14.3	57.5	27.4	62.3	14.1	62.8	35.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	54.7	19.0	1.1	14.3	57.5	27.4	62.3	14.1	62.8	35.1
LOS	D	B	A	B	E	C	E	B	E	D
Approach Delay		23.7			55.1		37.6			54.7
Approach LOS		C			E		D			D

Intersection Summary	
Cycle Length: 110	
Actuated Cycle Length: 110	
Offset: 40 (36%), Referenced to phase 2:WBTL and 6:EBTL, Start of Yellow	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.98	
Intersection Signal Delay: 41.4	Intersection LOS: D
Intersection Capacity Utilization 91.4%	ICU Level of Service F
Analysis Period (min) 15	

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	0	0	53	0	0	10	0	644	86	0	674	10
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	0	0	56	0	0	11	0	678	91	0	709	11
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)											447	
pX, platoon unblocked	0.87	0.87	0.87	0.87	0.87		0.87					
vC, conflicting volume	1064	1393	360	1134	1443	384	720			678		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	787	1163	0	867	1220	384	394			678		
tC, single (s)	7.6	6.6	7.0	7.6	6.6	7.0	4.2			4.2		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	100	94	100	100	98	100			100		
cM capacity (veh/h)	239	167	943	201	154	608	1010			897		

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	56	11	452	316	473	247
Volume Left	0	0	0	0	0	0
Volume Right	56	11	0	91	0	11
cSH	943	608	1700	1700	1700	1700
Volume to Capacity	0.06	0.02	0.27	0.19	0.28	0.15
Queue Length 95th (ft)	4	1	0	0	0	0
Control Delay (s)	9.1	11.0	0.0	0.0	0.0	0.0
Lane LOS	A	B				
Approach Delay (s)	9.1	11.0	0.0		0.0	
Approach LOS	A	B				

Intersection Summary				
Average Delay	0.4			
Intersection Capacity Utilization	30.5%	ICU Level of Service	A	
Analysis Period (min)	15			

Appendix F

CORSIM Simulation Outputs for Year 2010 Phase 1 Build Scenario

Phase 1 2010 AM Design Hour Build Scenario

1 NETSIM MOVEMENT SPECIFIC STATISTICS - TABLE I

			VEHICLE-MILE			VEHICLE-TRIPS			SPEED (MPH)			STOPS (PCT)		
				THRU	RIGHT	LEFT	THRU	RIGHT	LEFT	THRU	RIGHT	LEFT	THRU	RIGHT
	2,	3)	0.00	1.95	0.00	0	12	0	0.0	28.5	0.0	0.0	0.0	0.0
LINK	12,	9)	0.00	243.94	0.00	0	987	0	0.0	28.5	0.0	0.0	0.0	0.0
(	14,	36)	0.00	67.42	0.00	0	467	0	0.0	28.9	0.0	0.0	0.0	0.0
	14,	13)	0.00	96.09	0.00	0	1000	0	0.0	30.1	0.0	0.0	0.0	0.0
(	17,	19)	0.00	39.17	0.00	0	186	0	0.0	31.1	0.0	0.0	0.0	0.0
(	17,	20)	0.00	180.92	0.00	0	843	0	0.0	32.7	0.0	0.0	0.0	0.0
(	17,	35)	0.00	66.28	0.00	0	642	0	0.0	28.8	0.0	0.0	0.0	0.0
(	22,	16)	0.00	149.82	0.00	0	774	0	0.0	27.3	0.0	0.0	0.0	0.0
(	22,	39)	0.00	1.00	0.00	0	23	0	0.0	26.9	0.0	0.0	0.0	0.0
(	4,	12)	4.89	32.79	8.69	80	536	142	4.0	3.3	3.4	87.5	85.3	88.0
LEFT	5,	2)	0.00	25.73	0.41	0	759	12	0.0	23.9	14.7	0.0	4.5	16.7
(	5,	17)	29.21	74.01	9.59	195	494	64	8.0	13.6	22.5	98.0	60.4	55.4
(	39,	22)	0.00	0.00	2.57	0	0	59	0.0	0.0	15.2	0.0	0.0	100.0
(	12,	22)	0.00	61.48	1.94	0	727	23	0.0	25.4	20.4	0.0	0.1	0.0
(	1,	2)	0.00	0.00	3.90	0	0	55	0.0	0.0	12.3	0.0	0.0	100.0
(	35,	17)	25.06	6.11	2.84	238	58	27	5.8	5.8	10.9	95.0	91.4	92.6
(	13,	14)	26.52	63.93	0.00	273	658	0	10.1	21.0	0.0	80.6	33.9	0.0
(	2,	12)	13.64	57.05	0.00	180	753	0	8.7	9.2	0.0	90.0	41.7	0.0
(	36,	14)	22.66	0.00	74.38	156	0	512	8.8	0.0	18.3	84.6	0.0	84.2
(	19,	17)	26.73	29.48	22.27	126	139	105	11.6	7.6	24.0	90.5	92.8	93.3
(	40,	14)	0.00	69.54	26.82	0	503	194	0.0	18.2	21.0	0.0	23.7	17.1
(	20,	17)	13.34	145.23	65.19	62	675	303	14.6	13.5	14.7	85.5	74.7	73.3
(	22,	12)	7.03	40.72	0.42	83	481	5	5.6	5.3	5.9	96.4	84.4	80.0
(	40,	4)	0.00	39.50	0.00	0	753	0	0.0	24.8	0.0	0.0	2.5	0.0
(	16,	22)	0.00	109.75	10.65	0	567	55	0.0	30.5	26.6	0.0	0.0	0.0
(	2,	5)	0.00	24.61	0.00	0	726	0	0.0	28.1	0.0	0.0	0.0	0.0
(	17,	5)	0.00	123.48	0.00	0	825	0	0.0	28.5	0.0	0.0	0.6	0.0
(	1,	22)	0.00	0.00	0.00	0	0	0	0.0	0.0	0.0	0.0	0.0	0.0
(	4,	40)	0.00	37.83	0.00	0	721	0	0.0	17.2	0.0	0.0	25.9	0.0
(	9,	12)	46.40	144.40	8.68	187	582	35	15.8	17.9	16.7	93.6	60.0	68.6
(	3,	2)	0.00	0.00	29.93	0	0	184	0.0	0.0	17.4	0.0	0.0	100.0
(	22,	1)	0.00	3.22	0.00	0	55	0	0.0	27.7	0.0	0.0	0.0	0.0
(	12,	2)	0.00	50.72	0.00	0	670	0	0.0	27.8	0.0	0.0	0.0	0.0
(	14,	40)	0.00	108.39	0.00	0	784	0	0.0	26.4	0.0	0.0	0.2	0.0
(	2,	1)	0.00	0.00	0.00	0	0	0	0.0	0.0	0.0	0.0	0.0	0.0
(	12,	4)	0.00	40.80	0.00	0	667	0	0.0	23.9	0.0	0.0	0.4	0.0
(	2,	4)	0.00	0.00	5.46	0	0	56	0.0	0.0	19.1	0.0	0.0	100.0
(		3)				0	186	0						
(		9)				0	812	0						
(		13)				0	931	0						

(8003,
(8009,
(8013,

TOTAL VEHICLE- MILE = 2626.62 VEHICLE-HOURS OF: MOVE TIME = 75.84 , DELAY TIME = 77.51 , TOTAL TIME = 153.35

AVERAGE SPEED (MPH)= 17.13 MOVE/TOTAL = 0.49 MINUTES/MILE OF: DELAY TIME = 1.77 , TOTAL TIME = 3.50

NETWORK-WIDE STATISTICS FOR SCRIPT PROCESSING

75.84, 77.51, 153.35, 17.13, 0.49, 1.77, 3.50

2626.62

TOTAL CPU TIME FOR SIMULATION = 21.14 SECONDS

TOTAL CPU TIME FOR THIS RUN = 21.14 SECONDS

0LAST CASE PROCESSED

NETWORK-WIDE AVERAGE STATISTICS

Phase 1 2010 PM Design Hour Build Scenario

1 NETSIM MOVEMENT SPECIFIC STATISTICS - TABLE I

			VEHICLE-MILE			VEHICLE-TRIPS			SPEED (MPH)			STOPS (PCT)		
			LEFT	THRU	RIGHT	LEFT	THRU	RIGHT	LEFT	THRU	RIGHT	LEFT	THRU	RIGHT
	2,	3)	0.00	1.14	0.00	0	7	0	0.0	30.1	0.0	0.0	0.0	0.0
LINK	12,	9)	0.00	180.70	0.00	0	731	0	0.0	29.2	0.0	0.0	0.0	0.0
(	14,	36)	0.00	96.59	0.00	0	669	0	0.0	28.9	0.0	0.0	0.0	0.0
	14,	13)	0.00	80.08	0.00	0	830	0	0.0	30.4	0.0	0.0	0.0	0.0
(	17,	19)	0.00	60.27	0.00	0	286	0	0.0	31.4	0.0	0.0	0.0	0.0
(	17,	20)	0.00	256.66	0.00	0	1195	0	0.0	32.5	0.0	0.0	0.0	0.0
(	17,	35)	0.00	46.84	0.00	0	451	0	0.0	28.2	0.0	0.0	0.0	0.0
(	22,	16)	0.00	121.22	0.00	0	734	0	0.0	27.5	0.0	0.0	0.0	0.0
(	22,	39)	0.00	0.30	0.00	0	7	0	0.0	29.7	0.0	0.0	0.0	0.0
(	4,	12)	6.61	27.04	6.18	108	442	101	4.1	3.8	4.7	95.4	86.2	93.1
LEFT	5,	2)	0.00	22.43	0.27	0	575	7	0.0	23.4	18.0	0.0	3.7	0.0
(	5,	17)	27.49	96.22	13.02	190	665	90	9.3	20.3	22.7	90.6	24.3	25.6
(	39,	22)	0.00	0.00	2.27	0	0	52	0.0	0.0	13.9	0.0	0.0	100.0
(	12,	22)	0.00	58.02	0.59	0	686	7	0.0	25.3	21.5	0.0	0.0	0.0
(	1,	2)	0.00	0.00	5.60	0	0	79	0.0	0.0	9.9	0.0	0.0	100.0
(	35,	17)	43.28	15.69	0.42	411	149	4	7.1	8.6	10.5	91.5	76.5	75.0
(	13,	14)	36.92	52.66	0.00	380	542	0	8.8	28.1	0.0	81.3	22.0	0.0
(	2,	12)	16.97	40.76	1.14	224	538	15	7.7	8.0	7.4	85.3	80.9	93.3
(	36,	14)	14.67	0.00	39.37	101	0	271	7.6	0.0	22.9	96.0	0.0	87.8
(	19,	17)	5.30	23.55	21.85	25	111	103	17.0	10.1	20.8	84.0	92.8	82.5
(	40,	14)	0.00	77.29	39.54	0	559	286	0.0	14.2	15.4	0.0	41.0	41.6
(	20,	17)	9.90	119.62	32.27	46	556	150	15.6	15.4	17.3	89.1	74.5	69.3
(	22,	12)	8.30	45.63	0.42	98	539	5	5.9	5.3	4.9	99.0	89.4	80.0
(	40,	4)	0.00	33.94	0.00	0	647	0	0.0	27.5	0.0	0.0	0.0	0.0
(	16,	22)	0.00	107.02	13.38	0	648	81	0.0	30.9	26.8	0.0	0.0	0.0
(	2,	5)	0.00	36.40	0.00	0	933	0	0.0	27.4	0.0	0.0	0.5	0.0
(	17,	5)	0.00	85.21	0.00	0	589	0	0.0	28.8	0.0	0.0	0.5	0.0
(	1,	22)	0.00	0.00	0.00	0	0	0	0.0	0.0	0.0	0.0	0.0	0.0
(	4,	40)	0.00	43.96	0.00	0	838	0	0.0	16.9	0.0	0.0	25.9	0.0
(	9,	12)	58.55	185.58	6.70	236	748	27	17.2	15.5	14.2	85.6	78.1	88.9
(	3,	2)	0.00	0.00	27.66	0	0	170	0.0	0.0	18.8	0.0	0.0	100.0
(	22,	1)	0.00	4.74	0.00	0	81	0	0.0	27.4	0.0	0.0	0.0	0.0
(	12,	2)	0.00	64.82	0.00	0	856	0	0.0	27.3	0.0	0.0	0.0	0.0
(	14,	40)	0.00	89.31	0.00	0	646	0	0.0	26.9	0.0	0.0	0.5	0.0
(	2,	1)	0.00	0.00	0.00	0	0	0	0.0	0.0	0.0	0.0	0.0	0.0
(	12,	4)	0.00	48.79	0.00	0	798	0	0.0	23.8	0.0	0.0	0.3	0.0
(	2,	4)	0.00	0.00	3.71	0	0	38	0.0	0.0	18.5	0.0	0.0	100.0
(		3)				0	168	0						
(		9)				0	1010	0						
(		13)				0	931	0						
(8003,														
(8009,														
(8013,														

	16)	0	729	0
	19)	0	238	0
(8016,	20)	0	764	0
	35)	0	559	0
(8019,	36)	0	372	0
(8020,	39)	0	52	0
(8035,				
(8036,				
(8039,				

TOTAL VEHICLE- MILE = 2566.29 VEHICLE-HOURS OF: MOVE TIME = 73.80 , DELAY TIME = 71.40 , TOTAL TIME = 145.20

AVERAGE SPEED (MPH)= 17.67 MOVE/TOTAL = 0.51 MINUTES/MILE OF: DELAY TIME = 1.67 , TOTAL TIME = 3.39

NETWORK-WIDE STATISTICS FOR SCRIPT PROCESSING

73.80, 71.40, 145.20, 17.67, 0.51, 1.67, 3.39

2566.29

TOTAL CPU TIME FOR SIMULATION = 20.95 SECONDS

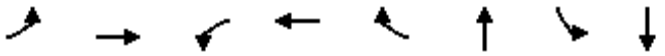
TOTAL CPU TIME FOR THIS RUN = 20.95 SECONDS

0LAST CASE PROCESSED

NETWORK-WIDE AVERAGE STATISTICS

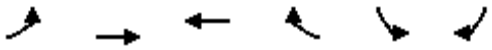
Appendix G

SYNCHRO Intersection Analysis Outputs for Year 2010 & Year 2030 PD&E Re-Evaluation Build Conditions



Lane Group	EBL	EBT	WBL	WBT	WBR	NBT	SBL	SBT
Act Effct Green (s)	37.4	35.5	33.4	33.4	30.7	12.2	13.2	12.2
Actuated g/C Ratio	0.55	0.52	0.49	0.49	0.45	0.18	0.19	0.18
v/c Ratio	0.34	0.50	0.17	0.66	0.16	0.02	0.47	0.40
Control Delay	18.6	13.1	11.8	16.2	3.1	24.0	34.6	8.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	18.6	13.1	11.8	16.2	3.1	24.0	34.6	8.9
LOS	B	B	B	B	A	C	C	A
Approach Delay		13.8		14.8		24.0		20.0
Approach LOS		B		B		C		C

Intersection Summary	
Cycle Length: 100	
Actuated Cycle Length: 68.5	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.66	
Intersection Signal Delay: 15.0	Intersection LOS: B
Intersection Capacity Utilization 65.5%	ICU Level of Service C
Analysis Period (min) 15	



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (veh/h)	195	824	1081	140	97	141
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.70	0.90	0.90	0.70	0.70	0.70
Hourly flow rate (vph)	279	916	1201	200	139	201
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		Raised	Raised			
Median storage veh)		1	1			
Upstream signal (ft)		580				
pX, platoon unblocked					0.88	
vC, conflicting volume	1401				2216	601
vC1, stage 1 conf vol					1201	
vC2, stage 2 conf vol					1015	
vCu, unblocked vol	1401				2111	601
tC, single (s)	4.2				6.8	6.9
tC, 2 stage (s)					5.8	
tF (s)	2.2				3.5	3.3
p0 queue free %	41				0	55
cM capacity (veh/h)	473				95	446

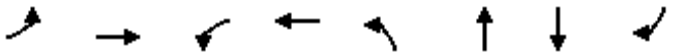
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	SB 1	SB 2
Volume Total	279	458	458	601	601	200	139	201
Volume Left	279	0	0	0	0	0	139	0
Volume Right	0	0	0	0	0	200	0	201
cSH	473	1700	1700	1700	1700	1700	95	446
Volume to Capacity	0.59	0.27	0.27	0.35	0.35	0.12	1.46	0.45
Queue Length 95th (ft)	74	0	0	0	0	0	209	46
Control Delay (s)	22.9	0.0	0.0	0.0	0.0	0.0	337.1	19.5
Lane LOS	C						F	C
Approach Delay (s)	5.3			0.0			149.0	
Approach LOS							F	

Intersection Summary			
Average Delay	19.4		
Intersection Capacity Utilization	56.1%	ICU Level of Service	B
Analysis Period (min)	15		

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (veh/h)	831	88	0	1221	0	82
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	875	93	0	1285	0	86
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	Raised			Raised		
Median storage veh)	1			1		
Upstream signal (ft)	686					
pX, platoon unblocked			0.92		0.92	0.92
vC, conflicting volume			967		1349	484
vC1, stage 1 conf vol					921	
vC2, stage 2 conf vol					428	
vCu, unblocked vol			792		1207	267
tC, single (s)			4.2		6.8	6.9
tC, 2 stage (s)					5.8	
tF (s)			2.2		3.5	3.3
p0 queue free %			100		100	87
cM capacity (veh/h)			747		292	676

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	WB 3	NB 1
Volume Total	583	384	428	428	428	86
Volume Left	0	0	0	0	0	0
Volume Right	0	93	0	0	0	86
cSH	1700	1700	1700	1700	1700	676
Volume to Capacity	0.34	0.23	0.25	0.25	0.25	0.13
Queue Length 95th (ft)	0	0	0	0	0	9
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	11.1
Lane LOS						B
Approach Delay (s)	0.0		0.0			11.1
Approach LOS						B

Intersection Summary			
Average Delay	0.4		
Intersection Capacity Utilization	37.5%	ICU Level of Service	A
Analysis Period (min)	15		



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBT	SBR
Act Effct Green (s)	48.2	48.2	46.8	46.8	15.5	15.5	15.1	15.1
Actuated g/C Ratio	0.48	0.48	0.47	0.47	0.16	0.16	0.15	0.15
v/c Ratio	0.40	0.50	0.08	0.68	0.44	0.56	0.51	0.28
Control Delay	23.5	21.4	13.9	16.0	42.7	42.3	44.9	10.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	23.5	21.4	13.9	16.0	42.7	42.3	44.9	10.2
LOS	C	C	B	B	D	D	D	B
Approach Delay		21.6		16.0		42.5	31.5	
Approach LOS		C		B		D	C	

Intersection Summary	
Cycle Length: 100	
Actuated Cycle Length: 100	
Offset: 18 (18%), Referenced to phase 2:WBTL and 6:EBTL, Start of Yellow	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.68	
Intersection Signal Delay: 22.3	Intersection LOS: C
Intersection Capacity Utilization 62.9%	ICU Level of Service B
Analysis Period (min) 15	

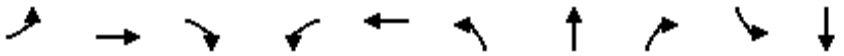
Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Act Effct Green (s)	10.2	34.2	48.7	36.3	36.3	35.7	26.7	39.3	28.5
Actuated g/C Ratio	0.10	0.34	0.49	0.36	0.36	0.36	0.27	0.39	0.28
v/c Ratio	0.63	0.59	0.51	0.68	0.24	0.47	0.57	0.44	0.79
Control Delay	59.9	26.8	11.8	21.5	3.0	25.5	34.1	24.0	36.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	59.9	26.8	11.8	21.5	3.0	25.5	34.1	24.0	36.7
LOS	E	C	B	C	A	C	C	C	D
Approach Delay		34.6		17.6			32.6		34.6
Approach LOS		C		B			C		C

Intersection Summary	
Cycle Length: 100	
Actuated Cycle Length: 100	
Offset: 15 (15%), Referenced to phase 2:WBTL and 6:EBT, Start of Yellow	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.79	
Intersection Signal Delay: 28.7	Intersection LOS: C
Intersection Capacity Utilization 68.4%	ICU Level of Service C
Analysis Period (min) 15	

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (veh/h)	770	2	0	1140	0	68
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	811	2	0	1200	0	72
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)	300			1070		
pX, platoon unblocked			0.84		0.90	0.84
vC, conflicting volume			813		1412	406
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			399		439	0
tC, single (s)			4.2		6.9	7.0
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		100	92
cM capacity (veh/h)			961		487	906

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1
Volume Total	540	272	600	600	72
Volume Left	0	0	0	0	0
Volume Right	0	2	0	0	72
cSH	1700	1700	1700	1700	906
Volume to Capacity	0.32	0.16	0.35	0.35	0.08
Queue Length 95th (ft)	0	0	0	0	5
Control Delay (s)	0.0	0.0	0.0	0.0	9.3
Lane LOS					A
Approach Delay (s)	0.0		0.0		9.3
Approach LOS					A

Intersection Summary			
Average Delay	0.3		
Intersection Capacity Utilization	34.8%	ICU Level of Service	A
Analysis Period (min)	15		

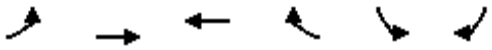


Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Act Effct Green (s)	60.5	51.3	51.3	53.8	45.6	26.5	15.9	15.9	11.1	16.4
Actuated g/C Ratio	0.60	0.51	0.51	0.54	0.46	0.26	0.16	0.16	0.11	0.16
v/c Ratio	0.50	0.32	0.08	0.13	0.72	0.47	0.49	0.35	0.46	0.69
Control Delay	12.1	11.9	4.8	5.9	15.6	39.4	43.8	9.4	45.9	32.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	12.1	11.9	4.8	5.9	15.6	39.4	43.8	9.4	45.9	32.3
LOS	B	B	A	A	B	D	D	A	D	C
Approach Delay		11.3			15.1		31.6			37.9
Approach LOS		B			B		C			D

Intersection Summary	
Cycle Length: 100	
Actuated Cycle Length: 100	
Offset: 77 (77%), Referenced to phase 2:WBTL and 6:EBTL, Start of Yellow	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.72	
Intersection Signal Delay: 19.9	Intersection LOS: B
Intersection Capacity Utilization 72.5%	ICU Level of Service C
Analysis Period (min) 15	

Lane Group	EBL	EBT	WBL	WBT	NBT	SBT
Act Effct Green (s)	57.6	50.1	64.2	60.0	19.2	9.4
Actuated g/C Ratio	0.58	0.50	0.64	0.60	0.19	0.09
v/c Ratio	0.04	0.46	0.34	0.46	0.71	0.18
Control Delay	8.1	12.5	16.4	15.1	43.8	32.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	8.1	12.5	16.4	15.1	43.8	32.8
LOS	A	B	B	B	D	C
Approach Delay		12.4		15.3	43.8	32.8
Approach LOS		B		B	D	C

Intersection Summary	
Cycle Length: 100	
Actuated Cycle Length: 100	
Offset: 0 (0%), Referenced to phase 2:WBTL and 6:EBTL, Start of Green	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.71	
Intersection Signal Delay: 17.8	Intersection LOS: B
Intersection Capacity Utilization 59.3%	ICU Level of Service B
Analysis Period (min) 15	



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (veh/h)	64	716	1014	76	102	69
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	67	754	1067	80	107	73
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		Raised	Raised			
Median storage veh)		1	1			
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	1147				1579	534
vC1, stage 1 conf vol					1067	
vC2, stage 2 conf vol					512	
vCu, unblocked vol	1147				1579	534
tC, single (s)	4.2				6.8	6.9
tC, 2 stage (s)					5.8	
tF (s)	2.2				3.5	3.3
p0 queue free %	89				48	85
cM capacity (veh/h)	593				207	493

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	SB 1	SB 2
Volume Total	67	377	377	534	534	80	107	73
Volume Left	67	0	0	0	0	0	107	0
Volume Right	0	0	0	0	0	80	0	73
cSH	593	1700	1700	1700	1700	1700	207	493
Volume to Capacity	0.11	0.22	0.22	0.31	0.31	0.05	0.52	0.15
Queue Length 95th (ft)	8	0	0	0	0	0	53	10
Control Delay (s)	11.8	0.0	0.0	0.0	0.0	0.0	39.8	13.6
Lane LOS	B						E	B
Approach Delay (s)	1.0			0.0			29.2	
Approach LOS							D	

Intersection Summary			
Average Delay	2.8		
Intersection Capacity Utilization	47.2%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations												
Volume (veh/h)	86	1	46	12	2	27	34	744	35	6	912	30
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	91	1	48	13	2	28	36	783	37	6	960	32
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								Raised			Raised	
Median storage veh)								1			1	
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	1395	1877	410	1501	1880	496	992			820		
vC1, stage 1 conf vol	873	873		988	988							
vC2, stage 2 conf vol	522	1004		512	892							
vCu, unblocked vol	1395	1877	410	1501	1880	496	992			820		
tC, single (s)	7.5	6.5	6.9	7.5	6.5	6.9	4.2			4.2		
tC, 2 stage (s)	6.5	5.5		6.5	5.5							
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	55	99	92	93	99	95	95			99		
cM capacity (veh/h)	201	172	594	182	181	522	681			792		

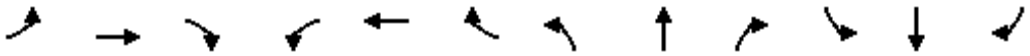
Direction, Lane #	EB 1	WB 1	SE 1	SE 2	SE 3	NW 1	NW 2	NW 3
Volume Total	140	43	36	522	298	6	640	352
Volume Left	91	13	36	0	0	6	0	0
Volume Right	48	28	0	0	37	0	0	32
cSH	260	319	681	1700	1700	792	1700	1700
Volume to Capacity	0.54	0.14	0.05	0.31	0.18	0.01	0.38	0.21
Queue Length 95th (ft)	58	9	3	0	0	0	0	0
Control Delay (s)	33.9	18.1	10.6	0.0	0.0	9.6	0.0	0.0
Lane LOS	D	C	B			A		
Approach Delay (s)	33.9	18.1	0.4			0.1		
Approach LOS	D	C						

Intersection Summary				
Average Delay	2.9			
Intersection Capacity Utilization	49.2%	ICU Level of Service	A	
Analysis Period (min)	15			

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (veh/h)	9	783	10	21	884	17	34	6	47	27	8	30
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	9	824	11	22	931	18	36	6	49	28	8	32
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		Raised			Raised							
Median storage veh)		1			1							
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	948			835			1388	1836	412	1458	1828	465
vC1, stage 1 conf vol							843	843		975	975	
vC2, stage 2 conf vol							545	993		484	854	
vCu, unblocked vol	948			835			1388	1836	412	1458	1828	465
tC, single (s)	4.2			4.2			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)							6.5	5.5		6.5	5.5	
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	99			97			83	97	92	85	95	94
cM capacity (veh/h)	707			782			208	186	592	185	186	547

Direction, Lane #	SE 1	SE 2	SE 3	SE 4	NW 1	NW 2	NW 3	NW 4	NE 1	NE 2	SW 1	SW 2
Volume Total	9	412	412	11	22	465	465	18	36	56	28	40
Volume Left	9	0	0	0	22	0	0	0	36	0	28	0
Volume Right	0	0	0	11	0	0	0	18	0	49	0	32
cSH	707	1700	1700	1700	782	1700	1700	1700	208	475	185	388
Volume to Capacity	0.01	0.24	0.24	0.01	0.03	0.27	0.27	0.01	0.17	0.12	0.15	0.10
Queue Length 95th (ft)	1	0	0	0	2	0	0	0	12	8	11	7
Control Delay (s)	10.2	0.0	0.0	0.0	9.7	0.0	0.0	0.0	25.8	13.6	27.9	15.3
Lane LOS	B				A				D	B	D	C
Approach Delay (s)	0.1				0.2				18.4		20.6	
Approach LOS									C		C	

Intersection Summary				
Average Delay	1.7			
Intersection Capacity Utilization	39.7%	ICU Level of Service	A	
Analysis Period (min)	15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	0	0	61	0	0	13	0	576	68	0	711	41
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	0	0	64	0	0	14	0	606	72	0	748	43
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								Raised			Raised	
Median storage veh)								1			1	
Upstream signal (ft)											447	
pX, platoon unblocked	0.84	0.84	0.84	0.84	0.84		0.84					
vC, conflicting volume	1087	1376	396	1081	1434	339	792			606		
vC1, stage 1 conf vol	770	770		642	642							
vC2, stage 2 conf vol	317	606		438	792							
vCu, unblocked vol	725	1069	0	717	1137	339	374			606		
tC, single (s)	7.6	6.6	7.0	7.6	6.6	7.0	4.2			4.2		
tC, 2 stage (s)	6.6	5.6		6.6	5.6							
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	100	93	100	100	98	100			100		
cM capacity (veh/h)	382	312	906	347	298	651	987			954		

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	64	14	404	274	499	293
Volume Left	0	0	0	0	0	0
Volume Right	64	14	0	72	0	43
cSH	906	651	1700	1700	1700	1700
Volume to Capacity	0.07	0.02	0.24	0.16	0.29	0.17
Queue Length 95th (ft)	5	1	0	0	0	0
Control Delay (s)	9.3	10.6	0.0	0.0	0.0	0.0
Lane LOS	A	B				
Approach Delay (s)	9.3	10.6	0.0		0.0	
Approach LOS	A	B				

Intersection Summary				
Average Delay	0.5			
Intersection Capacity Utilization	31.4%	ICU Level of Service	A	
Analysis Period (min)	15			

Lane Group	WBL	WBR	NBT	SBL	SBT
Act Effct Green (s)	18.4	18.4	57.1	73.6	73.6
Actuated g/C Ratio	0.18	0.18	0.57	0.74	0.74
v/c Ratio	0.66	0.74	0.81	0.56	0.57
Control Delay	47.6	14.3	15.1	12.8	8.4
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	47.6	14.3	15.1	12.8	8.4
LOS	D	B	B	B	A
Approach Delay	24.8		15.1		9.3
Approach LOS	C		B		A

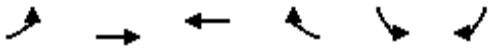
Intersection Summary	
Cycle Length: 100	
Actuated Cycle Length: 100	
Offset: 13 (13%), Referenced to phase 2:NBT and 6:SBTL, Start of Yellow	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.81	
Intersection Signal Delay: 15.5	Intersection LOS: B
Intersection Capacity Utilization 77.7%	ICU Level of Service D
Analysis Period (min) 15	

Lane Group	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Volume (vph)	149	1041	21	47	26	810	81	3	1	9	89	1
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	4%	4%	4%	4%	4%	4%	4%	1%	1%	1%	1%	1%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%				0%			0%			0%
Shared Lane Traffic (%)												
Act Effct Green (s)	33.7	33.7			25.7	25.7	23.1		10.3		11.3	10.3
Actuated g/C Ratio	0.49	0.49			0.37	0.37	0.34		0.15		0.16	0.15
v/c Ratio	0.32	0.66			0.26	0.66	0.15		0.05		0.41	0.37
Control Delay	17.4	16.6			17.2	20.8	5.0		20.3		34.7	10.1
Queue Delay	0.0	0.0			0.0	0.0	0.0		0.0		0.0	0.0
Total Delay	17.4	16.6			17.2	20.8	5.0		20.3		34.7	10.1
LOS	B	B			B	C	A		C		C	B
Approach Delay		16.7				19.2			20.3			20.5
Approach LOS		B				B			C			C

Intersection Summary	
Cycle Length: 100	
Actuated Cycle Length: 68.6	
Control Type: Semi Act-Uncoord	
Maximum v/c Ratio: 0.66	
Intersection Signal Delay: 18.0	Intersection LOS: B
Intersection Capacity Utilization 61.5%	ICU Level of Service B
Analysis Period (min) 15	

Lane Group	SBR
Volume (vph)	121
Confl. Peds. (#/hr)	
Confl. Bikes (#/hr)	
Peak Hour Factor	0.95
Growth Factor	100%
Heavy Vehicles (%)	1%
Bus Blockages (#/hr)	0
Parking (#/hr)	
Mid-Block Traffic (%)	
Shared Lane Traffic (%)	
Act Effct Green (s)	
Actuated g/C Ratio	
v/c Ratio	
Control Delay	
Queue Delay	
Total Delay	
LOS	
Approach Delay	
Approach LOS	

Intersection Summary



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (veh/h)	114	1072	884	70	81	80
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	120	1128	931	74	85	84
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		Raised	Raised			
Median storage veh)		1	1			
Upstream signal (ft)		580				
pX, platoon unblocked					0.77	
vC, conflicting volume	1004				1735	465
vC1, stage 1 conf vol					931	
vC2, stage 2 conf vol					804	
vCu, unblocked vol	1004				1363	465
tC, single (s)	4.2				6.8	6.9
tC, 2 stage (s)					5.8	
tF (s)	2.2				3.5	3.3
p0 queue free %	82				63	85
cM capacity (veh/h)	673				231	547

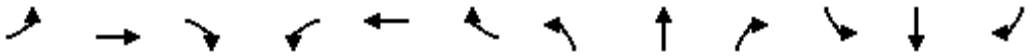
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	SB 1	SB 2
Volume Total	120	564	564	465	465	74	85	84
Volume Left	120	0	0	0	0	0	85	0
Volume Right	0	0	0	0	0	74	0	84
cSH	673	1700	1700	1700	1700	1700	231	547
Volume to Capacity	0.18	0.33	0.33	0.27	0.27	0.04	0.37	0.15
Queue Length 95th (ft)	13	0	0	0	0	0	32	11
Control Delay (s)	11.5	0.0	0.0	0.0	0.0	0.0	29.4	12.8
Lane LOS	B						D	B
Approach Delay (s)	1.1			0.0			21.1	
Approach LOS							C	

Intersection Summary			
Average Delay	2.0		
Intersection Capacity Utilization	45.2%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (veh/h)	1049	104	0	954	0	160
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	1104	109	0	1004	0	168
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	Raised			Raised		
Median storage veh)	1			1		
Upstream signal (ft)	686					
pX, platoon unblocked			0.78		0.78	0.78
vC, conflicting volume			1214		1494	607
vC1, stage 1 conf vol					1159	
vC2, stage 2 conf vol					335	
vCu, unblocked vol			700		1061	0
tC, single (s)			4.2		6.8	6.9
tC, 2 stage (s)					5.8	
tF (s)			2.2		3.5	3.3
p0 queue free %			100		100	80
cM capacity (veh/h)			683		295	845

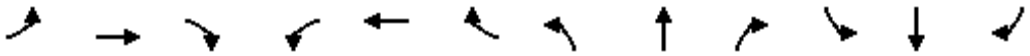
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	WB 3	NB 1
Volume Total	736	478	335	335	335	168
Volume Left	0	0	0	0	0	0
Volume Right	0	109	0	0	0	168
cSH	1700	1700	1700	1700	1700	845
Volume to Capacity	0.43	0.28	0.20	0.20	0.20	0.20
Queue Length 95th (ft)	0	0	0	0	0	15
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	10.3
Lane LOS						B
Approach Delay (s)	0.0		0.0			10.3
Approach LOS						B

Intersection Summary			
Average Delay	0.7		
Intersection Capacity Utilization	48.9%	ICU Level of Service	A
Analysis Period (min)	15		



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Volume (vph)	212	930	40	35	698	60	102	143	25	71	87	58
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	4%	4%	4%	4%	4%	4%	1%	1%	1%	1%	1%	1%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Shared Lane Traffic (%)												
Act Effct Green (s)	55.8	49.0		45.5	37.8		16.1	16.1			16.1	16.1
Actuated g/C Ratio	0.56	0.49		0.46	0.38		0.16	0.16			0.16	0.16
v/c Ratio	0.57	0.60		0.13	0.61		0.37	0.59			0.56	0.20
Control Delay	18.6	22.6		9.6	27.8		40.6	44.8			45.9	10.9
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0			0.0	0.0
Total Delay	18.6	22.6		9.6	27.8		40.6	44.8			45.9	10.9
LOS	B	C		A	C		D	D			D	B
Approach Delay		21.8			27.0			43.2			36.5	
Approach LOS		C			C			D			D	

Intersection Summary	
Cycle Length: 100	
Actuated Cycle Length: 100	
Offset: 86 (86%), Referenced to phase 2:WBTL and 6:EBTL, Start of Yellow	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.61	
Intersection Signal Delay: 27.1	Intersection LOS: C
Intersection Capacity Utilization 63.8%	ICU Level of Service B
Analysis Period (min) 15	



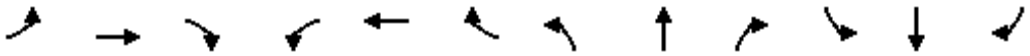
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Volume (vph)	241	843	61	209	555	97	115	522	26	194	468	147
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	4%	4%	4%	4%	4%	4%	3%	3%	3%	3%	3%	3%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Shared Lane Traffic (%)												
Act Effct Green (s)	13.2	37.0		50.2	37.0	37.0	28.7	21.5		37.8	26.6	
Actuated g/C Ratio	0.13	0.37		0.50	0.37	0.37	0.29	0.22		0.38	0.27	
v/c Ratio	0.57	0.75		0.69	0.46	0.16	0.55	0.79		0.72	0.72	
Control Delay	44.7	28.9		26.0	27.5	7.9	31.8	45.9		41.2	36.8	
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay	44.7	28.9		26.0	27.5	7.9	31.8	45.9		41.2	36.8	
LOS	D	C		C	C	A	C	D		D	D	
Approach Delay		32.2			25.0			43.4			37.9	
Approach LOS		C			C			D			D	

Intersection Summary	
Cycle Length: 100	
Actuated Cycle Length: 100	
Offset: 26 (26%), Referenced to phase 2:WBTL and 6:EBT, Start of Yellow	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.79	
Intersection Signal Delay: 33.9	Intersection LOS: C
Intersection Capacity Utilization 76.2%	ICU Level of Service D
Analysis Period (min) 15	

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (veh/h)	1057	6	0	861	0	98
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	1113	6	0	906	0	103
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)	300			1070		
pX, platoon unblocked			0.76		0.81	0.76
vC, conflicting volume			1119		1569	559
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			539		714	0
tC, single (s)			4.2		6.9	7.0
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		100	87
cM capacity (veh/h)			773		293	824

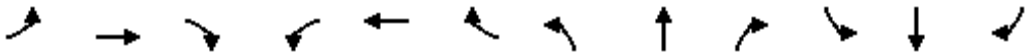
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1
Volume Total	742	377	453	453	103
Volume Left	0	0	0	0	0
Volume Right	0	6	0	0	103
cSH	1700	1700	1700	1700	824
Volume to Capacity	0.44	0.22	0.27	0.27	0.13
Queue Length 95th (ft)	0	0	0	0	9
Control Delay (s)	0.0	0.0	0.0	0.0	10.0
Lane LOS					A
Approach Delay (s)	0.0		0.0		10.0
Approach LOS					A

Intersection Summary			
Average Delay	0.5		
Intersection Capacity Utilization	42.1%	ICU Level of Service	A
Analysis Period (min)	15		



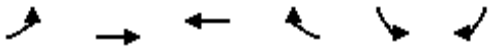
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Volume (vph)	155	820	97	43	700	135	20	111	113	313	64	141
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	4%	4%	4%	4%	4%	4%	1%	1%	1%	1%	1%	1%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Shared Lane Traffic (%)												
Act Effct Green (s)		51.4	51.4	58.4	58.4		23.0	13.4	13.4	16.2	28.2	
Actuated g/C Ratio		0.51	0.51	0.58	0.58		0.23	0.13	0.13	0.16	0.28	
v/c Ratio		0.89	0.12	0.16	0.44		0.06	0.46	0.37	0.59	0.39	
Control Delay		28.4	2.8	7.2	8.0		22.6	46.3	11.0	43.2	18.7	
Queue Delay		0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Delay		28.4	2.8	7.2	8.0		22.6	46.3	11.0	43.2	18.7	
LOS		C	A	A	A		C	D	B	D	B	
Approach Delay		26.1			8.0			28.1			33.5	
Approach LOS		C			A			C			C	

Intersection Summary	
Cycle Length: 100	
Actuated Cycle Length: 100	
Offset: 80 (80%), Referenced to phase 2:WBTL and 6:EBTL, Start of Yellow	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.89	
Intersection Signal Delay: 21.8	Intersection LOS: C
Intersection Capacity Utilization 77.4%	ICU Level of Service D
Analysis Period (min) 15	



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Volume (vph)	15	941	71	64	699	17	53	8	57	32	19	3
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	4%	4%	4%	4%	4%	4%	1%	1%	1%	1%	1%	1%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Shared Lane Traffic (%)												
Act Effct Green (s)	57.2	57.2		62.4	61.4			12.8			10.9	
Actuated g/C Ratio	0.57	0.57		0.62	0.61			0.13			0.11	
v/c Ratio	0.04	0.54		0.19	0.35			0.48			0.28	
Control Delay	17.0	16.8		17.7	13.2			32.7			42.6	
Queue Delay	0.0	0.0		0.0	0.0			0.0			0.0	
Total Delay	17.0	16.8		17.7	13.2			32.7			42.6	
LOS	B	B		B	B			C			D	
Approach Delay		16.8			13.5			32.7			42.6	
Approach LOS		B			B			C			D	

Intersection Summary	
Cycle Length: 100	
Actuated Cycle Length: 100	
Offset: 98 (98%), Referenced to phase 2:WBTL and 6:EBTL, Start of Green	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.54	
Intersection Signal Delay: 17.1	Intersection LOS: B
Intersection Capacity Utilization 49.4%	ICU Level of Service A
Analysis Period (min) 15	



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (veh/h)	86	964	716	94	100	88
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	91	1015	754	99	105	93
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		Raised	Raised			
Median storage veh)		1	1			
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	853				1442	377
vC1, stage 1 conf vol					754	
vC2, stage 2 conf vol					688	
vCu, unblocked vol	853				1442	377
tC, single (s)	4.2				6.8	6.9
tC, 2 stage (s)					5.8	
tF (s)	2.2				3.5	3.3
p0 queue free %	88				56	85
cM capacity (veh/h)	770				241	624

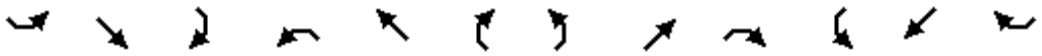
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	SB 1	SB 2
Volume Total	91	507	507	377	377	99	105	93
Volume Left	91	0	0	0	0	0	105	0
Volume Right	0	0	0	0	0	99	0	93
cSH	770	1700	1700	1700	1700	1700	241	624
Volume to Capacity	0.12	0.30	0.30	0.22	0.22	0.06	0.44	0.15
Queue Length 95th (ft)	8	0	0	0	0	0	42	10
Control Delay (s)	10.3	0.0	0.0	0.0	0.0	0.0	31.1	11.8
Lane LOS	B						D	B
Approach Delay (s)	0.8			0.0			22.0	
Approach LOS							C	

Intersection Summary			
Average Delay	2.5		
Intersection Capacity Utilization	40.1%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations												
Volume (veh/h)	65	1	35	36	3	21	46	955	96	49	619	34
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	68	1	37	38	3	22	48	1005	101	52	652	36
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								Raised			Raised	
Median storage veh)								1			1	
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	1605	1943	553	1409	1976	344	687			1106		
vC1, stage 1 conf vol	1153	1153		773	773							
vC2, stage 2 conf vol	453	791		637	1203							
vCu, unblocked vol	1605	1943	553	1409	1976	344	687			1106		
tC, single (s)	7.5	6.5	6.9	7.5	6.5	6.9	4.2			4.2		
tC, 2 stage (s)	6.5	5.5		6.5	5.5							
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	54	99	92	80	98	97	95			92		
cM capacity (veh/h)	149	155	479	187	137	655	889			615		

Direction, Lane #	EB 1	WB 1	SE 1	SE 2	SE 3	NW 1	NW 2	NW 3
Volume Total	106	63	48	670	436	52	434	253
Volume Left	68	38	48	0	0	52	0	0
Volume Right	37	22	0	0	101	0	0	36
cSH	195	244	889	1700	1700	615	1700	1700
Volume to Capacity	0.54	0.26	0.05	0.39	0.26	0.08	0.26	0.15
Queue Length 95th (ft)	57	20	3	0	0	5	0	0
Control Delay (s)	43.5	24.9	9.3	0.0	0.0	11.4	0.0	0.0
Lane LOS	E	C	A			B		
Approach Delay (s)	43.5	24.9	0.4			0.8		
Approach LOS	E	C						

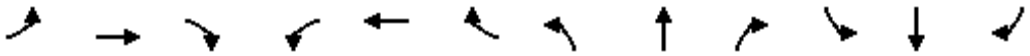
Intersection Summary				
Average Delay	3.5			
Intersection Capacity Utilization	49.9%	ICU Level of Service	A	
Analysis Period (min)	15			



Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (veh/h)	34	975	17	31	668	25	15	5	65	38	4	19
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	36	1026	18	33	703	26	16	5	68	40	4	20
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		Raised			Raised							
Median storage veh)		1			1							
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	729			1044			1537	1893	513	1424	1884	352
vC1, stage 1 conf vol							1098	1098		768	768	
vC2, stage 2 conf vol							439	795		656	1116	
vCu, unblocked vol	729			1044			1537	1893	513	1424	1884	352
tC, single (s)	4.2			4.2			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)							6.5	5.5		6.5	5.5	
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	96			95			90	97	87	78	97	97
cM capacity (veh/h)	857			650			164	169	509	184	163	648

Direction, Lane #	SE 1	SE 2	SE 3	SE 4	NW 1	NW 2	NW 3	NW 4	NE 1	NE 2	SW 1	SW 2
Volume Total	36	513	513	18	33	352	352	26	16	74	40	24
Volume Left	36	0	0	0	33	0	0	0	16	0	40	0
Volume Right	0	0	0	18	0	0	0	26	0	68	0	20
cSH	857	1700	1700	1700	650	1700	1700	1700	164	445	184	426
Volume to Capacity	0.04	0.30	0.30	0.01	0.05	0.21	0.21	0.02	0.10	0.17	0.22	0.06
Queue Length 95th (ft)	3	0	0	0	3	0	0	0	6	12	16	4
Control Delay (s)	9.4	0.0	0.0	0.0	10.8	0.0	0.0	0.0	29.3	14.7	29.9	14.0
Lane LOS	A				B				D	B	D	B
Approach Delay (s)	0.3				0.5				17.3		23.9	
Approach LOS									C		C	

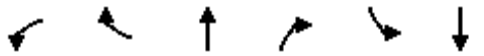
Intersection Summary				
Average Delay	1.9			
Intersection Capacity Utilization	43.7%	ICU Level of Service	A	
Analysis Period (min)	15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	0	0	53	0	0	10	0	653	98	0	701	37
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	0	0	56	0	0	11	0	687	103	0	738	39
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								Raised			Raised	
Median storage veh)								1			1	
Upstream signal (ft)											447	
pX, platoon unblocked	0.86	0.86	0.86	0.86	0.86		0.86					
vC, conflicting volume	1112	1445	388	1164	1516	395	777			687		
vC1, stage 1 conf vol	757	757		739	739							
vC2, stage 2 conf vol	354	687		425	777							
vCu, unblocked vol	816	1201	0	876	1284	395	429			687		
tC, single (s)	7.6	6.6	7.0	7.6	6.6	7.0	4.2			4.2		
tC, 2 stage (s)	6.6	5.6		6.6	5.6							
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	100	94	100	100	98	100			100		
cM capacity (veh/h)	356	287	932	302	270	598	968			889		

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	56	11	458	332	492	285
Volume Left	0	0	0	0	0	0
Volume Right	56	11	0	103	0	39
cSH	932	598	1700	1700	1700	1700
Volume to Capacity	0.06	0.02	0.27	0.20	0.29	0.17
Queue Length 95th (ft)	4	1	0	0	0	0
Control Delay (s)	9.1	11.1	0.0	0.0	0.0	0.0
Lane LOS	A	B				
Approach Delay (s)	9.1	11.1	0.0		0.0	
Approach LOS	A	B				

Intersection Summary				
Average Delay	0.4			
Intersection Capacity Utilization	31.2%	ICU Level of Service	A	
Analysis Period (min)	15			

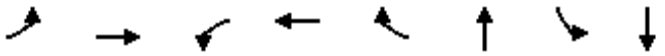


Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Volume (vph)	234	136	554	304	287	646
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	1%	1%	3%	3%	3%	3%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)	0%		0%			0%
Shared Lane Traffic (%)						
Act Effct Green (s)	18.2	18.2	54.0		73.8	73.8
Actuated g/C Ratio	0.18	0.18	0.54		0.74	0.74
v/c Ratio	0.75	0.35	0.93		0.86	0.50
Control Delay	54.3	8.6	23.8		50.0	7.1
Queue Delay	0.0	0.0	0.0		0.0	0.0
Total Delay	54.3	8.6	23.8		50.0	7.1
LOS	D	A	C		D	A
Approach Delay	37.5		23.8			20.3
Approach LOS	D		C			C

Intersection Summary	
Cycle Length: 100	
Actuated Cycle Length: 100	
Offset: 24 (24%), Referenced to phase 2:NBT and 6:SBTL, Start of Yellow	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.93	
Intersection Signal Delay: 24.6	Intersection LOS: C
Intersection Capacity Utilization 86.6%	ICU Level of Service E
Analysis Period (min) 15	

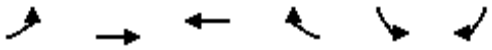
1: CR 419 & Pine Avenue

Timing Plan: AM PEAK



Lane Group	EBL	EBT	WBL	WBT	WBR	NBT	SBL	SBT
Act Effct Green (s)	63.0	63.0	59.5	59.5	57.0	13.5	14.5	13.5
Actuated g/C Ratio	0.63	0.63	0.60	0.60	0.57	0.14	0.14	0.14
v/c Ratio	0.92	0.69	0.37	0.97	0.19	0.08	0.97	0.84
Control Delay	80.0	15.0	14.3	35.0	2.3	32.4	100.2	42.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	80.0	15.0	14.3	35.0	2.3	32.4	100.2	42.7
LOS	E	B	B	D	A	C	F	D
Approach Delay		22.2		31.8		32.4		66.4
Approach LOS		C		C		C		E

Intersection Summary	
Cycle Length: 100	
Actuated Cycle Length: 100	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.97	
Intersection Signal Delay: 31.9	Intersection LOS: C
Intersection Capacity Utilization 96.1%	ICU Level of Service F
Analysis Period (min) 15	



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (veh/h)	210	1473	2001	150	138	143
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.70	0.95	0.95	0.70	0.70	0.70
Hourly flow rate (vph)	300	1551	2106	214	197	204
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		Raised	Raised			
Median storage veh)		1	1			
Upstream signal (ft)		580				
pX, platoon unblocked					0.72	
vC, conflicting volume	2321				3482	1053
vC1, stage 1 conf vol					2106	
vC2, stage 2 conf vol					1375	
vCu, unblocked vol	2321				3667	1053
tC, single (s)	4.2				6.8	6.9
tC, 2 stage (s)					5.8	
tF (s)	2.2				3.5	3.3
p0 queue free %	0				0	9
cM capacity (veh/h)	205				0	224

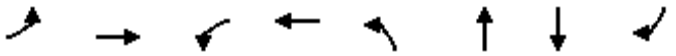
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	SB 1	SB 2
Volume Total	300	775	775	1053	1053	214	197	204
Volume Left	300	0	0	0	0	0	197	0
Volume Right	0	0	0	0	0	214	0	204
cSH	205	1700	1700	1700	1700	1700	0	224
Volume to Capacity	1.46	0.46	0.46	0.62	0.62	0.13	Err	0.91
Queue Length 95th (ft)	325	0	0	0	0	0	Err	137
Control Delay (s)	275.8	0.0	0.0	0.0	0.0	0.0	Err	84.6
Lane LOS	F						F	F
Approach Delay (s)	44.7			0.0			Err	
Approach LOS							F	

Intersection Summary			
Average Delay	Err		
Intersection Capacity Utilization	84.6%	ICU Level of Service	E
Analysis Period (min)	15		

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (veh/h)	1495	116	0	2151	0	108
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	1574	122	0	2264	0	114
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	Raised			Raised		
Median storage veh)	1			1		
Upstream signal (ft)	686					
pX, platoon unblocked			0.73		0.73	0.73
vC, conflicting volume			1696		2389	848
vC1, stage 1 conf vol					1635	
vC2, stage 2 conf vol					755	
vCu, unblocked vol			1216		2165	57
tC, single (s)			4.2		6.8	6.9
tC, 2 stage (s)					5.8	
tF (s)			2.2		3.5	3.3
p0 queue free %			100		100	84
cM capacity (veh/h)			408		135	732

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	WB 3	NB 1
Volume Total	1049	647	755	755	755	114
Volume Left	0	0	0	0	0	0
Volume Right	0	122	0	0	0	114
cSH	1700	1700	1700	1700	1700	732
Volume to Capacity	0.62	0.38	0.44	0.44	0.44	0.16
Queue Length 95th (ft)	0	0	0	0	0	10
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	10.8
Lane LOS						B
Approach Delay (s)	0.0		0.0			10.8
Approach LOS						B

Intersection Summary			
Average Delay	0.3		
Intersection Capacity Utilization	58.4%	ICU Level of Service	B
Analysis Period (min)	15		



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBT	SBR
Act Effct Green (s)	89.8	89.8	83.0	83.0	21.0	21.0	18.7	18.7
Actuated g/C Ratio	0.60	0.60	0.55	0.55	0.14	0.14	0.12	0.12
v/c Ratio	0.89	0.72	0.26	1.02	0.81	0.96	0.84	0.56
Control Delay	80.4	24.2	21.8	37.5	86.9	106.4	93.8	25.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	80.4	24.2	21.8	37.5	86.9	106.4	93.8	25.4
LOS	F	C	C	D	F	F	F	C
Approach Delay		29.7		37.1		97.7	61.3	
Approach LOS		C		D		F	E	

Intersection Summary	
Cycle Length: 150	
Actuated Cycle Length: 150	
Offset: 148 (99%), Referenced to phase 2:WBTL and 6:EBTL, Start of Yellow	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 1.02	
Intersection Signal Delay: 42.5	Intersection LOS: D
Intersection Capacity Utilization 96.3%	ICU Level of Service F
Analysis Period (min) 15	

Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Act Effct Green (s)	14.0	60.8	15.2	62.0	62.0	50.6	39.6	62.0	47.0
Actuated g/C Ratio	0.09	0.41	0.10	0.41	0.41	0.34	0.26	0.41	0.31
v/c Ratio	1.06	0.86	0.88	1.04	0.34	1.02	0.85	0.91	1.12
Control Delay	145.0	27.9	67.8	72.8	14.1	111.6	62.3	59.1	104.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	145.0	27.9	67.8	72.8	14.1	111.6	62.3	59.1	104.7
LOS	F	C	E	E	B	F	E	E	F
Approach Delay		53.3		64.7			71.6		97.0
Approach LOS		D		E			E		F

Intersection Summary	
Cycle Length: 150	
Actuated Cycle Length: 150	
Offset: 8 (5%), Referenced to phase 2:WBT and 6:EBT, Start of Red	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 1.12	
Intersection Signal Delay: 70.5	Intersection LOS: E
Intersection Capacity Utilization 106.7%	ICU Level of Service G
Analysis Period (min) 15	

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (veh/h)	1377	2	0	2024	0	109
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	1449	2	0	2131	0	115
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	Raised			Raised		
Median storage veh)	1			1		
Upstream signal (ft)	300			1070		
pX, platoon unblocked			0.68		0.69	0.68
vC, conflicting volume			1452		2516	726
vC1, stage 1 conf vol					1451	
vC2, stage 2 conf vol					1065	
vCu, unblocked vol			727		220	0
tC, single (s)			4.2		6.9	7.0
tC, 2 stage (s)					5.9	
tF (s)			2.2		3.5	3.3
p0 queue free %			100		100	84
cM capacity (veh/h)			585		496	734

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1
Volume Total	966	485	1065	1065	115
Volume Left	0	0	0	0	0
Volume Right	0	2	0	0	115
cSH	1700	1700	1700	1700	734
Volume to Capacity	0.57	0.29	0.63	0.63	0.16
Queue Length 95th (ft)	0	0	0	0	10
Control Delay (s)	0.0	0.0	0.0	0.0	10.8
Lane LOS					B
Approach Delay (s)	0.0		0.0		10.8
Approach LOS					B

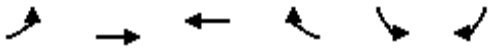
Intersection Summary			
Average Delay	0.3		
Intersection Capacity Utilization	59.3%	ICU Level of Service	B
Analysis Period (min)	15		

Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Act Effct Green (s)	92.7	77.7	77.7	88.9	75.8	43.5	32.0	32.0	11.2	31.7	31.7
Actuated g/C Ratio	0.62	0.52	0.52	0.59	0.51	0.29	0.21	0.21	0.07	0.21	0.21
v/c Ratio	1.00	0.58	0.18	0.47	1.03	0.71	1.03	0.48	0.96	0.50	0.74
Control Delay	97.8	19.2	3.3	13.5	51.9	56.0	109.4	15.0	114.0	57.2	38.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	97.8	19.2	3.3	13.5	51.9	56.0	109.4	15.0	114.0	57.2	38.1
LOS	F	B	A	B	D	E	F	B	F	E	D
Approach Delay		29.7			48.9		70.4			66.4	
Approach LOS		C			D		E			E	

Intersection Summary	
Cycle Length: 150	
Actuated Cycle Length: 150	
Offset: 77 (51%), Referenced to phase 2:WBTL and 6:EBTL, Start of Red	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 1.03	
Intersection Signal Delay: 49.9	Intersection LOS: D
Intersection Capacity Utilization 100.3%	ICU Level of Service G
Analysis Period (min) 15	

Lane Group	EBL	EBT	WBL	WBT	NBT	SBT
Act Effct Green (s)	83.9	83.9	97.9	97.9	27.0	10.1
Actuated g/C Ratio	0.56	0.56	0.65	0.65	0.18	0.07
v/c Ratio	0.11	0.73	0.58	0.80	0.87	0.27
Control Delay	7.9	18.9	47.1	24.7	80.7	52.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	7.9	18.9	47.1	24.7	80.7	52.6
LOS	A	B	D	C	F	D
Approach Delay		18.8		26.5	80.7	52.6
Approach LOS		B		C	F	D

Intersection Summary	
Cycle Length: 150	
Actuated Cycle Length: 150	
Offset: 88 (59%), Referenced to phase 2:WBTL and 6:EBTL, Start of Green	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.87	
Intersection Signal Delay: 27.9	Intersection LOS: C
Intersection Capacity Utilization 83.2%	ICU Level of Service E
Analysis Period (min) 15	



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (veh/h)	132	1257	1743	197	199	143
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	139	1323	1835	207	209	151
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		Raised	Raised			
Median storage veh)		1	1			
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	2042				2774	917
vC1, stage 1 conf vol					1835	
vC2, stage 2 conf vol					939	
vCu, unblocked vol	2042				2774	917
tC, single (s)	4.2				6.8	6.9
tC, 2 stage (s)					5.8	
tF (s)	2.2				3.5	3.3
p0 queue free %	48				0	45
cM capacity (veh/h)	265				64	276

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	SB 1	SB 2
Volume Total	139	662	662	917	917	207	209	151
Volume Left	139	0	0	0	0	0	209	0
Volume Right	0	0	0	0	0	207	0	151
cSH	265	1700	1700	1700	1700	1700	64	276
Volume to Capacity	0.52	0.39	0.39	0.54	0.54	0.12	3.26	0.55
Queue Length 95th (ft)	50	0	0	0	0	0	Err	54
Control Delay (s)	32.6	0.0	0.0	0.0	0.0	0.0	Err	32.6
Lane LOS	D						F	D
Approach Delay (s)	3.1			0.0			5831.8	
Approach LOS							F	

Intersection Summary			
Average Delay	544.5		
Intersection Capacity Utilization	76.5%	ICU Level of Service	D
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations												
Volume (veh/h)	95	1	51	13	2	29	68	1307	69	8	1653	32
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	100	1	54	14	2	31	72	1376	73	8	1740	34
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								Raised			Raised	
Median storage veh)								1			1	
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	2474	3346	724	2659	3365	887	1774			1448		
vC1, stage 1 conf vol	1555	1555		1774	1774							
vC2, stage 2 conf vol	918	1791		885	1592							
vCu, unblocked vol	2474	3346	724	2659	3365	887	1774			1448		
tC, single (s)	7.5	6.5	6.9	7.5	6.5	6.9	4.2			4.2		
tC, 2 stage (s)	6.5	5.5		6.5	5.5							
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	0	97	86	76	97	89	79			98		
cM capacity (veh/h)	61	40	370	57	61	289	338			454		

Direction, Lane #	EB 1	WB 1	SE 1	SE 2	SE 3	NW 1	NW 2	NW 3
Volume Total	155	46	72	917	531	8	1160	614
Volume Left	100	14	72	0	0	8	0	0
Volume Right	54	31	0	0	73	0	0	34
cSH	86	122	338	1700	1700	454	1700	1700
Volume to Capacity	1.81	0.38	0.21	0.54	0.31	0.02	0.68	0.36
Queue Length 95th (ft)	235	28	14	0	0	1	0	0
Control Delay (s)	487.6	51.4	18.5	0.0	0.0	13.1	0.0	0.0
Lane LOS	F	F	C			B		
Approach Delay (s)	487.6	51.4	0.9			0.1		
Approach LOS	F	F						

Intersection Summary				
Average Delay	22.6			
Intersection Capacity Utilization	75.6%	ICU Level of Service	D	
Analysis Period (min)	15			

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (veh/h)	11	1348	12	23	1628	19	37	7	49	30	9	34
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	12	1419	13	24	1714	20	39	7	52	32	9	36
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		Raised			Raised							
Median storage veh)		1			1							
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	1734			1432			2388	3224	709	2550	3217	857
vC1, stage 1 conf vol							1442	1442		1762	1762	
vC2, stage 2 conf vol							946	1782		788	1455	
vCu, unblocked vol	1734			1432			2388	3224	709	2550	3217	857
tC, single (s)	4.2			4.2			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)							6.5	5.5		6.5	5.5	
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	97			95			52	89	86	48	87	88
cM capacity (veh/h)	351			461			81	70	379	61	70	303

Direction, Lane #	SE 1	SE 2	SE 3	SE 4	NW 1	NW 2	NW 3	NW 4	NE 1	NE 2	SW 1	SW 2
Volume Total	12	709	709	13	24	857	857	20	39	59	32	45
Volume Left	12	0	0	0	24	0	0	0	39	0	32	0
Volume Right	0	0	0	13	0	0	0	20	0	52	0	36
cSH	351	1700	1700	1700	461	1700	1700	1700	81	243	61	179
Volume to Capacity	0.03	0.42	0.42	0.01	0.05	0.50	0.50	0.01	0.48	0.24	0.52	0.25
Queue Length 95th (ft)	2	0	0	0	3	0	0	0	36	17	37	17
Control Delay (s)	15.6	0.0	0.0	0.0	13.2	0.0	0.0	0.0	85.6	24.4	115.2	31.8
Lane LOS	C				B				F	C	F	D
Approach Delay (s)	0.1				0.2				48.8		66.1	
Approach LOS									E		F	

Intersection Summary				
Average Delay	3.1			
Intersection Capacity Utilization	60.4%	ICU Level of Service	B	
Analysis Period (min)	15			

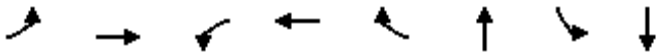
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	0	0	71	0	0	16	0	906	109	0	1161	35
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	0	0	75	0	0	17	0	954	115	0	1222	37
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								Raised			Raised	
Median storage veh)								1			1	
Upstream signal (ft)											447	
pX, platoon unblocked	0.71	0.71	0.71	0.71	0.71		0.71					
vC, conflicting volume	1734	2194	629	1697	2270	534	1259			954		
vC1, stage 1 conf vol	1241	1241		1011	1011							
vC2, stage 2 conf vol	494	954		686	1259							
vCu, unblocked vol	1223	1869	0	1170	1975	534	555			954		
tC, single (s)	7.6	6.6	7.0	7.6	6.6	7.0	4.2			4.2		
tC, 2 stage (s)	6.6	5.6		6.6	5.6							
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	100	90	100	100	97	100			100		
cM capacity (veh/h)	229	182	768	199	172	485	715			704		

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	75	17	636	433	815	444
Volume Left	0	0	0	0	0	0
Volume Right	75	17	0	115	0	37
cSH	768	485	1700	1700	1700	1700
Volume to Capacity	0.10	0.03	0.37	0.25	0.48	0.26
Queue Length 95th (ft)	6	2	0	0	0	0
Control Delay (s)	10.2	12.7	0.0	0.0	0.0	0.0
Lane LOS	B	B				
Approach Delay (s)	10.2	12.7	0.0		0.0	
Approach LOS	B	B				

Intersection Summary				
Average Delay	0.4			
Intersection Capacity Utilization	44.3%	ICU Level of Service	A	
Analysis Period (min)	15			

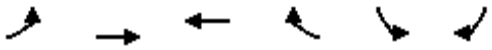
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Act Effct Green (s)	31.4	59.7	82.3	82.3	110.6	110.6
Actuated g/C Ratio	0.21	0.40	0.55	0.55	0.74	0.74
v/c Ratio	0.95	0.86	0.97	0.35	0.95	0.94
Control Delay	94.0	47.9	43.0	2.5	85.1	31.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	94.0	47.9	43.0	2.5	85.1	31.4
LOS	F	D	D	A	F	C
Approach Delay	65.0		32.5			42.1
Approach LOS	E		C			D

Intersection Summary	
Cycle Length: 150	
Actuated Cycle Length: 150	
Offset: 113 (75%), Referenced to phase 2:NBT and 6:SBTL, Start of Red	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.97	
Intersection Signal Delay: 44.4	Intersection LOS: D
Intersection Capacity Utilization 94.5%	ICU Level of Service F
Analysis Period (min) 15	



Lane Group	EBL	EBT	WBL	WBT	WBR	NBT	SBL	SBT
Act Effct Green (s)	62.1	62.1	51.5	51.5	49.0	11.4	12.4	11.4
Actuated g/C Ratio	0.65	0.65	0.54	0.54	0.51	0.12	0.13	0.12
v/c Ratio	0.79	0.93	0.57	0.81	0.16	0.13	0.81	0.56
Control Delay	47.5	25.1	26.2	22.4	2.7	27.2	75.4	12.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	47.5	25.1	26.2	22.4	2.7	27.2	75.4	12.6
LOS	D	C	C	C	A	C	E	B
Approach Delay		27.5		21.1		27.2		38.3
Approach LOS		C		C		C		D

Intersection Summary	
Cycle Length: 100	
Actuated Cycle Length: 95.5	
Control Type: Semi Act-Uncoord	
Maximum v/c Ratio: 0.93	
Intersection Signal Delay: 25.9	Intersection LOS: C
Intersection Capacity Utilization 91.1%	ICU Level of Service F
Analysis Period (min) 15	



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (veh/h)	125	2064	1568	90	90	90
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	132	2173	1651	95	95	95
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		Raised	Raised			
Median storage veh)		1	1			
Upstream signal (ft)		580				
pX, platoon unblocked					0.39	
vC, conflicting volume	1745				3000	825
vC1, stage 1 conf vol					1651	
vC2, stage 2 conf vol					1349	
vCu, unblocked vol	1745				3000	825
tC, single (s)	4.2				6.8	6.9
tC, 2 stage (s)					5.8	
tF (s)	2.2				3.5	3.3
p0 queue free %	62				0	70
cM capacity (veh/h)	347				84	318

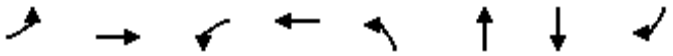
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	SB 1	SB 2
Volume Total	132	1086	1086	825	825	95	95	95
Volume Left	132	0	0	0	0	0	95	0
Volume Right	0	0	0	0	0	95	0	95
cSH	347	1700	1700	1700	1700	1700	84	318
Volume to Capacity	0.38	0.64	0.64	0.49	0.49	0.06	1.12	0.30
Queue Length 95th (ft)	31	0	0	0	0	0	120	22
Control Delay (s)	21.6	0.0	0.0	0.0	0.0	0.0	224.9	21.1
Lane LOS	C						F	C
Approach Delay (s)	1.2			0.0			123.0	
Approach LOS							F	

Intersection Summary			
Average Delay	6.2		
Intersection Capacity Utilization	68.7%	ICU Level of Service	C
Analysis Period (min)	15		

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (veh/h)	2015	139	0	1658	0	214
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	2121	146	0	1745	0	225
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	Raised			Raised		
Median storage veh)	1			1		
Upstream signal (ft)	686					
pX, platoon unblocked			0.40		0.40	0.40
vC, conflicting volume			2267		2776	1134
vC1, stage 1 conf vol					2194	
vC2, stage 2 conf vol					582	
vCu, unblocked vol			1165		2439	0
tC, single (s)			4.2		6.8	6.9
tC, 2 stage (s)					5.8	
tF (s)			2.2		3.5	3.3
p0 queue free %			100		100	48
cM capacity (veh/h)			233		98	434

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	WB 3	NB 1
Volume Total	1414	853	582	582	582	225
Volume Left	0	0	0	0	0	0
Volume Right	0	146	0	0	0	225
cSH	1700	1700	1700	1700	1700	434
Volume to Capacity	0.83	0.50	0.34	0.34	0.34	0.52
Queue Length 95th (ft)	0	0	0	0	0	52
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	21.9
Lane LOS						C
Approach Delay (s)	0.0		0.0			21.9
Approach LOS						C

Intersection Summary			
Average Delay	1.2		
Intersection Capacity Utilization	80.0%	ICU Level of Service	D
Analysis Period (min)	15		



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBT	SBR
Act Effct Green (s)	84.1	84.1	67.4	67.4	24.4	24.4	21.0	21.0
Actuated g/C Ratio	0.56	0.56	0.45	0.45	0.16	0.16	0.14	0.14
v/c Ratio	0.93	1.00	0.49	0.92	0.52	1.01	0.94	0.38
Control Delay	81.5	53.6	77.2	67.3	64.6	113.6	106.0	12.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	81.5	53.6	77.2	67.3	64.6	113.6	106.0	12.3
LOS	F	D	E	E	E	F	F	B
Approach Delay		57.1		67.7		97.3	73.9	
Approach LOS		E		E		F	E	

Intersection Summary	
Cycle Length: 150	
Actuated Cycle Length: 150	
Offset: 20 (13%), Referenced to phase 2:WBTL and 6:EBTL, Start of Yellow	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 1.01	
Intersection Signal Delay: 66.0	Intersection LOS: E
Intersection Capacity Utilization 96.1%	ICU Level of Service F
Analysis Period (min) 15	

Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Act Effct Green (s)	21.7	65.0	12.8	56.1	56.1	48.6	36.0	60.2	43.6
Actuated g/C Ratio	0.14	0.43	0.09	0.37	0.37	0.32	0.24	0.40	0.29
v/c Ratio	0.83	1.08	0.99	0.85	0.23	1.00	1.10	1.05	1.04
Control Delay	60.7	75.3	99.8	44.6	9.8	105.6	113.4	96.9	79.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	60.7	75.3	99.8	44.6	9.8	105.6	113.4	96.9	79.6
LOS	E	E	F	D	A	F	F	F	E
Approach Delay		72.4		51.2			112.0		83.5
Approach LOS		E		D			F		F

Intersection Summary	
Cycle Length: 150	
Actuated Cycle Length: 150	
Offset: 70 (47%), Referenced to phase 2:WBT and 6:EBT, Start of Yellow	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 1.10	
Intersection Signal Delay: 76.5	Intersection LOS: E
Intersection Capacity Utilization 106.2%	ICU Level of Service G
Analysis Period (min) 15	

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (veh/h)	1847	11	0	1523	0	165
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	1944	12	0	1603	0	174
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	Raised			Raised		
Median storage veh)	1			1		
Upstream signal (ft)	300			1070		
pX, platoon unblocked			0.57		0.76	0.57
vC, conflicting volume			1956		2752	978
vC1, stage 1 conf vol					1950	
vC2, stage 2 conf vol					802	
vCu, unblocked vol			1172		424	0
tC, single (s)			4.2		6.9	7.0
tC, 2 stage (s)					5.9	
tF (s)			2.2		3.5	3.3
p0 queue free %			100		100	72
cM capacity (veh/h)			332		1174	616

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1
Volume Total	1296	660	802	802	174
Volume Left	0	0	0	0	0
Volume Right	0	12	0	0	174
cSH	1700	1700	1700	1700	616
Volume to Capacity	0.76	0.39	0.47	0.47	0.28
Queue Length 95th (ft)	0	0	0	0	21
Control Delay (s)	0.0	0.0	0.0	0.0	13.1
Lane LOS					B
Approach Delay (s)	0.0		0.0		13.1
Approach LOS					B

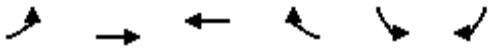
Intersection Summary			
Average Delay	0.6		
Intersection Capacity Utilization	68.3%	ICU Level of Service	C
Analysis Period (min)	15		

Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Act Effct Green (s)	88.0	72.0	72.0	74.0	62.0	32.7	24.7	24.7	25.3	42.0	42.0
Actuated g/C Ratio	0.59	0.48	0.48	0.49	0.41	0.22	0.16	0.16	0.17	0.28	0.28
v/c Ratio	1.01	0.88	0.28	0.75	1.05	0.92	0.72	0.53	0.80	0.96	0.41
Control Delay	88.0	37.5	8.3	65.3	70.2	94.0	73.6	25.6	71.0	84.1	11.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	88.0	37.5	8.3	65.3	70.2	94.0	73.6	25.6	71.0	84.1	11.1
LOS	F	D	A	E	E	F	E	C	E	F	B
Approach Delay		41.6			69.8		61.2			64.3	
Approach LOS		D			E		E			E	

Intersection Summary	
Cycle Length: 150	
Actuated Cycle Length: 150	
Offset: 70 (47%), Referenced to phase 2:WBTL and 6:EBTL, Start of Yellow	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 1.05	
Intersection Signal Delay: 57.2	Intersection LOS: E
Intersection Capacity Utilization 101.8%	ICU Level of Service G
Analysis Period (min) 15	

Lane Group	EBL	EBT	WBL	WBT	NBT	SBT
Act Effct Green (s)	96.4	96.4	100.7	100.7	16.3	13.6
Actuated g/C Ratio	0.64	0.64	0.67	0.67	0.11	0.09
v/c Ratio	0.10	0.86	0.57	0.59	0.66	0.43
Control Delay	4.0	10.0	58.8	16.6	65.4	69.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	4.0	10.0	58.8	16.6	65.4	69.0
LOS	A	B	E	B	E	E
Approach Delay		10.0		18.9	65.4	69.0
Approach LOS		A		B	E	E

Intersection Summary	
Cycle Length: 150	
Actuated Cycle Length: 150	
Offset: 77 (51%), Referenced to phase 2:WBTL and 6:EBTL, Start of Green	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.86	
Intersection Signal Delay: 16.9	Intersection LOS: B
Intersection Capacity Utilization 73.2%	ICU Level of Service D
Analysis Period (min) 15	



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (veh/h)	178	1693	1257	183	218	157
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	187	1782	1323	193	229	165
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		Raised	Raised			
Median storage veh)		1	1			
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	1516				2589	662
vC1, stage 1 conf vol					1323	
vC2, stage 2 conf vol					1266	
vCu, unblocked vol	1516				2589	662
tC, single (s)	4.2				6.8	6.9
tC, 2 stage (s)					5.8	
tF (s)	2.2				3.5	3.3
p0 queue free %	56				0	59
cM capacity (veh/h)	427				79	407

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	SB 1	SB 2
Volume Total	187	891	891	662	662	193	229	165
Volume Left	187	0	0	0	0	0	229	0
Volume Right	0	0	0	0	0	193	0	165
cSH	427	1700	1700	1700	1700	1700	79	407
Volume to Capacity	0.44	0.52	0.52	0.39	0.39	0.11	2.91	0.41
Queue Length 95th (ft)	39	0	0	0	0	0	408	35
Control Delay (s)	19.9	0.0	0.0	0.0	0.0	0.0	976.6	19.8
Lane LOS	C						F	C
Approach Delay (s)	1.9			0.0			576.0	
Approach LOS							F	

Intersection Summary			
Average Delay	59.6		
Intersection Capacity Utilization	66.7%	ICU Level of Service	C
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations												
Volume (veh/h)	90	1	44	41	3	63	92	1743	111	53	1166	38
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	95	1	46	43	3	66	97	1835	117	56	1227	40
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								Raised			Raised	
Median storage veh)								1			1	
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	2880	3466	976	2517	3504	634	1267			1952		
vC1, stage 1 conf vol	2087	2087		1359	1359							
vC2, stage 2 conf vol	793	1379		1158	2145							
vCu, unblocked vol	2880	3466	976	2517	3504	634	1267			1952		
tC, single (s)	7.5	6.5	6.9	7.5	6.5	6.9	4.2			4.2		
tC, 2 stage (s)	6.5	5.5		6.5	5.5							
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	0	97	82	13	78	84	82			81		
cM capacity (veh/h)	32	37	252	49	14	424	533			288		

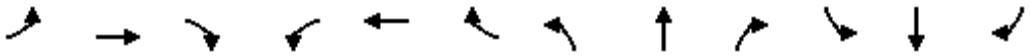
Direction, Lane #	EB 1	WB 1	SE 1	SE 2	SE 3	NW 1	NW 2	NW 3
Volume Total	142	113	97	1223	728	56	818	449
Volume Left	95	43	97	0	0	56	0	0
Volume Right	46	66	0	0	117	0	0	40
cSH	45	90	533	1700	1700	288	1700	1700
Volume to Capacity	3.16	1.25	0.18	0.72	0.43	0.19	0.48	0.26
Queue Length 95th (ft)	Err	145	12	0	0	13	0	0
Control Delay (s)	Err	262.6	13.2	0.0	0.0	20.5	0.0	0.0
Lane LOS	F	F	B			C		
Approach Delay (s)	Err	262.6	0.6			0.9		
Approach LOS	F	F						

Intersection Summary				
Average Delay	400.7			
Intersection Capacity Utilization	78.2%	ICU Level of Service	D	
Analysis Period (min)	15			

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (veh/h)	38	1770	20	33	1220	27	16	5	72	63	4	21
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	40	1863	21	35	1284	28	17	5	76	66	4	22
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		Raised			Raised							
Median storage veh)		1			1							
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	1313			1884			2679	3325	932	2444	3318	642
vC1, stage 1 conf vol							1943	1943		1354	1354	
vC2, stage 2 conf vol							736	1382		1090	1964	
vCu, unblocked vol	1313			1884			2679	3325	932	2444	3318	642
tC, single (s)	4.2			4.2			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)							6.5	5.5		6.5	5.5	
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	92			89			65	91	72	0	91	95
cM capacity (veh/h)	512			306			49	58	270	61	47	419

Direction, Lane #	SE 1	SE 2	SE 3	SE 4	NW 1	NW 2	NW 3	NW 4	NE 1	NE 2	SW 1	SW 2
Volume Total	40	932	932	21	35	642	642	28	17	81	66	26
Volume Left	40	0	0	0	35	0	0	0	17	0	66	0
Volume Right	0	0	0	21	0	0	0	28	0	76	0	22
cSH	512	1700	1700	1700	306	1700	1700	1700	49	219	61	185
Volume to Capacity	0.08	0.55	0.55	0.01	0.11	0.38	0.38	0.02	0.35	0.37	1.09	0.14
Queue Length 95th (ft)	5	0	0	0	7	0	0	0	22	29	96	9
Control Delay (s)	12.6	0.0	0.0	0.0	18.3	0.0	0.0	0.0	114.4	30.9	255.6	27.7
Lane LOS	B				C				F	D	F	D
Approach Delay (s)	0.3				0.5				45.2		190.8	
Approach LOS									E		F	

Intersection Summary				
Average Delay	6.7			
Intersection Capacity Utilization	65.8%	ICU Level of Service	C	
Analysis Period (min)	15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	0	0	73	0	0	19	0	1050	165	0	1130	11
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	0	0	77	0	0	20	0	1105	174	0	1189	12
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								Raised			Raised	
Median storage veh)								1			1	
Upstream signal (ft)											447	
pX, platoon unblocked	0.73	0.73	0.73	0.73	0.73		0.73					
vC, conflicting volume	1768	2301	601	1864	2393	639	1201			1105		
vC1, stage 1 conf vol	1195	1195		1192	1192							
vC2, stage 2 conf vol	573	1105		672	1201							
vCu, unblocked vol	1314	2043	0	1445	2170	639	539			1105		
tC, single (s)	7.6	6.6	7.0	7.6	6.6	7.0	4.2			4.2		
tC, 2 stage (s)	6.6	5.6		6.6	5.6							
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	100	90	100	100	95	100			100		
cM capacity (veh/h)	218	165	788	156	153	414	745			616		

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	77	20	737	542	793	408
Volume Left	0	0	0	0	0	0
Volume Right	77	20	0	174	0	12
cSH	788	414	1700	1700	1700	1700
Volume to Capacity	0.10	0.05	0.43	0.32	0.47	0.24
Queue Length 95th (ft)	6	3	0	0	0	0
Control Delay (s)	10.1	14.1	0.0	0.0	0.0	0.0
Lane LOS	B	B				
Approach Delay (s)	10.1	14.1	0.0		0.0	
Approach LOS	B	B				

Intersection Summary				
Average Delay	0.4			
Intersection Capacity Utilization	44.3%	ICU Level of Service	A	
Analysis Period (min)	15			

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Act Effct Green (s)	25.6	58.1	83.9	83.9	116.4	116.4
Actuated g/C Ratio	0.17	0.39	0.56	0.56	0.78	0.78
v/c Ratio	0.83	0.44	0.93	0.48	1.10	0.82
Control Delay	81.7	22.9	60.9	16.8	120.8	16.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	81.7	22.9	60.9	16.8	120.8	16.9
LOS	F	C	E	B	F	B
Approach Delay	49.5		45.6			44.4
Approach LOS	D		D			D

Intersection Summary	
Cycle Length: 150	
Actuated Cycle Length: 150	
Offset: 144 (96%), Referenced to phase 2:NBT and 6:SBTL, Start of Yellow	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 1.10	
Intersection Signal Delay: 45.7	Intersection LOS: D
Intersection Capacity Utilization 93.5%	ICU Level of Service F
Analysis Period (min) 15	

Appendix H

CORSIM Simulation Outputs for Year 2030 PD&E Re-Evaluation Build Conditions

PD&E Re-Evaluation 2030 AM Design Hour

1 NETSIM MOVEMENT SPECIFIC STATISTICS - TABLE I

		VEHICLE-MILE			VEHICLE-TRIPS			SPEED (MPH)			STOPS (PCT)		
		LEFT	THRU	RIGHT	LEFT	THRU	RIGHT	LEFT	THRU	RIGHT	LEFT	THRU	RIGHT
LINK	5, 4)	0.00	463.95	0.00	0	1879	0	0.0	29.2	0.0	0.0	0.0	0.0
	7, 19)	0.00	99.41	0.00	0	476	0	0.0	29.1	0.0	0.0	0.0	0.0
(	7, 35)	0.00	90.60	0.00	0	882	0	0.0	28.9	0.0	0.0	0.0	0.0
	12, 16)	0.00	240.21	0.00	0	1241	0	0.0	30.4	0.0	0.0	0.0	0.0
(	12, 39)	0.00	1.31	0.00	0	30	0	0.0	26.3	0.0	0.0	0.0	0.0
(	13, 36)	0.00	85.32	0.00	0	596	0	0.0	28.5	0.0	0.0	0.0	0.0
(	13, 40)	0.00	192.74	0.00	0	1436	0	0.0	32.6	0.0	0.0	0.0	0.0
(	20, 8)	0.00	488.47	0.00	0	1496	0	0.0	29.9	0.0	0.0	0.0	0.0
(	6, 7)	42.99	187.75	32.15	234	1022	175	4.9	10.7	14.8	99.6	83.6	81.1
(	7, 20)	0.00	319.11	0.00	0	1492	0	0.0	29.2	0.0	0.0	0.1	0.0
LEFT	5, 12)	0.00	98.30	2.52	0	1170	30	0.0	25.9	20.8	0.0	0.0	0.0
(	35, 7)	26.01	19.80	34.12	247	188	324	3.7	5.9	10.8	98.0	80.9	87.7
(	40, 13)	42.00	162.32	0.00	311	1202	0	7.5	18.2	0.0	91.3	43.2	0.0
(	12, 5)	12.70	61.89	2.03	150	731	24	1.9	4.1	4.6	99.3	90.2	95.8
(	14, 5)	39.20	133.84	55.44	239	816	338	5.5	6.0	5.6	98.7	89.3	98.2
(	14, 13)	0.00	78.04	25.05	0	888	285	0.0	7.6	12.1	0.0	45.2	49.8
(	39, 12)	0.00	0.00	3.05	0	0	70	0.0	0.0	12.2	0.0	0.0	100.0
(	36, 13)	50.26	0.00	81.78	346	0	563	5.5	0.0	8.1	96.8	0.0	86.7
(	19, 7)	44.33	83.36	45.18	209	393	213	5.7	6.7	19.9	97.6	97.2	75.6
(	20, 7)	24.96	293.90	55.08	116	1366	256	8.0	7.6	7.9	87.1	82.0	80.1
(	6, 5)	24.09	105.23	18.41	318	1389	243	2.5	5.0	8.0	99.1	54.9	52.7
(	8, 20)	0.00	584.14	0.00	0	1789	0	0.0	26.7	0.0	0.0	18.1	0.0
(	7, 6)	0.00	350.03	0.00	0	1921	0	0.0	9.5	0.0	0.0	73.3	0.0
(	5, 6)	0.00	99.61	0.00	0	1317	0	0.0	28.2	0.0	0.0	0.0	0.0
(	16, 12)	0.00	175.75	20.52	0	908	106	0.0	30.2	26.7	0.0	1.2	0.9
(	4, 5)	66.24	261.50	17.12	267	1054	69	3.5	12.1	11.6	100.0	73.7	81.2
(	13, 14)	0.00	129.09	0.00	0	1469	0	0.0	30.4	0.0	0.0	0.0	0.0
(	5, 14)	0.00	193.61	0.00	0	1197	0	0.0	5.6	0.0	0.0	70.8	0.0
(	24, 12)	0.00	0.00	0.00	0	0	0	0.0	0.0	0.0	0.0	0.0	0.0
(	24, 6)	0.00	0.00	7.58	0	0	107	0.0	0.0	9.8	0.0	0.0	100.0
(	12, 24)	0.00	6.26	0.00	0	107	0	0.0	27.2	0.0	0.0	0.0	0.0
(	6, 24)	0.00	0.00	0.00	0	0	0	0.0	0.0	0.0	0.0	0.0	0.0
(	4)				0	1489	0						
(	8)				0	1823	0						
(	16)				0	1014	0						
(8004,	19)				0	818	0						
(8008,	35)				0	757	0						
(8016,	36)				0	909	0						
(8019,	39)				0	70	0						
(8035,	40)				0	1512	0						
(8036,													
(8039,													
(8040,													

TOTAL VEHICLE- MILE = 5778.33 VEHICLE-HOURS OF: MOVE TIME = 167.41 , DELAY TIME = 308.61 , TOTAL TIME = 476.03

AVERAGE SPEED (MPH)= 12.14 MOVE/TOTAL = 0.35 MINUTES/MILE OF: DELAY TIME = 3.20 , TOTAL TIME = 4.94

NETWORK-WIDE STATISTICS FOR SCRIPT PROCESSING

167.41, 308.61, 476.03, 12.14, 0.35, 3.20, 4.94

5778.33

TOTAL CPU TIME FOR SIMULATION = 16.44 SECONDS
TOTAL CPU TIME FOR THIS RUN = 16.44 SECONDS

NETWORK-WIDE AVERAGE STATISTICS

PD&E Re-Evaluation 2030 PM Design Hour

NETSIM MOVEMENT SPECIFIC STATISTICS - TABLE I

		VEHICLE-MILE			VEHICLE-TRIPS			SPEED (MPH)			STOPS (PCT)		
		LEFT	THRU	RIGHT	LEFT	THRU	RIGHT	LEFT	THRU	RIGHT	LEFT	THRU	RIGHT
LINK	5, 4)	0.00	356.70	0.00	0	1443	0	0.0	29.6	0.0	0.0	0.0	0.0
(	7, 19)	0.00	173.60	0.00	0	828	0	0.0	28.6	0.0	0.0	0.0	0.0
(	7, 35)	0.00	89.97	0.00	0	730	0	0.0	28.8	0.0	0.0	0.0	0.0
(	12, 16)	0.00	241.37	0.00	0	1247	0	0.0	30.6	0.0	0.0	0.0	0.0
(	12, 39)	0.00	0.00	0.00	0	0	0	0.0	0.0	0.0	0.0	0.0	0.0
(	13, 36)	0.00	120.36	0.00	0	842	0	0.0	28.3	0.0	0.0	0.0	0.0
(	13, 40)	0.00	127.27	0.00	0	1152	0	0.0	32.1	0.0	0.0	0.0	0.0
(	20, 8)	0.00	676.21	0.00	0	2071	0	0.0	29.1	0.0	0.0	0.0	0.0
(	6, 7)	54.56	262.34	42.07	297	1428	229	5.3	12.8	18.4	99.7	41.5	41.9
(	7, 20)	0.00	445.61	0.00	0	2079	0	0.0	28.9	0.0	0.0	0.0	0.0
LEFT	5, 12)	0.00	99.30	0.00	0	1182	0	0.0	28.3	0.0	0.0	0.0	0.0
(	35, 7)	57.90	57.77	30.40	459	458	241	5.1	5.1	12.6	94.1	93.9	91.3
(	40, 13)	43.73	122.97	0.00	394	1108	0	5.4	19.5	0.0	95.7	36.3	0.0
(	12, 5)	14.73	64.59	2.12	174	763	25	1.7	2.3	2.2	100.0	97.6	96.0
(	14, 5)	46.09	135.80	32.47	281	828	198	4.0	5.1	5.3	99.6	93.1	96.0
(	14, 13)	0.00	76.89	39.37	0	875	448	0.0	8.0	12.6	0.0	51.4	58.3
(	39, 12)	0.00	0.00	3.09	0	0	71	0.0	0.0	9.8	0.0	0.0	100.0
(	36, 13)	35.01	0.00	40.53	241	0	279	6.3	0.0	11.7	95.4	0.0	85.7
(	19, 7)	29.27	42.00	40.30	138	198	190	10.6	9.8	15.4	98.6	87.4	86.8
(	20, 7)	30.77	246.56	50.99	143	1146	237	6.1	10.3	10.6	100.0	78.2	81.9
(	6, 5)	21.67	81.36	11.29	286	1074	149	2.5	3.7	6.5	100.0	72.6	72.5
(	8, 20)	0.00	503.81	0.00	0	1543	0	0.0	33.5	0.0	0.0	0.0	0.0
(	7, 6)	0.00	275.44	0.00	0	1511	0	0.0	21.6	0.0	0.0	14.0	0.0
(	5, 6)	0.00	136.43	0.00	0	1803	0	0.0	28.0	0.0	0.0	0.1	0.0
(	16, 12)	0.00	188.72	29.81	0	975	154	0.0	5.8	6.8	0.0	75.6	65.6
(	4, 5)	104.20	371.41	17.12	420	1497	69	5.3	10.4	9.7	100.0	83.1	91.3
(	13, 14)	0.00	118.11	0.00	0	1344	0	0.0	23.1	0.0	0.0	5.2	0.0
(	5, 14)	0.00	214.84	0.00	0	1320	0	0.0	9.5	0.0	0.0	66.4	0.0
(	24, 12)	0.00	0.00	0.00	0	0	0	0.0	0.0	0.0	0.0	0.0	0.0
(	24, 6)	0.00	0.00	10.84	0	0	153	0.0	0.0	5.9	0.0	0.0	100.0
(	12, 24)	0.00	8.95	0.00	0	153	0	0.0	27.5	0.0	0.0	0.0	0.0
(	6, 24)	0.00	0.00	0.00	0	0	0	0.0	0.0	0.0	0.0	0.0	0.0
(	4)				0	1999	0						
(	8)				0	1542	0						
(	16)				0	1188	0						
(8004,	19)				0	525	0						
(8008,	35)				0	1161	0						
(8016,	36)				0	529	0						
(8019,	39)				0	72	0						
(8035,	40)				0	1512	0						
(8036,													
(8039,													
(8040,													

TOTAL VEHICLE- MILE = 6026.74 VEHICLE-HOURS OF: MOVE TIME = 173.15 , DELAY TIME = 315.99 , TOTAL TIME = 489.15

AVERAGE SPEED (MPH)= 12.32 MOVE/TOTAL = 0.35 MINUTES/MILE OF: DELAY TIME = 3.15 , TOTAL TIME = 4.87

NETWORK-WIDE STATISTICS FOR SCRIPT PROCESSING

173.15, 315.99, 489.15, 12.32, 0.35, 3.15, 4.87

6026.74

TOTAL CPU TIME FOR SIMULATION = 16.35 SECONDS

TOTAL CPU TIME FOR THIS RUN = 16.35 SECONDS0LAST CASE PROCESSED

NETWORK-WIDE AVERAGE STATISTICS
