Sandy Ridge Road (SR 1850) Widening and Extension

NCDOT FS-0707A

Guilford County, NC

Feasibility Study

Prepared for:
Greensboro Department of Transportation
City of Greensboro

Prepared by:

MARTIN ALEXIOU BRYSON

January 2011

NC PE # C-3496

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Prepared by:
Martin/Alexiou/Bryson, P.C.
Raleigh, NC

Date:_____ _____

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I. GENERAL DESCRIPTION

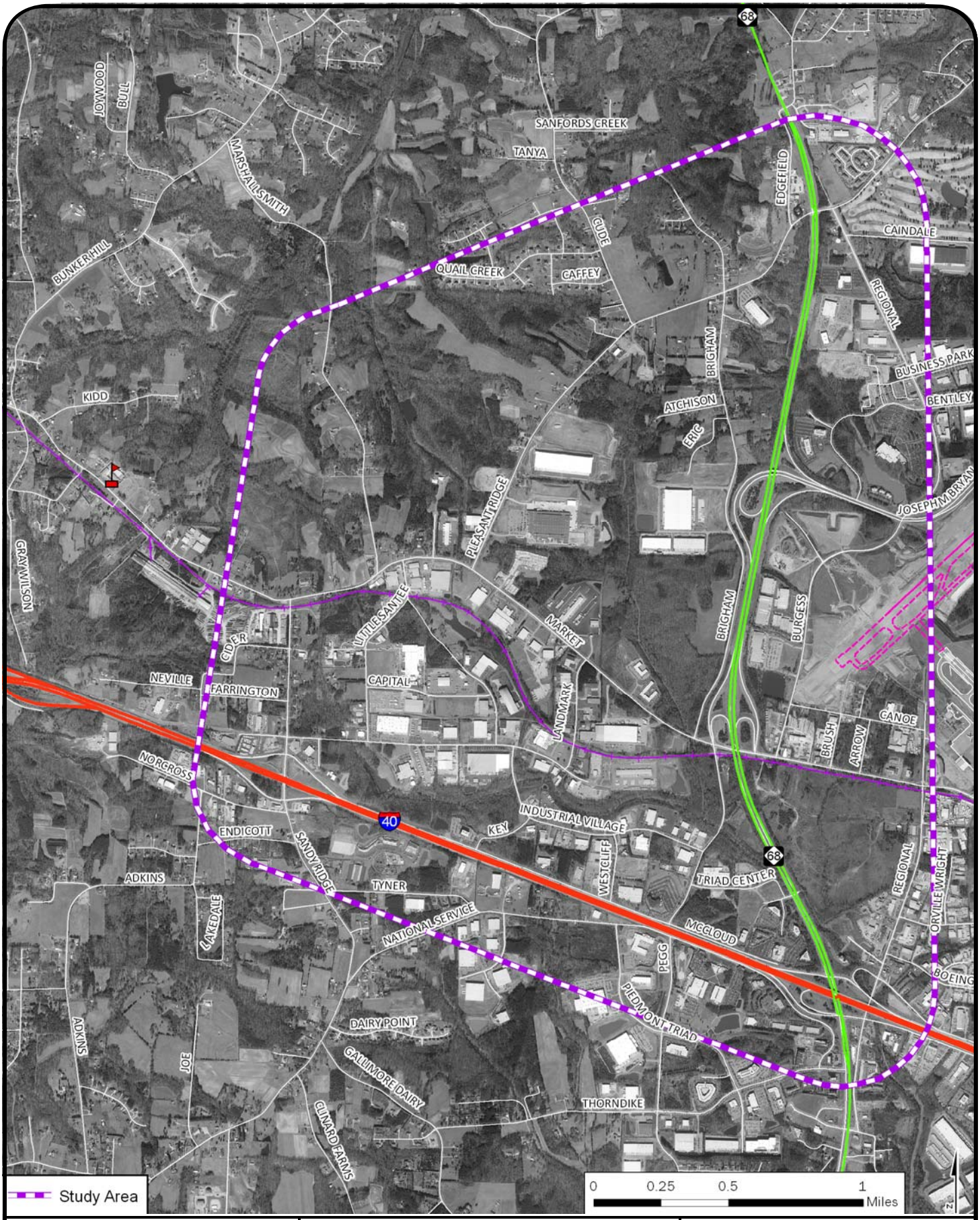
This feasibility study evaluates the proposed widening and extension of Sandy Ridge Road (SR 1850) from its interchange with I-40 to the north and east to NC 68. Widening alternatives for the existing roadway from I-40 to West Market Street (SR 1008), where it ends, were studied. Alternatives for extending Sandy Ridge Road to NC 68 on new location, and in some cases utilizing existing roads, were also studied and evaluated. The study area is bounded by I-40 to the south and as far north as the NC 68 and Edgefield Road (SR 2011) intersection, and Sandy Ridge Road to the west and Regional Road (SR 4156) to the east. The study area is shown on the Project Location Map as Figure 1. As part of this study, multiple alternatives were studied as summarized below:

- Alternative #1: Widening of Sandy Ridge Road from I-40 to West Market Street.
- Alternative #2: Widening Sandy Ridge Road and widening Pleasant Ridge Road (SR 2133) from West Market Street to NC 68
- Alternative #3: Widening Sandy Ridge Road and extending the road to NC 68 on new location, forming a fourth leg to the NC 68/Bryan Boulevard interchange. This alternative may or may not include an interchange at the Sandy Ridge Road and Market Street intersection.
- Alternative #4: Widening Sandy Ridge Road and extending the road to NC 68 near Pleasant Ridge Road at the future I-73 interchange.
- Alternative #5: Widening Sandy Ridge Road and extending the road north to a future I-40 Connector extending between I-40 and NC 68.

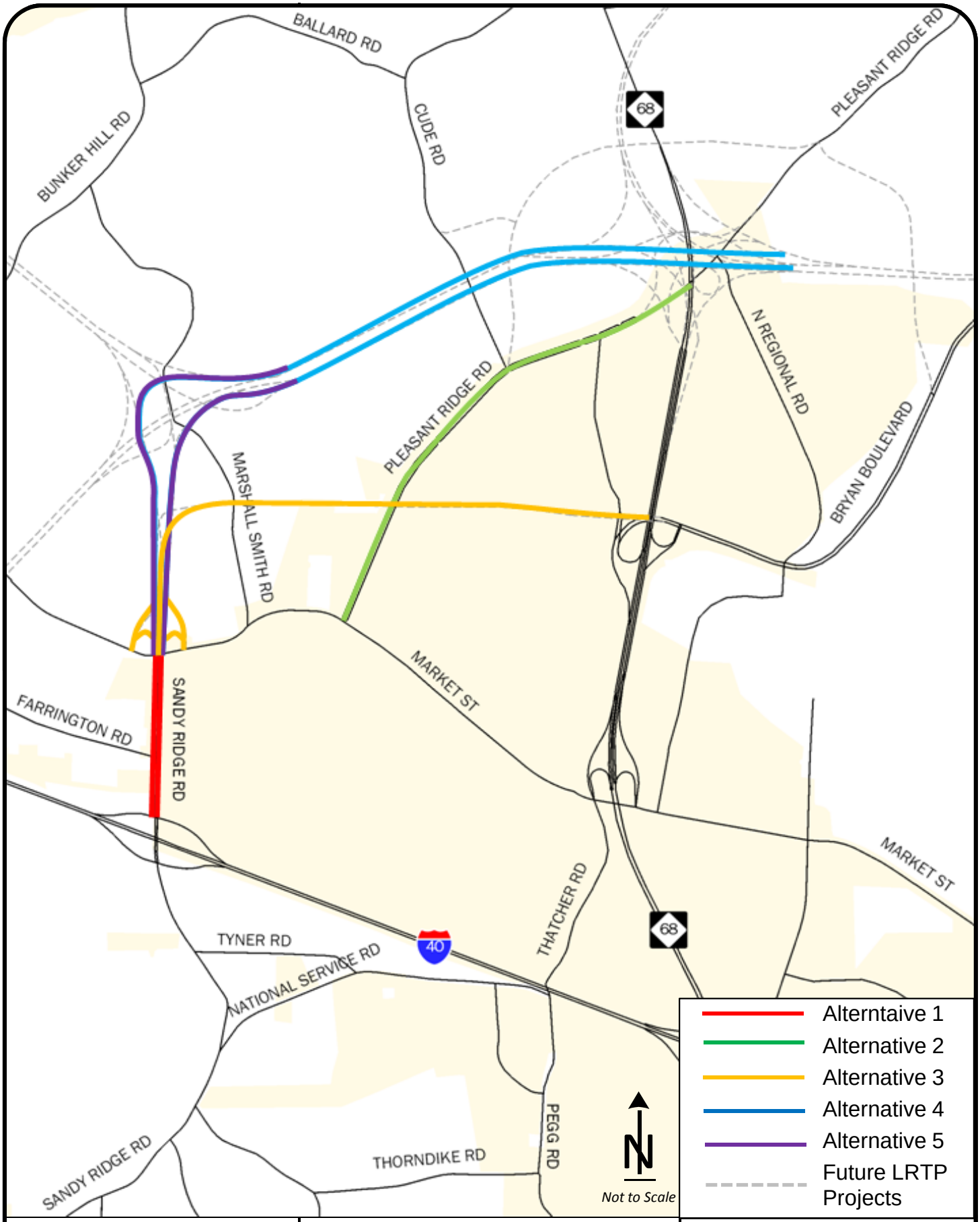
These alternatives are illustrated in Figure 2. Through benchmark meetings, these alternatives have been reassessed on a regular basis and some have been removed from the study for further evaluation.

This study is the initial step in the planning and design process for this project and is not the product of exhaustive environmental or design investigations. The purpose of this study is to describe the proposed project, including costs, and to identify issues that may warrant more detailed study in the subsequent planning and design phases.

It should be noted that the time line for planned improvements to the Pleasant Ridge Road and NC 68 intersection is not firmly established. As part of the State Transportation Improvement Program (STIP) Project #R-2413, which is a currently funded project, this location is planned as an at-grade intersection. That project will construct a new multilane connector from NC 68 to US 220, beginning at Pleasant Ridge Road and will realign Pleasant Ridge Road to the north, shifting the existing at-grade intersection slightly and increasing its capacity through added lanes. Future STIP and LRTP projects that are presently not funded, such as STIP Project #I-5110 or other airport connector projects, include a grade separation for Pleasant Ridge Road at NC 68. For the purpose of this study, a grade separated intersection was assumed as the long term (2035) configuration.



NCDOT #: FS 0707A	Figure 1 Project Location Map	**LOCATION:** Vicinity of Sandy Ridge Road, I-40 and NC 68
County: Guilford **Division:** 7		
Prepared for: Greensboro DOT/MPO		**PROJECT:** Sandy Ridge Road/Pleasant Ridge Road Widening Feasibility Study
Prepared by: Martin/Alexiou/Bryson		



NCDOT #: FS 0707A	Figure 2 Concept Alternatives Map	**LOCATION:** Vicinity of Sandy Ridge Road, I-40 and NC 68
County: Guilford **Division:** 7		
Prepared for: Greensboro DOT/MPO		**PROJECT:** Sandy Ridge Road/Pleasant Ridge Road Widening Feasibility Study
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II. BACKGROUND

Sandy Ridge Road (SR 1850) provides access from I-40 to many light industrial businesses, distribution centers, and some residential properties in the study area. It provides an important connection to West Market Street (SR 1008), which is a critical east-west local facility supplying access to much of the study area's destinations and providing a connection from Greensboro to Kernersville. Property immediately north of West Market Street, which is predominantly unincorporated, agricultural uses or undeveloped land, is expected to develop and will need improved access to the surrounding roadway network. Pleasant Ridge Road (SR 2133) has some distribution centers and light industrial uses along it.

Utilizing Sandy Ridge Road can also provide another route to the Piedmont Triad International Airport from I-40 west and from the south. Multiple jurisdictions, including the City of High Point to the south, the Town of Kernersville and City of Winston-Salem to the west as well as portions of Greensboro travel through the Sandy Ridge Road study area to access this regional airport.

There are numerous roadway projects planned within and near the Sandy Ridge Road study area. West Market Street is planned to be widened to a multilane facility from Bunker Hill Road (SR 2007) in Colfax to NC 68. At the time of this study, the project (NCDOT TIP# R-2611) is currently in the right-of-way acquisition stage with construction scheduled for the 2011-2013 fiscal year timeframe. The 2035 Greensboro Urban Area Long Range Transportation Plan (LRTP), adopted in 2009, identifies a series of additional projects within the 2025 horizon year. These include the following:

- I-73 Connector (NCDOT TIP# I-5110) – new 4-lane freeway extending between NC 68 and Bryan Boulevard; expected for construction in 2015-2019
- NC 68/US 220 Connector (R-2413) – new 4-lane freeway extending between Edgefield Road (SR 2011) to NC 68/US 220 intersection; expected for construction in 2014-2017
- NC 68 Widening – widening from 2-lane undivided to 4-lane divided between Peeples Road (SR 2130) and Rockingham County Line
- NC 68 Widening – widening from 4-lane to 6-lane divided between Market Street and Pleasant Ridge Road
- Pleasant Ridge Road Widening – widening from 2-lane undivided to 4-lane divided between West Market Street and City Limits (part of NCDOT TIP# R-2413)
- Pleasant Ridge Road Relocation at I-73 – new 3-lane minor arterial extending between Montmartre Road and Cude Road
- Bryan Boulevard Loop at I-73 Connector – new 4-lane divided major collector extending between Montmartre Road and Pleasant Ridge Road
- Sandy Ridge Road widening – widening from 2-lane undivided to 4-lane divided between Skeet Club Road and I-40 (High Point LRTP)

By the 2035 horizon year, the following roadway projects are included:

- Airport Connector (I-73/I-74) – new 4-lane divided freeway extending between the Forsyth County line and NC 68
- I-40 Connector – new 4-6-lane freeway extending from I-40 to I-73/I-74 Connector
- North-South Connector – new 4-lane freeway from US 311 to I-40 (High Point LRTP)
- I-73/I-74 Connector (Regional Airport Connector) – new 4-lane freeway from Northern Beltway/West Mountain Street to Guilford County (Winston-Salem LRTP)

These regional improvement projects and their timeframes for implementation are shown in Figure 3.

An airport area modeling study was conducted to evaluate the existing and cumulative conditions in the Piedmont Triad International Airport (PTIA) Area. This analysis formed the basis for analyzing, screening, and selecting preferred roadway alternatives and ensure that project needs still exist for the various proposed roadways in the area. The improvement projects considered in the airport modeling report are shown in Figure 4. A cost/benefit ratio was derived for the various proposed projects detailed in the airport modeling study. The vehicle hours of delay (VHD) reduction resulting from implementation was compared to the cost of each project to determine this cost/benefit ratio. The conclusion of this study was that the construction of local roadways ranked much higher than new freeway projects based on the ratio of system-wide vehicle hours of delay (VHD) reduction per construction cost. Of the twelve specific projects located within the PTIA area, the widening of Sandy Ridge Road was the highest priority based on the VHD-cost ratio. The widening of Pleasant Ridge Road was the third highest priority based on the results of this study. The Airport Connector, I-40 Connector, and Sandy Ridge Road Extension, were ranked seventh, eighth, and ninth due to their relatively higher costs. Table 1 summarizes the cumulative VHD reduction to cost ratio for the possible projects in order of their priority.

Table 1 Airport Area Roadway Improvements VHD Reduction/Cost Comparisons

Sequence	Project	Cumulative VHD Reduction	Cumulative Cost (Million)	VHD Reduction/Cost (Million)
1	Sandy Ridge Road Widening	192	$ 5.6	34.6
2	Pegg/Thatcher Street Connection	553	$ 23.4	23.6
3	Pleasant Ridge Road Widening	673	$ 36.7	18.3
4	Bryan Boulevard Loop	899	$ 74.4	12.1
5	I-73 Connector	1,250	$ 151.2	8.3
6	Pleasant Ridge Road Relocation	1,328	$ 166.1	8.0
7	Airport Connector	1,328	$ 189.2	7.0
8	I-40 Connector	2,209	$ 235.6	9.4
9	Sandy Ridge Road Extension (North)	2,299	$ 258.4	8.9
10	I-73/I-74 Connector (Arterial)	4,440	$ 573.2	7.7
11	NC 68 Widening	4,517	$ 631.3	7.2
12	I-40 Widening	5,575	$ 1,075.4	5.2

ID Project Name

Changes from 2002-2009

- 31a Gallimore Dairy Road
- 45 Guilford College Road (SR 1546)
- 46 Piedmont Parkway Extension
- 50 I-840
- 51 Bryan Boulevard Extension/Relocation
- 52b Penny Road
- 57 Barrow Road
- 61 Boulder Road
- 62 Chimney Rock Road
- 64 Sandy Ridge Road Ramps to I-40
- 65 Gallimore Dairy Road Ramps to I-40
- 66 Albert Pick Road

Changes from 2009-2035 E+C

- 1 North Main Street (NC 150)
- 2 SR 2601 (Macy Grove Road)
- 3 WS Northern Beltway (Future I-74)
- 4 Union Cross Road (SR 2643)
- 12 WS Northern Beltway (Future I-74)
- 18 Union Cross Road (SR 2643)
- 25 Hornaday Road Extension
- 26 Hornaday Road Bridge
- 27 Bridford Parkway Extension
- 29 Stanley Road
- 30 Horsepen Creek Rd/Flemming Rd Connector
- 34 West Market Street
- 47 Skeet Club Road
- 48 Johnson Street/Sandy Ridge Road
- 49 Skeet Club Road
- 52a Penny Road
- 53 NC 68/US 220 Connector
- 55 Piedmont Parkway Extension

Changes from2035 E+C to 2035

- 8 N. Main St/Piney Grove Rd Connector
- 10 SR 2045 East Mountain Street
- 11 Mace Grove Road Extension (north)
- 13a Bus-40 Interchage at Big Mill Farm Road
- 13b Bus-40 Interchage at Big Mill Farm Road
- 14 Mace Grove Road Extension (south)
- 16 Linville Springs Road (SR 2030) Extension
- 17 I-73 - I-74 Connector
- 20 US 311 Connector
- 21 Business I-40 (US 421)
- 23 Kernersville Road (SR 4315)
- 24 I-40
- 28 Sandy Ridge Road
- 31b Gallimore Dairy Road
- 32 Pegg/Thatcher Connector
- 33 Sandy Ridge Road Extension
- 35 NC 68
- 36 NC 68
- 37 Burnt Poplar Road
- 38 Pleasant Ridge Road
- 39 Pleasant Ridge Road
- 40 I-73 Connector
- 41 Pleasant Ridge Road Relocation
- 42 Bryan Boulevard Loop at I-73 Connector
- 43 I-73 - I-74 Connector
- 44 I-40 Connector
- 54 Glenn High Road Extension
- 56 Airport Connector
- 58 I-840
- 59 Thorndike Road
- 60 Bunker Hill Sandy Ridge Road
- 67 Winston Salem North/South Connector
- 68 Flemington-Lewiston Connector
- 69 Lewiston Road/Pleasant Ridge Road

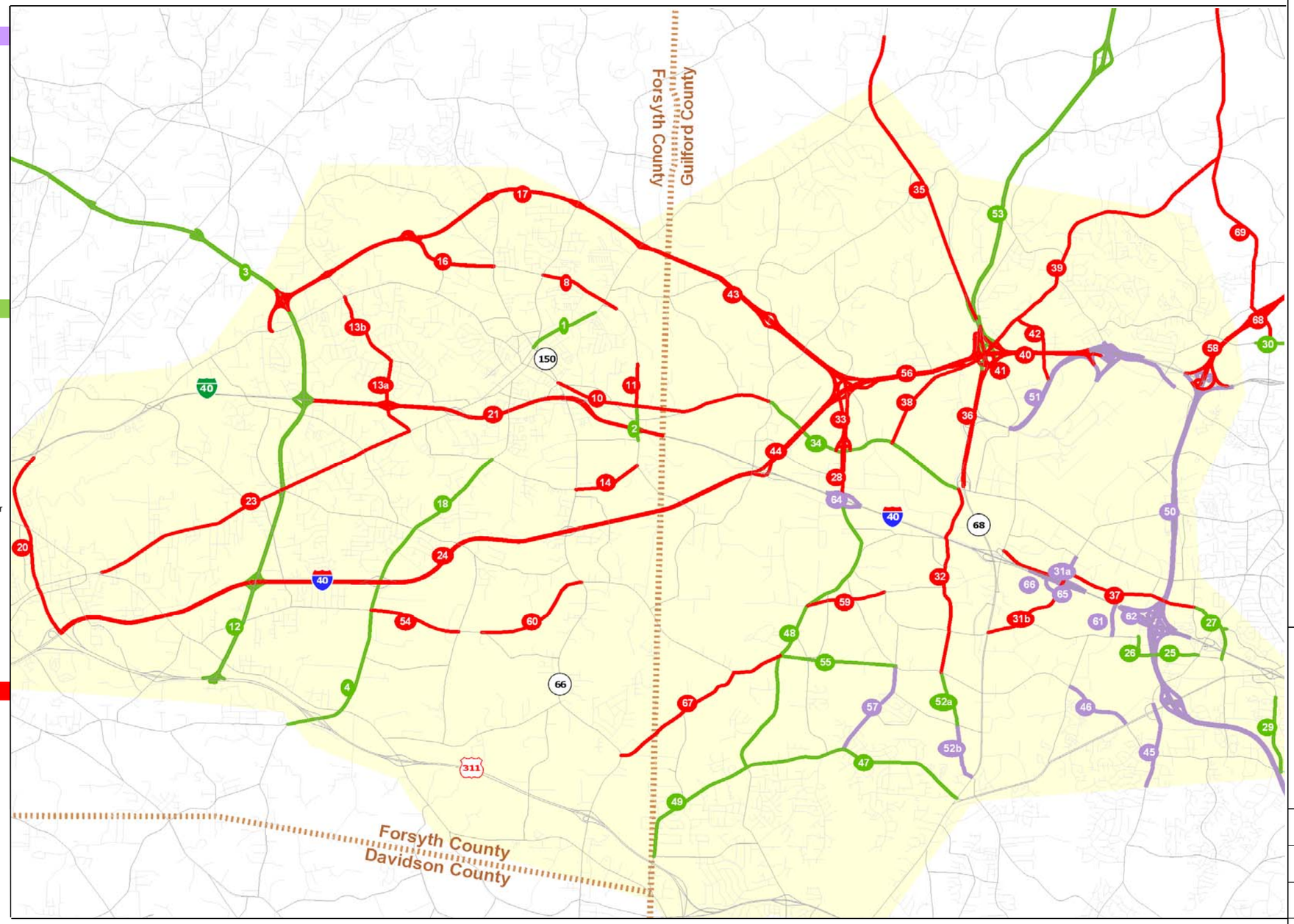

Figure 3

Long Range Transportation Projects

LEGEND

- New Projects - 2002 to 2009
- New Projects - 2009 to 2035 E+C
- New Projects - 2035 E+C to 2035

NCDOT #: FS-0707A

COUNTY: Guilford **DIVISION:** 7

PREPARED FOR: Greensboro DOT/MPO

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LOCATION: Vicinity of Sandy Ridge Rd, I-40 and NC-68

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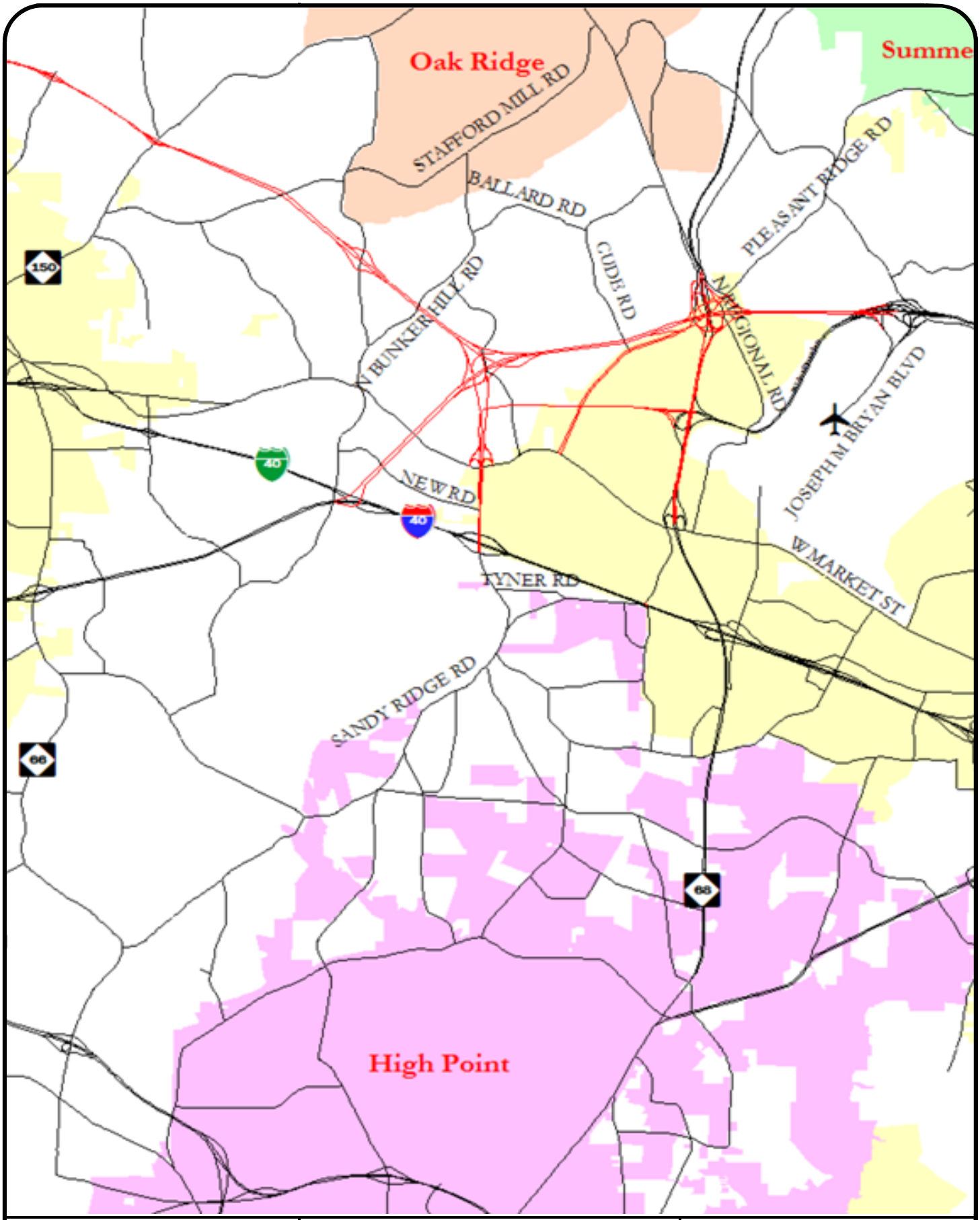

NCDOT #: FS 0707A	Figure 4 Airport Area Modeling Study Area	**LOCATION:** Vicinity of Sandy Ridge Road, I-40 and NC 68
County: Guilford **Division:** 7		
Prepared for: Greensboro DOT/MPO		**PROJECT:** Sandy Ridge Road/Pleasant Ridge Road Widening Feasibility Study
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Project Purpose and Need

The purpose of this project is as follows:

1. To improve the traffic safety and operations along Sandy Ridge Road
2. To provide access to and accommodate anticipated growth along and north of the Sandy Ridge Road
3. To address congestion concerns on NC 68, which runs parallel to the corridor, approximately 2 miles to the east
4. To provide an alternate route between I-40 and the Piedmont Triad International Airport.

Preliminary Evaluation of Alternatives

Initially, five improvement scenarios were established as possible alternatives for improving traffic operations and accessibility for future development within the Sandy Ridge Road area. These alternatives were reassessed throughout the project, and some were eliminated from further study as appropriate. Below is a description of each alternative and why it was or was not eliminated from the final recommendations followed by a matrix that outlines the general impacts of each alternative.

Alternative 1: Widening of Sandy Ridge Road from I-40 to West Market Street.

This alternative includes the widening of Sandy Ridge Road from a two-lane major thoroughfare to a six-lane, divided facility with curb and gutter as well as a landscaped median. Two new signalized median openings will provide access from Sandy Ridge Road to local streets serving the land uses adjacent to Sandy Ridge Road. As part of this analysis, it was determined that this improvement will also include the upgrade of the Sandy Ridge Road/I-40 diamond interchange by adding loops in the northeast and southwest quadrants. As a result of the Airport Area Modeling Study, this improvement was listed as the top priority for implementation in this area because it maximizes operational benefit to the area drivers while minimizing impacts to the project area. In addition, this alternative reduces congestion along Sandy Ridge Road while maintaining access to the surrounding land uses. Sidewalks and wide outside lanes are planned to accommodate pedestrian and bicycles along this facility. This alternative will be on its current location; therefore, environmental impacts from the construction will also be minimized. The implementation of this alternative would leave open the possibility of a future extension of Sandy Ridge Road to the I-40 Connector, if it is ever constructed. This alternative is recommended as a top priority.

Alternative 2: Widening Sandy Ridge Road and widening Pleasant Ridge Road (SR 2133) from West Market Street to NC 68.

This alternative includes the widening of Pleasant Ridge Road from a two-lane major thoroughfare to a four-lane, divided facility with curb and gutter as well as a landscaped median. As part of this analysis, it was determined that this improvement will also include the addition of two traffic signals along Pleasant Ridge Road to aid in side-street movements and overall accessibility. As a result of the Airport Area Modeling Study, this improvement was listed as a top priority (#3) for implementation in this area because it provides benefit to the area drivers while keeping overall project costs low relative to the other alternatives. Sidewalks and wide outside lanes are planned to accommodate pedestrian and bicycles along this facility. This alternative will be on its current

location; therefore, environmental impacts from the construction will also be minimized. The implementation of this alternative would leave open the possibility of a future extension of Sandy Ridge Road to the I-40 Connector, if it is ever constructed. This alternative is recommended as a top priority.

Alternative 3: Widening Sandy Ridge Road and extending the road to NC 68 on new location, forming a fourth leg to the NC 68/Bryan Boulevard interchange. This alternative may or may not include an interchange at the Sandy Ridge Road and Market Street intersection.

This alternative would result in the construction of a new roadway that connects Sandy Ridge Road to Bryan Boulevard. This alternative would also include the widening of Sandy Ridge Road as described in Alternative #1. The advantage of this alternative is that it provides a direct connection to NC 68, near the airport from Sandy Ridge Road/I-40; however, analysis indicated that this new link would attract a high traffic demand as it provides a shorter path between the airport and areas to the west than are currently available. This results in a shift of traffic from NC 68 and I-40 onto Sandy Ridge Road. As part of previous studies, it was determined that constructing a fourth leg onto the existing NC 68 and Bryan Boulevard interchange would be very costly due to its existing "trumpet" configuration. An interchange at West Market Street would also be costly and the distance between these two interchanges would limit the accessibility to the adjacent land uses from a freeway facility. More critically, Bryan Boulevard, to which this alternative would tie into, is set to eventually be disconnected at its northeastern end as part of the new I-73 Connector and airport expansion, therefore providing no access to the airport. As a result, this alternative was dropped due to its high cost for minimal delay reduction across the network as found in the Greensboro Airport Area Modeling Study (2009), limited access to land north of West Market Street and most of all, the lack of a direct connection to the airport, the main purpose of the alternative.

Alternative 4: Widening Sandy Ridge Road and extending the road to NC 68 near Pleasant Ridge Road at the future I-73 interchange.

This alternative would result in the construction of a new roadway that connects Sandy Ridge Road to the Future I-73 Connector. This facility would be a four-lane, divided roadway under controlled access ending with an interchange at the I-73 Connector. This alternative would also include the widening of Sandy Ridge Road as described in Alternative #1, and the length of this alternative could possibly be upgraded to a freeway in the future given the projected demand. The advantage of this alternative is that it provides an eventual direct freeway to freeway connection to the Future I-73 Connector that would be attractive to regional through traffic. As part of the Airport Area Modeling Study, it was determined that this alternative would be costly due to right-of-way costs associated with existing property and businesses within the new roadway corridor as well as an interchange at Sandy Ridge Road and Market Street. In addition, the freeway connections would essentially land-lock much of the land in the project area which has light industrial and commercial uses and is projected to develop further in the future. Ultimately, this alternative was dropped from further study due to its impacts to property and access and the high cost for minimal delay reduction across the network as found in the Greensboro Airport Area Modeling Study (2009).

Alternative 5: Widening Sandy Ridge Road and extending the road north to a future I-40 Connector extending between I-40 and NC 68.

This alternative would result in the construction of a new roadway that connects Sandy Ridge Road to the Future I-40 Connector. This alternative is very similar to Alternative #4, with the exception that this alternative extends Sandy Ridge Road north toward a future freeway facility (Airport Connector), rather than continuing Sandy Ridge Road all the way to NC 68. This alternative would also include the widening of Sandy Ridge Road as described in Alternative #1. The advantage of this alternative is that it provides a direct connection to the Future I-40 Connector, which in turn would provide a quick connection to I-40, NC 68, or other planned major roadways. As part of the Airport Area Modeling Study, it was determined that this alternative would be costly due to right-of-way costs associated with the new roadway corridor as well as an interchange at Sandy Ridge Road and Market Street. For this alternative to have any benefit, the I-40 Connector would first need to be constructed. As with Alternative #4, this option would also lead to costly and difficult access connections to the surrounding land uses due to the presence of multiple freeway facilities. However, when the I-40 Connector is constructed, Alternatives #1 and #2 leave open the opportunity for constructing a connection to the I-40 Connector. This would provide local access with Alternatives #1 and #2 in place, while also providing freeway access through the area. Ultimately, this alternative was dropped from further study due to its high cost for minimal delay reduction across the network as found in the Greensboro Airport Area Modeling Study (2009).

Description of Final Evaluated Alternatives

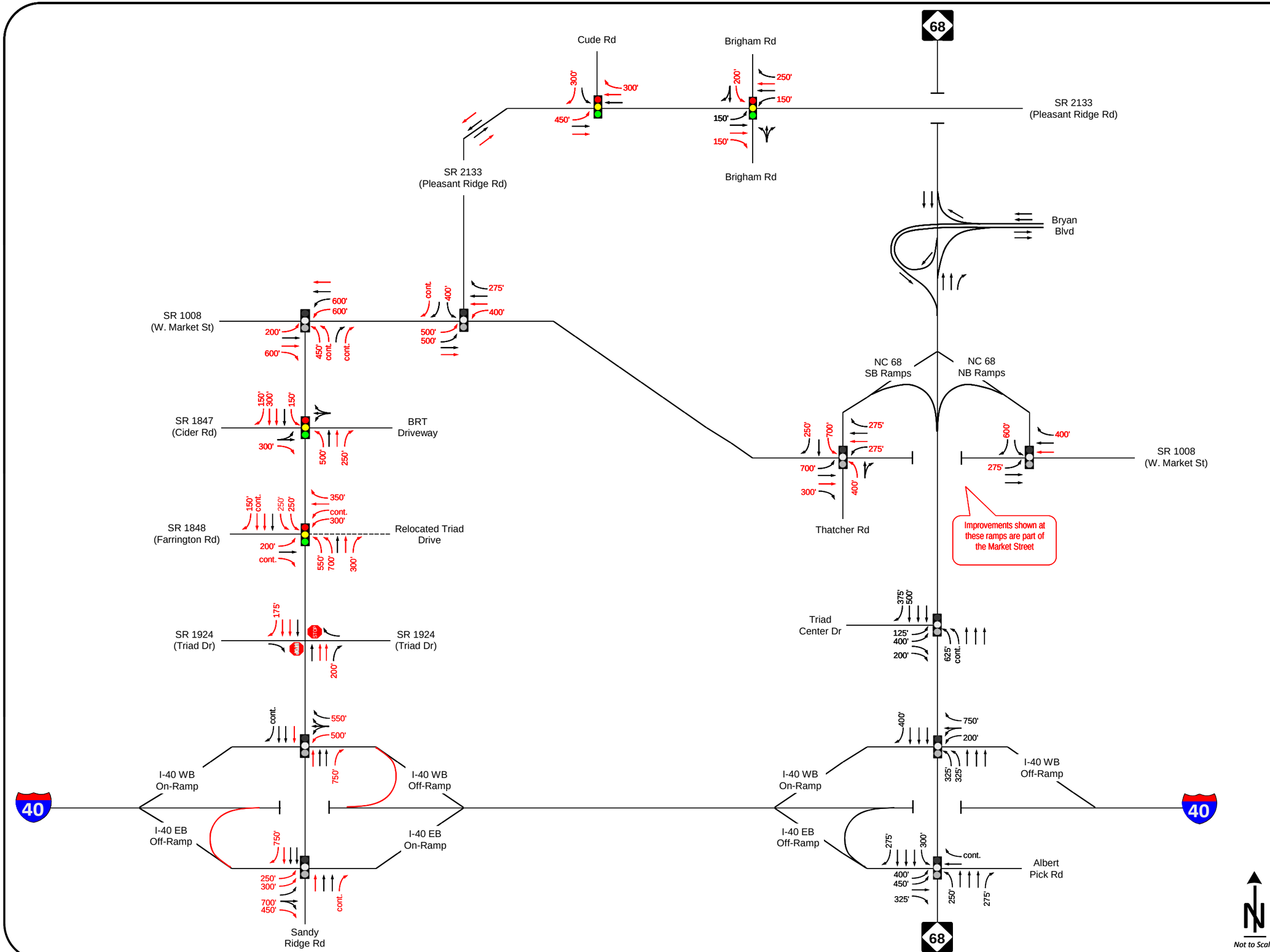
Through benchmark meetings, preliminary analysis results of the various Build Alternatives were evaluated and three alternatives were dropped from the study for further evaluation. The final modeled alternatives that are analyzed in this report are as follows:

- Build Alternative #1 – This alternative includes the improvements associated with widening Sandy Ridge Road from I-40 to West Market Street. Improvements include widening the typical cross-section to accommodate three through lanes in each direction with curb and gutter, divided by a landscaped median. The improved Sandy Ridge Road will not accommodate exclusive bicycle lanes, however, the outer lane will be wider, 14 feet, order to provide room for cyclists to ride with traffic. Additionally, there will be a 5-foot sidewalk along both sides of the improved roadway to accommodate pedestrians. Major intersections along this corridor will also accommodate exclusive turn lanes and traffic signals to aid in access along the roadway. The exception to this is the Sandy Ridge Road at Triad Drive intersection which will be configured as a right-in/right-out only intersection due to its proximity to the I-40 interchange. As part of this scenario, Triad Drive will be relocated such that the full movement approach of Triad Drive, east of Sandy Ridge Road, will tie in across from Farrington Road. In addition, this alternative accounts for the modification of the Sandy Ridge Road at I-40 interchange by adding loops in the northeast and southwest quadrants and widening Sandy Ridge Road through the interchange.

Both a single point urban interchange and a diverging diamond interchange were evaluated as possible interchange designs for this location; however, a partial cloverleaf design with the addition of loops in the northeast and southwest quadrants was selected as the preferred interchange configuration. It provided the best traffic operational results with comparable or reduced construction costs and impacts.

- Build Alternative #2 – This alternative includes all improvements to Sandy Ridge Road included in Build Alternative #1. It also incorporates the widening of Pleasant Ridge Road from a two-lane roadway to a four-lane divided facility with curb and cutter and a landscaped median from West Market Street north to NC 68. The improved Pleasant Ridge Road typical section will include a 4-foot exclusive bike lane to accommodate cyclists. In addition, there will be a 5-foot sidewalk along both sides of the improved roadway to accommodate pedestrians. This alternative accommodates the signalization of two key intersections along Pleasant Ridge Road.

Figure 5 illustrates the future lane geometrics and traffic control within the study area given the implementation of the Sandy Ridge Road Widening and interchange upgrade as well as the Pleasant Ridge Road Widening project. The functional design drawings and typical sections for these scenarios are contained in Appendix A.



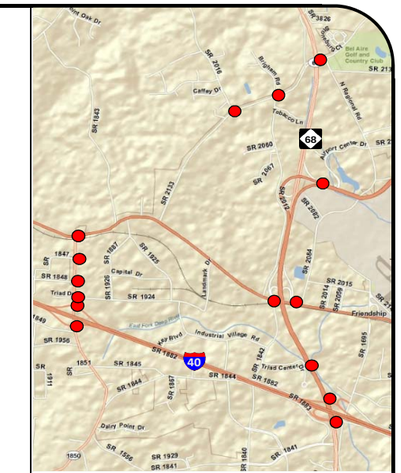


Figure 5

Design Year (2035) Build Traffic Control and Lane Geometry

(Alternatives 1 and 2)

LEGEND

- Existing Roadway
- Proposed New Roadway
- Lane Configuration
- Future Lane Configuration
- XX' Extension of Existing Storage Length
- Signalized Intersection
- Unsignalized Intersection
- Proposed Signalized Intersection
- Proposed Unsignalized Intersection

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PROJECT: Sandy Ridge Road/Pleasant Ridge Road Widening Feasibility Study

III. SAFETY AND TRAFFIC

Study Area

The study area is bounded by I-40 to the south and as far north as the NC 68 and Edgefield Road intersection, and Sandy Ridge Road to the west and Regional Road to the east. The key intersections that were included for analysis in this study include:

- Sandy Ridge Road and I-40 Eastbound Ramps
- Sandy Ridge Road and I-40 Westbound Ramps
- Sandy Ridge Road and Triad Drive
- Sandy Ridge Road and Farrington Road
- Sandy Ridge Road and Cider Road
- Sandy Ridge Road and West Market Street
- West Market Street and Pleasant Ridge Road
- Pleasant Ridge Road and Cude Road
- Pleasant Ridge Road and Brigham Road

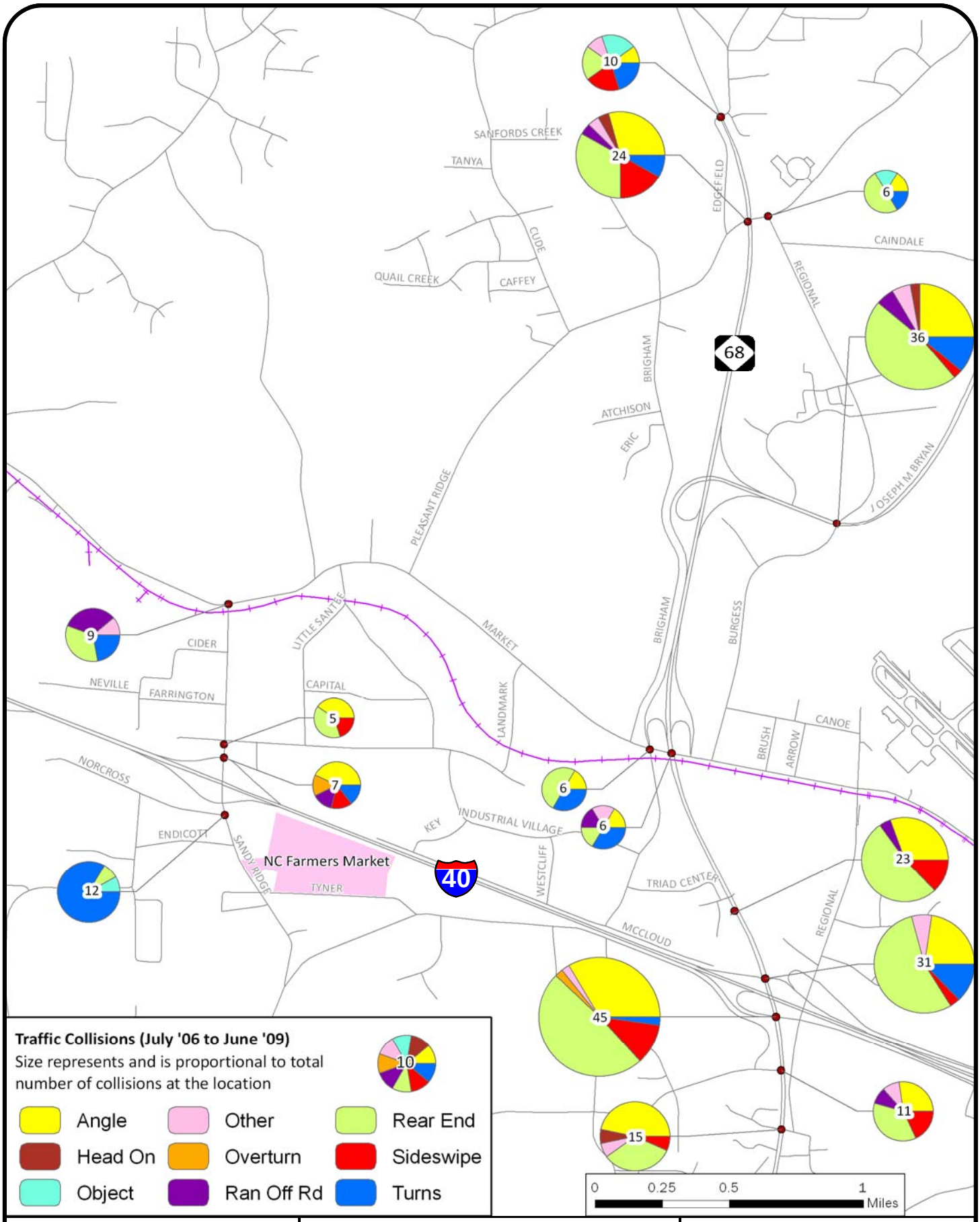
Additional intersections were preliminarily evaluated, also. However, as the project progressed, some intersections were dropped from further study due to the lack of impact from the improvements associated with the proposed Build Alternatives.

Safety Analysis

Crash Summary

Standard crash data reports for the Sandy Ridge Road study area were obtained from NCDOT, detailing the reported collisions in the area from July 1, 2006 through June 30, 2009. Specifically, data was examined for the following corridors: Sandy Ridge Road, Market Street, Pleasant Ridge Road, NC 68 and Bryan Boulevard. In summary, the collision data showed that in the Sandy Ridge Road study area, there were approximately 460 total collisions along the five examined corridors of which 252 occurred at 16 high frequency locations during the examined time period. Locations indicating five or more crashes over the three-year data period were examined further to determine the dominant crash type and identify specific safety issues. Mapping the collisions over this three-year period shows a predominance of accidents along the NC 68 corridor, with the Bryan Boulevard at Regional Road also having a high frequency. These intersections also have heavy traffic volumes, increasing overall exposure; however, the high number of rear-end collisions is an indication of congestion at the signals as well as transitioning from high speed conditions to a facility with lower travel speeds due to traffic signals and interrupted flow.

Figure 6 illustrates and Table 2 summarizes the available collisions data by accident type: angle, head on, object, overturn, ran off road, rear end, sideswipe, left / right turns, and other / not reported. The majority of collisions in the larger Sandy Ridge vicinity and along Sandy Ridge Road are rear ends and angle collisions.



NCDOT #: FS 0707A	Figure 6 Traffic Collision Map	**LOCATION:** Vicinity of Sandy Ridge Road, I-40 and NC 68
County: Guilford **Division:** 7		
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Table 2 Crash Summary for the Sandy Ridge Road Vicinity (July, 2006 - June, 2009)

Intersection	Total	Angle	Head On	Object	Other	Overturn	Ran Off Road	Rear End	Sideswipe	Turns
I 40 EB/Albert Pick Rd at NC 68	45	15			1	1		22	5	1
Bryan Blvd at Regional Rd	36	9	1		2		2	17	1	4
I 40 WB at NC 68	31	7			2			17	1	4
NC 68 at Pleasant Ridge Rd	24	7	1		1		1	8	4	2
NC 68 at Triad Center Rd	23	7					1	12	3	
NC 68 at Hickory Ridge Rd	15	7	1		1			5	1	
Sandy Ridge Rd at Norcross Rd	12			1				1		10
NC 68 at Thorndike	11	3			1		1	4	2	
NC 68 at Edgefield Rd	10	1		2	1			2	2	2
Market St at Sandy Ridge Road	9				1		3	3		2
Sandy Ridge Rd at I 40 WB	7	3				1	1		1	1
NC 68 SB/Thatcher at Market St	6	1						3		2
Bryan Blvd at N Triad Blvd	6					1		1		4
NC 68 at Market St (bridge)	6	1			1		1	1		2
Pleasant Ridge Rd at Regional Rd	6	1		1				3		1
Sandy Ridge Rd at Triad Dr	5	2						2	1	
GRAND TOTAL	**252**	**64**	**3**	**4**	**11**	**3**	**10**	**101**	**21**	**35**

Comparison to Statewide Data

When comparing the corridor specific crash rates to the statewide average crash rates for that facility type, it is concluded that the crash experience within the Sandy Ridge Road study area is not of significant concern as the rates are typically below the statewide average for similar facilities. Table 3 summarizes the comparison of each major roadway in the study area to the averages for that facility type.

Table 3 Crash Rate* Comparisons to Similar Facilities Statewide

Facility		Total Crash Rate	Injury Crash Rate	Fatal Crash Rate
Urban Secondary Routes	Sandy Ridge Road	334.22	133.69	0
	Market Street	89.63	44.82	1.87
	Pleasant Ridge Road	129.29	38.03	0
	Statewide Average	*413.78*	*130.38*	*1.31*
Urban NC Routes	NC 68	117.89	37.74	0
	Statewide Average	*303.18*	*97.95*	*1.12*

*Rates are reported as collisions per 100 million vehicle miles traveled

As shown in the tables above, although some locations within the study area have a relatively high occurrence of crashes over the three-year data period, the crash rates for the roadways are generally lower than rates along similar facilities in other parts of the state. Sandy Ridge Road most closely follows statewide crash trends for its facility type.

Safety Conclusions

Because the overall corridor rates are considerably less than statewide averages, it can be concluded that network-wide safety improvement efforts are not necessary; however, some spot safety improvements could be made at specific intersections to help reduce collisions at those points. Specifically, the collisions along NC 68 were predominantly rear-end collisions. This is likely due to the presence of traffic signals spaced along the corridor. Vehicles travel at high speeds along this roadway and may be caught off guard by a queue resulting from a signal.

The standard strip analysis reports of crash data along the corridors used in this analysis are contained in Appendix B.

Traffic Analysis

Traffic Forecasts

Martin/Alexiou/Bryson, P.C. completed a traffic forecast for this study in January 2010 which projects the traffic volumes within the study area under various scenarios of improvement and implementation of two widening projects within the study area, the widening of Sandy Ridge Road and Pleasant Ridge Road. In summary, the traffic forecast projected volumes for the following scenarios:

- Base Year 2009 No-Build
- Base Year 2009 Build – Alternative 1 (Sandy Ridge Road Widening)
- Base Year 2009 Build – Alternative 2 (Build Alternative 1 + Pleasant Ridge Road Widening)
- Design Year 2035 No-Build
- Design Year 2035 Build – Alternative 1 (Sandy Ridge Road Widening)
- Design Year 2035 Build – Alternative 2 (Build Alternative 1 + Pleasant Ridge Road Widening)

The Intersection Analysis Utility, provided by NCDOT, was used to convert the forecasted AADT volumes into peak hour turning movement volumes. These volumes were then used in the capacity analysis in this report. In many cases, volumes were balanced between closely spaced intersections for continuity. A copy of the traffic forecasting report can be found in Appendix C.

Level of Service Criteria

Peak hour level of service (LOS) measures the adequacy of the intersection geometrics and traffic signalization controls of a particular intersection or approach for the given turning movement volumes. Levels of service range from A through F, based on the average control delay experienced by vehicles traveling through the intersection during the peak hour. Control delay represents the portion of the total delay attributed to traffic control devices (e.g., signals or stop signs). The

engineering profession generally accepts level of service D as an acceptable operation condition for signalized intersections in urban areas and level of service C for rural areas.

Table 4 summarizes the delay ranges for each level of service at both signalized and unsignalized intersections.

Table 4 Level of Service Descriptions For Intersections

Level of Service	Description	Signalized Intersection	Unsignalized Intersection
A	Little or no delay	<= 10 sec.	<= 10 sec.
B	Short traffic delay	10-20 sec.	10-15 sec.
C	Average traffic delay	20-35 sec.	15-25 sec.
D	Long traffic delay	35-55 sec.	25-35 sec.
E	Very long traffic delay	55-80 sec.	35-50 sec.
F	Unacceptable delay	> 80 sec.	> 50 sec.

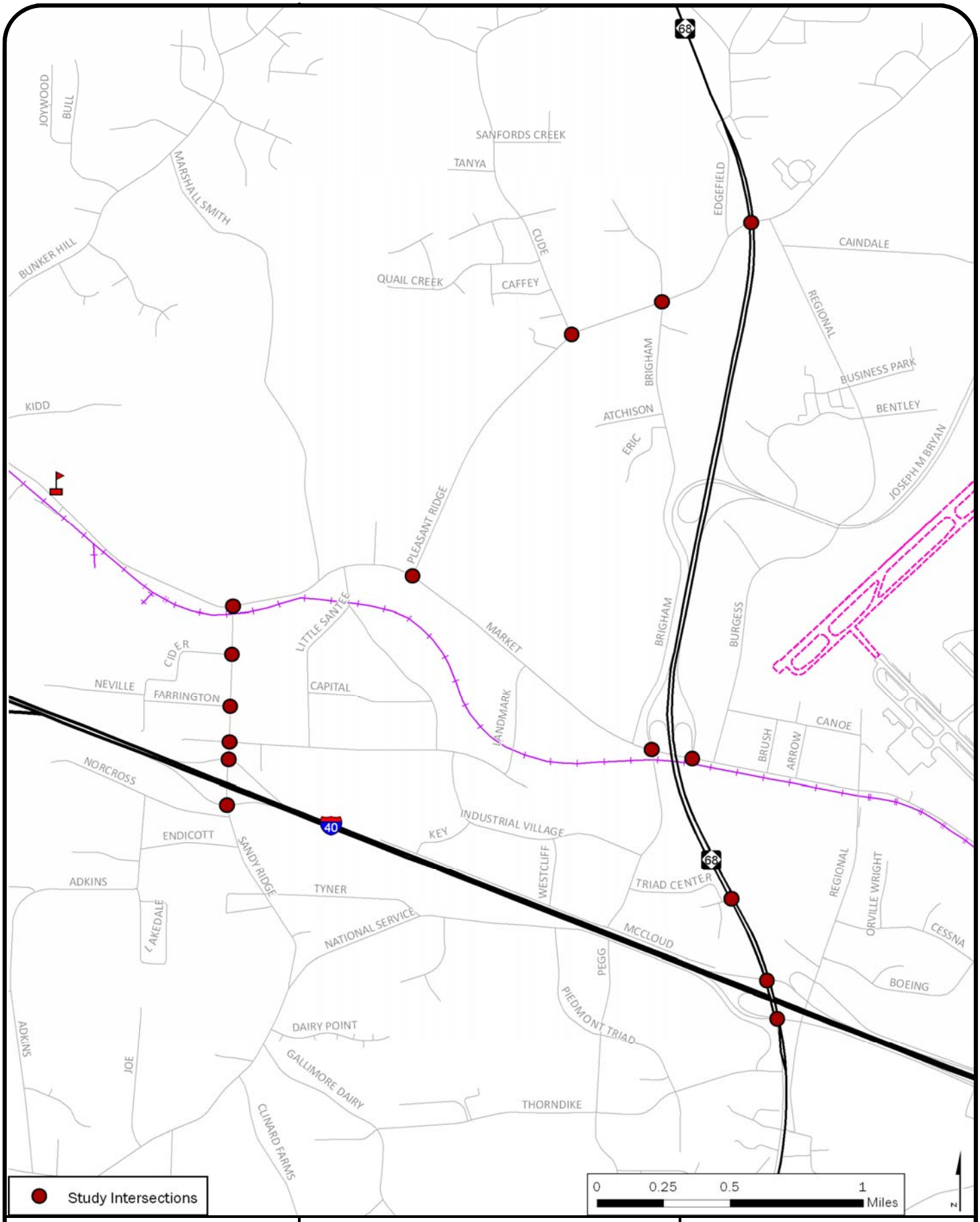
Level of Service Analysis Methodology

For all capacity analyses in this report, intersection levels of service analyses were performed for the typical weekday AM and PM peak hours using *Synchro/SimTraffic Professional Version 7* and *Highway Capacity Software (HCS+)*. The full software output reports of the findings for the scenario analyses can be found in Appendix D. Where available, existing signal plans were incorporated into the 2009 Base Year analysis. The signal plans used in the study can be found in Appendix E. In future year scenarios, the signal phasing plans were maintained unless specific improvements were recommended. The future year signal timings account for the conservative parameters required for capacity analysis for NCDOT Congestion Management Unit.

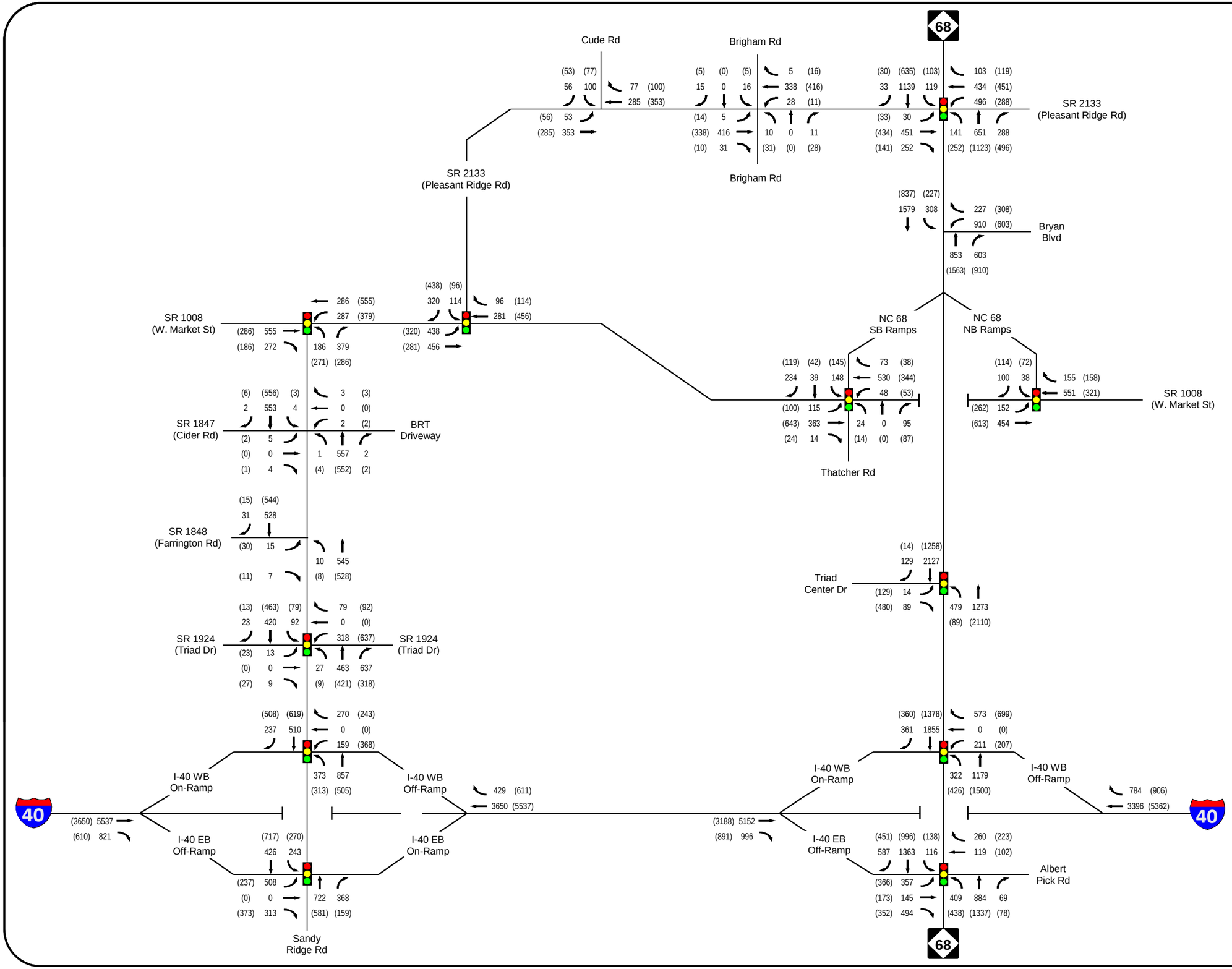
Base Year (2009) No-Build Level of Service Analysis

The capacity analysis undertaken for this scenario was completed using the forecasted volumes described previously and is based on the lane geometry and traffic control configurations that were present in January 2009 when site data was gathered. Figure 7 illustrates the study area intersections and Figure 8 illustrates the turning movement volumes used in this scenario analysis.

As reported in Table 5, all of the unsignalized intersections operate under acceptable conditions. However, some of the signalized intersections operate under failing conditions in one or both of the peak hours. Specifically, the West Market Street and Sandy Ridge Road intersection is operating at a LOS F and LOS E during the AM and PM peak hours, respectively. The NC 68 at Pleasant Ridge Road intersection also operates at failing LOS during both peak hours. In addition, the Sandy Ridge Road and Triad Drive intersection is operating at LOS E in the PM peak hour.



NCDOT #: FS 0707A	Figure 7 Study Area Intersections	**LOCATION:** Vicinity of Sandy Ridge Road, I-40 and NC 68
County: Guilford **Division:** 7		
Prepared for: Greensboro DOT/MPO		**PROJECT:** Sandy Ridge Road/Pleasant Ridge Road Widening Feasibility Study
Prepared by: Martin/Alexiou/Bryson		



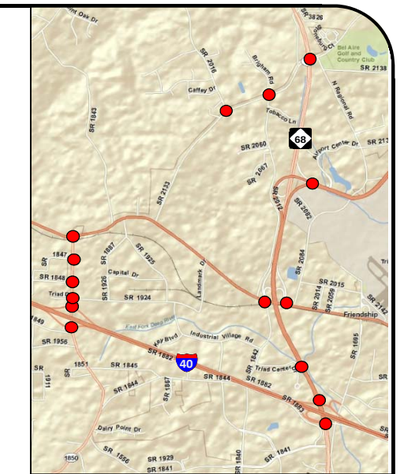


Figure 8

Base Year (2009) No-Build
Peak Hour Turning
Movement Volumes

LEGEND

- Existing Roadway
- Turning Movement
- Signalized Intersection
- XX AM Peak Hour Volume
- (XX) PM Peak Hour Volume

NCDOT #: FS-0707A

COUNTY: Guilford | **DIVISION:** 7

PREPARED FOR: Greensboro DOT/MPO

PREPARED BY: Martin/Alexiou/Bryson

LOCATION: Vicinity of Sandy Ridge Rd, I-40 and NC-68

PROJECT: Sandy Ridge Road/Pleasant Ridge Road Widening Feasibility Study

Table 5 Base Year (2009) No-Build Level of Service Results

Intersection	Base Year 2009 No-Build	
	AM	PM
Sandy Ridge Road and I-40 EB Ramps	D (EB-D) (47.0 sec)	C (EB-D) (25.5 sec)
Sandy Ridge Road and I-40 WB Ramps	B (WB-D) (16.6 sec)	C (WB-D) (20.8 sec)
Sandy Ridge Road and Triad Drive	C (WB-E) (27.6 sec)	**E (SB-F) (70.4 sec)**
Sandy Ridge Road and Farrington Road	(EB-C)	(EB-D)
Sandy Ridge Road and Cider Road	(EB-C)	(EB-C)
West Market Street and Sandy Ridge Road	**F (NB-F) (125.2 sec)**	**E (NB-E) (64.7 sec)**
West Market Street and Pleasant Ridge Road	B (SB-D) (17.5 sec)	C (SB-D) (23.1 sec)
West Market Street and NC 68 SB Ramps/Thatcher Road	C (NB-D) (29.7 sec)	C (SB-E) (34.7 sec)
West Market Street and NC 68 NB Ramps	B (SB-D) (13.0 sec)	B (SB-D) (10.8 sec)
Pleasant Ridge Road and Cude Road	(SB-C)	(SB-C)
Pleasant Ridge Road and Brigham Road	(NB-B)	(NB-B)
NC 68 and Pleasant Ridge Road	**F (EB-F) (146.7 sec)**	**F (EB-F) (88.6 sec)**
NC 68 and Triad Center Drive	B (EB-D) (18.8 sec)	B (EB-D) (19.8 sec)
NC 68 and I-40 WB Ramps	A (WB-B) (8.0 sec)	B (SB-B) (13.6 sec)
NC 68 and I-40 EB Ramps/Albert Pick Road	D (WB-D) (42.1 sec)	C (WB-D) (33.3 sec)

X = Overall LOS; (XB-X) = Lowest operating approach and LOS
(XX.X sec) = average seconds of delay per vehicle for signalized intersection

Base Year (2009) Build Alternative #1 Level of Service Analysis

This scenario examines the associated impacts of one of the two proposed widening projects within the study area, the widening of Sandy Ridge Road. The proposed widening of Sandy Ridge Road would result in a typical cross-section that is a six-lane divided facility with traffic signals and exclusive turn lanes at major intersections along the corridor. The capacity analysis undertaken for this scenario was completed using the forecasted volumes described previously. Figure 9 illustrates the turning movement volumes used in this scenario analysis.

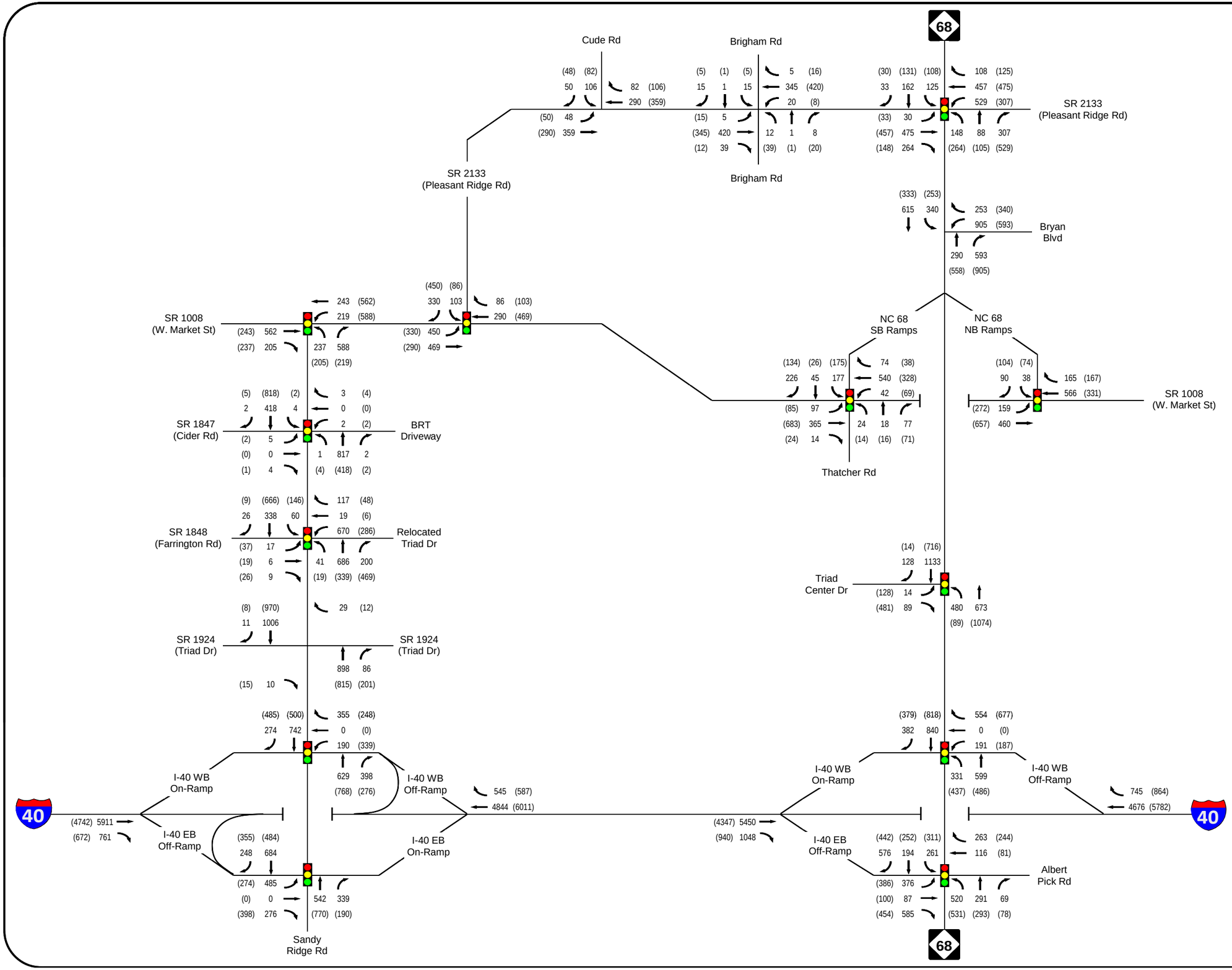
For the purpose of clarity and simplicity, analysis results for this scenario do not include intersections along NC 68 that are unaffected by the proposed improvements included in this Build Alternative.

As shown in Table 6, the proposed improvements associated with Build Alternative 1 would result in acceptable operations at all key intersections within the study area if they were in place today.

Table 6 Base Year (2009) Build Alternative 1 Level of Service Results

Intersection	Base Year 2009 Build Alternative 1	
	AM	PM
Sandy Ridge Road and I-40 EB Ramps	B (EB-C) (14.4 sec)	B (EB-C) (12.9 sec)
Sandy Ridge Road and I-40 WB Ramps	B (WB-C) (12.0 sec)	B (WB-D) (13.2 sec)
Sandy Ridge Road and Triad Drive	(EB-B)	(WB-A)
Sandy Ridge Road and Farrington Road	C (WB-D) (25.7 sec)	B (EB-C) (18.5 sec)
Sandy Ridge Road and Cider Road	A (WB-D) (1.1 sec)	A (WB-D) (1.3 sec)
West Market Street and Sandy Ridge Road	B (NB-B) (17.2 sec)	B (NB-C) (18.9 sec)
West Market Street and Pleasant Ridge Road	B (SB-C) (16.7 sec)	C (SB-C) (23.7 sec)
Pleasant Ridge Road and Cude Road	(SB-C)	(SB-C)
Pleasant Ridge Road and Brigham Road	(SB-B)	(NB-C)

X = Overall LOS; (XB-X) = Lowest operating approach and LOS
(XX.X sec) = average seconds of delay per vehicle for signalized intersection



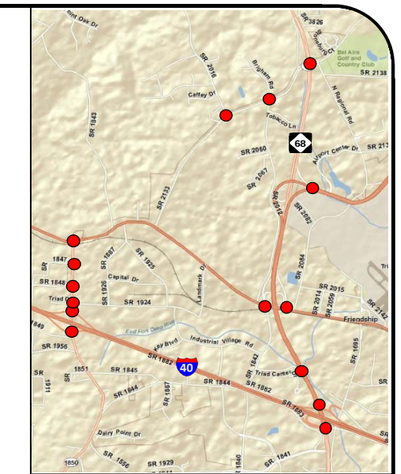


Figure 9

Base Year (2009) Build
Alternative 1
Peak Hour Turning
Movement Volumes

LEGEND

- Existing Roadway
- Turning Movement
- Signalized Intersection
- XX AM Peak Hour Volume
- (XX) PM Peak Hour Volume

NCDOT #: FS-0707A

COUNTY: Guilford | **DIVISION:** 7

PREPARED FOR: Greensboro DOT/MPO

PREPARED BY: Martin/Alexiou/Bryson

LOCATION: Vicinity of Sandy Ridge Rd, I-40 and NC-68

PROJECT: Sandy Ridge Road/Pleasant Ridge Road Widening Feasibility Study

Base Year (2009) Build Alternative 2 Level of Service Analysis

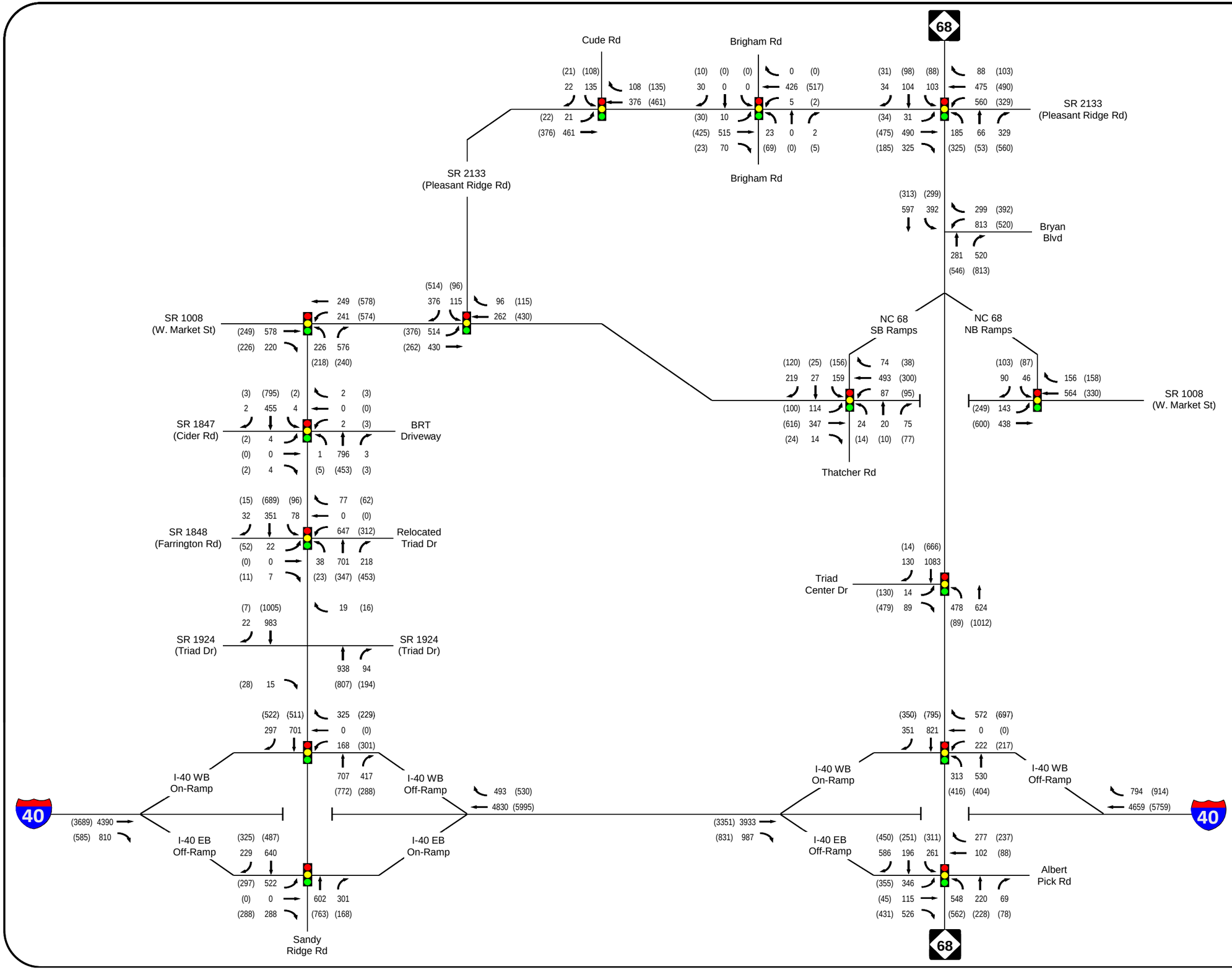
This scenario examines the associated impacts of both proposed widening projects within the study area, the widening of Sandy Ridge Road and the widening of Pleasant Ridge Road. The proposed widening of Sandy Ridge Road would result in a typical cross-section that is a six-lane divided facility with traffic signals and exclusive turn lanes at major intersections along the corridor. The widening of Pleasant Ridge Road would result in a four-lane divided cross-section with turn lanes and traffic signals at major intersections along the corridor. The capacity analysis undertaken for this scenario was completed using the forecasted volumes described previously. Figure 10 illustrates the turning movement volumes used in this scenario analysis.

As shown in Table 7, the proposed improvements associated with Build Alternative 2 would result in acceptable operations at all key intersections within the study area if they were in place today.

Table 7 Base Year (2009) Build Alternative 2 Level of Service Results

Intersection	Base Year 2009 Build Alternative 2	
	AM	PM
Sandy Ridge Road and I-40 EB Ramps	B (EB-C) (14.5 sec)	B (EB-C) (12.6 sec)
Sandy Ridge Road and I-40 WB Ramps	A (WB-D) (9.4 sec)	B (WB-D) (11.3 sec)
Sandy Ridge Road and Triad Drive	(EB-B)	(EB-B)
Sandy Ridge Road and Farrington Road	C (WB-D) (22.9 sec)	B (WB-C) (12.3 sec)
Sandy Ridge Road and Cider Road	A (WB-D) (1.1 sec)	A (WB-D) (1.1 sec)
West Market Street and Sandy Ridge Road	B (WB-B) (16.8 sec)	B (NB-B) (16.9 sec)
West Market Street and Pleasant Ridge Road	B (WB-B) (16.0 sec)	C (EB-C) (20.4 sec)
Pleasant Ridge Road and Cude Road	A (SB-C) (9.9 sec)	A (SB-C) (9.1 sec)
Pleasant Ridge Road and Brigham Road	A (SB-C) (7.0 sec)	B (NB-C) (10.7 sec)

X = Overall LOS; (XB-X) = Lowest operating approach and LOS
(XX.X sec) = average seconds of delay per vehicle for signalized intersection



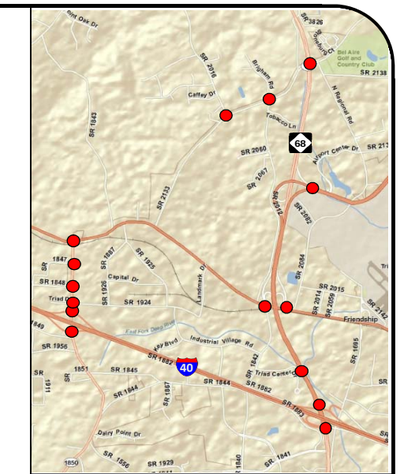


Figure 10

Base Year (2009) Build
Alternative 2
Peak Hour Turning
Movement Volumes

LEGEND

- Existing Roadway
- Turning Movement
- Signalized Intersection
- XX AM Peak Hour Volume
- (XX) PM Peak Hour Volume

NCDOT #: FS-0707A

COUNTY: Guilford | **DIVISION:** 7

PREPARED FOR: Greensboro DOT/MPO

PREPARED BY: Martin/Alexiou/Bryson

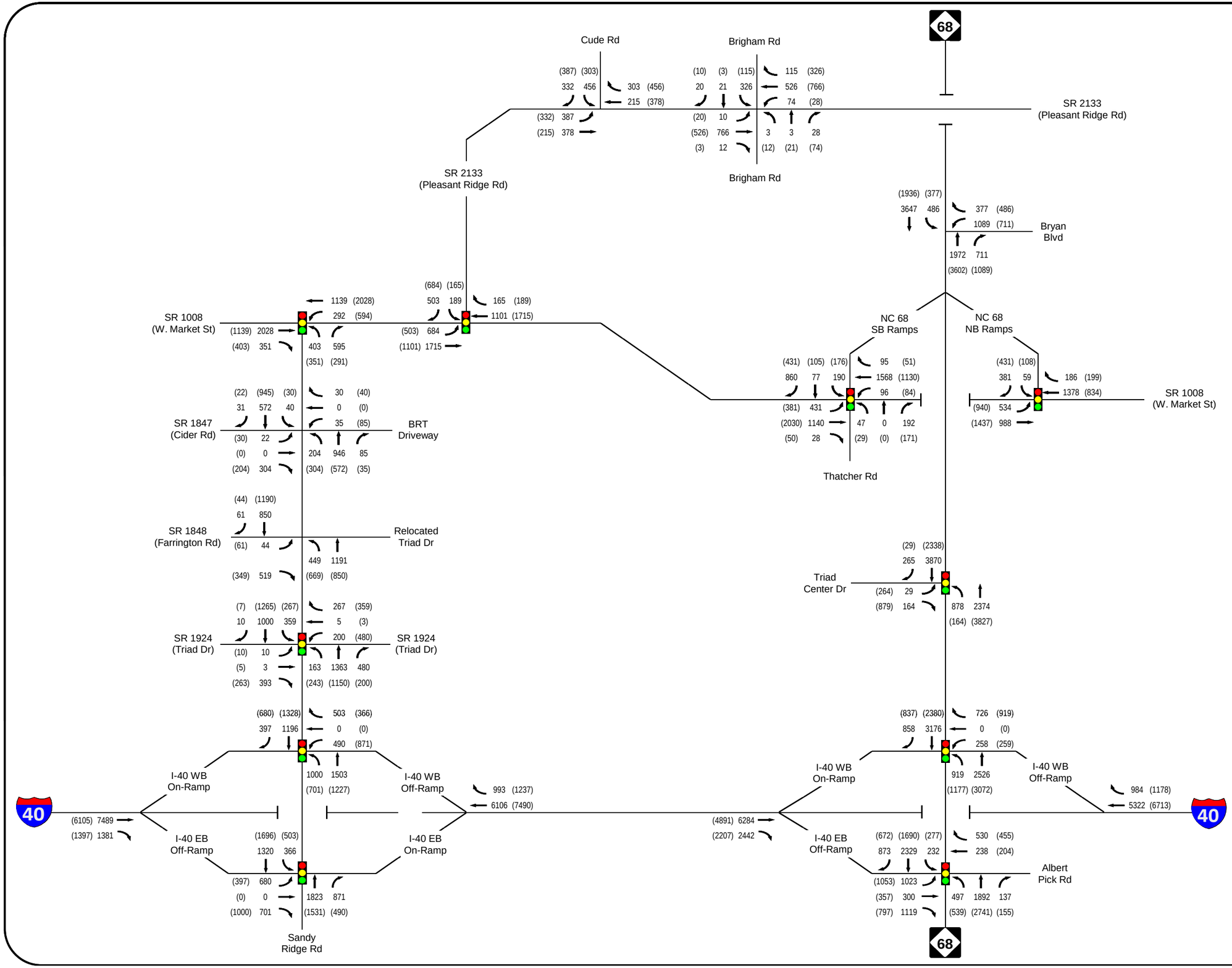
LOCATION: Vicinity of Sandy Ridge Rd, I-40 and NC-68

PROJECT: Sandy Ridge Road/Pleasant Ridge Road Widening Feasibility Study

Design Year (2035) No-Build Level of Service Analysis

The capacity analysis undertaken for this scenario accounts for the turning movement volumes derived from the traffic forecast report. The future 2035 volumes include committed projects, such as NCDOT TIP #R-2611, which calls for the widening of Market Street within and beyond the project study area; however, this scenario does not include the geometry associated with the widening of Sandy Ridge Road or Pleasant Ridge Road. Figure 11 illustrates the turning movement volumes used in this scenario analysis.

As reported in Table 8 all of the unsignalized stop controlled approaches are projected to operate under failing conditions in the 2035 No-Build Future Year scenario. Nearly all of the signalized intersections are projected to operate under failing conditions during both peak hours as well. The West Market Street at Sandy Ridge Road intersection will maintain a LOS D during the PM peak hour; West Market Street at Pleasant Ridge Road and West Market Street at the NC 68 westbound ramps will maintain acceptable operations during the AM peak hour.



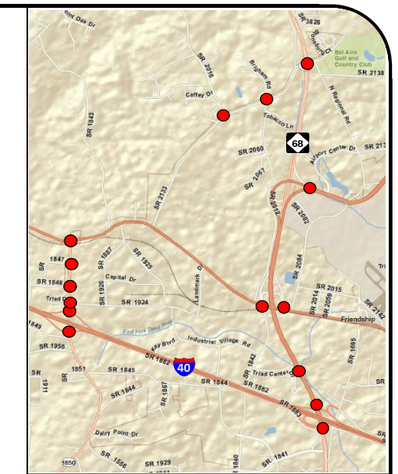


Figure 11

Design Year (2035) No-Build Peak Hour Turning Movement Volumes

LEGEND

- Existing Roadway
- Turning Movement
- Signalized Intersection
- XX AM Peak Hour Volume
- (XX) PM Peak Hour Volume

NCDOT #: FS-0707A

COUNTY: Guilford | **DIVISION:** 7

PREPARED FOR: Greensboro DOT/MPO

PREPARED BY: Martin/Alexiou/Bryson

LOCATION: Vicinity of Sandy Ridge Rd, I-40 and NC-68

PROJECT: Sandy Ridge Road/Pleasant Ridge Road Widening Feasibility Study

Table 8 Design Year (2035) No-Build Level of Service Results

Intersection	Design Year 2035 No-Build	
	AM	PM
Sandy Ridge Road and I-40 EB Ramps	**F (NB-F) (368.4 sec)**	**F (NB-F) (293.5 sec)**
Sandy Ridge Road and I-40 WB Ramps	**F (WB-F) (194.7 sec)**	**F (SB-F) (273.9 sec)**
Sandy Ridge Road and Triad Drive	**F (SB-F))**	**F (SB-F)**
Sandy Ridge Road and Farrington Road	**(EB-F)**	**(EB-F)**
Sandy Ridge Road and Cider Road	**(EB-F)**	**(EB-F)**
West Market Street and Sandy Ridge Road	**F (NB-F) (99.1 sec)**	D (EB-F) (52.9 sec)
West Market Street and Pleasant Ridge Road	C (SB-E) (27.7 sec)	**E (SB-F) (65.6 sec)**
West Market Street and NC 68 SB Ramps/Thatcher Road	**F (SB-F) (151.1 sec)**	**E (NB-F) (77.0 sec)**
West Market Street and NC 68 NB Ramps	D (SB-D) (38.1 sec)	**F (WB-F) (149.5 sec)**
Pleasant Ridge Road and Cude Road	**(SB-F)**	**(SB-F)**
Pleasant Ridge Road and Brigham Road	**(SB-F)**	**(SB-E)**
NC 68 and Triad Center Drive	**F (SB-F) (135.1 sec)**	**F (EB-F) (115.2 sec)**
NC 68 and I-40 WB Ramps	**E (SB-F) (69.9 sec)**	**E (SB-E) (57.1 sec)**
NC 68 and I-40 EB Ramps/Albert Pick Road	**F (EB-F) (191.2 sec)**	**F (NB-F) (178.6 sec)**

X = Overall LOS; (XB-X) = Lowest operating approach and LOS
(XX.X sec) = average seconds of delay per vehicle for signalized intersection

Design Year (2035) Build Alternative 1 Level of Service Analysis

The capacity analysis undertaken for this scenario accounts for the turning movement volumes derived from the traffic forecast report. The future 2035 volumes and lane geometry include committed projects, such as NCDOT TIP #R-2611, which calls for the widening of Market Street within and beyond the project study area. This scenario also includes the geometry associated with the widening of Sandy Ridge Road. Figure 12 illustrates the turning movement volumes used in this scenario analysis.

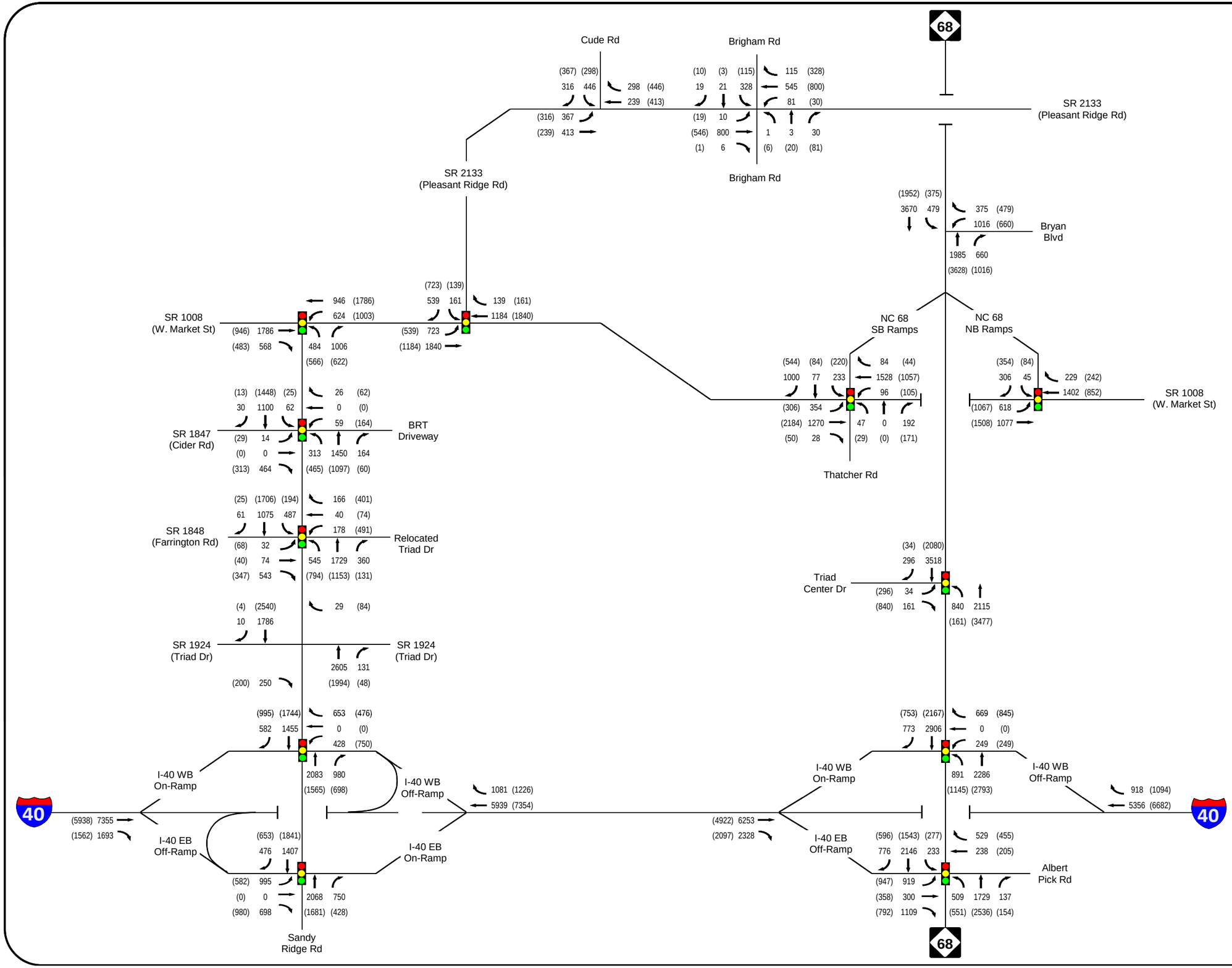
For the purpose of clarity and simplicity, analysis results for this scenario do not include intersections along NC 68 that are unaffected by the proposed improvements included in this Build Alternative.

As shown in Table 9, the widening of Sandy Ridge Road will result in generally improved operations at intersections along that corridor. Some intersections will continue to operate below LOS D during at least one peak hour; however, the associated delays and queuing will be shorter than those observed in the No-Build scenario. The intersections along the Pleasant Ridge Road corridor will generally continue to operate poorly during the peak hours.

Table 9 Design Year (2035) Build Alternative 1 Level of Service Results

Intersection	Design Year 2035 Build Alternative 1	
	AM	PM
Sandy Ridge Road and I-40 EB Ramps	C (EB-D) (24.5 sec)	C (EB-C) (24.4 sec)
Sandy Ridge Road and I-40 WB Ramps	B (WB-D) (17.5 sec)	B (WB-D) (19.1 sec)
Sandy Ridge Road and Triad Drive	(EB-B)	(EB-B)
Sandy Ridge Road and Farrington Road	D (WB-E) (46.9 sec)	**E (WB-F) (77.1 sec)**
Sandy Ridge Road and Cider Road	C (WB-F) (22.5 sec)	C (WB-F) (33.4 sec)
West Market Street and Sandy Ridge Road	**E (NB-E) (59.5 sec)**	C (EB-D) (33.1 sec)
West Market Street and Pleasant Ridge Road	C (SB-D) (30.6 sec)	**F (SB-F) (81.8 sec)**
Pleasant Ridge Road and Cude Road	**(SB-F)**	**(SB-F)**
Pleasant Ridge Road and Brigham Road	**(SB-F)**	**(SB-F)**

X = Overall LOS; (XB-X) = Lowest operating approach and LOS
(XX.X sec) = average seconds of delay per vehicle for signalized intersection



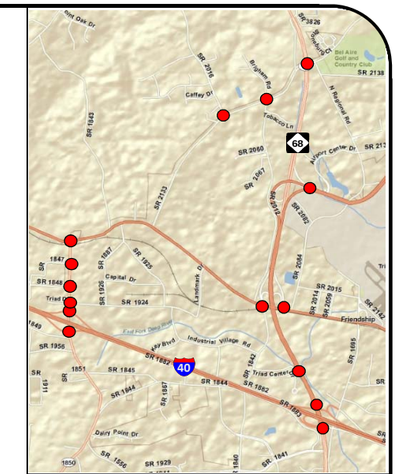


Figure 12

Design Year (2035) Build
Alternative 1
Peak Hour Turning
Movement Volumes

LEGEND

- Existing Roadway
- Turning Movement
- Signalized Intersection
- XX AM Peak Hour Volume
- (XX) PM Peak Hour Volume

NCDOT #: FS-0707A

COUNTY: Guilford | **DIVISION:** 7

PREPARED FOR: Greensboro DOT/MPO

PREPARED BY: Martin/Alexiou/Bryson

LOCATION: Vicinity of Sandy Ridge Rd, I-40 and NC-68

PROJECT: Sandy Ridge Road/Pleasant Ridge Road Widening Feasibility Study

Design Year (2035) Build Alternative 2 Level of Service Analysis

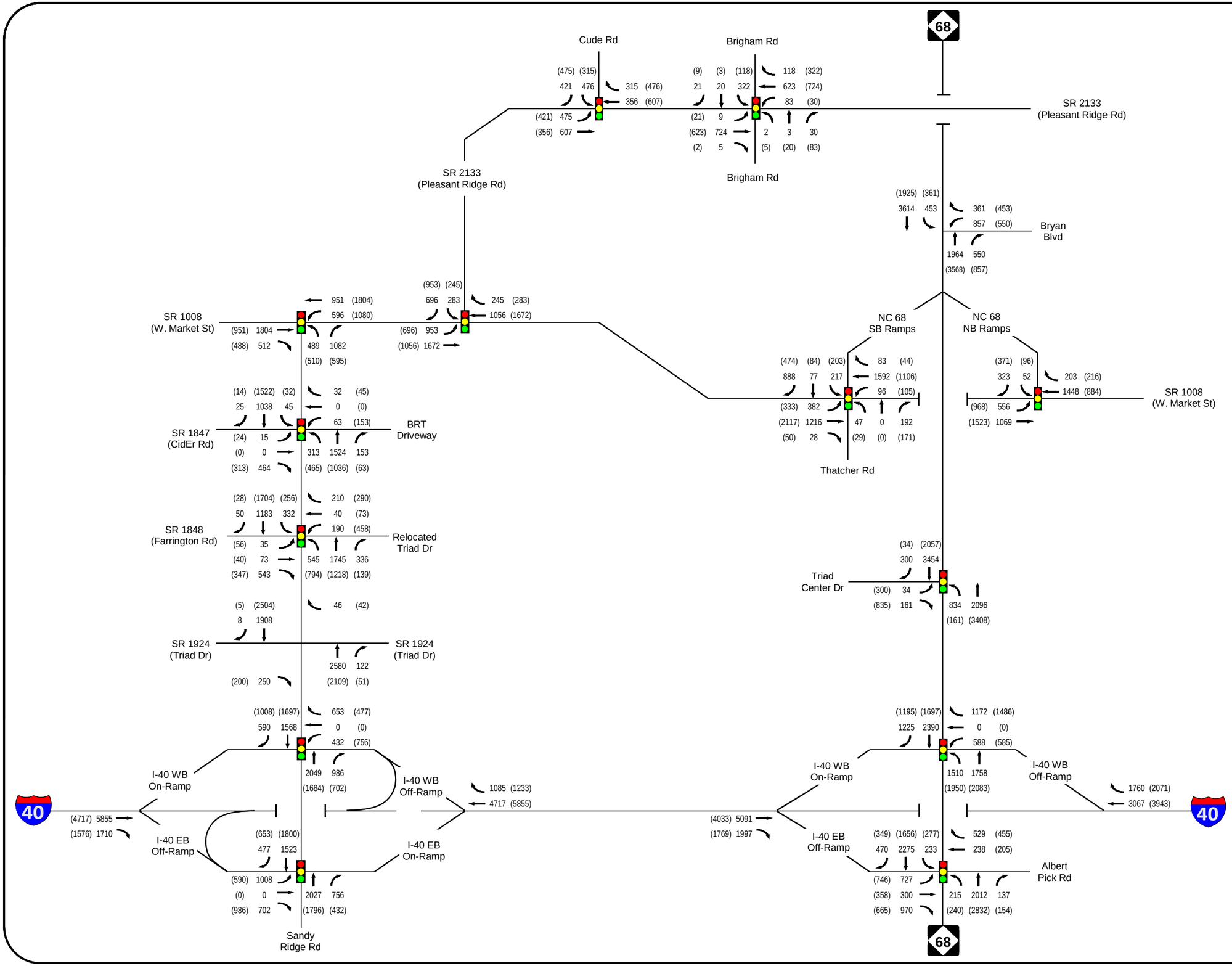
Capacity analysis undertaken for this scenario accounts for the turning movement volumes derived from the traffic forecast report. The future 2035 volumes and lane geometry include committed projects, such as NCDOT TIP #R-2611, which calls for the widening of Market Street within and beyond the project study area. This scenario also includes the geometry associated with the widening of Sandy Ridge Road and Pleasant Ridge Road. Figure 13 illustrates the turning movement volumes used in this scenario analysis.

As shown in Table 10, the widening of Pleasant Ridge Road will result in additional operational improvement at the study area intersections. The operations at intersections along the Pleasant Ridge Road corridor will improve due to added capacity as well as the signalization. Some intersections will continue to operate below LOS D during at least one peak hour; however, the associated delays and queuing will be shorter than those observed in the No-Build scenario.

Table 10 Design Year (2035) Build Alternative 2 Level of Service Results

Intersection	Design Year 2035 Build Alternative 2	
	AM	PM
Sandy Ridge Road and I-40 EB Ramps	C (EB-D) (24.8 sec)	C (EB-C) (25.5 sec)
Sandy Ridge Road and I-40 WB Ramps	B (WB-D) (17.6 sec)	B (WB-D) (18.9 sec)
Sandy Ridge Road and Triad Drive	(EB-B)	(EB-B)
Sandy Ridge Road and Farrington Road	D (WB-E) (44.1 sec)	**E (WB-F) (68.0 sec)**
Sandy Ridge Road and Cider Road	B (WB-E) (18.0 sec)	C (WB-F) (30.0 sec)
West Market Street and Sandy Ridge Road	**E (NB-F) (71.5 sec)**	D (EB-D) (36.2 sec)
West Market Street and Pleasant Ridge Road	C (WB-D) (28.8 sec)	D (SB-E) (43.7 sec)
Pleasant Ridge Road and Cude Road	C (SB-C) (21.4 sec)	D (EB-D) (39.3 sec)
Pleasant Ridge Road and Brigham Road	C (SB-C) (20.2 sec)	C (SB-D) (23.5 sec)

X = Overall LOS; (XB-X) = Lowest operating approach and LOS
(XX.X sec) = average seconds of delay per vehicle for signalized intersection



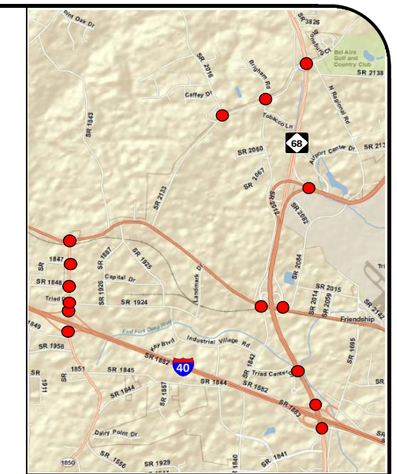


Figure 13

Design Year (2035) Build
Alternative 2
Peak Hour Turning
Movement Volumes

LEGEND

- Existing Roadway
- Turning Movement
- Signalized Intersection
- XX AM Peak Hour Volume
- (XX) PM Peak Hour Volume

NCDOT #: FS-0707A

COUNTY: Guilford | **DIVISION:** 7

PREPARED FOR: Greensboro DOT/MPO

PREPARED BY: Martin/Alexiou/Bryson

LOCATION: Vicinity of Sandy Ridge Rd, I-40 and NC-68

PROJECT: Sandy Ridge Road/Pleasant Ridge Road Widening Feasibility Study

IV. NATURAL ENVIRONMENT AND COMMUNITY ISSUES

A detailed environmental study was not conducted for this feasibility study. However, an environmental screening assessment was completed using data from a variety of sources. Information was gathered from various databases including the Guildford County website, the National Resource Conservation Service, NC Floodmaps, NC One Map, the NC Wildlife Resources Commission, and the State Historic Preservation Office.

Study Area

For the purpose of this analysis, the study area is bounded by I-40 to the south and as far north as the NC 68 and Edgefield Road intersection, and Sandy Ridge Road to the west and Regional Road to the east. A site visit was made to the project study area to verify and add information from the data sources. An environmental screening map was prepared that includes all of the environmental resources and data collected. This map was used as the basis for developing and evaluating alternatives. The environmental screening map is shown as Figure 14.

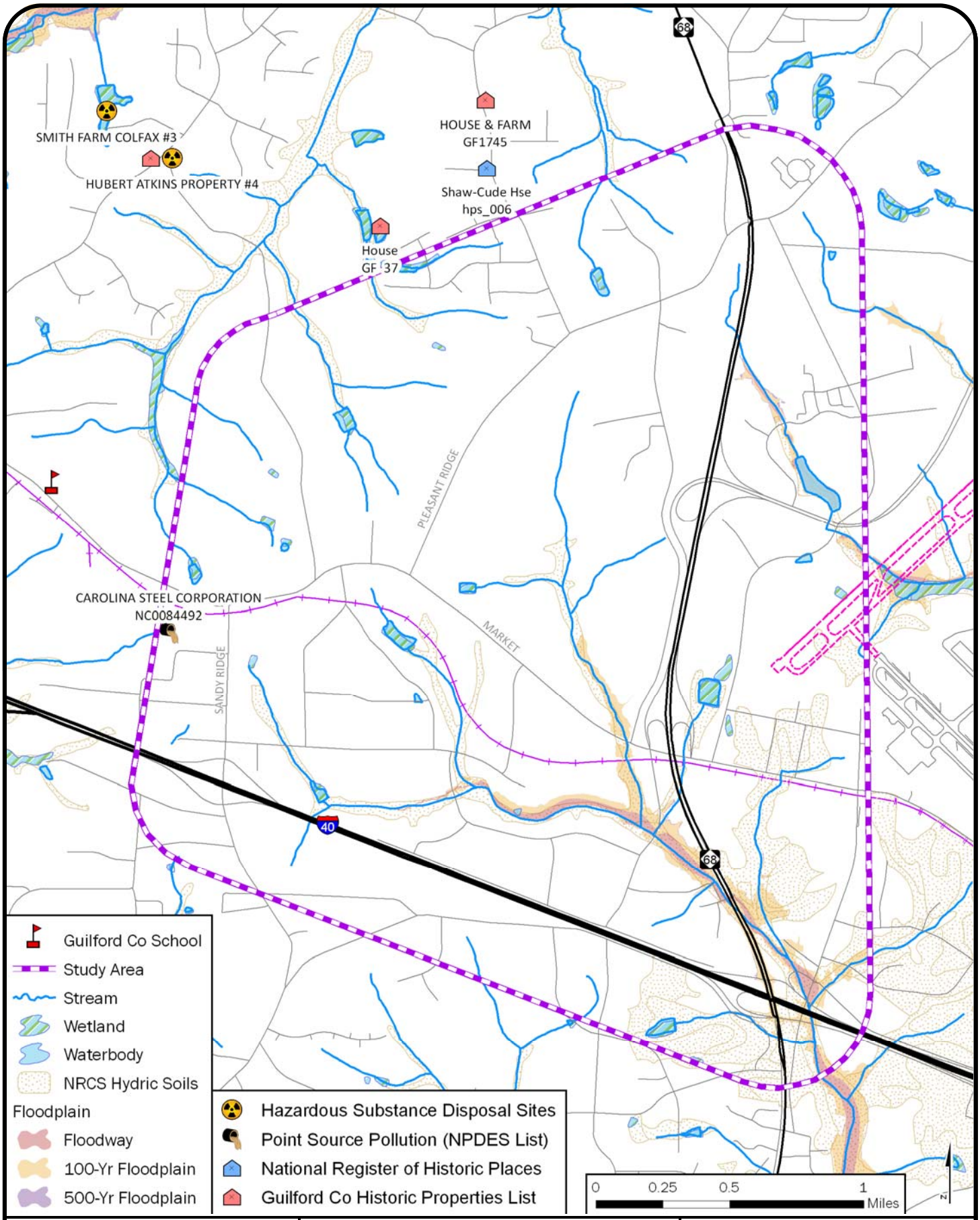
Railroad

There is one railroad line passing through the study area in an east-west direction and running adjacent to West Market Street. Sandy Ridge Road crosses the railroad about 150 feet before it intersects with West Market Street. The railroad is owned by Norfolk Southern and this line is referred to as the K-line connecting the Yadkin Valley Railroad (the main line in Greensboro) and the Winston-Salem railroad to the west. It is a non-passenger line with less than six freight trains per day and speeds restricted to 35 mph.

Research on future use of the rail line found that this corridor has been presented in several reports in the past as a future regional commuter rail line between Greensboro and Winston-Salem, a distance of 30 miles. More recent discussions with representatives from the Piedmont Area Regional Transit (PART) state that this corridor is still considered the best location for a line between these two cities and will be studied further whenever a regional commuter rail system is planned and developed.

Two options for the Sandy Ridge Road crossing of the railroad were considered, one is an at-grade crossing and the other a grade separation. The at-grade crossing alternative is the recommended option and would require gates on the approaches. Since the recommended typical section is a divided roadway with a median, it is recommended that median gates are utilized and non-mountable curb and gutter is used in the median at the approaches to the gates.

The grade separation crossing alternative will require a bridge over the railroad and West Market Street with only 150 feet separating them. This bridge would require a structure of approximately 320 feet. As a result of the close distance between the railroad and the roadway, direct access to West Market Street could only be provided with an interchange. The most reasonable interchange configuration for this situation would be to provide ramps and loops on the north side of West Market Street. The result would be two new T - intersections at the bottom of the ramps and loops with West Market Street, and the removal of the existing Sandy Ridge Road intersection with West Market Street.



NCDOT #: FS 0707A	Figure 14 Environmental Screening Map	**LOCATION:** Vicinity of Sandy Ridge Road, I-40 and NC 68
County: Guilford **Division:** 7		
Prepared for: Greensboro DOT/MPO		**PROJECT:** Sandy Ridge Road/Pleasant Ridge Road Widening Feasibility Study
Prepared by: Martin/Alexiou/Bryson		

Stream Classification

The proposed project study area is located entirely within the Cape Fear River Basin, near its boundary with the Yadkin-Pee Dee and Roanoke Basins. The recommended alternative for this project crosses one stream due to the relocation of Triad Drive, which moves an existing crossing of a stream tributary. This un-named tributary is not classified; however, downstream portions of Reedy Creek area are classified as a Water Supply III (WS-III) watershed with nutrient sensitive waters (NSW). Downstream portions of East Fork Deep River are likewise classified as Water Supply IV (WS-IV).

A more formal stream survey should be coordinated with the NC Department of the Environment and Natural Resources – Division of Water Quality (NC DENR-DWQ), as well as any required permits or possible mitigation efforts.

Floodplain Areas

This project would not impact land that is located within an established FEMA floodplain. All Federal Emergency Management Agency (FEMA) floodplain areas in this vicinity begin further downstream of the proposed project according to Guilford County floodplain data.

Wetlands

According to the National Wetlands Inventory there are small wetland features associated with unnamed streams and ponds within the project study area, mostly within the Reedy Creek sub-watershed. The largest continuous wetland area is approximately 14 acres in size, however most are less than 1 acre. As this project progresses a permit from the US Army Corps of Engineers will likely be required, along with coordination with the NC DENR-DWQ. The proposed project would not likely impact any known wetlands in the study area.

Hydric Soils

Hydric soils are indicators of possible wetland areas that may not be included within the National Wetlands Inventory. Using the National Resources Conservation Service (NRCS) definition of hydric soils for Guilford County, it was determined that hydric soils exist within close proximity of the project study area, primarily following small stream corridors. Further study will determine the extent of these hydric soil areas through wetland delineations conducted when the project is continued at the next level.

Hazardous Substance Disposal Sites

There are no documented hazardous substance disposal sites within the proposed project study area.

Underground Storage Tanks

There exist two underground storage tanks in the vicinity of the project study area according to the Guilford County GIS department. They are located at the intersection of Sandy Ridge Road and both the eastbound and westbound on/off ramps of I-40. The listed businesses associated with these tanks are "Diesel Fill Port" and "Neighbor's Gas Station." As part of the recommended alternatives, the gas station adjacent to the I-40 Eastbound ramps would be impacted and acquired, and the gas station adjacent to the I-40 Westbound ramps would be impacted slightly, although likely not enough to remove the underground storage tanks and close the business.

Point Source Pollution Sites (NPDES)

The Carolina Steel Corporation is listed on the National Pollution Discharge Elimination System (NPDES) by the USEPA. Their property is located near the intersection of Sandy Ridge Road and Market Street, within the proposed project study area. The proposed project would not impact this point source pollution site.

National Register of Historic Places

Located approximately one-half mile north of the project area is a structure listed on the National Register of Historic Places (NRHP), according to the National Park Service. This property is listed as the Shaw-Cude House (NPS Reference #82003455) found along Tanya Lane, west of its intersection with Cude Road. This structure was originally listed in June of 1982. The recommended alternative is not expected to impact this site.

Historic Properties / Buildings

The Guilford County list of Historic Properties and Buildings includes those found on the National Register of Historic Places and also includes many that are considered important to local history. Only one structure is located in the vicinity of the project study area, approximately one half mile to the north. This structure is listed as Guilford-37, and no other information is provided. The recommended alternative is not expected to impact this site.

Land Acquisition

Small property acquisitions would be required adjacent to Sandy Ridge Road and Pleasant Ridge Road, as well as along some of their side streets. In addition, property will need to be acquired for the relocation of Triad Drive.

Public Schools

Colfax Elementary school is located on Market Street, approximately one mile to the west of the project study area according to the Guilford County School database. The recommended alternative is not expected to impact this site, and it will provide safer access to and from the school and neighborhoods that are served.

V. PUBLIC INVOLVEMENT SUMMARY

Public Workshop #1

A public workshop was held for this project on Tuesday, January 12, 2010 in the Colfax Elementary School Media Center. The workshop was held from 4:00 – 7:00 PM and provided information regarding the feasibility study and gathered feedback from residents on the possible future roadway improvement options. Approximately 50 citizens were in attendance, including residents, business owners and representatives from NCDOT and Greensboro DOT. Staff from M/A/B and the MPO were available to provide information and answer questions.

In all, six written comments were received, including comments from local residents, business owners and the Engineering Division of Greensboro DOT. These comments and subsequent responses can be found in Appendix F. General comments from the citizens noted during the workshop included:

- Glad to see the improvements are on existing roadways versus on new location
- Residents want to preserve open space and farmland
- Understand the need to widen Sandy Ridge Road, but not sure of the need for improvements on Pleasant Ridge Road

Public Workshop #2

A second public workshop was held for this project on Wednesday, May 5, 2010 in the Colfax Elementary School Media Center. The workshop was held from 5:00 – 7:00 PM and provided information regarding the feasibility study and gathered feedback from residents on the possible future roadway improvement options. This workshop showed updated maps, based on revisions made since the January workshop. Major revisions included eliminating the left-turn cross-over at the existing Triad Drive, showing six lanes on the entire section of Sandy Ridge Road, and the inclusion of probable right-of-way lines. Approximately 30 citizens were in attendance at this workshop. Staff from M/A/B and the MPO were available to provide information and answer questions.

In all, five written comments were received. These comments and subsequent responses can be found in the Appendix. General comments from the citizens noted during the workshop included:

- Concerns about impacts to property and homes as a result of widening Sandy Ridge Road, specifically future left-turn access
- Re-emphasized that they are glad to see the improvements are on existing roadways versus on new location
- Understand the need to widen Sandy Ridge Road, but not sure of the need for improvements on Pleasant Ridge Road

VI. COST ESTIMATES

A summary of the planning level cost estimates for the Build Alternatives evaluated in this study is included in Table 11. These estimates account for utility relocation, right-of-way, and construction costs. The costs are also shown separated into potential construction projects.

Table 11 Cost Estimates

By Alternative				
Alternative	*Construction Cost*	*Right-of-Way Cost*	*Utility Relocation Cost*	*Total Cost*
Alternative 1	$19,400,000	$12,000,000	$500,000	$31,900,000
Alternative 2	$31,800,000	$15,600,000	$1,100,000	$48,500,000
By Project				
Project	*Construction Cost*	*Right-of-Way Cost*	*Utility Relocation Cost*	*Total Cost*
Sandy Ridge Road Widening	$11,600,000	$4,300,000	$300,000	$16,200,000
Sandy Ridge Road Interchange Upgrade	$7,800,000	$7,700,000	$200,000	$15,700,000
Pleasant Ridge Road Widening	$12,400,000	$3,600,000	$600,000	$16,600,000

As shown in the table, the cost of the proposed alternatives increases from Alternative #1 to Alternative #2 as Alternative #2 includes all improvements proposed with Alternative #1. Both alternatives include the interchange upgrade. The added cost of upgrading the I-40/Sandy Ridge Road interchange will produce a positive return on the investment when considering the operational benefit provided by the addition of the two loops. The modified interchange configuration is projected to reduce overall delay at the ramp locations by more than 90% during the peak hours. Some of this reduction can also be attributed to the added capacity at these locations that comes as part of Alternative #1.

VII. RECOMMENDATIONS

As described previously in this report, Alternative 2 builds upon the recommendations of Alternative 1 as it includes all of its' improvements, the Sandy Ridge Road widening and the upgrading of its' interchange with I-40. As a result, there are three distinct projects that are included in this final evaluation and recommendation of the Sandy Ridge Road widening and extension study; upgrading the I-40/Sandy Ridge Road interchange, Sandy Ridge Road widening, and Pleasant Ridge Road widening. Each of these are viable projects on their own, but adding the others will continue to improve the traffic operations, safety and access along this corridor, and will ultimately provide another route from I-40 and areas south to NC 68 and the airport area.

The recommendations for implementation are that the Sandy Ridge Road Widening project be placed as the first priority for this area due to the immediate improvements to traffic operations that will be experienced, and the multi-lane connection that will be provided between I-40 and the soon to be widened West Market Street. The next priority would be the upgrading of the I-40/Sandy Ridge Road interchange. The interchange project could be included with the Sandy Ridge Road widening project or the proposed I-40 widening project as it was also recommended in that Feasibility Study (FS-0609A). The Pleasant Ridge Road Widening project would be the third priority, continuing to provide an improved route from the soon to be widened West Market Street (NCDOT TIP# R-2611) to NC 68. It will also provide operational benefit to the area by providing increased capacity and accessibility to land in the area that is projected to be developed in the near future.

It should be noted that the time line for planned improvements to the Pleasant Ridge Road and NC 68 intersection is not firmly established. As part of the State Transportation Improvement Program (STIP) Project #R-2413, which is a currently funded project, this location is planned as an at-grade intersection. That project will construct a new multilane connector from NC 68 to US 220, beginning at Pleasant Ridge Road and will realign Pleasant Ridge Road to the north, shifting the existing at-grade intersection slightly and increasing its capacity through added lanes. As shown in Figure 6 of Appendix A, the functional designs for Pleasant Ridge Road tie into this funded project. Future STIP and LRTP projects that are presently not funded, such as STIP Project #I-5110 or other airport connector projects, include a grade separation for Pleasant Ridge Road at NC 68. For the purpose of traffic analysis in this study, a grade separated intersection was assumed as the long term (2035) configuration as the developed forecasts incorporate the I-73 Connector project, which includes a grade separated interchange for this location.

It should also be noted that the recommendations from this report do not preclude the future extension of Sandy Ridge Road north toward the future I-40 Connector and Airport Connector, as included in Alternatives 3, 4, and 5. This study focused on providing improved access and increased capacity to the airport, while maintaining sufficient access to the properties in the area. In the future, when these LRTP projects are funded and constructed, it may be determined that the extension of Sandy Ridge Road may be a reasonable and feasible project. The recommendation of this study includes improvement to the existing at-grade intersection of Sandy Ridge Road and West

Market Street. A fourth leg, to the north, could be implemented in the future as part of another project and may require an interchange at that time if indicated by traffic projections.

Table 12 provides an evaluation of Alternative 1 and Alternative 2 in the format of the three projects. This table shows the various impacts of each project in multiple evaluation factors including environmental impacts and cost. The impacts of Alternative 1 include the impacts from the Sandy Ridge Road Widening and the improvement to the I-40/Sandy Ridge Road interchange; the Alternative 2 impacts are cumulative and would include the impacts associated with all three improvement projects (Sandy Ridge Road Widening, I-40/Sandy Ridge Road interchange, and Pleasant Ridge Road Widening).

Table 12 Evaluation of Build Alternatives

Evaluation Factors		I-40/Sandy Ridge Road Interchange	Sandy Ridge Road Widening	Pleasant Ridge Road Widening
Basic Project Facts	Length	approx. 0.22 miles	approx. 0.59 miles	approx. 1.83 miles
	New Location	Addition of loops and realignment of ramps in NE and SW quadrants	No; Widening of existing facility; Triad Drive on New Location	No; Widening of existing facility
	Typical Section	8 lane bridge over I-40; single lane loops and on-ramps widened for turn lanes at intersections with Sandy Ridge Road	6 lane divided curb and gutter with 23 foot mountable curb and grass median	4 lane divided curb and gutter with 23 foot mountable curb and grass median
	Railroad Crossings	0	1	0
Socio-economic Impacts	Relocations - Residences	0	3	1
	Relocations - Businesses	2	1	0
	Schools/ Churches	0	0	0
	Historic Sites	0	0	0
Environmental Impacts	Stream Crossings	0	1 (Relocated Triad Drive)	0
	100-year Floodplains	0 acres in floodplain	0 acres in floodplain	0 acres in floodplain
	Wetlands	0 acres in wetlands	0 acres in wetlands	0 acres in wetlands
	Hazardous Materials Sites	0	0	0
	Known UST Sites	1	0	0
Cost Impacts	Right of Way Cost	$7,700,000	$4,300,000	$3,600,000
	Utility Relocation Cost	$200,000	$300,000	$600,000
	Roadway Construction	$7,800,000	$11,600,000	$12,400,000
	Total Cost	$15,700,000	$16,200,000	$16,600,000

Appendix

Appendix A: Functional Design Drawings and Typical Sections

Figure A-1
Design Year (2035) Functional Design - Sandy Ridge Road

1" = 200'

LEGEND
- CURB AND GUTTER
- CONCRETE ISLAND
- LANDSCAPED MEDIAN
- SIDEWALK
- LANE LINE
- PROPERTY LINE
- PROPOSED ROW
- NCDOT TIP R-2611
- EXISTING TRAFFIC SIGNAL

FS: FS-0707A

COUNTY: Guilford | **DIVISION:** 7

PREPARED FOR: Greensboro DOT/MPO

PREPARED BY: Martin/Alexiou/Bryson,PC

LOCATION: Vicinity of Sandy Ridge Rd, I-40, and NC 68

PROJECT: Sandy Ridge Road/Pleasant Ridge Road Widening Feasibility Study

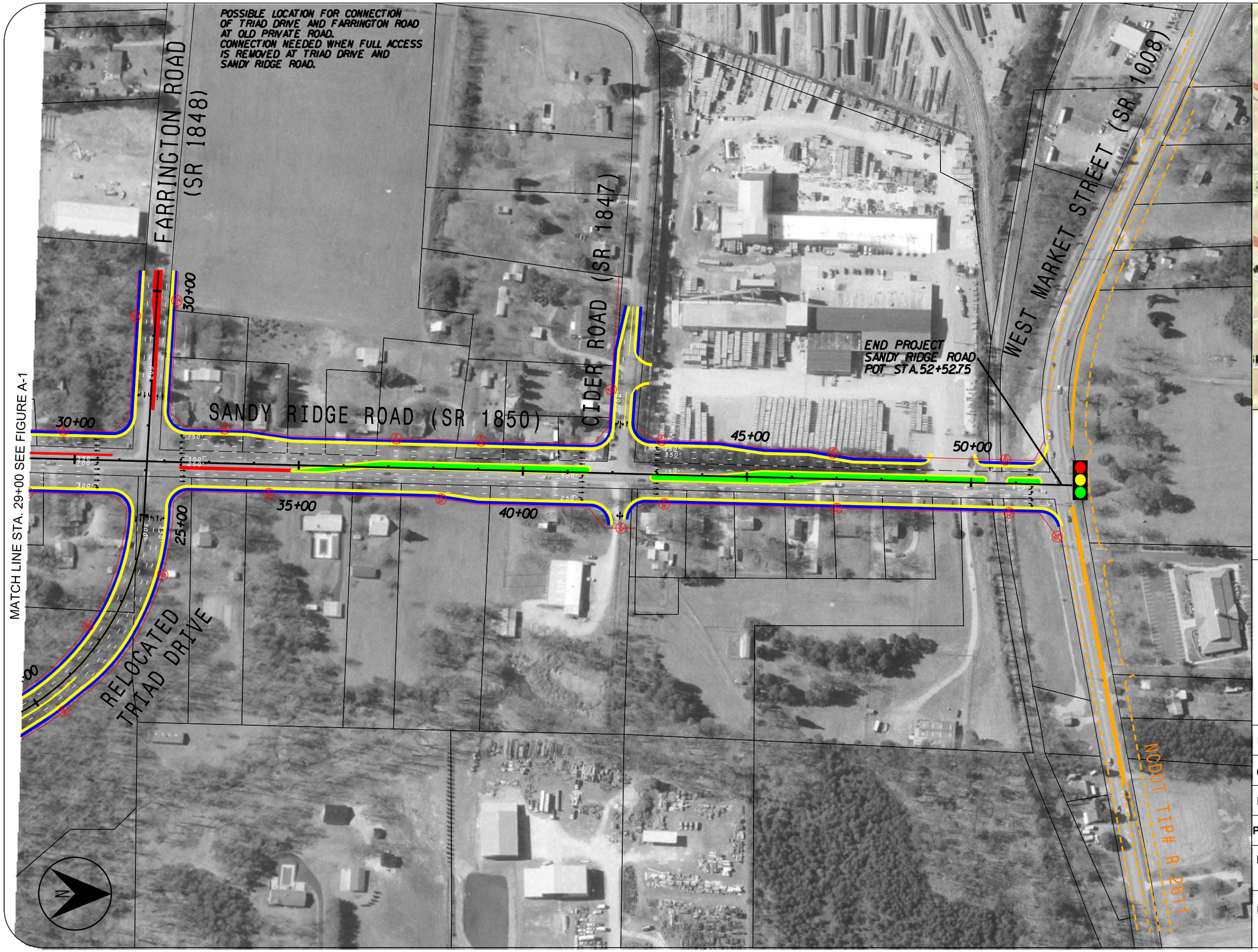


Figure A-2
Design Year (2035) Functional Design - Sandy Ridge Road

1" = 200'

LEGEND
- CURB AND GUTTER
- CONCRETE ISLAND
- LANDSCAPED MEDIAN
- SIDEWALK
- LANE LINE
- PROPERTY LINE
- PROPOSED ROW
- NCDOT TIP R-2611
- EXISTING TRAFFIC SIGNAL

FS: FS-0707A

COUNTY: Guilford | **DIVISION:** 7

PREPARED FOR: Greensboro DOT/MPO

PREPARED BY: Martin/Alexiou/Bryson,PC

LOCATION: Vicinity of Sandy Ridge Rd, I-40, and NC 68

PROJECT: Sandy Ridge Road/Pleasant Ridge Road Widening Feasibility Study

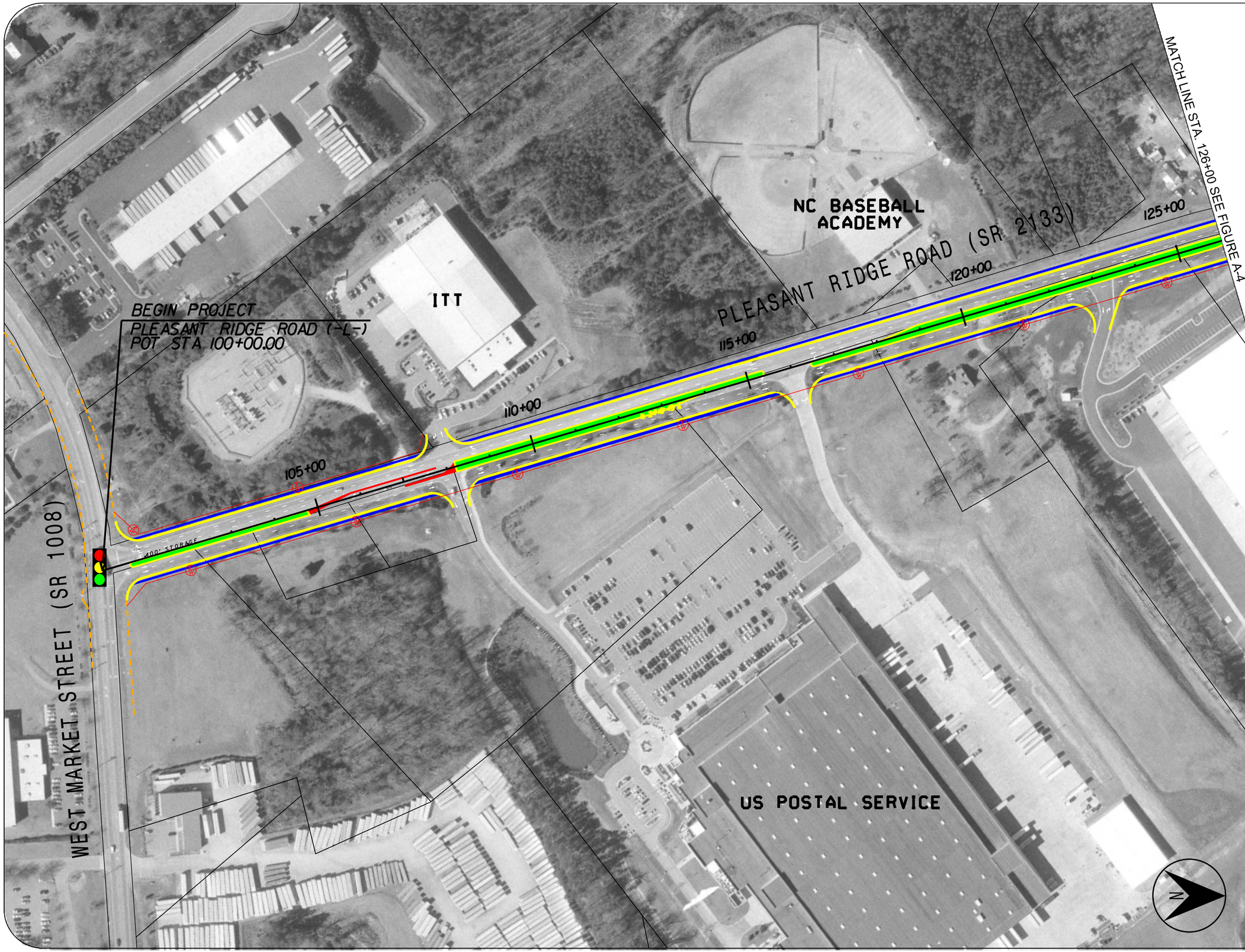


Figure A-3
Design Year (2035) Functional Design - Pleasant Ridge Road

1" = 200'

LEGEND
- CURB AND GUTTER
- CONCRETE ISLAND
- LANDSCAPED MEDIAN
- SIDEWALK
- LANE LINE
- PROPERTY LINE
- PROPOSED ROW
- NCDOT TIP R-2611
- EXISTING TRAFFIC SIGNAL

FS: FS-0707A

COUNTY: Guilford | **DIVISION:** 7

PREPARED FOR: Greensboro DOT/MPO

PREPARED BY: Martin/Alexiou/Bryson,PC

LOCATION: Vicinity of Sandy Ridge Rd, I-40, and NC 68

PROJECT: Sandy Ridge Road/Pleasant Ridge Road Widening Feasibility Study

Figure A-4
Design Year (2035) Functional Design - Pleasant Ridge Road

1" = 200'

LEGEND
- CURB AND GUTTER
- CONCRETE ISLAND
- LANDSCAPED MEDIAN
- SIDEWALK
- LANE LINE
- PROPERTY LINE
- PROPOSED ROW
- NCDOT TIP R-2611
- EXISTING TRAFFIC SIGNAL

FS: FS-0707A

COUNTY: Guilford | **DIVISION:** 7

PREPARED FOR: Greensboro DOT/MPO

PREPARED BY: Martin/Alexiou/Bryson,PC

LOCATION: Vicinity of Sandy Ridge Rd, I-40, and NC 68

PROJECT: Sandy Ridge Road/Pleasant Ridge Road Widening Feasibility Study

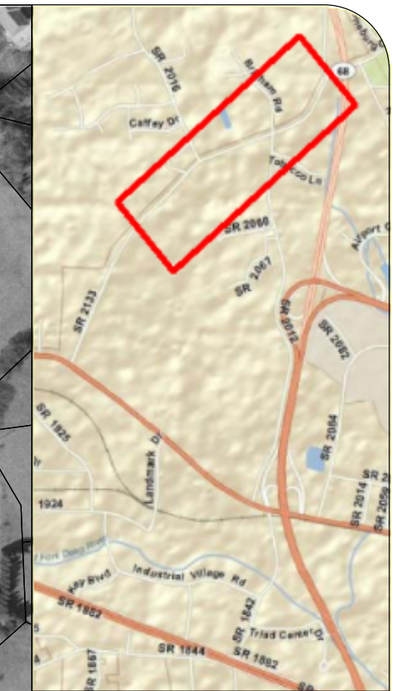


Figure A-5
Design Year (2035) Functional Design - Pleasant Ridge Road

1" = 200'

LEGEND
- CURB AND GUTTER
- CONCRETE ISLAND
- LANDSCAPED MEDIAN
- SIDEWALK
- LANE LINE
- PROPERTY LINE
- PROPOSED ROW
- NCDOT TIP R-2611
- EXISTING TRAFFIC SIGNAL

FS: FS-0707A

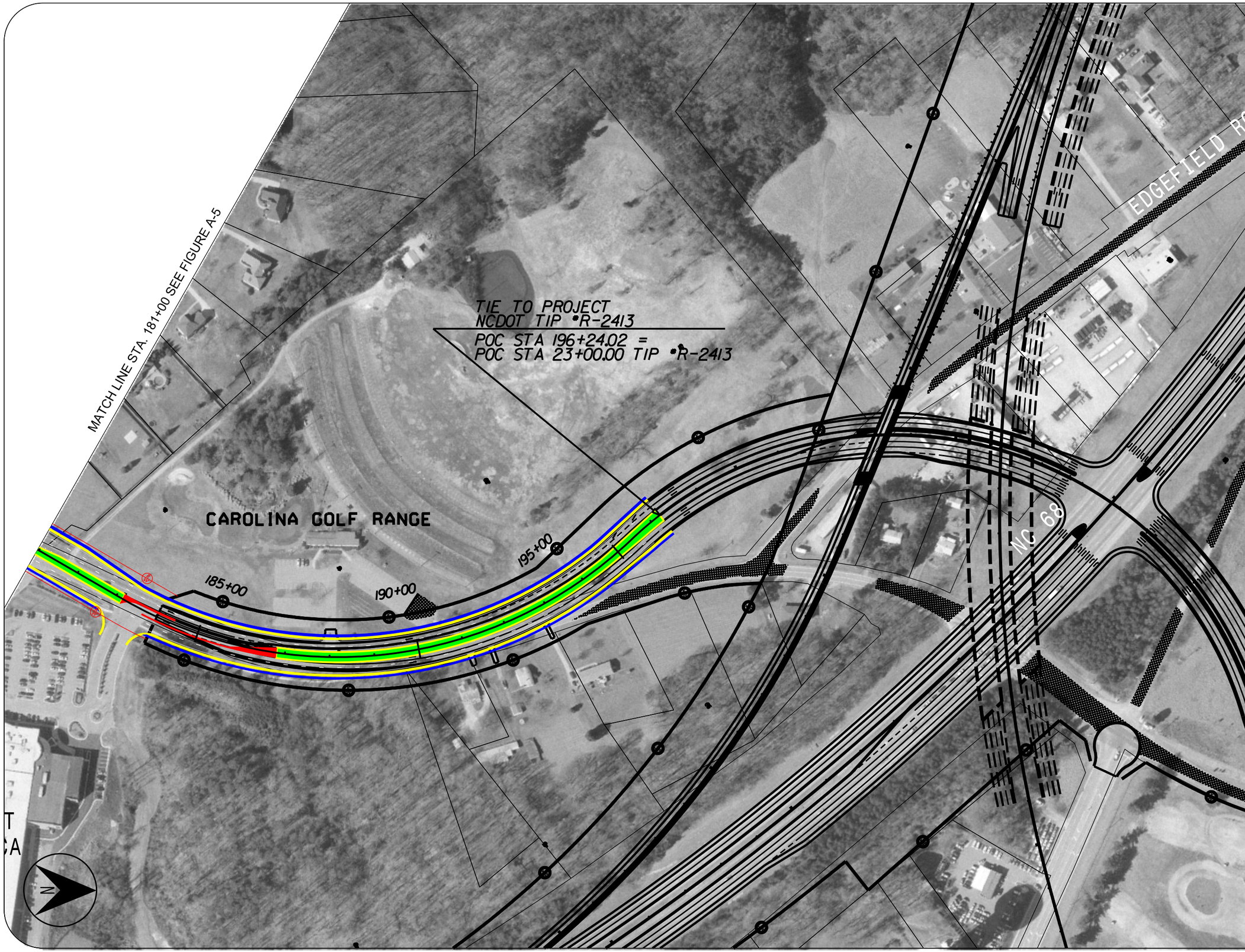
COUNTY: Guilford | **DIVISION:** 7

PREPARED FOR: Greensboro DOT/MPO

PREPARED BY: Martin/Alexiou/Bryson,PC

LOCATION: Vicinity of Sandy Ridge Rd, I-40, and NC 68

PROJECT: Sandy Ridge Road/Pleasant Ridge Road Widening Feasibility Study



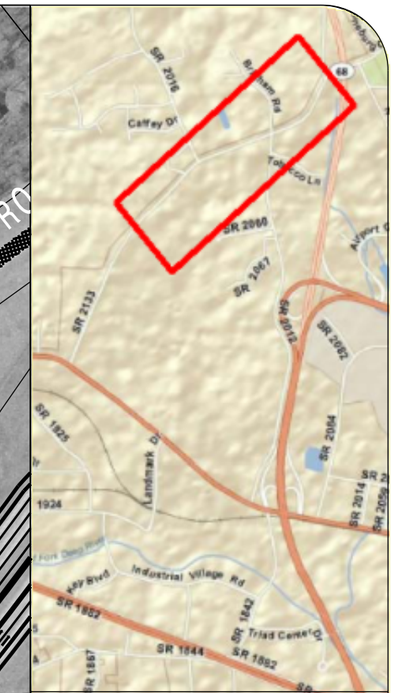


Figure A-6
Design Year (2035) Functional Design - Pleasant Ridge Road

1" = 200'

LEGEND
- CURB AND GUTTER
- CONCRETE ISLAND
- LANDSCAPED MEDIAN
- SIDEWALK
- LANE LINE
- PROPERTY LINE
- PROPOSED ROW
- NCDOT TIP R-2611
- EXISTING TRAFFIC SIGNAL

FS: FS-0707A

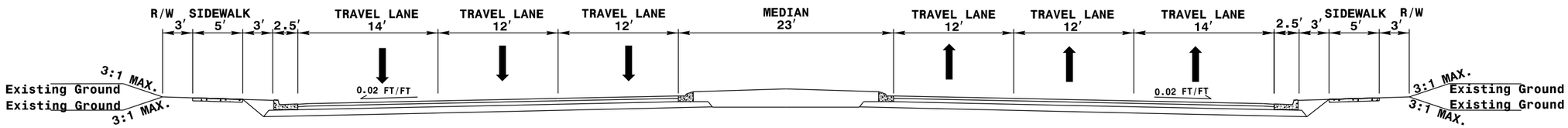
COUNTY: Guilford | **DIVISION:** 7

PREPARED FOR: Greensboro DOT/MPO

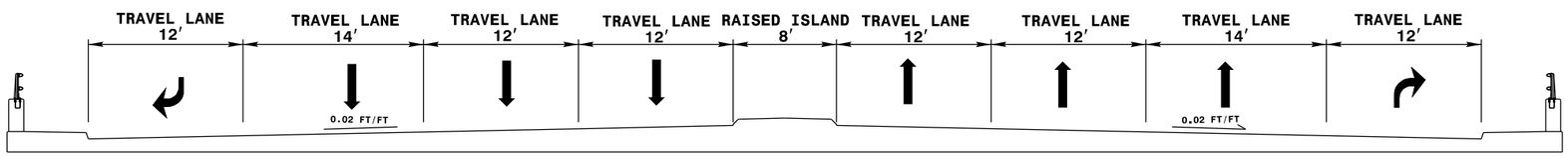
PREPARED BY: Martin/Alexiou/Bryson,PC

LOCATION: Vicinity of Sandy Ridge Rd, I-40, and NC 68

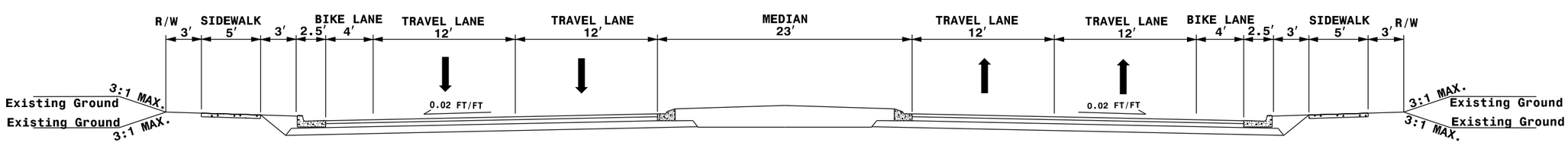
PROJECT: Sandy Ridge Road/Pleasant Ridge Road Widening Feasibility Study



TYPICAL SECTION
SANDY RIDGE ROAD



TYPICAL SECTION
SANDY RIDGE ROAD BRIDGE OVER I-40



TYPICAL SECTION
PLEASANT RIDGE ROAD

Figure A-7

Typical Sections

FS: FS-0707A

COUNTY: Guilford | **DIVISION:** 7

PREPARED FOR: Greensboro DOT/MPO

PREPARED BY: Martin/Alexiou/Bryson,PC

LOCATION: Vicinity of Sandy Ridge Rd, I-40, and NC 68

PROJECT: Sandy Ridge Road/Pleasant Ridge Road Widening Feasibility Study

Appendix B: Crash Data

North Carolina Department of Transportation
Traffic Engineering Accident Analysis System
Fiche, Intersection, and Strip Reports Code Index

T - Type of Accident Codes
0 = UNKNOWN
1 = RAN OFF ROAD - RIGHT
2 = RAN OFF ROAD - LEFT
3 = RAN OFF ROAD - STRAIGHT
4 = JACKKNIFE
5 = OVERTURN/ROLLOVER
13 = OTHER NON-COLLISION
14 = PEDESTRIAN
15 = PEDALCYCLIST
16 = RR TRAIN, ENGINE
17 = ANIMAL
18 = MOVABLE OBJECT
19 = FIXED OBJECT
20 = PARKED MOTOR VEHICLE
21 = REAR END, SLOW OR STOP
22 = REAR END, TURN
23 = LEFT TURN, SAME ROADWAY
24 = LEFT TURN, DIFFERENT ROADWAYS
25 = RIGHT TURN, SAME ROADWAY
26 = RIGHT TURN, DIFFERENT ROADWAYS
27 = HEAD ON
28 = SIDESWIPE, SAME DIRECTION
29 = SIDESWIPE, OPPOSITE DIRECTION
30 = ANGLE
31 = BACKING UP
32 = OTHER COLLISION WITH VEHICLE

F - Road Feature Codes
0 = NO SPECIAL FEATURE
1 = BRIDGE
2 = BRIDGE APPROACH
3 = UNDERPASS
4 = DRIVEWAY, PUBLIC
5 = DRIVEWAY, PRIVATE
6 = ALLEY INTERSECTION
7 = FOUR-WAY INTERSECTION
8 = T-INTERSECTION
9 = Y-INTERSECTION
10 = TRAFFIC CIRCLE/ROUNDABOUT
11 = FIVE-POINT, OR MORE
12 = RELATED TO INTERSECTION
13 = NON-INTERSECTION MEDIAN CROSSING
14 = END OR BEGINNING - DIVIDED HIGHWAY
15 = OFF RAMP ENTRY
16 = OFF RAMP PROPER
17 = OFF RAMP TERMINAL ON CROSSROAD
18 = MERGE LANE BETWEEN ON AND OFF RAMP
19 = ON RAMP ENTRY
20 = ON RAMP PROPER
21 = ON RAMP TERMINAL ON CROSSROAD
22 = RAILROAD CROSSING
23 = TUNNEL
24 = SHARED-USE PATHS OR TRAILS
25 = OTHER

R - Road Condition Codes
1 = DRY
2 = WET
3 = WATER (STANDING, MOVING)
4 = ICE
5 = SNOW
6 = SLUSH
7 = SAND, MUD, DIRT, GRAVEL
8 = FUEL, OIL
9 = OTHER
10 = UNKNOWN

L - Light Condition Codes
1 = DAYLIGHT
2 = DUSK
3 = DAWN
4 = DARK - LIGHTED ROADWAY
5 = DARK - ROADWAY NOT LIGHTED
6 = DARK - UNKNOWN LIGHTING
7 = OTHER
8 = UNKNOWN

W - Weather Condition Codes
1 = CLEAR
2 = CLOUDY
3 = RAIN
4 = SNOW
5 = FOG, SMOG, SMOKE
6 = SLEET, HAIL, FREEZING RAIN/DRIZZLE
7 = SEVERE CROSSWINDS
8 = BLOWING SAND, DIRT, SNOW
9 = OTHER

S - Accident Severity Codes
K = FATAL
A = A-LEVEL INJURY
B = B-LEVEL INJURY
C = C-LEVEL INJURY
O = PROPERTY DAMAGE ONLY

Ch - Road Character
1 = STRAIGHT, LEVEL
2 = STRAIGHT, HILLCREST
3 = STRAIGHT, GRADE
4 = STRAIGHT, BOTTOM (SAG)
5 = CURVE, LEVEL
6 = CURVE, HILLCREST
7 = CURVE, GRADE
8 = CURVE, BOTTOM (SAG)
9 = OTHER

Op - Traffic Control Operating
1 = YES
2 = NO
3 = UNKNOWN

North Carolina Department of Transportation
Traffic Engineering Accident Analysis System
Fiche, Intersection, and Strip Reports Code Index

Veh Mnvr - Vehicle Maneuver Codes
1 = STOPPED IN TRAVEL LANE
2 = PARKED OUT OF TRAVEL LANES
3 = PARKED IN TRAVEL LANES
4 = GOING STRAIGHT AHEAD
5 = CHANGING LANES OR MERGING
6 = PASSING
7 = MAKING RIGHT TURN
8 = MAKING LEFT TURN
9 = MAKING U-TURN
10 = BACKING
11 = SLOWING OR STOPPING
12 = STARTING IN ROADWAY
13 = PARKING
14 = LEAVING PARKED POSITION
15 = AVOIDING OBJECT IN ROAD

Dv - Traffic Control Device
0 = NO CONTROL PRESENT
1 = STOP SIGN
2 = YIELD SIGN
3 = STOP AND GO SIGNAL
4 = FLASHING SIGNAL WITH STOP SIGN
5 = FLASHING SIGNAL WITHOUT STOP SIGN
6 = RR GATE AND FLASHER
7 = RR FLASHER
8 = RR CROSSBUCKS ONLY
9 = HUMAN CONTROL
10 = WARNING SIGN
11 = SCHOOL ZONE SIGNS
12 = FLASHING STOP AND GO SIGNAL
13 = DOUBLE YELLOW LINE, NO PASSING ZONE
14 = OTHER

Alchl/Drgs - Driver Alcohol/Drugs Suspected Status Codes
0 = NO
1 = YES - ALCOHOL, IMPAIRMENT SUSPECTED
2 = YES - ALCOHOL, NO IMPAIRMENT DETECTED
3 = YES - OTHER DRUGS, IMPAIRMENT SUSPECTED
4 = YES - OTHER DRUGS, NO IMPAIRMENT DETECTED
5 = YES - ALCOHOL AND OTHER DRUGS, IMPAIRMENT SUSPECTED
6 = YES - ALCOHOL AND OTHER DRUGS, NO IMPAIRMENT DETECTED
7 = UNKNOWN

Ped Actn - Pedestrian Action Codes
1 = ENTERING OR CROSSING SPECIFIED LOCATION
2 = WALKING, RIDING, RUNNING/JOGGING WITH TRAFFIC
3 = WALKING, RIDING, RUNNING/JOGGING AGAINST TRAFFIC
4 = WORKING
5 = PUSHING VEHICLE
6 = APPROACHING OR LEAVING VEHICLE
7 = PLAYING
8 = STANDING
9 = OTHER

Ci - Roadway Contributing Circumstances
0 = NONE (NO UNUSUAL CONDITIONS)
1 = ROAD SURFACE CONDITION
2 = DEBRIS
3 = RUT, HOLES, BUMPS
4 = WORK ZONE (CONSTRUCTION, MAINTENANCE, UTILITY)
5 = WORN TRAVEL-POLISHED SURFACE
6 = OBSTRUCTION IN ROADWAY
7 = TRAFFIC CONTROL DEVICE INOPERATIVE, NOT VISIBLE OR MISSING
8 = SHOULDERS LOW, SOFT OR HIGH
9 = NO SHOULDERS
10 = NON-HIGHWAY WORK
11 = OTHER
12 = UNKNOWN

North Carolina Department of Transportation
Traffic Engineering Accident Analysis System
Fiche, Intersection, and Strip Reports Code Index

Obj Strk - Object Struck Codes
14 = PEDESTRIAN
15 = PEDALCYCLIST
17 = ANIMAL
18 = MOVABLE OBJECT
20 = PARKED MOTOR VEHICLE
33 = TREE
34 = UTILITY POLE
35 = LUMINAIRE POLE NON-BREAKAWAY
36 = LUMINAIRE POLE BREAKAWAY
37 = OFFICIAL HIGHWAY SIGN NON-BREAKAWAY
38 = OFFICIAL HIGHWAY SIGN BREAKAWAY
39 = OVERHEAD SIGN SUPPORT
40 = COMMERCIAL SIGN
41 = GUARDRAIL END ON SHOULDER
42 = GUARDRAIL FACE ON SHOULDER
43 = GUARDRAIL END IN MEDIAN
44 = GUARDRAIL FACE IN MEDIAN
45 = SHOULDER BARRIER END
46 = SHOULDER BARRIER FACE
47 = MEDIAN BARRIER END
48 = MEDIAN BARRIER FACE
49 = BRIDGE RAIL END
50 = BRIDGE RAIL FACE
51 = OVERHEAD PART UNDERPASS
52 = PIER ON SHOULDER OF UNDERPASS
53 = PIER IN MEDIAN OF UNDERPASS
54 = ABUTMENT OF UNDERPASS
55 = TRAFFIC ISLAND CURB OR MEDIAN
56 = CATCH BASIN OR CULVERT ON SHOULDER
57 = CATCH BASIN OR CULVERT ON MEDIAN
58 = DITCH
59 = EMBANKMENT
60 = MAILBOX
61 = FENCE OR FENCE POST
62 = CONTRUCTION BARRIER
63 = CRASH CUSHION
64 = OTHER FIXED OBJECT

Unit # - Vehicle Style Codes
1 = PASSENGER CAR
2 = PICKUP
3 = LIGHT TRUCK (MINI-VAN, PANEL)
4 = SPORT UTILITY
5 = VAN
6 = COMMERCIAL BUS
7 = SCHOOL BUS
8 = ACTIVITY BUS
9 = OTHER BUS
10 = SINGLE UNIT TRUCK (2-AXLE, 6-TIRE)
11 = SINGLE UNIT TRUCK (3 OR MORE AXLES)
12 = TRUCK/TRAILER
13 = TRUCK/TRACTOR
14 = TRACTOR/SEMI-TRAILER
15 = TRACTOR/DOULBES
16 = UNKNOWN HEAVY TRUCK
17 = TAXICAB
18 = FARM EQUIPMENT
19 = FARM TRACTOR
20 = MOTORCYCLE
21 = MOPED
22 = MOTOR SCOOTER OR MOTOR BIKE
23 = PEDALCYCLE
24 = PEDESTRIAN
25 = MOTOR HOME/RECREATIONAL VEHICLE
26 = OTHER
27 = ALL TERRAIN VEHICLE (ATV)
28 = FIRETRUCK
29 = EMS VEHICLE, AMBULANCE, RESCUE SQUAD
30 = MILITARY
31 = POLICE
32 = UNKNOWN

North Carolina Department of Transportation
Traffic Engineering Accident Analysis System
Strip Analysis Report

Study Criteria Summary

County: GUILFORD **City:** All and Rural
Date: 07/01/2006 **to** 06/30/2009 **Study:** 41000000265
Location: SR 1008 (Market St) from SR 1695 (Regional Rd) to SR 1864 (McGuire Rd)

Report Details

Acc No	Crash ID	Milepost	Date	Accident Type	Total Damage	Injuries F	Injuries A	Injuries B	Injuries C	Condition R	Condition L	Condition W	Road Ch	Road Ci	Trfc Ctl Dv	Trfc Ctl Op
1	**102233732**	0.000	01/05/2008 03:00	RAN OFF ROAD - RIGHT	$ 26000	1	0	1	0	1	4	2	1	0		
Unit	**1 :** 1	**Alchl/Drgs:**	1	**Speed:** 90 MPH	**Dir:** W	**Veh Mnvr/Ped Actn:**			4		**Obj Strk:**			64		
2	**102292265**	0.340	03/27/2008 11:24	FIXED OBJECT	$ 2500	0	0	0	0	1	1	1	1	0	1	1
Unit	**1 :** 1	**Alchl/Drgs:**	0	**Speed:** 45 MPH	**Dir:** W	**Veh Mnvr/Ped Actn:**			4		**Obj Strk:**					
3	**102232571**	0.550	01/03/2008 00:07	REAR END, SLOW OR STOP	$ 3500	0	0	0	1	1	5	1	1	0	3	1
Unit	**1 :** 1	**Alchl/Drgs:**	0	**Speed:** 35 MPH	**Dir:** E	**Veh Mnvr/Ped Actn:**			4		**Obj Strk:**					
Unit	**2 :** 1	**Alchl/Drgs:**	0	**Speed:** 35 MPH	**Dir:** E	**Veh Mnvr/Ped Actn:**			4		**Obj Strk:**					
4	**102307836**	0.550	04/10/2008 13:50	LEFT TURN, DIFFERENT ROADWAYS	$ 5000	0	0	1	0	1	1	1	4	0	3	1
Unit	**1 :** 1	**Alchl/Drgs:**	0	**Speed:** 0 MPH	**Dir:** S	**Veh Mnvr/Ped Actn:**			1		**Obj Strk:**					
Unit	**2 :** 1	**Alchl/Drgs:**	0	**Speed:** 0 MPH	**Dir:** S	**Veh Mnvr/Ped Actn:**			1		**Obj Strk:**					
Unit	**3 :** 12	**Alchl/Drgs:**	0	**Speed:** 10 MPH	**Dir:** E	**Veh Mnvr/Ped Actn:**			8		**Obj Strk:**					
5	**102261449**	0.574	01/29/2008 09:20	REAR END, SLOW OR STOP	$ 3500	0	0	0	1	1	1	1	1	0	3	1
Unit	**1 :** 1	**Alchl/Drgs:**	0	**Speed:** 35 MPH	**Dir:** W	**Veh Mnvr/Ped Actn:**			4		**Obj Strk:**					
Unit	**2 :** 10	**Alchl/Drgs:**	0	**Speed:** 0 MPH	**Dir:** W	**Veh Mnvr/Ped Actn:**			1		**Obj Strk:**					
6	**101906176**	0.620	12/06/2006 14:30	LEFT TURN, SAME ROADWAY	$ 3500	0	0	0	0	1	1	1	1	0	3	1
Unit	**1 :** 2	**Alchl/Drgs:**	0	**Speed:** 10 MPH	**Dir:** E	**Veh Mnvr/Ped Actn:**			8		**Obj Strk:**					
Unit	**2 :** 5	**Alchl/Drgs:**	0	**Speed:** 45 MPH	**Dir:** W	**Veh Mnvr/Ped Actn:**			4		**Obj Strk:**					
7	**102285644**	0.620	03/17/2008 06:48	ANGLE	$ 2300	0	0	0	0	1	4	1	1	0	3	1
Unit	**1 :** 1	**Alchl/Drgs:**	0	**Speed:** 45 MPH	**Dir:** W	**Veh Mnvr/Ped Actn:**			4		**Obj Strk:**					
Unit	**2 :** 2	**Alchl/Drgs:**	0	**Speed:** 25 MPH	**Dir:** E	**Veh Mnvr/Ped Actn:**			8		**Obj Strk:**					
8	**102556482**	0.620	08/16/2008 23:36	ANIMAL	$ 2000	0	0	0	0	1	4	1	1	0	0	
Unit	**1 :** 1	**Alchl/Drgs:**	0	**Speed:** 20 MPH	**Dir:** W	**Veh Mnvr/Ped Actn:**			7		**Obj Strk:**					

North Carolina Department of Transportation
Traffic Engineering Accident Analysis System
Strip Analysis Report

Acc No	Crash ID	Milepost	Date	Accident Type	Total Damage	Injuries F	A	B	C	Condition R	L	W	Road Ch	Ci	Trfc Ctl Dv	Op
9	102245156	0.780	01/21/2008 06:56	RIGHT TURN, DIFFERENT ROADWAYS	$ 1800	0	0	0	0	1	1	1	1	0	3	1
Unit 1 : 4	Alchl/Drgs: 0	Speed: 15 MPH	Dir: S	Veh Mnvr/Ped Actn: 4	Obj Strk:											
Unit 2 : 1	Alchl/Drgs: 0	Speed: 45 MPH	Dir: W	Veh Mnvr/Ped Actn: 4	Obj Strk:											
10	102363434	0.780	07/08/2008 13:31	REAR END, TURN	$ 2000	0	0	0	0	2	1	3	3	0	3	1
Unit 1 : 11	Alchl/Drgs: 0	Speed: 0 MPH	Dir: S	Veh Mnvr/Ped Actn: 7	Obj Strk:											
Unit 2 : 1	Alchl/Drgs: 0	Speed: 0 MPH	Dir: N	Veh Mnvr/Ped Actn: 7	Obj Strk:											
11	102441491	0.780	10/10/2008 12:06	LEFT TURN, DIFFERENT ROADWAYS	$ 5000	0	0	0	2	2	1	2	1	0	3	1
Unit 1 : 1	Alchl/Drgs: 0	Speed: 0 MPH	Dir: W	Veh Mnvr/Ped Actn: 8	Obj Strk:											
Unit 2 : 4	Alchl/Drgs: 0	Speed: 0 MPH	Dir: E	Veh Mnvr/Ped Actn: 4	Obj Strk:											
12	102569735	0.780	04/07/2009 13:06	ANGLE	$ 1000	0	0	0	0	1	1	1	1	0	3	1
Unit 1 : 1	Alchl/Drgs: 0	Speed: 10 MPH	Dir: W	Veh Mnvr/Ped Actn: 8	Obj Strk:											
Unit 2 : 1	Alchl/Drgs: 0	Speed: 40 MPH	Dir: E	Veh Mnvr/Ped Actn: 4	Obj Strk:											
13	102318584	0.790	04/23/2008 19:21	REAR END, SLOW OR STOP	$ 10000	0	1	0	0	1	1	2	1	0	0	
Unit 1 : 20	Alchl/Drgs: 2	Speed: 55 MPH	Dir: W	Veh Mnvr/Ped Actn: 4	Obj Strk: 58											
Unit 2 : 14	Alchl/Drgs: 0	Speed: 15 MPH	Dir: W	Veh Mnvr/Ped Actn: 4	Obj Strk:											
14	102045649	0.822	02/05/2007 07:45	REAR END, SLOW OR STOP	$ 3000	0	0	0	0	1	1	1	1	0	3	1
Unit 1 : 10	Alchl/Drgs: 0	Speed: 0 MPH	Dir: E	Veh Mnvr/Ped Actn: 1	Obj Strk:											
Unit 2 : 14	Alchl/Drgs: 0	Speed: 45 MPH	Dir: E	Veh Mnvr/Ped Actn: 4	Obj Strk:											
15	102457306	0.870	10/21/2008 08:26	REAR END, SLOW OR STOP	$ 8000	0	0	0	1	1	1	1	4	0	0	
Unit 1 : 1	Alchl/Drgs: 0	Speed: 40 MPH	Dir: E	Veh Mnvr/Ped Actn: 4	Obj Strk:											
Unit 2 : 1	Alchl/Drgs: 0	Speed: 45 MPH	Dir: E	Veh Mnvr/Ped Actn: 4	Obj Strk:											
16	102516045	0.960	12/17/2008 23:28	RAN OFF ROAD - RIGHT	$ 4000	0	0	0	1	2	5	5	2	12		
Unit 1 : 1	Alchl/Drgs: 0	Speed: 45 MPH	Dir: W	Veh Mnvr/Ped Actn: 4	Obj Strk:											
17	102006949	1.060	04/09/2007 00:25	RAN OFF ROAD - LEFT	$ 2000	0	0	0	1	1	5	1	3	0	0	
Unit 1 : 1	Alchl/Drgs: 0	Speed: 50 MPH	Dir: E	Veh Mnvr/Ped Actn: 4	Obj Strk:											
18	101893651	1.110	11/21/2006 20:46	RAN OFF ROAD - LEFT	$ 8000	0	0	0	0	3	5	3	3	0		
Unit 1 : 1	Alchl/Drgs: 0	Speed: 40 MPH	Dir: W	Veh Mnvr/Ped Actn: 4	Obj Strk: 59											

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Strip Analysis Report

Acc No	Crash ID	Milepost	Date	Accident Type	Total Damage	Injuries F	A	B	C	Condition R	L	W	Road Ch	Ci	Trfc Ctl Dv	Op
19	102559712	1.110	03/24/2009 05:41	RAN OFF ROAD - RIGHT	$ 2500	0	0	0	1	1	4	1	1	0	0	
Unit 1 : 2	Alchl/Drgs: 0	Speed: 45 MPH	Dir: W	Veh Mnvr/Ped Actn: 4	Obj Strk: 59											
20	101980441	1.160	03/10/2007 01:05	ANIMAL	$ 1000	0	0	0	0	1	5	2	3	0	0	
Unit 1 : 1	Alchl/Drgs: 0	Speed: 35 MPH	Dir: E	Veh Mnvr/Ped Actn: 4	Obj Strk: 17											
21	102246090	1.313	01/22/2008 07:10	RAN OFF ROAD - RIGHT	$ 10500	0	0	0	1	4	4	2	1	0		
Unit 1 : 2	Alchl/Drgs: 0	Speed: 35 MPH	Dir: E	Veh Mnvr/Ped Actn: 4	Obj Strk: 58											
22	101894828	1.360	11/22/2006 17:28	ANGLE	$ 8000	0	0	0	0	2	5	3	1	0	1	1
Unit 1 : 1	Alchl/Drgs: 0	Speed: 0 MPH	Dir: E	Veh Mnvr/Ped Actn: 4	Obj Strk:											
Unit 2 : 1	Alchl/Drgs: 0	Speed: 0 MPH	Dir: E	Veh Mnvr/Ped Actn: 16	Obj Strk:											
23	102543672	1.360	02/07/2009 22:48	ANGLE	$ 10000	0	0	1	0	1	4	1	1	0	1	2
Unit 1 : 12	Alchl/Drgs: 0	Speed: 45 MPH	Dir: N	Veh Mnvr/Ped Actn: 4	Obj Strk:											
Unit 2 : 12	Alchl/Drgs: 0	Speed: 45 MPH	Dir: E	Veh Mnvr/Ped Actn: 4	Obj Strk:											
24	102185079	1.400	11/06/2007 03:36	ANIMAL	$ 3000	0	0	0	0	2	4	3	3	0	0	
Unit 1 : 1	Alchl/Drgs: 0	Speed: 45 MPH	Dir: E	Veh Mnvr/Ped Actn: 4	Obj Strk: 17											
25	101936328	1.560	01/10/2007 17:36	RAN OFF ROAD - LEFT	$ 10000	0	0	1	0	1	1	1	1	0		
Unit 1 : 14	Alchl/Drgs: 0	Speed: 45 MPH	Dir: W	Veh Mnvr/Ped Actn: 4	Obj Strk: 34											
26	102430683	1.650	09/04/2008 04:40	REAR END, SLOW OR STOP	$ 6000	0	0	0	0	1	4	1	3	0		
Unit 1 : 1	Alchl/Drgs: 0	Speed: 45 MPH	Dir: E	Veh Mnvr/Ped Actn: 4	Obj Strk:											
Unit 2 : 4	Alchl/Drgs: 0	Speed: 0 MPH	Dir: E	Veh Mnvr/Ped Actn: 1	Obj Strk:											
27	102499355	1.700	12/02/2008 06:44	ANGLE	$ 5500	0	0	0	0	1	3	1	1	0		
Unit 1 : 14	Alchl/Drgs: 0	Speed: 0 MPH	Dir: E	Veh Mnvr/Ped Actn: 9	Obj Strk:											
Unit 2 : 1	Alchl/Drgs: 0	Speed: 45 MPH	Dir: E	Veh Mnvr/Ped Actn: 4	Obj Strk:											
28	102605462	1.850	05/23/2009 06:39	ANIMAL	$ 2500	0	0	0	0	1	1	1	1	0		
Unit 1 : 1	Alchl/Drgs: 0	Speed: 45 MPH	Dir: E	Veh Mnvr/Ped Actn: 4	Obj Strk: 17											
29	102214439	1.900	12/11/2007 22:52	RAN OFF ROAD - LEFT	$ 7000	0	1	1	0	1	5	1	1	0	3	1
Unit 1 : 1	Alchl/Drgs: 1	Speed: 0 MPH	Dir: E	Veh Mnvr/Ped Actn: 4	Obj Strk: 34											

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Strip Analysis Report

Acc No	Crash ID	Milepost	Date	Accident Type	Total Damage	Injuries F	A	B	C	Condition R	L	W	Road Ch	Ci	Trfc Ctl Dv	Op
30	102451421	1.900	10/15/2008 16:06	LEFT TURN, SAME ROADWAY	$ 10300	0	0	0	0	1	1	1	1	0	3	1
Unit 1 : 4	Alchl/Drgs: 0	Speed: 40 MPH	Dir: W	Veh Mnvr/Ped Actn: 4	Obj Strk:											
Unit 2 : 2	Alchl/Drgs: 0	Speed: 0 MPH	Dir: E	Veh Mnvr/Ped Actn: 8	Obj Strk:											
Unit 3 : 1	Alchl/Drgs: 0	Speed: 0 MPH	Dir: S	Veh Mnvr/Ped Actn: 1	Obj Strk:											
31	102469228	1.900	11/04/2008 21:40	LEFT TURN, DIFFERENT ROADWAYS	$ 6500	0	0	0	2	2	5	3	1	0	3	1
Unit 1 : 1	Alchl/Drgs: 0	Speed: 15 MPH	Dir: S	Veh Mnvr/Ped Actn: 8	Obj Strk:											
Unit 2 : 2	Alchl/Drgs: 0	Speed: 45 MPH	Dir: W	Veh Mnvr/Ped Actn: 4	Obj Strk:											
32	102557511	2.100	08/15/2008 13:07	RAN OFF ROAD - RIGHT	$ 5800	0	0	1	0	1	1	1	5	0		
Unit 1 : 1	Alchl/Drgs: 0	Speed: 45 MPH	Dir: W	Veh Mnvr/Ped Actn: 4	Obj Strk: 64											
33	101858834	2.160	10/17/2006 11:24	RAN OFF ROAD - RIGHT	$ 15000	0	0	0	0	2	1	3	1	0	0	
Unit 1 : 14	Alchl/Drgs: 0	Speed: 0 MPH	Dir: SW	Veh Mnvr/Ped Actn: 8	Obj Strk:											
34	102069633	2.160	06/19/2007 18:41	REAR END, SLOW OR STOP	$ 8000	0	0	0	2	1	1	1	1	0		
Unit 1 : 2	Alchl/Drgs: 0	Speed: 45 MPH	Dir: W	Veh Mnvr/Ped Actn: 4	Obj Strk:											
Unit 2 : 3	Alchl/Drgs: 0	Speed: 40 MPH	Dir: W	Veh Mnvr/Ped Actn: 11	Obj Strk:											
35	102552848	2.270	03/05/2009 16:22	ANGLE	$ 1600	0	0	0	0	1	1	1	1	0	0	2
Unit 1 : 16	Alchl/Drgs: 0	Speed: 10 MPH	Dir: W	Veh Mnvr/Ped Actn: 7	Obj Strk:											
Unit 2 : 1	Alchl/Drgs: 0	Speed: 40 MPH	Dir: W	Veh Mnvr/Ped Actn: 4	Obj Strk:											
36	102245627	2.370	01/22/2008 07:25	RAN OFF ROAD - RIGHT	$ 3250	0	0	0	0	1	1	6	1	0	0	2
Unit 1 : 4	Alchl/Drgs: 0	Speed: 35 MPH	Dir: W	Veh Mnvr/Ped Actn: 4	Obj Strk: 60											
37	102140279	2.604	09/14/2007 13:24	REAR END, SLOW OR STOP	$ 1000	0	0	0	0	2	1	3	1	0	3	1
Unit 1 : 5	Alchl/Drgs: 0	Speed: 0 MPH	Dir: W	Veh Mnvr/Ped Actn: 4	Obj Strk:											
Unit 2 : 1	Alchl/Drgs: 0	Speed: 0 MPH	Dir: W	Veh Mnvr/Ped Actn: 4	Obj Strk:											
38	102064599	2.610	06/12/2007 02:52	RAN OFF ROAD - STRAIGHT	$ 3000	0	0	0	0	1	5	5	1	0	3	1
Unit 1 : 1	Alchl/Drgs: 0	Speed: 35 MPH	Dir: N	Veh Mnvr/Ped Actn: 4	Obj Strk: 33											
39	102185877	2.610	11/07/2007 16:12	LEFT TURN, SAME ROADWAY	$ 6000	0	0	0	1	1	1	1	1	0	3	1
Unit 1 : 1	Alchl/Drgs: 0	Speed: 0 MPH	Dir: W	Veh Mnvr/Ped Actn: 8	Obj Strk:											
Unit 2 : 5	Alchl/Drgs: 0	Speed: 0 MPH	Dir: E	Veh Mnvr/Ped Actn: 4	Obj Strk:											

North Carolina Department of Transportation
Traffic Engineering Accident Analysis System
Strip Analysis Report

Acc No	Crash ID	Milepost	Date	Accident Type	Total Damage	Injuries F	A	B	C	Condition R	L	W	Road Ch	Ci	Trfc Ctl Dv	Op
40	102400704	2.610	08/28/2008 17:28	RAN OFF ROAD - RIGHT	$ 8650	0	0	1	0	1	1	1	1	0		2
Unit 1 : 1	Alchl/Drgs: 0	Speed: 35 MPH	Dir: W	Veh Mnvr/Ped Actn: 4	Obj Strk: 38											
41	102505122	2.610	12/03/2008 06:59	REAR END, SLOW OR STOP	$ 5050	0	0	0	1	1	1	1	3	0	6	1
Unit 1 : 11	Alchl/Drgs: 0	Speed: 35 MPH	Dir: S	Veh Mnvr/Ped Actn: 1	Obj Strk:											
Unit 2 : 1	Alchl/Drgs: 0	Speed: 35 MPH	Dir: S	Veh Mnvr/Ped Actn: 1	Obj Strk:											
Unit 3 : 1	Alchl/Drgs: 0	Speed: 30 MPH	Dir: S	Veh Mnvr/Ped Actn: 4	Obj Strk:											
42	102505262	2.610	12/10/2008 15:51	REAR END, SLOW OR STOP	$ 5000	0	0	0	0	2	1	3	1	0	3	1
Unit 1 : 2	Alchl/Drgs: 0	Speed: 0 MPH	Dir: W	Veh Mnvr/Ped Actn: 1	Obj Strk:											
Unit 2 : 2	Alchl/Drgs: 0	Speed: 35 MPH	Dir: W	Veh Mnvr/Ped Actn: 11	Obj Strk:											
43	102019855	2.710	04/23/2007 01:23	FIXED OBJECT	$ 3150	0	0	1	0	1	5	1	1	0	13	1
Unit 1 : 2	Alchl/Drgs: 1	Speed: 45 MPH	Dir: W	Veh Mnvr/Ped Actn: 4	Obj Strk: 58											
44	102588720	2.710	05/05/2009 07:58	REAR END, SLOW OR STOP	$ 2700	0	0	0	0	2	1	2	1	0	3	1
Unit 1 : 1	Alchl/Drgs: 0	Speed: 10 MPH	Dir: E	Veh Mnvr/Ped Actn: 11	Obj Strk:											
Unit 2 : 4	Alchl/Drgs: 0	Speed: 0 MPH	Dir: E	Veh Mnvr/Ped Actn: 1	Obj Strk:											
45	102604172	2.710	05/20/2009 17:40	REAR END, SLOW OR STOP	$ 4000	0	0	0	1	1	1	1	1	0		
Unit 1 : 4	Alchl/Drgs: 0	Speed: 40 MPH	Dir: E	Veh Mnvr/Ped Actn: 4	Obj Strk:											
Unit 2 : 1	Alchl/Drgs: 0	Speed: 0 MPH	Dir: E	Veh Mnvr/Ped Actn: 1	Obj Strk:											
46	102526186	2.799	01/06/2009 15:09	REAR END, SLOW OR STOP	$ 5200	0	0	0	1	2	1	3	1	0		
Unit 1 : 1	Alchl/Drgs: 0	Speed: 35 MPH	Dir: W	Veh Mnvr/Ped Actn: 7	Obj Strk:											
Unit 2 : 1	Alchl/Drgs: 0	Speed: 40 MPH	Dir: W	Veh Mnvr/Ped Actn: 4	Obj Strk:											
47	102188240	2.910	11/10/2007 18:10	ANIMAL	$ 1500	0	0	1	0	1	5	1	1	0	13	1
Unit 1 : 1	Alchl/Drgs: 0	Speed: 35 MPH	Dir: E	Veh Mnvr/Ped Actn: 4	Obj Strk: 17											
48	102246203	2.910	04/10/2008 12:15	LEFT TURN, DIFFERENT ROADWAYS	$ 18800	0	0	1	3	1	1	1	1	0	12	1
Unit 1 : 11	Alchl/Drgs: 0	Speed: 45 MPH	Dir: W	Veh Mnvr/Ped Actn: 4	Obj Strk:											
Unit 2 : 3	Alchl/Drgs: 0	Speed: 20 MPH	Dir: N	Veh Mnvr/Ped Actn: 8	Obj Strk:											
Unit 3 : 4	Alchl/Drgs: 0	Speed: 35 MPH	Dir: E	Veh Mnvr/Ped Actn: 1	Obj Strk:											
Unit 4 : 4	Alchl/Drgs: 0	Speed: 35 MPH	Dir: E	Veh Mnvr/Ped Actn: 1	Obj Strk:											

Acc No	Crash ID	Milepost	Date	Accident Type	Total Damage	Injuries				Condition		Road		Trfc Ctl	
						F	A	B	C	R	L	W	Ch	Ci	Dv	Op

Legend for Report Details:

Acc No - Accident Number
Injuries: F - Fatal, A - Class A, B - Class B, C - Class C
Condition: R - Road Surface, L - Ambient Light, W - Weather
Rd Ch - Road Character
Rd Ci - Roadway Contributing Circumstances
Trfc Ctl - Traffic Control: Dv - Device, Op - Operating
Alchl/Drgs - Alcohol Drugs Suspected
Veh Mnvr/Ped Actn - Vehicle Maneuver/Pedestrian Action
Obj Strk - Object Struck

Summary Statistics

High Level Crash Summary

Crash Type	Number of Crashes	Percent of Total
Total Crashes	48	100.00
Fatal Crashes	1	2.08
Non-Fatal Injury Crashes	24	50.00
Total Injury Crashes	25	52.08
Property Damage Only Crashes	23	47.92
Night Crashes	19	39.58
Wet Crashes	12	25.00
Alcohol/Drugs Involvement Crashes	4	8.33

Crash Severity Summary

Crash Type	Number of Crashes	Percent of Total
Total Crashes	48	100.00
Fatal Crashes	1	2.08
Class A Crashes	2	4.17
Class B Crashes	8	16.67
Class C Crashes	14	29.17
Property Damage Only Crashes	23	47.92

Vehicle Exposure Statistics

Annual ADT = 14000

Total Length = 3.49 (Miles) 5.617 (Kilometers)

Total Vehicle Exposure = 53.55 (MVMT) 86.18 (MVKMT)

Crash Rate	Crashes Per 100 Million Vehicle Miles	Crashes Per 100 Million Vehicle Kilometers
Total Crash Rate	89.63	55.70
Fatal Crash Rate	1.87	1.16
Non Fatal Crash Rate	44.82	27.85
Night Crash Rate	35.48	22.05
Wet Crash Rate	22.41	13.92
EPDO Rate	818.29	508.46

Miscellaneous Statistics

Severity Index =	9.13
EPDO Crash Index =	438.20
Estimated Property Damage Total = $	273600.00

Accident Type Summary

Accident Type	Number of Crashes	Percent of Total
ANGLE	6	12.50
ANIMAL	5	10.42
FIXED OBJECT	2	4.17
LEFT TURN, DIFFERENT ROADWAYS	4	8.33
LEFT TURN, SAME ROADWAY	3	6.25
RAN OFF ROAD - LEFT	4	8.33
RAN OFF ROAD - RIGHT	8	16.67
RAN OFF ROAD - STRAIGHT	1	2.08
REAR END, SLOW OR STOP	13	27.08
REAR END, TURN	1	2.08
RIGHT TURN, DIFFERENT ROADWAYS	1	2.08

Injury Summary

Injury Type	Number of Injuries	Percent of Total
Fatal Injuries	1	3.03
Class A Injuries	2	6.06
Class B Injuries	10	30.30
Class C Injuries	20	60.61
Total Non-Fatal Injuries	32	96.97
Total Injuries	33	100.00

Monthly Summary

Month	Number of Crashes	Percent of Total
Jan	8	16.67
Feb	2	4.17
Mar	5	10.42
Apr	6	12.50
May	3	6.25
Jun	2	4.17
Jul	1	2.08
Aug	3	6.25
Sep	2	4.17
Oct	4	8.33
Nov	6	12.50
Dec	6	12.50

Daily Summary

Day	Number of Crashes	Percent of Total
Mon	5	10.42
Tue	17	35.42
Wed	10	20.83
Thu	7	14.58
Fri	3	6.25
Sat	6	12.50
Sun	0	0.00

Hourly Summary

Hour	Number of Crashes	Percent of Total
0000-0059	2	4.17
0100-0159	2	4.17
0200-0259	1	2.08
0300-0359	2	4.17
0400-0459	1	2.08
0500-0559	1	2.08
0600-0659	5	10.42
0700-0759	4	8.33
0800-0859	1	2.08
0900-0959	1	2.08
1000-1059	0	0.00
1100-1159	2	4.17
1200-1259	2	4.17
1300-1359	5	10.42
1400-1459	1	2.08
1500-1559	2	4.17
1600-1659	3	6.25
1700-1759	4	8.33
1800-1859	2	4.17
1900-1959	1	2.08
2000-2059	1	2.08
2100-2159	1	2.08
2200-2259	2	4.17
2300-2359	2	4.17

Light and Road Conditions Summary

Condition	Dry	Wet	Other	Total
Day	21	7	0	28
Dark	13	5	1	19
Other	1	0	0	1
Total	35	12	1	48

Object Struck Summary

Object Type	Times Struck	Percent of Total
ANIMAL	4	25.00
DITCH	3	18.75
EMBANKMENT	2	12.50
MAILBOX	1	6.25
OFFICIAL HIGHWAY SIGN BREAKAWAY	1	6.25
OTHER FIXED OBJECT	2	12.50
TREE	1	6.25
UTILITY POLE	2	12.50

Vehicle Type Summary

Vehicle Type	Number Involved	Percent of Total
LIGHT TRUCK (MINI-VAN, PANEL)	2	2.47
MOTORCYCLE	1	1.23
PASSENGER CAR	42	51.85
PICKUP	10	12.35
SINGLE UNIT TRUCK (2-AXLE, 6-TIRE)	2	2.47
SINGLE UNIT TRUCK (3 OR MORE AXLES)	3	3.70
SPORT UTILITY	9	11.11
TRACTOR/SEMI-TRAILER	5	6.17
TRUCK/TRAILER	3	3.70
UNKNOWN HEAVY TRUCK	1	1.23
VAN	3	3.70

Yearly Totals Summary

Accident Totals

Year	Total Accidents	Fatal Accidents	Injury Accidents	Property Damage Only Accidents
2006	4	0	0	4
2007	12	0	7	5
2008	24	1	13	10
2009	8	0	4	4
Total	48	1	24	23

Injury Totals

Year	Fatal Injuries	Class A, B, or C Injuries
2006	0	0
2007	0	9
2008	1	19
2009	0	4
Total	1	32

Miscellaneous Totals

Year	Property Damage	EPDO Index
2006	$ 34500	4.00
2007	$ 48650	132.20
2008	$ 160950	264.40
2009	$ 29500	37.60
Total	$ 273600	438.20

Type of Accident Totals

Year	Left Turn	Right Turn	Rear End	Run Off Road & Fixed Object	Angle	Side Swipe	Other
2006	1	0	0	2	1	0	0
2007	1	0	3	5	0	0	3
2008	5	1	8	7	2	0	1
2009	0	0	3	1	3	0	1
Total	7	1	14	15	6	0	5

Strip Diagram

Features	Milepost	Crash IDs
SR 1695 | REGIONAL	0.000	102233732
	0.010	
	0.020	
	0.030	
	0.040	
	0.050	
	0.060	
	0.070	
	0.080	
	0.090	
	0.100	
	0.110	
	0.120	
	0.130	
	0.140	
	0.150	
	0.160	
	0.170	
	0.180	
	0.190	
	0.200	
	0.210	
	0.220	
	0.230	
ARROW	0.240	
	0.250	
	0.260	
	0.270	
	0.280	
	0.290	
	0.300	
	0.310	
	0.320	
	0.330	
	0.340	102292265
BRUSH	0.350	
	0.360	
	0.370	
	0.380	
	0.390	
	0.400	
	0.410	
	0.420	
	0.430	

Features	Milepost	Crash IDs
	0.440	
	0.450	
	0.460	
	0.470	
	0.480	
	0.490	
	0.500	
	0.510	
	0.520	
	0.530	
	0.540	
BURGESS	0.550	102232571 | 102307836
	0.560	
	0.570	102261449
	0.580	
	0.590	
	0.600	
	0.610	
NC 68 NB RAMP	0.620	101906176 | 102285644 | 102556482
	0.630	
	0.640	
	0.650	
	0.660	
	0.670	
	0.680	
	0.690	
NC 68	0.700	
	0.710	
	0.720	
	0.730	
	0.740	
	0.750	
	0.760	
	0.770	
NC 68 SB RAMP | THATHER	0.780	102245156 | 102363434 | 102441491 | 102569735
	0.790	102318584
	0.800	
	0.810	
	0.820	102045649
	0.830	
	0.840	
	0.850	
BRIGHAM	0.860	
	0.870	102457306
	0.880	

Features	Milepost	Crash IDs
	0.890	
	0.900	
	0.910	
	0.920	
	0.930	
	0.940	
	0.950	
	0.960	102516045
	0.970	
	0.980	
	0.990	
	1.000	
	1.010	
	1.020	
	1.030	
	1.040	
	1.050	
	1.060	102006949
	1.070	
	1.080	
	1.090	
	1.100	
	1.110	101893651 | 102559712
	1.120	
	1.130	
	1.140	
	1.150	
	1.160	101980441
	1.170	
	1.180	
	1.190	
	1.200	
	1.210	
	1.220	
	1.230	
	1.240	
	1.250	
	1.260	
	1.270	
	1.280	
	1.290	
	1.300	
	1.310	102246090
	1.320	
	1.330	
	1.340	

Features	Milepost	Crash IDs
	1.350	
LANDMARK	1.360	101894828 | 102543672
	1.370	
	1.380	
	1.390	
	1.400	102185079
	1.410	
	1.420	
	1.430	
	1.440	
	1.450	
	1.460	
	1.470	
	1.480	
	1.490	
	1.500	
	1.510	
	1.520	
	1.530	
	1.540	
	1.550	
	1.560	101936328
	1.570	
	1.580	
	1.590	
	1.600	
	1.610	
	1.620	
	1.630	
	1.640	
	1.650	102430683
	1.660	
	1.670	
	1.680	
	1.690	
	1.700	102499355
	1.710	
	1.720	
	1.730	
	1.740	
	1.750	
	1.760	
	1.770	
	1.780	
	1.790	
	1.800	

Features	Milepost	Crash IDs
	1.810	
	1.820	
	1.830	
	1.840	
	1.850	102605462
	1.860	
	1.870	
	1.880	
	1.890	
SR 2133 | PLEASANT RIDGE	1.900	102214439 | 102451421 | 102469228
	1.910	
	1.920	
	1.930	
	1.940	
	1.950	
	1.960	
	1.970	
	1.980	
	1.990	
	2.000	
	2.010	
	2.020	
	2.030	
	2.040	
CENTRAL	2.050	
	2.060	
	2.070	
	2.080	
	2.090	
	2.100	102557511
	2.110	
	2.120	
	2.130	
	2.140	
	2.150	
SR 1887 | LITTLE SANTEE	2.160	101858834 | 102069633
	2.170	
	2.180	
	2.190	
	2.200	
	2.210	
	2.220	
	2.230	
	2.240	
	2.250	
	2.260	

Features	Milepost	Crash IDs
SR 1843 | MARSHALL SMITH	2.270	102552848
	2.280	
	2.290	
	2.300	
	2.310	
	2.320	
	2.330	
	2.340	
	2.350	
	2.360	
	2.370	102245627
	2.380	
	2.390	
	2.400	
	2.410	
	2.420	
	2.430	
	2.440	
	2.450	
	2.460	
	2.470	
	2.480	
	2.490	
	2.500	
	2.510	
	2.520	
	2.530	
	2.540	
	2.550	
	2.560	
	2.570	
	2.580	
	2.590	
	2.600	102140279
ML-GREENSBORO | SR 1850 | SANDY RIDGE	2.610	102064599 | 102185877 | 102400704 | 102505122 | 102505262
	2.620	
	2.630	
	2.640	
	2.650	
	2.660	
	2.670	
	2.680	
	2.690	
	2.700	
	2.710	102019855 | 102588720 | 102604172

Features	Milepost	Crash IDs
	2.720	
	2.730	
	2.740	
	2.750	
	2.760	
	2.770	
	2.780	
	2.790	
	2.800	102526186
	2.810	
	2.820	
	2.830	
	2.840	
	2.850	
	2.860	
	2.870	
	2.880	
	2.890	
	2.900	
	2.910	102188240 | 102246203
	2.920	
	2.930	
	2.940	
	2.950	
	2.960	
	2.970	
	2.980	
	2.990	
	3.000	
	3.010	
	3.020	
	3.030	
	3.040	
	3.050	
	3.060	
	3.070	
	3.080	
	3.090	
	3.100	
	3.110	
	3.120	
	3.130	
	3.140	
	3.150	
	3.160	
	3.170	

Features	Milepost	Crash IDs
	3.180	
	3.190	
	3.200	
	3.210	
	3.220	
	3.230	
	3.240	
	3.250	
	3.260	
	3.270	
	3.280	
	3.290	
	3.300	
	3.310	
	3.320	
	3.330	
	3.340	
	3.350	
	3.360	
	3.370	
	3.380	
	3.390	
	3.400	
	3.410	
	3.420	
	3.430	
	3.440	
	3.450	
	3.460	
	3.470	
	3.480	
SR 1864 | MCGUIRE	3.490	

Study Criteria

Study Name	Log No.	PH No.	TIP No.	K/A Cf.	B/C Cf.	ADT	ADT Route
41000000265	41000000265		FS0707A	76.8	8.4	14000	

Request Date	Courier Service	Phone No.	Ext.	Fax No.
08/18/2009		(919)829-0328		

County Name	County Code	Div.	Municipality Name	Municipality Code	Y-Line Ft.	Begin Date	End Date	Years
GUILFORD	40	7	All and Rural		0	07/01/2006	06/30/2009	3.00

Location Text

SR 1008 (Market St) from SR 1695 (Regional Rd) to SR 1864 (McGuire Rd)

Requestor

Martin Alexiou Bryson
West Chase Blvd,
Raleigh NC 27607

Included Accidents	Old MP	New MP	Type
102605462		1.85	I
102604172		2.71	I
102588720		2.71	I
102569735		0.78	I
102559712		1.11	I
102557511		2.1	I
102556482		0.62	I
102552848		2.27	I
102543672		1.36	I
102526186		2.799	I
102516045		0.96	I
102505262		2.61	I
102505122		2.61	I
102499355		1.7	I
102469228		1.9	I
102457306		0.87	I
102451421		1.9	I
102441491		0.78	I
102430683		1.65	I
102400704		2.61	I
102363434		0.78	I
102318584		0.79	I
102307836		0.55	I
102292265		0.34	I
102285644		0.62	I
102261449		0.574	I

102246203	2.91	I
102246090	1.313	I
102245627	2.37	I
102245156	0.78	I
102233732	0	I
102232571	0.55	I
102214439	1.9	I
102188240	2.91	I
102185877	2.61	I
102185079	1.4	I
102140279	2.604	I
102069633	2.16	I
102064599	2.61	I
102045649	0.822	I
102019855	2.71	I
102006949	1.06	I
101980441	1.16	I
101936328	1.56	I
101906176	0.62	I
101894828	1.36	I
101893651	1.11	I
101858834	2.16	I

Fiche Roads

Name	Code
I 1	10000001
SR 1008	40001008
MARKET	50018945

Strip Road

Name	Code	Begin MP	End MP	Miles	Kilometers
I 1	10000001	0.000	3.490	3.490	5.617

Study Criteria Summary

County: GUILFORD **City:** All and Rural
Date: 07/01/2006 **to** 06/30/2009 **Study:** 41000000339TG
Location: NC 68 from SR 1556 (Gallimore Dairy Rd) to SR 2016 (Leabourne Rd)

Report Details

Acc No	Crash ID	Milepost	Date	Accident Type	Total Damage	Injuries F	A	B	C	Condition R	L	W	Road Ch	Ci	Trfc Ctl Dv	Op
1	**102076973**	11.970	06/28/2007 21:12	REAR END, TURN	$ 1000	0	0	0	1	2	4	2	2	0	3	1
Unit 1 : 1	**Alchl/Drgs:** 0	**Speed:** 5 MPH	**Dir:** N	**Veh Mnvr/Ped Actn:** 7	**Obj Strk:**											
Unit 2 : 4	**Alchl/Drgs:** 0	**Speed:** 0 MPH	**Dir:** N	**Veh Mnvr/Ped Actn:** 7	**Obj Strk:**											
2	**102136324**	11.970	09/12/2007 14:46	LEFT TURN, SAME ROADWAY	$ 4500	0	0	0	1	1	1	1	1	0	3	1
Unit 1 : 1	**Alchl/Drgs:** 0	**Speed:** 10 MPH	**Dir:** S	**Veh Mnvr/Ped Actn:** 8	**Obj Strk:**											
Unit 2 : 1	**Alchl/Drgs:** 0	**Speed:** 35 MPH	**Dir:** N	**Veh Mnvr/Ped Actn:** 4	**Obj Strk:**											
3	**102395642**	11.970	08/27/2008 06:10	LEFT TURN, SAME ROADWAY	$ 7300	0	0	0	0	2	3	3	1	0	3	1
Unit 1 : 1	**Alchl/Drgs:** 0	**Speed:** 35 MPH	**Dir:** N	**Veh Mnvr/Ped Actn:** 4	**Obj Strk:**											
Unit 2 : 2	**Alchl/Drgs:** 0	**Speed:** 20 MPH	**Dir:** S	**Veh Mnvr/Ped Actn:** 8	**Obj Strk:**											
4	**102611852**	11.970	05/31/2009 12:17	RIGHT TURN, SAME ROADWAY	$ 2300	0	0	0	1	1	1	1	1	0	3	1
Unit 1 : 1	**Alchl/Drgs:** 0	**Speed:** 15 MPH	**Dir:** S	**Veh Mnvr/Ped Actn:** 7	**Obj Strk:**											
Unit 2 : 20	**Alchl/Drgs:** 0	**Speed:** 35 MPH	**Dir:** S	**Veh Mnvr/Ped Actn:** 4	**Obj Strk:**											
5	**102334140**	11.979	05/28/2008 15:45	REAR END, SLOW OR STOP	$ 7500	0	0	0	1	2	1	2	1	0	3	1
Unit 1 : 1	**Alchl/Drgs:** 0	**Speed:** 0 MPH	**Dir:** S	**Veh Mnvr/Ped Actn:** 1	**Obj Strk:**											
Unit 2 : 1	**Alchl/Drgs:** 0	**Speed:** 40 MPH	**Dir:** S	**Veh Mnvr/Ped Actn:** 4	**Obj Strk:**											
6	**102179069**	11.989	10/31/2007 17:30	SIDESWIPE, SAME DIRECTION	$ 1100	0	0	0	0	1	1	1	1	0	3	1
Unit 1 : 1	**Alchl/Drgs:** 0	**Speed:** 30 MPH	**Dir:** S	**Veh Mnvr/Ped Actn:** 4	**Obj Strk:**											
Unit 2 : 1	**Alchl/Drgs:** 0	**Speed:** 5 MPH	**Dir:** S	**Veh Mnvr/Ped Actn:** 5	**Obj Strk:**											
7	**102170933**	12.065	10/23/2007 19:05	SIDESWIPE, SAME DIRECTION	$ 1500	0	0	0	0	2	5	3	1	0	0	
Unit 1 : 1	**Alchl/Drgs:** 0	**Speed:** 50 MPH	**Dir:** N	**Veh Mnvr/Ped Actn:** 5	**Obj Strk:**											
Unit 2 : 1	**Alchl/Drgs:** 0	**Speed:** 55 MPH	**Dir:** N	**Veh Mnvr/Ped Actn:** 4	**Obj Strk:**											
8	**102242334**	12.090	01/16/2008 08:20	REAR END, SLOW OR STOP	$ 4500	0	0	0	0	1	1	2	1	0		
Unit 1 : 1	**Alchl/Drgs:** 0	**Speed:** 25 MPH	**Dir:** S	**Veh Mnvr/Ped Actn:** 4	**Obj Strk:**											
Unit 2 : 1	**Alchl/Drgs:** 0	**Speed:** 25 MPH	**Dir:** S	**Veh Mnvr/Ped Actn:** 1	**Obj Strk:**											

Acc No	Crash ID	Milepost	Date	Accident Type	Total Damage	Injuries F	A	B	C	Condition R	L	W	Road Ch	Ci	Trfc Ctl Dv	Op
Unit 3 : 1	**Alchl/Drgs:** 0	**Speed:** 40 MPH	**Dir:** S	**Veh Mnvr/Ped Actn:** 1	**Obj Strk:**											
Unit 4 : 1	**Alchl/Drgs:** 0	**Speed:** 50 MPH	**Dir:** S	**Veh Mnvr/Ped Actn:** 1	**Obj Strk:**											
Unit 5 : 1	**Alchl/Drgs:** 0	**Speed:** 45 MPH	**Dir:** S	**Veh Mnvr/Ped Actn:** 1	**Obj Strk:**											
9	**101888019**	12.170	11/15/2006 18:17	REAR END, SLOW OR STOP	$ 5100	0	0	0	0	1	5	1	2	0	0	2
Unit 1 : 4	**Alchl/Drgs:** 0	**Speed:** 0 MPH	**Dir:** S	**Veh Mnvr/Ped Actn:** 1	**Obj Strk:**											
Unit 2 : 1	**Alchl/Drgs:** 0	**Speed:** 0 MPH	**Dir:** S	**Veh Mnvr/Ped Actn:** 11	**Obj Strk:**											
Unit 3 : 4	**Alchl/Drgs:** 0	**Speed:** 0 MPH	**Dir:** S	**Veh Mnvr/Ped Actn:** 11	**Obj Strk:**											
10	**102352730**	12.220	06/13/2008 22:42	ANIMAL	$ 3500	0	0	0	1	1	5	1	1	0		
Unit 1 : 1	**Alchl/Drgs:** 0	**Speed:** 50 MPH	**Dir:** S	**Veh Mnvr/Ped Actn:** 4	**Obj Strk:** 17											
11	**102310303**	12.290	04/22/2008 08:00	REAR END, SLOW OR STOP	$ 2400	0	0	0	0	2	1	2	1	0		
Unit 1 : 1	**Alchl/Drgs:** 0	**Speed:** 55 MPH	**Dir:** S	**Veh Mnvr/Ped Actn:** 11	**Obj Strk:**											
Unit 2 : 1	**Alchl/Drgs:** 0	**Speed:** 55 MPH	**Dir:** S	**Veh Mnvr/Ped Actn:** 4	**Obj Strk:**											
12	**101800734**	12.380	08/04/2006 06:58	REAR END, SLOW OR STOP	$ 9200	0	0	0	1	1	1	1	2	0	1	1
Unit 1 : 2	**Alchl/Drgs:** 0	**Speed:** 45 MPH	**Dir:** S	**Veh Mnvr/Ped Actn:** 4	**Obj Strk:**											
Unit 2 : 5	**Alchl/Drgs:** 0	**Speed:** 40 MPH	**Dir:** S	**Veh Mnvr/Ped Actn:** 8	**Obj Strk:**											
Unit 3 : 1	**Alchl/Drgs:** 0	**Speed:** 50 MPH	**Dir:** S	**Veh Mnvr/Ped Actn:** 4	**Obj Strk:**											
13	**102333926**	12.390	05/27/2008 17:40	ANGLE	$ 4500	0	0	0	2	1	1	1	4	0	1	1
Unit 1 : 5	**Alchl/Drgs:** 0	**Speed:** 5 MPH	**Dir:** W	**Veh Mnvr/Ped Actn:** 4	**Obj Strk:**											
Unit 2 : 1	**Alchl/Drgs:** 0	**Speed:** 45 MPH	**Dir:** N	**Veh Mnvr/Ped Actn:** 4	**Obj Strk:**											
14	**102347024**	12.390	06/17/2008 11:05	REAR END, SLOW OR STOP	$ 1500	0	0	0	0	1	1	1	1	0	0	
Unit 1 : 10	**Alchl/Drgs:** 0	**Speed:** 45 MPH	**Dir:** S	**Veh Mnvr/Ped Actn:** 4	**Obj Strk:**											
Unit 2 : 1	**Alchl/Drgs:** 0	**Speed:** 40 MPH	**Dir:** S	**Veh Mnvr/Ped Actn:** 5	**Obj Strk:**											
15	**102526204**	12.390	01/04/2009 12:28	REAR END, SLOW OR STOP	$ 1800	0	0	0	0	2	1	2	1	0	0	
Unit 1 : 1	**Alchl/Drgs:** 0	**Speed:** 55 MPH	**Dir:** N	**Veh Mnvr/Ped Actn:** 4	**Obj Strk:**											
Unit 2 : 1	**Alchl/Drgs:** 0	**Speed:** 25 MPH	**Dir:** N	**Veh Mnvr/Ped Actn:** 7	**Obj Strk:**											
16	**101869042**	12.418	10/27/2006 12:21	REAR END, SLOW OR STOP	$ 2800	0	0	0	0	2	1	3	1	0		
Unit 1 : 1	**Alchl/Drgs:** 0	**Speed:** 45 MPH	**Dir:** S	**Veh Mnvr/Ped Actn:** 4	**Obj Strk:**											
Unit 2 : 1	**Alchl/Drgs:** 0	**Speed:** 0 MPH	**Dir:** S	**Veh Mnvr/Ped Actn:** 1	**Obj Strk:**											

Acc No	Crash ID	Milepost	Date	Accident Type	Total Damage	Injuries F	A	B	C	Condition R	L	W	Road Ch	Ci	Trfc Ctl Dv	Op
17	**101869543**	12.452	10/27/2006 12:35	REAR END, SLOW OR STOP	$ 2500	0	0	0	0	2	1	2	3	0		
Unit 1 : 1	**Alchl/Drgs:** 0	**Speed:** 15 MPH	**Dir:** S	**Veh Mnvr/Ped Actn:** 4	**Obj Strk:**											
Unit 2 : 1	**Alchl/Drgs:** 0	**Speed:** 10 MPH	**Dir:** S	**Veh Mnvr/Ped Actn:** 4	**Obj Strk:**											
Unit 3 : 1	**Alchl/Drgs:** 0	**Speed:** 0 MPH	**Dir:** S	**Veh Mnvr/Ped Actn:** 1	**Obj Strk:**											
18	**101977943**	12.490	03/06/2007 12:52	REAR END, SLOW OR STOP	$ 4000	0	0	0	0	1	1	1	3	0	1	1
Unit 1 : 5	**Alchl/Drgs:** 0	**Speed:** 40 MPH	**Dir:** S	**Veh Mnvr/Ped Actn:** 16	**Obj Strk:**											
Unit 2 : 1	**Alchl/Drgs:** 0	**Speed:** 10 MPH	**Dir:** S	**Veh Mnvr/Ped Actn:** 16	**Obj Strk:**											
19	**102161716**	12.551	10/11/2007 07:05	REAR END, SLOW OR STOP	$ 1250	0	0	0	0	1	1	1	1	0	3	1
Unit 1 : 1	**Alchl/Drgs:** 0	**Speed:** 0 MPH	**Dir:** S	**Veh Mnvr/Ped Actn:** 4	**Obj Strk:**											
Unit 2 : 1	**Alchl/Drgs:** 0	**Speed:** 0 MPH	**Dir:** S	**Veh Mnvr/Ped Actn:** 1	**Obj Strk:**											
20	**101959793**	12.556	02/13/2007 20:53	REAR END, SLOW OR STOP	$ 1250	0	0	0	0	3	5	2	1	0	3	1
Unit 1 : 1	**Alchl/Drgs:** 0	**Speed:** 15 MPH	**Dir:** N	**Veh Mnvr/Ped Actn:** 4	**Obj Strk:**											
Unit 2 : 1	**Alchl/Drgs:** 0	**Speed:** 0 MPH	**Dir:** N	**Veh Mnvr/Ped Actn:** 12	**Obj Strk:**											
21	**102051669**	12.563	05/15/2007 13:38	SIDESWIPE, SAME DIRECTION	$ 1600	0	0	0	2	1	1	1	3	0		2
Unit 1 : 1	**Alchl/Drgs:** 0	**Speed:** 55 MPH	**Dir:** S	**Veh Mnvr/Ped Actn:** 4	**Obj Strk:**											
Unit 2 : 12	**Alchl/Drgs:** 0	**Speed:** 55 MPH	**Dir:** S	**Veh Mnvr/Ped Actn:** 5	**Obj Strk:**											
22	**101799398**	12.569	08/03/2006 15:07	REAR END, SLOW OR STOP	$ 1100	0	0	0	0	1	1	1	1	0	3	1
Unit 1 : 10	**Alchl/Drgs:** 0	**Speed:** 45 MPH	**Dir:** N	**Veh Mnvr/Ped Actn:** 11	**Obj Strk:**											
Unit 2 : 1	**Alchl/Drgs:** 0	**Speed:** 0 MPH	**Dir:** N	**Veh Mnvr/Ped Actn:** 1	**Obj Strk:**											
Unit 3 : 1	**Alchl/Drgs:** 0	**Speed:** 0 MPH	**Dir:** N	**Veh Mnvr/Ped Actn:** 1	**Obj Strk:**											
23	**101818408**	12.570	08/28/2006 18:50	REAR END, SLOW OR STOP	$ 4000	0	0	0	0	1	2	1	1	0	3	1
Unit 1 : 3	**Alchl/Drgs:** 0	**Speed:** 45 MPH	**Dir:** S	**Veh Mnvr/Ped Actn:** 4	**Obj Strk:**											
Unit 2 : 4	**Alchl/Drgs:** 0	**Speed:** 45 MPH	**Dir:** S	**Veh Mnvr/Ped Actn:** 4	**Obj Strk:**											
24	**102003829**	12.570	04/05/2007 20:21	ANGLE	$ 3000	0	0	0	0	1	4	1	1	0	3	1
Unit 1 : 1	**Alchl/Drgs:** 0	**Speed:** 45 MPH	**Dir:** S	**Veh Mnvr/Ped Actn:** 4	**Obj Strk:**											
Unit 2 : 2	**Alchl/Drgs:** 0	**Speed:** 40 MPH	**Dir:** W	**Veh Mnvr/Ped Actn:** 4	**Obj Strk:**											
25	**102091169**	12.570	07/16/2007 15:47	ANGLE	$ 5000	0	0	0	0	1	1	1	1	0	3	1
Unit 1 : 5	**Alchl/Drgs:** 0	**Speed:** 40 MPH	**Dir:** N	**Veh Mnvr/Ped Actn:** 4	**Obj Strk:**											
Unit 2 : 1	**Alchl/Drgs:** 0	**Speed:** 10 MPH	**Dir:** W	**Veh Mnvr/Ped Actn:** 4	**Obj Strk:**											

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26	102238831	12.570	01/05/2008 00:22	ANGLE	$ 12500	0	0	0	2	1	4	1	1	0	3	1
Unit 1 : 1	Alchl/Drgs: 1	Speed: 50 MPH	Dir: N	Veh Mnvr/Ped Actn: 4	Obj Strk:											
Unit 2 : 2	Alchl/Drgs: 0	Speed: 0 MPH	Dir: N	Veh Mnvr/Ped Actn: 1	Obj Strk:											
Unit 3 : 1	Alchl/Drgs: 0	Speed: 0 MPH	Dir: N	Veh Mnvr/Ped Actn: 1	Obj Strk:											
27	102272335	12.570	02/28/2008 11:51	HEAD ON	$ 20000	0	0	0	0	1	1	1	1	0	3	1
Unit 1 : 3	Alchl/Drgs: 0	Speed: 45 MPH	Dir: N	Veh Mnvr/Ped Actn: 4	Obj Strk:											
Unit 2 : 5	Alchl/Drgs: 0	Speed: 25 MPH	Dir: W	Veh Mnvr/Ped Actn: 16	Obj Strk:											
28	102276629	12.570	03/05/2008 11:20	ANGLE	$ 1500	0	0	0	0	1	1	1	1	0	3	1
Unit 1 : 5	Alchl/Drgs: 0	Speed: 55 MPH	Dir: N	Veh Mnvr/Ped Actn: 4	Obj Strk:											
Unit 2 : 1	Alchl/Drgs: 0	Speed: 5 MPH	Dir: W	Veh Mnvr/Ped Actn: 12	Obj Strk:											
29	102279248	12.570	03/08/2008 10:34	ANGLE	$ 3000	0	0	0	1	1	1	1	1	0	3	1
Unit 1 : 1	Alchl/Drgs: 0	Speed: 55 MPH	Dir: N	Veh Mnvr/Ped Actn: 4	Obj Strk:											
Unit 2 : 1	Alchl/Drgs: 0	Speed: 45 MPH	Dir: E	Veh Mnvr/Ped Actn: 8	Obj Strk:											
30	102516092	12.570	12/31/2008 14:24	ANGLE	$ 3000	0	0	0	1	1	1	1	1	0	3	1
Unit 1 : 1	Alchl/Drgs: 0	Speed: 55 MPH	Dir: S	Veh Mnvr/Ped Actn: 4	Obj Strk:											
Unit 2 : 1	Alchl/Drgs: 0	Speed: 25 MPH	Dir: W	Veh Mnvr/Ped Actn: 4	Obj Strk:											
31	102543371	12.570	02/10/2009 13:19	ANGLE	$ 8000	0	0	0	1	1	1	1	1	0	3	1
Unit 1 : 1	Alchl/Drgs: 0	Speed: 0 MPH	Dir: N	Veh Mnvr/Ped Actn: 4	Obj Strk:											
Unit 2 : 1	Alchl/Drgs: 0	Speed: 0 MPH	Dir: E	Veh Mnvr/Ped Actn: 4	Obj Strk:											
32	102564011	12.575	03/24/2009 12:00	REAR END, TURN	$ 4500	0	0	0	2	1	1	1	3	0	3	1
Unit 1 : 2	Alchl/Drgs: 0	Speed: 25 MPH	Dir: S	Veh Mnvr/Ped Actn: 4	Obj Strk:											
Unit 2 : 4	Alchl/Drgs: 0	Speed: 0 MPH	Dir: S	Veh Mnvr/Ped Actn: 1	Obj Strk:											
33	102044924	12.576	07/23/2007 15:11	BACKING UP	$ 3000	0	0	0	0	1	1	1	1	0	3	1
Unit 1 : 10	Alchl/Drgs: 0	Speed: 5 MPH	Dir: N	Veh Mnvr/Ped Actn: 10	Obj Strk:											
Unit 2 : 1	Alchl/Drgs: 0	Speed: 0 MPH	Dir: S	Veh Mnvr/Ped Actn: 1	Obj Strk:											
34	101869535	12.650	10/26/2006 21:20	REAR END, SLOW OR STOP	$ 21200	0	0	0	0	1	4	1	1	0	3	1
Unit 1 : 1	Alchl/Drgs: 0	Speed: 0 MPH	Dir: N	Veh Mnvr/Ped Actn: 4	Obj Strk:											
Unit 2 : 1	Alchl/Drgs: 0	Speed: 0 MPH	Dir: N	Veh Mnvr/Ped Actn: 4	Obj Strk:											

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35	102186937	12.730	11/08/2007 17:30	REAR END, SLOW OR STOP	$ 2000	0	0	0	1	1	4	1	1	0	0	
Unit 1 : 4	Alchl/Drgs: 0	Speed: 0 MPH	Dir: N	Veh Mnvr/Ped Actn: 1	Obj Strk:											
Unit 2 : 1	Alchl/Drgs: 0	Speed: 15 MPH	Dir: N	Veh Mnvr/Ped Actn: 4	Obj Strk:											
36	102539105	12.799	02/05/2009 20:09	REAR END, SLOW OR STOP	$ 3100	0	0	0	0	1	4	1	1	0	3	1
Unit 1 : 1	Alchl/Drgs: 0	Speed: 0 MPH	Dir: N	Veh Mnvr/Ped Actn: 1	Obj Strk:											
Unit 2 : 1	Alchl/Drgs: 0	Speed: 40 MPH	Dir: N	Veh Mnvr/Ped Actn: 4	Obj Strk:											
37	101858817	12.800	10/17/2006 16:30	RAN OFF ROAD - RIGHT	$ 2500	0	0	0	0	2	1	3	1	0	3	1
Unit 1 : 1	Alchl/Drgs: 0	Speed: 50 MPH	Dir: N	Veh Mnvr/Ped Actn: 4	Obj Strk: 61											
38	101902028	12.800	12/01/2006 10:50	REAR END, SLOW OR STOP	$ 4000	0	0	0	0	2	1	3	1	0	3	1
Unit 1 : 1	Alchl/Drgs: 0	Speed: 40 MPH	Dir: N	Veh Mnvr/Ped Actn: 1	Obj Strk:											
Unit 2 : 1	Alchl/Drgs: 0	Speed: 45 MPH	Dir: N	Veh Mnvr/Ped Actn: 4	Obj Strk:											
39	102110272	12.800	08/10/2007 15:45	SIDESWIPE, SAME DIRECTION	$ 1200	0	0	0	0	2	1	3	1	1	3	1
Unit 1 : 32	Alchl/Drgs: 7	Speed: 0 MPH	Dir: N	Veh Mnvr/Ped Actn: 8	Obj Strk:											
Unit 2 : 1	Alchl/Drgs: 0	Speed: 0 MPH	Dir: N	Veh Mnvr/Ped Actn: 8	Obj Strk:											
40	102267076	12.800	02/20/2008 14:54	REAR END, SLOW OR STOP	$ 5000	0	0	1	1	1	1	1	1	0	3	1
Unit 1 : 1	Alchl/Drgs: 0	Speed: 30 MPH	Dir: N	Veh Mnvr/Ped Actn: 4	Obj Strk:											
Unit 2 : 10	Alchl/Drgs: 0	Speed: 10 MPH	Dir: N	Veh Mnvr/Ped Actn: 11	Obj Strk:											
41	102317928	12.800	05/03/2008 06:46	ANGLE	$ 6000	0	0	0	0	1	1	1	1	0	3	1
Unit 1 : 1	Alchl/Drgs: 0	Speed: 55 MPH	Dir: S	Veh Mnvr/Ped Actn: 4	Obj Strk:											
Unit 2 : 4	Alchl/Drgs: 0	Speed: 15 MPH	Dir: E	Veh Mnvr/Ped Actn: 8	Obj Strk:											
42	102414246	12.800	09/19/2008 06:37	REAR END, SLOW OR STOP	$ 4000	0	0	0	0	1	3	1	1	0	3	1
Unit 1 : 1	Alchl/Drgs: 0	Speed: 30 MPH	Dir: N	Veh Mnvr/Ped Actn: 5	Obj Strk:											
Unit 2 : 4	Alchl/Drgs: 0	Speed: 55 MPH	Dir: N	Veh Mnvr/Ped Actn: 4	Obj Strk:											
43	102448844	12.800	10/15/2008 06:34	ANGLE	$ 2500	0	0	0	0	1	4	1	1	0	3	1
Unit 1 : 1	Alchl/Drgs: 7	Speed: 25 MPH	Dir: E	Veh Mnvr/Ped Actn: 8	Obj Strk:											
Unit 2 : 1	Alchl/Drgs: 0	Speed: 0 MPH	Dir: N	Veh Mnvr/Ped Actn: 8	Obj Strk:											
44	102448857	12.800	10/15/2008 06:34	BACKING UP	$ 1700	0	0	0	0	1	4	1	1	0	3	1
Unit 1 : 4	Alchl/Drgs: 0	Speed: 0 MPH	Dir: N	Veh Mnvr/Ped Actn: 10	Obj Strk:											

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Unit 2 : 2	Alchl/Drgs: 0	Speed: 0 MPH	Dir: N	Veh Mnvr/Ped Actn: 1	Obj Strk:											
45	102615217	12.800	06/06/2009 22:22	ANGLE	$ 11000	0	0	0	4	1	4	1	1	0	3	1
Unit 1 : 1	Alchl/Drgs: 0	Speed: 45 MPH	Dir: S	Veh Mnvr/Ped Actn: 4	Obj Strk:											
Unit 2 : 1	Alchl/Drgs: 0	Speed: 20 MPH	Dir: E	Veh Mnvr/Ped Actn: 8	Obj Strk:											
46	101927931	12.819	01/02/2007 17:29	SIDESWIPE, SAME DIRECTION	$ 5000	0	0	0	0	1	4	1	1	0	0	
Unit 1 : 1	Alchl/Drgs: 0	Speed: 0 MPH	Dir: S	Veh Mnvr/Ped Actn: 4	Obj Strk:											
Unit 2 : 1	Alchl/Drgs: 0	Speed: 0 MPH	Dir: S	Veh Mnvr/Ped Actn: 4	Obj Strk:											
47	102527289	12.857	01/06/2009 06:52	REAR END, SLOW OR STOP	$ 8100	0	0	0	0	2	4	2	1	0	3	1
Unit 1 : 1	Alchl/Drgs: 0	Speed: 25 MPH	Dir: S	Veh Mnvr/Ped Actn: 4	Obj Strk:											
Unit 2 : 4	Alchl/Drgs: 0	Speed: 15 MPH	Dir: S	Veh Mnvr/Ped Actn: 11	Obj Strk:											
Unit 3 : 4	Alchl/Drgs: 0	Speed: 0 MPH	Dir: S	Veh Mnvr/Ped Actn: 1	Obj Strk:											
48	101846673	12.900	10/03/2006 14:10	REAR END, SLOW OR STOP	$ 8000	0	0	1	1	1	1	1	1	0		
Unit 1 : 2	Alchl/Drgs: 0	Speed: 40 MPH	Dir: N	Veh Mnvr/Ped Actn: 11	Obj Strk:											
Unit 2 : 2	Alchl/Drgs: 0	Speed: 0 MPH	Dir: N	Veh Mnvr/Ped Actn: 1	Obj Strk:											
Unit 3 : 4	Alchl/Drgs: 0	Speed: 0 MPH	Dir: N	Veh Mnvr/Ped Actn: 1	Obj Strk:											
49	102481887	12.900	11/08/2008 12:16	REAR END, SLOW OR STOP	$ 500	0	0	0	2	1	1	1	1	0	3	1
Unit 1 : 1	Alchl/Drgs: 0	Speed: 35 MPH	Dir: N	Veh Mnvr/Ped Actn: 11	Obj Strk:											
Unit 2 : 1	Alchl/Drgs: 0	Speed: 0 MPH	Dir: N	Veh Mnvr/Ped Actn: 11	Obj Strk:											
50	102257396	12.961	02/03/2008 14:03	ANGLE	$ 9100	0	0	0	1	1	1	1	1	0	3	1
Unit 1 : 1	Alchl/Drgs: 0	Speed: 45 MPH	Dir: N	Veh Mnvr/Ped Actn: 10	Obj Strk: 37											
Unit 2 : 1	Alchl/Drgs: 0	Speed: 0 MPH	Dir: N	Veh Mnvr/Ped Actn: 1	Obj Strk:											
51	102135916	12.990	09/10/2007 06:29	REAR END, SLOW OR STOP	$ 4050	0	0	0	0	1	1	1	1	0	3	1
Unit 1 : 1	Alchl/Drgs: 0	Speed: 55 MPH	Dir: N	Veh Mnvr/Ped Actn: 4	Obj Strk:											
Unit 2 : 2	Alchl/Drgs: 0	Speed: 0 MPH	Dir: N	Veh Mnvr/Ped Actn: 1	Obj Strk:											
52	102310301	12.995	04/22/2008 20:36	SIDESWIPE, SAME DIRECTION	$ 3550	0	0	0	1	2	4	2	1	0	3	1
Unit 1 : 1	Alchl/Drgs: 0	Speed: 10 MPH	Dir: N	Veh Mnvr/Ped Actn: 5	Obj Strk:											
Unit 2 : 1	Alchl/Drgs: 0	Speed: 55 MPH	Dir: N	Veh Mnvr/Ped Actn: 4	Obj Strk:											
Unit 3 : 2	Alchl/Drgs: 0	Speed: 0 MPH	Dir: N	Veh Mnvr/Ped Actn: 1	Obj Strk:											

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53	102436231	12.998	10/02/2008 16:36	REAR END, SLOW OR STOP	$ 2500	0	0	0	0	1	1	1	1	0	3	1
Unit 1 : 5	Alchl/Drgs: 0	Speed: 25 MPH	Dir: S	Veh Mnvr/Ped Actn: 5	Obj Strk:											
Unit 2 : 2	Alchl/Drgs: 0	Speed: 20 MPH	Dir: S	Veh Mnvr/Ped Actn: 11	Obj Strk:											
54	102545728	12.998	02/21/2009 22:04	REAR END, SLOW OR STOP	$ 8000	0	0	0	2	1	4	1	1	0	3	1
Unit 1 : 1	Alchl/Drgs: 0	Speed: 25 MPH	Dir: N	Veh Mnvr/Ped Actn: 5	Obj Strk:											
Unit 2 : 1	Alchl/Drgs: 0	Speed: 55 MPH	Dir: N	Veh Mnvr/Ped Actn: 4	Obj Strk:											
Unit 3 : 1	Alchl/Drgs: 0	Speed: 0 MPH	Dir: N	Veh Mnvr/Ped Actn: 1	Obj Strk:											
55	101816512	13.000	08/25/2006 11:28	LEFT TURN, DIFFERENT ROADWAYS	$ 3500	0	0	0	0	1	1	1	1	0	3	1
Unit 1 : 14	Alchl/Drgs: 0	Speed: 0 MPH	Dir: E	Veh Mnvr/Ped Actn: 8	Obj Strk:											
Unit 2 : 1	Alchl/Drgs: 0	Speed: 0 MPH	Dir: W	Veh Mnvr/Ped Actn: 4	Obj Strk:											
56	101881203	13.000	11/08/2006 22:08	ANGLE	$ 12000	0	0	1	2	2	4	2	1	0	3	1
Unit 1 : 1	Alchl/Drgs: 3	Speed: 50 MPH	Dir: N	Veh Mnvr/Ped Actn: 4	Obj Strk:											
Unit 2 : 1	Alchl/Drgs: 0	Speed: 0 MPH	Dir: S	Veh Mnvr/Ped Actn: 8	Obj Strk:											
57	101917290	13.000	11/11/2006 00:06	REAR END, SLOW OR STOP	$ 400	0	0	0	1	1	4	1	1	0	3	1
Unit 1 : 1	Alchl/Drgs: 0	Speed: 5 MPH	Dir: N	Veh Mnvr/Ped Actn: 11	Obj Strk:											
Unit 2 : 5	Alchl/Drgs: 0	Speed: 0 MPH	Dir: N	Veh Mnvr/Ped Actn: 11	Obj Strk:											
58	101916543	13.000	12/20/2006 08:56	REAR END, SLOW OR STOP	$ 2500	0	0	0	0	1	1	1	7	12	3	1
Unit 1 : 1	Alchl/Drgs: 7	Speed: 35 MPH	Dir: S	Veh Mnvr/Ped Actn: 4	Obj Strk:											
Unit 2 : 1	Alchl/Drgs: 7	Speed: 0 MPH	Dir: S	Veh Mnvr/Ped Actn: 16	Obj Strk:											
59	101955848	13.000	02/08/2007 21:32	ANGLE	$ 1500	0	0	0	0	1	4	1	1	0	3	1
Unit 1 : 1	Alchl/Drgs: 0	Speed: 0 MPH	Dir: N	Veh Mnvr/Ped Actn: 4	Obj Strk:											
Unit 2 : 1	Alchl/Drgs: 0	Speed: 20 MPH	Dir: E	Veh Mnvr/Ped Actn: 8	Obj Strk:											
60	102012493	13.000	04/15/2007 19:32	ANGLE	$ 10000	0	0	0	4	2	4	3	1	0	3	1
Unit 1 : 1	Alchl/Drgs: 0	Speed: 25 MPH	Dir: S	Veh Mnvr/Ped Actn: 16	Obj Strk:											
Unit 2 : 1	Alchl/Drgs: 0	Speed: 35 MPH	Dir: N	Veh Mnvr/Ped Actn: 16	Obj Strk:											
61	102069995	13.000	06/20/2007 18:22	ANGLE	$ 9000	0	0	0	2	1	1	1	1	0	3	1
Unit 1 : 1	Alchl/Drgs: 0	Speed: 35 MPH	Dir: W	Veh Mnvr/Ped Actn: 4	Obj Strk:											
Unit 2 : 1	Alchl/Drgs: 0	Speed: 45 MPH	Dir: S	Veh Mnvr/Ped Actn: 4	Obj Strk:											

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62	102088843	13.000	07/03/2007 11:27	OVERTURN/ROLLOVER	$ 10000	0	0	0	0	1	1	1	1	0	3	1
Unit 1 : 13	Alchl/Drgs: 0	Speed: 10 MPH	Dir: N	Veh Mnvr/Ped Actn: 8	Obj Strk:											
63	102105707	13.000	08/04/2007 11:46	ANGLE	$ 10000	0	0	0	3	1	1	1	1	0	3	1
Unit 1 : 1	Alchl/Drgs: 0	Speed: 45 MPH	Dir: S	Veh Mnvr/Ped Actn: 4	Obj Strk:											
Unit 2 : 1	Alchl/Drgs: 0	Speed: 0 MPH	Dir: E	Veh Mnvr/Ped Actn: 8	Obj Strk:											
64	102124244	13.000	08/28/2007 19:45	ANGLE	$ 13000	0	0	1	1	1	2	1	1	0	3	1
Unit 1 : 2	Alchl/Drgs: 0	Speed: 0 MPH	Dir: S	Veh Mnvr/Ped Actn: 4	Obj Strk:											
Unit 2 : 1	Alchl/Drgs: 0	Speed: 0 MPH	Dir: E	Veh Mnvr/Ped Actn: 8	Obj Strk:											
65	102133487	13.000	09/08/2007 10:05	ANGLE	$ 4500	0	0	0	0	1	1	1	1	0	3	1
Unit 1 : 1	Alchl/Drgs: 0	Speed: 0 MPH	Dir: S	Veh Mnvr/Ped Actn: 4	Obj Strk:											
Unit 2 : 1	Alchl/Drgs: 0	Speed: 0 MPH	Dir: E	Veh Mnvr/Ped Actn: 12	Obj Strk:											
66	102186941	13.000	11/08/2007 19:04	ANGLE	$ 9000	0	0	0	0	1	4	1	1	0	3	1
Unit 1 : 10	Alchl/Drgs: 0	Speed: 0 MPH	Dir: W	Veh Mnvr/Ped Actn: 4	Obj Strk:											
Unit 2 : 4	Alchl/Drgs: 0	Speed: 40 MPH	Dir: S	Veh Mnvr/Ped Actn: 4	Obj Strk:											
67	102186789	13.000	01/29/2008 00:00	ANGLE	$ 4500	0	0	0	0	1	1	1	1	0	3	1
Unit 1 : 14	Alchl/Drgs: 0	Speed: 0 MPH	Dir: E	Veh Mnvr/Ped Actn: 4	Obj Strk:											
Unit 2 : 1	Alchl/Drgs: 0	Speed: 55 MPH	Dir: N	Veh Mnvr/Ped Actn: 4	Obj Strk:											
68	102256609	13.000	02/05/2008 17:45	ANGLE	$ 3000	0	0	0	0	1	2	1	1	0	3	1
Unit 1 : 4	Alchl/Drgs: 7	Speed: 0 MPH	Dir: W	Veh Mnvr/Ped Actn: 8	Obj Strk:											
Unit 2 : 1	Alchl/Drgs: 0	Speed: 0 MPH	Dir: S	Veh Mnvr/Ped Actn: 4	Obj Strk:											
69	102557506	13.000	08/02/2008 08:20	ANGLE	$ 8100	0	0	0	0	1	1	1	1	0	3	1
Unit 1 : 1	Alchl/Drgs: 0	Speed: 25 MPH	Dir: W	Veh Mnvr/Ped Actn: 4	Obj Strk: 38											
Unit 2 : 1	Alchl/Drgs: 0	Speed: 55 MPH	Dir: S	Veh Mnvr/Ped Actn: 4	Obj Strk:											
70	102412405	13.000	09/12/2008 10:26	ANGLE	$ 5100	0	0	0	0	1	1	2	1	0	3	1
Unit 1 : 5	Alchl/Drgs: 0	Speed: 50 MPH	Dir: S	Veh Mnvr/Ped Actn: 4	Obj Strk:											
Unit 2 : 1	Alchl/Drgs: 0	Speed: 25 MPH	Dir: E	Veh Mnvr/Ped Actn: 12	Obj Strk: 55											
71	102418214	13.000	09/25/2008 22:07	SIDESWIPE, SAME DIRECTION	$ 3500	0	0	0	0	2	6	3	1	0	3	1
Unit 1 : 1	Alchl/Drgs: 0	Speed: 45 MPH	Dir: S	Veh Mnvr/Ped Actn: 4	Obj Strk:											

Acc No	Crash ID	Milepost	Date	Accident Type	Total Damage	Injuries F	A	B	C	Condition R	L	W	Road Ch	Ci	Trfc Ctl Dv	Op
Unit 2 : 32	Alchl/Drgs: 0	Speed: 50 MPH	Dir: S	Veh Mnvr/Ped Actn: 4	Obj Strk:											
72	102432040	13.000	10/04/2008 19:29	ANGLE	$ 6000	0	0	0	3	1	4	1	1	0	3	1
Unit 1 : 4	Alchl/Drgs: 0	Speed: 45 MPH	Dir: N	Veh Mnvr/Ped Actn: 4	Obj Strk:											
Unit 2 : 4	Alchl/Drgs: 0	Speed: 35 MPH	Dir: W	Veh Mnvr/Ped Actn: 4	Obj Strk:											
73	102452859	13.000	10/18/2008 00:37	REAR END, SLOW OR STOP	$ 11000	0	0	0	3	2	4	3	3	0	3	1
Unit 1 : 1	Alchl/Drgs: 0	Speed: 0 MPH	Dir: N	Veh Mnvr/Ped Actn: 1	Obj Strk:											
Unit 2 : 1	Alchl/Drgs: 1	Speed: 55 MPH	Dir: N	Veh Mnvr/Ped Actn: 4	Obj Strk:											
74	102530588	13.000	01/17/2009 19:16	LEFT TURN, DIFFERENT ROADWAYS	$ 4400	0	0	0	1	1	4	1	1	0	3	1
Unit 1 : 1	Alchl/Drgs: 0	Speed: 5 MPH	Dir: N	Veh Mnvr/Ped Actn: 8	Obj Strk:											
Unit 2 : 1	Alchl/Drgs: 0	Speed: 40 MPH	Dir: S	Veh Mnvr/Ped Actn: 16	Obj Strk:											
75	102543991	13.000	02/10/2009 23:05	REAR END, SLOW OR STOP	$ 2100	0	0	0	4	1	4	1	1	0	3	1
Unit 1 : 1	Alchl/Drgs: 0	Speed: 0 MPH	Dir: N	Veh Mnvr/Ped Actn: 1	Obj Strk:											
Unit 2 : 1	Alchl/Drgs: 0	Speed: 55 MPH	Dir: N	Veh Mnvr/Ped Actn: 11	Obj Strk:											
76	102544447	13.000	02/11/2009 04:51	REAR END, SLOW OR STOP	$ 13000	0	0	0	0	1	4	1	1	0	3	1
Unit 1 : 1	Alchl/Drgs: 0	Speed: 4 MPH	Dir: N	Veh Mnvr/Ped Actn: 4	Obj Strk:											
Unit 2 : 12	Alchl/Drgs: 0	Speed: 0 MPH	Dir: N	Veh Mnvr/Ped Actn: 1	Obj Strk:											
77	102582687	13.000	04/25/2009 05:42	ANGLE	$ 14000	0	0	2	2	1	4	1	1	0	3	1
Unit 1 : 1	Alchl/Drgs: 0	Speed: 40 MPH	Dir: E	Veh Mnvr/Ped Actn: 4	Obj Strk:											
Unit 2 : 1	Alchl/Drgs: 0	Speed: 25 MPH	Dir: N	Veh Mnvr/Ped Actn: 11	Obj Strk:											
78	102626684	13.000	06/24/2009 17:46	SIDESWIPE, SAME DIRECTION	$ 5500	0	0	0	1	1	1	1	1	0	3	1
Unit 1 : 4	Alchl/Drgs: 0	Speed: 20 MPH	Dir: N	Veh Mnvr/Ped Actn: 7	Obj Strk:											
Unit 2 : 1	Alchl/Drgs: 0	Speed: 20 MPH	Dir: N	Veh Mnvr/Ped Actn: 8	Obj Strk:											
79	102118980	13.005	08/22/2007 17:01	REAR END, SLOW OR STOP	$ 2200	0	0	0	1	1	1	1	1	0	3	1
Unit 1 : 4	Alchl/Drgs: 0	Speed: 35 MPH	Dir: N	Veh Mnvr/Ped Actn: 4	Obj Strk:											
Unit 2 : 2	Alchl/Drgs: 0	Speed: 0 MPH	Dir: N	Veh Mnvr/Ped Actn: 1	Obj Strk:											
80	102599101	13.009	05/15/2009 15:28	REAR END, SLOW OR STOP	$ 1900	0	0	0	1	2	1	3	1	0	3	1
Unit 1 : 16	Alchl/Drgs: 0	Speed: 30 MPH	Dir: N	Veh Mnvr/Ped Actn: 4	Obj Strk:											
Unit 2 : 1	Alchl/Drgs: 0	Speed: 20 MPH	Dir: N	Veh Mnvr/Ped Actn: 4	Obj Strk:											

Acc No	Crash ID	Milepost	Date	Accident Type	Total Damage	Injuries F	A	B	C	Condition R	L	W	Road Ch	Ci	Trfc Ctl Dv	Op
81	101888620	13.010	11/16/2006 16:56	REAR END, SLOW OR STOP	$ 9000	0	0	0	0	1	2	1	1	0	3	1
Unit 1 : 1	Alchl/Drgs: 0	Speed: 0 MPH	Dir: N	Veh Mnvr/Ped Actn: 5	Obj Strk:											
Unit 2 : 6	Alchl/Drgs: 0	Speed: 0 MPH	Dir: N	Veh Mnvr/Ped Actn: 4	Obj Strk:											
82	102588724	13.010	05/04/2009 13:34	REAR END, SLOW OR STOP	$ 2000	0	0	0	0	1	1	1	1	0	3	1
Unit 1 : 1	Alchl/Drgs: 0	Speed: 55 MPH	Dir: S	Veh Mnvr/Ped Actn: 4	Obj Strk:											
Unit 2 : 1	Alchl/Drgs: 0	Speed: 0 MPH	Dir: S	Veh Mnvr/Ped Actn: 11	Obj Strk:											
83	102530067	13.030	01/17/2009 02:58	REAR END, SLOW OR STOP	$ 4500	0	0	0	0	1	4	1	1	0	3	1
Unit 1 : 1	Alchl/Drgs: 0	Speed: 55 MPH	Dir: S	Veh Mnvr/Ped Actn: 4	Obj Strk:											
Unit 2 : 4	Alchl/Drgs: 0	Speed: 35 MPH	Dir: S	Veh Mnvr/Ped Actn: 11	Obj Strk:											
84	102505276	13.038	12/12/2008 18:41	SIDESWIPE, SAME DIRECTION	$ 2000	0	0	0	0	1	4	1	1	0	0	
Unit 1 : 1	Alchl/Drgs: 0	Speed: 45 MPH	Dir: N	Veh Mnvr/Ped Actn: 5	Obj Strk:											
Unit 2 : 1	Alchl/Drgs: 0	Speed: 55 MPH	Dir: N	Veh Mnvr/Ped Actn: 4	Obj Strk:											
85	102323905	13.047	05/11/2008 10:35	UNKNOWN	$ 7400	0	0	0	0	2	1	2	1	0		
Unit 1 : 2	Alchl/Drgs: 0	Speed: 0 MPH	Dir: N	Veh Mnvr/Ped Actn: 5	Obj Strk:											
Unit 2 : 1	Alchl/Drgs: 0	Speed: 0 MPH	Dir: S	Veh Mnvr/Ped Actn: 5	Obj Strk:											
Unit 3 : 1	Alchl/Drgs: 0	Speed: 0 MPH	Dir: S	Veh Mnvr/Ped Actn: 4	Obj Strk:											
86	101834052	13.051	09/17/2006 11:37	SIDESWIPE, SAME DIRECTION	$ 1700	0	0	0	0	1	1	1	3	0	0	2
Unit 1 : 5	Alchl/Drgs: 0	Speed: 55 MPH	Dir: S	Veh Mnvr/Ped Actn: 4	Obj Strk:											
Unit 2 : 1	Alchl/Drgs: 0	Speed: 55 MPH	Dir: S	Veh Mnvr/Ped Actn: 5	Obj Strk:											
87	102160933	13.057	10/10/2007 15:45	OTHER NON-COLLISION	$ 2000	0	0	0	0	1	1	1	1	0	0	
Unit 1 : 2	Alchl/Drgs: 0	Speed: 35 MPH	Dir: N	Veh Mnvr/Ped Actn: 4	Obj Strk:											
Unit 2 : 5	Alchl/Drgs: 0	Speed: 50 MPH	Dir: N	Veh Mnvr/Ped Actn: 4	Obj Strk:											
Unit 3 : 5	Alchl/Drgs: 7	Speed: 0 MPH	Dir: N	Veh Mnvr/Ped Actn: 5	Obj Strk:											
88	101938699	13.064	01/16/2007 21:08	REAR END, SLOW OR STOP	$ 2200	0	0	0	1	1	4	1	1	0	3	1
Unit 1 : 1	Alchl/Drgs: 0	Speed: 45 MPH	Dir: S	Veh Mnvr/Ped Actn: 11	Obj Strk:											
Unit 2 : 1	Alchl/Drgs: 0	Speed: 45 MPH	Dir: S	Veh Mnvr/Ped Actn: 11	Obj Strk:											
89	102380943	13.070	06/27/2008 18:43	REAR END, SLOW OR STOP	$ 7000	0	0	0	0	1	1	1		0		
Unit 1 : 1	Alchl/Drgs: 0	Speed: 20 MPH	Dir: S	Veh Mnvr/Ped Actn: 4	Obj Strk:											
Unit 2 : 1	Alchl/Drgs: 0	Speed: 20 MPH	Dir: N	Veh Mnvr/Ped Actn: 4	Obj Strk:											
Unit 3 : 1	Alchl/Drgs: 0	Speed: 20 MPH	Dir: S	Veh Mnvr/Ped Actn: 4	Obj Strk:											

Acc No	Crash ID	Milepost	Date	Accident Type	Total Damage	Injuries F	A	B	C	Condition R	L	W	Road Ch	Ci	Trfc Ctl Dv	Op
90	102107525	13.076	08/06/2007 11:26	REAR END, SLOW OR STOP	$ 4000	0	0	0	1	1	1	1	1	0	3	1
Unit 1 : 1	Alchl/Drgs: 0	Speed: 0 MPH	Dir: N	Veh Mnvr/Ped Actn: 4	Obj Strk:											
Unit 2 : 1	Alchl/Drgs: 0	Speed: 0 MPH	Dir: N	Veh Mnvr/Ped Actn: 4	Obj Strk:											
Unit 3 : 5	Alchl/Drgs: 0	Speed: 0 MPH	Dir: N	Veh Mnvr/Ped Actn: 4	Obj Strk:											
91	102098928	13.080	07/20/2007 14:06	SIDESWIPE, SAME DIRECTION	$ 5050	0	0	0	0	1	1	1	1	0	0	
Unit 1 : 1	Alchl/Drgs: 0	Speed: 60 MPH	Dir: N	Veh Mnvr/Ped Actn: 5	Obj Strk:											
Unit 2 : 14	Alchl/Drgs: 0	Speed: 55 MPH	Dir: N	Veh Mnvr/Ped Actn: 4	Obj Strk:											
92	101850887	13.100	10/08/2006 13:30	SIDESWIPE, SAME DIRECTION	$ 3500	0	0	0	0	2	1	2	1	0	12	1
Unit 1 : 1	Alchl/Drgs: 0	Speed: 55 MPH	Dir: S	Veh Mnvr/Ped Actn: 5	Obj Strk:											
Unit 2 : 1	Alchl/Drgs: 0	Speed: 55 MPH	Dir: S	Veh Mnvr/Ped Actn: 4	Obj Strk:											
93	102088244	13.100	07/13/2007 08:09	REAR END, SLOW OR STOP	$ 6000	0	0	0	1	1	1	2	1	0	3	1
Unit 1 : 1	Alchl/Drgs: 0	Speed: 35 MPH	Dir: SW	Veh Mnvr/Ped Actn: 4	Obj Strk:											
Unit 2 : 1	Alchl/Drgs: 0	Speed: 0 MPH	Dir: SW	Veh Mnvr/Ped Actn: 1	Obj Strk:											
Unit 3 : 1	Alchl/Drgs: 0	Speed: 0 MPH	Dir: SW	Veh Mnvr/Ped Actn: 1	Obj Strk:											
Unit 4 : 2	Alchl/Drgs: 0	Speed: 0 MPH	Dir: SW	Veh Mnvr/Ped Actn: 1	Obj Strk:											
94	102457564	13.100	10/25/2008 12:53	REAR END, SLOW OR STOP	$ 1000	0	0	0	0	2	1	2	1	0	3	1
Unit 1 : 1	Alchl/Drgs: 0	Speed: 45 MPH	Dir: S	Veh Mnvr/Ped Actn: 11	Obj Strk:											
Unit 2 : 1	Alchl/Drgs: 0	Speed: 0 MPH	Dir: S	Veh Mnvr/Ped Actn: 1	Obj Strk:											
Unit 3 : 3	Alchl/Drgs: 0	Speed: 0 MPH	Dir: S	Veh Mnvr/Ped Actn: 1	Obj Strk:											
95	102003838	13.103	04/05/2007 12:57	REAR END, SLOW OR STOP	$ 3200	0	0	0	0	1	1	1	1	0	3	1
Unit 1 : 1	Alchl/Drgs: 1	Speed: 35 MPH	Dir: S	Veh Mnvr/Ped Actn: 4	Obj Strk:											
Unit 2 : 1	Alchl/Drgs: 0	Speed: 35 MPH	Dir: S	Veh Mnvr/Ped Actn: 11	Obj Strk:											
96	101994476	13.112	03/27/2007 16:22	REAR END, SLOW OR STOP	$ 13000	0	0	0	0	1	1	1	1	0	3	1
Unit 1 : 2	Alchl/Drgs: 0	Speed: 25 MPH	Dir: S	Veh Mnvr/Ped Actn: 4	Obj Strk:											
Unit 2 : 4	Alchl/Drgs: 0	Speed: 5 MPH	Dir: S	Veh Mnvr/Ped Actn: 11	Obj Strk:											
Unit 3 : 1	Alchl/Drgs: 0	Speed: 5 MPH	Dir: S	Veh Mnvr/Ped Actn: 11	Obj Strk:											
97	102235582	13.112	01/07/2008 14:22	REAR END, SLOW OR STOP	$ 600	0	0	0	2	1	1	1	1	0	3	1
Unit 1 : 1	Alchl/Drgs: 0	Speed: 0 MPH	Dir: S	Veh Mnvr/Ped Actn: 4	Obj Strk:											
Unit 2 : 4	Alchl/Drgs: 0	Speed: 0 MPH	Dir: S	Veh Mnvr/Ped Actn: 11	Obj Strk:											

Acc No	Crash ID	Milepost	Date	Accident Type	Total Damage	Injuries F	Injuries A	Injuries B	Injuries C	Condition R	Condition L	Condition W	Road Ch	Road Ci	Trfc Ctl Dv	Trfc Ctl Op
98	**101894824**	13.138	11/22/2006 17:59	SIDESWIPE, SAME DIRECTION	$ 1500	0	0	0	0	2	4	3	1	0	0	
Unit	**1 :** 4	**Alchl/Drgs:**	0	**Speed:**	30 MPH	**Dir:**	N	**Veh Mnvr/Ped Actn:**		5		**Obj Strk:**				
Unit	**2 :** 1	**Alchl/Drgs:**	0	**Speed:**	20 MPH	**Dir:**	N	**Veh Mnvr/Ped Actn:**		5		**Obj Strk:**				
99	**102338174**	13.145	06/13/2008 08:00	LEFT TURN, SAME ROADWAY	$ 1000	0	0	0	0	1	1	1	1	0	3	1
Unit	**1 :** 20	**Alchl/Drgs:**	0	**Speed:**	10 MPH	**Dir:**	S	**Veh Mnvr/Ped Actn:**		5		**Obj Strk:**				
Unit	**2 :** 1	**Alchl/Drgs:**	7	**Speed:**	15 MPH	**Dir:**	S	**Veh Mnvr/Ped Actn:**		5		**Obj Strk:**				
100	**101886968**	13.150	11/11/2006 15:39	ANGLE	$ 4000	0	0	0	0	1	1	1	1	0	3	1
Unit	**1 :** 1	**Alchl/Drgs:**	0	**Speed:**	25 MPH	**Dir:**	N	**Veh Mnvr/Ped Actn:**		8		**Obj Strk:**				
Unit	**2 :** 4	**Alchl/Drgs:**	0	**Speed:**	25 MPH	**Dir:**	S	**Veh Mnvr/Ped Actn:**		4		**Obj Strk:**				
101	**101931410**	13.150	01/05/2007 17:35	ANGLE	$ 16000	0	0	1	4	2	2	3	1	0	3	1
Unit	**1 :** 1	**Alchl/Drgs:**	0	**Speed:**	45 MPH	**Dir:**	S	**Veh Mnvr/Ped Actn:**		4		**Obj Strk:**				
Unit	**2 :** 5	**Alchl/Drgs:**	0	**Speed:**	15 MPH	**Dir:**	W	**Veh Mnvr/Ped Actn:**		8		**Obj Strk:**			58	
102	**101986467**	13.150	03/16/2007 06:24	LEFT TURN, SAME ROADWAY	$ 6000	0	0	0	0	2	4	2	1	0	3	1
Unit	**1 :** 1	**Alchl/Drgs:**	0	**Speed:**	0 MPH	**Dir:**	S	**Veh Mnvr/Ped Actn:**		4		**Obj Strk:**				
Unit	**2 :** 4	**Alchl/Drgs:**	0	**Speed:**	0 MPH	**Dir:**	W	**Veh Mnvr/Ped Actn:**		8		**Obj Strk:**				
103	**102104120**	13.150	08/02/2007 17:24	REAR END, SLOW OR STOP	$ 7800	0	0	0	1	1	1	1	1	0	3	1
Unit	**1 :** 1	**Alchl/Drgs:**	0	**Speed:**	30 MPH	**Dir:**	N	**Veh Mnvr/Ped Actn:**		4		**Obj Strk:**				
Unit	**2 :** 4	**Alchl/Drgs:**	0	**Speed:**	20 MPH	**Dir:**	N	**Veh Mnvr/Ped Actn:**		11		**Obj Strk:**				
Unit	**3 :** 1	**Alchl/Drgs:**	0	**Speed:**	15 MPH	**Dir:**	N	**Veh Mnvr/Ped Actn:**		11		**Obj Strk:**				
104	**102120836**	13.150	08/17/2007 11:35	OTHER NON-COLLISION	$ 2000	0	0	0	0	1	1	1	1	0	3	1
Unit	**1 :** 10	**Alchl/Drgs:**	0	**Speed:**	0 MPH	**Dir:**	N	**Veh Mnvr/Ped Actn:**		7		**Obj Strk:**				
105	**102132978**	13.150	09/07/2007 16:43	REAR END, SLOW OR STOP	$ 3500	0	0	0	0	1	1	2	1	0	0	
Unit	**1 :** 1	**Alchl/Drgs:**	0	**Speed:**	30 MPH	**Dir:**	S	**Veh Mnvr/Ped Actn:**		4		**Obj Strk:**				
Unit	**2 :** 2	**Alchl/Drgs:**	0	**Speed:**	20 MPH	**Dir:**	S	**Veh Mnvr/Ped Actn:**		11		**Obj Strk:**				
Unit	**3 :** 1	**Alchl/Drgs:**	0	**Speed:**	10 MPH	**Dir:**	S	**Veh Mnvr/Ped Actn:**		11		**Obj Strk:**				
106	**102135377**	13.150	09/10/2007 08:00	ANGLE	$ 1500	0	0	0	0	1	1	1	1	0	3	1
Unit	**1 :** 2	**Alchl/Drgs:**	0	**Speed:**	10 MPH	**Dir:**	NW	**Veh Mnvr/Ped Actn:**		9		**Obj Strk:**				
Unit	**2 :** 5	**Alchl/Drgs:**	0	**Speed:**	10 MPH	**Dir:**	W	**Veh Mnvr/Ped Actn:**		8		**Obj Strk:**				

Acc No	Crash ID	Milepost	Date	Accident Type	Total Damage	Injuries F	Injuries A	Injuries B	Injuries C	Condition R	Condition L	Condition W	Road Ch	Road Ci	Trfc Ctl Dv	Trfc Ctl Op
107	**102142132**	13.150	10/19/2007 09:56	OTHER NON-COLLISION	$ 3500	0	0	0	0	2	1	3	1	0	3	1
Unit	**1 :** 1	**Alchl/Drgs:**	0	**Speed:**	0 MPH	**Dir:**	N	**Veh Mnvr/Ped Actn:**		4		**Obj Strk:**				
Unit	**2 :** 5	**Alchl/Drgs:**	0	**Speed:**	0 MPH	**Dir:**	N	**Veh Mnvr/Ped Actn:**		4		**Obj Strk:**				
Unit	**3 :** 4	**Alchl/Drgs:**	0	**Speed:**	0 MPH	**Dir:**	E	**Veh Mnvr/Ped Actn:**		4		**Obj Strk:**				
108	**102184992**	13.150	11/06/2007 15:54	REAR END, SLOW OR STOP	$ 1500	0	0	0	0	1	1	1	1	0	3	1
Unit	**1 :** 2	**Alchl/Drgs:**	0	**Speed:**	0 MPH	**Dir:**	N	**Veh Mnvr/Ped Actn:**		4		**Obj Strk:**				
Unit	**2 :** 5	**Alchl/Drgs:**	0	**Speed:**	0 MPH	**Dir:**	N	**Veh Mnvr/Ped Actn:**		11		**Obj Strk:**				
109	**102200879**	13.150	11/25/2007 14:53	REAR END, SLOW OR STOP	$ 6000	0	0	0	0	1	1	2	1	0	3	1
Unit	**1 :** 1	**Alchl/Drgs:**	0	**Speed:**	20 MPH	**Dir:**	S	**Veh Mnvr/Ped Actn:**		7		**Obj Strk:**				
Unit	**2 :** 4	**Alchl/Drgs:**	0	**Speed:**	0 MPH	**Dir:**	S	**Veh Mnvr/Ped Actn:**		7		**Obj Strk:**				
110	**102291353**	13.150	03/26/2008 17:12	ANGLE	$ 4000	0	0	0	0	1	1	1	1	0	3	1
Unit	**1 :** 4	**Alchl/Drgs:**	0	**Speed:**	0 MPH	**Dir:**	W	**Veh Mnvr/Ped Actn:**		4		**Obj Strk:**				
Unit	**2 :** 1	**Alchl/Drgs:**	0	**Speed:**	0 MPH	**Dir:**	S	**Veh Mnvr/Ped Actn:**		4		**Obj Strk:**				
111	**102299085**	13.150	04/05/2008 13:28	REAR END, SLOW OR STOP	$ 3500	0	0	0	1	2	1	3	1	0		1
Unit	**1 :** 1	**Alchl/Drgs:**	0	**Speed:**	50 MPH	**Dir:**	S	**Veh Mnvr/Ped Actn:**		4		**Obj Strk:**				
Unit	**2 :** 5	**Alchl/Drgs:**	0	**Speed:**	40 MPH	**Dir:**	S	**Veh Mnvr/Ped Actn:**		4		**Obj Strk:**				
112	**102378798**	13.150	07/26/2008 18:00	REAR END, SLOW OR STOP	$ 1000	0	0	0	1	1	1	1	1	0	3	1
Unit	**1 :** 1	**Alchl/Drgs:**	7	**Speed:**	30 MPH	**Dir:**	S	**Veh Mnvr/Ped Actn:**		11		**Obj Strk:**				
Unit	**2 :** 1	**Alchl/Drgs:**	0	**Speed:**	0 MPH	**Dir:**	S	**Veh Mnvr/Ped Actn:**		1		**Obj Strk:**				
113	**102400702**	13.150	08/29/2008 07:11	REAR END, SLOW OR STOP	$ 2000	0	0	0	1	1	1	1	1	0	3	1
Unit	**1 :** 1	**Alchl/Drgs:**	0	**Speed:**	0 MPH	**Dir:**	S	**Veh Mnvr/Ped Actn:**		11		**Obj Strk:**				
Unit	**2 :** 2	**Alchl/Drgs:**	0	**Speed:**	55 MPH	**Dir:**	S	**Veh Mnvr/Ped Actn:**		4		**Obj Strk:**				
114	**102471342**	13.150	10/23/2008 07:44	REAR END, SLOW OR STOP	$ 2500	0	0	0	0	1	1	1	1	0	0	
Unit	**1 :** 32	**Alchl/Drgs:**	7	**Speed:**	0 MPH	**Dir:**	S	**Veh Mnvr/Ped Actn:**		16		**Obj Strk:**				
Unit	**2 :** 1	**Alchl/Drgs:**	0	**Speed:**	0 MPH	**Dir:**	S	**Veh Mnvr/Ped Actn:**		1		**Obj Strk:**				
Unit	**3 :** 1	**Alchl/Drgs:**	0	**Speed:**	0 MPH	**Dir:**	S	**Veh Mnvr/Ped Actn:**		1		**Obj Strk:**				
Unit	**4 :** 2	**Alchl/Drgs:**	0	**Speed:**	0 MPH	**Dir:**	S	**Veh Mnvr/Ped Actn:**		1		**Obj Strk:**				
115	**102505239**	13.150	12/10/2008 11:28	LEFT TURN, SAME ROADWAY	$ 5500	0	0	0	0	2	1	2	1	0	3	1
Unit	**1 :** 5	**Alchl/Drgs:**	0	**Speed:**	55 MPH	**Dir:**	S	**Veh Mnvr/Ped Actn:**		4		**Obj Strk:**				
Unit	**2 :** 1	**Alchl/Drgs:**	0	**Speed:**	0 MPH	**Dir:**	N	**Veh Mnvr/Ped Actn:**		8		**Obj Strk:**				

Acc No	Crash ID	Milepost	Date	Accident Type	Total Damage	Injuries F	Injuries A	Injuries B	Injuries C	Condition R	Condition L	Condition W	Road Ch	Road Ci	Trfc Ctl Dv	Trfc Ctl Op
Unit	**3 :** 2	**Alchl/Drgs:**	0	**Speed:**	0 MPH	**Dir:**	N	**Veh Mnvr/Ped Actn:**		8		**Obj Strk:**				
116	**102516097**	13.150	12/31/2008 15:15	REAR END, SLOW OR STOP	$ 7000	0	0	0	0	1	1	1	3	0	3	1
Unit	**1 :** 1	**Alchl/Drgs:**	0	**Speed:**	50 MPH	**Dir:**	S	**Veh Mnvr/Ped Actn:**		4		**Obj Strk:**				
Unit	**2 :** 1	**Alchl/Drgs:**	0	**Speed:**	0 MPH	**Dir:**	S	**Veh Mnvr/Ped Actn:**		4		**Obj Strk:**				
117	**102539314**	13.150	01/29/2009 10:35	REAR END, SLOW OR STOP	$ 2300	0	0	0	0	1	1	1	1	0	3	1
Unit	**1 :** 1	**Alchl/Drgs:**	0	**Speed:**	0 MPH	**Dir:**	S	**Veh Mnvr/Ped Actn:**		1		**Obj Strk:**				
Unit	**2 :** 1	**Alchl/Drgs:**	0	**Speed:**	40 MPH	**Dir:**	S	**Veh Mnvr/Ped Actn:**		11		**Obj Strk:**				
118	**102540078**	13.150	01/29/2009 11:19	ANGLE	$ 11000	0	0	0	0	1	1	1	1	0	3	1
Unit	**1 :** 1	**Alchl/Drgs:**	0	**Speed:**	0 MPH	**Dir:**	N	**Veh Mnvr/Ped Actn:**		4		**Obj Strk:**				
Unit	**2 :** 4	**Alchl/Drgs:**	0	**Speed:**	0 MPH	**Dir:**	S	**Veh Mnvr/Ped Actn:**		8		**Obj Strk:**				
Unit	**3 :** 1	**Alchl/Drgs:**	0	**Speed:**	0 MPH	**Dir:**	S	**Veh Mnvr/Ped Actn:**		8		**Obj Strk:**				
119	**102551949**	13.150	03/11/2009 16:50	ANGLE	$ 7500	0	0	0	0	1	1	1	1	0	3	1
Unit	**1 :** 1	**Alchl/Drgs:**	0	**Speed:**	0 MPH	**Dir:**	S	**Veh Mnvr/Ped Actn:**		4		**Obj Strk:**				
Unit	**2 :** 4	**Alchl/Drgs:**	0	**Speed:**	0 MPH	**Dir:**	W	**Veh Mnvr/Ped Actn:**		4		**Obj Strk:**				
120	**102559708**	13.150	03/24/2009 16:01	LEFT TURN, SAME ROADWAY	$ 2200	0	0	0	0	1	1	1	1	0	3	1
Unit	**1 :** 5	**Alchl/Drgs:**	0	**Speed:**	20 MPH	**Dir:**	N	**Veh Mnvr/Ped Actn:**		9		**Obj Strk:**				
Unit	**2 :** 1	**Alchl/Drgs:**	0	**Speed:**	20 MPH	**Dir:**	N	**Veh Mnvr/Ped Actn:**		8		**Obj Strk:**				
121	**101973798**	13.151	03/01/2007 16:12	ANGLE	$ 2000	0	0	0	0	2	1	2	1	0	3	1
Unit	**1 :** 1	**Alchl/Drgs:**	0	**Speed:**	20 MPH	**Dir:**	S	**Veh Mnvr/Ped Actn:**		4		**Obj Strk:**				
Unit	**2 :** 1	**Alchl/Drgs:**	0	**Speed:**	20 MPH	**Dir:**	S	**Veh Mnvr/Ped Actn:**		5		**Obj Strk:**				
122	**101897569**	13.152	11/26/2006 17:18	REAR END, SLOW OR STOP	$ 3000	0	0	0	0	1	5	1	1	0	3	1
Unit	**1 :** 1	**Alchl/Drgs:**	0	**Speed:**	55 MPH	**Dir:**	S	**Veh Mnvr/Ped Actn:**		4		**Obj Strk:**				
Unit	**2 :** 1	**Alchl/Drgs:**	0	**Speed:**	0 MPH	**Dir:**	S	**Veh Mnvr/Ped Actn:**		1		**Obj Strk:**				
123	**101854487**	13.160	10/11/2006 18:26	REAR END, SLOW OR STOP	$ 1000	0	0	0	0	1	2	2	1	0	3	1
Unit	**1 :** 1	**Alchl/Drgs:**	0	**Speed:**	10 MPH	**Dir:**	N	**Veh Mnvr/Ped Actn:**		11		**Obj Strk:**				
Unit	**2 :** 4	**Alchl/Drgs:**	0	**Speed:**	10 MPH	**Dir:**	N	**Veh Mnvr/Ped Actn:**		4		**Obj Strk:**				
124	**102473119**	13.160	11/06/2008 18:11	REAR END, SLOW OR STOP	$ 4300	0	0	0	1	1	4	1	1	0	3	1
Unit	**1 :** 1	**Alchl/Drgs:**	0	**Speed:**	35 MPH	**Dir:**	S	**Veh Mnvr/Ped Actn:**		4		**Obj Strk:**				
Unit	**2 :** 1	**Alchl/Drgs:**	0	**Speed:**	0 MPH	**Dir:**	S	**Veh Mnvr/Ped Actn:**		1		**Obj Strk:**				

Acc No	Crash ID	Milepost	Date	Accident Type	Total Damage	Injuries F	Injuries A	Injuries B	Injuries C	Condition R	Condition L	Condition W	Road Ch	Road Ci	Trfc Ctl Dv	Trfc Ctl Op
Unit	**3 :** 1	**Alchl/Drgs:**	0	**Speed:**	0 MPH	**Dir:**	S	**Veh Mnvr/Ped Actn:**		1		**Obj Strk:**				
125	**101858833**	13.188	10/17/2006 17:41	REAR END, SLOW OR STOP	$ 1400	0	0	0	0	2	1	3	1	0	0	2
Unit	**1 :** 1	**Alchl/Drgs:**	0	**Speed:**	0 MPH	**Dir:**	S	**Veh Mnvr/Ped Actn:**		4		**Obj Strk:**				
Unit	**2 :** 1	**Alchl/Drgs:**	0	**Speed:**	0 MPH	**Dir:**	S	**Veh Mnvr/Ped Actn:**		12		**Obj Strk:**				
Unit	**3 :** 1	**Alchl/Drgs:**	0	**Speed:**	0 MPH	**Dir:**	S	**Veh Mnvr/Ped Actn:**		4		**Obj Strk:**				
126	**102473092**	13.210	11/05/2008 17:09	REAR END, SLOW OR STOP	$ 3000	0	0	0	0	1	1	1	1	0	0	
Unit	**1 :** 2	**Alchl/Drgs:**	0	**Speed:**	45 MPH	**Dir:**	S	**Veh Mnvr/Ped Actn:**		4		**Obj Strk:**				
Unit	**2 :** 1	**Alchl/Drgs:**	0	**Speed:**	0 MPH	**Dir:**	S	**Veh Mnvr/Ped Actn:**		1		**Obj Strk:**				
127	**102378714**	13.250	07/17/2008 13:16	SIDESWIPE, SAME DIRECTION	$ 2200	0	0	0	0	1	1	1	1	0		
Unit	**1 :** 10	**Alchl/Drgs:**	0	**Speed:**	45 MPH	**Dir:**	N	**Veh Mnvr/Ped Actn:**		5		**Obj Strk:**				
Unit	**2 :** 5	**Alchl/Drgs:**	0	**Speed:**	45 MPH	**Dir:**	N	**Veh Mnvr/Ped Actn:**		4		**Obj Strk:**				
128	**102562711**	13.260	08/22/2008 08:20	REAR END, SLOW OR STOP	$ 1400	0	0	0	0	1	1	2	1	0		
Unit	**1 :** 1	**Alchl/Drgs:**	0	**Speed:**	20 MPH	**Dir:**	S	**Veh Mnvr/Ped Actn:**		4		**Obj Strk:**				
Unit	**2 :** 1	**Alchl/Drgs:**	0	**Speed:**	3 MPH	**Dir:**	S	**Veh Mnvr/Ped Actn:**		11		**Obj Strk:**				
129	**102515979**	13.271	12/17/2008 17:12	REAR END, SLOW OR STOP	$ 4300	0	0	0	0	1	2	2	1	0	3	1
Unit	**1 :** 2	**Alchl/Drgs:**	0	**Speed:**	0 MPH	**Dir:**	S	**Veh Mnvr/Ped Actn:**		4		**Obj Strk:**				
Unit	**2 :** 1	**Alchl/Drgs:**	0	**Speed:**	0 MPH	**Dir:**	S	**Veh Mnvr/Ped Actn:**		1		**Obj Strk:**				
130	**102499911**	13.300	11/14/2008 00:11	REAR END, SLOW OR STOP	$ 4000	0	0	0	0	2	4	2	1	0	0	
Unit	**1 :** 1	**Alchl/Drgs:**	0	**Speed:**	45 MPH	**Dir:**	N	**Veh Mnvr/Ped Actn:**		4		**Obj Strk:**				
Unit	**2 :** 1	**Alchl/Drgs:**	0	**Speed:**	0 MPH	**Dir:**	N	**Veh Mnvr/Ped Actn:**		1		**Obj Strk:**				
131	**102539170**	13.302	02/04/2009 19:38	REAR END, SLOW OR STOP	$ 6000	0	0	1	0	1	5	1	1	0	0	2
Unit	**1 :** 14	**Alchl/Drgs:**	0	**Speed:**	50 MPH	**Dir:**	S	**Veh Mnvr/Ped Actn:**		4		**Obj Strk:**				
Unit	**2 :** 1	**Alchl/Drgs:**	1	**Speed:**	55 MPH	**Dir:**	S	**Veh Mnvr/Ped Actn:**		4		**Obj Strk:**				
132	**102172047**	13.360	10/24/2007 07:51	REAR END, SLOW OR STOP	$ 13700	0	0	0	1	2	1	2	1	0	3	1
Unit	**1 :** 4	**Alchl/Drgs:**	0	**Speed:**	0 MPH	**Dir:**	S	**Veh Mnvr/Ped Actn:**		4		**Obj Strk:**				
Unit	**2 :** 1	**Alchl/Drgs:**	0	**Speed:**	0 MPH	**Dir:**	S	**Veh Mnvr/Ped Actn:**		4		**Obj Strk:**				
Unit	**3 :** 4	**Alchl/Drgs:**	0	**Speed:**	0 MPH	**Dir:**	S	**Veh Mnvr/Ped Actn:**		16		**Obj Strk:**				
Unit	**4 :** 1	**Alchl/Drgs:**	0	**Speed:**	55 MPH	**Dir:**	S	**Veh Mnvr/Ped Actn:**		16		**Obj Strk:**				

Acc No	Crash ID	Milepost	Date	Accident Type	Total Damage	Injuries F	A	B	C	Condition R	L	W	Road Ch	Ci	Trfc Ctl Dv	Op
133	102322239	13.360	05/09/2008 08:05	REAR END, SLOW OR STOP	$ 6300	0	0	0	1	1	1	2	1	7	3	2
Unit 1 : 4	Alchl/Drgs: 0	Speed: 45 MPH	Dir: S	Veh Mnvr/Ped Actn: 4	Obj Strk:											
Unit 2 : 1	Alchl/Drgs: 0	Speed: 20 MPH	Dir: S	Veh Mnvr/Ped Actn: 11	Obj Strk:											
Unit 3 : 1	Alchl/Drgs: 0	Speed: 0 MPH	Dir: S	Veh Mnvr/Ped Actn: 11	Obj Strk:											
134	102064615	13.365	06/12/2007 17:19	REAR END, SLOW OR STOP	$ 1000	0	0	0	0	1	1	1	1	0	0	
Unit 1 : 1	Alchl/Drgs: 0	Speed: 30 MPH	Dir: S	Veh Mnvr/Ped Actn: 11	Obj Strk:											
Unit 2 : 4	Alchl/Drgs: 0	Speed: 0 MPH	Dir: S	Veh Mnvr/Ped Actn: 1	Obj Strk:											
135	102104125	13.400	08/02/2007 08:08	REAR END, SLOW OR STOP	$ 5700	0	0	0	0	1	1	1	1	0	3	1
Unit 1 : 1	Alchl/Drgs: 0	Speed: 50 MPH	Dir: S	Veh Mnvr/Ped Actn: 4	Obj Strk:											
Unit 2 : 1	Alchl/Drgs: 0	Speed: 0 MPH	Dir: S	Veh Mnvr/Ped Actn: 1	Obj Strk:											
Unit 3 : 1	Alchl/Drgs: 0	Speed: 0 MPH	Dir: S	Veh Mnvr/Ped Actn: 1	Obj Strk:											
136	102386820	13.400	08/13/2008 15:38	REAR END, SLOW OR STOP	$ 1900	0	0	0	0	2	1	3	1	0	3	1
Unit 1 : 2	Alchl/Drgs: 0	Speed: 0 MPH	Dir: S	Veh Mnvr/Ped Actn: 11	Obj Strk:											
Unit 2 : 1	Alchl/Drgs: 0	Speed: 0 MPH	Dir: S	Veh Mnvr/Ped Actn: 1	Obj Strk:											
Unit 3 : 1	Alchl/Drgs: 0	Speed: 0 MPH	Dir: S	Veh Mnvr/Ped Actn: 1	Obj Strk:											
137	102088852	13.422	07/03/2007 12:48	SIDESWIPE, SAME DIRECTION	$ 3300	0	0	0	0	1	1	2	1	0	0	
Unit 1 : 1	Alchl/Drgs: 0	Speed: 0 MPH	Dir: S	Veh Mnvr/Ped Actn: 1	Obj Strk:											
Unit 2 : 16	Alchl/Drgs: 0	Speed: 5 MPH	Dir: S	Veh Mnvr/Ped Actn: 5	Obj Strk:											
138	102172083	13.432	10/24/2007 07:07	REAR END, SLOW OR STOP	$ 1500	0	0	0	0	2	1	2	1	0		
Unit 1 : 1	Alchl/Drgs: 0	Speed: 40 MPH	Dir: S	Veh Mnvr/Ped Actn: 1	Obj Strk:											
Unit 2 : 1	Alchl/Drgs: 0	Speed: 50 MPH	Dir: S	Veh Mnvr/Ped Actn: 11	Obj Strk:											
139	102378773	13.440	07/09/2008 22:17	SIDESWIPE, SAME DIRECTION	$ 2600	0	0	0	0	1	4	1	1	0	3	1
Unit 1 : 1	Alchl/Drgs: 1	Speed: 45 MPH	Dir: S	Veh Mnvr/Ped Actn: 4	Obj Strk:											
Unit 2 : 12	Alchl/Drgs: 0	Speed: 0 MPH	Dir: S	Veh Mnvr/Ped Actn: 11	Obj Strk:											
140	102041924	13.449	05/17/2007 20:42	REAR END, SLOW OR STOP	$ 9800	0	0	0	0	1	1	2	1	0	3	1
Unit 1 : 1	Alchl/Drgs: 0	Speed: 25 MPH	Dir: S	Veh Mnvr/Ped Actn: 11	Obj Strk:											
Unit 2 : 1	Alchl/Drgs: 0	Speed: 45 MPH	Dir: S	Veh Mnvr/Ped Actn: 5	Obj Strk:											
Unit 3 : 1	Alchl/Drgs: 0	Speed: 0 MPH	Dir: S	Veh Mnvr/Ped Actn: 1	Obj Strk:											
Unit 4 : 1	Alchl/Drgs: 0	Speed: 0 MPH	Dir: S	Veh Mnvr/Ped Actn: 1	Obj Strk:											
Unit 5 : 4	Alchl/Drgs: 0	Speed: 0 MPH	Dir: S	Veh Mnvr/Ped Actn: 1	Obj Strk:											

Acc No	Crash ID	Milepost	Date	Accident Type	Total Damage	Injuries F	A	B	C	Condition R	L	W	Road Ch	Ci	Trfc Ctl Dv	Op
141	101846686	13.451	10/03/2006 08:50	REAR END, TURN	$ 4000	0	0	0	1	1	1	1	1	0	3	1
Unit 1 : 3	Alchl/Drgs: 0	Speed: 45 MPH	Dir: N	Veh Mnvr/Ped Actn: 15	Obj Strk:											
Unit 2 : 1	Alchl/Drgs: 0	Speed: 45 MPH	Dir: N	Veh Mnvr/Ped Actn: 4	Obj Strk:											
142	101799126	13.460	08/03/2006 21:45	REAR END, SLOW OR STOP	$ 7000	0	0	1	0	1	5	1	1	0	3	1
Unit 1 : 4	Alchl/Drgs: 0	Speed: 55 MPH	Dir: N	Veh Mnvr/Ped Actn: 4	Obj Strk:											
Unit 2 : 1	Alchl/Drgs: 0	Speed: 0 MPH	Dir: N	Veh Mnvr/Ped Actn: 1	Obj Strk:											
143	101913683	13.460	12/15/2006 11:54	REAR END, SLOW OR STOP	$ 2600	0	0	0	0	1	1	1	1	0	3	1
Unit 1 : 10	Alchl/Drgs: 0	Speed: 40 MPH	Dir: S	Veh Mnvr/Ped Actn: 11	Obj Strk:											
Unit 2 : 10	Alchl/Drgs: 0	Speed: 50 MPH	Dir: S	Veh Mnvr/Ped Actn: 4	Obj Strk:											
144	101936859	13.460	01/11/2007 17:48	ANGLE	$ 6000	0	0	0	0	1	4	1	1	0	3	1
Unit 1 : 1	Alchl/Drgs: 0	Speed: 50 MPH	Dir: N	Veh Mnvr/Ped Actn: 4	Obj Strk:											
Unit 2 : 1	Alchl/Drgs: 0	Speed: 0 MPH	Dir: N	Veh Mnvr/Ped Actn: 5	Obj Strk:											
145	101953498	13.460	02/05/2007 17:02	REAR END, SLOW OR STOP	$ 900	0	0	0	0	1	1	1	1	0	3	1
Unit 1 : 1	Alchl/Drgs: 0	Speed: 10 MPH	Dir: N	Veh Mnvr/Ped Actn: 12	Obj Strk:											
Unit 2 : 1	Alchl/Drgs: 0	Speed: 0 MPH	Dir: N	Veh Mnvr/Ped Actn: 1	Obj Strk:											
146	102094194	13.460	07/20/2007 11:46	ANGLE	$ 6500	0	0	0	0	2	1	3	1	0	3	1
Unit 1 : 1	Alchl/Drgs: 0	Speed: 55 MPH	Dir: N	Veh Mnvr/Ped Actn: 8	Obj Strk:											
Unit 2 : 1	Alchl/Drgs: 0	Speed: 55 MPH	Dir: N	Veh Mnvr/Ped Actn: 4	Obj Strk:											
147	102122810	13.460	08/26/2007 19:05	ANGLE	$ 13000	0	0	0	4	1	1	1	1	0	3	1
Unit 1 : 4	Alchl/Drgs: 0	Speed: 0 MPH	Dir: S	Veh Mnvr/Ped Actn: 4	Obj Strk:											
Unit 2 : 4	Alchl/Drgs: 0	Speed: 0 MPH	Dir: W	Veh Mnvr/Ped Actn: 8	Obj Strk:											
148	102179888	13.460	10/31/2007 06:45	REAR END, TURN	$ 11000	0	0	0	0	1	4	1	1	0	3	1
Unit 1 : 4	Alchl/Drgs: 0	Speed: 55 MPH	Dir: N	Veh Mnvr/Ped Actn: 5	Obj Strk:											
Unit 2 : 1	Alchl/Drgs: 0	Speed: 50 MPH	Dir: N	Veh Mnvr/Ped Actn: 4	Obj Strk:											
Unit 3 : 1	Alchl/Drgs: 0	Speed: 50 MPH	Dir: N	Veh Mnvr/Ped Actn: 4	Obj Strk:											
Unit 4 : 1	Alchl/Drgs: 0	Speed: 50 MPH	Dir: N	Veh Mnvr/Ped Actn: 4	Obj Strk:											
149	102202181	13.460	11/26/2007 17:50	ANGLE	$ 8000	0	0	0	1	2	5	3	1	0	3	1
Unit 1 : 1	Alchl/Drgs: 0	Speed: 50 MPH	Dir: S	Veh Mnvr/Ped Actn: 4	Obj Strk: 48											
Unit 2 : 1	Alchl/Drgs: 0	Speed: 5 MPH	Dir: S	Veh Mnvr/Ped Actn: 7	Obj Strk: 18											

Acc No	Crash ID	Milepost	Date	Accident Type	Total Damage	Injuries F	A	B	C	Condition R	L	W	Road Ch	Ci	Trfc Ctl Dv	Op
150	102137158	13.460	11/30/2007 21:00	ANGLE	$ 6000	0	0	0	0	1	5	1	1	0	12	1
Unit 1 : 14	Alchl/Drgs: 0	Speed: 0 MPH	Dir: S	Veh Mnvr/Ped Actn: 4	Obj Strk:											
Unit 2 : 1	Alchl/Drgs: 0	Speed: 0 MPH	Dir: S	Veh Mnvr/Ped Actn: 7	Obj Strk:											
151	102499384	13.460	12/02/2008 20:35	ANGLE	$ 3000	0	0	0	3	1	1	1	1	0	3	1
Unit 1 : 1	Alchl/Drgs: 0	Speed: 55 MPH	Dir: S	Veh Mnvr/Ped Actn: 4	Obj Strk:											
Unit 2 : 1	Alchl/Drgs: 0	Speed: 20 MPH	Dir: N	Veh Mnvr/Ped Actn: 8	Obj Strk:											
152	102173442	13.462	10/25/2007 18:07	REAR END, SLOW OR STOP	$ 3000	0	0	0	0	2	1	3	1	0	3	1
Unit 1 : 1	Alchl/Drgs: 0	Speed: 45 MPH	Dir: S	Veh Mnvr/Ped Actn: 4	Obj Strk:											
Unit 2 : 1	Alchl/Drgs: 0	Speed: 0 MPH	Dir: S	Veh Mnvr/Ped Actn: 1	Obj Strk:											
153	102585838	13.462	04/29/2009 12:35	REAR END, SLOW OR STOP	$ 2200	0	0	0	0	1	1	2	1	0	3	1
Unit 1 : 1	Alchl/Drgs: 0	Speed: 0 MPH	Dir: S	Veh Mnvr/Ped Actn: 4	Obj Strk:											
Unit 2 : 4	Alchl/Drgs: 0	Speed: 0 MPH	Dir: S	Veh Mnvr/Ped Actn: 1	Obj Strk:											
154	101938692	13.469	01/16/2007 16:48	REAR END, SLOW OR STOP	$ 5000	0	0	0	0	1	2	1	1	0	3	1
Unit 1 : 1	Alchl/Drgs: 0	Speed: 0 MPH	Dir: S	Veh Mnvr/Ped Actn: 11	Obj Strk:											
Unit 2 : 1	Alchl/Drgs: 0	Speed: 0 MPH	Dir: S	Veh Mnvr/Ped Actn: 4	Obj Strk:											
155	102505265	13.469	12/12/2008 17:37	REAR END, SLOW OR STOP	$ 12000	0	0	0	0	1	5	1	1	0	3	1
Unit 1 : 1	Alchl/Drgs: 0	Speed: 0 MPH	Dir: S	Veh Mnvr/Ped Actn: 1	Obj Strk:											
Unit 2 : 4	Alchl/Drgs: 0	Speed: 45 MPH	Dir: S	Veh Mnvr/Ped Actn: 5	Obj Strk:											
156	102322827	13.470	05/10/2008 10:41	RAN OFF ROAD - RIGHT	$ 10350	0	0	0	1	1	5	2	1	0	0	
Unit 1 : 1	Alchl/Drgs: 0	Speed: 55 MPH	Dir: N	Veh Mnvr/Ped Actn: 4	Obj Strk: 59											
157	102566633	13.470	04/01/2009 15:32	SIDESWIPE, SAME DIRECTION	$ 2700	0	0	0	0	2	1	2	1	0	3	1
Unit 1 : 1	Alchl/Drgs: 0	Speed: 45 MPH	Dir: S	Veh Mnvr/Ped Actn: 7	Obj Strk:											
Unit 2 : 5	Alchl/Drgs: 0	Speed: 45 MPH	Dir: S	Veh Mnvr/Ped Actn: 4	Obj Strk:											
158	102281647	13.480	03/12/2008 18:02	REAR END, SLOW OR STOP	$ 3500	0	0	0	0	1	1	1	1	0	3	1
Unit 1 : 4	Alchl/Drgs: 0	Speed: 0 MPH	Dir: E	Veh Mnvr/Ped Actn: 4	Obj Strk:											
Unit 2 : 1	Alchl/Drgs: 0	Speed: 0 MPH	Dir: E	Veh Mnvr/Ped Actn: 1	Obj Strk:											
159	101940039	13.500	01/18/2007 07:24	ANGLE	$ 3700	0	0	0	1	5	1	2	5	0	0	
Unit 1 : 14	Alchl/Drgs: 0	Speed: 30 MPH	Dir: S	Veh Mnvr/Ped Actn: 4	Obj Strk:											

Acc No	Crash ID	Milepost	Date	Accident Type	Total Damage	Injuries F	A	B	C	Condition R	L	W	Road Ch	Ci	Trfc Ctl Dv	Op
Unit 2 : 2	Alchl/Drgs: 0	Speed: 25 MPH	Dir: S	Veh Mnvr/Ped Actn: 5	Obj Strk:											
160	102544819	13.517	02/25/2009 07:55	RAN OFF ROAD - LEFT	$ 12000	0	0	0	2	1	1	1	1	0		
Unit 1 : 1	Alchl/Drgs: 0	Speed: 55 MPH	Dir: N	Veh Mnvr/Ped Actn: 4	Obj Strk: 48											
161	101905379	13.540	12/05/2006 10:25	REAR END, SLOW OR STOP	$ 16000	0	0	1	0	1	1	1	1	0	3	1
Unit 1 : 11	Alchl/Drgs: 0	Speed: 55 MPH	Dir: S	Veh Mnvr/Ped Actn: 4	Obj Strk: 42											
Unit 2 : 14	Alchl/Drgs: 0	Speed: 0 MPH	Dir: S	Veh Mnvr/Ped Actn: 1	Obj Strk:											
162	102114483	13.540	08/15/2007 14:49	RAN OFF ROAD - LEFT	$ 3000	0	0	0	1	1	1	1	1	0		
Unit 1 : 1	Alchl/Drgs: 0	Speed: 55 MPH	Dir: S	Veh Mnvr/Ped Actn: 4	Obj Strk: 44											
163	102379855	13.540	06/29/2008 04:48	FIXED OBJECT	$ 8000	0	0	0	1	1	4	1	1	0	0	
Unit 1 : 1	Alchl/Drgs: 0	Speed: 50 MPH	Dir: S	Veh Mnvr/Ped Actn: 16	Obj Strk: 44											
164	102545536	13.560	02/18/2009 07:43	REAR END, SLOW OR STOP	$ 6200	0	0	0	1	2	1	2	1	0		
Unit 1 : 5	Alchl/Drgs: 0	Speed: 10 MPH	Dir: S	Veh Mnvr/Ped Actn: 4	Obj Strk:											
Unit 2 : 1	Alchl/Drgs: 0	Speed: 25 MPH	Dir: S	Veh Mnvr/Ped Actn: 4	Obj Strk:											
165	101986458	13.612	03/16/2007 07:36	REAR END, SLOW OR STOP	$ 9000	0	0	0	1	2	5	2	1	0	3	1
Unit 1 : 4	Alchl/Drgs: 0	Speed: 0 MPH	Dir: S	Veh Mnvr/Ped Actn: 11	Obj Strk:											
Unit 2 : 1	Alchl/Drgs: 0	Speed: 0 MPH	Dir: S	Veh Mnvr/Ped Actn: 11	Obj Strk:											
Unit 3 : 1	Alchl/Drgs: 0	Speed: 0 MPH	Dir: S	Veh Mnvr/Ped Actn: 11	Obj Strk:											
166	102136681	14.020	09/12/2007 07:40	REAR END, SLOW OR STOP	$ 9500	0	0	0	0	1	1	2	3	0	0	
Unit 1 : 2	Alchl/Drgs: 0	Speed: 0 MPH	Dir: S	Veh Mnvr/Ped Actn: 1	Obj Strk:											
Unit 2 : 1	Alchl/Drgs: 0	Speed: 0 MPH	Dir: S	Veh Mnvr/Ped Actn: 1	Obj Strk:											
Unit 3 : 10	Alchl/Drgs: 0	Speed: 50 MPH	Dir: S	Veh Mnvr/Ped Actn: 4	Obj Strk:											
Unit 4 : 1	Alchl/Drgs: 0	Speed: 0 MPH	Dir: S	Veh Mnvr/Ped Actn: 4	Obj Strk:											
167	102152969	14.030	09/30/2007 22:32	ANIMAL	$ 3000	0	0	0	0	1	5	1	1	0	0	
Unit 1 : 1	Alchl/Drgs: 0	Speed: 55 MPH	Dir: N	Veh Mnvr/Ped Actn: 4	Obj Strk: 17											
168	101906176	14.040	12/06/2006 14:30	LEFT TURN, SAME ROADWAY	$ 3500	0	0	0	0	1	1	1	1	0	3	1
Unit 1 : 2	Alchl/Drgs: 0	Speed: 10 MPH	Dir: E	Veh Mnvr/Ped Actn: 8	Obj Strk:											
Unit 2 : 5	Alchl/Drgs: 0	Speed: 45 MPH	Dir: W	Veh Mnvr/Ped Actn: 4	Obj Strk:											

Acc No	Crash ID	Milepost	Date	Accident Type	Total Damage	Injuries F	A	B	C	Condition R	L	W	Road Ch	Ci	Trfc Ctl Dv	Op
169	102055914	14.040	06/02/2007 23:02	ANGLE	$ 4000	0	0	0	0	1	5	2	1	0	1	1
Unit 1 : 1	Alchl/Drgs: 0	Speed: 10 MPH	Dir: E	Veh Mnvr/Ped Actn: 4	Obj Strk:											
Unit 2 : 1	Alchl/Drgs: 0	Speed: 45 MPH	Dir: S	Veh Mnvr/Ped Actn: 4	Obj Strk:											
170	102245156	14.040	01/21/2008 06:56	RIGHT TURN, DIFFERENT ROADWAYS	$ 1800	0	0	0	0	1	1	1	1	0	3	1
Unit 1 : 4	Alchl/Drgs: 0	Speed: 15 MPH	Dir: S	Veh Mnvr/Ped Actn: 4	Obj Strk:											
Unit 2 : 1	Alchl/Drgs: 0	Speed: 45 MPH	Dir: W	Veh Mnvr/Ped Actn: 4	Obj Strk:											
171	102261925	14.059	02/13/2008 22:44	RAN OFF ROAD - LEFT	$ 3700	0	0	0	0	2	5	4	1	0	0	
Unit 1 : 4	Alchl/Drgs: 0	Speed: 0 MPH	Dir: N	Veh Mnvr/Ped Actn: 4	Obj Strk: 48											
172	102305039	14.290	04/14/2008 19:50	RAN OFF ROAD - RIGHT	$ 3500	0	0	0	0	2	5	3	1	0	0	
Unit 1 : 1	Alchl/Drgs: 0	Speed: 55 MPH	Dir: S	Veh Mnvr/Ped Actn: 4	Obj Strk: 18											
Unit 2 : 32	Alchl/Drgs: 7	Speed: 0 MPH	Dir: S	Veh Mnvr/Ped Actn: 5	Obj Strk: 18											
173	102184348	14.550	11/05/2007 11:00	RAN OFF ROAD - LEFT	$ 5500	0	0	0	0	1	1	1	1	0		
Unit 1 : 1	Alchl/Drgs: 0	Speed: 55 MPH	Dir: N	Veh Mnvr/Ped Actn: 4	Obj Strk:											
174	102055607	14.600	06/01/2007 23:46	ANIMAL	$ 2000	0	0	0	0	1	5	1	1	0	0	
Unit 1 : 1	Alchl/Drgs: 0	Speed: 55 MPH	Dir: S	Veh Mnvr/Ped Actn: 4	Obj Strk: 17											
175	102622459	14.700	06/16/2009 07:21	RAN OFF ROAD - RIGHT	$ 1000	0	0	0	0	2	1	3	1	0	0	
Unit 1 : 1	Alchl/Drgs: 0	Speed: 40 MPH	Dir: S	Veh Mnvr/Ped Actn: 4	Obj Strk:											
176	101794437	14.738	07/28/2006 17:45	RAN OFF ROAD - LEFT	$ 500	0	0	0	0	1	1	1	3	0	0	
Unit 1 : 1	Alchl/Drgs: 0	Speed: 55 MPH	Dir: S	Veh Mnvr/Ped Actn: 4	Obj Strk:											
177	101994471	14.790	03/27/2007 08:14	ANIMAL	$ 5000	0	0	1	0	1	1	2	1	0		1
Unit 1 : 1	Alchl/Drgs: 0	Speed: 55 MPH	Dir: S	Veh Mnvr/Ped Actn: 4	Obj Strk: 17											
178	102228010	14.790	12/28/2007 18:40	OTHER NON-COLLISION	$ 1200	0	0	0	0	2	3	3	1	0	2	1
Unit 1 : 32	Alchl/Drgs: 7	Speed: 55 MPH	Dir: S	Veh Mnvr/Ped Actn: 5	Obj Strk:											
Unit 2 : 1	Alchl/Drgs: 0	Speed: 55 MPH	Dir: S	Veh Mnvr/Ped Actn: 4	Obj Strk:											
Unit 3 : 2	Alchl/Drgs: 0	Speed: 55 MPH	Dir: S	Veh Mnvr/Ped Actn: 4	Obj Strk:											
179	102549752	14.800	03/01/2009 19:42	RAN OFF ROAD - LEFT	$ 6050	0	0	0	0	4	5	4	3	1	0	
Unit 1 : 1	Alchl/Drgs: 0	Speed: 25 MPH	Dir: N	Veh Mnvr/Ped Actn: 4	Obj Strk: 48											

Acc No	Crash ID	Milepost	Date	Accident Type	Total Damage	Injuries F	A	B	C	Condition R	L	W	Road Ch	Ci	Trfc Ctl Dv	Op
180	102579030	14.892	04/20/2009 06:24	RAN OFF ROAD - RIGHT	$ 10000	0	0	0	0	2	5	3	1	0	0	
Unit 1 : 14	Alchl/Drgs: 0	Speed: 55 MPH	Dir: N	Veh Mnvr/Ped Actn: 4	Obj Strk: 33											
181	102202159	15.000	11/26/2007 17:17	REAR END, SLOW OR STOP	$ 2500	0	0	0	0	2	5	3	1	0		
Unit 1 : 3	Alchl/Drgs: 0	Speed: 0 MPH	Dir: N	Veh Mnvr/Ped Actn: 4	Obj Strk:											
Unit 2 : 1	Alchl/Drgs: 0	Speed: 0 MPH	Dir: N	Veh Mnvr/Ped Actn: 1	Obj Strk:											
182	101927934	15.042	01/02/2007 06:08	ANIMAL	$ 1200	0	0	0	0	1	5	1	1	0		
Unit 1 : 1	Alchl/Drgs: 0	Speed: 0 MPH	Dir: N	Veh Mnvr/Ped Actn: 4	Obj Strk: 17											
183	101939649	15.079	01/18/2007 09:57	RAN OFF ROAD - LEFT	$ 3100	0	0	0	0	6	1	4	1	0		
Unit 1 : 1	Alchl/Drgs: 0	Speed: 0 MPH	Dir: N	Veh Mnvr/Ped Actn: 5	Obj Strk:											
184	102031706	15.090	05/05/2007 22:04	OTHER NON-COLLISION	$ 8000	0	0	1	0	2	5	3	1	0	0	
Unit 1 : 1	Alchl/Drgs: 0	Speed: 70 MPH	Dir: N	Veh Mnvr/Ped Actn: 4	Obj Strk: 44											
185	102566635	15.090	04/01/2009 17:31	REAR END, SLOW OR STOP	$ 1000	0	0	0	0	2	1	2	3	0	3	1
Unit 1 : 4	Alchl/Drgs: 0	Speed: 20 MPH	Dir: N	Veh Mnvr/Ped Actn: 4	Obj Strk:											
Unit 2 : 1	Alchl/Drgs: 0	Speed: 0 MPH	Dir: N	Veh Mnvr/Ped Actn: 1	Obj Strk:											
186	102329704	15.140	05/21/2008 19:45	ANIMAL	$ 5000	0	0	0	0	1	1	1	1	0		
Unit 1 : 9	Alchl/Drgs: 0	Speed: 55 MPH	Dir: N	Veh Mnvr/Ped Actn: 4	Obj Strk: 17											
187	102098690	15.200	07/26/2007 16:13	RAN OFF ROAD - LEFT	$ 1000	0	0	0	0	2	1	3	1	0		
Unit 1 : 1	Alchl/Drgs: 0	Speed: 0 MPH	Dir: N	Veh Mnvr/Ped Actn: 4	Obj Strk: 44											
188	102566895	15.590	04/02/2009 00:16	ANIMAL	$ 1500	0	0	0	0	2	5	5	2	0		
Unit 1 : 1	Alchl/Drgs: 0	Speed: 55 MPH	Dir: S	Veh Mnvr/Ped Actn: 4	Obj Strk: 17											
189	102305048	15.840	04/14/2008 16:23	REAR END, SLOW OR STOP	$ 2500	0	0	0	0	2	1	2	3	0		2
Unit 1 : 5	Alchl/Drgs: 0	Speed: 45 MPH	Dir: N	Veh Mnvr/Ped Actn: 4	Obj Strk:											
Unit 2 : 4	Alchl/Drgs: 0	Speed: 25 MPH	Dir: S	Veh Mnvr/Ped Actn: 11	Obj Strk:											
190	102326574	15.990	05/16/2008 10:51	SIDESWIPE, SAME DIRECTION	$ 14500	0	0	0	0	1	1	2	1	0	0	
Unit 1 : 1	Alchl/Drgs: 0	Speed: 60 MPH	Dir: S	Veh Mnvr/Ped Actn: 5	Obj Strk: 44											
Unit 2 : 5	Alchl/Drgs: 0	Speed: 55 MPH	Dir: S	Veh Mnvr/Ped Actn: 4	Obj Strk: 44											

Acc No	Crash ID	Milepost	Date	Accident Type	Total Damage	Injuries F	A	B	C	Condition R	L	W	Road Ch	Ci	Trfc Ctl Dv	Op
191	102571916	16.040	04/14/2009 00:20	RAN OFF ROAD - RIGHT	$ 1500	0	0	0	0	2	5	3	3	0	0	
Unit 1 : 5	Alchl/Drgs: 0	Speed: 70 MPH	Dir: N	Veh Mnvr/Ped Actn: 4	Obj Strk: 37											
192	102072681	16.052	06/24/2007 01:47	ANIMAL	$ 1800	0	0	0	0	1	5	1	1	0	0	
Unit 1 : 4	Alchl/Drgs: 0	Speed: 40 MPH	Dir: S	Veh Mnvr/Ped Actn: 4	Obj Strk: 17											
193	102008267	16.070	04/10/2007 05:49	REAR END, SLOW OR STOP	$ 18700	0	0	0	3	1	3	1	1	0	3	1
Unit 1 : 1	Alchl/Drgs: 0	Speed: 55 MPH	Dir: S	Veh Mnvr/Ped Actn: 4	Obj Strk:											
Unit 2 : 2	Alchl/Drgs: 0	Speed: 0 MPH	Dir: S	Veh Mnvr/Ped Actn: 11	Obj Strk:											
Unit 3 : 2	Alchl/Drgs: 0	Speed: 0 MPH	Dir: S	Veh Mnvr/Ped Actn: 11	Obj Strk:											
Unit 4 : 1	Alchl/Drgs: 0	Speed: 0 MPH	Dir: S	Veh Mnvr/Ped Actn: 11	Obj Strk:											
194	101799780	16.090	08/02/2006 14:14	RIGHT TURN, DIFFERENT ROADWAYS	$ 6500	0	0	0	0	1	1	1	1	0	3	1
Unit 1 : 12	Alchl/Drgs: 0	Speed: 55 MPH	Dir: S	Veh Mnvr/Ped Actn: 4	Obj Strk:											
Unit 2 : 3	Alchl/Drgs: 0	Speed: 10 MPH	Dir: E	Veh Mnvr/Ped Actn: 7	Obj Strk:											
195	101803847	16.090	09/06/2006 14:28	SIDESWIPE, SAME DIRECTION	$ 2300	0	0	0	0	1	1	2	1	0	3	1
Unit 1 : 11	Alchl/Drgs: 0	Speed: 0 MPH	Dir: E	Veh Mnvr/Ped Actn: 7	Obj Strk:											
Unit 2 : 1	Alchl/Drgs: 0	Speed: 0 MPH	Dir: E	Veh Mnvr/Ped Actn: 4	Obj Strk:											
196	101882278	16.090	11/06/2006 06:57	REAR END, SLOW OR STOP	$ 7100	0	0	0	1	1	3	1	1	0	3	1
Unit 1 : 2	Alchl/Drgs: 0	Speed: 45 MPH	Dir: N	Veh Mnvr/Ped Actn: 4	Obj Strk:											
Unit 2 : 1	Alchl/Drgs: 0	Speed: 0 MPH	Dir: N	Veh Mnvr/Ped Actn: 1	Obj Strk:											
Unit 3 : 2	Alchl/Drgs: 0	Speed: 0 MPH	Dir: N	Veh Mnvr/Ped Actn: 1	Obj Strk:											
197	101935093	16.090	01/09/2007 06:26	ANGLE	$ 5000	0	0	0	0	1	5	1	1	0	3	1
Unit 1 : 5	Alchl/Drgs: 0	Speed: 0 MPH	Dir: E	Veh Mnvr/Ped Actn: 8	Obj Strk:											
Unit 2 : 1	Alchl/Drgs: 0	Speed: 0 MPH	Dir: N	Veh Mnvr/Ped Actn: 4	Obj Strk:											
198	102090375	16.090	07/15/2007 20:31	ANGLE	$ 11000	0	0	1	1	1	2	1	1	0	3	1
Unit 1 : 2	Alchl/Drgs: 0	Speed: 0 MPH	Dir: S	Veh Mnvr/Ped Actn: 4	Obj Strk:											
Unit 2 : 4	Alchl/Drgs: 0	Speed: 0 MPH	Dir: W	Veh Mnvr/Ped Actn: 8	Obj Strk:											
199	102101532	16.090	07/29/2007 22:38	ANGLE	$ 2100	0	0	0	0	1	4	1	1	0	3	1
Unit 1 : 5	Alchl/Drgs: 0	Speed: 25 MPH	Dir: N	Veh Mnvr/Ped Actn: 8	Obj Strk:											
Unit 2 : 2	Alchl/Drgs: 0	Speed: 45 MPH	Dir: S	Veh Mnvr/Ped Actn: 4	Obj Strk:											

Acc No	Crash ID	Milepost	Date	Accident Type	Total Damage	Injuries F	A	B	C	Condition R	L	W	Road Ch	Ci	Trfc Ctl Dv	Op
200	102187826	16.090	11/09/2007 09:11	ANGLE	$ 10000	0	1	0	2	1	1	1	1	0	3	1
Unit 1 : 1	Alchl/Drgs: 0	Speed: 35 MPH	Dir: E	Veh Mnvr/Ped Actn: 4	Obj Strk: 33											
Unit 2 : 5	Alchl/Drgs: 0	Speed: 55 MPH	Dir: N	Veh Mnvr/Ped Actn: 4	Obj Strk:											
201	102279822	16.090	03/09/2008 14:08	REAR END, SLOW OR STOP	$ 11000	0	0	0	0	1	1	1	1	0	3	1
Unit 1 : 1	Alchl/Drgs: 0	Speed: 55 MPH	Dir: N	Veh Mnvr/Ped Actn: 4	Obj Strk:											
Unit 2 : 1	Alchl/Drgs: 0	Speed: 55 MPH	Dir: N	Veh Mnvr/Ped Actn: 11	Obj Strk:											
202	102468360	16.090	11/03/2008 18:21	REAR END, SLOW OR STOP	$ 1500	0	0	0	0	1	5	1	1	0	3	1
Unit 1 : 1	Alchl/Drgs: 0	Speed: 30 MPH	Dir: N	Veh Mnvr/Ped Actn: 4	Obj Strk:											
Unit 2 : 1	Alchl/Drgs: 0	Speed: 10 MPH	Dir: N	Veh Mnvr/Ped Actn: 11	Obj Strk:											
203	102511173	16.090	12/05/2008 06:42	RIGHT TURN, SAME ROADWAY	$ 2000	0	0	0	0	1	2	1	1	0	3	1
Unit 1 : 14	Alchl/Drgs: 0	Speed: 45 MPH	Dir: W	Veh Mnvr/Ped Actn: 7	Obj Strk:											
Unit 2 : 1	Alchl/Drgs: 0	Speed: 45 MPH	Dir: W	Veh Mnvr/Ped Actn: 8	Obj Strk:											
204	102505238	16.090	12/10/2008 04:00	ANGLE	$ 1400	0	0	0	0	2	4	2	1	0	3	1
Unit 1 : 1	Alchl/Drgs: 0	Speed: 0 MPH	Dir: E	Veh Mnvr/Ped Actn: 4	Obj Strk:											
Unit 2 : 32	Alchl/Drgs: 7	Speed: 0 MPH	Dir: N	Veh Mnvr/Ped Actn: 7	Obj Strk:											
205	102515967	16.090	12/29/2008 18:13	REAR END, SLOW OR STOP	$ 1500	0	0	0	0	1	4	1	1	0	3	1
Unit 1 : 1	Alchl/Drgs: 1	Speed: 55 MPH	Dir: S	Veh Mnvr/Ped Actn: 4	Obj Strk:											
Unit 2 : 4	Alchl/Drgs: 0	Speed: 55 MPH	Dir: S	Veh Mnvr/Ped Actn: 1	Obj Strk:											
206	102530048	16.090	01/12/2009 12:09	ANGLE	$ 3000	0	0	0	0	1	1	1	1	0	3	1
Unit 1 : 2	Alchl/Drgs: 0	Speed: 10 MPH	Dir: N	Veh Mnvr/Ped Actn: 4	Obj Strk:											
Unit 2 : 5	Alchl/Drgs: 0	Speed: 25 MPH	Dir: E	Veh Mnvr/Ped Actn: 4	Obj Strk:											
207	102543704	16.090	01/28/2009 17:17	ANGLE	$ 7000	0	0	0	0	2	4	3	1	0	3	1
Unit 1 : 1	Alchl/Drgs: 0	Speed: 25 MPH	Dir: N	Veh Mnvr/Ped Actn: 4	Obj Strk:											
Unit 2 : 1	Alchl/Drgs: 0	Speed: 35 MPH	Dir: E	Veh Mnvr/Ped Actn: 4	Obj Strk:											
Unit 3 : 1	Alchl/Drgs: 0	Speed: 0 MPH	Dir: N	Veh Mnvr/Ped Actn: 1	Obj Strk:											
208	102286732	16.092	03/19/2008 13:55	REAR END, SLOW OR STOP	$ 4500	0	0	0	0	1	1	2	1	0	3	1
Unit 1 : 1	Alchl/Drgs: 0	Speed: 0 MPH	Dir: N	Veh Mnvr/Ped Actn: 4	Obj Strk:											
Unit 2 : 1	Alchl/Drgs: 0	Speed: 0 MPH	Dir: N	Veh Mnvr/Ped Actn: 1	Obj Strk:											

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209	102274643	16.092	04/18/2008 16:58	SIDESWIPE, SAME DIRECTION	$ 1800	0	0	0	0	1	1	1	1	0		
Unit 1 : 12	Alchl/Drgs: 0	Speed: 45 MPH	Dir: N	Veh Mnvr/Ped Actn: 4	Obj Strk:											
Unit 2 : 1	Alchl/Drgs: 0	Speed: 0 MPH	Dir: N	Veh Mnvr/Ped Actn: 6	Obj Strk:											
210	102435720	16.094	10/03/2008 13:01	SIDESWIPE, SAME DIRECTION	$ 4500	0	0	0	0	1	1	1	1	0	3	1
Unit 1 : 12	Alchl/Drgs: 0	Speed: 20 MPH	Dir: N	Veh Mnvr/Ped Actn: 4	Obj Strk:											
Unit 2 : 1	Alchl/Drgs: 0	Speed: 20 MPH	Dir: N	Veh Mnvr/Ped Actn: 4	Obj Strk:											
211	102432054	16.098	10/05/2008 14:02	REAR END, SLOW OR STOP	$ 6500	0	0	0	2	1	1	1	1	0	3	1
Unit 1 : 1	Alchl/Drgs: 0	Speed: 45 MPH	Dir: S	Veh Mnvr/Ped Actn: 4	Obj Strk:											
Unit 2 : 1	Alchl/Drgs: 0	Speed: 0 MPH	Dir: S	Veh Mnvr/Ped Actn: 1	Obj Strk:											
212	101827129	16.290	09/08/2006 16:20	REAR END, SLOW OR STOP	$ 1050	0	0	0	0	1	1	1	1	0		
Unit 1 : 1	Alchl/Drgs: 0	Speed: 10 MPH	Dir: N	Veh Mnvr/Ped Actn: 4	Obj Strk:											
Unit 2 : 1	Alchl/Drgs: 0	Speed: 0 MPH	Dir: N	Veh Mnvr/Ped Actn: 1	Obj Strk:											
213	101990343	16.290	03/22/2007 18:20	SIDESWIPE, SAME DIRECTION	$ 1200	0	0	0	0	1	1	1	3	0	0	
Unit 1 : 1	Alchl/Drgs: 0	Speed: 45 MPH	Dir: N	Veh Mnvr/Ped Actn: 4	Obj Strk:											
Unit 2 : 1	Alchl/Drgs: 0	Speed: 45 MPH	Dir: N	Veh Mnvr/Ped Actn: 4	Obj Strk:											
214	102360922	16.290	08/01/2008 16:41	SIDESWIPE, SAME DIRECTION	$ 1500	0	0	0	0	1	1	1	1	0	13	1
Unit 1 : 4	Alchl/Drgs: 0	Speed: 45 MPH	Dir: N	Veh Mnvr/Ped Actn: 6	Obj Strk:											
Unit 2 : 1	Alchl/Drgs: 0	Speed: 40 MPH	Dir: N	Veh Mnvr/Ped Actn: 4	Obj Strk:											
215	102505496	16.290	12/28/2008 18:14	REAR END, SLOW OR STOP	$ 8000	0	0	0	0	2	5	3	3	0	13	1
Unit 1 : 1	Alchl/Drgs: 0	Speed: 45 MPH	Dir: N	Veh Mnvr/Ped Actn: 4	Obj Strk:											
Unit 2 : 1	Alchl/Drgs: 0	Speed: 40 MPH	Dir: N	Veh Mnvr/Ped Actn: 1	Obj Strk:											
216	102317732	16.353	05/03/2008 03:25	FIXED OBJECT	$ 5150	0	0	0	0	1	5	1	1	0	13	1
Unit 1 : 1	Alchl/Drgs: 1	Speed: 55 MPH	Dir: N	Veh Mnvr/Ped Actn: 4	Obj Strk: 38											
217	101820588	16.390	08/31/2006 14:30	SIDESWIPE, SAME DIRECTION	$ 1700	0	0	0	0	2	1	3	1	0	14	1
Unit 1 : 1	Alchl/Drgs: 0	Speed: 55 MPH	Dir: N	Veh Mnvr/Ped Actn: 4	Obj Strk:											
Unit 2 : 32	Alchl/Drgs: 7	Speed: 55 MPH	Dir: N	Veh Mnvr/Ped Actn: 5	Obj Strk:											
218	102068289	16.390	09/09/2007 02:09	SIDESWIPE, OPPOSITE DIRECTION	$ 15000	0	0	0	0	1	5	1	1	0	0	
Unit 1 : 14	Alchl/Drgs: 0	Speed: 55 MPH	Dir: S	Veh Mnvr/Ped Actn: 4	Obj Strk:											

Acc No	Crash ID	Milepost	Date	Accident Type	Total Damage	Injuries F	A	B	C	Condition R	L	W	Road Ch	Ci	Trfc Ctl Dv	Op
Unit 2 : 4	Alchl/Drgs: 1	Speed: 55 MPH	Dir: N	Veh Mnvr/Ped Actn: 4	Obj Strk: 59											
219	101778993	16.400	07/06/2006 07:55	REAR END, TURN	$ 3100	0	0	0	0	2	1	2	1	0	3	2
Unit 1 : 1	Alchl/Drgs: 0	Speed: 15 MPH	Dir: W	Veh Mnvr/Ped Actn: 4	Obj Strk:											
Unit 2 : 4	Alchl/Drgs: 0	Speed: 15 MPH	Dir: W	Veh Mnvr/Ped Actn: 11	Obj Strk:											
220	102026250	16.400	04/30/2007 16:35	LEFT TURN, SAME ROADWAY	$ 8000	0	0	0	0	3	1	1	1	0	3	1
Unit 1 : 2	Alchl/Drgs: 0	Speed: 15 MPH	Dir: S	Veh Mnvr/Ped Actn: 8	Obj Strk:											
Unit 2 : 4	Alchl/Drgs: 0	Speed: 35 MPH	Dir: N	Veh Mnvr/Ped Actn: 4	Obj Strk:											
221	102246361	16.400	01/22/2008 06:02	ANGLE	$ 16000	0	0	2	0	1	5	2	1	0	3	1
Unit 1 : 1	Alchl/Drgs: 0	Speed: 58 MPH	Dir: N	Veh Mnvr/Ped Actn: 4	Obj Strk:											
Unit 2 : 4	Alchl/Drgs: 0	Speed: 20 MPH	Dir: W	Veh Mnvr/Ped Actn: 4	Obj Strk:											
222	102467529	16.400	12/10/2008 00:49	FIXED OBJECT	$ 8600	0	0	0	0	2	5	2	1	0	3	1
Unit 1 : 1	Alchl/Drgs: 1	Speed: 75 MPH	Dir: N	Veh Mnvr/Ped Actn: 4	Obj Strk: 34											
223	102241398	16.402	01/16/2008 05:45	REAR END, SLOW OR STOP	$ 3000	0	0	0	1	1	5	1	1	0	3	1
Unit 1 : 1	Alchl/Drgs: 0	Speed: 4 MPH	Dir: S	Veh Mnvr/Ped Actn: 4	Obj Strk:											
Unit 2 : 2	Alchl/Drgs: 0	Speed: 5 MPH	Dir: S	Veh Mnvr/Ped Actn: 4	Obj Strk:											
224	102617895	16.445	06/05/2009 20:54	OTHER COLLISION WITH VEHICLE	$ 8000	0	0	0	5	1	5	1	1	0	13	1
Unit 1 : 1	Alchl/Drgs: 0	Speed: 50 MPH	Dir: S	Veh Mnvr/Ped Actn: 9	Obj Strk:											
Unit 2 : 1	Alchl/Drgs: 0	Speed: 50 MPH	Dir: N	Veh Mnvr/Ped Actn: 4	Obj Strk:											
225	101988294	16.450	03/19/2007 16:25	LEFT TURN, DIFFERENT ROADWAYS	$ 4700	0	0	0	0	1	1	1	1	0	13	1
Unit 1 : 4	Alchl/Drgs: 0	Speed: 5 MPH	Dir: W	Veh Mnvr/Ped Actn: 12	Obj Strk:											
Unit 2 : 2	Alchl/Drgs: 0	Speed: 50 MPH	Dir: N	Veh Mnvr/Ped Actn: 4	Obj Strk:											
226	101899935	16.462	11/29/2006 18:05	REAR END, SLOW OR STOP	$ 7000	0	0	0	0	1	5	1	1	0	13	1
Unit 1 : 2	Alchl/Drgs: 0	Speed: 55 MPH	Dir: S	Veh Mnvr/Ped Actn: 4	Obj Strk:											
Unit 2 : 4	Alchl/Drgs: 0	Speed: 55 MPH	Dir: N	Veh Mnvr/Ped Actn: 1	Obj Strk:											
227	102098691	16.500	07/26/2007 07:50	REAR END, SLOW OR STOP	$ 1900	0	0	0	0	1	1	1	1	0	13	1
Unit 1 : 12	Alchl/Drgs: 0	Speed: 40 MPH	Dir: S	Veh Mnvr/Ped Actn: 4	Obj Strk:											
Unit 2 : 1	Alchl/Drgs: 0	Speed: 0 MPH	Dir: S	Veh Mnvr/Ped Actn: 1	Obj Strk:											
Unit 3 : 4	Alchl/Drgs: 0	Speed: 0 MPH	Dir: S	Veh Mnvr/Ped Actn: 1	Obj Strk:											

Acc No	Crash ID	Milepost	Date	Accident Type	Total Damage	Injuries F	A	B	C	Condition R	L	W	Road Ch	Ci	Trfc Ctl Dv	Op
228	102107142	16.500	08/06/2007 11:00	REAR END, SLOW OR STOP	$ 2300	0	0	0	0	1	1	1	1	0	13	1
Unit 1 : 4	Alchl/Drgs: 0	Speed: 0 MPH	Dir: S	Veh Mnvr/Ped Actn: 1	Obj Strk:											
Unit 2 : 4	Alchl/Drgs: 0	Speed: 10 MPH	Dir: S	Veh Mnvr/Ped Actn: 4	Obj Strk:											
229	102166495	16.500	10/18/2007 20:35	LEFT TURN, DIFFERENT ROADWAYS	$ 3000	0	0	0	0	1	5	1	1	0	13	1
Unit 1 : 1	Alchl/Drgs: 0	Speed: 10 MPH	Dir: W	Veh Mnvr/Ped Actn: 8	Obj Strk:											
Unit 2 : 4	Alchl/Drgs: 0	Speed: 50 MPH	Dir: N	Veh Mnvr/Ped Actn: 4	Obj Strk:											
230	102437969	16.500	11/07/2008 23:50	ANIMAL	$ 2000	0	0	0	0	1	5	1	1	0	13	1
Unit 1 : 1	Alchl/Drgs: 0	Speed: 45 MPH	Dir: N	Veh Mnvr/Ped Actn: 4	Obj Strk: 17											
231	102485641	16.500	11/20/2008 06:41	REAR END, SLOW OR STOP	$ 4200	0	0	0	1	1	1	1	1	0	0	
Unit 1 : 4	Alchl/Drgs: 0	Speed: 50 MPH	Dir: S	Veh Mnvr/Ped Actn: 4	Obj Strk:											
Unit 2 : 4	Alchl/Drgs: 0	Speed: 50 MPH	Dir: S	Veh Mnvr/Ped Actn: 11	Obj Strk:											
232	102306137	16.530	04/16/2008 08:20	REAR END, SLOW OR STOP	$ 1800	0	0	0	0	1	1	1	1	0	13	1
Unit 1 : 5	Alchl/Drgs: 0	Speed: 50 MPH	Dir: S	Veh Mnvr/Ped Actn: 4	Obj Strk:											
Unit 2 : 2	Alchl/Drgs: 0	Speed: 50 MPH	Dir: S	Veh Mnvr/Ped Actn: 1	Obj Strk:											
233	102005724	16.600	04/08/2007 05:15	SIDESWIPE, OPPOSITE DIRECTION	$ 7500	0	0	0	0	1	5	1	1	0	0	
Unit 1 : 1	Alchl/Drgs: 0	Speed: 50 MPH	Dir: S	Veh Mnvr/Ped Actn: 4	Obj Strk:											
Unit 2 : 4	Alchl/Drgs: 7	Speed: 50 MPH	Dir: N	Veh Mnvr/Ped Actn: 4	Obj Strk:											
234	102384856	16.600	09/03/2008 07:55	REAR END, SLOW OR STOP	$ 4200	0	0	0	0	1	1	1	1	0	13	1
Unit 1 : 1	Alchl/Drgs: 0	Speed: 30 MPH	Dir: S	Veh Mnvr/Ped Actn: 4	Obj Strk:											
Unit 2 : 1	Alchl/Drgs: 0	Speed: 30 MPH	Dir: S	Veh Mnvr/Ped Actn: 1	Obj Strk:											
235	102448886	16.600	11/03/2008 08:19	REAR END, SLOW OR STOP	$ 5000	0	0	0	0	1	1	2	1	0	0	
Unit 1 : 1	Alchl/Drgs: 0	Speed: 40 MPH	Dir: S	Veh Mnvr/Ped Actn: 4	Obj Strk:											
Unit 2 : 2	Alchl/Drgs: 0	Speed: 25 MPH	Dir: S	Veh Mnvr/Ped Actn: 1	Obj Strk:											
236	102539631	16.600	03/11/2009 08:40	REAR END, SLOW OR STOP	$ 400	0	0	0	0	1	1	2	1	0	13	1
Unit 1 : 1	Alchl/Drgs: 0	Speed: 40 MPH	Dir: S	Veh Mnvr/Ped Actn: 4	Obj Strk:											
Unit 2 : 1	Alchl/Drgs: 0	Speed: 40 MPH	Dir: S	Veh Mnvr/Ped Actn: 11	Obj Strk:											
237	101922803	16.700	12/28/2006 19:41	LEFT TURN, SAME ROADWAY	$ 8000	0	0	0	1	1	5	1	1	0	0	
Unit 1 : 2	Alchl/Drgs: 0	Speed: 50 MPH	Dir: S	Veh Mnvr/Ped Actn: 4	Obj Strk:											

Acc No	Crash ID	Milepost	Date	Accident Type	Total Damage	Injuries F	A	B	C	Condition R	L	W	Road Ch	Ci	Trfc Ctl Dv	Op
Unit 2 : 1	Alchl/Drgs: 0	Speed: 50 MPH	Dir: S	Veh Mnvr/Ped Actn: 8	Obj Strk:											
238	101977044	16.800	03/05/2007 15:50	REAR END, SLOW OR STOP	$ 6000	0	0	0	0	1	1	1	1	0	13	1
Unit 1 : 1	Alchl/Drgs: 0	Speed: 0 MPH	Dir: N	Veh Mnvr/Ped Actn: 1	Obj Strk:											
Unit 2 : 2	Alchl/Drgs: 0	Speed: 50 MPH	Dir: N	Veh Mnvr/Ped Actn: 4	Obj Strk:											
239	102159173	16.850	01/07/2008 08:25	REAR END, SLOW OR STOP	$ 500	0	0	0	1	1	1	1	1	0	0	
Unit 1 : 14	Alchl/Drgs: 0	Speed: 8 MPH	Dir: S	Veh Mnvr/Ped Actn: 4	Obj Strk:											
Unit 2 : 1	Alchl/Drgs: 0	Speed: 0 MPH	Dir: S	Veh Mnvr/Ped Actn: 1	Obj Strk:											
240	102143991	16.900	09/19/2007 02:40	ANIMAL	$ 3000	0	0	0	0	1	5	1	1	0		
Unit 1 : 1	Alchl/Drgs: 0	Speed: 0 MPH	Dir: N	Veh Mnvr/Ped Actn: 13	Obj Strk: 17											
241	102572780	16.950	04/09/2009 09:36	FIXED OBJECT	$ 44000	0	0	0	0	1	1	1	1	0	0	
Unit 1 : 2	Alchl/Drgs: 0	Speed: 50 MPH	Dir: S	Veh Mnvr/Ped Actn: 4	Obj Strk: 59											
242	102424254	17.000	10/18/2008 00:29	ANIMAL	$ 9500	0	0	0	0	2	5	2	1	0	0	
Unit 1 : 4	Alchl/Drgs: 0	Speed: 0 MPH	Dir: N	Veh Mnvr/Ped Actn: 4	Obj Strk: 17											
243	101873426	17.050	10/31/2006 18:00	REAR END, SLOW OR STOP	$ 7300	0	0	0	0	1	5	1	1	0	13	1
Unit 1 : 1	Alchl/Drgs: 0	Speed: 50 MPH	Dir: N	Veh Mnvr/Ped Actn: 4	Obj Strk:											
Unit 2 : 2	Alchl/Drgs: 0	Speed: 45 MPH	Dir: N	Veh Mnvr/Ped Actn: 1	Obj Strk:											
Unit 3 : 5	Alchl/Drgs: 0	Speed: 45 MPH	Dir: N	Veh Mnvr/Ped Actn: 1	Obj Strk:											
Unit 4 : 1	Alchl/Drgs: 0	Speed: 50 MPH	Dir: N	Veh Mnvr/Ped Actn: 1	Obj Strk:											
244	101940191	17.050	01/18/2007 08:03	REAR END, SLOW OR STOP	$ 1250	0	0	0	1	6	1	2	1	0	13	1
Unit 1 : 2	Alchl/Drgs: 0	Speed: 35 MPH	Dir: N	Veh Mnvr/Ped Actn: 4	Obj Strk:											
Unit 2 : 1	Alchl/Drgs: 0	Speed: 25 MPH	Dir: N	Veh Mnvr/Ped Actn: 11	Obj Strk:											
245	102052014	17.050	05/29/2007 07:50	REAR END, SLOW OR STOP	$ 4000	0	0	0	0	1	1	1	1	0	0	
Unit 1 : 1	Alchl/Drgs: 0	Speed: 40 MPH	Dir: S	Veh Mnvr/Ped Actn: 4	Obj Strk:											
Unit 2 : 1	Alchl/Drgs: 0	Speed: 0 MPH	Dir: S	Veh Mnvr/Ped Actn: 1	Obj Strk:											
246	102161389	17.050	10/11/2007 09:08	REAR END, SLOW OR STOP	$ 4800	0	0	0	1	1	1	1	1	0	13	1
Unit 1 : 5	Alchl/Drgs: 0	Speed: 50 MPH	Dir: N	Veh Mnvr/Ped Actn: 11	Obj Strk:											
Unit 2 : 1	Alchl/Drgs: 0	Speed: 50 MPH	Dir: N	Veh Mnvr/Ped Actn: 4	Obj Strk:											

Acc No	Crash ID	Milepost	Date	Accident Type	Total Damage	Injuries F	Injuries A	Injuries B	Injuries C	Condition R	Condition L	Condition W	Road Ch	Road Ci	Trfc Ctl Dv	Trfc Ctl Op
247	**102449442**	17.050	11/03/2008 03:25	ANIMAL	$ 2000	0	0	0	1	1	5	1	1	0	0	
Unit	**1 : 1**	**Alchl/Drgs:**	0	**Speed:**	50 MPH	**Dir:**	S	**Veh Mnvr/Ped Actn:**		4		**Obj Strk:**		17		
248	**102596141**	17.050	05/22/2009 20:00	FIXED OBJECT	$ 11000	0	0	1	0	1	1	1	1	0	0	
Unit	**1 : 1**	**Alchl/Drgs:**	0	**Speed:**	70 MPH	**Dir:**	N	**Veh Mnvr/Ped Actn:**		4		**Obj Strk:**		41		
249	**102373100**	17.113	07/30/2008 09:20	REAR END, SLOW OR STOP	$ 6000	0	0	0	2	1	1	1	1	0		
Unit	**1 : 2**	**Alchl/Drgs:**	0	**Speed:**	15 MPH	**Dir:**	N	**Veh Mnvr/Ped Actn:**		4		**Obj Strk:**				
Unit	**2 : 3**	**Alchl/Drgs:**	0	**Speed:**	40 MPH	**Dir:**	N	**Veh Mnvr/Ped Actn:**		4		**Obj Strk:**				
250	**102285868**	17.140	03/18/2008 12:05	REAR END, SLOW OR STOP	$ 1600	0	0	0	0	1	1	2	1	0	13	1
Unit	**1 : 2**	**Alchl/Drgs:**	0	**Speed:**	45 MPH	**Dir:**	N	**Veh Mnvr/Ped Actn:**		1		**Obj Strk:**				
Unit	**2 : 2**	**Alchl/Drgs:**	0	**Speed:**	45 MPH	**Dir:**	N	**Veh Mnvr/Ped Actn:**		4		**Obj Strk:**				
251	**102083014**	17.150	07/06/2007 18:38	REAR END, SLOW OR STOP	$ 10800	0	0	0	1	1	1	1	1	0	13	1
Unit	**1 : 2**	**Alchl/Drgs:**	0	**Speed:**	50 MPH	**Dir:**	N	**Veh Mnvr/Ped Actn:**		4		**Obj Strk:**		37		
Unit	**2 : 1**	**Alchl/Drgs:**	0	**Speed:**	50 MPH	**Dir:**	N	**Veh Mnvr/Ped Actn:**		4		**Obj Strk:**				
Unit	**3 : 1**	**Alchl/Drgs:**	0	**Speed:**	0 MPH	**Dir:**	N	**Veh Mnvr/Ped Actn:**		4		**Obj Strk:**				
Unit	**4 : 1**	**Alchl/Drgs:**	0	**Speed:**	50 MPH	**Dir:**	S	**Veh Mnvr/Ped Actn:**		4		**Obj Strk:**		59		
252	**102187275**	17.150	11/09/2007 18:54	LEFT TURN, DIFFERENT ROADWAYS	$ 16000	0	0	2	0	1	5	1	1	0	1	1
Unit	**1 : 1**	**Alchl/Drgs:**	0	**Speed:**	35 MPH	**Dir:**	W	**Veh Mnvr/Ped Actn:**		8		**Obj Strk:**				
Unit	**2 : 3**	**Alchl/Drgs:**	0	**Speed:**	50 MPH	**Dir:**	S	**Veh Mnvr/Ped Actn:**		4		**Obj Strk:**		58		
253	**102214690**	17.150	12/12/2007 08:50	REAR END, SLOW OR STOP	$ 3500	0	0	0	0	1	1	1	3	0	13	1
Unit	**1 : 4**	**Alchl/Drgs:**	0	**Speed:**	40 MPH	**Dir:**	N	**Veh Mnvr/Ped Actn:**		4		**Obj Strk:**		58		
Unit	**2 : 3**	**Alchl/Drgs:**	0	**Speed:**	10 MPH	**Dir:**	N	**Veh Mnvr/Ped Actn:**		1		**Obj Strk:**				

Legend for Report Details:

Acc No - Accident Number
Injuries: F - Fatal, A - Class A, B - Class B, C - Class C
Condition: R - Road Surface, L - Ambient Light, W - Weather
Rd Ch - Road Character
Rd Ci - Roadway Contributing Circumstances
Trfc Ctl - Traffic Control: Dv - Device, Op - Operating
Alchl/Drgs - Alcohol Drugs Suspected
Veh Mnvr/Ped Actn - Vehicle Maneuver/Pedestrian Action
Obj Strk - Object Struck

Summary Statistics

High Level Crash Summary

Crash Type	Number of Crashes	Percent of Total
Total Crashes	253	100.00
Fatal Crashes	0	0.00
Non-Fatal Injury Crashes	81	32.02
Total Injury Crashes	81	32.02
Property Damage Only Crashes	171	67.59
Night Crashes	84	33.20
Wet Crashes	60	23.72
Alcohol/Drugs Involvement Crashes	9	3.56

Crash Severity Summary

Crash Type	Number of Crashes	Percent of Total
Total Crashes	253	100.00
Fatal Crashes	0	0.00
Class A Crashes	1	0.40
Class B Crashes	15	5.93
Class C Crashes	65	25.69
Property Damage Only Crashes	171	67.59

Vehicle Exposure Statistics

Annual ADT = 37800

Total Length = 5.18 (Miles) 8.336 (Kilometers)

Total Vehicle Exposure = 214.6 (MVMT) 345.37 (MVKMT)

Crash Rate	Crashes Per 100 Million Vehicle Miles	Crashes Per 100 Million Vehicle Kilometers
Total Crash Rate	117.89	73.26
Fatal Crash Rate	0.00	0.00
Non Fatal Crash Rate	37.74	23.45
Night Crash Rate	39.14	24.32
Wet Crash Rate	27.96	17.37
EPDO Rate	428.61	266.33

Miscellaneous Statistics

Severity Index =	3.64
EPDO Crash Index =	919.80
Estimated Property Damage Total = $	1317200.00

Accident Type Summary

Accident Type	Number of Crashes	Percent of Total
ANGLE	49	19.37
ANIMAL	12	4.74
BACKING UP	2	0.79
FIXED OBJECT	5	1.98
HEAD ON	1	0.40
LEFT TURN, DIFFERENT ROADWAYS	5	1.98
LEFT TURN, SAME ROADWAY	9	3.56
OTHER COLLISION WITH VEHICLE	1	0.40
OTHER NON-COLLISION	5	1.98
OVERTURN/ROLLOVER	1	0.40
RAN OFF ROAD - LEFT	8	3.16
RAN OFF ROAD - RIGHT	6	2.37
REAR END, SLOW OR STOP	113	44.66
REAR END, TURN	5	1.98
RIGHT TURN, DIFFERENT ROADWAYS	2	0.79
RIGHT TURN, SAME ROADWAY	2	0.79
SIDESWIPE, OPPOSITE DIRECTION	2	0.79
SIDESWIPE, SAME DIRECTION	24	9.49
UNKNOWN	1	0.40

Injury Summary

Injury Type	Number of Injuries	Percent of Total
Fatal Injuries	0	0.00
Class A Injuries	1	0.74
Class B Injuries	18	13.33
Class C Injuries	116	85.93
Total Non-Fatal Injuries	135	100.00
Total Injuries	135	100.00

Monthly Summary

Month	Number of Crashes	Percent of Total
Jan	26	10.28
Feb	16	6.32
Mar	21	8.30
Apr	21	8.30
May	17	6.72
Jun	15	5.93
Jul	18	7.11
Aug	24	9.49
Sep	16	6.32
Oct	31	12.25
Nov	28	11.07
Dec	20	7.91

Daily Summary

Day	Number of Crashes	Percent of Total
Mon	27	10.67
Tue	40	15.81
Wed	57	22.53
Thu	40	15.81
Fri	44	17.39
Sat	24	9.49
Sun	21	8.30

Hourly Summary

Hour	Number of Crashes	Percent of Total
0000-0059	9	3.56
0100-0159	1	0.40
0200-0259	3	1.19
0300-0359	2	0.79
0400-0459	3	1.19
0500-0559	4	1.58
0600-0659	18	7.11
0700-0759	15	5.93
0800-0859	18	7.11
0900-0959	6	2.37
1000-1059	9	3.56
1100-1159	15	5.93
1200-1259	13	5.14
1300-1359	8	3.16
1400-1459	15	5.93
1500-1559	13	5.14
1600-1659	16	6.32
1700-1759	24	9.49
1800-1859	19	7.51
1900-1959	12	4.74
2000-2059	10	3.95
2100-2159	6	2.37
2200-2259	10	3.95
2300-2359	4	1.58

Light and Road Conditions Summary

Condition	Dry	Wet	Other	Total
Day	120	31	3	154
Dark	57	26	1	84
Other	12	3	0	15
Total	189	60	4	253

Object Struck Summary

Object Type	Times Struck	Percent of Total
ANIMAL	12	27.27
DITCH	3	6.82
EMBANKMENT	4	9.09
FENCE OR FENCE POST	1	2.27
GUARDRAIL END ON SHOULDER	1	2.27
GUARDRAIL FACE IN MEDIAN	6	13.64
GUARDRAIL FACE ON SHOULDER	1	2.27
MEDIAN BARRIER FACE	4	9.09
MOVABLE OBJECT	3	6.82
OFFICIAL HIGHWAY SIGN BREAKAWAY	2	4.55
OFFICIAL HIGHWAY SIGN NON-BREAKAWAY	3	6.82
TRAFFIC ISLAND CURB OR MEDIAN	1	2.27
TREE	2	4.55
UTILITY POLE	1	2.27

Vehicle Type Summary

Vehicle Type	Number Involved	Percent of Total
COMMERCIAL BUS	1	0.19
LIGHT TRUCK (MINI-VAN, PANEL)	9	1.71
MOTORCYCLE	2	0.38
OTHER BUS	1	0.19
PASSENGER CAR	319	60.76
PICKUP	52	9.90
SINGLE UNIT TRUCK (2-AXLE, 6-TIRE)	10	1.90
SINGLE UNIT TRUCK (3 OR MORE AXLES)	2	0.38
SPORT UTILITY	67	12.76
TRACTOR/SEMI-TRAILER	11	2.10
TRUCK/TRACTOR	1	0.19
TRUCK/TRAILER	7	1.33
UNKNOWN	7	1.33

Vehicle Type	Number Involved	Percent of Total
UNKNOWN HEAVY TRUCK	2	0.38
VAN	34	6.48

Yearly Totals Summary

Accident Totals

Year	Total Accidents	Fatal Accidents	Injury Accidents	Property Damage Only Accidents
2006	37	0	9	28
2007	93	0	30	63
2008	86	0	28	58
2009	37	0	15	22
Total	253	0	82	171

Injury Totals

Year	Fatal Injuries	Class A, B, or C Injuries
2006	0	12
2007	0	50
2008	0	42
2009	0	31
Total	0	135

Miscellaneous Totals

Year	Property Damage	EPDO Index
2006	$ 181550	103.60
2007	$ 491550	376.00
2008	$ 403350	293.20
2009	$ 240750	148.00
Total	$ 1317200	920.80

Type of Accident Totals

Year	Left Turn	Right Turn	Rear End	Run Off Road & Fixed Object	Angle	Side Swipe	Other
2006	3	1	24	2	2	5	0
2007	6	0	37	4	23	10	13
2008	3	2	41	6	17	9	8
2009	2	1	16	7	7	2	2
Total	14	4	118	19	49	26	23

Strip Diagram

Features	Milepost	Crash IDs
SR 1556 | GALLIMORE DAIRY	11.970	102076973 | 102136324 | 102395642 | 102611852
	11.980	102334140
	11.990	102179069
	12.000	
	12.010	
	12.020	
	12.030	
	12.040	
	12.050	
	12.060	102170933
	12.070	
	12.080	
	12.090	102242334
	12.100	
	12.110	
	12.120	
	12.130	
	12.140	
	12.150	
	12.160	
	12.170	101888019
	12.180	
	12.190	
	12.200	
	12.210	
	12.220	102352730
	12.230	
	12.240	
	12.250	
	12.260	
	12.270	
	12.280	
	12.290	102310303
	12.300	
	12.310	
	12.320	
	12.330	
	12.340	
	12.350	
	12.360	
	12.370	
	12.380	101800734
SR 1839 | MILLWOOD SCH | AMERICHASE	12.390	102333926 | 102347024 | 102526204

Features	Milepost	Crash IDs
	12.400	
	12.410	
	12.420	101869042
	12.430	
	12.440	
	12.450	101869543
	12.460	
	12.470	
	12.480	
PAI PARK	12.490	101977943
	12.500	
	12.510	
	12.520	
	12.530	
	12.540	
	12.550	102161716
	12.560	101959793 | 102051669
HICKORY RIDGE | REGIONAL	12.570	101799398 | 101818408 | 102003829 | 102091169 |
		102238831 | 102272335 | 102276629 | 102279248 |
		102516092 | 102543371 | 102564011
	12.580	102044924
	12.590	
	12.600	
	12.610	
	12.620	
	12.630	
	12.640	
	12.650	101869535
	12.660	
	12.670	
	12.680	
	12.690	
	12.700	
	12.710	
	12.720	
	12.730	102186937
	12.740	
	12.750	
	12.760	
	12.770	
	12.780	
	12.790	
SR 1969 | THORNDIKE	12.800	102539105 | 101858817 | 101902028 | 102110272 |
		102267076 | 102317928 | 102414246 | 102448844 |

Features	Milepost	Crash IDs
		102448857 | 102615217
	12.810	
	12.820	101927931
	12.830	
	12.840	
	12.850	
	12.860	102527289
	12.870	
	12.880	
	12.890	
	12.900	101846673 | 102481887
	12.910	
	12.920	
	12.930	
	12.940	
	12.950	
	12.960	102257396
	12.970	
	12.980	
	12.990	102135916 | 102310301
I-40 EB RAMP | SR 1681 | ALBERT PICK	13.000	102436231 | 102545728 | 101816512 | 101881203 |
		101917290 | 101916543 | 101955848 | 102012493 |
		102069995 | 102088843 | 102105707 | 102124244 |
		102133487 | 102186941 | 102186789 | 102256609 |
		102557506 | 102412405 | 102418214 | 102432040 |
		102452859 | 102530588 | 102543991 | 102544447 |
		102582687 | 102626684
	13.010	102118980 | 102599101 | 101888620 | 102588724
	13.020	
	13.030	102530067
	13.040	102505276
	13.050	102323905 | 101834052
	13.060	102160933 | 101938699
I 40 | Structure:400384 | FORDHAM	13.070	102380943
	13.080	102107525 | 102098928
	13.090	
	13.100	101850887 | 102088244 | 102457564 | 102003838
	13.110	101994476 | 102235582
	13.120	
	13.130	
	13.140	101894824
I-40 WB RAMP	13.150	102338174 | 101886968 | 101931410 | 101986467 |

Features	Milepost	Crash IDs
		102104120 | 102120836 | 102132978 | 102135377 |
		102142132 | 102184992 | 102200879 | 102291353 |
		102299085 | 102378798 | 102400702 | 102471342 |
		102505239 | 102516097 | 102539314 | 102540078 |
		102551949 | 102559708 | 101973798 | 101897569
	13.160	101854487 | 102473119
	13.170	
	13.180	
	13.190	101858833
	13.200	
	13.210	102473092
	13.220	
	13.230	
	13.240	
	13.250	102378714
	13.260	102562711
	13.270	102515979
	13.280	
	13.290	
	13.300	102499911 | 102539170
	13.310	
	13.320	
	13.330	
	13.340	
	13.350	
	13.360	102172047 | 102322239 | 102064615
	13.370	
	13.380	
	13.390	
	13.400	102104125 | 102386820
	13.410	
	13.420	102088852
	13.430	102172083
	13.440	102378773
	13.450	102041924 | 101846686
Structure:400551 | CENTERPORT | TRIAD	13.460	101799126 | 101913683 | 101936859 | 101953498 |
CENTER		102094194 | 102122810 | 102179888 | 102202181 |
		102137158 | 102499384 | 102173442 | 102585838
	13.470	101938692 | 102505265 | 102322827 | 102566633
	13.480	102281647
	13.490	
	13.500	101940039

Features	Milepost	Crash IDs
	13.510	
	13.520	102544819
	13.530	
	13.540	101905379 | 102114483 | 102379855
	13.550	
	13.560	102545536
	13.570	
	13.580	
	13.590	
	13.600	
	13.610	101986458
	13.620	
	13.630	
	13.640	
	13.650	
	13.660	
	13.670	
	13.680	
	13.690	
	13.700	
	13.710	
	13.720	
	13.730	
	13.740	
	13.750	
	13.760	
	13.770	
	13.780	
	13.790	
	13.800	
	13.810	
	13.820	
	13.830	
	13.840	
	13.850	
	13.860	
	13.870	
	13.880	
	13.890	
	13.900	
	13.910	
	13.920	
	13.930	
	13.940	
	13.950	
	13.960	

Features	Milepost	Crash IDs
	13.970	
	13.980	
	13.990	
	14.000	
	14.010	
	14.020	102136681
	14.030	102152969
SR 1008 | Structure:400552 |	14.040	101906176 | 102055914 | 102245156
Structure:400553 | MARKET		
	14.050	
	14.060	102261925
	14.070	
	14.080	
	14.090	
	14.100	
	14.110	
	14.120	
	14.130	
	14.140	
	14.150	
	14.160	
	14.170	
	14.180	
	14.190	
	14.200	
	14.210	
	14.220	
	14.230	
	14.240	
	14.250	
	14.260	
	14.270	
	14.280	
	14.290	102305039
	14.300	
	14.310	
	14.320	
	14.330	
	14.340	
	14.350	
	14.360	
	14.370	
	14.380	
	14.390	
	14.400	
	14.410	

Features	Milepost	Crash IDs
	14.420	
	14.430	
	14.440	
	14.450	
	14.460	
	14.470	
	14.480	
	14.490	
	14.500	
	14.510	
	14.520	
	14.530	
	14.540	
	14.550	102184348
	14.560	
	14.570	
	14.580	
	14.590	
	14.600	102055607
	14.610	
	14.620	
	14.630	
	14.640	
	14.650	
	14.660	
	14.670	
	14.680	
	14.690	
	14.700	102622459
	14.710	
	14.720	
	14.730	
	14.740	101794437
	14.750	
	14.760	
	14.770	
	14.780	
	14.790	101994471 | 102228010
	14.800	102549752
	14.810	
	14.820	
	14.830	
	14.840	
	14.850	
	14.860	
	14.870	

Features	Milepost	Crash IDs
	14.880	
SR 2085 | AIRPORT | BRIAN | JOSEPH	14.890	102579030
BRYAN		
	14.900	
	14.910	
	14.920	
	14.930	
	14.940	
	14.950	
	14.960	
	14.970	
	14.980	
	14.990	
	15.000	102202159
	15.010	
	15.020	
	15.030	
	15.040	101927934
	15.050	
	15.060	
	15.070	
	15.080	101939649
	15.090	102031706 | 102566635
	15.100	
	15.110	
	15.120	
	15.130	
	15.140	102329704
	15.150	
	15.160	
	15.170	
	15.180	
	15.190	
	15.200	102098690
	15.210	
	15.220	
	15.230	
	15.240	
	15.250	
	15.260	
	15.270	
	15.280	
	15.290	
	15.300	
	15.310	

Features	Milepost	Crash IDs
	15.320	
	15.330	
	15.340	
	15.350	
	15.360	
	15.370	
	15.380	
	15.390	
	15.400	
	15.410	
	15.420	
	15.430	
	15.440	
	15.450	
	15.460	
	15.470	
	15.480	
	15.490	
	15.500	
	15.510	
	15.520	
	15.530	
	15.540	
	15.550	
	15.560	
	15.570	
	15.580	
	15.590	102566895
	15.600	
	15.610	
	15.620	
	15.630	
	15.640	
	15.650	
	15.660	
	15.670	
	15.680	
	15.690	
	15.700	
	15.710	
	15.720	
	15.730	
	15.740	
	15.750	
	15.760	
	15.770	

Features	Milepost	Crash IDs
	15.780	
	15.790	
	15.800	
	15.810	
	15.820	
	15.830	
	15.840	102305048
	15.850	
	15.860	
	15.870	
	15.880	
	15.890	
	15.900	
	15.910	
	15.920	
	15.930	
	15.940	
	15.950	
	15.960	
	15.970	
	15.980	
	15.990	102326574
	16.000	
	16.010	
	16.020	
	16.030	
	16.040	102571916
	16.050	102072681
	16.060	
	16.070	102008267
	16.080	
SR 2133 | PLEASANT RIDGE	16.090	101799780 | 101803847 | 101882278 | 101935093 | 102090375 | 102101532 | 102187826 | 102279822 | 102468360 | 102511173 | 102505238 | 102515967 | 102530048 | 102543704 | 102286732 | 102274643 | 102435720
	16.100	102432054
	16.110	
	16.120	
	16.130	
	16.140	
	16.150	
	16.160	
	16.170	
	16.180	

Features	Milepost	Crash IDs
	16.190	
	16.200	
	16.210	
	16.220	
	16.230	
	16.240	
	16.250	
	16.260	
	16.270	
	16.280	
	16.290	101827129 | 101990343 | 102360922 | 102505496
	16.300	
	16.310	
	16.320	
	16.330	
	16.340	
	16.350	102317732
	16.360	
	16.370	
	16.380	
	16.390	101820588 | 102068289
SR 2011 | EDGEFIELD	16.400	101778993 | 102026250 | 102246361 | 102467529 | 102241398
	16.410	
	16.420	
	16.430	
	16.440	102617895
	16.450	101988294
	16.460	101899935
	16.470	
	16.480	
	16.490	
	16.500	102098691 | 102107142 | 102166495 | 102437969 | 102485641
	16.510	
	16.520	
	16.530	102306137
	16.540	
	16.550	
	16.560	
	16.570	
	16.580	
	16.590	
	16.600	102005724 | 102384856 | 102448886 | 102539631

Features	Milepost	Crash IDs
	16.610	
	16.620	
	16.630	
	16.640	
	16.650	
	16.660	
	16.670	
	16.680	
	16.690	
	16.700	101922803
	16.710	
	16.720	
	16.730	
	16.740	
	16.750	
	16.760	
	16.770	
	16.780	
	16.790	
	16.800	101977044
	16.810	
	16.820	
	16.830	
	16.840	
	16.850	102159173
	16.860	
	16.870	
	16.880	
	16.890	
	16.900	102143991
	16.910	
	16.920	
	16.930	
	16.940	
	16.950	102572780
	16.960	
	16.970	
	16.980	
	16.990	
	17.000	102424254
	17.010	
	17.020	
	17.030	
	17.040	
	17.050	101873426 | 101940191 | 102052014 | 102161389 |

Features	Milepost	Crash IDs
		102449442 | 102596141
	17.060	
	17.070	
	17.080	
	17.090	
	17.100	
	17.110	102373100
	17.120	
	17.130	
	17.140	102285868
SR 2016	17.150	102083014 | 102187275 | 102214690

Study Criteria

Study Name	Log No.	PH No.	TIP No.	K/A Cf.	B/C Cf.	ADT	ADT Route
41000000339TG	41000000339			76.8	8.4	37800	

Request Date	Courier Service	Phone No.	Ext.	Fax No.

County			Municipality					
Name	Code	Div.	Name	Code	Y-Line Ft.	Begin Date	End Date	Years
GUILFORD	40	7	All and Rural		0	07/01/2006	06/30/2009	3.00

Location Text

NC 68 from SR 1556 (Gallimore Dairy Rd) to SR 2016 (Leabourne Rd)

Requestor

Andrew Topp, PE, PTOE
Martin/Alexiou/Bryson, PLLC

Included Accidents	Old MP	New MP	Type
102622459	16.09	14.7	R
102588724	13	13.01	R
102579030	16.89	14.892	R
102571916	14.04	16.04	R
102566633	13.46	13.47	R
102562711		13.26	I
102559708		13.15	I
102551949	13.07	13.15	R
102549752	16.09	14.8	R
102544447		13	I
102540078		13.15	I
102539314	13.07	13.15	R
102539170	13.222	13.302	R
102530067	13.051	13.03	R
102516097		13.15	I
102505276	13.032	13.038	R
102505239	13.07	13.15	R
102499911	13.07	13.3	R
102481887	12.584	12.9	R
102473119	13.108	13.16	R
102473092	13.46	13.21	R
102471342	13.07	13.15	R
102457564	13.07	13.1	R
102436231	13.002	12.998	R
102432040	13.07	13	R
102424254		17	I
102400702	13.07	13.15	R

102386820	13.32	13.4	R
102379855	13.04	13.54	R
102378798	13.07	13.15	R
102378773	13.46	13.44	R
102378714	13.17	13.25	R
102352730	11.97	12.22	R
102338174	13.065	13.145	R
102329704	14.64	15.14	R
102323905	12.953	13.047	R
102317928		12.8	I
102310303		12.29	I
102310301	13	12.995	R
102305039		14.29	I
102299085	13.07	13.15	R
102291353	13.07	13.15	R
102286732	16.088	16.092	R
102281647	13.46	13.48	R
102257396	12.881	12.961	R
102242334		12.09	I
102235582	13.032	13.112	R
102228010	14.888	14.79	R
102202159	14.04	15	R
102200879	13.07	13.15	R
102186937	12.8	12.73	R
102186789		13	I
102184992	13.07	13.15	R
102184348	14.04	14.55	R
102161716	12.589	12.551	R
102160933	13.013	13.057	R
102152969	14.04	14.03	R
102142132	13.07	13.15	R
102136681	14.04	14.02	R
102135916	13	12.99	R
102135377	13.07	13.15	R
102132978	13.07	13.15	R
102120836	13.108	13.15	R
102118980	12.995	13.005	R
102104125	13.46	13.4	R
102104120	13.07	13.15	R
102098690	14.92	15.2	R
102088852		13.422	I

102088244	13.07	13.1	R
102083014	17.141	17.15	R
102055607	14.89	14.6	R
102052014		17.05	I
102008267		16.07	I
102003838	13.014	13.103	R
101994476	13.023	13.112	R
101994471	14.89	14.79	R
101986467	13.07	13.15	R
101977943		12.49	I
101973798	13.071	13.151	R
101940039	14.04	13.5	R
101931410	13.07	13.15	R
101913683		13.46	I
101897569	13.089	13.152	R
101894824	13.062	13.138	R
101888620	13	13.01	R
101886968	13.07	13.15	R
101869543		12.452	I
101869535	12.57	12.65	R
101858833	13.108	13.188	R
101854487	13.07	13.16	R
101850887	13.07	13.1	R
101846673	12.8	12.9	R
101816512		13	I
101800734		12.38	I
101799398	12.57	12.569	R
101799126		13.46	I

Excluded Accidents
102390186
101919262
101821163
102400681
102615973
101799411
102425660
101797292
101952564
102257443
102266357

Excluded Accidents

102056233
101959431
101995079
102303306
102338081
101792034
101807436
101888596
101922447
101969522
102034772
102098678
102131015
102147340
102151589
102166130
102241855
102244704
102418213
102448739
102526169
102557677
101792295
102100781
101864921
101794156
102152619
102363434
102066386
102008136
102127319
102412439
102044435
101953826
102296386
102032097

Fiche Roads

Name	Code
NC 68	30000068

Fiche Roads

Name	Code

Strip Road

Name	Code	Begin MP	End MP	Miles	Kilometers
NC 68	30000068	11.970	17.150	5.180	8.336

Study Criteria Summary

County: GUILFORD **City:** All and Rural
Date: 7/1/2006 **to** 6/30/2009 **Study:** 41000000886
Location: SR 2133 (Pleasant Ridge Rd) from SR 1008 (Market St) to SR 3898 (Montmartre Rd)

Report Details

Acc No	Crash ID	Milepost	Date	Accident Type	Total Damage	Injuries F	A	B	C	Condition R	L	W	Road Ch	Ci	Trfc Ctl Dv	Op
1	**102140013**	0.000	09/07/2007 19:40	OTHER NON-COLLISION	$ 3800	0	0	1	0	1	2	1	1	0	3	1
Unit	**1 : 20**	**Alchl/Drgs:** 0	**Speed:** 0 MPH	**Dir:** W	**Veh Mnvr/Ped Actn:** 4	**Obj Strk:**										
2	**102214439**	0.000	12/11/2007 22:52	RAN OFF ROAD - LEFT	$ 7000	0	1	1	0	1	5	1	1	0	3	1
Unit	**1 : 1**	**Alchl/Drgs:** 1	**Speed:** 0 MPH	**Dir:** E	**Veh Mnvr/Ped Actn:** 4	**Obj Strk:** 34										
3	**102451421**	0.000	10/15/2008 16:06	LEFT TURN, SAME ROADWAY	$ 10300	0	0	0	0	1	1	1	1	0	3	1
Unit	**1 : 4**	**Alchl/Drgs:** 0	**Speed:** 40 MPH	**Dir:** W	**Veh Mnvr/Ped Actn:** 4	**Obj Strk:**										
Unit	**2 : 2**	**Alchl/Drgs:** 0	**Speed:** 0 MPH	**Dir:** E	**Veh Mnvr/Ped Actn:** 8	**Obj Strk:**										
Unit	**3 : 1**	**Alchl/Drgs:** 0	**Speed:** 0 MPH	**Dir:** S	**Veh Mnvr/Ped Actn:** 1	**Obj Strk:**										
4	**102469228**	0.000	11/04/2008 21:40	LEFT TURN, DIFFERENT ROADWAYS	$ 6500	0	0	0	2	2	5	3	1	0	3	1
Unit	**1 : 1**	**Alchl/Drgs:** 0	**Speed:** 15 MPH	**Dir:** S	**Veh Mnvr/Ped Actn:** 8	**Obj Strk:**										
Unit	**2 : 2**	**Alchl/Drgs:** 0	**Speed:** 45 MPH	**Dir:** W	**Veh Mnvr/Ped Actn:** 4	**Obj Strk:**										
5	**102175250**	0.020	10/23/2007 07:25	REAR END, SLOW OR STOP	$ 2000	0	0	0	0	1	1	2	1	0		
Unit	**1 : 14**	**Alchl/Drgs:** 0	**Speed:** 20 MPH	**Dir:** S	**Veh Mnvr/Ped Actn:** 1	**Obj Strk:**										
Unit	**2 : 14**	**Alchl/Drgs:** 0	**Speed:** 20 MPH	**Dir:** S	**Veh Mnvr/Ped Actn:** 4	**Obj Strk:**										
6	**102286714**	0.050	03/19/2008 20:17	ANIMAL	$ 2500	0	0	0	0	2	5	2	1	0	0	
Unit	**1 : 1**	**Alchl/Drgs:** 0	**Speed:** 0 MPH	**Dir:** S	**Veh Mnvr/Ped Actn:** 4	**Obj Strk:** 17										
7	**102224898**	0.189	12/23/2007 21:47	ANIMAL	$ 1000	0	0	0	0	1	5	2	1	0		
Unit	**1 : 1**	**Alchl/Drgs:** 0	**Speed:** 0 MPH	**Dir:** N	**Veh Mnvr/Ped Actn:** 4	**Obj Strk:** 17										
8	**102064598**	0.950	06/12/2007 21:17	ANIMAL	$ 1000	0	0	1	0	1	2	1	1	0	0	
Unit	**1 : 20**	**Alchl/Drgs:** 0	**Speed:** 50 MPH	**Dir:** E	**Veh Mnvr/Ped Actn:** 4	**Obj Strk:** 17										
9	**102459778**	1.716	10/17/2008 07:41	REAR END, SLOW OR STOP	$ 3250	0	0	0	1	2	1	3	7	0	0	
Unit	**1 : 1**	**Alchl/Drgs:** 0	**Speed:** 0 MPH	**Dir:** E	**Veh Mnvr/Ped Actn:** 1	**Obj Strk:**										
Unit	**2 : 1**	**Alchl/Drgs:** 0	**Speed:** 0 MPH	**Dir:** E	**Veh Mnvr/Ped Actn:** 1	**Obj Strk:**										

Acc No	Crash ID	Milepost	Date	Accident Type	Total Damage	Injuries F	A	B	C	Condition R	L	W	Road Ch	Ci	Trfc Ctl Dv	Op
Unit	**3 : 4**	**Alchl/Drgs:** 0	**Speed:** 0 MPH	**Dir:** E	**Veh Mnvr/Ped Actn:** 1	**Obj Strk:**										
10	**101815075**	1.720	08/23/2006 17:00	LEFT TURN, SAME ROADWAY	$ 2800	0	0	0	0	1	1	1	5	0	0	
Unit	**1 : 1**	**Alchl/Drgs:** 0	**Speed:** 10 MPH	**Dir:** E	**Veh Mnvr/Ped Actn:** 8	**Obj Strk:**										
Unit	**2 : 1**	**Alchl/Drgs:** 0	**Speed:** 35 MPH	**Dir:** W	**Veh Mnvr/Ped Actn:** 4	**Obj Strk:**										
11	**101939559**	1.720	01/17/2007 08:19	REAR END, SLOW OR STOP	$ 1800	0	0	0	0	1	1	1	7	0	0	2
Unit	**1 : 5**	**Alchl/Drgs:** 0	**Speed:** 25 MPH	**Dir:** NE	**Veh Mnvr/Ped Actn:** 4	**Obj Strk:**										
Unit	**2 : 1**	**Alchl/Drgs:** 0	**Speed:** 0 MPH	**Dir:** NE	**Veh Mnvr/Ped Actn:** 16	**Obj Strk:**										
12	**101799780**	1.800	08/02/2006 14:14	RIGHT TURN, DIFFERENT ROADWAYS	$ 6500	0	0	0	0	1	1	1	1	0	3	1
Unit	**1 : 12**	**Alchl/Drgs:** 0	**Speed:** 55 MPH	**Dir:** S	**Veh Mnvr/Ped Actn:** 4	**Obj Strk:**										
Unit	**2 : 3**	**Alchl/Drgs:** 0	**Speed:** 10 MPH	**Dir:** E	**Veh Mnvr/Ped Actn:** 7	**Obj Strk:**										
13	**101803847**	1.800	09/06/2006 14:28	SIDESWIPE, SAME DIRECTION	$ 2300	0	0	0	0	1	1	2	1	0	3	1
Unit	**1 : 11**	**Alchl/Drgs:** 0	**Speed:** 0 MPH	**Dir:** E	**Veh Mnvr/Ped Actn:** 7	**Obj Strk:**										
Unit	**2 : 1**	**Alchl/Drgs:** 0	**Speed:** 0 MPH	**Dir:** E	**Veh Mnvr/Ped Actn:** 4	**Obj Strk:**										
14	**101882278**	1.800	11/06/2006 06:57	REAR END, SLOW OR STOP	$ 7100	0	0	0	1	1	3	1	1	0	3	1
Unit	**1 : 2**	**Alchl/Drgs:** 0	**Speed:** 45 MPH	**Dir:** N	**Veh Mnvr/Ped Actn:** 4	**Obj Strk:**										
Unit	**2 : 1**	**Alchl/Drgs:** 0	**Speed:** 0 MPH	**Dir:** N	**Veh Mnvr/Ped Actn:** 1	**Obj Strk:**										
Unit	**3 : 2**	**Alchl/Drgs:** 0	**Speed:** 0 MPH	**Dir:** N	**Veh Mnvr/Ped Actn:** 1	**Obj Strk:**										
15	**101935093**	1.800	01/09/2007 06:26	ANGLE	$ 5000	0	0	0	0	1	5	1	1	0	3	1
Unit	**1 : 5**	**Alchl/Drgs:** 0	**Speed:** 0 MPH	**Dir:** E	**Veh Mnvr/Ped Actn:** 8	**Obj Strk:**										
Unit	**2 : 1**	**Alchl/Drgs:** 0	**Speed:** 0 MPH	**Dir:** N	**Veh Mnvr/Ped Actn:** 4	**Obj Strk:**										
16	**101987839**	1.800	03/18/2007 21:50	HEAD ON	$ 1800	0	0	0	0	1	5	1	3	0	3	1
Unit	**1 : 1**	**Alchl/Drgs:** 0	**Speed:** 10 MPH	**Dir:** E	**Veh Mnvr/Ped Actn:** 4	**Obj Strk:**										
Unit	**2 : 1**	**Alchl/Drgs:** 0	**Speed:** 10 MPH	**Dir:** S	**Veh Mnvr/Ped Actn:** 8	**Obj Strk:**										
17	**102090375**	1.800	07/15/2007 20:31	ANGLE	$ 11000	0	0	1	1	1	2	1	1	0	3	1
Unit	**1 : 2**	**Alchl/Drgs:** 0	**Speed:** 0 MPH	**Dir:** S	**Veh Mnvr/Ped Actn:** 4	**Obj Strk:**										
Unit	**2 : 4**	**Alchl/Drgs:** 0	**Speed:** 0 MPH	**Dir:** W	**Veh Mnvr/Ped Actn:** 8	**Obj Strk:**										
18	**102101532**	1.800	07/29/2007 22:38	ANGLE	$ 2100	0	0	0	0	1	4	1	1	0	3	1
Unit	**1 : 5**	**Alchl/Drgs:** 0	**Speed:** 25 MPH	**Dir:** N	**Veh Mnvr/Ped Actn:** 8	**Obj Strk:**										
Unit	**2 : 2**	**Alchl/Drgs:** 0	**Speed:** 45 MPH	**Dir:** S	**Veh Mnvr/Ped Actn:** 4	**Obj Strk:**										

Acc No	Crash ID	Milepost	Date	Accident Type	Total Damage	Injuries F	Injuries A	Injuries B	Injuries C	Condition R	Condition L	Condition W	Road Ch	Road Ci	Trfc Ctl Dv	Trfc Ctl Op
19	**102187826**	1.800	11/09/2007 09:11	ANGLE	$ 10000	0	1	0	2	1	1	1	1	0	3	1
Unit	**1 :** 1	**Alchl/Drgs:**	0	**Speed:**	35 MPH	**Dir:**	E	**Veh Mnvr/Ped Actn:**		4		**Obj Strk:**		33		
Unit	**2 :** 5	**Alchl/Drgs:**	0	**Speed:**	55 MPH	**Dir:**	N	**Veh Mnvr/Ped Actn:**		4		**Obj Strk:**				
20	**102296386**	1.800	04/03/2008 17:33	SIDESWIPE, SAME DIRECTION	$ 1000	0	0	0	0	2	1	3	1	0	3	1
Unit	**1 :** 32	**Alchl/Drgs:**	7	**Speed:**	0 MPH	**Dir:**	N	**Veh Mnvr/Ped Actn:**		16		**Obj Strk:**				
Unit	**2 :** 1	**Alchl/Drgs:**	0	**Speed:**	35 MPH	**Dir:**	W	**Veh Mnvr/Ped Actn:**		4		**Obj Strk:**				
21	**102511173**	1.800	12/05/2008 06:42	RIGHT TURN, SAME ROADWAY	$ 2000	0	0	0	0	1	2	1	1	0	3	1
Unit	**1 :** 14	**Alchl/Drgs:**	0	**Speed:**	45 MPH	**Dir:**	W	**Veh Mnvr/Ped Actn:**		7		**Obj Strk:**				
Unit	**2 :** 1	**Alchl/Drgs:**	0	**Speed:**	45 MPH	**Dir:**	W	**Veh Mnvr/Ped Actn:**		8		**Obj Strk:**				
22	**102505238**	1.800	12/10/2008 04:00	ANGLE	$ 1400	0	0	0	0	2	4	2	1	0	3	1
Unit	**1 :** 1	**Alchl/Drgs:**	0	**Speed:**	0 MPH	**Dir:**	E	**Veh Mnvr/Ped Actn:**		4		**Obj Strk:**				
Unit	**2 :** 32	**Alchl/Drgs:**	7	**Speed:**	0 MPH	**Dir:**	N	**Veh Mnvr/Ped Actn:**		7		**Obj Strk:**				
23	**102530048**	1.800	01/12/2009 12:09	ANGLE	$ 3000	0	0	0	0	1	1	1	1	0	3	1
Unit	**1 :** 2	**Alchl/Drgs:**	0	**Speed:**	10 MPH	**Dir:**	N	**Veh Mnvr/Ped Actn:**		4		**Obj Strk:**				
Unit	**2 :** 5	**Alchl/Drgs:**	0	**Speed:**	25 MPH	**Dir:**	E	**Veh Mnvr/Ped Actn:**		4		**Obj Strk:**				
24	**102543704**	1.800	01/28/2009 17:17	ANGLE	$ 7000	0	0	0	0	2	4	3	1	0	3	1
Unit	**1 :** 1	**Alchl/Drgs:**	0	**Speed:**	25 MPH	**Dir:**	N	**Veh Mnvr/Ped Actn:**		4		**Obj Strk:**				
Unit	**2 :** 1	**Alchl/Drgs:**	0	**Speed:**	35 MPH	**Dir:**	E	**Veh Mnvr/Ped Actn:**		4		**Obj Strk:**				
Unit	**3 :** 1	**Alchl/Drgs:**	0	**Speed:**	0 MPH	**Dir:**	N	**Veh Mnvr/Ped Actn:**		1		**Obj Strk:**				
25	**102561832**	1.819	03/27/2009 19:19	REAR END, SLOW OR STOP	$ 2000	0	0	0	0	2	5	3	1	0	0	
Unit	**1 :** 1	**Alchl/Drgs:**	0	**Speed:**	45 MPH	**Dir:**	W	**Veh Mnvr/Ped Actn:**		11		**Obj Strk:**				
Unit	**2 :** 1	**Alchl/Drgs:**	0	**Speed:**	0 MPH	**Dir:**	W	**Veh Mnvr/Ped Actn:**		1		**Obj Strk:**				
26	**101989370**	1.870	03/20/2007 01:46	FIXED OBJECT	$ 7500	0	0	0	1	1	5	1	1	0	1	1
Unit	**1 :** 1	**Alchl/Drgs:**	1	**Speed:**	80 MPH	**Dir:**	N	**Veh Mnvr/Ped Actn:**		4		**Obj Strk:**				
27	**102085909**	1.870	07/10/2007 17:10	LEFT TURN, DIFFERENT ROADWAYS	$ 3200	0	0	0	0	2	1	2	1	0	3	
Unit	**1 :** 2	**Alchl/Drgs:**	0	**Speed:**	0 MPH	**Dir:**	W	**Veh Mnvr/Ped Actn:**		4		**Obj Strk:**				
Unit	**2 :** 1	**Alchl/Drgs:**	0	**Speed:**	0 MPH	**Dir:**	N	**Veh Mnvr/Ped Actn:**		7		**Obj Strk:**				

Acc No	Crash ID	Milepost	Date	Accident Type	Total Damage	Injuries F	Injuries A	Injuries B	Injuries C	Condition R	Condition L	Condition W	Road Ch	Road Ci	Trfc Ctl Dv	Trfc Ctl Op
28	**102118975**	1.870	08/22/2007 18:19	REAR END, SLOW OR STOP	$ 2500	0	0	0	0	1	1	1	1	0	13	1
Unit	**1 :** 1	**Alchl/Drgs:**	0	**Speed:**	40 MPH	**Dir:**	W	**Veh Mnvr/Ped Actn:**		4		**Obj Strk:**				
Unit	**2 :** 1	**Alchl/Drgs:**	0	**Speed:**	0 MPH	**Dir:**	W	**Veh Mnvr/Ped Actn:**		1		**Obj Strk:**				
29	**102164894**	1.870	10/15/2007 17:40	REAR END, SLOW OR STOP	$ 2500	0	0	0	0	1	1	1	1	0	1	1
Unit	**1 :** 1	**Alchl/Drgs:**	0	**Speed:**	15 MPH	**Dir:**	N	**Veh Mnvr/Ped Actn:**		7		**Obj Strk:**				
Unit	**2 :** 1	**Alchl/Drgs:**	0	**Speed:**	15 MPH	**Dir:**	N	**Veh Mnvr/Ped Actn:**		7		**Obj Strk:**				
30	**102242758**	1.870	01/17/2008 14:11	ANGLE	$ 1800	0	0	0	0	2	1	3	1	0	1	1
Unit	**1 :** 2	**Alchl/Drgs:**	0	**Speed:**	0 MPH	**Dir:**	N	**Veh Mnvr/Ped Actn:**		8		**Obj Strk:**				
Unit	**2 :** 1	**Alchl/Drgs:**	0	**Speed:**	0 MPH	**Dir:**	W	**Veh Mnvr/Ped Actn:**		4		**Obj Strk:**				
31	**102260934**	1.874	02/12/2008 15:27	REAR END, SLOW OR STOP	$ 2500	0	0	0	0	2	1	2	1	0	0	
Unit	**1 :** 1	**Alchl/Drgs:**	0	**Speed:**	0 MPH	**Dir:**	W	**Veh Mnvr/Ped Actn:**		4		**Obj Strk:**				
Unit	**2 :** 1	**Alchl/Drgs:**	0	**Speed:**	0 MPH	**Dir:**	W	**Veh Mnvr/Ped Actn:**		1		**Obj Strk:**				
32	**102470004**	2.070	11/20/2008 11:28	LEFT TURN, SAME ROADWAY	$ 30000	0	0	1	1	3	1	1	5	0	13	1
Unit	**1 :** 1	**Alchl/Drgs:**	0	**Speed:**	12 MPH	**Dir:**	E	**Veh Mnvr/Ped Actn:**		8		**Obj Strk:**				
Unit	**2 :** 1	**Alchl/Drgs:**	0	**Speed:**	50 MPH	**Dir:**	W	**Veh Mnvr/Ped Actn:**		4		**Obj Strk:**				
33	**102539115**	2.109	01/27/2009 06:41	ANIMAL	$ 5000	0	0	0	0	1	5	1	1	0		
Unit	**1 :** 1	**Alchl/Drgs:**	0	**Speed:**	45 MPH	**Dir:**	S	**Veh Mnvr/Ped Actn:**		4		**Obj Strk:**		17		
34	**101888202**	2.300	11/16/2006 15:45	REAR END, TURN	$ 2400	0	0	0	0	1	1	1	1	0	13	1
Unit	**1 :** 3	**Alchl/Drgs:**	0	**Speed:**	50 MPH	**Dir:**	W	**Veh Mnvr/Ped Actn:**		4		**Obj Strk:**				
Unit	**2 :** 2	**Alchl/Drgs:**	0	**Speed:**	50 MPH	**Dir:**	W	**Veh Mnvr/Ped Actn:**		7		**Obj Strk:**				

Legend for Report Details:

Acc No - Accident Number
Injuries: F - Fatal, A - Class A, B - Class B, C - Class C
Condition: R - Road Surface, L - Ambient Light, W - Weather
Rd Ch - Road Character
Rd Ci - Roadway Contributing Circumstances
Trfc Ctl - Traffic Control: Dv - Device, Op - Operating
Alchl/Drgs - Alcohol Drugs Suspected
Veh Mnvr/Ped Actn - Vehicle Maneuver/Pedestrian Action
Obj Strk - Object Struck

Summary Statistics

High Level Crash Summary

Crash Type	Number of Crashes	Percent of Total
Total Crashes	34	100.00
Fatal Crashes	0	0.00
Non-Fatal Injury Crashes	10	29.41
Total Injury Crashes	10	29.41
Property Damage Only Crashes	24	70.59
Night Crashes	12	35.29
Wet Crashes	11	32.35
Alcohol/Drugs Involvement Crashes	2	5.88

Crash Severity Summary

Crash Type	Number of Crashes	Percent of Total
Total Crashes	34	100.00
Fatal Crashes	0	0.00
Class A Crashes	2	5.88
Class B Crashes	4	11.76
Class C Crashes	4	11.76
Property Damage Only Crashes	24	70.59

Vehicle Exposure Statistics

Annual ADT = 9300

Total Length = 2.58 (Miles) **4.152 (Kilometers)**

Total Vehicle Exposure = 26.3 (MVMT) **42.32 (MVKMT)**

Crash Rate	Crashes Per 100 Million Vehicle Miles	Crashes Per 100 Million Vehicle Kilometers
Total Crash Rate	129.29	80.34
Fatal Crash Rate	0.00	0.00
Non Fatal Crash Rate	38.03	23.63
Night Crash Rate	45.63	28.35
Wet Crash Rate	41.83	25.99
EPDO Rate	930.89	578.43

Miscellaneous Statistics

Severity Index =	7.20
EPDO Crash Index =	244.80
Estimated Property Damage Total = $	161550.00

Accident Type Summary

Accident Type	Number of Crashes	Percent of Total
ANGLE	8	23.53
ANIMAL	4	11.76
FIXED OBJECT	1	2.94
HEAD ON	1	2.94
LEFT TURN, DIFFERENT ROADWAYS	2	5.88
LEFT TURN, SAME ROADWAY	3	8.82
OTHER NON-COLLISION	1	2.94
RAN OFF ROAD - LEFT	1	2.94
REAR END, SLOW OR STOP	8	23.53
REAR END, TURN	1	2.94
RIGHT TURN, DIFFERENT ROADWAYS	1	2.94
RIGHT TURN, SAME ROADWAY	1	2.94
SIDESWIPE, SAME DIRECTION	2	5.88

Injury Summary

Injury Type	Number of Injuries	Percent of Total
Fatal Injuries	0	0.00
Class A Injuries	2	12.50
Class B Injuries	5	31.25
Class C Injuries	9	56.25
Total Non-Fatal Injuries	16	100.00
Total Injuries	16	100.00

Monthly Summary

Month	Number of Crashes	Percent of Total
Jan	6	17.65
Feb	1	2.94
Mar	4	11.76
Apr	1	2.94
May	0	0.00
Jun	1	2.94
Jul	3	8.82
Aug	3	8.82
Sep	2	5.88
Oct	4	11.76
Nov	5	14.71
Dec	4	11.76

Daily Summary

Day	Number of Crashes	Percent of Total
Mon	3	8.82
Tue	9	26.47
Wed	9	26.47
Thu	4	11.76
Fri	5	14.71
Sat	0	0.00
Sun	4	11.76

Hourly Summary

Hour	Number of Crashes	Percent of Total
0000-0059	0	0.00
0100-0159	1	2.94
0200-0259	0	0.00
0300-0359	0	0.00
0400-0459	1	2.94
0500-0559	0	0.00
0600-0659	4	11.76
0700-0759	2	5.88
0800-0859	1	2.94
0900-0959	1	2.94
1000-1059	0	0.00
1100-1159	1	2.94
1200-1259	1	2.94
1300-1359	0	0.00
1400-1459	3	8.82
1500-1559	2	5.88
1600-1659	1	2.94
1700-1759	5	14.71
1800-1859	1	2.94
1900-1959	2	5.88
2000-2059	2	5.88
2100-2159	4	11.76
2200-2259	2	5.88
2300-2359	0	0.00

Light and Road Conditions Summary

Condition	Dry	Wet	Other	Total
Day	11	6	0	17
Dark	7	5	0	12
Other	5	0	0	5
Total	23	11	0	34

Object Struck Summary

Object Type	Times Struck	Percent of Total
ANIMAL	4	66.67
TREE	1	16.67
UTILITY POLE	1	16.67

Vehicle Type Summary

Vehicle Type	Number Involved	Percent of Total
LIGHT TRUCK (MINI-VAN, PANEL)	2	3.08
MOTORCYCLE	2	3.08
PASSENGER CAR	36	55.38
PICKUP	10	15.38
SINGLE UNIT TRUCK (3 OR MORE AXLES)	1	1.54
SPORT UTILITY	3	4.62
TRACTOR/SEMI-TRAILER	3	4.62
TRUCK/TRAILER	1	1.54
UNKNOWN	2	3.08
VAN	5	7.69

Yearly Totals Summary

Accident Totals

Year	Total Accidents	Fatal Accidents	Injury Accidents	Property Damage Only Accidents
2006	5	0	1	4
2007	15	0	6	9
2008	10	0	3	7
2009	4	0	0	4
Total	34	0	10	24

Injury Totals

Year	Fatal Injuries	Class A, B, or C Injuries
2006	0	1
2007	0	10
2008	0	5
2009	0	0
Total	0	16

Miscellaneous Totals

Year	Property Damage	EPDO Index
2006	$ 21100	12.40
2007	$ 62200	196.20
2008	$ 61250	32.20
2009	$ 17000	4.00
Total	$ 161550	244.80

Type of Accident Totals

Year	Left Turn	Right Turn	Rear End	Run Off Road & Fixed Object	Angle	Side Swipe	Other
2006	1	1	2	0	0	1	0
2007	1	0	4	2	4	0	4
2008	3	1	2	0	2	1	1
2009	0	0	1	0	2	0	1
Total	5	2	9	2	8	2	6

Strip Diagram

Features	Milepost	Crash IDs
SR 1008 | MARKET	0.000	102140013 | 102214439 | 102451421 | 102469228
	0.010	
	0.020	102175250
	0.030	
	0.040	
	0.050	102286714
	0.060	
	0.070	
	0.080	
	0.090	
	0.100	
	0.110	
	0.120	
	0.130	
	0.140	
	0.150	
	0.160	
	0.170	
	0.180	
	0.190	102224898
	0.200	
	0.210	
	0.220	
	0.230	
	0.240	
	0.250	
	0.260	
	0.270	
	0.280	
	0.290	
	0.300	
	0.310	
	0.320	
	0.330	
	0.340	
	0.350	
	0.360	
	0.370	
	0.380	
	0.390	
	0.400	
	0.410	
	0.420	
	0.430	

Features	Milepost	Crash IDs
	0.440	
	0.450	
	0.460	
	0.470	
	0.480	
	0.490	
	0.500	
	0.510	
	0.520	
	0.530	
	0.540	
	0.550	
	0.560	
	0.570	
	0.580	
	0.590	
	0.600	
	0.610	
	0.620	
	0.630	
	0.640	
	0.650	
	0.660	
	0.670	
	0.680	
	0.690	
	0.700	
	0.710	
	0.720	
	0.730	
	0.740	
	0.750	
	0.760	
	0.770	
	0.780	
	0.790	
	0.800	
	0.810	
	0.820	
	0.830	
	0.840	
	0.850	
	0.860	
	0.870	
	0.880	
	0.890	
HIGH POCKET	0.900	

Features	Milepost	Crash IDs
	0.910	
	0.920	
	0.930	
	0.940	
	0.950	102064598
	0.960	
	0.970	
	0.980	
	0.990	
	1.000	
	1.010	
SR 2016 | CUDE	1.020	
	1.030	
	1.040	
	1.050	
	1.060	
	1.070	
	1.080	
	1.090	
	1.100	
	1.110	
	1.120	
	1.130	
	1.140	
	1.150	
	1.160	
	1.170	
	1.180	
	1.190	
	1.200	
	1.210	
	1.220	
	1.230	
	1.240	
	1.250	
	1.260	
	1.270	
	1.280	
	1.290	
	1.300	
	1.310	
	1.320	
	1.330	
	1.340	
BRIGHAM	1.350	
	1.360	

Features	Milepost	Crash IDs
	1.370	
	1.380	
	1.390	
	1.400	
	1.410	
	1.420	
	1.430	
	1.440	
	1.450	
	1.460	
	1.470	
	1.480	
	1.490	
	1.500	
	1.510	
	1.520	
	1.530	
	1.540	
	1.550	
	1.560	
	1.570	
	1.580	
	1.590	
	1.600	
	1.610	
	1.620	
	1.630	
	1.640	
	1.650	
	1.660	
	1.670	
	1.680	
	1.690	
	1.700	
	1.710	
SR 2011 | EDGEFIELD	1.720	102459778 | 101815075 | 101939559
	1.730	
	1.740	
	1.750	
	1.760	
	1.770	
	1.780	
	1.790	
NC 68	1.800	101799780 | 101803847 | 101882278 | 101935093 |
		101987839 | 102090375 | 102101532 | 102187826 |
		102296386 | 102511173 | 102505238 | 102530048 |

Features	Milepost	Crash IDs
		102543704
	1.810	
	1.820	102561832
	1.830	
	1.840	
	1.850	
	1.860	
SR 4156 | REGIONAL	1.870	101989370 | 102085909 | 102118975 | 102164894 | 102242758 | 102260934
	1.880	
	1.890	
	1.900	
	1.910	
	1.920	
	1.930	
	1.940	
	1.950	
	1.960	
	1.970	
	1.980	
	1.990	
	2.000	
	2.010	
	2.020	
	2.030	
	2.040	
	2.050	
	2.060	
	2.070	102470004
	2.080	
	2.090	
ALLERTON	2.100	
	2.110	102539115
	2.120	
	2.130	
	2.140	
	2.150	
	2.160	
	2.170	
	2.180	
	2.190	
	2.200	
	2.210	
	2.220	
	2.230	

Features	Milepost	Crash IDs
	2.240	
	2.250	
	2.260	
	2.270	
	2.280	
	2.290	
	2.300	101888202
	2.310	
	2.320	
	2.330	
	2.340	
	2.350	
	2.360	
	2.370	
	2.380	
	2.390	
	2.400	
	2.410	
	2.420	
	2.430	
	2.440	
	2.450	
	2.460	
	2.470	
	2.480	
	2.490	
	2.500	
	2.510	
	2.520	
	2.530	
	2.540	
	2.550	
	2.560	
	2.570	
SR 3898 | MONTMARTRE	2.580	

Study Criteria

Study Name	Log No.	PH No.	TIP No.	K/A Cf.	B/C Cf.	ADT	ADT Route
41000000886	41000000886		FS0707A	76.8	8.4	9300	40002133

Request Date	Courier Service	Phone No.	Ext.	Fax No.
08/21/2009		919-829-0328		919-829-0329

County			Municipality					
Name	Code	Div.	Name	Code	Y-Line Ft.	Begin Date	End Date	Years
GUILFORD	40	7	All and Rural		0	7/1/2006	6/30/2009	3.00

Location Text

SR 2133 (Pleasant Ridge Rd) from SR 1008 (Market St) to SR 3898 (Montmartre Rd)

Requestor

Lauren Triebert, EI
Martin/Alexiou/Bryson, PLLC
Raleigh, NC 27607

Included Accidents	Old MP	New MP	Type
101987839	999.999	1.8	I
101989370	999.999	1.87	I
102064598	999.999	0.95	I
102140013	999.999	0	I
102286714	0	0.05	R
102539115	999.999	2.109	I

Excluded Accidents
101853605
101894176
102279822
102468360
102515967
102549752
102622459
102425731
101867426

Fiche Roads

Name	Code
SR 2133	40002133
PLEASANT RIDGE	50024415

Strip Road

Name	Code	Begin MP	End MP	Miles	Kilometers
SR 2133	40002133	0.000	2.580	2.580	4.152

Strip Road

Name	Code	Begin MP	End MP	Miles	Kilometers

Study Criteria Summary

County: GUILFORD **City:** All and Rural
Date: 07/01/2006 **to** 06/30/2009 **Study:** 41000000270
Location: SR 1850 (Sandy Ridge Rd) from SR 1008 (Market St) to SR 1956 (Endicott Rd)

Report Details

Acc No	Crash ID	Milepost	Date	Accident Type	Total Damage	Injuries F	A	B	C	Condition R	L	W	Road Ch	Ci	Trfc Ctl Dv	Op
1	102064599	0.000	06/12/2007 02:52	RAN OFF ROAD - STRAIGHT	$ 3000	0	0	0	0	1	5	5	1	0	3	1
Unit 1 : 1	Alchl/Drgs: 0	Speed: 35 MPH	Dir: N	Veh Mnvr/Ped Actn: 4	Obj Strk: 33											
2	102185877	0.000	11/07/2007 16:12	LEFT TURN, SAME ROADWAY	$ 6000	0	0	0	1	1	1	1	1	0	3	1
Unit 1 : 1	Alchl/Drgs: 0	Speed: 0 MPH	Dir: W	Veh Mnvr/Ped Actn: 8	Obj Strk:											
Unit 2 : 5	Alchl/Drgs: 0	Speed: 0 MPH	Dir: E	Veh Mnvr/Ped Actn: 4	Obj Strk:											
3	102400704	0.000	08/28/2008 17:28	RAN OFF ROAD - RIGHT	$ 8650	0	0	1	0	1	1	1	1	0		2
Unit 1 : 1	Alchl/Drgs: 0	Speed: 35 MPH	Dir: W	Veh Mnvr/Ped Actn: 4	Obj Strk: 38											
4	102463152	0.001	10/13/2008 12:46	RIGHT TURN, SAME ROADWAY	$ 3500	0	0	0	0	1	1	1	1	0	3	1
Unit 1 : 13	Alchl/Drgs: 0	Speed: 5 MPH	Dir: N	Veh Mnvr/Ped Actn: 7	Obj Strk:											
Unit 2 : 1	Alchl/Drgs: 0	Speed: 5 MPH	Dir: N	Veh Mnvr/Ped Actn: 7	Obj Strk: 58											
5	102066716	0.006	06/15/2007 13:21	BACKING UP	$ 1000	0	0	0	0	1	1	2	1	0	3	1
Unit 1 : 2	Alchl/Drgs: 0	Speed: 0 MPH	Dir: N	Veh Mnvr/Ped Actn: 10	Obj Strk:											
Unit 2 : 1	Alchl/Drgs: 0	Speed: 0 MPH	Dir: N	Veh Mnvr/Ped Actn: 1	Obj Strk:											
6	102505122	0.020	12/03/2008 06:59	REAR END, SLOW OR STOP	$ 5050	0	0	0	1	1	1	1	3	0	6	1
Unit 1 : 11	Alchl/Drgs: 0	Speed: 35 MPH	Dir: S	Veh Mnvr/Ped Actn: 1	Obj Strk:											
Unit 2 : 1	Alchl/Drgs: 0	Speed: 35 MPH	Dir: S	Veh Mnvr/Ped Actn: 1	Obj Strk:											
Unit 3 : 1	Alchl/Drgs: 0	Speed: 30 MPH	Dir: S	Veh Mnvr/Ped Actn: 4	Obj Strk:											
7	102495026	0.057	11/12/2008 09:27	REAR END, TURN	$ 4500	0	0	0	0	1	1	2	1	0	0	
Unit 1 : 14	Alchl/Drgs: 0	Speed: 0 MPH	Dir: N	Veh Mnvr/Ped Actn: 8	Obj Strk:											
Unit 2 : 4	Alchl/Drgs: 0	Speed: 40 MPH	Dir: N	Veh Mnvr/Ped Actn: 4	Obj Strk:											
8	101788622	0.095	07/14/2006 13:50	HEAD ON	$ 12000	0	0	0	2	1	1	1	1	0		2
Unit 1 : 4	Alchl/Drgs: 0	Speed: 0 MPH	Dir: N	Veh Mnvr/Ped Actn: 1	Obj Strk:											
Unit 2 : 1	Alchl/Drgs: 0	Speed: 0 MPH	Dir: N	Veh Mnvr/Ped Actn: 1	Obj Strk:											
Unit 3 : 1	Alchl/Drgs: 0	Speed: 0 MPH	Dir: N	Veh Mnvr/Ped Actn: 1	Obj Strk:											

Acc No	Crash ID	Milepost	Date	Accident Type	Total Damage	Injuries F	A	B	C	Condition R	L	W	Road Ch	Ci	Trfc Ctl Dv	Op
Unit 4 : 2	Alchl/Drgs: 0	Speed: 45 MPH	Dir: N	Veh Mnvr/Ped Actn: 4	Obj Strk:											
9	102271538	0.226	02/27/2008 17:28	REAR END, SLOW OR STOP	$ 1000	0	0	0	0	1	1	1	1	0		
Unit 1 : 4	Alchl/Drgs: 0	Speed: 10 MPH	Dir: N	Veh Mnvr/Ped Actn: 11	Obj Strk:											
Unit 2 : 4	Alchl/Drgs: 0	Speed: 0 MPH	Dir: N	Veh Mnvr/Ped Actn: 1	Obj Strk:											
10	102418211	0.620	09/26/2008 13:38	REAR END, SLOW OR STOP	$ 2000	0	0	0	0	2	1	3	1	0	3	1
Unit 1 : 4	Alchl/Drgs: 0	Speed: 35 MPH	Dir: S	Veh Mnvr/Ped Actn: 4	Obj Strk:											
Unit 2 : 1	Alchl/Drgs: 0	Speed: 35 MPH	Dir: S	Veh Mnvr/Ped Actn: 1	Obj Strk:											
11	101880422	0.630	11/07/2006 12:03	REAR END, SLOW OR STOP	$ 2700	0	0	0	1	2	1	2	1	0	3	1
Unit 1 : 4	Alchl/Drgs: 0	Speed: 0 MPH	Dir: W	Veh Mnvr/Ped Actn: 4	Obj Strk:											
Unit 2 : 2	Alchl/Drgs: 0	Speed: 0 MPH	Dir: W	Veh Mnvr/Ped Actn: 4	Obj Strk:											
12	101896705	0.630	11/25/2006 12:20	ANGLE	$ 5500	0	0	0	1	1	1	1	3	0	3	1
Unit 1 : 1	Alchl/Drgs: 0	Speed: 45 MPH	Dir: W	Veh Mnvr/Ped Actn: 4	Obj Strk:											
Unit 2 : 1	Alchl/Drgs: 0	Speed: 45 MPH	Dir: N	Veh Mnvr/Ped Actn: 4	Obj Strk:											
13	102254664	0.630	08/02/2007 11:28	ANGLE	$ 11000	0	0	0	2	1	1	1		0		
Unit 1 : 14	Alchl/Drgs: 0	Speed: 0 MPH	Dir: W	Veh Mnvr/Ped Actn: 4	Obj Strk:											
Unit 2 : 1	Alchl/Drgs: 0	Speed: 0 MPH	Dir: S	Veh Mnvr/Ped Actn: 4	Obj Strk:											
14	102186385	0.649	01/31/2008 00:00	SIDESWIPE, SAME DIRECTION	$ 8500	0	0	0	0	1	4	1	1	0	3	1
Unit 1 : 14	Alchl/Drgs: 0	Speed: 30 MPH	Dir: N	Veh Mnvr/Ped Actn: 4	Obj Strk:											
Unit 2 : 1	Alchl/Drgs: 0	Speed: 30 MPH	Dir: N	Veh Mnvr/Ped Actn: 5	Obj Strk:											
15	102358943	0.700	07/01/2008 07:32	OVERTURN/ROLLOVER	$ 300	0	0	0	1	1	1	1	1	0		
Unit 1 : 20	Alchl/Drgs: 0	Speed: 35 MPH	Dir: N	Veh Mnvr/Ped Actn: 4	Obj Strk:											
16	101933464	0.709	01/12/2007 16:20	RIGHT TURN, SAME ROADWAY	$ 10000	0	1	0	0	1	1	1	3	0	3	1
Unit 1 : 1	Alchl/Drgs: 0	Speed: 10 MPH	Dir: NE	Veh Mnvr/Ped Actn: 5	Obj Strk:											
Unit 2 : 1	Alchl/Drgs: 0	Speed: 40 MPH	Dir: N	Veh Mnvr/Ped Actn: 4	Obj Strk:											
17	102053578	0.709	05/30/2007 17:01	ANGLE	$ 5200	0	0	0	1	2	1	3	3	0	3	1
Unit 1 : 1	Alchl/Drgs: 0	Speed: 0 MPH	Dir: N	Veh Mnvr/Ped Actn: 4	Obj Strk:											
Unit 2 : 1	Alchl/Drgs: 0	Speed: 0 MPH	Dir: W	Veh Mnvr/Ped Actn: 8	Obj Strk:											

Acc No	Crash ID	Milepost	Date	Accident Type	Total Damage	Injuries F	A	B	C	Condition R	L	W	Road Ch	Ci	Trfc Ctl Dv	Op
18	102557495	0.709	03/16/2009 13:04	ANGLE	$ 4500	0	0	0	0	2	1	2	3	0	3	1
Unit 1 : 4	Alchl/Drgs: 0	Speed: 25 MPH	Dir: N	Veh Mnvr/Ped Actn: 4	Obj Strk:											
Unit 2 : 1	Alchl/Drgs: 0	Speed: 15 MPH	Dir: W	Veh Mnvr/Ped Actn: 8	Obj Strk:											
19	102600057	0.709	05/13/2009 13:48	ANGLE	$ 2500	0	0	0	0	1	1	2	1	0	3	1
Unit 1 : 1	Alchl/Drgs: 0	Speed: 25 MPH	Dir: W	Veh Mnvr/Ped Actn: 8	Obj Strk:											
Unit 2 : 1	Alchl/Drgs: 0	Speed: 35 MPH	Dir: S	Veh Mnvr/Ped Actn: 4	Obj Strk:											
20	102545842	0.748	02/28/2009 00:32	RAN OFF ROAD - RIGHT	$ 2000	0	0	0	0	2	4	2	1	0		
Unit 1 : 4	Alchl/Drgs: 0	Speed: 35 MPH	Dir: N	Veh Mnvr/Ped Actn: 4	Obj Strk: 50											
21	102124361	0.762	08/29/2007 13:00	SIDESWIPE, SAME DIRECTION	$ 2500	0	0	0	0	1	1	1	1	0	3	1
Unit 1 : 1	Alchl/Drgs: 0	Speed: 15 MPH	Dir: N	Veh Mnvr/Ped Actn: 5	Obj Strk:											
Unit 2 : 4	Alchl/Drgs: 0	Speed: 10 MPH	Dir: N	Veh Mnvr/Ped Actn: 4	Obj Strk:											
22	101997644	0.781	03/29/2007 06:55	ANGLE	$ 1600	0	0	0	0	2	3	3	1	0	3	1
Unit 1 : 5	Alchl/Drgs: 0	Speed: 35 MPH	Dir: N	Veh Mnvr/Ped Actn: 4	Obj Strk:											
Unit 2 : 1	Alchl/Drgs: 0	Speed: 35 MPH	Dir: S	Veh Mnvr/Ped Actn: 8	Obj Strk:											
23	102070739	0.812	06/22/2007 10:20	REAR END, SLOW OR STOP	$ 200	0	0	0	1	1	1	1	3	0	0	
Unit 1 : 1	Alchl/Drgs: 0	Speed: 0 MPH	Dir: N	Veh Mnvr/Ped Actn: 1	Obj Strk:											
Unit 2 : 1	Alchl/Drgs: 0	Speed: 45 MPH	Dir: N	Veh Mnvr/Ped Actn: 4	Obj Strk:											
24	102334760	0.865	05/28/2008 12:10	REAR END, SLOW OR STOP	$ 1400	0	0	0	1	2	1	3	1	0	3	1
Unit 1 : 2	Alchl/Drgs: 0	Speed: 35 MPH	Dir: S	Veh Mnvr/Ped Actn: 4	Obj Strk:											
Unit 2 : 1	Alchl/Drgs: 0	Speed: 0 MPH	Dir: S	Veh Mnvr/Ped Actn: 1	Obj Strk:											
Unit 3 : 1	Alchl/Drgs: 0	Speed: 0 MPH	Dir: S	Veh Mnvr/Ped Actn: 1	Obj Strk:											
25	102431974	0.875	10/03/2008 18:43	LEFT TURN, SAME ROADWAY	$ 5500	0	0	0	0	1	1	1	3	0	3	1
Unit 1 : 1	Alchl/Drgs: 0	Speed: 0 MPH	Dir: S	Veh Mnvr/Ped Actn: 8	Obj Strk:											
Unit 2 : 2	Alchl/Drgs: 0	Speed: 0 MPH	Dir: N	Veh Mnvr/Ped Actn: 4	Obj Strk:											
26	102589246	0.875	04/29/2009 20:28	REAR END, SLOW OR STOP	$ 1100	0	0	0	0	1	4	1	3	0	3	1
Unit 1 : 13	Alchl/Drgs: 0	Speed: 5 MPH	Dir: N	Veh Mnvr/Ped Actn: 1	Obj Strk:											
Unit 2 : 1	Alchl/Drgs: 0	Speed: 5 MPH	Dir: N	Veh Mnvr/Ped Actn: 1	Obj Strk:											

Acc No	Crash ID	Milepost	Date	Accident Type	Total Damage	Injuries F	A	B	C	Condition R	L	W	Road Ch	Ci	Trfc Ctl Dv	Op
27	101873106	0.900	10/31/2006 17:50	REAR END, SLOW OR STOP	$ 12000	0	0	0	0	1	5	1	3	0		
Unit 1 : 2	Alchl/Drgs: 0	Speed: 45 MPH	Dir: N	Veh Mnvr/Ped Actn: 4	Obj Strk:											
Unit 2 : 1	Alchl/Drgs: 0	Speed: 0 MPH	Dir: N	Veh Mnvr/Ped Actn: 1	Obj Strk:											
28	101866481	0.920	10/25/2006 18:00	FIXED OBJECT	$ 1600	0	0	1	0	1	1	1	1	0	1	1
Unit 1 : 20	Alchl/Drgs: 0	Speed: 35 MPH	Dir: E	Veh Mnvr/Ped Actn: 7	Obj Strk: 58											
29	101948485	0.920	01/30/2007 17:00	LEFT TURN, DIFFERENT ROADWAYS	$ 8500	0	0	0	0	1	2	1	3	0	1	1
Unit 1 : 2	Alchl/Drgs: 0	Speed: 15 MPH	Dir: E	Veh Mnvr/Ped Actn: 8	Obj Strk:											
Unit 2 : 4	Alchl/Drgs: 0	Speed: 30 MPH	Dir: S	Veh Mnvr/Ped Actn: 4	Obj Strk:											
30	101958656	0.920	02/12/2007 12:18	LEFT TURN, DIFFERENT ROADWAYS	$ 2800	0	0	0	0	1	1	2	1	0	1	1
Unit 1 : 2	Alchl/Drgs: 0	Speed: 5 MPH	Dir: E	Veh Mnvr/Ped Actn: 8	Obj Strk:											
Unit 2 : 1	Alchl/Drgs: 0	Speed: 30 MPH	Dir: N	Veh Mnvr/Ped Actn: 8	Obj Strk:											
31	102165194	0.920	10/16/2007 14:16	LEFT TURN, DIFFERENT ROADWAYS	$ 3750	0	0	0	0	1	1	1		0		
Unit 1 : 4	Alchl/Drgs: 0	Speed: 0 MPH	Dir: S	Veh Mnvr/Ped Actn: 4	Obj Strk:											
Unit 2 : 4	Alchl/Drgs: 0	Speed: 0 MPH	Dir: E	Veh Mnvr/Ped Actn: 8	Obj Strk:											
32	102171531	0.920	10/24/2007 07:35	LEFT TURN, DIFFERENT ROADWAYS	$ 1050	0	0	0	0	2	1	2	1	0	1	1
Unit 1 : 1	Alchl/Drgs: 0	Speed: 45 MPH	Dir: S	Veh Mnvr/Ped Actn: 4	Obj Strk:											
Unit 2 : 2	Alchl/Drgs: 0	Speed: 10 MPH	Dir: E	Veh Mnvr/Ped Actn: 8	Obj Strk:											
33	102178376	0.920	10/30/2007 18:45	LEFT TURN, DIFFERENT ROADWAYS	$ 5590	0	0	0	1	1	5	1	1	0	1	1
Unit 1 : 4	Alchl/Drgs: 0	Speed: 10 MPH	Dir: E	Veh Mnvr/Ped Actn: 8	Obj Strk:											
Unit 2 : 1	Alchl/Drgs: 0	Speed: 45 MPH	Dir: S	Veh Mnvr/Ped Actn: 4	Obj Strk:											
34	102277726	0.920	03/07/2008 08:15	LEFT TURN, DIFFERENT ROADWAYS	$ 2500	0	0	0	0	2	1	2	3	0	1	1
Unit 1 : 3	Alchl/Drgs: 0	Speed: 40 MPH	Dir: S	Veh Mnvr/Ped Actn: 4	Obj Strk:											
Unit 2 : 10	Alchl/Drgs: 0	Speed: 8 MPH	Dir: E	Veh Mnvr/Ped Actn: 8	Obj Strk:											
35	102374098	0.920	08/19/2008 17:30	LEFT TURN, DIFFERENT ROADWAYS	$ 300	0	0	1	0	1	1	1	3	0	1	1
Unit 1 : 4	Alchl/Drgs: 0	Speed: 10 MPH	Dir: E	Veh Mnvr/Ped Actn: 8	Obj Strk:											
Unit 2 : 20	Alchl/Drgs: 0	Speed: 40 MPH	Dir: S	Veh Mnvr/Ped Actn: 4	Obj Strk:											
36	102488750	0.920	01/07/2009 13:20	LEFT TURN, DIFFERENT ROADWAYS	$ 3900	0	0	0	0	1	1	1	3	0	1	1
Unit 1 : 4	Alchl/Drgs: 0	Speed: 35 MPH	Dir: N	Veh Mnvr/Ped Actn: 4	Obj Strk:											

Acc No	Crash ID	Milepost	Date	Accident Type	Total Damage	Injuries F	Injuries A	Injuries B	Injuries C	Condition R	Condition L	Condition W	Road Ch	Road Ci	Trfc Ctl Dv	Trfc Ctl Op
Unit	**2 : 1**	**Alchl/Drgs:**	0	**Speed:** 10 MPH **Dir:** E		**Veh Mnvr/Ped Actn:**				8		**Obj Strk:**				
37	**102578757**	0.920	04/27/2009 16:12	LEFT TURN, DIFFERENT ROADWAYS	$ 3500	0	0	0	0	1	1	1	1	0	1	1
Unit	**1 : 2**	**Alchl/Drgs:**	0	**Speed:** 15 MPH **Dir:** E		**Veh Mnvr/Ped Actn:**				8		**Obj Strk:**				
Unit	**2 : 1**	**Alchl/Drgs:**	0	**Speed:** 25 MPH **Dir:** N		**Veh Mnvr/Ped Actn:**				8		**Obj Strk:**				
38	**101980748**	0.940	03/11/2007 16:38	LEFT TURN, SAME ROADWAY	$ 3200	0	0	0	0	1	1	1	1	0	0	
Unit	**1 : 1**	**Alchl/Drgs:**	0	**Speed:** 45 MPH **Dir:** E		**Veh Mnvr/Ped Actn:**				4		**Obj Strk:**				
Unit	**2 : 1**	**Alchl/Drgs:**	0	**Speed:** 35 MPH **Dir:** W		**Veh Mnvr/Ped Actn:**				8		**Obj Strk:**				
39	**101806182**	1.020	08/12/2006 11:00	LEFT TURN, DIFFERENT ROADWAYS	$ 6000	0	0	0	0	2	1	2	1	0	13	1
Unit	**1 : 1**	**Alchl/Drgs:**	0	**Speed:** 45 MPH **Dir:** S		**Veh Mnvr/Ped Actn:**				4		**Obj Strk:**				
Unit	**2 : 1**	**Alchl/Drgs:**	0	**Speed:** 5 MPH **Dir:** E		**Veh Mnvr/Ped Actn:**				8		**Obj Strk:**				
40	**102137031**	1.040	12/01/2007 10:35	LEFT TURN, DIFFERENT ROADWAYS	$ 12000	0	1	1	0	1	1	1	1	0	13	1
Unit	**1 : 11**	**Alchl/Drgs:**	0	**Speed:** 35 MPH **Dir:** S		**Veh Mnvr/Ped Actn:**				4		**Obj Strk:**				
Unit	**2 : 1**	**Alchl/Drgs:**	0	**Speed:** 10 MPH **Dir:** E		**Veh Mnvr/Ped Actn:**				8		**Obj Strk:**				

Legend for Report Details:

Acc No - Accident Number
Injuries: F - Fatal, A - Class A, B - Class B, C - Class C
Condition: R - Road Surface, L - Ambient Light, W - Weather
Rd Ch - Road Character
Rd Ci - Roadway Contributing Circumstances
Trfc Ctl - Traffic Control: Dv - Device, Op - Operating
Alchl/Drgs - Alcohol Drugs Suspected
Veh Mnvr/Ped Actn - Vehicle Maneuver/Pedestrian Action
Obj Strk - Object Struck

Summary Statistics

High Level Crash Summary

Crash Type	Number of Crashes	Percent of Total
Total Crashes	40	100.00
Fatal Crashes	0	0.00
Non-Fatal Injury Crashes	16	40.00
Total Injury Crashes	16	40.00
Property Damage Only Crashes	24	60.00
Night Crashes	6	15.00
Wet Crashes	10	25.00
Alcohol/Drugs Involvement Crashes	0	0.00

Crash Severity Summary

Crash Type	Number of Crashes	Percent of Total
Total Crashes	40	100.00
Fatal Crashes	0	0.00
Class A Crashes	2	5.00
Class B Crashes	3	7.50
Class C Crashes	11	27.50
Property Damage Only Crashes	24	60.00

Vehicle Exposure Statistics

Annual ADT = **10500**

Total Length = **1.04 (Miles)** **1.674 (Kilometers)**

Total Vehicle Exposure = **11.97 (MVMT)** **19.26 (MVKMT)**

Crash Rate	Crashes Per 100 Million Vehicle Miles	Crashes Per 100 Million Vehicle Kilometers
Total Crash Rate	334.22	207.67
Fatal Crash Rate	0.00	0.00
Non Fatal Crash Rate	133.69	83.07
Night Crash Rate	50.13	31.15
Wet Crash Rate	83.55	51.92
EPDO Rate	2466.51	1532.62

Miscellaneous Statistics

Severity Index =	7.38
EPDO Crash Index =	295.20
Estimated Property Damage Total = $	177890.00

Accident Type Summary

Accident Type	Number of Crashes	Percent of Total
ANGLE	6	15.00
BACKING UP	1	2.50
FIXED OBJECT	1	2.50
HEAD ON	1	2.50
LEFT TURN, DIFFERENT ROADWAYS	11	27.50
LEFT TURN, SAME ROADWAY	3	7.50
OVERTURN/ROLLOVER	1	2.50
RAN OFF ROAD - RIGHT	2	5.00
RAN OFF ROAD - STRAIGHT	1	2.50
REAR END, SLOW OR STOP	8	20.00
REAR END, TURN	1	2.50
RIGHT TURN, SAME ROADWAY	2	5.00
SIDESWIPE, SAME DIRECTION	2	5.00

Injury Summary

Injury Type	Number of Injuries	Percent of Total
Fatal Injuries	0	0.00
Class A Injuries	2	10.53
Class B Injuries	4	21.05
Class C Injuries	13	68.42
Total Non-Fatal Injuries	19	100.00
Total Injuries	19	100.00

Monthly Summary

Month	Number of Crashes	Percent of Total
Jan	4	10.00
Feb	3	7.50
Mar	4	10.00
Apr	2	5.00
May	3	7.50
Jun	3	7.50
Jul	2	5.00
Aug	5	12.50
Sep	1	2.50
Oct	7	17.50
Nov	4	10.00
Dec	2	5.00

Daily Summary

Day	Number of Crashes	Percent of Total
Mon	4	10.00
Tue	8	20.00
Wed	12	30.00
Thu	4	10.00
Fri	7	17.50
Sat	4	10.00
Sun	1	2.50

Hourly Summary

Hour	Number of Crashes	Percent of Total
0000-0059	2	5.00
0100-0159	0	0.00
0200-0259	1	2.50
0300-0359	0	0.00
0400-0459	0	0.00
0500-0559	0	0.00
0600-0659	2	5.00
0700-0759	2	5.00
0800-0859	1	2.50
0900-0959	1	2.50
1000-1059	2	5.00
1100-1159	2	5.00
1200-1259	5	12.50
1300-1359	7	17.50
1400-1459	1	2.50
1500-1559	0	0.00
1600-1659	4	10.00
1700-1759	6	15.00
1800-1859	3	7.50
1900-1959	0	0.00
2000-2059	1	2.50
2100-2159	0	0.00
2200-2259	0	0.00
2300-2359	0	0.00

Light and Road Conditions Summary

Condition	Dry	Wet	Other	Total
Day	24	8	0	32
Dark	5	1	0	6
Other	1	1	0	2
Total	30	10	0	40

Object Struck Summary

Object Type	Times Struck	Percent of Total
BRIDGE RAIL FACE	1	20.00
DITCH	2	40.00
OFFICIAL HIGHWAY SIGN BREAKAWAY	1	20.00
TREE	1	20.00

Vehicle Type Summary

Vehicle Type	Number Involved	Percent of Total
LIGHT TRUCK (MINI-VAN, PANEL)	1	1.27
MOTORCYCLE	3	3.80
PASSENGER CAR	40	50.63
PICKUP	10	12.66
SINGLE UNIT TRUCK (2-AXLE, 6-TIRE)	1	1.27
SINGLE UNIT TRUCK (3 OR MORE AXLES)	2	2.53
SPORT UTILITY	15	18.99
TRACTOR/SEMI-TRAILER	3	3.80
TRUCK/TRACTOR	2	2.53
VAN	2	2.53

Yearly Totals Summary

Accident Totals

Year	Total Accidents	Fatal Accidents	Injury Accidents	Property Damage Only Accidents
2006	6	0	4	2
2007	16	0	7	9
2008	12	0	5	7
2009	6	0	0	6
Total	40	0	16	24

Injury Totals

Year	Fatal Injuries	Class A, B, or C Injuries
2006	0	5
2007	0	9
2008	0	5
2009	0	0
Total	0	19

Miscellaneous Totals

Year	Property Damage	EPDO Index
2006	$ 39800	35.60
2007	$ 77390	204.60
2008	$ 43200	49.00
2009	$ 17500	6.00
Total	$ 177890	295.20

Type of Accident Totals

Year	Left Turn	Right Turn	Rear End	Run Off Road & Fixed Object	Angle	Side Swipe	Other
2006	1	0	2	1	1	0	1
2007	8	1	1	1	3	1	1
2008	3	1	5	1	0	1	1
2009	2	0	1	1	2	0	0
Total	14	2	9	4	6	2	3

Strip Diagram

Features	Milepost	Crash IDs
SR 1008 | MARKET	0.000	102064599 | 102185877 | 102400704 | 102463152
	0.010	102066716
	0.020	102505122
Railroad Crossing:722101F	0.030	
	0.040	
	0.050	
	0.060	102495026
	0.070	
	0.080	
	0.090	101788622
	0.100	
	0.110	
	0.120	
	0.130	
	0.140	
	0.150	
	0.160	
	0.170	
	0.180	
	0.190	
	0.200	
	0.210	
	0.220	
SR 1847 | CIDER	0.230	102271538
	0.240	
	0.250	
	0.260	
	0.270	
	0.280	
	0.290	
	0.300	
	0.310	
	0.320	
	0.330	
	0.340	
	0.350	
	0.360	
	0.370	
	0.380	
	0.390	
	0.400	
	0.410	
	0.420	

Features	Milepost	Crash IDs
	0.430	
	0.440	
	0.450	
	0.460	
SR 1848 | FARRINGTON	0.470	
	0.480	
	0.490	
	0.500	
	0.510	
	0.520	
	0.530	
	0.540	
	0.550	
	0.560	
	0.570	
	0.580	
	0.590	
	0.600	
	0.610	
	0.620	102418211
SR 1924 | TRIAD	0.630	101880422 | 101896705 | 102254664
	0.640	
	0.650	102186385
	0.660	
	0.670	
	0.680	
	0.690	
	0.700	102358943
I 40 W OFF/ON RAMP	0.710	101933464 | 102053578 | 102557495 | 102600057
	0.720	
	0.730	
	0.740	
	0.750	102545842
	0.760	102124361
	0.770	
	0.780	101997644
	0.790	
US 421 | I 40 | Structure:400076	0.800	
	0.810	102070739
	0.820	
	0.830	
	0.840	
	0.850	
	0.860	
	0.870	102334760

Features	Milepost	Crash IDs
I 40 E OFF/ON RAMP	0.880	102431974 | 102589246
ML-GREENSBORO	0.890	
	0.900	101873106
	0.910	
SR 1849 | NORCROSS	0.920	101866481 | 101948485 | 101958656 | 102165194 | 102171531 | 102178376 | 102277726 | 102374098 | 102488750 | 102578757
	0.930	
	0.940	101980748
	0.950	
	0.960	
	0.970	
	0.980	
	0.990	
	1.000	
	1.010	
	1.020	101806182
	1.030	
SR 1956 | ENDICOTT	1.040	102137031

Study Criteria

Study Name	Log No.	PH No.	TIP No.	K/A Cf.	B/C Cf.	ADT	ADT Route
41000000270	41000000270	FS0707A		76.8	8.4	10500	40001850

Request Date	Courier Service	Phone No.	Ext.	Fax No.
08/18/2009		919-829 0328		919-829 0329

County			Municipality				
Name	Code	Div.	Name	Code	Y-Line Ft.	Begin Date	End Date	Years
GUILFORD	40	7	All and Rural		0	07/01/2006	06/30/2009	3.00

Location Text

SR 1850 (Sandy Ridge Rd) from SR 1008 (Market St) to SR 1956 (Endicott Rd)

Requestor

Andrew Topp
Marti/Alexiou/Bryson
4000 Westchase Blvd
Raleigh

Included Accidents	Old MP	New MP	Type
102600057	0.8	0.709	R
102589246	0.8	0.875	R
102557495	0.8	0.709	R
102505122	0	0.02	R
102431974	0.8	0.875	R
102418211	0.63	0.62	R
102334760	0.8	0.865	R
102178376	999.999	0.92	I
102053578	0.8	0.709	R
101933464	0.8	0.709	R
101866481	0.948	0.92	R

Excluded Accidents
102593524
101836306
101833013
101849892
101867739
101888197
101928430
101929208
102111920
102250121
102287902
102321855

Excluded Accidents
102397136
102403447
102464663
102473121
102575484
102575506
102575923
102622455
102588720

Fiche Roads

Name	Code
SR 1850	40001850
SANDY RIDGE	50027143
SQUIRE DAVIS	50028918
SR 1855	40001855

Strip Road

Name	Code	Begin MP	End MP	Miles	Kilometers
SR 1850	40001850	0.000	1.040	1.040	1.674

Study Criteria Summary

County: GUILFORD **City:** All and Rural
Date: 07/01/2006 **to** 06/30/2009 **Study:** 41000000775
Location: SR 2085 (Airport Pkwy-Bryan Blvd) from NC 68 to SR 2137 (Old Oak Ridge Rd)

Report Details

Acc No	Crash ID	Milepost	Date	Accident Type	Total Damage	Injuries F	A	B	C	Condition R	L	W	Road Ch	Ci	Trfc Ctl Dv	Op
1	102127319	0.000	09/01/2007 12:16	RAN OFF ROAD - RIGHT	$ 8000	0	0	1	0	1	1	1	2	0	0	
Unit 1 : 4	Alchl/Drgs: 0	Speed: 40 MPH	Dir: S	Veh Mnvr/Ped Actn: 4	Obj Strk: 59											
2	102412439	0.002	09/12/2008 18:26	SIDESWIPE, SAME DIRECTION	$ 1000	0	0	0	1	1	1	1	1	0		
Unit 1 : 1	Alchl/Drgs: 0	Speed: 45 MPH	Dir: E	Veh Mnvr/Ped Actn: 5	Obj Strk:											
Unit 2 : 4	Alchl/Drgs: 0	Speed: 45 MPH	Dir: E	Veh Mnvr/Ped Actn: 4	Obj Strk:											
3	101888599	0.100	11/16/2006 08:44	RAN OFF ROAD - LEFT	$ 8000	0	0	0	0	2	1	3	7	0		
Unit 1 : 1	Alchl/Drgs: 0	Speed: 55 MPH	Dir: W	Veh Mnvr/Ped Actn: 4	Obj Strk: 33											
4	102008136	0.100	01/16/2007 06:56	UNKNOWN	$ 2200	0	0	0	0	1	4	2	1	0		
Unit 1 : 5	Alchl/Drgs: 0	Speed: 0 MPH	Dir: N	Veh Mnvr/Ped Actn: 4	Obj Strk:											
Unit 2 : 12	Alchl/Drgs: 0	Speed: 0 MPH	Dir: N	Veh Mnvr/Ped Actn: 4	Obj Strk:											
5	102563997	0.200	03/31/2009 18:50	REAR END, SLOW OR STOP	$ 4700	0	0	0	1	1	1	1	1	0	3	1
Unit 1 : 1	Alchl/Drgs: 0	Speed: 55 MPH	Dir: E	Veh Mnvr/Ped Actn: 4	Obj Strk:											
Unit 2 : 1	Alchl/Drgs: 0	Speed: 0 MPH	Dir: E	Veh Mnvr/Ped Actn: 1	Obj Strk:											
6	102439389	0.307	11/10/2008 18:23	REAR END, SLOW OR STOP	$ 4500	0	0	0	0	1	5	1	5	0	3	1
Unit 1 : 2	Alchl/Drgs: 0	Speed: 55 MPH	Dir: E	Veh Mnvr/Ped Actn: 4	Obj Strk:											
Unit 2 : 1	Alchl/Drgs: 0	Speed: 0 MPH	Dir: E	Veh Mnvr/Ped Actn: 1	Obj Strk:											
7	102252762	0.310	02/01/2008 08:58	REAR END, SLOW OR STOP	$ 7000	0	0	1	0	2	1	3	1	0		
Unit 1 : 1	Alchl/Drgs: 0	Speed: 45 MPH	Dir: W	Veh Mnvr/Ped Actn: 4	Obj Strk:											
Unit 2 : 4	Alchl/Drgs: 0	Speed: 45 MPH	Dir: W	Veh Mnvr/Ped Actn: 11	Obj Strk:											
8	102262604	0.310	02/14/2008 01:43	RAN OFF ROAD - RIGHT	$ 3000	0	0	0	0	4	5	4	7	0		
Unit 1 : 1	Alchl/Drgs: 0	Speed: 50 MPH	Dir: W	Veh Mnvr/Ped Actn: 4	Obj Strk: 37											
9	102355932	0.324	06/26/2008 08:10	REAR END, SLOW OR STOP	$ 1800	0	0	0	1	2	1	1	1	0		
Unit 1 : 1	Alchl/Drgs: 0	Speed: 45 MPH	Dir: E	Veh Mnvr/Ped Actn: 5	Obj Strk:											

Acc No	Crash ID	Milepost	Date	Accident Type	Total Damage	Injuries F	A	B	C	Condition R	L	W	Road Ch	Ci	Trfc Ctl Dv	Op
Unit 2 : 1	Alchl/Drgs: 0	Speed: 50 MPH	Dir: W	Veh Mnvr/Ped Actn: 4	Obj Strk:											
10	102131103	0.410	05/20/2007 22:30	RAN OFF ROAD - LEFT	$ 5000	0	0	1	0	1	5	1	5	0	0	
Unit 1 : 32	Alchl/Drgs: 7	Speed: 0 MPH	Dir: SW	Veh Mnvr/Ped Actn: 4	Obj Strk: 18											
11	102044435	0.410	05/21/2007 14:21	RAN OFF ROAD - LEFT	$ 5000	0	0	0	0	1	5	1	5	0	0	
Unit 1 : 1	Alchl/Drgs: 7	Speed: 0 MPH	Dir: SW	Veh Mnvr/Ped Actn: 4	Obj Strk: 18											
12	102572283	0.410	04/09/2009 09:00	REAR END, SLOW OR STOP	$ 500	0	0	0	0	1	1	1	1	0		
Unit 1 : 32	Alchl/Drgs: 7	Speed: 0 MPH	Dir: W	Veh Mnvr/Ped Actn: 4	Obj Strk:											
Unit 2 : 16	Alchl/Drgs: 0	Speed: 55 MPH	Dir: W	Veh Mnvr/Ped Actn: 11	Obj Strk:											
13	101915797	0.420	12/18/2006 21:48	REAR END, SLOW OR STOP	$ 15000	0	0	0	0	1	5	1	1	0	0	2
Unit 1 : 2	Alchl/Drgs: 0	Speed: 0 MPH	Dir: E	Veh Mnvr/Ped Actn: 1	Obj Strk:											
Unit 2 : 4	Alchl/Drgs: 1	Speed: 55 MPH	Dir: E	Veh Mnvr/Ped Actn: 4	Obj Strk:											
14	101898382	0.453	11/27/2006 18:07	REAR END, SLOW OR STOP	$ 6800	0	0	0	0	1	5	1	1	0	3	1
Unit 1 : 1	Alchl/Drgs: 0	Speed: 40 MPH	Dir: E	Veh Mnvr/Ped Actn: 11	Obj Strk:											
Unit 2 : 1	Alchl/Drgs: 0	Speed: 25 MPH	Dir: E	Veh Mnvr/Ped Actn: 11	Obj Strk:											
15	102530099	0.453	01/16/2009 14:59	RAN OFF ROAD - LEFT	$ 15000	0	0	1	0	1	1	1	7	0		
Unit 1 : 1	Alchl/Drgs: 0	Speed: 60 MPH	Dir: W	Veh Mnvr/Ped Actn: 4	Obj Strk: 59											
16	102239876	0.500	01/13/2008 23:51	ANIMAL	$ 5500	0	0	0	0	1	5	1		0		
Unit 1 : 1	Alchl/Drgs: 0	Speed: 0 MPH	Dir: W	Veh Mnvr/Ped Actn: 4	Obj Strk: 17											
17	102547082	0.504	03/02/2009 09:22	REAR END, SLOW OR STOP	$ 4000	0	0	0	0	2	1	4	1	0	3	1
Unit 1 : 10	Alchl/Drgs: 0	Speed: 15 MPH	Dir: W	Veh Mnvr/Ped Actn: 16	Obj Strk:											
Unit 2 : 1	Alchl/Drgs: 0	Speed: 0 MPH	Dir: W	Veh Mnvr/Ped Actn: 16	Obj Strk:											
18	101779006	0.510	07/06/2006 13:18	ANGLE	$ 9000	0	0	0	1	1	1	1	3	12	3	1
Unit 1 : 2	Alchl/Drgs: 0	Speed: 55 MPH	Dir: W	Veh Mnvr/Ped Actn: 4	Obj Strk:											
Unit 2 : 4	Alchl/Drgs: 0	Speed: 55 MPH	Dir: N	Veh Mnvr/Ped Actn: 8	Obj Strk:											
19	101805020	0.510	08/10/2006 07:57	REAR END, SLOW OR STOP	$ 7000	0	0	0	0	1	1	2	1	0	3	1
Unit 1 : 1	Alchl/Drgs: 0	Speed: 0 MPH	Dir: E	Veh Mnvr/Ped Actn: 11	Obj Strk:											
Unit 2 : 1	Alchl/Drgs: 0	Speed: 0 MPH	Dir: E	Veh Mnvr/Ped Actn: 1	Obj Strk:											

Acc No	Crash ID	Milepost	Date	Accident Type	Total Damage	Injuries F	A	B	C	Condition R	L	W	Road Ch	Ci	Trfc Ctl Dv	Op
20	101886800	0.510	11/14/2006 07:57	REAR END, SLOW OR STOP	$ 4900	0	0	0	1	1	1	1	1	0	3	1
Unit 1 : 1	Alchl/Drgs: 0	Speed: 10 MPH	Dir: N	Veh Mnvr/Ped Actn: 12	Obj Strk:											
Unit 2 : 1	Alchl/Drgs: 0	Speed: 10 MPH	Dir: N	Veh Mnvr/Ped Actn: 12	Obj Strk:											
Unit 3 : 1	Alchl/Drgs: 0	Speed: 20 MPH	Dir: N	Veh Mnvr/Ped Actn: 12	Obj Strk:											
21	101928412	0.510	11/22/2006 11:50	REAR END, SLOW OR STOP	$ 5000	0	0	0	0	3	1	3	1	0	3	1
Unit 1 : 1	Alchl/Drgs: 0	Speed: 55 MPH	Dir: E	Veh Mnvr/Ped Actn: 1	Obj Strk:											
Unit 2 : 1	Alchl/Drgs: 0	Speed: 55 MPH	Dir: E	Veh Mnvr/Ped Actn: 11	Obj Strk:											
22	101935069	0.510	01/09/2007 19:33	ANGLE	$ 17000	0	0	0	2	1	1	1	1	0	3	1
Unit 1 : 1	Alchl/Drgs: 0	Speed: 45 MPH	Dir: W	Veh Mnvr/Ped Actn: 4	Obj Strk:											
Unit 2 : 1	Alchl/Drgs: 0	Speed: 20 MPH	Dir: N	Veh Mnvr/Ped Actn: 4	Obj Strk:											
23	101962075	0.510	02/16/2007 19:41	REAR END, SLOW OR STOP	$ 1700	0	0	0	0	1	5	9	1	0	3	1
Unit 1 : 1	Alchl/Drgs: 0	Speed: 40 MPH	Dir: E	Veh Mnvr/Ped Actn: 11	Obj Strk:											
Unit 2 : 1	Alchl/Drgs: 0	Speed: 55 MPH	Dir: E	Veh Mnvr/Ped Actn: 11	Obj Strk:											
24	101983470	0.510	03/14/2007 18:42	REAR END, SLOW OR STOP	$ 7000	0	0	0	0	1	2	1	1	0	3	1
Unit 1 : 1	Alchl/Drgs: 0	Speed: 0 MPH	Dir: S	Veh Mnvr/Ped Actn: 11	Obj Strk:											
Unit 2 : 1	Alchl/Drgs: 0	Speed: 0 MPH	Dir: S	Veh Mnvr/Ped Actn: 11	Obj Strk:											
25	102007348	0.510	04/10/2007 11:50	REAR END, SLOW OR STOP	$ 3500	0	0	0	0	1	1	1	7	0	3	1
Unit 1 : 4	Alchl/Drgs: 0	Speed: 55 MPH	Dir: W	Veh Mnvr/Ped Actn: 7	Obj Strk:											
Unit 2 : 4	Alchl/Drgs: 0	Speed: 55 MPH	Dir: W	Veh Mnvr/Ped Actn: 7	Obj Strk:											
26	102007736	0.510	04/11/2007 16:54	REAR END, SLOW OR STOP	$ 9000	0	0	1	1	2	1	3	1	0	3	1
Unit 1 : 2	Alchl/Drgs: 0	Speed: 50 MPH	Dir: W	Veh Mnvr/Ped Actn: 4	Obj Strk:											
Unit 2 : 4	Alchl/Drgs: 0	Speed: 5 MPH	Dir: W	Veh Mnvr/Ped Actn: 11	Obj Strk:											
Unit 3 : 4	Alchl/Drgs: 0	Speed: 5 MPH	Dir: S	Veh Mnvr/Ped Actn: 8	Obj Strk:											
27	102108093	0.510	08/07/2007 01:46	REAR END, SLOW OR STOP	$ 16000	0	0	0	1	1	5	1	1	0	3	1
Unit 1 : 1	Alchl/Drgs: 0	Speed: 55 MPH	Dir: E	Veh Mnvr/Ped Actn: 4	Obj Strk:											
Unit 2 : 1	Alchl/Drgs: 0	Speed: 0 MPH	Dir: E	Veh Mnvr/Ped Actn: 1	Obj Strk:											
28	102118431	0.510	08/21/2007 00:39	ANGLE	$ 2000	0	0	0	0	1	5	1	1	0	3	1
Unit 1 : 5	Alchl/Drgs: 0	Speed: 0 MPH	Dir: E	Veh Mnvr/Ped Actn: 9	Obj Strk:											
Unit 2 : 1	Alchl/Drgs: 0	Speed: 0 MPH	Dir: E	Veh Mnvr/Ped Actn: 4	Obj Strk:											

Acc No	Crash ID	Milepost	Date	Accident Type	Total Damage	Injuries F	A	B	C	Condition R	L	W	Road Ch	Ci	Trfc Ctl Dv	Op
29	102184364	0.510	11/05/2007 07:50	HEAD ON	$ 5100	0	0	0	1	1	1	1	1	0	3	1
Unit 1 : 1	Alchl/Drgs: 0	Speed: 15 MPH	Dir: N	Veh Mnvr/Ped Actn: 9	Obj Strk:											
Unit 2 : 1	Alchl/Drgs: 0	Speed: 20 MPH	Dir: W	Veh Mnvr/Ped Actn: 4	Obj Strk:											
30	102194005	0.510	11/16/2007 07:50	REAR END, SLOW OR STOP	$ 700	0	0	0	3	1	1	1	1	0	3	1
Unit 1 : 1	Alchl/Drgs: 0	Speed: 55 MPH	Dir: W	Veh Mnvr/Ped Actn: 4	Obj Strk:											
Unit 2 : 1	Alchl/Drgs: 0	Speed: 55 MPH	Dir: W	Veh Mnvr/Ped Actn: 1	Obj Strk:											
Unit 3 : 1	Alchl/Drgs: 0	Speed: 55 MPH	Dir: W	Veh Mnvr/Ped Actn: 1	Obj Strk:											
31	102241227	0.510	01/15/2008 07:21	ANGLE	$ 4300	0	0	0	0	1	1	1	1	0	3	1
Unit 1 : 1	Alchl/Drgs: 0	Speed: 55 MPH	Dir: W	Veh Mnvr/Ped Actn: 4	Obj Strk:											
Unit 2 : 1	Alchl/Drgs: 0	Speed: 15 MPH	Dir: N	Veh Mnvr/Ped Actn: 8	Obj Strk:											
32	102248731	0.510	01/25/2008 09:39	REAR END, SLOW OR STOP	$ 2200	0	0	0	1	1	1	1	1	0	3	1
Unit 1 : 1	Alchl/Drgs: 0	Speed: 55 MPH	Dir: E	Veh Mnvr/Ped Actn: 4	Obj Strk:											
Unit 2 : 5	Alchl/Drgs: 0	Speed: 0 MPH	Dir: E	Veh Mnvr/Ped Actn: 1	Obj Strk:											
33	102323795	0.510	05/12/2008 10:57	ANGLE	$ 13000	0	0	0	1	1	1	1	1	0	3	1
Unit 1 : 1	Alchl/Drgs: 0	Speed: 50 MPH	Dir: W	Veh Mnvr/Ped Actn: 4	Obj Strk:											
Unit 2 : 2	Alchl/Drgs: 0	Speed: 20 MPH	Dir: N	Veh Mnvr/Ped Actn: 4	Obj Strk:											
34	102330195	0.510	05/22/2008 18:57	ANGLE	$ 11375	0	0	1	1	1	1	1	4	0	3	1
Unit 1 : 4	Alchl/Drgs: 0	Speed: 10 MPH	Dir: W	Veh Mnvr/Ped Actn: 4	Obj Strk:											
Unit 2 : 1	Alchl/Drgs: 0	Speed: 0 MPH	Dir: S	Veh Mnvr/Ped Actn: 4	Obj Strk:											
35	102360991	0.510	06/12/2008 16:18	REAR END, SLOW OR STOP	$ 9500	0	0	0	0	2	1	3	1	0	3	1
Unit 1 : 1	Alchl/Drgs: 0	Speed: 35 MPH	Dir: E	Veh Mnvr/Ped Actn: 4	Obj Strk:											
Unit 2 : 1	Alchl/Drgs: 0	Speed: 20 MPH	Dir: E	Veh Mnvr/Ped Actn: 4	Obj Strk:											
36	102350310	0.510	06/19/2008 17:48	REAR END, SLOW OR STOP	$ 2500	0	0	0	0	1	1	1	1	0	3	1
Unit 1 : 1	Alchl/Drgs: 0	Speed: 5 MPH	Dir: N	Veh Mnvr/Ped Actn: 12	Obj Strk:											
Unit 2 : 1	Alchl/Drgs: 0	Speed: 0 MPH	Dir: N	Veh Mnvr/Ped Actn: 1	Obj Strk:											
37	102352904	0.510	06/26/2008 08:34	LEFT TURN, SAME ROADWAY	$ 13500	0	0	0	3	1	1	1	1	0	3	1
Unit 1 : 1	Alchl/Drgs: 0	Speed: 50 MPH	Dir: E	Veh Mnvr/Ped Actn: 4	Obj Strk:											
Unit 2 : 1	Alchl/Drgs: 0	Speed: 15 MPH	Dir: W	Veh Mnvr/Ped Actn: 8	Obj Strk:											

Acc No	Crash ID	Milepost	Date	Accident Type	Total Damage	Injuries F	A	B	C	Condition R	L	W	Road Ch	Ci	Trfc Ctl Dv	Op
38	102418221	0.510	09/25/2008 22:13	REAR END, SLOW OR STOP	$ 5000	0	0	0	0	2	5	3	1	0	3	1
Unit 1 : 4	Alchl/Drgs: 1	Speed: 50 MPH	Dir: E	Veh Mnvr/Ped Actn: 11	Obj Strk:											
Unit 2 : 4	Alchl/Drgs: 0	Speed: 0 MPH	Dir: E	Veh Mnvr/Ped Actn: 11	Obj Strk:											
39	102448873	0.510	10/14/2008 11:53	LEFT TURN, DIFFERENT ROADWAYS	$ 9000	0	0	0	0	1	1	1	1	0	3	1
Unit 1 : 1	Alchl/Drgs: 0	Speed: 15 MPH	Dir: SW	Veh Mnvr/Ped Actn: 8	Obj Strk:											
Unit 2 : 1	Alchl/Drgs: 0	Speed: 45 MPH	Dir: E	Veh Mnvr/Ped Actn: 4	Obj Strk:											
40	102485962	0.510	11/19/2008 08:46	ANGLE	$ 2500	0	0	0	0	1	1	1	1	0	3	1
Unit 1 : 1	Alchl/Drgs: 0	Speed: 45 MPH	Dir: W	Veh Mnvr/Ped Actn: 4	Obj Strk:											
Unit 2 : 5	Alchl/Drgs: 0	Speed: 10 MPH	Dir: S	Veh Mnvr/Ped Actn: 4	Obj Strk:											
41	102505324	0.510	12/14/2008 16:32	REAR END, SLOW OR STOP	$ 3200	0	0	0	0	1	1	1	7	0	3	1
Unit 1 : 1	Alchl/Drgs: 0	Speed: 59 MPH	Dir: W	Veh Mnvr/Ped Actn: 4	Obj Strk:											
Unit 2 : 1	Alchl/Drgs: 0	Speed: 0 MPH	Dir: W	Veh Mnvr/Ped Actn: 11	Obj Strk:											
42	102510017	0.510	12/16/2008 19:07	RAN OFF ROAD - LEFT	$ 2000	0	0	0	0	2	5	2	7	0		2
Unit 1 : 1	Alchl/Drgs: 0	Speed: 0 MPH	Dir: W	Veh Mnvr/Ped Actn: 4	Obj Strk: 43											
43	102507474	0.510	01/29/2009 09:50	OTHER COLLISION WITH VEHICLE	$ 4300	0	0	0	0	1	1	1	6	0	0	
Unit 1 : 1	Alchl/Drgs: 0	Speed: 0 MPH	Dir: W	Veh Mnvr/Ped Actn: 1	Obj Strk:											
Unit 2 : 1	Alchl/Drgs: 0	Speed: 45 MPH	Dir: W	Veh Mnvr/Ped Actn: 4	Obj Strk:											
44	102551953	0.510	03/12/2009 13:17	ANGLE	$ 2000	0	0	0	0	1	1	2	3	0	3	1
Unit 1 : 1	Alchl/Drgs: 0	Speed: 30 MPH	Dir: W	Veh Mnvr/Ped Actn: 4	Obj Strk:											
Unit 2 : 1	Alchl/Drgs: 0	Speed: 30 MPH	Dir: S	Veh Mnvr/Ped Actn: 4	Obj Strk:											
45	102569744	0.510	04/07/2009 16:13	REAR END, SLOW OR STOP	$ 6300	0	0	0	1	1	1	2	1	0	3	1
Unit 1 : 2	Alchl/Drgs: 0	Speed: 15 MPH	Dir: W	Veh Mnvr/Ped Actn: 4	Obj Strk:											
Unit 2 : 2	Alchl/Drgs: 0	Speed: 0 MPH	Dir: W	Veh Mnvr/Ped Actn: 1	Obj Strk:											
46	102575934	0.510	04/16/2009 13:30	ANGLE	$ 6000	0	0	0	0	1	1	1	1	0	3	1
Unit 1 : 1	Alchl/Drgs: 0	Speed: 10 MPH	Dir: S	Veh Mnvr/Ped Actn: 4	Obj Strk:											
Unit 2 : 1	Alchl/Drgs: 0	Speed: 55 MPH	Dir: W	Veh Mnvr/Ped Actn: 4	Obj Strk:											
47	102579496	0.510	04/21/2009 13:43	LEFT TURN, DIFFERENT ROADWAYS	$ 12000	0	0	0	0	1	1	2	1	0	3	1
Unit 1 : 2	Alchl/Drgs: 0	Speed: 0 MPH	Dir: W	Veh Mnvr/Ped Actn: 4	Obj Strk:											

Acc No	Crash ID	Milepost	Date	Accident Type	Total Damage	Injuries F	A	B	C	Condition R	L	W	Road Ch	Ci	Trfc Ctl Dv	Op
Unit 2 : 1	Alchl/Drgs: 0	Speed: 0 MPH	Dir: S	Veh Mnvr/Ped Actn: 8	Obj Strk:											
Unit 3 : 1	Alchl/Drgs: 0	Speed: 0 MPH	Dir: S	Veh Mnvr/Ped Actn: 4	Obj Strk:											
48	102589265	0.510	04/29/2009 08:49	LEFT TURN, SAME ROADWAY	$ 4000	0	0	0	1	1	1	1	2	0	3	1
Unit 1 : 1	Alchl/Drgs: 0	Speed: 20 MPH	Dir: NE	Veh Mnvr/Ped Actn: 8	Obj Strk:											
Unit 2 : 1	Alchl/Drgs: 0	Speed: 25 MPH	Dir: N	Veh Mnvr/Ped Actn: 4	Obj Strk:											
49	102110289	0.512	08/10/2007 15:20	REAR END, SLOW OR STOP	$ 4000	0	0	0	1	2	1	2	1	0	3	1
Unit 1 : 1	Alchl/Drgs: 0	Speed: 0 MPH	Dir: W	Veh Mnvr/Ped Actn: 5	Obj Strk:											
Unit 2 : 1	Alchl/Drgs: 0	Speed: 0 MPH	Dir: W	Veh Mnvr/Ped Actn: 11	Obj Strk:											
50	102063363	0.516	06/10/2007 17:22	SIDESWIPE, SAME DIRECTION	$ 10000	0	0	0	2	1	1	1	1	0	3	1
Unit 1 : 4	Alchl/Drgs: 0	Speed: 30 MPH	Dir: W	Veh Mnvr/Ped Actn: 9	Obj Strk:											
Unit 2 : 2	Alchl/Drgs: 0	Speed: 45 MPH	Dir: E	Veh Mnvr/Ped Actn: 4	Obj Strk:											
51	101885047	0.518	11/12/2006 23:21	RAN OFF ROAD - RIGHT	$ 3000	0	0	0	0	1	5	2	5	0	3	1
Unit 1 : 1	Alchl/Drgs: 0	Speed: 55 MPH	Dir: E	Veh Mnvr/Ped Actn: 4	Obj Strk: 18											
52	102202805	0.586	12/01/2007 05:25	RAN OFF ROAD - RIGHT	$ 10000	0	0	1	0	1	5	1	5	0	3	1
Unit 1 : 1	Alchl/Drgs: 1	Speed: 65 MPH	Dir: E	Veh Mnvr/Ped Actn: 4	Obj Strk:											
53	101785408	0.610	07/14/2006 18:08	SIDESWIPE, SAME DIRECTION	$ 2000	0	0	0	0	2	1	3	1	0	0	
Unit 1 : 2	Alchl/Drgs: 0	Speed: 60 MPH	Dir: W	Veh Mnvr/Ped Actn: 4	Obj Strk:											
Unit 2 : 1	Alchl/Drgs: 0	Speed: 55 MPH	Dir: W	Veh Mnvr/Ped Actn: 5	Obj Strk:											
54	101998036	0.610	03/30/2007 15:00	SIDESWIPE, SAME DIRECTION	$ 3500	0	0	0	0	1	1	1	7	0	13	1
Unit 1 : 1	Alchl/Drgs: 0	Speed: 45 MPH	Dir: E	Veh Mnvr/Ped Actn: 4	Obj Strk:											
Unit 2 : 1	Alchl/Drgs: 0	Speed: 45 MPH	Dir: E	Veh Mnvr/Ped Actn: 4	Obj Strk:											
55	102203615	0.610	11/28/2007 21:39	REAR END, SLOW OR STOP	$ 3000	0	0	0	0	1	5	1	1	0	3	1
Unit 1 : 4	Alchl/Drgs: 0	Speed: 45 MPH	Dir: E	Veh Mnvr/Ped Actn: 11	Obj Strk:											
Unit 2 : 1	Alchl/Drgs: 0	Speed: 0 MPH	Dir: E	Veh Mnvr/Ped Actn: 1	Obj Strk:											
56	101936046	0.810	01/09/2007 18:00	REAR END, SLOW OR STOP	$ 1400	0	0	0	0	1	5	1	1	0		
Unit 1 : 1	Alchl/Drgs: 0	Speed: 55 MPH	Dir: E	Veh Mnvr/Ped Actn: 4	Obj Strk: 20											
Unit 2 : 1	Alchl/Drgs: 0	Speed: 0 MPH	Dir: E	Veh Mnvr/Ped Actn: 2	Obj Strk: 20											

Acc No	Crash ID	Milepost	Date	Accident Type	Total Damage	Injuries F	A	B	C	Condition R	L	W	Road Ch	Ci	Trfc Ctl Dv	Op
57	102276289	0.880	03/05/2008 20:50	FIXED OBJECT	$ 6375	0	0	0	0	1	5	1	3	0	0	
Unit 1 : 1	Alchl/Drgs: 1	Speed: 55 MPH	Dir: W	Veh Mnvr/Ped Actn: 4	Obj Strk: 48											
58	102248425	0.936	01/25/2008 17:04	REAR END, SLOW OR STOP	$ 5000	0	0	0	0	1	1	1	1	0	3	1
Unit 1 : 10	Alchl/Drgs: 0	Speed: 45 MPH	Dir: E	Veh Mnvr/Ped Actn: 4	Obj Strk:											
Unit 2 : 4	Alchl/Drgs: 0	Speed: 10 MPH	Dir: E	Veh Mnvr/Ped Actn: 11	Obj Strk:											
59	101910555	1.100	12/12/2006 00:41	ANIMAL	$ 2000	0	0	0	0	1	5	1	3	0		
Unit 1 : 1	Alchl/Drgs: 7	Speed: 0 MPH	Dir: W	Veh Mnvr/Ped Actn: 4	Obj Strk: 17											
60	101911145	1.200	12/13/2006 19:31	REAR END, SLOW OR STOP	$ 1000	0	0	0	0	2	5	3	1	0	0	
Unit 1 : 1	Alchl/Drgs: 0	Speed: 45 MPH	Dir: E	Veh Mnvr/Ped Actn: 4	Obj Strk:											
Unit 2 : 1	Alchl/Drgs: 0	Speed: 45 MPH	Dir: E	Veh Mnvr/Ped Actn: 4	Obj Strk:											
61	101781550	1.210	07/10/2006 18:00	REAR END, SLOW OR STOP	$ 1900	0	0	0	0	1	1	1	1	0	0	
Unit 1 : 1	Alchl/Drgs: 0	Speed: 55 MPH	Dir: W	Veh Mnvr/Ped Actn: 4	Obj Strk:											
Unit 2 : 4	Alchl/Drgs: 0	Speed: 25 MPH	Dir: W	Veh Mnvr/Ped Actn: 1	Obj Strk:											
62	101977037	1.210	03/05/2007 12:15	FIXED OBJECT	$ 3200	0	0	0	0	1	1	1	3	0	0	
Unit 1 : 4	Alchl/Drgs: 0	Speed: 55 MPH	Dir: E	Veh Mnvr/Ped Actn: 4	Obj Strk: 48											
63	101805344	1.460	08/11/2006 04:00	REAR END, SLOW OR STOP	$ 3000	0	0	0	0	1	5	2	1	0	3	1
Unit 1 : 2	Alchl/Drgs: 0	Speed: 45 MPH	Dir: SW	Veh Mnvr/Ped Actn: 4	Obj Strk:											
Unit 2 : 1	Alchl/Drgs: 0	Speed: 35 MPH	Dir: SW	Veh Mnvr/Ped Actn: 11	Obj Strk:											
64	101860650	1.460	10/19/2006 21:25	LEFT TURN, SAME ROADWAY	$ 11000	0	0	1	0	2	5	3	1	0	3	1
Unit 1 : 2	Alchl/Drgs: 0	Speed: 25 MPH	Dir: E	Veh Mnvr/Ped Actn: 4	Obj Strk:											
Unit 2 : 5	Alchl/Drgs: 0	Speed: 60 MPH	Dir: W	Veh Mnvr/Ped Actn: 8	Obj Strk:											
65	101881849	1.460	11/09/2006 10:20	RIGHT TURN, DIFFERENT ROADWAYS	$ 6600	0	0	0	0	1	1	1	7	0	2	1
Unit 1 : 2	Alchl/Drgs: 0	Speed: 55 MPH	Dir: NE	Veh Mnvr/Ped Actn: 4	Obj Strk:											
Unit 2 : 1	Alchl/Drgs: 0	Speed: 10 MPH	Dir: NW	Veh Mnvr/Ped Actn: 7	Obj Strk:											
66	101953670	1.460	03/07/2007 09:56	OVERTURN/ROLLOVER	$ 6000	0	0	0	1	1	1	1	3	0	3	1
Unit 1 : 11	Alchl/Drgs: 0	Speed: 50 MPH	Dir: E	Veh Mnvr/Ped Actn: 4	Obj Strk:											

Acc No	Crash ID	Milepost	Date	Accident Type	Total Damage	Injuries F	A	B	C	Condition R	L	W	Road Ch	Ci	Trfc Ctl Dv	Op
67	102164593	1.460	10/15/2007 11:55	LEFT TURN, DIFFERENT ROADWAYS	$ 14000	0	0	1	1	1	1	1	1	0	3	1
Unit 1 : 4	Alchl/Drgs: 0	Speed: 10 MPH	Dir: W	Veh Mnvr/Ped Actn: 8	Obj Strk:											
Unit 2 : 4	Alchl/Drgs: 0	Speed: 50 MPH	Dir: E	Veh Mnvr/Ped Actn: 4	Obj Strk:											
68	102321982	1.460	05/09/2008 01:30	LEFT TURN, SAME ROADWAY	$ 3500	0	0	0	0	2	5	2	1	0	3	1
Unit 1 : 5	Alchl/Drgs: 0	Speed: 55 MPH	Dir: E	Veh Mnvr/Ped Actn: 4	Obj Strk:											
Unit 2 : 5	Alchl/Drgs: 0	Speed: 10 MPH	Dir: E	Veh Mnvr/Ped Actn: 8	Obj Strk:											
69	102208925	1.520	12/05/2007 17:40	REAR END, SLOW OR STOP	$ 4500	0	0	0	0	1	5	1	1	0	0	
Unit 1 : 1	Alchl/Drgs: 0	Speed: 45 MPH	Dir: E	Veh Mnvr/Ped Actn: 4	Obj Strk:											
Unit 2 : 1	Alchl/Drgs: 0	Speed: 45 MPH	Dir: E	Veh Mnvr/Ped Actn: 11	Obj Strk:											
70	102505264	1.520	12/12/2008 18:15	ANIMAL	$ 1100	0	0	0	0	1	5	1	1	0	14	1
Unit 1 : 1	Alchl/Drgs: 0	Speed: 60 MPH	Dir: W	Veh Mnvr/Ped Actn: 4	Obj Strk: 17											
71	101820610	1.560	08/31/2006 06:40	REAR END, SLOW OR STOP	$ 5000	0	0	0	0	2	5	3	1	0	0	
Unit 1 : 1	Alchl/Drgs: 0	Speed: 45 MPH	Dir: W	Veh Mnvr/Ped Actn: 4	Obj Strk:											
Unit 2 : 4	Alchl/Drgs: 0	Speed: 45 MPH	Dir: W	Veh Mnvr/Ped Actn: 4	Obj Strk:											
72	102198400	1.760	11/22/2007 03:44	FIXED OBJECT	$ 18000	0	0	0	0	3	5	2	5	0	0	
Unit 1 : 4	Alchl/Drgs: 0	Speed: 45 MPH	Dir: W	Veh Mnvr/Ped Actn: 4	Obj Strk: 41											
73	102120902	1.780	11/06/2007 09:40	LEFT TURN, DIFFERENT ROADWAYS	$ 3100	0	0	0	0	1	1	1	1	0	3	1
Unit 1 : 10	Alchl/Drgs: 0	Speed: 10 MPH	Dir: N	Veh Mnvr/Ped Actn: 8	Obj Strk:											
Unit 2 : 1	Alchl/Drgs: 0	Speed: 55 MPH	Dir: E	Veh Mnvr/Ped Actn: 4	Obj Strk:											
74	102047866	1.810	05/24/2007 11:20	REAR END, SLOW OR STOP	$ 3800	0	0	0	0	1	1	1	1	0	0	
Unit 1 : 1	Alchl/Drgs: 0	Speed: 15 MPH	Dir: W	Veh Mnvr/Ped Actn: 11	Obj Strk:											
Unit 2 : 1	Alchl/Drgs: 0	Speed: 25 MPH	Dir: W	Veh Mnvr/Ped Actn: 4	Obj Strk:											
75	101975095	1.820	03/03/2007 20:45	ANIMAL	$ 4000	0	0	0	0	1	5	1		0		
Unit 1 : 1	Alchl/Drgs: 0	Speed: 0 MPH	Dir: W	Veh Mnvr/Ped Actn: 4	Obj Strk: 17											
76	102262177	1.820	02/14/2008 20:11	LEFT TURN, SAME ROADWAY	$ 1500	0	0	0	0	1	5	1	1	0	3	1
Unit 1 : 1	Alchl/Drgs: 0	Speed: 101 MPH	Dir: SW	Veh Mnvr/Ped Actn: 8	Obj Strk:											
Unit 2 : 2	Alchl/Drgs: 0	Speed: 10 MPH	Dir: SW	Veh Mnvr/Ped Actn: 8	Obj Strk:											

Acc No	Crash ID	Milepost	Date	Accident Type	Total Damage	Injuries F	Injuries A	Injuries B	Injuries C	Condition R	Condition L	Condition W	Road Ch	Road Ci	Trfc Ctl Dv	Trfc Ctl Op
77	**102444304**	1.820	11/10/2008 19:40	REAR END, SLOW OR STOP	$ 7500	0	1	0	2	10	5	1	1	0	3	1
Unit	**1 : 1**	**Alchl/Drgs:**	0	**Speed:**	45 MPH	**Dir:**	E	**Veh Mnvr/Ped Actn:**		1		**Obj Strk:**				
Unit	**2 : 2**	**Alchl/Drgs:**	0	**Speed:**	55 MPH	**Dir:**	E	**Veh Mnvr/Ped Actn:**		4		**Obj Strk:**				
78	**102622458**	2.020	06/16/2009 07:27	RAN OFF ROAD - LEFT	$ 7800	0	0	0	0	3	1	3	1	0	0	
Unit	**1 : 1**	**Alchl/Drgs:**	0	**Speed:**	55 MPH	**Dir:**	W	**Veh Mnvr/Ped Actn:**		4		**Obj Strk:**			48	
79	**102063589**	2.120	06/11/2007 18:05	FIXED OBJECT	$ 3500	0	0	0	0	2	1	3	1	0	0	
Unit	**1 : 1**	**Alchl/Drgs:**	0	**Speed:**	70 MPH	**Dir:**	E	**Veh Mnvr/Ped Actn:**		5		**Obj Strk:**			48	
80	**101774235**	2.320	07/02/2006 10:50	FIXED OBJECT	$ 2800	0	0	0	1	1	1	1	3	0	0	
Unit	**1 : 1**	**Alchl/Drgs:**	0	**Speed:**	55 MPH	**Dir:**	NE	**Veh Mnvr/Ped Actn:**		5		**Obj Strk:**			42	
81	**102471931**	2.320	12/16/2008 08:00	ANIMAL	$ 1200	0	0	0	0	2	1	3	1	0	0	
Unit	**1 : 4**	**Alchl/Drgs:**	0	**Speed:**	0 MPH	**Dir:**	W	**Veh Mnvr/Ped Actn:**		4		**Obj Strk:**			17	
82	**102231312**	2.470	01/02/2008 12:19	MOVABLE OBJECT	$ 50	0	0	0	1	1	1	1	1	0	0	
Unit	**1 : 17**	**Alchl/Drgs:**	0	**Speed:**	55 MPH	**Dir:**	W	**Veh Mnvr/Ped Actn:**		4		**Obj Strk:**				
Unit	**2 : 2**	**Alchl/Drgs:**	7	**Speed:**	55 MPH	**Dir:**	W	**Veh Mnvr/Ped Actn:**		4		**Obj Strk:**				
83	**101977480**	2.480	03/06/2007 05:02	ANIMAL	$ 2500	0	0	0	0	1	5	1		0		
Unit	**1 : 1**	**Alchl/Drgs:**	0	**Speed:**	0 MPH	**Dir:**	E	**Veh Mnvr/Ped Actn:**		16		**Obj Strk:**			17	
84	**102000191**	2.500	04/01/2007 06:40	FIXED OBJECT	$ 9000	0	0	0	0	1	3	1	3	0	0	
Unit	**1 : 4**	**Alchl/Drgs:**	1	**Speed:**	55 MPH	**Dir:**	W	**Veh Mnvr/Ped Actn:**		4		**Obj Strk:**			41	
85	**102618754**	2.520	06/23/2009 07:00	LEFT TURN, SAME ROADWAY	$ 10700	0	1	0	0	1	1	1	3	0	3	1
Unit	**1 : 11**	**Alchl/Drgs:**	0	**Speed:**	50 MPH	**Dir:**	S	**Veh Mnvr/Ped Actn:**		4		**Obj Strk:**				
Unit	**2 : 2**	**Alchl/Drgs:**	0	**Speed:**	45 MPH	**Dir:**	S	**Veh Mnvr/Ped Actn:**		9		**Obj Strk:**			37	

Acc No	Crash ID	Milepost	Date	Accident Type	Total Damage	Injuries F	Injuries A	Injuries B	Injuries C	Condition R	Condition L	Condition W	Road Ch	Road Ci	Trfc Ctl Dv	Trfc Ctl Op

Legend for Report Details:

Acc No - Accident Number
Injuries: F - Fatal, A - Class A, B - Class B, C - Class C
Condition: R - Road Surface, L - Ambient Light, W - Weather
Rd Ch - Road Character
Rd Ci - Roadway Contributing Circumstances
Trfc Ctl - Traffic Control: Dv - Device, Op - Operating
Alchl/Drgs - Alcohol Drugs Suspected
Veh Mnvr/Ped Actn - Vehicle Maneuver/Pedestrian Action
Obj Strk - Object Struck

Summary Statistics

High Level Crash Summary

Crash Type	Number of Crashes	Percent of Total
Total Crashes	85	100.00
Fatal Crashes	0	0.00
Non-Fatal Injury Crashes	30	35.29
Total Injury Crashes	30	35.29
Property Damage Only Crashes	55	64.71
Night Crashes	31	36.47
Wet Crashes	19	22.35
Alcohol/Drugs Involvement Crashes	5	5.88

Crash Severity Summary

Crash Type	Number of Crashes	Percent of Total
Total Crashes	85	100.00
Fatal Crashes	0	0.00
Class A Crashes	2	2.35
Class B Crashes	9	10.59
Class C Crashes	19	22.35
Property Damage Only Crashes	55	64.71

Vehicle Exposure Statistics

Annual ADT = 35600

Total Length = 2.52 (Miles) **4.056 (Kilometers)**

Total Vehicle Exposure = 98.32 (MVMT) **158.24 (MVKMT)**

Crash Rate	Crashes Per 100 Million Vehicle Miles	Crashes Per 100 Million Vehicle Kilometers
Total Crash Rate	86.45	53.72
Fatal Crash Rate	0.00	0.00
Non Fatal Crash Rate	30.51	18.96
Night Crash Rate	31.53	19.59
Wet Crash Rate	19.32	12.01
EPDO Rate	451.36	280.46

Miscellaneous Statistics

Severity Index =	5.22
EPDO Crash Index =	443.80
Estimated Property Damage Total = $	484100.00

Accident Type Summary

Accident Type	Number of Crashes	Percent of Total
ANGLE	9	10.59
ANIMAL	6	7.06
FIXED OBJECT	6	7.06
HEAD ON	1	1.18
LEFT TURN, DIFFERENT ROADWAYS	4	4.71
LEFT TURN, SAME ROADWAY	6	7.06
MOVABLE OBJECT	1	1.18
OTHER COLLISION WITH VEHICLE	1	1.18
OVERTURN/ROLLOVER	1	1.18
RAN OFF ROAD - LEFT	6	7.06
RAN OFF ROAD - RIGHT	4	4.71
REAR END, SLOW OR STOP	34	40.00
RIGHT TURN, DIFFERENT ROADWAYS	1	1.18
SIDESWIPE, SAME DIRECTION	4	4.71
UNKNOWN	1	1.18

Injury Summary

Injury Type	Number of Injuries	Percent of Total
Fatal Injuries	0	0.00
Class A Injuries	2	4.88
Class B Injuries	9	21.95
Class C Injuries	30	73.17
Total Non-Fatal Injuries	41	100.00
Total Injuries	41	100.00

Monthly Summary

Month	Number of Crashes	Percent of Total
Jan	10	11.76
Feb	4	4.71
Mar	10	11.76
Apr	8	9.41
May	6	7.06
Jun	8	9.41
Jul	4	4.71
Aug	6	7.06
Sep	3	3.53
Oct	3	3.53
Nov	14	16.47
Dec	9	10.59

Daily Summary

Day	Number of Crashes	Percent of Total
Mon	12	14.12
Tue	19	22.35
Wed	11	12.94
Thu	20	23.53
Fri	13	15.29
Sat	3	3.53
Sun	7	8.24

Hourly Summary

Hour	Number of Crashes	Percent of Total
0000-0059	2	2.35
0100-0159	3	3.53
0200-0259	0	0.00
0300-0359	1	1.18
0400-0459	1	1.18
0500-0559	2	2.35
0600-0659	3	3.53
0700-0759	7	8.24
0800-0859	7	8.24
0900-0959	6	7.06
1000-1059	3	3.53
1100-1159	5	5.88
1200-1259	3	3.53
1300-1359	4	4.71
1400-1459	2	2.35
1500-1559	2	2.35
1600-1659	4	4.71
1700-1759	4	4.71
1800-1859	11	12.94
1900-1959	5	5.88
2000-2059	3	3.53
2100-2159	3	3.53
2200-2259	2	2.35
2300-2359	2	2.35

Light and Road Conditions Summary

Condition	Dry	Wet	Other	Total
Day	40	12	0	52
Dark	22	7	2	31
Other	2	0	0	2
Total	64	19	2	85

Object Struck Summary

Object Type	Times Struck	Percent of Total
ANIMAL	6	25.00
EMBANKMENT	2	8.33
GUARDRAIL END IN MEDIAN	1	4.17
GUARDRAIL END ON SHOULDER	2	8.33
GUARDRAIL FACE ON SHOULDER	1	4.17
MEDIAN BARRIER FACE	4	16.67
MOVABLE OBJECT	3	12.50
OFFICIAL HIGHWAY SIGN NON-BREAKAWAY	2	8.33
PARKED MOTOR VEHICLE	2	8.33
TREE	1	4.17

Vehicle Type Summary

Vehicle Type	Number Involved	Percent of Total
PASSENGER CAR	94	62.25
PICKUP	17	11.26
SINGLE UNIT TRUCK (2-AXLE, 6-TIRE)	3	1.99
SINGLE UNIT TRUCK (3 OR MORE AXLES)	2	1.32
SPORT UTILITY	23	15.23
TAXICAB	1	0.66
TRUCK/TRAILER	1	0.66
UNKNOWN	2	1.32
UNKNOWN HEAVY TRUCK	1	0.66
VAN	7	4.64

Yearly Totals Summary

Accident Totals

Year	Total Accidents	Fatal Accidents	Injury Accidents	Property Damage Only Accidents
2006	17	0	4	13
2007	30	0	12	18
2008	26	0	9	17
2009	12	0	5	7
Total	85	0	30	55

Injury Totals

Year	Fatal Injuries	Class A, B, or C Injuries
2006	0	4
2007	0	18
2008	0	14
2009	0	5
Total	0	41

Miscellaneous Totals

Year	Property Damage	EPDO Index
2006	$ 94000	46.60
2007	$ 185700	118.80
2008	$ 127100	161.00
2009	$ 77300	117.40
Total	$ 484100	443.80

Type of Accident Totals

Year	Left Turn	Right Turn	Rear End	Run Off Road & Fixed Object	Angle	Side Swipe	Other
2006	1	1	9	3	1	1	1
2007	2	0	11	8	2	2	5
2008	4	0	10	3	4	1	4
2009	3	0	4	2	2	0	1
Total	10	1	34	16	9	4	11

Strip Diagram

Features	Milepost	Crash IDs
NC 68 | Structure:400766 | Structure:400767	0.000	102127319 | 102412439
	0.010	
	0.020	
	0.030	
	0.040	
	0.050	
	0.060	
	0.070	
	0.080	
	0.090	
	0.100	101888599 | 102008136
	0.110	
	0.120	
	0.130	
	0.140	
	0.150	
	0.160	
	0.170	
	0.180	
	0.190	
	0.200	102563997
	0.210	
	0.220	
	0.230	
	0.240	
	0.250	
	0.260	
	0.270	
	0.280	
	0.290	
	0.300	
	0.310	102439389 | 102252762 | 102262604
AIRPORT CENTER	0.320	102355932
	0.330	
	0.340	
	0.350	
	0.360	
	0.370	
	0.380	
	0.390	
	0.400	
	0.410	102131103 | 102044435 | 102572283

Features	Milepost	Crash IDs
	0.420	101915797
	0.430	
	0.440	
	0.450	101898382 | 102530099
	0.460	
	0.470	
	0.480	
	0.490	
	0.500	102239876 | 102547082
SR 1695 | SR 2084 | SR 4156 | BURGESS | REGIONAL	0.510	101779006 | 101805020 | 101886800 | 101928412 | 101935069 | 101962075 | 101983470 | 102007348 | 102007736 | 102108093 | 102118431 | 102184364 | 102194005 | 102241227 | 102248731 | 102323795 | 102330195 | 102360991 | 102350310 | 102352904 | 102418221 | 102448873 | 102485962 | 102505324 | 102510017 | 102507474 | 102551953 | 102569744 | 102575934 | 102579496 | 102589265 | 102110289
	0.520	102063363 | 101885047
	0.530	
	0.540	
	0.550	
	0.560	
	0.570	
	0.580	
	0.590	102202805
	0.600	
	0.610	101785408 | 101998036 | 102203615
	0.620	
	0.630	
	0.640	
	0.650	
	0.660	
	0.670	
	0.680	
	0.690	
	0.700	
	0.710	
	0.720	
	0.730	
	0.740	
	0.750	
	0.760	
	0.770	
	0.780	

Features	Milepost	Crash IDs
	0.790	
	0.800	
	0.810	101936046
	0.820	
	0.830	
	0.840	
	0.850	
	0.860	
	0.870	
	0.880	102276289
	0.890	
	0.900	
HOTEL	0.910	
	0.920	
	0.930	
ARRIVAL	0.940	102248425
	0.950	
	0.960	
	0.970	
	0.980	
	0.990	
	1.000	
	1.010	
	1.020	
	1.030	
	1.040	
	1.050	
	1.060	
	1.070	
	1.080	
	1.090	
	1.100	101910555
	1.110	
	1.120	
HOTEL	1.130	
	1.140	
	1.150	
	1.160	
	1.170	
	1.180	
	1.190	
	1.200	101911145
	1.210	101781550 | 101977037
	1.220	
	1.230	

Features	Milepost	Crash IDs
	1.240	
	1.250	
	1.260	
	1.270	
	1.280	
	1.290	
	1.300	
	1.310	
MARRIOTT	1.320	
	1.330	
	1.340	
	1.350	
	1.360	
	1.370	
	1.380	
	1.390	
	1.400	
	1.410	
	1.420	
	1.430	
	1.440	
	1.450	
SR 1924 | TRIAD	1.460	101805344 | 101860650 | 101881849 | 101953670 | 102164593 | 102321982
	1.470	
	1.480	
	1.490	
	1.500	
	1.510	
	1.520	102208925 | 102505264
	1.530	
	1.540	
	1.550	
	1.560	101820610
	1.570	
	1.580	
	1.590	
	1.600	
	1.610	
	1.620	
	1.630	
	1.640	
	1.650	
	1.660	
	1.670	
	1.680	

Features	Milepost	Crash IDs
	1.690	
	1.700	
	1.710	
	1.720	
	1.730	
	1.740	
	1.750	
	1.760	102198400
	1.770	
	1.780	102120902
	1.790	
	1.800	
	1.810	102047866
	1.820	101975095 | 102262177 | 102444304
	1.830	
	1.840	
	1.850	
	1.860	
	1.870	
	1.880	
	1.890	
	1.900	
	1.910	
	1.920	
	1.930	
	1.940	
	1.950	
	1.960	
	1.970	
	1.980	
	1.990	
	2.000	
	2.010	
	2.020	102622458
	2.030	
	2.040	
	2.050	
	2.060	
	2.070	
	2.080	
	2.090	
	2.100	
	2.110	
	2.120	102063589
	2.130	
	2.140	

Features	Milepost	Crash IDs
	2.150	
	2.160	
	2.170	
	2.180	
	2.190	
	2.200	
	2.210	
	2.220	
	2.230	
	2.240	
	2.250	
	2.260	
	2.270	
	2.280	
	2.290	
	2.300	
	2.310	
	2.320	101774235 | 102471931
	2.330	
	2.340	
	2.350	
	2.360	
	2.370	
	2.380	
	2.390	
	2.400	
	2.410	
	2.420	
	2.430	
	2.440	
	2.450	
	2.460	
	2.470	102231312
	2.480	101977480
	2.490	
	2.500	102000191
	2.510	
SR 2137 | OLD OAK RIDGE	2.520	102618754

Study Criteria

Study Name	Log No.	PH No.	TIP No.	K/A Cf.	B/C Cf.	ADT	ADT Route
41000000775	41000000775		FS0707A	76.8	8.4	35600	40002085

Request Date	Courier Service	Phone No.	Ext.	Fax No.
08/21/2009		919-829-0328		919-829-0329

County			Municipality					
Name	Code	Div.	Name	Code	Y-Line Ft.	Begin Date	End Date	Years
GUILFORD	40	7	All and Rural		0	07/01/2006	06/30/2009	3.00

Location Text

SR 2085 (Airport Pkwy-Bryan Blvd) from NC 68 to SR 2137 (Old Oak Ridge Rd)

Requestor

Lauren Triebert, EI
Martin/Alexiou/Bryson, PLLC
Raleigh, NC 27607

Included Accidents	Old MP	New MP	Type
101781550		1.21	I
101805020		0.51	I
101820610		1.56	I
101881849	1.91	1.46	R
101915797	0.62	0.42	R
101962075		0.51	I
101975095		1.82	I
102008136	0	0.1	R
102044435	0	0.41	R
102047866		1.81	I
102120902		1.78	I
102131103	0.51	0.41	R
102203615	0.51	0.61	R
102262177		1.82	I
102412439	0	0.002	R
102439389		0.307	I
102444304		1.82	I
102505324	2.52	0.51	R
102507474		0.51	I
102530099	0.567	0.453	R
102589265		0.51	I

Excluded Accidents
101953826
101994471
102055607

Excluded Accidents
101905494

Fiche Roads

Name	Code
SR 2085	40002085
BRIAN	50003642
JOSEPH BRYAN	50015774
AIRPORT	50000279
SR 2176	40002176

Strip Road

Name	Code	Begin MP	End MP	Miles	Kilometers
SR 2085	40002085	0.000	2.520	2.520	4.056

Appendix C: Traffic Forecast Report

TRAFFIC FORECASTS *FOR*

NCDOT FEASIBILITY STUDY NO. FS-0707A SANDY RIDGE ROAD WIDENING AND EXTENSION

GUILFORD COUNTY, NORTH CAROLINA

Prepared for

City of Greensboro Department of Transportation

and

North Carolina Department of Transportation

Program Development Branch – Feasibility Studies Unit

Prepared by

MARTIN ALEXIOU BRYSON

January, 2010

4000 WestChase Boulevard, Suite 530, Raleigh, North Carolina 27607

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INTRODUCTION

Martin/Alexiou/Bryson (M/A/B) has been contracted by the City of Greensboro Department of Transportation (GDOT) to develop traffic forecasts for NCDOT Feasibility Study FS-No. 0707A, Sandy Ridge Road Widening and Extension.

NCDOT FS-0707A is in Greensboro and Guilford County, North Carolina. The forecasts developed under this document include No-Build and Build Scenarios for 2009 and 2035, which will be used to determine the feasibility of the project.

PROJECT DESCRIPTION

The improvements under NCDOT FS-0707A propose to improve the existing Sandy Ridge Road from the interchange of Interstate 40 (I-40) to West Market Street and possibly upgrade Pleasant Ridge Road from West Market Street to NC 68. The improvements are proposed as a multilane widening on the existing locations. The subject projects include the following:

- Sandy Ridge Road Widening: The roadway that extends from I-40 to West Market Street will be widened to a multilane facility.
- Pleasant Ridge Road Widening: The roadway that extends from West Market Street to NC 68 will be widened to a multilane facility.

The study area for these forecasts is bounded by:

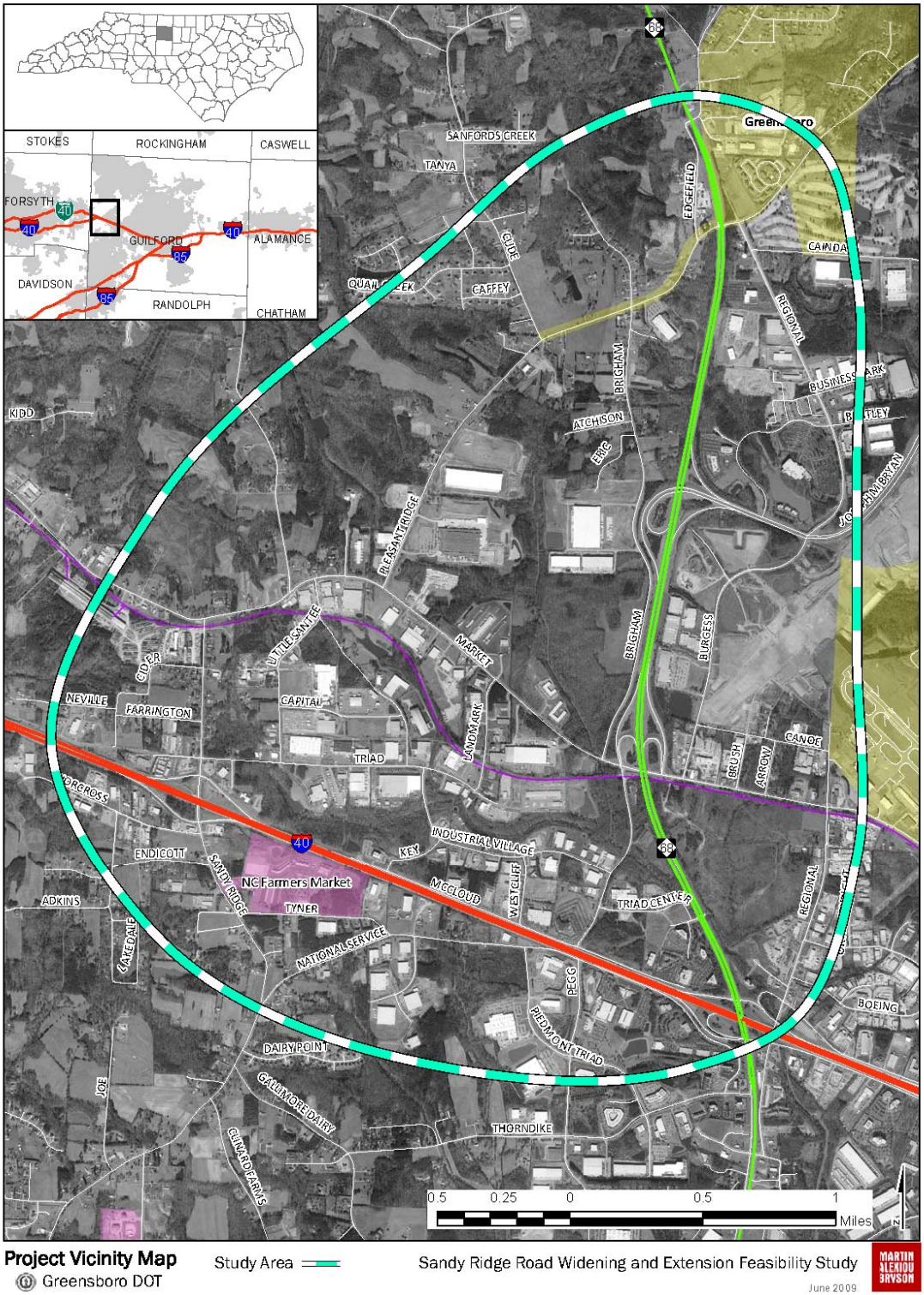
- Edgefield Road (SR 2011) to the north.
- NC 68 to the east.
- I-40 to the south.
- Sandy Ridge Road (SR 1850) to the west.

Figure 1 shows a general layout of the study area.

The data provided in these forecasts include all components necessary for capacity and level of service computations. Specifically, the data consist of annual average daily traffic (AADT) for the facility and all intersecting highways, vehicle classifications, peak-hour factors, directional split percentages, as well as turning movement estimates for all selected intersections within the study area.

Due to many other projects within the study area, particularly the introduction of the I-73 Connector, extrapolation of the AADT forecasts is not appropriate for two years beyond 2035.

Figure 1: Sandy Ridge Road Study Area



DESCRIPTION OF APPLICABLE MODELS

The Piedmont Triad Regional Models (PTRM) were used as tools to aid in the development of the forecasts for these projects. The models used for the development of these forecasts include:

- 2002 Base Year Model.
- 2009 Base Year Model.
- 2035 Future Year Existing + Committed Model.

These models are the most recent fiscally constrained models for the area. For 2035, the model network includes all fiscally constrained projects completed in the Existing + Committed network. The new base year model for 2009 was also created by Piedmont Area Regional Transportation (PART) and approved in March, 2008.

These models are known as PTRM version 1. These models were used along with existing and historical data to develop the forecasts.

BASE AND FUTURE YEARS

For these forecasts, the Base Year is 2009 and the Future Year is 2035. Forecasts will be provided for the following conditions:

- Scenario 1: 2009 Base Year No-Build Alternative. This scenario considers existing roadway conditions.
- Scenario 2: 2009 Base Year Build Alternative 1 (Sandy Ridge Road Widening). This scenario considers the widening improvements on Sandy Ridge Road to be complete. No other fiscally constrained projects are considered to be complete under this alternative.
- Scenario 3: 2009 Base Year Build Alternative 2 (Build Alternative 1 + Pleasant Ridge Road Widening). This scenario considers the widening improvements on Sandy Ridge Road and Pleasant Ridge Road to be complete. No other fiscally constrained projects are considered to be complete under this alternative.
- Scenario 4: 2035 Future Year No-Build Alternative. This scenario considers all fiscally constrained projects to be complete by 2035 as described under the Greensboro Urban Area Long-Range Transportation Plan (GUAMPO LRTP) included in the 2035 Existing + Committed Model except the Sandy Ridge Road Widening and the Pleasant Ridge Road Widening.
- Scenario 5: 2035 Future Year Build Alternative 1 (Sandy Ridge Road Widening). This scenario considers all fiscally constrained projects to be complete by 2035 as described under the GUAMPO LRTP included in the 2035 Existing + Committed Model along with the widening improvements of Sandy Ridge Road.
- Scenario 6: 2035 Future Year Build Alternative 2 (Build Alternative 1 + Pleasant Ridge Road Widening). This scenario considers all fiscally constrained projects to be complete by 2035 as described under the GUAMPO LRTP included in the 2035 Existing + Committed Model along with the widening improvements of Sandy Ridge Road and Pleasant Ridge Road.

FISCAL CONSTRAINT CONSIDERATIONS

This forecast is not fiscally constrained per the request of Derrick Weaver, PE, Consultant Engineering Unit Head in the NCDOT Project Development and Environmental Analysis Branch (PDEA), Derrick Lewis, PE, Unit Head of the Feasibility Studies Unit, in the NCDOT Program Development Branch, and Tyler Meyer, AICP and Lydia McIntyre of the GUAMPO. Either full or partial LRTP build-out can change traffic demands on Sandy Ridge Road, depending on the nature of the facilities connecting to and/or paralleling Sandy Ridge Road. At the request of GUAMPO, M/A/B prepared a "Greensboro Airport Area Modeling Study" dated December, 2009 to evaluate project phasing combinations for twelve specific LRTP projects.

This analysis concluded that the immediate improvement of Sandy Ridge Road represents a top priority in terms of providing the greatest benefits relative to the costs expended. Therefore, GUAMPO and PDEA requested that the traffic forecast for FS-0707A assume a specific "Existing + Committed" transportation network as opposed to the fiscally constrained LRTP network.

The projects listed below are included in the GUAMPO LRTP and the Winston Salem LRTP (both adopted in January, 2009), but not assumed constructed in 2035 in this forecast.

- North Main Street/Piney Grove Road Connector.
- TIP Project No. U-3614, East Mountain Street (SR 2045)/Old US 421, SR 1005, SR 1008 Widening from NC 66 to Winthrop Street (SR 2001).
- TIP Project No. U-4734, Macy Grove Road Extension (North) from East Mountain Street (SR 1005) to North Main Street (NC 150).
- I-40 Business (US 421) Interchange at Big Mill Farm Road from Hopkins Road to South Main Street.
- I-40 Business (US 421) Interchange at Big Mill Farm Road from Hopkins Road to NC 66.
- Macy Grove Road Extension (South) from NC 66 to Industrial Drive.
- Linville Springs Road (SR 2033) Extension from Piney Grove Road (SR 1969) to I-73/I-74 Connector.
- I-73/I-74 Connector from the Northern Beltway/West Mountain Street to Guilford County.
- US 311 Connector from I-40 to I-40 Business.
- I-40 Business (US 421) from Northern Beltway to Guilford County
- Kernersville Road (SR 4315) from High Point Road (SR 1003) to Whicker Road.
- I-40 from US 311 to I-40 Business Split.
- Sandy Ridge Road from I-40 to West Market Street. [1]
- TIP Project No. U-4015A, Gallimore Dairy Road from NC 68 to Albert Pick Road.
- TIP Project No. U-5003, Pegg/Thatcher Connector from West Market Street to Clinard Farms Road.

[1] This is the subject project included in this forecast.

- Sandy Ridge Road Extension from West Market Street to I-40/NC 68/I-73 Connector.
- NC 68 from Peeples Road to Rockingham County.
- NC 68 from Market Street to Pleasant Ridge Road.
- Burnt Poplar Road from Swing Road to Regional Road.
- Pleasant Ridge Road from West Market Street to Greensboro City Limits.[2]
- Pleasant Ridge Road from Greensboro City Limits to Old Oak Ridge Road.
- Pleasant Ridge Road Relocation at I-73 Connector from Montmartre Road to Cude Road.
- Bryan Boulevard Loop at I-73 Connector from Montmartre Road to Pleasant Ridge Road.
- TIP Project No. I-4924, I-73/I-74 Connector from Forsyth County to NC 68.
- I-40 Connector for I-40 to I-73/I-74 Connector.
- Glenn High Road Extension from Union Cross Road to Teague Lane.
- Airport Connector from I-73/I-74 Connector to NC 68.
- I-840 from Bryan Boulevard to US 220/US 29.
- Thorndike Road from Gallimore Dairy Road to Sandy Ridge Road.
- Bunker Hill Sandy Ridge Road from NC 66 to Teague Lane.
- Winston-Salem North/South Connector from NC 66 to Johnson Street on Squire Davis Road/Sandy Ridge Road.
- Flemington-Lewiston Connector from Fleming Road to Lewiston Road Connection.
- Lewiston Road/Pleasant Ridge Road from Urban Loop to the NC 150 Relocation.

[2] This is the subject project included in this forecast.

METHODOLOGY AND FORECAST DEVELOPMENT

The methodology consists of:

- Obtaining Background Data.
  - Examining Historical NCDOT Traffic Data.
  - Examining Updated Traffic Data Collected by **M/A/B,** Greensboro, and High Point.
- Developing Forecasts for the Base Year Scenarios for:
  - Scenario 1: 2009 Base Year No-Build Alternative.
  - Scenario 2: 2009 Base Year Build Alternative 1.
  - Scenario 3: 2009 Base Year Build Alternative 2.
- Developing Forecasts for the Future Year Scenarios for:
  - Scenario 4: 2035 Future Year No-Build Alternative.
  - Scenario 5: 2035 Future Year Build Alternative 1.
  - Scenario 6: 2035 Future Year Build Alternative 2.

The forecasts for Scenario 1 are time-series based, estimated primarily from historical data and data collected specifically for this project in 2009. Forecasts for Scenario 4 were developed from a comparison between the historical data and model data extracted from the 2009 and 2035 PTRMs. Scenarios 2, 3, 5, and 6 were developed from ratios calculated from the model runs.

BACKGROUND DATA

Available traffic counts (current and historical) were compiled, reviewed and evaluated. The study area resembles a rural setting. Commercial, residential, and industrial land uses are all present within the study area.

Historical Traffic Data

Historical AADT data were gathered from the NCDOT Traffic Survey Group (TSG) from 1987-2008. Table 2 presents the locations with available historical AADT data from 1987-2008.

Intersection turning movement count data were also gathered from the Greensboro and High Point Departments of Transportation from 2005-2008. These locations are shown in Table 1. These data were collected in raw form and were later factored where appropriate to AADT estimates for these forecasts using factors gathered from the TSG.

Updated Traffic Data

Intersection turning movement counts were collected by **M/A/B** in 2009 at selected intersections. These locations are shown in Table 1.

Table 1: Weekday Peak Period Turning Movement Count Schedule

Intersection	Time of Data Collection	Date of Count	Trucks
Sandy Ridge Road and West Market St	6:00 A.M. – 10:00 P.M.	Tue, January 6, 2009	Yes
Sandy Ridge Road and Cider Road	6:00 A.M. – 10:00 P.M.	Wed, January 7, 2009	Yes
Sandy Ridge Road and Farrington Road	6:00 A.M. – 10:00 P.M.	Tue, January 6, 2009	Yes
Sandy Ridge Road and Triad Drive*	7:00 A.M. – 6:00 P.M.	Tue, August 9, 2005	No
Sandy Ridge Road and I-40 WB Ramps**	6:00 A.M. – 6:00 P.M.	Tue, August 7, 2007	No
Sandy Ridge Road and I-40 EB Ramps**	6:00 A.M. – 6:00 P.M.	Tue, August 7, 2007	No
West Market St and Pleasant Ridge Rd	6:00 A.M. – 10:00 P.M.	Wed, January 7, 2009	Yes
West Market Street and NC 68 SB Ramps/Thatcher Road	6:00 A.M. – 10:00 P.M.	Thu, January 8, 2009	Yes
West Market St and NC 68 NB Ramps	6:00 A.M. – 10:00 P.M.	Wed, January 7, 2009	Yes
Pleasant Ridge Road and Cude Road	6:00 A.M. – 10:00 P.M.	Thu, January 8, 2009	Yes
Pleasant Ridge Road and Bingham Rd	6:00 A.M. – 10:00 P.M.	Thu, January 8, 2009	Yes
NC 68 and Edgefield Road*	7:00 A.M. – 6:00 P.M.	Wed, February 20, 2008	No
NC 68 and Pleasant Ridge Road*	7:00 A.M. – 6:00 P.M.	Mon, April 10, 2006	No
NC 68 and Triad Center Drive	6:00 A.M. – 10:00 P.M.	Wed, January 7, 2009	Yes
NC 68 and I-40 WB Ramps	6:00 A.M. – 10:00 P.M.	Tue, February 10, 2009	Yes
NC 68 and I-40 EB Ramps	6:00 A.M. – 10:00 P.M.	Wed, February 11, 2009	Yes
Bryan Boulevard and Airport Center Dr	6:00 A.M. – 10:00 P.M.	Tue, January 6, 2009	Yes
Bryan Boulevard and Regional Drive*	7:00 A.M. – 6:00 P.M.	Wed, April 25, 2007	No

** Collected by Greensboro Department of Transportation ** Collected by High Point Department of Transportation*
Unmarked locations were collected by M/A/B

Table 2: NCDOT Historical AADT Count Data

Location		Year																				
Int. No.	**Approach Description**	**1987**	**1989**	**1990**	**1991**	**1992**	**1993**	**1994**	**1995**	**1996**	**1997**	**1998**	**1999**	**2000**	**2001**	**2002**	**2003**	**2004**	**2005**	**2006**	**2007**	**2008**
1	Edgefield Road EAST of NC 68	1,800			1,900		2,100						3,100		3,500		3,200					
1	NC 68 SOUTH of Edgefield Road												24,000		24,000		25,000					
2	NC 68 NORTH of Pleasant Ridge Road												24,000		24,000		25,000					
2	Pleasant Ridge Road EAST of NC 68	1,800			2,500		4,100						9,300		9,800		10,000					
2	NC 68 SOUTH of Pleasant Ridge Road	9,700			10,600		17,700				22,800	36,500							27,000		28,000	
5	Pleasant Ridge Road NORTH of West Market Street	1,400			1,600		2,900				4,400		5,300		6,500		8,900		9,600		8,500	
5	West Market Street WEST of Pleasant Ridge Road				7,900		8,600				17,200		17,000		19,000		17,000		16,000		16,000	
6	NC 68 NORTH of Bryan Boulevard	9,700			10,600		17,700				22,800	36,500							27,000		28,000	
6	Bryan Boulevard EAST of NC 68										20,100		29,000				33,000		35,000		34,000	

Table 2: NCDOT Historical AADT Count Data

Location		Year																				
Int. No.	**Approach Description**	**1987**	**1989**	**1990**	**1991**	**1992**	**1993**	**1994**	**1995**	**1996**	**1997**	**1998**	**1999**	**2000**	**2001**	**2002**	**2003**	**2004**	**2005**	**2006**	**2007**	**2008**
6	NC 68 SOUTH of Bryan Boulevard																		50,000		50,000	
7	NC 68 NORTH of West Market Street																		50,000		50,000	
7	West Market Street EAST of NC 68										13,900		15,000				16,000		15,000		14,000	
7	NC 68 SOUTH of West Market Street																		52,000		54,000	
7	Thatcher Road SOUTH of West Market Street																		2,200		2,200	
8	NC 68 NORTH of Triad Center Drive Extension																		52,000		54,000	
8	NC 68 SOUTH of Triad Center Drive Extension										36,500		41,000		55,000		51,000		54,000		57,000	
9	NC 68 NORTH of I-40										36,500		41,000		55,000		51,000		54,000		57,000	
9	I-40 EAST of NC 68		69,800	63,300			80,600	82,600		82,400	80,900		80,000	82,000	82,000	81,000	81,000	92,000	98,000	102,000	107,000	104,000
9	NC 68 SOUTH of I-40			11,100							26,900		29,000		37,000		34,000		36,000		35,000	

Table 2: NCDOT Historical AADT Count Data

Location		Year																				
Int. No.	**Approach Description**	**1987**	**1989**	**1990**	**1991**	**1992**	**1993**	**1994**	**1995**	**1996**	**1997**	**1998**	**1999**	**2000**	**2001**	**2002**	**2003**	**2004**	**2005**	**2006**	**2007**	**2008**
9	I-40 WEST of NC 68		57,800	56,300	56,500	50,300	72,100	70,200	74,100	76,100	78,300	75,000	79,000	80,000	81,000	79,000	80,000	88,000	94,000	98,000	105,000	98,000
10	I-40 EAST of Sandy Ridge Road		57,800	56,300	56,500	50,300	72,100	70,200	74,100	76,100	78,300	75,000	79,000	80,000	81,000	79,000	80,000	88,000	94,000	98,000	105,000	98,000
10	Sandy Ridge Road SOUTH of I-40	3,400			4,300		5,300				9,500		11,000		14,000		14,000		12,000		17,000	
10	I-40 WEST of Sandy Ridge Road		55,400		54,600	47,900	71,200		76,600	77,400		83,000	85,000	86,000	86,000	84,000	86,000	93,000	98,000	102,000	108,000	101,000
11	Triad Drive EAST of Sandy Ridge Road	2,800			3,300		5,100				6,500		7,300		8,600		8,500		8,500		8,800	
13	Sandy Ridge Road NORTH of Cider Road	3,800			4,900		6,200				9,400		10,000		11,000		10,000		9,900		11,000	
14	West Market Street EAST of Sandy Ridge Road	7,400			7,600		8,000				13,400		17,000		17,000		16,000		14,000		15,000	
14	Sandy Ridge Road SOUTH of West Market Street	3,800			4,900		6,200				9,400		10,000		11,000		10,000		9,900		11,000	
14	West Market Street WEST of Sandy Ridge Road	8,600			8,500		9,500				12,700		14,000		15,000		13,000		13,000		13,000	

FORECAST DEVELOPMENT FOR THE BASE YEAR SCENARIOS

This section details the forecast development for Scenarios 1, 2, and 3. The process consisted of determining Link Forecast Volumes for each scenario and balancing and adjusting the intersection turning movements.

Scenario 1: 2009 Base Year No-Build Alternative

The 2009 Base Year No-Build Alternative consists of establishing traffic estimates on the existing roadway system.

Design Data

The design hourly volume factors [K-Factors], directional distribution factors [D-Factors], and truck percentages were derived from the following sources:

- Design data documented for the West Market Street forecast performed in 2002 were also considered.
- Historical data obtained from the Traffic Survey Group (TSG).

The selected design data are shown in Table 3.

Table 3: Design Data

AADT Location		Previous NCDOT Forecast for West Market Street (2002)				Previous NCDOT Data Obtained from the Traffic Survey Group					Design Data Extracted from M/A/B Tube Count Data (2009)				Design Data Extracted from M/A/B Turning Movement Count Data (2009)				2009 Base Year No-Build Selected Design Data			
Intersection Location	Approach Description	Duals	TT-STs	K	D	Duals	TT-STs	K	D	Year	Duals	TT-STs	K	D	Duals	TT-STs	K	D	Duals	TT-STs	K	D
1	Edgefield Road EAST of NC 68					4%	5%	10%	60%	1994							12%	59%	**4%**	**5%**	**12%**	**60%**
2	NC 68 SOUTH of Pleasant Ridge Road					4%	6%	9%	69%	2004							9%	65%	**4%**	**4%**	**10%**	**65%**
3	Brigham Road SOUTH of Pleasant Ridge Road	4%	2%	9%	62%										2%	1%	11%	80%	**4%**	**2%**	**10%**	**75%**
5	Pleasant Ridge Road NORTH of West Market Street	5%	4%	10%	60%										4%	4%	11%	55%	**3%**	**4%**	**11%**	**55%**
5	West Market Street EAST of Pleasant Ridge Road	3%	3%	9%	55%										3%	3%	10%	65%	**3%**	**4%**	**11%**	**60%**
5	West Market Street WEST of Pleasant Ridge Road	3%	3%	9%	55%										3%	2%	11%	55%	**3%**	**4%**	**11%**	**60%**
7	NC 68 NORTH of West Market Street	3%	11%	11%	70%								10%	65%	6%	8%	10%	60%	**4%**	**4%**	**10%**	**65%**
7	West Market Street EAST of NC 68	3%	3%	9%	55%										4%	4%	9%	60%	**3%**	**4%**	**11%**	**60%**
7	NC 68 SOUTH of West Market Street	3%	11%	11%	70%										3%	2%	10%	60%	**4%**	**4%**	**10%**	**65%**
7	West Market Street WEST of NC 68	3%	3%	9%	55%										3%	3%	10%	55%	**3%**	**4%**	**11%**	**60%**
8	NC 68 SOUTH of Triad Center Drive Extension					3%	3%	10%	54%	2002					3%	3%	11%	55%	**4%**	**4%**	**11%**	**55%**
9	NC 68 NORTH of I-40					4%	4%	9%	52%	2002					2%	2%	11%	55%	**4%**	**4%**	**11%**	**55%**

Table 3: Design Data

AADT Location		Previous NCDOT Forecast for West Market Street (2002)				Previous NCDOT Data Obtained from the Traffic Survey Group					Design Data Extracted from M/A/B Tube Count Data (2009)				Design Data Extracted from M/A/B Turning Movement Count Data (2009)				2009 Base Year No-Build Selected Design Data			
Intersection Location	Approach Description	Duals	TT-STs	K	D	Duals	TT-STs	K	D	Year	Duals	TT-STs	K	D	Duals	TT-STs	K	D	Duals	TT-STs	K	D
9	I-40 EAST of NC 68					5%	7%	9%	52%	2009							11%	55%	**5%**	**7%**	**10%**	**55%**
12	Sandy Ridge Road NORTH of Farrington Road														3%	3%	11%	60%	**3%**	**4%**	**11%**	**60%**
12	Sandy Ridge Road SOUTH of Farrington Road														3%	3%	11%	60%	**3%**	**4%**	**11%**	**60%**
12	Farrington Road WEST of Sandy Ridge Road														2%	2%	16%	65%	**2%**	**2%**	**16%**	**65%**
13	Sandy Ridge Road NORTH of Cider Road														3%	3%	11%	60%	**3%**	**4%**	**11%**	**60%**
13	Sandy Ridge Road SOUTH of Cider Road														3%	4%	11%	60%	**3%**	**4%**	**11%**	**60%**
14	West Market Street EAST of Sandy Ridge Road	3%	3%	9%	55%										3%	3%	11%	55%	**3%**	**4%**	**11%**	**60%**
14	Sandy Ridge Road SOUTH of West Market Street	4%	5%	9%	60%										3%	3%	11%	60%	**3%**	**4%**	**11%**	**60%**
14	West Market Street WEST of Sandy Ridge Road	3%	3%	9%	55%										2%	1%	12%	65%	**3%**	**4%**	**12%**	**65%**

2009 Base Year No-Build Alternative Link Forecast Volumes

Several techniques were employed to determine the 2009 Base Year No-Build Alternative Link Forecast Volumes. The first used historical data while the others relied on tube counts and intersection turning movement counts.

The results of each technique were compared against one another. At each applicable location, the most reasonable result was assumed as the 2009 Base Year No-Build Alternative Link Forecast Volume and carried forward for the development of the forecasts.

Estimating 2009 AADT Using Historical Data Extrapolation

This method of determining the 2009 Base Year No-Build Alternative Link Forecast Volumes consisted of extrapolation of historical trends. The data collected in Table 2 were used to facilitate this. The 2009 estimates based on the historical extrapolation are detailed in Table 4.

Two independent trend analyses, as shown in Table 4, were performed on the data between 1987-2008 and 1997-2008. The results of each were compared against one another.

Estimating 2009 AADT Using Updated Traffic Counts

The 2009 Base Year No-Build Alternative Link Forecast Volumes were established using the available intersection turning movement counts that were collected between 2006 and 2009. All of the raw counts were adjusted to daily estimates using daily factors. Adjustments were applied as appropriate to balance intersection volumes and reduce discrepancies as a result of the counts being collected during different seasons and years.

There were major changes to the surrounding roadway network that influenced growth, and in particular, generally resulted lower 2009 volumes. Specifically, the new I-73 connection east of the study area was open for travel in 2008, and effectively diverted traffic from alternatives routes such as NC 68 and Bryan Boulevard. As a result, traffic volumes were generally balanced from the intersections where 2009 counts were available.

Intersections where 2009 counts were unavailable were often adjusted downward to balance with neighboring available count with reductions generally applied along the major through directions. Intersections along Sandy Ridge Road were less affected by the I-73 Connector and as result; slight growth rates were applied as appropriate to reduce discrepancies with the older counts. Directional distribution and design hourly volume factors were also obtained from the counts and used to project the daily traffic volumes. Lastly, NCDOT seasonal adjustment factors were applied based on the time of year and facility type.

Link Forecast Volume Selection

Where applicable, the techniques were compared against one another for each location. Three sets of results were performed and reviewed. The selection followed the hierarchy described below:

- *Traffic Counts Performed by* **M/A/B,** *City of Greensboro, and City of Winston-Salem.*
- *Historical Data Extrapolation from 1997-2008.*

- *Historical Data Extrapolation from 1987-2008.*

The order of this hierarchy was determined due to the fact that the traffic data collected in 2008 revealed a significant decrease in traffic across the study area. The most appropriate value was used and carried forward as the 2009 Base Year No-Build Link Forecast Volume. Table 4 shows the results.

PTRM volumes were extracted from 2009 Base Year Model and compared to the volumes derived above.

2009 Base Year No-Build Alternative Forecast Volumes

Upon establishing the 2009 Base Year No-Build Link Forecast Volumes, each intersection was balanced. The turning movement percentages were taken from new counts collected in 2009.

TURNSW32, a turning movement forecasting program, was used to facilitate the balancing procedure. *TURNSW32* employs techniques described in "National Cooperative Highway Research Program (NCHRP) Report 365: Travel Estimation Techniques for Urban Planning," published by the Transportation Research Board National Research Council.

TURNSW32 derives forecast turning movements using an iterative approach that alternately balances the inflows and outflows until the results converge. The results converged within 100 iterations at each location. Simply, the estimated AADT volumes (inflows and outflows) at each intersection were used to estimate the turning movements. Once this process was completed, the turning movements were manually adjusted to complete the balancing procedure.

Diagram 1 shows the 2009 Base Year No-Build Alternative AADT Forecast Volumes.

Table 4: Sources Used to Determine 2009 Base Year No-Build Link Forecast Volumes for Scenario 1

Location		NCDOT Historical AADT								NCDOT Historical AADT Counts Forecasted to 2009 (1987-2008)	NCDOT Historical AADT Counts Forecasted to 2009 (1997-2008)	Factored 2009 AADT Using M/A/B Intersection TMC Volumes (2009)	*2009 Base Year No-Build Link Forecast Volumes*	*2009 Base Year Model Volumes*
Intersection Number	Approach Description	2001	2002	2003	2004	2005	2006	2007	2008					
1	NC 68 NORTH of Edgefield Road	-	-	-	-	-	-	-	-	-	-	17,800	**17,800**	**25,418**
1	Edgefield Road EAST of NC 68	3,500	-	3,200	-	-	-	-	-	4,200	3,400	5,000	**5,000**	**4,083**
1	NC 68 SOUTH of Edgefield Road	24,000	-	25,000	-	-	-	-	-	31,400	26,400	20,800	**20,800**	**24,823**
1	Edgefield Road WEST of NC 68	-	-	-	-	-	-	-	-	-	-	1,600	**1,600**	**1,680**
2	NC 68 NORTH of Pleasant Ridge Road	24,000		25,000		-			-	31,400	26,400	20,800	**20,800**	**24,823**
2	Pleasant Ridge Road EAST of NC 68	9,800	-	10,000	-	-	-	-	-	14,200	11,200	16,800	**16,800**	**20,707**
2	NC 68 SOUTH of Pleasant Ridge Road	-	-	-	-	27,000	-	28,000	-	34,200	27,600	29,600	**29,600**	**25,592**
2	Pleasant Ridge Road WEST of NC 68	-	-	-	-	-	-	-	-	-	-	12,000	**12,000**	**14,629**
3	Brigham Road NORTH of Pleasant Ridge Road	-	-	-	-	-	-	-	-	-	-	400	**400**	**1,772**
3	Pleasant Ridge Road EAST of Brigham Road	-	-	-	-	-	-	-	-	-	-	7,200	**7,200**	**16,311**
3	Brigham Road SOUTH of Pleasant Ridge Road	-	-	-	-	-	-	-	-	-	-	800	**800**	**-**
3	Pleasant Ridge Road WEST of Brigham Road	-	-	-	-	-	-	-	-	-	-	7,200	**7,200**	**13,719**

Table 4: Sources Used to Determine 2009 Base Year No-Build Link Forecast Volumes for Scenario 1

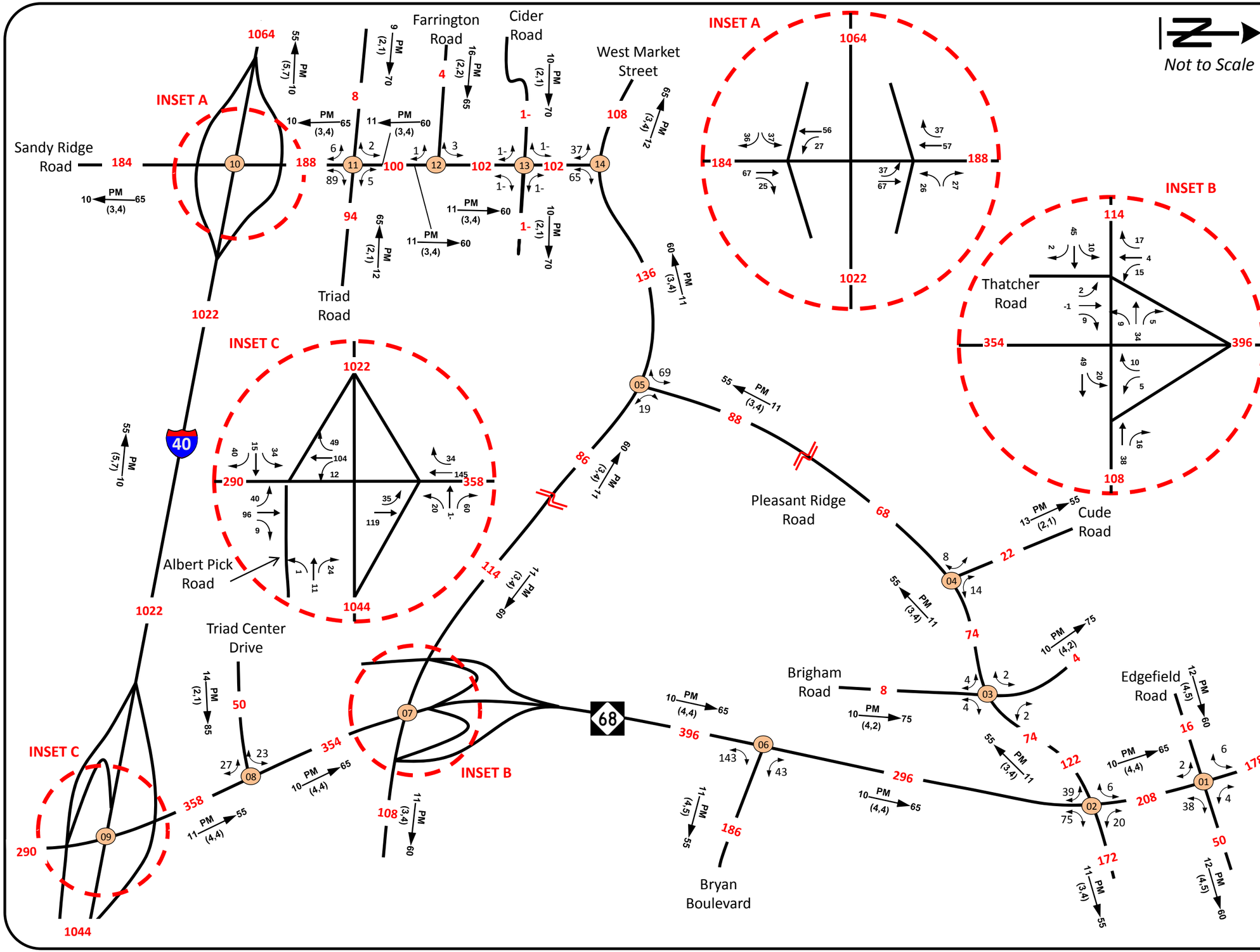
Location		NCDOT Historical AADT								NCDOT Historical AADT Counts Forecasted to 2009 (1987-2008)	NCDOT Historical AADT Counts Forecasted to 2009 (1997-2008)	Factored 2009 AADT Using M/A/B Intersection TMC Volumes (2009)	*2009 Base Year No-Build Link Forecast Volumes*	*2009 Base Year Model Volumes*
Intersection Number	Approach Description	2001	2002	2003	2004	2005	2006	2007	2008					
4	Cude Road NORTH of Pleasant Ridge Road	-	-	-	-	-	-	-	-	-	-	2,200	**2,200**	**2,457**
4	Pleasant Ridge Road EAST of Cude Road	-	-	-	-	-	-	-	-	-	-	7,200	**7,200**	**13,719**
4	Pleasant Ridge Road WEST of Cude Road	-	-	-	-	-	-	-	-	-	-	6,600	**6,600**	**13,536**
5	Pleasant Ridge Road NORTH of West Market Street	6,500	-	8,900	-	9,600	-	8,500	-	10,400	10,800	8,600	**8,600**	**13,536**
5	West Market Street EAST of Pleasant Ridge Road	-	-	-	-	-	-	-	-	-	-	8,600	**8,600**	**15,270**
5	West Market Street WEST of Pleasant Ridge Road	19,000	-	17,000	-	16,000	-	16,000	-	20,000	16,000	13,600	**13,600**	**22,166**
6	NC 68 NORTH of Bryan Boulevard					27,000		28,000	-	34,200	27,600	29,600	**29,600**	**25,592**
6	Bryan Boulevard EAST of NC 68	-	-	33,000	-	35,000	-	34,000	-	39,200	39,200	18,600	**18,600**	**11,558**
6	NC 68 SOUTH of Bryan Boulevard	-	-	-	-	50,000	-	50,000	-	50,000	50,000	39,600	**39,600**	**33,205**
7	NC 68 NORTH of West Market Street	-	-	-	-	50,000	-	50,000	-	50,000	50,000	39,600	**39,600**	**33,205**
7	West Market Street EAST of NC 68	-	-	16,000	-	15,000	-	14,000	-	15,000	15,000	10,800	**10,800**	**16,313**
7	NC 68 SOUTH of West Market Street	-	-	-	-	52,000	-	54,000	-	56,000	56,000	35,400	**35,400**	**34,782**
7	Thatcher Road SOUTH of West Market Street	-	-	-	-	2,200	-	2,200	-	2,200	2,200	1,600	**2,200**	**-**

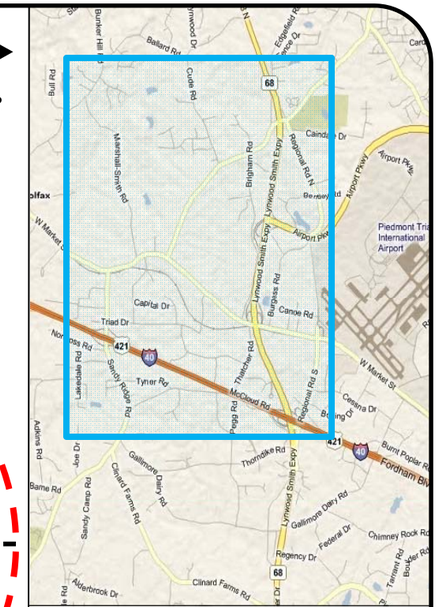
Table 4: Sources Used to Determine 2009 Base Year No-Build Link Forecast Volumes for Scenario 1

Location		NCDOT Historical AADT								NCDOT Historical AADT Counts Forecasted to 2009 (1987-2008)	NCDOT Historical AADT Counts Forecasted to 2009 (1997-2008)	Factored 2009 AADT Using M/A/B Intersection TMC Volumes (2009)	*2009 Base Year No-Build Link Forecast Volumes*	*2009 Base Year Model Volumes*
Intersection Number	Approach Description	2001	2002	2003	2004	2005	2006	2007	2008					
7	West Market Street WEST of NC 68	-	-	-	-	-	-	-	-	-	-	11,400	**11,400**	**21,262**
8	NC 68 NORTH of Triad Center Drive Extension					52,000		54,000	-	56,000	56,000	35,400	**35,400**	**34,782**
8	NC 68 SOUTH of Triad Center Drive Extension	55,000		51,000		54,000	-	57,000	-	62,800	62,800	35,800	**35,800**	**34,782**
8	Triad Center Drive Extension WEST of NC 68	-	-	-	-	-	-	-	-	-	-	5,000	**5,000**	**-**
9	NC 68 NORTH of I-40	55,000		51,000		54,000		57,000	-	62,800	62,800	35,800	**35,800**	**34,782**
9	I-40 EAST of NC 68	82,000	81,000	81,000	92,000	98,000	102,000	107,000	104,000	102,000	106,800	-	**104,400**	**112,909**
9	NC 68 SOUTH of I-40	37,000	-	34,000	-	36,000	-	35,000	-	42,600	38,800	29,000	**29,000**	**21,008**
9	I-40 WEST of NC 68	81,000	79,000	80,000	88,000	94,000	98,000	105,000	98,000	102,000	102,400	-	**102,200**	**111,293**
9	Albert Pick Road EAST of NC 68	-	-	-	-	-	-	-	-	-	-	7,200	**7,200**	**5,689**
10	Sandy Ridge Road NORTH of I-40	-	-	-	-	-	-	-	-	-	-	18,800	**18,800**	**21,373**
10	I-40 EAST of Sandy Ridge Road	81,000	79,000	80,000	88,000	94,000	98,000	105,000	98,000	102,000	102,400	-	**102,200**	**111,293**
10	Sandy Ridge Road SOUTH of I-40	14,000	-	14,000	-	12,000	-	17,000	-	17,400	17,000	18,400	**18,400**	**16,840**
10	I-40 WEST of Sandy Ridge Road	86,000	84,000	86,000	93,000	98,000	102,000	108,000	101,000	108,400	106,400	-	**106,400**	**122,699**

Table 4: Sources Used to Determine 2009 Base Year No-Build Link Forecast Volumes for Scenario 1

Location		NCDOT Historical AADT								NCDOT Historical AADT Counts Forecasted to 2009 (1987-2008)	NCDOT Historical AADT Counts Forecasted to 2009 (1997-2008)	Factored 2009 AADT Using M/A/B Intersection TMC Volumes (2009)	*2009 Base Year No-Build Link Forecast Volumes*	*2009 Base Year Model Volumes*
Intersection Number	Approach Description	2001	2002	2003	2004	2005	2006	2007	2008					
11	Sandy Ridge Road NORTH of Triad Drive	-	-	-	-	-	-	-	-	-	-	10,000	**10,000**	**16,082**
11	Triad Drive EAST of Sandy Ridge Road	8,600	-	8,500	-	8,500	-	8,800	-	10,200	9,600	9,400	**9,400**	**7,552**
11	Sandy Ridge Road SOUTH of Triad Drive	-	-	-	-	-	-	-	-	-	-	18,800	**18,800**	**21,373**
11	Triad Drive WEST of Sandy Ridge Road	-	-	-	-	-	-	-	-	-	-	800	**800**	**-**
12	Sandy Ridge Road NORTH of Farrington Road	-	-	-	-	-	-	-	-	-	-	10,200	**10,200**	**15,301**
12	Sandy Ridge Road SOUTH of Farrington Road	-	-	-	-	-	-	-	-	-	-	10,000	**10,000**	**16,082**
12	Farrington Road WEST of Sandy Ridge Road	-	-	-	-	-	-	-	-	-	-	400	**400**	**2,025**
13	Sandy Ridge Road NORTH of Cider Road	11,000	-	10,000	-	9,900	-	11,000	-	12,600	10,800	10,200	**10,200**	**15,301**
13	Sandy Ridge Road SOUTH of Cider Road	-	-	-	-	-	-	-	-	-	-	10,200	**10,200**	**15,301**
14	West Market Street EAST of Sandy Ridge Road	17,000	-	16,000	-	14,000	-	15,000	-	18,200	15,200	13,600	**13,600**	**21,586**
14	Sandy Ridge Road SOUTH of West Market Street	11,000		10,000		9,900		11,000	-	12,600	10,800	10,200	**10,200**	**15,301**
14	West Market Street WEST of Sandy Ridge Road	15,000	-	13,000	-	13,000	-	13,000	-	15,200	13,200	10,800	**10,800**	**17,679**





2009

ANNUAL AVERAGE DAILY TRAFFIC

SCENARIO 1 – NO BUILD

LEGEND

DHV —PM (d, t)→ D

###	No. of Vehicles per Day in 100's
1-	Less than 50 VPD
X	Movement Prohibited
DHV	Design Hourly Volume
PM	PM Peak Period
D	Peak Hour Directional Split (%)
→	Indicates Direction of D
(d,t)	Duals, TT-ST'S (%)

FS: FS-0707A

COUNTY: Guilford **DIVISION:** 7

DATE: January, 2010

Prepared by: Martin/Alexiou/Bryson

LOCATION: Vicinity of Sandy Ridge Road, I-40, and NC-68

PROJECT: Sandy Ridge Widening and Extension

Scenario 2: 2009 Base Year Build Alternative 1

The 2009 Base Year Build Alternative 1 assumes that the Sandy Ridge Road Widening from I-40 to West Market Street is constructed on the existing roadway system.

2009 Base Year Build Alternative 1 Forecast Volumes

A model network was created and run representing the 2009 Base Year Build Alternative 1 conditions. PTRM volumes were extracted from 2009 Base Year Model and the 2009 Base Year Build Alternative 1 Model to help develop the 2009 Base Year Build Alternative 1 Link Forecast Volumes.

For each applicable link, ratio was calculated between the two model runs. This ratio was applied to the 2009 Base Year No-Build Alternative Link Forecast Volumes. Common links in the study area showed that the model predicts the base year reasonably well. Table 5 shows the model validation for the key links that were available in the model study area. The output from this method was compared to the output obtained from the historical trend. The most appropriate value was used.

Upon establishing the 2009 Base Year Build Alternative 1 Link Forecast Volumes, each intersection was balanced and adjusted. The turning movement percentages were taken from the 2009 traffic counts. *TURNSW32* was used to facilitate the balancing procedure. Diagram 2 shows the 2009 Base Year Build Alternative 1 AADT Forecast Volumes.

Scenario 3: 2009 Base Year Build Alternative 2

The 2009 Base Year Build Alternative 2 assumes that the Sandy Ridge Road Widening from I-40 to West Market Street and the Pleasant Ridge Widening from West Market Street to NC 68 are both constructed on the existing roadway system.

2009 Base Year Build Alternative 2 Forecast Volumes

A model network was created and run representing the 2009 Base Year Build Alternative 2 conditions. PTRM volumes were extracted from 2009 Base Year Model and the 2009 Base Year Build Alternative 2 Model to help develop the 2009 Base Year Build Alternative 2 Link Forecast Volumes.

For each applicable link, a ratio was calculated between the two model runs. This ratio was applied to the 2009 Base Year No-Build Alternative Link Forecast Volumes. Common links in the study area showed that the model predicts the base year fairly well. Table 6 shows the model validation for the key links that were available in the model study area. The output from this method was compared to the output obtained from the historical trend. The most appropriate value was used.

Upon establishing the 2009 Base Year Build Alternative 2 Link Forecast Volumes, each intersection was balanced and adjusted. The turning movement percentages were taken from the 2009 traffic counts. *TURNSW32* was again used to facilitate the balancing procedure.

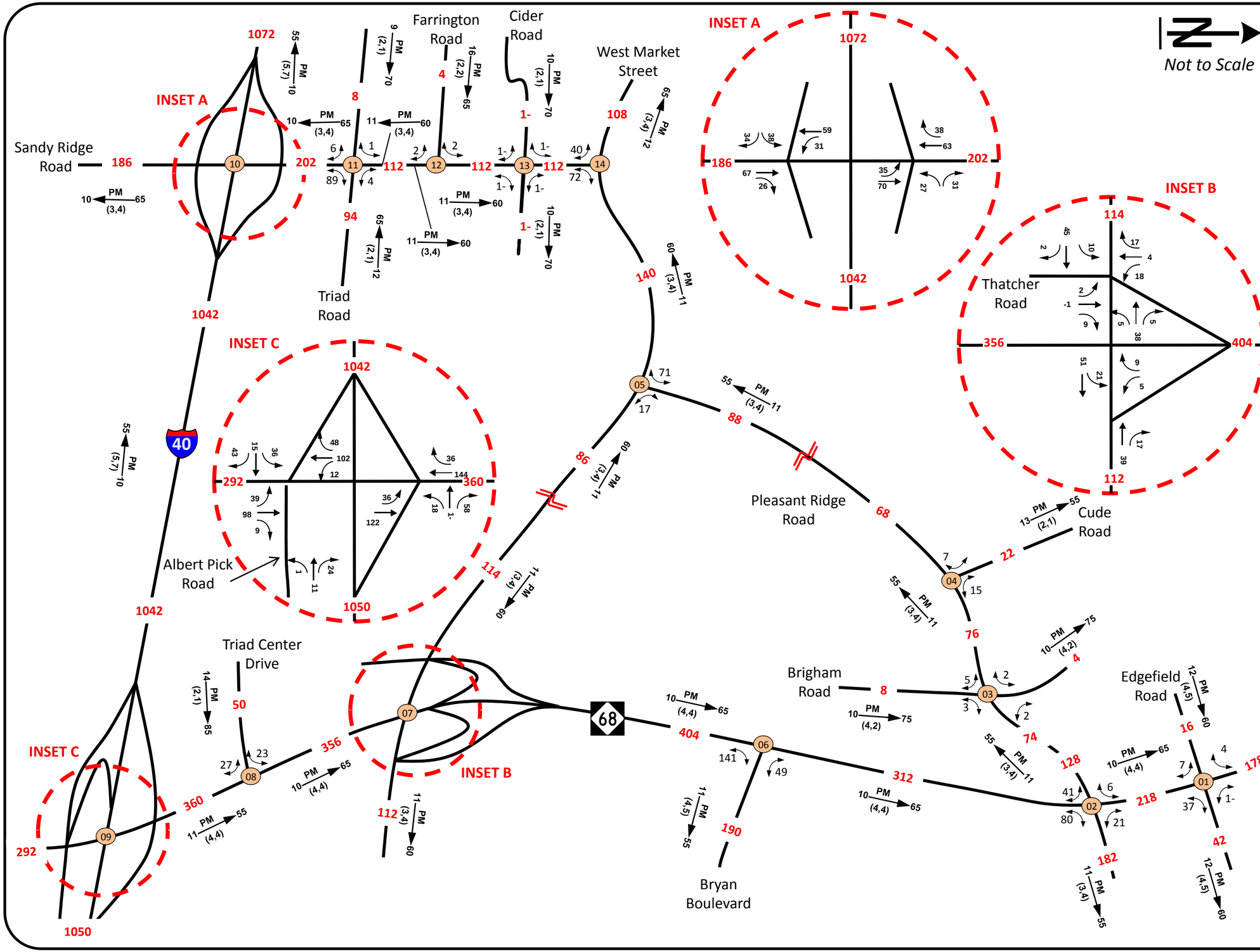
Diagram 3 shows the 2009 Base Year Build Alternative 2 AADT Forecast Volumes.

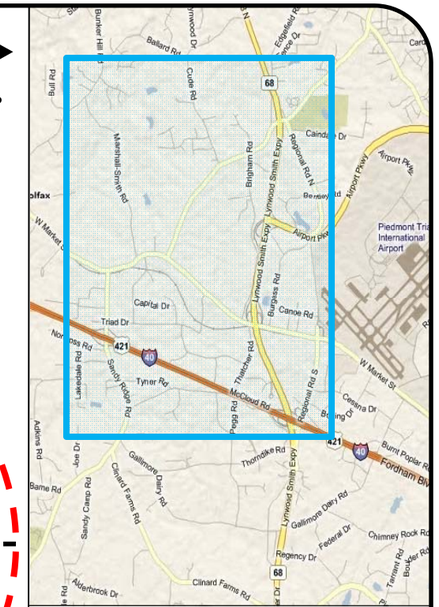
Table 5: Model Validation for No-Build Alternatives and Build 1 Alternatives

		2002 Base Year of Model (NO-BUILD)			2009 Base Year of Model (NO-BUILD)			2009 Base Year of Forecast (NO-BUILD)				2009 Base Year of Forecast BUILD 1			2035 Future Year of Forecast NO-BUILD			2035 Future Year of Forecast BUILD 1	
ROUTE	selected SEGMENT	MPO Counts	BY (1) Model Daily Value	% difference	AADT - extrapolated to BY(2) (1997-2008)	BY (1) Model Daily Value	% difference	AADT - extrapolated to BY(2) (1997-2008)	48-hr Field Counts Factored to AADT - BY(2)	16-hr TMC Field Counts factored to AADT - BY(2)	Final Forecast NB AADT BY(2)	Model BY(1) BUILD 1	Model change BUILD 1 / NB	Final Forecast BY(2) BUILD 1	FY Historical Extrapolation (1997-2008)	FY Model NO-BUILD	Forecast FY NO-BUILD (Final)	FY Model BUILD 1	Forecast FY BUILD 1 (Final)
1	Edgefield Road EAST of NC 68	3,500	2,935	19.25%	3,400	4,083	-16.73%	3,400	-	5,000	**5,000**	3,454	0.85	**4,200**	4,200	61,239	**62,200**	61,770	**62,800**
1	NC 68 SOUTH of Edgefield Road	13,000	21,125	-38.46%	26,400	24,823	6.35%	26,400	-	20,800	**20,800**	26,108	1.05	**21,800**	32,800	63,587	**64,600**	63,893	**65,000**
1	Edgefield Road WEST of NC 68	8,400	1,039	708.47%	-	1,680	-	-	-	1,600	**1,600**	1,673	1.00	**1,600**	-	31,039	**31,000**	30,973	**31,000**
2	NC 68 NORTH of Pleasant Ridge Road	13,000	21,125	-38.46%	26,400	24,823	6.35%	26,400	-	20,800	**20,800**	26,108	1.05	**21,800**	32,800	63,587	**64,600**	63,893	**65,000**
2	Pleasant Ridge Road EAST of NC 68	-	18,731	-	11,200	20,707	-45.91%	11,200	-	16,800	**16,800**	21,939	1.06	**17,800**	15,600	19,530	**16,200**	20,165	**16,800**
2	NC 68 SOUTH of Pleasant Ridge Road	13,000	23,406	-44.46%	27,600	25,592	7.85%	27,600	-	29,600	**29,600**	26,921	1.05	**31,200**	24,000	65,587	**64,600**	63,893	**63,000**
2	Pleasant Ridge Road WEST of NC 68	8,300	11,740	-29.30%	-	14,629	-	-	-	12,000	**12,000**	15,276	1.04	**12,600**	-	19,530	**16,200**	20,165	**16,800**
3	Pleasant Ridge Road EAST of Brigham Road	8,400	12,798	-34.36%	-	16,311	-	-	-	7,200	**7,200**	16,949	1.04	**7,400**	-	19,530	**16,200**	20,165	**16,800**
3	Pleasant Ridge Road WEST of Brigham Road	8,400	11,134	-24.56%	-	13,719	-	-	-	7,200	**7,200**	14,232	1.04	**7,400**	-	18,601	**12,000**	19,320	**12,400**
4	Cude Road NORTH of Pleasant Ridge Road	8,000	1,263	533.41%	-	2,457	-	-	-	2,200	**2,200**	2,407	0.98	**2,200**	-	11,698	**11,400**	11,293	**11,000**
4	Pleasant Ridge Road EAST of Cude Road	8,400	11,134	-24.56%	-	13,719	-	-	-	7,200	**7,200**	14,232	1.04	**7,400**	-	18,601	**12,000**	19,320	**12,400**
4	Pleasant Ridge Road WEST of Cude Road	6,500	11,113	-41.51%	-	13,536	-	-	-	6,600	**6,600**	13,648	1.01	**6,600**	-	18,804	**11,800**	19,139	**12,000**
5	Pleasant Ridge Road NORTH of West Market Street	6,500	11,113	-41.51%	10,800	13,536	-20.21%	10,800	-	8,600	**8,600**	13,648	1.01	**8,600**	24,000	18,804	**13,800**	19,139	**14,000**
5	West Market Street EAST of Pleasant Ridge Road	19,000	14,299	32.88%	-	15,270	-	-	-	8,600	**8,600**	15,282	1.00	**8,600**	-	35,565	**28,800**	37,230	**30,200**
5	West Market Street WEST of Pleasant Ridge Road	20,200	20,320	-0.59%	16,000	22,166	-27.82%	16,000	-	13,600	**13,600**	22,755	1.03	**14,000**	11,800	44,667	**36,400**	47,390	**39,000**
6	NC 68 NORTH of Bryan Boulevard	13,000	23,406	-44.46%	27,600	25,592	7.85%	27,600	-	29,600	**29,600**	26,921	1.05	**31,200**	24,000	63,587	**64,600**	63,893	**65,000**
6	Bryan Boulevard EAST of NC 68	-	18,447	-	39,200	11,558	239.16%	39,200	-	18,600	**18,600**	11,787	1.02	**19,000**	73,200	17,131	**24,200**	16,240	**23,000**
6	NC 68 SOUTH of Bryan Boulevard	30,500	39,090	-21.97%	50,000	33,205	50.58%	50,000	-	39,600	**39,600**	33,957	1.02	**40,400**	50,000	67,595	**74,000**	66,883	**73,200**
7	NC 68 NORTH of West Market Street	30,500	39,090	-21.97%	50,000	33,205	50.58%	50,000	-	39,600	**39,600**	33,957	1.02	**40,400**	50,000	67,595	**74,000**	66,883	**73,200**
7	West Market Street EAST of NC 68	23,500	20,334	15.57%	15,000	16,313	-8.05%	15,000	-	10,800	**10,800**	16,808	1.03	**11,200**	15,600	29,016	**23,600**	30,611	**24,800**
7	NC 68 SOUTH of West Market Street	23,500	35,749	-34.26%	56,000	34,782	61.00%	56,000	-	35,400	**35,400**	34,882	1.00	**35,600**	82,000	64,740	**65,400**	58,773	**59,400**
7	West Market Street WEST of NC 68	19,000	18,679	1.72%	-	21,262	-	-	-	11,400	**11,400**	21,264	1.00	**11,400**	-	46,704	**36,800**	48,172	**38,000**
8	NC 68 NORTH of Triad Center Drive Extension	26,600	35,749	-25.59%	56,000	34,782	61.00%	56,000	-	35,400	**35,400**	34,882	1.00	**35,600**	82,000	64,740	**65,400**	58,773	**59,400**
8	NC 68 SOUTH of Triad Center Drive Extension	25,000	35,749	-30.07%	62,800	34,782	80.55%	62,800	-	35,800	**35,800**	34,882	1.00	**36,000**	114,000	64,740	**65,800**	58,773	**59,800**
9	NC 68 NORTH of I-40	25,000	35,749	-30.07%	62,800	34,782	80.55%	62,800	-	35,800	**35,800**	34,882	1.00	**36,000**	114,000	64,740	**65,800**	58,773	**59,800**
9	I-40 EAST of NC 68	43,100	93,586	-53.95%	106,800	112,909	-5.41%	106,800	-	-	**104,400**	113,636	1.01	**105,000**	179,000	150,347	**141,800**	148,816	**140,400**
9	NC 68 SOUTH of I-40	20,800	21,889	-4.98%	38,800	21,008	84.69%	38,800	-	29,000	**29,000**	21,091	1.00	**29,200**	60,600	45,847	**53,800**	43,038	**50,600**

Table 5: Model Validation for No-Build Alternatives and Build 1 Alternatives

		2002 Base Year of Model (NO-BUILD)			2009 Base Year of Model (NO-BUILD)			2009 Base Year of Forecast (NO-BUILD)				2009 Base Year of Forecast BUILD 1			2035 Future Year of Forecast NO-BUILD			2035 Future Year of Forecast BUILD 1	
ROUTE	selected SEGMENT	MPO Counts	BY (1) Model Daily Value	% difference	AADT - extrapolated to BY(2) (1997-2008)	BY (1) Model Daily Value	% difference	AADT - extrapolated to BY(2) (1997-2008)	48-hr Field Counts Factored to AADT - BY(2)	16-hr TMC Field Counts factored to AADT - BY(2)	Final Forecast NB AADT BY(2)	Model BY(1) BUILD 1	Model change BUILD 1 / NB	Final Forecast BY(2) BUILD 1	FY Historical Extrapolation (1997-2008)	FY Model NO-BUILD	Forecast FY NO-BUILD (Final)	FY Model BUILD 1	Forecast FY BUILD 1 (Final)
9	I-40 WEST of NC 68	42,000	97,932	-57.11%	102,400	111,293	-7.99%	102,400	-	-	**102,200**	113,530	1.02	**104,200**	167,200	167,334	**158,200**	164,931	**156,000**
10	Sandy Ridge Road NORTH of I-40	9,700	18,333	-47.09%	-	21,373	-	-	-	18,800	**18,800**	23,019	1.08	**20,200**	-	38,472	**35,800**	51,812	**48,200**
10	I-40 EAST of Sandy Ridge Road	42,000	97,932	-57.11%	102,400	111,293	-7.99%	102,400	-	-	**102,200**	113,530	1.02	**104,200**	167,200	167,334	**158,200**	164,931	**156,000**
10	Sandy Ridge Road SOUTH of I-40	13,000	13,512	-3.79%	17,000	16,840	0.95%	17,000	-	18,400	**18,400**	17,008	1.01	**18,600**	32,000	45,551	**47,200**	48,117	**49,800**
10	I-40 WEST of Sandy Ridge Road	44,700	108,487	-58.80%	106,400	122,699	-13.28%	106,400	-	-	**106,400**	123,669	1.01	**107,200**	168,600	180,295	**164,000**	181,992	**165,600**
11	Sandy Ridge Road NORTH of Triad Drive	9,700	14,273	-32.04%	-	16,082	-	-	-	10,000	**10,000**	18,111	1.13	**11,200**	-	38,472	**32,400**	51,812	**43,600**
11	Triad Drive EAST of Sandy Ridge Road	8,600	5,431	58.35%	9,600	7,552	27.12%	9,600	-	9,400	**9,400**	7,726	1.00	**9,400**	15,200	10,788	**12,600**	11,699	**13,600**
11	Sandy Ridge Road SOUTH of Triad Drive	9,700	18,333	-47.09%	-	21,373	-	-	-	18,800	**18,800**	23,019	1.08	**20,200**	-	38,472	**35,800**	51,812	**48,200**
12	Sandy Ridge Road NORTH of Farrington Road	11,000	13,857	-20.62%	-	15,301	-	-	-	10,200	**10,200**	16,915	1.11	**11,200**	-	20,141	**15,000**	29,185	**24,000**
12	Sandy Ridge Road SOUTH of Farrington Road	9,700	14,273	-32.04%	-	16,082	-	-	-	10,000	**10,000**	18,111	1.13	**11,200**	-	38,472	**32,400**	51,812	**43,600**
13	Sandy Ridge Road NORTH of Cider Road	11,000	13,857	-20.62%	10,800	15,301	-29.42%	10,800	-	10,200	**10,200**	16,915	1.11	**11,200**	13,400	20,141	**15,000**	29,185	**24,000**
13	Sandy Ridge Road SOUTH of Cider Road	11,000	13,857	-20.62%	-	15,301	-	-	-	10,200	**10,200**	16,915	1.11	**11,200**	-	20,141	**15,000**	29,185	**24,000**
14	West Market Street EAST of Sandy Ridge Road	18,100	19,960	-9.32%	15,200	21,586	-29.58%	15,200	-	13,600	**13,600**	22,267	1.03	**14,000**	14,400	44,647	**36,400**	47,987	**39,000**
14	Sandy Ridge Road SOUTH of West Market Street	11,000	13,857	-20.62%	10,800	15,301	-29.42%	10,800	-	10,200	**10,200**	16,915	1.11	**11,200**	13,400	20,141	**15,000**	29,185	**24,000**
14	West Market Street WEST of Sandy Ridge Road	16,000	14,364	11.39%	13,200	17,679	-25.34%	13,200	-	10,800	**10,800**	17,734	1.00	**10,800**	11,800	40,070	**33,200**	38,075	**31,600**





2009

ANNUAL AVERAGE DAILY TRAFFIC

SCENARIO 2 – BUILD 1

LEGEND

DHV —PM (d, t)→ D

###	No. of Vehicles per Day in 100's
1-	Less than 50 VPD
X	Movement Prohibited
DHV	Design Hourly Volume
PM	PM Peak Period
D	Peak Hour Directional Split (%)
→	Indicates Direction of D
(d,t)	Duals, TT-ST'S (%)

FS: FS-0707A

COUNTY: Guilford **DIVISION:** 7

DATE: January, 2010

Prepared by: Martin/Alexiou/Bryson

LOCATION: Vicinity of Sandy Ridge Road, I-40, and NC-68

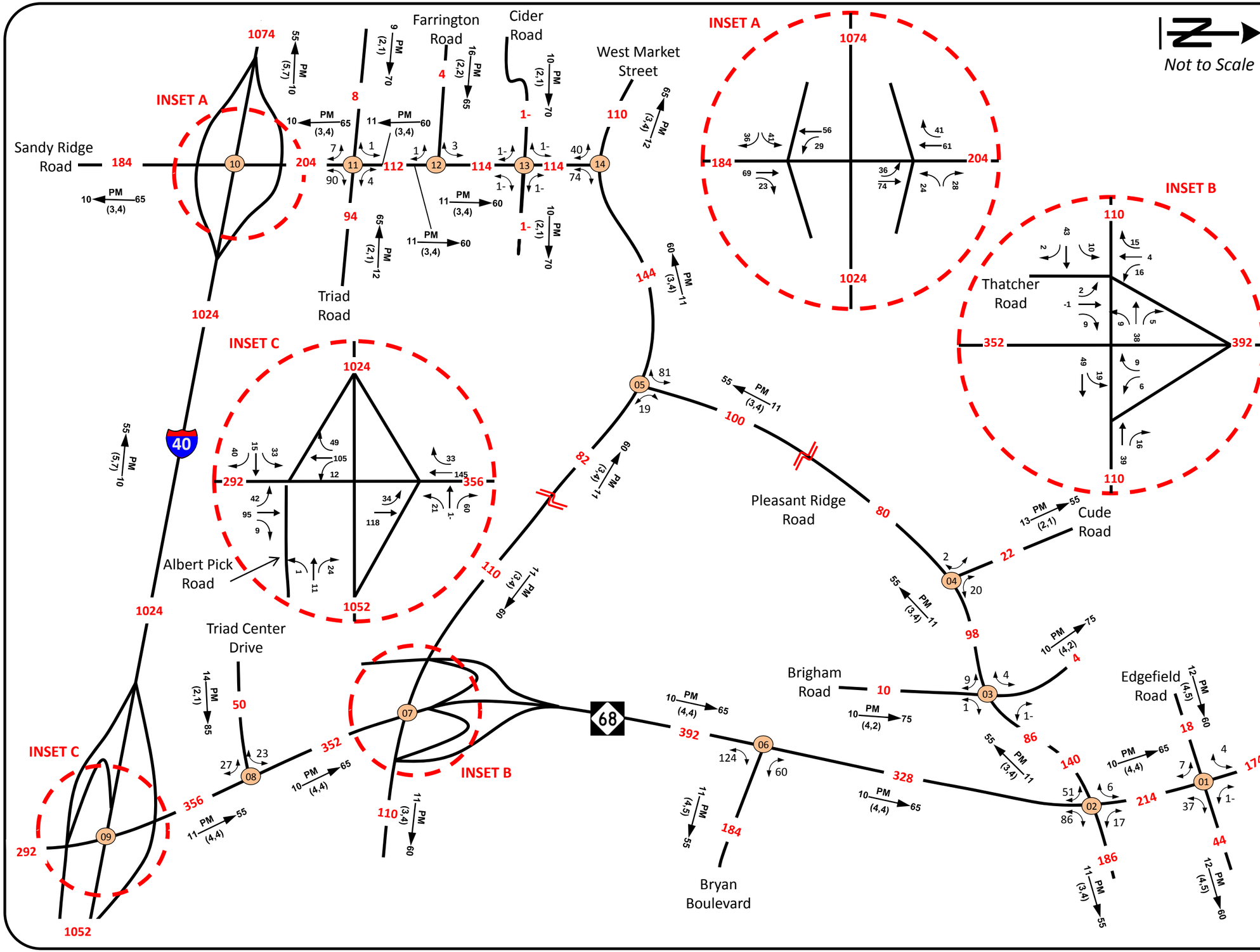
PROJECT: Sandy Ridge Widening and Extension

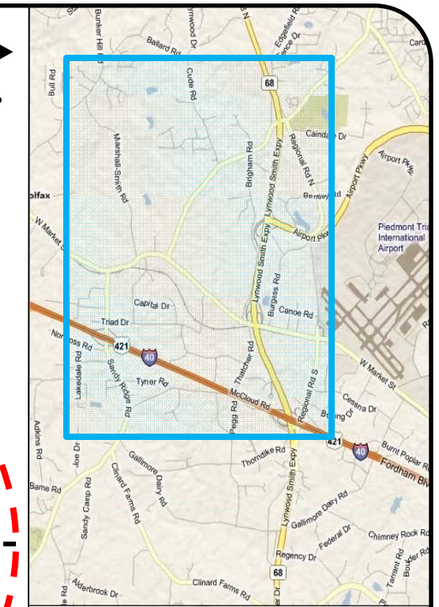
Table 6: Model Validation for No-Build Alternatives and Build 2 Alternatives

		2002 Base Year of Model (NO-BUILD)			2009 Base Year of Model (NO-BUILD)			2009 Base Year of Forecast (NO-BUILD)				2009 Base Year of Forecast BUILD 2			2035 Future Year of Forecast NO-BUILD			2035 Future Year of Forecast BUILD 2	
ROUTE	selected SEGMENT	MPO Counts	BY (1) Model Daily Value	% difference	AADT - extrapolated to BY(2) (1997-2008)	BY (1) Model Daily Value	% difference	AADT - extrapolated to BY(2) (1997-2008)	48-hr Field Counts Factored to AADT - BY(2)	16-hr TMC Field Counts factored to AADT - BY(2)	Final Forecast NB AADT BY(2)	Model BY(1) BUILD 2	Model change BUILD 2 / NB	Final Forecast BY(2) BUILD 2	FY Historical Extrapolation (1997-2008)	FY Model NO-BUILD	Forecast FY NO-BUILD (Final)	FY Model BUILD 2	Forecast FY BUILD 2 (Final)
1	Edgefield Road EAST of NC 68	3,500	2,935	19.25%	3,400	4,083	-16.73%	3,400	-	5,000	**5,000**	3,553	0.87	**4,400**	4,200	61,239	**62,200**	61,201	**62,200**
1	NC 68 SOUTH of Edgefield Road	13,000	21,125	-38.46%	26,400	24,823	6.35%	26,400	-	20,800	**20,800**	25,585	1.03	**21,400**	32,800	63,587	**64,600**	62,741	**63,800**
1	Edgefield Road WEST of NC 68	8,400	1,039	708.47%	-	1,680	-	-	-	1,600	**1,600**	1,983	1.18	**1,800**	-	31,039	**31,000**	30,974	**31,000**
2	NC 68 NORTH of Pleasant Ridge Road	13,000	21,125	-38.46%	26,400	24,823	6.35%	26,400	-	20,800	**20,800**	25,585	1.03	**21,400**	32,800	63,587	**64,600**	62,741	**63,800**
2	Pleasant Ridge Road EAST of NC 68	-	18,731	-	11,200	20,707	-45.91%	11,200	-	16,800	**16,800**	22,378	1.08	**18,200**	15,600	19,530	**16,200**	22,065	**18,400**
2	NC 68 SOUTH of Pleasant Ridge Road	13,000	23,406	-44.46%	27,600	25,592	7.85%	27,600	-	29,600	**29,600**	28,293	1.11	**32,800**	24,000	65,587	**64,600**	62,741	**61,800**
2	Pleasant Ridge Road WEST of NC 68	8,300	11,740	-29.30%	-	14,629	-	-	-	12,000	**12,000**	16,787	1.15	**13,800**	-	19,530	**16,200**	22,065	**18,400**
3	Pleasant Ridge Road EAST of Brigham Road	8,400	12,798	-34.36%	-	16,311	-	-	-	7,200	**7,200**	18,768	1.15	**8,200**	-	19,530	**16,200**	22,065	**18,400**
3	Pleasant Ridge Road WEST of Brigham Road	8,400	11,134	-24.56%	-	13,719	-	-	-	7,200	**7,200**	18,141	1.32	**9,600**	-	18,601	**12,000**	24,131	**15,600**
4	Cude Road NORTH of Pleasant Ridge Road	8,000	1,263	533.41%	-	2,457	-	-	-	2,200	**2,200**	2,454	1.00	**2,200**	-	11,698	**11,400**	13,289	**13,000**
4	Pleasant Ridge Road EAST of Cude Road	8,400	11,134	-24.56%	-	13,719	-	-	-	7,200	**7,200**	18,141	1.32	**9,600**	-	18,601	**12,000**	24,131	**15,600**
4	Pleasant Ridge Road WEST of Cude Road	6,500	11,113	-41.51%	-	13,536	-	-	-	6,600	**6,600**	16,111	1.19	**7,800**	-	18,804	**11,800**	26,582	**16,600**
5	Pleasant Ridge Road NORTH of West Market Street	6,500	11,113	-41.51%	10,800	13,536	-20.21%	10,800	-	8,600	**8,600**	15,359	1.13	**9,800**	24,000	18,804	**13,800**	26,582	**19,600**
5	West Market Street EAST of Pleasant Ridge Road	19,000	14,299	32.88%	-	15,270	-	-	-	8,600	**8,600**	16,573	1.09	**9,400**	-	35,565	**28,800**	36,436	**29,600**
5	West Market Street WEST of Pleasant Ridge Road	20,200	20,320	-0.59%	16,000	22,166	-27.82%	16,000	-	13,600	**13,600**	23,432	1.06	**14,400**	11,800	44,667	**36,400**	49,015	**39,800**
6	NC 68 NORTH of Bryan Boulevard	13,000	23,406	-44.46%	27,600	25,592	7.85%	27,600	-	29,600	**29,600**	28,293	1.11	**32,800**	24,000	63,587	**64,600**	62,741	**63,800**
6	Bryan Boulevard EAST of NC 68	-	18,447	-	39,200	11,558	239.16%	39,200	-	18,600	**18,600**	11,477	0.99	**18,400**	73,200	17,131	**24,200**	14,336	**20,200**
6	NC 68 SOUTH of Bryan Boulevard	30,500	39,090	-21.97%	50,000	33,205	50.58%	50,000	-	39,600	**39,600**	32,859	0.99	**39,200**	50,000	67,595	**74,000**	63,558	**69,600**
7	NC 68 NORTH of West Market Street	30,500	39,090	-21.97%	50,000	33,205	50.58%	50,000	-	39,600	**39,600**	32,859	0.99	**39,200**	50,000	67,595	**74,000**	63,558	**69,600**
7	West Market Street EAST of NC 68	23,500	20,334	15.57%	15,000	16,313	-8.05%	15,000	-	10,800	**10,800**	16,573	1.02	**11,000**	15,600	29,016	**23,600**	30,784	**25,000**
7	NC 68 SOUTH of West Market Street	23,500	35,749	-34.26%	56,000	34,782	61.00%	56,000	-	35,400	**35,400**	34,618	1.00	**35,200**	82,000	64,740	**65,400**	58,022	**58,600**
7	West Market Street WEST of NC 68	19,000	18,679	1.72%	-	21,262	-	-	-	11,400	**11,400**	20,498	0.96	**11,000**	-	46,704	**36,800**	47,482	**37,400**
8	NC 68 NORTH of Triad Center Drive Extension	26,600	35,749	-25.59%	56,000	34,782	61.00%	56,000	-	35,400	**35,400**	34,618	1.00	**35,200**	82,000	64,740	**65,400**	58,022	**58,600**
8	NC 68 SOUTH of Triad Center Drive Extension	25,000	35,749	-30.07%	62,800	34,782	80.55%	62,800	-	35,800	**35,800**	34,618	1.00	**35,600**	114,000	64,740	**65,800**	58,022	**59,000**
9	NC 68 NORTH of I-40	25,000	35,749	-30.07%	62,800	34,782	80.55%	62,800	-	35,800	**35,800**	34,618	1.00	**35,600**	114,000	64,740	**65,800**	58,022	**59,000**
9	I-40 EAST of NC 68	43,100	93,586	-53.95%	106,800	112,909	-5.41%	106,800	-	-	**104,400**	113,770	1.01	**105,200**	179,000	150,347	**141,800**	142,996	**134,800**
9	NC 68 SOUTH of I-40	20,800	21,889	-4.98%	38,800	21,008	84.69%	38,800	-	29,000	**29,000**	21,096	1.00	**29,200**	60,600	45,847	**53,800**	42,928	**50,400**

Table 6: Model Validation for No-Build Alternatives and Build 2 Alternatives

		2002 Base Year of Model (NO-BUILD)			2009 Base Year of Model (NO-BUILD)			2009 Base Year of Forecast (NO-BUILD)				2009 Base Year of Forecast BUILD 2			2035 Future Year of Forecast NO-BUILD			2035 Future Year of Forecast BUILD 2	
ROUTE	selected SEGMENT	MPO Counts	BY (1) Model Daily Value	% difference	AADT - extrapolated to BY(2) (1997-2008)	BY (1) Model Daily Value	% difference	AADT - extrapolated to BY(2) (1997-2008)	48-hr Field Counts Factored to AADT - BY(2)	16-hr TMC Field Counts factored to AADT - BY(2)	Final Forecast NB AADT BY(2)	Model BY(1) BUILD 2	Model change BUILD 2 / NB	Final Forecast BY(2) BUILD 2	FY Historical Extrapolation (1997-2008)	FY Model NO-BUILD	Forecast FY NO-BUILD (Final)	FY Model BUILD 2	Forecast FY BUILD 2 (Final)
9	I-40 WEST of NC 68	42,000	97,932	-57.11%	102,400	111,293	-7.99%	102,400	-	-	**102,200**	111,465	1.00	**102,400**	167,200	167,334	**158,200**	164,471	**155,400**
10	Sandy Ridge Road NORTH of I-40	9,700	18,333	-47.09%	-	21,373	-	-	-	18,800	**18,800**	23,174	1.08	**20,400**	-	38,472	**35,800**	52,165	**48,600**
10	I-40 EAST of Sandy Ridge Road	42,000	97,932	-57.11%	102,400	111,293	-7.99%	102,400	-	-	**102,200**	111,465	1.00	**102,400**	167,200	167,334	**158,200**	164,471	**155,400**
10	Sandy Ridge Road SOUTH of I-40	13,000	13,512	-3.79%	17,000	16,840	0.95%	17,000	-	18,400	**18,400**	16,477	0.98	**18,000**	32,000	45,551	**47,200**	48,391	**50,200**
10	I-40 WEST of Sandy Ridge Road	44,700	108,487	-58.80%	106,400	122,699	-13.28%	106,400	-	-	**106,400**	123,854	1.01	**107,400**	168,600	180,295	**164,000**	181,593	**165,200**
11	Sandy Ridge Road NORTH of Triad Drive	9,700	14,273	-32.04%	-	16,082	-	-	-	10,000	**10,000**	18,074	1.12	**11,200**	-	38,472	**32,400**	52,165	**44,000**
11	Triad Drive EAST of Sandy Ridge Road	8,600	5,431	58.35%	9,600	7,552	27.12%	9,600	-	9,400	**9,400**	7,636	1.00	**9,400**	15,200	10,788	**12,600**	11,600	**13,600**
11	Sandy Ridge Road SOUTH of Triad Drive	9,700	18,333	-47.09%	-	21,373	-	-	-	18,800	**18,800**	23,174	1.08	**20,400**	-	38,472	**35,800**	52,165	**48,600**
12	Sandy Ridge Road NORTH of Farrington Road	11,000	13,857	-20.62%	-	15,301	-	-	-	10,200	**10,200**	17,082	1.12	**11,400**	-	20,141	**15,000**	29,569	**24,400**
12	Sandy Ridge Road SOUTH of Farrington Road	9,700	14,273	-32.04%	-	16,082	-	-	-	10,000	**10,000**	18,074	1.12	**11,200**	-	38,472	**32,400**	52,165	**44,000**
13	Sandy Ridge Road NORTH of Cider Road	11,000	13,857	-20.62%	10,800	15,301	-29.42%	10,800	-	10,200	**10,200**	17,082	1.12	**11,400**	13,400	20,141	**15,000**	29,569	**24,400**
13	Sandy Ridge Road SOUTH of Cider Road	11,000	13,857	-20.62%	-	15,301	-	-	-	10,200	**10,200**	17,082	1.12	**11,400**	-	20,141	**15,000**	29,569	**24,400**
14	West Market Street EAST of Sandy Ridge Road	18,100	19,960	-9.32%	15,200	21,586	-29.58%	15,200	-	13,600	**13,600**	22,862	1.06	**14,400**	14,400	44,647	**36,400**	48,488	**39,800**
14	Sandy Ridge Road SOUTH of West Market Street	11,000	13,857	-20.62%	10,800	15,301	-29.42%	10,800	-	10,200	**10,200**	17,082	1.12	**11,400**	13,400	20,141	**15,000**	29,569	**24,400**
14	West Market Street WEST of Sandy Ridge Road	16,000	14,364	11.39%	13,200	17,679	-25.34%	13,200	-	10,800	**10,800**	17,961	1.02	**11,000**	11,800	40,070	**33,200**	38,047	**31,600**





2009

ANNUAL AVERAGE DAILY TRAFFIC

SCENARIO 3 – BUILD 2

LEGEND

DHV —PM (d, t)→ D

###	No. of Vehicles per Day in 100's
1-	Less than 50 VPD
X	Movement Prohibited
DHV	Design Hourly Volume
PM	PM Peak Period
D	Peak Hour Directional Split (%)
→	Indicates Direction of D
(d,t)	Duals, TT-ST'S (%)

FS: FS-0707A

COUNTY: Guilford **DIVISION:** 7

DATE: January, 2010

Prepared by: Martin/Alexiou/Bryson

LOCATION: Vicinity of Sandy Ridge Road, I-40, and NC-68

PROJECT: Sandy Ridge Widening and Extension

FORECAST DEVELOPMENT FOR THE FUTURE YEAR SCENARIOS

This section details the forecast development for Scenarios 4, 5, and 6. The process consisted of determining Link Forecast Volumes for each scenario and balancing and adjusting the intersection turning movements.

Scenario 4: 2035 Future Year No-Build Alternative

The 2035 Future Year No-Build Alternative consists of establishing traffic estimates on the roadway system with all fiscally constrained projects documented in the GUAMPO LRTP.

Edgefield Road is eliminated in Scenario 4. Access to the intersection of NC 68 at Pleasant Ridge Road also eliminated, but it is replaced with a grade separation. An interchange is constructed with the I-73 Connector at NC 68. The westbound approach leg at the interchange with NC 68 is represented by the I-73 Connector which bends northwestward beyond NC 68.

2035 Future Year No-Build Alternative Forecast Volumes

A model network was created and run representing the 2035 Future Year No-Build Alternative conditions. PTRM volumes were extracted from 2009 Base Year Model and the 2035 Future Year No-Build Alternative Model to help develop the 2035 Future Year No-Build Alternative Link Forecast Volumes.

For each applicable link, a growth rate was calculated between the two model runs. This growth rate was applied to the 2009 Base Year No-Build Alternative Link Forecast Volumes. Common links in the study area showed that the model predicts the base year fairly well. Table 5 and Table 6 show the model validation for the key links that were available in the model study area. The output from this method was compared to the output obtained from the historical trend. The most appropriate value was used.

Upon establishing the 2035 Future Year No-Build Link Forecast Volumes, each intersection was balanced and adjusted. The turning movement percentages were taken from the new counts taken in 2009.

TURNSW32 was again used to facilitate the balancing procedure. Diagram 4 shows the 2035 Future Year No-Build Alternative AADT Forecast Volumes.

Design Data

The design hourly volume factors [K-Factors], directional distribution factors [D-Factors], and truck percentages were carried forward from the 2009 Base Year.

Scenario 5: 2035 Future Year Build Alternative 1

The 2035 Future Year Build Alternative 1 assumes that the Sandy Ridge Road Widening from I-40 to West Market Street is constructed on the existing roadway system.

Edgefield Road is eliminated in Scenario 5, as it is in Scenario 4. Access to the intersection of NC 68 at Pleasant Ridge Road also eliminated, but it is replaced with a grade separation. An interchange is constructed with the I-73 Connector at NC 68. The westbound approach leg at the interchange with NC 68 is represented by the I-73 Connector which bends northwestward beyond NC 68.

2035 Future Year Build Alternative 1 Forecast Volumes

A model network was created and run representing the 2035 Future Year Build Alternative 1 conditions. PTRM volumes were extracted from 2035 Future Year No-Build Model and the 2035 Future Year Build Alternative 1 Model to help develop the 2035 Future Year Build Alternative 1 Link Forecast Volumes.

For each applicable link, a growth rate was calculated between the two model runs. This ratio was applied to the 2035 Future Year No-Build Alternative Link Forecast Volumes. Common links in the study area showed that the model predicts the base year fairly well. Table 5 shows the model validation for the key links that were available in the model study area. The output from this method was compared to the output obtained from the historical trend. The most appropriate value was used.

Upon establishing the 2035 Future Year Build Alternative 1 Link Forecast Volumes, each intersection was balanced and adjusted. The turning movement percentages were taken from the new counts taken in 2009. *TURNSW32* was used to facilitate the balancing procedure. Diagram 5 shows the 2035 Future Year Build Alternative 1 AADT Forecast Volumes.

Scenario 6: 2035 Future Year Build Alternative 2

The 2035 Future Year Build Alternative 2 assumes that the Sandy Ridge Road Widening from I-40 to West Market Street and the Pleasant Ridge Widening from West Market Street to NC 68 are both constructed on the existing roadway system.

Edgefield Road is eliminated in Scenario 6, as it is in Scenario 4. Access to the intersection of NC 68 at Pleasant Ridge Road also eliminated, but it is replaced with a grade separation. An interchange is constructed with the I-73 Connector at NC 68. The westbound approach leg at the interchange with NC 68 is represented by the I-73 Connector which bends northwestward beyond NC 68.

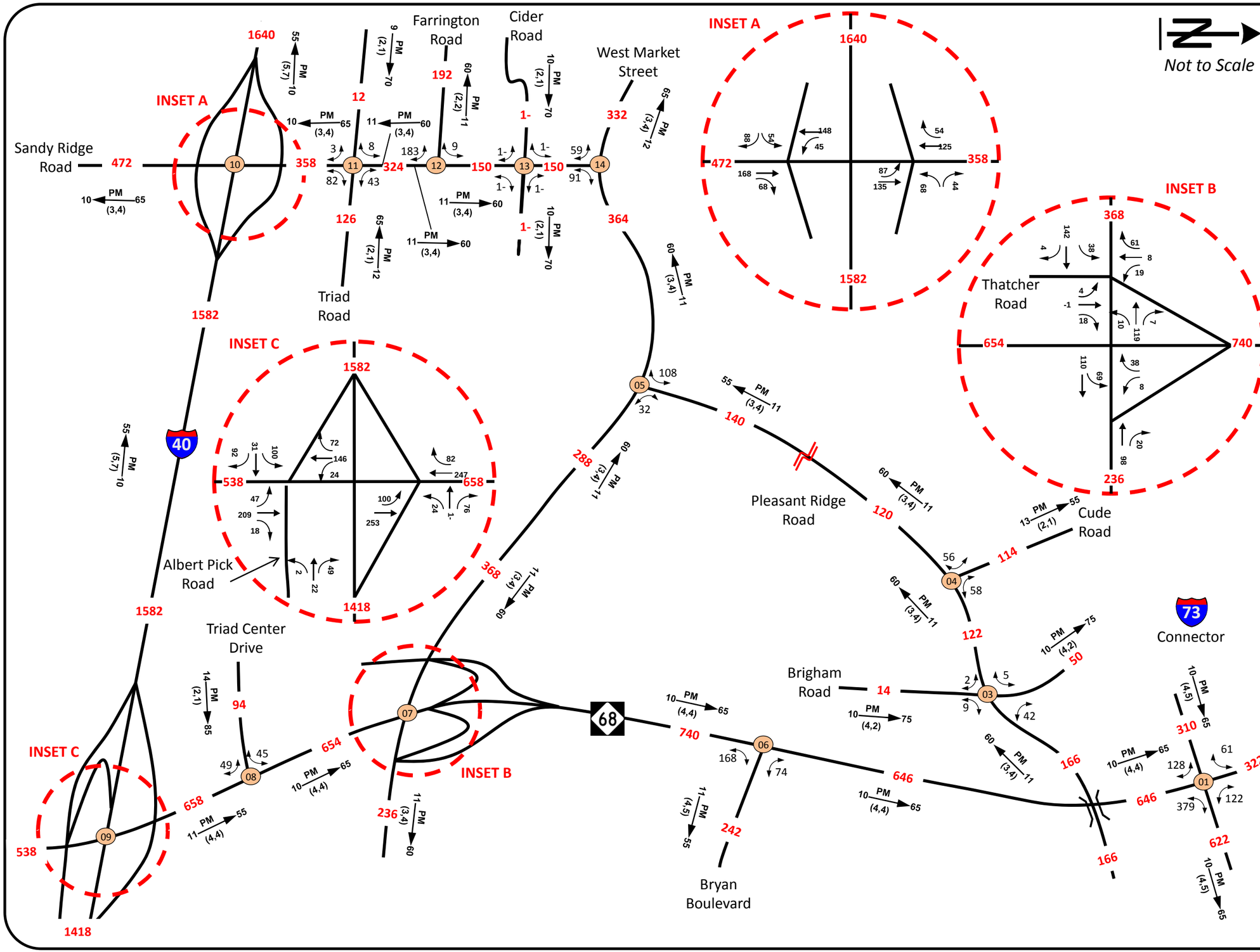
2035 Future Year Build Alternative 2 Forecast Volumes

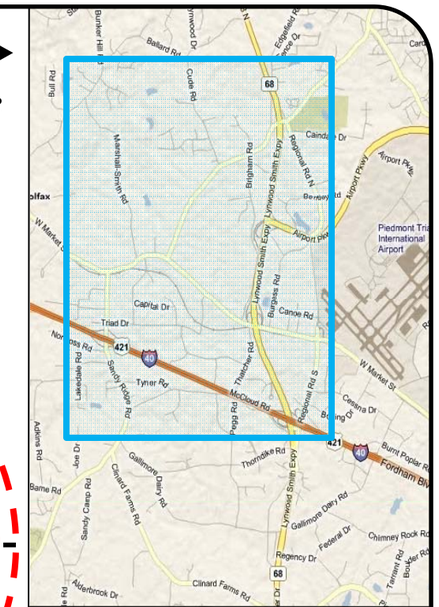
A model network was created and run representing the 2035 Future Year Build Alternative 2 conditions. PTRM volumes were extracted from 2035 Future Year No-Build Model and the 2035 Future Year Build Alternative 2 Model to help develop the 2035 Future Year Build Alternative 2 Link Forecast Volumes.

For each applicable link, a growth rate was calculated between the two model runs. This ratio was applied to the 2035 Future Year No-Build Alternative Link Forecast Volumes. Common links in the study area showed that the model predicts the base year fairly well. Table 6 shows the model validation for the key links that were available in the model study area. The output from this

method was compared to the output obtained from the historical trend. The most appropriate value was used.

Upon establishing the 2035 Future Year Build Alternative 2 Link Forecast Volumes, each intersection was balanced and adjusted. The turning movement percentages were taken from the 2009 traffic counts. *TURNSW32* was again used to facilitate the balancing procedure. Diagram 6 shows the 2035 Future Year Build Alternative 2 AADT Forecast Volumes.





2035

ANNUAL AVERAGE DAILY TRAFFIC

SCENARIO 4 – NO BUILD

LEGEND

DHV —PM (d, t)→ D

###	No. of Vehicles per Day in 100's
1-	Less than 50 VPD
X	Movement Prohibited
DHV	Design Hourly Volume
PM	PM Peak Period
D	Peak Hour Directional Split (%)
→	Indicates Direction of D
(d,t)	Duals, TT-ST'S (%)

FS: FS-0707A

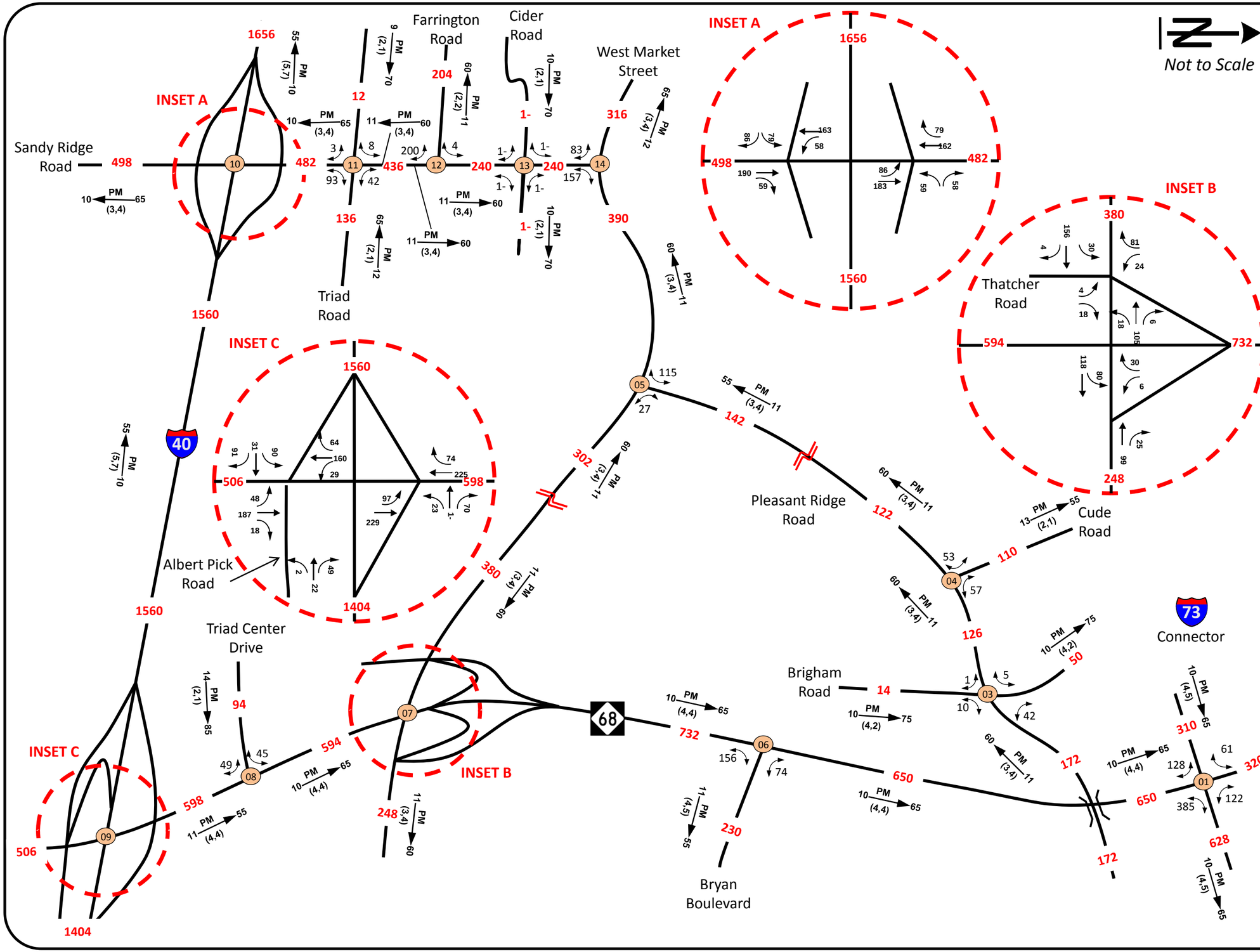
COUNTY: Guilford **DIVISION:** 7

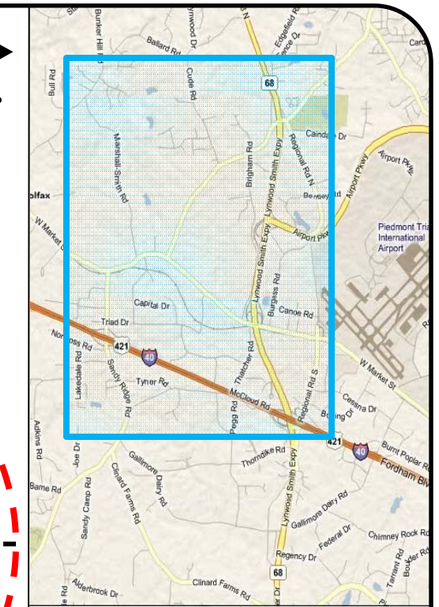
DATE: January, 2010

Prepared by: Martin/Alexiou/Bryson

LOCATION: Vicinity of Sandy Ridge Road, I-40, and NC-68

PROJECT: Sandy Ridge Widening and Extension





2035

ANNUAL AVERAGE DAILY TRAFFIC

SCENARIO 5 – BUILD 1

LEGEND

DHV —PM (d, t)→ D

###	No. of Vehicles per Day in 100's
1-	Less than 50 VPD
X	Movement Prohibited
DHV	Design Hourly Volume
PM	PM Peak Period
D	Peak Hour Directional Split (%)
→	Indicates Direction of D
(d,t)	Duals, TT-ST'S (%)

FS: FS-0707A

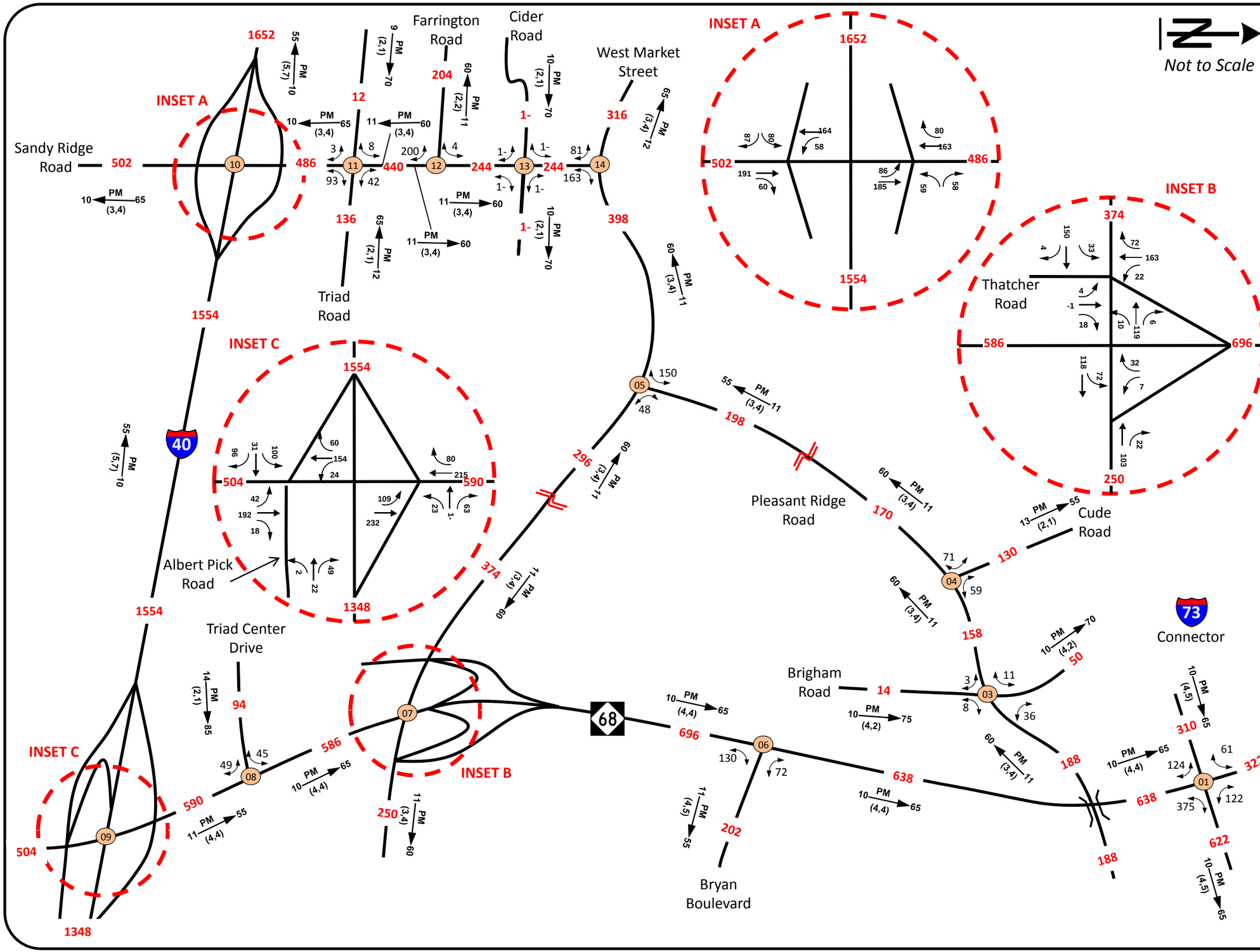
COUNTY: Guilford **DIVISION:** 7

DATE: January, 2010

Prepared by: Martin/Alexiou/Bryson

LOCATION: Vicinity of Sandy Ridge Road, I-40, and NC-68

PROJECT: Sandy Ridge Widening and Extension



2035

ANNUAL AVERAGE DAILY TRAFFIC

SCENARIO 6 – BUILD 2

LEGEND

DHV —PM (d, t)→ D

###	No. of Vehicles per Day in 100's
1-	Less than 50 VPD
X	Movement Prohibited
DHV	Design Hourly Volume
PM	PM Peak Period
D	Peak Hour Directional Split (%)
→	Indicates Direction of D
(d,t)	Duals, TT-ST'S (%)

FS: FS-0707A

COUNTY: Guilford **DIVISION:** 7

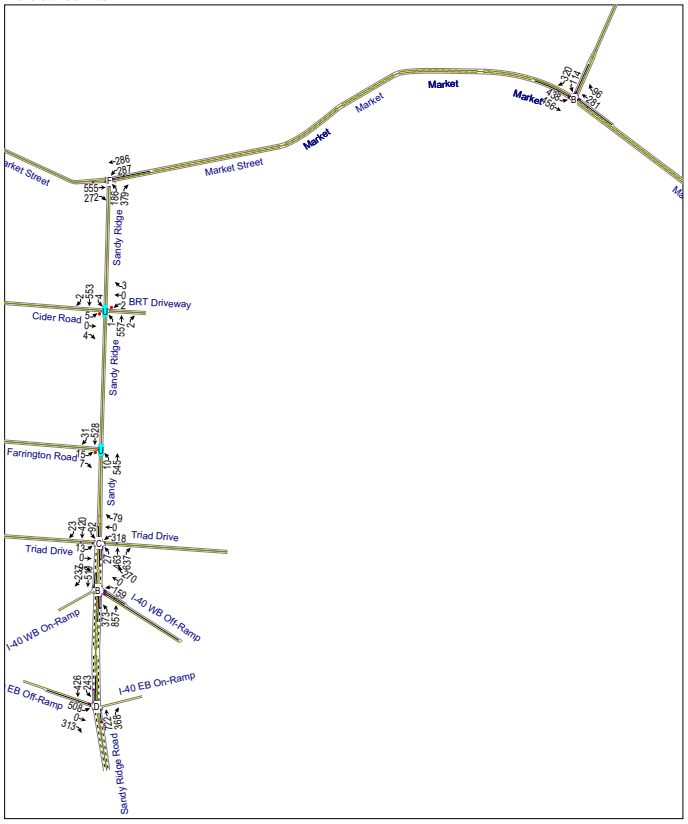
DATE: January, 2010

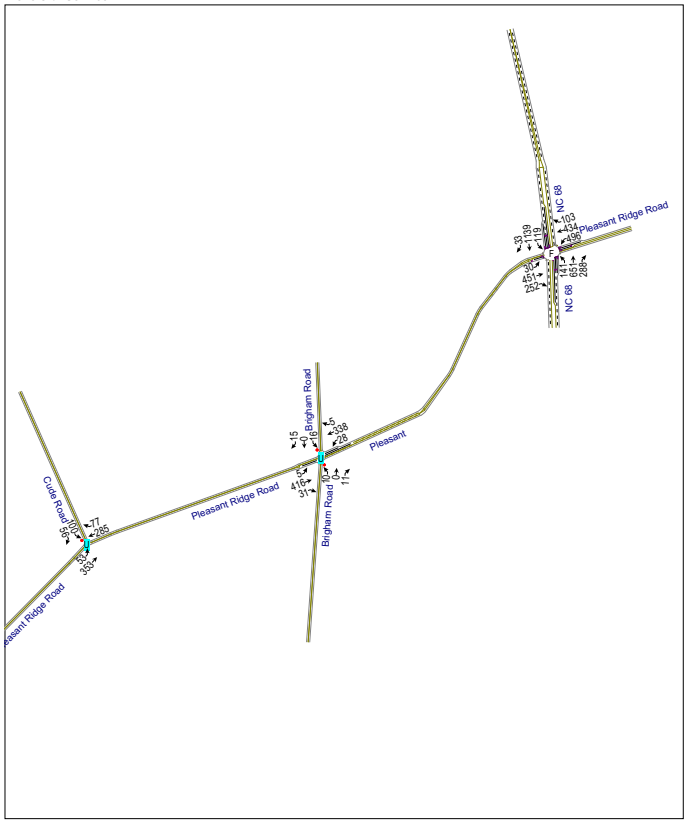
Prepared by: Martin/Alexiou/Bryson

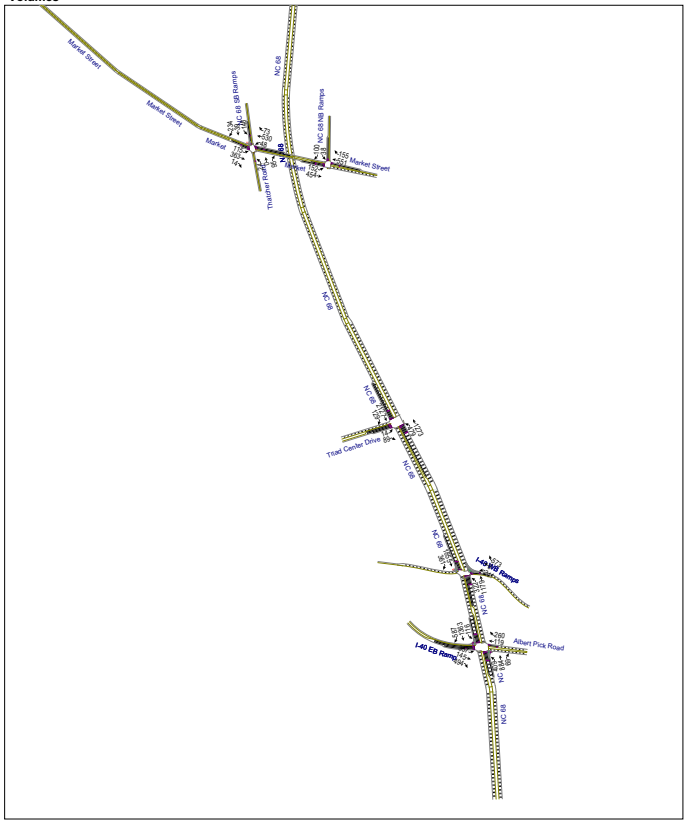
LOCATION: Vicinity of Sandy Ridge Road, I-40, and NC-68

PROJECT: Sandy Ridge Widening and Extension

Appendix D: Capacity Analysis







Sandy Ridge Road Feasibility Study
1: Cider Road & Sandy Ridge Road

Base Year (2009) No-Build AM

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	5	0	4	2	0	3	1	557	2	4	553	2
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	6	0	4	2	0	3	1	619	2	4	614	2
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)											1002	
pX, platoon unblocked												
vC, conflicting volume	1250	1248	616	1251	1248	620	617			621		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1250	1248	616	1251	1248	620	617			621		
tC, single (s)	7.2	6.6	6.2	7.2	6.6	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 %	96	100	99	98	100	99	100			100		
cM capacity (veh/h)	146	170	485	145	170	483	949			945		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	10	6	622	621
Volume Left	6	2	1	4
Volume Right	4	3	2	2
cSH	212	250	949	945
Volume to Capacity	0.05	0.02	0.00	0.00
Queue Length 95th (ft)	4	2	0	0
Control Delay (s)	22.9	19.7	0.0	0.1
Lane LOS	C	C	A	A
Approach Delay (s)	22.9	19.7	0.0	0.1
Approach LOS	C	C		

Intersection Summary			
Average Delay	0.3		
Intersection Capacity Utilization	42.3%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (veh/h)	15	7	10	545	528	31
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	17	8	11	606	587	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)				711		
pX, platoon unblocked	0.81					
vC, conflicting volume	1232	604	621			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1168	604	621			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	90	98	99			
cM capacity (veh/h)	168	493	945			

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	24	617	621
Volume Left	17	11	0
Volume Right	8	0	34
cSH	213	945	1700
Volume to Capacity	0.11	0.01	0.37
Queue Length 95th (ft)	10	1	0
Control Delay (s)	24.1	0.3	0.0
Lane LOS	C	A	
Approach Delay (s)	24.1	0.3	0.0
Approach LOS	C		

Intersection Summary			
Average Delay	0.6		
Intersection Capacity Utilization	46.7%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (veh/h)	53	353	285	77	100	56
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	59	392	317	86	111	62
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	402				869	359
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	402				869	359
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	95				63	91
cM capacity (veh/h)	1140				302	678

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	451	402	173
Volume Left	59	0	111
Volume Right	0	86	62
cSH	1140	1700	377
Volume to Capacity	0.05	0.24	0.46
Queue Length 95th (ft)	4	0	58
Control Delay (s)	1.6	0.0	22.4
Lane LOS	A		C
Approach Delay (s)	1.6	0.0	22.4
Approach LOS			C

Intersection Summary			
Average Delay	4.5		
Intersection Capacity Utilization	60.2%	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)	5	416	31	28	338	5	10	0	11	16	0	15
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	6	462	34	31	376	6	11	0	12	18	0	17
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			TWLTL							
Median storage veh)					2							
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	381			497			945	934	479	923	946	376
vC1, stage 1 conf vol							491	491		438	438	
vC2, stage 2 conf vol							454	443		486	508	
vCu, unblocked vol	381			497			945	934	479	923	946	376
tC, single (s)	4.1			4.1			7.2	6.6	6.2	7.2	6.6	6.2
tC, 2 stage (s)							6.1	5.6		6.1	5.6	
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			97			97	100	98	96	100	97
cM capacity (veh/h)	1161			1052			430	437	580	427	423	664

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	WB 3	NB 1	SB 1
Volume Total	6	497	31	376	6	23	34
Volume Left	6	0	31	0	0	11	18
Volume Right	0	34	0	0	6	12	17
cSH	1161	1700	1052	1700	1700	497	516
Volume to Capacity	0.00	0.29	0.03	0.22	0.00	0.05	0.07
Queue Length 95th (ft)	0	0	2	0	0	4	5
Control Delay (s)	8.1	0.0	8.5	0.0	0.0	12.6	12.5
Lane LOS	A		A			B	B
Approach Delay (s)	0.1		0.6			12.6	12.5
Approach LOS						B	B

Intersection Summary			
Average Delay	1.1		
Intersection Capacity Utilization	33.8%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	357	145	494	0	119	260	409	884	69	116	1363	587
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		-2%			2%			-1%			1%	
Storage Length (ft)	438		325	0		0	250		275	300		275
Storage Lanes	2		1	0		1	1		1	1		1
Taper Length (ft)	100		25	25		25	25		25	25		25
Lane Util. Factor	0.97	1.00	1.00	1.00	1.00	1.00	1.00	0.91	1.00	1.00	0.91	1.00
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950						0.950			0.950		
Satd. Flow (prot)	3368	1828	1553	0	1791	1523	1728	4965	1546	1710	4915	1530
Flt Permitted	0.950						0.950			0.950		
Satd. Flow (perm)	3368	1828	1553	0	1791	1523	1728	4965	1546	1710	4915	1530
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		35			35			55			55	
Link Distance (ft)		867			502			480			821	
Travel Time (s)		16.9			9.8			6.0			10.2	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	397	161	549	0	132	289	454	982	77	129	1514	652
Shared Lane Traffic (%)												
Lane Group Flow (vph)	397	161	549	0	132	289	454	982	77	129	1514	652
Turn Type	Prot		pm+ov			pm+ov	Prot		Perm	Prot		pm+ov
Protected Phases	7	4	5		8	1	5	2		1	6	7
Permitted Phases			4			8			2			6
Detector Phase	7	4	5		8	1	5	2	2	1	6	7
Switch Phase												
Minimum Initial (s)	7.0	7.0	7.0		7.0	7.0	7.0	14.0	14.0	7.0	14.0	7.0
Minimum Split (s)	14.0	17.0	14.0		17.0	14.0	14.0	20.0	20.0	14.0	20.0	14.0
Total Split (s)	19.0	36.0	32.0	0.0	17.0	23.0	32.0	46.0	46.0	23.0	37.0	19.0
Total Split (%)	18.1%	34.3%	30.5%	0.0%	16.2%	21.9%	30.5%	43.8%	43.8%	21.9%	35.2%	18.1%
Maximum Green (s)	13.0	30.0	26.0		11.0	17.0	26.0	40.0	40.0	17.0	31.0	13.0
Yellow Time (s)	4.0	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0		2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
Total Lost Time (s)	5.0	5.0	5.0	3.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead		Lead		Lag	Lead	Lead	Lag	Lag	Lead	Lag	Lead
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None		None	None	None	C-Min	C-Min	None	C-Min	None
Act Effct Green (s)	14.0	30.5	63.0		11.5	30.6	27.5	45.4	45.4	14.2	32.0	51.0
Actuated g/C Ratio	0.13	0.29	0.60		0.11	0.29	0.26	0.43	0.43	0.14	0.30	0.49
v/c Ratio	0.88	0.30	0.59		0.67	0.65	1.00	0.46	0.12	0.56	1.01	0.88
Control Delay	67.1	30.7	16.3		62.6	39.4	83.0	22.6	20.0	60.4	48.6	33.1
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	67.1	30.7	16.3		62.6	39.4	83.0	22.6	20.0	60.4	48.6	33.1
LOS	E	C	B		E	D	F	C	C	E	D	C
Approach Delay		36.6			46.6			40.6			44.9	
Approach LOS		D			D			D			D	

251: I-40 EB Ramp & NC 68

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 50th (ft)	137	83	213		86	168	~325	168	31	80	~384	427
Queue Length 95th (ft)	#221	140	317		#164	248	#521	222	65	m110	#481	#619
Internal Link Dist (ft)		787			422			400			741	
Turn Bay Length (ft)	438		325				250		275	300		275
Base Capacity (vph)	449	540	932		205	500	453	2146	668	293	1498	743
Starvation Cap Reductn	0	0	0		0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0		0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0		0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.88	0.30	0.59		0.64	0.58	1.00	0.46	0.12	0.44	1.01	0.88

Intersection Summary

Area Type: Other
Cycle Length: 105
Actuated Cycle Length: 105
Offset: 48 (46%), Referenced to phase 2:NBT and 6:SBT, Start of Green
Natural Cycle: 100
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.01
Intersection Signal Delay: 42.1 — Intersection LOS: D
Intersection Capacity Utilization 78.3% — ICU Level of Service D
Analysis Period (min) 15

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 251: I-40 EB Ramp & NC 68

968: Pleasant Ridge Road & NC 68

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	30	451	252	496	434	103	141	651	288	119	1139	33
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		-1%			-3%			2%			-2%	
Storage Length (ft)	75		0	100		175	325		100	300		175
Storage Lanes	1		0	1		1	1		1	1		1
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt		0.946				0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1728	1720	0	1745	1837	1561	1702	3404	1523	1736	3472	1553
Flt Permitted	0.488			0.089			0.950			0.950		
Satd. Flow (perm)	887	1720	0	163	1837	1561	1702	3404	1523	1736	3472	1553
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		50			50			55			55	
Link Distance (ft)		216			638			568			690	
Travel Time (s)		2.9			8.7			7.0			8.6	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	33	501	280	551	482	114	157	723	320	132	1266	37
Shared Lane Traffic (%)												
Lane Group Flow (vph)	33	781	0	551	482	114	157	723	320	132	1266	37
Turn Type	Perm			pm+pt		Perm	Prot		Perm	Prot		Perm
Protected Phases		4		3	8		5	2		1	6	
Permitted Phases	4			8		8			2			6
Detector Phase	4	4		3	8	8	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	8.0	8.0		7.0	8.0	8.0	7.0	14.0	14.0	7.0	14.0	14.0
Minimum Split (s)	17.0	17.0		14.0	17.0	17.0	14.0	20.0	20.0	14.0	20.0	20.0
Total Split (s)	45.0	45.0	0.0	28.0	73.0	73.0	14.0	41.0	41.0	16.0	43.0	43.0
Total Split (%)	34.6%	34.6%	0.0%	21.5%	56.2%	56.2%	10.8%	31.5%	31.5%	12.3%	33.1%	33.1%
Maximum Green (s)	39.0	39.0		22.0	67.0	67.0	8.0	35.0	35.0	10.0	37.0	37.0
Yellow Time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0		2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
Total Lost Time (s)	5.0	5.0	3.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lag	Lag		Lead			Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None		None	None	None	None	Min	Min	None	Min	Min
Act Effct Green (s)	40.0	40.0		68.0	68.0	68.0	9.0	36.0	36.0	11.0	38.0	38.0
Actuated g/C Ratio	0.31	0.31		0.52	0.52	0.52	0.07	0.28	0.28	0.08	0.29	0.29
v/c Ratio	0.12	1.48		1.51	0.50	0.14	1.33	0.77	0.76	0.90	1.25	0.08
Control Delay	34.0	258.2		273.5	22.3	16.5	240.7	49.5	56.0	109.9	158.7	34.2
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	34.0	258.2		273.5	22.3	16.5	240.7	49.5	56.0	109.9	158.7	34.2
LOS	C	F		F	C	B	F	D	E	F	F	C
Approach Delay		249.1			142.4			76.2			151.0	
Approach LOS		F			F			E			F	

968: Pleasant Ridge Road & NC 68

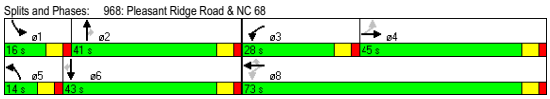
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 50th (ft)	20	~904		~599	254	48	~172	295	248	112	~698	23
Queue Length 95th (ft)	48	#1149		#827	351	82	#315	370	#371	#236	#837	51
Internal Link Dist (ft)		136			558			488			610	
Turn Bay Length (ft)	75			100		175	325		100	300		175
Base Capacity (vph)	273	529		365	961	817	118	943	422	147	1015	454
Starvation Cap Reductn	0	0		0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0		0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0		0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.12	1.48		1.51	0.50	0.14	1.33	0.77	0.76	0.90	1.25	0.08

Intersection Summary

Area Type: Other
Cycle Length: 130
Actuated Cycle Length: 130
Natural Cycle: 130
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 1.51
Intersection Signal Delay: 146.7 — Intersection LOS: F
Intersection Capacity Utilization 122.5% — ICU Level of Service H
Analysis Period (min) 15

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 968: Pleasant Ridge Road & NC 68



1163: I-40 WB Ramps & NC 68

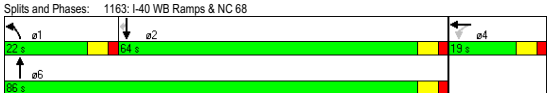
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	0	0	211	0	573	322	1179	0	0	1855	361
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		0%			-2%			0%			-1%	
Storage Length (ft)	0		0	200		0	325		0	0		400
Storage Lanes	0		0	1		1	2		0	0		1
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	1.00	1.00	1.00	0.95	0.95	1.00	0.97	0.91	1.00	1.00	0.91	1.00
Frt						0.850						0.850
Flt Protected				0.950	0.950		0.950					
Satd. Flow (prot)	0	0	0	1649	1649	1553	3335	4940	0	0	4965	1546
Flt Permitted				0.950	0.950		0.950					
Satd. Flow (perm)	0	0	0	1649	1649	1553	3335	4940	0	0	4965	1546
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		30			35			55			55	
Link Distance (ft)		712			820			821			1007	
Travel Time (s)		16.2			16.0			10.2			12.5	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	0	0	0	234	0	637	358	1310	0	0	2061	401
Shared Lane Traffic (%)				50%								
Lane Group Flow (vph)	0	0	0	117	117	637	358	1310	0	0	2061	401
Turn Type				Perm		Free	Prot					Perm
Protected Phases					4		1	6			2	
Permitted Phases				4		Free						2
Detector Phase				4	4		1	6			2	2
Switch Phase												
Minimum Initial (s)				7.0	7.0		7.0	14.0			14.0	14.0
Minimum Split (s)				17.0	17.0		14.0	20.0			20.0	20.0
Total Split (s)	0.0	0.0	0.0	19.0	19.0	0.0	22.0	86.0	0.0	0.0	64.0	64.0
Total Split (%)	0.0%	0.0%	0.0%	18.1%	18.1%	0.0%	21.0%	81.9%	0.0%	0.0%	61.0%	61.0%
Maximum Green (s)				13.0	13.0		16.0	80.0			58.0	58.0
Yellow Time (s)				4.0	4.0		4.0	4.0			4.0	4.0
All-Red Time (s)				2.0	2.0		2.0	2.0			2.0	2.0
Lost Time Adjust (s)	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
Total Lost Time (s)	3.0	3.0	3.0	5.0	5.0	3.0	5.0	5.0	3.0	3.0	5.0	5.0
Lead/Lag							Lead				Lag	Lag
Lead-Lag Optimize?												
Vehicle Extension (s)				3.0	3.0		3.0	3.0			3.0	3.0
Recall Mode				None	None		None	C-Min			C-Min	C-Min
Act Effct Green (s)				12.4	12.4	105.0	16.0	82.6			61.6	61.6
Actuated g/C Ratio				0.12	0.12	1.00	0.15	0.79			0.59	0.59
v/c Ratio				0.60	0.60	0.41	0.70	0.34			0.71	0.44
Control Delay				56.8	56.8	0.8	44.9	1.9			3.1	2.9
Queue Delay				0.0	0.0	0.0	0.0	0.0			0.0	0.0
Total Delay				56.8	56.8	0.8	44.9	1.9			3.1	2.9
LOS				E	E	A	D	A			A	A
Approach Delay					15.8			11.1			3.0	
Approach LOS					B			B			A	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 50th (ft)				78	78	0	109	37			21	12
Queue Length 95th (ft)				141	141	0	m153	m42			24	m14
Internal Link Dist (ft)		632			740			741			927	
Turn Bay Length (ft)				200			325					400
Base Capacity (vph)				220	220	1553	542	3885			2912	907
Starvation Cap Reductn				0	0	0	0	0			0	0
Spillback Cap Reductn				0	0	0	0	0			0	0
Storage Cap Reductn				0	0	0	0	0			0	0
Reduced v/c Ratio				0.53	0.53	0.41	0.66	0.34			0.71	0.44

Intersection Summary

Area Type: Other
Cycle Length: 105
Actuated Cycle Length: 105
Offset: 12 (11%), Referenced to phase 2:SBT and 6:NBT, Start of Green
Natural Cycle: 60
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.71
Intersection Signal Delay: 8.0 — Intersection LOS: A
Intersection Capacity Utilization 63.4% — ICU Level of Service B
Analysis Period (min) 15
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 1163: I-40 WB Ramps & NC 68



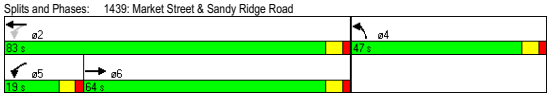
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (vph)	555	272	287	286	186	379
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Grade (%)	1%			-1%	0%	
Storage Length (ft)		0	300		0	0
Storage Lanes		0	1		1	0
Taper Length (ft)		25	25		25	25
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.956				0.909	
Flt Protected			0.950		0.984	
Satd. Flow (prot)	1721	0	1728	1819	1619	0
Flt Permitted			0.062		0.984	
Satd. Flow (perm)	1721	0	113	1819	1619	0
Right Turn on Red		No				No
Satd. Flow (RTOR)						
Link Speed (mph)	45			45	35	
Link Distance (ft)	279			1348	1002	
Travel Time (s)	4.2			20.4	19.5	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	617	302	319	318	207	421
Shared Lane Traffic (%)						
Lane Group Flow (vph)	919	0	319	318	628	0
Turn Type			pm+pt			
Protected Phases	6		5	2	4	
Permitted Phases			2			
Detector Phase	6		5	2	4	
Switch Phase						
Minimum Initial (s)	15.0		7.0	15.0	7.0	
Minimum Split (s)	21.0		14.0	21.0	17.0	
Total Split (s)	64.0	0.0	19.0	83.0	47.0	0.0
Total Split (%)	49.2%	0.0%	14.6%	63.8%	36.2%	0.0%
Maximum Green (s)	58.0		13.0	77.0	41.0	
Yellow Time (s)	4.0		4.0	4.0	4.0	
All-Red Time (s)	2.0		2.0	2.0	2.0	
Lost Time Adjust (s)	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
Total Lost Time (s)	5.0	3.0	5.0	5.0	5.0	3.0
Lead/Lag	Lag		Lead			
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0		3.0	3.0	3.0	
Recall Mode	C-Min		None	C-Min	None	
Act Effct Green (s)	59.0		78.0	78.0	42.0	
Actuated g/C Ratio	0.45		0.60	0.60	0.32	
v/c Ratio	1.18		1.32	0.29	1.20	
Control Delay	126.0		197.2	9.0	146.5	
Queue Delay	0.0		0.0	0.0	0.0	
Total Delay	126.0		197.2	9.0	146.5	
LOS	F		F	A	F	
Approach Delay	126.0			103.2	146.5	
Approach LOS	F			F	F	

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Queue Length 50th (ft)	~925		~289	127	~642	
Queue Length 95th (ft)	#1177		#483	97	#874	
Internal Link Dist (ft)	199			1268	922	
Turn Bay Length (ft)			300			
Base Capacity (vph)	781		242	1091	523	
Starvation Cap Reductn	0		0	0	0	
Spillback Cap Reductn	0		0	0	0	
Storage Cap Reductn	0		0	0	0	
Reduced v/c Ratio	1.18		1.32	0.29	1.20	

Intersection Summary

Area Type: Other
Cycle Length: 130
Actuated Cycle Length: 130
Offset: 112 (86%), Referenced to phase 2:WBTL and 6:EBT, Start of Green
Natural Cycle: 150
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.32
Intersection Signal Delay: 125.2 — Intersection LOS: F
Intersection Capacity Utilization 107.8% — ICU Level of Service G
Analysis Period (min) 15
~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 1439: Market Street & Sandy Ridge Road

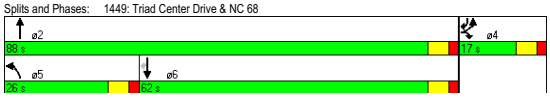


Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	14	89	479	1273	2127	129
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Grade (%)	-3%			-2%	-1%	
Storage Length (ft)	263	200	625			438
Storage Lanes	2	1	1			2
Taper Length (ft)	25	25	25			25
Lane Util. Factor	0.97	0.88	0.97	0.91	0.91	1.00
Frt		0.850				0.850
Flt Protected	0.950		0.950			
Satd. Flow (prot)	3385	2748	3368	4989	4965	1546
Flt Permitted	0.950		0.950			
Satd. Flow (perm)	3385	2748	3368	4989	4965	1546
Right Turn on Red		No				No
Satd. Flow (RTOR)						
Link Speed (mph)	30			55	55	
Link Distance (ft)	638			799	1245	
Travel Time (s)	14.5			9.9	15.4	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	16	99	532	1414	2363	143
Shared Lane Traffic (%)						
Lane Group Flow (vph)	16	99	532	1414	2363	143
Turn Type		Prot	Prot			pm+ov
Protected Phases	4	4	5	2	6	4
Permitted Phases						6
Detector Phase	4	4	5	2	6	4
Switch Phase						
Minimum Initial (s)	7.0	7.0	7.0	14.0	14.0	7.0
Minimum Split (s)	17.0	17.0	14.0	20.0	20.0	17.0
Total Split (s)	17.0	17.0	26.0	88.0	62.0	17.0
Total Split (%)	16.2%	16.2%	24.8%	83.8%	59.0%	16.2%
Maximum Green (s)	11.0	11.0	20.0	82.0	56.0	11.0
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag			Lead		Lag	
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	C-Min	C-Min	None
Act Effct Green (s)	10.1	10.1	20.8	84.9	59.2	74.2
Actuated g/C Ratio	0.10	0.10	0.20	0.81	0.56	0.71
v/c Ratio	0.05	0.38	0.80	0.35	0.84	0.13
Control Delay	42.4	48.3	42.1	1.7	23.3	5.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	42.4	48.3	42.1	1.7	23.3	5.5
LOS	D	D	D	A	C	A
Approach Delay	47.5			12.7	22.3	
Approach LOS	D			B	C	

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Queue Length 50th (ft)	5	35	154	26	481	29
Queue Length 95th (ft)	15	64	#213	47	560	47
Internal Link Dist (ft)	558			719	1165	
Turn Bay Length (ft)	263	200	625			438
Base Capacity (vph)	387	314	690	4035	2797	1122
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.04	0.32	0.77	0.35	0.84	0.13

Intersection Summary
Area Type: Other
Cycle Length: 105
Actuated Cycle Length: 105
Offset: 96 (91%), Referenced to phase 2:NBT and 6:SBT, Start of Green
Natural Cycle: 80
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.84
Intersection Signal Delay: 18.8 Intersection LOS: B
Intersection Capacity Utilization 73.1% ICU Level of Service D
Analysis Period (min) 15
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 1449: Triad Center Drive & NC 68

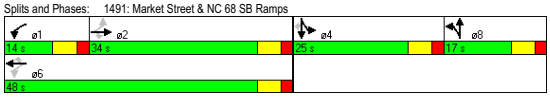


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	115	363	14	48	530	73	24	0	95	148	39	234
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	200		75	375		300	0		0	0		250
Storage Lanes	1		1	1		1	0		0	0		1
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850			0.850		0.892				0.850
Flt Protected	0.950			0.950				0.990			0.962	
Satd. Flow (prot)	1719	1810	1538	1719	1810	1538	0	1598	0	0	1741	1538
Flt Permitted	0.360			0.312				0.990			0.962	
Satd. Flow (perm)	651	1810	1538	565	1810	1538	0	1598	0	0	1741	1538
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		45			45			55			35	
Link Distance (ft)		630			849			475			493	
Travel Time (s)		9.5			12.9			5.9			9.6	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	128	403	16	53	589	81	27	0	106	164	43	260
Shared Lane Traffic (%)												
Lane Group Flow (vph)	128	403	16	53	589	81	0	133	0	0	207	260
Turn Type	Perm		Perm	pm+pt		Perm	Split			Split		Perm
Protected Phases		2		1	6		8	8		4	4	
Permitted Phases	2		2	6		6						4
Detector Phase	2	2	2	1	6	6	8	8		4	4	4
Switch Phase												
Minimum Initial (s)	12.0	12.0	12.0	7.0	12.0	12.0	7.0	7.0		7.0	7.0	7.0
Minimum Split (s)	18.0	18.0	18.0	14.0	18.0	18.0	17.0	17.0		17.0	17.0	17.0
Total Split (s)	34.0	34.0	34.0	14.0	48.0	48.0	17.0	17.0	0.0	25.0	25.0	25.0
Total Split (%)	37.8%	37.8%	37.8%	15.6%	53.3%	53.3%	18.9%	18.9%	0.0%	27.8%	27.8%	27.8%
Maximum Green (s)	28.0	28.0	28.0	8.0	42.0	42.0	11.0	11.0		19.0	19.0	19.0
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0		2.0	2.0	2.0
Lost Time Adjust (s)	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	3.0	5.0	5.0	5.0
Lead/Lag	Lag	Lag	Lag	Lead								
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0
Recall Mode	C-Min	C-Min	C-Min	None	C-Max	C-Max	Min	Min		None	None	None
Act Effct Green (s)	36.9	36.9	36.9	45.0	45.0	45.0		11.3			18.7	18.7
Actuated g/C Ratio	0.41	0.41	0.41	0.50	0.50	0.50		0.13			0.21	0.21
v/c Ratio	0.48	0.54	0.03	0.14	0.65	0.11		0.66			0.57	0.82
Control Delay	31.5	26.4	20.8	9.0	16.8	8.9		54.1			38.6	54.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0		0.0			0.0	0.0
Total Delay	31.5	26.4	20.8	9.0	16.8	8.9		54.1			38.6	54.8
LOS	C	C	C	A	B	A		D			D	D
Approach Delay		27.4			15.3			54.1			47.6	
Approach LOS		C			B			D			D	
Queue Length 50th (ft)	60	194	6	17	259	27		73			104	139

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 95th (ft)	#139	302	21	m15	111	m22		#145			175	#256
Internal Link Dist (ft)		550			769			395			413	
Turn Bay Length (ft)	200		75	375		300						250
Base Capacity (vph)	267	741	630	398	905	769		213			387	342
Starvation Cap Reductn	0	0	0	0	0	0		0			0	0
Spillback Cap Reductn	0	0	0	0	0	0		0			0	0
Storage Cap Reductn	0	0	0	0	0	0		0			0	0
Reduced v/c Ratio	0.48	0.54	0.03	0.13	0.65	0.11		0.62			0.53	0.76

Intersection Summary
Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 6 (7%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green
Natural Cycle: 75
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.82
Intersection Signal Delay: 29.7 Intersection LOS: C
Intersection Capacity Utilization 67.3% ICU Level of Service C
Analysis Period (min) 15
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 1491: Market Street & NC 68 SB Ramps



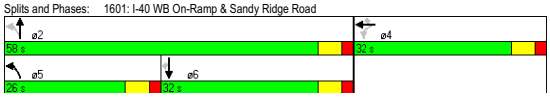
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	0	0	159	0	270	373	857	0	0	510	237
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		0%			2%			-4%			4%	
Storage Length (ft)	0		0	675		175	200		0	100		0
Storage Lanes	0		0	1		1	1		0	1		1
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	1.00	1.00	1.00	0.95	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt						0.850						0.850
Flt Protected				0.950	0.950		0.950					
Satd. Flow (prot)	0	0	0	1617	1617	1523	1753	3507	0	0	3369	1507
Flt Permitted				0.950	0.950		0.322					
Satd. Flow (perm)	0	0	0	1617	1617	1523	594	3507	0	0	3369	1507
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		30			35			45			45	
Link Distance (ft)		340			751			476			361	
Travel Time (s)		7.7			14.6			7.2			5.5	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	0	0	0	177	0	300	414	952	0	0	567	263
Shared Lane Traffic (%)				50%								
Lane Group Flow (vph)	0	0	0	88	89	300	414	952	0	0	567	263
Turn Type				Perm		Perm	pm+pt					Perm
Protected Phases					4		5	2			6	
Permitted Phases				4		4	2					6
Detector Phase				4	4	4	5	2			6	6
Switch Phase												
Minimum Initial (s)				7.0	7.0	7.0	6.0	15.0			15.0	15.0
Minimum Split (s)				17.0	17.0	17.0	14.0	21.0			21.0	21.0
Total Split (s)	0.0	0.0	0.0	32.0	32.0	32.0	26.0	58.0	0.0	0.0	32.0	32.0
Total Split (%)	0.0%	0.0%	0.0%	35.6%	35.6%	35.6%	28.9%	64.4%	0.0%	0.0%	35.6%	35.6%
Maximum Green (s)				26.0	26.0	26.0	20.0	52.0			26.0	26.0
Yellow Time (s)				4.0	4.0	4.0	4.0	4.0			4.0	4.0
All-Red Time (s)				2.0	2.0	2.0	2.0	2.0			2.0	2.0
Lost Time Adjust (s)	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
Total Lost Time (s)	3.0	3.0	3.0	5.0	5.0	5.0	5.0	5.0	3.0	3.0	5.0	5.0
Lead/Lag							Lead				Lag	Lag
Lead-Lag Optimize?												
Vehicle Extension (s)				3.0	3.0	3.0	3.0	3.0			3.0	3.0
Recall Mode				None	None	None	None	C-Min			C-Min	C-Min
Act Effct Green (s)				22.8	22.8	22.8	57.2	57.2			35.6	35.6
Actuated g/C Ratio				0.25	0.25	0.25	0.64	0.64			0.40	0.40
v/c Ratio				0.21	0.22	0.78	0.70	0.43			0.43	0.44
Control Delay				26.4	26.4	45.1	7.1	4.2			22.3	24.5
Queue Delay				0.0	0.0	0.0	0.0	0.1			0.0	0.0
Total Delay				26.4	26.4	45.1	7.1	4.3			22.3	24.5
LOS				C	C	D	A	A			C	C
Approach Delay					38.1			5.1			23.0	
Approach LOS					D			A			C	

1601: I-40 WB On-Ramp & Sandy Ridge Road

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 50th (ft)				41	41	156	48	63			121	108
Queue Length 95th (ft)				77	77	239	m90	m119			m202	m197
Internal Link Dist (ft)		260			671			396			281	
Turn Bay Length (ft)				675		175	200					
Base Capacity (vph)				485	485	457	648	2229			1332	596
Starvation Cap Reductn				0	0	0	0	0			0	0
Spillback Cap Reductn				0	0	0	0	235			0	0
Storage Cap Reductn				0	0	0	0	0			0	0
Reduced v/c Ratio				0.18	0.18	0.66	0.64	0.48			0.43	0.44

Intersection Summary
Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 72 (80%), Referenced to phase 2:NBTL and 6:SBT, Start of Green
Natural Cycle: 55
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.78
Intersection Signal Delay: 16.6 — Intersection LOS: B
Intersection Capacity Utilization 85.8% — ICU Level of Service E
Analysis Period (min) 15
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 1601: I-40 WB On-Ramp & Sandy Ridge Road



1648: I-40 EB Off-Ramp & Sandy Ridge Road

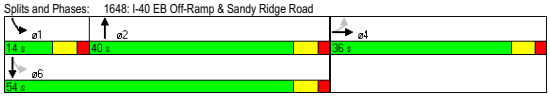
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	508	0	313	0	0	0	0	722	368	243	426	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		3%			0%			4%			0%	
Storage Length (ft)	0		350	0		0	0		0	200		0
Storage Lanes	1		1	0		0	0		0	1		0
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	1.00
Frt		0.850						0.949				
Flt Protected	0.950									0.950		
Satd. Flow (prot)	1693	1515	0	0	0	0	0	3197	0	1719	3438	0
Flt Permitted	0.950									0.100		
Satd. Flow (perm)	1693	1515	0	0	0	0	0	3197	0	181	3438	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		35			30			45			35	
Link Distance (ft)		594			355			495			414	
Travel Time (s)		11.6			8.1			7.5			8.1	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	564	0	348	0	0	0	0	802	409	270	473	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	564	348	0	0	0	0	0	1211	0	270	473	0
Turn Type	Perm									pm+pt		
Protected Phases		4						2		1	6	
Permitted Phases	4									6		
Detector Phase	4	4						2		1	6	
Switch Phase												
Minimum Initial (s)	7.0	7.0						15.0		7.0	15.0	
Minimum Split (s)	17.0	17.0						21.0		14.0	21.0	
Total Split (s)	36.0	36.0	0.0	0.0	0.0	0.0	0.0	40.0	0.0	14.0	54.0	0.0
Total Split (%)	40.0%	40.0%	0.0%	0.0%	0.0%	0.0%	0.0%	44.4%	0.0%	15.6%	60.0%	0.0%
Maximum Green (s)	30.0	30.0						34.0		8.0	48.0	
Yellow Time (s)	4.0	4.0						4.0		4.0	4.0	
All-Red Time (s)	2.0	2.0						2.0		2.0	2.0	
Lost Time Adjust (s)	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
Total Lost Time (s)	5.0	5.0	3.0	3.0	3.0	3.0	3.0	5.0	3.0	5.0	5.0	3.0
Lead/Lag								Lag		Lead		
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0						3.0		3.0	3.0	
Recall Mode	None	None						C-Min		None	C-Min	
Act Effct Green (s)	31.0	31.0						35.0		49.0	49.0	
Actuated g/C Ratio	0.34	0.34						0.39		0.54	0.54	
v/c Ratio	0.97	0.67						0.97		1.07	0.25	
Control Delay	60.9	32.6						48.3		101.3	6.8	
Queue Delay	0.0	0.0						0.0		0.0	0.0	
Total Delay	60.9	32.6						48.3		101.3	6.8	
LOS	E	C						D		F	A	
Approach Delay		50.1						48.3			41.1	
Approach LOS		D						D			D	

1648: I-40 EB Off-Ramp & Sandy Ridge Road

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 50th (ft)	312	166						349		~139	104	
Queue Length 95th (ft)	#524	265						#499		#252	6	
Internal Link Dist (ft)		514			275			415			334	
Turn Bay Length (ft)										200		
Base Capacity (vph)	583	522						1243		252	1872	
Starvation Cap Reductn	0	0						0		0	0	
Spillback Cap Reductn	0	0						0		0	0	
Storage Cap Reductn	0	0						0		0	0	
Reduced v/c Ratio	0.97	0.67						0.97		1.07	0.25	

Intersection Summary
Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 12 (13%), Referenced to phase 2:NBT and 6:SBTL, Start of Green
Natural Cycle: 90
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.07
Intersection Signal Delay: 47.0 — Intersection LOS: D
Intersection Capacity Utilization 85.8% — ICU Level of Service E
Analysis Period (min) 15
~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 1648: I-40 EB Off-Ramp & Sandy Ridge Road



1649: Triad Drive & Sandy Ridge Road

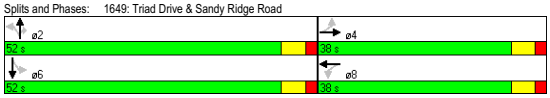
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	13	0	9	318	0	79	27	463	637	92	420	23
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		1%			1%			-2%			-1%	
Storage Length (ft)	0		0	0		0	150		0	100		0
Storage Lanes	0		0	0		0	1		1	1		0
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.944			0.973				0.850		0.992	
Flt Protected		0.972			0.962		0.950			0.950		
Satd. Flow (prot)	0	1652	0	0	1685	0	1736	1828	1553	1728	1804	0
Flt Permitted		0.784			0.752		0.372			0.356		
Satd. Flow (perm)	0	1333	0	0	1317	0	680	1828	1553	647	1804	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		45			45			45			45	
Link Distance (ft)		785			983			361			176	
Travel Time (s)		11.9			14.9			5.5			2.7	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	14	0	10	353	0	88	30	514	708	102	467	26
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	24	0	0	441	0	30	514	708	102	493	0
Turn Type	Perm			Perm			Perm		Perm	Perm		
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2		2	6		
Detector Phase	4	4		8	8		2	2	2	6	6	
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0		15.0	15.0	15.0	15.0	15.0	
Minimum Split (s)	17.0	17.0		17.0	17.0		21.0	21.0	21.0	21.0	21.0	
Total Split (s)	38.0	38.0	0.0	38.0	38.0	0.0	52.0	52.0	52.0	52.0	52.0	0.0
Total Split (%)	42.2%	42.2%	0.0%	42.2%	42.2%	0.0%	57.8%	57.8%	57.8%	57.8%	57.8%	0.0%
Maximum Green (s)	32.0	32.0		32.0	32.0		46.0	46.0	46.0	46.0	46.0	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0	2.0	2.0	2.0	
Lost Time Adjust (s)	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
Total Lost Time (s)	5.0	5.0	3.0	5.0	5.0	3.0	5.0	5.0	5.0	5.0	5.0	3.0
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Recall Mode	None	None		None	None		C-Min	C-Min	C-Min	C-Min	C-Min	
Act Effct Green (s)		32.3			32.3		47.7	47.7	47.7	47.7	47.7	
Actuated g/C Ratio		0.36			0.36		0.53	0.53	0.53	0.53	0.53	
v/c Ratio		0.05			0.93		0.08	0.53	0.86	0.30	0.52	
Control Delay		18.9			57.2		8.5	14.5	29.0	15.2	16.4	
Queue Delay		0.0			0.0		0.0	0.4	0.0	0.0	0.0	
Total Delay		18.9			57.2		8.5	14.9	29.0	15.2	16.4	
LOS		B			E		A	B	C	B	B	
Approach Delay		18.9			57.2			22.7			16.2	
Approach LOS		B			E			C			B	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 50th (ft)		9			235		7	214	345	31	174	
Queue Length 95th (ft)		25			#420		m12	290	#579	67	262	
Internal Link Dist (ft)		705			903			281			96	
Turn Bay Length (ft)							150			100		
Base Capacity (vph)		491			485		362	973	826	344	960	
Starvation Cap Reductn		0			0		0	145	0	0	0	
Spillback Cap Reductn		0			0		0	0	0	0	0	
Storage Cap Reductn		0			0		0	0	0	0	0	
Reduced v/c Ratio		0.05			0.91		0.08	0.62	0.86	0.30	0.51	

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 50 (56%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle: 80
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.93
Intersection Signal Delay: 27.6 — Intersection LOS: C
Intersection Capacity Utilization 78.5% — ICU Level of Service D
Analysis Period (min) 15
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 1649: Triad Drive & Sandy Ridge Road



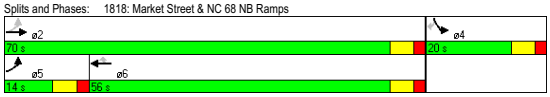
Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (vph)	152	454	551	155	38	100
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Grade (%)		-1%	0%		-2%	
Storage Length (ft)	150			325	0	250
Storage Lanes	1			1	1	1
Taper Length (ft)	25			25	25	25
Lane Util. Factor	1.00	0.95	1.00	1.00	1.00	1.00
Frt				0.850		0.850
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1728	3455	1810	1538	1736	1553
Flt Permitted	0.303				0.950	
Satd. Flow (perm)	551	3455	1810	1538	1736	1553
Right Turn on Red				No		No
Satd. Flow (RTOR)						
Link Speed (mph)		45	45		30	
Link Distance (ft)		849	543		531	
Travel Time (s)		12.9	8.2		12.1	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	169	504	612	172	42	111
Shared Lane Traffic (%)						
Lane Group Flow (vph)	169	504	612	172	42	111
Turn Type	pm+pt			Perm		Perm
Protected Phases	5	2	6		4	
Permitted Phases	2			6		4
Detector Phase	5	2	6	6	4	4
Switch Phase						
Minimum Initial (s)	6.0	15.0	15.0	15.0	7.0	7.0
Minimum Split (s)	14.0	21.0	21.0	21.0	17.0	17.0
Total Split (s)	14.0	70.0	56.0	56.0	20.0	20.0
Total Split (%)	15.6%	77.8%	62.2%	62.2%	22.2%	22.2%
Maximum Green (s)	8.0	64.0	50.0	50.0	14.0	14.0
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead		Lag	Lag		
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	C-Min	C-Min	C-Min	None	None
Act Effct Green (s)	69.9	70.9	56.4	56.4	12.7	12.7
Actuated g/C Ratio	0.78	0.79	0.63	0.63	0.14	0.14
v/c Ratio	0.31	0.19	0.54	0.18	0.17	0.51
Control Delay	7.9	6.7	13.7	9.5	34.0	43.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	7.9	6.7	13.7	9.5	34.0	43.2
LOS	A	A	B	A	C	D
Approach Delay		7.0	12.8		40.7	
Approach LOS		A	B		D	

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Queue Length 50th (ft)	38	71	197	41	21	59
Queue Length 95th (ft)	m72	97	338	83	48	106
Internal Link Dist (ft)		769	463		451	
Turn Bay Length (ft)	150			325		250
Base Capacity (vph)	548	2741	1145	973	298	267
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.31	0.18	0.53	0.18	0.14	0.42

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 72 (80%), Referenced to phase 2:EBTL and 6:WBT, Start of Green
Natural Cycle: 60
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.54
Intersection Signal Delay: 13.0 — Intersection LOS: B
Intersection Capacity Utilization 55.8% — ICU Level of Service B
Analysis Period (min) 15
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 1818: Market Street & NC 68 NB Ramps



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (vph)	438	456	281	96	114	320
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Grade (%)		-3%	3%		-1%	
Storage Length (ft)	300			325	250	0
Storage Lanes	1			1	1	1
Taper Length (ft)	25			25	25	25
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt				0.850		0.850
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1745	1837	1782	1515	1728	1546
Flt Permitted	0.501				0.950	
Satd. Flow (perm)	920	1837	1782	1515	1728	1546
Right Turn on Red				No		No
Satd. Flow (RTOR)						
Link Speed (mph)		45	45		50	
Link Distance (ft)		755	1642		378	
Travel Time (s)		11.4	24.9		5.2	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	487	507	312	107	127	356
Shared Lane Traffic (%)						
Lane Group Flow (vph)	487	507	312	107	127	356
Turn Type	pm+pt			Perm		pm+ov
Protected Phases	1	6	2		4	1
Permitted Phases	6			2		4
Detector Phase	1	6	2	2	4	1
Switch Phase						
Minimum Initial (s)	6.0	15.0	15.0	15.0	8.0	6.0
Minimum Split (s)	14.0	21.0	21.0	21.0	17.0	14.0
Total Split (s)	51.0	102.0	51.0	51.0	28.0	51.0
Total Split (%)	39.2%	78.5%	39.2%	39.2%	21.5%	39.2%
Maximum Green (s)	45.0	96.0	45.0	45.0	22.0	45.0
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead		Lag	Lag		Lead
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	C-Min	C-Min	C-Min	None	None
Act Effct Green (s)	104.2	104.2	80.5	80.5	15.8	39.5
Actuated g/C Ratio	0.80	0.80	0.62	0.62	0.12	0.30
v/c Ratio	0.57	0.34	0.28	0.11	0.60	0.76
Control Delay	1.2	1.0	13.8	12.5	65.6	50.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	1.2	1.0	13.8	12.5	65.6	50.8
LOS	A	A	B	B	E	D
Approach Delay		1.1	13.5		54.7	
Approach LOS		A	B		D	

Sandy Ridge Road Feasibility Study — Base Year (2009) No-Build AM

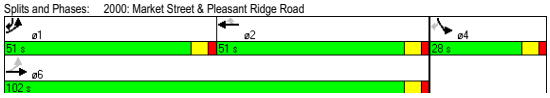
2000: Market Street & Pleasant Ridge Road

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Queue Length 50th (ft)	0	0	111	34	103	276
Queue Length 95th (ft)	m57	m58	217	79	164	330
Internal Link Dist (ft)		675	1562		298	
Turn Bay Length (ft)	300			325	250	
Base Capacity (vph)	1029	1472	1103	938	306	794
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.47	0.34	0.28	0.11	0.42	0.45

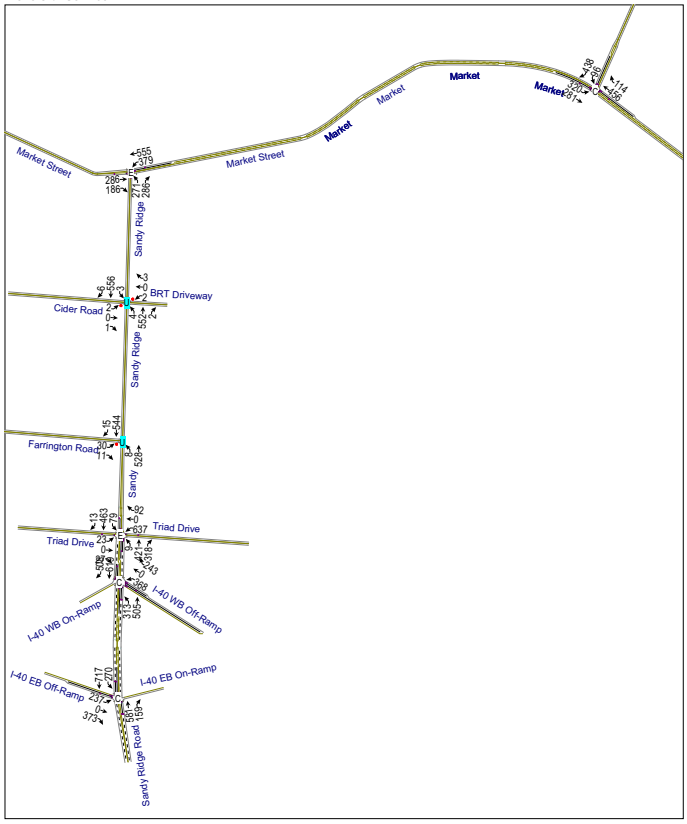
Intersection Summary

Area Type: Other
Cycle Length: 130
Actuated Cycle Length: 130
Offset: 126 (97%), Referenced to phase 2:WBT and 6:EBTL, Start of Green
Natural Cycle: 60
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.76
Intersection Signal Delay: 17.5 — Intersection LOS: B
Intersection Capacity Utilization 58.2% — ICU Level of Service B
Analysis Period (min) 15
m Volume for 95th percentile queue is metered by upstream signal.

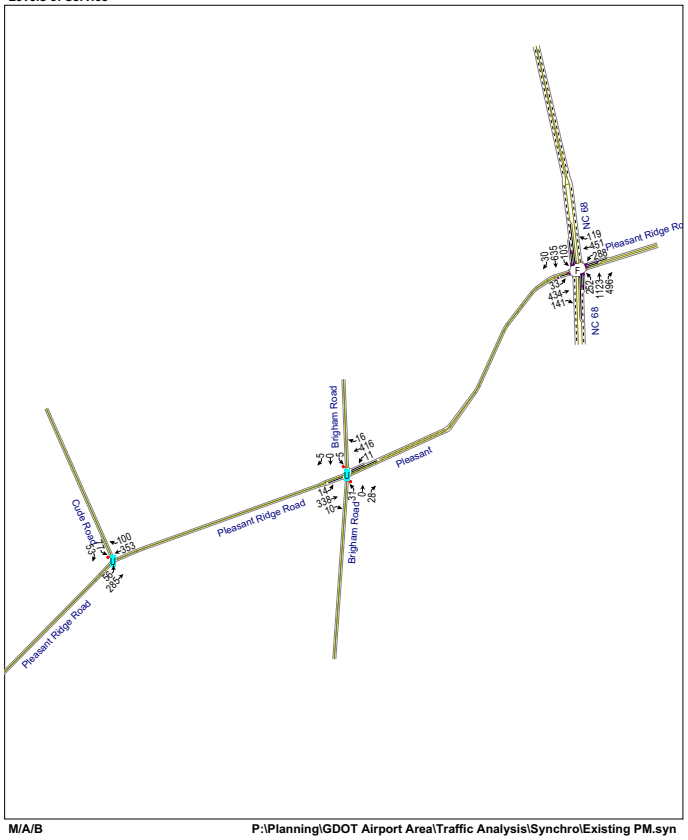
Splits and Phases: 2000: Market Street & Pleasant Ridge Road



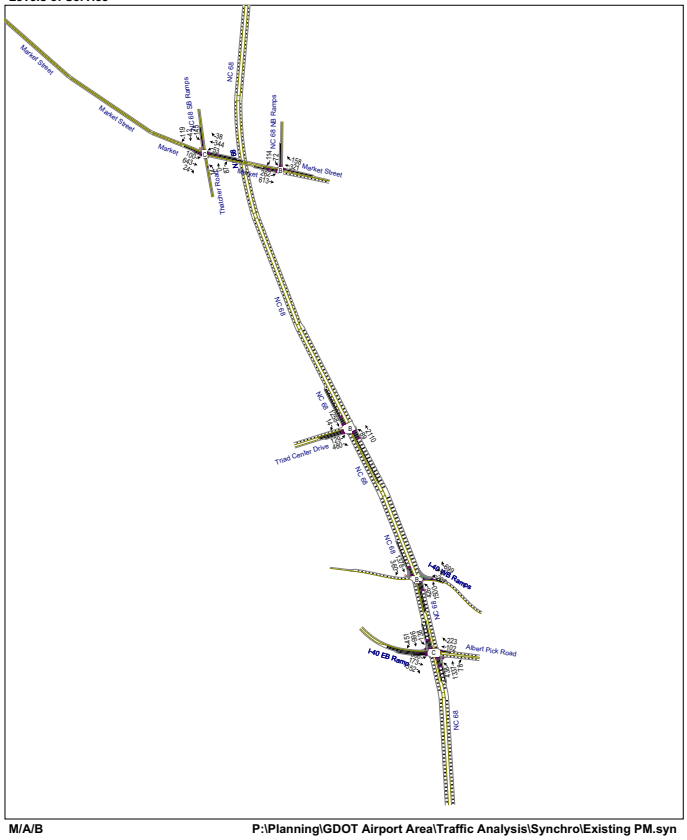
Map - Sandy Ridge Road Feasibility Study — Base Year (2009) No-Build PM
Levels of Service



Map - Sandy Ridge Road Feasibility Study — Base Year (2009) No-Build PM
Levels of Service



Map - Sandy Ridge Road Feasibility Study — Base Year (2009) No-Build PM
Levels of Service



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	2	0	1	2	0	3	4	552	2	3	556	6
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	2	0	1	2	0	3	4	613	2	3	618	7
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)											1002	
pX, platoon unblocked												
vC, conflicting volume	1254	1252	621	1252	1254	614	624			616		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1254	1252	621	1252	1254	614	624			616		
tC, single (s)	7.2	6.6	6.2	7.2	6.6	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 %	98	100	100	98	100	99	100			100		
cM capacity (veh/h)	145	169	482	146	168	486	942			950		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	3	6	620	628
Volume Left	2	2	4	3
Volume Right	1	3	2	7
cSH	189	251	942	950
Volume to Capacity	0.02	0.02	0.00	0.00
Queue Length 95th (ft)	1	2	0	0
Control Delay (s)	24.4	19.7	0.1	0.1
Lane LOS	C	C	A	A
Approach Delay (s)	24.4	19.7	0.1	0.1
Approach LOS	C	C		

Intersection Summary				
Average Delay	0.3			
Intersection Capacity Utilization	41.9%	ICU Level of Service	A	
Analysis Period (min)	15			

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (veh/h)	30	11	8	528	544	15
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	33	12	9	587	604	17
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (ft)				711		
pX, platoon unblocked	0.75					
vC, conflicting volume	1217	613	621			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1124	613	621			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	80	97	99			
cM capacity (veh/h)	167	487	945			

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	46	596	621
Volume Left	33	9	0
Volume Right	12	0	17
cSH	203	945	1700
Volume to Capacity	0.22	0.01	0.37
Queue Length 95th (ft)	21	1	0
Control Delay (s)	27.8	0.3	0.0
Lane LOS	D	A	
Approach Delay (s)	27.8	0.3	0.0
Approach LOS	D		

Intersection Summary				
Average Delay	1.1			
Intersection Capacity Utilization	44.2%	ICU Level of Service	A	
Analysis Period (min)	15			

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (veh/h)	56	285	353	100	77	53
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	62	317	392	111	86	59
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	503				889	448
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	503				889	448
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	94				71	90
cM capacity (veh/h)	1046				292	605

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	379	503	144
Volume Left	62	0	86
Volume Right	0	111	59
cSH	1046	1700	370
Volume to Capacity	0.06	0.30	0.39
Queue Length 95th (ft)	5	0	45
Control Delay (s)	2.0	0.0	20.9
Lane LOS	A		C
Approach Delay (s)	2.0	0.0	20.9
Approach LOS			C

Intersection Summary				
Average Delay	3.7			
Intersection Capacity Utilization	60.3%	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)	14	338	10	11	416	16	31	0	28	5	0	5
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	16	376	11	12	462	18	34	0	31	6	0	6
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			TWLTL							
Median storage veh)					2							
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	480			387			904	917	381	924	904	462
vC1, stage 1 conf vol							412	412		487	487	
vC2, stage 2 conf vol							492	504		438	418	
vCu, unblocked vol	480			387			904	917	381	924	904	462
tC, single (s)	4.1			4.1			7.2	6.6	6.2	7.2	6.6	6.2
tC, 2 stage (s)							6.1	5.6		6.1	5.6	
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	99			99			92	100	95	99	100	99
cM capacity (veh/h)	1067			1156			444	438	659	431	446	593

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	WB 3	NB 1	SB 1
Volume Total	16	387	12	462	18	66	11
Volume Left	16	0	12	0	0	34	6
Volume Right	0	11	0	0	18	31	6
cSH	1067	1700	1156	1700	1700	525	499
Volume to Capacity	0.01	0.23	0.01	0.27	0.01	0.12	0.02
Queue Length 95th (ft)	1	0	1	0	0	11	2
Control Delay (s)	8.4	0.0	8.1	0.0	0.0	12.8	12.4
Lane LOS	A		A			B	B
Approach Delay (s)	0.3		0.2			12.8	12.4
Approach LOS						B	B

Intersection Summary				
Average Delay	1.2			
Intersection Capacity Utilization	32.9%	ICU Level of Service	A	
Analysis Period (min)	15			

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	366	173	352	0	102	223	438	1337	78	138	996	451
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		-2%			2%			-1%			1%	
Storage Length (ft)	438		325	0		0	250		275	300		275
Storage Lanes	2		1	0		1	1		1	1		1
Taper Length (ft)	100		25	25		25	25		25	25		25
Lane Util. Factor	0.97	1.00	1.00	1.00	1.00	1.00	1.00	0.91	1.00	1.00	0.91	1.00
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950						0.950			0.950		
Satd. Flow (prot)	3368	1828	1553	0	1791	1523	1728	4965	1546	1710	4915	1530
Flt Permitted	0.950						0.950			0.950		
Satd. Flow (perm)	3368	1828	1553	0	1791	1523	1728	4965	1546	1710	4915	1530
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		35			35			55			55	
Link Distance (ft)		867			502			480			821	
Travel Time (s)		16.9			9.8			6.0			10.2	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	407	192	391	0	113	248	487	1486	87	153	1107	501
Shared Lane Traffic (%)												
Lane Group Flow (vph)	407	192	391	0	113	248	487	1486	87	153	1107	501
Turn Type	Prot		pm+ov			pm+ov	Prot		Perm	Prot		pm+ov
Protected Phases	7	4	5		8	1	5	2		1	6	7
Permitted Phases			4			8			2			6
Detector Phase	7	4	5		8	1	5	2	2	1	6	7
Switch Phase												
Minimum Initial (s)	7.0	7.0	7.0		7.0	7.0	7.0	14.0	14.0	7.0	14.0	7.0
Minimum Split (s)	14.0	17.0	14.0		17.0	14.0	14.0	20.0	20.0	14.0	20.0	14.0
Total Split (s)	17.0	34.0	30.0	0.0	17.0	16.0	30.0	40.0	40.0	16.0	26.0	17.0
Total Split (%)	18.9%	37.8%	33.3%	0.0%	18.9%	17.8%	33.3%	44.4%	44.4%	17.8%	28.9%	18.9%
Maximum Green (s)	11.0	28.0	24.0		11.0	10.0	24.0	34.0	34.0	10.0	20.0	11.0
Yellow Time (s)	4.0	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0		2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
Total Lost Time (s)	5.0	5.0	5.0	3.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead		Lead		Lag	Lead	Lead	Lag	Lag	Lead	Lag	Lead
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None		None	None	None	C-Min	C-Min	None	C-Min	None
Act Effct Green (s)	12.0	25.2	57.1		10.8	25.0	26.9	38.0	38.0	11.8	22.9	39.9
Actuated g/C Ratio	0.13	0.28	0.63		0.12	0.28	0.30	0.42	0.42	0.13	0.25	0.44
v/c Ratio	0.91	0.38	0.40		0.53	0.58	0.94	0.71	0.13	0.68	0.88	0.74
Control Delay	64.4	27.0	9.1		46.0	33.3	61.6	24.7	18.4	59.9	34.0	17.7
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	64.4	27.0	9.1		46.0	33.3	61.6	24.7	18.4	59.9	34.0	17.7
LOS	E	C	A		D	C	E	C	B	E	C	B
Approach Delay		35.3			37.3			33.2			31.6	
Approach LOS		D			D			C			C	

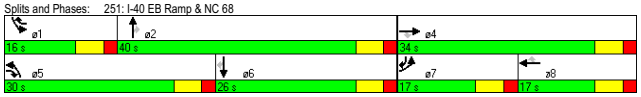
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 50th (ft)	119	82	91		60	115	~282	264	31	96	157	172
Queue Length 95th (ft)	#203	138	143		114	191	#484	321	63	m#186	#305	#406
Internal Link Dist (ft)		787			422			400			741	
Turn Bay Length (ft)	438		325				250		275	300		275
Base Capacity (vph)	449	589	985		239	424	516	2094	652	225	1252	679
Starvation Cap Reductn	0	0	0		0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0		0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0		0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.91	0.33	0.40		0.47	0.58	0.94	0.71	0.13	0.68	0.88	0.74

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 68 (76%), Referenced to phase 2:NBT and 6:SBT, Start of Green
Natural Cycle: 90
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.94
Intersection Signal Delay: 33.3 — Intersection LOS: C
Intersection Capacity Utilization 73.1% — ICU Level of Service D
Analysis Period (min) 15

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 251: I-40 EB Ramp & NC 68



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	33	434	141	288	451	119	252	1123	496	103	635	30
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		-1%			-3%			2%			-2%	
Storage Length (ft)	75		0	100		175	325		100	300		175
Storage Lanes	1		0	1		1	1		1	1		1
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt		0.963				0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1728	1751	0	1745	1837	1561	1702	3404	1523	1736	3472	1553
Flt Permitted	0.441			0.093			0.950			0.950		
Satd. Flow (perm)	802	1751	0	171	1837	1561	1702	3404	1523	1736	3472	1553
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		50			50			55			55	
Link Distance (ft)		216			638			568			690	
Travel Time (s)		2.9			8.7			7.0			8.6	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	37	482	157	320	501	132	280	1248	551	114	706	33
Shared Lane Traffic (%)												
Lane Group Flow (vph)	37	639	0	320	501	132	280	1248	551	114	706	33
Turn Type	Perm			pm+pt		Perm	Prot		Perm	Prot		Perm
Protected Phases		4		3	8		5	2		1	6	
Permitted Phases	4			8		8			2			6
Detector Phase	4	4		3	8	8	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	8.0	8.0		7.0	8.0	8.0	7.0	14.0	14.0	7.0	14.0	14.0
Minimum Split (s)	17.0	17.0		14.0	17.0	17.0	14.0	20.0	20.0	14.0	20.0	20.0
Total Split (s)	43.0	43.0	0.0	17.0	60.0	60.0	25.0	46.0	46.0	14.0	35.0	35.0
Total Split (%)	35.8%	35.8%	0.0%	14.2%	50.0%	50.0%	20.8%	38.3%	38.3%	11.7%	29.2%	29.2%
Maximum Green (s)	37.0	37.0		11.0	54.0	54.0	19.0	40.0	40.0	8.0	29.0	29.0
Yellow Time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0		2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
Total Lost Time (s)	5.0	5.0	3.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lag	Lag		Lead			Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None		None	None	None	None	Min	Min	None	Min	Min
Act Effct Green (s)	38.0	38.0		55.0	55.0	55.0	20.0	41.0	41.0	9.0	30.0	30.0
Actuated g/C Ratio	0.32	0.32		0.46	0.46	0.46	0.17	0.34	0.34	0.08	0.25	0.25
v/c Ratio	0.15	1.15		1.36	0.60	0.18	0.99	1.07	1.06	0.88	0.81	0.09
Control Delay	31.4	126.0		213.2	27.9	20.1	100.3	86.5	94.9	106.8	51.0	35.4
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	31.4	126.0		213.2	27.9	20.1	100.3	86.5	94.9	106.8	51.0	35.4
LOS	C	F		F	C	C	F	F	F	F	D	D
Approach Delay		120.8			89.0			90.6			57.9	
Approach LOS		F			F			F			E	

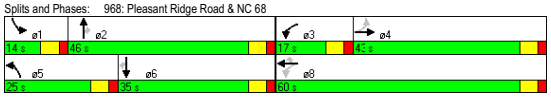
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 50th (ft)	20	~583		~277	282	59	219	~565	~469	89	272	20
Queue Length 95th (ft)	49	#810		#462	396	101	#397	#702	#686	#200	346	47
Internal Link Dist (ft)		136			558			488			610	
Turn Bay Length (ft)	75			100		175	325		100	300		175
Base Capacity (vph)	254	554		236	842	715	284	1163	520	130	868	388
Starvation Cap Reductn	0	0		0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0		0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0		0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.15	1.15		1.36	0.60	0.18	0.99	1.07	1.06	0.88	0.81	0.09

Intersection Summary

Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 120
Natural Cycle: 130
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 1.36
Intersection Signal Delay: 88.6 — Intersection LOS: F
Intersection Capacity Utilization 100.9% — ICU Level of Service G
Analysis Period (min) 15

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 968: Pleasant Ridge Road & NC 68

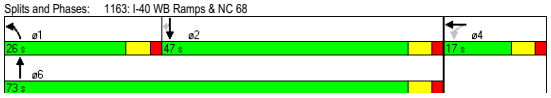


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	0	0	207	0	699	426	1500	0	0	1378	360
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		0%			-2%			0%			-1%	
Storage Length (ft)	0		0	200		0	325		0	0		400
Storage Lanes	0		0	1		1	2		0	0		1
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	1.00	1.00	1.00	0.95	0.95	1.00	0.97	0.91	1.00	1.00	0.91	1.00
Frt						0.850						0.850
Flt Protected				0.950	0.950		0.950					
Satd. Flow (prot)	0	0	0	1649	1649	1553	3335	4940	0	0	4965	1546
Flt Permitted				0.950	0.950		0.950					
Satd. Flow (perm)	0	0	0	1649	1649	1553	3335	4940	0	0	4965	1546
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		30			35			55			55	
Link Distance (ft)		712			820			821			1007	
Travel Time (s)		16.2			16.0			10.2			12.5	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	0	0	0	230	0	777	473	1667	0	0	1531	400
Shared Lane Traffic (%)				50%								
Lane Group Flow (vph)	0	0	0	115	115	777	473	1667	0	0	1531	400
Turn Type				Perm		Free	Prot					Perm
Protected Phases					4		1	6			2	
Permitted Phases				4		Free						2
Detector Phase				4	4		1	6			2	2
Switch Phase												
Minimum Initial (s)				7.0	7.0		7.0	14.0			14.0	14.0
Minimum Split (s)				17.0	17.0		14.0	20.0			20.0	20.0
Total Split (s)	0.0	0.0	0.0	17.0	17.0	0.0	26.0	73.0	0.0	0.0	47.0	47.0
Total Split (%)	0.0%	0.0%	0.0%	18.9%	18.9%	0.0%	28.9%	81.1%	0.0%	0.0%	52.2%	52.2%
Maximum Green (s)				11.0	11.0		20.0	67.0			41.0	41.0
Yellow Time (s)				4.0	4.0		4.0	4.0			4.0	4.0
All-Red Time (s)				2.0	2.0		2.0	2.0			2.0	2.0
Lost Time Adjust (s)	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
Total Lost Time (s)	3.0	3.0	3.0	5.0	5.0	3.0	5.0	5.0	3.0	3.0	5.0	5.0
Lead/Lag							Lead				Lag	Lag
Lead-Lag Optimize?												
Vehicle Extension (s)				3.0	3.0		3.0	3.0			3.0	3.0
Recall Mode				None	None		None	C-Min			C-Min	C-Min
Act Effct Green (s)				11.0	11.0	90.0	18.4	69.0			45.6	45.6
Actuated g/C Ratio				0.12	0.12	1.00	0.20	0.77			0.51	0.51
v/c Ratio				0.57	0.57	0.50	0.69	0.44			0.61	0.51
Control Delay				48.5	48.5	1.2	41.2	2.9			16.8	17.2
Queue Delay				0.0	0.0	0.0	0.0	0.0			0.0	0.0
Total Delay				48.5	48.5	1.2	41.2	2.9			16.8	17.2
LOS				D	D	A	D	A			B	B
Approach Delay					12.0			11.4			16.9	
Approach LOS					B			B			B	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 50th (ft)				64	64	0	143	74			249	170
Queue Length 95th (ft)				123	123	0	m185	m84			290	249
Internal Link Dist (ft)		632			740			741			927	
Turn Bay Length (ft)				200			325					400
Base Capacity (vph)				222	222	1553	778	3791			2516	783
Starvation Cap Reductn				0	0	0	0	0			0	0
Spillback Cap Reductn				0	0	0	0	0			0	0
Storage Cap Reductn				0	0	0	0	0			0	0
Reduced v/c Ratio				0.52	0.52	0.50	0.61	0.44			0.61	0.51

Intersection Summary
Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 58 (64%), Referenced to phase 2:SBT and 6:NBT, Start of Green
Natural Cycle: 60
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.69
Intersection Signal Delay: 13.6 Intersection LOS: B
Intersection Capacity Utilization 57.1% ICU Level of Service B
Analysis Period (min) 15
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 1163: I-40 WB Ramps & NC 68

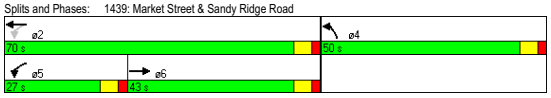


Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (vph)	286	186	379	555	271	286
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Grade (%)	1%			-1%	0%	
Storage Length (ft)		0	300		0	0
Storage Lanes		0	1		1	0
Taper Length (ft)		25	25		25	25
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.947				0.931	
Flt Protected			0.950		0.976	
Satd. Flow (prot)	1705	0	1728	1819	1644	0
Flt Permitted			0.101		0.976	
Satd. Flow (perm)	1705	0	184	1819	1644	0
Right Turn on Red		No				No
Satd. Flow (RTOR)						
Link Speed (mph)	45			45	35	
Link Distance (ft)	279			1348	1002	
Travel Time (s)	4.2			20.4	19.5	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	318	207	421	617	301	318
Shared Lane Traffic (%)						
Lane Group Flow (vph)	525	0	421	617	619	0
Turn Type			pm+pt			
Protected Phases	6		5	2	4	
Permitted Phases			2			
Detector Phase	6		5	2	4	
Switch Phase						
Minimum Initial (s)	15.0		7.0	15.0	7.0	
Minimum Split (s)	21.0		14.0	21.0	17.0	
Total Split (s)	43.0	0.0	27.0	70.0	50.0	0.0
Total Split (%)	35.8%	0.0%	22.5%	58.3%	41.7%	0.0%
Maximum Green (s)	37.0		21.0	64.0	44.0	
Yellow Time (s)	4.0		4.0	4.0	4.0	
All-Red Time (s)	2.0		2.0	2.0	2.0	
Lost Time Adjust (s)	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
Total Lost Time (s)	5.0	3.0	5.0	5.0	5.0	3.0
Lead/Lag	Lag		Lead			
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0		3.0	3.0	3.0	
Recall Mode	C-Min		None	C-Min	None	
Act Effct Green (s)	38.0		65.0	65.0	45.0	
Actuated g/C Ratio	0.32		0.54	0.54	0.38	
v/c Ratio	0.97		1.10	0.63	1.00	
Control Delay	73.6		105.3	19.2	75.1	
Queue Delay	0.0		0.0	0.0	0.0	
Total Delay	73.6		105.3	19.2	75.1	
LOS	E		F	B	E	
Approach Delay	73.6			54.1	75.1	
Approach LOS	E			D	E	

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Queue Length 50th (ft)	401		~311	205	~479	
Queue Length 95th (ft)	#625		#516	421	#727	
Internal Link Dist (ft)	199			1268	922	
Turn Bay Length (ft)			300			
Base Capacity (vph)	540		383	985	617	
Starvation Cap Reductn	0		0	0	0	
Spillback Cap Reductn	0		0	0	0	
Storage Cap Reductn	0		0	0	0	
Reduced v/c Ratio	0.97		1.10	0.63	1.00	

Intersection Summary
Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 106 (88%), Referenced to phase 2:WBTL and 6:EBT, Start of Green
Natural Cycle: 110
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.10
Intersection Signal Delay: 64.7 Intersection LOS: E
Intersection Capacity Utilization 92.5% ICU Level of Service F
Analysis Period (min) 15
~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 1439: Market Street & Sandy Ridge Road



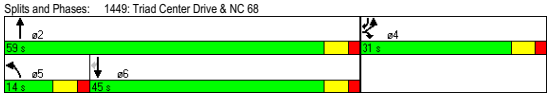
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	129	480	89	2110	1258	14
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Grade (%)	-3%			-2%	-1%	
Storage Length (ft)	263	200	625			438
Storage Lanes	2	1	1			2
Taper Length (ft)	25	25	25			25
Lane Util. Factor	0.97	0.88	0.97	0.91	0.91	1.00
Frt		0.850				0.850
Flt Protected	0.950		0.950			
Satd. Flow (prot)	3385	2748	3368	4989	4965	1546
Flt Permitted	0.950		0.950			
Satd. Flow (perm)	3385	2748	3368	4989	4965	1546
Right Turn on Red		No				No
Satd. Flow (RTOR)						
Link Speed (mph)	30			55	55	
Link Distance (ft)	638			799	1245	
Travel Time (s)	14.5			9.9	15.4	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	143	533	99	2344	1398	16
Shared Lane Traffic (%)						
Lane Group Flow (vph)	143	533	99	2344	1398	16
Turn Type		Prot	Prot			pm+ov
Protected Phases	4	4	5	2	6	4
Permitted Phases						6
Detector Phase	4	4	5	2	6	4
Switch Phase						
Minimum Initial (s)	7.0	7.0	7.0	14.0	14.0	7.0
Minimum Split (s)	17.0	17.0	14.0	20.0	20.0	17.0
Total Split (s)	31.0	31.0	14.0	59.0	45.0	31.0
Total Split (%)	34.4%	34.4%	15.6%	65.6%	50.0%	34.4%
Maximum Green (s)	25.0	25.0	8.0	53.0	39.0	25.0
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag			Lead		Lag	
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	C-Min	C-Min	None
Act Effct Green (s)	22.8	22.8	8.6	57.2	46.1	75.0
Actuated g/C Ratio	0.25	0.25	0.10	0.64	0.51	0.83
v/c Ratio	0.17	0.76	0.31	0.74	0.55	0.01
Control Delay	25.7	38.6	46.8	15.6	17.4	2.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	25.7	38.6	46.8	15.6	17.4	2.1
LOS	C	D	D	B	B	A
Approach Delay	35.9			16.9	17.2	
Approach LOS	D			B	B	

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Queue Length 50th (ft)	32	157	27	461	205	1
Queue Length 95th (ft)	53	213	51	552	265	5
Internal Link Dist (ft)	558			719	1165	
Turn Bay Length (ft)	263	200	625			438
Base Capacity (vph)	978	794	337	3168	2544	1313
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.15	0.67	0.29	0.74	0.55	0.01

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 8 (9%), Referenced to phase 2:NBT and 6:SBT, Start of Green
Natural Cycle: 60
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.76
Intersection Signal Delay: 19.8 — Intersection LOS: B
Intersection Capacity Utilization 54.9% — ICU Level of Service A
Analysis Period (min) 15

Splits and Phases: 1449: Triad Center Drive & NC 68



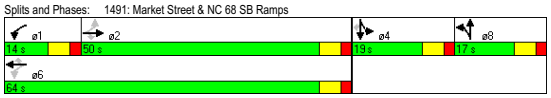
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	100	643	24	53	344	38	14	0	87	145	42	119
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	200		75	375		300	0		0	0		250
Storage Lanes	1		1	1		1	0		0	0		1
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850			0.850		0.884				0.850
Flt Protected	0.950			0.950				0.993			0.963	
Satd. Flow (prot)	1719	1810	1538	1719	1810	1538	0	1588	0	0	1743	1538
Flt Permitted	0.535			0.140				0.993			0.963	
Satd. Flow (perm)	968	1810	1538	253	1810	1538	0	1588	0	0	1743	1538
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		45			45			55			35	
Link Distance (ft)		630			849			475			493	
Travel Time (s)		9.5			12.9			5.9			9.6	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	111	714	27	59	382	42	16	0	97	161	47	132
Shared Lane Traffic (%)												
Lane Group Flow (vph)	111	714	27	59	382	42	0	113	0	0	208	132
Turn Type	Perm		Perm	pm+pt		Perm	Split			Split		Perm
Protected Phases		2		1	6		8	8		4	4	
Permitted Phases	2		2	6		6						4
Detector Phase	2	2	2	1	6	6	8	8		4	4	4
Switch Phase												
Minimum Initial (s)	12.0	12.0	12.0	7.0	12.0	12.0	7.0	7.0		7.0	7.0	7.0
Minimum Split (s)	18.0	18.0	18.0	14.0	18.0	18.0	17.0	17.0		17.0	17.0	17.0
Total Split (s)	50.0	50.0	50.0	14.0	64.0	64.0	17.0	17.0	0.0	19.0	19.0	19.0
Total Split (%)	50.0%	50.0%	50.0%	14.0%	64.0%	64.0%	17.0%	17.0%	0.0%	19.0%	19.0%	19.0%
Maximum Green (s)	44.0	44.0	44.0	8.0	58.0	58.0	11.0	11.0		13.0	13.0	13.0
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0		2.0	2.0	2.0
Lost Time Adjust (s)	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	3.0	5.0	5.0	5.0
Lead/Lag	Lag	Lag	Lag	Lead								
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0
Recall Mode	C-Min	C-Min	C-Min	None	C-Max	C-Max	Min	Min		None	None	None
Act Effct Green (s)	49.2	49.2	49.2	59.9	59.9	59.9		11.2			13.9	13.9
Actuated g/C Ratio	0.49	0.49	0.49	0.60	0.60	0.60		0.11			0.14	0.14
v/c Ratio	0.23	0.80	0.04	0.22	0.35	0.05		0.64			0.86	0.62
Control Delay	18.0	31.5	15.5	14.9	17.0	13.0		59.0			74.0	54.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0		0.0			0.0	0.0
Total Delay	18.0	31.5	15.5	14.9	17.0	13.0		59.0			74.0	54.1
LOS	B	C	B	B	B	B		E			E	D
Approach Delay		29.2			16.4			59.0			66.3	
Approach LOS		C			B			E			E	
Queue Length 50th (ft)	42	393	9	23	174	17		69			131	80

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 95th (ft)	83	#631	25	50	256	39		#134			#257	#151
Internal Link Dist (ft)		550			769			395			413	
Turn Bay Length (ft)	200		75	375		300						250
Base Capacity (vph)	477	891	757	284	1085	922		191			244	215
Starvation Cap Reductn	0	0	0	0	0	0		0			0	0
Spillback Cap Reductn	0	0	0	0	0	0		0			0	0
Storage Cap Reductn	0	0	0	0	0	0		0			0	0
Reduced v/c Ratio	0.23	0.80	0.04	0.21	0.35	0.05		0.59			0.85	0.61

Intersection Summary

Area Type: Other
Cycle Length: 100
Actuated Cycle Length: 100
Offset: 22 (22%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green
Natural Cycle: 90
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.86
Intersection Signal Delay: 34.7 — Intersection LOS: C
Intersection Capacity Utilization 69.1% — ICU Level of Service C
Analysis Period (min) 15
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 1491: Market Street & NC 68 SB Ramps



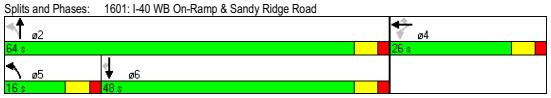
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	0	0	368	0	243	313	505	0	0	619	508
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		0%			2%			-4%			4%	
Storage Length (ft)	0		0	675		175	200		0	100		0
Storage Lanes	0		0	1		1	1		0	1		1
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	1.00	1.00	1.00	0.95	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt						0.850						0.850
Flt Protected				0.950	0.950		0.950					
Satd. Flow (prot)	0	0	0	1617	1617	1523	1753	3507	0	0	3369	1507
Flt Permitted				0.950	0.950		0.299					
Satd. Flow (perm)	0	0	0	1617	1617	1523	552	3507	0	0	3369	1507
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		30			35			45			45	
Link Distance (ft)		340			751			476			361	
Travel Time (s)		7.7			14.6			7.2			5.5	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	0	0	0	409	0	270	348	561	0	0	688	564
Shared Lane Traffic (%)				50%								
Lane Group Flow (vph)	0	0	0	204	205	270	348	561	0	0	688	564
Turn Type				Perm		Perm	pm+pt					Perm
Protected Phases					4		5	2			6	
Permitted Phases				4		4	2					6
Detector Phase				4	4	4	5	2			6	6
Switch Phase												
Minimum Initial (s)				7.0	7.0	7.0	6.0	15.0			15.0	15.0
Minimum Split (s)				17.0	17.0	17.0	14.0	21.0			21.0	21.0
Total Split (s)	0.0	0.0	0.0	26.0	26.0	26.0	16.0	64.0	0.0	0.0	48.0	48.0
Total Split (%)	0.0%	0.0%	0.0%	28.9%	28.9%	28.9%	17.8%	71.1%	0.0%	0.0%	53.3%	53.3%
Maximum Green (s)				20.0	20.0	20.0	10.0	58.0			42.0	42.0
Yellow Time (s)				4.0	4.0	4.0	4.0	4.0			4.0	4.0
All-Red Time (s)				2.0	2.0	2.0	2.0	2.0			2.0	2.0
Lost Time Adjust (s)	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
Total Lost Time (s)	3.0	3.0	3.0	5.0	5.0	5.0	5.0	5.0	3.0	3.0	5.0	5.0
Lead/Lag							Lead				Lag	Lag
Lead-Lag Optimize?												
Vehicle Extension (s)				3.0	3.0	3.0	3.0	3.0			3.0	3.0
Recall Mode				None	None	None	None	C-Min			C-Min	C-Min
Act Effct Green (s)				19.7	19.7	19.7	60.3	60.3			44.3	44.3
Actuated g/C Ratio				0.22	0.22	0.22	0.67	0.67			0.49	0.49
v/c Ratio				0.58	0.58	0.81	0.67	0.24			0.41	0.76
Control Delay				38.2	38.3	53.0	8.3	0.9			15.2	20.3
Queue Delay				0.0	0.0	0.0	0.0	0.0			0.5	5.9
Total Delay				38.2	38.3	53.0	8.3	1.0			15.7	26.2
LOS				D	D	D	A	A			B	C
Approach Delay					44.1			3.8			20.4	
Approach LOS					D			A			C	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 50th (ft)				107	107	143	4	1			122	238
Queue Length 95th (ft)				182	183	#262	37	1			m115	m224
Internal Link Dist (ft)		260			671			396			281	
Turn Bay Length (ft)				675		175	200					
Base Capacity (vph)				378	378	356	520	2351			1665	745
Starvation Cap Reductn				0	0	0	0	0			518	131
Spillback Cap Reductn				0	0	0	0	157			0	0
Storage Cap Reductn				0	0	0	0	0			0	0
Reduced v/c Ratio				0.54	0.54	0.76	0.67	0.26			0.60	0.92

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 72 (80%), Referenced to phase 2:NBTL and 6:SBT, Start of Green
Natural Cycle: 65
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.81
Intersection Signal Delay: 20.8 — Intersection LOS: C
Intersection Capacity Utilization 71.7% — ICU Level of Service C
Analysis Period (min) 15
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 1601: I-40 WB On-Ramp & Sandy Ridge Road



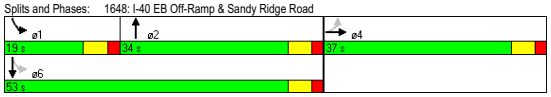
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	237	0	373	0	0	0	0	581	159	270	717	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		3%			0%			4%			0%	
Storage Length (ft)	0		350	0		0	0		0	200		0
Storage Lanes	1		1	0		0	0		0	1		0
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	1.00
Frt		0.850						0.968				
Flt Protected	0.950									0.950		
Satd. Flow (prot)	1693	1515	0	0	0	0	0	3262	0	1719	3438	0
Flt Permitted	0.950									0.175		
Satd. Flow (perm)	1693	1515	0	0	0	0	0	3262	0	317	3438	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		35			30			45			35	
Link Distance (ft)		594			355			495			414	
Travel Time (s)		11.6			8.1			7.5			8.1	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	263	0	414	0	0	0	0	646	177	300	797	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	263	414	0	0	0	0	0	823	0	300	797	0
Turn Type	Perm									pm+pt		
Protected Phases		4						2		1	6	
Permitted Phases	4									6		
Detector Phase	4	4						2		1	6	
Switch Phase												
Minimum Initial (s)	7.0	7.0						15.0		7.0	15.0	
Minimum Split (s)	17.0	17.0						21.0		14.0	21.0	
Total Split (s)	37.0	37.0	0.0	0.0	0.0	0.0	0.0	34.0	0.0	19.0	53.0	0.0
Total Split (%)	41.1%	41.1%	0.0%	0.0%	0.0%	0.0%	0.0%	37.8%	0.0%	21.1%	58.9%	0.0%
Maximum Green (s)	31.0	31.0						28.0		13.0	47.0	
Yellow Time (s)	4.0	4.0						4.0		4.0	4.0	
All-Red Time (s)	2.0	2.0						2.0		2.0	2.0	
Lost Time Adjust (s)	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
Total Lost Time (s)	5.0	5.0	3.0	3.0	3.0	3.0	3.0	5.0	3.0	5.0	5.0	3.0
Lead/Lag								Lag		Lead		
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0						3.0		3.0	3.0	
Recall Mode	None	None						C-Min		None	C-Min	
Act Effct Green (s)	29.1	29.1						32.4		50.9	50.9	
Actuated g/C Ratio	0.32	0.32						0.36		0.57	0.57	
v/c Ratio	0.48	0.84						0.70		0.77	0.41	
Control Delay	27.0	44.9						29.6		30.9	8.5	
Queue Delay	0.0	0.0						0.0		0.0	0.0	
Total Delay	27.0	44.9						29.6		30.9	8.5	
LOS	C	D						C		C	A	
Approach Delay		37.9						29.6			14.6	
Approach LOS		D						C			B	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 50th (ft)	113	207						221			112	117
Queue Length 95th (ft)	183	#351						293			#213	144
Internal Link Dist (ft)		514			275			415				334
Turn Bay Length (ft)										200		
Base Capacity (vph)	602	539						1176		399	1945	
Starvation Cap Reductn	0	0						0		0	0	
Spillback Cap Reductn	0	0						0		0	0	
Storage Cap Reductn	0	0						0		0	0	
Reduced v/c Ratio	0.44	0.77						0.70		0.75	0.41	

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 36 (40%), Referenced to phase 2:NBT and 6:SBTL, Start of Green
Natural Cycle: 65
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.84
Intersection Signal Delay: 25.5 — Intersection LOS: C
Intersection Capacity Utilization 71.7% — ICU Level of Service C
Analysis Period (min) 15
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 1648: I-40 EB Off-Ramp & Sandy Ridge Road

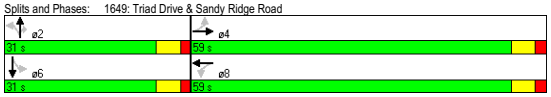


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	23	0	27	637	0	92	9	421	318	79	463	13
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		1%			1%			-2%			-1%	
Storage Length (ft)	0		0	0		0	150		0	100		0
Storage Lanes	0		0	0		0	1		1	1		0
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.928			0.983				0.850		0.996	
Flt Protected		0.977			0.958		0.950			0.950		
Satd. Flow (prot)	0	1632	0	0	1696	0	1736	1828	1553	1728	1811	0
Flt Permitted		0.711			0.713		0.154			0.162		
Satd. Flow (perm)	0	1188	0	0	1262	0	281	1828	1553	295	1811	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		45			45			45			45	
Link Distance (ft)		785			983			361			176	
Travel Time (s)		11.9			14.9			5.5			2.7	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	26	0	30	708	0	102	10	468	353	88	514	14
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	56	0	0	810	0	10	468	353	88	528	0
Turn Type	Perm			Perm			Perm		Perm	Perm		
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2		2	6		
Detector Phase	4	4		8	8		2	2	2	6	6	
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0		15.0	15.0	15.0	15.0	15.0	
Minimum Split (s)	17.0	17.0		17.0	17.0		21.0	21.0	21.0	21.0	21.0	
Total Split (s)	59.0	59.0	0.0	59.0	59.0	0.0	31.0	31.0	31.0	31.0	31.0	0.0
Total Split (%)	65.6%	65.6%	0.0%	65.6%	65.6%	0.0%	34.4%	34.4%	34.4%	34.4%	34.4%	0.0%
Maximum Green (s)	53.0	53.0		53.0	53.0		25.0	25.0	25.0	25.0	25.0	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0	2.0	2.0	2.0	
Lost Time Adjust (s)	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
Total Lost Time (s)	5.0	5.0	3.0	5.0	5.0	3.0	5.0	5.0	5.0	5.0	5.0	3.0
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Recall Mode	None	None		None	None		C-Min	C-Min	C-Min	C-Min	C-Min	
Act Effct Green (s)		54.0			54.0		26.0	26.0	26.0	26.0	26.0	
Actuated g/C Ratio		0.60			0.60		0.29	0.29	0.29	0.29	0.29	
v/c Ratio		0.08			1.07		0.12	0.89	0.79	1.04	1.01	
Control Delay		8.0			73.7		30.1	55.0	47.7	144.9	75.5	
Queue Delay		0.0			1.1		0.0	7.5	0.3	0.0	5.1	
Total Delay		8.0			74.8		30.1	62.5	48.0	144.9	80.6	
LOS		A			E		C	E	D	F	F	
Approach Delay		8.0			74.8			55.9			89.8	
Approach LOS		A			E			E			F	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 50th (ft)		12			~516		5	286	215	~54	~304	
Queue Length 95th (ft)		28			#737		m16	m#443	m#322	#149	#512	
Internal Link Dist (ft)		705			903			281			96	
Turn Bay Length (ft)							150			100		
Base Capacity (vph)		713			757		81	528	449	85	523	
Starvation Cap Reductn		0			0		0	40	5	0	0	
Spillback Cap Reductn		1			2		0	0	0	0	9	
Storage Cap Reductn		0			0		0	0	0	0	0	
Reduced v/c Ratio		0.08			1.07		0.12	0.96	0.80	1.04	1.03	

Intersection Summary
Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle: 100
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.07
Intersection Signal Delay: 70.4 Intersection LOS: E
Intersection Capacity Utilization 97.7% ICU Level of Service F
Analysis Period (min) 15
~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 1649: Triad Drive & Sandy Ridge Road

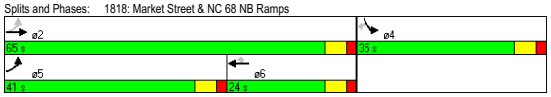


Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (vph)	262	613	321	158	72	114
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Grade (%)		-1%	0%		-2%	
Storage Length (ft)	150			325	0	250
Storage Lanes	1			1	1	1
Taper Length (ft)	25			25	25	25
Lane Util. Factor	1.00	0.95	1.00	1.00	1.00	1.00
Frt				0.850		0.850
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1728	3455	1810	1538	1736	1553
Flt Permitted	0.455				0.950	
Satd. Flow (perm)	827	3455	1810	1538	1736	1553
Right Turn on Red				No		No
Satd. Flow (RTOR)						
Link Speed (mph)		45	45		30	
Link Distance (ft)		849	543		531	
Travel Time (s)		12.9	8.2		12.1	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	291	681	357	176	80	127
Shared Lane Traffic (%)						
Lane Group Flow (vph)	291	681	357	176	80	127
Turn Type	pm+pt			Perm		Perm
Protected Phases	5	2	6		4	
Permitted Phases	2			6		4
Detector Phase	5	2	6	6	4	4
Switch Phase						
Minimum Initial (s)	6.0	15.0	15.0	15.0	7.0	7.0
Minimum Split (s)	14.0	21.0	21.0	21.0	17.0	17.0
Total Split (s)	41.0	65.0	24.0	24.0	35.0	35.0
Total Split (%)	41.0%	65.0%	24.0%	24.0%	35.0%	35.0%
Maximum Green (s)	35.0	59.0	18.0	18.0	29.0	29.0
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead		Lag	Lag		
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	C-Min	C-Min	C-Min	None	None
Act Effct Green (s)	75.5	75.5	57.3	57.3	14.5	14.5
Actuated g/C Ratio	0.76	0.76	0.57	0.57	0.14	0.14
v/c Ratio	0.39	0.26	0.34	0.20	0.32	0.56
Control Delay	2.0	1.4	14.5	13.3	40.2	48.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	2.0	1.4	14.5	13.3	40.2	48.6
LOS	A	A	B	B	D	D
Approach Delay		1.6	14.1		45.4	
Approach LOS		A	B		D	

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Queue Length 50th (ft)	1	0	108	48	46	76
Queue Length 95th (ft)	m23	m30	234	117	85	127
Internal Link Dist (ft)		769	463		451	
Turn Bay Length (ft)	150			325		250
Base Capacity (vph)	948	2607	1037	881	521	466
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.31	0.26	0.34	0.20	0.15	0.27

Intersection Summary
Area Type: Other
Cycle Length: 100
Actuated Cycle Length: 100
Offset: 94 (94%), Referenced to phase 2:EBTL and 6:WBT, Start of Green
Natural Cycle: 55
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.56
Intersection Signal Delay: 10.8 Intersection LOS: B
Intersection Capacity Utilization 49.7% ICU Level of Service A
Analysis Period (min) 15
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 1818: Market Street & NC 68 NB Ramps



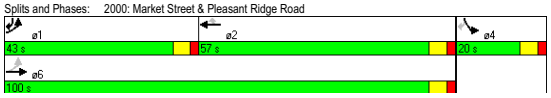
Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (vph)	320	281	456	114	96	438
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Grade (%)		-3%	3%		-1%	
Storage Length (ft)	300			325	250	0
Storage Lanes	1			1	1	1
Taper Length (ft)	25			25	25	25
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt				0.850		0.850
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1745	1837	1782	1515	1728	1546
Flt Permitted	0.330				0.950	
Satd. Flow (perm)	606	1837	1782	1515	1728	1546
Right Turn on Red				No		No
Satd. Flow (RTOR)						
Link Speed (mph)		45	45		50	
Link Distance (ft)		755	1642		401	
Travel Time (s)		11.4	24.9		5.5	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	356	312	507	127	107	487
Shared Lane Traffic (%)						
Lane Group Flow (vph)	356	312	507	127	107	487
Turn Type	pm+pt			Perm		pm+ov
Protected Phases	1	6	2		4	1
Permitted Phases	6			2		4
Detector Phase	1	6	2	2	4	1
Switch Phase						
Minimum Initial (s)	6.0	15.0	15.0	15.0	8.0	6.0
Minimum Split (s)	14.0	21.0	21.0	21.0	17.0	14.0
Total Split (s)	43.0	100.0	57.0	57.0	20.0	43.0
Total Split (%)	35.8%	83.3%	47.5%	47.5%	16.7%	35.8%
Maximum Green (s)	37.0	94.0	51.0	51.0	14.0	37.0
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead		Lag	Lag		Lead
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	C-Min	C-Min	C-Min	None	None
Act Effct Green (s)	96.9	96.9	64.9	64.9	13.1	45.1
Actuated g/C Ratio	0.81	0.81	0.54	0.54	0.11	0.38
v/c Ratio	0.48	0.21	0.53	0.16	0.57	0.84
Control Delay	1.7	0.9	22.3	16.8	62.2	46.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	1.7	0.9	22.3	16.8	62.2	46.8
LOS	A	A	C	B	E	D
Approach Delay		1.3	21.2		49.6	
Approach LOS		A	C		D	

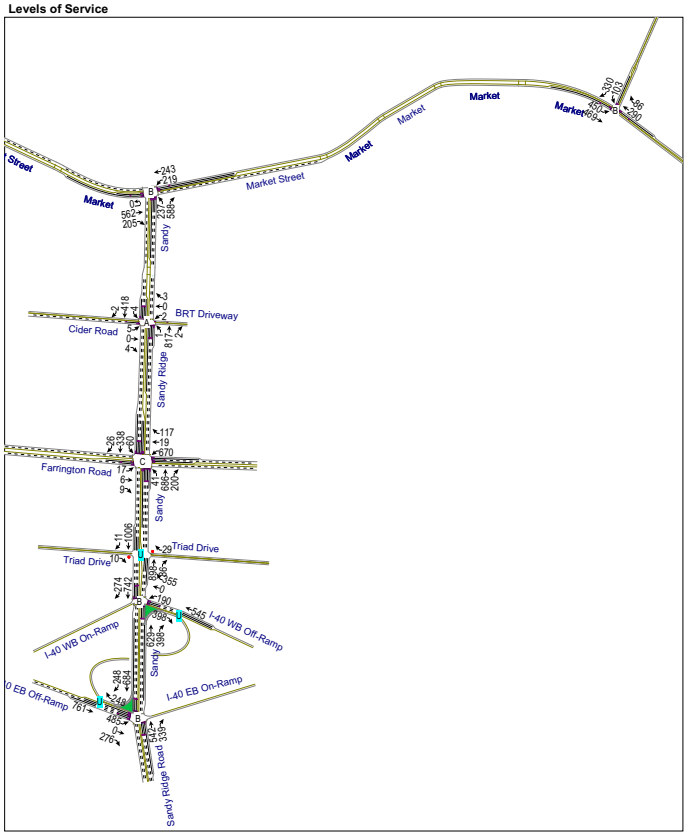
Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Queue Length 50th (ft)	2	2	232	45	80	350
Queue Length 95th (ft)	m47	m38	432	103	138	397
Internal Link Dist (ft)		675	1562		321	
Turn Bay Length (ft)	300			325	250	
Base Capacity (vph)	850	1487	965	820	219	723
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.42	0.21	0.53	0.15	0.49	0.67

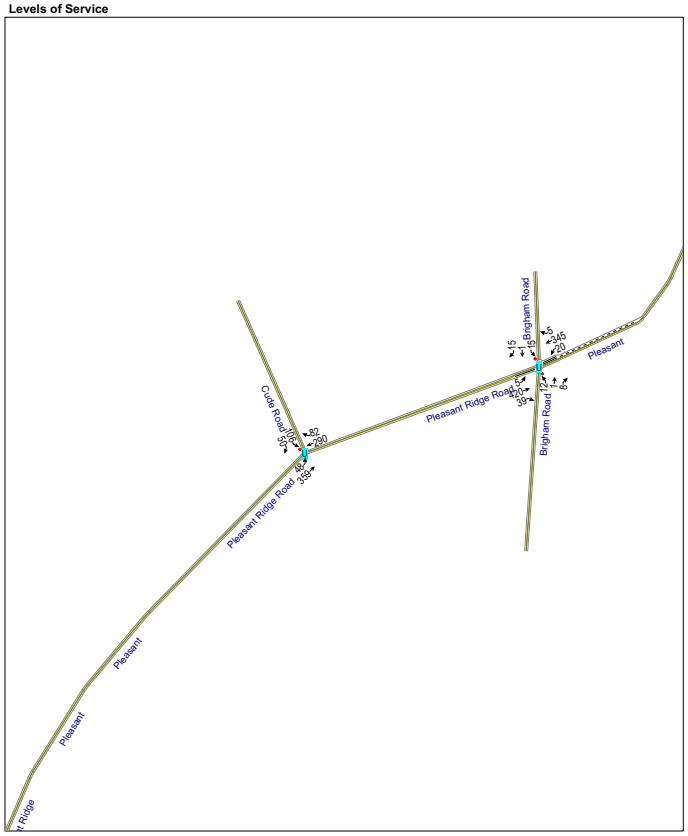
Intersection Summary

Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 100 (83%), Referenced to phase 2:WBT and 6:EBTL, Start of Green
Natural Cycle: 60
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.84
Intersection Signal Delay: 23.1 — Intersection LOS: C
Intersection Capacity Utilization 60.9% — ICU Level of Service B
Analysis Period (min) 15
m Volume for 95th percentile queue is metered by upstream signal.

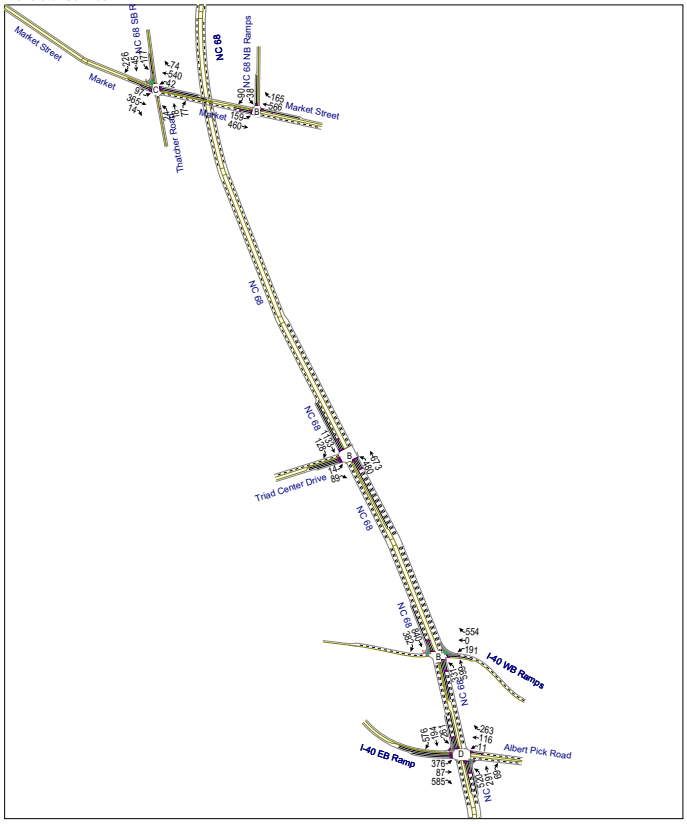
Splits and Phases: 2000: Market Street & Pleasant Ridge Road







Sandy Ridge Road Feasibility Study **Base Year (2009) Build Alt. #1 Loops - AM**
Levels of Service



M/A/B

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Sandy Ridge Road Feasibility Study Base Year (2009) Build Alt. #1 Loops - AM
1: Cider Road & Sandy Ridge Road

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	5	0	4	2	0	3	1	817	2	4	418	2
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	100		0	100		0	500		150	150		150
Storage Lanes	0		1	0		0	1		1	1		1
Taper Length (ft)	25		25	25		25	25		25	25		50
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.91	1.00	1.00	0.91	1.00
Frt			0.850		0.919				0.850			0.850
Flt Protected		0.950			0.980		0.950			0.950		
Satd. Flow (prot)	0	1719	1538	0	1630	0	1719	4940	1538	1719	4940	1538
Flt Permitted					0.867		0.950			0.302		
Satd. Flow (perm)	0	1810	1538	0	1442	0	1719	4940	1538	546	4940	1538
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		30			30			35			35	
Link Distance (ft)		909			308			1068			391	
Travel Time (s)		20.7			7.0			20.8			7.6	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	6	0	4	2	0	3	1	908	2	4	464	2
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	6	4	0	5	0	1	908	2	4	464	2
Turn Type	Perm		pm+ov	Perm			Prot		Perm	Perm		Perm
Protected Phases		4	5		8		5	2			6	
Permitted Phases	4		4	8					2	6		6
Detector Phase	4	4	5	8	8		5	2	2	6	6	6
Switch Phase												
Minimum Initial (s)	7.0	7.0	7.0	7.0	7.0		7.0	12.0	12.0	12.0	12.0	12.0
Minimum Split (s)	17.0	17.0	14.0	17.0	17.0		14.0	19.0	19.0	19.0	19.0	19.0
Total Split (s)	23.0	23.0	20.0	23.0	23.0	0.0	20.0	67.0	67.0	47.0	47.0	47.0
Total Split (%)	25.6%	25.6%	22.2%	25.6%	25.6%	0.0%	22.2%	74.4%	74.4%	52.2%	52.2%	52.2%
Maximum Green (s)	16.0	16.0	13.0	16.0	16.0		13.0	60.0	60.0	40.0	40.0	40.0
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0		2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	2.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag			Lead				Lead			Lag	Lag	Lag
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	None	None		None	C-Min	C-Min	C-Min	C-Min	C-Min
Act Effct Green (s)		9.0	11.8		9.0		9.0	86.2	86.2	83.4	83.4	83.4
Actuated g/C Ratio		0.10	0.13		0.10		0.10	0.96	0.96	0.93	0.93	0.93
v/c Ratio		0.03	0.02		0.03		0.01	0.19	0.00	0.01	0.10	0.00
Control Delay		37.2	30.2		37.2		41.0	0.2	0.0	3.5	1.8	3.5
Queue Delay		0.0	0.0		0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay		37.2	30.2		37.2		41.0	0.2	0.0	3.5	1.8	3.5
LOS		D	C		D		D	A	A	A	A	A
Approach Delay		34.4			37.3			0.2			1.9	
Approach LOS		C			D			A			A	
Queue Length 50th (ft)		3	2		3		0	0	0	0	0	0

M/A/B Synchro 7 - Report
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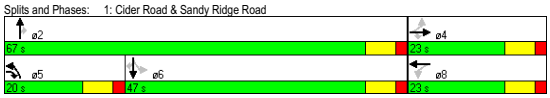
Sandy Ridge Road Feasibility Study Base Year (2009) Build Alt. #1 Loops - AM
1: Cider Road & Sandy Ridge Road

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 95th (ft)		15	10		13		m1	5	m0	m3	40	m1
Internal Link Dist (ft)		829			228			988			311	
Turn Bay Length (ft)							500		150	150		150
Base Capacity (vph)		362	304		288		287	4730	1473	506	4577	1425
Starvation Cap Reductn		0	0		0		0	0	0	0	0	0
Spillback Cap Reductn		0	0		0		0	0	0	0	0	0
Storage Cap Reductn		0	0		0		0	0	0	0	0	0
Reduced v/c Ratio		0.02	0.01		0.02		0.00	0.19	0.00	0.01	0.10	0.00

Intersection Summary
Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 10 (11%), Referenced to phase 2:NBT and 6:SBTL, Start of Green
Natural Cycle: 50
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.19
Intersection Signal Delay: 1.1 Intersection LOS: A
Intersection Capacity Utilization 38.3% ICU Level of Service A
Analysis Period (min) 15
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 1: Cider Road & Sandy Ridge Road



M/A/B Synchro 7 - Report
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Sandy Ridge Road Feasibility Study Base Year (2009) Build Alt. #1 Loops - AM
2: Farrington Road & Sandy Ridge Road

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	17	6	9	670	19	117	41	686	200	60	338	26
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	200		0	300		350	550		150	250		300
Storage Lanes	1		1	1		1	1		1	2		1
Taper Length (ft)	100		25	25		25	175		25	100		100
Lane Util. Factor	1.00	1.00	1.00	0.97	1.00	1.00	0.97	0.91	1.00	0.97	0.91	1.00
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1547	1629	1384	3001	1629	1384	3001	4446	1384	3001	4446	1384
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1547	1629	1384	3001	1629	1384	3001	4446	1384	3001	4446	1384
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		30			30			35			35	
Link Distance (ft)		1686			875			711			1068	
Travel Time (s)		38.3			19.9			13.9			20.8	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	19	7	10	744	21	130	46	762	222	67	376	29
Shared Lane Traffic (%)												
Lane Group Flow (vph)	19	7	10	744	21	130	46	762	222	67	376	29
Turn Type	Prot		pm+ov	Prot		pm+ov	Prot		pm+ov	Prot		pm+ov
Protected Phases	7	4	5	3	8	1	5	2	3	1	6	7
Permitted Phases			4			8			2			6
Detector Phase	7	4	5	3	8	1	5	2	3	1	6	7
Switch Phase												
Minimum Initial (s)	7.0	7.0	7.0	7.0	7.0	7.0	7.0	15.0	7.0	7.0	15.0	7.0
Minimum Split (s)	14.0	17.0	14.0	14.0	17.0	14.0	14.0	22.0	14.0	14.0	22.0	14.0
Total Split (s)	14.0	17.0	14.0	33.0	36.0	14.0	14.0	26.0	33.0	14.0	26.0	14.0
Total Split (%)	15.6%	18.9%	15.6%	36.7%	40.0%	15.6%	15.6%	28.9%	36.7%	15.6%	28.9%	15.6%
Maximum Green (s)	7.0	10.0	7.0	26.0	29.0	7.0	7.0	19.0	26.0	7.0	19.0	7.0
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead	Lag	Lead	Lead	Lag	Lead	Lead	Lag	Lead	Lead	Lag	Lead
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	None	None	None	None	C-Max	None	None	C-Max	None
Act Effct Green (s)	12.8	9.0	12.2	26.9	20.3	33.7	9.4	34.1	66.0	11.2	41.5	59.3
Actuated g/C Ratio	0.14	0.10	0.14	0.30	0.23	0.37	0.10	0.38	0.73	0.12	0.46	0.66
v/c Ratio	0.09	0.04	0.05	0.83	0.06	0.25	0.15	0.45	0.22	0.18	0.18	0.03
Control Delay	35.5	37.3	30.6	38.4	28.2	21.5	38.3	25.0	6.7	44.6	10.2	7.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	35.5	37.3	30.6	38.4	28.2	21.5	38.3	25.0	6.7	44.6	10.2	7.7
LOS	D	D	C	D	C	C	D	C	A	D	B	A
Approach Delay		34.5			35.7			21.7			15.0	
Approach LOS		C			D			C			B	
Queue Length 50th (ft)	8	4	5	198	11	67	13	155	18	19	24	1

M/A/B Synchro 7 - Report
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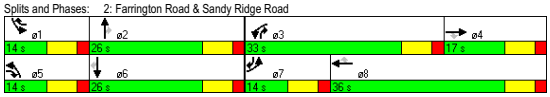
2: Farrington Road & Sandy Ridge Road

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 95th (ft)	31	17	17	268	25	74	0	207	146	40	57	22
Internal Link Dist (ft)		1606			795			631			988	
Turn Bay Length (ft)	200			300		350	550		150	250		300
Base Capacity (vph)	220	217	187	934	561	518	313	1686	1032	372	2050	912
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.09	0.03	0.05	0.80	0.04	0.25	0.15	0.45	0.22	0.18	0.18	0.03

Intersection Summary

Area Type: CBD
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 24 (27%), Referenced to phase 2:NBT and 6:SBT, Start of Green
Natural Cycle: 75
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.83
Intersection Signal Delay: 25.7 — Intersection LOS: C
Intersection Capacity Utilization 61.0% — ICU Level of Service B
Analysis Period (min) 15

Splits and Phases: 2: Farrington Road & Sandy Ridge Road



3: Pleasant Ridge Road & Cude Road

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (veh/h)	48	359	290	82	106	50
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	53	399	322	91	118	56
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	413				873	368
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	413				873	368
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	95				61	92
cM capacity (veh/h)	1130				302	671

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	452	413	173
Volume Left	53	0	118
Volume Right	0	91	56
cSH	1130	1700	366
Volume to Capacity	0.05	0.24	0.47
Queue Length 95th (ft)	4	0	61
Control Delay (s)	1.4	0.0	23.3
Lane LOS	A		C
Approach Delay (s)	1.4	0.0	23.3
Approach LOS			C

Intersection Summary

Average Delay 4.5
Intersection Capacity Utilization 60.7% — ICU Level of Service B
Analysis Period (min) 15

4: Pleasant Ridge Road & Brigham Road

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	5	420	39	20	345	5	12	1	8	15	1	15
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	6	467	43	22	383	6	13	1	9	17	1	17
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			TWLTL							
Median storage veh)					2							
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	389			510			944	933	488	915	949	383
vC1, stage 1 conf vol							499	499		428	428	
vC2, stage 2 conf vol							445	433		487	521	
vCu, unblocked vol	389			510			944	933	488	915	949	383
tC, single (s)	4.1			4.1			7.2	6.6	6.2	7.2	6.6	6.2
tC, 2 stage (s)							6.1	5.6		6.1	5.6	
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			98			97	100	98	96	100	97
cM capacity (veh/h)	1153			1040			431	439	573	436	426	658

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	WB 3	NB 1	SB 1
Volume Total	6	510	22	383	6	23	34
Volume Left	6	0	22	0	0	13	17
Volume Right	0	43	0	0	6	9	17
cSH	1153	1700	1040	1700	1700	477	521
Volume to Capacity	0.00	0.30	0.02	0.23	0.00	0.05	0.07
Queue Length 95th (ft)	0	0	2	0	0	4	5
Control Delay (s)	8.1	0.0	8.5	0.0	0.0	12.9	12.4
Lane LOS	A		A			B	B
Approach Delay (s)	0.1		0.5			12.9	12.4
Approach LOS						B	B

Intersection Summary

Average Delay 1.0
Intersection Capacity Utilization 34.5% — ICU Level of Service A
Analysis Period (min) 15

251: I-40 EB Ramp & NC 68

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	376	87	585	0	116	263	520	291	69	261	194	576
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		-2%			2%			-1%			1%	
Storage Length (ft)	438		325	0		0	250		275	300		275
Storage Lanes	2		1	0		1	1		1	1		1
Taper Length (ft)	100		25	25		25	25		25	25		25
Lane Util. Factor	0.97	1.00	1.00	1.00	1.00	1.00	1.00	0.91	1.00	1.00	0.91	1.00
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950						0.950			0.950		
Satd. Flow (prot)	3368	1828	1553	0	1791	1523	1728	4965	1546	1710	4915	1530
Flt Permitted	0.950						0.950			0.950		
Satd. Flow (perm)	3368	1828	1553	0	1791	1523	1728	4965	1546	1710	4915	1530
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		35			35			55			55	
Link Distance (ft)		867			502			480			821	
Travel Time (s)		16.9			9.8			6.0			10.2	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	418	97	650	0	129	292	578	323	77	290	216	640
Shared Lane Traffic (%)												
Lane Group Flow (vph)	418	97	650	0	129	292	578	323	77	290	216	640
Turn Type	Prot		pm+ov			pm+ov	Prot		Perm	Prot		pm+ov
Protected Phases	7	4	5		8	1	5	2		1	6	7
Permitted Phases			4			8			2			6
Detector Phase	7	4	5		8	1	5	2	2	1	6	7
Switch Phase												
Minimum Initial (s)	7.0	7.0	7.0		7.0	7.0	7.0	14.0	14.0	7.0	14.0	7.0
Minimum Split (s)	14.0	17.0	14.0		17.0	14.0	14.0	21.0	21.0	14.0	21.0	14.0
Total Split (s)	29.0	46.0	42.0	0.0	17.0	34.0	42.0	30.0	30.0	34.0	22.0	29.0
Total Split (%)	26.4%	41.8%	38.2%	0.0%	15.5%	30.9%	38.2%	27.3%	27.3%	30.9%	20.0%	26.4%
Maximum Green (s)	22.0	39.0	35.0		10.0	27.0	35.0	23.0	23.0	27.0	15.0	22.0
Yellow Time (s)	5.0	5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0		2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	2.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead		Lead		Lag	Lead	Lead	Lag	Lag	Lead	Lag	Lead
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None		None	None	None	C-Min	C-Min	None	C-Min	None
Act Effct Green (s)	25.0	41.7	84.0		11.7	41.5	37.3	28.5	28.5	24.8	16.0	46.0
Actuated g/C Ratio	0.23	0.38	0.76		0.11	0.38	0.34	0.26	0.26	0.23	0.15	0.42
v/c Ratio	0.55	0.14	0.55		0.68	0.51	0.99	0.25	0.19	0.75	0.30	1.00
Control Delay	40.6	23.0	7.4		65.8	29.1	71.2	34.1	35.5	53.5	34.4	66.9
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	40.6	23.0	7.4		65.8	29.1	71.2	34.1	35.5	53.5	34.4	66.9
LOS	D	C	A		E	C	E	C	D	D	C	E
Approach Delay		20.6			40.4			56.1			57.4	
Approach LOS		C			D			E			E	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 50th (ft)	135	44	156		89	154	404	67	43	110	53	~485
Queue Length 95th (ft)	185	81	230		#168	225	#638	98	88	308	43	#707
Internal Link Dist (ft)		787			422			400			741	
Turn Bay Length (ft)	438		325				250		275	300		275
Base Capacity (vph)	765	695	1186		195	633	586	1302	405	451	760	640
Starvation Cap Reductn	0	0	0		0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0		0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0		0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.55	0.14	0.55		0.66	0.46	0.99	0.25	0.19	0.64	0.28	1.00

Intersection Summary

Area Type: Other
Cycle Length: 110
Actuated Cycle Length: 110
Offset: 36 (33%), Referenced to phase 2:NBT and 6:SBT, Start of Green
Natural Cycle: 100
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.00
Intersection Signal Delay: 43.6 — Intersection LOS: D
Intersection Capacity Utilization 83.1% — ICU Level of Service E
Analysis Period (min) 15

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 251: I-40 EB Ramp & NC 68

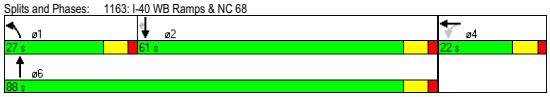
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	0	0	191	0	554	331	599	0	0	840	382
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		0%			-2%			0%			-1%	
Storage Length (ft)	0		0	200		0	325		0	0		400
Storage Lanes	0		0	1		1	2		0	0		1
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	1.00	1.00	1.00	0.95	0.95	1.00	0.97	0.91	1.00	1.00	0.91	1.00
Frt						0.850						0.850
Flt Protected				0.950	0.950		0.950					
Satd. Flow (prot)	0	0	0	1649	1649	1553	3335	4940	0	0	4965	1546
Flt Permitted				0.950	0.950		0.950					
Satd. Flow (perm)	0	0	0	1649	1649	1553	3335	4940	0	0	4965	1546
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		30			35			55			55	
Link Distance (ft)		712			820			821			1007	
Travel Time (s)		16.2			16.0			10.2			12.5	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	0	0	0	212	0	616	368	666	0	0	933	424
Shared Lane Traffic (%)				50%								
Lane Group Flow (vph)	0	0	0	106	106	616	368	666	0	0	933	424
Turn Type				Perm		Free	Prot					Perm
Protected Phases					4		1	6			2	
Permitted Phases				4		Free						2
Detector Phase				4	4		1	6			2	2
Switch Phase												
Minimum Initial (s)				7.0	7.0		7.0	14.0			14.0	14.0
Minimum Split (s)				17.0	17.0		14.0	21.0			21.0	21.0
Total Split (s)	0.0	0.0	0.0	22.0	22.0	0.0	27.0	88.0	0.0	0.0	61.0	61.0
Total Split (%)	0.0%	0.0%	0.0%	20.0%	20.0%	0.0%	24.5%	80.0%	0.0%	0.0%	55.5%	55.5%
Maximum Green (s)				15.0	15.0		20.0	81.0			54.0	54.0
Yellow Time (s)				5.0	5.0		5.0	5.0			5.0	5.0
All-Red Time (s)				2.0	2.0		2.0	2.0			2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	2.0	2.0	2.0	5.0	5.0	2.0	5.0	5.0	2.0	2.0	5.0	5.0
Lead/Lag							Lead				Lag	Lag
Lead-Lag Optimize?												
Vehicle Extension (s)				3.0	3.0		3.0	3.0			3.0	3.0
Recall Mode				None	None		None	C-Min			C-Min	C-Min
Act Effct Green (s)				14.3	14.3	110.0	18.9	85.7			61.8	61.8
Actuated g/C Ratio				0.13	0.13	1.00	0.17	0.78			0.56	0.56
v/c Ratio				0.50	0.50	0.40	0.64	0.17			0.33	0.49
Control Delay				51.6	51.6	0.8	43.0	4.1			4.1	7.6
Queue Delay				0.0	0.0	0.0	0.0	0.0			0.0	0.0
Total Delay				51.6	51.6	0.8	43.0	4.1			4.1	7.6
LOS				D	D	A	D	A			A	A
Approach Delay					13.8			18.0			5.2	
Approach LOS					B			B			A	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 50th (ft)				74	74	0	139	43			19	24
Queue Length 95th (ft)				127	127	0	174	71			38	337
Internal Link Dist (ft)		632			740			741			927	
Turn Bay Length (ft)				200			325					400
Base Capacity (vph)				262	262	1553	667	3869			2808	874
Starvation Cap Reductn				0	0	0	0	0			0	0
Spillback Cap Reductn				0	0	0	0	0			0	0
Storage Cap Reductn				0	0	0	0	0			0	0
Reduced v/c Ratio				0.40	0.40	0.40	0.55	0.17			0.33	0.49

Intersection Summary

Area Type: Other
Cycle Length: 110
Actuated Cycle Length: 110
Offset: 20 (18%), Referenced to phase 2:SBT and 6:NBT, Start of Green
Natural Cycle: 60
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.64
Intersection Signal Delay: 11.5 — Intersection LOS: B
Intersection Capacity Utilization 51.4% — ICU Level of Service A
Analysis Period (min) 15

Splits and Phases: 1163: I-40 WB Ramps & NC 68



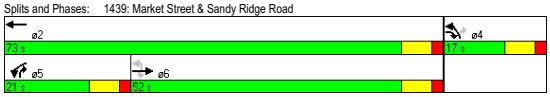
Lane Group	EBU	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations							
Volume (vph)	0	562	205	219	243	237	588
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900
Grade (%)		1%			-1%	0%	
Storage Length (ft)	200		600	600		450	0
Storage Lanes	1		1	2		1	1
Taper Length (ft)	25		25	25		25	25
Lane Util. Factor	1.00	1.00	1.00	0.97	1.00	0.97	0.88
Frt			0.850				0.850
Flt Protected				0.950		0.950	
Satd. Flow (prot)	1800	1800	1530	3352	1819	3335	2707
Flt Permitted				0.950		0.950	
Satd. Flow (perm)	1800	1800	1530	3352	1819	3335	2707
Right Turn on Red			No				No
Satd. Flow (RTOR)							
Link Speed (mph)		45			45	35	
Link Distance (ft)		752			1348	610	
Travel Time (s)		11.4			20.4	11.9	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	0	624	228	243	270	263	653
Shared Lane Traffic (%)							
Lane Group Flow (vph)	0	624	228	243	270	263	653
Turn Type	Perm		pm+ov	Prot			pm+ov
Protected Phases		6	4	5	2	4	5
Permitted Phases	6		6				4
Detector Phase	6	6	4	5	2	4	5
Switch Phase							
Minimum Initial (s)	15.0	15.0	7.0	7.0	15.0	7.0	7.0
Minimum Split (s)	22.0	22.0	17.0	14.0	22.0	17.0	14.0
Total Split (s)	52.0	52.0	17.0	21.0	73.0	17.0	21.0
Total Split (%)	57.8%	57.8%	18.9%	23.3%	81.1%	18.9%	23.3%
Maximum Green (s)	45.0	45.0	10.0	14.0	66.0	10.0	14.0
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lag	Lag		Lead			Lead
Lead-Lag Optimize?							
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	C-Min	C-Min	None	None	C-Min	None	None
Act Effct Green (s)		48.3	66.3	13.7	67.0	13.0	31.7
Actuated g/C Ratio		0.54	0.74	0.15	0.74	0.14	0.35
v/c Ratio		0.65	0.20	0.48	0.20	0.55	0.69
Control Delay		19.4	4.5	34.2	4.0	30.5	13.5
Queue Delay		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay		19.4	4.5	34.2	4.0	30.5	13.5
LOS		B	A	C	A	C	B
Approach Delay		15.4			18.3	18.4	
Approach LOS		B			B	B	

Lane Group	EBU	EBT	EBR	WBL	WBT	NBL	NBR
Queue Length 50th (ft)		247	33	71	60	27	38
Queue Length 95th (ft)		367	63	108	65	78	36
Internal Link Dist (ft)		672			1268	530	
Turn Bay Length (ft)			600	600		450	
Base Capacity (vph)		979	1131	596	1379	489	1022
Starvation Cap Reductn		0	0	0	0	0	0
Spillback Cap Reductn		0	0	0	0	0	0
Storage Cap Reductn		0	0	0	0	0	0
Reduced v/c Ratio		0.64	0.20	0.41	0.20	0.54	0.64

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 8 (9%), Referenced to phase 2:WBT and 6:EBTU, Start of Green
Natural Cycle: 60
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.69
Intersection Signal Delay: 17.2 — Intersection LOS: B
Intersection Capacity Utilization 58.5% — ICU Level of Service B
Analysis Period (min) 15

Splits and Phases: 1439: Market Street & Sandy Ridge Road



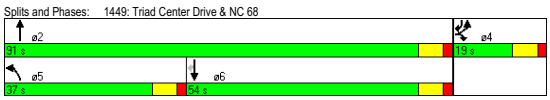
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	14	89	480	673	1133	128
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Grade (%)	-3%			-2%	-1%	
Storage Length (ft)	263	200	625			438
Storage Lanes	2	1	1			2
Taper Length (ft)	25	25	25			25
Lane Util. Factor	0.97	0.88	0.97	0.91	0.91	1.00
Frt		0.850				0.850
Flt Protected	0.950		0.950			
Satd. Flow (prot)	3385	2748	3368	4989	4965	1546
Flt Permitted	0.950		0.950			
Satd. Flow (perm)	3385	2748	3368	4989	4965	1546
Right Turn on Red		No				No
Satd. Flow (RTOR)						
Link Speed (mph)	30			55	55	
Link Distance (ft)	638			799	1245	
Travel Time (s)	14.5			9.9	15.4	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	16	99	533	748	1259	142
Shared Lane Traffic (%)						
Lane Group Flow (vph)	16	99	533	748	1259	142
Turn Type		Prot	Prot			pm+ov
Protected Phases	4	4	5	2	6	4
Permitted Phases						6
Detector Phase	4	4	5	2	6	4
Switch Phase						
Minimum Initial (s)	7.0	7.0	7.0	14.0	14.0	7.0
Minimum Split (s)	17.0	17.0	14.0	21.0	21.0	17.0
Total Split (s)	19.0	19.0	37.0	91.0	54.0	19.0
Total Split (%)	17.3%	17.3%	33.6%	82.7%	49.1%	17.3%
Maximum Green (s)	12.0	12.0	30.0	84.0	47.0	12.0
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag			Lead		Lag	
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	C-Min	C-Min	None
Act Effct Green (s)	11.4	11.4	24.6	88.6	59.0	75.4
Actuated g/C Ratio	0.10	0.10	0.22	0.81	0.54	0.69
v/c Ratio	0.05	0.35	0.71	0.19	0.47	0.13
Control Delay	43.4	48.8	43.2	1.8	17.4	7.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	43.4	48.8	43.2	1.8	17.4	7.0
LOS	D	D	D	A	B	A
Approach Delay	48.0			19.0	16.4	
Approach LOS	D			B	B	

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Queue Length 50th (ft)	5	37	174	20	193	31
Queue Length 95th (ft)	15	65	223	39	271	63
Internal Link Dist (ft)	558			719	1165	
Turn Bay Length (ft)	263	200	625			438
Base Capacity (vph)	432	350	980	4019	2662	1096
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.04	0.28	0.54	0.19	0.47	0.13

Intersection Summary

Area Type: Other
Cycle Length: 110
Actuated Cycle Length: 110
Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green
Natural Cycle: 60
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.71
Intersection Signal Delay: 18.9 — Intersection LOS: B
Intersection Capacity Utilization 53.9% — ICU Level of Service A
Analysis Period (min) 15

Splits and Phases: 1449: Triad Center Drive & NC 68



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	97	365	14	42	540	74	24	18	77	177	45	226
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	200		75	375		300	400		0	0		250
Storage Lanes	1		1	1		1	0		0	0		1
Taper Length (ft)	25		25	75		25	25		25	25		25
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850			0.850		0.913				0.850
Flt Protected	0.950			0.950				0.990			0.962	
Satd. Flow (prot)	1719	1810	1538	1719	1810	1538	0	1636	0	0	1741	1538
Flt Permitted	0.950			0.950				0.990			0.962	
Satd. Flow (perm)	1719	1810	1538	1719	1810	1538	0	1636	0	0	1741	1538
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		45			45			55			35	
Link Distance (ft)		630			849			475			493	
Travel Time (s)		9.5			12.9			5.9			9.6	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	108	406	16	47	600	82	27	20	86	197	50	251
Shared Lane Traffic (%)												
Lane Group Flow (vph)	108	406	16	47	600	82	0	133	0	0	247	251
Turn Type	Prot		pm+ov	Prot		pm+ov	Split			Split		pm+ov
Protected Phases	5	2	8	1	6	4	8	8		4	4	5
Permitted Phases			2			6						4
Detector Phase	5	2	8	1	6	4	8	8		4	4	5
Switch Phase												
Minimum Initial (s)	7.0	12.0	7.0	7.0	12.0	7.0	7.0	7.0		7.0	7.0	7.0
Minimum Split (s)	14.0	19.0	17.0	14.0	19.0	17.0	17.0	17.0		17.0	17.0	14.0
Total Split (s)	14.0	39.0	17.0	14.0	39.0	20.0	17.0	17.0	0.0	20.0	20.0	14.0
Total Split (%)	15.6%	43.3%	18.9%	15.6%	43.3%	22.2%	18.9%	18.9%	0.0%	22.2%	22.2%	15.6%
Maximum Green (s)	7.0	32.0	10.0	7.0	32.0	13.0	10.0	10.0		13.0	13.0	7.0
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0		5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0		2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	2.0	5.0	5.0	5.0
Lead/Lag	Lead	Lag		Lead	Lag							Lead
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0
Recall Mode	None	C-Min	Min	None	C-Max	None	Min	Min		None	None	None
Act Effct Green (s)	9.0	40.1	53.6	9.0	34.4	54.4		11.5			15.0	24.0
Actuated g/C Ratio	0.10	0.45	0.60	0.10	0.38	0.60		0.13			0.17	0.27
v/c Ratio	0.62	0.50	0.02	0.27	0.87	0.09		0.63			0.85	0.61
Control Delay	51.1	24.3	6.1	50.8	32.4	3.8		51.7			63.9	23.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0		0.0			0.0	0.0
Total Delay	51.1	24.3	6.1	50.8	32.4	3.8		51.7			63.9	23.2
LOS	D	C	A	D	C	A		D			E	C
Approach Delay		29.2			30.4			51.7			43.4	
Approach LOS		C			C			D			D	
Queue Length 50th (ft)	54	205	2	27	324	5		73			138	79

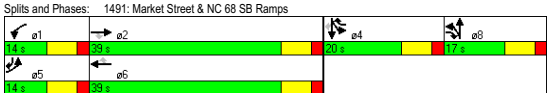
1491: Market Street & NC 68 SB Ramps

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 95th (ft)	#127	321	m6	m49	#495	m12		#142			#269	131
Internal Link Dist (ft)		550			769			395			413	
Turn Bay Length (ft)	200		75	375		300						250
Base Capacity (vph)	173	806	907	172	692	930		218			290	411
Starvation Cap Reductn	0	0	0	0	0	0		0			0	0
Spillback Cap Reductn	0	0	0	0	0	0		0			0	0
Storage Cap Reductn	0	0	0	0	0	0		0			0	0
Reduced v/c Ratio	0.62	0.50	0.02	0.27	0.87	0.09		0.61			0.85	0.61

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 38 (42%), Referenced to phase 2:EBT and 6:WBT, Start of Green
Natural Cycle: 80
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.87
Intersection Signal Delay: 35.0 — Intersection LOS: C
Intersection Capacity Utilization 65.6% — ICU Level of Service C
Analysis Period (min) 15
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 1491: Market Street & NC 68 SB Ramps



1601: I-40 WB On-Ramp & Sandy Ridge Road

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	0	0	190	0	355	0	629	398	0	742	274
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		0%			2%			-4%			4%	
Storage Length (ft)	0		0	0		0	0		750	0		0
Storage Lanes	0		0	1		1	1		1	1		1
Taper Length (ft)	25		25	25		25	100		100	25		25
Lane Util. Factor	1.00	1.00	1.00	0.95	0.91	0.95	1.00	0.91	1.00	1.00	0.91	1.00
Frt					0.865	0.850			0.850			0.850
Flt Protected				0.950	0.995							
Satd. Flow (prot)	0	0	0	1617	1403	1447	0	5039	1569	0	4841	1507
Flt Permitted				0.950	0.995							
Satd. Flow (perm)	0	0	0	1617	1403	1447	0	5039	1569	0	4841	1507
Right Turn on Red			No			No			No			Yes
Satd. Flow (RTOR)												304
Link Speed (mph)		30			35			45			45	
Link Distance (ft)		897			323			890			361	
Travel Time (s)		20.4			6.3			13.5			5.5	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	0	0	0	211	0	394	0	699	442	0	824	304
Shared Lane Traffic (%)				10%		48%						
Lane Group Flow (vph)	0	0	0	190	210	205	0	699	442	0	824	304
Turn Type				Perm		Perm			Free			Perm
Protected Phases					8			2			6	
Permitted Phases				8		8			Free			6
Detector Phase				8	8	8		2			6	6
Switch Phase												
Minimum Initial (s)				7.0	7.0	7.0		15.0			15.0	15.0
Minimum Split (s)				17.0	17.0	17.0		22.0			22.0	22.0
Total Split (s)	0.0	0.0	0.0	44.0	44.0	44.0	0.0	46.0	0.0	0.0	46.0	46.0
Total Split (%)	0.0%	0.0%	0.0%	48.9%	48.9%	48.9%	0.0%	51.1%	0.0%	0.0%	51.1%	51.1%
Maximum Green (s)				37.0	37.0	37.0		39.0			39.0	39.0
Yellow Time (s)				5.0	5.0	5.0		5.0			5.0	5.0
All-Red Time (s)				2.0	2.0	2.0		2.0			2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	2.0	2.0	2.0	5.0	5.0	5.0	2.0	5.0	2.0	2.0	5.0	5.0
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)				3.0	3.0	3.0		3.0			3.0	3.0
Recall Mode				None	None	None		C-Min			C-Min	C-Min
Act Effct Green (s)				22.0	22.0	22.0		58.0	90.0		58.0	58.0
Actuated g/C Ratio				0.24	0.24	0.24		0.64	1.00		0.64	0.64
v/c Ratio				0.48	0.61	0.58		0.22	0.28		0.26	0.28
Control Delay				31.8	36.9	35.4		3.0	2.2		11.0	4.3
Queue Delay				0.0	0.0	0.0		0.0	0.0		0.0	0.0
Total Delay				31.8	36.9	35.4		3.0	2.2		11.0	4.3
LOS				C	D	D		A	A		B	A
Approach Delay					34.8			2.7			9.2	
Approach LOS					C			A			A	

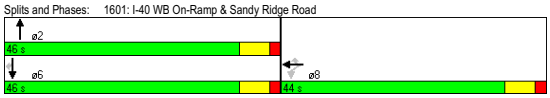
1601: I-40 WB On-Ramp & Sandy Ridge Road

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 50th (ft)				97	117	108		11	0		80	34
Queue Length 95th (ft)				143	171	158		40	118		62	m31
Internal Link Dist (ft)		817			243			810			281	
Turn Bay Length (ft)									750			
Base Capacity (vph)				701	608	627		3250	1569		3122	1080
Starvation Cap Reductn				0	0	0		0	0		0	0
Spillback Cap Reductn				0	0	0		0	0		0	0
Storage Cap Reductn				0	0	0		0	0		0	0
Reduced v/c Ratio				0.27	0.35	0.33		0.22	0.28		0.26	0.28

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 56 (62%), Referenced to phase 2:NBT and 6:SBT, Start of Green
Natural Cycle: 40
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.61
Intersection Signal Delay: 12.0 — Intersection LOS: B
Intersection Capacity Utilization 35.5% — ICU Level of Service A
Analysis Period (min) 15
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 1601: I-40 WB On-Ramp & Sandy Ridge Road



1648: I-40 EB Off-Ramp & Sandy Ridge Road

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	485	0	276	0	0	0	0	542	339	0	684	248
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		3%			0%			4%			0%	
Storage Length (ft)	250		0	0		0	0		400	0		750
Storage Lanes	1		1	0		0	0		1	0		1
Taper Length (ft)	25		25	25		25	25		25	25		100
Lane Util. Factor	0.94	0.95	0.95	1.00	1.00	1.00	1.00	0.91	1.00	1.00	0.91	1.00
Frt		0.850	0.850						0.850			0.850
Flt Protected	0.950											
Satd. Flow (prot)	4775	1439	1439	0	0	0	0	4841	1507	0	4940	1538
Flt Permitted	0.950											
Satd. Flow (perm)	4775	1439	1439	0	0	0	0	4841	1507	0	4940	1538
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		35			30			45			35	
Link Distance (ft)		321			929			495			890	
Travel Time (s)		6.3			21.1			7.5			17.3	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	539	0	307	0	0	0	0	602	377	0	760	276
Shared Lane Traffic (%)			50%									
Lane Group Flow (vph)	539	154	153	0	0	0	0	602	377	0	760	276
Turn Type	Perm		Perm						Perm			Free
Protected Phases		4						2			6	
Permitted Phases	4		4						2			Free
Detector Phase	4	4	4					2	2		6	
Switch Phase												
Minimum Initial (s)	7.0	7.0	7.0					7.0	7.0		7.0	
Minimum Split (s)	17.0	17.0	17.0					17.0	17.0		17.0	
Total Split (s)	33.0	33.0	33.0	0.0	0.0	0.0	0.0	57.0	57.0	0.0	57.0	0.0
Total Split (%)	36.7%	36.7%	36.7%	0.0%	0.0%	0.0%	0.0%	63.3%	63.3%	0.0%	63.3%	0.0%
Maximum Green (s)	26.0	26.0	26.0					50.0	50.0		50.0	
Yellow Time (s)	5.0	5.0	5.0					5.0	5.0		5.0	
All-Red Time (s)	2.0	2.0	2.0					2.0	2.0		2.0	
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	2.0	2.0	2.0	2.0	5.0	5.0	2.0	5.0	2.0
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0					3.0	3.0		3.0	
Recall Mode	None	None	None					C-Min	C-Min		C-Min	
Act Effct Green (s)	20.3	20.3	20.3					59.7	59.7		59.7	90.0
Actuated g/C Ratio	0.23	0.23	0.23					0.66	0.66		0.66	1.00
v/c Ratio	0.50	0.48	0.47					0.19	0.38		0.23	0.18
Control Delay	31.3	34.0	33.9					6.6	9.2		8.5	0.4
Queue Delay	0.0	0.0	0.0					0.0	0.0		0.0	0.0
Total Delay	31.3	34.0	33.9					6.6	9.2		8.5	0.4
LOS	C	C	C					A	A		A	A
Approach Delay		32.3						7.6			6.3	
Approach LOS		C						A			A	

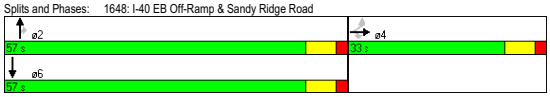
1648: I-40 EB Off-Ramp & Sandy Ridge Road

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 50th (ft)	95	81	80					42	84		71	0
Queue Length 95th (ft)	114	127	126					74	176		99	1
Internal Link Dist (ft)		241			849			415			810	
Turn Bay Length (ft)	250								400			750
Base Capacity (vph)	1486	448	448					3211	1000		3277	1538
Starvation Cap Reductn	0	0	0					0	0		0	0
Spillback Cap Reductn	0	0	0					0	0		0	0
Storage Cap Reductn	0	0	0					0	0		0	0
Reduced v/c Ratio	0.36	0.34	0.34					0.19	0.38		0.23	0.18

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 2 (2%), Referenced to phase 2:NBT and 6:SBT, Start of Green
Natural Cycle: 40
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.50
Intersection Signal Delay: 14.4 — Intersection LOS: B
Intersection Capacity Utilization 35.2% — ICU Level of Service A
Analysis Period (min) 15

Splits and Phases: 1648: I-40 EB Off-Ramp & Sandy Ridge Road



1818: Market Street & NC 68 NB Ramps

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (vph)	159	460	566	165	38	90
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Grade (%)		-1%	0%		-2%	
Storage Length (ft)	150			325	0	250
Storage Lanes	1			1	1	1
Taper Length (ft)	75			25	25	25
Lane Util. Factor	1.00	0.95	1.00	1.00	1.00	1.00
Frt				0.850		0.850
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1728	3455	1810	1538	1736	1553
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	1728	3455	1810	1538	1736	1553
Right Turn on Red				No		No
Satd. Flow (RTOR)						
Link Speed (mph)		45	45		30	
Link Distance (ft)		849	543		531	
Travel Time (s)		12.9	8.2		12.1	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	177	511	629	183	42	100
Shared Lane Traffic (%)						
Lane Group Flow (vph)	177	511	629	183	42	100
Turn Type	Prot			pm+ov		pm+ov
Protected Phases	5	2	6	4	4	5
Permitted Phases				6		4
Detector Phase	5	2	6	4	4	5
Switch Phase						
Minimum Initial (s)	6.0	15.0	15.0	7.0	7.0	6.0
Minimum Split (s)	14.0	22.0	22.0	17.0	17.0	14.0
Total Split (s)	21.0	73.0	52.0	17.0	17.0	21.0
Total Split (%)	23.3%	81.1%	57.8%	18.9%	18.9%	23.3%
Maximum Green (s)	14.0	66.0	45.0	10.0	10.0	14.0
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead		Lag			Lead
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	C-Min	C-Min	None	None	None
Act Effct Green (s)	15.2	69.9	49.7	64.8	10.1	30.3
Actuated g/C Ratio	0.17	0.78	0.55	0.72	0.11	0.34
v/c Ratio	0.61	0.19	0.63	0.17	0.22	0.19
Control Delay	39.2	1.8	18.1	4.7	38.7	21.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	39.2	1.8	18.1	4.7	38.7	21.2
LOS	D	A	B	A	D	C
Approach Delay		11.4	15.1		26.4	
Approach LOS		B	B		C	

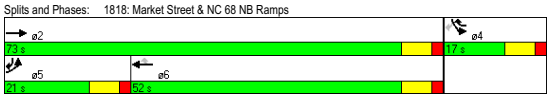
1818: Market Street & NC 68 NB Ramps

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Queue Length 50th (ft)	80	17	235	29	22	39
Queue Length 95th (ft)	m148	m50	370	50	52	74
Internal Link Dist (ft)		769	463		451	
Turn Bay Length (ft)	150			325		250
Base Capacity (vph)	318	2685	1005	1141	231	546
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.56	0.19	0.63	0.16	0.18	0.18

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 34 (38%), Referenced to phase 2:EBT and 6:WBT, Start of Green
Natural Cycle: 60
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.63
Intersection Signal Delay: 14.6 — Intersection LOS: B
Intersection Capacity Utilization 56.9% — ICU Level of Service B
Analysis Period (min) 15
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 1818: Market Street & NC 68 NB Ramps



2000: Market Street & Pleasant Ridge Road

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (vph)	450	469	290	86	103	330
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Grade (%)		-3%	3%		-1%	
Storage Length (ft)	500			325	250	0
Storage Lanes	1			1	1	1
Taper Length (ft)	25			25	25	25
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt				0.850		0.850
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1745	1837	1782	1515	1728	1546
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	1745	1837	1782	1515	1728	1546
Right Turn on Red				No		No
Satd. Flow (RTOR)						
Link Speed (mph)		45	45		50	
Link Distance (ft)		755	1642		383	
Travel Time (s)		11.4	24.9		5.2	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	500	521	322	96	114	367
Shared Lane Traffic (%)						
Lane Group Flow (vph)	500	521	322	96	114	367
Turn Type	Prot			Perm		pm+ov
Protected Phases	1	6	2		4	1
Permitted Phases				2		4
Detector Phase	1	6	2	2	4	1
Switch Phase						
Minimum Initial (s)	6.0	15.0	15.0	15.0	8.0	6.0
Minimum Split (s)	14.0	21.0	21.0	21.0	17.0	14.0
Total Split (s)	42.0	73.0	31.0	31.0	17.0	42.0
Total Split (%)	46.7%	81.1%	34.4%	34.4%	18.9%	46.7%
Maximum Green (s)	36.0	67.0	25.0	25.0	11.0	36.0
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag	Lead		Lag	Lag		Lead
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	C-Min	C-Min	C-Min	None	None
Act Effct Green (s)	32.6	73.2	35.8	35.8	12.4	46.2
Actuated g/C Ratio	0.36	0.81	0.40	0.40	0.14	0.51
v/c Ratio	0.79	0.35	0.45	0.16	0.48	0.46
Control Delay	28.9	2.4	15.4	12.6	42.7	14.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	28.9	2.4	15.4	12.6	42.7	14.7
LOS	C	A	B	B	D	B
Approach Delay		15.4	14.8		21.4	
Approach LOS		B	B		C	

Sandy Ridge Road Feasibility Study — Base Year (2009) Build Alt. #1 Loops - AM

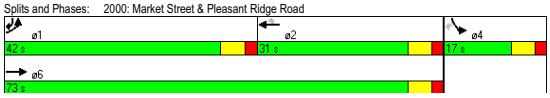
2000: Market Street & Pleasant Ridge Road

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Queue Length 50th (ft)	207	31	125	27	60	110
Queue Length 95th (ft)	305	78	m205	m50	113	153
Internal Link Dist (ft)		675	1562		303	
Turn Bay Length (ft)	500			325	250	
Base Capacity (vph)	737	1500	712	605	256	886
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.68	0.35	0.45	0.16	0.45	0.41

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 64 (71%), Referenced to phase 2:WBT and 6:EBT, Start of Green
Natural Cycle: 60
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.79
Intersection Signal Delay: 16.7 — Intersection LOS: B
Intersection Capacity Utilization 56.9% — ICU Level of Service B
Analysis Period (min) 15
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 2000: Market Street & Pleasant Ridge Road



M/A/B — Synchro 7 - Report
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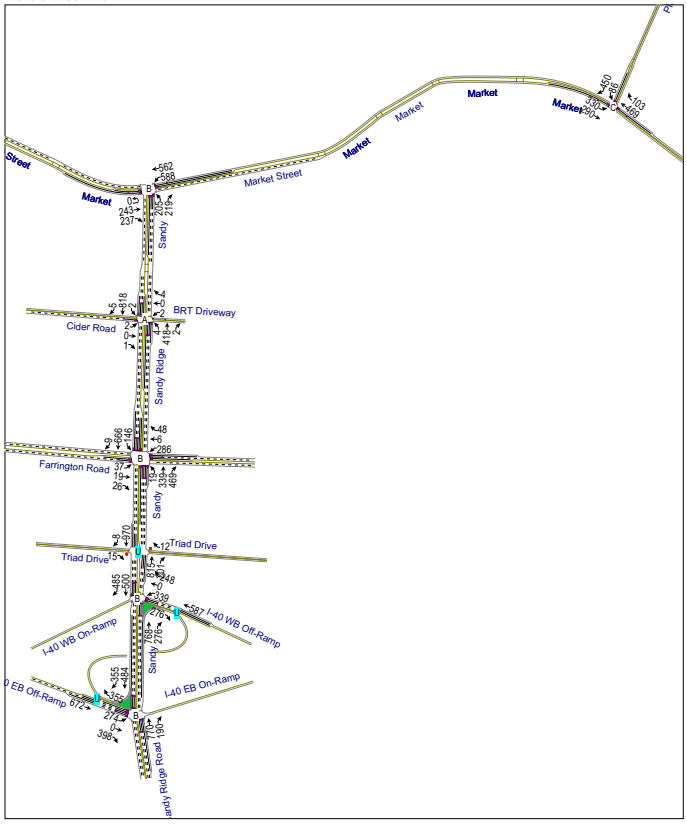
Sandy Ridge Road Feasibility Study — Base Year (2009) Build Alt. #1 Loops - PM
Levels of Service



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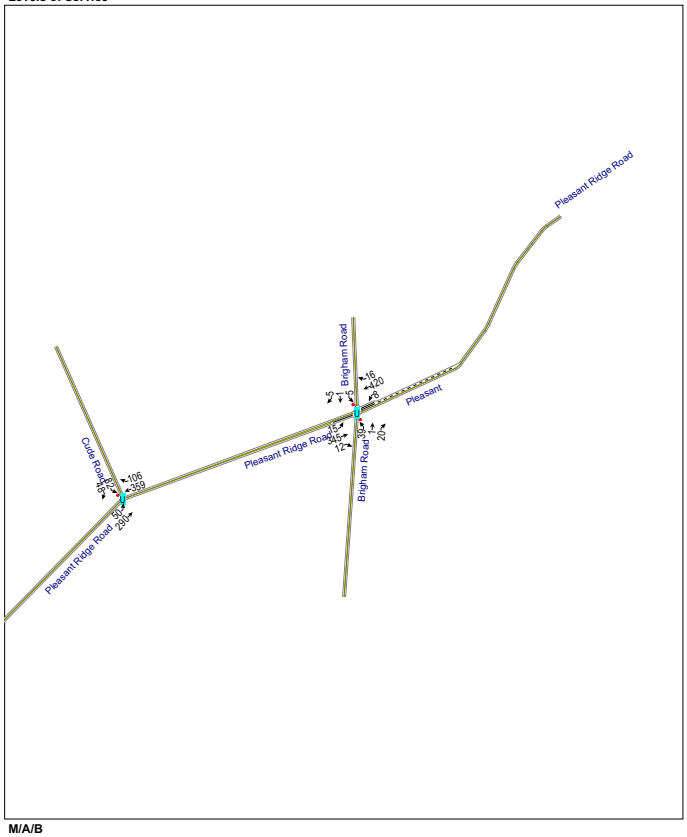
Sandy Ridge Road Feasibility Study — Base Year (2009) Build Alt. #1 Loops - PM
Levels of Service



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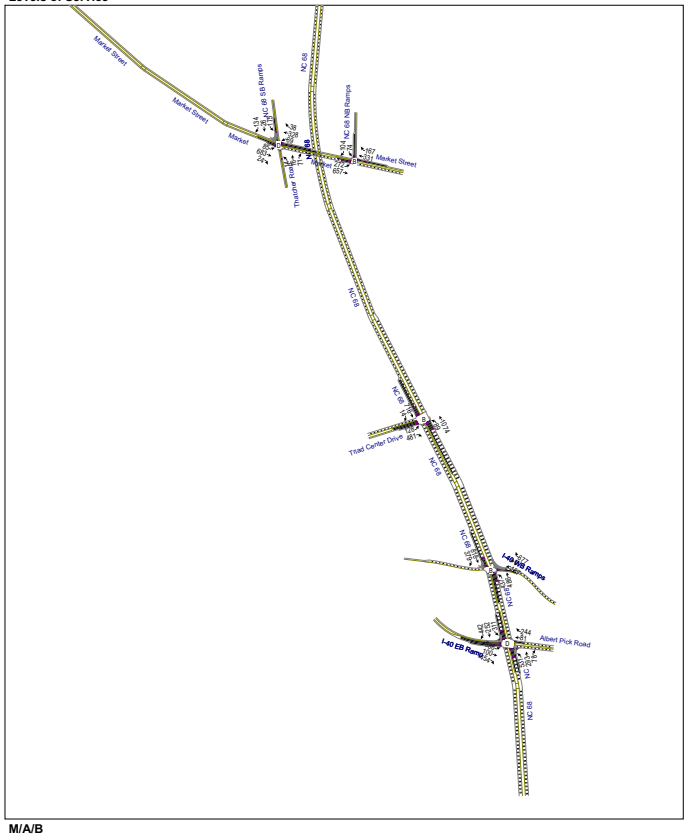
Sandy Ridge Road Feasibility Study — Base Year (2009) Build Alt. #1 Loops - PM
Levels of Service



M/A/B
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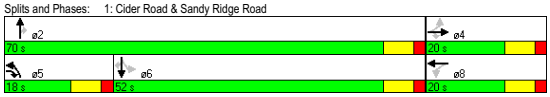
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	2	0	1	2	0	4	4	418	2	2	818	5
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	100		0	100		0	500		150	150		150
Storage Lanes	0		1	0		0	1		1	1		1
Taper Length (ft)	25		25	25		25	25		25	25		50
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.91	1.00	1.00	0.91	1.00
Frt			0.850		0.910				0.850			0.850
Flt Protected		0.950			0.984		0.950			0.950		
Satd. Flow (prot)	0	1719	1538	0	1620	0	1719	4940	1538	1719	4940	1538
Flt Permitted					0.888		0.950			0.476		
Satd. Flow (perm)	0	1810	1538	0	1462	0	1719	4940	1538	861	4940	1538
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		30			30			35			35	
Link Distance (ft)		909			308			1068			391	
Travel Time (s)		20.7			7.0			20.8			7.6	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	2	0	1	2	0	4	4	464	2	2	909	6
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	2	1	0	6	0	4	464	2	2	909	6
Turn Type	Perm		pm+ov	Perm			Prot		Perm	Perm		Perm
Protected Phases		4	5		8		5	2			6	
Permitted Phases	4		4	8					2	6		6
Detector Phase	4	4	5	8	8		5	2	2	6	6	6
Switch Phase												
Minimum Initial (s)	7.0	7.0	7.0	7.0	7.0		7.0	12.0	12.0	12.0	12.0	12.0
Minimum Split (s)	17.0	17.0	14.0	17.0	17.0		14.0	19.0	19.0	19.0	19.0	19.0
Total Split (s)	20.0	20.0	18.0	20.0	20.0	0.0	18.0	70.0	70.0	52.0	52.0	52.0
Total Split (%)	22.2%	22.2%	20.0%	22.2%	22.2%	0.0%	20.0%	77.8%	77.8%	57.8%	57.8%	57.8%
Maximum Green (s)	13.0	13.0	11.0	13.0	13.0		11.0	63.0	63.0	45.0	45.0	45.0
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0		2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	2.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag			Lead				Lead			Lag	Lag	Lag
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	None	None		None	C-Min	C-Min	C-Min	C-Min	C-Min
Act Effct Green (s)		9.0	11.8		9.0		9.0	86.2	86.2	83.4	83.4	83.4
Actuated g/C Ratio		0.10	0.13		0.10		0.10	0.96	0.96	0.93	0.93	0.93
v/c Ratio		0.01	0.00		0.04		0.02	0.10	0.00	0.00	0.20	0.00
Control Delay		36.5	29.0		37.4		34.8	0.1	0.0	2.5	1.4	2.4
Queue Delay		0.0	0.0		0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay		36.5	29.0		37.4		34.8	0.1	0.0	2.5	1.4	2.4
LOS		D	C		D		C	A	A	A	A	A
Approach Delay		34.0			37.4			0.4			1.4	
Approach LOS		C			D			A			A	
Queue Length 50th (ft)		1	1		3		2	0	0	0	0	0

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 95th (ft)		8	4		15		m5	2	m0	m1	65	m2
Internal Link Dist (ft)		829			228			988			311	
Turn Bay Length (ft)							500		150	150		150
Base Capacity (vph)		302	270		244		248	4731	1473	798	4578	1425
Starvation Cap Reductn		0	0		0		0	0	0	0	0	0
Spillback Cap Reductn		0	0		0		0	0	0	0	0	0
Storage Cap Reductn		0	0		0		0	0	0	0	0	0
Reduced v/c Ratio		0.01	0.00		0.02		0.02	0.10	0.00	0.00	0.20	0.00

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 14 (16%), Referenced to phase 2:NBT and 6:SBTL, Start of Green
Natural Cycle: 50
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.20
Intersection Signal Delay: 1.3 — Intersection LOS: A
Intersection Capacity Utilization 40.0% — ICU Level of Service A
Analysis Period (min) 15
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 1: Cider Road & Sandy Ridge Road



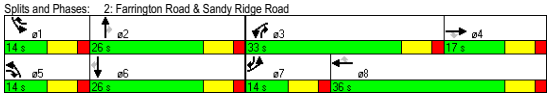
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	37	19	26	286	6	48	19	339	469	146	666	9
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	200		0	300		350	550		150	250		300
Storage Lanes	1		1	1		1	1		1	2		1
Taper Length (ft)	100		25	25		25	175		25	100		100
Lane Util. Factor	1.00	1.00	1.00	0.97	1.00	1.00	0.97	0.91	1.00	0.97	0.91	1.00
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1547	1629	1384	3001	1629	1384	3001	4446	1384	3001	4446	1384
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1547	1629	1384	3001	1629	1384	3001	4446	1384	3001	4446	1384
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		30			30			35			35	
Link Distance (ft)		1686			875			711			1068	
Travel Time (s)		38.3			19.9			13.9			20.8	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	41	21	29	318	7	53	21	377	521	162	740	10
Shared Lane Traffic (%)												
Lane Group Flow (vph)	41	21	29	318	7	53	21	377	521	162	740	10
Turn Type	Prot		pm+ov	Prot		pm+ov	Prot		pm+ov	Prot		pm+ov
Protected Phases	7	4	5	3	8	1	5	2	3	1	6	7
Permitted Phases			4			8			2			6
Detector Phase	7	4	5	3	8	1	5	2	3	1	6	7
Switch Phase												
Minimum Initial (s)	7.0	7.0	7.0	7.0	7.0	7.0	7.0	15.0	7.0	7.0	15.0	7.0
Minimum Split (s)	14.0	17.0	14.0	14.0	17.0	14.0	14.0	22.0	14.0	14.0	22.0	14.0
Total Split (s)	14.0	17.0	14.0	33.0	36.0	14.0	14.0	26.0	33.0	14.0	26.0	14.0
Total Split (%)	15.6%	18.9%	15.6%	36.7%	40.0%	15.6%	15.6%	28.9%	36.7%	15.6%	28.9%	15.6%
Maximum Green (s)	7.0	10.0	7.0	26.0	29.0	7.0	7.0	19.0	26.0	7.0	19.0	7.0
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead	Lag	Lead	Lead	Lag	Lead	Lead	Lag	Lead	Lead	Lag	Lead
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	None	None	None	None	C-Max	None	None	C-Max	None
Act Effct Green (s)	18.0	9.4	15.1	20.8	15.0	25.6	9.1	37.0	62.9	11.1	44.7	67.7
Actuated g/C Ratio	0.20	0.10	0.17	0.23	0.17	0.28	0.10	0.41	0.70	0.12	0.50	0.75
v/c Ratio	0.13	0.12	0.12	0.46	0.03	0.13	0.07	0.21	0.54	0.44	0.34	0.01
Control Delay	30.0	38.1	29.2	30.7	28.0	24.6	42.2	17.2	10.5	53.3	9.2	5.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	30.0	38.1	29.2	30.7	28.0	24.6	42.2	17.2	10.5	53.3	9.2	5.8
LOS	C	D	C	C	C	C	D	B	B	D	A	A
Approach Delay		31.6			29.8			14.0			17.0	
Approach LOS		C			C			B			B	
Queue Length 50th (ft)	18	11	15	78	4	28	5	29	103	50	34	0

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 95th (ft)	54	33	34	107	12	34	m15	89	134	82	80	9
Internal Link Dist (ft)		1606			795			631			988	
Turn Bay Length (ft)	200			300		350	550		150	250		300
Base Capacity (vph)	309	217	232	934	561	393	303	1830	1077	371	2208	1041
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.13	0.10	0.13	0.34	0.01	0.13	0.07	0.21	0.48	0.44	0.34	0.01

Intersection Summary

Area Type: CBD
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 38 (42%), Referenced to phase 2:NBT and 6:SBT, Start of Green
Natural Cycle: 70
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.54
Intersection Signal Delay: 18.5 — Intersection LOS: B
Intersection Capacity Utilization 56.4% — ICU Level of Service B
Analysis Period (min) 15
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 2: Farrington Road & Sandy Ridge Road



3: Pleasant Ridge Road & Cude Road

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (veh/h)	50	290	359	106	82	48
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	56	322	399	118	91	53
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	517				891	458
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	517				891	458
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	95				69	91
cM capacity (veh/h)	1034				292	597

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	378	517	144
Volume Left	56	0	91
Volume Right	0	118	53
cSH	1034	1700	360
Volume to Capacity	0.05	0.30	0.40
Queue Length 95th (ft)	4	0	47
Control Delay (s)	1.8	0.0	21.5
Lane LOS	A		C
Approach Delay (s)	1.8	0.0	21.5
Approach LOS			C

Intersection Summary			
Average Delay	3.6		
Intersection Capacity Utilization	60.8%	ICU Level of Service	B
Analysis Period (min)	15		

4: Pleasant Ridge Road & Brigham Road

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	15	345	12	8	420	16	39	1	20	5	1	5
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	17	383	13	9	467	18	43	1	22	6	1	6
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	484			397			914	926	390	924	914	467
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	484			397			914	926	390	924	914	467
tC, single (s)	4.1			4.1			7.2	6.6	6.2	7.2	6.6	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	98			99			82	100	97	98	100	99
cM capacity (veh/h)	1063			1146			243	260	652	233	263	590

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	WB 3	NB 1	SB 1
Volume Total	17	397	9	467	18	67	12
Volume Left	17	0	9	0	0	43	6
Volume Right	0	13	0	0	18	22	6
cSH	1063	1700	1146	1700	1700	308	327
Volume to Capacity	0.02	0.23	0.01	0.27	0.01	0.22	0.04
Queue Length 95th (ft)	1	0	1	0	0	20	3
Control Delay (s)	8.4	0.0	8.2	0.0	0.0	19.9	16.5
Lane LOS	A		A			C	C
Approach Delay (s)	0.3		0.1			19.9	16.5
Approach LOS						C	C

Intersection Summary			
Average Delay	1.8		
Intersection Capacity Utilization	33.9%	ICU Level of Service	A
Analysis Period (min)	15		

251: I-40 EB Ramp & NC 68

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	386	100	454	0	81	244	531	293	78	311	252	442
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		-2%			2%			-1%			1%	
Storage Length (ft)	438		325	0		0	250		275	300		275
Storage Lanes	2		1	0		1	1		1	1		1
Taper Length (ft)	100		25	25		25	25		25	25		25
Lane Util. Factor	0.97	1.00	1.00	1.00	1.00	1.00	1.00	0.91	1.00	1.00	0.91	1.00
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950						0.950			0.950		
Satd. Flow (prot)	3368	1828	1553	0	1791	1523	1728	4965	1546	1710	4915	1530
Flt Permitted	0.950						0.950			0.950		
Satd. Flow (perm)	3368	1828	1553	0	1791	1523	1728	4965	1546	1710	4915	1530
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		35			35			55			55	
Link Distance (ft)		867			502			480			821	
Travel Time (s)		16.9			9.8			6.0			10.2	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	429	111	504	0	90	271	590	326	87	346	280	491
Shared Lane Traffic (%)												
Lane Group Flow (vph)	429	111	504	0	90	271	590	326	87	346	280	491
Turn Type	Prot		pm+ov			pm+ov	Prot		Perm	Prot		pm+ov
Protected Phases	7	4	5		8	1	5	2		1	6	7
Permitted Phases			4			8			2			6
Detector Phase	7	4	5		8	1	5	2	2	1	6	7
Switch Phase												
Minimum Initial (s)	7.0	7.0	7.0		7.0	7.0	7.0	14.0	14.0	7.0	14.0	7.0
Minimum Split (s)	14.0	17.0	14.0		17.0	14.0	14.0	21.0	21.0	14.0	21.0	14.0
Total Split (s)	17.0	34.0	35.0	0.0	17.0	33.0	35.0	23.0	23.0	33.0	21.0	17.0
Total Split (%)	18.9%	37.8%	38.9%	0.0%	18.9%	36.7%	38.9%	25.6%	25.6%	36.7%	23.3%	18.9%
Maximum Green (s)	10.0	27.0	28.0		10.0	26.0	28.0	16.0	16.0	26.0	14.0	10.0
Yellow Time (s)	5.0	5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0		2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	2.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead		Lead		Lag	Lead	Lead	Lag	Lag	Lead	Lag	Lead
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None		None	None	None	C-Min	C-Min	None	C-Min	None
Act Effct Green (s)	12.0	25.2	62.5		11.0	37.4	32.3	25.6	25.6	24.2	17.5	34.5
Actuated g/C Ratio	0.13	0.28	0.69		0.12	0.42	0.36	0.28	0.28	0.27	0.19	0.38
v/c Ratio	0.96	0.22	0.47		0.41	0.43	0.95	0.23	0.20	0.75	0.29	0.84
Control Delay	73.1	24.2	7.7		42.2	19.3	57.2	27.9	30.5	34.6	25.0	38.8
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	73.1	24.2	7.7		42.2	19.3	57.2	27.9	30.5	34.6	25.0	38.8
LOS	E	C	A		D	B	E	C	C	C	C	D
Approach Delay		36.3			25.0			45.3			34.0	
Approach LOS		D			C			D			C	

251: I-40 EB Ramp & NC 68

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 50th (ft)	126	45	103		48	96	~344	56	40	78	58	304
Queue Length 95th (ft)	#219	85	162		94	146	#563	85	85	186	55	#433
Internal Link Dist (ft)		787			422			400			741	
Turn Bay Length (ft)	438		325				250		275	300		275
Base Capacity (vph)	449	589	1078		239	698	620	1411	439	532	956	587
Starvation Cap Reductn	0	0	0		0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0		0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0		0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.96	0.19	0.47		0.38	0.39	0.95	0.23	0.20	0.65	0.29	0.84

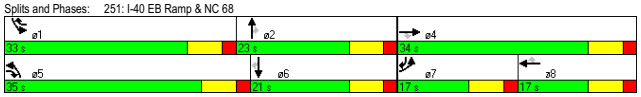
Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 36 (40%), Referenced to phase 2:NBT and 6:SBT, Start of Green
Natural Cycle: 90
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.96
Intersection Signal Delay: 37.0 — Intersection LOS: D
Intersection Capacity Utilization 75.1% — ICU Level of Service D
Analysis Period (min) 15

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 251: I-40 EB Ramp & NC 68

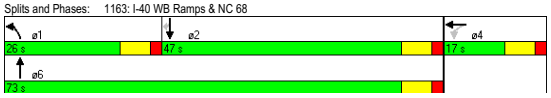


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	0	0	187	0	677	437	486	0	0	818	379
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		0%			-2%			0%			-1%	
Storage Length (ft)	0		0	200		0	325		0	0		400
Storage Lanes	0		0	1		1	2		0	0		1
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	1.00	1.00	1.00	0.95	0.95	1.00	0.97	0.91	1.00	1.00	0.91	1.00
Frt						0.850						0.850
Flt Protected				0.950	0.950		0.950					
Satd. Flow (prot)	0	0	0	1649	1649	1553	3335	4940	0	0	4965	1546
Flt Permitted				0.950	0.950		0.950					
Satd. Flow (perm)	0	0	0	1649	1649	1553	3335	4940	0	0	4965	1546
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		30			35			55			55	
Link Distance (ft)		712			820			821			1007	
Travel Time (s)		16.2			16.0			10.2			12.5	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	0	0	0	208	0	752	486	540	0	0	909	421
Shared Lane Traffic (%)				50%								
Lane Group Flow (vph)	0	0	0	104	104	752	486	540	0	0	909	421
Turn Type				Perm		Free	Prot					Perm
Protected Phases					4		1	6			2	
Permitted Phases				4		Free						2
Detector Phase				4	4		1	6			2	2
Switch Phase												
Minimum Initial (s)				7.0	7.0		7.0	14.0			14.0	14.0
Minimum Split (s)				17.0	17.0		14.0	21.0			21.0	21.0
Total Split (s)	0.0	0.0	0.0	17.0	17.0	0.0	26.0	73.0	0.0	0.0	47.0	47.0
Total Split (%)	0.0%	0.0%	0.0%	18.9%	18.9%	0.0%	28.9%	81.1%	0.0%	0.0%	52.2%	52.2%
Maximum Green (s)				10.0	10.0		19.0	66.0			40.0	40.0
Yellow Time (s)				5.0	5.0		5.0	5.0			5.0	5.0
All-Red Time (s)				2.0	2.0		2.0	2.0			2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	2.0	2.0	2.0	5.0	5.0	2.0	5.0	5.0	2.0	2.0	5.0	5.0
Lead/Lag							Lead				Lag	Lag
Lead-Lag Optimize?												
Vehicle Extension (s)				3.0	3.0		3.0	3.0			3.0	3.0
Recall Mode				None	None		None	C-Min			C-Min	C-Min
Act Effct Green (s)				11.9	11.9	90.0	19.2	68.1			43.9	43.9
Actuated g/C Ratio				0.13	0.13	1.00	0.21	0.76			0.49	0.49
v/c Ratio				0.48	0.48	0.48	0.68	0.14			0.38	0.56
Control Delay				43.7	43.7	1.1	32.8	4.9			13.2	17.0
Queue Delay				0.0	0.0	0.0	0.0	0.0			0.0	0.0
Total Delay				43.7	43.7	1.1	32.8	4.9			13.2	17.0
LOS				D	D	A	C	A			B	B
Approach Delay					10.3			18.1			14.4	
Approach LOS					B			B			B	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 50th (ft)				57	57	0	90	36			100	128
Queue Length 95th (ft)				112	112	0	m148	m36			119	170
Internal Link Dist (ft)		632			740			741			927	
Turn Bay Length (ft)				200			325					400
Base Capacity (vph)				232	232	1553	778	3775			2451	763
Starvation Cap Reductn				0	0	0	0	0			0	0
Spillback Cap Reductn				0	0	0	0	0			0	0
Storage Cap Reductn				0	0	0	0	0			0	0
Reduced v/c Ratio				0.45	0.45	0.48	0.62	0.14			0.37	0.55

Intersection Summary
Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 4 (4%), Referenced to phase 2:SBT and 6:NBT, Start of Green
Natural Cycle: 60
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.68
Intersection Signal Delay: 14.4 Intersection LOS: B
Intersection Capacity Utilization 54.3% ICU Level of Service A
Analysis Period (min) 15
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 1163: I-40 WB Ramps & NC 68

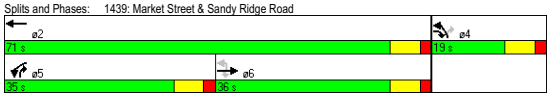


Lane Group	EBU	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations							
Volume (vph)	0	243	237	588	562	205	219
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900
Grade (%)		1%			-1%	0%	
Storage Length (ft)	200		600	600		450	0
Storage Lanes	1		1	2		1	1
Taper Length (ft)	25		25	25		25	25
Lane Util. Factor	1.00	1.00	1.00	0.97	1.00	0.97	0.88
Frt			0.850				0.850
Flt Protected				0.950		0.950	
Satd. Flow (prot)	1800	1800	1530	3352	1819	3335	2707
Flt Permitted				0.950		0.950	
Satd. Flow (perm)	1800	1800	1530	3352	1819	3335	2707
Right Turn on Red			No				No
Satd. Flow (RTOR)							
Link Speed (mph)		45			45	35	
Link Distance (ft)		752			1348	610	
Travel Time (s)		11.4			20.4	11.9	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	0	270	263	653	624	228	243
Shared Lane Traffic (%)							
Lane Group Flow (vph)	0	270	263	653	624	228	243
Turn Type	Perm		pm+ov	Prot			pm+ov
Protected Phases		6	4	5	2	4	5
Permitted Phases	6		6				4
Detector Phase	6	6	4	5	2	4	5
Switch Phase							
Minimum Initial (s)	15.0	15.0	7.0	7.0	15.0	7.0	7.0
Minimum Split (s)	22.0	22.0	17.0	14.0	22.0	17.0	14.0
Total Split (s)	36.0	36.0	19.0	35.0	71.0	19.0	35.0
Total Split (%)	40.0%	40.0%	21.1%	38.9%	78.9%	21.1%	38.9%
Maximum Green (s)	29.0	29.0	12.0	28.0	64.0	12.0	28.0
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lag	Lag		Lead			Lead
Lead-Lag Optimize?							
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	C-Min	C-Min	None	None	C-Min	None	None
Act Effct Green (s)		36.1	54.7	25.3	66.4	13.6	43.9
Actuated g/C Ratio		0.40	0.61	0.28	0.74	0.15	0.49
v/c Ratio		0.37	0.28	0.69	0.46	0.45	0.18
Control Delay		22.9	10.2	30.7	5.1	42.8	5.0
Queue Delay		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay		22.9	10.2	30.7	5.1	42.8	5.0
LOS		C	B	C	A	D	A
Approach Delay		16.6			18.2	23.3	
Approach LOS		B			B	C	

Lane Group	EBU	EBT	EBR	WBL	WBT	NBL	NBR
Queue Length 50th (ft)		106	65	154	49	45	17
Queue Length 95th (ft)		201	124	202	194	64	11
Internal Link Dist (ft)		672			1268	530	
Turn Bay Length (ft)			600	600		450	
Base Capacity (vph)		737	951	1119	1359	549	1463
Starvation Cap Reductn		0	0	0	0	0	0
Spillback Cap Reductn		0	0	0	0	0	0
Storage Cap Reductn		0	0	0	0	0	0
Reduced v/c Ratio		0.37	0.28	0.58	0.46	0.42	0.17

Intersection Summary
Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 34 (38%), Referenced to phase 2:WBT and 6:EBTU, Start of Green
Natural Cycle: 60
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.69
Intersection Signal Delay: 18.9 Intersection LOS: B
Intersection Capacity Utilization 60.4% ICU Level of Service B
Analysis Period (min) 15

Splits and Phases: 1439: Market Street & Sandy Ridge Road



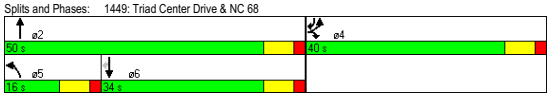
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	128	481	89	1074	716	14
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Grade (%)	-3%			-2%	-1%	
Storage Length (ft)	263	200	625			438
Storage Lanes	2	1	1			2
Taper Length (ft)	25	25	25			25
Lane Util. Factor	0.97	0.88	0.97	0.91	0.91	1.00
Frt		0.850				0.850
Flt Protected	0.950		0.950			
Satd. Flow (prot)	3385	2748	3368	4989	4965	1546
Flt Permitted	0.950		0.950			
Satd. Flow (perm)	3385	2748	3368	4989	4965	1546
Right Turn on Red		No				No
Satd. Flow (RTOR)						
Link Speed (mph)	30			55	55	
Link Distance (ft)	638			799	1245	
Travel Time (s)	14.5			9.9	15.4	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	142	534	99	1193	796	16
Shared Lane Traffic (%)						
Lane Group Flow (vph)	142	534	99	1193	796	16
Turn Type		Prot	Prot			pm+ov
Protected Phases	4	4	5	2	6	4
Permitted Phases						6
Detector Phase	4	4	5	2	6	4
Switch Phase						
Minimum Initial (s)	7.0	7.0	7.0	14.0	14.0	7.0
Minimum Split (s)	17.0	17.0	14.0	21.0	21.0	17.0
Total Split (s)	40.0	40.0	16.0	50.0	34.0	40.0
Total Split (%)	44.4%	44.4%	17.8%	55.6%	37.8%	44.4%
Maximum Green (s)	33.0	33.0	9.0	43.0	27.0	33.0
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag			Lead		Lag	
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	C-Min	C-Min	None
Act Effct Green (s)	25.3	25.3	10.2	54.7	42.2	73.6
Actuated g/C Ratio	0.28	0.28	0.11	0.61	0.47	0.82
v/c Ratio	0.15	0.69	0.26	0.39	0.34	0.01
Control Delay	23.2	33.2	47.0	6.8	17.7	2.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	23.2	33.2	47.0	6.8	17.7	2.6
LOS	C	C	D	A	B	A
Approach Delay	31.1			9.8	17.4	
Approach LOS	C			A	B	

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Queue Length 50th (ft)	31	154	29	73	106	2
Queue Length 95th (ft)	47	190	53	112	165	6
Internal Link Dist (ft)	558			719	1165	
Turn Bay Length (ft)	263	200	625			438
Base Capacity (vph)	1316	1069	420	3030	2329	1374
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.11	0.50	0.24	0.39	0.34	0.01

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 8 (9%), Referenced to phase 2:NBT and 6:SBT, Start of Green
Natural Cycle: 55
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.69
Intersection Signal Delay: 17.2 — Intersection LOS: B
Intersection Capacity Utilization 39.0% — ICU Level of Service A
Analysis Period (min) 15

Splits and Phases: 1449: Triad Center Drive & NC 68



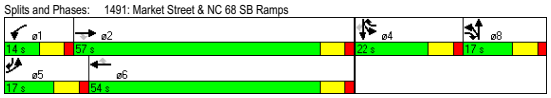
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	85	683	24	69	328	38	14	16	71	175	26	134
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	200		75	375		300	400		0	0		250
Storage Lanes	1		1	1		1	0		0	0		1
Taper Length (ft)	25		25	75		25	25		25	25		25
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850			0.850		0.906				0.850
Flt Protected	0.950			0.950				0.993			0.958	
Satd. Flow (prot)	1719	1810	1538	1719	1810	1538	0	1628	0	0	1734	1538
Flt Permitted	0.950			0.950				0.993			0.958	
Satd. Flow (perm)	1719	1810	1538	1719	1810	1538	0	1628	0	0	1734	1538
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		45			45			55			35	
Link Distance (ft)		630			849			475			493	
Travel Time (s)		9.5			12.9			5.9			9.6	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	94	759	27	77	364	42	16	18	79	194	29	149
Shared Lane Traffic (%)												
Lane Group Flow (vph)	94	759	27	77	364	42	0	113	0	0	223	149
Turn Type	Prot		pm+ov	Prot		pm+ov	Split			Split		pm+ov
Protected Phases	5	2	8	1	6	4	8	8		4	4	5
Permitted Phases			2			6						4
Detector Phase	5	2	8	1	6	4	8	8		4	4	5
Switch Phase												
Minimum Initial (s)	7.0	12.0	7.0	7.0	12.0	7.0	7.0	7.0		7.0	7.0	7.0
Minimum Split (s)	14.0	19.0	17.0	14.0	19.0	17.0	17.0	17.0		17.0	17.0	14.0
Total Split (s)	17.0	57.0	17.0	14.0	54.0	22.0	17.0	17.0	0.0	22.0	22.0	17.0
Total Split (%)	15.5%	51.8%	15.5%	12.7%	49.1%	20.0%	15.5%	15.5%	0.0%	20.0%	20.0%	15.5%
Maximum Green (s)	10.0	50.0	10.0	7.0	47.0	15.0	10.0	10.0		15.0	15.0	10.0
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0		5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0		2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	2.0	5.0	5.0	5.0
Lead/Lag	Lead	Lag		Lead	Lag							Lead
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0
Recall Mode	None	C-Min	Min	None	C-Max	None	Min	Min		None	None	None
Act Effct Green (s)	11.3	55.4	68.0	9.0	50.3	72.1		11.6			16.8	28.1
Actuated g/C Ratio	0.10	0.50	0.62	0.08	0.46	0.66		0.11			0.15	0.26
v/c Ratio	0.53	0.83	0.03	0.55	0.44	0.04		0.66			0.84	0.38
Control Delay	58.1	34.5	5.2	73.2	16.0	3.5		65.9			72.9	23.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0		0.0			0.0	0.0
Total Delay	58.1	34.5	5.2	73.2	16.0	3.5		65.9			72.9	23.4
LOS	E	C	A	E	B	A		E			E	C
Approach Delay		36.1			24.1			65.9			53.1	
Approach LOS		D			C			E			D	
Queue Length 50th (ft)	64	472	4	44	190	13		78			155	61

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 95th (ft)	118	#719	10	#112	100	5		#152			#286	104
Internal Link Dist (ft)		550			769			395			413	
Turn Bay Length (ft)	200		75	375		300						250
Base Capacity (vph)	188	913	943	141	828	1012		178			268	402
Starvation Cap Reductn	0	0	0	0	0	0		0			0	0
Spillback Cap Reductn	0	0	0	0	0	0		0			0	0
Storage Cap Reductn	0	0	0	0	0	0		0			0	0
Reduced v/c Ratio	0.50	0.83	0.03	0.55	0.44	0.04		0.63			0.83	0.37

Intersection Summary

Area Type: Other
Cycle Length: 110
Actuated Cycle Length: 110
Offset: 12 (11%), Referenced to phase 2:EBT and 6:WBT, Start of Green
Natural Cycle: 90
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.84
Intersection Signal Delay: 38.2 — Intersection LOS: D
Intersection Capacity Utilization 72.0% — ICU Level of Service C
Analysis Period (min) 15
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 1491: Market Street & NC 68 SB Ramps



1601: I-40 WB On-Ramp & Sandy Ridge Road

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	0	0	339	0	248	0	768	276	0	500	485
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		0%			2%			-4%			4%	
Storage Length (ft)	0		0	0		0	0		750	0		0
Storage Lanes	0		0	1		1	1		1	1		1
Taper Length (ft)	25		25	25		25	100		100	25		25
Lane Util. Factor	1.00	1.00	1.00	0.95	0.91	0.95	1.00	0.91	1.00	1.00	0.91	1.00
Frt					0.952	0.850			0.850			0.850
Flt Protected				0.950	0.967							
Satd. Flow (prot)	0	0	0	1617	1501	1447	0	5039	1569	0	4841	1507
Flt Permitted				0.950	0.967							
Satd. Flow (perm)	0	0	0	1617	1501	1447	0	5039	1569	0	4841	1507
Right Turn on Red			No			No			No			Yes
Satd. Flow (RTOR)												539
Link Speed (mph)		30			35			45			45	
Link Distance (ft)		897			323			890			361	
Travel Time (s)		20.4			6.3			13.5			5.5	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	0	0	0	377	0	276	0	853	307	0	556	539
Shared Lane Traffic (%)				40%		26%						
Lane Group Flow (vph)	0	0	0	226	223	204	0	853	307	0	556	539
Turn Type				Perm		Perm			Free			Perm
Protected Phases					8			2			6	
Permitted Phases				8		8			Free			6
Detector Phase				8	8	8		2			6	6
Switch Phase												
Minimum Initial (s)				7.0	7.0	7.0		15.0			15.0	15.0
Minimum Split (s)				17.0	17.0	17.0		22.0			22.0	22.0
Total Split (s)	0.0	0.0	0.0	35.0	35.0	35.0	0.0	55.0	0.0	0.0	55.0	55.0
Total Split (%)	0.0%	0.0%	0.0%	38.9%	38.9%	38.9%	0.0%	61.1%	0.0%	0.0%	61.1%	61.1%
Maximum Green (s)				28.0	28.0	28.0		48.0			48.0	48.0
Yellow Time (s)				5.0	5.0	5.0		5.0			5.0	5.0
All-Red Time (s)				2.0	2.0	2.0		2.0			2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	2.0	2.0	2.0	5.0	5.0	5.0	2.0	5.0	2.0	2.0	5.0	5.0
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)				3.0	3.0	3.0		3.0			3.0	3.0
Recall Mode				None	None	None		C-Min			C-Min	C-Min
Act Effct Green (s)				21.7	21.7	21.7		58.3	90.0		58.3	58.3
Actuated g/C Ratio				0.24	0.24	0.24		0.65	1.00		0.65	0.65
v/c Ratio				0.58	0.62	0.59		0.26	0.20		0.18	0.46
Control Delay				35.1	37.0	36.0		9.2	0.7		7.2	5.0
Queue Delay				0.0	0.0	0.0		0.0	0.0		0.0	0.0
Total Delay				35.1	37.0	36.0		9.2	0.7		7.2	5.0
LOS				D	D	D		A	A		A	A
Approach Delay					36.0			6.9			6.1	
Approach LOS					D			A			A	

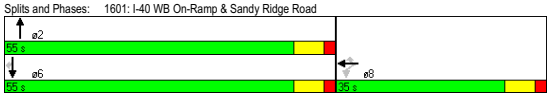
1601: I-40 WB On-Ramp & Sandy Ridge Road

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 50th (ft)				120	125	108		104	1		37	35
Queue Length 95th (ft)				171	180	160		134	23		41	136
Internal Link Dist (ft)		817			243			810			281	
Turn Bay Length (ft)									750			
Base Capacity (vph)				540	501	483		3271	1569		3142	1167
Starvation Cap Reductn				0	0	0		0	0		0	0
Spillback Cap Reductn				0	0	0		0	0		0	0
Storage Cap Reductn				0	0	0		0	0		0	0
Reduced v/c Ratio				0.42	0.45	0.42		0.26	0.20		0.18	0.46

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 58 (64%), Referenced to phase 2:NBT and 6:SBT, Start of Green
Natural Cycle: 40
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.62
Intersection Signal Delay: 13.2 — Intersection LOS: B
Intersection Capacity Utilization 50.3% — ICU Level of Service A
Analysis Period (min) 15

Splits and Phases: 1601: I-40 WB On-Ramp & Sandy Ridge Road



1648: I-40 EB Off-Ramp & Sandy Ridge Road

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	274	0	398	0	0	0	0	770	190	0	484	355
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		3%			0%			4%			0%	
Storage Length (ft)	250		0	0		0	0		400	0		750
Storage Lanes	1		1	0		0	0		1	0		1
Taper Length (ft)	25		25	25		25	25		25	25		100
Lane Util. Factor	0.94	0.95	0.95	1.00	1.00	1.00	1.00	0.91	1.00	1.00	0.91	1.00
Frt		0.850	0.850						0.850			0.850
Flt Protected	0.950											
Satd. Flow (prot)	4775	1439	1439	0	0	0	0	4841	1507	0	4940	1538
Flt Permitted	0.950											
Satd. Flow (perm)	4775	1439	1439	0	0	0	0	4841	1507	0	4940	1538
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		35			30			45			35	
Link Distance (ft)		321			929			495			890	
Travel Time (s)		6.3			21.1			7.5			17.3	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	304	0	442	0	0	0	0	856	211	0	538	394
Shared Lane Traffic (%)			50%									
Lane Group Flow (vph)	304	221	221	0	0	0	0	856	211	0	538	394
Turn Type	Perm		Perm						Perm			Free
Protected Phases		4						2			6	
Permitted Phases	4		4						2			Free
Detector Phase	4	4	4					2	2		6	
Switch Phase												
Minimum Initial (s)	7.0	7.0	7.0					7.0	7.0		7.0	
Minimum Split (s)	17.0	17.0	17.0					17.0	17.0		17.0	
Total Split (s)	46.0	46.0	46.0	0.0	0.0	0.0	0.0	44.0	44.0	0.0	44.0	0.0
Total Split (%)	51.1%	51.1%	51.1%	0.0%	0.0%	0.0%	0.0%	48.9%	48.9%	0.0%	48.9%	0.0%
Maximum Green (s)	39.0	39.0	39.0					37.0	37.0		37.0	
Yellow Time (s)	5.0	5.0	5.0					5.0	5.0		5.0	
All-Red Time (s)	2.0	2.0	2.0					2.0	2.0		2.0	
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	2.0	2.0	2.0	2.0	5.0	5.0	2.0	5.0	2.0
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0					3.0	3.0		3.0	
Recall Mode	None	None	None					C-Min	C-Min		C-Min	
Act Effct Green (s)	23.1	23.1	23.1					56.9	56.9		56.9	90.0
Actuated g/C Ratio	0.26	0.26	0.26					0.63	0.63		0.63	1.00
v/c Ratio	0.25	0.60	0.60					0.28	0.22		0.17	0.26
Control Delay	25.7	34.9	34.9					8.7	9.4		4.0	1.3
Queue Delay	0.0	0.0	0.0					0.0	0.0		0.0	0.0
Total Delay	25.7	34.9	34.9					8.7	9.4		4.0	1.3
LOS	C	C	C					A	A		A	A
Approach Delay		31.1						8.8			2.8	
Approach LOS		C						A			A	

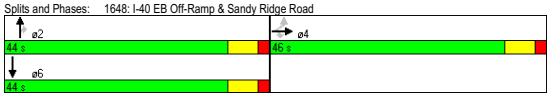
1648: I-40 EB Off-Ramp & Sandy Ridge Road

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 50th (ft)	48	115	115					71	46		17	0
Queue Length 95th (ft)	60	165	165					124	107		36	9
Internal Link Dist (ft)		241			849			415			810	
Turn Bay Length (ft)	250								400			750
Base Capacity (vph)	2175	656	656					3059	952		3121	1538
Starvation Cap Reductn	0	0	0					0	0		0	0
Spillback Cap Reductn	0	0	0					0	0		0	0
Storage Cap Reductn	0	0	0					0	0		0	0
Reduced v/c Ratio	0.14	0.34	0.34					0.28	0.22		0.17	0.26

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 36 (40%), Referenced to phase 2:NBT and 6:SBT, Start of Green
Natural Cycle: 40
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.60
Intersection Signal Delay: 12.9 — Intersection LOS: B
Intersection Capacity Utilization 34.1% — ICU Level of Service A
Analysis Period (min) 15

Splits and Phases: 1648: I-40 EB Off-Ramp & Sandy Ridge Road



1818: Market Street & NC 68 NB Ramps

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (vph)	272	657	331	167	74	104
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Grade (%)		-1%	0%		-2%	
Storage Length (ft)	150			325	0	250
Storage Lanes	1			1	1	1
Taper Length (ft)	75			25	25	25
Lane Util. Factor	1.00	0.95	1.00	1.00	1.00	1.00
Frt				0.850		0.850
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1728	3455	1810	1538	1736	1553
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	1728	3455	1810	1538	1736	1553
Right Turn on Red				No		No
Satd. Flow (RTOR)						
Link Speed (mph)		45	45		30	
Link Distance (ft)		849	543		531	
Travel Time (s)		12.9	8.2		12.1	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	302	730	368	186	82	116
Shared Lane Traffic (%)						
Lane Group Flow (vph)	302	730	368	186	82	116
Turn Type	Prot			pm+ov		pm+ov
Protected Phases	5	2	6	4	4	5
Permitted Phases				6		4
Detector Phase	5	2	6	4	4	5
Switch Phase						
Minimum Initial (s)	6.0	15.0	15.0	7.0	7.0	6.0
Minimum Split (s)	14.0	22.0	22.0	17.0	17.0	14.0
Total Split (s)	41.0	91.0	50.0	19.0	19.0	41.0
Total Split (%)	37.3%	82.7%	45.5%	17.3%	17.3%	37.3%
Maximum Green (s)	34.0	84.0	43.0	12.0	12.0	34.0
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead		Lag			Lead
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	C-Min	C-Min	None	None	None
Act Effct Green (s)	26.5	87.4	55.9	73.5	12.6	44.1
Actuated g/C Ratio	0.24	0.79	0.51	0.67	0.11	0.40
v/c Ratio	0.73	0.27	0.40	0.18	0.41	0.19
Control Delay	39.2	5.6	20.4	8.4	50.8	20.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	39.2	5.6	20.4	8.4	50.8	20.1
LOS	D	A	C	A	D	C
Approach Delay		15.5	16.4		32.8	
Approach LOS		B	B		C	

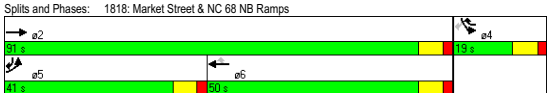
1818: Market Street & NC 68 NB Ramps

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Queue Length 50th (ft)	198	115	154	45	55	52
Queue Length 95th (ft)	m254	m121	282	92	100	75
Internal Link Dist (ft)		769	463		451	
Turn Bay Length (ft)	150			325		250
Base Capacity (vph)	566	2762	922	1055	230	757
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.53	0.26	0.40	0.18	0.36	0.15

Intersection Summary

Area Type: Other
Cycle Length: 110
Actuated Cycle Length: 110
Offset: 18 (16%), Referenced to phase 2:EBT and 6:WBT, Start of Green
Natural Cycle: 60
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.73
Intersection Signal Delay: 17.7 — Intersection LOS: B
Intersection Capacity Utilization 50.8% — ICU Level of Service A
Analysis Period (min) 15
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 1818: Market Street & NC 68 NB Ramps



2000: Market Street & Pleasant Ridge Road

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (vph)	330	290	469	103	86	450
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Grade (%)		-3%	3%		-1%	
Storage Length (ft)	500			325	250	0
Storage Lanes	1			1	1	1
Taper Length (ft)	25			25	25	25
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt				0.850		0.850
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1745	1837	1782	1515	1728	1546
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	1745	1837	1782	1515	1728	1546
Right Turn on Red				No		No
Satd. Flow (RTOR)						
Link Speed (mph)		45	45		50	
Link Distance (ft)		755	1642		372	
Travel Time (s)		11.4	24.9		5.1	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	367	322	521	114	96	500
Shared Lane Traffic (%)						
Lane Group Flow (vph)	367	322	521	114	96	500
Turn Type	Prot			Perm		pm+ov
Protected Phases	1	6	2		4	1
Permitted Phases				2		4
Detector Phase	1	6	2	2	4	1
Switch Phase						
Minimum Initial (s)	6.0	15.0	15.0	15.0	8.0	6.0
Minimum Split (s)	14.0	21.0	21.0	21.0	17.0	14.0
Total Split (s)	31.0	73.0	42.0	42.0	17.0	31.0
Total Split (%)	34.4%	81.1%	46.7%	46.7%	18.9%	34.4%
Maximum Green (s)	25.0	67.0	36.0	36.0	11.0	25.0
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag	Lead		Lag	Lag		Lead
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	C-Min	C-Min	C-Min	None	None
Act Effct Green (s)	25.6	73.7	43.3	43.3	11.9	38.7
Actuated g/C Ratio	0.28	0.82	0.48	0.48	0.13	0.43
v/c Ratio	0.74	0.21	0.61	0.16	0.42	0.75
Control Delay	35.4	1.8	22.7	16.0	41.5	28.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	35.4	1.8	22.7	16.0	41.5	28.8
LOS	D	A	C	B	D	C
Approach Delay		19.7	21.5		30.8	
Approach LOS		B	C		C	

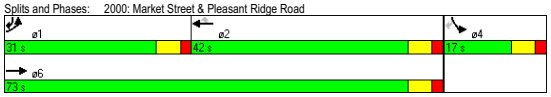
2000: Market Street & Pleasant Ridge Road

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Queue Length 50th (ft)	203	14	230	38	51	211
Queue Length 95th (ft)	211	38	353	75	98	320
Internal Link Dist (ft)		675	1562		292	
Turn Bay Length (ft)	500			325	250	
Base Capacity (vph)	524	1507	860	731	252	689
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.70	0.21	0.61	0.16	0.38	0.73

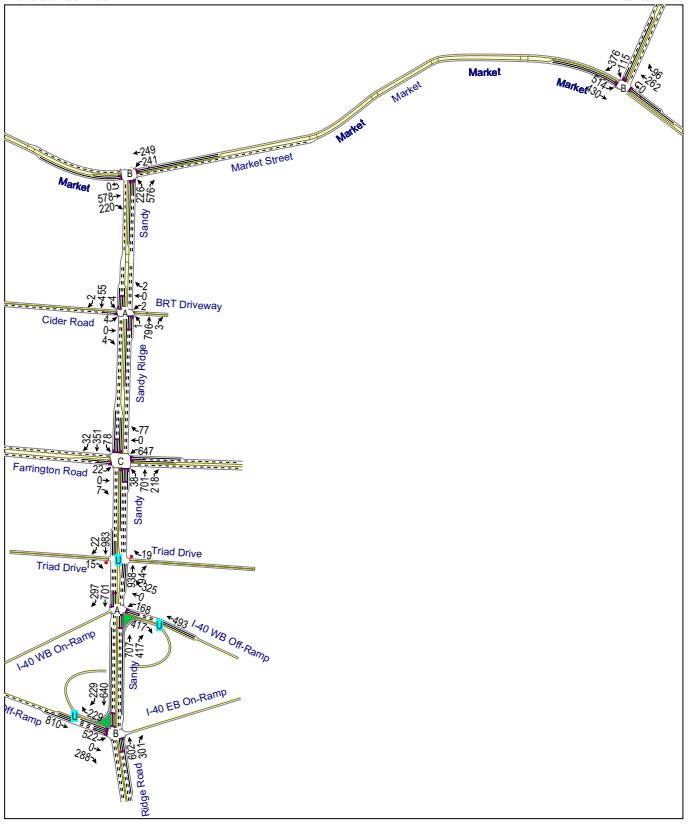
Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 24 (27%), Referenced to phase 2:WBT and 6:EBT, Start of Green
Natural Cycle: 60
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.75
Intersection Signal Delay: 23.7 — Intersection LOS: C
Intersection Capacity Utilization 59.6% — ICU Level of Service B
Analysis Period (min) 15

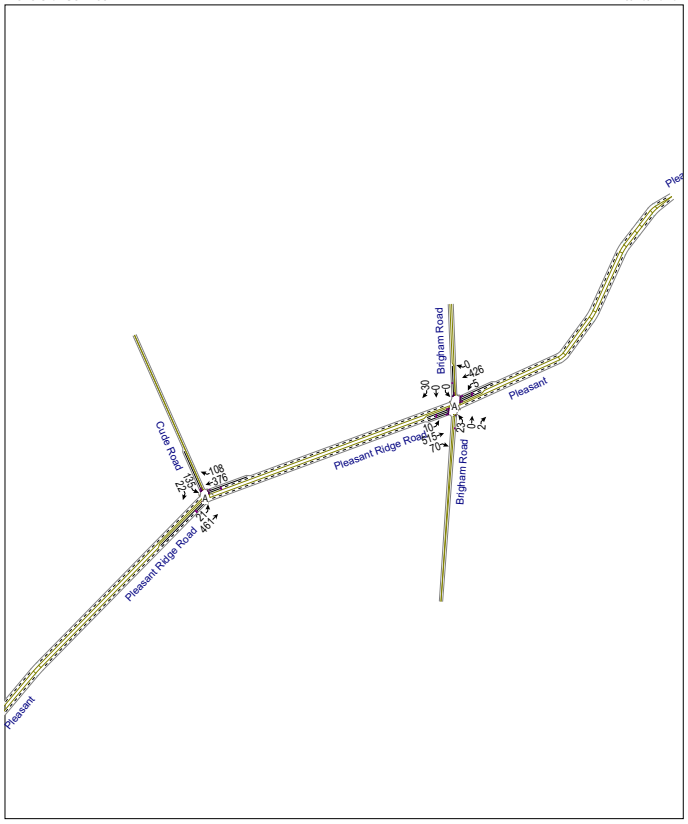
Splits and Phases: 2000: Market Street & Pleasant Ridge Road



Map - Sandy Ridge Road Feasibility Study
Levels of Service **8/20/2010**



Map - Sandy Ridge Road Feasibility Study
Levels of Service **8/20/2010**



Sandy Ridge Road Feasibility Study By Base Year (2009) Build Alt. #2 Loops - AM Synchro 7 - Report
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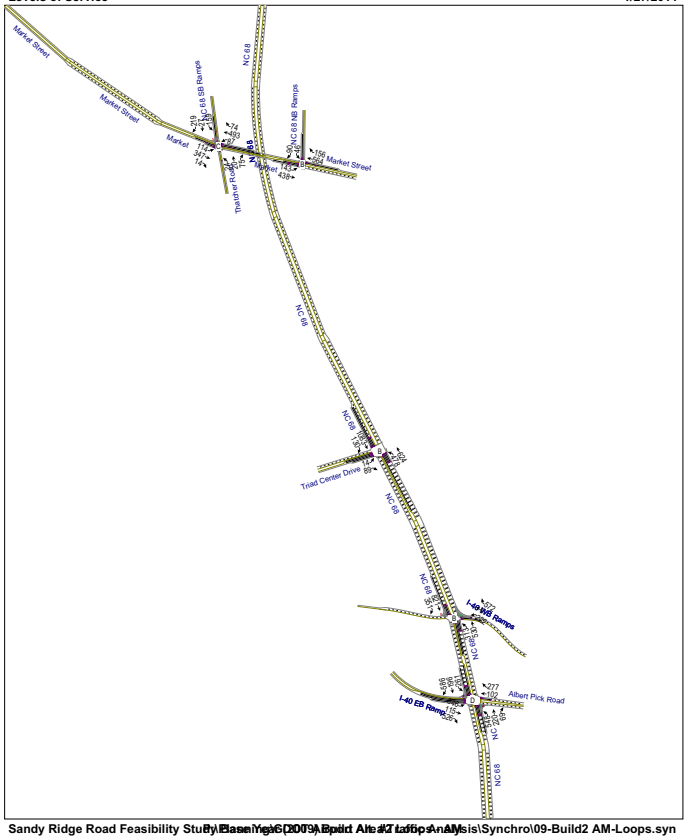
Map - Sandy Ridge Road Feasibility Study
Levels of Service **1/27/2011**



Sandy Ridge Road Feasibility Study By Base Year (2009) Build Alt. #2 Loops - AM Synchro 7 - Report
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Sandy Ridge Road Feasibility Study — Base Year (2009) Build Alt. #2 Loops - AM
1: Cider Road & Sandy Ridge Road

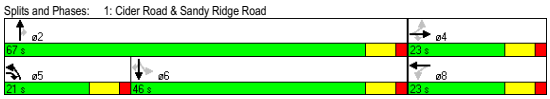
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	4	0	4	2	0	2	1	796	3	4	455	2
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	100		0	100		0	500		150	150		150
Storage Lanes	0		1	0		0	1		1	1		1
Taper Length (ft)	25		25	25		25	25		25	25		50
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.91	1.00	1.00	0.91	1.00
Frt			0.850		0.932				0.850			0.850
Flt Protected		0.950			0.976		0.950			0.950		
Satd. Flow (prot)	0	1719	1538	0	1646	0	1719	4940	1538	1719	4940	1538
Flt Permitted					0.882		0.950			0.309		
Satd. Flow (perm)	0	1810	1538	0	1487	0	1719	4940	1538	559	4940	1538
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		30			30			35			35	
Link Distance (ft)		909			308			1068			391	
Travel Time (s)		20.7			7.0			20.8			7.6	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	4	0	4	2	0	2	1	884	3	4	506	2
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	4	4	0	4	0	1	884	3	4	506	2
Turn Type	Perm		pm+ov	Perm			Prot		Perm	Perm		Perm
Protected Phases		4	5		8		5	2			6	
Permitted Phases	4		4	8					2	6		6
Detector Phase	4	4	5	8	8		5	2	2	6	6	6
Switch Phase												
Minimum Initial (s)	7.0	7.0	7.0	7.0	7.0		7.0	12.0	12.0	12.0	12.0	12.0
Minimum Split (s)	17.0	17.0	14.0	17.0	17.0		14.0	19.0	19.0	19.0	19.0	19.0
Total Split (s)	23.0	23.0	21.0	23.0	23.0	0.0	21.0	67.0	67.0	46.0	46.0	46.0
Total Split (%)	25.6%	25.6%	23.3%	25.6%	25.6%	0.0%	23.3%	74.4%	74.4%	51.1%	51.1%	51.1%
Maximum Green (s)	16.0	16.0	14.0	16.0	16.0		14.0	60.0	60.0	39.0	39.0	39.0
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0		2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	2.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag			Lead				Lead			Lag	Lag	Lag
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	None	None		None	C-Min	C-Min	C-Min	C-Min	C-Min
Act Effct Green (s)		9.0	11.8		9.0		9.0	86.2	86.2	83.4	83.4	83.4
Actuated g/C Ratio		0.10	0.13		0.10		0.10	0.96	0.96	0.93	0.93	0.93
v/c Ratio		0.02	0.02		0.03		0.01	0.19	0.00	0.01	0.11	0.00
Control Delay		37.0	30.2		37.2		48.0	0.4	0.7	2.8	1.5	3.0
Queue Delay		0.0	0.0		0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay		37.0	30.2		37.2		48.0	0.4	0.7	2.8	1.5	3.0
LOS		D	C		D		D	A	A	A	A	A
Approach Delay		33.6			37.3			0.4			1.5	
Approach LOS		C			D			A			A	
Queue Length 50th (ft)		2	2		2		1	0	0	0	0	0

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 95th (ft)		12	10		12		m1	15	m0	m2	40	m1
Internal Link Dist (ft)		829			228			988			311	
Turn Bay Length (ft)							500		150	150		150
Base Capacity (vph)		362	321		297		306	4731	1473	518	4578	1425
Starvation Cap Reductn		0	0		0		0	0	0	0	0	0
Spillback Cap Reductn		0	0		0		0	0	0	0	0	0
Storage Cap Reductn		0	0		0		0	0	0	0	0	0
Reduced v/c Ratio		0.01	0.01		0.01		0.00	0.19	0.00	0.01	0.11	0.00

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 32 (36%), Referenced to phase 2:NBT and 6:SBTL, Start of Green
Natural Cycle: 50
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.19
Intersection Signal Delay: 1.1 — Intersection LOS: A
Intersection Capacity Utilization 38.3% — ICU Level of Service A
Analysis Period (min) 15
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 1: Cider Road & Sandy Ridge Road



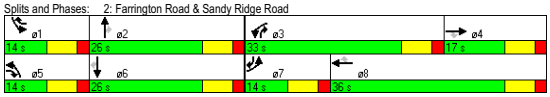
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	22	0	7	647	0	77	38	701	218	78	351	32
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	200		0	300		350	550		150	250		300
Storage Lanes	1		1	1		1	1		1	2		1
Taper Length (ft)	100		25	25		25	175		25	100		100
Lane Util. Factor	1.00	1.00	1.00	0.97	1.00	1.00	0.97	0.91	1.00	0.97	0.91	1.00
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1547	1629	1384	3001	1629	1384	3001	4446	1384	3001	4446	1384
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1547	1629	1384	3001	1629	1384	3001	4446	1384	3001	4446	1384
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		30			30			35			35	
Link Distance (ft)		1686			875			711			1068	
Travel Time (s)		38.3			19.9			13.9			20.8	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	24	0	8	719	0	86	42	779	242	87	390	36
Shared Lane Traffic (%)												
Lane Group Flow (vph)	24	0	8	719	0	86	42	779	242	87	390	36
Turn Type	Prot		pm+ov	Prot		pm+ov	Prot		pm+ov	Prot		pm+ov
Protected Phases	7	4	5	3	8	1	5	2	3	1	6	7
Permitted Phases			4			8			2			6
Detector Phase	7	4	5	3	8	1	5	2	3	1	6	7
Switch Phase												
Minimum Initial (s)	7.0	7.0	7.0	7.0	7.0	7.0	7.0	15.0	7.0	7.0	15.0	7.0
Minimum Split (s)	14.0	17.0	14.0	14.0	17.0	14.0	14.0	22.0	14.0	14.0	22.0	14.0
Total Split (s)	14.0	17.0	14.0	33.0	36.0	14.0	14.0	26.0	33.0	14.0	26.0	14.0
Total Split (%)	15.6%	18.9%	15.6%	36.7%	40.0%	15.6%	15.6%	28.9%	36.7%	15.6%	28.9%	15.6%
Maximum Green (s)	7.0	10.0	7.0	26.0	29.0	7.0	7.0	19.0	26.0	7.0	19.0	7.0
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead	Lag	Lead	Lead	Lag	Lead	Lead	Lag	Lead	Lead	Lag	Lead
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	None	None	None	None	C-Max	None	None	C-Max	None
Act Effct Green (s)	20.4		9.3	26.6		24.7	9.3	38.3	70.9	12.9	44.7	70.1
Actuated g/C Ratio	0.23		0.10	0.30		0.27	0.10	0.43	0.79	0.14	0.50	0.78
v/c Ratio	0.07		0.06	0.81		0.23	0.14	0.41	0.22	0.20	0.18	0.03
Control Delay	23.3		37.1	37.4		31.9	35.0	18.2	7.6	42.4	8.8	1.2
Queue Delay	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	23.3		37.1	37.4		31.9	35.0	18.2	7.6	42.4	8.8	1.2
LOS	C		D	D		C	C	B	A	D	A	A
Approach Delay								16.4			14.0	
Approach LOS								B			B	
Queue Length 50th (ft)	10		4	189		45	9	110	48	25	23	2

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 95th (ft)	28		17	257		85	25	158	108	47	50	4
Internal Link Dist (ft)		1606			795			631			988	
Turn Bay Length (ft)	200			300		350	550		150	250		300
Base Capacity (vph)	351		143	934		380	310	1892	1094	431	2209	1078
Starvation Cap Reductn	0		0	0		0	0	0	0	0	0	0
Spillback Cap Reductn	0		0	0		0	0	0	0	0	0	0
Storage Cap Reductn	0		0	0		0	0	0	0	0	0	0
Reduced v/c Ratio	0.07		0.06	0.77		0.23	0.14	0.41	0.22	0.20	0.18	0.03

Intersection Summary

Area Type: CBD
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 54 (60%), Referenced to phase 2:NBT and 6:SBT, Start of Green
Natural Cycle: 75
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.81
Intersection Signal Delay: 22.9 — Intersection LOS: C
Intersection Capacity Utilization 60.6% — ICU Level of Service B
Analysis Period (min) 15

Splits and Phases: 2: Farrington Road & Sandy Ridge Road



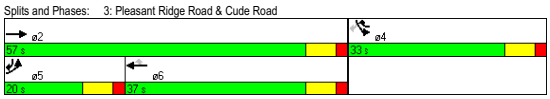
Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (vph)	21	461	376	108	135	22
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	450			300	0	300
Storage Lanes	1			1	1	1
Taper Length (ft)	25			25	25	25
Lane Util. Factor	1.00	0.95	0.95	1.00	1.00	1.00
Frt				0.850		0.850
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1719	3438	3438	1538	1719	1538
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	1719	3438	3438	1538	1719	1538
Right Turn on Red				No		No
Satd. Flow (RTOR)						
Link Speed (mph)		50	50		45	
Link Distance (ft)		1731	1912		1274	
Travel Time (s)		23.6	26.1		19.3	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	23	512	418	120	150	24
Shared Lane Traffic (%)						
Lane Group Flow (vph)	23	512	418	120	150	24
Turn Type	Prot			pm+ov		pm+ov
Protected Phases	5	2	6	4	4	5
Permitted Phases				6		4
Detector Phase	5	2	6	4	4	5
Switch Phase						
Minimum Initial (s)	7.0	14.0	14.0	7.0	7.0	7.0
Minimum Split (s)	14.0	21.0	21.0	17.0	17.0	14.0
Total Split (s)	20.0	57.0	37.0	33.0	33.0	20.0
Total Split (%)	22.2%	63.3%	41.1%	36.7%	36.7%	22.2%
Maximum Green (s)	13.0	50.0	30.0	26.0	26.0	13.0
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead		Lag			Lead
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	C-Max	C-Max	Max	Max	None
Act Effct Green (s)	9.4	52.0	43.2	78.2	28.0	42.4
Actuated g/C Ratio	0.10	0.58	0.48	0.87	0.31	0.47
v/c Ratio	0.13	0.26	0.25	0.09	0.28	0.03
Control Delay	58.5	2.3	13.2	1.4	25.2	12.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	58.5	2.3	13.2	1.4	25.2	12.8
LOS	E	A	B	A	C	B
Approach Delay		4.7	10.6		23.5	
Approach LOS		A	B		C	
Queue Length 50th (ft)	11	5	62	9	64	7

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Queue Length 95th (ft)	m29	34	84	16	113	20
Internal Link Dist (ft)		1651	1832		1194	
Turn Bay Length (ft)	450			300		300
Base Capacity (vph)	287	1986	1650	1336	535	820
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.08	0.26	0.25	0.09	0.28	0.03

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 50 (56%), Referenced to phase 2:EBT and 6:WBT, Start of Green
Natural Cycle: 55
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.28
Intersection Signal Delay: 9.9 — Intersection LOS: A
Intersection Capacity Utilization 33.3% — ICU Level of Service A
Analysis Period (min) 15
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 3: Pleasant Ridge Road & Cude Road



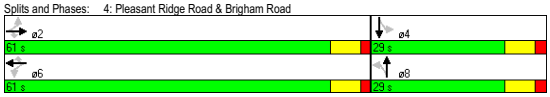
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	10	515	70	5	426	0	23	0	2	0	0	30
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	150		150	150		250	0		0	200		0
Storage Lanes	1		1	1		1	0		0	1		0
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850					0.990			0.850	
Flt Protected	0.950			0.950				0.956				
Satd. Flow (prot)	1719	3438	1538	1719	3438	1810	0	1713	0	1810	1538	0
Flt Permitted	0.477			0.423				0.793				
Satd. Flow (perm)	863	3438	1538	765	3438	1810	0	1421	0	1810	1538	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		50			50			45			30	
Link Distance (ft)		1912			850			1411			730	
Travel Time (s)		26.1			11.6			21.4			16.6	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	11	572	78	6	473	0	26	0	2	0	0	33
Shared Lane Traffic (%)												
Lane Group Flow (vph)	11	572	78	6	473	0	0	28	0	0	33	0
Turn Type	Perm		Perm	Perm		Perm	Perm			Perm		
Protected Phases		2			6			8			4	
Permitted Phases	2		2	6		6	8			4		
Detector Phase	2	2	2	6	6	6	8	8		4	4	
Switch Phase												
Minimum Initial (s)	14.0	14.0	14.0	14.0	14.0	14.0	7.0	7.0		7.0	7.0	
Minimum Split (s)	21.0	21.0	21.0	21.0	21.0	21.0	17.0	17.0		17.0	17.0	
Total Split (s)	61.0	61.0	61.0	61.0	61.0	61.0	29.0	29.0	0.0	29.0	29.0	0.0
Total Split (%)	67.8%	67.8%	67.8%	67.8%	67.8%	67.8%	32.2%	32.2%	0.0%	32.2%	32.2%	0.0%
Maximum Green (s)	54.0	54.0	54.0	54.0	54.0	54.0	22.0	22.0		22.0	22.0	
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0		5.0	5.0	
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	2.0	5.0	5.0	2.0
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Recall Mode	C-Max	C-Max	C-Max	C-Max	C-Max	C-Max	Max	Max		Max	Max	
Act Effct Green (s)	56.0	56.0	56.0	56.0	56.0			24.0			24.0	
Actuated g/C Ratio	0.62	0.62	0.62	0.62	0.62			0.27			0.27	
v/c Ratio	0.02	0.27	0.08	0.01	0.22			0.07			0.08	
Control Delay	5.0	4.7	4.7	6.6	7.8			25.5			25.5	
Queue Delay	0.0	0.0	0.0	0.0	0.0			0.0			0.0	
Total Delay	5.0	4.7	4.7	6.6	7.8			25.5			25.5	
LOS	A	A	A	A	A			C			C	
Approach Delay		4.7			7.8			25.5			25.5	
Approach LOS		A			A			C			C	
Queue Length 50th (ft)	1	37	10	1	56			12			14	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 95th (ft)	m7	82	31	6	78			33			37	
Internal Link Dist (ft)		1832			770			1331			650	
Turn Bay Length (ft)	150		150	150								
Base Capacity (vph)	537	2139	957	476	2139			379			410	
Starvation Cap Reductn	0	0	0	0	0			0			0	
Spillback Cap Reductn	0	0	0	0	0			0			0	
Storage Cap Reductn	0	0	0	0	0			0			0	
Reduced v/c Ratio	0.02	0.27	0.08	0.01	0.22			0.07			0.08	

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 36 (40%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green
Natural Cycle: 40
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.27
Intersection Signal Delay: 7.0 — Intersection LOS: A
Intersection Capacity Utilization 41.7% — ICU Level of Service A
Analysis Period (min) 15
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 4: Pleasant Ridge Road & Brigham Road



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	346	115	526	0	102	277	548	220	69	261	196	586
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		-2%			2%			-1%			1%	
Storage Length (ft)	438		325	0		0	250		275	300		275
Storage Lanes	2		1	0		1	1		1	1		1
Taper Length (ft)	100		25	25		25	25		25	25		25
Lane Util. Factor	0.97	1.00	1.00	1.00	1.00	1.00	1.00	0.91	1.00	1.00	0.91	1.00
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950						0.950			0.950		
Satd. Flow (prot)	3368	1828	1553	0	1791	1523	1728	4965	1546	1710	4915	1530
Flt Permitted	0.950						0.950			0.950		
Satd. Flow (perm)	3368	1828	1553	0	1791	1523	1728	4965	1546	1710	4915	1530
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		35			35			55			55	
Link Distance (ft)		867			502			480			821	
Travel Time (s)		16.9			9.8			6.0			10.2	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	384	128	584	0	113	308	609	244	77	290	218	651
Shared Lane Traffic (%)												
Lane Group Flow (vph)	384	128	584	0	113	308	609	244	77	290	218	651
Turn Type	Prot		pm+ov			pm+ov	Prot		Perm	Prot		pm+ov
Protected Phases	7	4	5		8	1	5	2		1	6	7
Permitted Phases			4			8			2			6
Detector Phase	7	4	5		8	1	5	2	2	1	6	7
Switch Phase												
Minimum Initial (s)	7.0	7.0	7.0		7.0	7.0	7.0	14.0	14.0	7.0	14.0	7.0
Minimum Split (s)	14.0	17.0	14.0		17.0	14.0	14.0	21.0	21.0	14.0	21.0	14.0
Total Split (s)	22.0	39.0	35.0	0.0	17.0	31.0	35.0	25.0	25.0	31.0	21.0	22.0
Total Split (%)	23.2%	41.1%	36.8%	0.0%	17.9%	32.6%	36.8%	26.3%	26.3%	32.6%	22.1%	23.2%
Maximum Green (s)	15.0	32.0	28.0		10.0	24.0	28.0	18.0	18.0	24.0	14.0	15.0
Yellow Time (s)	5.0	5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0		2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	2.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead		Lead		Lag	Lead	Lead	Lag	Lag	Lead	Lag	Lead
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None		None	None	None	C-Min	C-Min	None	C-Min	None
Act Effct Green (s)	17.0	33.3	69.0		11.3	38.6	30.7	24.4	24.4	22.3	16.0	38.0
Actuated g/C Ratio	0.18	0.35	0.73		0.12	0.41	0.32	0.26	0.26	0.23	0.17	0.40
v/c Ratio	0.64	0.20	0.52		0.53	0.50	1.09	0.19	0.19	0.72	0.26	1.06
Control Delay	41.6	22.3	7.7		48.8	23.3	97.7	29.4	31.6	45.2	27.2	82.2
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	41.6	22.3	7.7		48.8	23.3	97.7	29.4	31.6	45.2	27.2	82.2
LOS	D	C	A		D	C	F	C	C	D	C	F
Approach Delay		21.3			30.2			74.3			62.6	
Approach LOS		C			C			E			E	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 50th (ft)	111	53	130		65	131	~425	43	37	87	45	~452
Queue Length 95th (ft)	159	95	200		120	196	#632	68	79	266	44	#673
Internal Link Dist (ft)		787			422			400			741	
Turn Bay Length (ft)	438		325				250		275	300		275
Base Capacity (vph)	603	654	1128		226	678	559	1276	397	468	828	612
Starvation Cap Reductn	0	0	0		0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0		0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0		0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.64	0.20	0.52		0.50	0.45	1.09	0.19	0.19	0.62	0.26	1.06

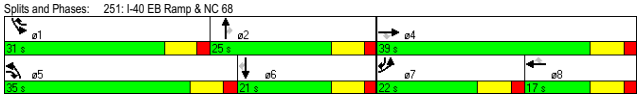
Intersection Summary

Area Type: Other
Cycle Length: 95
Actuated Cycle Length: 95
Offset: 40 (42%), Referenced to phase 2:NBT and 6:SBT, Start of Green
Natural Cycle: 110
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.09
Intersection Signal Delay: 49.3 — Intersection LOS: D
Intersection Capacity Utilization 85.0% — ICU Level of Service E
Analysis Period (min) 15

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 251: I-40 EB Ramp & NC 68



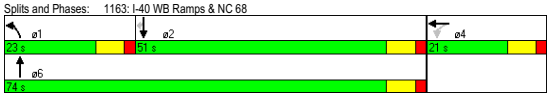
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	0	0	222	0	572	313	530	0	0	821	351
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		0%			-2%			0%			-1%	
Storage Length (ft)	0		0	200		0	325		0	0		400
Storage Lanes	0		0	1		1	2		0	0		1
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	1.00	1.00	1.00	0.95	0.95	1.00	0.97	0.91	1.00	1.00	0.91	1.00
Frt						0.850						0.850
Flt Protected				0.950	0.950		0.950					
Satd. Flow (prot)	0	0	0	1649	1649	1553	3335	4940	0	0	4965	1546
Flt Permitted				0.950	0.950		0.950					
Satd. Flow (perm)	0	0	0	1649	1649	1553	3335	4940	0	0	4965	1546
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		30			35			55			55	
Link Distance (ft)		712			820			821			1007	
Travel Time (s)		16.2			16.0			10.2			12.5	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	0	0	0	247	0	636	348	589	0	0	912	390
Shared Lane Traffic (%)				50%								
Lane Group Flow (vph)	0	0	0	123	124	636	348	589	0	0	912	390
Turn Type				Perm		Free	Prot					Perm
Protected Phases					4		1	6			2	
Permitted Phases				4		Free						2
Detector Phase				4	4		1	6			2	2
Switch Phase												
Minimum Initial (s)				7.0	7.0		7.0	14.0			14.0	14.0
Minimum Split (s)				17.0	17.0		14.0	21.0			21.0	21.0
Total Split (s)	0.0	0.0	0.0	21.0	21.0	0.0	23.0	74.0	0.0	0.0	51.0	51.0
Total Split (%)	0.0%	0.0%	0.0%	22.1%	22.1%	0.0%	24.2%	77.9%	0.0%	0.0%	53.7%	53.7%
Maximum Green (s)				14.0	14.0		16.0	67.0			44.0	44.0
Yellow Time (s)				5.0	5.0		5.0	5.0			5.0	5.0
All-Red Time (s)				2.0	2.0		2.0	2.0			2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	2.0	2.0	2.0	5.0	5.0	2.0	5.0	5.0	2.0	2.0	5.0	5.0
Lead/Lag							Lead				Lag	Lag
Lead-Lag Optimize?												
Vehicle Extension (s)				3.0	3.0		3.0	3.0			3.0	3.0
Recall Mode				None	None		None	C-Min			C-Min	C-Min
Act Effct Green (s)				13.8	13.8	95.0	16.4	71.2			49.8	49.8
Actuated g/C Ratio				0.15	0.15	1.00	0.17	0.75			0.52	0.52
v/c Ratio				0.51	0.52	0.41	0.60	0.16			0.35	0.48
Control Delay				44.8	45.0	0.8	36.8	3.3			3.9	6.6
Queue Delay				0.0	0.0	0.0	0.0	0.0			0.0	0.0
Total Delay				44.8	45.0	0.8	36.8	3.3			3.9	6.6
LOS				D	D	A	D	A			A	A
Approach Delay					13.1			15.7			4.7	
Approach LOS					B			B			A	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 50th (ft)				72	73	0	88	6			16	20
Queue Length 95th (ft)				129	130	0	141	74			18	24
Internal Link Dist (ft)		632			740			741			927	
Turn Bay Length (ft)				200			325					400
Base Capacity (vph)				280	280	1553	637	3710			2615	814
Starvation Cap Reductn				0	0	0	0	0			0	0
Spillback Cap Reductn				0	0	0	0	0			0	0
Storage Cap Reductn				0	0	0	0	0			0	0
Reduced v/c Ratio				0.44	0.44	0.41	0.55	0.16			0.35	0.48

Intersection Summary

Area Type: Other
Cycle Length: 95
Actuated Cycle Length: 95
Offset: 20 (21%), Referenced to phase 2:SBT and 6:NBT, Start of Green
Natural Cycle: 60
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.60
Intersection Signal Delay: 10.4 — Intersection LOS: B
Intersection Capacity Utilization 49.3% — ICU Level of Service A
Analysis Period (min) 15

Splits and Phases: 1163: I-40 WB Ramps & NC 68



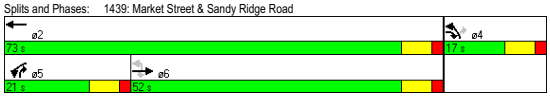
Lane Group	EBU	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations							
Volume (vph)	0	578	220	241	249	226	576
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900
Grade (%)		1%			-1%	0%	
Storage Length (ft)	200		600	600		450	0
Storage Lanes	1		1	2		1	1
Taper Length (ft)	25		25	25		25	25
Lane Util. Factor	1.00	1.00	1.00	0.97	1.00	0.97	0.88
Frt			0.850				0.850
Flt Protected				0.950		0.950	
Satd. Flow (prot)	1800	1800	1530	3352	1819	3335	2707
Flt Permitted				0.950		0.950	
Satd. Flow (perm)	1800	1800	1530	3352	1819	3335	2707
Right Turn on Red			No				No
Satd. Flow (RTOR)							
Link Speed (mph)		45			45	35	
Link Distance (ft)		752			1348	610	
Travel Time (s)		11.4			20.4	11.9	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	0	642	244	268	277	251	640
Shared Lane Traffic (%)							
Lane Group Flow (vph)	0	642	244	268	277	251	640
Turn Type	Perm		pm+ov	Prot			pm+ov
Protected Phases		6	4	5	2	4	5
Permitted Phases	6		6				4
Detector Phase	6	6	4	5	2	4	5
Switch Phase							
Minimum Initial (s)	15.0	15.0	7.0	7.0	15.0	7.0	7.0
Minimum Split (s)	22.0	22.0	17.0	14.0	22.0	17.0	14.0
Total Split (s)	52.0	52.0	17.0	21.0	73.0	17.0	21.0
Total Split (%)	57.8%	57.8%	18.9%	23.3%	81.1%	18.9%	23.3%
Maximum Green (s)	45.0	45.0	10.0	14.0	66.0	10.0	14.0
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lag	Lag		Lead			Lead
Lead-Lag Optimize?							
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	C-Min	C-Min	None	None	C-Min	None	None
Act Effct Green (s)		48.3	66.0	14.0	67.3	12.7	31.7
Actuated g/C Ratio		0.54	0.73	0.16	0.75	0.14	0.35
v/c Ratio		0.66	0.22	0.51	0.20	0.53	0.67
Control Delay		19.9	4.6	33.6	4.1	24.9	13.5
Queue Delay		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay		19.9	4.6	33.6	4.1	24.9	13.5
LOS		B	A	C	A	C	B
Approach Delay		15.7			18.6	16.7	
Approach LOS		B			B	B	

Lane Group	EBU	EBT	EBR	WBL	WBT	NBL	NBR
Queue Length 50th (ft)		261	38	71	61	24	32
Queue Length 95th (ft)		383	67	99	80	43	259
Internal Link Dist (ft)		672			1268	530	
Turn Bay Length (ft)			600	600		450	
Base Capacity (vph)		977	1126	596	1379	480	1013
Starvation Cap Reductn		0	0	0	0	0	0
Spillback Cap Reductn		0	0	0	0	0	0
Storage Cap Reductn		0	0	0	0	0	0
Reduced v/c Ratio		0.66	0.22	0.45	0.20	0.52	0.63

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 36 (40%), Referenced to phase 2:WBT and 6:EBTU, Start of Green
Natural Cycle: 60
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.67
Intersection Signal Delay: 16.8 — Intersection LOS: B
Intersection Capacity Utilization 58.9% — ICU Level of Service B
Analysis Period (min) 15

Splits and Phases: 1439: Market Street & Sandy Ridge Road



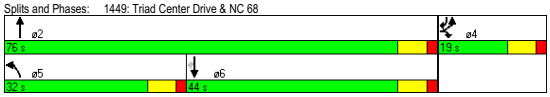
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	14	89	478	624	1083	130
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Grade (%)	-3%			-2%	-1%	
Storage Length (ft)	263	200	625			438
Storage Lanes	2	1	1			2
Taper Length (ft)	25	25	25			25
Lane Util. Factor	0.97	0.88	0.97	0.91	0.91	1.00
Frt		0.850				0.850
Flt Protected	0.950		0.950			
Satd. Flow (prot)	3385	2748	3368	4989	4965	1546
Flt Permitted	0.950		0.950			
Satd. Flow (perm)	3385	2748	3368	4989	4965	1546
Right Turn on Red		No				No
Satd. Flow (RTOR)						
Link Speed (mph)	30			55	55	
Link Distance (ft)	638			799	1245	
Travel Time (s)	14.5			9.9	15.4	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	16	99	531	693	1203	144
Shared Lane Traffic (%)						
Lane Group Flow (vph)	16	99	531	693	1203	144
Turn Type		Prot	Prot			pm+ov
Protected Phases	4	4	5	2	6	4
Permitted Phases						6
Detector Phase	4	4	5	2	6	4
Switch Phase						
Minimum Initial (s)	7.0	7.0	7.0	14.0	14.0	7.0
Minimum Split (s)	17.0	17.0	14.0	21.0	21.0	17.0
Total Split (s)	19.0	19.0	32.0	76.0	44.0	19.0
Total Split (%)	20.0%	20.0%	33.7%	80.0%	46.3%	20.0%
Maximum Green (s)	12.0	12.0	25.0	69.0	37.0	12.0
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag			Lead		Lag	
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	C-Min	C-Min	None
Act Effct Green (s)	10.9	10.9	22.1	74.1	47.0	62.9
Actuated g/C Ratio	0.11	0.11	0.23	0.78	0.49	0.66
v/c Ratio	0.04	0.31	0.68	0.18	0.49	0.14
Control Delay	36.5	40.8	37.7	2.8	17.7	7.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	36.5	40.8	37.7	2.8	17.7	7.1
LOS	D	D	D	A	B	A
Approach Delay	40.2			18.0	16.6	
Approach LOS	D			B	B	

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Queue Length 50th (ft)	4	31	144	28	169	29
Queue Length 95th (ft)	13	57	194	33	244	61
Internal Link Dist (ft)	558			719	1165	
Turn Bay Length (ft)	263	200	625			438
Base Capacity (vph)	499	405	957	3889	2457	1074
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.03	0.24	0.55	0.18	0.49	0.13

Intersection Summary

Area Type: Other
Cycle Length: 95
Actuated Cycle Length: 95
Offset: 94 (99%), Referenced to phase 2:NBT and 6:SBT, Start of Green
Natural Cycle: 55
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.68
Intersection Signal Delay: 18.2 — Intersection LOS: B
Intersection Capacity Utilization 52.9% — ICU Level of Service A
Analysis Period (min) 15

Splits and Phases: 1449: Triad Center Drive & NC 68



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	114	347	14	87	493	74	24	20	75	159	27	219
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	200		75	375		300	0		0	0		250
Storage Lanes	1		1	1		1	0		0	0		1
Taper Length (ft)	25		25	75		25	25		25	25		25
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850			0.850		0.915				0.850
Flt Protected	0.950			0.950				0.990			0.959	
Satd. Flow (prot)	1719	1810	1538	1719	1810	1538	0	1639	0	0	1735	1538
Flt Permitted	0.417			0.336				0.990			0.959	
Satd. Flow (perm)	755	1810	1538	608	1810	1538	0	1639	0	0	1735	1538
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		45			45			55			35	
Link Distance (ft)		630			849			475			493	
Travel Time (s)		9.5			12.9			5.9			9.6	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	127	386	16	97	548	82	27	22	83	177	30	243
Shared Lane Traffic (%)												
Lane Group Flow (vph)	127	386	16	97	548	82	0	132	0	0	207	243
Turn Type	Perm		Perm	pm+pt		Perm	Split			Split		Perm
Protected Phases		2		1	6		8	8		4	4	
Permitted Phases	2		2	6		6						4
Detector Phase	2	2	2	1	6	6	8	8		4	4	4
Switch Phase												
Minimum Initial (s)	12.0	12.0	12.0	7.0	12.0	12.0	7.0	7.0		7.0	7.0	7.0
Minimum Split (s)	18.0	18.0	18.0	14.0	18.0	18.0	17.0	17.0		17.0	17.0	17.0
Total Split (s)	39.0	39.0	39.0	14.0	53.0	53.0	19.0	19.0	0.0	28.0	28.0	28.0
Total Split (%)	39.0%	39.0%	39.0%	14.0%	53.0%	53.0%	19.0%	19.0%	0.0%	28.0%	28.0%	28.0%
Maximum Green (s)	33.0	33.0	33.0	8.0	47.0	47.0	13.0	13.0		22.0	22.0	22.0
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0		2.0	2.0	2.0
Lost Time Adjust (s)	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	3.0	5.0	5.0	5.0
Lead/Lag	Lag	Lag	Lag	Lead								
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0
Recall Mode	C-Min	C-Min	C-Min	None	C-Max	C-Max	Min	Min		None	None	None
Act Effct Green (s)	40.9	40.9	40.9	52.0	52.0	52.0		12.7			20.3	20.3
Actuated g/C Ratio	0.41	0.41	0.41	0.52	0.52	0.52		0.13			0.20	0.20
v/c Ratio	0.41	0.52	0.03	0.23	0.58	0.10		0.63			0.59	0.78
Control Delay	29.9	28.1	22.2	11.1	16.1	10.2		55.4			42.8	55.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0		0.0			0.0	0.0
Total Delay	29.9	28.1	22.2	11.1	16.1	10.2		55.4			42.8	55.1
LOS	C	C	C	B	B	B		E			D	E
Approach Delay		28.3			14.8			55.4			49.5	
Approach LOS		C			B			E			D	
Queue Length 50th (ft)	64	204	7	26	272	22		80			118	144

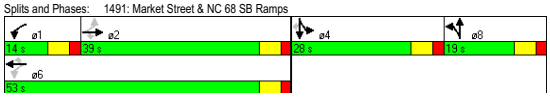
1491: Market Street & NC 68 SB Ramps

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 95th (ft)	125	306	22	40	160	35		142			189	#232
Internal Link Dist (ft)		550			769			395			413	
Turn Bay Length (ft)	200		75	375		300						250
Base Capacity (vph)	309	740	629	418	942	800		230			399	354
Starvation Cap Reductn	0	0	0	0	0	0		0			0	0
Spillback Cap Reductn	0	0	0	0	0	0		0			0	0
Storage Cap Reductn	0	0	0	0	0	0		0			0	0
Reduced v/c Ratio	0.41	0.52	0.03	0.23	0.58	0.10		0.57			0.52	0.69

Intersection Summary

Area Type: Other
Cycle Length: 100
Actuated Cycle Length: 100
Offset: 14 (14%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green
Natural Cycle: 75
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.78
Intersection Signal Delay: 30.1 — Intersection LOS: C
Intersection Capacity Utilization 65.3% — ICU Level of Service C
Analysis Period (min) 15
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 1491: Market Street & NC 68 SB Ramps



1601: I-40 WB On-Ramp & Sandy Ridge Road

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	0	0	168	0	325	0	707	417	0	701	297
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		0%			2%			-4%			4%	
Storage Length (ft)	0		0	0		0	0		750	0		0
Storage Lanes	0		0	1		1	1		1	1		1
Taper Length (ft)	25		25	25		25	100		100	25		25
Lane Util. Factor	1.00	1.00	1.00	0.95	0.91	0.95	1.00	0.91	1.00	1.00	0.91	1.00
Frt					0.865	0.850			0.850			0.850
Flt Protected				0.950	0.995							
Satd. Flow (prot)	0	0	0	1617	1403	1447	0	5039	1569	0	4841	1507
Flt Permitted				0.950	0.995							
Satd. Flow (perm)	0	0	0	1617	1403	1447	0	5039	1569	0	4841	1507
Right Turn on Red			No			No			No			Yes
Satd. Flow (RTOR)												330
Link Speed (mph)		30			35			45			45	
Link Distance (ft)		897			323			890			361	
Travel Time (s)		20.4			6.3			13.5			5.5	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	0	0	0	187	0	361	0	786	463	0	779	330
Shared Lane Traffic (%)				10%		48%						
Lane Group Flow (vph)	0	0	0	168	192	188	0	786	463	0	779	330
Turn Type				Perm		Perm			Free			Perm
Protected Phases					8			2			6	
Permitted Phases				8		8			Free			6
Detector Phase				8	8	8		2			6	6
Switch Phase												
Minimum Initial (s)				7.0	7.0	7.0		15.0			15.0	15.0
Minimum Split (s)				17.0	17.0	17.0		22.0			22.0	22.0
Total Split (s)	0.0	0.0	0.0	41.0	41.0	41.0	0.0	49.0	0.0	0.0	49.0	49.0
Total Split (%)	0.0%	0.0%	0.0%	45.6%	45.6%	45.6%	0.0%	54.4%	0.0%	0.0%	54.4%	54.4%
Maximum Green (s)				34.0	34.0	34.0		42.0			42.0	42.0
Yellow Time (s)				5.0	5.0	5.0		5.0			5.0	5.0
All-Red Time (s)				2.0	2.0	2.0		2.0			2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	2.0	2.0	2.0	5.0	5.0	5.0	2.0	5.0	2.0	2.0	5.0	5.0
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)				3.0	3.0	3.0		3.0			3.0	3.0
Recall Mode				None	None	None		C-Min			C-Min	C-Min
Act Effct Green (s)				20.5	20.5	20.5		59.5	90.0		59.5	59.5
Actuated g/C Ratio				0.23	0.23	0.23		0.66	1.00		0.66	0.66
v/c Ratio				0.46	0.60	0.57		0.24	0.30		0.24	0.30
Control Delay				32.5	37.9	36.5		3.7	2.4		4.2	1.3
Queue Delay				0.0	0.0	0.0		0.0	0.0		0.0	0.0
Total Delay				32.5	37.9	36.5		3.7	2.4		4.2	1.3
LOS				C	D	D		A	A		A	A
Approach Delay					35.7			3.2			3.4	
Approach LOS					D			A			A	

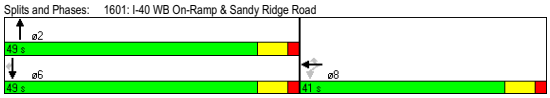
1601: I-40 WB On-Ramp & Sandy Ridge Road

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 50th (ft)				87	107	100		19	0		23	0
Queue Length 95th (ft)				131	160	150		54	132		54	m0
Internal Link Dist (ft)		817			243			810			281	
Turn Bay Length (ft)									750			
Base Capacity (vph)				647	561	579		3329	1569		3198	1108
Starvation Cap Reductn				0	0	0		0	0		0	0
Spillback Cap Reductn				0	0	0		0	0		0	0
Storage Cap Reductn				0	0	0		0	0		0	0
Reduced v/c Ratio				0.26	0.34	0.32		0.24	0.30		0.24	0.30

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 6 (7%), Referenced to phase 2:NBT and 6:SBT, Start of Green
Natural Cycle: 40
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.60
Intersection Signal Delay: 9.4 — Intersection LOS: A
Intersection Capacity Utilization 35.4% — ICU Level of Service A
Analysis Period (min) 15
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 1601: I-40 WB On-Ramp & Sandy Ridge Road



1648: I-40 EB Off-Ramp & Sandy Ridge Road

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	522	0	288	0	0	0	0	602	301	0	640	229
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		3%			0%			4%			0%	
Storage Length (ft)	250		0	0		0	0		400	0		750
Storage Lanes	1		1	0		0	0		1	0		1
Taper Length (ft)	25		25	25		25	25		25	25		100
Lane Util. Factor	0.94	0.95	0.95	1.00	1.00	1.00	1.00	0.91	1.00	1.00	0.91	1.00
Frt		0.850	0.850						0.850			0.850
Flt Protected	0.950											
Satd. Flow (prot)	4775	1439	1439	0	0	0	0	4841	1507	0	4940	1538
Flt Permitted	0.950											
Satd. Flow (perm)	4775	1439	1439	0	0	0	0	4841	1507	0	4940	1538
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		35			30			45			35	
Link Distance (ft)		321			929			495			890	
Travel Time (s)		6.3			21.1			7.5			17.3	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	580	0	320	0	0	0	0	669	334	0	711	254
Shared Lane Traffic (%)			50%									
Lane Group Flow (vph)	580	160	160	0	0	0	0	669	334	0	711	254
Turn Type	Perm		Perm						Perm			Free
Protected Phases		4						2			6	
Permitted Phases	4		4						2			Free
Detector Phase	4	4	4					2	2		6	
Switch Phase												
Minimum Initial (s)	7.0	7.0	7.0					7.0	7.0		7.0	
Minimum Split (s)	17.0	17.0	17.0					17.0	17.0		17.0	
Total Split (s)	35.0	35.0	35.0	0.0	0.0	0.0	0.0	55.0	55.0	0.0	55.0	0.0
Total Split (%)	38.9%	38.9%	38.9%	0.0%	0.0%	0.0%	0.0%	61.1%	61.1%	0.0%	61.1%	0.0%
Maximum Green (s)	28.0	28.0	28.0					48.0	48.0		48.0	
Yellow Time (s)	5.0	5.0	5.0					5.0	5.0		5.0	
All-Red Time (s)	2.0	2.0	2.0					2.0	2.0		2.0	
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	2.0	2.0	2.0	2.0	5.0	5.0	2.0	5.0	2.0
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0					3.0	3.0		3.0	
Recall Mode	None	None	None					C-Min	C-Min		C-Min	
Act Effct Green (s)	21.3	21.3	21.3					58.7	58.7		58.7	90.0
Actuated g/C Ratio	0.24	0.24	0.24					0.65	0.65		0.65	1.00
v/c Ratio	0.51	0.47	0.47					0.21	0.34		0.22	0.17
Control Delay	30.8	33.0	33.0					7.1	9.2		7.4	0.3
Queue Delay	0.0	0.0	0.0					0.0	0.0		0.0	0.0
Total Delay	30.8	33.0	33.0					7.1	9.2		7.4	0.3
LOS	C	C	C					A	A		A	A
Approach Delay		31.6						7.8			5.5	
Approach LOS		C						A			A	

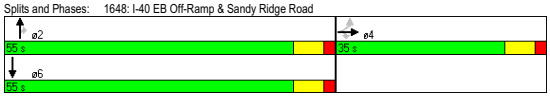
1648: I-40 EB Off-Ramp & Sandy Ridge Road

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 50th (ft)	102	83	83					49	74		50	1
Queue Length 95th (ft)	119	129	129					86	158		88	1
Internal Link Dist (ft)		241			849			415			810	
Turn Bay Length (ft)	250								400			750
Base Capacity (vph)	1592	480	480					3160	983		3224	1538
Starvation Cap Reductn	0	0	0					0	0		0	0
Spillback Cap Reductn	0	0	0					0	0		0	0
Storage Cap Reductn	0	0	0					0	0		0	0
Reduced v/c Ratio	0.36	0.33	0.33					0.21	0.34		0.22	0.17

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 46 (51%), Referenced to phase 2:NBT and 6:SBT, Start of Green
Natural Cycle: 40
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.51
Intersection Signal Delay: 14.5 — Intersection LOS: B
Intersection Capacity Utilization 32.9% — ICU Level of Service A
Analysis Period (min) 15

Splits and Phases: 1648: I-40 EB Off-Ramp & Sandy Ridge Road



1818: Market Street & NC 68 NB Ramps

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (vph)	143	438	564	156	46	90
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Grade (%)		-1%	0%		-2%	
Storage Length (ft)	150			325	0	250
Storage Lanes	1			1	1	1
Taper Length (ft)	75			25	25	25
Lane Util. Factor	1.00	0.95	1.00	1.00	1.00	1.00
Frt				0.850		0.850
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1728	3455	1810	1538	1736	1553
Flt Permitted	0.312				0.950	
Satd. Flow (perm)	567	3455	1810	1538	1736	1553
Right Turn on Red				No		No
Satd. Flow (RTOR)						
Link Speed (mph)		45	45		30	
Link Distance (ft)		849	543		531	
Travel Time (s)		12.9	8.2		12.1	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	159	487	627	173	51	100
Shared Lane Traffic (%)						
Lane Group Flow (vph)	159	487	627	173	51	100
Turn Type	pm+pt			Perm		Perm
Protected Phases	5	2	6		4	
Permitted Phases	2			6		4
Detector Phase	5	2	6	6	4	4
Switch Phase						
Minimum Initial (s)	6.0	15.0	15.0	15.0	7.0	7.0
Minimum Split (s)	14.0	21.0	21.0	21.0	17.0	17.0
Total Split (s)	16.0	80.0	64.0	64.0	20.0	20.0
Total Split (%)	16.0%	80.0%	64.0%	64.0%	20.0%	20.0%
Maximum Green (s)	10.0	74.0	58.0	58.0	14.0	14.0
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead		Lag	Lag		
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	C-Min	C-Min	C-Min	None	None
Act Effct Green (s)	79.9	80.9	65.9	65.9	12.7	12.7
Actuated g/C Ratio	0.80	0.81	0.66	0.66	0.13	0.13
v/c Ratio	0.29	0.17	0.53	0.17	0.23	0.51
Control Delay	4.9	3.8	12.8	8.8	40.2	48.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	4.9	3.8	12.8	8.8	40.2	48.9
LOS	A	A	B	A	D	D
Approach Delay		4.1	11.9		45.9	
Approach LOS		A	B		D	

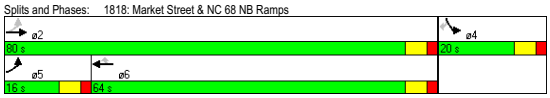
1818: Market Street & NC 68 NB Ramps

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Queue Length 50th (ft)	32	53	204	41	30	60
Queue Length 95th (ft)	47	65	365	87	62	108
Internal Link Dist (ft)		769	463		451	
Turn Bay Length (ft)	150			325		250
Base Capacity (vph)	581	2812	1203	1023	269	241
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.27	0.17	0.52	0.17	0.19	0.41

Intersection Summary

Area Type: Other
Cycle Length: 100
Actuated Cycle Length: 100
Offset: 8 (8%), Referenced to phase 2:EBTL and 6:WBT, Start of Green
Natural Cycle: 60
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.53
Intersection Signal Delay: 12.0 — Intersection LOS: B
Intersection Capacity Utilization 55.9% — ICU Level of Service B
Analysis Period (min) 15

Splits and Phases: 1818: Market Street & NC 68 NB Ramps



2000: Market Street & Pleasant Ridge Road

Lane Group	EBL	EBT	WBU	WBT	WBR	SBL	SBR
Lane Configurations							
Volume (vph)	514	430	0	262	96	115	376
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900
Grade (%)		-3%		3%		-1%	
Storage Length (ft)	500		400		275	500	0
Storage Lanes	2		1		1	1	2
Taper Length (ft)	25		25		25	25	25
Lane Util. Factor	0.97	1.00	1.00	1.00	1.00	1.00	0.88
Frt					0.850		0.850
Flt Protected	0.950					0.950	
Satd. Flow (prot)	3385	1837	1782	1782	1515	1728	2721
Flt Permitted	0.950					0.950	
Satd. Flow (perm)	3385	1837	1782	1782	1515	1728	2721
Right Turn on Red					No		No
Satd. Flow (RTOR)							
Link Speed (mph)		45		45		50	
Link Distance (ft)		755		1642		1713	
Travel Time (s)		11.4		24.9		23.4	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	571	478	0	291	107	128	418
Shared Lane Traffic (%)							
Lane Group Flow (vph)	571	478	0	291	107	128	418
Turn Type	Prot		Perm		Perm		pm+ov
Protected Phases	1	6		2		4	1
Permitted Phases			2		2		4
Detector Phase	1	6	2	2	2	4	1
Switch Phase							
Minimum Initial (s)	6.0	15.0	15.0	15.0	15.0	8.0	6.0
Minimum Split (s)	14.0	21.0	21.0	21.0	21.0	17.0	14.0
Total Split (s)	32.0	69.0	37.0	37.0	37.0	21.0	32.0
Total Split (%)	35.6%	76.7%	41.1%	41.1%	41.1%	23.3%	35.6%
Maximum Green (s)	26.0	63.0	31.0	31.0	31.0	15.0	26.0
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag	Lead		Lag	Lag	Lag		Lead
Lead-Lag Optimize?							
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	C-Min	C-Min	C-Min	C-Min	None	None
Act Effct Green (s)	23.4	68.0		40.6	40.6	14.0	41.4
Actuated g/C Ratio	0.26	0.76		0.45	0.45	0.16	0.46
v/c Ratio	0.65	0.34		0.36	0.16	0.48	0.33
Control Delay	25.6	3.5		20.0	18.1	38.5	7.1
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0
Total Delay	25.6	3.5		20.0	18.1	38.5	7.1
LOS	C	A		C	B	D	A
Approach Delay		15.5		19.5		14.5	
Approach LOS		B		B		B	

Sandy Ridge Road Feasibility Study — Base Year (2009) Build Alt. #2 Loops - AM

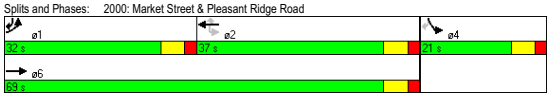
2000: Market Street & Pleasant Ridge Road

Lane Group	EBL	EBT	WBU	WBT	WBR	SBL	SBR
Queue Length 50th (ft)	105	30		104	35	50	27
Queue Length 95th (ft)	171	106		206	83	76	17
Internal Link Dist (ft)		675		1562		1633	
Turn Bay Length (ft)	500				275	500	
Base Capacity (vph)	1063	1393		815	692	332	1400
Starvation Cap Reductn	0	0		0	0	0	0
Spillback Cap Reductn	0	0		0	0	0	0
Storage Cap Reductn	0	0		0	0	0	0
Reduced v/c Ratio	0.54	0.34		0.36	0.15	0.39	0.30

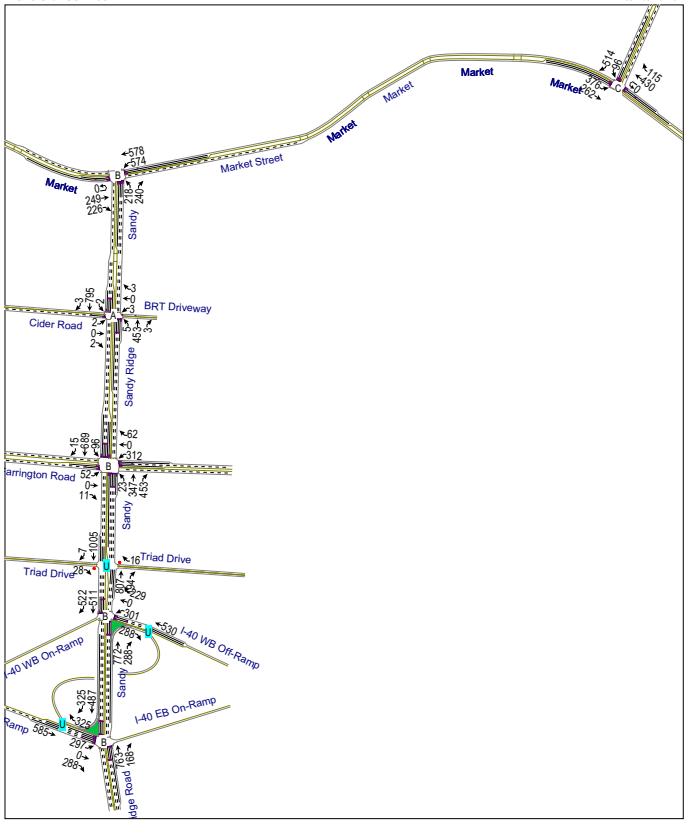
Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 4 (4%), Referenced to phase 2:WBTU and 6:EBT, Start of Green
Natural Cycle: 55
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.65
Intersection Signal Delay: 16.0 — Intersection LOS: B
Intersection Capacity Utilization 51.8% — ICU Level of Service A
Analysis Period (min) 15

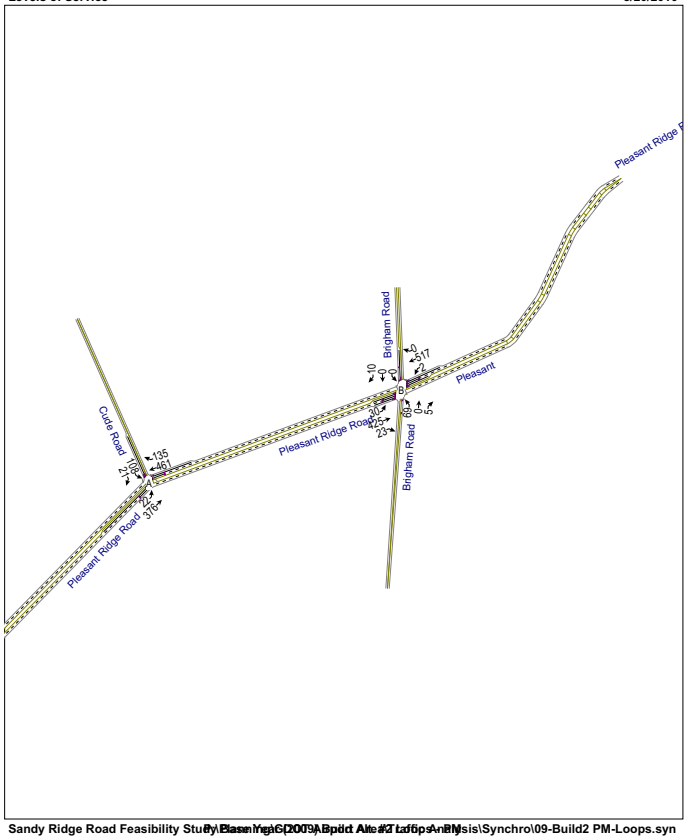
Splits and Phases: 2000: Market Street & Pleasant Ridge Road



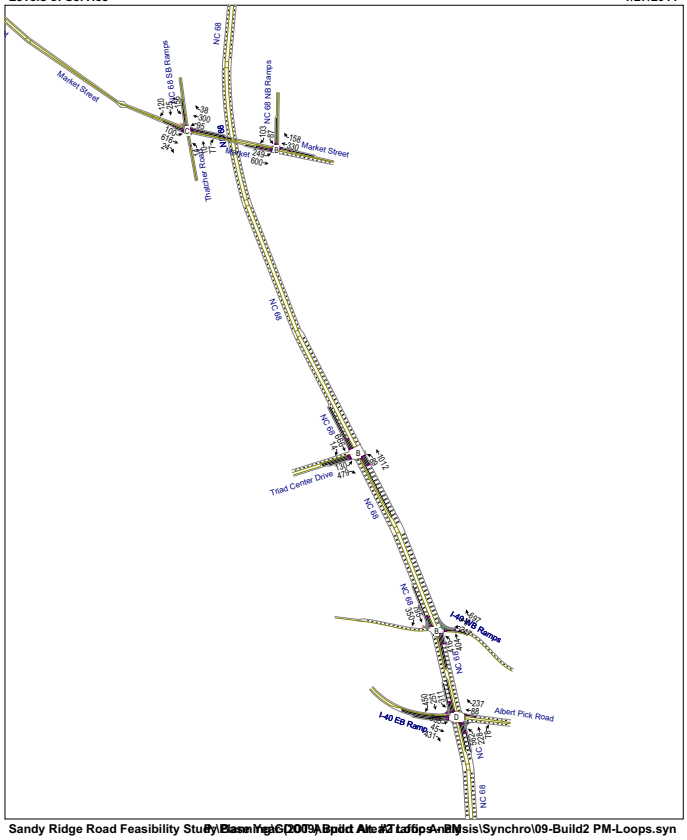
Map - Sandy Ridge Road Feasibility Study
Levels of Service — **8/20/2010**



Map - Sandy Ridge Road Feasibility Study
Levels of Service — **8/20/2010**



Map - Sandy Ridge Road Feasibility Study
Levels of Service — **1/27/2011**



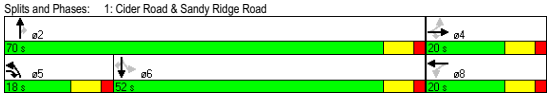
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	2	0	2	3	0	3	5	453	3	2	795	3
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	100		0	100		0	500		150	150		150
Storage Lanes	0		1	0		0	1		1	1		1
Taper Length (ft)	25		25	25		25	25		25	50		50
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.91	1.00	1.00	0.91	1.00
Frt			0.850		0.932				0.850			0.850
Flt Protected		0.950			0.976		0.950			0.950		
Satd. Flow (prot)	0	1719	1538	0	1646	0	1719	4940	1538	1719	4940	1538
Flt Permitted					0.882		0.950			0.457		
Satd. Flow (perm)	0	1810	1538	0	1487	0	1719	4940	1538	827	4940	1538
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		30			30			35			35	
Link Distance (ft)		909			308			1068			411	
Travel Time (s)		20.7			7.0			20.8			8.0	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	2	0	2	3	0	3	6	503	3	2	883	3
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	2	2	0	6	0	6	503	3	2	883	3
Turn Type	Perm		pm+ov	Perm			Prot		Perm	Perm		Perm
Protected Phases		4	5		8		5	2			6	
Permitted Phases	4		4	8					2	6		6
Detector Phase	4	4	5	8	8		5	2	2	6	6	6
Switch Phase												
Minimum Initial (s)	7.0	7.0	7.0	7.0	7.0		7.0	12.0	12.0	12.0	12.0	12.0
Minimum Split (s)	17.0	17.0	14.0	17.0	17.0		14.0	19.0	19.0	19.0	19.0	19.0
Total Split (s)	20.0	20.0	18.0	20.0	20.0	0.0	18.0	70.0	70.0	52.0	52.0	52.0
Total Split (%)	22.2%	22.2%	20.0%	22.2%	22.2%	0.0%	20.0%	77.8%	77.8%	57.8%	57.8%	57.8%
Maximum Green (s)	13.0	13.0	11.0	13.0	13.0		11.0	63.0	63.0	45.0	45.0	45.0
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0		2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	2.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag			Lead				Lead			Lag	Lag	Lag
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	None	None		None	C-Min	C-Min	C-Min	C-Min	C-Min
Act Effct Green (s)		9.0	11.8		9.0		9.0	86.2	86.2	83.4	83.4	83.4
Actuated g/C Ratio		0.10	0.13		0.10		0.10	0.96	0.96	0.93	0.93	0.93
v/c Ratio		0.01	0.01		0.04		0.03	0.11	0.00	0.00	0.19	0.00
Control Delay		36.5	30.0		37.4		29.6	1.1	2.0	1.0	0.5	1.0
Queue Delay		0.0	0.0		0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay		36.5	30.0		37.4		29.6	1.1	2.0	1.0	0.5	1.0
LOS		D	C		D		C	A	A	A	A	A
Approach Delay		33.3			37.4			1.4			0.5	
Approach LOS		C			D			A			A	
Queue Length 50th (ft)		1	1		3		3	0	0	0	0	0

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 95th (ft)		8	6		15		m15	32	m2	m0	22	m0
Internal Link Dist (ft)		829			228			988			331	
Turn Bay Length (ft)							500		150	150		150
Base Capacity (vph)		302	270		248		248	4731	1473	766	4578	1425
Starvation Cap Reductn		0	0		0		0	0	0	0	0	0
Spillback Cap Reductn		0	0		0		0	0	0	0	0	0
Storage Cap Reductn		0	0		0		0	0	0	0	0	0
Reduced v/c Ratio		0.01	0.01		0.02		0.02	0.11	0.00	0.00	0.19	0.00

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 70 (78%), Referenced to phase 2:NBT and 6:SBTL, Start of Green
Natural Cycle: 50
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.19
Intersection Signal Delay: 1.1 — Intersection LOS: A
Intersection Capacity Utilization 39.5% — ICU Level of Service A
Analysis Period (min) 15
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 1: Cider Road & Sandy Ridge Road



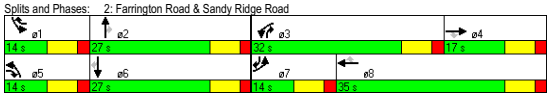
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	52	0	11	312	0	62	23	347	453	96	689	15
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	200		0	300		350	550		150	250		300
Storage Lanes	1		1	1		1	1		1	2		1
Taper Length (ft)	100		25	25		25	100		25	100		100
Lane Util. Factor	1.00	1.00	1.00	0.97	1.00	1.00	0.97	0.91	1.00	0.97	0.91	1.00
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1547	1629	1384	3001	1629	1384	3001	4446	1384	3001	4446	1384
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1547	1629	1384	3001	1629	1384	3001	4446	1384	3001	4446	1384
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		30			30			35			35	
Link Distance (ft)		1686			875			711			1068	
Travel Time (s)		38.3			19.9			13.9			20.8	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	58	0	12	347	0	69	26	386	503	107	766	17
Shared Lane Traffic (%)												
Lane Group Flow (vph)	58	0	12	347	0	69	26	386	503	107	766	17
Turn Type	Prot		pm+ov	Prot		pm+ov	Prot		pm+ov	Prot		pm+ov
Protected Phases	7	4	5	3	8	1	5	2	3	1	6	7
Permitted Phases			4			8			2			6
Detector Phase	7	4	5	3	8	1	5	2	3	1	6	7
Switch Phase												
Minimum Initial (s)	7.0	7.0	7.0	7.0	7.0	7.0	7.0	15.0	7.0	7.0	15.0	7.0
Minimum Split (s)	14.0	17.0	14.0	14.0	17.0	14.0	14.0	22.0	14.0	14.0	22.0	14.0
Total Split (s)	14.0	17.0	14.0	32.0	35.0	14.0	14.0	27.0	32.0	14.0	27.0	14.0
Total Split (%)	15.6%	18.9%	15.6%	35.6%	38.9%	15.6%	15.6%	30.0%	35.6%	15.6%	30.0%	15.6%
Maximum Green (s)	7.0	10.0	7.0	25.0	28.0	7.0	7.0	20.0	25.0	7.0	20.0	7.0
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead	Lag	Lead	Lead	Lag	Lead	Lead	Lag	Lead	Lead	Lag	Lead
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	None	None	None	None	C-Max	None	None	C-Max	None
Act Effct Green (s)	19.2		9.2	20.1		15.8	9.2	45.6	71.6	12.2	51.3	76.6
Actuated g/C Ratio	0.21		0.10	0.22		0.18	0.10	0.51	0.80	0.14	0.57	0.85
v/c Ratio	0.18		0.09	0.52		0.28	0.08	0.17	0.46	0.26	0.30	0.01
Control Delay	27.1		37.9	32.7		37.5	41.7	11.0	5.3	1.6	5.2	0.0
Queue Delay	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	27.1		37.9	32.7		37.5	41.7	11.0	5.3	1.6	5.2	0.0
LOS	C		D	C		D	D	B	A	A	A	A
Approach Delay								8.8			4.7	
Approach LOS								A			A	
Queue Length 50th (ft)	27		6	91		36	7	30	73	0	25	0

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 95th (ft)	53		23	119		73	m20	71	98	0	59	0
Internal Link Dist (ft)		1606			795			631			988	
Turn Bay Length (ft)	200			300		350	550		150	250		300
Base Capacity (vph)	330		141	900		243	307	2251	1166	406	2536	1177
Starvation Cap Reductn	0		0	0		0	0	0	0	0	0	0
Spillback Cap Reductn	0		0	0		0	0	0	0	0	0	0
Storage Cap Reductn	0		0	0		0	0	0	0	0	0	0
Reduced v/c Ratio	0.18		0.09	0.39		0.28	0.08	0.17	0.43	0.26	0.30	0.01

Intersection Summary

Area Type: CBD
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 64 (71%), Referenced to phase 2:NBT and 6:SBT, Start of Green
Natural Cycle: 70
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.52
Intersection Signal Delay: 12.3 — Intersection LOS: B
Intersection Capacity Utilization 49.7% — ICU Level of Service A
Analysis Period (min) 15
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 2: Farrington Road & Sandy Ridge Road



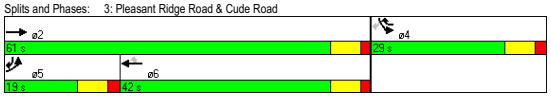
Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (vph)	22	376	461	135	108	21
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	450			300	0	300
Storage Lanes	1			1	1	1
Taper Length (ft)	25			25	25	25
Lane Util. Factor	1.00	0.95	0.95	1.00	1.00	1.00
Frt				0.850		0.850
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1719	3438	3438	1538	1719	1538
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	1719	3438	3438	1538	1719	1538
Right Turn on Red				No		No
Satd. Flow (RTOR)						
Link Speed (mph)		50	50		45	
Link Distance (ft)		1731	1912		1274	
Travel Time (s)		23.6	26.1		19.3	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	24	418	512	150	120	23
Shared Lane Traffic (%)						
Lane Group Flow (vph)	24	418	512	150	120	23
Turn Type	Prot			pm+ov		pm+ov
Protected Phases	5	2	6	4	4	5
Permitted Phases				6		4
Detector Phase	5	2	6	4	4	5
Switch Phase						
Minimum Initial (s)	7.0	14.0	14.0	7.0	7.0	7.0
Minimum Split (s)	14.0	21.0	21.0	17.0	17.0	14.0
Total Split (s)	19.0	61.0	42.0	29.0	29.0	19.0
Total Split (%)	21.1%	67.8%	46.7%	32.2%	32.2%	21.1%
Maximum Green (s)	12.0	54.0	35.0	22.0	22.0	12.0
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead		Lag			Lead
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	C-Max	C-Max	Max	Max	None
Act Effct Green (s)	9.4	56.0	47.2	78.2	24.0	38.4
Actuated g/C Ratio	0.10	0.62	0.52	0.87	0.27	0.43
v/c Ratio	0.13	0.20	0.28	0.11	0.26	0.04
Control Delay	48.3	3.5	8.8	3.3	27.9	15.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	48.3	3.5	8.8	3.3	27.9	15.0
LOS	D	A	A	A	C	B
Approach Delay		5.9	7.6		25.8	
Approach LOS		A	A		C	
Queue Length 50th (ft)	15	10	104	34	54	8

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Queue Length 95th (ft)	m30	36	147	77	100	21
Internal Link Dist (ft)		1651	1832		1194	
Turn Bay Length (ft)	450			300		300
Base Capacity (vph)	267	2139	1801	1336	458	735
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.09	0.20	0.28	0.11	0.26	0.03

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 46 (51%), Referenced to phase 2:EBT and 6:WBT, Start of Green
Natural Cycle: 55
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.28
Intersection Signal Delay: 9.1 — Intersection LOS: A
Intersection Capacity Utilization 32.6% — ICU Level of Service A
Analysis Period (min) 15
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 3: Pleasant Ridge Road & Cude Road



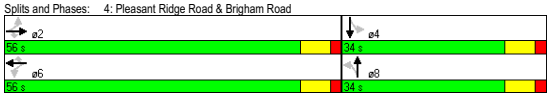
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	30	425	23	2	517	0	69	0	5	0	0	10
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	150		150	150		250	0		0	200		0
Storage Lanes	1		1	1		1	0		0	1		0
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850					0.990			0.850	
Flt Protected	0.950			0.950				0.956				
Satd. Flow (prot)	1719	3438	1538	1719	3438	1810	0	1713	0	1810	1538	0
Flt Permitted	0.412			0.470				0.755				
Satd. Flow (perm)	746	3438	1538	850	3438	1810	0	1353	0	1810	1538	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		50			50			45			30	
Link Distance (ft)		1912			850			1411			730	
Travel Time (s)		26.1			11.6			21.4			16.6	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	33	472	26	2	574	0	77	0	6	0	0	11
Shared Lane Traffic (%)												
Lane Group Flow (vph)	33	472	26	2	574	0	0	83	0	0	11	0
Turn Type	Perm		Perm	Perm		Perm	Perm			Perm		
Protected Phases		2			6			8			4	
Permitted Phases	2		2	6		6	8			4		
Detector Phase	2	2	2	6	6	6	8	8		4	4	
Switch Phase												
Minimum Initial (s)	14.0	14.0	14.0	14.0	14.0	14.0	7.0	7.0		7.0	7.0	
Minimum Split (s)	21.0	21.0	21.0	21.0	21.0	21.0	17.0	17.0		17.0	17.0	
Total Split (s)	56.0	56.0	56.0	56.0	56.0	56.0	34.0	34.0	0.0	34.0	34.0	0.0
Total Split (%)	62.2%	62.2%	62.2%	62.2%	62.2%	62.2%	37.8%	37.8%	0.0%	37.8%	37.8%	0.0%
Maximum Green (s)	49.0	49.0	49.0	49.0	49.0	49.0	27.0	27.0		27.0	27.0	
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0		5.0	5.0	
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	2.0	5.0	5.0	2.0
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Recall Mode	C-Max	C-Max	C-Max	C-Max	C-Max	C-Max	Max	Max		Max	Max	
Act Effct Green (s)	51.0	51.0	51.0	51.0	51.0			29.0			29.0	
Actuated g/C Ratio	0.57	0.57	0.57	0.57	0.57			0.32			0.32	
v/c Ratio	0.08	0.24	0.03	0.00	0.29			0.19			0.02	
Control Delay	5.8	9.1	4.8	8.5	10.7			23.5			21.1	
Queue Delay	0.0	0.0	0.0	0.0	0.0			0.0			0.0	
Total Delay	5.8	9.1	4.8	8.5	10.7			23.5			21.1	
LOS	A	A	A	A	B			C			C	
Approach Delay		8.6			10.6			23.5			21.1	
Approach LOS		A			B			C			C	
Queue Length 50th (ft)	12	95	10	1	83			34			4	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 95th (ft)	1	4	1	4	114			69			16	
Internal Link Dist (ft)		1832			770			1331			650	
Turn Bay Length (ft)	150		150	150								
Base Capacity (vph)	423	1948	872	482	1948			436			496	
Starvation Cap Reductn	0	0	0	0	0			0			0	
Spillback Cap Reductn	0	0	0	0	0			0			0	
Storage Cap Reductn	0	0	0	0	0			0			0	
Reduced v/c Ratio	0.08	0.24	0.03	0.00	0.29			0.19			0.02	

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 6 (7%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green
Natural Cycle: 40
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.29
Intersection Signal Delay: 10.7 — Intersection LOS: B
Intersection Capacity Utilization 44.1% — ICU Level of Service A
Analysis Period (min) 15

Splits and Phases: 4: Pleasant Ridge Road & Brigham Road



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	355	45	431	0	88	237	562	228	78	311	251	450
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		-2%			2%			-1%			1%	
Storage Length (ft)	438		325	0		0	250		275	300		275
Storage Lanes	2		1	0		1	1		1	1		1
Taper Length (ft)	100		25	25		25	25		25	25		25
Lane Util. Factor	0.97	1.00	1.00	1.00	1.00	1.00	1.00	0.91	1.00	1.00	0.91	1.00
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950						0.950			0.950		
Satd. Flow (prot)	3368	1828	1553	0	1791	1523	1728	4965	1546	1710	4915	1530
Flt Permitted	0.950						0.950			0.950		
Satd. Flow (perm)	3368	1828	1553	0	1791	1523	1728	4965	1546	1710	4915	1530
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		35			35			55			55	
Link Distance (ft)		867			502			480			821	
Travel Time (s)		16.9			9.8			6.0			10.2	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	394	50	479	0	98	263	624	253	87	346	279	500
Shared Lane Traffic (%)												
Lane Group Flow (vph)	394	50	479	0	98	263	624	253	87	346	279	500
Turn Type	Prot		pm+ov			pm+ov	Prot		Perm	Prot		pm+ov
Protected Phases	7	4	5		8	1	5	2		1	6	7
Permitted Phases			4			8			2			6
Detector Phase	7	4	5		8	1	5	2	2	1	6	7
Switch Phase												
Minimum Initial (s)	7.0	7.0	7.0		7.0	7.0	7.0	14.0	14.0	7.0	14.0	7.0
Minimum Split (s)	14.0	17.0	14.0		17.0	14.0	14.0	21.0	21.0	14.0	21.0	14.0
Total Split (s)	18.0	35.0	39.0	0.0	17.0	35.0	39.0	25.0	25.0	35.0	21.0	18.0
Total Split (%)	18.9%	36.8%	41.1%	0.0%	17.9%	36.8%	41.1%	26.3%	26.3%	36.8%	22.1%	18.9%
Maximum Green (s)	11.0	28.0	32.0		10.0	28.0	32.0	18.0	18.0	28.0	14.0	11.0
Yellow Time (s)	5.0	5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0		2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	2.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead		Lead		Lag	Lead	Lead	Lag	Lag	Lead	Lag	Lead
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None		None	None	None	C-Min	C-Min	None	C-Min	None
Act Effct Green (s)	13.0	26.4	67.2		11.2	38.8	35.9	28.2	28.2	25.4	17.8	35.8
Actuated g/C Ratio	0.14	0.28	0.71		0.12	0.41	0.38	0.30	0.30	0.27	0.19	0.38
v/c Ratio	0.85	0.10	0.44		0.47	0.42	0.96	0.17	0.19	0.76	0.30	0.87
Control Delay	59.0	23.7	7.1		46.5	20.7	57.4	28.0	30.8	41.2	29.0	43.6
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	59.0	23.7	7.1		46.5	20.7	57.4	28.0	30.8	41.2	29.0	43.6
LOS	E	C	A		D	C	E	C	C	D	C	D
Approach Delay		30.1			27.7			47.3			39.2	
Approach LOS		C			C			D			D	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 50th (ft)	121	21	96		56	101	~378	44	42	228	56	328
Queue Length 95th (ft)	#198	48	148		106	150	#607	70	87	183	74	#472
Internal Link Dist (ft)		787			422			400			741	
Turn Bay Length (ft)	438		325				250		275	300		275
Base Capacity (vph)	461	577	1099		226	695	652	1474	459	540	920	577
Starvation Cap Reductn	0	0	0		0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0		0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0		0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.85	0.09	0.44		0.43	0.38	0.96	0.17	0.19	0.64	0.30	0.87

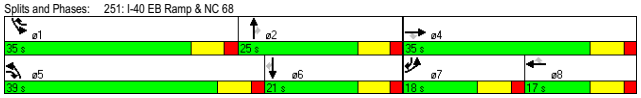
Intersection Summary

Area Type: Other
Cycle Length: 95
Actuated Cycle Length: 95
Offset: 32 (34%), Referenced to phase 2:NBT and 6:SBT, Start of Green
Natural Cycle: 90
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.96
Intersection Signal Delay: 37.8 — Intersection LOS: D
Intersection Capacity Utilization 77.3% — ICU Level of Service D
Analysis Period (min) 15

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 251: I-40 EB Ramp & NC 68



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	0	0	217	0	697	416	404	0	0	795	350
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		0%			-2%			0%			-1%	
Storage Length (ft)	0		0	200		0	325		0	0		400
Storage Lanes	0		0	1		1	2		0	0		1
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	1.00	1.00	1.00	0.95	0.95	1.00	0.97	0.91	1.00	1.00	0.91	1.00
Frt						0.850						0.850
Flt Protected				0.950	0.950		0.950					
Satd. Flow (prot)	0	0	0	1649	1649	1553	3335	4940	0	0	4965	1546
Flt Permitted				0.950	0.950		0.950					
Satd. Flow (perm)	0	0	0	1649	1649	1553	3335	4940	0	0	4965	1546
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		30			35			55			55	
Link Distance (ft)		712			820			821			1007	
Travel Time (s)		16.2			16.0			10.2			12.5	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	0	0	0	241	0	774	462	449	0	0	883	389
Shared Lane Traffic (%)				50%								
Lane Group Flow (vph)	0	0	0	120	121	774	462	449	0	0	883	389
Turn Type				Perm		Free	Prot					Perm
Protected Phases					4		1	6			2	
Permitted Phases				4		Free						2
Detector Phase				4	4		1	6			2	2
Switch Phase												
Minimum Initial (s)				7.0	7.0		7.0	14.0			14.0	14.0
Minimum Split (s)				17.0	17.0		14.0	21.0			21.0	21.0
Total Split (s)	0.0	0.0	0.0	20.0	20.0	0.0	27.0	75.0	0.0	0.0	48.0	48.0
Total Split (%)	0.0%	0.0%	0.0%	21.1%	21.1%	0.0%	28.4%	78.9%	0.0%	0.0%	50.5%	50.5%
Maximum Green (s)				13.0	13.0		20.0	68.0			41.0	41.0
Yellow Time (s)				5.0	5.0		5.0	5.0			5.0	5.0
All-Red Time (s)				2.0	2.0		2.0	2.0			2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	2.0	2.0	2.0	5.0	5.0	2.0	5.0	5.0	2.0	2.0	5.0	5.0
Lead/Lag							Lead				Lag	Lag
Lead-Lag Optimize?												
Vehicle Extension (s)				3.0	3.0		3.0	3.0			3.0	3.0
Recall Mode				None	None		None	C-Min			C-Min	C-Min
Act Effct Green (s)				13.4	13.4	95.0	19.7	71.6			46.9	46.9
Actuated g/C Ratio				0.14	0.14	1.00	0.21	0.75			0.49	0.49
v/c Ratio				0.52	0.52	0.50	0.67	0.12			0.36	0.51
Control Delay				45.5	45.7	1.1	36.0	3.9			12.2	16.3
Queue Delay				0.0	0.0	0.0	0.0	0.0			0.0	0.0
Total Delay				45.5	45.7	1.1	36.0	3.9			12.2	16.3
LOS				D	D	A	D	A			B	B
Approach Delay					11.7			20.2			13.4	
Approach LOS					B			C			B	

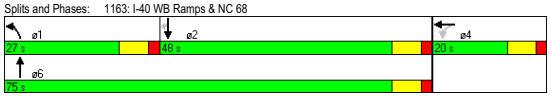
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 50th (ft)				70	71	0	90	27			119	149
Queue Length 95th (ft)				128	129	0	m177	m12			137	195
Internal Link Dist (ft)		632			740			741			927	
Turn Bay Length (ft)				200			325					400
Base Capacity (vph)				264	264	1553	773	3736			2466	768
Starvation Cap Reductn				0	0	0	0	0			0	0
Spillback Cap Reductn				0	0	0	0	0			0	0
Storage Cap Reductn				0	0	0	0	0			0	0
Reduced v/c Ratio				0.45	0.46	0.50	0.60	0.12			0.36	0.51

Intersection Summary

Area Type: Other
Cycle Length: 95
Actuated Cycle Length: 95
Offset: 0 (0%), Referenced to phase 2:SBT and 6:NBT, Start of Green
Natural Cycle: 60
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.67
Intersection Signal Delay: 14.8 — Intersection LOS: B
Intersection Capacity Utilization 52.1% — ICU Level of Service A
Analysis Period (min) 15

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

Splits and Phases: 1163: I-40 WB Ramps & NC 68



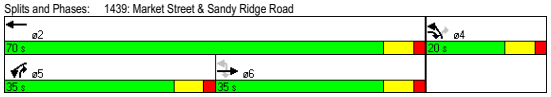
Lane Group	EBU	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations							
Volume (vph)	0	249	226	574	578	218	240
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900
Grade (%)		1%			-1%	0%	
Storage Length (ft)	200		600	600		450	0
Storage Lanes	1		1	2		1	1
Taper Length (ft)	25		25	25		25	25
Lane Util. Factor	1.00	1.00	1.00	0.97	1.00	0.97	0.88
Frt			0.850				0.850
Flt Protected				0.950		0.950	
Satd. Flow (prot)	1800	1800	1530	3352	1819	3335	2707
Flt Permitted				0.950		0.950	
Satd. Flow (perm)	1800	1800	1530	3352	1819	3335	2707
Right Turn on Red			No				No
Satd. Flow (RTOR)							
Link Speed (mph)		45			45	35	
Link Distance (ft)		751			1348	590	
Travel Time (s)		11.4			20.4	11.5	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	0	277	251	638	642	242	267
Shared Lane Traffic (%)							
Lane Group Flow (vph)	0	277	251	638	642	242	267
Turn Type	Perm		pm+ov	Prot			pm+ov
Protected Phases		6	4	5	2	4	5
Permitted Phases	6		6				4
Detector Phase	6	6	4	5	2	4	5
Switch Phase							
Minimum Initial (s)	15.0	15.0	7.0	7.0	15.0	7.0	7.0
Minimum Split (s)	22.0	22.0	17.0	14.0	22.0	17.0	14.0
Total Split (s)	35.0	35.0	20.0	35.0	70.0	20.0	35.0
Total Split (%)	38.9%	38.9%	22.2%	38.9%	77.8%	22.2%	38.9%
Maximum Green (s)	28.0	28.0	13.0	28.0	63.0	13.0	28.0
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lag	Lag		Lead			Lead
Lead-Lag Optimize?							
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	C-Min	C-Min	None	None	C-Min	None	None
Act Effct Green (s)		36.2	55.0	25.0	66.2	13.8	43.8
Actuated g/C Ratio		0.40	0.61	0.28	0.74	0.15	0.49
v/c Ratio		0.38	0.27	0.69	0.48	0.47	0.20
Control Delay		23.0	9.9	26.1	5.7	35.2	5.7
Queue Delay		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay		23.0	9.9	26.1	5.7	35.2	5.7
LOS		C	A	C	A	D	A
Approach Delay		16.8			15.9	19.7	
Approach LOS		B			B	B	

Lane Group	EBU	EBT	EBR	WBL	WBT	NBL	NBR
Queue Length 50th (ft)		109	61	118	55	56	25
Queue Length 95th (ft)		205	117	161	222	62	21
Internal Link Dist (ft)		671			1268	510	
Turn Bay Length (ft)			600	600		450	
Base Capacity (vph)		733	964	1117	1347	575	1469
Starvation Cap Reductn		0	0	0	0	0	0
Spillback Cap Reductn		0	0	0	0	0	0
Storage Cap Reductn		0	0	0	0	0	0
Reduced v/c Ratio		0.38	0.26	0.57	0.48	0.42	0.18

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 54 (60%), Referenced to phase 2:WBT and 6:EBTU, Start of Green
Natural Cycle: 60
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.69
Intersection Signal Delay: 16.9 — Intersection LOS: B
Intersection Capacity Utilization 61.6% — ICU Level of Service B
Analysis Period (min) 15

Splits and Phases: 1439: Market Street & Sandy Ridge Road



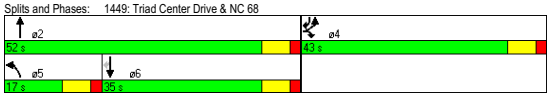
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	130	479	89	1012	666	14
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Grade (%)	-3%			-2%	-1%	
Storage Length (ft)	263	200	625			438
Storage Lanes	2	1	1			2
Taper Length (ft)	25	25	25			25
Lane Util. Factor	0.97	0.88	0.97	0.91	0.91	1.00
Frt		0.850				0.850
Flt Protected	0.950		0.950			
Satd. Flow (prot)	3385	2748	3368	4989	4965	1546
Flt Permitted	0.950		0.950			
Satd. Flow (perm)	3385	2748	3368	4989	4965	1546
Right Turn on Red		No				No
Satd. Flow (RTOR)						
Link Speed (mph)	30			55	55	
Link Distance (ft)	638			799	1245	
Travel Time (s)	14.5			9.9	15.4	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	144	532	99	1124	740	16
Shared Lane Traffic (%)						
Lane Group Flow (vph)	144	532	99	1124	740	16
Turn Type		Prot	Prot			pm+ov
Protected Phases	4	4	5	2	6	4
Permitted Phases						6
Detector Phase	4	4	5	2	6	4
Switch Phase						
Minimum Initial (s)	7.0	7.0	7.0	14.0	14.0	7.0
Minimum Split (s)	17.0	17.0	14.0	21.0	21.0	17.0
Total Split (s)	43.0	43.0	17.0	52.0	35.0	43.0
Total Split (%)	45.3%	45.3%	17.9%	54.7%	36.8%	45.3%
Maximum Green (s)	36.0	36.0	10.0	45.0	28.0	36.0
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag			Lead		Lag	
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	C-Min	C-Min	None
Act Effct Green (s)	26.4	26.4	10.4	58.6	46.1	78.4
Actuated g/C Ratio	0.28	0.28	0.11	0.62	0.49	0.83
v/c Ratio	0.15	0.70	0.27	0.36	0.31	0.01
Control Delay	24.9	35.4	42.7	7.6	17.3	2.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	24.9	35.4	42.7	7.6	17.3	2.5
LOS	C	D	D	A	B	A
Approach Delay	33.2			10.4	16.9	
Approach LOS	C			B	B	

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Queue Length 50th (ft)	34	164	27	69	100	2
Queue Length 95th (ft)	51	201	45	128	156	6
Internal Link Dist (ft)	558			719	1165	
Turn Bay Length (ft)	263	200	625			438
Base Capacity (vph)	1354	1099	427	3080	2408	1406
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.11	0.48	0.23	0.36	0.31	0.01

Intersection Summary

Area Type: Other
Cycle Length: 95
Actuated Cycle Length: 95
Offset: 16 (17%), Referenced to phase 2:NBT and 6:SBT, Start of Green
Natural Cycle: 55
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.70
Intersection Signal Delay: 18.1 — Intersection LOS: B
Intersection Capacity Utilization 38.0% — ICU Level of Service A
Analysis Period (min) 15

Splits and Phases: 1449: Triad Center Drive & NC 68



1491: Market Street & NC 68 SB Ramps

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	100	616	24	95	300	38	14	10	77	156	25	120
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	200		75	375		300	0		0	0		250
Storage Lanes	1		1	1		1	0		0	0		1
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850			0.850		0.897				0.850
Flt Protected	0.950			0.950				0.993			0.959	
Satd. Flow (prot)	1719	1810	1538	1719	1810	1538	0	1612	0	0	1735	1538
Flt Permitted	0.560			0.146				0.993			0.959	
Satd. Flow (perm)	1013	1810	1538	264	1810	1538	0	1612	0	0	1735	1538
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		45			45			55			35	
Link Distance (ft)		315			849			475			493	
Travel Time (s)		4.8			12.9			5.9			9.6	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	111	684	27	106	333	42	16	11	86	173	28	133
Shared Lane Traffic (%)												
Lane Group Flow (vph)	111	684	27	106	333	42	0	113	0	0	201	133
Turn Type	Perm		Perm	pm+pt		Perm	Split			Split		Perm
Protected Phases		2		1	6		8	8		4	4	
Permitted Phases	2		2	6		6						4
Detector Phase	2	2	2	1	6	6	8	8		4	4	4
Switch Phase												
Minimum Initial (s)	12.0	12.0	12.0	7.0	12.0	12.0	7.0	7.0		7.0	7.0	7.0
Minimum Split (s)	18.0	18.0	18.0	14.0	18.0	18.0	17.0	17.0		17.0	17.0	17.0
Total Split (s)	46.0	46.0	46.0	14.0	60.0	60.0	17.0	17.0	0.0	18.0	18.0	18.0
Total Split (%)	48.4%	48.4%	48.4%	14.7%	63.2%	63.2%	17.9%	17.9%	0.0%	18.9%	18.9%	18.9%
Maximum Green (s)	40.0	40.0	40.0	8.0	54.0	54.0	11.0	11.0		12.0	12.0	12.0
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0		2.0	2.0	2.0
Lost Time Adjust (s)	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	3.0	5.0	5.0	5.0
Lead/Lag	Lag	Lag	Lag	Lead								
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0
Recall Mode	C-Min	C-Min	C-Min	None	C-Max	C-Max	Min	Min		None	None	None
Act Effct Green (s)	45.0	45.0	45.0	56.0	56.0	56.0		11.0			12.9	12.9
Actuated g/C Ratio	0.47	0.47	0.47	0.59	0.59	0.59		0.12			0.14	0.14
v/c Ratio	0.23	0.80	0.04	0.37	0.31	0.05		0.60			0.85	0.64
Control Delay	18.4	31.7	15.9	17.2	13.5	12.1		53.7			71.9	53.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0		0.0			0.0	0.0
Total Delay	18.4	31.7	15.9	17.2	13.5	12.1		53.7			71.9	53.7
LOS	B	C	B	B	B	B		D			E	D
Approach Delay		29.4			14.2			53.7			64.7	
Approach LOS		C			B			D			E	
Queue Length 50th (ft)	42	367	9	24	70	8		65			120	77

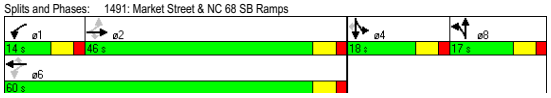
1491: Market Street & NC 68 SB Ramps

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 95th (ft)	81	#586	25	82	231	41		121			#243	#152
Internal Link Dist (ft)		235			769			395			413	
Turn Bay Length (ft)	200		75	375		300						250
Base Capacity (vph)	480	857	729	294	1068	907		204			237	210
Starvation Cap Reductn	0	0	0	0	0	0		0			0	0
Spillback Cap Reductn	0	0	0	0	0	0		0			0	0
Storage Cap Reductn	0	0	0	0	0	0		0			0	0
Reduced v/c Ratio	0.23	0.80	0.04	0.36	0.31	0.05		0.55			0.85	0.63

Intersection Summary

Area Type: Other
Cycle Length: 95
Actuated Cycle Length: 95
Offset: 38 (40%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green
Natural Cycle: 90
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.85
Intersection Signal Delay: 33.5 — Intersection LOS: C
Intersection Capacity Utilization 67.4% — ICU Level of Service C
Analysis Period (min) 15
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 1491: Market Street & NC 68 SB Ramps



1601: I-40 WB On-Ramp & Sandy Ridge Road

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	0	0	301	0	229	0	772	288	0	511	522
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		0%			2%			-4%			4%	
Storage Length (ft)	0		0	0		0	0		750	0		0
Storage Lanes	0		0	1		1	1		1	1		1
Taper Length (ft)	25		25	25		25	100		100	25		25
Lane Util. Factor	1.00	1.00	1.00	0.95	0.91	0.95	1.00	0.91	1.00	1.00	0.91	1.00
Frt					0.948	0.850			0.850			0.850
Flt Protected				0.950	0.968							
Satd. Flow (prot)	0	0	0	1617	1496	1447	0	5039	1569	0	4841	1507
Flt Permitted				0.950	0.968							
Satd. Flow (perm)	0	0	0	1617	1496	1447	0	5039	1569	0	4841	1507
Right Turn on Red			No			No			No			Yes
Satd. Flow (RTOR)												580
Link Speed (mph)		30			35			45			45	
Link Distance (ft)		897			323			890			361	
Travel Time (s)		20.4			6.3			13.5			5.5	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	0	0	0	334	0	254	0	858	320	0	568	580
Shared Lane Traffic (%)				39%		27%						
Lane Group Flow (vph)	0	0	0	204	199	185	0	858	320	0	568	580
Turn Type				Perm		Perm			Free			Perm
Protected Phases					8			2			6	
Permitted Phases				8		8			Free			6
Detector Phase				8	8	8		2			6	6
Switch Phase												
Minimum Initial (s)				7.0	7.0	7.0		15.0			15.0	15.0
Minimum Split (s)				17.0	17.0	17.0		22.0			22.0	22.0
Total Split (s)	0.0	0.0	0.0	32.0	32.0	32.0	0.0	58.0	0.0	0.0	58.0	58.0
Total Split (%)	0.0%	0.0%	0.0%	35.6%	35.6%	35.6%	0.0%	64.4%	0.0%	0.0%	64.4%	64.4%
Maximum Green (s)				25.0	25.0	25.0		51.0			51.0	51.0
Yellow Time (s)				5.0	5.0	5.0		5.0			5.0	5.0
All-Red Time (s)				2.0	2.0	2.0		2.0			2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	2.0	2.0	2.0	5.0	5.0	5.0	2.0	5.0	2.0	2.0	5.0	5.0
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)				3.0	3.0	3.0		3.0			3.0	3.0
Recall Mode				None	None	None		C-Min			C-Min	C-Min
Act Effct Green (s)				20.1	20.1	20.1		59.9	90.0		59.9	59.9
Actuated g/C Ratio				0.22	0.22	0.22		0.67	1.00		0.67	0.67
v/c Ratio				0.56	0.60	0.57		0.26	0.20		0.18	0.48
Control Delay				36.1	37.7	37.1		6.5	0.7		5.8	3.7
Queue Delay				0.0	0.0	0.0		0.0	0.0		0.0	0.0
Total Delay				36.1	37.7	37.1		6.5	0.7		5.8	3.7
LOS				D	D	D		A	A		A	A
Approach Delay					37.0			4.9			4.7	
Approach LOS					D			A			A	

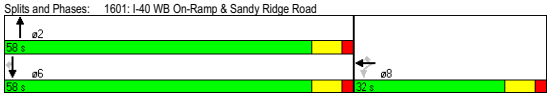
1601: I-40 WB On-Ramp & Sandy Ridge Road

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 50th (ft)				109	112	98		91	0		49	55
Queue Length 95th (ft)				162	168	151		110	22		52	69
Internal Link Dist (ft)		817			243			810			281	
Turn Bay Length (ft)									750			
Base Capacity (vph)				489	452	437		3364	1569		3232	1199
Starvation Cap Reductn				0	0	0		0	0		0	0
Spillback Cap Reductn				0	0	0		0	0		0	0
Storage Cap Reductn				0	0	0		0	0		0	0
Reduced v/c Ratio				0.42	0.44	0.42		0.26	0.20		0.18	0.48

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 76 (84%), Referenced to phase 2:NBT and 6:SBT, Start of Green
Natural Cycle: 40
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.60
Intersection Signal Delay: 11.3 — Intersection LOS: B
Intersection Capacity Utilization 51.3% — ICU Level of Service A
Analysis Period (min) 15

Splits and Phases: 1601: I-40 WB On-Ramp & Sandy Ridge Road



1648: I-40 EB Off-Ramp & Sandy Ridge Road

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	297	0	288	0	0	0	0	763	168	0	487	325
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		3%			0%			4%			0%	
Storage Length (ft)	250		0	0		0	0		400	0		750
Storage Lanes	1		1	0		0	0		1	0		1
Taper Length (ft)	25		25	25		25	25		25	25		100
Lane Util. Factor	0.94	0.95	0.95	1.00	1.00	1.00	1.00	0.91	1.00	1.00	0.91	1.00
Frt		0.850	0.850						0.850			0.850
Flt Protected	0.950											
Satd. Flow (prot)	4775	1439	1439	0	0	0	0	4841	1507	0	4940	1538
Flt Permitted	0.950											
Satd. Flow (perm)	4775	1439	1439	0	0	0	0	4841	1507	0	4940	1538
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		35			30			45			35	
Link Distance (ft)		321			929			495			890	
Travel Time (s)		6.3			21.1			7.5			17.3	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	330	0	320	0	0	0	0	848	187	0	541	361
Shared Lane Traffic (%)			50%									
Lane Group Flow (vph)	330	160	160	0	0	0	0	848	187	0	541	361
Turn Type	Perm		Perm						Perm			Free
Protected Phases		4						2			6	
Permitted Phases	4		4						2			Free
Detector Phase	4	4	4					2	2		6	
Switch Phase												
Minimum Initial (s)	7.0	7.0	7.0					7.0	7.0		7.0	
Minimum Split (s)	17.0	17.0	17.0					17.0	17.0		17.0	
Total Split (s)	42.0	42.0	42.0	0.0	0.0	0.0	0.0	48.0	48.0	0.0	48.0	0.0
Total Split (%)	46.7%	46.7%	46.7%	0.0%	0.0%	0.0%	0.0%	53.3%	53.3%	0.0%	53.3%	0.0%
Maximum Green (s)	35.0	35.0	35.0					41.0	41.0		41.0	
Yellow Time (s)	5.0	5.0	5.0					5.0	5.0		5.0	
All-Red Time (s)	2.0	2.0	2.0					2.0	2.0		2.0	
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	2.0	2.0	2.0	2.0	5.0	5.0	2.0	5.0	2.0
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0					3.0	3.0		3.0	
Recall Mode	None	None	None					C-Min	C-Min		C-Min	
Act Effct Green (s)	18.6	18.6	18.6					61.4	61.4		61.4	90.0
Actuated g/C Ratio	0.21	0.21	0.21					0.68	0.68		0.68	1.00
v/c Ratio	0.33	0.54	0.54					0.26	0.18		0.16	0.23
Control Delay	30.2	37.3	37.3					6.5	6.9		6.5	1.0
Queue Delay	0.0	0.0	0.0					0.0	0.0		0.0	0.0
Total Delay	30.2	37.3	37.3					6.5	6.9		6.5	1.0
LOS	C	D	D					A	A		A	A
Approach Delay		33.7						6.5			4.3	
Approach LOS		C						A			A	

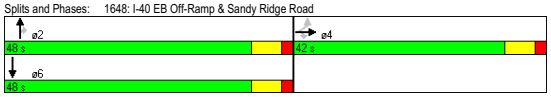
1648: I-40 EB Off-Ramp & Sandy Ridge Road

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 50th (ft)	57	86	86					58	33		70	0
Queue Length 95th (ft)	72	133	133					104	79		101	0
Internal Link Dist (ft)		241			849			415			810	
Turn Bay Length (ft)	250								400			750
Base Capacity (vph)	1963	592	592					3304	1029		3372	1538
Starvation Cap Reductn	0	0	0					0	0		0	0
Spillback Cap Reductn	0	0	0					0	0		0	0
Storage Cap Reductn	0	0	0					0	0		0	0
Reduced v/c Ratio	0.17	0.27	0.27					0.26	0.18		0.16	0.23

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 82 (91%), Referenced to phase 2:NBT and 6:SBT, Start of Green
Natural Cycle: 40
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.54
Intersection Signal Delay: 12.6 — Intersection LOS: B
Intersection Capacity Utilization 29.6% — ICU Level of Service A
Analysis Period (min) 15

Splits and Phases: 1648: I-40 EB Off-Ramp & Sandy Ridge Road



1818: Market Street & NC 68 NB Ramps

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (vph)	249	600	330	158	87	103
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Grade (%)		-1%	0%		-2%	
Storage Length (ft)	150			325	0	250
Storage Lanes	1			1	1	1
Taper Length (ft)	25			25	25	25
Lane Util. Factor	1.00	0.95	1.00	1.00	1.00	1.00
Frt				0.850		0.850
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1728	3455	1810	1538	1736	1553
Flt Permitted	0.452				0.950	
Satd. Flow (perm)	822	3455	1810	1538	1736	1553
Right Turn on Red				No		No
Satd. Flow (RTOR)						
Link Speed (mph)		45	45		30	
Link Distance (ft)		849	543		531	
Travel Time (s)		12.9	8.2		12.1	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	277	667	367	176	97	114
Shared Lane Traffic (%)						
Lane Group Flow (vph)	277	667	367	176	97	114
Turn Type	pm+pt			Perm		Perm
Protected Phases	5	2	6		4	
Permitted Phases	2			6		4
Detector Phase	5	2	6	6	4	4
Switch Phase						
Minimum Initial (s)	6.0	15.0	15.0	15.0	7.0	7.0
Minimum Split (s)	14.0	21.0	21.0	21.0	17.0	17.0
Total Split (s)	25.0	71.0	46.0	46.0	24.0	24.0
Total Split (%)	26.3%	74.7%	48.4%	48.4%	25.3%	25.3%
Maximum Green (s)	19.0	65.0	40.0	40.0	18.0	18.0
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead		Lag	Lag		
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	C-Min	C-Min	C-Min	None	None
Act Effct Green (s)	71.8	71.8	55.5	55.5	13.2	13.2
Actuated g/C Ratio	0.76	0.76	0.58	0.58	0.14	0.14
v/c Ratio	0.38	0.26	0.35	0.20	0.40	0.53
Control Delay	2.3	1.6	12.8	11.4	41.1	46.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	2.3	1.6	12.8	11.4	41.1	46.0
LOS	A	A	B	B	D	D
Approach Delay		1.8	12.3		43.8	
Approach LOS		A	B		D	

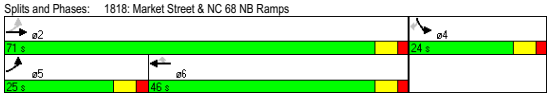
1818: Market Street & NC 68 NB Ramps

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Queue Length 50th (ft)	17	22	106	46	54	65
Queue Length 95th (ft)	m12	m14	206	100	97	113
Internal Link Dist (ft)		769	463		451	
Turn Bay Length (ft)	150			325		250
Base Capacity (vph)	812	2610	1058	899	347	311
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.34	0.26	0.35	0.20	0.28	0.37

Intersection Summary

Area Type: Other
Cycle Length: 95
Actuated Cycle Length: 95
Offset: 92 (97%), Referenced to phase 2:EBTL and 6:WBT, Start of Green
Natural Cycle: 55
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.53
Intersection Signal Delay: 10.4 — Intersection LOS: B
Intersection Capacity Utilization 49.5% — ICU Level of Service A
Analysis Period (min) 15
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 1818: Market Street & NC 68 NB Ramps



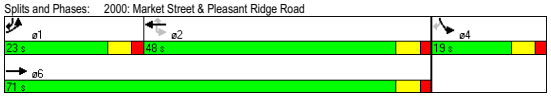
Lane Group	EBL	EBT	WBU	WBT	WBR	SBL	SBR
Lane Configurations							
Volume (vph)	376	262	0	430	115	96	514
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900
Grade (%)		-3%		3%		-1%	
Storage Length (ft)	500		400		275	500	0
Storage Lanes	2		1		1	1	2
Taper Length (ft)	25		25		25	25	25
Lane Util. Factor	0.97	1.00	1.00	1.00	1.00	1.00	0.88
Frt					0.850		0.850
Flt Protected	0.950					0.950	
Satd. Flow (prot)	3385	1837	1782	1782	1515	1728	2721
Flt Permitted	0.950					0.950	
Satd. Flow (perm)	3385	1837	1782	1782	1515	1728	2721
Right Turn on Red					No		No
Satd. Flow (RTOR)							
Link Speed (mph)		45		45		50	
Link Distance (ft)		755		1642		1713	
Travel Time (s)		11.4		24.9		23.4	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	418	291	0	478	128	107	571
Shared Lane Traffic (%)							
Lane Group Flow (vph)	418	291	0	478	128	107	571
Turn Type	Prot		Perm		Perm		pm+ov
Protected Phases	1	6		2		4	1
Permitted Phases			2		2		4
Detector Phase	1	6	2	2	2	4	1
Switch Phase							
Minimum Initial (s)	6.0	15.0	15.0	15.0	15.0	8.0	6.0
Minimum Split (s)	14.0	21.0	21.0	21.0	21.0	17.0	14.0
Total Split (s)	23.0	71.0	48.0	48.0	48.0	19.0	23.0
Total Split (%)	25.6%	78.9%	53.3%	53.3%	53.3%	21.1%	25.6%
Maximum Green (s)	17.0	65.0	42.0	42.0	42.0	13.0	17.0
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag	Lead		Lag	Lag	Lag		Lead
Lead-Lag Optimize?							
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	C-Min	C-Min	C-Min	C-Min	None	None
Act Effct Green (s)	19.0	72.5		48.7	48.7	13.1	33.3
Actuated g/C Ratio	0.21	0.81		0.54	0.54	0.15	0.37
v/c Ratio	0.59	0.20		0.50	0.16	0.43	0.57
Control Delay	37.2	3.7		16.9	13.0	28.2	19.7
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0
Total Delay	37.2	3.7		16.9	13.0	28.2	19.7
LOS	D	A		B	B	C	B
Approach Delay		23.4		16.1		21.0	
Approach LOS		C		B		C	

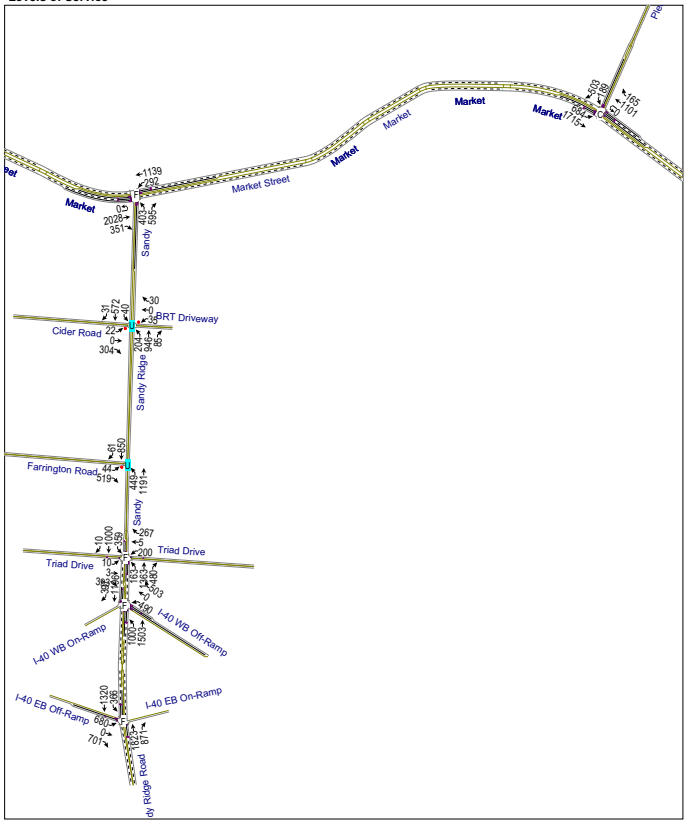
Lane Group	EBL	EBT	WBU	WBT	WBR	SBL	SBR
Queue Length 50th (ft)	118	53		166	36	56	155
Queue Length 95th (ft)	177	74		289	76	105	232
Internal Link Dist (ft)		675		1562		1633	
Turn Bay Length (ft)	500				275	500	
Base Capacity (vph)	740	1488		980	833	296	1027
Starvation Cap Reductn	0	0		0	0	0	0
Spillback Cap Reductn	0	0		0	0	0	0
Storage Cap Reductn	0	0		0	0	0	0
Reduced v/c Ratio	0.56	0.20		0.49	0.15	0.36	0.56

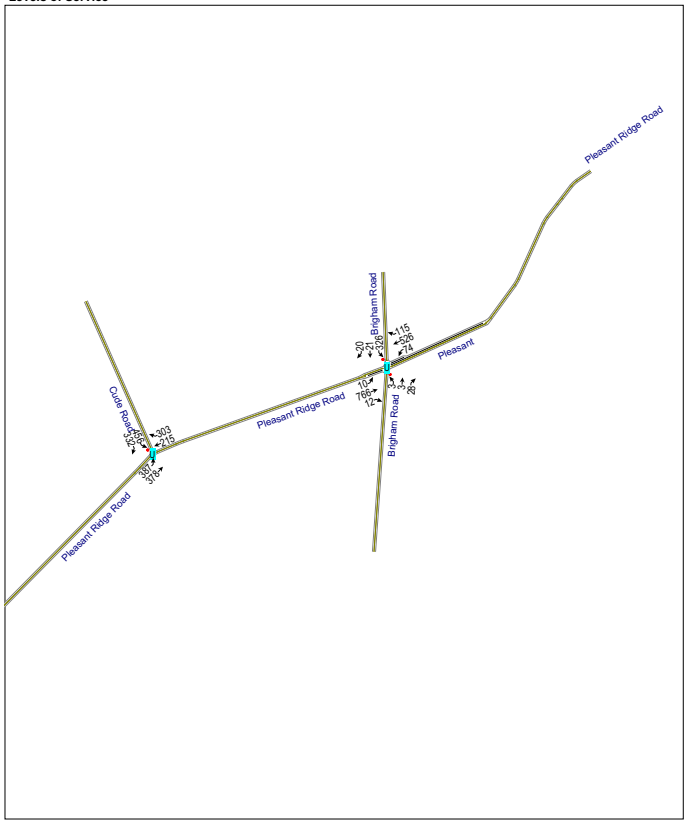
Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 8 (9%), Referenced to phase 2:WBTU and 6:EBT, Start of Green
Natural Cycle: 55
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.59
Intersection Signal Delay: 20.4 — Intersection LOS: C
Intersection Capacity Utilization 50.0% — ICU Level of Service A
Analysis Period (min) 15

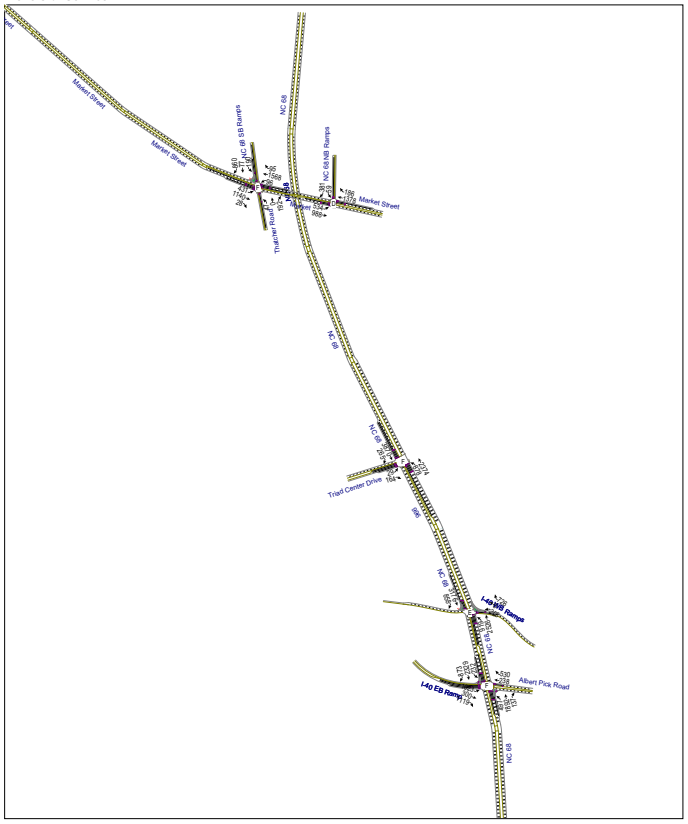
Splits and Phases: 2000: Market Street & Pleasant Ridge Road







Levels of Service



M/A/B

1: Cider Road & Sandy Ridge Road

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	22	0	304	35	0	30	204	946	85	40	572	31
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.874			0.938			0.991			0.994	
Flt Protected		0.997			0.974			0.992			0.997	
Satd. Flow (prot)	0	1577	0	0	1653	0	0	1779	0	0	1793	0
Flt Permitted		0.997			0.974			0.992			0.997	
Satd. Flow (perm)	0	1577	0	0	1653	0	0	1779	0	0	1793	0
Link Speed (mph)		30			30			35			35	
Link Distance (ft)		909			308			1068			1002	
Travel Time (s)		20.7			7.0			20.8			19.5	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	24	0	338	39	0	33	227	1051	94	44	636	34
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	362	0	0	72	0	0	1372	0	0	714	0
Sign Control		Stop			Stop			Free			Free	

Intersection Summary

Area Type: Other
Control Type: Unsignalized
Intersection Capacity Utilization 130.4% ICU Level of Service H
Analysis Period (min) 15

1: Cider Road & Sandy Ridge Road

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	22	0	304	35	0	30	204	946	85	40	572	31
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	24	0	338	39	0	33	227	1051	94	44	636	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)											1002	
pX, platoon unblocked												
vC, conflicting volume	2327	2341	653	2631	2311	1098	670			1146		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	2327	2341	653	2631	2311	1098	670			1146		
tC, single (s)	7.2	6.6	6.2	7.2	6.6	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 %	0	100	27	0	100	87	75			93		
cM capacity (veh/h)	17	25	462	3	26	255	906			599		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	362	72	1372	714
Volume Left	24	39	227	44
Volume Right	338	33	94	34
cSH	166	6	906	599
Volume to Capacity	2.18	12.51	0.25	0.07
Queue Length 95th (ft)	728	Err	25	6
Control Delay (s)	593.6	Err	8.3	2.0
Lane LOS	F	F	A	A
Approach Delay (s)	593.6	Err	8.3	2.0
Approach LOS	F	F		

Intersection Summary

Average Delay 376.8
Intersection Capacity Utilization 130.4% ICU Level of Service H
Analysis Period (min) 15

2: Farrington Road & Sandy Ridge Road

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (veh/h)	44	519	449	1191	850	61
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	49	577	499	1323	944	68
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (ft)				711		
pX, platoon unblocked	0.47					
vC, conflicting volume	3299	978	1012			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	5354	978	1012			
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	26			
cM capacity (veh/h)	0	300	673			

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	626	1822	1012
Volume Left	49	499	0
Volume Right	577	0	68
cSH	1	673	1700
Volume to Capacity	1103.69	0.74	0.60
Queue Length 95th (ft)	Err	165	0
Control Delay (s)	Err	24.0	0.0
Lane LOS	F	C	
Approach Delay (s)	Err	24.0	0.0
Approach LOS	F		

Intersection Summary

Average Delay 1820.4
Intersection Capacity Utilization 180.5% ICU Level of Service H
Analysis Period (min) 15

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (veh/h)	387	378	215	303	456	332
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	430	420	239	337	507	369
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	576				1687	407
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	576				1687	407
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	56				0	42
cM capacity (veh/h)	983				57	637

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	850	576	876
Volume Left	430	0	507
Volume Right	0	337	369
cSH	983	1700	92
Volume to Capacity	0.44	0.34	9.47
Queue Length 95th (ft)	56	0	Err
Control Delay (s)	9.1	0.0	Err
Lane LOS	A		F
Approach Delay (s)	9.1	0.0	9999.0
Approach LOS			F

Intersection Summary			
Average Delay	3807.9		
Intersection Capacity Utilization	126.8%	ICU Level of Service	H
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	10	766	12	74	526	115	3	3	28	326	21	20
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	11	851	13	82	584	128	3	3	31	362	23	22
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			TWLTL							
Median storage veh)					2							
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	712			864			1663	1757	858	1655	1636	584
vC1, stage 1 conf vol							880	880		749	749	
vC2, stage 2 conf vol							783	877		906	887	
vCu, unblocked vol	712			864			1663	1757	858	1655	1636	584
tC, single (s)	4.1			4.1			7.2	6.6	6.2	7.2	6.6	6.2
tC, 2 stage (s)							6.1	5.6		6.1	5.6	
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	99			89			99	99	91	0	90	96
cM capacity (veh/h)	874			766			223	240	352	184	228	506

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	WB 3	NB 1	SB 1
Volume Total	11	864	82	584	128	38	408
Volume Left	11	0	82	0	0	3	362
Volume Right	0	13	0	0	128	31	22
cSH	874	1700	766	1700	1700	322	193
Volume to Capacity	0.01	0.51	0.11	0.34	0.08	0.12	2.12
Queue Length 95th (ft)	1	0	9	0	0	10	793
Control Delay (s)	9.2	0.0	10.3	0.0	0.0	17.6	559.6
Lane LOS	A		B			C	F
Approach Delay (s)	0.1		1.1			17.6	559.6
Approach LOS						C	F

Intersection Summary			
Average Delay	108.6		
Intersection Capacity Utilization	82.2%	ICU Level of Service	E
Analysis Period (min)	15		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	1023	300	1119	0	238	530	497	1892	137	232	2329	873
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		-2%			2%			-1%			1%	
Storage Length (ft)	438		325	0		0	250		275	300		275
Storage Lanes	2		1	0		1	1		1	1		1
Taper Length (ft)	100		25	25		25	25		25	25		25
Lane Util. Factor	0.97	1.00	1.00	1.00	1.00	1.00	1.00	0.91	1.00	1.00	0.91	1.00
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950						0.950			0.950		
Satd. Flow (prot)	3368	1828	1553	0	1791	1523	1728	4965	1546	1710	4915	1530
Flt Permitted	0.950						0.950			0.950		
Satd. Flow (perm)	3368	1828	1553	0	1791	1523	1728	4965	1546	1710	4915	1530
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		35			35			55			55	
Link Distance (ft)		867			502			480			821	
Travel Time (s)		16.9			9.8			6.0			10.2	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	1137	333	1243	0	264	589	552	2102	152	258	2588	970
Shared Lane Traffic (%)												
Lane Group Flow (vph)	1137	333	1243	0	264	589	552	2102	152	258	2588	970
Turn Type	Prot		pm+ov			pm+ov	Prot		Perm	Prot		pm+ov
Protected Phases	7	4	5		8	1	5	2		1	6	7
Permitted Phases			4			8			2			6
Detector Phase	7	4	5		8	1	5	2	2	1	6	7
Switch Phase												
Minimum Initial (s)	7.0	7.0	7.0		7.0	7.0	7.0	14.0	14.0	7.0	14.0	7.0
Minimum Split (s)	14.0	17.0	14.0		17.0	14.0	14.0	21.0	21.0	14.0	21.0	14.0
Total Split (s)	38.0	62.0	37.0	0.0	24.0	24.0	37.0	74.0	74.0	24.0	61.0	38.0
Total Split (%)	23.8%	38.8%	23.1%	0.0%	15.0%	15.0%	23.1%	46.3%	46.3%	15.0%	38.1%	23.8%
Maximum Green (s)	31.0	55.0	30.0		17.0	17.0	30.0	67.0	67.0	17.0	54.0	31.0
Yellow Time (s)	5.0	5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0		2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	2.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead		Lead		Lag	Lead	Lead	Lag	Lag	Lead	Lag	Lead
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None		None	None	None	C-Min	C-Min	None	C-Min	None
Act Effct Green (s)	33.0	57.0	94.0		19.0	43.0	32.0	69.0	69.0	19.0	56.0	94.0
Actuated g/C Ratio	0.21	0.36	0.59		0.12	0.27	0.20	0.43	0.43	0.12	0.35	0.59
v/c Ratio	1.64	0.51	1.36		1.24	1.44	1.60	0.98	0.23	1.27	1.50	1.08
Control Delay	330.7	44.0	199.9		195.9	252.5	320.4	60.2	29.9	180.8	264.0	52.8
Queue Delay	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	19.7
Total Delay	330.7	44.0	199.9		195.9	252.5	320.4	60.2	29.9	180.8	264.0	72.5
LOS	F	D	F		F	F	F	E	C	F	F	E
Approach Delay		235.6			234.9			109.7			209.7	
Approach LOS		F			F			F			F	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 50th (ft)	~882	274	~1705		~342	~833	~822	788	100	~347	~1365	~1115
Queue Length 95th (ft)	#1019	376	#1972		#532	#1074	#1060	#907	154	m#247	m#1012	m130
Internal Link Dist (ft)		787			422			400			741	
Turn Bay Length (ft)	438		325				250		275	300		275
Base Capacity (vph)	695	651	912		213	409	346	2141	667	203	1720	899
Starvation Cap Reductn	0	0	0		0	0	0	0	0	0	0	38
Spillback Cap Reductn	0	0	0		0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0		0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.64	0.51	1.36		1.24	1.44	1.60	0.98	0.23	1.27	1.50	1.13

Intersection Summary

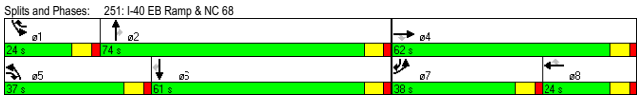
Area Type: Other
Cycle Length: 160
Actuated Cycle Length: 160
Offset: 7 (4%), Referenced to phase 2:NBT and 6:SBT, Start of Green
Natural Cycle: 180
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.64
Intersection Signal Delay: 191.2 — Intersection LOS: F
Intersection Capacity Utilization 130.9% — ICU Level of Service H
Analysis Period (min) 15

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

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

Splits and Phases: 251: I-40 EB Ramp & NC 68



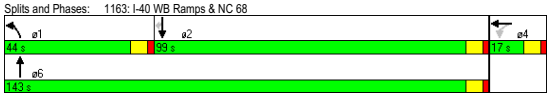
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	0	0	258	0	726	919	2526	0	0	3176	858
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		0%			-2%			0%			-1%	
Storage Length (ft)	0		0	200		0	325		0	0		400
Storage Lanes	0		0	1		1	2		0	0		1
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	1.00	1.00	1.00	0.95	0.95	1.00	0.97	0.91	1.00	1.00	0.91	1.00
Frt						0.850						0.850
Flt Protected				0.950	0.950		0.950					
Satd. Flow (prot)	0	0	0	1649	1649	1553	3335	4940	0	0	4965	1546
Flt Permitted				0.950	0.950		0.950					
Satd. Flow (perm)	0	0	0	1649	1649	1553	3335	4940	0	0	4965	1546
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		30			35			55			55	
Link Distance (ft)		712			820			821			1007	
Travel Time (s)		16.2			16.0			10.2			12.5	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	0	0	0	287	0	807	1021	2807	0	0	3529	953
Shared Lane Traffic (%)				50%								
Lane Group Flow (vph)	0	0	0	143	144	807	1021	2807	0	0	3529	953
Turn Type				Perm		Free	Prot					Perm
Protected Phases					4		1	6			2	
Permitted Phases				4		Free						2
Detector Phase				4	4		1	6			2	2
Switch Phase												
Minimum Initial (s)				7.0	7.0		7.0	14.0			14.0	14.0
Minimum Split (s)				17.0	17.0		14.0	21.0			21.0	21.0
Total Split (s)	0.0	0.0	0.0	17.0	17.0	0.0	44.0	143.0	0.0	0.0	99.0	99.0
Total Split (%)	0.0%	0.0%	0.0%	10.6%	10.6%	0.0%	27.5%	89.4%	0.0%	0.0%	61.9%	61.9%
Maximum Green (s)				10.0	10.0		37.0	136.0			92.0	92.0
Yellow Time (s)				5.0	5.0		5.0	5.0			5.0	5.0
All-Red Time (s)				2.0	2.0		2.0	2.0			2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	2.0	2.0	2.0	5.0	5.0	2.0	5.0	5.0	2.0	2.0	5.0	5.0
Lead/Lag							Lead				Lag	Lag
Lead-Lag Optimize?												
Vehicle Extension (s)				3.0	3.0		3.0	3.0			3.0	3.0
Recall Mode				None	None		None	C-Min			C-Min	C-Min
Act Effct Green (s)				12.0	12.0	160.0	39.0	138.0			94.0	94.0
Actuated g/C Ratio				0.08	0.08	1.00	0.24	0.86			0.59	0.59
v/c Ratio				1.15	1.16	0.52	1.26	0.66			1.21	1.05
Control Delay				189.0	191.4	1.2	170.1	3.1			108.3	36.0
Queue Delay				0.0	0.0	0.0	0.0	0.5			0.4	0.0
Total Delay				189.0	191.4	1.2	170.1	3.6			108.6	36.0
LOS				F	F	A	F	A			F	D
Approach Delay					50.8			48.0			93.2	
Approach LOS					D			D			F	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 50th (ft)				~185	~187	0	~694	187			~1631	~1068
Queue Length 95th (ft)				#343	#347	0	m#518	m147			m215	m106
Internal Link Dist (ft)		632			740			741			927	
Turn Bay Length (ft)				200			325					400
Base Capacity (vph)				124	124	1553	813	4261			2917	908
Starvation Cap Reductn				0	0	0	0	875			0	0
Spillback Cap Reductn				0	0	0	0	0			2	0
Storage Cap Reductn				0	0	0	0	0			0	0
Reduced v/c Ratio				1.15	1.16	0.52	1.26	0.83			1.21	1.05

Intersection Summary

Area Type: Other
Cycle Length: 160
Actuated Cycle Length: 160
Offset: 4 (3%), Referenced to phase 2:SBT and 6:NBT, Start of Green
Natural Cycle: 170
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.26
Intersection Signal Delay: 69.9 Intersection LOS: E
Intersection Capacity Utilization 107.2% ICU Level of Service G
Analysis Period (min) 15
~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 1163: I-40 WB Ramps & NC 68



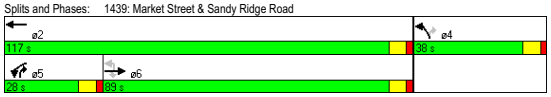
Lane Group	EBU	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations							
Volume (vph)	0	2028	351	292	1139	403	595
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900
Grade (%)		1%			-1%	0%	
Storage Length (ft)	400		500	600		500	0
Storage Lanes	1		1	1		1	1
Taper Length (ft)	25		25	25		25	25
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Frt			0.850				0.850
Flt Protected				0.950		0.950	
Satd. Flow (prot)	1800	3421	1530	1728	3455	1719	1538
Flt Permitted				0.950		0.950	
Satd. Flow (perm)	1800	3421	1530	1728	3455	1719	1538
Right Turn on Red			No				No
Satd. Flow (RTOR)							
Link Speed (mph)		45			45	35	
Link Distance (ft)		751			1348	1002	
Travel Time (s)		11.4			20.4	19.5	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	0	2253	390	324	1266	448	661
Shared Lane Traffic (%)							
Lane Group Flow (vph)	0	2253	390	324	1266	448	661
Turn Type	Perm		Perm	Prot			pm+ov
Protected Phases		6		5	2	4	5
Permitted Phases	6		6				4
Detector Phase	6	6	6	5	2	4	5
Switch Phase							
Minimum Initial (s)	15.0	15.0	15.0	7.0	15.0	7.0	7.0
Minimum Split (s)	22.0	22.0	22.0	14.0	22.0	17.0	14.0
Total Split (s)	89.0	89.0	89.0	28.0	117.0	38.0	28.0
Total Split (%)	57.4%	57.4%	57.4%	18.1%	75.5%	24.5%	18.1%
Maximum Green (s)	82.0	82.0	82.0	21.0	110.0	31.0	21.0
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lag	Lag	Lag	Lead			Lead
Lead-Lag Optimize?							
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	C-Min	C-Min	C-Min	None	C-Min	None	None
Act Effct Green (s)		84.0	84.0	23.0	112.0	33.0	61.0
Actuated g/C Ratio		0.54	0.54	0.15	0.72	0.21	0.39
v/c Ratio		1.22	0.47	1.27	0.51	1.22	1.09
Control Delay		134.8	24.2	186.6	5.7	172.3	108.1
Queue Delay		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay		134.8	24.2	186.6	5.7	172.3	108.1
LOS		F	C	F	A	F	F
Approach Delay		118.5			42.6	134.0	
Approach LOS		F			D	F	

Lane Group	EBU	EBT	EBR	WBL	WBT	NBL	NBR
Queue Length 50th (ft)		~1464	236	~419	162	~556	~752
Queue Length 95th (ft)		#1588	328	m#485	m143	#778	#999
Internal Link Dist (ft)		671			1268	922	
Turn Bay Length (ft)			500	600		500	
Base Capacity (vph)		1854	829	256	2497	366	605
Starvation Cap Reductn		0	0	0	0	0	0
Spillback Cap Reductn		0	0	0	0	0	0
Storage Cap Reductn		0	0	0	0	0	0
Reduced v/c Ratio		1.22	0.47	1.27	0.51	1.22	1.09

Intersection Summary

Area Type: Other
Cycle Length: 155
Actuated Cycle Length: 155
Offset: 10 (6%), Referenced to phase 2:WBT and 6:EBTU, Start of Green
Natural Cycle: 180
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.27
Intersection Signal Delay: 99.1 Intersection LOS: F
Intersection Capacity Utilization 107.1% ICU Level of Service G
Analysis Period (min) 15
~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 1439: Market Street & Sandy Ridge Road



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	29	164	878	2374	3870	265
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Grade (%)	-3%			-2%	-1%	
Storage Length (ft)	263	200	625			438
Storage Lanes	2	1	1			2
Taper Length (ft)	25	25	25			25
Lane Util. Factor	0.97	0.88	0.97	0.91	0.91	1.00
Frt		0.850				0.850
Flt Protected	0.950		0.950			
Satd. Flow (prot)	3385	2748	3368	4989	4965	1546
Flt Permitted	0.950		0.950			
Satd. Flow (perm)	3385	2748	3368	4989	4965	1546
Right Turn on Red		No				No
Satd. Flow (RTOR)						
Link Speed (mph)	30			55	55	
Link Distance (ft)	638			799	1245	
Travel Time (s)	14.5			9.9	15.4	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	32	182	976	2638	4300	294
Shared Lane Traffic (%)						
Lane Group Flow (vph)	32	182	976	2638	4300	294
Turn Type		Prot	Prot			pm+ov
Protected Phases	4	4	5	2	6	4
Permitted Phases						6
Detector Phase	4	4	5	2	6	4
Switch Phase						
Minimum Initial (s)	7.0	7.0	7.0	14.0	14.0	7.0
Minimum Split (s)	17.0	17.0	14.0	21.0	21.0	17.0
Total Split (s)	17.0	17.0	38.0	143.0	105.0	17.0
Total Split (%)	10.6%	10.6%	23.8%	89.4%	65.6%	10.6%
Maximum Green (s)	10.0	10.0	31.0	136.0	98.0	10.0
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag			Lead		Lag	
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	C-Min	C-Min	None
Act Effct Green (s)	12.0	12.0	33.0	138.0	100.0	117.0
Actuated g/C Ratio	0.08	0.08	0.21	0.86	0.62	0.73
v/c Ratio	0.13	0.88	1.40	0.61	1.39	0.26
Control Delay	70.4	110.5	232.9	4.2	203.3	7.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	70.4	110.5	232.9	4.2	203.3	7.8
LOS	E	F	F	A	F	A
Approach Delay	104.5			66.0	190.8	
Approach LOS	F			E	F	

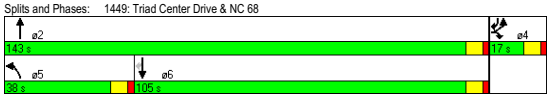
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Queue Length 50th (ft)	16	109	~717	290	~2182	93
Queue Length 95th (ft)	35	#190	#856	349	#2206	132
Internal Link Dist (ft)	558			719	1165	
Turn Bay Length (ft)	263	200	625			438
Base Capacity (vph)	254	206	695	4303	3103	1131
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.13	0.88	1.40	0.61	1.39	0.26

Intersection Summary

Area Type: Other
Cycle Length: 160
Actuated Cycle Length: 160
Offset: 136 (85%), Referenced to phase 2:NBT and 6:SBT, Start of Green
Natural Cycle: 180
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.40
Intersection Signal Delay: 135.1 — Intersection LOS: F
Intersection Capacity Utilization 118.2% — ICU Level of Service H
Analysis Period (min) 15

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 1449: Triad Center Drive & NC 68



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	431	1140	28	96	1568	95	47	0	192	190	77	860
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	700		300	275		275	400		0	700		250
Storage Lanes	1		1	1		1	1		0	1		1
Taper Length (ft)	25		25	75		25	25		25	25		25
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	0.95	0.95	1.00
Frt			0.850			0.850		0.850				0.850
Flt Protected	0.950			0.950			0.950			0.950	0.979	
Satd. Flow (prot)	1719	3438	1538	1719	3438	1538	1719	1538	0	1633	1683	1538
Flt Permitted	0.950			0.950			0.950			0.950	0.979	
Satd. Flow (perm)	1719	3438	1538	1719	3438	1538	1719	1538	0	1633	1683	1538
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		45			45			55			35	
Link Distance (ft)		630			849			475			493	
Travel Time (s)		9.5			12.9			5.9			9.6	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	479	1267	31	107	1742	106	52	0	213	211	86	956
Shared Lane Traffic (%)										31%		
Lane Group Flow (vph)	479	1267	31	107	1742	106	52	213	0	146	151	956
Turn Type	Prot		pm+ov	Prot		pm+ov	Split			Split		pm+ov
Protected Phases	5	2	8	1	6	4	8	8		4	4	5
Permitted Phases			2			6						4
Detector Phase	5	2	8	1	6	4	8	8		4	4	5
Switch Phase												
Minimum Initial (s)	7.0	12.0	7.0	7.0	12.0	7.0	7.0	7.0		7.0	7.0	7.0
Minimum Split (s)	14.0	19.0	17.0	14.0	19.0	17.0	17.0	17.0		17.0	17.0	14.0
Total Split (s)	55.0	94.0	21.0	23.0	62.0	17.0	21.0	21.0	0.0	17.0	17.0	55.0
Total Split (%)	35.5%	60.6%	13.5%	14.8%	40.0%	11.0%	13.5%	13.5%	0.0%	11.0%	11.0%	35.5%
Maximum Green (s)	48.0	87.0	14.0	16.0	55.0	10.0	14.0	14.0		10.0	10.0	48.0
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0		5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0		2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	2.0	5.0	5.0	5.0
Lead/Lag	Lead	Lag		Lead	Lag							Lead
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0
Recall Mode	None	C-Min	Min	None	C-Max	None	Min	Min		None	None	None
Act Effct Green (s)	50.0	91.2	107.2	15.8	57.0	74.0	16.0	16.0		12.0	12.0	62.0
Actuated g/C Ratio	0.32	0.59	0.69	0.10	0.37	0.48	0.10	0.10		0.08	0.08	0.40
v/c Ratio	0.86	0.63	0.03	0.61	1.38	0.14	0.29	1.34		1.16	1.16	1.55
Control Delay	60.0	14.9	2.9	83.5	200.7	11.8	69.2	238.6		188.3	187.9	288.4
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	60.0	14.9	2.9	83.5	200.7	11.8	69.2	238.6		188.3	187.9	288.4
LOS	E	B	A	F	F	B	E	F		F	F	F
Approach Delay		26.8			184.0			205.4			264.6	
Approach LOS		C			F			F			F	
Queue Length 50th (ft)	413	405	4	113	~1238	35	50	~280		~183	~189	~1360

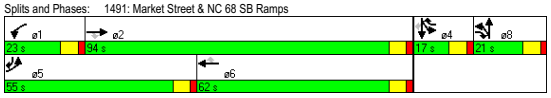
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 95th (ft)	m#618	m458	m6	m133	m#1351	m44	96	#454		#342	#348	#1623
Internal Link Dist (ft)		550			769			395			413	
Turn Bay Length (ft)	700		300	275		275	400			700		250
Base Capacity (vph)	555	2024	1064	200	1264	734	177	159		126	130	615
Starvation Cap Reductn	0	0	0	0	0	0	0	0		0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0		0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0		0	0	0
Reduced v/c Ratio	0.86	0.63	0.03	0.54	1.38	0.14	0.29	1.34		1.16	1.16	1.55

Intersection Summary

Area Type: Other
Cycle Length: 155
Actuated Cycle Length: 155
Offset: 45 (29%), Referenced to phase 2:EBT and 6:WBT, Start of Green
Natural Cycle: 180
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.55
Intersection Signal Delay: 151.1 — Intersection LOS: F
Intersection Capacity Utilization 121.0% — ICU Level of Service H
Analysis Period (min) 15

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 1491: Market Street & NC 68 SB Ramps



1601: I-40 WB On-Ramp & Sandy Ridge Road

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	0	0	490	0	503	1000	1503	0	0	1196	397
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		0%			2%			-4%			4%	
Storage Length (ft)	0		0	675		175	200		0	100		0
Storage Lanes	0		0	1		1	1		0	1		1
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	1.00	1.00	1.00	0.95	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt						0.850						0.850
Flt Protected				0.950	0.950		0.950					
Satd. Flow (prot)	0	0	0	1617	1617	1523	1753	3507	0	0	3369	1507
Flt Permitted				0.950	0.950		0.950					
Satd. Flow (perm)	0	0	0	1617	1617	1523	1753	3507	0	0	3369	1507
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		30			35			45			45	
Link Distance (ft)		340			751			476			361	
Travel Time (s)		7.7			14.6			7.2			5.5	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	0	0	0	544	0	559	1111	1670	0	0	1329	441
Shared Lane Traffic (%)				50%								
Lane Group Flow (vph)	0	0	0	272	272	559	1111	1670	0	0	1329	441
Turn Type				Perm		Perm	Prot					Perm
Protected Phases					4		5	2			6	
Permitted Phases				4		4						6
Detector Phase				4	4	4	5	2			6	6
Switch Phase												
Minimum Initial (s)				7.0	7.0	7.0	6.0	15.0			15.0	15.0
Minimum Split (s)				17.0	17.0	17.0	14.0	22.0			22.0	22.0
Total Split (s)	0.0	0.0	0.0	25.0	25.0	25.0	34.0	65.0	0.0	0.0	31.0	31.0
Total Split (%)	0.0%	0.0%	0.0%	27.8%	27.8%	27.8%	37.8%	72.2%	0.0%	0.0%	34.4%	34.4%
Maximum Green (s)				18.0	18.0	18.0	27.0	58.0			24.0	24.0
Yellow Time (s)				5.0	5.0	5.0	5.0	5.0			5.0	5.0
All-Red Time (s)				2.0	2.0	2.0	2.0	2.0			2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	2.0	2.0	2.0	5.0	5.0	5.0	5.0	5.0	2.0	2.0	5.0	5.0
Lead/Lag							Lag				Lead	Lead
Lead-Lag Optimize?							Yes				Yes	Yes
Vehicle Extension (s)				3.0	3.0	3.0	3.0	3.0			3.0	3.0
Recall Mode				None	None	None	None	C-Min			C-Min	C-Min
Act Effct Green (s)				20.0	20.0	20.0	29.0	60.0			26.0	26.0
Actuated g/C Ratio				0.22	0.22	0.22	0.32	0.67			0.29	0.29
v/c Ratio				0.76	0.76	1.65	1.97	0.71			1.37	1.01
Control Delay				48.0	48.0	334.3	455.8	2.2			195.9	53.3
Queue Delay				0.0	0.0	77.7	0.0	0.4			37.4	0.0
Total Delay				48.0	48.0	412.0	455.8	2.6			233.3	53.3
LOS				D	D	F	F	A			F	D
Approach Delay					232.4			183.6			188.5	
Approach LOS					F			F			F	

1601: I-40 WB On-Ramp & Sandy Ridge Road

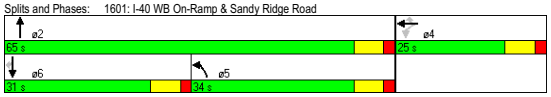
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 50th (ft)				152	152	~466	~1036	97			~532	~252
Queue Length 95th (ft)				#276	#276	#664	m331	m31			m#451	m227
Internal Link Dist (ft)		260			671			396			281	
Turn Bay Length (ft)				675		175	200					
Base Capacity (vph)				359	359	338	565	2338			973	435
Starvation Cap Reductn				0	0	0	0	0			56	0
Spillback Cap Reductn				0	0	32	0	214			0	0
Storage Cap Reductn				0	0	0	0	0			0	0
Reduced v/c Ratio				0.76	0.76	1.83	1.97	0.79			1.45	1.01

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 77 (86%), Referenced to phase 2:NBT and 6:SBT, Start of Green
Natural Cycle: 160
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.97
Intersection Signal Delay: 194.7 — Intersection LOS: F
Intersection Capacity Utilization 154.4% — ICU Level of Service H
Analysis Period (min) 15

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 1601: I-40 WB On-Ramp & Sandy Ridge Road



1648: I-40 EB Off-Ramp & Sandy Ridge Road

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	680	0	701	0	0	0	0	1823	871	366	1320	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		3%			0%			4%			0%	
Storage Length (ft)	0		350	0		0	0		0	200		0
Storage Lanes	1		1	0		0	0		0	1		0
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	1.00
Frt		0.850						0.952				
Flt Protected	0.950									0.950		
Satd. Flow (prot)	1693	1515	0	0	0	0	0	3208	0	1719	3438	0
Flt Permitted	0.950									0.950		
Satd. Flow (perm)	1693	1515	0	0	0	0	0	3208	0	1719	3438	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		35			30			45			35	
Link Distance (ft)		594			355			495			414	
Travel Time (s)		11.6			8.1			7.5			8.1	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	756	0	779	0	0	0	0	2026	968	407	1467	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	756	779	0	0	0	0	0	2994	0	407	1467	0
Turn Type	Perm									Prot		
Protected Phases		4						2		1	6	
Permitted Phases	4											
Detector Phase	4	4						2		1	6	
Switch Phase												
Minimum Initial (s)	7.0	7.0						15.0		7.0	15.0	
Minimum Split (s)	17.0	17.0						22.0		14.0	22.0	
Total Split (s)	27.0	27.0	0.0	0.0	0.0	0.0	0.0	46.0	0.0	17.0	63.0	0.0
Total Split (%)	30.0%	30.0%	0.0%	0.0%	0.0%	0.0%	0.0%	51.1%	0.0%	18.9%	70.0%	0.0%
Maximum Green (s)	20.0	20.0						39.0		10.0	56.0	
Yellow Time (s)	5.0	5.0						5.0		5.0	5.0	
All-Red Time (s)	2.0	2.0						2.0		2.0	2.0	
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	2.0	2.0	2.0	2.0	2.0	5.0	2.0	5.0	5.0	2.0
Lead/Lag								Lead		Lag		
Lead-Lag Optimize?								Yes		Yes		
Vehicle Extension (s)	3.0	3.0						3.0		3.0	3.0	
Recall Mode	None	None						C-Min		None	C-Min	
Act Effct Green (s)	22.0	22.0						41.0		12.0	58.0	
Actuated g/C Ratio	0.24	0.24						0.46		0.13	0.64	
v/c Ratio	1.83	2.11						2.05		1.78	0.66	
Control Delay	406.2	529.2						495.4		375.5	2.4	
Queue Delay	0.0	0.0						0.0		0.0	0.0	
Total Delay	406.2	529.2						495.4		375.5	2.4	
LOS	F	F						F		F	A	
Approach Delay		468.6						495.4			83.4	
Approach LOS		F						F			F	

1648: I-40 EB Off-Ramp & Sandy Ridge Road

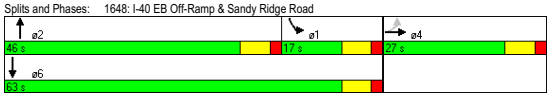
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 50th (ft)	~656	~710						~1423		~365	23	
Queue Length 95th (ft)	#874	#928						#1557		m#315	m7	
Internal Link Dist (ft)		514			275			415			334	
Turn Bay Length (ft)										200		
Base Capacity (vph)	414	370						1461		229	2216	
Starvation Cap Reductn	0	0						0		0	0	
Spillback Cap Reductn	0	0						0		0	0	
Storage Cap Reductn	0	0						0		0	0	
Reduced v/c Ratio	1.83	2.11						2.05		1.78	0.66	

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 76 (84%), Referenced to phase 2:NBT and 6:SBT, Start of Green
Natural Cycle: 180
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 2.11
Intersection Signal Delay: 368.4 — Intersection LOS: F
Intersection Capacity Utilization 154.4% — ICU Level of Service H
Analysis Period (min) 15

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 1648: I-40 EB Off-Ramp & Sandy Ridge Road



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	10	3	393	200	5	267	163	1363	480	359	1000	10
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		1%			1%			-2%			-1%	
Storage Length (ft)	0		0	0		0	150		0	100		0
Storage Lanes	0		0	0		0	1		1	1		0
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.869			0.924				0.850		0.999	
Flt Protected		0.999			0.979		0.950			0.950		
Satd. Flow (prot)	0	1563	0	0	1629	0	1736	1828	1553	1728	1817	0
Flt Permitted		0.986			0.481		0.082			0.082		
Satd. Flow (perm)	0	1543	0	0	800	0	150	1828	1553	149	1817	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		45			45			45			45	
Link Distance (ft)		785			983			361			176	
Travel Time (s)		11.9			14.9			5.5			2.7	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	11	3	437	222	6	297	181	1514	533	399	1111	11
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	451	0	0	525	0	181	1514	533	399	1122	0
Turn Type	Perm			Perm			Perm		Perm	Perm		
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2		2	6		
Detector Phase	4	4		8	8		2	2	2	6	6	
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0		15.0	15.0	15.0	15.0	15.0	
Minimum Split (s)	17.0	17.0		17.0	17.0		22.0	22.0	22.0	22.0	22.0	
Total Split (s)	36.0	36.0	0.0	36.0	36.0	0.0	54.0	54.0	54.0	54.0	54.0	0.0
Total Split (%)	40.0%	40.0%	0.0%	40.0%	40.0%	0.0%	60.0%	60.0%	60.0%	60.0%	60.0%	0.0%
Maximum Green (s)	29.0	29.0		29.0	29.0		47.0	47.0	47.0	47.0	47.0	
Yellow Time (s)	5.0	5.0		5.0	5.0		5.0	5.0	5.0	5.0	5.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0	2.0	2.0	2.0	
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	2.0	5.0	5.0	2.0	5.0	5.0	5.0	5.0	5.0	2.0
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Recall Mode	None	None		None	None		C-Min	C-Min	C-Min	C-Min	C-Min	
Act Effct Green (s)		31.0			31.0		49.0	49.0	49.0	49.0	49.0	
Actuated g/C Ratio		0.34			0.34		0.54	0.54	0.54	0.54	0.54	
v/c Ratio		0.85			1.90		2.21	1.52	0.63	4.93	1.13	
Control Delay		44.4			442.4		574.2	256.7	11.5	1804.7	95.9	
Queue Delay		0.0			0.0		0.0	0.0	2.0	0.0	0.0	
Total Delay		44.4			442.4		574.2	256.7	13.5	1804.7	95.9	
LOS		D			F		F	F	B	F	F	
Approach Delay		44.4			442.4			224.3			544.1	
Approach LOS		D			F			F			F	

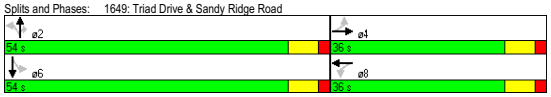
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 50th (ft)		234			~463		~167	~1236	161	~391	~750	
Queue Length 95th (ft)		#405			#656		m#209	m#1248	m200	#570	#990	
Internal Link Dist (ft)		705			903			281			96	
Turn Bay Length (ft)							150			100		
Base Capacity (vph)		531			276		82	995	846	81	989	
Starvation Cap Reductn		0			0		0	0	177	0	0	
Spillback Cap Reductn		0			0		0	0	0	0	0	
Storage Cap Reductn		0			0		0	0	0	0	0	
Reduced v/c Ratio		0.85			1.90		2.21	1.52	0.80	4.93	1.13	

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle: 45
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 4.93
Intersection Signal Delay: 334.3 — Intersection LOS: F
Intersection Capacity Utilization 161.1% — ICU Level of Service H
Analysis Period (min) 15

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 1649: Triad Drive & Sandy Ridge Road



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (vph)	534	988	1378	186	59	381
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Grade (%)		-1%	0%		-2%	
Storage Length (ft)	275			400	0	600
Storage Lanes	1			1	1	1
Taper Length (ft)	75			25	25	25
Lane Util. Factor	1.00	0.95	0.95	1.00	1.00	1.00
Frt				0.850		0.850
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1728	3455	3438	1538	1736	1553
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	1728	3455	3438	1538	1736	1553
Right Turn on Red				No		No
Satd. Flow (RTOR)						
Link Speed (mph)		45	45		30	
Link Distance (ft)		849	543		531	
Travel Time (s)		12.9	8.2		12.1	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	593	1098	1531	207	66	423
Shared Lane Traffic (%)						
Lane Group Flow (vph)	593	1098	1531	207	66	423
Turn Type	Prot			pm+ov		pm+ov
Protected Phases	5	2	6	4	4	5
Permitted Phases				6		4
Detector Phase	5	2	6	4	4	5
Switch Phase						
Minimum Initial (s)	6.0	15.0	15.0	7.0	7.0	6.0
Minimum Split (s)	14.0	22.0	22.0	17.0	17.0	14.0
Total Split (s)	60.0	138.0	78.0	17.0	17.0	60.0
Total Split (%)	38.7%	89.0%	50.3%	11.0%	11.0%	38.7%
Maximum Green (s)	53.0	131.0	71.0	10.0	10.0	53.0
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead		Lag			Lead
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	C-Min	C-Min	None	None	None
Act Effct Green (s)	54.9	133.7	73.8	90.1	11.3	71.2
Actuated g/C Ratio	0.35	0.86	0.48	0.58	0.07	0.46
v/c Ratio	0.97	0.37	0.94	0.23	0.52	0.59
Control Delay	79.5	1.5	50.1	16.6	84.2	35.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	79.5	1.5	50.1	16.6	84.2	35.2
LOS	E	A	D	B	F	D
Approach Delay		28.9	46.2		41.8	
Approach LOS		C	D		D	

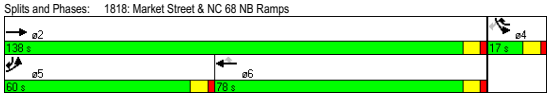
Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Queue Length 50th (ft)	638	46	766	98	65	311
Queue Length 95th (ft)	m#740	m48	#935	146	119	427
Internal Link Dist (ft)		769	463		451	
Turn Bay Length (ft)	275			400		600
Base Capacity (vph)	614	2981	1636	901	134	715
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.97	0.37	0.94	0.23	0.49	0.59

Intersection Summary

Area Type: Other
Cycle Length: 155
Actuated Cycle Length: 155
Offset: 16 (10%), Referenced to phase 2:EBT and 6:WBT, Start of Green
Natural Cycle: 120
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.97
Intersection Signal Delay: 38.1 — Intersection LOS: D
Intersection Capacity Utilization 86.0% — ICU Level of Service E
Analysis Period (min) 15

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 1818: Market Street & NC 68 NB Ramps



Sandy Ridge Road Feasibility Study — Future Year (2035) No-Build AM

2000: Market Street & Pleasant Ridge Road

Lane Group	EBL	EBT	WBU	WBT	WBR	SBL	SBR
Lane Configurations							
Volume (vph)	684	1715	0	1101	165	189	503
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900
Grade (%)		-3%		3%		-1%	
Storage Length (ft)	300		400		325	400	0
Storage Lanes	1		1		1	1	1
Taper Length (ft)	25		25		25	25	25
Lane Util. Factor	1.00	0.95	1.00	0.95	1.00	1.00	1.00
Frt					0.850		0.850
Flt Protected	0.950					0.950	
Satd. Flow (prot)	1745	3490	1782	3387	1515	1728	1546
Flt Permitted	0.950					0.950	
Satd. Flow (perm)	1745	3490	1782	3387	1515	1728	1546
Right Turn on Red					No		No
Satd. Flow (RTOR)							
Link Speed (mph)		45		45		50	
Link Distance (ft)		755		1642		597	
Travel Time (s)		11.4		24.9		8.1	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	760	1906	0	1223	183	210	559
Shared Lane Traffic (%)							
Lane Group Flow (vph)	760	1906	0	1223	183	210	559
Turn Type	Prot		Perm		Perm		pm+ov
Protected Phases	1	6		2		4	1
Permitted Phases			2		2		4
Detector Phase	1	6	2	2	2	4	1
Switch Phase							
Minimum Initial (s)	6.0	15.0	15.0	15.0	15.0	8.0	6.0
Minimum Split (s)	14.0	22.0	22.0	22.0	22.0	17.0	14.0
Total Split (s)	71.0	132.0	61.0	61.0	61.0	23.0	71.0
Total Split (%)	45.8%	85.2%	39.4%	39.4%	39.4%	14.8%	45.8%
Maximum Green (s)	64.0	125.0	54.0	54.0	54.0	16.0	64.0
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead		Lag	Lag	Lag		Lead
Lead-Lag Optimize?							
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	C-Min	C-Min	C-Min	C-Min	None	None
Act Effct Green (s)	66.0	127.0		56.0	56.0	18.0	89.0
Actuated g/C Ratio	0.43	0.82		0.36	0.36	0.12	0.57
v/c Ratio	1.02	0.67		1.00	0.33	1.04	0.63
Control Delay	51.7	2.7		34.8	18.1	139.5	26.0
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0
Total Delay	51.7	2.7		34.8	18.1	139.5	26.0
LOS	D	A		C	B	F	C
Approach Delay		16.7		32.6		57.0	
Approach LOS		B		C		E	

M/A/B

Synchro 7 - Report

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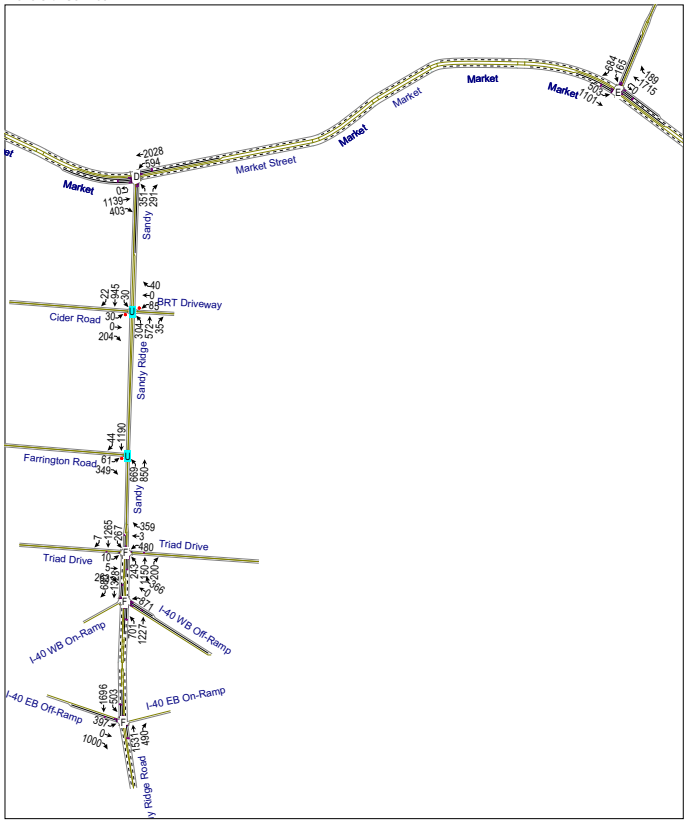
Sandy Ridge Road Feasibility Study — **Future Year (2035) No-Build PM**

Levels of Service



M/A/B

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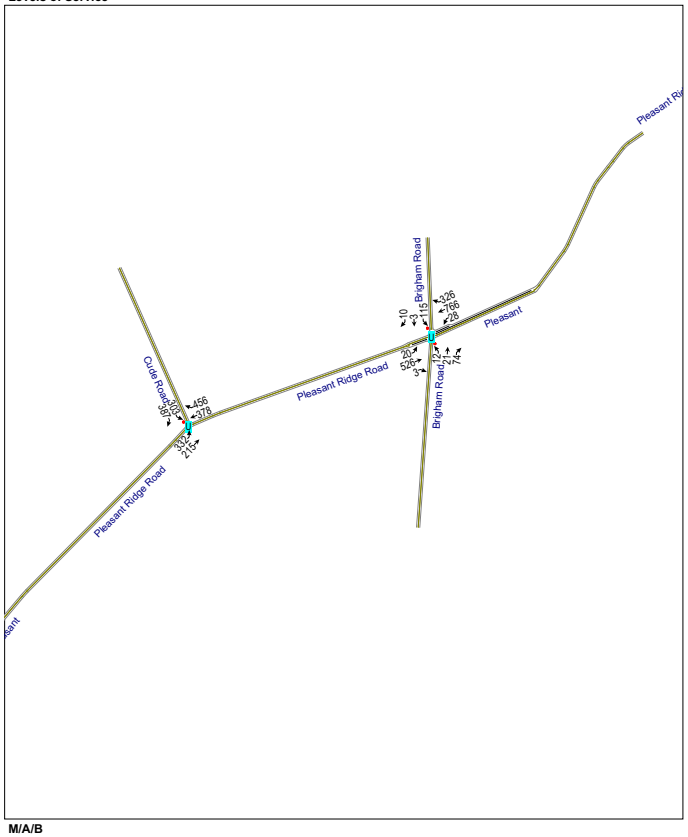
Sandy Ridge Road Feasibility Study — **Future Year (2035) No-Build PM**

Levels of Service



M/A/B

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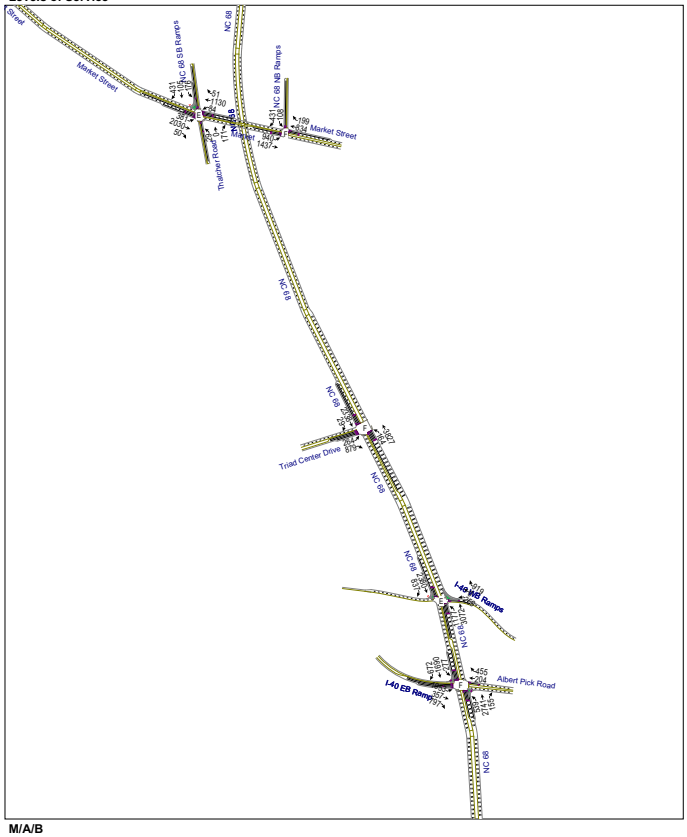
Sandy Ridge Road Feasibility Study — **Future Year (2035) No-Build PM**

Levels of Service



M/A/B

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Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	30	0	204	85	0	40	304	572	35	30	945	22
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	33	0	227	94	0	44	338	636	39	33	1050	24
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)											1002	
pX, platoon unblocked												
vC, conflicting volume	2504	2479	1062	2686	2472	655	1074			674		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	2504	2479	1062	2686	2472	655	1074			674		
tC, single (s)	7.2	6.6	6.2	7.2	6.6	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 %	0	100	15	0	100	90	47			96		
cM capacity (veh/h)	10	13	268	1	13	461	638			903		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	260	139	1012	1108
Volume Left	33	94	338	33
Volume Right	227	44	39	24
cSH	61	2	638	903
Volume to Capacity	4.28	77.87	0.53	0.04
Queue Length 95th (ft)	Err	Err	78	3
Control Delay (s)	Err	Err	15.5	1.2
Lane LOS	F	F	C	A
Approach Delay (s)	Err	Err	15.5	1.2
Approach LOS	F	F		

Intersection Summary			
Average Delay	1590.2		
Intersection Capacity Utilization	136.5%	ICU Level of Service	H
Analysis Period (min)	15		

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (veh/h)	61	349	669	850	1190	44
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	68	388	743	944	1322	49
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (ft)				711		
pX, platoon unblocked	0.51					
vC, conflicting volume	3778	1347	1371			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	5990	1347	1371			
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	0			
cM capacity (veh/h)	0	182	491			

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	456	1688	1371
Volume Left	68	743	0
Volume Right	388	0	49
cSH	0	491	1700
Volume to Capacity	Err	1.51	0.81
Queue Length 95th (ft)	Err	968	0
Control Delay (s)	Err	263.4	0.0
Lane LOS	F	F	
Approach Delay (s)	Err	263.4	0.0
Approach LOS	F		

Intersection Summary			
Average Delay	Err		
Intersection Capacity Utilization	182.0%	ICU Level of Service	H
Analysis Period (min)	15		

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (veh/h)	332	215	378	456	303	387
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	369	239	420	507	337	430
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	927				1650	673
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	927				1650	673
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	49				0	4
cM capacity (veh/h)	725				53	450

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	608	927	767
Volume Left	369	0	337
Volume Right	0	507	430
cSH	725	1700	104
Volume to Capacity	0.51	0.55	7.37
Queue Length 95th (ft)	73	0	Err
Control Delay (s)	12.6	0.0	Err
Lane LOS	B		F
Approach Delay (s)	12.6	0.0	Err
Approach LOS			F

Intersection Summary			
Average Delay	3334.7		
Intersection Capacity Utilization	128.0%	ICU Level of Service	H
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	20	526	3	28	766	326	12	21	74	115	3	10
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	22	584	3	31	851	362	13	23	82	128	3	11
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			TWLTL							
Median storage veh)					2							
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	1213			588			1557	1906	586	1636	1546	851
vC1, stage 1 conf vol							631	631		913	913	
vC2, stage 2 conf vol							926	1276		723	632	
vCu, unblocked vol	1213			588			1557	1906	586	1636	1546	851
tC, single (s)	4.1			4.1			7.2	6.6	6.2	7.2	6.6	6.2
tC, 2 stage (s)							6.1	5.6		6.1	5.6	
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	96			97			94	88	84	40	99	97
cM capacity (veh/h)	564			973			238	187	505	212	275	355

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	WB 3	NB 1	SB 1
Volume Total	22	588	31	851	362	119	142
Volume Left	22	0	31	0	0	13	128
Volume Right	0	3	0	0	362	82	11
cSH	564	1700	973	1700	1700	346	220
Volume to Capacity	0.04	0.35	0.03	0.50	0.21	0.34	0.65
Queue Length 95th (ft)	3	0	2	0	0	37	98
Control Delay (s)	11.6	0.0	8.8	0.0	0.0	20.7	47.1
Lane LOS	B		A			C	E
Approach Delay (s)	0.4		0.2			20.7	47.1
Approach LOS						C	E

Intersection Summary			
Average Delay	4.6		
Intersection Capacity Utilization	60.8%	ICU Level of Service	B
Analysis Period (min)	15		

251: I-40 EB Ramp & NC 68

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	1053	357	797	0	204	455	539	2741	155	277	1690	672
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		-2%			2%			-1%			1%	
Storage Length (ft)	438		325	0		0	250		275	300		275
Storage Lanes	2		1	0		1	1		1	1		1
Taper Length (ft)	100		25	25		25	25		25	25		25
Lane Util. Factor	0.97	1.00	1.00	1.00	1.00	1.00	1.00	0.91	1.00	1.00	0.91	1.00
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950						0.950			0.950		
Satd. Flow (prot)	3368	1828	1553	0	1791	1523	1728	4965	1546	1710	4915	1530
Flt Permitted	0.950						0.950			0.950		
Satd. Flow (perm)	3368	1828	1553	0	1791	1523	1728	4965	1546	1710	4915	1530
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		35			35			55			55	
Link Distance (ft)		867			502			480			821	
Travel Time (s)		16.9			9.8			6.0			10.2	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	1170	397	886	0	227	506	599	3046	172	308	1878	747
Shared Lane Traffic (%)												
Lane Group Flow (vph)	1170	397	886	0	227	506	599	3046	172	308	1878	747
Turn Type	Prot		pm+ov			pm+ov	Prot		Perm	Prot		pm+ov
Protected Phases	7	4	5		8	1	5	2		1	6	7
Permitted Phases			4			8			2			6
Detector Phase	7	4	5		8	1	5	2	2	1	6	7
Switch Phase												
Minimum Initial (s)	7.0	7.0	7.0		7.0	7.0	7.0	14.0	14.0	7.0	14.0	7.0
Minimum Split (s)	14.0	17.0	14.0		17.0	14.0	14.0	21.0	21.0	14.0	21.0	14.0
Total Split (s)	39.0	60.0	39.0	0.0	21.0	24.0	39.0	71.0	71.0	24.0	56.0	39.0
Total Split (%)	25.2%	38.7%	25.2%	0.0%	13.5%	15.5%	25.2%	45.8%	45.8%	15.5%	36.1%	25.2%
Maximum Green (s)	32.0	53.0	32.0		14.0	17.0	32.0	64.0	64.0	17.0	49.0	32.0
Yellow Time (s)	5.0	5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0		2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	2.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead		Lead		Lag	Lead	Lead	Lag	Lag	Lead	Lag	Lead
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None		None	None	None	C-Min	C-Min	None	C-Min	None
Act Effct Green (s)	34.0	55.0	94.0		16.0	40.0	34.0	66.0	66.0	19.0	51.0	90.0
Actuated g/C Ratio	0.22	0.35	0.61		0.10	0.26	0.22	0.43	0.43	0.12	0.33	0.58
v/c Ratio	1.58	0.61	0.94		1.23	1.29	1.58	1.44	0.26	1.47	1.16	0.84
Control Delay	307.0	46.1	46.7		195.1	192.3	311.7	235.3	30.1	261.9	115.3	6.5
Queue Delay	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	4.3
Total Delay	307.0	46.1	46.7		195.1	192.3	311.7	235.3	30.1	261.9	115.3	10.8
LOS	F	D	D		F	F	F	F	C	F	F	B
Approach Delay		170.8			193.2			238.0			104.1	
Approach LOS		F			F			F			F	

251: I-40 EB Ramp & NC 68

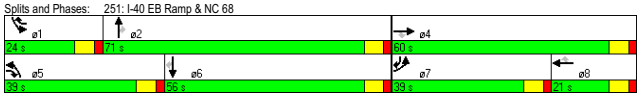
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 50th (ft)	~865	331	788		~282	~649	~859	~1528	112	~437	~809	54
Queue Length 95th (ft)	#1003	450	#1131		#459	#880	#1100	#1597	170	m#394	m#721	m51
Internal Link Dist (ft)		787			422			400			741	
Turn Bay Length (ft)	438		325				250		275	300		275
Base Capacity (vph)	739	649	942		185	393	379	2114	658	210	1617	888
Starvation Cap Reductn	0	0	0		0	0	0	0	0	0	0	86
Spillback Cap Reductn	0	0	0		0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0		0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.58	0.61	0.94		1.23	1.29	1.58	1.44	0.26	1.47	1.16	0.93

Intersection Summary

Area Type: Other
Cycle Length: 155
Actuated Cycle Length: 155
Offset: 7 (5%), Referenced to phase 2:NBT and 6:SBT, Start of Green
Natural Cycle: 180
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.58
Intersection Signal Delay: 178.6 — Intersection LOS: F
Intersection Capacity Utilization 125.7% — ICU Level of Service H
Analysis Period (min) 15

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 251: I-40 EB Ramp & NC 68



1163: I-40 WB Ramps & NC 68

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	0	0	259	0	919	1177	3072	0	0	2380	837
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		0%			-2%			0%			-1%	
Storage Length (ft)	0		0	200		0	325		0	0		400
Storage Lanes	0		0	1		1	2		0	0		1
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	1.00	1.00	1.00	0.95	0.95	1.00	0.97	0.91	1.00	1.00	0.91	1.00
Frt						0.850						0.850
Flt Protected				0.950	0.950		0.950					
Satd. Flow (prot)	0	0	0	1649	1649	1553	3335	4940	0	0	4965	1546
Flt Permitted				0.950	0.950		0.950					
Satd. Flow (perm)	0	0	0	1649	1649	1553	3335	4940	0	0	4965	1546
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		30			35			55			55	
Link Distance (ft)		712			820			821			1007	
Travel Time (s)		16.2			16.0			10.2			12.5	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	0	0	0	288	0	1021	1308	3413	0	0	2644	930
Shared Lane Traffic (%)				50%								
Lane Group Flow (vph)	0	0	0	144	144	1021	1308	3413	0	0	2644	930
Turn Type				Perm		Free	Prot					Perm
Protected Phases					4		1	6			2	
Permitted Phases				4		Free						2
Detector Phase				4	4		1	6			2	2
Switch Phase												
Minimum Initial (s)				7.0	7.0		7.0	14.0			14.0	14.0
Minimum Split (s)				17.0	17.0		14.0	21.0			21.0	21.0
Total Split (s)	0.0	0.0	0.0	17.0	17.0	0.0	55.0	138.0	0.0	0.0	83.0	83.0
Total Split (%)	0.0%	0.0%	0.0%	11.0%	11.0%	0.0%	35.5%	89.0%	0.0%	0.0%	53.5%	53.5%
Maximum Green (s)				10.0	10.0		48.0	131.0			76.0	76.0
Yellow Time (s)				5.0	5.0		5.0	5.0			5.0	5.0
All-Red Time (s)				2.0	2.0		2.0	2.0			2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	2.0	2.0	2.0	5.0	5.0	2.0	5.0	5.0	2.0	2.0	5.0	5.0
Lead/Lag							Lead				Lag	Lag
Lead-Lag Optimize?												
Vehicle Extension (s)				3.0	3.0		3.0	3.0			3.0	3.0
Recall Mode				None	None		None	C-Min			C-Min	C-Min
Act Effct Green (s)				12.0	12.0	155.0	50.0	133.0			78.0	78.0
Actuated g/C Ratio				0.08	0.08	1.00	0.32	0.86			0.50	0.50
v/c Ratio				1.12	1.12	0.66	1.22	0.81			1.06	1.20
Control Delay				178.2	178.2	2.2	151.7	6.3			56.6	117.9
Queue Delay				0.0	0.0	0.0	0.0	4.6			0.0	0.0
Total Delay				178.2	178.2	2.2	151.7	10.9			56.6	117.9
LOS				F	F	A	F	B			E	F
Approach Delay					40.9			49.9			72.5	
Approach LOS					D			D			E	

1163: I-40 WB Ramps & NC 68

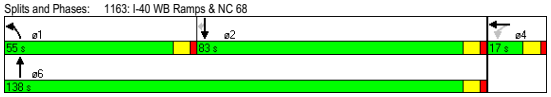
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 50th (ft)				~176	~176	0	~847	309			~1062	~1129
Queue Length 95th (ft)				#333	#333	0	m478	m196			m#990	m#1146
Internal Link Dist (ft)		632			740			741			927	
Turn Bay Length (ft)				200			325					400
Base Capacity (vph)				128	128	1553	1076	4239			2499	778
Starvation Cap Reductn				0	0	0	0	762			0	0
Spillback Cap Reductn				0	0	0	0	0			0	0
Storage Cap Reductn				0	0	0	0	0			0	0
Reduced v/c Ratio				1.13	1.13	0.66	1.22	0.98			1.06	1.20

Intersection Summary

Area Type: Other
Cycle Length: 155
Actuated Cycle Length: 155
Offset: 0 (0%), Referenced to phase 2:SBT and 6:NBT, Start of Green
Natural Cycle: 170
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.22
Intersection Signal Delay: 57.1 — Intersection LOS: E
Intersection Capacity Utilization 105.1% — ICU Level of Service G
Analysis Period (min) 15

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 1163: I-40 WB Ramps & NC 68



Lane Group	EBU	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations							
Volume (vph)	0	1139	403	594	2028	351	291
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900
Grade (%)		1%			-1%	0%	
Storage Length (ft)	400		500	600		500	0
Storage Lanes	1		1	1		1	1
Taper Length (ft)	25		25	25		25	25
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Frt			0.850				0.850
Flt Protected				0.950		0.950	
Satd. Flow (prot)	1800	3421	1530	1728	3455	1719	1538
Flt Permitted				0.950		0.950	
Satd. Flow (perm)	1800	3421	1530	1728	3455	1719	1538
Right Turn on Red			No				No
Satd. Flow (RTOR)							
Link Speed (mph)		45			45	35	
Link Distance (ft)		751			1348	1002	
Travel Time (s)		11.4			20.4	19.5	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	0	1266	448	660	2253	390	323
Shared Lane Traffic (%)							
Lane Group Flow (vph)	0	1266	448	660	2253	390	323
Turn Type	Perm		Perm	Prot			pm+ov
Protected Phases		6		5	2	4	5
Permitted Phases	6		6				4
Detector Phase	6	6	6	5	2	4	5
Switch Phase							
Minimum Initial (s)	15.0	15.0	15.0	7.0	15.0	7.0	7.0
Minimum Split (s)	22.0	22.0	22.0	14.0	22.0	17.0	14.0
Total Split (s)	61.0	61.0	61.0	61.0	122.0	38.0	61.0
Total Split (%)	38.1%	38.1%	38.1%	38.1%	76.3%	23.8%	38.1%
Maximum Green (s)	54.0	54.0	54.0	54.0	115.0	31.0	54.0
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lag	Lag	Lag	Lead			Lead
Lead-Lag Optimize?							
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	C-Min	C-Min	C-Min	None	C-Min	None	None
Act Effct Green (s)		56.0	56.0	56.0	117.0	33.0	94.0
Actuated g/C Ratio		0.35	0.35	0.35	0.73	0.21	0.59
v/c Ratio		1.06	0.84	1.09	0.89	1.10	0.36
Control Delay		91.9	62.8	97.9	6.9	133.7	18.6
Queue Delay		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay		91.9	62.8	97.9	6.9	133.7	18.6
LOS		F	E	F	A	F	B
Approach Delay		84.3			27.5	81.6	
Approach LOS		F			C	F	

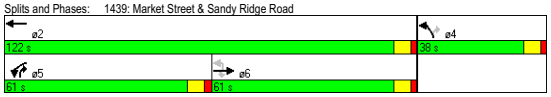
Lane Group	EBU	EBT	EBR	WBL	WBT	NBL	NBR
Queue Length 50th (ft)		~761	431	~771	340	~461	170
Queue Length 95th (ft)		#902	#616	m#638	m293	#678	239
Internal Link Dist (ft)		671			1268	922	
Turn Bay Length (ft)			500	600		500	
Base Capacity (vph)		1197	536	605	2526	355	904
Starvation Cap Reductn		0	0	0	0	0	0
Spillback Cap Reductn		0	0	0	0	0	0
Storage Cap Reductn		0	0	0	0	0	0
Reduced v/c Ratio		1.06	0.84	1.09	0.89	1.10	0.36

Intersection Summary

Area Type: Other
Cycle Length: 160
Actuated Cycle Length: 160
Offset: 55 (34%), Referenced to phase 2:WBT and 6:EBTU, Start of Green
Natural Cycle: 120
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.10
Intersection Signal Delay: 52.9 — Intersection LOS: D
Intersection Capacity Utilization 100.5% — ICU Level of Service G
Analysis Period (min) 15

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 1439: Market Street & Sandy Ridge Road



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	264	879	164	3827	2338	29
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Grade (%)	-3%			-2%	-1%	
Storage Length (ft)	263	200	625			438
Storage Lanes	2	1	1			2
Taper Length (ft)	25	25	25			25
Lane Util. Factor	0.97	0.88	0.97	0.91	0.91	1.00
Frt		0.850				0.850
Flt Protected	0.950		0.950			
Satd. Flow (prot)	3385	2748	3368	4989	4965	1546
Flt Permitted	0.950		0.950			
Satd. Flow (perm)	3385	2748	3368	4989	4965	1546
Right Turn on Red		No				No
Satd. Flow (RTOR)						
Link Speed (mph)	30			55	55	
Link Distance (ft)	638			799	1245	
Travel Time (s)	14.5			9.9	15.4	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	293	977	182	4252	2598	32
Shared Lane Traffic (%)						
Lane Group Flow (vph)	293	977	182	4252	2598	32
Turn Type		Prot	Prot			pm+ov
Protected Phases	4	4	5	2	6	4
Permitted Phases						6
Detector Phase	4	4	5	2	6	4
Switch Phase						
Minimum Initial (s)	7.0	7.0	7.0	14.0	14.0	7.0
Minimum Split (s)	17.0	17.0	14.0	21.0	21.0	17.0
Total Split (s)	47.0	47.0	14.0	108.0	94.0	47.0
Total Split (%)	30.3%	30.3%	9.0%	69.7%	60.6%	30.3%
Maximum Green (s)	40.0	40.0	7.0	101.0	87.0	40.0
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag			Lead		Lag	
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	C-Min	C-Min	None
Act Effct Green (s)	42.0	42.0	9.0	103.0	89.0	136.0
Actuated g/C Ratio	0.27	0.27	0.06	0.66	0.57	0.88
v/c Ratio	0.32	1.31	0.93	1.28	0.91	0.02
Control Delay	46.3	193.4	108.5	151.7	35.5	1.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	46.3	193.4	108.5	151.7	35.5	1.2
LOS	D	F	F	F	D	A
Approach Delay	159.4			150.0	35.1	
Approach LOS	F			F	D	

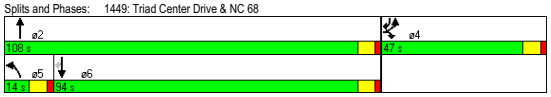
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Queue Length 50th (ft)	122	~721	94	~1988	832	3
Queue Length 95th (ft)	167	#871	m#147	#2023	906	6
Internal Link Dist (ft)	558			719	1165	
Turn Bay Length (ft)	263	200	625			438
Base Capacity (vph)	917	745	196	3315	2851	1356
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.32	1.31	0.93	1.28	0.91	0.02

Intersection Summary

Area Type: Other
Cycle Length: 155
Actuated Cycle Length: 155
Offset: 139 (90%), Referenced to phase 2:NBT and 6:SBT, Start of Green
Natural Cycle: 160
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.31
Intersection Signal Delay: 115.2 — Intersection LOS: F
Intersection Capacity Utilization 89.8% — ICU Level of Service E
Analysis Period (min) 15

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 1449: Triad Center Drive & NC 68



1491: Market Street & NC 68 SB Ramps

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	381	2030	50	84	1130	51	29	0	171	176	105	431
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	700		300	275		275	400		0	700		250
Storage Lanes	1		1	1		1	1		0	1		1
Taper Length (ft)	25		25	75		25	25		25	25		25
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	0.95	0.95	1.00
Frt			0.850			0.850		0.850				0.850
Flt Protected	0.950			0.950			0.950			0.950	0.987	
Satd. Flow (prot)	1719	3438	1538	1719	3438	1538	1719	1538	0	1633	1697	1538
Flt Permitted	0.950			0.950			0.950			0.950	0.987	
Satd. Flow (perm)	1719	3438	1538	1719	3438	1538	1719	1538	0	1633	1697	1538
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		45			45			55			35	
Link Distance (ft)		630			849			475			493	
Travel Time (s)		9.5			12.9			5.9			9.6	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	423	2256	56	93	1256	57	32	0	190	196	117	479
Shared Lane Traffic (%)										22%		
Lane Group Flow (vph)	423	2256	56	93	1256	57	32	190	0	153	160	479
Turn Type	Prot		pm+ov	Prot		pm+ov	Split			Split		pm+ov
Protected Phases	5	2	8	1	6	4	8	8		4	4	5
Permitted Phases			2			6						4
Detector Phase	5	2	8	1	6	4	8	8		4	4	5
Switch Phase												
Minimum Initial (s)	7.0	12.0	7.0	7.0	12.0	7.0	7.0	7.0		7.0	7.0	7.0
Minimum Split (s)	14.0	19.0	17.0	14.0	19.0	17.0	17.0	17.0		17.0	17.0	14.0
Total Split (s)	45.0	104.0	23.0	14.0	73.0	19.0	23.0	23.0	0.0	19.0	19.0	45.0
Total Split (%)	28.1%	65.0%	14.4%	8.8%	45.6%	11.9%	14.4%	14.4%	0.0%	11.9%	11.9%	28.1%
Maximum Green (s)	38.0	97.0	16.0	7.0	66.0	12.0	16.0	16.0		12.0	12.0	38.0
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0		5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0		2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	2.0	5.0	5.0	5.0
Lead/Lag	Lead	Lag		Lead	Lag							Lead
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0
Recall Mode	None	C-Min	Min	None	C-Max	None	Min	Min		None	None	None
Act Effct Green (s)	40.0	99.0	117.0	9.0	68.0	87.0	18.0	18.0		14.0	14.0	54.0
Actuated g/C Ratio	0.25	0.62	0.73	0.06	0.42	0.54	0.11	0.11		0.09	0.09	0.34
v/c Ratio	0.98	1.06	0.05	0.96	0.86	0.07	0.17	1.10		1.07	1.08	0.92
Control Delay	106.4	62.4	2.3	62.1	68.2	42.0	66.7	159.5		160.8	162.2	67.5
Queue Delay	0.0	0.0	0.0	0.0	1.4	0.0	0.0	0.0		0.0	0.0	0.0
Total Delay	106.4	62.4	2.3	62.1	69.6	42.0	66.7	159.5		160.8	162.2	67.5
LOS	F	E	A	E	E	D	E	F		F	F	E
Approach Delay		67.9			68.0			146.1			104.7	
Approach LOS		E			E			F			F	
Queue Length 50th (ft)	432	~1372	4	101	706	51	31	~224		~186	~195	348

1491: Market Street & NC 68 SB Ramps

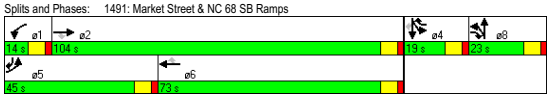
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 95th (ft)	m#650	m#1474	m9	m84	m437	m46	67	#393		#350	#362	#581
Internal Link Dist (ft)		550			769			395			413	
Turn Bay Length (ft)	700		300	275		275	400			700		250
Base Capacity (vph)	430	2127	1125	97	1461	836	193	173		143	148	519
Starvation Cap Reductn	0	0	0	0	79	0	0	0		0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0		0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0		0	0	0
Reduced v/c Ratio	0.98	1.06	0.05	0.96	0.91	0.07	0.17	1.10		1.07	1.08	0.92

Intersection Summary

Area Type: Other
Cycle Length: 160
Actuated Cycle Length: 160
Offset: 56 (35%), Referenced to phase 2:EBT and 6:WBT, Start of Green
Natural Cycle: 170
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.10
Intersection Signal Delay: 77.0 — Intersection LOS: E
Intersection Capacity Utilization 96.8% — ICU Level of Service F
Analysis Period (min) 15

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 1491: Market Street & NC 68 SB Ramps



1601: I-40 WB On-Ramp & Sandy Ridge Road

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	0	0	871	0	366	701	1227	0	0	1328	680
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		0%			2%			-4%			4%	
Storage Length (ft)	0		0	675		175	200		0	100		0
Storage Lanes	0		0	1		1	1		0	1		1
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	1.00	1.00	1.00	0.95	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt						0.850						0.850
Flt Protected				0.950	0.950		0.950					
Satd. Flow (prot)	0	0	0	1617	1617	1523	1753	3507	0	0	3369	1507
Flt Permitted				0.950	0.950		0.950					
Satd. Flow (perm)	0	0	0	1617	1617	1523	1753	3507	0	0	3369	1507
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		30			35			45			45	
Link Distance (ft)		340			751			476			361	
Travel Time (s)		7.7			14.6			7.2			5.5	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	0	0	0	968	0	407	779	1363	0	0	1476	756
Shared Lane Traffic (%)				50%								
Lane Group Flow (vph)	0	0	0	484	484	407	779	1363	0	0	1476	756
Turn Type				Perm		Perm	Prot					Perm
Protected Phases					4		5	2			6	
Permitted Phases				4		4						6
Detector Phase				4	4	4	5	2			6	6
Switch Phase												
Minimum Initial (s)				7.0	7.0	7.0	6.0	15.0			15.0	15.0
Minimum Split (s)				17.0	17.0	17.0	14.0	22.0			22.0	22.0
Total Split (s)	0.0	0.0	0.0	35.0	35.0	35.0	48.0	105.0	0.0	0.0	57.0	57.0
Total Split (%)	0.0%	0.0%	0.0%	25.0%	25.0%	25.0%	34.3%	75.0%	0.0%	0.0%	40.7%	40.7%
Maximum Green (s)				28.0	28.0	28.0	41.0	98.0			50.0	50.0
Yellow Time (s)				5.0	5.0	5.0	5.0	5.0			5.0	5.0
All-Red Time (s)				2.0	2.0	2.0	2.0	2.0			2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	2.0	2.0	2.0	5.0	5.0	5.0	5.0	5.0	2.0	2.0	5.0	5.0
Lead/Lag							Lead				Lag	Lag
Lead-Lag Optimize?												
Vehicle Extension (s)				3.0	3.0	3.0	3.0	3.0			3.0	3.0
Recall Mode				None	None	None	None	C-Min			C-Min	C-Min
Act Effct Green (s)				30.0	30.0	30.0	43.0	100.0			52.0	52.0
Actuated g/C Ratio				0.21	0.21	0.21	0.31	0.71			0.37	0.37
v/c Ratio				1.39	1.39	1.25	1.45	0.54			1.18	1.35
Control Delay				234.8	234.8	179.5	229.4	16.6			118.8	192.5
Queue Delay				0.0	0.0	104.7	0.0	0.8			330.4	291.7
Total Delay				234.8	234.8	284.2	229.4	17.4			449.2	484.2
LOS				F	F	F	F	B			F	F
Approach Delay					249.5			94.5			461.1	
Approach LOS					F			F			F	

1601: I-40 WB On-Ramp & Sandy Ridge Road

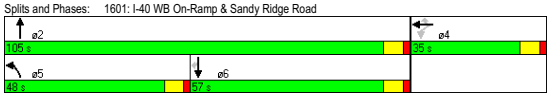
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 50th (ft)				~617	~617	~461	~974	581			~870	~925
Queue Length 95th (ft)				#850	#850	#670	m479	m274			m401	m437
Internal Link Dist (ft)		260			671			396			281	
Turn Bay Length (ft)				675		175	200					
Base Capacity (vph)				347	347	326	538	2505			1251	560
Starvation Cap Reductn				0	0	0	0	735			481	182
Spillback Cap Reductn				0	0	52	0	258			0	0
Storage Cap Reductn				0	0	0	0	0			0	0
Reduced v/c Ratio				1.39	1.39	1.49	1.45	0.77			1.92	2.00

Intersection Summary

Area Type: Other
Cycle Length: 140
Actuated Cycle Length: 140
Offset: 108 (77%), Referenced to phase 2:NBT and 6:SBT, Start of Green
Natural Cycle: 180
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.45
Intersection Signal Delay: 273.9 — Intersection LOS: F
Intersection Capacity Utilization 177.3% — ICU Level of Service H
Analysis Period (min) 15

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 1601: I-40 WB On-Ramp & Sandy Ridge Road



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	397	0	1000	0	0	0	0	1531	490	503	1696	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		3%			0%			4%			0%	
Storage Length (ft)	0		350	0		0	0		0	200		0
Storage Lanes	1		1	0		0	0		0	1		0
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	1.00
Frt		0.850						0.964				
Flt Protected	0.950									0.950		
Satd. Flow (prot)	1693	1515	0	0	0	0	0	3248	0	1719	3438	0
Flt Permitted	0.950									0.950		
Satd. Flow (perm)	1693	1515	0	0	0	0	0	3248	0	1719	3438	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		35			30			45			35	
Link Distance (ft)		594			355			495			414	
Travel Time (s)		11.6			8.1			7.5			8.1	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	441	0	1111	0	0	0	0	1701	544	559	1884	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	441	1111	0	0	0	0	0	2245	0	559	1884	0
Turn Type	Perm									Prot		
Protected Phases		4						2		1	6	
Permitted Phases	4											
Detector Phase	4	4						2		1	6	
Switch Phase												
Minimum Initial (s)	7.0	7.0						15.0		7.0	15.0	
Minimum Split (s)	17.0	17.0						22.0		14.0	22.0	
Total Split (s)	55.0	55.0	0.0	0.0	0.0	0.0	0.0	56.0	0.0	29.0	85.0	0.0
Total Split (%)	39.3%	39.3%	0.0%	0.0%	0.0%	0.0%	0.0%	40.0%	0.0%	20.7%	60.7%	0.0%
Maximum Green (s)	48.0	48.0						49.0		22.0	78.0	
Yellow Time (s)	5.0	5.0						5.0		5.0	5.0	
All-Red Time (s)	2.0	2.0						2.0		2.0	2.0	
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	2.0	2.0	2.0	2.0	2.0	5.0	2.0	5.0	5.0	2.0
Lead/Lag								Lag		Lead		
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0						3.0		3.0	3.0	
Recall Mode	None	None						C-Min		None	C-Min	
Act Effct Green (s)	50.0	50.0						51.0		24.0	80.0	
Actuated g/C Ratio	0.36	0.36						0.36		0.17	0.57	
v/c Ratio	0.73	2.05						1.90		1.89	0.96	
Control Delay	47.5	506.2						434.5		436.8	7.0	
Queue Delay	0.0	0.0						0.0		0.0	8.2	
Total Delay	47.5	506.2						434.5		436.8	15.3	
LOS	D	F						F		F	B	
Approach Delay		375.8						434.5			111.7	
Approach LOS		F						F			F	

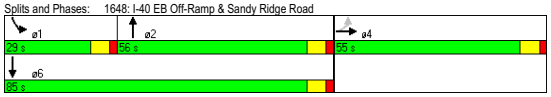
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 50th (ft)	348	~1588						~1644		~775	153	
Queue Length 95th (ft)	480	#1851						#1774		m#557	m34	
Internal Link Dist (ft)		514			275			415			334	
Turn Bay Length (ft)										200		
Base Capacity (vph)	605	541						1183		295	1965	
Starvation Cap Reductn	0	0						0		0	95	
Spillback Cap Reductn	0	0						0		0	0	
Storage Cap Reductn	0	0						0		0	0	
Reduced v/c Ratio	0.73	2.05						1.90		1.89	1.01	

Intersection Summary

Area Type: Other
Cycle Length: 140
Actuated Cycle Length: 140
Offset: 21 (15%), Referenced to phase 2:NBT and 6:SBT, Start of Green
Natural Cycle: 180
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 2.05
Intersection Signal Delay: 293.5 — Intersection LOS: F
Intersection Capacity Utilization 174.5% — ICU Level of Service H
Analysis Period (min) 15

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 1648: I-40 EB Off-Ramp & Sandy Ridge Road



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	10	5	263	480	3	359	243	1150	200	267	1265	7
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		1%			1%			-2%			-1%	
Storage Length (ft)	0		0	0		0	150		0	100		0
Storage Lanes	0		0	0		0	1		1	1		0
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.872			0.942				0.850		0.999	
Flt Protected		0.998			0.972		0.950			0.950		
Satd. Flow (prot)	0	1567	0	0	1649	0	1736	1828	1553	1728	1817	0
Flt Permitted		0.966			0.574		0.057			0.057		
Satd. Flow (perm)	0	1517	0	0	974	0	104	1828	1553	104	1817	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		45			45			45			45	
Link Distance (ft)		785			983			361			176	
Travel Time (s)		11.9			14.9			5.5			2.7	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	11	6	292	533	3	399	270	1278	222	297	1406	8
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	309	0	0	935	0	270	1278	222	297	1414	0
Turn Type	Perm			Perm			Perm		Perm	Perm		
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2		2	6		
Detector Phase	4	4		8	8		2	2	2	6	6	
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0		15.0	15.0	15.0	15.0	15.0	
Minimum Split (s)	17.0	17.0		17.0	17.0		22.0	22.0	22.0	22.0	22.0	
Total Split (s)	65.0	65.0	0.0	65.0	65.0	0.0	75.0	75.0	75.0	75.0	75.0	0.0
Total Split (%)	46.4%	46.4%	0.0%	46.4%	46.4%	0.0%	53.6%	53.6%	53.6%	53.6%	53.6%	0.0%
Maximum Green (s)	58.0	58.0		58.0	58.0		68.0	68.0	68.0	68.0	68.0	
Yellow Time (s)	5.0	5.0		5.0	5.0		5.0	5.0	5.0	5.0	5.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0	2.0	2.0	2.0	
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	2.0	5.0	5.0	2.0	5.0	5.0	5.0	5.0	5.0	2.0
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Recall Mode	None	None		None	None		C-Min	C-Min	C-Min	C-Min	C-Min	
Act Effct Green (s)		60.0			60.0		70.0	70.0	70.0	70.0	70.0	
Actuated g/C Ratio		0.43			0.43		0.50	0.50	0.50	0.50	0.50	
v/c Ratio		0.48			2.24		5.19	1.40	0.29	5.71	1.56	
Control Delay		31.8			589.4		1926.4	212.7	12.9	2171.1	283.7	
Queue Delay		0.1			58.9		0.0	0.0	1.0	0.0	52.9	
Total Delay		31.9			648.4		1926.4	212.7	13.9	2171.1	336.6	
LOS		C			F		F	F	B	F	F	
Approach Delay		31.9			648.4			449.2			655.1	
Approach LOS		C			F			F			F	

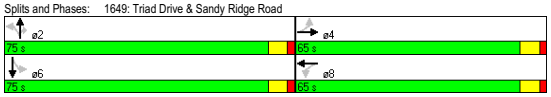
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 50th (ft)		199			~1372		~438	~1593	106	~471	~1814	
Queue Length 95th (ft)		289			#1629		m#548	m#1688	m131	#663	#2080	
Internal Link Dist (ft)		705			903			281			96	
Turn Bay Length (ft)							150			100		
Base Capacity (vph)		650			417		52	914	777	52	909	
Starvation Cap Reductn		0			0		0	0	343	0	0	
Spillback Cap Reductn		36			23		0	0	0	0	64	
Storage Cap Reductn		0			0		0	0	0	0	0	
Reduced v/c Ratio		0.50			2.37		5.19	1.40	0.51	5.71	1.67	

Intersection Summary

Area Type: Other
Cycle Length: 140
Actuated Cycle Length: 140
Offset: 80 (57%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle: 50
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 5.71
Intersection Signal Delay: 535.9 — Intersection LOS: F
Intersection Capacity Utilization 162.9% — ICU Level of Service H
Analysis Period (min) 15

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 1649: Triad Drive & Sandy Ridge Road



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (vph)	940	1437	834	199	108	431
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Grade (%)		-1%	0%		-2%	
Storage Length (ft)	275			400	0	600
Storage Lanes	1			1	1	1
Taper Length (ft)	75			25	25	25
Lane Util. Factor	1.00	0.95	0.95	1.00	1.00	1.00
Frt				0.850		0.850
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1728	3455	3438	1538	1736	1553
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	1728	3455	3438	1538	1736	1553
Right Turn on Red				No		No
Satd. Flow (RTOR)						
Link Speed (mph)		45	45		30	
Link Distance (ft)		849	543		531	
Travel Time (s)		12.9	8.2		12.1	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	1044	1597	927	221	120	479
Shared Lane Traffic (%)						
Lane Group Flow (vph)	1044	1597	927	221	120	479
Turn Type	Prot			pm+ov		pm+ov
Protected Phases	5	2	6	4	4	5
Permitted Phases				6		4
Detector Phase	5	2	6	4	4	5
Switch Phase						
Minimum Initial (s)	6.0	15.0	15.0	7.0	7.0	6.0
Minimum Split (s)	14.0	22.0	22.0	17.0	17.0	14.0
Total Split (s)	116.0	139.0	23.0	21.0	21.0	116.0
Total Split (%)	72.5%	86.9%	14.4%	13.1%	13.1%	72.5%
Maximum Green (s)	109.0	132.0	16.0	14.0	14.0	109.0
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead		Lag			Lead
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	C-Min	C-Min	None	None	None
Act Effct Green (s)	111.7	134.7	18.0	38.3	15.3	132.0
Actuated g/C Ratio	0.70	0.84	0.11	0.24	0.10	0.82
v/c Ratio	0.86	0.55	2.40	0.60	0.72	0.37
Control Delay	7.0	1.4	662.8	61.6	93.8	4.5
Queue Delay	4.1	0.6	0.0	0.0	0.0	0.0
Total Delay	11.1	1.9	662.8	61.6	93.8	4.5
LOS	B	A	F	E	F	A
Approach Delay		5.6	547.0		22.4	
Approach LOS		A	F		C	

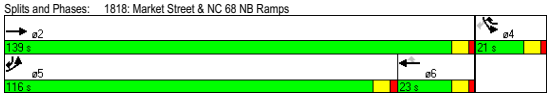
Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Queue Length 50th (ft)	178	67	~836	206	124	106
Queue Length 95th (ft)	m167	m63	#975	301	#213	144
Internal Link Dist (ft)		769	463		451	
Turn Bay Length (ft)	275			400		600
Base Capacity (vph)	1207	2909	387	375	174	1281
Starvation Cap Reductn	105	795	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.95	0.76	2.40	0.59	0.69	0.37

Intersection Summary

Area Type: Other
Cycle Length: 160
Actuated Cycle Length: 160
Offset: 141 (88%), Referenced to phase 2:EBT and 6:WBT, Start of Green
Natural Cycle: 160
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 2.40
Intersection Signal Delay: 149.5 — Intersection LOS: F
Intersection Capacity Utilization 93.6% — ICU Level of Service F
Analysis Period (min) 15

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 1818: Market Street & NC 68 NB Ramps



Lane Group	EBL	EBT	WBU	WBT	WBR	SBL	SBR
Lane Configurations							
Volume (vph)	503	1101	0	1715	189	165	684
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900
Grade (%)		-3%		3%		-1%	
Storage Length (ft)	300		400		325	400	0
Storage Lanes	1		1		1	1	1
Taper Length (ft)	25		25		25	25	25
Lane Util. Factor	1.00	0.95	1.00	0.95	1.00	1.00	1.00
Frt					0.850		0.850
Flt Protected	0.950					0.950	
Satd. Flow (prot)	1745	3490	1782	3387	1515	1728	1546
Flt Permitted	0.950					0.950	
Satd. Flow (perm)	1745	3490	1782	3387	1515	1728	1546
Right Turn on Red					No		No
Satd. Flow (RTOR)							
Link Speed (mph)		45		45		50	
Link Distance (ft)		755		1642		587	
Travel Time (s)		11.4		24.9		8.0	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	559	1223	0	1906	210	183	760
Shared Lane Traffic (%)							
Lane Group Flow (vph)	559	1223	0	1906	210	183	760
Turn Type	Prot		Perm		Perm		pm+ov
Protected Phases	1	6		2		4	1
Permitted Phases			2		2		4
Detector Phase	1	6	2	2	2	4	1
Switch Phase							
Minimum Initial (s)	6.0	15.0	15.0	15.0	15.0	8.0	6.0
Minimum Split (s)	14.0	21.0	21.0	21.0	21.0	17.0	14.0
Total Split (s)	54.0	140.0	86.0	86.0	86.0	20.0	54.0
Total Split (%)	33.8%	87.5%	53.8%	53.8%	53.8%	12.5%	33.8%
Maximum Green (s)	48.0	134.0	80.0	80.0	80.0	14.0	48.0
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag	Lead		Lag	Lag	Lag		Lead
Lead-Lag Optimize?							
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	C-Min	C-Min	C-Min	C-Min	None	None
Act Effct Green (s)	50.0	136.0		82.0	82.0	16.0	70.0
Actuated g/C Ratio	0.31	0.85		0.51	0.51	0.10	0.44
v/c Ratio	1.03	0.41		1.10	0.27	1.06	1.12
Control Delay	103.1	0.8		74.1	12.1	150.3	115.3
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0
Total Delay	103.1	0.8		74.1	12.1	150.3	115.3
LOS	F	A		E	B	F	F
Approach Delay		32.9		67.9		122.1	
Approach LOS		C		E		F	

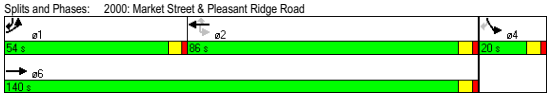
Lane Group	EBL	EBT	WBU	WBT	WBR	SBL	SBR
Queue Length 50th (ft)	~548	25		~1203	71	~209	~914
Queue Length 95th (ft)	m#626	m25		#1304	m81	#376	#1170
Internal Link Dist (ft)		675		1562		507	
Turn Bay Length (ft)	300				325	400	
Base Capacity (vph)	545	2967		1736	776	173	676
Starvation Cap Reductn	0	0		0	0	0	0
Spillback Cap Reductn	0	0		0	0	0	0
Storage Cap Reductn	0	0		0	0	0	0
Reduced v/c Ratio	1.03	0.41		1.10	0.27	1.06	1.12

Intersection Summary

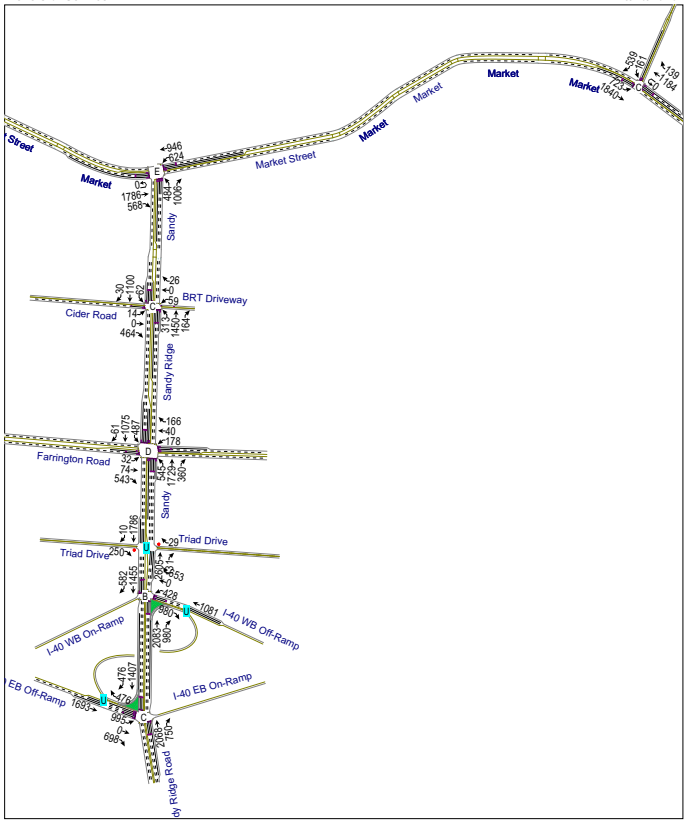
Area Type: Other
Cycle Length: 160
Actuated Cycle Length: 160
Offset: 132 (83%), Referenced to phase 2:WBTU and 6:EBT, Start of Green
Natural Cycle: 140
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.12
Intersection Signal Delay: 65.6 — Intersection LOS: E
Intersection Capacity Utilization 96.4% — ICU Level of Service F
Analysis Period (min) 15

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

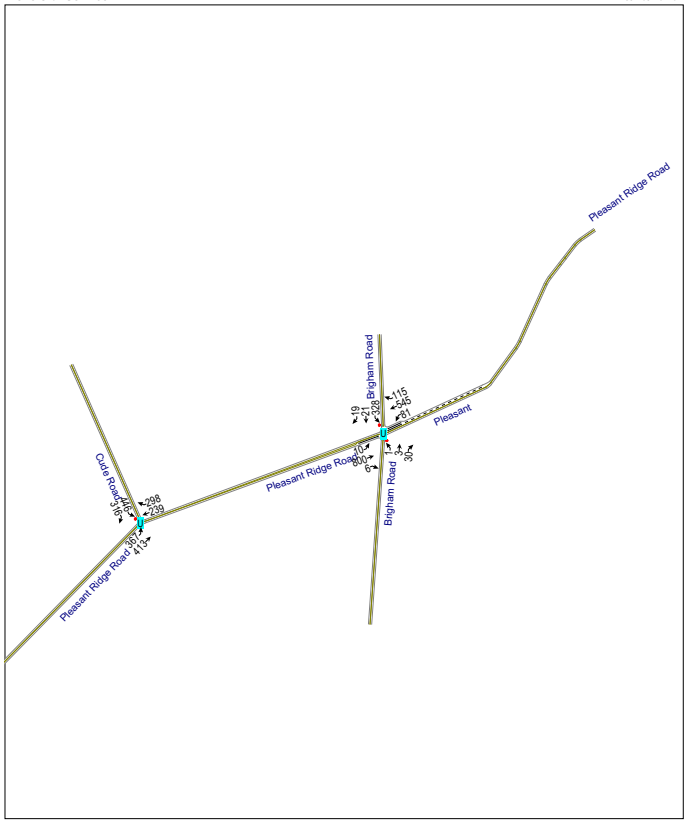
Splits and Phases: 2000: Market Street & Pleasant Ridge Road



Map - Sandy Ridge Road Feasibility Study
Levels of Service **8/20/2010**

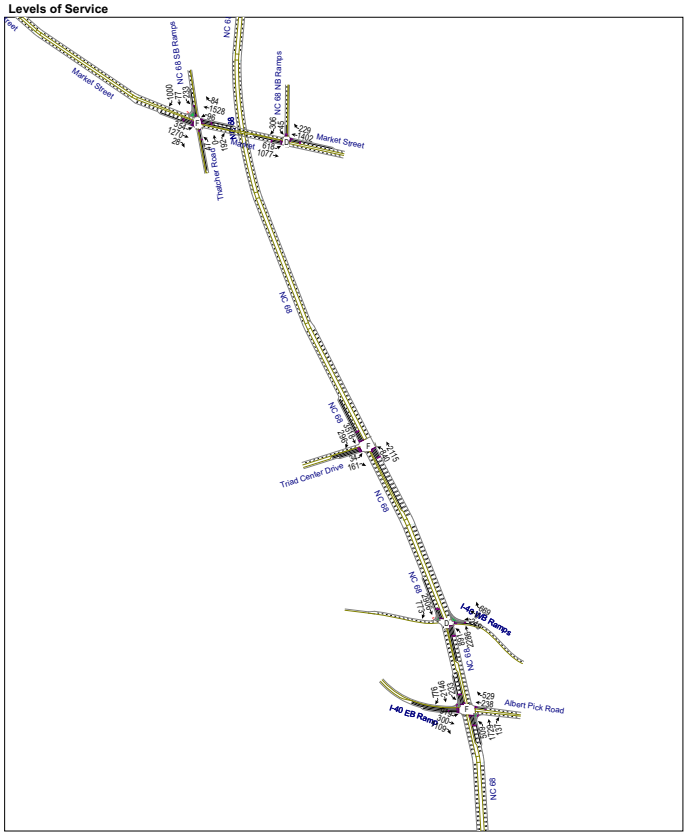


Map - Sandy Ridge Road Feasibility Study
Levels of Service **8/20/2010**



Sandy Ridge Road Feasibility Study P:\Planning\GDOT Airport Area\Traffic Analysis\Synchro\Build1 AM-Loops.syn
M/A/B

Map - Sandy Ridge Road Feasibility Study **Design Year (2035) Build Alt. #1 Loops - AM**
Levels of Service



Sandy Ridge Road Feasibility Study P:\Planning\GDOT Airport Area\Traffic Analysis\Synchro\Build1 AM-Loops.syn
M/A/B

Sandy Ridge Road Feasibility Study — Design Year (2035) Build Alt. #1 Loops - AM
1: Cider Road & Sandy Ridge Road

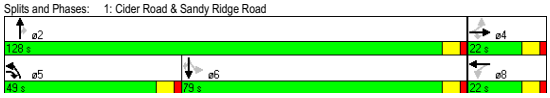
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	14	0	464	59	0	26	313	1450	164	62	1100	30
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	100		0	100		0	500		150	150		150
Storage Lanes	0		1	0		0	1		1	1		1
Taper Length (ft)	25		25	25		25	25		25	25		50
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.91	1.00	1.00	0.91	1.00
Frt			0.850		0.959				0.850			0.850
Flt Protected		0.950			0.966		0.950			0.950		
Satd. Flow (prot)	0	1719	1538	0	1676	0	1719	4940	1538	1719	4940	1538
Flt Permitted		0.699			0.783		0.950			0.144		
Satd. Flow (perm)	0	1265	1538	0	1359	0	1719	4940	1538	261	4940	1538
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		30			30			35			35	
Link Distance (ft)		909			308			1068			391	
Travel Time (s)		20.7			7.0			20.8			7.6	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	16	0	516	66	0	29	348	1611	182	69	1222	33
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	16	516	0	95	0	348	1611	182	69	1222	33
Turn Type	Perm		pm+ov	Perm			Prot		Perm	Perm		Perm
Protected Phases		4	5		8		5	2			6	
Permitted Phases	4		4	8					2	6		6
Detector Phase	4	4	5	8	8		5	2	2	6	6	6
Switch Phase												
Minimum Initial (s)	7.0	7.0	7.0	7.0	7.0		7.0	12.0	12.0	12.0	12.0	12.0
Minimum Split (s)	17.0	17.0	14.0	17.0	17.0		14.0	19.0	19.0	19.0	19.0	19.0
Total Split (s)	22.0	22.0	49.0	22.0	22.0	0.0	49.0	128.0	128.0	79.0	79.0	79.0
Total Split (%)	14.7%	14.7%	32.7%	14.7%	14.7%	0.0%	32.7%	85.3%	85.3%	52.7%	52.7%	52.7%
Maximum Green (s)	15.0	15.0	42.0	15.0	15.0		42.0	121.0	121.0	72.0	72.0	72.0
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0		2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	2.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag			Lead				Lead			Lag	Lag	Lag
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	None	None		None	C-Min	C-Min	C-Min	C-Min	C-Min
Act Effct Green (s)		16.3	55.7		16.3		34.3	123.7	123.7	84.3	84.3	84.3
Actuated g/C Ratio		0.11	0.37		0.11		0.23	0.82	0.82	0.56	0.56	0.56
v/c Ratio		0.12	0.90		0.64		0.88	0.40	0.14	0.47	0.44	0.04
Control Delay		61.1	64.3		83.5		59.2	6.6	3.7	22.1	13.2	11.5
Queue Delay		0.0	0.0		0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay		61.1	64.3		83.5		59.2	6.6	3.7	22.1	13.2	11.5
LOS		E	E		F		E	A	A	C	B	B
Approach Delay		64.2			83.5			14.9			13.6	
Approach LOS		E			F			B			B	
Queue Length 50th (ft)		14	484		90		302	67	9	23	145	10

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 95th (ft)		39	577		#162		m303	469	m78	m28	m136	m12
Internal Link Dist (ft)		829			228			988			311	
Turn Bay Length (ft)							500		150	150		150
Base Capacity (vph)		150	670		162		504	4102	1277	147	2778	865
Starvation Cap Reductn		0	0		0		0	0	0	0	0	0
Spillback Cap Reductn		0	0		0		0	0	0	0	0	0
Storage Cap Reductn		0	0		0		0	0	0	0	0	0
Reduced v/c Ratio		0.11	0.77		0.59		0.69	0.39	0.14	0.47	0.44	0.04

Intersection Summary

Area Type: Other
Cycle Length: 150
Actuated Cycle Length: 150
Offset: 128 (85%), Referenced to phase 2:NBT and 6:SBTL, Start of Green
Natural Cycle: 60
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.90
Intersection Signal Delay: 22.5 Intersection LOS: C
Intersection Capacity Utilization 68.3% ICU Level of Service C
Analysis Period (min) 15
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 1: Cider Road & Sandy Ridge Road



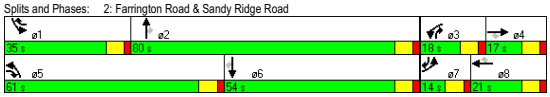
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	32	74	543	178	40	166	545	1729	360	487	1075	61
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	200		0	300		350	550		150	250		300
Storage Lanes	1		1	1		1	1		1	2		1
Taper Length (ft)	100		25	25		25	175		25	100		100
Lane Util. Factor	1.00	1.00	1.00	0.97	1.00	1.00	0.97	0.91	1.00	0.97	0.91	1.00
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1547	1629	1384	3001	1629	1384	3001	4446	1384	3001	4446	1384
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1547	1629	1384	3001	1629	1384	3001	4446	1384	3001	4446	1384
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		30			30			35			35	
Link Distance (ft)		1686			875			711			1068	
Travel Time (s)		38.3			19.9			13.9			20.8	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	36	82	603	198	44	184	606	1921	400	541	1194	68
Shared Lane Traffic (%)												
Lane Group Flow (vph)	36	82	603	198	44	184	606	1921	400	541	1194	68
Turn Type	Prot		pm+ov	Prot		pm+ov	Prot		pm+ov	Prot		pm+ov
Protected Phases	7	4	5	3	8	1	5	2	3	1	6	7
Permitted Phases			4			8			2			6
Detector Phase	7	4	5	3	8	1	5	2	3	1	6	7
Switch Phase												
Minimum Initial (s)	7.0	7.0	7.0	7.0	7.0	7.0	7.0	15.0	7.0	7.0	15.0	7.0
Minimum Split (s)	14.0	17.0	14.0	14.0	17.0	14.0	14.0	22.0	14.0	14.0	22.0	14.0
Total Split (s)	14.0	17.0	61.0	18.0	21.0	35.0	61.0	80.0	18.0	35.0	54.0	14.0
Total Split (%)	9.3%	11.3%	40.7%	12.0%	14.0%	23.3%	40.7%	53.3%	12.0%	23.3%	36.0%	9.3%
Maximum Green (s)	7.0	10.0	54.0	11.0	14.0	28.0	54.0	73.0	11.0	28.0	47.0	7.0
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead	Lag	Lead	Lead	Lag	Lead	Lead	Lag	Lead	Lead	Lag	Lead
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	None	None	None	None	C-Max	None	None	C-Max	None
Act Effct Green (s)	9.0	11.6	71.7	13.0	18.4	53.0	55.2	75.8	93.8	29.7	50.3	64.3
Actuated g/C Ratio	0.06	0.08	0.48	0.09	0.12	0.35	0.37	0.51	0.63	0.20	0.34	0.43
v/c Ratio	0.39	0.65	0.91	0.76	0.22	0.38	0.55	0.86	0.46	0.91	0.80	0.11
Control Delay	80.4	90.9	55.4	85.8	64.7	39.8	39.7	37.4	17.2	76.5	48.9	28.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	80.4	90.9	55.4	85.8	64.7	39.8	39.7	37.4	17.2	76.5	48.9	28.9
LOS	F	F	E	F	E	D	D	D	B	E	D	C
Approach Delay		60.7			63.8			35.1			56.4	
Approach LOS		E			E			D			E	
Queue Length 50th (ft)	35	79	527	99	40	137	239	594	199	242	405	44

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 95th (ft)	75	#152	#779	#156	82	211	300	665	282	#359	469	m84
Internal Link Dist (ft)		1606			795			631			988	
Turn Bay Length (ft)	200			300		350	550		150	250		300
Base Capacity (vph)	93	130	670	260	200	493	1120	2246	865	600	1489	593
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.39	0.63	0.90	0.76	0.22	0.37	0.54	0.86	0.46	0.90	0.80	0.11

Intersection Summary

Area Type: CBD
Cycle Length: 150
Actuated Cycle Length: 150
Offset: 54 (36%), Referenced to phase 2:NBT and 6:SBT, Start of Green
Natural Cycle: 100
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.91
Intersection Signal Delay: 46.9 Intersection LOS: D
Intersection Capacity Utilization 78.8% ICU Level of Service D
Analysis Period (min) 15
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 2: Farrington Road & Sandy Ridge Road



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (veh/h)	367	413	239	298	446	316
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	408	459	266	331	496	351
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	597				1706	431
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	597				1706	431
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	58				0	43
cM capacity (veh/h)	965				57	618

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	867	597	847
Volume Left	408	0	496
Volume Right	0	331	351
cSH	965	1700	91
Volume to Capacity	0.42	0.35	9.26
Queue Length 95th (ft)	53	0	Err
Control Delay (s)	8.9	0.0	Err
Lane LOS	A		F
Approach Delay (s)	8.9	0.0	Err
Approach LOS			F

Intersection Summary

Average Delay	3668.2		
Intersection Capacity Utilization	126.9%	ICU Level of Service	H
Analysis Period (min)	15		

4: Pleasant Ridge Road & Brigham Road

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	10	800	6	81	545	115	1	3	30	328	21	19
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	11	889	7	90	606	128	1	3	33	364	23	21
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	733			896			1733	1828	892	1732	1703	606
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	733			896			1733	1828	892	1732	1703	606
tC, single (s)	4.1			4.1			7.2	6.6	6.2	7.2	6.6	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	99			88			98	95	90	0	70	96
cM capacity (veh/h)	858			745			45	65	336	53	78	492

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	WB 3	NB 1	SB 1
Volume Total	11	896	90	606	128	38	409
Volume Left	11	0	90	0	0	1	364
Volume Right	0	7	0	0	128	33	21
cSH	858	1700	745	1700	1700	216	57
Volume to Capacity	0.01	0.53	0.12	0.36	0.08	0.17	7.23
Queue Length 95th (ft)	1	0	10	0	0	15	Err
Control Delay (s)	9.3	0.0	10.5	0.0	0.0	25.1	Err
Lane LOS	A		B			D	F
Approach Delay (s)	0.1		1.1			25.1	Err
Approach LOS						D	F

Intersection Summary			
Average Delay	1879.2		
Intersection Capacity Utilization	84.1%	ICU Level of Service	E
Analysis Period (min)	15		

251: I-40 EB Ramp & NC 68

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	919	300	1109	0	238	529	509	1729	137	233	2146	776
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		-2%			2%			-1%			1%	
Storage Length (ft)	438		325	0		0	250		275	300		275
Storage Lanes	2		1	0		1	1		1	1		1
Taper Length (ft)	100		25	25		25	25		25	25		25
Lane Util. Factor	0.97	1.00	1.00	1.00	1.00	1.00	1.00	0.91	1.00	1.00	0.91	1.00
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950						0.950			0.950		
Satd. Flow (prot)	3368	1828	1553	0	1791	1523	1728	4965	1546	1710	4915	1530
Flt Permitted	0.950						0.950			0.950		
Satd. Flow (perm)	3368	1828	1553	0	1791	1523	1728	4965	1546	1710	4915	1530
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		35			35			55			55	
Link Distance (ft)		867			502			480			821	
Travel Time (s)		16.9			9.8			6.0			10.2	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	1021	333	1232	0	264	588	566	1921	152	259	2384	862
Shared Lane Traffic (%)												
Lane Group Flow (vph)	1021	333	1232	0	264	588	566	1921	152	259	2384	862
Turn Type	Prot		pm+ov			pm+ov	Prot		Perm	Prot		pm+ov
Protected Phases	7	4	5		8	1	5	2		1	6	7
Permitted Phases			4			8			2			6
Detector Phase	7	4	5		8	1	5	2	2	1	6	7
Switch Phase												
Minimum Initial (s)	7.0	7.0	7.0		7.0	7.0	7.0	14.0	14.0	7.0	14.0	7.0
Minimum Split (s)	14.0	17.0	14.0		17.0	14.0	14.0	21.0	21.0	14.0	21.0	14.0
Total Split (s)	41.0	68.0	45.0	0.0	27.0	38.0	45.0	74.0	74.0	38.0	67.0	41.0
Total Split (%)	22.8%	37.8%	25.0%	0.0%	15.0%	21.1%	25.0%	41.1%	41.1%	21.1%	37.2%	22.8%
Maximum Green (s)	34.0	61.0	38.0		20.0	31.0	38.0	67.0	67.0	31.0	60.0	34.0
Yellow Time (s)	5.0	5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0		2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	2.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead		Lead		Lag	Lead	Lead	Lag	Lag	Lead	Lag	Lead
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None		None	None	None	C-Min	C-Min	None	C-Min	None
Act Effct Green (s)	36.0	63.0	108.0		22.0	60.0	40.0	69.0	69.0	33.0	62.0	103.0
Actuated g/C Ratio	0.20	0.35	0.60		0.12	0.33	0.22	0.38	0.38	0.18	0.34	0.57
v/c Ratio	1.51	0.52	1.32		1.21	1.16	1.47	1.01	0.26	0.82	1.41	0.98
Control Delay	284.1	50.1	184.1		189.5	142.5	272.3	77.2	39.5	92.1	224.6	19.6
Queue Delay	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	17.9
Total Delay	284.1	50.1	184.1		189.5	142.5	272.3	77.2	39.5	92.1	224.6	37.6
LOS	F	D	F		F	F	F	E	D	F	F	D
Approach Delay		206.3			157.1			116.8			168.8	
Approach LOS		F			F			F			F	

251: I-40 EB Ramp & NC 68

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 50th (ft)	~862	314	~1873		~378	~817	~915	~849	123	324	~1369	483
Queue Length 95th (ft)	#1000	420	#2140		#578	#1064	#1161	#956	186	m290	m#1149	m246
Internal Link Dist (ft)		787			422			400			741	
Turn Bay Length (ft)	438		325				250		275	300		275
Base Capacity (vph)	674	640	932		219	508	384	1903	593	314	1693	876
Starvation Cap Reductn	0	0	0		0	0	0	0	0	0	0	53
Spillback Cap Reductn	0	0	0		0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0		0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.51	0.52	1.32		1.21	1.16	1.47	1.01	0.26	0.82	1.41	1.05

Intersection Summary

Area Type: Other
Cycle Length: 180
Actuated Cycle Length: 180
Offset: 50 (28%), Referenced to phase 2:NBT and 6:SBT, Start of Green
Natural Cycle: 170
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.51
Intersection Signal Delay: 163.6 — Intersection LOS: F
Intersection Capacity Utilization 125.1% — ICU Level of Service H
Analysis Period (min) 15

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

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

Splits and Phases: 251: I-40 EB Ramp & NC 68

1163: I-40 WB Ramps & NC 68

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	0	0	249	0	669	891	2286	0	0	2906	773
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		0%			-2%			0%			-1%	
Storage Length (ft)	0		0	200		0	325		0	0		400
Storage Lanes	0		0	1		1	2		0	0		1
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	1.00	1.00	1.00	0.95	0.95	1.00	0.97	0.91	1.00	1.00	0.91	1.00
Frt						0.850						0.850
Flt Protected				0.950	0.950		0.950					
Satd. Flow (prot)	0	0	0	1649	1649	1553	3335	4940	0	0	4965	1546
Flt Permitted				0.950	0.950		0.950					
Satd. Flow (perm)	0	0	0	1649	1649	1553	3335	4940	0	0	4965	1546
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		30			35			55			55	
Link Distance (ft)		712			820			821			1007	
Travel Time (s)		16.2			16.0			10.2			12.5	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	0	0	0	277	0	743	990	2540	0	0	3229	859
Shared Lane Traffic (%)				50%								
Lane Group Flow (vph)	0	0	0	138	139	743	990	2540	0	0	3229	859
Turn Type				Perm		Free	Prot					Perm
Protected Phases					4		1	6			2	
Permitted Phases				4		Free						2
Detector Phase				4	4		1	6			2	2
Switch Phase												
Minimum Initial (s)				7.0	7.0		7.0	14.0			14.0	14.0
Minimum Split (s)				17.0	17.0		14.0	21.0			21.0	21.0
Total Split (s)	0.0	0.0	0.0	17.0	17.0	0.0	52.0	163.0	0.0	0.0	111.0	111.0
Total Split (%)	0.0%	0.0%	0.0%	9.4%	9.4%	0.0%	28.9%	90.6%	0.0%	0.0%	61.7%	61.7%
Maximum Green (s)				10.0	10.0		45.0	156.0			104.0	104.0
Yellow Time (s)				5.0	5.0		5.0	5.0			5.0	5.0
All-Red Time (s)				2.0	2.0		2.0	2.0			2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	2.0	2.0	2.0	5.0	5.0	2.0	5.0	5.0	2.0	2.0	5.0	5.0
Lead/Lag							Lead				Lag	Lag
Lead-Lag Optimize?												
Vehicle Extension (s)				3.0	3.0		3.0	3.0			3.0	3.0
Recall Mode				None	None		None	C-Min			C-Min	C-Min
Act Effct Green (s)				12.0	12.0	180.0	47.0	158.0			106.0	106.0
Actuated g/C Ratio				0.07	0.07	1.00	0.26	0.88			0.59	0.59
v/c Ratio				1.25	1.26	0.48	1.14	0.59			1.10	0.94
Control Delay				231.0	233.8	1.1	127.3	3.1			60.1	11.7
Queue Delay				0.0	0.0	0.0	0.0	0.3			2.8	0.0
Total Delay				231.0	233.8	1.1	127.3	3.4			63.0	11.7
LOS				F	F	A	F	A			E	B
Approach Delay					63.9			38.2			52.2	
Approach LOS					E			D			D	

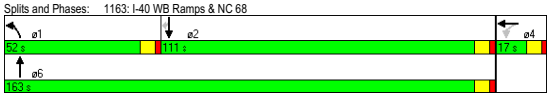
1163: I-40 WB Ramps & NC 68

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 50th (ft)				~213	~216	0	~706	189			~1568	408
Queue Length 95th (ft)				#378	#381	0	m545	m158			m364	m168
Internal Link Dist (ft)		632			740			741			927	
Turn Bay Length (ft)				200			325					400
Base Capacity (vph)				110	110	1553	871	4336			2924	910
Starvation Cap Reductn				0	0	0	0	984			0	0
Spillback Cap Reductn				0	0	0	0	0			17	0
Storage Cap Reductn				0	0	0	0	0			0	0
Reduced v/c Ratio				1.25	1.26	0.48	1.14	0.76			1.11	0.94

Intersection Summary

Area Type: Other
Cycle Length: 180
Actuated Cycle Length: 180
Offset: 40 (22%), Referenced to phase 2:SBT and 6:NBT, Start of Green
Natural Cycle: 180
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.26
Intersection Signal Delay: 47.8 — Intersection LOS: D
Intersection Capacity Utilization 101.0% — ICU Level of Service G
Analysis Period (min) 15
~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 1163: I-40 WB Ramps & NC 68



1439: Market Street & Sandy Ridge Road

Lane Group	EBU	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations							
Volume (vph)	0	1786	568	624	946	484	1006
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900
Grade (%)		1%			-1%	0%	
Storage Length (ft)	200		600	600		450	0
Storage Lanes	1		1	2		1	1
Taper Length (ft)	25		25	25		25	25
Lane Util. Factor	1.00	0.95	1.00	0.97	0.95	0.97	0.88
Frt			0.850				0.850
Flt Protected				0.950		0.950	
Satd. Flow (prot)	1800	3421	1530	3352	3455	3335	2707
Flt Permitted				0.950		0.950	
Satd. Flow (perm)	1800	3421	1530	3352	3455	3335	2707
Right Turn on Red			No				No
Satd. Flow (RTOR)							
Link Speed (mph)		45			45	35	
Link Distance (ft)		752			1348	610	
Travel Time (s)		11.4			20.4	11.9	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	0	1984	631	693	1051	538	1118
Shared Lane Traffic (%)							
Lane Group Flow (vph)	0	1984	631	693	1051	538	1118
Turn Type	Perm		pm+ov	Prot			pm+ov
Protected Phases		6	4	5	2	4	5
Permitted Phases	6		6				4
Detector Phase	6	6	4	5	2	4	5
Switch Phase							
Minimum Initial (s)	15.0	15.0	7.0	7.0	15.0	7.0	7.0
Minimum Split (s)	22.0	22.0	17.0	14.0	22.0	17.0	14.0
Total Split (s)	87.0	87.0	29.0	34.0	121.0	29.0	34.0
Total Split (%)	58.0%	58.0%	19.3%	22.7%	80.7%	19.3%	22.7%
Maximum Green (s)	80.0	80.0	22.0	27.0	114.0	22.0	27.0
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lag	Lag		Lead			Lead
Lead-Lag Optimize?							
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	C-Min	C-Min	None	None	C-Min	None	None
Act Effct Green (s)		82.0	111.0	29.0	116.0	24.0	58.0
Actuated g/C Ratio		0.55	0.74	0.19	0.77	0.16	0.39
v/c Ratio		1.06	0.56	1.07	0.39	1.01	1.07
Control Delay		72.5	10.9	106.3	4.1	97.4	68.5
Queue Delay		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay		72.5	10.9	106.3	4.1	97.4	68.5
LOS		E	B	F	A	F	E
Approach Delay		57.6			44.7	77.9	
Approach LOS		E			D	E	

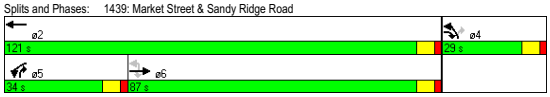
1439: Market Street & Sandy Ridge Road

Lane Group	EBU	EBT	EBR	WBL	WBT	NBL	NBR
Queue Length 50th (ft)		~1120	246	~393	115	~258	~703
Queue Length 95th (ft)		#1253	337	m#422	m87	#389	#807
Internal Link Dist (ft)		672			1268	530	
Turn Bay Length (ft)			600	600		450	
Base Capacity (vph)		1870	1132	648	2672	534	1047
Starvation Cap Reductn		0	0	0	0	0	0
Spillback Cap Reductn		0	0	0	0	0	0
Storage Cap Reductn		0	0	0	0	0	0
Reduced v/c Ratio		1.06	0.56	1.07	0.39	1.01	1.07

Intersection Summary

Area Type: Other
Cycle Length: 150
Actuated Cycle Length: 150
Offset: 2 (1%), Referenced to phase 2:WBT and 6:EBTU, Start of Green
Natural Cycle: 150
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.07
Intersection Signal Delay: 59.5 — Intersection LOS: E
Intersection Capacity Utilization 93.5% — ICU Level of Service F
Analysis Period (min) 15
~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 1439: Market Street & Sandy Ridge Road



1449: Triad Center Drive & NC 68

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	34	161	840	2115	3518	296
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Grade (%)	-3%			-2%	-1%	
Storage Length (ft)	263	200	625			438
Storage Lanes	2	1	1			2
Taper Length (ft)	25	25	25			25
Lane Util. Factor	0.97	0.88	0.97	0.91	0.91	1.00
Frt		0.850				0.850
Flt Protected	0.950		0.950			
Satd. Flow (prot)	3385	2748	3368	4989	4965	1546
Flt Permitted	0.950		0.950			
Satd. Flow (perm)	3385	2748	3368	4989	4965	1546
Right Turn on Red		No				No
Satd. Flow (RTOR)						
Link Speed (mph)	30			55	55	
Link Distance (ft)	638			799	1245	
Travel Time (s)	14.5			9.9	15.4	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	38	179	933	2350	3909	329
Shared Lane Traffic (%)						
Lane Group Flow (vph)	38	179	933	2350	3909	329
Turn Type		Prot	Prot			pm+ov
Protected Phases	4	4	5	2	6	4
Permitted Phases						6
Detector Phase	4	4	5	2	6	4
Switch Phase						
Minimum Initial (s)	7.0	7.0	7.0	14.0	14.0	7.0
Minimum Split (s)	17.0	17.0	14.0	21.0	21.0	17.0
Total Split (s)	17.0	17.0	44.0	163.0	119.0	17.0
Total Split (%)	9.4%	9.4%	24.4%	90.6%	66.1%	9.4%
Maximum Green (s)	10.0	10.0	37.0	156.0	112.0	10.0
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag			Lead		Lag	
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	C-Min	C-Min	None
Act Effct Green (s)	12.0	12.0	39.0	158.0	114.0	131.0
Actuated g/C Ratio	0.07	0.07	0.22	0.88	0.63	0.73
v/c Ratio	0.17	0.98	1.28	0.54	1.24	0.29
Control Delay	81.2	141.8	188.5	3.9	143.0	9.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	81.2	141.8	188.5	3.9	143.0	9.3
LOS	F	F	F	A	F	A
Approach Delay	131.2			56.3	132.6	
Approach LOS	F			E	F	

1449: Triad Center Drive & NC 68

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Queue Length 50th (ft)	22	122	~728	253	~2093	125
Queue Length 95th (ft)	44	#218	#869	279	#2113	170
Internal Link Dist (ft)	558			719	1165	
Turn Bay Length (ft)	263	200	625			438
Base Capacity (vph)	226	183	730	4379	3145	1125
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.17	0.98	1.28	0.54	1.24	0.29

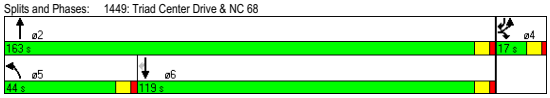
Intersection Summary

Area Type: Other
Cycle Length: 180
Actuated Cycle Length: 180
Offset: 10 (6%), Referenced to phase 2:NBT and 6:SBT, Start of Green
Natural Cycle: 180
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.28
Intersection Signal Delay: 100.2 — Intersection LOS: F
Intersection Capacity Utilization 110.3% — ICU Level of Service H
Analysis Period (min) 15

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 1449: Triad Center Drive & NC 68



1491: Market Street & NC 68 SB Ramps

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	354	1270	28	96	1528	84	47	0	192	233	77	1000
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		300	275		275	400		0	0		250
Storage Lanes	1		1	1		1	1		0	1		1
Taper Length (ft)	25		25	75		25	25		25	25		25
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	0.95	0.95	1.00
Frt			0.850			0.850		0.850				0.850
Flt Protected	0.950			0.950			0.950			0.950	0.975	
Satd. Flow (prot)	1719	3438	1538	1719	3438	1538	1719	1538	0	1633	1676	1538
Flt Permitted	0.950			0.950			0.950			0.950	0.975	
Satd. Flow (perm)	1719	3438	1538	1719	3438	1538	1719	1538	0	1633	1676	1538
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		45			45			55			35	
Link Distance (ft)		630			849			475			493	
Travel Time (s)		9.5			12.9			5.9			9.6	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	393	1411	31	107	1698	93	52	0	213	259	86	1111
Shared Lane Traffic (%)										34%		
Lane Group Flow (vph)	393	1411	31	107	1698	93	52	213	0	171	174	1111
Turn Type	Prot		pm+ov	Prot		pm+ov	Split			Split		pm+ov
Protected Phases	5	2	8	1	6	4	8	8		4	4	5
Permitted Phases			2			6						4
Detector Phase	5	2	8	1	6	4	8	8		4	4	5
Switch Phase												
Minimum Initial (s)	7.0	12.0	7.0	7.0	12.0	7.0	7.0	7.0		7.0	7.0	7.0
Minimum Split (s)	14.0	19.0	17.0	14.0	19.0	17.0	17.0	17.0		17.0	17.0	14.0
Total Split (s)	56.0	90.0	20.0	22.0	56.0	18.0	20.0	20.0	0.0	18.0	18.0	56.0
Total Split (%)	37.3%	60.0%	13.3%	14.7%	37.3%	12.0%	13.3%	13.3%	0.0%	12.0%	12.0%	37.3%
Maximum Green (s)	49.0	83.0	13.0	15.0	49.0	11.0	13.0	13.0		11.0	11.0	49.0
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0		5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0		2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	2.0	5.0	5.0	5.0
Lead/Lag	Lead	Lag		Lead	Lag							Lead
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0
Recall Mode	None	C-Min	Min	None	C-Max	None	Min	Min		None	None	None
Act Effct Green (s)	51.0	86.8	101.8	15.2	51.0	69.0	15.0	15.0		13.0	13.0	64.0
Actuated g/C Ratio	0.34	0.58	0.68	0.10	0.34	0.46	0.10	0.10		0.09	0.09	0.43
v/c Ratio	0.67	0.71	0.03	0.61	1.45	0.13	0.30	1.38		1.20	1.20	1.69
Control Delay	45.1	18.6	3.0	80.3	229.8	8.8	67.8	254.5		195.7	193.6	346.4
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	45.1	18.6	3.0	80.3	229.8	8.8	67.8	254.5		195.7	193.6	346.4
LOS	D	B	A	F	F	A	E	F		F	F	F
Approach Delay		24.0			210.6			217.8			310.4	
Approach LOS		C			F			F			F	
Queue Length 50th (ft)	292	476	4	110	~1175	24	48	~276		~213	~216	~1588

1491: Market Street & NC 68 SB Ramps

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 95th (ft)	m401	m558	m5	m119	m#1158	m29	94	#449		#378	#383	#1854
Internal Link Dist (ft)		550			769			395			413	
Turn Bay Length (ft)			300	275		275	400					250
Base Capacity (vph)	584	1990	1044	195	1169	707	172	154		142	145	656
Starvation Cap Reductn	0	0	0	0	0	0	0	0		0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0		0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0		0	0	0
Reduced v/c Ratio	0.67	0.71	0.03	0.55	1.45	0.13	0.30	1.38		1.20	1.20	1.69

Intersection Summary

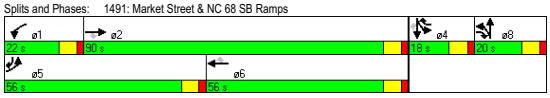
Area Type: Other
Cycle Length: 150
Actuated Cycle Length: 150
Offset: 30 (20%), Referenced to phase 2:EBT and 6:WBT, Start of Green
Natural Cycle: 180
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.69
Intersection Signal Delay: 174.8 — Intersection LOS: F
Intersection Capacity Utilization 128.5% — ICU Level of Service H
Analysis Period (min) 15

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

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

Splits and Phases: 1491: Market Street & NC 68 SB Ramps



1601: I-40 WB On-Ramp & Sandy Ridge Road

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	0	0	428	0	653	0	2083	980	0	1455	582
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		0%			2%			-4%			4%	
Storage Length (ft)	0		0	0		0	0		750	0		0
Storage Lanes	0		0	1		1	1		1	1		1
Taper Length (ft)	25		25	25		25	100		100	25		25
Lane Util. Factor	1.00	1.00	1.00	0.95	0.91	0.95	1.00	0.91	1.00	1.00	0.91	1.00
Frt					0.871	0.850			0.850			0.850
Flt Protected				0.950	0.993							
Satd. Flow (prot)	0	0	0	1617	1410	1447	0	5039	1569	0	4841	1507
Flt Permitted				0.950	0.993							
Satd. Flow (perm)	0	0	0	1617	1410	1447	0	5039	1569	0	4841	1507
Right Turn on Red			No			No			No			Yes
Satd. Flow (RTOR)												647
Link Speed (mph)		30			35			45			45	
Link Distance (ft)		897			323			890			361	
Travel Time (s)		20.4			6.3			13.5			5.5	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	0	0	0	476	0	726	0	2314	1089	0	1617	647
Shared Lane Traffic (%)				12%		47%						
Lane Group Flow (vph)	0	0	0	419	398	385	0	2314	1089	0	1617	647
Turn Type				Perm		Perm			Free			Perm
Protected Phases					8			2			6	
Permitted Phases				8		8			Free			6
Detector Phase				8	8	8		2			6	6
Switch Phase												
Minimum Initial (s)				7.0	7.0	7.0		15.0			15.0	15.0
Minimum Split (s)				17.0	17.0	17.0		22.0			22.0	22.0
Total Split (s)	0.0	0.0	0.0	38.0	38.0	38.0	0.0	52.0	0.0	0.0	52.0	52.0
Total Split (%)	0.0%	0.0%	0.0%	42.2%	42.2%	42.2%	0.0%	57.8%	0.0%	0.0%	57.8%	57.8%
Maximum Green (s)				31.0	31.0	31.0		45.0			45.0	45.0
Yellow Time (s)				5.0	5.0	5.0		5.0			5.0	5.0
All-Red Time (s)				2.0	2.0	2.0		2.0			2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	2.0	2.0	2.0	5.0	5.0	5.0	2.0	5.0	2.0	2.0	5.0	5.0
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)				3.0	3.0	3.0		3.0			3.0	3.0
Recall Mode				None	None	None		C-Min			C-Min	C-Min
Act Effct Green (s)				31.1	31.1	31.1		48.9	90.0		48.9	48.9
Actuated g/C Ratio				0.35	0.35	0.35		0.54	1.00		0.54	0.54
v/c Ratio				0.75	0.82	0.77		0.85	0.69		0.61	0.58
Control Delay				35.1	41.6	37.5		15.1	10.7		15.8	3.4
Queue Delay				0.0	0.0	0.0		0.0	0.0		0.0	0.0
Total Delay				35.1	41.6	37.5		15.1	10.7		15.8	3.4
LOS				D	D	D		B	B		B	A
Approach Delay					38.0			13.7			12.2	
Approach LOS					D			B			B	

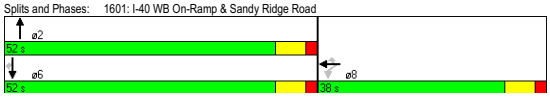
1601: I-40 WB On-Ramp & Sandy Ridge Road

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 50th (ft)				210	216	195		278	571		228	0
Queue Length 95th (ft)				327	#375	311		307	695		277	51
Internal Link Dist (ft)		817			243			810			281	
Turn Bay Length (ft)									750			
Base Capacity (vph)				593	517	531		2738	1569		2630	1114
Starvation Cap Reductn				0	0	0		0	0		0	0
Spillback Cap Reductn				0	0	0		0	0		0	0
Storage Cap Reductn				0	0	0		0	0		0	0
Reduced v/c Ratio				0.71	0.77	0.73		0.85	0.69		0.61	0.58

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 24 (27%), Referenced to phase 2:NBT and 6:SBT, Start of Green
Natural Cycle: 60
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.85
Intersection Signal Delay: 17.5 — Intersection LOS: B
Intersection Capacity Utilization 75.5% — ICU Level of Service D
Analysis Period (min) 15
\# 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 1601: I-40 WB On-Ramp & Sandy Ridge Road



1648: I-40 EB Off-Ramp & Sandy Ridge Road

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	995	0	698	0	0	0	0	2068	750	0	1407	476
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		3%			0%			4%			0%	
Storage Length (ft)	250		0	0		0	0		400	0		750
Storage Lanes	1		1	0		0	0		1	0		1
Taper Length (ft)	25		25	25		25	25		25	25		100
Lane Util. Factor	0.94	0.95	0.95	1.00	1.00	1.00	1.00	0.91	1.00	1.00	0.91	1.00
Frt		0.850	0.850						0.850			0.850
Flt Protected	0.950											
Satd. Flow (prot)	4775	1439	1439	0	0	0	0	4841	1507	0	4940	1538
Flt Permitted	0.950											
Satd. Flow (perm)	4775	1439	1439	0	0	0	0	4841	1507	0	4940	1538
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		35			30			45			35	
Link Distance (ft)		321			929			495			890	
Travel Time (s)		6.3			21.1			7.5			17.3	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	1106	0	776	0	0	0	0	2298	833	0	1563	529
Shared Lane Traffic (%)			50%									
Lane Group Flow (vph)	1106	388	388	0	0	0	0	2298	833	0	1563	529
Turn Type	Perm		Perm						Perm			Free
Protected Phases		4						2			6	
Permitted Phases	4		4						2			Free
Detector Phase	4	4	4					2	2		6	
Switch Phase												
Minimum Initial (s)	7.0	7.0	7.0					7.0	7.0		7.0	
Minimum Split (s)	17.0	17.0	17.0					17.0	17.0		17.0	
Total Split (s)	32.0	32.0	32.0	0.0	0.0	0.0	0.0	58.0	58.0	0.0	58.0	0.0
Total Split (%)	35.6%	35.6%	35.6%	0.0%	0.0%	0.0%	0.0%	64.4%	64.4%	0.0%	64.4%	0.0%
Maximum Green (s)	25.0	25.0	25.0					51.0	51.0		51.0	
Yellow Time (s)	5.0	5.0	5.0					5.0	5.0		5.0	
All-Red Time (s)	2.0	2.0	2.0					2.0	2.0		2.0	
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	2.0	2.0	2.0	2.0	5.0	5.0	2.0	5.0	2.0
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0					3.0	3.0		3.0	
Recall Mode	None	None	None					C-Min	C-Min		C-Min	
Act Effct Green (s)	27.0	27.0	27.0					53.0	53.0		53.0	90.0
Actuated g/C Ratio	0.30	0.30	0.30					0.59	0.59		0.59	1.00
v/c Ratio	0.77	0.90	0.90					0.81	0.94		0.54	0.34
Control Delay	33.1	56.2	56.2					17.4	37.5		14.2	1.3
Queue Delay	0.0	0.0	0.0					0.0	0.0		0.0	0.0
Total Delay	33.1	56.2	56.2					17.4	37.5		14.2	1.3
LOS	C	E	E					B	D		B	A
Approach Delay		42.6						22.7			10.9	
Approach LOS		D						C			B	

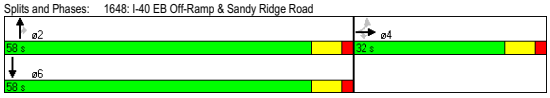
1648: I-40 EB Off-Ramp & Sandy Ridge Road

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 50th (ft)	202	221	221					345	402		226	5
Queue Length 95th (ft)	252	#400	#400					413	#689		295	33
Internal Link Dist (ft)		241			849			415			810	
Turn Bay Length (ft)	250								400			750
Base Capacity (vph)	1433	432	432					2851	887		2909	1538
Starvation Cap Reductn	0	0	0					0	0		0	0
Spillback Cap Reductn	0	0	0					0	0		0	0
Storage Cap Reductn	0	0	0					0	0		0	0
Reduced v/c Ratio	0.77	0.90	0.90					0.81	0.94		0.54	0.34

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 64 (71%), Referenced to phase 2:NBT and 6:SBT, Start of Green
Natural Cycle: 80
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.94
Intersection Signal Delay: 24.5 — Intersection LOS: C
Intersection Capacity Utilization 69.2% — ICU Level of Service C
Analysis Period (min) 15
\# 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 1648: I-40 EB Off-Ramp & Sandy Ridge Road



1818: Market Street & NC 68 NB Ramps

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (vph)	618	1077	1402	229	45	306
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Grade (%)		-1%	0%		-2%	
Storage Length (ft)	275			400	0	0
Storage Lanes	1			1	1	1
Taper Length (ft)	75			25	25	25
Lane Util. Factor	1.00	0.95	0.95	1.00	1.00	1.00
Frt				0.850		0.850
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1728	3455	3438	1538	1736	1553
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	1728	3455	3438	1538	1736	1553
Right Turn on Red				No		No
Satd. Flow (RTOR)						
Link Speed (mph)		45	45		30	
Link Distance (ft)		849	543		531	
Travel Time (s)		12.9	8.2		12.1	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	687	1197	1558	254	50	340
Shared Lane Traffic (%)						
Lane Group Flow (vph)	687	1197	1558	254	50	340
Turn Type	Prot			pm+ov		pm+ov
Protected Phases	5	2	6	4	4	5
Permitted Phases				6		4
Detector Phase	5	2	6	4	4	5
Switch Phase						
Minimum Initial (s)	6.0	15.0	15.0	7.0	7.0	6.0
Minimum Split (s)	14.0	22.0	22.0	17.0	17.0	14.0
Total Split (s)	62.0	133.0	71.0	17.0	17.0	62.0
Total Split (%)	41.3%	88.7%	47.3%	11.3%	11.3%	41.3%
Maximum Green (s)	55.0	126.0	64.0	10.0	10.0	55.0
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead		Lag			Lead
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	C-Min	C-Min	None	None	None
Act Effct Green (s)	58.0	129.0	66.0	82.0	11.0	74.0
Actuated g/C Ratio	0.39	0.86	0.44	0.55	0.07	0.49
v/c Ratio	1.03	0.40	1.03	0.30	0.39	0.44
Control Delay	86.9	1.8	72.1	19.5	75.3	27.0
Queue Delay	0.0	0.1	0.0	0.0	0.0	0.0
Total Delay	86.9	2.0	72.1	19.5	75.3	27.0
LOS	F	A	E	B	E	C
Approach Delay		32.9	64.7		33.2	
Approach LOS		C	E		C	

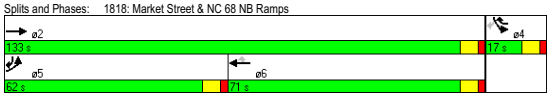
1818: Market Street & NC 68 NB Ramps

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Queue Length 50th (ft)	~743	77	~855	130	47	212
Queue Length 95th (ft)	m#857	m81	#994	188	93	299
Internal Link Dist (ft)		769	463		451	
Turn Bay Length (ft)	275			400		
Base Capacity (vph)	668	2972	1513	851	139	766
Starvation Cap Reductn	0	645	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	1.03	0.51	1.03	0.30	0.36	0.44

Intersection Summary

Area Type: Other
Cycle Length: 150
Actuated Cycle Length: 150
Offset: 2 (1%), Referenced to phase 2:EBT and 6:WBT, Start of Green
Natural Cycle: 160
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.03
Intersection Signal Delay: 47.1 — Intersection LOS: D
Intersection Capacity Utilization 91.3% — ICU Level of Service F
Analysis Period (min) 15
~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 1818: Market Street & NC 68 NB Ramps



2000: Market Street & Pleasant Ridge Road

Lane Group	EBL	EBT	WBU	WBT	WBR	SBL	SBR
Lane Configurations							
Volume (vph)	723	1840	0	1184	139	161	539
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900
Grade (%)		-3%		3%		-1%	
Storage Length (ft)	300		400		325	400	0
Storage Lanes	1		1		1	1	1
Taper Length (ft)	25		25		25	25	25
Lane Util. Factor	1.00	0.95	1.00	0.95	1.00	1.00	1.00
Frt					0.850		0.850
Flt Protected	0.950					0.950	
Satd. Flow (prot)	1745	3490	1782	3387	1515	1728	1546
Flt Permitted	0.950					0.950	
Satd. Flow (perm)	1745	3490	1782	3387	1515	1728	1546
Right Turn on Red					No		No
Satd. Flow (RTOR)							
Link Speed (mph)		45		45		50	
Link Distance (ft)		755		1642		569	
Travel Time (s)		11.4		24.9		7.8	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	803	2044	0	1316	154	179	599
Shared Lane Traffic (%)							
Lane Group Flow (vph)	803	2044	0	1316	154	179	599
Turn Type	Prot		Perm		Perm		pm+ov
Protected Phases	1	6		2		4	1
Permitted Phases			2		2		4
Detector Phase	1	6	2	2	2	4	1
Switch Phase							
Minimum Initial (s)	6.0	15.0	15.0	15.0	15.0	8.0	6.0
Minimum Split (s)	14.0	21.0	21.0	21.0	21.0	17.0	14.0
Total Split (s)	70.0	131.0	61.0	61.0	61.0	19.0	70.0
Total Split (%)	46.7%	87.3%	40.7%	40.7%	40.7%	12.7%	46.7%
Maximum Green (s)	64.0	125.0	55.0	55.0	55.0	13.0	64.0
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag	Lead		Lag	Lag	Lag		Lead
Lead-Lag Optimize?							
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	C-Min	C-Min	C-Min	C-Min	None	None
Act Effct Green (s)	66.0	127.0		57.0	57.0	15.0	85.0
Actuated g/C Ratio	0.44	0.85		0.38	0.38	0.10	0.57
v/c Ratio	1.05	0.69		1.02	0.27	1.03	0.68
Control Delay	63.5	3.6		40.1	16.8	141.5	28.0
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0
Total Delay	63.5	3.6		40.1	16.8	141.5	28.0
LOS	E	A		D	B	F	C
Approach Delay		20.5		37.6		54.1	
Approach LOS		C		D		D	

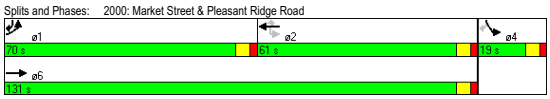
2000: Market Street & Pleasant Ridge Road

Lane Group	EBL	EBT	WBU	WBT	WBR	SBL	SBR
Queue Length 50th (ft)	~848	231		~646	64	~188	401
Queue Length 95th (ft)	m699	m217		m228	m41	#348	547
Internal Link Dist (ft)		675		1562		489	
Turn Bay Length (ft)	300				325	400	
Base Capacity (vph)	768	2955		1287	576	173	876
Starvation Cap Reductn	0	0		0	0	0	0
Spillback Cap Reductn	0	0		0	0	0	0
Storage Cap Reductn	0	0		0	0	0	0
Reduced v/c Ratio	1.05	0.69		1.02	0.27	1.03	0.68

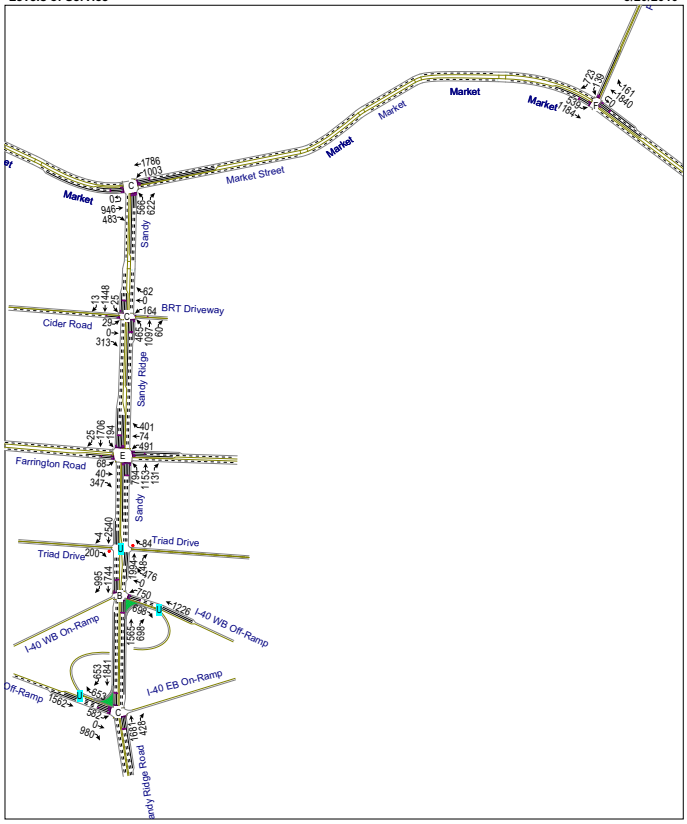
Intersection Summary

Area Type: Other
Cycle Length: 150
Actuated Cycle Length: 150
Offset: 114 (76%), Referenced to phase 2:WBTU and 6:EBT, Start of Green
Natural Cycle: 130
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.05
Intersection Signal Delay: 30.6 — Intersection LOS: C
Intersection Capacity Utilization 91.7% — ICU Level of Service F
Analysis Period (min) 15
~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

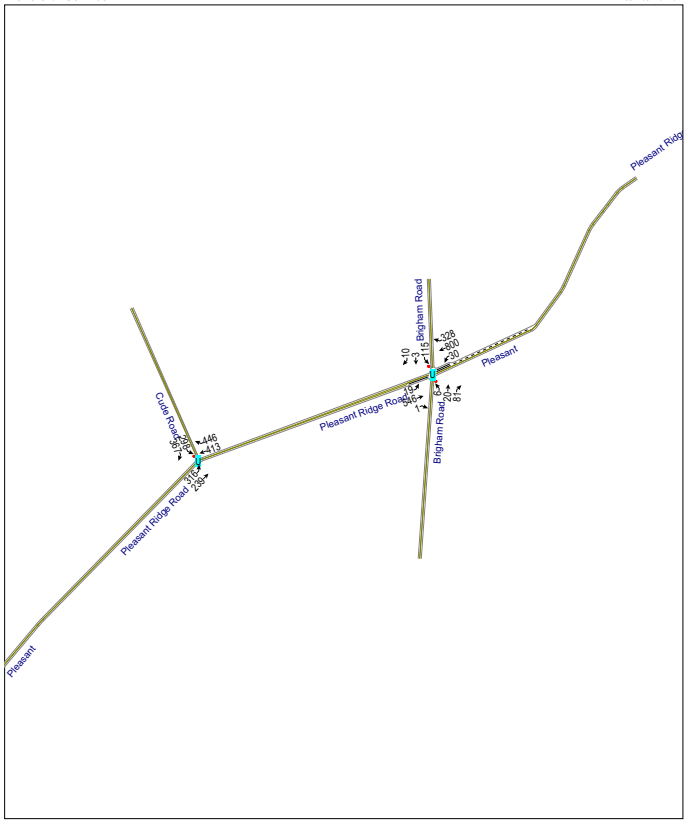
Splits and Phases: 2000: Market Street & Pleasant Ridge Road



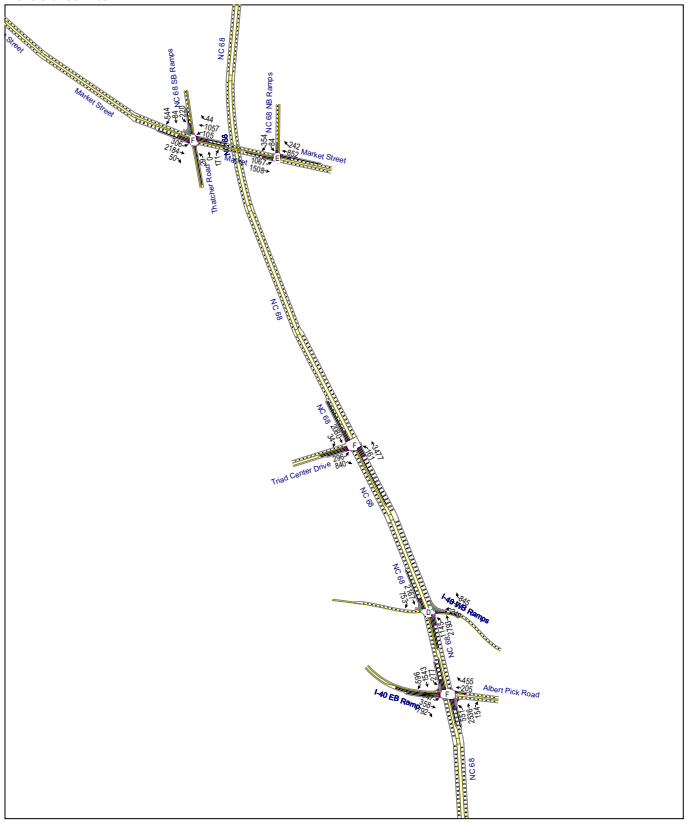
Map - Sandy Ridge Road Feasibility Study
Levels of Service — **8/20/2010**



Map - Sandy Ridge Road Feasibility Study
Levels of Service **8/20/2010**



Map - Sandy Ridge Road Feasibility Study **Design Year (2035) Build Alt. #1 Loops - PM**
Levels of Service



Sandy Ridge Road Feasibility Study — Design Year (2035) Build Alt. #1 Loops - PM
1: Cider Road & Sandy Ridge Road

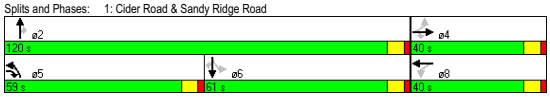
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	29	0	313	164	0	62	465	1097	60	25	1448	13
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	100		0	100		0	500		150	150		150
Storage Lanes	0		1	0		0	1		1	1		1
Taper Length (ft)	25		25	25		25	25		25	25		50
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.91	1.00	1.00	0.91	1.00
Frt			0.850		0.963				0.850			0.850
Flt Protected		0.950			0.965		0.950			0.950		
Satd. Flow (prot)	0	1719	1538	0	1682	0	1719	4940	1538	1719	4940	1538
Flt Permitted		0.673			0.765		0.950			0.218		
Satd. Flow (perm)	0	1218	1538	0	1333	0	1719	4940	1538	394	4940	1538
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		30			30			35			35	
Link Distance (ft)		909			308			1068			391	
Travel Time (s)		20.7			7.0			20.8			7.6	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	32	0	348	182	0	69	517	1219	67	28	1609	14
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	32	348	0	251	0	517	1219	67	28	1609	14
Turn Type	Perm		pm+ov	Perm			Prot		Perm	Perm		Perm
Protected Phases		4	5		8		5	2			6	
Permitted Phases	4		4	8					2	6		6
Detector Phase	4	4	5	8	8		5	2	2	6	6	6
Switch Phase												
Minimum Initial (s)	7.0	7.0	7.0	7.0	7.0		7.0	12.0	12.0	12.0	12.0	12.0
Minimum Split (s)	17.0	17.0	14.0	17.0	17.0		14.0	19.0	19.0	19.0	19.0	19.0
Total Split (s)	40.0	40.0	59.0	40.0	40.0	0.0	59.0	120.0	120.0	61.0	61.0	61.0
Total Split (%)	25.0%	25.0%	36.9%	25.0%	25.0%	0.0%	36.9%	75.0%	75.0%	38.1%	38.1%	38.1%
Maximum Green (s)	33.0	33.0	52.0	33.0	33.0		52.0	113.0	113.0	54.0	54.0	54.0
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0		2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	2.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag			Lead				Lead			Lag	Lag	Lag
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	None	None		None	C-Min	C-Min	C-Min	C-Min	C-Min
Act Effct Green (s)		33.5	90.4		33.5		51.9	116.5	116.5	59.6	59.6	59.6
Actuated g/C Ratio		0.21	0.56		0.21		0.32	0.73	0.73	0.37	0.37	0.37
v/c Ratio		0.13	0.40		0.90		0.93	0.34	0.06	0.19	0.87	0.02
Control Delay		51.9	20.6		94.1		61.1	13.6	7.3	27.8	33.7	25.2
Queue Delay		0.0	0.0		0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay		51.9	20.6		94.1		61.1	13.6	7.3	27.8	33.7	25.2
LOS		D	C		F		E	B	A	C	C	C
Approach Delay		23.3			94.1			26.9			33.5	
Approach LOS		C			F			C			C	
Queue Length 50th (ft)		27	188		255		552	317	28	11	419	6

Sandy Ridge Road Feasibility Study — Design Year (2035) Build Alt. #1 Loops - PM
1: Cider Road & Sandy Ridge Road

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 95th (ft)		60	261		#417		#736	367	m37	m16	m553	m8
Internal Link Dist (ft)		829			228			988			311	
Turn Bay Length (ft)							500		150	150		150
Base Capacity (vph)		266	890		292		580	3597	1119	147	1839	572
Starvation Cap Reductn		0	0		0		0	0	0	0	0	0
Spillback Cap Reductn		0	0		0		0	0	0	0	0	0
Storage Cap Reductn		0	0		0		0	0	0	0	0	0
Reduced v/c Ratio		0.12	0.39		0.86		0.89	0.34	0.06	0.19	0.87	0.02

Intersection Summary
Area Type: Other
Cycle Length: 160
Actuated Cycle Length: 160
Offset: 82 (51%), Referenced to phase 2:NBT and 6:SBTL, Start of Green
Natural Cycle: 80
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.93
Intersection Signal Delay: 33.4 Intersection LOS: C
Intersection Capacity Utilization 85.8% ICU Level of Service E
Analysis Period (min) 15
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 1: Cider Road & Sandy Ridge Road



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	68	40	347	491	74	401	794	1153	131	194	1706	25
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	200		0	300		350	550		150	250		300
Storage Lanes	1		1	1		1	1		1	2		1
Taper Length (ft)	100		25	25		25	175		25	100		100
Lane Util. Factor	1.00	1.00	1.00	0.97	1.00	1.00	0.97	0.91	1.00	0.97	0.91	1.00
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1547	1629	1384	3001	1629	1384	3001	4446	1384	3001	4446	1384
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1547	1629	1384	3001	1629	1384	3001	4446	1384	3001	4446	1384
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		30			30			35			35	
Link Distance (ft)		1686			875			711			1068	
Travel Time (s)		38.3			19.9			13.9			20.8	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	76	44	386	546	82	446	882	1281	146	216	1896	28
Shared Lane Traffic (%)												
Lane Group Flow (vph)	76	44	386	546	82	446	882	1281	146	216	1896	28
Turn Type	Prot		pm+ov	Prot		pm+ov	Prot		pm+ov	Prot		pm+ov
Protected Phases	7	4	5	3	8	1	5	2	3	1	6	7
Permitted Phases			4			8			2			6
Detector Phase	7	4	5	3	8	1	5	2	3	1	6	7
Switch Phase												
Minimum Initial (s)	7.0	7.0	7.0	7.0	7.0	7.0	7.0	15.0	7.0	7.0	15.0	7.0
Minimum Split (s)	14.0	17.0	14.0	14.0	17.0	14.0	14.0	22.0	14.0	14.0	22.0	14.0
Total Split (s)	20.0	17.0	46.0	30.0	27.0	45.0	46.0	68.0	30.0	45.0	67.0	20.0
Total Split (%)	12.5%	10.6%	28.8%	18.8%	16.9%	28.1%	28.8%	42.5%	18.8%	28.1%	41.9%	12.5%
Maximum Green (s)	13.0	10.0	39.0	23.0	20.0	38.0	39.0	61.0	23.0	38.0	60.0	13.0
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead	Lag	Lead	Lead	Lag	Lead	Lead	Lag	Lead	Lead	Lag	Lead
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	None	None	None	None	C-Max	None	None	C-Max	None
Act Effct Green (s)	13.5	11.0	58.0	25.0	19.6	61.1	44.8	70.3	100.3	36.5	62.0	80.5
Actuated g/C Ratio	0.08	0.07	0.36	0.16	0.12	0.38	0.28	0.44	0.63	0.23	0.39	0.50
v/c Ratio	0.58	0.39	0.77	1.16	0.41	0.84	1.05	0.66	0.17	0.32	1.10	0.04
Control Delay	87.9	81.6	56.9	151.7	70.3	59.9	98.5	38.6	14.5	56.8	87.8	12.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	87.9	81.6	56.9	151.7	70.3	59.9	98.5	38.6	14.5	56.8	87.8	12.8
LOS	F	F	E	F	E	E	F	D	B	E	F	B
Approach Delay		63.7			107.4			60.0			83.7	
Approach LOS		E			F			E			F	
Queue Length 50th (ft)	77	45	357	~347	79	411	~552	403	66	72	~838	16

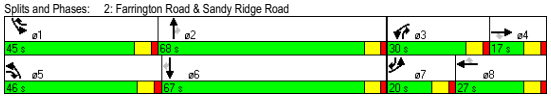
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 95th (ft)	137	90	498	#469	138	552	#691	475	108	m84	#931	m20
Internal Link Dist (ft)		1606			795			631			988	
Turn Bay Length (ft)	200			300		350	550		150	250		300
Base Capacity (vph)	145	122	502	469	224	559	841	1954	868	750	1723	709
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.52	0.36	0.77	1.16	0.37	0.80	1.05	0.66	0.17	0.29	1.10	0.04

Intersection Summary

Area Type: CBD
Cycle Length: 160
Actuated Cycle Length: 160
Offset: 140 (88%), Referenced to phase 2:NBT and 6:SBT, Start of Green
Natural Cycle: 160
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.16
Intersection Signal Delay: 77.1 — Intersection LOS: E
Intersection Capacity Utilization 96.5% — ICU Level of Service F
Analysis Period (min) 15

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 2: Farrington Road & Sandy Ridge Road



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (veh/h)	316	239	413	446	298	367
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	351	266	459	496	331	408
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	954				1674	707
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	954				1674	707
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	50				0	5
cM capacity (veh/h)	708				52	430

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	617	954	739
Volume Left	351	0	331
Volume Right	0	496	408
cSH	708	1700	101
Volume to Capacity	0.50	0.56	7.31
Queue Length 95th (ft)	69	0	Err
Control Delay (s)	12.3	0.0	Err
Lane LOS	B		F
Approach Delay (s)	12.3	0.0	Err
Approach LOS			F

Intersection Summary

Average Delay 3201.6
Intersection Capacity Utilization 128.1% — ICU Level of Service H
Analysis Period (min) 15

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	19	546	1	30	800	328	6	20	81	115	3	10
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	21	607	1	33	889	364	7	22	90	128	3	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)												
pX, platoon unblocked												
vC, conflicting volume	1253			608			1618	1969	607	1706	1606	889
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1253			608			1618	1969	607	1706	1606	889
tC, single (s)	4.1			4.1			7.2	6.6	6.2	7.2	6.6	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	96			97			91	61	82	0	97	97
cM capacity (veh/h)	545			956			73	57	491	38	96	338

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	WB 3	NB 1	SB 1
Volume Total	21	608	33	889	364	119	142
Volume Left	21	0	33	0	0	7	128
Volume Right	0	1	0	0	364	90	11
cSH	545	1700	956	1700	1700	179	42
Volume to Capacity	0.04	0.36	0.03	0.52	0.21	0.66	3.41
Queue Length 95th (ft)	3	0	3	0	0	98	Err
Control Delay (s)	11.9	0.0	8.9	0.0	0.0	58.0	Err
Lane LOS	B		A			F	F
Approach Delay (s)	0.4		0.2			58.0	Err
Approach LOS						F	F

Intersection Summary

Average Delay 656.7
Intersection Capacity Utilization 62.6% — 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)	947	358	792	0	205	455	551	2536	154	277	1543	596
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		-2%			2%			-1%			1%	
Storage Length (ft)	438		325	0		0	250		275	300		275
Storage Lanes	2		1	0		1	1		1	1		1
Taper Length (ft)	100		25	25		25	25		25	25		25
Lane Util. Factor	0.97	1.00	1.00	1.00	1.00	1.00	1.00	0.91	1.00	1.00	0.91	1.00
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950						0.950			0.950		
Satd. Flow (prot)	3368	1828	1553	0	1791	1523	1728	4965	1546	1710	4915	1530
Flt Permitted	0.950						0.950			0.950		
Satd. Flow (perm)	3368	1828	1553	0	1791	1523	1728	4965	1546	1710	4915	1530
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		35			35			55			55	
Link Distance (ft)		867			502			480			821	
Travel Time (s)		16.9			9.8			6.0			10.2	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	1052	398	880	0	228	506	612	2818	171	308	1714	662
Shared Lane Traffic (%)												
Lane Group Flow (vph)	1052	398	880	0	228	506	612	2818	171	308	1714	662
Turn Type	Prot		pm+ov			pm+ov	Prot		Perm	Prot		pm+ov
Protected Phases	7	4	5		8	1	5	2		1	6	7
Permitted Phases			4			8			2			6
Detector Phase	7	4	5		8	1	5	2	2	1	6	7
Switch Phase												
Minimum Initial (s)	7.0	7.0	7.0		7.0	7.0	7.0	14.0	14.0	7.0	14.0	7.0
Minimum Split (s)	14.0	17.0	14.0		17.0	14.0	14.0	21.0	21.0	14.0	21.0	14.0
Total Split (s)	42.0	65.0	47.0	0.0	23.0	27.0	47.0	78.0	78.0	27.0	58.0	42.0
Total Split (%)	24.7%	38.2%	27.6%	0.0%	13.5%	15.9%	27.6%	45.9%	45.9%	15.9%	34.1%	24.7%
Maximum Green (s)	35.0	58.0	40.0		16.0	20.0	40.0	71.0	71.0	20.0	51.0	35.0
Yellow Time (s)	5.0	5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0		2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	2.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead		Lead		Lag	Lead	Lead	Lag	Lag	Lead	Lag	Lead
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None		None	None	None	C-Min	C-Min	None	C-Min	None
Act Effct Green (s)	37.0	60.0	107.0		18.0	45.0	42.0	73.0	73.0	22.0	53.0	95.0
Actuated g/C Ratio	0.22	0.35	0.63		0.11	0.26	0.25	0.43	0.43	0.13	0.31	0.56
v/c Ratio	1.44	0.62	0.90		1.20	1.26	1.43	1.32	0.26	1.39	1.12	0.77
Control Delay	248.6	50.5	40.8		189.8	183.0	251.8	187.0	32.4	240.0	95.5	2.5
Queue Delay	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.5
Total Delay	248.6	50.5	40.8		189.8	183.0	251.8	187.0	32.4	240.0	95.5	6.0
LOS	F	D	D		F	F	F	F	C	F	F	A
Approach Delay		136.3			185.1			190.7			90.0	
Approach LOS		F			F			F			F	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 50th (ft)	~814	368	804		~307	~702	~919	~1480	122	~467	~788	1
Queue Length 95th (ft)	#952	489	#1168		#492	#937	#1166	#1547	182	m#461	m#782	m1
Internal Link Dist (ft)		787			422			400			741	
Turn Bay Length (ft)	438		325				250		275	300		275
Base Capacity (vph)	733	645	977		190	403	427	2132	664	221	1532	855
Starvation Cap Reductn	0	0	0		0	0	0	0	0	0	0	116
Spillback Cap Reductn	0	0	0		0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0		0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.44	0.62	0.90		1.20	1.26	1.43	1.32	0.26	1.39	1.12	0.90

Intersection Summary
Area Type: Other
Cycle Length: 170
Actuated Cycle Length: 170
Offset: 16 (9%), Referenced to phase 2:NBT and 6:SBT, Start of Green
Natural Cycle: 180
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.44
Intersection Signal Delay: 147.8 Intersection LOS: F
Intersection Capacity Utilization 118.8% ICU Level of Service H
Analysis Period (min) 15
~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

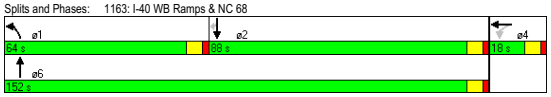
Splits and Phases: 251: I-40 EB Ramp & NC 68

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	0	0	249	0	845	1145	2793	0	0	2167	753
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		0%			-2%			0%			-1%	
Storage Length (ft)	0		0	200		0	325		0	0		400
Storage Lanes	0		0	1		1	2		0	0		1
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	1.00	1.00	1.00	0.95	0.95	1.00	0.97	0.91	1.00	1.00	0.91	1.00
Frt						0.850						0.850
Flt Protected				0.950	0.950		0.950					
Satd. Flow (prot)	0	0	0	1649	1649	1553	3335	4940	0	0	4965	1546
Flt Permitted				0.950	0.950		0.950					
Satd. Flow (perm)	0	0	0	1649	1649	1553	3335	4940	0	0	4965	1546
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		30			35			55			55	
Link Distance (ft)		712			820			821			1007	
Travel Time (s)		16.2			16.0			10.2			12.5	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	0	0	0	277	0	939	1272	3103	0	0	2408	837
Shared Lane Traffic (%)				50%								
Lane Group Flow (vph)	0	0	0	138	139	939	1272	3103	0	0	2408	837
Turn Type				Perm		Free	Prot					Perm
Protected Phases					4		1	6			2	
Permitted Phases				4		Free						2
Detector Phase				4	4		1	6			2	2
Switch Phase												
Minimum Initial (s)				7.0	7.0		7.0	14.0			14.0	14.0
Minimum Split (s)				17.0	17.0		14.0	21.0			21.0	21.0
Total Split (s)	0.0	0.0	0.0	18.0	18.0	0.0	64.0	152.0	0.0	0.0	88.0	88.0
Total Split (%)	0.0%	0.0%	0.0%	10.6%	10.6%	0.0%	37.6%	89.4%	0.0%	0.0%	51.8%	51.8%
Maximum Green (s)				11.0	11.0		57.0	145.0			81.0	81.0
Yellow Time (s)				5.0	5.0		5.0	5.0			5.0	5.0
All-Red Time (s)				2.0	2.0		2.0	2.0			2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	2.0	2.0	2.0	5.0	5.0	2.0	5.0	5.0	2.0	2.0	5.0	5.0
Lead/Lag							Lead				Lag	Lag
Lead-Lag Optimize?												
Vehicle Extension (s)				3.0	3.0		3.0	3.0			3.0	3.0
Recall Mode				None	None		None	C-Min			C-Min	C-Min
Act Effct Green (s)				13.0	13.0	170.0	59.0	147.0			83.0	83.0
Actuated g/C Ratio				0.08	0.08	1.00	0.35	0.86			0.49	0.49
v/c Ratio				1.10	1.10	0.60	1.10	0.73			0.99	1.11
Control Delay				176.0	178.0	1.8	107.4	4.3			41.2	87.7
Queue Delay				0.0	0.0	0.0	0.0	1.5			1.2	0.0
Total Delay				176.0	178.0	1.8	107.4	5.8			42.4	87.7
LOS				F	F	A	F	A			D	F
Approach Delay					41.7			35.3			54.1	
Approach LOS					D			D			D	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 50th (ft)				~182	~184	0	~836	322			809	~1050
Queue Length 95th (ft)				#342	#344	0	m550	m214			m828	m#1146
Internal Link Dist (ft)		632			740			741			927	
Turn Bay Length (ft)				200			325					400
Base Capacity (vph)				126	126	1553	1157	4272			2424	755
Starvation Cap Reductn				0	0	0	0	908			0	0
Spillback Cap Reductn				0	0	0	0	0			14	0
Storage Cap Reductn				0	0	0	0	0			0	0
Reduced v/c Ratio				1.10	1.10	0.60	1.10	0.92			1.00	1.11

Intersection Summary
Area Type: Other
Cycle Length: 170
Actuated Cycle Length: 170
Offset: 0 (0%), Referenced to phase 2:SBT and 6:NBT, Start of Green
Natural Cycle: 160
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.11
Intersection Signal Delay: 43.1 Intersection LOS: D
Intersection Capacity Utilization 98.7% ICU Level of Service F
Analysis Period (min) 15
~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 1163: I-40 WB Ramps & NC 68



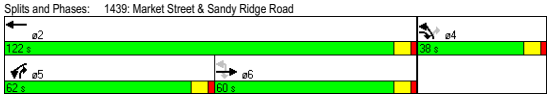
Lane Group	EBU	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations							
Volume (vph)	0	946	483	1003	1786	566	622
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900
Grade (%)		1%			-1%	0%	
Storage Length (ft)	200		600	600		450	0
Storage Lanes	1		1	2		1	1
Taper Length (ft)	25		25	25		25	25
Lane Util. Factor	1.00	0.95	1.00	0.97	0.95	0.97	0.88
Frt			0.850				0.850
Flt Protected				0.950		0.950	
Satd. Flow (prot)	1800	3421	1530	3352	3455	3335	2707
Flt Permitted				0.950		0.950	
Satd. Flow (perm)	1800	3421	1530	3352	3455	3335	2707
Right Turn on Red			No				No
Satd. Flow (RTOR)							
Link Speed (mph)		45			45	35	
Link Distance (ft)		752			1348	610	
Travel Time (s)		11.4			20.4	11.9	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	0	1051	537	1114	1984	629	691
Shared Lane Traffic (%)							
Lane Group Flow (vph)	0	1051	537	1114	1984	629	691
Turn Type	Perm		pm+ov	Prot			pm+ov
Protected Phases		6	4	5	2	4	5
Permitted Phases	6		6				4
Detector Phase	6	6	4	5	2	4	5
Switch Phase							
Minimum Initial (s)	15.0	15.0	7.0	7.0	15.0	7.0	7.0
Minimum Split (s)	22.0	22.0	17.0	14.0	22.0	17.0	14.0
Total Split (s)	60.0	60.0	38.0	62.0	122.0	38.0	62.0
Total Split (%)	37.5%	37.5%	23.8%	38.8%	76.3%	23.8%	38.8%
Maximum Green (s)	53.0	53.0	31.0	55.0	115.0	31.0	55.0
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lag	Lag		Lead			Lead
Lead-Lag Optimize?							
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	C-Min	C-Min	None	None	C-Min	None	None
Act Effct Green (s)		55.6	93.5	56.5	117.1	32.9	94.4
Actuated g/C Ratio		0.35	0.58	0.35	0.73	0.21	0.59
v/c Ratio		0.88	0.60	0.94	0.78	0.92	0.43
Control Delay		59.2	25.0	44.5	12.8	65.8	9.3
Queue Delay		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay		59.2	25.0	44.5	12.8	65.8	9.3
LOS		E	C	D	B	E	A
Approach Delay		47.7			24.2	36.3	
Approach LOS		D			C	D	

Lane Group	EBU	EBT	EBR	WBL	WBT	NBL	NBR
Queue Length 50th (ft)		548	351	542	802	187	89
Queue Length 95th (ft)		646	474	m428	m476	m#422	m91
Internal Link Dist (ft)		672			1268	530	
Turn Bay Length (ft)			600	600		450	
Base Capacity (vph)		1189	895	1194	2529	688	1605
Starvation Cap Reductn		0	0	0	0	0	0
Spillback Cap Reductn		0	0	0	0	0	0
Storage Cap Reductn		0	0	0	0	0	0
Reduced v/c Ratio		0.88	0.60	0.93	0.78	0.91	0.43

Intersection Summary

Area Type: Other
Cycle Length: 160
Actuated Cycle Length: 160
Offset: 130 (81%), Referenced to phase 2:WBT and 6:EBTU, Start of Green
Natural Cycle: 90
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.94
Intersection Signal Delay: 33.1 — Intersection LOS: C
Intersection Capacity Utilization 90.5% — ICU Level of Service E
Analysis Period (min) 15
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 1439: Market Street & Sandy Ridge Road



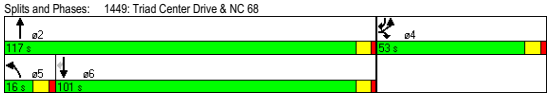
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	296	840	161	3477	2080	34
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Grade (%)	-3%			-2%	-1%	
Storage Length (ft)	263	200	625			438
Storage Lanes	2	1	1			2
Taper Length (ft)	25	25	25			25
Lane Util. Factor	0.97	0.88	0.97	0.91	0.91	1.00
Frt		0.850				0.850
Flt Protected	0.950		0.950			
Satd. Flow (prot)	3385	2748	3368	4989	4965	1546
Flt Permitted	0.950		0.950			
Satd. Flow (perm)	3385	2748	3368	4989	4965	1546
Right Turn on Red		No				No
Satd. Flow (RTOR)						
Link Speed (mph)	30			55	55	
Link Distance (ft)	638			799	1245	
Travel Time (s)	14.5			9.9	15.4	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	329	933	179	3863	2311	38
Shared Lane Traffic (%)						
Lane Group Flow (vph)	329	933	179	3863	2311	38
Turn Type		Prot	Prot			pm+ov
Protected Phases	4	4	5	2	6	4
Permitted Phases						6
Detector Phase	4	4	5	2	6	4
Switch Phase						
Minimum Initial (s)	7.0	7.0	7.0	14.0	14.0	7.0
Minimum Split (s)	17.0	17.0	14.0	21.0	21.0	17.0
Total Split (s)	53.0	53.0	16.0	117.0	101.0	53.0
Total Split (%)	31.2%	31.2%	9.4%	68.8%	59.4%	31.2%
Maximum Green (s)	46.0	46.0	9.0	110.0	94.0	46.0
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag			Lead		Lag	
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	C-Min	C-Min	None
Act Effct Green (s)	48.0	48.0	11.0	112.0	96.0	149.0
Actuated g/C Ratio	0.28	0.28	0.06	0.66	0.56	0.88
v/c Ratio	0.34	1.20	0.82	1.18	0.82	0.03
Control Delay	49.8	153.7	94.6	102.6	33.4	1.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	49.8	153.7	94.6	102.6	33.4	1.4
LOS	D	F	F	F	C	A
Approach Delay	126.6			102.3	32.9	
Approach LOS	F			F	C	

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Queue Length 50th (ft)	151	~714	104	~1865	747	4
Queue Length 95th (ft)	198	#864	m#164	#1899	808	8
Internal Link Dist (ft)	558			719	1165	
Turn Bay Length (ft)	263	200	625			438
Base Capacity (vph)	956	776	218	3287	2804	1355
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.34	1.20	0.82	1.18	0.82	0.03

Intersection Summary

Area Type: Other
Cycle Length: 170
Actuated Cycle Length: 170
Offset: 166 (98%), Referenced to phase 2:NBT and 6:SBT, Start of Green
Natural Cycle: 160
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.20
Intersection Signal Delay: 85.0 — Intersection LOS: F
Intersection Capacity Utilization 84.0% — ICU Level of Service E
Analysis Period (min) 15
~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 1449: Triad Center Drive & NC 68



1491: Market Street & NC 68 SB Ramps

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	306	2184	50	105	1057	44	29	0	171	220	84	544
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		300	275		275	400		0	0		250
Storage Lanes	1		1	1		1	1		0	1		1
Taper Length (ft)	25		25	75		25	25		25	25		25
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	0.95	0.95	1.00
Frt			0.850			0.850		0.850				0.850
Flt Protected	0.950			0.950			0.950			0.950	0.978	
Satd. Flow (prot)	1719	3438	1538	1719	3438	1538	1719	1538	0	1633	1681	1538
Flt Permitted	0.950			0.950			0.950			0.950	0.978	
Satd. Flow (perm)	1719	3438	1538	1719	3438	1538	1719	1538	0	1633	1681	1538
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		45			45			55			35	
Link Distance (ft)		630			849			475			493	
Travel Time (s)		9.5			12.9			5.9			9.6	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	340	2427	56	117	1174	49	32	0	190	244	93	604
Shared Lane Traffic (%)										32%		
Lane Group Flow (vph)	340	2427	56	117	1174	49	32	190	0	166	171	604
Turn Type	Prot		pm+ov	Prot		pm+ov	Split			Split		pm+ov
Protected Phases	5	2	8	1	6	4	8	8		4	4	5
Permitted Phases			2			6						4
Detector Phase	5	2	8	1	6	4	8	8		4	4	5
Switch Phase												
Minimum Initial (s)	7.0	12.0	7.0	7.0	12.0	7.0	7.0	7.0		7.0	7.0	7.0
Minimum Split (s)	14.0	19.0	17.0	14.0	19.0	17.0	17.0	17.0		17.0	17.0	14.0
Total Split (s)	53.0	107.0	21.0	14.0	68.0	18.0	21.0	21.0	0.0	18.0	18.0	53.0
Total Split (%)	33.1%	66.9%	13.1%	8.8%	42.5%	11.3%	13.1%	13.1%	0.0%	11.3%	11.3%	33.1%
Maximum Green (s)	46.0	100.0	14.0	7.0	61.0	11.0	14.0	14.0		11.0	11.0	46.0
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0		5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0		2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	2.0	5.0	5.0	5.0
Lead/Lag	Lead	Lag		Lead	Lag							Lead
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0
Recall Mode	None	C-Min	Min	None	C-Max	None	Min	Min		None	None	None
Act Effct Green (s)	48.0	102.0	118.0	9.0	63.0	81.0	16.0	16.0		13.0	13.0	61.0
Actuated g/C Ratio	0.30	0.64	0.74	0.06	0.39	0.51	0.10	0.10		0.08	0.08	0.38
v/c Ratio	0.66	1.11	0.05	1.21	0.87	0.06	0.19	1.23		1.25	1.25	1.03
Control Delay	60.0	82.4	3.4	173.5	73.7	45.9	69.0	204.6		215.3	214.3	87.7
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	60.0	82.4	3.4	173.5	73.7	45.9	69.0	204.6		215.3	214.3	87.7
LOS	E	F	A	F	E	D	E	F		F	F	F
Approach Delay		78.1			81.4			185.1			133.2	
Approach LOS		E			F			F			F	
Queue Length 50th (ft)	344	~1515	8	~143	665	46	31	~245		~227	~234	~522

1491: Market Street & NC 68 SB Ramps

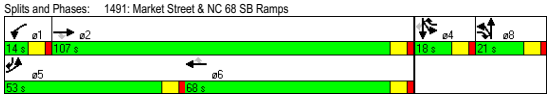
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 95th (ft)	m450	m#1611	m14	m#168	m641	m56	68	#414		#395	#405	#875
Internal Link Dist (ft)		550			769			395			413	
Turn Bay Length (ft)			300	275		275	400					250
Base Capacity (vph)	516	2192	1134	97	1354	779	172	154		133	137	586
Starvation Cap Reductn	0	0	0	0	3	0	0	0		0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0		0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0		0	0	0
Reduced v/c Ratio	0.66	1.11	0.05	1.21	0.87	0.06	0.19	1.23		1.25	1.25	1.03

Intersection Summary

Area Type: Other
Cycle Length: 160
Actuated Cycle Length: 160
Offset: 102 (64%), Referenced to phase 2:EBT and 6:WBT, Start of Green
Natural Cycle: 160
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.25
Intersection Signal Delay: 93.1 — Intersection LOS: F
Intersection Capacity Utilization 101.8% — ICU Level of Service G
Analysis Period (min) 15

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 1491: Market Street & NC 68 SB Ramps



1601: I-40 WB On-Ramp & Sandy Ridge Road

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	0	0	750	0	476	0	1565	698	0	1744	995
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		0%			2%			-4%			4%	
Storage Length (ft)	0		0	0		0	0		750	0		0
Storage Lanes	0		0	1		1	1		1	1		1
Taper Length (ft)	25		25	25		25	100		100	25		25
Lane Util. Factor	1.00	1.00	1.00	0.95	0.91	0.95	1.00	0.91	1.00	1.00	0.91	1.00
Frt					0.968	0.850			0.850			0.850
Flt Protected				0.950	0.962							
Satd. Flow (prot)	0	0	0	1617	1518	1447	0	5039	1569	0	4841	1507
Flt Permitted				0.950	0.962							
Satd. Flow (perm)	0	0	0	1617	1518	1447	0	5039	1569	0	4841	1507
Right Turn on Red			No			No			No			Yes
Satd. Flow (RTOR)												1091
Link Speed (mph)		30			35			45			45	
Link Distance (ft)		897			323			890			361	
Travel Time (s)		20.4			6.3			13.5			5.5	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	0	0	0	833	0	529	0	1739	776	0	1938	1106
Shared Lane Traffic (%)				44%		19%						
Lane Group Flow (vph)	0	0	0	466	468	428	0	1739	776	0	1938	1106
Turn Type				Perm		Perm			Free			Perm
Protected Phases					8			2			6	
Permitted Phases				8		8			Free			6
Detector Phase				8	8	8		2			6	6
Switch Phase												
Minimum Initial (s)				7.0	7.0	7.0		15.0			15.0	15.0
Minimum Split (s)				17.0	17.0	17.0		22.0			22.0	22.0
Total Split (s)	0.0	0.0	0.0	39.0	39.0	39.0	0.0	51.0	0.0	0.0	51.0	51.0
Total Split (%)	0.0%	0.0%	0.0%	43.3%	43.3%	43.3%	0.0%	56.7%	0.0%	0.0%	56.7%	56.7%
Maximum Green (s)				32.0	32.0	32.0		44.0			44.0	44.0
Yellow Time (s)				5.0	5.0	5.0		5.0			5.0	5.0
All-Red Time (s)				2.0	2.0	2.0		2.0			2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	2.0	2.0	2.0	5.0	5.0	5.0	2.0	5.0	2.0	2.0	5.0	5.0
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)				3.0	3.0	3.0		3.0			3.0	3.0
Recall Mode				None	None	None		C-Min			C-Min	C-Min
Act Effct Green (s)				32.8	32.8	32.8		47.2	90.0		47.2	47.2
Actuated g/C Ratio				0.36	0.36	0.36		0.52	1.00		0.52	0.52
v/c Ratio				0.79	0.85	0.81		0.66	0.49		0.76	0.84
Control Delay				36.5	41.9	39.4		15.0	5.6		19.8	8.8
Queue Delay				0.0	0.0	0.0		0.0	0.0		0.0	0.0
Total Delay				36.5	41.9	39.4		15.0	5.6		19.8	8.8
LOS				D	D	D		B	A		B	A
Approach Delay					39.3			12.1			15.8	
Approach LOS					D			B			B	

1601: I-40 WB On-Ramp & Sandy Ridge Road

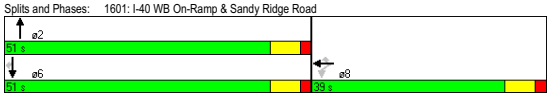
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 50th (ft)				238	258	222		173	325		312	4
Queue Length 95th (ft)				#381	#442	#384		238	m448		376	#108
Internal Link Dist (ft)		817			243			810			281	
Turn Bay Length (ft)									750			
Base Capacity (vph)				611	573	547		2641	1569		2538	1309
Starvation Cap Reductn				0	0	0		0	0		0	0
Spillback Cap Reductn				0	0	0		0	0		0	0
Storage Cap Reductn				0	0	0		0	0		0	0
Reduced v/c Ratio				0.76	0.82	0.78		0.66	0.49		0.76	0.84

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 60 (67%), Referenced to phase 2:NBT and 6:SBT, Start of Green
Natural Cycle: 60
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.85
Intersection Signal Delay: 19.1 — Intersection LOS: B
Intersection Capacity Utilization 95.6% — ICU Level of Service F
Analysis Period (min) 15

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 1601: I-40 WB On-Ramp & Sandy Ridge Road



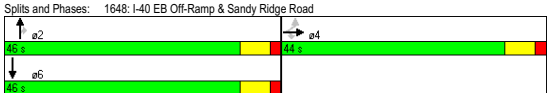
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	582	0	980	0	0	0	0	1681	428	0	1841	653
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		3%			0%			4%			0%	
Storage Length (ft)	250		0	0		0	0		400	0		750
Storage Lanes	1		1	0		0	0		1	0		1
Taper Length (ft)	25		25	25		25	25		25	25		100
Lane Util. Factor	0.94	0.95	0.95	1.00	1.00	1.00	1.00	0.91	1.00	1.00	0.91	1.00
Frt		0.850	0.850						0.850			0.850
Flt Protected	0.950											
Satd. Flow (prot)	4775	1439	1439	0	0	0	0	4841	1507	0	4940	1538
Flt Permitted	0.950											
Satd. Flow (perm)	4775	1439	1439	0	0	0	0	4841	1507	0	4940	1538
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		35			30			45			35	
Link Distance (ft)		321			929			495			890	
Travel Time (s)		6.3			21.1			7.5			17.3	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	647	0	1089	0	0	0	0	1868	476	0	2046	726
Shared Lane Traffic (%)			50%									
Lane Group Flow (vph)	647	545	544	0	0	0	0	1868	476	0	2046	726
Turn Type	Perm		Perm						Perm			Free
Protected Phases		4						2			6	
Permitted Phases	4		4						2			Free
Detector Phase	4	4	4					2	2		6	
Switch Phase												
Minimum Initial (s)	7.0	7.0	7.0					7.0	7.0		7.0	
Minimum Split (s)	17.0	17.0	17.0					17.0	17.0		17.0	
Total Split (s)	44.0	44.0	44.0	0.0	0.0	0.0	0.0	46.0	46.0	0.0	46.0	0.0
Total Split (%)	48.9%	48.9%	48.9%	0.0%	0.0%	0.0%	0.0%	51.1%	51.1%	0.0%	51.1%	0.0%
Maximum Green (s)	37.0	37.0	37.0					39.0	39.0		39.0	
Yellow Time (s)	5.0	5.0	5.0					5.0	5.0		5.0	
All-Red Time (s)	2.0	2.0	2.0					2.0	2.0		2.0	
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	2.0	2.0	2.0	2.0	5.0	5.0	2.0	5.0	2.0
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0					3.0	3.0		3.0	
Recall Mode	None	None	None					C-Min	C-Min		C-Min	
Act Effct Green (s)	38.3	38.3	38.3					41.7	41.7		41.7	90.0
Actuated g/C Ratio	0.43	0.43	0.43					0.46	0.46		0.46	1.00
v/c Ratio	0.32	0.89	0.89					0.83	0.68		0.89	0.47
Control Delay	17.6	42.7	42.5					25.5	25.4		22.8	3.8
Queue Delay	0.0	0.0	0.0					0.0	0.0		0.0	0.0
Total Delay	17.6	42.7	42.5					25.5	25.4		22.8	3.8
LOS	B	D	D					C	C		C	A
Approach Delay		33.3						25.4			17.8	
Approach LOS		C						C			B	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 50th (ft)	82	288	287					332	208		275	10
Queue Length 95th (ft)	109	#500	#498					401	326		#430	455
Internal Link Dist (ft)		241			849			415			810	
Turn Bay Length (ft)	250								400			750
Base Capacity (vph)	2069	624	624					2243	699		2289	1538
Starvation Cap Reductn	0	0	0					0	0		0	0
Spillback Cap Reductn	0	0	0					0	0		0	0
Storage Cap Reductn	0	0	0					0	0		0	0
Reduced v/c Ratio	0.31	0.87	0.87					0.83	0.68		0.89	0.47

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 62 (69%), Referenced to phase 2:NBT and 6:SBT, Start of Green
Natural Cycle: 65
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.89
Intersection Signal Delay: 24.4 — Intersection LOS: C
Intersection Capacity Utilization 84.4% — ICU Level of Service E
Analysis Period (min) 15
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 1648: I-40 EB Off-Ramp & Sandy Ridge Road



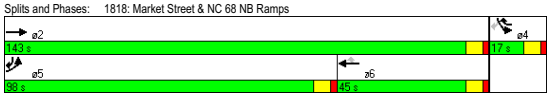
Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (vph)	1067	1508	852	242	84	354
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Grade (%)		-1%	0%		-2%	
Storage Length (ft)	275			400	0	0
Storage Lanes	1			1	1	1
Taper Length (ft)	75			25	25	25
Lane Util. Factor	1.00	0.95	0.95	1.00	1.00	1.00
Frt				0.850		0.850
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1728	3455	3438	1538	1736	1553
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	1728	3455	3438	1538	1736	1553
Right Turn on Red				No		No
Satd. Flow (RTOR)						
Link Speed (mph)		45	45		30	
Link Distance (ft)		849	543		531	
Travel Time (s)		12.9	8.2		12.1	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	1186	1676	947	269	93	393
Shared Lane Traffic (%)						
Lane Group Flow (vph)	1186	1676	947	269	93	393
Turn Type	Prot			pm+ov		pm+ov
Protected Phases	5	2	6	4	4	5
Permitted Phases				6		4
Detector Phase	5	2	6	4	4	5
Switch Phase						
Minimum Initial (s)	6.0	15.0	15.0	7.0	7.0	6.0
Minimum Split (s)	14.0	22.0	22.0	17.0	17.0	14.0
Total Split (s)	98.0	143.0	45.0	17.0	17.0	98.0
Total Split (%)	61.3%	89.4%	28.1%	10.6%	10.6%	61.3%
Maximum Green (s)	91.0	136.0	38.0	10.0	10.0	91.0
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead		Lag			Lead
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	C-Min	C-Min	None	None	None
Act Effct Green (s)	93.2	138.2	40.0	56.8	11.8	110.0
Actuated g/C Ratio	0.58	0.86	0.25	0.36	0.07	0.69
v/c Ratio	1.18	0.56	1.10	0.49	0.73	0.37
Control Delay	104.3	0.4	116.4	44.1	102.4	11.6
Queue Delay	28.9	1.0	0.0	0.0	0.0	0.0
Total Delay	133.2	1.4	116.4	44.1	102.4	11.6
LOS	F	A	F	D	F	B
Approach Delay		56.0	100.4		29.0	
Approach LOS		E	F		C	

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Queue Length 50th (ft)	~1475	20	~590	220	97	161
Queue Length 95th (ft)	m#1184	m17	#727	313	#186	221
Internal Link Dist (ft)		769	463		451	
Turn Bay Length (ft)	275			400		
Base Capacity (vph)	1006	2984	860	548	130	1068
Starvation Cap Reductn	53	940	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	1.24	0.82	1.10	0.49	0.72	0.37

Intersection Summary

Area Type: Other
Cycle Length: 160
Actuated Cycle Length: 160
Offset: 12 (8%), Referenced to phase 2:EBT and 6:WBT, Start of Green
Natural Cycle: 180
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.18
Intersection Signal Delay: 65.0 — Intersection LOS: E
Intersection Capacity Utilization 101.0% — ICU Level of Service G
Analysis Period (min) 15
~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 1818: Market Street & NC 68 NB Ramps



Lane Group	EBL	EBT	WBU	WBT	WBR	SBL	SBR
Lane Configurations							
Volume (vph)	539	1184	0	1840	161	139	723
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900
Grade (%)		-3%		3%		-1%	
Storage Length (ft)	300		400		325	400	0
Storage Lanes	1		1		1	1	1
Taper Length (ft)	25		25		25	25	25
Lane Util. Factor	1.00	0.95	1.00	0.95	1.00	1.00	1.00
Frt					0.850		0.850
Flt Protected	0.950					0.950	
Satd. Flow (prot)	1745	3490	1782	3387	1515	1728	1546
Flt Permitted	0.950					0.950	
Satd. Flow (perm)	1745	3490	1782	3387	1515	1728	1546
Right Turn on Red					No		No
Satd. Flow (RTOR)							
Link Speed (mph)		45		45		50	
Link Distance (ft)		755		1642		1713	
Travel Time (s)		11.4		24.9		23.4	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	599	1316	0	2044	179	154	803
Shared Lane Traffic (%)							
Lane Group Flow (vph)	599	1316	0	2044	179	154	803
Turn Type	Prot		Perm		Perm		pm+ov
Protected Phases	1	6		2		4	1
Permitted Phases			2		2		4
Detector Phase	1	6	2	2	2	4	1
Switch Phase							
Minimum Initial (s)	6.0	15.0	15.0	15.0	15.0	8.0	6.0
Minimum Split (s)	14.0	21.0	21.0	21.0	21.0	17.0	14.0
Total Split (s)	56.0	143.0	87.0	87.0	87.0	17.0	56.0
Total Split (%)	35.0%	89.4%	54.4%	54.4%	54.4%	10.6%	35.0%
Maximum Green (s)	50.0	137.0	81.0	81.0	81.0	11.0	50.0
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag	Lead		Lag	Lag	Lag		Lead
Lead-Lag Optimize?							
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	C-Min	C-Min	C-Min	C-Min	None	None
Act Effct Green (s)	52.0	139.0		83.0	83.0	13.0	69.0
Actuated g/C Ratio	0.32	0.87		0.52	0.52	0.08	0.43
v/c Ratio	1.06	0.43		1.16	0.23	1.10	1.20
Control Delay	105.3	3.0		100.1	13.3	169.5	145.3
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0
Total Delay	105.3	3.0		100.1	13.3	169.5	145.3
LOS	F	A		F	B	F	F
Approach Delay		35.0		93.1		149.2	
Approach LOS		D		F		F	

Sandy Ridge Road Feasibility Study — Design Year (2035) Build Alt. #1 Loops - PM
2000: Market Street & Pleasant Ridge Road

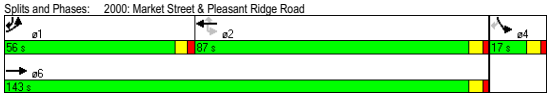
Lane Group	EBL	EBT	WBU	WBT	WBR	SBL	SBR
Queue Length 50th (ft)	~699	144		~1311	55	~182	~1018
Queue Length 95th (ft)	m#905	134		m#1393	m82	#338	#1276
Internal Link Dist (ft)		675		1562		1633	
Turn Bay Length (ft)	300				325	400	
Base Capacity (vph)	567	3032		1757	786	140	667
Starvation Cap Reductn	0	0		0	0	0	0
Spillback Cap Reductn	0	0		0	0	0	0
Storage Cap Reductn	0	0		0	0	0	0
Reduced v/c Ratio	1.06	0.43		1.16	0.23	1.10	1.20

Intersection Summary

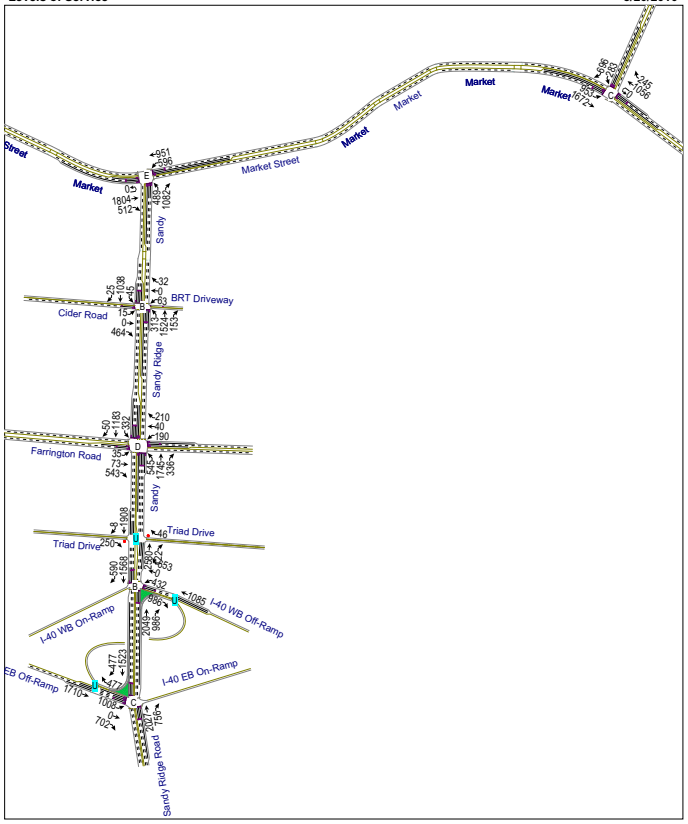
Area Type: Other
Cycle Length: 160
Actuated Cycle Length: 160
Offset: 2 (1%), Referenced to phase 2:WBTU and 6:EBT, Start of Green
Natural Cycle: 150
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.20
Intersection Signal Delay: 81.8 — Intersection LOS: F
Intersection Capacity Utilization 102.3% — ICU Level of Service G
Analysis Period (min) 15

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 2000: Market Street & Pleasant Ridge Road

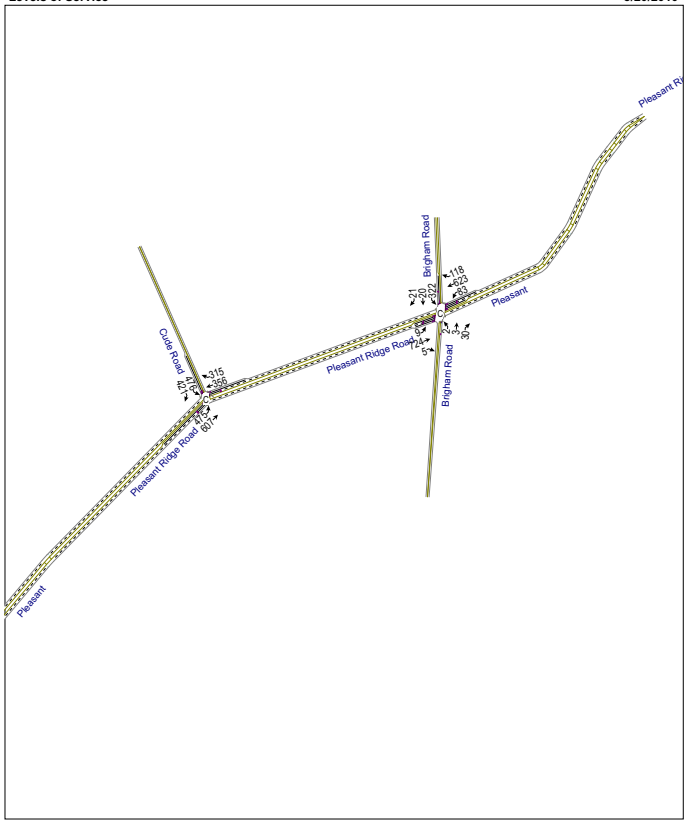


Map - Sandy Ridge Road Feasibility Study
Levels of Service — **8/20/2010**



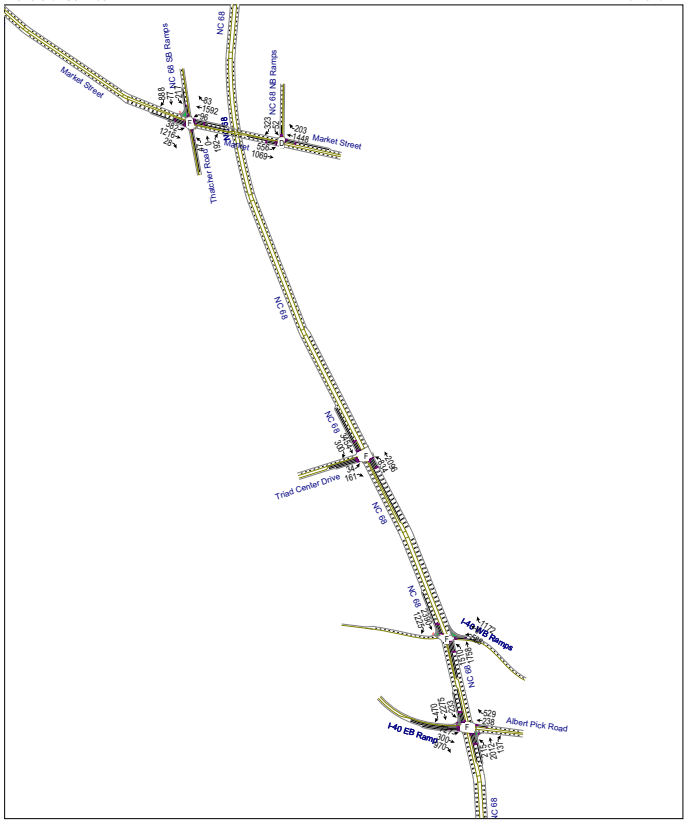
Sandy Ridge Road Feasibility Study — **P:\Planning\GDOT Airport Area\Traffic Analysis\Synchro\Build2 AM-Loops.syn**
M/A/B

Map - Sandy Ridge Road Feasibility Study
Levels of Service — **8/20/2010**



Sandy Ridge Road Feasibility Study — **P:\Planning\GDOT Airport Area\Traffic Analysis\Synchro\Build2 AM-Loops.syn**
M/A/B

Map - Sandy Ridge Road Feasibility Study
Levels of Service **1/27/2011**

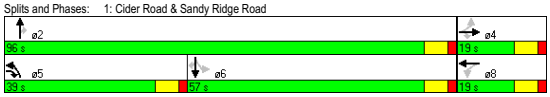


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	15	0	464	63	0	32	313	1524	153	45	1038	25
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	100		0	100		0	500		150	150		150
Storage Lanes	0		1	0		0	1		1	1		1
Taper Length (ft)	25		25	25		25	25		25	25		50
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.91	1.00	1.00	0.91	1.00
Frt			0.850		0.954				0.850			0.850
Flt Protected		0.950			0.968		0.950			0.950		
Satd. Flow (prot)	0	1719	1538	0	1671	0	1719	4940	1538	1719	4940	1538
Flt Permitted		0.689			0.791		0.950			0.132		
Satd. Flow (perm)	0	1247	1538	0	1365	0	1719	4940	1538	239	4940	1538
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		30			30			35			35	
Link Distance (ft)		909			308			1068			391	
Travel Time (s)		20.7			7.0			20.8			7.6	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	17	0	516	70	0	36	348	1693	170	50	1153	28
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	17	516	0	106	0	348	1693	170	50	1153	28
Turn Type	Perm		pm+ov	Perm			Prot		Perm	Perm		Perm
Protected Phases		4	5		8		5	2			6	
Permitted Phases	4		4	8					2	6		6
Detector Phase	4	4	5	8	8		5	2	2	6	6	6
Switch Phase												
Minimum Initial (s)	7.0	7.0	7.0	7.0	7.0		7.0	12.0	12.0	12.0	12.0	12.0
Minimum Split (s)	17.0	17.0	14.0	17.0	17.0		14.0	19.0	19.0	19.0	19.0	19.0
Total Split (s)	19.0	19.0	39.0	19.0	19.0	0.0	39.0	96.0	96.0	57.0	57.0	57.0
Total Split (%)	16.5%	16.5%	33.9%	16.5%	16.5%	0.0%	33.9%	83.5%	83.5%	49.6%	49.6%	49.6%
Maximum Green (s)	12.0	12.0	32.0	12.0	12.0		32.0	89.0	89.0	50.0	50.0	50.0
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0		2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	2.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag			Lead				Lead			Lag	Lag	Lag
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	None	None		None	C-Min	C-Min	C-Min	C-Min	C-Min
Act Effct Green (s)		14.7	47.5		14.7		27.8	90.3	90.3	57.5	57.5	57.5
Actuated g/C Ratio		0.13	0.41		0.13		0.24	0.79	0.79	0.50	0.50	0.50
v/c Ratio		0.11	0.81		0.61		0.84	0.44	0.14	0.42	0.47	0.04
Control Delay		45.3	40.2		62.5		58.9	4.6	3.5	25.4	13.0	10.7
Queue Delay		0.0	0.0		0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay		45.3	40.2		62.5		58.9	4.6	3.5	25.4	13.0	10.7
LOS		D	D		E		E	A	A	C	B	B
Approach Delay		40.4			62.5			13.0			13.5	
Approach LOS		D			E			B			B	
Queue Length 50th (ft)		11	326		74		248	133	27	9	73	5

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 95th (ft)		34	442		#151		335	137	39	m45	m264	m16
Internal Link Dist (ft)		829			228			988			311	
Turn Bay Length (ft)							500		150	150		150
Base Capacity (vph)		167	718		183		508	3940	1227	121	2511	782
Starvation Cap Reductn		0	0		0		0	0	0	0	0	0
Spillback Cap Reductn		0	0		0		0	0	0	0	0	0
Storage Cap Reductn		0	0		0		0	0	0	0	0	0
Reduced v/c Ratio		0.10	0.72		0.58		0.69	0.43	0.14	0.41	0.46	0.04

Intersection Summary
Area Type: Other
Cycle Length: 115
Actuated Cycle Length: 115
Offset: 100 (87%), Referenced to phase 2:NBT and 6:SBTL, Start of Green
Natural Cycle: 60
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.84
Intersection Signal Delay: 18.0 Intersection LOS: B
Intersection Capacity Utilization 67.1% ICU Level of Service C
Analysis Period (min) 15
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 1: Cider Road & Sandy Ridge Road



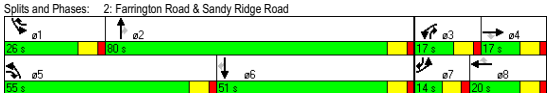
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	35	73	543	190	40	210	545	1745	336	332	1183	50
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	200		0	300		350	550		150	250		300
Storage Lanes	1		1	1		1	1		1	2		1
Taper Length (ft)	100		25	25		25	175		25	100		100
Lane Util. Factor	1.00	1.00	1.00	0.97	1.00	1.00	0.97	0.91	1.00	0.97	0.91	1.00
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1547	1629	1384	3001	1629	1384	3001	4446	1384	3001	4446	1384
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1547	1629	1384	3001	1629	1384	3001	4446	1384	3001	4446	1384
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		30			30			35			35	
Link Distance (ft)		1686			875			711			1068	
Travel Time (s)		38.3			19.9			13.9			20.8	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	39	81	603	211	44	233	606	1939	373	369	1314	56
Shared Lane Traffic (%)												
Lane Group Flow (vph)	39	81	603	211	44	233	606	1939	373	369	1314	56
Turn Type	Prot		pm+ov	Prot		pm+ov	Prot		pm+ov	Prot		pm+ov
Protected Phases	7	4	5	3	8	1	5	2	3	1	6	7
Permitted Phases			4			8			2			6
Detector Phase	7	4	5	3	8	1	5	2	3	1	6	7
Switch Phase												
Minimum Initial (s)	7.0	7.0	7.0	7.0	7.0	7.0	7.0	15.0	7.0	7.0	15.0	7.0
Minimum Split (s)	14.0	17.0	14.0	14.0	17.0	14.0	14.0	22.0	14.0	14.0	22.0	14.0
Total Split (s)	14.0	17.0	55.0	17.0	20.0	26.0	55.0	80.0	17.0	26.0	51.0	14.0
Total Split (%)	10.0%	12.1%	39.3%	12.1%	14.3%	18.6%	39.3%	57.1%	12.1%	18.6%	36.4%	10.0%
Maximum Green (s)	7.0	10.0	48.0	10.0	13.0	19.0	48.0	73.0	10.0	19.0	44.0	7.0
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead	Lag	Lead	Lead	Lag	Lead	Lead	Lag	Lead	Lead	Lag	Lead
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	None	None	None	None	C-Max	None	None	C-Max	None
Act Effct Green (s)	9.0	11.5	66.3	12.0	17.3	42.9	49.8	75.9	92.9	20.6	46.7	60.7
Actuated g/C Ratio	0.06	0.08	0.47	0.09	0.12	0.31	0.36	0.54	0.66	0.15	0.33	0.43
v/c Ratio	0.39	0.60	0.92	0.82	0.22	0.55	0.57	0.80	0.41	0.83	0.89	0.09
Control Delay	75.0	81.3	55.3	87.5	60.5	47.2	38.9	29.5	12.7	74.9	52.6	24.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	75.0	81.3	55.3	87.5	60.5	47.2	38.9	29.5	12.7	74.9	52.6	24.4
LOS	E	F	E	F	E	D	D	C	B	E	D	C
Approach Delay		59.3			65.8			29.3			56.4	
Approach LOS		E			E			C			E	
Queue Length 50th (ft)	35	72	497	98	37	181	228	516	149	170	417	30

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 95th (ft)	75	#130	#748	#165	78	273	290	583	215	#244	483	59
Internal Link Dist (ft)		1606			795			631			988	
Turn Bay Length (ft)	200			300		350	550		150	250		300
Base Capacity (vph)	99	140	657	257	201	427	1072	2411	918	450	1484	600
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.39	0.58	0.92	0.82	0.22	0.55	0.57	0.80	0.41	0.82	0.89	0.09

Intersection Summary

Area Type: CBD
Cycle Length: 140
Actuated Cycle Length: 140
Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green
Natural Cycle: 90
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.92
Intersection Signal Delay: 44.1 — Intersection LOS: D
Intersection Capacity Utilization 81.3% — ICU Level of Service D
Analysis Period (min) 15
\# 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 2: Farrington Road & Sandy Ridge Road



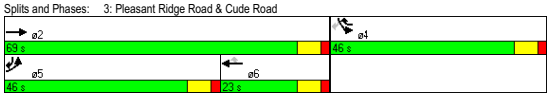
Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (vph)	475	607	356	315	476	421
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	450			300	0	300
Storage Lanes	1			1	1	1
Taper Length (ft)	25			25	25	25
Lane Util. Factor	1.00	0.95	0.95	1.00	1.00	1.00
Frt				0.850		0.850
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1719	3438	3438	1538	1719	1538
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	1719	3438	3438	1538	1719	1538
Right Turn on Red				No		No
Satd. Flow (RTOR)						
Link Speed (mph)		50	50		45	
Link Distance (ft)		1731	1912		1274	
Travel Time (s)		23.6	26.1		19.3	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	528	674	396	350	529	468
Shared Lane Traffic (%)						
Lane Group Flow (vph)	528	674	396	350	529	468
Turn Type	Prot			pm+ov		pm+ov
Protected Phases	5	2	6	4	4	5
Permitted Phases				6		4
Detector Phase	5	2	6	4	4	5
Switch Phase						
Minimum Initial (s)	7.0	14.0	14.0	7.0	7.0	7.0
Minimum Split (s)	14.0	21.0	21.0	17.0	17.0	14.0
Total Split (s)	46.0	69.0	23.0	46.0	46.0	46.0
Total Split (%)	40.0%	60.0%	20.0%	40.0%	40.0%	40.0%
Maximum Green (s)	39.0	62.0	16.0	39.0	39.0	39.0
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead		Lag			Lead
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	C-Max	C-Max	Max	Max	None
Act Effct Green (s)	39.2	64.0	19.8	65.8	41.0	85.2
Actuated g/C Ratio	0.34	0.56	0.17	0.57	0.36	0.74
v/c Ratio	0.90	0.35	0.67	0.40	0.86	0.41
Control Delay	30.2	1.9	31.8	10.1	50.2	6.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	30.2	1.9	31.8	10.1	50.2	6.6
LOS	C	A	C	B	D	A
Approach Delay		14.3	21.6		29.7	
Approach LOS		B	C		C	
Queue Length 50th (ft)	215	8	149	203	361	103

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Queue Length 95th (ft)	m294	m11	204	301	#556	151
Internal Link Dist (ft)		1651	1832		1194	
Turn Bay Length (ft)	450			300		300
Base Capacity (vph)	613	1913	592	880	613	1164
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.86	0.35	0.67	0.40	0.86	0.40

Intersection Summary

Area Type: Other
Cycle Length: 115
Actuated Cycle Length: 115
Offset: 24 (21%), Referenced to phase 2:EBT and 6:WBT, Start of Green
Natural Cycle: 90
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.90
Intersection Signal Delay: 21.4 — Intersection LOS: C
Intersection Capacity Utilization 76.9% — ICU Level of Service D
Analysis Period (min) 15
\# 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 3: Pleasant Ridge Road & Cude Road



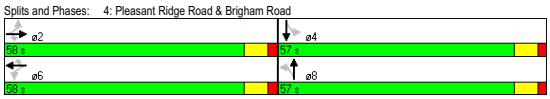
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	9	724	5	83	623	118	2	3	30	322	20	21
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	150		150	150		250	0		0	200		0
Storage Lanes	1		1	1		1	0		0	1		0
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850			0.850		0.883			0.923	
Flt Protected	0.950			0.950				0.997		0.950		
Satd. Flow (prot)	1719	3438	1538	1719	3438	1538	0	1593	0	1719	1670	0
Flt Permitted	0.310			0.256				0.994		0.732		
Satd. Flow (perm)	561	3438	1538	463	3438	1538	0	1588	0	1325	1670	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		50			50			45			30	
Link Distance (ft)		1912			850			1411			730	
Travel Time (s)		26.1			11.6			21.4			16.6	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	10	804	6	92	692	131	2	3	33	358	22	23
Shared Lane Traffic (%)												
Lane Group Flow (vph)	10	804	6	92	692	131	0	38	0	358	45	0
Turn Type	Perm		Perm	Perm		Perm	Perm			Perm		
Protected Phases		2			6			8			4	
Permitted Phases	2		2	6		6	8			4		
Detector Phase	2	2	2	6	6	6	8	8		4	4	
Switch Phase												
Minimum Initial (s)	14.0	14.0	14.0	14.0	14.0	14.0	7.0	7.0		7.0	7.0	
Minimum Split (s)	21.0	21.0	21.0	21.0	21.0	21.0	17.0	17.0		17.0	17.0	
Total Split (s)	58.0	58.0	58.0	58.0	58.0	58.0	57.0	57.0	0.0	57.0	57.0	0.0
Total Split (%)	50.4%	50.4%	50.4%	50.4%	50.4%	50.4%	49.6%	49.6%	0.0%	49.6%	49.6%	0.0%
Maximum Green (s)	51.0	51.0	51.0	51.0	51.0	51.0	50.0	50.0		50.0	50.0	
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0		5.0	5.0	
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	2.0	5.0	5.0	2.0
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Recall Mode	C-Max	C-Max	C-Max	C-Max	C-Max	C-Max	Max	Max		Max	Max	
Act Effct Green (s)	53.0	53.0	53.0	53.0	53.0	53.0		52.0		52.0	52.0	
Actuated g/C Ratio	0.46	0.46	0.46	0.46	0.46	0.46		0.45		0.45	0.45	
v/c Ratio	0.04	0.51	0.01	0.43	0.44	0.18		0.05		0.60	0.06	
Control Delay	9.8	14.4	9.4	28.9	22.0	19.2		18.1		28.8	18.1	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0		0.0		0.0	0.0	
Total Delay	9.8	14.4	9.4	28.9	22.0	19.2		18.1		28.8	18.1	
LOS	A	B	A	C	C	B		B		C	B	
Approach Delay		14.3			22.3			18.1			27.6	
Approach LOS		B			C			B			C	
Queue Length 50th (ft)	3	176	2	45	177	56		15		194	18	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 95th (ft)	m6	m205	m4	97	227	96		36		297	40	
Internal Link Dist (ft)		1832			770			1331			650	
Turn Bay Length (ft)	150		150	150		250				200		
Base Capacity (vph)	259	1584	709	213	1584	709		718		599	755	
Starvation Cap Reductn	0	0	0	0	0	0		0		0	0	
Spillback Cap Reductn	0	0	0	0	0	0		0		0	0	
Storage Cap Reductn	0	0	0	0	0	0		0		0	0	
Reduced v/c Ratio	0.04	0.51	0.01	0.43	0.44	0.18		0.05		0.60	0.06	

Intersection Summary

Area Type: Other
Cycle Length: 115
Actuated Cycle Length: 115
Offset: 102 (89%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green
Natural Cycle: 40
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.60
Intersection Signal Delay: 20.2 — Intersection LOS: C
Intersection Capacity Utilization 68.7% — ICU Level of Service C
Analysis Period (min) 15
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 4: Pleasant Ridge Road & Brigham Road



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	727	300	970	0	238	529	215	2012	137	233	2275	470
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		-2%			2%			-1%			1%	
Storage Length (ft)	438		325	0		0	250		275	300		275
Storage Lanes	2		1	0		1	1		1	1		1
Taper Length (ft)	100		25	25		25	25		25	25		25
Lane Util. Factor	0.97	1.00	1.00	1.00	1.00	1.00	1.00	0.91	1.00	1.00	0.91	1.00
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950						0.950			0.950		
Satd. Flow (prot)	3368	1828	1553	0	1791	1523	1728	4965	1546	1710	4915	1530
Flt Permitted	0.950						0.950			0.950		
Satd. Flow (perm)	3368	1828	1553	0	1791	1523	1728	4965	1546	1710	4915	1530
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		35			35			55			55	
Link Distance (ft)		867			502			480			821	
Travel Time (s)		16.9			9.8			6.0			10.2	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	808	333	1078	0	264	588	239	2236	152	259	2528	522
Shared Lane Traffic (%)												
Lane Group Flow (vph)	808	333	1078	0	264	588	239	2236	152	259	2528	522
Turn Type	Prot		pm+ov			pm+ov	Prot		Perm	Prot		pm+ov
Protected Phases	7	4	5		8	1	5	2		1	6	7
Permitted Phases			4			8			2			6
Detector Phase	7	4	5		8	1	5	2	2	1	6	7
Switch Phase												
Minimum Initial (s)	7.0	7.0	7.0		7.0	7.0	7.0	14.0	14.0	7.0	14.0	7.0
Minimum Split (s)	14.0	17.0	14.0		17.0	14.0	14.0	21.0	21.0	14.0	21.0	14.0
Total Split (s)	38.0	67.0	37.0	0.0	29.0	31.0	37.0	82.0	82.0	31.0	76.0	38.0
Total Split (%)	21.1%	37.2%	20.6%	0.0%	16.1%	17.2%	20.6%	45.6%	45.6%	17.2%	42.2%	21.1%
Maximum Green (s)	31.0	60.0	30.0		22.0	24.0	30.0	75.0	75.0	24.0	69.0	31.0
Yellow Time (s)	5.0	5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0		2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	2.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead		Lead		Lag	Lead	Lead	Lag	Lag	Lead	Lag	Lead
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None		None	None	None	C-Min	C-Min	None	C-Min	None
Act Effct Green (s)	33.0	62.0	99.0		24.0	55.0	32.0	77.0	77.0	26.0	71.0	109.0
Actuated g/C Ratio	0.18	0.34	0.55		0.13	0.31	0.18	0.43	0.43	0.14	0.39	0.61
v/c Ratio	1.31	0.53	1.26		1.10	1.26	0.78	1.05	0.23	1.05	1.30	0.56
Control Delay	204.4	51.0	162.7		156.7	184.2	88.4	84.1	33.9	124.5	172.2	4.1
Queue Delay	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	13.9	1.3
Total Delay	204.4	51.0	162.7		156.7	184.2	88.4	84.1	33.9	124.5	186.1	5.4
LOS	F	D	F		F	F	F	F	C	F	F	A
Approach Delay		161.1			175.7			81.6			152.7	
Approach LOS		F			F			F			F	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 50th (ft)	~629	317	~1592		~354	~869	273	~1051	114	~338	~1386	61
Queue Length 95th (ft)	#763	424	#1861		#554	#1116	#402	#1132	172	m291	m#1146	m48
Internal Link Dist (ft)		787			422			400			741	
Turn Bay Length (ft)	438		325				250		275	300		275
Base Capacity (vph)	617	630	854		239	465	307	2124	661	247	1939	927
Starvation Cap Reductn	0	0	0		0	0	0	0	0	0	45	214
Spillback Cap Reductn	0	0	0		0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0		0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.31	0.53	1.26		1.10	1.26	0.78	1.05	0.23	1.05	1.33	0.73

Intersection Summary

Area Type: Other
Cycle Length: 180
Actuated Cycle Length: 180
Offset: 56 (31%), Referenced to phase 2:NBT and 6:SBT, Start of Green
Natural Cycle: 180
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.31
Intersection Signal Delay: 136.2 — Intersection LOS: F
Intersection Capacity Utilization 112.4% — ICU Level of Service H
Analysis Period (min) 15
~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 251: I-40 EB Ramp & NC 68

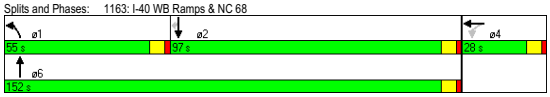
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	0	0	588	0	1172	1510	1758	0	0	2390	1225
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		0%			-2%			0%			-1%	
Storage Length (ft)	0		0	200		0	325		0	0		400
Storage Lanes	0		0	1		1	2		0	0		1
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	1.00	1.00	1.00	0.95	0.95	1.00	0.97	0.91	1.00	1.00	0.91	1.00
Frt						0.850						0.850
Flt Protected				0.950	0.950		0.950					
Satd. Flow (prot)	0	0	0	1649	1649	1553	3335	4940	0	0	4965	1546
Flt Permitted				0.950	0.950		0.950					
Satd. Flow (perm)	0	0	0	1649	1649	1553	3335	4940	0	0	4965	1546
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		30			35			55			55	
Link Distance (ft)		712			820			821			1007	
Travel Time (s)		16.2			16.0			10.2			12.5	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	0	0	0	653	0	1302	1678	1953	0	0	2656	1361
Shared Lane Traffic (%)				50%								
Lane Group Flow (vph)	0	0	0	326	327	1302	1678	1953	0	0	2656	1361
Turn Type				Perm		Free	Prot					Perm
Protected Phases					4		1	6			2	
Permitted Phases				4		Free						2
Detector Phase				4	4		1	6			2	2
Switch Phase												
Minimum Initial (s)				7.0	7.0		7.0	14.0			14.0	14.0
Minimum Split (s)				17.0	17.0		14.0	21.0			21.0	21.0
Total Split (s)	0.0	0.0	0.0	28.0	28.0	0.0	55.0	152.0	0.0	0.0	97.0	97.0
Total Split (%)	0.0%	0.0%	0.0%	15.6%	15.6%	0.0%	30.6%	84.4%	0.0%	0.0%	53.9%	53.9%
Maximum Green (s)				21.0	21.0		48.0	145.0			90.0	90.0
Yellow Time (s)				5.0	5.0		5.0	5.0			5.0	5.0
All-Red Time (s)				2.0	2.0		2.0	2.0			2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	2.0	2.0	2.0	5.0	5.0	2.0	5.0	5.0	2.0	2.0	5.0	5.0
Lead/Lag							Lead				Lag	Lag
Lead-Lag Optimize?												
Vehicle Extension (s)				3.0	3.0		3.0	3.0			3.0	3.0
Recall Mode				None	None		None	C-Min			C-Min	C-Min
Act Effct Green (s)				23.0	23.0	180.0	50.0	147.0			92.0	92.0
Actuated g/C Ratio				0.13	0.13	1.00	0.28	0.82			0.51	0.51
v/c Ratio				1.55	1.55	0.84	1.81	0.48			1.05	1.72
Control Delay				314.0	315.9	5.6	402.4	5.1			39.7	345.8
Queue Delay				0.0	0.0	0.0	0.0	0.3			0.0	0.0
Total Delay				314.0	315.9	5.6	402.4	5.3			39.7	345.8
LOS				F	F	A	F	A			D	F
Approach Delay					108.9			188.8			143.4	
Approach LOS					F			F			F	

1163: I-40 WB Ramps & NC 68

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 50th (ft)				~568	~570	0	~1552	236			~1235	~2366
Queue Length 95th (ft)				#791	#794	0	m#1300	m208			m533	m#1767
Internal Link Dist (ft)		632			740			741			927	
Turn Bay Length (ft)				200			325					400
Base Capacity (vph)				211	211	1553	926	4034			2538	790
Starvation Cap Reductn				0	0	0	0	1196			0	0
Spillback Cap Reductn				0	0	0	0	0			0	0
Storage Cap Reductn				0	0	0	0	0			0	0
Reduced v/c Ratio				1.55	1.55	0.84	1.81	0.69			1.05	1.72

Intersection Summary
Area Type: Other
Cycle Length: 180
Actuated Cycle Length: 180
Offset: 40 (22%), Referenced to phase 2:SBT and 6:NBT, Start of Green
Natural Cycle: 180
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.81
Intersection Signal Delay: 153.5 Intersection LOS: F
Intersection Capacity Utilization 147.7% ICU Level of Service H
Analysis Period (min) 15
~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 1163: I-40 WB Ramps & NC 68



1439: Market Street & Sandy Ridge Road

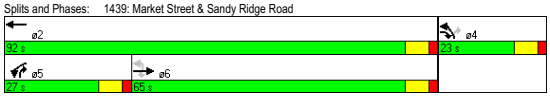
Lane Group	EBU	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations							
Volume (vph)	0	1804	512	596	951	489	1082
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900
Grade (%)		1%			-1%	0%	
Storage Length (ft)	200		600	600		450	0
Storage Lanes	1		1	2		1	1
Taper Length (ft)	25		25	25		25	25
Lane Util. Factor	1.00	0.95	1.00	0.97	0.95	0.97	0.88
Frt			0.850				0.850
Flt Protected				0.950		0.950	
Satd. Flow (prot)	1800	3421	1530	3352	3455	3335	2707
Flt Permitted				0.950		0.950	
Satd. Flow (perm)	1800	3421	1530	3352	3455	3335	2707
Right Turn on Red			No				No
Satd. Flow (RTOR)							
Link Speed (mph)		45			45	35	
Link Distance (ft)		752			1348	610	
Travel Time (s)		11.4			20.4	11.9	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	0	2004	569	662	1057	543	1202
Shared Lane Traffic (%)							
Lane Group Flow (vph)	0	2004	569	662	1057	543	1202
Turn Type	Perm		pm+ov	Prot			pm+ov
Protected Phases		6	4	5	2	4	5
Permitted Phases	6		6				4
Detector Phase	6	6	4	5	2	4	5
Switch Phase							
Minimum Initial (s)	15.0	15.0	7.0	7.0	15.0	7.0	7.0
Minimum Split (s)	22.0	22.0	17.0	14.0	22.0	17.0	14.0
Total Split (s)	65.0	65.0	23.0	27.0	92.0	23.0	27.0
Total Split (%)	56.5%	56.5%	20.0%	23.5%	80.0%	20.0%	23.5%
Maximum Green (s)	58.0	58.0	16.0	20.0	85.0	16.0	20.0
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lag	Lag		Lead			Lead
Lead-Lag Optimize?							
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	C-Min	C-Min	None	None	C-Min	None	None
Act Effct Green (s)		60.0	83.0	22.0	87.0	18.0	45.0
Actuated g/C Ratio		0.52	0.72	0.19	0.76	0.16	0.39
v/c Ratio		1.12	0.52	1.03	0.40	1.04	1.14
Control Delay		91.0	9.1	82.4	5.2	99.8	107.9
Queue Delay		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay		91.0	9.1	82.4	5.2	99.8	107.9
LOS		F	A	F	A	F	F
Approach Delay		72.9			34.9	105.4	
Approach LOS		E			C	F	

1439: Market Street & Sandy Ridge Road

Lane Group	EBU	EBT	EBR	WBL	WBT	NBL	NBR
Queue Length 50th (ft)		~902	164	~277	125	~230	~574
Queue Length 95th (ft)		#1040	240	m#341	m140	#340	#709
Internal Link Dist (ft)		672			1268	530	
Turn Bay Length (ft)			600	600		450	
Base Capacity (vph)		1785	1104	641	2614	522	1059
Starvation Cap Reductn		0	0	0	0	0	0
Spillback Cap Reductn		0	0	0	0	0	0
Storage Cap Reductn		0	0	0	0	0	0
Reduced v/c Ratio		1.12	0.52	1.03	0.40	1.04	1.14

Intersection Summary
Area Type: Other
Cycle Length: 115
Actuated Cycle Length: 115
Offset: 90 (78%), Referenced to phase 2:WBT and 6:EBTU, Start of Green
Natural Cycle: 130
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.14
Intersection Signal Delay: 71.5 Intersection LOS: E
Intersection Capacity Utilization 96.1% ICU Level of Service F
Analysis Period (min) 15
~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 1439: Market Street & Sandy Ridge Road



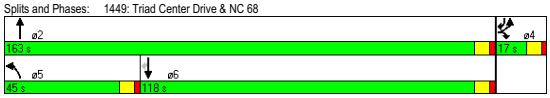
1449: Triad Center Drive & NC 68

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	34	161	834	2096	3454	300
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Grade (%)	-3%			-2%	-1%	
Storage Length (ft)	263	200	625			438
Storage Lanes	2	1	1			2
Taper Length (ft)	25	25	25			25
Lane Util. Factor	0.97	0.88	0.97	0.91	0.91	1.00
Frt		0.850				0.850
Flt Protected	0.950		0.950			
Satd. Flow (prot)	3385	2748	3368	4989	4965	1546
Flt Permitted	0.950		0.950			
Satd. Flow (perm)	3385	2748	3368	4989	4965	1546
Right Turn on Red		No				No
Satd. Flow (RTOR)						
Link Speed (mph)	30			55	55	
Link Distance (ft)	638			799	1245	
Travel Time (s)	14.5			9.9	15.4	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	38	179	927	2329	3838	333
Shared Lane Traffic (%)						
Lane Group Flow (vph)	38	179	927	2329	3838	333
Turn Type		Prot	Prot			pm+ov
Protected Phases	4	4	5	2	6	4
Permitted Phases						6
Detector Phase	4	4	5	2	6	4
Switch Phase						
Minimum Initial (s)	7.0	7.0	7.0	14.0	14.0	7.0
Minimum Split (s)	17.0	17.0	14.0	21.0	21.0	17.0
Total Split (s)	17.0	17.0	45.0	163.0	118.0	17.0
Total Split (%)	9.4%	9.4%	25.0%	90.6%	65.6%	9.4%
Maximum Green (s)	10.0	10.0	38.0	156.0	111.0	10.0
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag			Lead		Lag	
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	C-Min	C-Min	None
Act Effct Green (s)	12.0	12.0	40.0	158.0	113.0	130.0
Actuated g/C Ratio	0.07	0.07	0.22	0.88	0.63	0.72
v/c Ratio	0.17	0.98	1.24	0.53	1.23	0.30
Control Delay	81.2	141.8	171.6	4.5	138.3	9.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	81.2	141.8	171.6	4.5	138.3	9.7
LOS	F	F	F	A	F	A
Approach Delay	131.2			52.1	128.1	
Approach LOS	F			D	F	

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Queue Length 50th (ft)	22	122	~706	292	~2041	130
Queue Length 95th (ft)	44	#218	#845	321	#2065	176
Internal Link Dist (ft)	558			719	1165	
Turn Bay Length (ft)	263	200	625			438
Base Capacity (vph)	226	183	748	4379	3117	1117
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.17	0.98	1.24	0.53	1.23	0.30

Intersection Summary
Area Type: Other
Cycle Length: 180
Actuated Cycle Length: 180
Offset: 176 (98%), Referenced to phase 2:NBT and 6:SBT, Start of Green
Natural Cycle: 180
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.24
Intersection Signal Delay: 95.8 Intersection LOS: F
Intersection Capacity Utilization 108.9% ICU Level of Service G
Analysis Period (min) 15
~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 1449: Triad Center Drive & NC 68

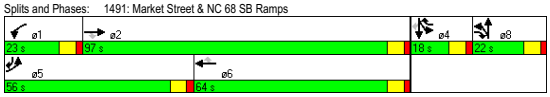


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	382	1216	28	96	1592	83	47	0	192	217	77	888
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		300	275		275	400		0	0		250
Storage Lanes	1		1	1		1	1		0	1		1
Taper Length (ft)	25		25	75		25	25		25	25		25
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	0.95	0.95	1.00
Frt			0.850			0.850		0.850				0.850
Flt Protected	0.950			0.950			0.950			0.950	0.976	
Satd. Flow (prot)	1719	3438	1538	1719	3438	1538	1719	1538	0	1633	1678	1538
Flt Permitted	0.950			0.950			0.950			0.950	0.976	
Satd. Flow (perm)	1719	3438	1538	1719	3438	1538	1719	1538	0	1633	1678	1538
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		45			45			55			35	
Link Distance (ft)		630			849			475			493	
Travel Time (s)		9.5			12.9			5.9			9.6	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	424	1351	31	107	1769	92	52	0	213	241	86	987
Shared Lane Traffic (%)										33%		
Lane Group Flow (vph)	424	1351	31	107	1769	92	52	213	0	161	166	987
Turn Type	Prot		pm+ov	Prot		pm+ov	Split			Split		pm+ov
Protected Phases	5	2	8	1	6	4	8	8		4	4	5
Permitted Phases			2			6						4
Detector Phase	5	2	8	1	6	4	8	8		4	4	5
Switch Phase												
Minimum Initial (s)	7.0	12.0	7.0	7.0	12.0	7.0	7.0	7.0		7.0	7.0	7.0
Minimum Split (s)	14.0	19.0	17.0	14.0	19.0	17.0	17.0	17.0		17.0	17.0	14.0
Total Split (s)	56.0	97.0	22.0	23.0	64.0	18.0	22.0	22.0	0.0	18.0	18.0	56.0
Total Split (%)	35.0%	60.6%	13.8%	14.4%	40.0%	11.3%	13.8%	13.8%	0.0%	11.3%	11.3%	35.0%
Maximum Green (s)	49.0	90.0	15.0	16.0	57.0	11.0	15.0	15.0		11.0	11.0	49.0
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0		5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0		2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	2.0	5.0	5.0	5.0
Lead/Lag	Lead	Lag		Lead	Lag							Lead
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0
Recall Mode	None	C-Min	Min	None	C-Max	None	Min	Min		None	None	None
Act Effct Green (s)	51.0	94.1	111.1	15.9	59.0	77.0	17.0	17.0		13.0	13.0	64.0
Actuated g/C Ratio	0.32	0.59	0.69	0.10	0.37	0.48	0.11	0.11		0.08	0.08	0.40
v/c Ratio	0.77	0.67	0.03	0.63	1.40	0.12	0.28	1.31		1.21	1.22	1.60
Control Delay	60.3	24.7	4.2	87.6	206.0	9.5	70.4	227.2		203.3	205.6	310.3
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	60.3	24.7	4.2	87.6	206.0	9.5	70.4	227.2		203.3	205.6	310.3
LOS	E	C	A	F	F	A	E	F		F	F	F
Approach Delay		32.8			190.4			196.5			284.0	
Approach LOS		C			F			F			F	
Queue Length 50th (ft)	403	498	5	117	~1296	27	51	~285		~215	~223	~1473

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 95th (ft)	544	584	11	m130	m#1322	m32	98	#460		#382	#391	#1737
Internal Link Dist (ft)		550			769			395			413	
Turn Bay Length (ft)			300	275		275	400					250
Base Capacity (vph)	548	2022	1068	193	1268	740	183	163		133	136	615
Starvation Cap Reductn	0	0	0	0	0	0	0	0		0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0		0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0		0	0	0
Reduced v/c Ratio	0.77	0.67	0.03	0.55	1.40	0.12	0.28	1.31		1.21	1.22	1.60

Intersection Summary
Area Type: Other
Cycle Length: 160
Actuated Cycle Length: 160
Offset: 12 (8%), Referenced to phase 2:EBT and 6:WBT, Start of Green
Natural Cycle: 180
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.60
Intersection Signal Delay: 160.5 Intersection LOS: F
Intersection Capacity Utilization 123.4% ICU Level of Service H
Analysis Period (min) 15
~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 1491: Market Street & NC 68 SB Ramps



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	0	0	432	0	653	0	2049	986	0	1568	590
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		0%			2%			-4%			4%	
Storage Length (ft)	0		0	0		0	0		750	0		0
Storage Lanes	0		0	1		1	1		1	1		1
Taper Length (ft)	25		25	25		25	100		100	25		25
Lane Util. Factor	1.00	1.00	1.00	0.95	0.91	0.95	1.00	0.91	1.00	1.00	0.91	1.00
Frt					0.873	0.850			0.850			0.850
Flt Protected				0.950	0.992							
Satd. Flow (prot)	0	0	0	1617	1412	1447	0	5039	1569	0	4841	1507
Flt Permitted				0.950	0.992							
Satd. Flow (perm)	0	0	0	1617	1412	1447	0	5039	1569	0	4841	1507
Right Turn on Red			No			No			No			Yes
Satd. Flow (RTOR)												656
Link Speed (mph)		30			35			45			45	
Link Distance (ft)		897			323			890			361	
Travel Time (s)		20.4			6.3			13.5			5.5	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	0	0	0	480	0	726	0	2277	1096	0	1742	656
Shared Lane Traffic (%)				13%		46%						
Lane Group Flow (vph)	0	0	0	418	396	392	0	2277	1096	0	1742	656
Turn Type				Perm		Perm			Free			Perm
Protected Phases					8			2			6	
Permitted Phases				8		8			Free			6
Detector Phase				8	8	8		2			6	6
Switch Phase												
Minimum Initial (s)				7.0	7.0	7.0		15.0			15.0	15.0
Minimum Split (s)				17.0	17.0	17.0		22.0			22.0	22.0
Total Split (s)	0.0	0.0	0.0	38.0	38.0	38.0	0.0	52.0	0.0	0.0	52.0	52.0
Total Split (%)	0.0%	0.0%	0.0%	42.2%	42.2%	42.2%	0.0%	57.8%	0.0%	0.0%	57.8%	57.8%
Maximum Green (s)				31.0	31.0	31.0		45.0			45.0	45.0
Yellow Time (s)				5.0	5.0	5.0		5.0			5.0	5.0
All-Red Time (s)				2.0	2.0	2.0		2.0			2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	2.0	2.0	2.0	5.0	5.0	5.0	2.0	5.0	2.0	2.0	5.0	5.0
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)				3.0	3.0	3.0		3.0			3.0	3.0
Recall Mode				None	None	None		C-Min			C-Min	C-Min
Act Effct Green (s)				31.0	31.0	31.0		49.0	90.0		49.0	49.0
Actuated g/C Ratio				0.34	0.34	0.34		0.54	1.00		0.54	0.54
v/c Ratio				0.75	0.81	0.79		0.83	0.70		0.66	0.59
Control Delay				35.1	41.2	38.6		14.7	11.1		16.6	3.4
Queue Delay				0.0	0.0	0.0		0.0	0.0		0.0	0.0
Total Delay				35.1	41.2	38.6		14.7	11.1		16.6	3.4
LOS				D	D	D		B	B		B	A
Approach Delay					38.3			13.5			13.0	
Approach LOS					D			B			B	

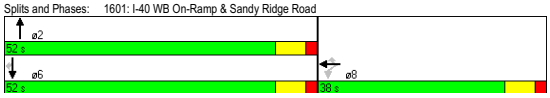
1601: I-40 WB On-Ramp & Sandy Ridge Road

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 50th (ft)				210	214	200		261	466		256	0
Queue Length 95th (ft)				326	#373	#326		290	589		309	51
Internal Link Dist (ft)		817			243			810			281	
Turn Bay Length (ft)									750			
Base Capacity (vph)				593	518	531		2741	1569		2633	1119
Starvation Cap Reductn				0	0	0		0	0		0	0
Spillback Cap Reductn				0	0	0		0	0		0	0
Storage Cap Reductn				0	0	0		0	0		0	0
Reduced v/c Ratio				0.70	0.76	0.74		0.83	0.70		0.66	0.59

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 16 (18%), Referenced to phase 2:NBT and 6:SBT, Start of Green
Natural Cycle: 60
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.83
Intersection Signal Delay: 17.6 — Intersection LOS: B
Intersection Capacity Utilization 74.9% — ICU Level of Service D
Analysis Period (min) 15
\# 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 1601: I-40 WB On-Ramp & Sandy Ridge Road



1648: I-40 EB Off-Ramp & Sandy Ridge Road

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	1008	0	702	0	0	0	0	2027	756	0	1523	477
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		3%			0%			4%			0%	
Storage Length (ft)	250		0	0		0	0		400	0		750
Storage Lanes	1		1	0		0	0		1	0		1
Taper Length (ft)	25		25	25		25	25		25	25		100
Lane Util. Factor	0.94	0.95	0.95	1.00	1.00	1.00	1.00	0.91	1.00	1.00	0.91	1.00
Frt		0.850	0.850						0.850			0.850
Flt Protected	0.950											
Satd. Flow (prot)	4775	1439	1439	0	0	0	0	4841	1507	0	4940	1538
Flt Permitted	0.950											
Satd. Flow (perm)	4775	1439	1439	0	0	0	0	4841	1507	0	4940	1538
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		35			30			45			35	
Link Distance (ft)		321			929			495			890	
Travel Time (s)		6.3			21.1			7.5			17.3	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	1120	0	780	0	0	0	0	2252	840	0	1692	530
Shared Lane Traffic (%)			50%									
Lane Group Flow (vph)	1120	390	390	0	0	0	0	2252	840	0	1692	530
Turn Type	Perm		Perm						Perm			Free
Protected Phases		4						2			6	
Permitted Phases	4		4						2			Free
Detector Phase	4	4	4					2	2		6	
Switch Phase												
Minimum Initial (s)	7.0	7.0	7.0					7.0	7.0		7.0	
Minimum Split (s)	17.0	17.0	17.0					17.0	17.0		17.0	
Total Split (s)	31.0	31.0	31.0	0.0	0.0	0.0	0.0	59.0	59.0	0.0	59.0	0.0
Total Split (%)	34.4%	34.4%	34.4%	0.0%	0.0%	0.0%	0.0%	65.6%	65.6%	0.0%	65.6%	0.0%
Maximum Green (s)	24.0	24.0	24.0					52.0	52.0		52.0	
Yellow Time (s)	5.0	5.0	5.0					5.0	5.0		5.0	
All-Red Time (s)	2.0	2.0	2.0					2.0	2.0		2.0	
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	2.0	2.0	2.0	2.0	5.0	5.0	2.0	5.0	2.0
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0					3.0	3.0		3.0	
Recall Mode	None	None	None					C-Min	C-Min		C-Min	
Act Effct Green (s)	26.0	26.0	26.0					54.0	54.0		54.0	90.0
Actuated g/C Ratio	0.29	0.29	0.29					0.60	0.60		0.60	1.00
v/c Ratio	0.81	0.94	0.94					0.78	0.93		0.57	0.34
Control Delay	35.4	64.2	64.2					15.8	35.2		13.9	0.8
Queue Delay	0.0	0.0	0.0					0.0	0.0		0.0	0.0
Total Delay	35.4	64.2	64.2					15.8	35.2		13.9	0.8
LOS	D	E	E					B	D		B	A
Approach Delay		47.2						21.1			10.8	
Approach LOS		D						C			B	

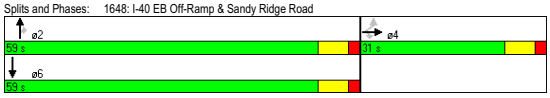
1648: I-40 EB Off-Ramp & Sandy Ridge Road

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 50th (ft)	209	227	227					321	396		252	0
Queue Length 95th (ft)	260	#412	#412					385	#688		329	15
Internal Link Dist (ft)		241			849			415			810	
Turn Bay Length (ft)	250								400			750
Base Capacity (vph)	1379	416	416					2905	904		2964	1538
Starvation Cap Reductn	0	0	0					0	0		0	0
Spillback Cap Reductn	0	0	0					0	0		0	0
Storage Cap Reductn	0	0	0					0	0		0	0
Reduced v/c Ratio	0.81	0.94	0.94					0.78	0.93		0.57	0.34

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 54 (60%), Referenced to phase 2:NBT and 6:SBT, Start of Green
Natural Cycle: 70
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.94
Intersection Signal Delay: 24.8 — Intersection LOS: C
Intersection Capacity Utilization 69.6% — ICU Level of Service C
Analysis Period (min) 15
\# 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 1648: I-40 EB Off-Ramp & Sandy Ridge Road



1818: Market Street & NC 68 NB Ramps

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (vph)	556	1069	1448	203	52	323
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Grade (%)		-1%	0%		-2%	
Storage Length (ft)	275			400	0	0
Storage Lanes	1			1	1	1
Taper Length (ft)	75			25	25	25
Lane Util. Factor	1.00	0.95	0.95	1.00	1.00	1.00
Frt				0.850		0.850
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1728	3455	3438	1538	1736	1553
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	1728	3455	3438	1538	1736	1553
Right Turn on Red				No		No
Satd. Flow (RTOR)						
Link Speed (mph)		45	45		30	
Link Distance (ft)		849	543		531	
Travel Time (s)		12.9	8.2		12.1	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	618	1188	1609	226	58	359
Shared Lane Traffic (%)						
Lane Group Flow (vph)	618	1188	1609	226	58	359
Turn Type	Prot			pm+ov		pm+ov
Protected Phases	5	2	6	4	4	5
Permitted Phases				6		4
Detector Phase	5	2	6	4	4	5
Switch Phase						
Minimum Initial (s)	6.0	15.0	15.0	7.0	7.0	6.0
Minimum Split (s)	14.0	22.0	22.0	17.0	17.0	14.0
Total Split (s)	63.0	143.0	80.0	17.0	17.0	63.0
Total Split (%)	39.4%	89.4%	50.0%	10.6%	10.6%	39.4%
Maximum Green (s)	56.0	136.0	73.0	10.0	10.0	56.0
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead		Lag			Lead
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	C-Min	C-Min	None	None	None
Act Effct Green (s)	58.8	138.8	75.0	91.2	11.2	75.0
Actuated g/C Ratio	0.37	0.87	0.47	0.57	0.07	0.47
v/c Ratio	0.97	0.40	1.00	0.26	0.48	0.49
Control Delay	80.0	1.7	63.9	18.2	84.7	32.3
Queue Delay	0.0	0.1	0.0	0.0	0.0	0.0
Total Delay	80.0	1.8	63.9	18.2	84.7	32.3
LOS	E	A	E	B	F	C
Approach Delay		28.5	58.3		39.6	
Approach LOS		C	E		D	

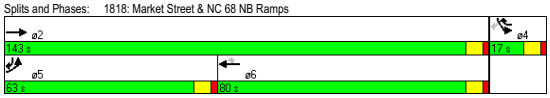
1818: Market Street & NC 68 NB Ramps

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Queue Length 50th (ft)	686	70	873	114	59	256
Queue Length 95th (ft)	m#793	m73	#1054	166	110	354
Internal Link Dist (ft)		769	463		451	
Turn Bay Length (ft)	275			400		
Base Capacity (vph)	635	2997	1612	884	130	728
Starvation Cap Reductn	0	699	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.97	0.52	1.00	0.26	0.45	0.49

Intersection Summary

Area Type: Other
Cycle Length: 160
Actuated Cycle Length: 160
Offset: 142 (89%), Referenced to phase 2:EBT and 6:WBT, Start of Green
Natural Cycle: 140
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.00
Intersection Signal Delay: 43.1 — Intersection LOS: D
Intersection Capacity Utilization 89.2% — ICU Level of Service E
Analysis Period (min) 15
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 1818: Market Street & NC 68 NB Ramps



2000: Market Street & Pleasant Ridge Road

Lane Group	EBL	EBT	WBU	WBT	WBR	SBL	SBR
Lane Configurations							
Volume (vph)	953	1672	0	1056	245	283	696
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900
Grade (%)		-3%		3%		-1%	
Storage Length (ft)	500		400		275	500	0
Storage Lanes	2		1		1	1	2
Taper Length (ft)	25		25		25	25	25
Lane Util. Factor	0.97	0.95	1.00	0.95	1.00	1.00	0.88
Frt					0.850		0.850
Flt Protected	0.950					0.950	
Satd. Flow (prot)	3385	3490	1782	3387	1515	1728	2721
Flt Permitted	0.950					0.950	
Satd. Flow (perm)	3385	3490	1782	3387	1515	1728	2721
Right Turn on Red					No		No
Satd. Flow (RTOR)							
Link Speed (mph)		45		45		50	
Link Distance (ft)		755		1642		1713	
Travel Time (s)		11.4		24.9		23.4	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	1059	1858	0	1173	272	314	773
Shared Lane Traffic (%)							
Lane Group Flow (vph)	1059	1858	0	1173	272	314	773
Turn Type	Prot		Perm		Perm		pm+ov
Protected Phases	1	6		2		4	1
Permitted Phases			2		2		4
Detector Phase	1	6	2	2	2	4	1
Switch Phase							
Minimum Initial (s)	6.0	15.0	15.0	15.0	15.0	8.0	6.0
Minimum Split (s)	14.0	21.0	21.0	21.0	21.0	17.0	14.0
Total Split (s)	42.0	88.0	46.0	46.0	46.0	27.0	42.0
Total Split (%)	36.5%	76.5%	40.0%	40.0%	40.0%	23.5%	36.5%
Maximum Green (s)	36.0	82.0	40.0	40.0	40.0	21.0	36.0
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag	Lead		Lag	Lag	Lag		Lead
Lead-Lag Optimize?							
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	C-Min	C-Min	C-Min	C-Min	None	None
Act Effct Green (s)	38.1	84.1		42.0	42.0	22.9	65.0
Actuated g/C Ratio	0.33	0.73		0.37	0.37	0.20	0.57
v/c Ratio	0.94	0.73		0.95	0.49	0.91	0.50
Control Delay	43.0	6.7		51.8	32.0	67.2	10.9
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0
Total Delay	43.0	6.7		51.8	32.0	67.2	10.9
LOS	D	A		D	C	E	B
Approach Delay		19.9		48.1		27.2	
Approach LOS		B		D		C	

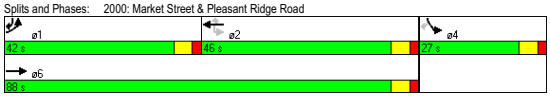
2000: Market Street & Pleasant Ridge Road

Lane Group	EBL	EBT	WBU	WBT	WBR	SBL	SBR
Queue Length 50th (ft)	378	289		439	154	154	101
Queue Length 95th (ft)	m323	m228		#584	238	#380	122
Internal Link Dist (ft)		675		1562		1633	
Turn Bay Length (ft)	500				275	500	
Base Capacity (vph)	1123	2553		1237	553	346	1538
Starvation Cap Reductn	0	0		0	0	0	0
Spillback Cap Reductn	0	0		0	0	0	0
Storage Cap Reductn	0	0		0	0	0	0
Reduced v/c Ratio	0.94	0.73		0.95	0.49	0.91	0.50

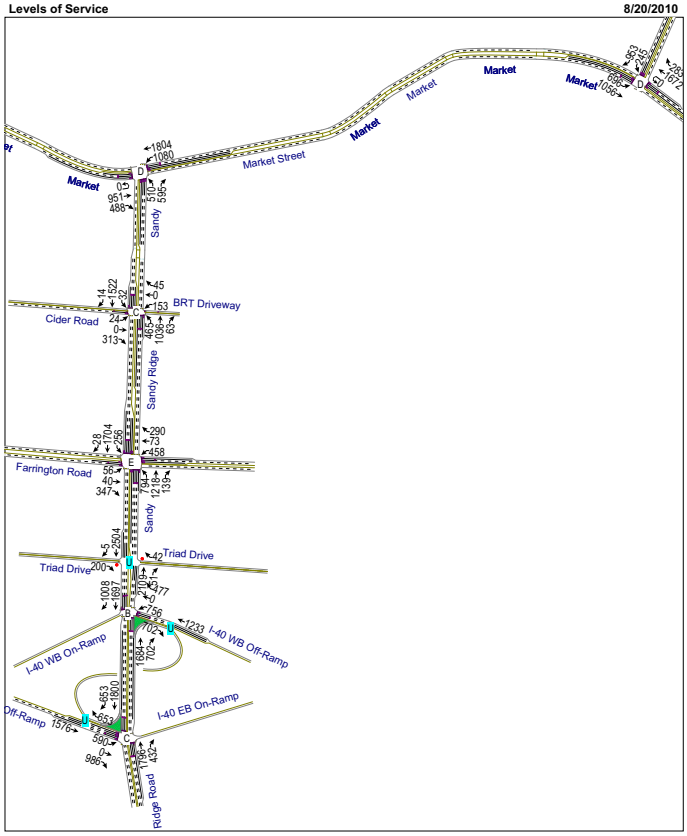
Intersection Summary

Area Type: Other
Cycle Length: 115
Actuated Cycle Length: 115
Offset: 52 (45%), Referenced to phase 2:WBTU and 6:EBT, Start of Green
Natural Cycle: 80
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.95
Intersection Signal Delay: 28.8 — Intersection LOS: C
Intersection Capacity Utilization 84.4% — ICU Level of Service E
Analysis Period (min) 15
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

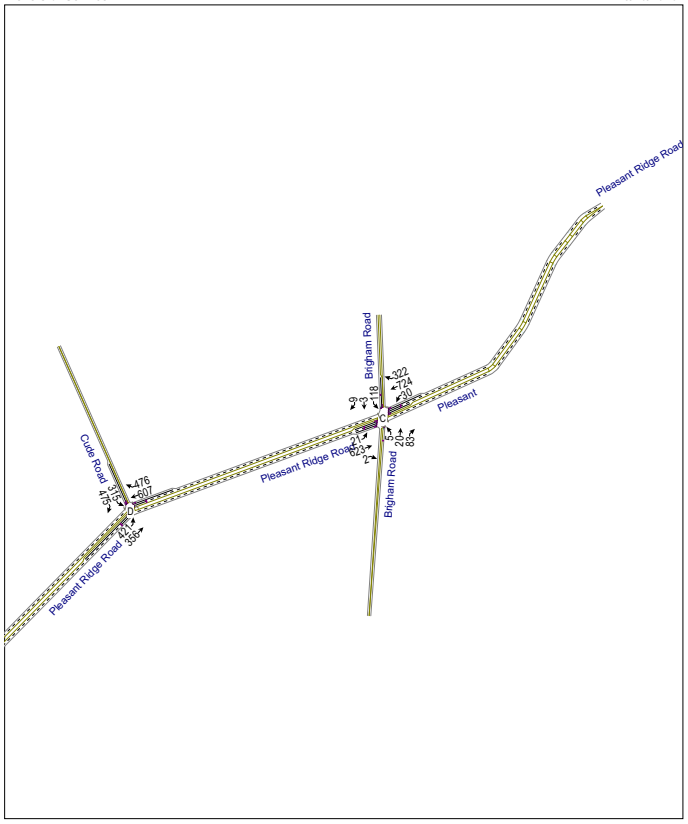
Splits and Phases: 2000: Market Street & Pleasant Ridge Road



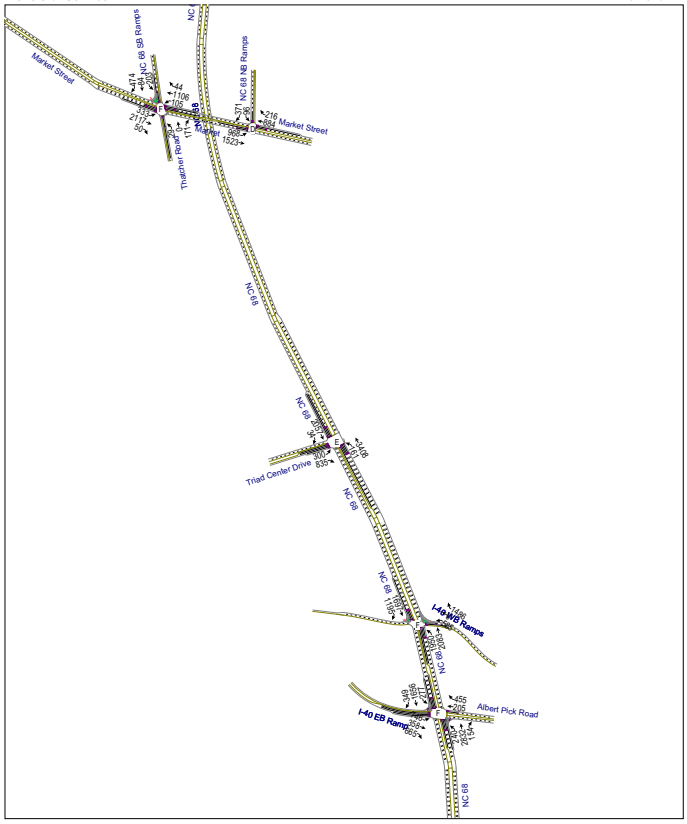
Map - Sandy Ridge Road Feasibility Study
Levels of Service — **8/20/2010**



Map - Sandy Ridge Road Feasibility Study
Levels of Service **8/20/2010**



Map - Sandy Ridge Road Feasibility Study
Levels of Service **1/27/2011**



Sandy Ridge Road Feasibility Study — Design Year (2035) Build Alt. #2 Loops - PM
1: Cider Road & Sandy Ridge Road

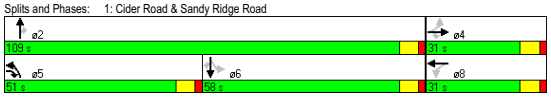
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	24	0	313	153	0	45	465	1036	63	32	1522	14
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	100		0	100		0	500		150	150		150
Storage Lanes	0		1	0		0	1		1	1		1
Taper Length (ft)	25		25	25		25	25		25	50		50
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.91	1.00	1.00	0.91	1.00
Frt			0.850		0.969				0.850			0.850
Flt Protected		0.950			0.963		0.950			0.950		
Satd. Flow (prot)	0	1719	1538	0	1689	0	1719	4940	1538	1719	4940	1538
Flt Permitted		0.713			0.757		0.950			0.234		
Satd. Flow (perm)	0	1290	1538	0	1327	0	1719	4940	1538	423	4940	1538
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		30			30			35			35	
Link Distance (ft)		909			308			1068			411	
Travel Time (s)		20.7			7.0			20.8			8.0	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	27	0	348	170	0	50	517	1151	70	36	1691	16
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	27	348	0	220	0	517	1151	70	36	1691	16
Turn Type	Perm		pm+ov	Perm			Prot		Perm	Perm		Perm
Protected Phases		4	5		8		5	2			6	
Permitted Phases	4		4	8					2	6		6
Detector Phase	4	4	5	8	8		5	2	2	6	6	6
Switch Phase												
Minimum Initial (s)	7.0	7.0	7.0	7.0	7.0		7.0	12.0	12.0	12.0	12.0	12.0
Minimum Split (s)	17.0	17.0	14.0	17.0	17.0		14.0	19.0	19.0	19.0	19.0	19.0
Total Split (s)	31.0	31.0	51.0	31.0	31.0	0.0	51.0	109.0	109.0	58.0	58.0	58.0
Total Split (%)	22.1%	22.1%	36.4%	22.1%	22.1%	0.0%	36.4%	77.9%	77.9%	41.4%	41.4%	41.4%
Maximum Green (s)	24.0	24.0	44.0	24.0	24.0		44.0	102.0	102.0	51.0	51.0	51.0
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0		2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	2.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag			Lead				Lead			Lag	Lag	Lag
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	None	None		None	C-Min	C-Min	C-Min	C-Min	C-Min
Act Effct Green (s)		25.5	75.3		25.5		44.9	104.5	104.5	54.7	54.7	54.7
Actuated g/C Ratio		0.18	0.54		0.18		0.32	0.75	0.75	0.39	0.39	0.39
v/c Ratio		0.11	0.42		0.91		0.94	0.31	0.06	0.22	0.88	0.03
Control Delay		49.0	20.9		95.2		74.2	8.3	7.8	19.2	25.7	16.9
Queue Delay		0.0	0.0		0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay		49.0	20.9		95.2		74.2	8.3	7.8	19.2	25.7	16.9
LOS		D	C		F		E	A	A	B	C	B
Approach Delay		22.9			95.2			27.9			25.5	
Approach LOS		C			F			C			C	
Queue Length 50th (ft)		21	178		198		465	108	15	11	356	5

Sandy Ridge Road Feasibility Study — Design Year (2035) Build Alt. #2 Loops - PM
1: Cider Road & Sandy Ridge Road

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 95th (ft)		50	255		#353		#677	215	m48	m14	m421	m6
Internal Link Dist (ft)		829			228			988			331	
Turn Bay Length (ft)							500		150	150		150
Base Capacity (vph)		240	840		246		565	3689	1149	165	1929	600
Starvation Cap Reductn		0	0		0		0	0	0	0	0	0
Spillback Cap Reductn		0	0		0		0	0	0	0	0	0
Storage Cap Reductn		0	0		0		0	0	0	0	0	0
Reduced v/c Ratio		0.11	0.41		0.89		0.92	0.31	0.06	0.22	0.88	0.03

Intersection Summary
Area Type: Other
Cycle Length: 140
Actuated Cycle Length: 140
Offset: 138 (99%), Referenced to phase 2:NBT and 6:SBTL, Start of Green
Natural Cycle: 90
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.94
Intersection Signal Delay: 30.0 Intersection LOS: C
Intersection Capacity Utilization 85.6% ICU Level of Service E
Analysis Period (min) 15
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 1: Cider Road & Sandy Ridge Road



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	56	40	347	458	73	290	794	1218	139	256	1704	28
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	200		0	300		350	550		150	250		300
Storage Lanes	1		1	1		1	1		1	2		1
Taper Length (ft)	100		25	25		25	100		25	100		100
Lane Util. Factor	1.00	1.00	1.00	0.97	1.00	1.00	0.97	0.91	1.00	0.97	0.91	1.00
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1547	1629	1384	3001	1629	1384	3001	4446	1384	3001	4446	1384
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1547	1629	1384	3001	1629	1384	3001	4446	1384	3001	4446	1384
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		30			30			35			35	
Link Distance (ft)		1686			875			711			1068	
Travel Time (s)		38.3			19.9			13.9			20.8	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	62	44	386	509	81	322	882	1353	154	284	1893	31
Shared Lane Traffic (%)												
Lane Group Flow (vph)	62	44	386	509	81	322	882	1353	154	284	1893	31
Turn Type	Prot		pm+ov	Prot		pm+ov	Prot		pm+ov	Prot		pm+ov
Protected Phases	7	4	5	3	8	1	5	2	3	1	6	7
Permitted Phases			4			8			2			6
Detector Phase	7	4	5	3	8	1	5	2	3	1	6	7
Switch Phase												
Minimum Initial (s)	7.0	7.0	7.0	7.0	7.0	7.0	7.0	15.0	7.0	7.0	15.0	7.0
Minimum Split (s)	14.0	17.0	14.0	14.0	17.0	14.0	14.0	22.0	14.0	14.0	22.0	14.0
Total Split (s)	16.0	17.0	40.0	25.0	26.0	32.0	40.0	66.0	25.0	32.0	58.0	16.0
Total Split (%)	11.4%	12.1%	28.6%	17.9%	18.6%	22.9%	28.6%	47.1%	17.9%	22.9%	41.4%	11.4%
Maximum Green (s)	9.0	10.0	33.0	18.0	19.0	25.0	33.0	59.0	18.0	25.0	51.0	9.0
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead	Lag	Lead	Lead	Lag	Lead	Lead	Lag	Lead	Lead	Lag	Lead
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	None	None	None	None	C-Max	None	None	C-Max	None
Act Effct Green (s)	10.6	10.8	52.0	20.0	20.2	46.1	39.0	71.1	96.1	20.9	53.0	68.6
Actuated g/C Ratio	0.08	0.08	0.37	0.14	0.14	0.33	0.28	0.51	0.69	0.15	0.38	0.49
v/c Ratio	0.53	0.35	0.75	1.19	0.35	0.71	1.05	0.60	0.16	0.63	1.12	0.05
Control Delay	78.8	68.9	49.1	155.6	58.4	49.7	94.4	27.4	9.9	41.0	77.4	35.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	78.8	68.9	49.1	155.6	58.4	49.7	94.4	27.4	9.9	41.0	77.4	35.7
LOS	E	E	D	F	E	D	F	C	A	D	E	D
Approach Delay		54.6			109.6			51.0			72.1	
Approach LOS		D			F			D			E	
Queue Length 50th (ft)	55	39	305	~287	67	257	~485	324	49	129	~723	19

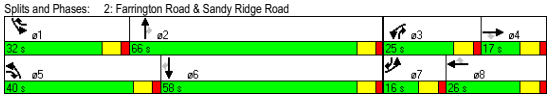
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 95th (ft)	106	80	439	#402	120	345	#625	417	93	m159	#806	m38
Internal Link Dist (ft)		1606			795			631			988	
Turn Bay Length (ft)	200			300		350	550		150	250		300
Base Capacity (vph)	122	140	514	429	244	516	837	2258	950	579	1683	682
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.51	0.31	0.75	1.19	0.33	0.62	1.05	0.60	0.16	0.49	1.12	0.05

Intersection Summary

Area Type: CBD
Cycle Length: 140
Actuated Cycle Length: 140
Offset: 18 (13%), Referenced to phase 2:NBT and 6:SBT, Start of Green
Natural Cycle: 180
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.19
Intersection Signal Delay: 68.0 — Intersection LOS: E
Intersection Capacity Utilization 95.4% — ICU Level of Service F
Analysis Period (min) 15

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 2: Farrington Road & Sandy Ridge Road



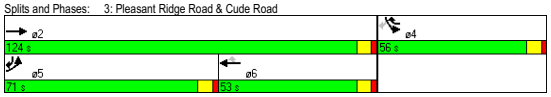
Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (vph)	421	356	607	476	315	475
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	450			300	0	300
Storage Lanes	1			1	1	1
Taper Length (ft)	25			25	25	25
Lane Util. Factor	1.00	0.95	0.95	1.00	1.00	1.00
Frt				0.850		0.850
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1719	3438	3438	1538	1719	1538
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	1719	3438	3438	1538	1719	1538
Right Turn on Red				No		No
Satd. Flow (RTOR)						
Link Speed (mph)		50	50		45	
Link Distance (ft)		1731	1912		1274	
Travel Time (s)		23.6	26.1		19.3	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	468	396	674	529	350	528
Shared Lane Traffic (%)						
Lane Group Flow (vph)	468	396	674	529	350	528
Turn Type	Prot			pm+ov		pm+ov
Protected Phases	5	2	6	4	4	5
Permitted Phases				6		4
Detector Phase	5	2	6	4	4	5
Switch Phase						
Minimum Initial (s)	7.0	14.0	14.0	7.0	7.0	7.0
Minimum Split (s)	14.0	21.0	21.0	17.0	17.0	14.0
Total Split (s)	71.0	124.0	53.0	56.0	56.0	71.0
Total Split (%)	39.4%	68.9%	29.4%	31.1%	31.1%	39.4%
Maximum Green (s)	64.0	117.0	46.0	49.0	49.0	64.0
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead		Lag			Lead
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	C-Max	C-Max	Max	Max	None
Act Effct Green (s)	56.7	119.0	57.3	113.3	51.0	112.7
Actuated g/C Ratio	0.32	0.66	0.32	0.63	0.28	0.63
v/c Ratio	0.86	0.17	0.62	0.55	0.72	0.55
Control Delay	74.0	11.9	43.7	23.2	67.7	20.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	74.0	11.9	43.7	23.2	67.7	20.9
LOS	E	B	D	C	E	C
Approach Delay		45.5	34.7		39.6	
Approach LOS		D	C		D	
Queue Length 50th (ft)	520	90	360	449	375	337

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Queue Length 95th (ft)	630	114	463	653	504	383
Internal Link Dist (ft)		1651	1832		1194	
Turn Bay Length (ft)	450			300		300
Base Capacity (vph)	630	2273	1094	968	487	1042
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.74	0.17	0.62	0.55	0.72	0.51

Intersection Summary

Area Type: Other
Cycle Length: 180
Actuated Cycle Length: 180
Offset: 100 (56%), Referenced to phase 2:EBT and 6:WBT, Start of Green
Natural Cycle: 70
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.86
Intersection Signal Delay: 39.3 — Intersection LOS: D
Intersection Capacity Utilization 70.1% — ICU Level of Service C
Analysis Period (min) 15

Splits and Phases: 3: Pleasant Ridge Road & Cude Road



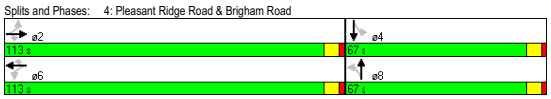
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	21	623	2	30	724	322	5	20	83	118	3	9
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	150		150	150		250	0		0	200		0
Storage Lanes	1		1	1		1	0		0	1		0
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850			0.850		0.896			0.885	
Flt Protected	0.950			0.950				0.998		0.950		
Satd. Flow (prot)	1719	3438	1538	1719	3438	1538	0	1618	0	1719	1601	0
Flt Permitted	0.293			0.341				0.992		0.634		
Satd. Flow (perm)	530	3438	1538	617	3438	1538	0	1608	0	1147	1601	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		50			50			45			30	
Link Distance (ft)		1912			850			1411			730	
Travel Time (s)		26.1			11.6			21.4			16.6	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	23	692	2	33	804	358	6	22	92	131	3	10
Shared Lane Traffic (%)												
Lane Group Flow (vph)	23	692	2	33	804	358	0	120	0	131	13	0
Turn Type	Perm		Perm	Perm		Perm	Perm			Perm		
Protected Phases		2			6			8			4	
Permitted Phases	2		2	6		6	8			4		
Detector Phase	2	2	2	6	6	6	8	8		4	4	
Switch Phase												
Minimum Initial (s)	14.0	14.0	14.0	14.0	14.0	14.0	7.0	7.0		7.0	7.0	
Minimum Split (s)	21.0	21.0	21.0	21.0	21.0	21.0	17.0	17.0		17.0	17.0	
Total Split (s)	113.0	113.0	113.0	113.0	113.0	113.0	67.0	67.0	0.0	67.0	67.0	0.0
Total Split (%)	62.8%	62.8%	62.8%	62.8%	62.8%	62.8%	37.2%	37.2%	0.0%	37.2%	37.2%	0.0%
Maximum Green (s)	106.0	106.0	106.0	106.0	106.0	106.0	60.0	60.0		60.0	60.0	
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0		5.0	5.0	
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	2.0	5.0	5.0	2.0
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Recall Mode	C-Max	C-Max	C-Max	C-Max	C-Max	C-Max	Max	Max		Max	Max	
Act Effct Green (s)	108.0	108.0	108.0	108.0	108.0	108.0		62.0		62.0	62.0	
Actuated g/C Ratio	0.60	0.60	0.60	0.60	0.60	0.60		0.34		0.34	0.34	
v/c Ratio	0.07	0.34	0.00	0.09	0.39	0.39		0.22		0.33	0.02	
Control Delay	16.5	22.4	14.0	16.1	19.5	20.3		43.1		46.6	39.3	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0		0.0		0.0	0.0	
Total Delay	16.5	22.4	14.0	16.1	19.5	20.3		43.1		46.6	39.3	
LOS	B	C	B	B	B	C		D		D	D	
Approach Delay		22.2			19.6			43.1			46.0	
Approach LOS		C			B			D			D	
Queue Length 50th (ft)	15	334	1	16	253	214		101		115	10	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 95th (ft)	m27	396	m4	35	299	289		159		182	29	
Internal Link Dist (ft)		1832			770			1331			650	
Turn Bay Length (ft)	150		150	150		250				200		
Base Capacity (vph)	318	2063	923	370	2063	923		554		395	551	
Starvation Cap Reductn	0	0	0	0	0	0		0		0	0	
Spillback Cap Reductn	0	0	0	0	0	0		0		0	0	
Storage Cap Reductn	0	0	0	0	0	0		0		0	0	
Reduced v/c Ratio	0.07	0.34	0.00	0.09	0.39	0.39		0.22		0.33	0.02	

Intersection Summary

Area Type: Other
Cycle Length: 180
Actuated Cycle Length: 180
Offset: 42 (23%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green
Natural Cycle: 40
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.39
Intersection Signal Delay: 23.5 Intersection LOS: C
Intersection Capacity Utilization 50.5% ICU Level of Service A
Analysis Period (min) 15
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 4: Pleasant Ridge Road & Brigham Road



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	746	358	665	0	205	455	240	2832	154	277	1656	349
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		-2%			2%			-1%			1%	
Storage Length (ft)	438		325	0		0	250		275	300		275
Storage Lanes	2		1	0		1	1		1	1		1
Taper Length (ft)	100		25	25		25	25		25	25		25
Lane Util. Factor	0.97	1.00	1.00	1.00	1.00	1.00	1.00	0.91	1.00	1.00	0.91	1.00
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950						0.950			0.950		
Satd. Flow (prot)	3368	1828	1553	0	1791	1523	1728	4965	1546	1710	4915	1530
Flt Permitted	0.950						0.950			0.950		
Satd. Flow (perm)	3368	1828	1553	0	1791	1523	1728	4965	1546	1710	4915	1530
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		35			35			55			55	
Link Distance (ft)		867			502			480			821	
Travel Time (s)		16.9			9.8			6.0			10.2	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	829	398	739	0	228	506	267	3147	171	308	1840	388
Shared Lane Traffic (%)												
Lane Group Flow (vph)	829	398	739	0	228	506	267	3147	171	308	1840	388
Turn Type	Prot		pm+ov			pm+ov	Prot		Perm	Prot		pm+ov
Protected Phases	7	4	5		8	1	5	2		1	6	7
Permitted Phases			4			8			2			6
Detector Phase	7	4	5		8	1	5	2	2	1	6	7
Switch Phase												
Minimum Initial (s)	7.0	7.0	7.0		7.0	7.0	7.0	14.0	14.0	7.0	14.0	7.0
Minimum Split (s)	14.0	17.0	14.0		17.0	14.0	14.0	21.0	21.0	14.0	21.0	14.0
Total Split (s)	37.0	61.0	36.0	0.0	24.0	28.0	36.0	91.0	91.0	28.0	83.0	37.0
Total Split (%)	20.6%	33.9%	20.0%	0.0%	13.3%	15.6%	20.0%	50.6%	50.6%	15.6%	46.1%	20.6%
Maximum Green (s)	30.0	54.0	29.0		17.0	21.0	29.0	84.0	84.0	21.0	76.0	30.0
Yellow Time (s)	5.0	5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0		2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	2.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead		Lead		Lag	Lead	Lead	Lag	Lag	Lead	Lag	Lead
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None		None	None	None	C-Min	C-Min	None	C-Min	None
Act Effct Green (s)	32.0	56.0	91.5		19.0	47.0	30.5	86.0	86.0	23.0	78.5	115.5
Actuated g/C Ratio	0.18	0.31	0.51		0.11	0.26	0.17	0.48	0.48	0.13	0.44	0.64
v/c Ratio	1.38	0.70	0.94		1.21	1.27	0.91	1.33	0.23	1.41	0.86	0.40
Control Delay	233.7	62.3	61.4		194.9	191.6	106.3	187.9	28.7	247.3	16.6	10.8
Queue Delay	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	3.0	0.0
Total Delay	233.7	62.3	61.4		194.9	191.6	106.3	187.9	28.7	247.3	19.6	10.8
LOS	F	E	E		F	F	F	F	C	F	B	B
Approach Delay		134.2			192.6			174.2			45.9	
Approach LOS		F			F			F			D	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 50th (ft)	~667	417	803		~326	~751	314	~1756	118	~479	594	271
Queue Length 95th (ft)	#803	550	#1096		#515	#991	#487	#1807	174	m#531	m511	m239
Internal Link Dist (ft)		787			422			400			741	
Turn Bay Length (ft)	438		325				250		275	300		275
Base Capacity (vph)	599	569	794		189	398	298	2372	739	219	2144	982
Starvation Cap Reductn	0	0	0		0	0	0	0	0	0	208	0
Spillback Cap Reductn	0	0	0		0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0		0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.38	0.70	0.93		1.21	1.27	0.90	1.33	0.23	1.41	0.95	0.40

Intersection Summary

Area Type: Other
Cycle Length: 180
Actuated Cycle Length: 180
Offset: 42 (23%), Referenced to phase 2:NBT and 6:SBT, Start of Green
Natural Cycle: 180
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.41
Intersection Signal Delay: 129.9 Intersection LOS: F
Intersection Capacity Utilization 118.8% ICU Level of Service H
Analysis Period (min) 15
~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 251: I-40 EB Ramp & NC 68

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	0	0	585	0	1486	1950	2083	0	0	1697	1195
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		0%			-2%			0%			-1%	
Storage Length (ft)	0		0	200		0	325		0	0		400
Storage Lanes	0		0	1		1	2		0	0		1
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	1.00	1.00	1.00	0.95	0.95	1.00	0.97	0.91	1.00	1.00	0.91	1.00
Frt						0.850						0.850
Flt Protected				0.950	0.950		0.950					
Satd. Flow (prot)	0	0	0	1649	1649	1553	3335	4940	0	0	4965	1546
Flt Permitted				0.950	0.950		0.950					
Satd. Flow (perm)	0	0	0	1649	1649	1553	3335	4940	0	0	4965	1546
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		30			35			55			55	
Link Distance (ft)		712			820			821			1007	
Travel Time (s)		16.2			16.0			10.2			12.5	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	0	0	0	650	0	1651	2167	2314	0	0	1886	1328
Shared Lane Traffic (%)				50%								
Lane Group Flow (vph)	0	0	0	325	325	1651	2167	2314	0	0	1886	1328
Turn Type				Perm		Free	Prot					Perm
Protected Phases					4		1	6			2	
Permitted Phases				4		Free						2
Detector Phase				4	4		1	6			2	2
Switch Phase												
Minimum Initial (s)				7.0	7.0		7.0	14.0			14.0	14.0
Minimum Split (s)				17.0	17.0		14.0	21.0			21.0	21.0
Total Split (s)	0.0	0.0	0.0	27.0	27.0	0.0	65.0	153.0	0.0	0.0	88.0	88.0
Total Split (%)	0.0%	0.0%	0.0%	15.0%	15.0%	0.0%	36.1%	85.0%	0.0%	0.0%	48.9%	48.9%
Maximum Green (s)				20.0	20.0		58.0	146.0			81.0	81.0
Yellow Time (s)				5.0	5.0		5.0	5.0			5.0	5.0
All-Red Time (s)				2.0	2.0		2.0	2.0			2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	2.0	2.0	2.0	5.0	5.0	2.0	5.0	5.0	2.0	2.0	5.0	5.0
Lead/Lag							Lead				Lag	Lag
Lead-Lag Optimize?												
Vehicle Extension (s)				3.0	3.0		3.0	3.0			3.0	3.0
Recall Mode				None	None		None	C-Min			C-Min	C-Min
Act Effct Green (s)				22.0	22.0	180.0	60.0	148.0			83.0	83.0
Actuated g/C Ratio				0.12	0.12	1.00	0.33	0.82			0.46	0.46
v/c Ratio				1.61	1.61	1.06	1.95	0.57			0.82	1.86
Control Delay				340.5	340.5	46.0	456.1	10.5			40.8	418.1
Queue Delay				0.0	0.0	0.0	0.0	2.8			0.0	0.0
Total Delay				340.5	340.5	46.0	456.1	13.3			40.8	418.1
LOS				F	F	D	F	B			D	F
Approach Delay					129.2			227.5			196.7	
Approach LOS					F			F			F	

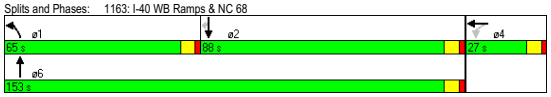
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 50th (ft)				~576	~576	~240	~2065	483			699	~2391
Queue Length 95th (ft)				#801	#801	#494	m#1376	m306			m688	m#2429
Internal Link Dist (ft)		632			740			741			927	
Turn Bay Length (ft)				200			325					400
Base Capacity (vph)				202	202	1553	1112	4062			2289	713
Starvation Cap Reductn				0	0	0	0	1594			0	0
Spillback Cap Reductn				0	0	0	0	0			0	0
Storage Cap Reductn				0	0	0	0	0			0	0
Reduced v/c Ratio				1.61	1.61	1.06	1.95	0.94			0.82	1.86

Intersection Summary

Area Type: Other
Cycle Length: 180
Actuated Cycle Length: 180
Offset: 0 (0%), Referenced to phase 2:SBT and 6:NBT, Start of Green
Natural Cycle: 180
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.95
Intersection Signal Delay: 195.0 — Intersection LOS: F
Intersection Capacity Utilization 158.3% — ICU Level of Service H
Analysis Period (min) 15

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 1163: I-40 WB Ramps & NC 68



Lane Group	EBU	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations							
Volume (vph)	0	951	488	1080	1804	510	595
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900
Grade (%)		1%			-1%	0%	
Storage Length (ft)	200		600	600		450	0
Storage Lanes	1		1	2		1	1
Taper Length (ft)	25		25	25		25	25
Lane Util. Factor	1.00	0.95	1.00	0.97	0.95	0.97	0.88
Frt			0.850				0.850
Flt Protected				0.950		0.950	
Satd. Flow (prot)	1800	3421	1530	3352	3455	3335	2707
Flt Permitted				0.950		0.950	
Satd. Flow (perm)	1800	3421	1530	3352	3455	3335	2707
Right Turn on Red			No				No
Satd. Flow (RTOR)							
Link Speed (mph)		45			45	35	
Link Distance (ft)		751			1348	590	
Travel Time (s)		11.4			20.4	11.5	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	0	1057	542	1200	2004	567	661
Shared Lane Traffic (%)							
Lane Group Flow (vph)	0	1057	542	1200	2004	567	661
Turn Type	Perm		pm+ov	Prot			pm+ov
Protected Phases		6	4	5	2	4	5
Permitted Phases	6		6				4
Detector Phase	6	6	4	5	2	4	5
Switch Phase							
Minimum Initial (s)	15.0	15.0	7.0	7.0	15.0	7.0	7.0
Minimum Split (s)	22.0	22.0	17.0	14.0	22.0	17.0	14.0
Total Split (s)	52.0	52.0	31.0	57.0	109.0	31.0	57.0
Total Split (%)	37.1%	37.1%	22.1%	40.7%	77.9%	22.1%	40.7%
Maximum Green (s)	45.0	45.0	24.0	50.0	102.0	24.0	50.0
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lag	Lag		Lead			Lead
Lead-Lag Optimize?							
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	C-Min	C-Min	None	None	C-Min	None	None
Act Effct Green (s)		46.5	77.7	52.3	103.8	26.2	83.5
Actuated g/C Ratio		0.33	0.56	0.37	0.74	0.19	0.60
v/c Ratio		0.93	0.64	0.96	0.78	0.91	0.41
Control Delay		59.6	25.7	51.7	14.4	67.9	18.5
Queue Delay		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay		59.6	25.7	51.7	14.4	67.9	18.5
LOS		E	C	D	B	E	B
Approach Delay		48.1			28.4	41.3	
Approach LOS		D			C	D	

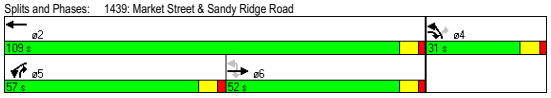
Lane Group	EBU	EBT	EBR	WBL	WBT	NBL	NBR
Queue Length 50th (ft)		486	327	553	554	211	197
Queue Length 95th (ft)		#617	454	m565	m557	m#345	m160
Internal Link Dist (ft)		671			1268	510	
Turn Bay Length (ft)			600	600		450	
Base Capacity (vph)		1148	849	1252	2567	623	1614
Starvation Cap Reductn		0	0	0	0	0	0
Spillback Cap Reductn		0	0	0	0	0	0
Storage Cap Reductn		0	0	0	0	0	0
Reduced v/c Ratio		0.92	0.64	0.96	0.78	0.91	0.41

Intersection Summary

Area Type: Other
Cycle Length: 140
Actuated Cycle Length: 140
Offset: 38 (27%), Referenced to phase 2:WBT and 6:EBTU, Start of Green
Natural Cycle: 90
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.96
Intersection Signal Delay: 36.2 — Intersection LOS: D
Intersection Capacity Utilization 89.4% — ICU Level of Service E
Analysis Period (min) 15

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 1439: Market Street & Sandy Ridge Road



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	300	835	161	3408	2057	34
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Grade (%)	-3%			-2%	-1%	
Storage Length (ft)	263	200	625			438
Storage Lanes	2	1	1			2
Taper Length (ft)	25	25	25			25
Lane Util. Factor	0.97	0.88	0.97	0.91	0.91	1.00
Frt		0.850				0.850
Flt Protected	0.950		0.950			
Satd. Flow (prot)	3385	2748	3368	4989	4965	1546
Flt Permitted	0.950		0.950			
Satd. Flow (perm)	3385	2748	3368	4989	4965	1546
Right Turn on Red		No				No
Satd. Flow (RTOR)						
Link Speed (mph)	30			55	55	
Link Distance (ft)	638			799	1245	
Travel Time (s)	14.5			9.9	15.4	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	333	928	179	3787	2286	38
Shared Lane Traffic (%)						
Lane Group Flow (vph)	333	928	179	3787	2286	38
Turn Type		Prot	Prot			pm+ov
Protected Phases	4	4	5	2	6	4
Permitted Phases						6
Detector Phase	4	4	5	2	6	4
Switch Phase						
Minimum Initial (s)	7.0	7.0	7.0	14.0	14.0	7.0
Minimum Split (s)	17.0	17.0	14.0	21.0	21.0	17.0
Total Split (s)	56.0	56.0	20.0	124.0	104.0	56.0
Total Split (%)	31.1%	31.1%	11.1%	68.9%	57.8%	31.1%
Maximum Green (s)	49.0	49.0	13.0	117.0	97.0	49.0
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag			Lead		Lag	
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	C-Min	C-Min	None
Act Effct Green (s)	51.0	51.0	14.6	119.0	99.4	155.4
Actuated g/C Ratio	0.28	0.28	0.08	0.66	0.55	0.86
v/c Ratio	0.35	1.19	0.66	1.15	0.83	0.03
Control Delay	52.5	152.0	89.5	89.9	37.0	1.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	52.5	152.0	89.5	89.9	37.0	1.8
LOS	D	F	F	F	D	A
Approach Delay	125.8			89.8	36.4	
Approach LOS	F			F	D	

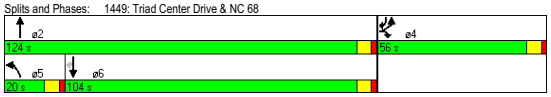
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Queue Length 50th (ft)	162	~748	105	~1927	808	5
Queue Length 95th (ft)	211	#900	m128	m#1829	868	10
Internal Link Dist (ft)	558			719	1165	
Turn Bay Length (ft)	263	200	625			438
Base Capacity (vph)	959	779	281	3298	2743	1335
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.35	1.19	0.64	1.15	0.83	0.03

Intersection Summary

Area Type: Other
Cycle Length: 180
Actuated Cycle Length: 180
Offset: 92 (51%), Referenced to phase 2:NBT and 6:SBT, Start of Green
Natural Cycle: 160
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.19
Intersection Signal Delay: 79.4 — Intersection LOS: E
Intersection Capacity Utilization 82.7% — ICU Level of Service E
Analysis Period (min) 15

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 1449: Triad Center Drive & NC 68



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	333	2117	50	105	1106	44	29	0	171	203	84	474
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		300	275		275	400		0	0		250
Storage Lanes	1		1	1		1	1		0	1		1
Taper Length (ft)	25		25	75		25	25		25	25		25
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	0.95	0.95	1.00
Frt			0.850			0.850		0.850				0.850
Flt Protected	0.950			0.950			0.950			0.950	0.979	
Satd. Flow (prot)	1719	3438	1538	1719	3438	1538	1719	1538	0	1633	1683	1538
Flt Permitted	0.950			0.950			0.950			0.950	0.979	
Satd. Flow (perm)	1719	3438	1538	1719	3438	1538	1719	1538	0	1633	1683	1538
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		45			45			55			35	
Link Distance (ft)		630			849			475			493	
Travel Time (s)		9.5			12.9			5.9			9.6	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	370	2352	56	117	1229	49	32	0	190	226	93	527
Shared Lane Traffic (%)										30%		
Lane Group Flow (vph)	370	2352	56	117	1229	49	32	190	0	158	161	527
Turn Type	Prot		pm+ov	Prot		pm+ov	Split			Split		pm+ov
Protected Phases	5	2	8	1	6	4	8	8		4	4	5
Permitted Phases			2			6						4
Detector Phase	5	2	8	1	6	4	8	8		4	4	5
Switch Phase												
Minimum Initial (s)	7.0	12.0	7.0	7.0	12.0	7.0	7.0	7.0		7.0	7.0	7.0
Minimum Split (s)	14.0	19.0	17.0	14.0	19.0	17.0	17.0	17.0		17.0	17.0	14.0
Total Split (s)	40.0	90.0	19.0	14.0	64.0	17.0	19.0	19.0	0.0	17.0	17.0	40.0
Total Split (%)	28.6%	64.3%	13.6%	10.0%	45.7%	12.1%	13.6%	13.6%	0.0%	12.1%	12.1%	28.6%
Maximum Green (s)	33.0	83.0	12.0	7.0	57.0	10.0	12.0	12.0		10.0	10.0	33.0
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0		5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0		2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	2.0	5.0	5.0	5.0
Lead/Lag	Lead	Lag		Lead	Lag							Lead
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0
Recall Mode	None	C-Min	Min	None	C-Max	None	Min	Min		None	None	None
Act Effct Green (s)	35.0	85.0	99.0	9.0	59.0	76.0	14.0	14.0		12.0	12.0	47.0
Actuated g/C Ratio	0.25	0.61	0.71	0.06	0.42	0.54	0.10	0.10		0.09	0.09	0.34
v/c Ratio	0.86	1.13	0.05	1.05	0.85	0.06	0.19	1.23		1.13	1.12	1.02
Control Delay	68.3	88.2	2.7	120.3	58.8	33.6	60.8	199.1		170.4	166.3	84.8
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	68.3	88.2	2.7	120.3	58.8	33.6	60.8	199.1		170.4	166.3	84.8
LOS	E	F	A	F	E	C	E	F		F	F	F
Approach Delay		83.9			63.1			179.1			116.3	
Approach LOS		F			E			F			F	
Queue Length 50th (ft)	290	~1318	6	~112	606	40	27	~214		~174	~176	~365

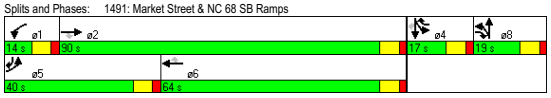
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 95th (ft)	m#466	m#1411	m11	m#138	m593	m47	62	#374		#332	#333	#687
Internal Link Dist (ft)		550			769			395			413	
Turn Bay Length (ft)			300	275		275	400					250
Base Capacity (vph)	430	2087	1088	111	1449	835	172	154		140	144	516
Starvation Cap Reductn	0	0	0	0	0	0	0	0		0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0		0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0		0	0	0
Reduced v/c Ratio	0.86	1.13	0.05	1.05	0.85	0.06	0.19	1.23		1.13	1.12	1.02

Intersection Summary

Area Type: Other
Cycle Length: 140
Actuated Cycle Length: 140
Offset: 72 (51%), Referenced to phase 2:EBT and 6:WBT, Start of Green
Natural Cycle: 160
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.23
Intersection Signal Delay: 87.6 — Intersection LOS: F
Intersection Capacity Utilization 99.4% — ICU Level of Service F
Analysis Period (min) 15

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 1491: Market Street & NC 68 SB Ramps



1601: I-40 WB On-Ramp & Sandy Ridge Road

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	0	0	756	0	477	0	1684	702	0	1697	1008
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		0%			2%			-4%			4%	
Storage Length (ft)	0		0	0		0	0		750	0		0
Storage Lanes	0		0	1		1	1		1	1		1
Taper Length (ft)	25		25	25		25	100		100	25		25
Lane Util. Factor	1.00	1.00	1.00	0.95	0.91	0.95	1.00	0.91	1.00	1.00	0.91	1.00
Frt					0.968	0.850			0.850			0.850
Flt Protected				0.950	0.962							
Satd. Flow (prot)	0	0	0	1617	1518	1447	0	5039	1569	0	4841	1507
Flt Permitted				0.950	0.962							
Satd. Flow (perm)	0	0	0	1617	1518	1447	0	5039	1569	0	4841	1507
Right Turn on Red			No			No			No			Yes
Satd. Flow (RTOR)												1091
Link Speed (mph)		30			35			45			45	
Link Distance (ft)		897			323			890			361	
Travel Time (s)		20.4			6.3			13.5			5.5	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	0	0	0	840	0	530	0	1871	780	0	1886	1120
Shared Lane Traffic (%)				44%		19%						
Lane Group Flow (vph)	0	0	0	470	471	429	0	1871	780	0	1886	1120
Turn Type				Perm		Perm			Free			Perm
Protected Phases					8			2			6	
Permitted Phases				8		8			Free			6
Detector Phase				8	8	8		2			6	6
Switch Phase												
Minimum Initial (s)				7.0	7.0	7.0		15.0			15.0	15.0
Minimum Split (s)				17.0	17.0	17.0		22.0			22.0	22.0
Total Split (s)	0.0	0.0	0.0	39.0	39.0	39.0	0.0	51.0	0.0	0.0	51.0	51.0
Total Split (%)	0.0%	0.0%	0.0%	43.3%	43.3%	43.3%	0.0%	56.7%	0.0%	0.0%	56.7%	56.7%
Maximum Green (s)				32.0	32.0	32.0		44.0			44.0	44.0
Yellow Time (s)				5.0	5.0	5.0		5.0			5.0	5.0
All-Red Time (s)				2.0	2.0	2.0		2.0			2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	2.0	2.0	2.0	5.0	5.0	5.0	2.0	5.0	2.0	2.0	5.0	5.0
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)				3.0	3.0	3.0		3.0			3.0	3.0
Recall Mode				None	None	None		C-Min			C-Min	C-Min
Act Effct Green (s)				32.8	32.8	32.8		47.2	90.0		47.2	47.2
Actuated g/C Ratio				0.36	0.36	0.36		0.52	1.00		0.52	0.52
v/c Ratio				0.80	0.85	0.81		0.71	0.50		0.74	0.86
Control Delay				37.0	42.4	39.5		14.6	4.9		19.3	9.5
Queue Delay				0.0	0.0	0.0		0.0	0.0		0.0	0.0
Total Delay				37.0	42.4	39.5		14.6	4.9		19.3	9.5
LOS				D	D	D		B	A		B	A
Approach Delay					39.6			11.8			15.7	
Approach LOS					D			B			B	

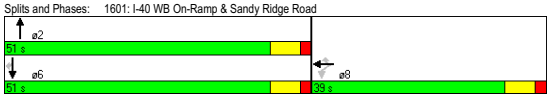
1601: I-40 WB On-Ramp & Sandy Ridge Road

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 50th (ft)				242	260	223		170	88		298	8
Queue Length 95th (ft)				#403	#447	#386		216	m101		359	#201
Internal Link Dist (ft)		817			243			810			281	
Turn Bay Length (ft)									750			
Base Capacity (vph)				611	573	547		2640	1569		2536	1309
Starvation Cap Reductn				0	0	0		0	0		0	0
Spillback Cap Reductn				0	0	0		0	0		0	0
Storage Cap Reductn				0	0	0		0	0		0	0
Reduced v/c Ratio				0.77	0.82	0.78		0.71	0.50		0.74	0.86

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 32 (36%), Referenced to phase 2:NBT and 6:SBT, Start of Green
Natural Cycle: 60
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.86
Intersection Signal Delay: 18.9 — Intersection LOS: B
Intersection Capacity Utilization 96.5% — ICU Level of Service F
Analysis Period (min) 15
\# 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 1601: I-40 WB On-Ramp & Sandy Ridge Road



1648: I-40 EB Off-Ramp & Sandy Ridge Road

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	590	0	986	0	0	0	0	1796	432	0	1800	653
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		3%			0%			4%			0%	
Storage Length (ft)	250		0	0		0	0		400	0		750
Storage Lanes	1		1	0		0	0		1	0		1
Taper Length (ft)	25		25	25		25	25		25	25		100
Lane Util. Factor	0.94	0.95	0.95	1.00	1.00	1.00	1.00	0.91	1.00	1.00	0.91	1.00
Frt		0.850	0.850						0.850			0.850
Flt Protected	0.950											
Satd. Flow (prot)	4775	1439	1439	0	0	0	0	4841	1507	0	4940	1538
Flt Permitted	0.950											
Satd. Flow (perm)	4775	1439	1439	0	0	0	0	4841	1507	0	4940	1538
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		35			30			45			35	
Link Distance (ft)		321			929			495			890	
Travel Time (s)		6.3			21.1			7.5			17.3	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	656	0	1096	0	0	0	0	1996	480	0	2000	726
Shared Lane Traffic (%)			50%									
Lane Group Flow (vph)	656	548	548	0	0	0	0	1996	480	0	2000	726
Turn Type	Perm		Perm						Perm			Free
Protected Phases		4						2			6	
Permitted Phases	4		4						2			Free
Detector Phase	4	4	4					2	2		6	
Switch Phase												
Minimum Initial (s)	7.0	7.0	7.0					7.0	7.0		7.0	
Minimum Split (s)	17.0	17.0	17.0					17.0	17.0		17.0	
Total Split (s)	44.0	44.0	44.0	0.0	0.0	0.0	0.0	46.0	46.0	0.0	46.0	0.0
Total Split (%)	48.9%	48.9%	48.9%	0.0%	0.0%	0.0%	0.0%	51.1%	51.1%	0.0%	51.1%	0.0%
Maximum Green (s)	37.0	37.0	37.0					39.0	39.0		39.0	
Yellow Time (s)	5.0	5.0	5.0					5.0	5.0		5.0	
All-Red Time (s)	2.0	2.0	2.0					2.0	2.0		2.0	
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	2.0	2.0	2.0	2.0	5.0	5.0	2.0	5.0	2.0
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0					3.0	3.0		3.0	
Recall Mode	None	None	None					C-Min	C-Min		C-Min	
Act Effct Green (s)	38.3	38.3	38.3					41.7	41.7		41.7	90.0
Actuated g/C Ratio	0.43	0.43	0.43					0.46	0.46		0.46	1.00
v/c Ratio	0.32	0.89	0.89					0.89	0.69		0.87	0.47
Control Delay	17.6	43.3	43.3					28.7	25.6		22.7	4.2
Queue Delay	0.0	0.0	0.0					0.0	0.0		0.0	0.0
Total Delay	17.6	43.3	43.3					28.7	25.6		22.7	4.2
LOS	B	D	D					C	C		C	A
Approach Delay		33.6						28.1			17.8	
Approach LOS		C						C			B	

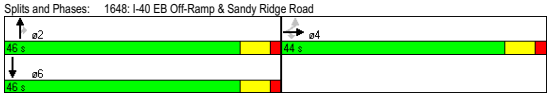
1648: I-40 EB Off-Ramp & Sandy Ridge Road

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 50th (ft)	84	291	291					371	210		293	63
Queue Length 95th (ft)	111	#505	#505					#450	330		403	159
Internal Link Dist (ft)		241			849			415			810	
Turn Bay Length (ft)	250								400			750
Base Capacity (vph)	2069	624	624					2241	698		2286	1538
Starvation Cap Reductn	0	0	0					0	0		0	0
Spillback Cap Reductn	0	0	0					0	0		0	0
Storage Cap Reductn	0	0	0					0	0		0	0
Reduced v/c Ratio	0.32	0.88	0.88					0.89	0.69		0.87	0.47

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 30 (33%), Referenced to phase 2:NBT and 6:SBT, Start of Green
Natural Cycle: 65
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.89
Intersection Signal Delay: 25.5 — Intersection LOS: C
Intersection Capacity Utilization 83.8% — ICU Level of Service E
Analysis Period (min) 15
\# 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 1648: I-40 EB Off-Ramp & Sandy Ridge Road



1818: Market Street & NC 68 NB Ramps

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (vph)	968	1523	884	216	96	371
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Grade (%)		-1%	0%		-2%	
Storage Length (ft)	275			400	0	0
Storage Lanes	1			1	1	1
Taper Length (ft)	75			25	25	25
Lane Util. Factor	1.00	0.95	0.95	1.00	1.00	1.00
Frt				0.850		0.850
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1728	3455	3438	1538	1736	1553
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	1728	3455	3438	1538	1736	1553
Right Turn on Red				No		No
Satd. Flow (RTOR)						
Link Speed (mph)		45	45		30	
Link Distance (ft)		849	543		531	
Travel Time (s)		12.9	8.2		12.1	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	1076	1692	982	240	107	412
Shared Lane Traffic (%)						
Lane Group Flow (vph)	1076	1692	982	240	107	412
Turn Type	Prot			pm+ov		pm+ov
Protected Phases	5	2	6	4	4	5
Permitted Phases				6		4
Detector Phase	5	2	6	4	4	5
Switch Phase						
Minimum Initial (s)	6.0	15.0	15.0	7.0	7.0	6.0
Minimum Split (s)	14.0	22.0	22.0	17.0	17.0	14.0
Total Split (s)	81.0	123.0	42.0	17.0	17.0	81.0
Total Split (%)	57.9%	87.9%	30.0%	12.1%	12.1%	57.9%
Maximum Green (s)	74.0	116.0	35.0	10.0	10.0	74.0
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead		Lag			Lead
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	C-Min	C-Min	None	None	None
Act Effct Green (s)	76.2	118.2	37.0	53.8	11.8	93.0
Actuated g/C Ratio	0.54	0.84	0.26	0.38	0.08	0.66
v/c Ratio	1.14	0.58	1.08	0.41	0.73	0.40
Control Delay	88.6	0.5	102.1	34.0	89.7	12.1
Queue Delay	19.3	0.8	0.0	0.0	0.0	0.0
Total Delay	107.9	1.3	102.1	34.0	89.7	12.1
LOS	F	A	F	C	F	B
Approach Delay		42.7	88.7		28.1	
Approach LOS		D	F		C	

Sandy Ridge Road Feasibility Study — Design Year (2035) Build Alt. #2 Loops - PM

1818: Market Street & NC 68 NB Ramps

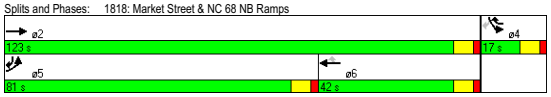
Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Queue Length 50th (ft)	~1139	20	~524	158	97	160
Queue Length 95th (ft)	m#766	m18	#661	235	#188	225
Internal Link Dist (ft)		769	463		451	
Turn Bay Length (ft)	275			400		
Base Capacity (vph)	940	2916	909	593	149	1032
Starvation Cap Reductn	35	831	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	1.19	0.81	1.08	0.40	0.72	0.40

Intersection Summary

Area Type: Other
Cycle Length: 140
Actuated Cycle Length: 140
Offset: 138 (99%), Referenced to phase 2:EBT and 6:WBT, Start of Green
Natural Cycle: 180
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.14
Intersection Signal Delay: 53.5 — Intersection LOS: D
Intersection Capacity Utilization 96.4% — ICU Level of Service F
Analysis Period (min) 15

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 1818: Market Street & NC 68 NB Ramps



Design Year (2035) Build Alt. #2 Loops - PM — Synchro 7 - Report
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Sandy Ridge Road Feasibility Study — Design Year (2035) Build Alt. #2 Loops - PM

2000: Market Street & Pleasant Ridge Road

Lane Group	EBL	EBT	WBU	WBT	WBR	SBL	SBR
Lane Configurations							
Volume (vph)	696	1056	0	1672	283	245	953
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900
Grade (%)		-3%		3%		-1%	
Storage Length (ft)	500		400		275	500	0
Storage Lanes	2		1		1	1	2
Taper Length (ft)	25		25		25	25	25
Lane Util. Factor	0.97	0.95	1.00	0.95	1.00	1.00	0.88
Frt					0.850		0.850
Flt Protected	0.950					0.950	
Satd. Flow (prot)	3385	3490	1782	3387	1515	1728	2721
Flt Permitted	0.950					0.950	
Satd. Flow (perm)	3385	3490	1782	3387	1515	1728	2721
Right Turn on Red					No		No
Satd. Flow (RTOR)							
Link Speed (mph)		45		45		50	
Link Distance (ft)		755		1642		1713	
Travel Time (s)		11.4		24.9		23.4	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	773	1173	0	1858	314	272	1059
Shared Lane Traffic (%)							
Lane Group Flow (vph)	773	1173	0	1858	314	272	1059
Turn Type	Prot		Perm		Perm		pm+ov
Protected Phases	1	6		2		4	1
Permitted Phases			2		2		4
Detector Phase	1	6	2	2	2	4	1
Switch Phase							
Minimum Initial (s)	6.0	15.0	15.0	15.0	15.0	8.0	6.0
Minimum Split (s)	14.0	21.0	21.0	21.0	21.0	17.0	14.0
Total Split (s)	35.0	115.0	80.0	80.0	80.0	25.0	35.0
Total Split (%)	25.0%	82.1%	57.1%	57.1%	57.1%	17.9%	25.0%
Maximum Green (s)	29.0	109.0	74.0	74.0	74.0	19.0	29.0
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag	Lead		Lag	Lag	Lag		Lead
Lead-Lag Optimize?							
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	C-Min	C-Min	C-Min	C-Min	None	None
Act Effct Green (s)	31.0	111.0		76.0	76.0	21.0	56.0
Actuated g/C Ratio	0.22	0.79		0.54	0.54	0.15	0.40
v/c Ratio	1.03	0.42		1.01	0.38	1.05	0.97
Control Delay	82.5	2.6		36.0	11.2	125.8	62.9
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0
Total Delay	82.5	2.6		36.0	11.2	125.8	62.9
LOS	F	A		D	B	F	E
Approach Delay		34.3		32.4		75.7	
Approach LOS		C		C		E	

Design Year (2035) Build Alt. #2 Loops - PM — Synchro 7 - Report
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Sandy Ridge Road Feasibility Study — Design Year (2035) Build Alt. #2 Loops - PM

2000: Market Street & Pleasant Ridge Road

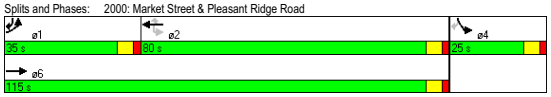
Lane Group	EBL	EBT	WBU	WBT	WBR	SBL	SBR
Queue Length 50th (ft)	~378	52		~370	76	~269	534
Queue Length 95th (ft)	m#474	m75		m#1013	m125	#452	#701
Internal Link Dist (ft)		675		1562		1633	
Turn Bay Length (ft)	500				275	500	
Base Capacity (vph)	750	2767		1839	822	259	1088
Starvation Cap Reductn	0	0		0	0	0	0
Spillback Cap Reductn	0	0		0	0	0	0
Storage Cap Reductn	0	0		0	0	0	0
Reduced v/c Ratio	1.03	0.42		1.01	0.38	1.05	0.97

Intersection Summary

Area Type: Other
Cycle Length: 140
Actuated Cycle Length: 140
Offset: 136 (97%), Referenced to phase 2:WBTU and 6:EBT, Start of Green
Natural Cycle: 120
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.05
Intersection Signal Delay: 43.7 — Intersection LOS: D
Intersection Capacity Utilization 89.6% — ICU Level of Service E
Analysis Period (min) 15

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 2000: Market Street & Pleasant Ridge Road



Design Year (2035) Build Alt. #2 Loops - PM — Synchro 7 - Report
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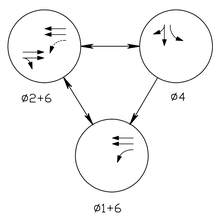
Appendix E: Signal Plans

PHASING



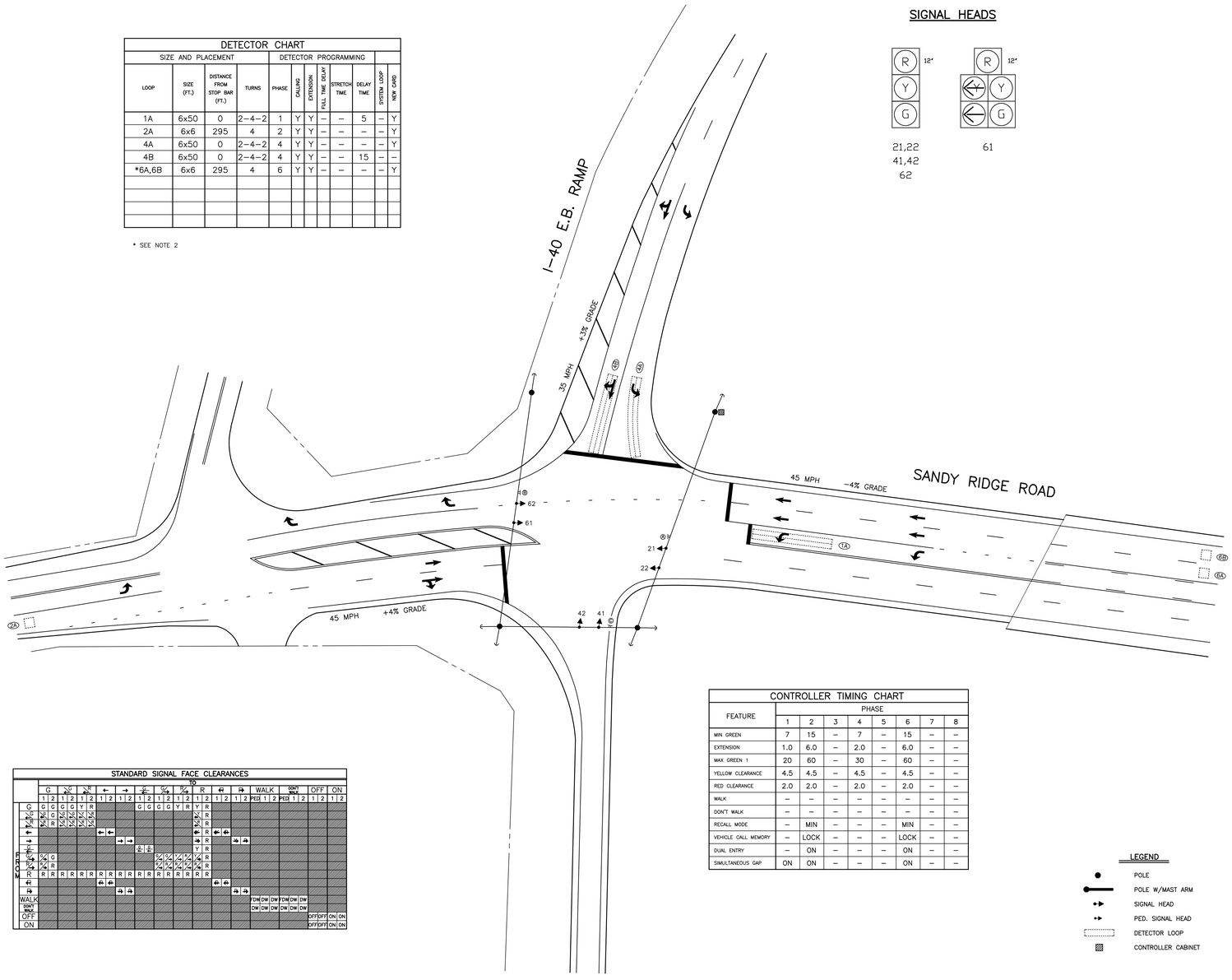
DETECTOR CHART

SIZE AND PLACEMENT				DETECTOR PROGRAMMING							
LOOP	SIZE (FT.)	DISTANCE FROM STOP BAR (FT.)	TURNS	PHASE	CALLING	EXTENSION	FULL TIME DELAY	STRETCH TIME	DELAY TIME	SYSTEM LOOP	NEW CARD
1A	6x50	0	2-4-2	1	Y	Y	–	–	5	–	Y
2A	6x6	295	4	2	Y	Y	–	–	–	–	Y
4A	6x50	0	2-4-2	4	Y	Y	–	–	–	–	Y
4B	6x50	0	2-4-2	4	Y	Y	–	–	15	–	–
*6A,6B	6x6	295	4	6	Y	Y	–	–	–	–	Y

* SEE NOTE 2

SIGNAL HEADS

SIGNS



NOTES:

1. Ø1 MAY BE LAGGED DURING COORDINATED OPERATION

2. LOOPS 6A AND 6B ARE PREFORMED LOOPS IN BRIDGE DECK

CONTROLLER TIMING CHART

FEATURE	PHASE 1	2	3	4	5	6	7	8
MIN GREEN	7	15	–	7	–	15	–	–
EXTENSION	1.0	6.0	–	2.0	–	6.0	–	–
MAX GREEN 1	20	60	–	30	–	60	–	–
YELLOW CLEARANCE	4.5	4.5	–	4.5	–	4.5	–	–
RED CLEARANCE	2.0	2.0	–	2.0	–	2.0	–	–
WALK	–	–	–	–	–	–	–	–
DON'T WALK	–	–	–	–	–	–	–	–
RECALL MODE	–	MIN	–	–	–	MIN	–	–
VEHICLE CALL MEMORY	–	LOCK	–	–	–	LOCK	–	–
DUAL ENTRY	–	ON	–	–	–	ON	–	–
SIMULTANEOUS GAP	ON	ON	–	–	–	ON	–	–

TABLE OF OPERATION

SIGNAL FACE	PHASE 2+6	4	1+6					FLASH
21,22	G	R	R					Y
41,42	R	G	R					R
61	G	R	↑G					Y
62	G	R	G					Y

STANDARD SIGNAL FACE CLEARANCES

TO	G 1	G 2	⅓G 1	⅓G 2	⅔G 1	⅔G 2	← 1	← 2	→ 1	→ 2	↑ 1	↑ 2	⅓↑ 1	⅓↑ 2	⅔↑ 1	⅔↑ 2	R 1	R 2	⇄ 1	⇄ 2	⇉ 1	⇉ 2	WALK PED 1	WALK PED 2	DON'T WALK PED 1	DON'T WALK PED 2	OFF 1	OFF 2	ON 1	ON 2
FROM: G 1	G	G	G	G	Y	R					G	G	G	G	Y	R	Y	R												
FROM: G 2	G	G	G	G	Y	R					G	G	G	G	Y	R	Y	R												
FROM: ⅓G 1	⅓G	R	⅓G	⅓G	⅔G	⅔G											⅓G	R												
FROM: ⅓G 2	⅓G	R	⅓G	⅓G	⅔G	⅔G											⅓G	R												
FROM: ⅔G 1	⅔G	R	⅔G	⅔G	⅔G	⅔G											⅔G	R												
FROM: ⅔G 2	⅔G	R	⅔G	⅔G	⅔G	⅔G											⅔G	R												
FROM: ← 1							←	←									←	R	←	←										
FROM: ← 2							←	←									←	R	←	←										
FROM: → 1									→	→							→	R			→	→								
FROM: → 2									→	→							→	R			→	→								
FROM: ↑ 1											↑	↑					Y	R												
FROM: ↑ 2											↑	↑					Y	R												
FROM: ⅓↑ 1	⅓↑	G											⅓↑	⅓↑	⅓↑	⅓↑	⅓↑	R												
FROM: ⅓↑ 2	⅓↑	R											⅓↑	⅓↑	⅓↑	⅓↑	⅓↑	R												
FROM: ⅔↑ 1	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R												
FROM: ⅔↑ 2	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R												
FROM: ⇄ 1							⇄	⇄											⇄	⇄										
FROM: ⇄ 2							⇄	⇄											⇄	⇄										
FROM: ⇉ 1									⇉	⇉											⇉	⇉								
FROM: ⇉ 2									⇉	⇉											⇉	⇉								
FROM: WALK																							FDW	DW	FDW	DW	DW	DW		
FROM: DON'T WALK																							DW	DW	DW	DW	DW	DW		
FROM: OFF																											OFF	OFF	ON	ON
FROM: ON																											OFF	OFF	ON	ON

LEGEND

- POLE
- POLE W/MAST ARM
- SIGNAL HEAD
- PED. SIGNAL HEAD
- DETECTOR LOOP
- CONTROLLER CABINET

NORTH CAROLINA PROFESSIONAL SEAL 27356 ENGINEER JOSEPH P. MULLINAX III

SIGNAL INVENTORY NO. 07-1648

CITY OF GREENSBORO
DEPARTMENT OF TRANSPORTATION

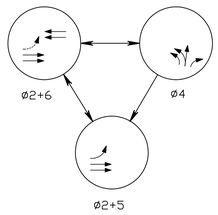
SIGNALIZATION

I-40 EASTBOUND RAMP AND SANDY RIDGE ROAD (SR 1850)

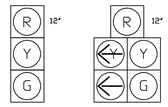
REVISIONS	
DATE	BY

DATE 12-06-07	SCALE 1"=30'
DRAWN BY J. MULLINAX	FILE NO. I 007
SHEET 1 OF 1	

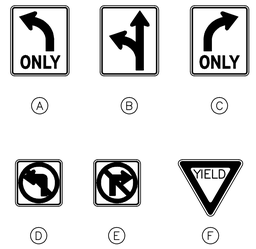
PHASING



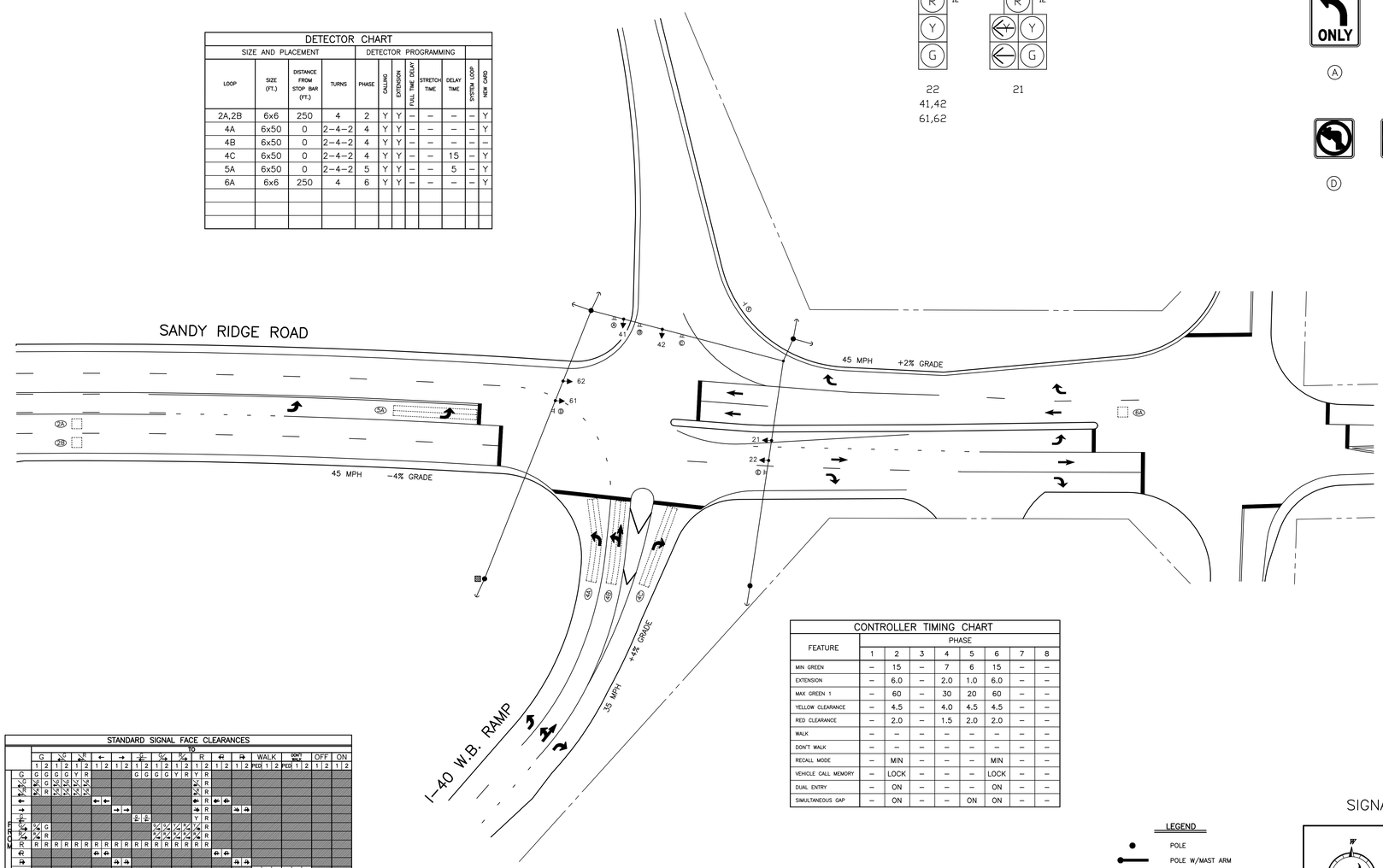
SIGNAL HEADS



SIGNS



DETECTOR CHART											
SIZE AND PLACEMENT				DETECTOR PROGRAMMING							
LOOP	SIZE (FT.)	DISTANCE FROM STOP BAR (FT.)	TURNS	PHASE	CALLING	EXTENSION	FULL TIME DELAY	STRETCH TIME	DELAY TIME	SYSTEM LOOP	NEW CARD
2A,2B	6x6	250	4	2	Y	Y	–	–	–	–	Y
4A	6x50	0	2–4–2	4	Y	Y	–	–	–	–	Y
4B	6x50	0	2–4–2	4	Y	Y	–	–	–	–	–
4C	6x50	0	2–4–2	4	Y	Y	–	–	15	–	Y
5A	6x50	0	2–4–2	5	Y	Y	–	–	5	–	Y
6A	6x6	250	4	6	Y	Y	–	–	–	–	Y



NOTES:

1. ø5 MAY BE LAGGED DURING COORDINATED OPERATION

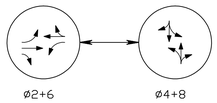
CONTROLLER TIMING CHART								
FEATURE	PHASE							
	1	2	3	4	5	6	7	8
MIN GREEN	–	15	–	7	6	15	–	–
EXTENSION	–	6.0	–	2.0	1.0	6.0	–	–
MAX GREEN 1	–	60	–	30	20	60	–	–
YELLOW CLEARANCE	–	4.5	–	4.0	4.5	4.5	–	–
RED CLEARANCE	–	2.0	–	1.5	2.0	2.0	–	–
WALK	–	–	–	–	–	–	–	–
DON'T WALK	–	–	–	–	–	–	–	–
RECALL MODE	–	MIN	–	–	–	MIN	–	–
VEHICLE CALL MEMORY	–	LOCK	–	–	–	LOCK	–	–
DUAL ENTRY	–	ON	–	–	–	ON	–	–
SIMULTANEOUS GAP	–	ON	–	–	ON	ON	–	–

NORTH CAROLINA PROFESSIONAL SEAL 27356 ENGINEER JOSEPH F. MULLINAX III

TABLE OF OPERATION									
SIGNAL FACE	PHASE								I–40 W.B.
	2+6	4	2+5						
21	G	R	↖G						Y
22	G	R	G						Y
41,42	R	G	R						R
61,62	G	R	R						Y

| STANDARD SIGNAL FACE CLEARANCES | | | | | | | | | | |

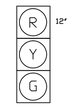
PHASING



DETECTOR CHART

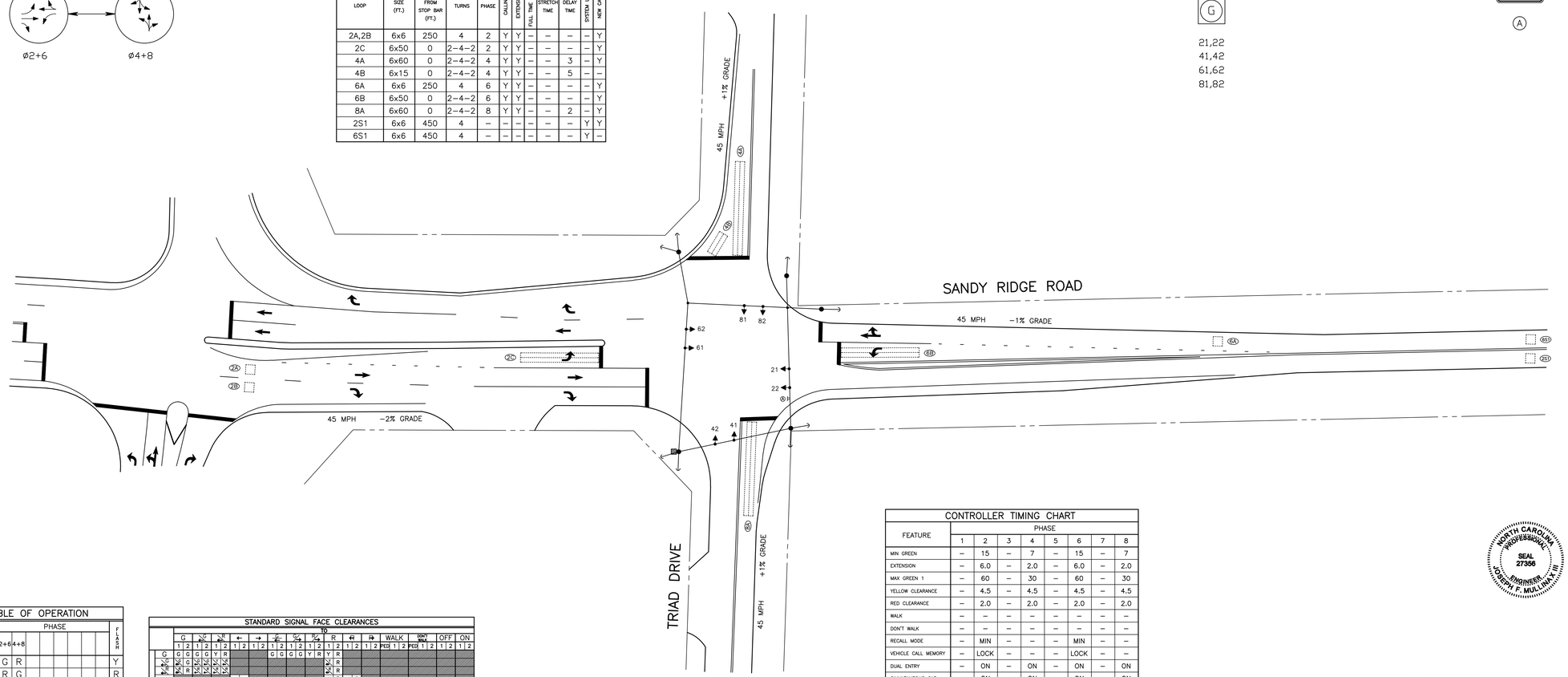
SIZE AND PLACEMENT				DETECTOR PROGRAMMING							
LOOP	SIZE (FT.)	DISTANCE FROM STOP BAR (FT.)	TURNS	PHASE	CALLING	EXTENSION	FULL TIME DELAY	STRETCH TIME	DELAY TIME	SYSTEM LOOP	NEW CARD
2A,2B	6x6	250	4	2	Y	Y	–	–	–	–	Y
2C	6x50	0	2–4–2	2	Y	Y	–	–	–	–	Y
4A	6x60	0	2–4–2	4	Y	Y	–	–	3	–	Y
4B	6x15	0	2–4–2	4	Y	Y	–	–	5	–	–
6A	6x6	250	4	6	Y	Y	–	–	–	–	Y
6B	6x50	0	2–4–2	6	Y	Y	–	–	–	–	Y
8A	6x60	0	2–4–2	8	Y	Y	–	–	2	–	Y
2S1	6x6	450	4	–	–	–	–	–	–	Y	Y
6S1	6x6	450	4	–	–	–	–	–	–	Y	–

SIGNAL HEADS



21,22
41,42
61,62
81,82

SIGNS



CONTROLLER TIMING CHART

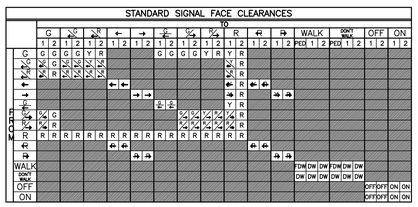
FEATURE	PHASE 1	2	3	4	5	6	7	8
MIN GREEN	–	15	–	7	–	15	–	7
EXTENSION	–	6.0	–	2.0	–	6.0	–	2.0
MAX GREEN 1	–	60	–	30	–	60	–	30
YELLOW CLEARANCE	–	4.5	–	4.5	–	4.5	–	4.5
RED CLEARANCE	–	2.0	–	2.0	–	2.0	–	2.0
WALK	–	–	–	–	–	–	–	–
DON'T WALK	–	–	–	–	–	–	–	–
RECALL MODE	–	MIN	–	–	–	MIN	–	–
VEHICLE CALL MEMORY	–	LOCK	–	–	–	LOCK	–	–
DUAL ENTRY	–	ON	–	ON	–	ON	–	ON
SIMULTANEOUS GAP	–	ON	–	ON	–	ON	–	ON

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 27356 JOSEPH F. MULLINAX III

TABLE OF OPERATION

SIGNAL FACE	PHASE 2+6	4+8							FLASH
21,22	G	R							Y
41,42	R	G							R
61,62	G	R							Y
81,82	R	G							R

STANDARD SIGNAL FACE CLEARANCES



LEGEND

- POLE
- POLE W/MAST ARM
- SIGNAL HEAD
- PED. SIGNAL HEAD
- DETECTOR LOOP
- CONTROLLER CABINET

SIGNAL INVENTORY NO. 07–1649

REVISIONS	
DATE	BY

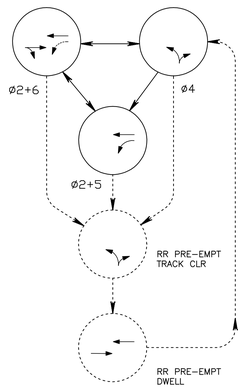
CITY OF GREENSBORO
DEPARTMENT OF TRANSPORTATION

SIGNALIZATION

SANDY RIDGE ROAD (SR 1850)
AND
TRIAD DRIVE (SR 1924)

DATE 12–03–07	SCALE 1"=30'
DRAWN BY J. MULLINAX	FILE NO. S 002
SHEET 1 OF 1	

PHASING

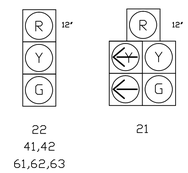


DETECTOR CHART

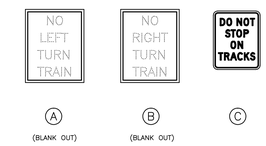
SIZE AND PLACEMENT				DETECTOR PROGRAMMING							
LOOP	SIZE (FT.)	DISTANCE FROM STOP BAR (FT.)	TURNS	PHASE	CALLING	EXTENSION	FULL TIME DELAY	STRETCH TIME	DELAY TIME	LOOK SYSTEM	NEW CARD
2A	6x6	143	4	2	Y	Y	–	–	–	–	Y
2B	6x6	285	4	2	Y	Y	–	–	–	–	Y
4A	6x50	0	2–4–2	4	Y	Y	–	–	–	–	Y
5A	6x50	0	2–4–2	5	Y	Y	–	–	10	–	Y
6A	6x6	143	4	6	Y	Y	–	–	–	–	Y
6B	6x6	285	4	6	Y	Y	–	–	–	–	Y
2S1	6x6	600	4	–	–	–	–	–	–	Y	Y
6S1	6x6	600	4	–	–	–	–	–	–	Y	Y

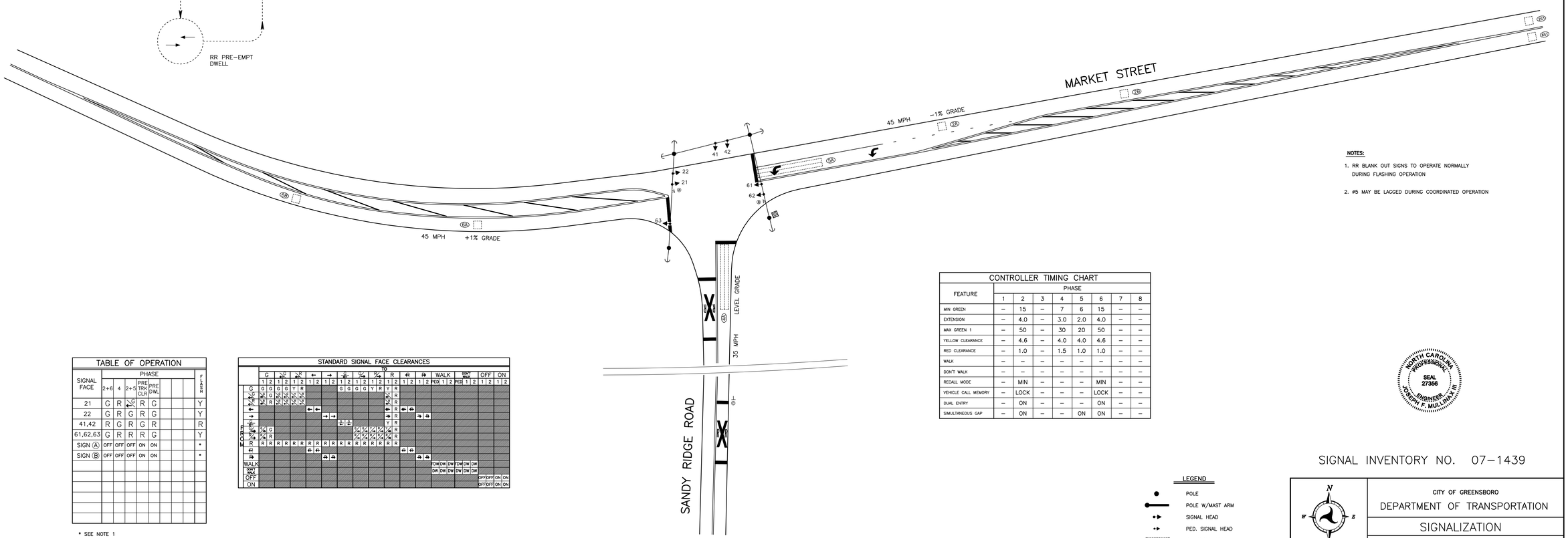
RAILROAD PREEMPTION	
DELAY BEFORE PREEMPT	0
PED CLEAR BEFORE PREEMPT	–
MIN GREEN BEFORE PREEMPT	1
YELLOW CLEAR BEFORE PREEMPT	4.6
RED CLEAR BEFORE PREEMPT	1.0
TRACK CLEARANCE GREEN	16
TRACK CLEARANCE YELLOW	4.0
TRACK CLEARANCE RED	1.5
PREEMPT DWELL MIN GREEN	10
YELLOW CLEAR AFTER PREEMPT	4.6
RED CLEAR AFTER PREEMPT	1.0
EXIT PREEMPT TO	ø4

SIGNAL HEADS



SIGNS





NOTES:

1. RR BLANK OUT SIGNS TO OPERATE NORMALLY DURING FLASHING OPERATION
2. ø5 MAY BE LAGGED DURING COORDINATED OPERATION

CONTROLLER TIMING CHART

FEATURE	PHASE 1	2	3	4	5	6	7	8
MIN GREEN	–	15	–	7	6	15	–	–
EXTENSION	–	4.0	–	3.0	2.0	4.0	–	–
MAX GREEN 1	–	50	–	30	20	50	–	–
YELLOW CLEARANCE	–	4.6	–	4.0	4.0	4.6	–	–
RED CLEARANCE	–	1.0	–	1.5	1.0	1.0	–	–
WALK	–	–	–	–	–	–	–	–
DON'T WALK	–	–	–	–	–	–	–	–
RECALL MODE	–	MIN	–	–	–	MIN	–	–
VEHICLE CALL MEMORY	–	LOCK	–	–	–	LOCK	–	–
DUAL ENTRY	–	ON	–	–	–	ON	–	–
SIMULTANEOUS GAP	–	ON	–	–	ON	ON	–	–

TABLE OF OPERATION

SIGNAL FACE	PHASE 2+6	4	2+5	PRE TRK CLR	PRE DWL			* SEE NOTE 1
21	G	R	G	R	G			Y
22	G	R	G	R	G			Y
41,42	R	G	R	G	R			R
61,62,63	G	R	R	R	G			Y
SIGN Ⓐ	OFF	OFF	OFF	ON	ON			*
SIGN Ⓑ	OFF	OFF	OFF	ON	ON			*

STANDARD SIGNAL FACE CLEARANCES

LEGEND

- POLE
- POLE W/MAST ARM
- SIGNAL HEAD
- PED. SIGNAL HEAD
- DETECTOR LOOP
- CONTROLLER CABINET

NORTH CAROLINA PROFESSIONAL SEAL 27356 ENGINEER JOSEPH F. MULLINAX, III

SIGNAL INVENTORY NO. 07–1439

REVISIONS	
DATE	BY
01–09–01	T.J.R.
06–19–03	J.F.M.
09–18–08	J.F.M.

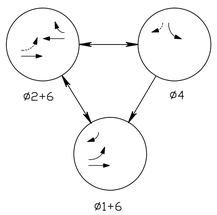
CITY OF GREENSBORO
DEPARTMENT OF TRANSPORTATION

SIGNALIZATION

MARKET STREET (SR 1008)
AND
SANDY RIDGE ROAD (SR 1850)

DATE 03–31–99 | SCALE 1"=30'
DRAWN BY T. REILLY | FILE NO. M 069
SHEET 1 OF 1

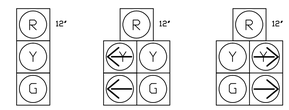
PHASING



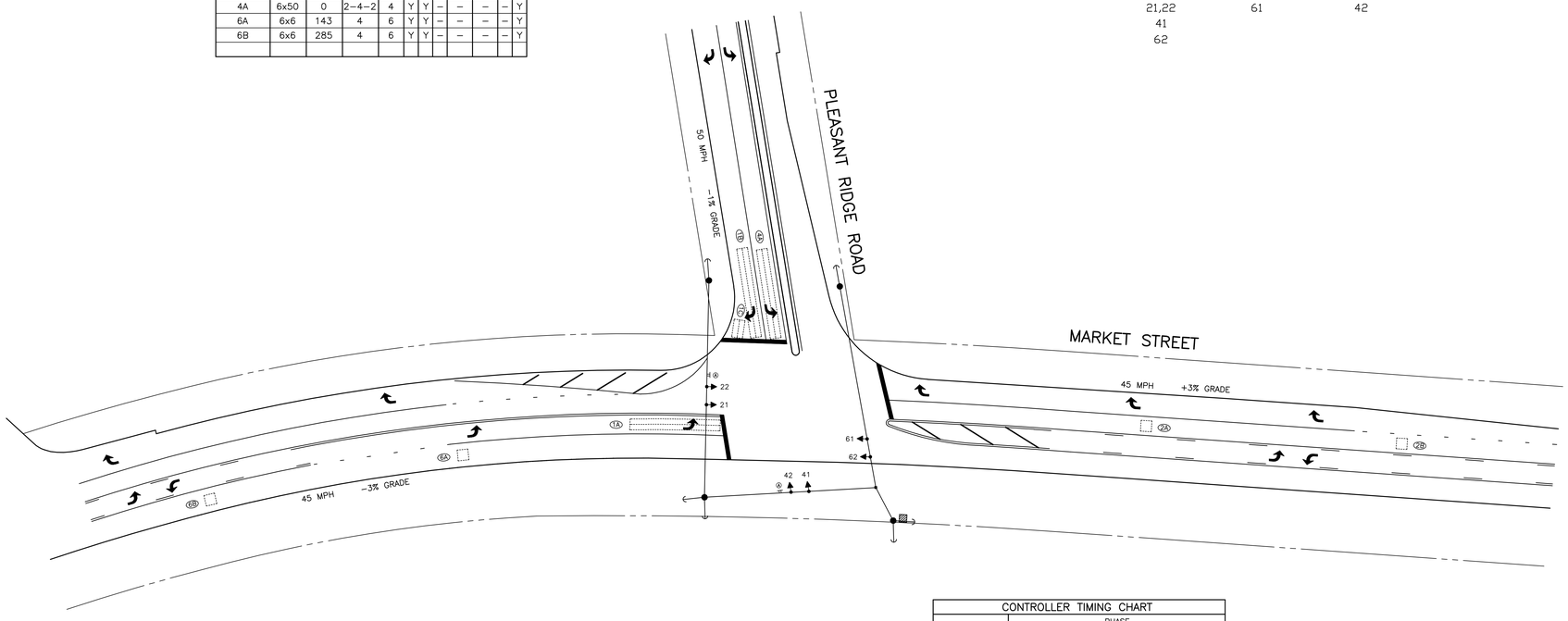
DETECTOR CHART

SIZE AND PLACEMENT				DETECTOR PROGRAMMING							
LOOP/ZONE	SIZE (FT.)	DISTANCE FROM STOP BAR (FT.)	TURNS	PHASE	CALLING	EXTENSION	FULL TIME DELAY	STRETCH TIME	DELAY TIME	SYSTEM LOOP	NEW CARD
1A	6x50	0	2-4-2	1	Y	Y	–	–	10	–	Y
1B	6x50	0	2-4-2	1	Y	Y	–	–	10	–	Y
1C	6x10	0	2-4-2	1	Y	Y	–	–	10	–	–
2A	6x6	143	4	2	Y	Y	–	–	–	–	Y
2B	6x6	285	4	2	Y	Y	–	–	–	–	Y
4A	6x50	0	2-4-2	4	Y	Y	–	–	–	–	Y
6A	6x6	143	4	6	Y	Y	–	–	–	–	Y
6B	6x6	285	4	6	Y	Y	–	–	–	–	Y

SIGNAL HEADS



SIGNS



NOTES:

1. ø1 MAY BE LAGGED DURING COORDINATED OPERATION

TABLE OF OPERATION

SIGNAL FACE	PHASE 2+6	4	1+6					FLASH
21,22	G	R	R					Y
41	R	G	R					R
42	R	G	R/G					R
61	G	R	R/G					Y
62	G	R	G					Y

STANDARD SIGNAL FACE CLEARANCES

FROM ↓ / TO →	G 1	G 2	Y/R 1	Y/R 2	R 1	R 2	← 1	← 2	→ 1	→ 2	↖ 1	↖ 2	↗ 1	↗ 2	↙ 1	↙ 2	↘ 1	↘ 2	↩ 1	↩ 2	↪ 1	↪ 2	WALK 1	WALK 2	PED 1	PED 2	DON'T WALK 1	DON'T WALK 2	OFF 1	OFF 2	ON 1	ON 2
G	G	G	G	G	Y	R					G	G	G	G	Y	R	Y	R														
Y/R 1	Y/R	G	Y/R	Y/R	Y/R	Y/R											Y/R	R														
Y/R 2	Y/R	R	Y/R	Y/R	Y/R	Y/R											Y/R	R														
← 1							←	←									←	R	←	←												
← 2									→	→							→	R			→	→										
→ 1											→	→					Y	R														
→ 2													↖	↖																		
↖ 1	Y/R	G											Y/R	Y/R	Y/R	Y/R	Y/R	R														
↖ 2	Y/R	R											Y/R	Y/R	Y/R	Y/R	Y/R	R														
↗ 1	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R														
↗ 2							↗	↗											↗	↗												
↙ 1									↙	↙											↙	↙										
↙ 2											↙	↙									↙	↙										
↘ 1													↘	↘																		
↘ 2															↘	↘																
WALK 1																							DW	DW	DW	DW	DW	DW				
WALK 2																							DW	DW	DW	DW	DW	DW				
OFF																													OFF	OFF	ON	ON
ON																													OFF	OFF	ON	ON

CONTROLLER TIMING CHART

FEATURE	PHASE 1	2	3	4	5	6	7	8
MIN GREEN 1	6	15	–	8	–	15	–	–
EXTENSION 1	1.0	4.0	–	2.0	–	4.0	–	–
MAX GREEN 1	15	50	–	35	–	50	–	–
YELLOW CLEARANCE	4.0	4.8	–	4.0	–	4.8	–	–
RED CLEARANCE	1.0	1.5	–	1.8	–	1.5	–	–
WALK 1	–	–	–	–	–	–	–	–
DON'T WALK 1	–	–	–	–	–	–	–	–
RECALL MODE	–	MIN	–	–	–	MIN	–	–
VEHICLE CALL MEMORY	–	LOCK	–	–	–	LOCK	–	–
DUAL ENTRY	–	ON	–	–	–	ON	–	–
SIMULTANEOUS GAP	ON	ON	–	–	–	ON	–	–

LEGEND

- POLE
- POLE W/MAST ARM
- SIGNAL HEAD
- PED. SIGNAL HEAD
- DETECTOR LOOP
- CONTROLLER CABINET

NORTH CAROLINA PROFESSIONAL SEAL 27356 ENGINEER JOSEPH F. MULLINAX, III

SIGNAL INVENTORY NO. 07-2000

CITY OF GREENSBORO
DEPARTMENT OF TRANSPORTATION

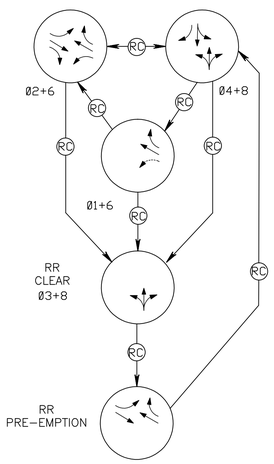
SIGNALIZATION

MARKET STREET (SR 1008)
AND
PLEASANT RIDGE ROAD (SR 2133)

REVISIONS	
DATE	BY

DATE	09-04-08	SCALE	1"=30'
DRAWN BY	J. MULLINAX	FILE NO.	M 064
SHEET	1 OF 1		

PHASING



RR YES STD. PED. CLR NO

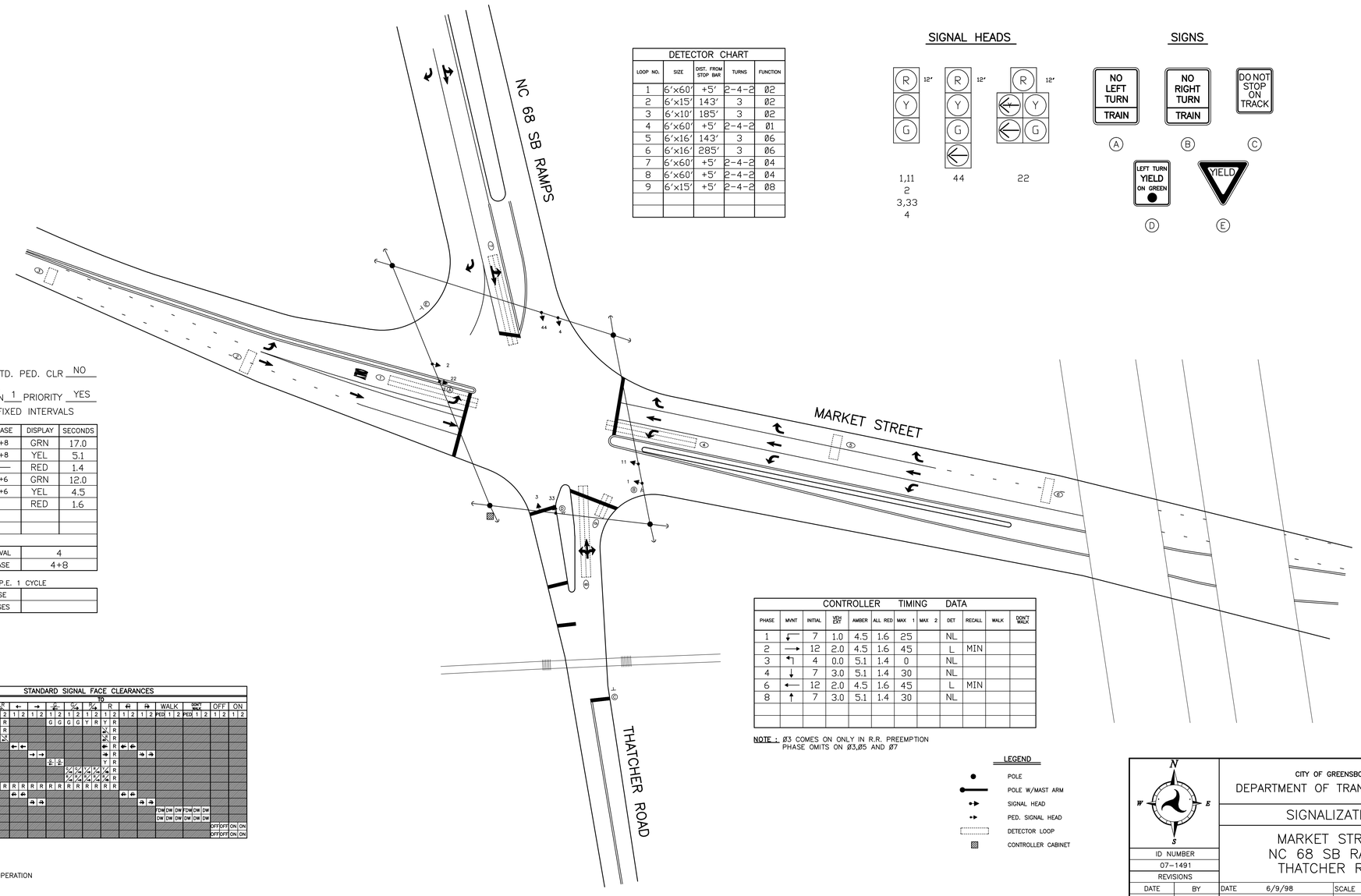
DEL 0 MIN GRN 1 PRIORITY YES

P.E. 1 FIXED INTERVALS

INT. NO.	PHASE	DISPLAY	SECONDS
1	3+8	GRN	17.0
2	3+8	YEL	5.1
3	——	RED	1.4
4	2+6	GRN	12.0
5	2+6	YEL	4.5
6		RED	1.6
DWELL INTERVAL	4		
EXIT TO PHASE	4+8		

P.E. 1 CYCLE

ENTRY PHASE	
ACTIVE PHASES	



DETECTOR CHART				
LOOP NO.	SIZE	DIST. FROM STOP BAR	TURNS	FUNCTION
1	6'x60'	+5'	2-4-2	Ø2
2	6'x15'	143'	3	Ø2
3	6'x10'	185'	3	Ø2
4	6'x60'	+5'	2-4-2	Ø1
5	6'x16'	143'	3	Ø6
6	6'x16'	285'	3	Ø6
7	6'x60'	+5'	2-4-2	Ø4
8	6'x60'	+5'	2-4-2	Ø4
9	6'x15'	+5'	2-4-2	Ø8

SIGNAL HEADS

SIGNS

CONTROLLER TIMING DATA											
PHASE	MVNT	INITIAL	VEH EXT	AMBER	ALL RED	MAX 1	MAX 2	DET	RECALL	WALK	DON'T WALK
1	↓	7	1.0	4.5	1.6	25		NL			
2	→	12	2.0	4.5	1.6	45		L	MIN		
3	↰	4	0.0	5.1	1.4	0		NL			
4	↓	7	3.0	5.1	1.4	30		NL			
6	←	12	2.0	4.5	1.6	45		L	MIN		
8	↑	7	3.0	5.1	1.4	30		NL			

NOTE : Ø3 COMES ON ONLY IN R.R. PREEMPTION
PHASE OMITS ON Ø3,Ø5 AND Ø7

LEGEND

- POLE
- POLE W/MAST ARM
- SIGNAL HEAD
- PED. SIGNAL HEAD
- DETECTOR LOOP
- CONTROLLER CABINET

TABLE OF OPERATION									
SIGNAL FACE	PHASE								FLASH
	Ø2+6	Ø3+8	Ø4+8	RR CLEAR	RR PRE-EMPT				
1,11	G	R	R	R	G				Y
2	G	R	G	R	G				Y
22	G	R	G	R	G				Y
3	R	G	R	G	R				R
33	R	G	R	R	R				R
4,44	R	G	R	R	R				R
SIGN (A),(B)	OFF	OFF	OFF	ON	ON				SEE NOTE

NOTE: BLANKOUT SIGNS ARE TO OPERATE NORMALLY DURING FLASHING OPERATION

STANDARD SIGNAL FACE CLEARANCES

FROM \ TO	G 1	G 2	Y 1	Y 2	R 1	R 2	← 1	← 2	→ 1	→ 2	↰ 1	↰ 2	↱ 1	↱ 2	R 1	R 2	⇦ 1	⇦ 2	⇨ 1	⇨ 2	WALK PED 1	WALK PED 2	DON'T WALK PED 1	DON'T WALK PED 2	OFF 1	OFF 2	ON 1	ON 2
G	G	G	G	G	Y	R					G	G	G	G	Y	R	Y	R										
Y 1	Y	Y	Y	Y	R												R	R										
Y 2	Y	R	Y	R	R												R	R										
←							←	←									←	R	⇦	⇦								
→									→	→							→	R			⇨	⇨						
↰ 1											↰	↰					Y	R										
↰ 2	Y	G									Y	Y	Y	Y	Y	Y	Y	R										
↱ 1	Y	R											Y	Y	Y	Y	Y	R										
R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R										
⇦							⇦	⇦									⇦	⇦										
⇨									⇨	⇨									⇨	⇨								
WALK																					DW	DW	DW	DW	DW	DW		
DON'T WALK																					DW	DW	DW	DW	DW	DW		
OFF																									OFF	OFF	ON	ON
ON																									OFF	OFF	ON	ON

N
W E
S

ID NUMBER
07-1491
REVISIONS

DATE	BY
8/8/01	TR

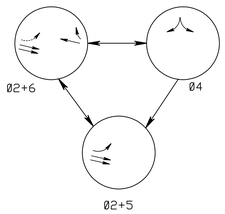
CITY OF GREENSBORO
DEPARTMENT OF TRANSPORTATION

SIGNALIZATION

MARKET STREET,
NC 68 SB RAMPS,
THATCHER ROAD

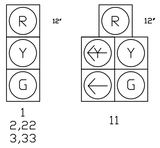
DATE 6/9/98		SCALE 1"=30'
DRAWN BY T REILLY		FILE NO. M062
SHEET 1 OF 1		

PHASING

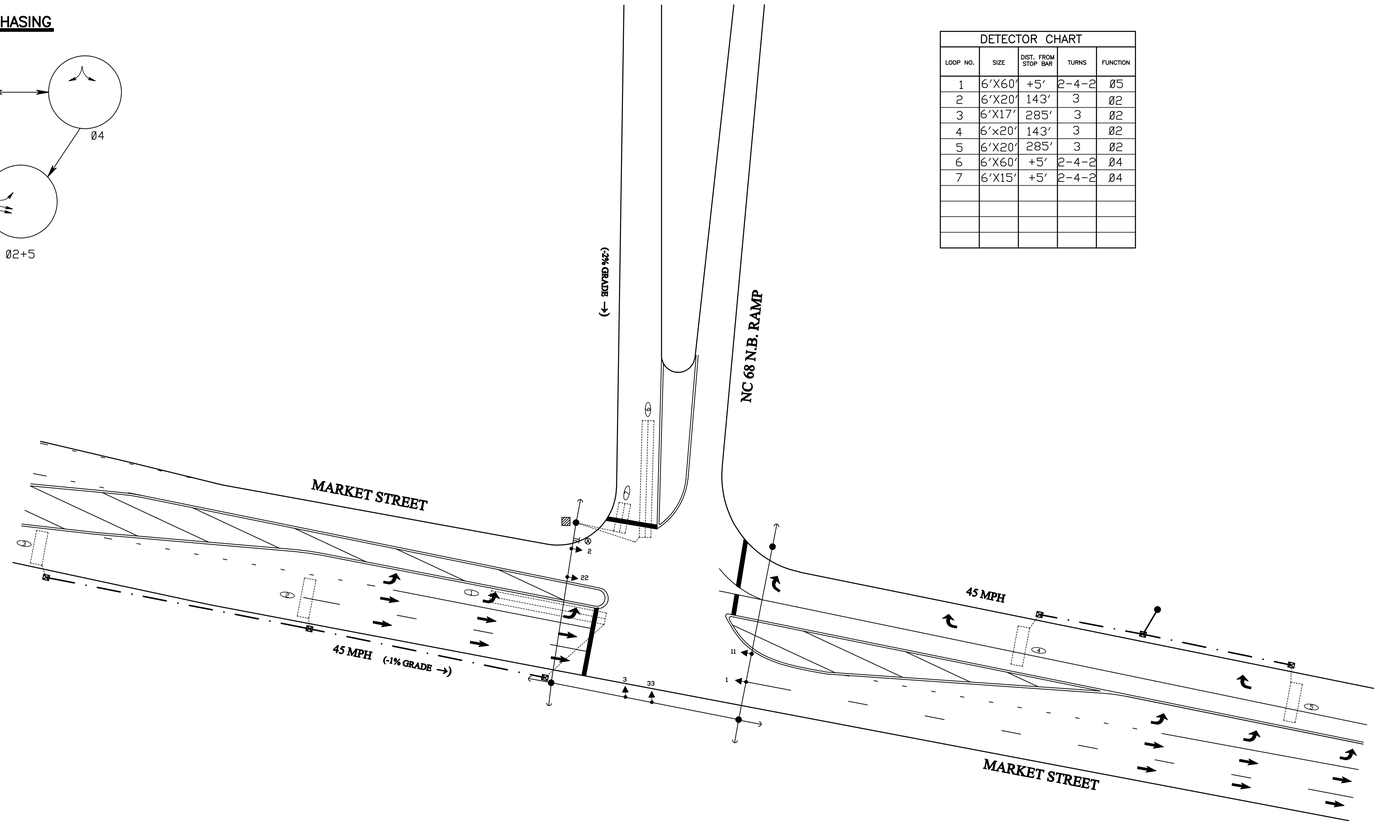


DETECTOR CHART				
LOOP NO.	SIZE	DIST. FROM STOP BAR	TURNS	FUNCTION
1	6'X60'	+5'	2-4-2	Ø5
2	6'X20'	143'	3	Ø2
3	6'X17'	285'	3	Ø2
4	6'x20'	143'	3	Ø2
5	6'X20'	285'	3	Ø2
6	6'X60'	+5'	2-4-2	Ø4
7	6'X15'	+5'	2-4-2	Ø4

SIGNAL HEADS



SIGNS



COLOR SEQUENCE																
HEAD NO.	Ø2-6					Ø4					Ø2-5					FLASH
	R/W	CLEAR TO Ø4				R/W	CLEAR TO Ø2-6				R/W	CLEAR TO Ø2-6			CLEAR TO Ø4	
		1	2	1	2		1	2	1	2		1	2	1	2	
1	G	Y	R	G	G	R	—	—	—	R	G	G	G	Y	R	Y
11	G	Y	R	G	G	R	—	—	—	R	G/Y	G/Y	G	Y	R	Y
2,22	G	Y	R	Y	R	R	—	—	—	R	R	—	—	—	R	Y
3,33	R	—	—	—	R	G	Y	R	Y	R	R	—	—	—	R	R

CONTROLLER TIMING DATA												
PHASE	MVMT	INITIAL	VEH EXT	AMBER	ALL RED	MAX 1	MAX 2	DET	RECALL	WALK	DON'T WALK
Ø2	→	15	4.0	4.4	1.2	45		L	MIN		
Ø4	↓	7	2.0	4.0	1.5	25		NL			
Ø5	↑	6	1.0	4.0	1.0	15		NL			
Ø6	←	15	4.0	4.4	1.2	45		L	MIN		

NOTE: 5 SEC. CALL DELAY Ø5

LEGEND

- POLE
- POLE W/MAST ARM
- SIGNAL HEAD
- PED SIGNAL
- DETECTOR LOOP
- CONTROLLER CABINET

N

CITY OF GREENSBORO

DEPARTMENT OF TRANSPORTATION

SIGNALIZATION

ID NUMBER

REVISIONS

DATE	BY

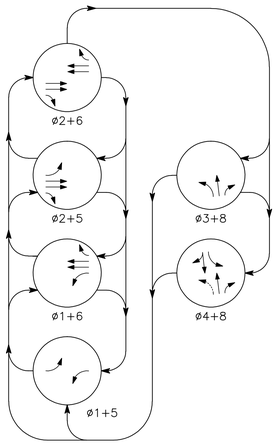
MARKET STREET
AND
NC 68 NORTH BOUND RAMP

DATE 09-22-98 | SCALE 1"=30'

DRAWN BY T. REILLY | FILE NO. M 061

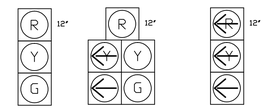
SHEET 1 OF 1

PHASING

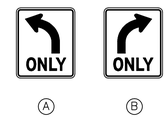


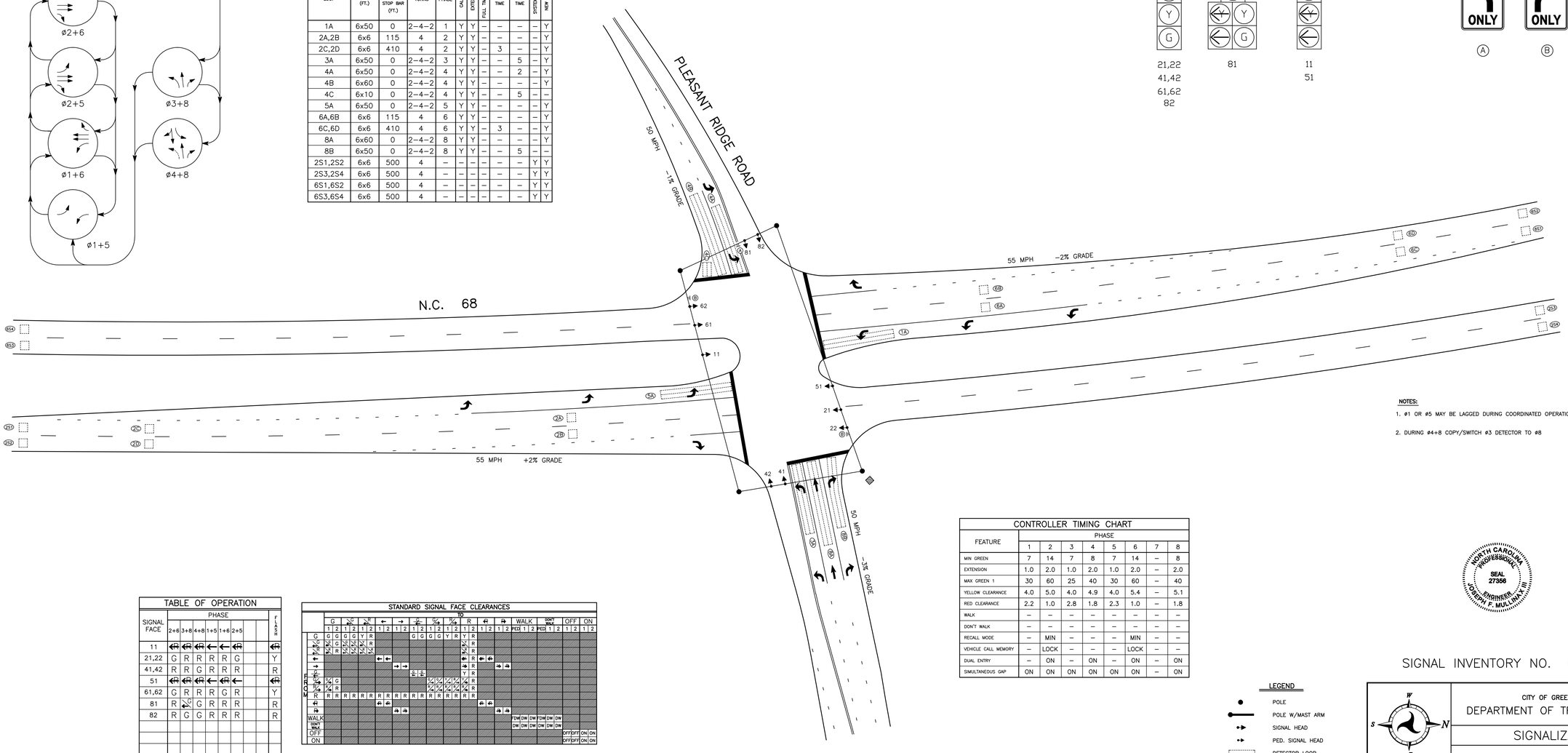
DETECTOR CHART										
SIZE AND PLACEMENT				DETECTOR PROGRAMMING						
LOOP	SIZE (FT.)	DISTANCE FROM STOP BAR (FT.)	TURNS	PHASE	CALLING	EXTENSION	FULL TIME DELAY	STRETCH TIME	DELAY TIME	SYSTEM LOOP	NEW CARD
1A	6x50	0	2-4-2	1	Y	Y	–	–	–	–	Y
2A,2B	6x6	115	4	2	Y	Y	–	–	–	–	Y
2C,2D	6x6	410	4	2	Y	Y	–	3	–	–	Y
3A	6x50	0	2-4-2	3	Y	Y	–	–	5	–	Y
4A	6x50	0	2-4-2	4	Y	Y	–	–	2	–	Y
4B	6x60	0	2-4-2	4	Y	Y	–	–	–	–	Y
4C	6x10	0	2-4-2	4	Y	Y	–	–	5	–	–
5A	6x50	0	2-4-2	5	Y	Y	–	–	–	–	Y
6A,6B	6x6	115	4	6	Y	Y	–	–	–	–	Y
6C,6D	6x6	410	4	6	Y	Y	–	3	–	–	Y
8A	6x60	0	2-4-2	8	Y	Y	–	–	–	–	Y
8B	6x50	0	2-4-2	8	Y	Y	–	–	5	–	–
2S1,2S2	6x6	500	4	–	–	–	–	–	–	Y	Y
2S3,2S4	6x6	500	4	–	–	–	–	–	–	Y	Y
6S1,6S2	6x6	500	4	–	–	–	–	–	–	Y	Y
6S3,6S4	6x6	500	4	–	–	–	–	–	–	Y	Y

SIGNAL HEADS



SIGNS





NOTES:

1. ø1 OR ø5 MAY BE LAGGED DURING COORDINATED OPERATION

2. DURING ø4+8 COPY/SWITCH ø3 DETECTOR TO ø8

CONTROLLER TIMING CHART								
FEATURE	PHASE							
	1	2	3	4	5	6	7	8
MIN GREEN	7	14	7	8	7	14	–	8
EXTENSION	1.0	2.0	1.0	2.0	1.0	2.0	–	2.0
MAX GREEN 1	30	60	25	40	30	60	–	40
YELLOW CLEARANCE	4.0	5.0	4.0	4.9	4.0	5.4	–	5.1
RED CLEARANCE	2.2	1.0	2.8	1.8	2.3	1.0	–	1.8
WALK	–	–	–	–	–	–	–	–
DON'T WALK	–	–	–	–	–	–	–	–
RECALL MODE	–	MIN	–	–	–	MIN	–	–
VEHICLE CALL MEMORY	–	LOCK	–	–	–	LOCK	–	–
DUAL ENTRY	–	ON	–	ON	–	ON	–	ON
SIMULTANEOUS GAP	ON	ON	ON	ON	ON	ON	–	ON

TABLE OF OPERATION								
SIGNAL FACE	PHASE							FLASH
	2+6	3+8	4+8	1+5	1+6	2+5		
11	↖↑	↖↑	↖↑	←	←	↖↑		↖↑
21,22	G	R	R	R	R	G		Y
41,42	R	R	G	R	R	R		R
51	↖↑	↖↑	↖↑	←	←	↖↑		↖↑
61,62	G	R	R	R	G	R		Y
81	R	↖	G	R	R	R		R
82	R	G	G	R	R	R		R

STANDARD SIGNAL FACE CLEARANCES

FROM \ TO	G 1	G 2	↖G 1	↖G 2	↖R 1	↖R 2	← 1	← 2	→ 1	→ 2	↖ 1	↖ 2	↖→ 1	↖→ 2	R 1	R 2	↔ 1	↔ 2	↔ 1	↔ 2	WALK PED 1	WALK PED 2	DON'T WALK PED 1	DON'T WALK PED 2	OFF 1	OFF 2	ON 1	ON 2
G	G	G	G	G	Y	R					G	G	G	G	Y	R	Y	R										
↖G	↖G	G	↖G	↖G	↖Y	R											↖Y	R										
↖R	↖R	R	↖R	↖R	↖R	↖R											↖R	R										
←							←	←									←	R	←	←								
→									→	→							→	R			→	→						
↖											↖	↖					Y	R										
↖→	↖→	G											↖→	↖→	↖→	↖→	↖→	R										
↖→	↖→	R											↖→	↖→	↖→	↖→	↖→	R										
R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R										
↔							↔	↔											↔	↔								
→									→	→									→	→								
WALK																					DW	DW	DW	DW	DW	DW		
DON'T WALK																					DW	DW	DW	DW	DW	DW		
OFF																									OFF	OFF	ON	ON
ON																									OFF	OFF	ON	ON

LEGEND

- POLE
- POLE W/MAST ARM
- SIGNAL HEAD
- PED. SIGNAL HEAD
- DETECTOR LOOP
- CONTROLLER CABINET

NORTH CAROLINA PROFESSIONAL SEAL 27356 ENGINEER JOSEPH F. MULLINAX III

SIGNAL INVENTORY NO. 07-0968

W S N E

CITY OF GREENSBORO
DEPARTMENT OF TRANSPORTATION

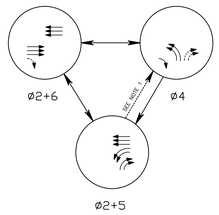
SIGNALIZATION

PLEASANT RIDGE ROAD (SR 2133)
AND
N.C. 68

REVISIONS	
DATE	BY
10-02-08	J.F.M.

DATE 10-04-00	SCALE 1"=30'
DRAWN BY T. REILLY	FILE NO. P 075
SHEET 1 OF 1	

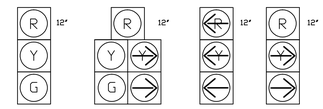
PHASING



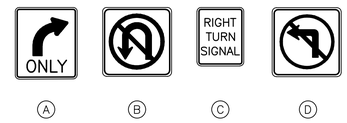
DETECTOR CHART

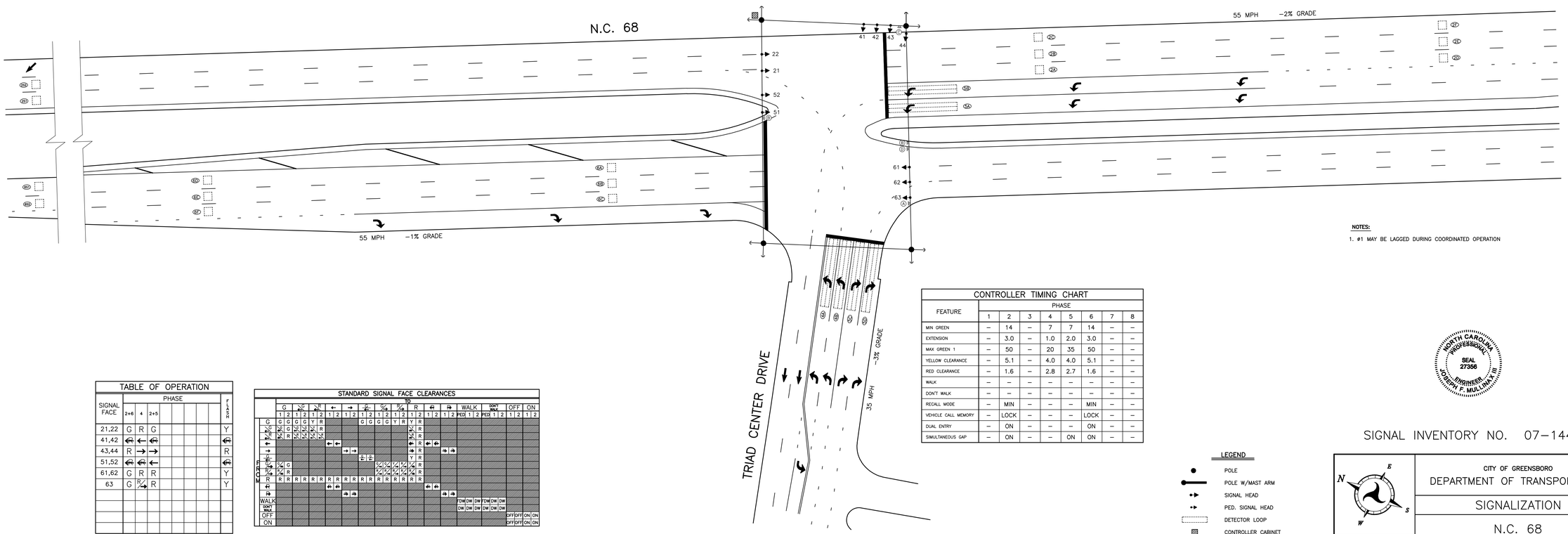
SIZE AND PLACEMENT				DETECTOR PROGRAMMING							
LOOP	SIZE (FT.)	DISTANCE FROM STOP BAR (FT.)	TURNS	PHASE	CALLING	EXTENSION	FULL TIME DELAY	STRETCH TIME	DELAY TIME	LOOP SYSTEM	NEW CARD
2A,2B	6x6	110	4	2	Y	Y	–	–	–	–	Y
2C	6x6	110	4	2	Y	Y	–	–	–	–	Y
2D,2E	6x6	405	4	2	Y	Y	–	2	–	–	Y
2F	6x6	405	4	2	Y	Y	–	2	–	–	Y
4A,4B	6x50	0	2–4–2	4	Y	Y	–	–	–	–	Y
5A,5B	6x50	0	2–4–2	5	Y	Y	–	–	–	–	Y
5C,5D	6x50	0	2–4–2	5	Y	Y	–	–	–	–	Y
6A,6B	6x6	110	4	6	Y	Y	–	–	–	–	Y
6C	6x6	110	4	6	Y	Y	–	–	–	–	Y
6D,6E	6x6	405	4	6	Y	Y	–	2	–	–	Y
6F	6x6	405	4	6	Y	Y	–	2	–	–	Y
2S1,2S2	6x6	600	4	–	–	–	–	–	–	Y	Y
6S1,6S2	6x6	600	4	–	–	–	–	–	–	Y	Y

SIGNAL HEADS



SIGNS





NOTES:

1. ø1 MAY BE LAGGED DURING COORDINATED OPERATION

CONTROLLER TIMING CHART

FEATURE	PHASE 1	2	3	4	5	6	7	8
MIN GREEN	–	14	–	7	7	14	–	–
EXTENSION	–	3.0	–	1.0	2.0	3.0	–	–
MAX GREEN 1	–	50	–	20	35	50	–	–
YELLOW CLEARANCE	–	5.1	–	4.0	4.0	5.1	–	–
RED CLEARANCE	–	1.6	–	2.8	2.7	1.6	–	–
WALK	–	–	–	–	–	–	–	–
DON'T WALK	–	–	–	–	–	–	–	–
RECALL MODE	–	MIN	–	–	–	MIN	–	–
VEHICLE CALL MEMORY	–	LOCK	–	–	–	LOCK	–	–
DUAL ENTRY	–	ON	–	–	–	ON	–	–
SIMULTANEOUS GAP	–	ON	–	–	ON	ON	–	–

TABLE OF OPERATION

SIGNAL FACE	PHASE 2+6	4	2+5						SIGNAL FACE
21,22	G	R	G						Y
41,42	⇦	←	⇦						⇦
43,44	R	→	→						R
51,52	⇦	⇦	←						⇦
61,62	G	R	R						Y
63	G	R/→	R						Y

STANDARD SIGNAL FACE CLEARANCES

FROM \ TO	G 1	G 2	G 1	G 2	Y/R 1	Y/R 2	← 1	← 2	→ 1	→ 2	⇦ 1	⇦ 2	⇦ 1	⇦ 2	R 1	R 2	⇦ 1	⇦ 2	⇨ 1	⇨ 2	WALK PED 1	WALK PED 2	DON'T WALK PED 1	DON'T WALK PED 2	OFF 1	OFF 2	ON 1	ON 2
G 1	G	G	G	G	Y	R					G	G	G	G	Y	R	Y	R										
G 2	G	G	G	G	Y	R											R	R										
Y/R 1	R	R	R	R	R	R											R	R										
Y/R 2	R	R	R	R	R	R											R	R										
← 1							←	←									⇦	R	⇦	⇦								
← 2									→	→							⇨	R			⇨	⇨						
⇦ 1											⇦	⇦					Y	R										
⇦ 2													⇦	⇦														
⇦ 1	R/G	G									R/G	R/G	R/G	R/G	R	R												
⇦ 2	R/G	R									R/G	R/G	R/G	R/G	R	R												
R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R												
⇦							⇦	⇦									⇦	⇦										
⇨									⇨	⇨									⇨	⇨								
WALK																					DW	DW	DW	DW	DW	DW		
DON'T WALK																					DW	DW	DW	DW	DW	DW		
OFF																									OFF	OFF	ON	ON
ON																									OFF	OFF	ON	ON

LEGEND

- POLE
- POLE W/MAST ARM
- SIGNAL HEAD
- PED. SIGNAL HEAD
- DETECTOR LOOP
- CONTROLLER CABINET

NORTH CAROLINA PROFESSIONAL SEAL 27356 ENGINEER JOSEPH F. MULLINAX III

SIGNAL INVENTORY NO. 07–1449

REVISIONS	
DATE	BY
08–27–02	T.J.R.
09–17–02	J.F.M.
10–07–08	J.F.M.

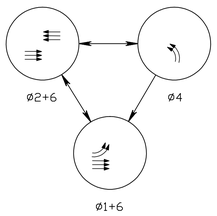
CITY OF GREENSBORO
DEPARTMENT OF TRANSPORTATION

SIGNALIZATION

N.C. 68
AND
TRIAD CENTER DRIVE

DATE	08–17–01	SCALE	1"=30'
DRAWN BY	T. REILLY	FILE NO.	N 003
SHEET	1 OF 1		

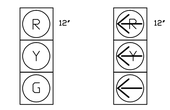
PHASING



DETECTOR CHART

SIZE AND PLACEMENT				DETECTOR PROGRAMMING							
LOOP	SIZE (FT.)	DISTANCE FROM STOP BAR (FT.)	TURNS	PHASE	CALLING	EXTENSION	FULL TIME DELAY	STRETCH TIME	DELAY TIME	LOOP RESIST.	NEW CARD
1A,1B	6x50	0	2-4-2	1	Y	Y	–	–	–	–	Y
2A,2B	6x6	110	4	2	Y	Y	–	–	–	–	Y
2C	6x6	110	4	2	Y	Y	–	–	–	–	Y
2D,2E	6x6	405	4	2	Y	Y	–	2	–	–	Y
2F	6x6	405	4	2	Y	Y	–	2	–	–	Y
4A,4B	6x50	0	2-4-2	4	Y	Y	–	–	–	–	Y
6A,6B	6x6	110	4	6	Y	Y	–	–	–	–	Y
6C	6x6	110	4	6	Y	Y	–	–	–	–	Y
6D,6E	6x6	405	4	6	Y	Y	–	2	–	–	Y
6F	6x6	405	4	6	Y	Y	–	2	–	–	Y

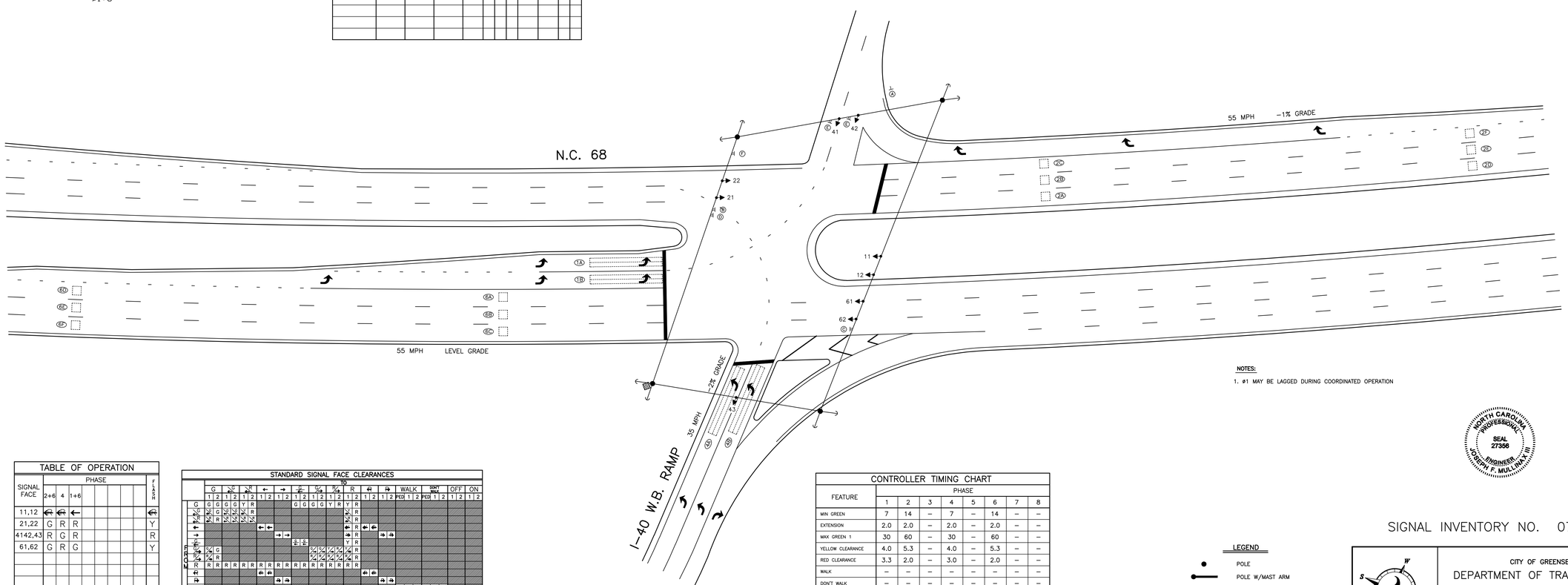
SIGNAL HEADS



21,22
41,42,43
61,62

11,12

SIGNS



NOTES:

1. Ø1 MAY BE LAGGED DURING COORDINATED OPERATION

NORTH CAROLINA PROFESSIONAL SEAL 27356 ENGINEER JOSEPH F. MULLINAX III

TABLE OF OPERATION

SIGNAL FACE	PHASE 2+6	4	1+6						FLASH
11,12	⇦	⇦	←						⇦
21,22	G	R	R						Y
4142,43	R	G	R						R
61,62	G	R	G						Y

STANDARD SIGNAL FACE CLEARANCES

FROM \ TO	G 1	G 2	Y 1	Y 2	R 1	R 2	← 1	← 2	→ 1	→ 2	⇦ 1	⇦ 2	⇨ 1	⇨ 2	R 1	R 2	⇦ 1	⇦ 2	⇨ 1	⇨ 2	WALK PED 1	WALK PED 2	DON'T WALK PED 1	DON'T WALK PED 2	OFF 1	OFF 2	ON 1	ON 2
G	G	G	Y	R							G	G	G	Y	R	Y	R											
Y	Y	Y	R	R											Y	R	R											
R	R	R	R	R											R	R	R											
←							←	←							R	R	←	←										
→									→	→					R	R			→	→								
⇦											⇦	⇦			Y	R												
⇨													⇨	⇨	R	R												
⇦	Y	Y											Y	Y	Y	R												
⇨	R	R											R	R	R	R												
⇦							⇦	⇦									⇦	⇦										
⇨									⇨	⇨									⇨	⇨								
WALK																					DW	DW	DW	DW	DW	DW		
DON'T WALK																					DW	DW	DW	DW	DW	DW		
OFF																									OFF	OFF	ON	ON
ON																									OFF	OFF	ON	ON

CONTROLLER TIMING CHART

FEATURE	PHASE 1	2	3	4	5	6	7	8
MIN GREEN	7	14	–	7	–	14	–	–
EXTENSION	2.0	2.0	–	2.0	–	2.0	–	–
MAX GREEN 1	30	60	–	30	–	60	–	–
YELLOW CLEARANCE	4.0	5.3	–	4.0	–	5.3	–	–
RED CLEARANCE	3.3	2.0	–	3.0	–	2.0	–	–
WALK	–	–	–	–	–	–	–	–
DON'T WALK	–	–	–	–	–	–	–	–
RECALL MODE	–	MIN	–	–	–	MIN	–	–
VEHICLE CALL MEMORY	–	LOCK	–	–	–	LOCK	–	–
DUAL ENTRY	–	ON	–	–	–	ON	–	–
SIMULTANEOUS GAP	ON	ON	–	–	–	ON	–	–

LEGEND

- POLE
- POLE W/MAST ARM
- SIGNAL HEAD
- PED. SIGNAL HEAD
- DETECTOR LOOP
- CONTROLLER CABINET

SIGNAL INVENTORY NO. 07-1163

REVISIONS	
DATE	BY
09-17-02	J.F.M.
10-01-08	J.F.M.

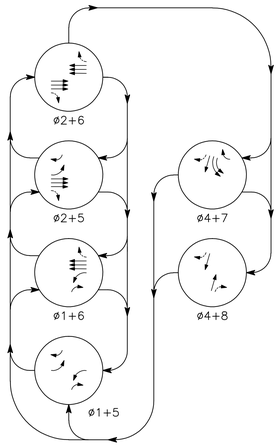
CITY OF GREENSBORO
DEPARTMENT OF TRANSPORTATION

SIGNALIZATION

N.C. 68
AND
I-40 W.B. RAMP

DATE 10-16-01 | SCALE 1"=30'
DRAWN BY T. REILLY
SHEET 1 OF 1 | FILE NO. N 001

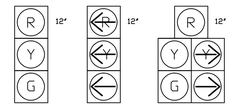
PHASING DIAGRAM



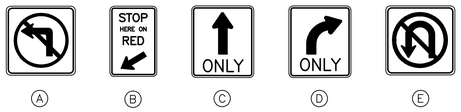
DETECTOR CHART

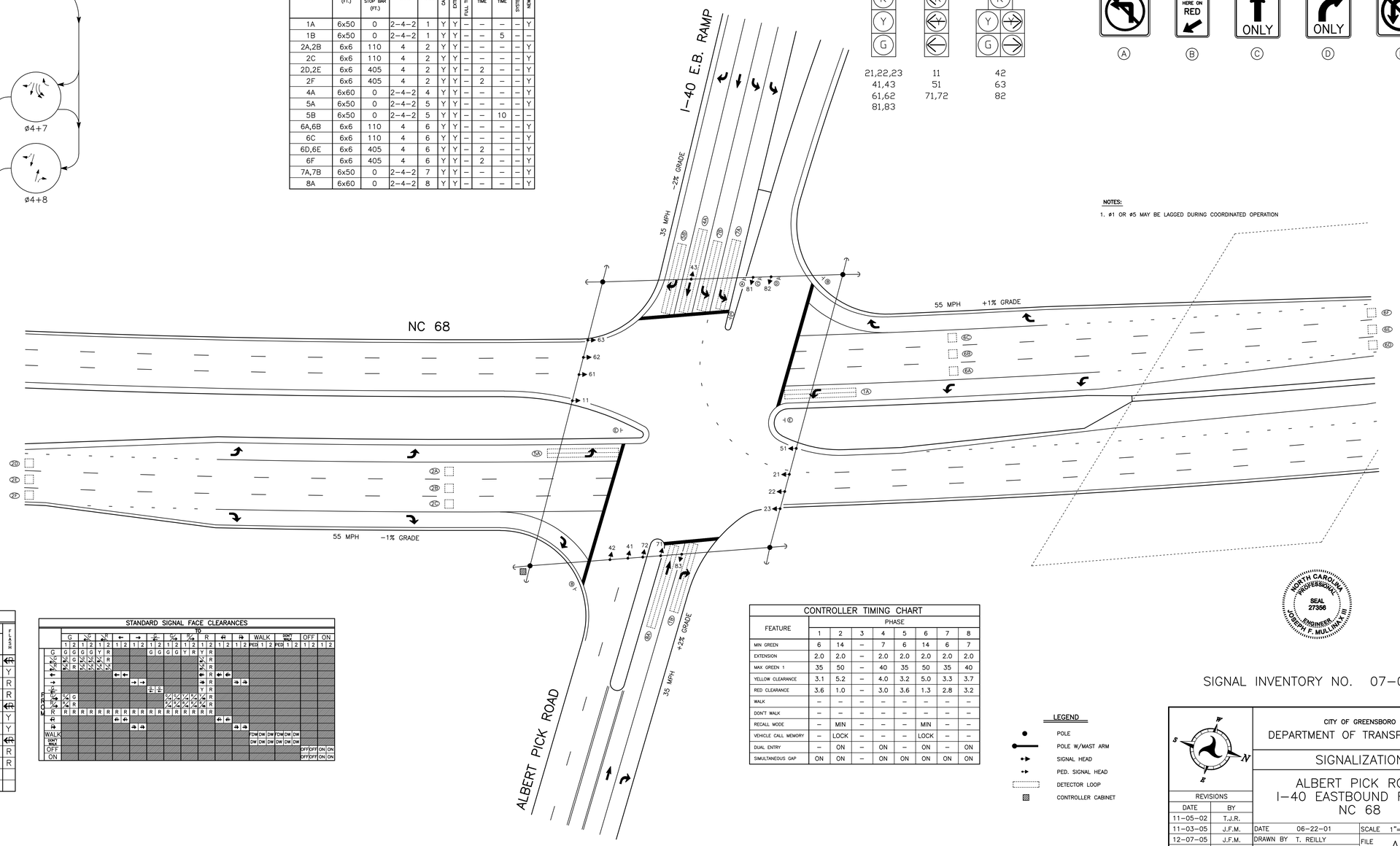
SIZE AND PLACEMENT				DETECTOR PROGRAMMING								
LOOP	SIZE (FT.)	DISTANCE FROM STOP BAR (FT.)	TURNS	PHASE	CALLING	EXTENSION	FULL TIME DELAY	STRETCH TIME	DELAY TIME	SYSTEM LOOP	NEW CARD
1A	6x50	0	2-4-2	1	Y	Y	–	–	–	–	Y
1B	6x50	0	2-4-2	1	Y	Y	–	–	5	–	–
2A,2B	6x6	110	4	2	Y	Y	–	–	–	–	Y
2C	6x6	110	4	2	Y	Y	–	–	–	–	Y
2D,2E	6x6	405	4	2	Y	Y	–	2	–	–	Y
2F	6x6	405	4	2	Y	Y	–	2	–	–	Y
4A	6x60	0	2-4-2	4	Y	Y	–	–	–	–	Y
5A	6x50	0	2-4-2	5	Y	Y	–	–	–	–	Y
5B	6x50	0	2-4-2	5	Y	Y	–	–	10	–	–
6A,6B	6x6	110	4	6	Y	Y	–	–	–	–	Y
6C	6x6	110	4	6	Y	Y	–	–	–	–	Y
6D,6E	6x6	405	4	6	Y	Y	–	2	–	–	Y
6F	6x6	405	4	6	Y	Y	–	2	–	–	Y
7A,7B	6x50	0	2-4-2	7	Y	Y	–	–	–	–	Y
8A	6x60	0	2-4-2	8	Y	Y	–	–	–	–	Y

SIGNAL HEADS



SIGNS





NOTES:

1. ø1 OR ø5 MAY BE LAGGED DURING COORDINATED OPERATION

TABLE OF OPERATION

SIGNAL FACE	PHASE 2+6	4+7	4+8	1+5	1+6	2+5		FLASH
11	←R	←R	←R	←	←	←R		←R
21,22,23	G	R	R	R	R	G		Y
41,43	R	G	G	R	R	R		R
42	R	G	G	R/↗	R	R/↗		R
51	←R	←R	←R	←	←	←R	←	←R
61,62	G	R	R	R	G	R		Y
63	G	R/↗	R	R	G	R		Y
71,72	←R	←	←R	←R	←R	←R		←R
81,83	R	R	G	R	R	R		R
82	R	R	G	R/↗	R/↗	R		R

STANDARD SIGNAL FACE CLEARANCES

FROM \ TO	G 1	G 2	⅄ 1	⅄ 2	↑R 1	↑R 2	← 1	← 2	→ 1	→ 2	↖L 1	↖L 2	↗R 1	↗R 2	R 1	R 2	↔ 1	↔ 2	WALK 1	WALK 2	DON'T WALK PED 1	DON'T WALK PED 2	OFF 1	OFF 2	ON 1	ON 2
G 1	G	G	G	Y	R						G	G	G	G	Y	R	Y	R								
G 2	G	G	G	Y	R						G	G	G	G	Y	R	Y	R								
⅄ 1	↖L		↖L	↖L	↖L											↖L	R									
⅄ 2	↖L	R	↖L	↖L	↖L											↖L	R									
↑R 1	←						←	←								←	R	←	←							
↑R 2									→	→						→	R			→	→					
← 1											↖L 1	↖L 2				Y	R									
← 2											↖L 1	↖L 2				Y	R									
→ 1	↗R	G											↗R	↗R	↗R	↗R	R									
→ 2	↗R	R											↗R	↗R	↗R	↗R	R									
R 1	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R									
R 2	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R									
↔ 1							←	←										←	←							
↔ 2									→	→								→	→							
WALK																				DW	DW	DW	DW	DW		
DON'T WALK																				DW	DW	DW	DW	DW		
OFF																							OFF	OFF	ON	ON
ON																							OFF	OFF	ON	ON

CONTROLLER TIMING CHART

FEATURE	PHASE 1	2	3	4	5	6	7	8
MIN GREEN	6	14	–	7	6	14	6	7
EXTENSION	2.0	2.0	–	2.0	2.0	2.0	2.0	2.0
MAX GREEN 1	35	50	–	40	35	50	35	40
YELLOW CLEARANCE	3.1	5.2	–	4.0	3.2	5.0	3.3	3.7
RED CLEARANCE	3.6	1.0	–	3.0	3.6	1.3	2.8	3.2
WALK	–	–	–	–	–	–	–	–
DON'T WALK	–	–	–	–	–	–	–	–
RECALL MODE	–	MIN	–	–	–	MIN	–	–
VEHICLE CALL MEMORY	–	LOCK	–	–	–	LOCK	–	–
DUAL ENTRY	–	ON	–	ON	–	ON	–	ON
SIMULTANEOUS GAP	ON	ON	–	ON	ON	ON	ON	ON

LEGEND

- POLE
- POLE W/MAST ARM
- SIGNAL HEAD
- PED. SIGNAL HEAD
- DETECTOR LOOP
- CONTROLLER CABINET

NORTH CAROLINA PROFESSIONAL SEAL 27356 ENGINEER JOSEPH F. MULLINAX III

SIGNAL INVENTORY NO. 07-0251

CITY OF GREENSBORO
DEPARTMENT OF TRANSPORTATION

SIGNALIZATION

ALBERT PICK ROAD,
I-40 EASTBOUND RAMPS,
NC 68

REVISIONS DATE	BY
11-05-02	T.J.R.
11-03-05	J.F.M.
12-07-05	J.F.M.
12-27-07	J.F.M.

DATE 06-22-01
DRAWN BY T. REILLY
SHEET 1 OF 1
SCALE 1"=30'
FILE NO. A 035

Appendix F: Public Involvement

Public Workshop #1

January 12, 2010

SANDY RIDGE ROAD / PLEASANT RIDGE ROAD WIDENING FEASIBILITY STUDY

Public Workshop #1: Summary of Comments

Colfax Elementary School — Media Center
9112 West Market Street

Tuesday, January 12, 2010
4:00 to 7:00 pm

Introduction

A public workshop was held for the Sandy Ridge Road/Pleasant Ridge Road Widening Feasibility Study. The workshop provided information regarding the feasibility study and gathered feedback on possible future roadway improvement options. The comments from the workshop and public comment period have been summarized along with responses. Staff from MAB and the MPO were available to provide information and answer questions.

Meeting Attendees

Approximately fifty (50) citizens were in attendance.

NAME	ADDRESS	NAME	ADDRESS
Citizen 1	8402 Quail Creek, Colfax, NC	Citizen 11	4212 Maple Tree Court, Colfax, NC 27235
Citizen 2	HPDOT, P.O. Box 230, High Point, NC 27265	Citizen 12	104 Bryant Moore Court, Jamestown, NC
Citizen 3	8508 Masons Pond, Colfax, NC	Citizen 13	NCDOT
Citizen 4	Kernersville	Citizen 14	GDOT
Citizen 5	City of GSO	Citizen 15	Stokesdale
Citizen 6	2401 Brigham Road, Greensboro, NC 27409	Citizen 16	Colfax
Citizen 7	3396 Dover Church Road, Colfax NC, 27235	Citizen 17	912 S Idol & Cox Road
Citizen 8	8304 Quail Creek, Colfax, NC 27235	Citizen 18	1403 Pleasant Ridge
Citizen 9	8211 Quail Creek Drive, Colfax, NC 27235	Citizen 19	6212 Horseshoe Drive, Summerfield, NC 27358
Citizen 10	8417 Mears Fork Road, Summerfield, NC 27358	Citizen 20	P.O. Box 291, Colfax, NC

NAME	ADDRESS	NAME	ADDRESS
Citizen 21	8200 Quail Creek Drive, Colfax, NC 27235	Citizen 35	3512 Dairy Point, High Point, NC
Citizen 22	8512 Quail Creek Drive, Colfax, NC 27235	Citizen 36	636 Gray Wilson Road, Colfax, NC
Citizen 23	1317 Pleasant Ridge Road, Greensboro, NC 27409	Citizen 37	7917 Windspray Drive, Summerfield, NC 27358
Citizen 24	WSDOT	Citizen 38	Colfax
Citizen 25	1175 Pleasant Ridge Road, Greensboro, NC 27409	Citizen 39	P.O. Box 67, Colfax, NC
Citizen 26	8836 Neville Road, Colfax, NC	Citizen 40	P.O. Box 274, Colfax, NC 27235
Citizen 27	9516 West Market Street, Colfax, NC	Citizen 41	P.O. Box 274, Colfax, NC 27235
Citizen 28	8512 Quail Creek Drive, Colfax, NC	Citizen 42	1607 A Squire Dairy Road, Kernersville, NC 27284
Citizen 29	168 Marshall Smith Road, Colfax, NC 27235	Citizen 43	8187 Sanfords Creek Drive, Colfax, NC 27235
Citizen 30	164 Marshall Smith Road, Colfax, NC 27235	Citizen 44	8106 Leabourne, Colfax, NC 27235
Citizen 31	812 N Elm Street, Greensboro, NC 27401	Citizen 45	2505 Sandy Ridge Road, High Point, NC
Citizen 32	8706 Staples Road, Colfax, NC 27235	Citizen 46	2003 Dinger Drive, Colfax, NC 27235
Citizen 33	GDOT	Citizen 47	4106 Castleford Drive, Colfax, NC
Citizen 34	1809 Squire Davis Road, Kernersville, NC 27284		

COMMENT SUMMARY

Below are the written comments received during the workshop or public comment period, which ended on Friday, February 12th. A total of 6 written comments were received, including comments from the Engineering Division of Greensboro DOT. General comments noted during the workshop from citizens included the following:

- Glad to see the improvements are on existing roadways versus on new location.
- Residents want to preserve open space and farmlands.
- Understand the need to widen Sandy Ridge, but not sure of the need for improvements on Pleasant Ridge.

Summary of Written Comments and Reponses

Comment #1

COMMENTS RELATING TO THE PUBLIC VIEWING OF THE PLANS FOR THE I-40/ SANDY RIDGE RD AND PLEASANT RIDGE ROAD CONNECTOR TO NC HWY 68

I attended the public plan review on January 12, 2009 at Colfax Elementary School.

It is common kowledge that the short section of Sandy Ridge Rd between I-40 and W. Market St is currently a bottle neck during the heaviest of traffic and has been for years. With the completion of the W. Market St widening it appears that this will be very beneficial to both commuters and the heavy truck traffic that uses this roadway. The plan appeared to be well thought out and presented.

I also reviewed the Pleasant Ridge Rd connector plan. Pleasant Ridge Road from Summerfield Rd terminus on the east end and the W. Market St western terminus is very heavily travelled with commuter trafic going to the airport area, the West Market St area and also on thru to High Point via Sandy Ridge Rd and I-40.

The Pleasant Ridge section in this plan is predominently commercial or soon to be commercial so developing this as a four lane connector will have minimum impact on residental property over the next few years as more and more of the properties go commercial.

The Pleasant Ridge connector plan is well laid out in my opinion and will address the connectivity with I-40 from Sandy Ridge Rd to the planned I-73 connector as well as the planned connector between NC 68 and Bryan Blvd.

With the I-73 connector coupled with the Pleasant Ridge widening and the planned Bryan connector this appears to eventually take most of the traffic off the Summerfield side of Pleasant Ridge Rd which our town has been fighting for years.

The staff has done a great job with these plans in my opinion and we hope to see funding for the next step in the future.

Mark E. Brown

Mark E. Brown, Mayor
Town of Summerfield, NC
336-681-6730

Response
Thank you Mayor for your comments. Your comments will be documented in the feasibility report.

Comment # 2
The maps were clear and the people assisting were helpful. Directional signs would be helpful in a sprawling school to find the meeting place.

Response
N/A

Comment #3
Businesses along Triad Drive west of Sandy Ridge Road need cross access to Farrington Road to get to the signal to go north. Casambri Lane makes this connection, but is a private road.

Lane Hall, District Engineer
NCDOT

Response
This request will be reviewed and a recommendation will be documented in the feasibility report.

Comment #4
The current plans does not indicate left turn lane into my property which is just south of Cude Rd. Per GDOT and NCDOT I was required to widen Pleasant Ridge to allow left and right turn lanes. I need assurance that I will continue to have left turn lane and left turn out.

Tim Hight
President
Crest Construction Services, Inc.
1196-A Pleasant Ridge Road
Suite 1
Greensboro, NC 27409

Response
Hello Mr. Hight,
Currently our plan does not show a median break for your property. A closer look at providing access to abutting properties will be done once funding is available. However, there is no guarantee that you will continue to have a left turn in and a left turn out of your property once Pleasant Ridge is widened. Particularly since your drive is so close to Cude Road and therefore may not meet the median break spacing requirements.

If you should have any additional questions about the median break requirements, please let me know and I can put you contact with the right person to talk to. I will include your comments in the public comment documentation.

Lydia M. McIntyre
Transportation Planning Engineer
Greensboro DOT/MPO
City of Greensboro

Comment # 5
This email is a public comment on the Sandy Ridge Road/Pleasant Ridge Road Design Feasibility Study presented at the January 12 workshop at Colfax Elementary School.

As Guilford County homeowners who reside near and frequently travel on Pleasant Ridge Road, we have the following three comments regarding the Pleasant Ridge Road Concept shown at **http://www.greensboro-nc.gov/NR/rdonlyres/CF59E7FF-0754-4A45-8812-720CDE71115A/0/PleasantRidgeDesign.pdf**

1. We wish to recommend a traffic signal with left-turn arrows at the intersection of Pleasant Ridge Road and Cude Road. This intersection adequately accommodates the current level of traffic in the morning & evening "rush hours." However, Cude Road is contiguous with Leabourne Road. When the new GTCC campus opens (in 2011 or 2012?) at Leabourne Road near NC Highway 68, the campus is expected to have 80 faculty/staff & 1,100 students (plus related business development). Consequently, we anticipate the traffic volume at Pleasant Ridge Road & Cude Road to increase such that this intersection may be dangerous without a traffic signal for traffic turning left onto Cude Road or left onto Pleasant Ridge Road. If a live traffic signal cannot be installed at the time of the road improvement, perhaps the infrastructure for a traffic signal could be included in the road improvements so that a traffic signal could readily be installed as soon as it is needed for traffic safety. Also, please note the Cude Road intersection occurs where Pleasant Ridge Road curves. The most dangerous left-turn is for northbound traffic on Pleasant Ridge Road that turns left on Cude Road because the curve reduces long-distance visibility of oncoming traffic here (especially in seasons when the large deciduous tree near the intersection has leaves that block visibility).

2. We currently drive southbound on Pleasant Ridge Road and turn left into the southernmost entrance of the U.S. Postal Service facility (near West Market Street) to deposit mail in the public mail boxes near the facility's front entrance. In the proposed plan, we do not see how to make this left turn from Pleasant Ridge Road to the public mail boxes as the southernmost entrance to the

Postal facility appears to be blocked by concrete islands. The lack of access to the front entrance may also be a problem for employees of the U.S. Postal Service facility. Is there a way to add left-turn access to the Postal facility's front (southernmost) entrance for southbound traffic on Pleasant Ridge Road?

3. We presume the plans for improving Pleasant Ridge Road near NC 68 will be coordinated with the plans for the US 220/ NC 68 Connector (Future I-73) described at this link: **http://www.greensboro-nc.gov/departments/GDOT/divisions/planning/metro/projectsandstudies/Connector.htm**

Thank you for considering these comments.

Best regards

Mr. & Mrs. Charles Angel
3500 Sanfords Creek Court
Colfax, NC 27235

Response

Mr. Angel

Thank you for your detailed comments about the proposed improvements to Pleasant Ridge Road. Your comments will be documented in the final report.

1. If available we will coordinate this study with those of the proposed GTCC site. The GTCC site plan and roadway improvements are still under development at this time, however the City will evaluate a need for the signal when they review the site plans.

2. The proposed improvements are currently not funded, but a closer evaluation of access to abutting land use will be reviewed and shared with the public when the project is funded. We will document your comments in the study report for further evaluation.

3. The study will be coordinated with the US 220/ NC 68 Connector improvements.

Lydia M. McIntyre
Transportation Planning Engineer
Greensboro DOT/MPO
City of Greensboro

Comment # 6

The following comments were gathered from the GDOT Engineering Division.

Sandy Ridge

- Realign Triad Drive to Farrington so can have full movement; expect there will be heavy left turns.
- Is there a need for a dual right on Sandy Ridge at Market Street? Congestion Engineer noted have issues with trucks being able to turn.
- Is there enough storage on Sandy Ridge at Cider Street?
- Are the volumes high enough for a loop in the southeast quadrant?

Pleasant Ridge

- Need dual lefts and 2 thru lanes at NC 68.
- Is there a need for a dual rights onto Market Street? Concerned about trucks being able to turn.

Response

Recommendations will be reviewed and included in the feasibility report.

Public Workshop #2

May 5, 2010

SANDY RIDGE ROAD / PLEASANT RIDGE ROAD WIDENING FEASIBILITY STUDY

Public Workshop #2: Summary of Comments

Colfax Elementary School — Media Center
9112 West Market Street

Wednesday, May 5, 2010
5:00 to 7:00 pm

Introduction

A 2nd public workshop was held for the Sandy Ridge Road/Pleasant Ridge Road Widening Feasibility Study. The workshop provided information regarding the feasibility study and gathered feedback on possible future roadway improvement options. The mapping shown during the meeting had been revised based citizen comments from the first public meeting, NCDOT Design review, and GDOT review. Major revisions include eliminating left-turn crossover at Triad Drive, showing six-lanes on the entire section of Sandy Ridge Road, and inclusion of parcel lines. The comments from the 2nd workshop and public comment period have been summarized along with responses. Staff from MAB and the MPO were available to provide information and answer questions.

Meeting Attendees

Approximately thirty (30) citizens were in attendance.

NAME	ADDRESS	NAME	ADDRESS
Citizen 1	1169 Pleasant Ridge Rd Greensboro, NC 27409	Citizen 7	1879 Cude Rd Colfax, NC 27235
Citizen 2	636 Gray Wilson Rd.	Citizen 8	302 Stratford Dr Greensboro, NC
Citizen 3	2401 Sandy Ridge Rd High Point	Citizen 9	1607 A Squire Davis Rd Kernersville, NC 27284
Citizen 4	1890 Cude Rd Colfax, NC	Citizen 10	1315 Robin Hood Rd
Citizen 5	8106 Leabourne Rd	Citizen 11	242 Little Santee Rd Colfax, NC 27235
Citizen 6	1178 Pleasant Ridge Rd Greensboro, NC	Citizen 12	3300 Sandy Ridge Rd

NAME	ADDRESS	NAME	ADDRESS
Citizen 13	1196 Pleasant Ridge Rd Greensboro, NC	Citizen 23	5002 Rosemont Ct Colfax, NC
Citizen 14	1302 Pleasant Ridge Rd Greensboro, NC 27409	Citizen 24	7800 Airport Crt. Drive Greensboro 27407
Citizen 15	812 N Elm St Greensboro, NC 27401	Citizen 25	4 Moss Cove Ct Greensboro, NC 27407
Citizen 16	3301 Sandy Ridge Rd Colfax, NC	Citizen 26	812 N Elm St Greensboro, NC
Citizen 17	5012 Rosemont Ct Colfax, NC	Citizen 27	1405 Pleasant Ridge Rd Greensboro, NC
Citizen 18	8308 Point Oak Dr Colfax, NC 27235	Citizen 28	1234 Pleasant Ridge Rd Greensboro, NC
Citizen 19	1138 Pleasant Ridge Rd Greensboro, NC 27409	Citizen 29	3210 Sandy Ridge Rd Colfax, NC 27325
Citizen 20	PO Box 274 Colfax, NC	Citizen 30	3302 Sandy Ridge Rd Colfax, NC 27235
Citizen 21	2217 Sandy Ridge Rd Colfax, NC		
Citizen 22	3319 Sandy Ridge Rd Colfax, NC		

COMMENT SUMMARY

Below are the written comments received during the workshop or public comment period, which ended on Friday, June 4th. A total of 4 written comments were received. General comments noted during the workshop from citizens included the following:

- Concerns about impacts to property and homes as a result of widening Sandy Ridge
- Reemphasized glad to see the improvements are on existing roadways versus on new location.
- Understand the need to widen Sandy Ridge, but not sure of the need for improvements on Pleasant Ridge.

Summary of Written Comments and Reponses

Comment #1

Bike lanes on Sandy Ridge Road. Cyclist meet at Farmer's Market and ride north. Safer access to north side of I-40 would be good.

Response

Thank you for your comments. Your comments will be documented in the feasibility report. Wide outside lanes (14 ft.) lanes are proposed for Sandy Ridge and will be extended across the bridge.

Comment # 2

I would like to discuss a left turn lane onto my property at 1196 Pleasant Ridge. I was forced to widen the road to allow for a left turn lane and now this plan shows this to go away.
Tim Hight

Response

Currently our plan does not show a median break for your property. A closer look at providing access to abutting properties will be done once funding is available. It is also important to note that Sandy Ridge is priority for obtaining funding. There is no definite timely for obtaining funding for either project. However, the best time to discuss maintaining access to your property would be after funding has been obtained.

Comment #3

Dear Ms. McIntyre:
The widening of Sandy Ridge from I-40 to Market St. cannot come too soon for me. I drive this route whenever I go to Greensboro, at least once a week; and it is a real bottleneck, in conjunction with the railroad tracks. This makes it slow PLUS dangerous. Many cars stop on the tracks to wait for the light on to Market St.

It will be an important DOT project to expedite.

Marianne Royle
Kernersville, NC(in Guilford county)

Response

Thank you for your comment and it will be documented in the feasibility report.

Comment #4

Wise decision-making to widen existing road. Your planning is basically environmentally benign and it is cost-effective for the tax payer. We appreciate your efforts. Please work with High Point to promote FS-0707B as a connector by widening their Johnson Street / Sandy Ridge Road as opposed to a new road crossing 17 water features between Hwy 311 and I-40. A new road would destroy numerous farms, tree canopy, wetlands and wildlife habitat- that would be criminal.
Cathy Poole

Response

Thank you for your comment and it will be documented in the feasibility report.

Comment # 5

1. Under new proposal, I'll have no left hand turn out of my driveway available. I'll only have a right turn available, and will have to go to the Cude Road exit to be able to make a u-turn and then go back towards Hwy 421.
2. Coming from Hwy 68 I will not have a left turn in to my property available.
3. Mailbox is now placed on the road across from my home, making it very dangerous to collect my mail at the present time. Under the new proposal it will be even more difficult. Can we get the post office involved to try to get boxes relocated and route changes so as to correct this dangerous problem.

N.T. Hansen
Greensboro, NC 27409

Response

Currently our plan does not show a median break for your property. A closer look at providing access to abutting properties will be done once funding is available. Your comments will be documented in the feasibility and include a request to coordinate with the U.S. Postal Service for safe placement of the mailboxes.

Appendix G: Cost Estimate Worksheets

NC-DOT
Contract Standards and Development Unit
Preliminary Estimate Section

August 2, 2010

Final Copy

Memo To: Derrick Lewis, PE
Unit Head - Feasibility Studies Unit

From: Doug Lane
Preliminary Estimate Engineer

Subject: Preliminary Construction Alternatives for FS-0707A, Guilford County.

FS-0707A

DESCRIPPTION	LENGTH (Miles)	CONSTR.COST
I-40 Sandy Ridge Rd Interchange	0.22	$7,800,000
Sandy Ridge Road Widening	0.59	$11,600,000
Pleasant Ridge Road Widening	1.83	$12,400,000
Totals	2.64	$31,800,000

Note: Right-of-Way and R/W Utility Cost are not included in above costs.
Utility Construction Items from Barry have been added.

Additional Cost to Remove and Replace Bridge on Sandy Ridge Road over I-40 vs Widening the Existing Bridge is $5,400,000, and is not included in above costs.

North Carolina Department of Transportation
Preliminary Estimate

TIP No.	**FS-0707A**	**Func**	County:	**GUILFORD**
Route	I-40/Sandy Ridge Road Interchange Upgrade - add two loops and realign the two adjacent ramps			
From	Just north and south of ramps on Sandy Ridge			**CONSTR. COST**
Typical Section	**Widen to 6 Lane Divided C&G with Raised Median**			**$7,800,000**

Prepared By: Martin Alexiou Bryson, P.C. 5/21/10
Requested By: Greensboro DOT and Feasibility Studies Unit
Priced By: Doug Lane 8/2/10 **Added Utility Construction Items**

Line Item	Des	Sec No.	Description	Quantity	Unit	Price	Amount
			Clearing and Grubbing	17.0	Acre	$ 12,000.00	$ 204,000.00
			Earthwork	67,000	CY	$ 8.00	$ 536,000.00
			Pavement Removal	1,000	SY	$ 3.00	$ 3,000.00
Added			Reinforced Bridge Approach Fills	1	LS	$ 30,000.00	$ 30,000.00
			Drainage Existing Location - upgrade Diamond				
			- Loops	0.48	Miles	$ 150,000.00	$ 72,450.00
			- Auxilliary Lanes	0.44	Miles	$ 50,000.00	$ 21,800.00
			- Ramps	0.44	Miles	$ 80,000.00	$ 34,880.00
			- Sandy Ridge Road	0.22	Miles	$ 300,000.00	$ 66,000.00
			Fine Grading	19,650	SY	$ 2.00	$ 39,300.00
			Pavement Widening	4,800	SY	$ 59.00	$ 283,200.00
			New Pavement	11,600	SY	$ 55.00	$ 638,000.00
			Pavement Resurfacing	10,250	SY	$ 12.00	$ 123,000.00
			Subgrade Stabilization	18,000	SY	$ 6.00	$ 108,000.00
			1'-6" Concrete Curb and Gutter	0	LF	$ 11.00	$ -
			2'-6" Concrete Curb and Gutter	5,200	LF	$ 15.00	$ 78,000.00
			5' Concrete Sidewalk	1,480	LF	$ 28.00	$ 41,440.00
			5" Monolithic Concrete Island	870	SY	$ 50.00	$ 43,500.00
			Guardrail	300	LF	$ 15.00	$ 4,500.00
			Guardrail Anchor Units	2	Each	$ 1,500.00	$ 3,000.00
Added			Fencing (Woven Wire)	2,650	LF	$ 4.00	$ 10,600.00
			Erosion Control	21.5	Acres	$ 10,000.00	$ 215,000.00
			Upgrade Traffic Signal	2	Each	$ 70,000.00	$ 140,000.00
			(at EB I-40 Ramps and at WB I-40 Ramps)				
			New Traffic Signal	0	Each	$ -	$ -
Added			Signing for 2-Loops (Per Signing Unit)	1	LS	$ 250,000.00	$ 250,000.00
			Traffic Control	1.0	LS	$ 200,000.00	$ 200,000.00
			Thermo and Markers				
			- Loops	0.48	Miles	$ 8,000.00	$ 3,864.00
			- Auxilliary Lanes	0.44	Miles	$ 6,000.00	$ 2,616.00
			- Ramps	0.44	Miles	$ 10,000.00	$ 4,360.00
			- Sandy Ridge Road	0.22	Miles	$ 40,000.00	$ 8,800.00
			Structures (Ex 72'x 219')				
			Sandy Ridge over I-40 - widen to 123'	11,169	SF	$ 125.00	$ 1,396,125.00
Added			Bridge Approach Slabs 2@51'x 25'	2,550	SF	$ 25.00	$ 63,750.00
Added			**Retaining Walls**				
			At EB Accel Ln (End Bent) 16'x 163'	2,608	SF	$ 95.00	$ 247,760.00
			SF Concrete Barrier at Toe of Wall	195	LF	$ 85.00	$ 16,575.00
			At WB Accel Ln (End Bent) 10'x 175'	1,750	SF	$ 75.00	$ 131,250.00
			SF Concrete Barrier at Toe of Wall	195	LF	$ 85.00	$ 16,575.00
			Utility Construction				
			Reloc Ex 12"DIP Water Lines	100	LF	$ 107.00	$ 10,700.00
			Reloc Ex Sewer Lines		LF		
			Misc. & Mob (15% Strs&Util)				$ 282,955.00
			Misc. & Mob (45% Functional)				$ 1,424,000.00

Lgth 0.22 Miles

Contract Cost …….. …… ……..	$ 6,755,000.00
E. & C. 15% …….. …… ……..	$ 1,045,000.00
Construction Cost …….. …… ……..	**$ 7,800,000.00**

North Carolina Department of Transportation
Preliminary Estimate

TIP No.	**FS-0707A**	**Func**	County:	**GUILFORD**
Route	Sandy Ridge Road (SR 1850)			
From	I-40 to West Market Street			**CONSTR. COST**
Typical Section	**Widen to 4 and 6 Lane Divided C&G, 23'Raised Med, 11'Berms w/SW**			**$11,600,000**

Prepared By: Martin Alexiou Bryson, P.C. 5/15/10
Requested By: Greensboro DOT and Feasibility Studies Unit
Priced By: Doug Lane 8/2/10 **Added Utility Construction Items**

Line Item	Des	Sec No.	Description	Quantity	Unit	Price	Amount
			Clearing and Grubbing	14.9	Acre	$ 12,000.00	$ 178,800.00
			Earthwork	61,200	CY	$ 8.00	$ 489,600.00
			Pavement Removal	670	SY	$ 3.00	$ 2,010.00
			Drainage Existing Location	0.59	Miles	$ 400,000.00	$ 234,400.00
			(2-L shld widening to 6-L C&G)				
			Drainage New Location	0.33	Miles	###########	$ 1,481,850.00
			(varies 2-L to 6-L C&G Relocated Triad Dr)				
			Fine Grading	63,200	SY	$ 2.00	$ 126,400.00
			Pavement Widening	33,000	SY	$ 59.00	$ 1,947,000.00
			New Pavement	10,200	SY	$ 55.00	$ 561,000.00
			Pavement Resurfacing	6,600	SY	$ 12.00	$ 79,200.00
			Subgrade Stabilization	49,000	SY	$ 6.00	$ 294,000.00
			1'-6" Concrete Curb and Gutter	3,100	LF	$ 11.00	$ 34,100.00
			2'-6" Concrete Curb and Gutter	11,300	LF	$ 15.00	$ 169,500.00
			5' Concrete Sidewalk	10,450	LF	$ 28.00	$ 292,600.00
			5" Monolithic Concrete Island	1,500	SY	$ 50.00	$ 75,000.00
			Erosion Control	17.3	Acres	$ 10,000.00	$ 173,000.00
			Upgrade RR Signal with New Median Gat	1	Each	$ 160,000.00	$ 160,000.00
			(Sandy Ridge Rd ~110' south of intersection w/West Market St, SB - 2 Lanes, NB - 3 Lanes)				
			Concrete Railroad Crossing	70	LF	$ 800.00	$ 56,000.00
			Upgrade Traffic Signal	1	Each	$ 70,000.00	$ 70,000.00
			(Sandy Ridge Rd and West Market St)				
			New Traffic Signal	2	Each	$ 100,000.00	$ 200,000.00
			(Sandy Ridge Rd at Farrington Rd/Relocated Triad Dr and at Cider Rd)				
			Traffic Signal Removal	1	Each	$ 15,000.00	$ 15,000.00
			(Sandy Ridge Rd and Triad Dr)				
			Traffic Control	1.0	LS	$ 120,000.00	$ 120,000.00
			Thermo and Markers				
			Sandy Ridge Road 6-Ln	0.59	Miles	$ 35,000.00	$ 20,650.00
			Triad/Farrington (1,900') 5-Ln	0.36	Miles	$ 25,000.00	$ 9,000.00
			Cider Road (330') 3-Ln	0.06	Miles	$ 16,000.00	$ 960.00
			Retie Old Triad Dr (290') 2-Ln	0.05	Miles	$ 10,000.00	$ 500.00
			Structures				
			N/A	0	SF	$ -	$ -
			Utility Construction				$ -
			Reloc Ex 8"DIP Water Lines	1,000	LF	$ 107.00	$ 107,000.00
			Reloc Ex 12"DIP Water Lines	800	LF	$ 107.00	$ 85,600.00
			Reloc Ex Fire Hydrant / Cut Pavement	2	Each	$ 6,933.00	$ 13,866.00
			Reloc Ex Sewer Lines		LF		$ -
			Misc. & Mob (15% Strs&Util)				$ 30,964.00
			Misc. & Mob (45% Functional)				$ 3,056,000.00

Lgth 0.59 miles

Contract Cost ……..	$ 10,084,000.00
E. & C. 15% ……..	$ 1,516,000.00
Construction Cost ……..	**$ 11,600,000.00**

North Carolina Department of Transportation
Preliminary Estimate

TIP No. **FS-0707A** **Func** County: **GUILFORD**
Route Pleasant Ridge Road (SR 2133)
From West Market Street to NC 68
Typical Sectior **Widen to 4 Lane Divided C&G, 23'Raised Med., 4'Bike Lns, 11'Berms w/SW**

CONSTR. COST
$12,400,000

Prepared By: Martin Alexiou Bryson, P.C. 5/25/10
Requested By: Greensboro DOT and Feasibility Studies Unit
Priced By: Doug Lane 8/2/10 **Added Utility Construction Items**

Line Item	Des	Sec No.	Description	Quantity	Unit	Price	Amount
			Clearing and Grubbing	15.5	Acres	$ 12,000.00	$ 186,000.00
			Earthwork	29,100	CY	$ 10.00	$ 291,000.00
			Pavement Removal	0	SY	$ 3.00	$ -
			Drainage Existing Location	1.83	Miles	$ 300,000.00	$ 549,000.00
			(widen 2-L shld to 4-L Div. C&G)				
			Fine Grading	97,800	SY	$ 2.00	$ 195,600.00
			Pavement Widening	46,100	SY	$ 59.00	$ 2,719,900.00
			New Pavement	5,000	SY	$ 55.00	$ 275,000.00
			Pavement Resurfacing	19,600	SY	$ 12.00	$ 235,200.00
			Subgrade Stabilization	85,400	SY	$ 6.00	$ 512,400.00
			1'-6" Concrete Curb and Gutter	17,100	LF	$ 11.00	$ 188,100.00
			2'-6" Concrete Curb and Gutter	19,400	LF	$ 15.00	$ 291,000.00
			5' Concrete Sidewalk	18,250	LF	$ 28.00	$ 511,000.00
			5" Monolithic Concrete Island	610	SY	$ 50.00	$ 30,500.00
			Erosion Control	22.4	Acres	$ 10,000.00	$ 223,970.00
			Upgrade Traffic Signal (West Market & Pleasant Ridge	1	Each	$ 70,000.00	$ 70,000.00
			New Traffic Signal (PR w/Cude and w/Brigham)	2	Each	$ 90,000.00	$ 180,000.00
			Traffic Signal Removal	0	Each	$ 15,000.00	$ -
			Traffic Control	1.83	Miles	$ 70,000.00	$ 128,100.00
			Thermo and Markers				$ -
			Pleasant Ridge Road 4-Ln	1.83	Miles	$ 20,000.00	$ 36,600.00
			Cude Road (500') 3-Ln	0.09	Miles	$ 16,000.00	$ 1,440.00
			Brigham (400') 3-Ln	0.08	Miles	$ 16,000.00	$ 1,280.00
			Structures				
			N/A	0	SF	$ -	$ -
			Utility Construction				
			Reloc Ex 8"DIP Water Lines	600	LF	$ 107.00	$ 64,200.00
			Reloc Ex 12"DIP Water Lines	8,000	LF	$ 107.00	$ 856,000.00
			Reloc Ex Fire Hydrant / Cut Pavement	15	Each	$ 6,933.00	$ 103,995.00
			Misc. & Mob (15% Strs&Util)				$ 153,715.00
			Misc. & Mob (45% Functional)				$ 2,982,000.00

Lgth 1.83 Miles

Contract Cost ……..	$ 10,786,000.00
E. & C. 15% ……..	$ 1,614,000.00
Construction Cost ……..	**$ 12,400,000.00**

REQUEST FOR R/W COST ESTIMATE

DATE RECEIVED: **06/04/10** DISTRIBUTED: **06/04/10** REVISION: **NO**

I.D.NO./ BREAK	DESCRIPTION		SCHEDULE			
FS-0707 A	**WIDENING AND EXTENSION OF SANDY RIDGE ROAD**	R/W CONST	FY____ FY____	UNFUND ☐	POST YRS ☐	

ACCESS: FULL C/A ☐ PARTIAL C/A ☐ NO CONTROL ☐

WBS ELEMENT NUMBER: **34263.1.1** COUNTY: **GUILFORD**

ENGINEER: **DERRICK LEWIS** EMAIL: **dlewis@ncdot.gov**

SPECIAL INSTRUCTIONS:
N/A

TYPE OF PLANS FURNISHED FOR ESTIMATE: **AERIAL**

DATE DUE: **08/25/10**

PRIOR ESTIMATES OF LAND AND DAMAGES (WITH DATES):
N/A

IF INCREASES OR DECREASES ARE SIGNIFICANT, PLEASE EXPLAIN:
N/A

BASED ON PAST PROJECT HISTORICAL DATA, THE LAND AND DAMAGE FIGURES HAVE BEEN ADJUSTED BY A FACTOR OF **50%** TO INCLUDE CONDEMNATION AND ADMINISTRATIVE INCREASES THAT OCCUR DURING SETTLEMENT OF ALL PARCELS. THESE FIGURES PROJECT THE MOST ACCURATE ACQUISITION ESTIMATES FOR 2 YEARS FROM THE DATE OF THIS ESTIMATE.

ESTIMATED BY: FRED BARKLEY COMPLETED DATE: 10/14/10

ALTERNATES

	1 / A	**2 / B**	**3 / C**	
ESTIMATED NO. OF PARCELS:	**10**	**50**	**45**	
RESIDENTIAL RELOCATIONS:	**0 / 0**	**4 / 80,000**	**0 / 0**	
BUSINESS RELOCATIONS:	**2 / 50,000**	**1 / 25,000**	**0 / 0**	
GRAVES	**0**	**0**	**0**	
LAND AND DAMAGE:	**7,525,000**	**3,675,000**	**3,175,000**	
ACQUISTION:	**100,000**	**520,000**	**400,000**	
TOTAL ESTIMATED R/W COST:	**7,675,000**	**4,300,000**	**3,575,000**	

THERE ARE NO FIGURES FOR UTILITY INVOLVEMENT ON THIS ESTIMATE AND NO PUE's.