Final Report

Submitted to DCHC MPO December 20, 2019

NC54

WEST CORRIDOR STUDY







Executive Summary

Study Purpose

The NC 54 West Corridor Study is an in-depth review of the 20.4 mile stretch of NC 54 between Old Fayetteville Road in Carrboro and the I-85/I-40 interchange in Graham. The City of Graham, NCDOT Division 7, and the Durham-Chapel Hill-Carrboro Metropolitan Planning Organization (DCHCMPO) recognized the need to evaluate this vital roadway. The two-lane roadway is a regionally significant east-west corridor that carries an average of 6,000 to 15,000 vehicles per day. Traffic congestion on the corridor, which is higher than would be expected from the daily level of traffic, is amplified by inadequate access management, heavy turning conflicts, and substantial truck volumes. The roadway also traverses urban, suburban, industrial and agricultural land uses, which makes designing a roadway that accommodates the needs of all users an important challenge.

This study clarifies the long-term vision for the corridor through the year 2045, including the NC 54 roadway itself and the surrounding communities. This vision is comprehensive, addressing preservation of the area's character, economic opportunity and vitality, environmental sensitivity, and transportation improvements for all users (e.g., drivers, freight, pedestrians, bicyclists). The project's Study Team represents the broad interests of the corridor, including members from the City of Graham, Town of Carrboro, DCHC MPO, the Burlington-Graham MPO, Triangle Area Rural Planning Organization, Alamance and Orange Counties, VHB, and Rose & Associates. The project Study Team considered numerous issues, improvements, and their trade-offs, such as:

- Safety
- Access to goods, services, and residences
- Multimodal network facilities and amenities
- Economic vitality/opportunity
- Environmental/community preservation
- Consideration of all travel modes, including bicycle, pedestrian, and freight
- Funding constraints

Study Context

NC 54 is federally classified as a Minor Arterial roadway. Historically, this route was the primary link between Burlington/Graham and Chapel Hill/Carrboro. Completion of I-40 has somewhat diminished the importance of this function, although it is still an important commuter route, and plays an important role during UNC football games and other major events. A growing share of trips using this part of NC 54 begin or end at homes and businesses along the corridor itself. Outside either end of the corridor (especially west of NC 119), most of the adjacent land remains rural in character, although new subdivisions and other development are appearing.

According to the North Carolina Department of Transportation's (NCDOT) ongoing traffic count program, Average Annual Daily Traffic volumes (AADTs) on NC 54 ranged from 6,000 to 18,000 vehicles per day (vpd) in 2015-2016, depending on location. The highest volumes are near I-40/I-85, followed by the eastern end of the corridor (15,000 vpd). Volumes steadily decrease towards the middle of the study corridor, reaching a minimum near the County Line. Additional 2017 counts collected as part of this study suggest a recent increase in volumes. AADTs at the three locations cited above grew as follows:

- East of I-40/I-85: 21,100 vpd (+3,100 vpd)
- Near the County Line: 6,900 vpd (+900 vpd)
- West of Old Fayetteville Road; 16,000 vpd (+1,000 vpd)

Traffic volumes over the next 25 years are forecasted to increase annually by 1%-1.5% along the corridor. The estimated effects of such pressures on the existing corridor's roadway cross sections are the basis for multimodal improvements identified throughout the study.

ES1 – NC 54 Study Corridor and Planning Jurisdictions



The corridor cuts across numerous municipal, county, and planning jurisdictions with different right-of-way (ROW) dimensions, lane configurations, and improvement priorities (Figure ES1). Most of the westernmost 1.4 miles of the corridor (between I-40/I85 and the Haw River) falls within the city limits of Graham; the most recent Burlington-Graham MPO Comprehensive Transportation Plan (CTP) identifies most of this segment as "Boulevard, Needs Improvement." Most of this segment has 100' ROW, as opposed to a 120' width east of Haw River. The remainder of the Alamance County portion of NC 54 is classified as a Major Thoroughfare, with about 0.75 miles or roadway immediately east of NC 119 designated as "Needs Improvement." Nearly 0.3 miles of NC 54 in this vicinity is in Swepsonville. The prevailing cross-section west of NC 119 is five lanes, with curb-and-gutter and a continuous two-way left-turn (TWLT) lane. The cross-section then transitions to two lanes with paved shoulders between 2' and 4' wide. There are limited opportunities for passing throughout the 2-lane portion of NC 54.

Just under 7.5 miles east of the Alamance/Orange County, NC 54 is in the Triangle Area Rural Planning Organization (TARPO). The Orange County CTP classifies the first 4.0 miles (to Orange Grove Road) as a Major Thoroughfare; the next 3.4 miles (to Bethel Hickory Grove Church Road) is identified as "Boulevard, Needs Improvement." East of this point, NC 54 enters the Durham-Chapel Hill-Carrboro Metropolitan Planning Organization (DCHC-MPO) boundary. The latest DCHC-MPO CTP classifies the easternmost 2.6 miles of NC 54 as "Major Thoroughfare, Needs Improvement."

Intersections with public streets and private roads and driveways are frequent. Apart from the intersection at Mt Willen Rd/Salem Church Rd, all traffic signals are located on the multi-lane segments at either end of the study corridor (five in Alamance County, one in Carrboro). No on-street parking is permitted along NC 54, and there are no sidewalks or bicycle facilities (except for a few hundred feet of bike lanes just west of Old Fayetteville Road and sidewalk near a commercial development in Graham). Between I-40/I-85 and about a mile east of NC 119, the speed limit is 55 MPH, except for a 35 MPH school zone at Alexander-Wilson Elementary. East of this point, the prevailing speed limit is 55 MPH.

Study Process

The study was conducted over a twelve-month period beginning in September 2017 and concluding one year later in September 2018. The study was overseen by a Study Team composed of staff from the City of Graham, Town of Carrboro, DCHC MPO, the Burlington-Graham MPO, Triangle Area Rural Planning Organization, Alamance and Orange Counties, VHB, and Rose & Associates. The Study Team held twelve meetings. Two rounds of community workshops were held at locations across the corridor (three locations during the first round, and four locations in the second round) after major project milestones to share project updates and solicit feedback on findings and recommendations.

The study included extensive data collection and analysis, including previous plans and studies as well as capturing existing conditions through traffic counts, interviews, and broad public engagement.

Critical Issues

Safety and Access Management

Historical data, engineering analysis, and community feedback confirm the importance of reducing crashes throughout this corridor. Given the anticipated trends in traffic growth, the number of conflicts will increase, and without intervention, the number of crashes will, as well. The locations and spacing of numerous driveways and intersections along the corridor reduce both safety and capacity.

Congestion

Combined estimates from the corridor's planning jurisdictions anticipate a 1%-1.5% annual increase in vehicle volumes along the corridor through the year 2045. For the two-lane corridor segment between NC 119 and Mebane Oaks Road, Level of Service (LOS) is D or worse during peak hours and deteriorates further in 2045. The portion of the NC 54 corridor from Mebane Oaks Road eastward operates at LOS E currently during peak periods and is anticipated to further deteriorate by 2045. As traffic volumes on both NC 54 and side roads increase, conflicts and delay at major intersections also grow, creating capacity deficiencies at several locations.

Bicycle and Pedestrian Use

The lack of bicycle and pedestrian connectivity throughout the corridor was frequently cited by community workshop attendees and Study Team members as a major source of concern and frustration. There is consensus that the lack of safe and convenient facilities is suppressing walking and bicycle trips. Even in the absence of improved facilities, increases in pedestrian and bicyclist activity combined with substantial growth in vehicular traffic could increase both crash frequency and severity. There are opportunities for on-street and off-street bicycle and pedestrian paths along the corridor, though there are noted tradeoffs of ROW impacts, cost (construction and maintenance), and phasing of improvements, among others. The needs identified from the Study Team, interviews, and community workshops can be effectively addressed only by a parallel and complementary approach that coordinates roadway and bicycle and pedestrian improvement programs. Awareness of constraints and opportunities associated with roadway improvements when developing bicycle projects must be combined with sensitivity to bicycle and pedestrians needs in the planning and design of roadway projects.

Transit

While demand for transit within the NC 54 West corridor is anticipated, it is difficult to reliably determine due to lack of potential ridership and service data. This portion of the NC 54 corridor is not well-suited to the traditional urban transit paradigm of larger vehicles operating on fixed routes and schedules, due to high operator costs and poor user convenience. The convergence of smart phones, transportation network companies (or TNCs, such as Uber and Lyft), and autonomous vehicles is poised to transform transit service, creating a wider range of more dynamic options better tailored to individual needs. Park-and-ride lots (possibly incorporating drop-and-ride and bike-and-ride options) are another missing piece of a potentially successful transit system in this corridor that have been explored in plans from neighboring planning jurisdictions.

Alexander Wilson Elementary School

Overlapping peaks of school and manufacturing plant traffic generate congestion at the intersection of NC 54 and NC 119/East Main. Future development of intersection-adjacent parcels and anticipated traffic increases posed may pose significant access and safety issues for vehicles and pedestrians. Spillover of school pick-up and drop-off traffic onto NC 119 and NC 54 appears to be a major contributor to delays and long queues.

Market Assessment

The NC 54 West corridor exhibits demand for land use and real estate products at specific nodal and zonal locations, promotion of tourism as an economic development strategy, and transportation improvement coordination with a focus on multimodal and Complete Streets investments. The Economic Nodes include the intersections of Woody Drive, NC 119, and Old Fayetteville, and the Heritage Zones include the areas near Mt Willen Road, Orange Grove Road, Mebane Oaks Road, and Bethel-Hickory Grove Church Road.

Study Recommendations

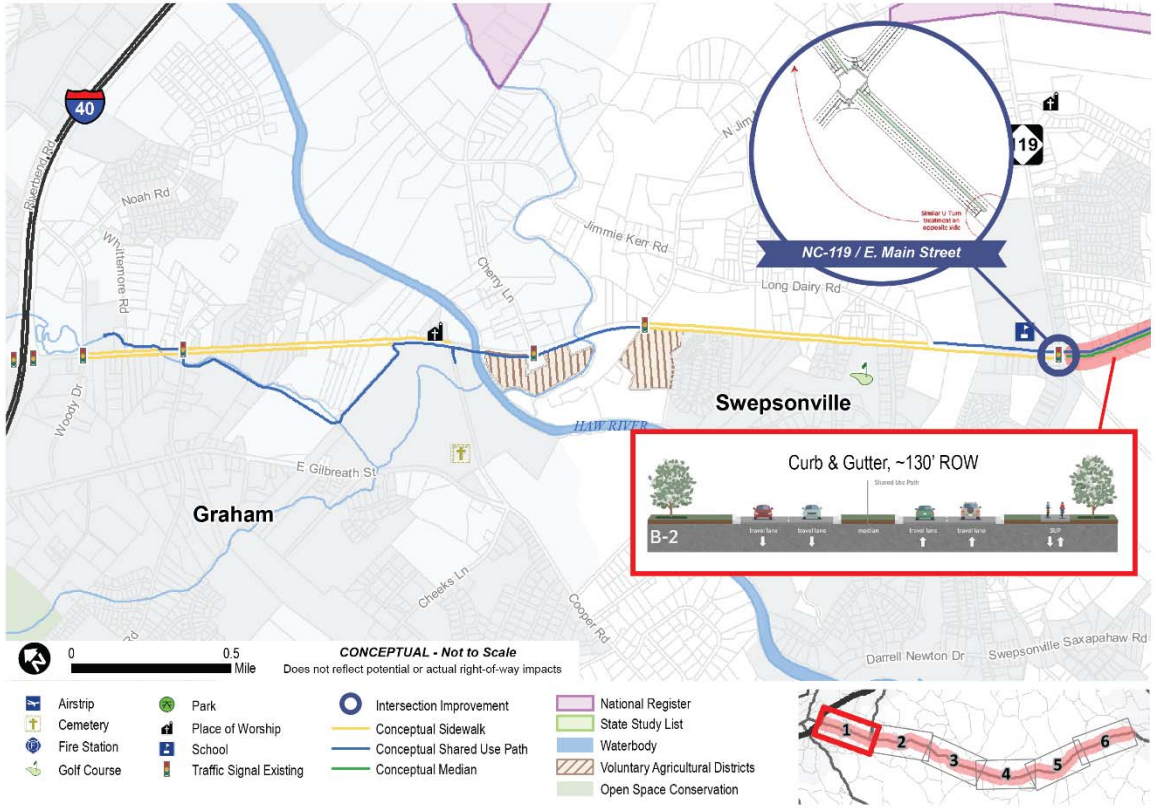
The NC 54 West Corridor Study recommends a phased package of conceptual improvements summarized below. Widening and related improvements are recommended for completion when the practical capacity of the roadway is forecasted to be exceeded. The implementation schedule consists of four overlapping ten-year phases. The widening schedule is preliminary, and it reflects reasonable assumptions about overall conditions within each corridor segment.

The probable cost of the entire package of widening improvements described totals just under $180 million (in 2018 dollars).

Corridor Level

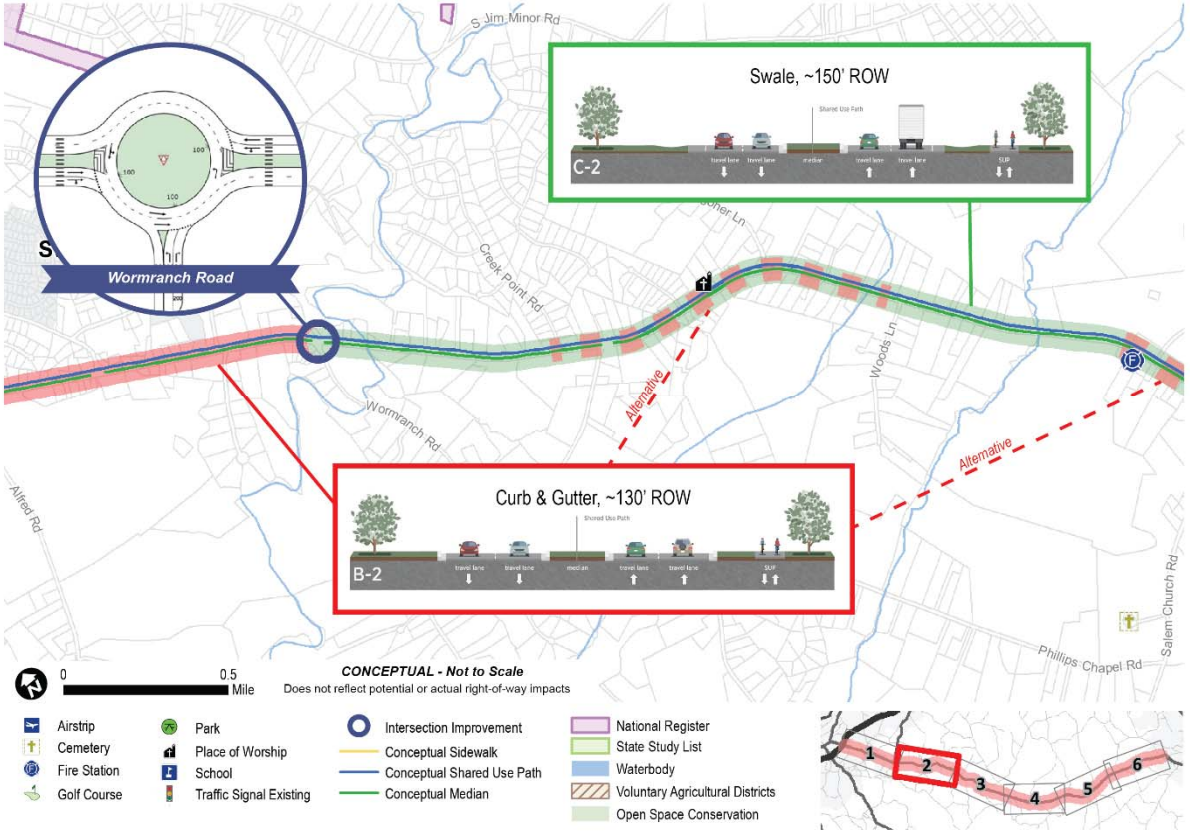
Given the length of the corridor, recommendations are described according to six segments (see Figures ES2 through ES7 below). Recommended roadway cross sections consist of two variations of a 4-lane median divided roadway from NCDOT's *Complete Streets Guidelines.* The C-2 cross section is a ditch and swale design with paved shoulders and shallow, vegetated, open-channel drainage, rather than concrete curb-&-gutter with piped runoff. The B-2 cross section is a curb-and-gutter version; the median and inner travel lane have the same dimensions as the ditch and swale version, but the outer lane is 14 feet wide with a 2-foot curb and gutter pan. Both cross sections allocate space for a shared-use-path.

ES2 - Segment 1 Corridor Recommendations



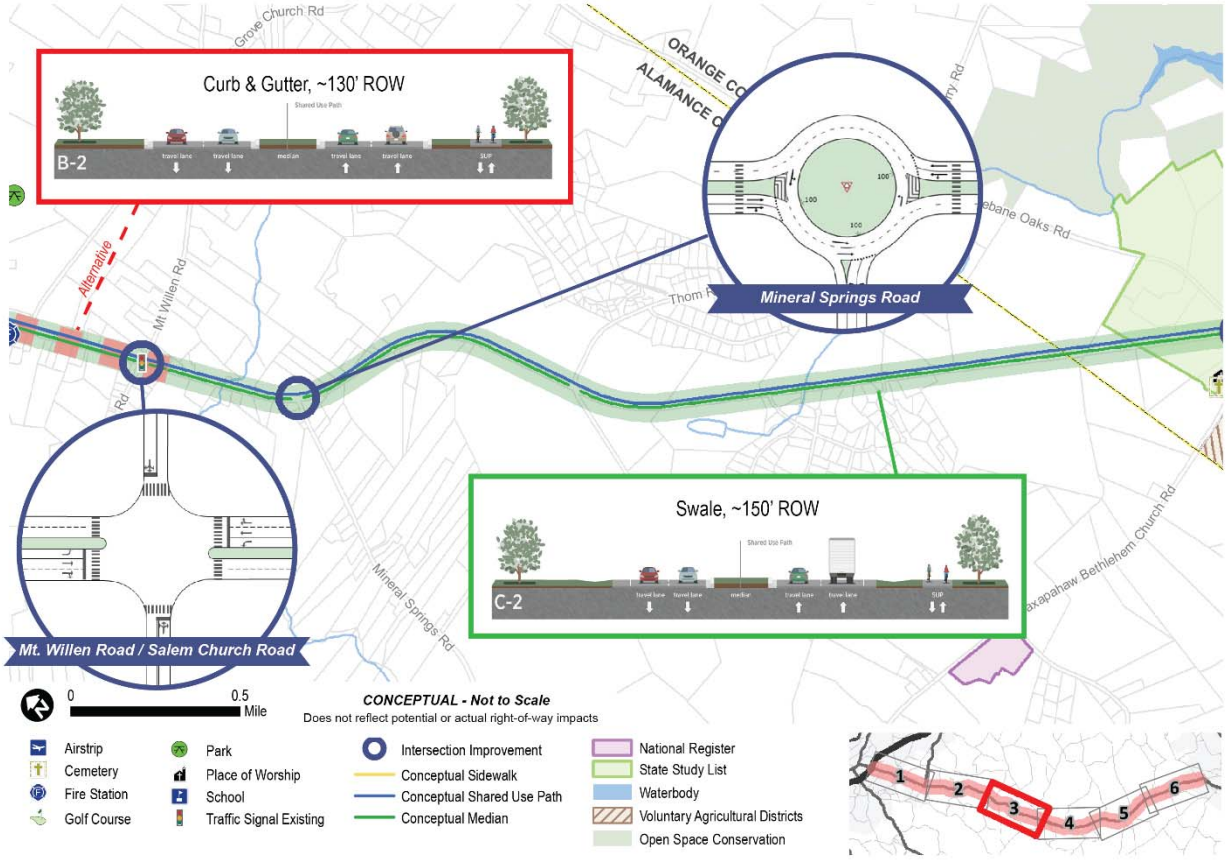
- Potential addition and lengthening of turn lanes
- Access management for driveways
- Implement sidewalk and shared-use-path facilities
- Four-lane curb and gutter cross section beginning at NC 119 eastward to Wormranch Road

ES3 - Segment 2 Corridor Recommendations



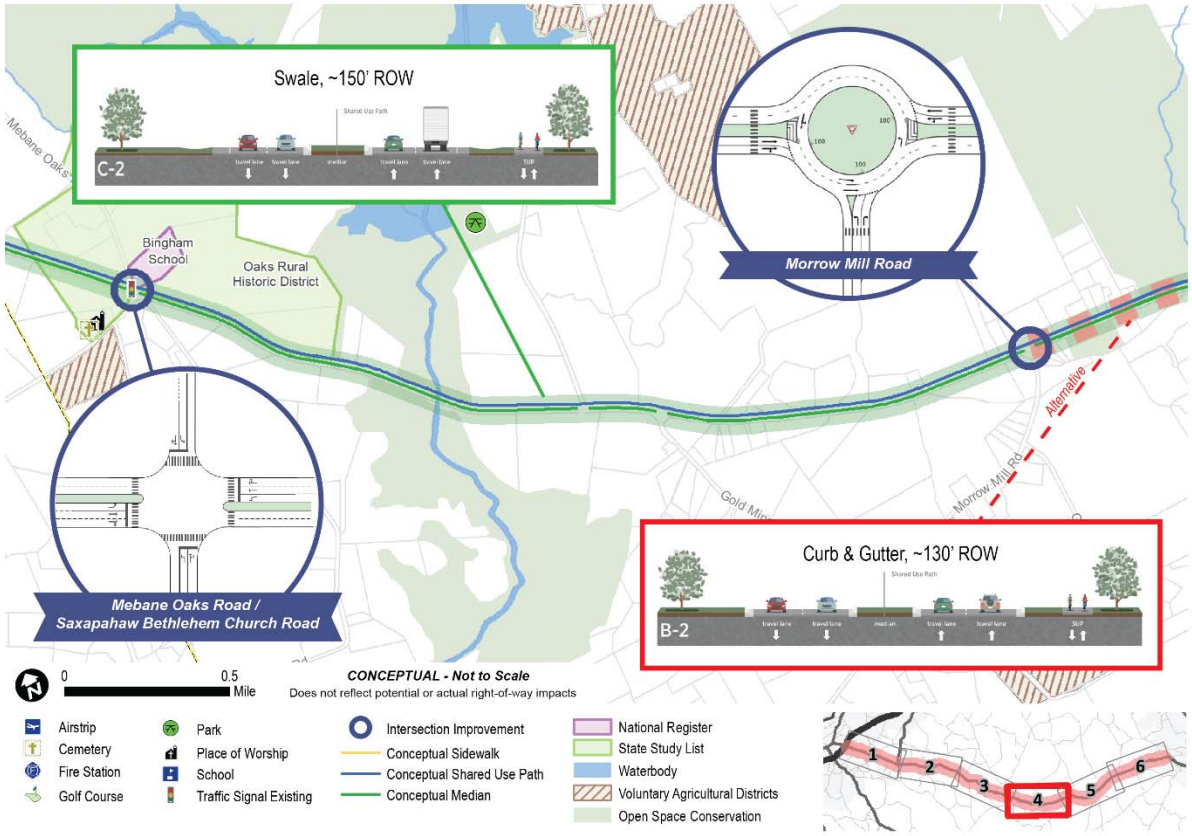
- Four-lane swale cross section beginning from Wormranch Road to Mt Willen Road with alternative for curb and gutter in key locations
- Implement shared-use-path
- Intersection improvements at Wormranch Road

ES4 - Segment 3 Corridor Recommendations



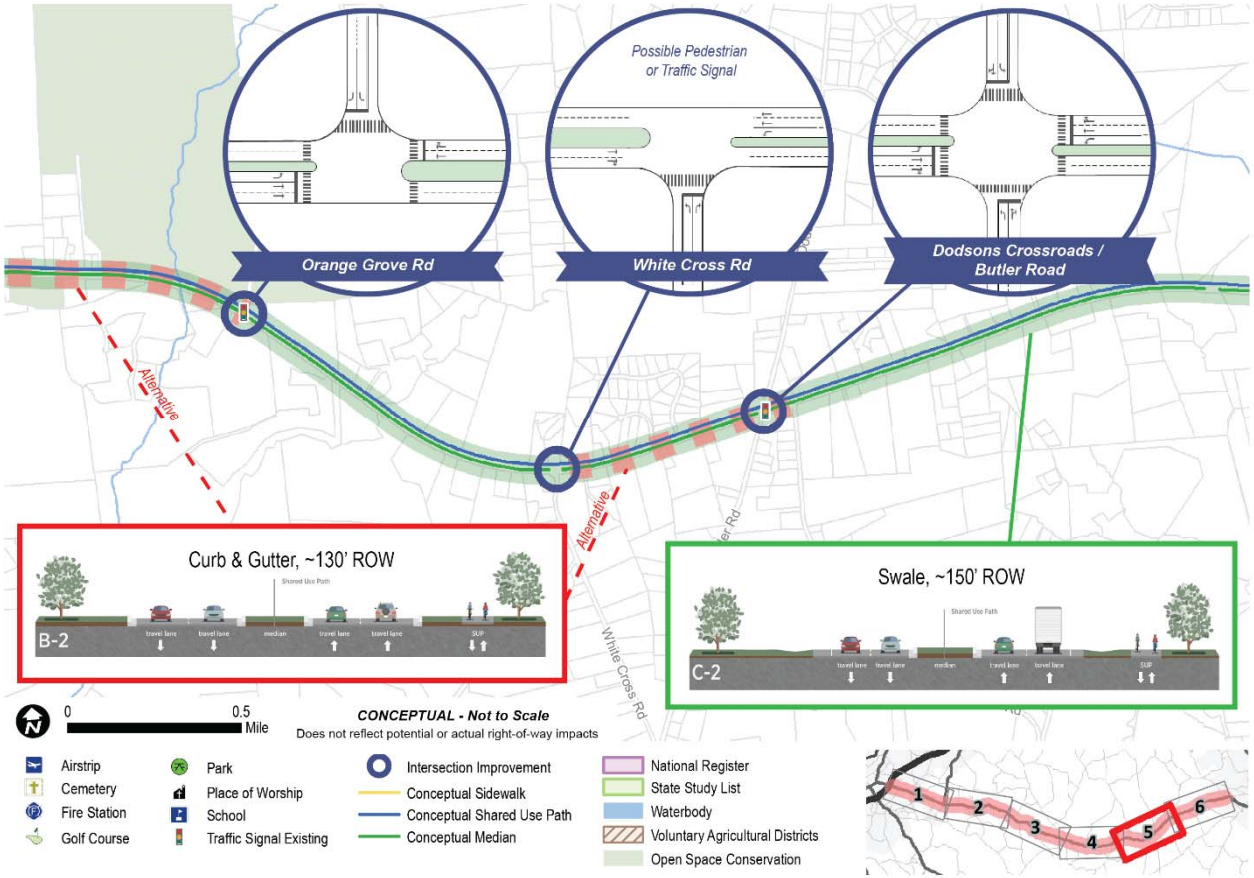
- Four-lane swale cross section beginning from Mt Willen Road to the Alamance/Orange County Line with alternative for curb and gutter in key locations
- Implement shared-use-path
- Intersection improvements at Mt Willen Road and Mineral Springs

ES5 - Segment 4 Corridor Recommendations



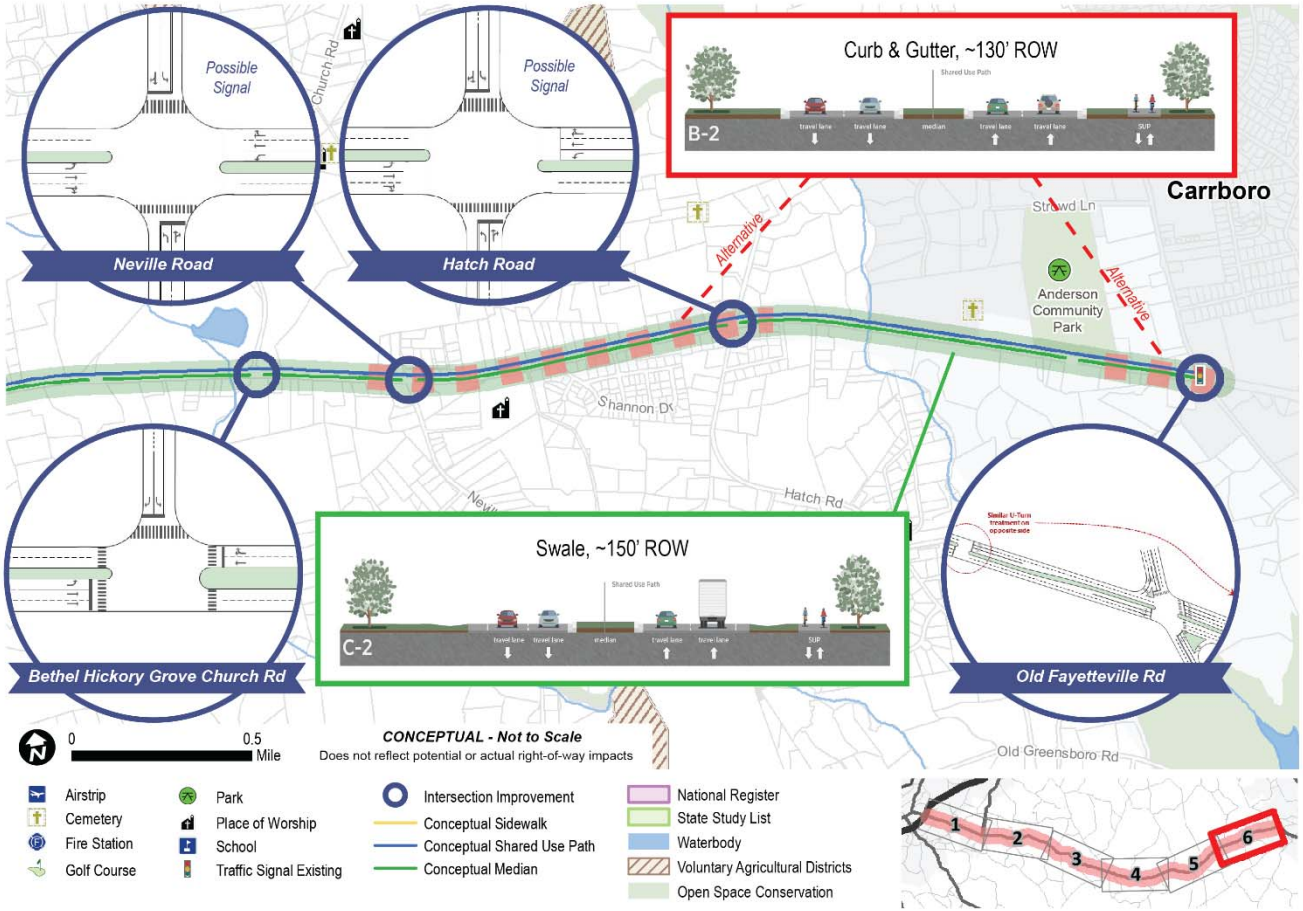
- Four-lane swale cross section beginning from the Alamance/Orange County Line to Orange Grove Road with alternative for curb and gutter in key locations
- Implement shared-use-path
- Intersection improvements at Mebane Oaks Road and Morrow Mill Road

ES6 - Segment 5 Corridor Recommendations



- Four-lane swale cross section beginning from Orange Grove Road to west of Bethel Hickory Road with alternative for curb and gutter in key locations
- Implement shared-use-path
- Intersection improvements at Orange Grove Road, White Cross Road, and Dodsons Crossroads/Butler Road

ES7 - Segment 6 Corridor Recommendations



- Four-lane swale cross section beginning from Bethel Hickory Road to Old Fayetteville with alternative for curb and gutter in key locations
- Implement shared-use-path
- Intersection improvements at Bethel Hickory Road, Neville Road, Hatch Road, and Old Fayetteville Road

Intersections

Details of individual intersection improvements are addressed in the main body of this report. All such improvements are associated with the overall corridor widening, although some may be implemented in advance of the ultimate widening.

Pedestrian and Bicycle Improvements

The shared-use-path (SUP) depicted in the cross-sections and segment illustrations represents a configuration that is more desirable from the perspective of the typical SUP walker or cyclist, as it provides greater separation from traffic lanes, reduces noise, and increases both actual and perceived safety. Due to cost and ROW considerations, as well as anticipated demand, a SUP is recommended along only one side of NC 54. Wide paved shoulders are recommended in the C-2 cross section variation to support cyclists who wish to remain on-road. Pedestrian and bicyclist crossing treatments are integrated into recommended intersection improvements.

Short Range Improvements

The study recommendations relate to longer-term improvements representing the "ultimate" condition of the NC 54 study corridor. There are a number of smaller, cost-effective improvements that should be considered in the meantime, and they can be implemented without contravening longer-range plans. These include centerline and shoulder rumble strips, SafetyEdge technology, high friction surface treatments, retroreflective markings, left turn lanes, acceleration and deceleration lanes, access management, intersection lighting, and wayfinding. Although intersection projects and other improvements (such as turn lanes and wider shoulders) can provide localized interim benefits, they do not address the growing capacity and safety deficiencies of the existing two-lane cross-section

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1 Introduction

1.1 Study Purpose

The NC 54 West Corridor Study is an in-depth review of the 20.4 mile stretch of NC 54 between Old Fayetteville Road in Carrboro and the I-85/I-40 interchange in Graham. The two-lane roadway is a regionally significant east-west corridor that carries an average of 6,000 to 15,000 vehicles per day. Traffic congestion on the corridor, which is higher than would be expected from the daily level of traffic, is amplified by inadequate access management, heavy turning conflicts, and substantial truck volumes. The roadway also traverses urban, suburban, industrial and agricultural land uses, which makes designing a roadway that accommodates the needs of all users an important challenge. The City of Graham, NCDOT Division 7, and the Durham-Chapel Hill-Carrboro Metropolitan Planning Organization (DCHCMPO) recognized the need to evaluate this vital roadway and have come together to fund a year-long study.

The goal of this study is to develop a long-term vision for this corridor, including the NC 54 roadway itself and the surrounding communities. This vision is comprehensive, addressing preservation of the area's character, economic opportunity and vitality, environmental sensitivity, and transportation improvements for all users (e.g., drivers, freight, pedestrians, bicyclists). While this vision cannot determine ultimate design details, its analysis and recommendations will help guide those decisions by documenting transportation needs, community priorities, and environmental constraints.

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1.2 Study Context

The study corridor spans 20.4 miles between the I-40/I-85 interchange in Graham and Old Fayetteville Road in Carrboro (Although it runs somewhat northwest-southeast, for clarity and simplicity it will generally be referred to as an east-west facility for the purposes of this study.) Its current federal functional classification is Minor Arterial. Historically, this route was the primary link between Burlington/Graham and Chapel Hill/Carrboro. Completion of I-40 has somewhat diminished the importance of this function, although it is still an important commuter route, and plays an important role during UNC football games and other major events. A growing share of trips using this part of NC 54 begin or end at homes and businesses along the corridor itself. Outside either end of the corridor (especially west of NC 119), most of the adjacent land remains rural in character, although new subdivisions and other development are appearing.

The Alamance County Orange County line falls near the midpoint of the corridor (see Figure 1 below). Most of the westernmost 1.4 miles of the corridor (between I-40/I85 and the Haw River) falls within the city limits of Graham; the most recent Burlington-Graham MPO Comprehensive Transportation Plan (CTP) identifies most of this segment as "Boulevard, Needs Improvement." Most of this segment has 100' of right-of-way (ROW), as opposed to a 120' width east of Haw River.

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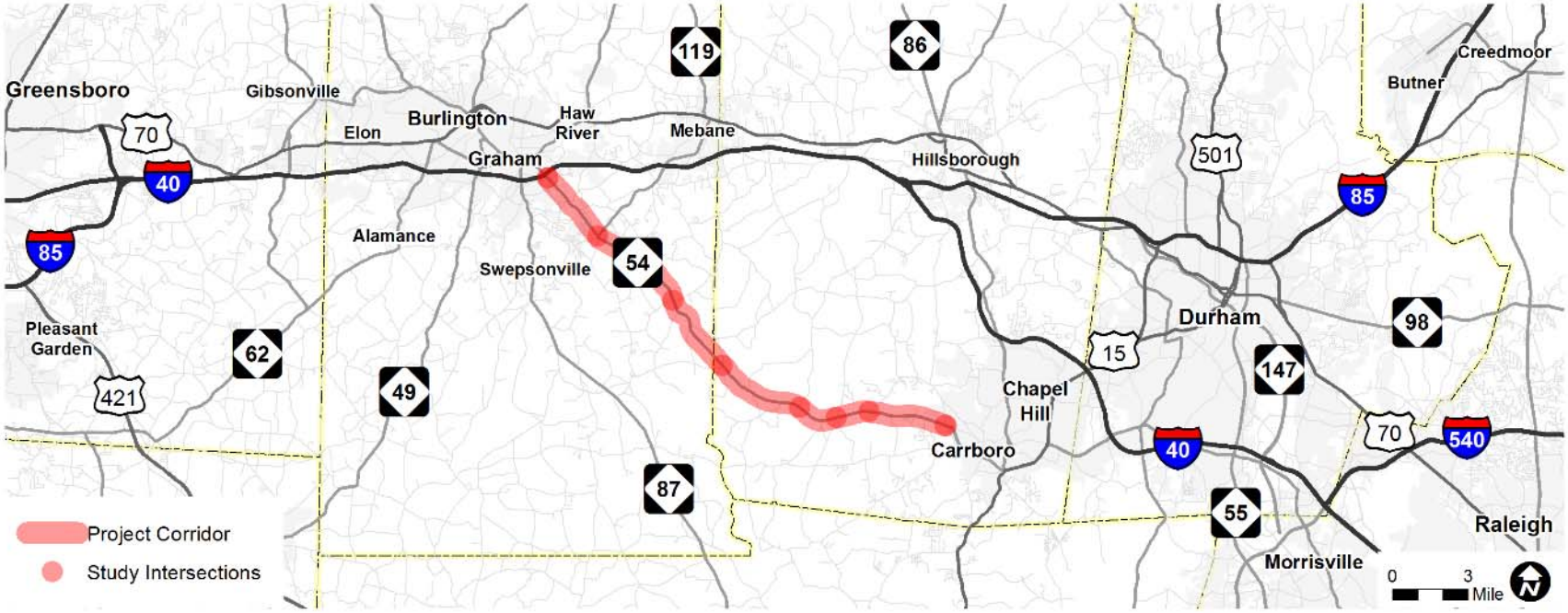
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Between I-40/I-85 and about a mile east of NC 119, the speed limit is 55 MPH, except for a 35 MPH school zone at Alexander-Wilson Elementary. East of this point, the prevailing speed limit is 55 MPH.

According to NCDOT's ongoing traffic count program, Average Annual Daily Traffic volumes (AADTs) on NC 54 ranged from 6,000 to 18,000 vehicles per day (vpd) in 2015-2016, depending on location. The highest volumes are near I-40/I-85, followed by the eastern end of the corridor (15,000 vpd). Volumes steadily decrease towards the middle of the study corridor, reaching a minimum near the County Line. Additional 2017 counts collected as part of this study suggest a recent increase in volumes. AADTs at the three locations cited above grew as follows:

- East of I-40/I-85: 21,100 vpd (+3,100 vpd)
- Near the County Line: 6,900 vpd (+900 vpd)
- West of Old Fayetteville Road; 16,000 vpd (+1,000 vpd)

Figure 1: Project Vicinity and Study Intersections



2 Existing Conditions

2.1 Transportation Infrastructure

2.1.1 NC 54 Roadway Design Elements

The 3.2-mile segment of NC 54 between I-40/I-85 and NC 119 consists of a standard curb-and-gutter 5-lane cross-section (with continuous two-way center turn lane), 64 feet wide, on 100 feet of right-of-way. Driveways and intersections are frequent, but visibility is adequate for the 50-MPH posted speed limit. The alignment is generally unremarkable; the only significant horizontal and vertical curvature is found on the approaches to the Haw River Bridge. There are no bicycle or pedestrian facilities.

Except for the final 500 feet at the eastern end of the study corridor, the remainder of NC 54 is a basic 2-lane highway, most of which has 4' paved shoulders and 120' ROW. Driveways and intersections are intermittent, often grouped in clusters. The terrain is mildly-to-moderately rolling, with some significant vertical and horizontal curvature, though not excessive for the 55-MPH speed limit. There are no bicycle or pedestrian facilities west of Carrboro to the City of Graham's municipal boundary.

2.1.2 NC 54 Intersections

Within the study area, NC 54 intersects approximately 75 public streets, and numerous private roads and driveways. Not counting the I-40/I-85 interchange, eight intersections were signalized:

Signalized Intersections

- Woody Dr (SR 2105)*
- Ivey Rd/Sunset Dr (SR 2108)
- Cherry Ln (SR 2123)
- Jim Minor Rd (SR 2135)/Reatkin Rd
- NC 119/E Main St (SR 2159)*
- Mt Willen Rd/Salem Church Rd (SR 2142)*
- Dodsons Crossroads (SR 1102)/Butler Rd (SR 1951)*
- Old Fayetteville Rd (SR 1107/SR 1937)*

As part of traffic analysis, peak-period turning-movement counts were collected at four of these signalized intersections, indicated with asterisks (*). These intersections were determined to be most critical, and most likely to undergo significant change. Peak-period turning-movement counts were also collected at these major unsignalized intersections:

Unsignalized Intersections

- Mebane Oaks Rd (SR 1007)/Saxapahaw Rd (SR 1961)*
- Orange Grove Rd (SR 1006)*
- Bethel Hickory Grove Church Rd (SR 1104)*

A traffic signal was installed at the Mebane Oaks Rd/Saxapahaw Rd intersection (STIP W-5707B) in summer 2018 after turning-movement count collection. Signalization is being investigated for Orange Grove Road as part of improvements associated with STIP project R-5821-B.

A number of signalized and unsignalized intersections have been upgraded beyond their original cross-sections to reduce crash potential and/or increase capacity. Such improvements--typically involving additional turn-lanes, acceleration/deceleration lanes, or channelization--are summarized below:

Woody Drive

- Left-turn lanes on Woody Drive

Ivey Road/Sunset Drive

- Eastbound right-turn lane on NC 54

- Left-turn lanes on Ivey Road and Sunset Drive

Cooper Road
- Separate right -turn and left-turn lanes on Cooper Road

Cherry Lane
- Westbound right-turn lane on NC 54
- Separate right-turn and left-turn lanes on Cherry Lane

Jim Minor Road
- Separate right-turn and left-turn lanes on Jim Minor Road

George Bason Road
- Separate right-turn and left-turn lanes on George Bason Road

NC 119/East Main Street
- NC 54 transition between 5-lane and 2-lane cross-sections
- Separate right-turn, through, and left-turn lanes on NC 54 approaches
- Eastbound acceleration/merge lane on NC 54
- Separate right-turn, through, and left-turn lanes on East Main Street and NC 119

Freshwater Road
- Westbound right-turn lane on NC 54

Wormranch Road
- Eastbound right-turn lane on NC 54
- Eastbound right-turn lane on NC 54

Mt Willen/Salem Church Roads
- Separate right-turn, through, and left-turn lanes on NC 54 approaches

Anderson Products Driveway
- Eastbound left-turn lane on NC 54

Mebane Oaks/Saxapahaw Roads
- Eastbound and westbound right-turn lanes on NC 54

Stanford Road
- Westbound right-turn lane on NC 54

Gold Mine Road
- Eastbound right-turn lane on NC 54

Morrow Mill Road
- Eastbound right-turn lane on NC 54

Orange Grove Road
- Westbound right-turn lane on NC 54

White Cross Road
- Westbound left-turn lane on NC 54
- Eastbound right-turn deceleration taper on NC 54

Fiesta Grill Driveway
- Westbound right-turn lane on NC 54

Dodsons Crossroads/Butler Road
- Separate through and left-turn lanes on NC 54 approaches
- Right-turn/deceleration-lanes with raised "porkchop" islands on NC 54 approaches

Carl Durham Road
- Eastbound right-turn/deceleration lane on NC 54

Martin Marietta – American Stone Quarry Driveway
- Westbound right-turn/deceleration lane on NC 54

Bethel Hickory Grove Church Road
- Westbound right-turn lane on NC 54
- Eastbound left-turn lane on NC 54

Neville Road
- Eastbound right-turn lane on NC 54
- Westbound left-turn lane on NC 54

Southern Drive
- Westbound left-turn lane on NC 54

Hatch Road
- Westbound right-turn/deceleration lane on NC 54
- Eastbound right-turn lane on NC 54
- Eastbound right-turn lane on NC 54



Bethel Hickory Grove Church Road

Henry Anderson III Community Park Drive
- Westbound right-turn/deceleration lane on NC 54

Old Fayetteville Road
- Separate left-turn lanes on NC 54 approaches

- One through and one shared through/right-turn lane on NC 54 approaches
- Separate through and left-turn lanes on Old Fayetteville Road approaches
- Separate right-turn lane with raised "porkchop" islands on Old Fayetteville Road approaches
- Pedestrian signal and crosswalk on east side of intersection

Monolithic channelization islands (also referred to as a "porkchop" or raised concrete island) are used on many side roads intersecting NC 54. These help guide vehicles turning off NC 54 into the proper lane, avoiding sideswipe or head-on collisions. This is especially relevant for left-turns, at skewed intersections, and where large turning radii (used to accommodate higher-speed turns and large vehicles) create wide intersection throats. The following intersections incorporate this treatment:

- Clifford-Ray Road
- Freshwater Road
- Wormranch Road
- Mt Willen Road and Salem Church Road
- Mebane Oaks Road and Saxapahaw Road
- Stanford Road
- Gold Mine Road
- Morrow Mill Road
- Orange Grove Road
- White Cross Road
- Dodsons Crossroads and Butler Road
- Carl Durham Road
- Martin Marietta – American Stone Quarry Driveway
- Neville Road
- Hatch Road
- Brookfield Drive



Clifford Ray Road

2.1.3 Bridges

NC 54 crosses four bridges and two major culverts in the study corridor. These are described in west-to-east order and are identified in Figure 2 below.

Town Branch Culvert

This structure consists of two 8' by 7' concrete box culverts flanking a 9' by 8' culvert, just under 90' long. It has a Sufficiency Rating of 87.79, with no weight restrictions.

Figure 2: Bridge and Culvert Locations in Corridor



Haw River Bridge

At 365 feet, this is the longest bridge in the study corridor. It has a 64-foot wide, 5-lane cross-section with a center TWLT lane. Although there are no sidewalks on either bridge approach, a 4' sidewalk runs along the bridge deck's western edge. Narrow sidewalk on only one side, low guardrails, high traffic speeds, and lack of delineation or separation (other than the single raised sidewalk) render the current configuration of this bridge less than desirable for pedestrian or bicycle use. Since there is no room to move away from the travel lane on a bridge, these factors are more critical than on the ground. This bridge has a Sufficiency Rating of 92.61, with no weight restrictions.



Looking east across Haw River Bridge

Back Creek Bridge

This bridge is 175' long, with a 5-lane cross-section similar to the Haw River Bridge above. Although there are no sidewalks on either bridge approach, a 4' sidewalk runs along the bridge deck's western edge. Although of relatively short length, proximity to travel lanes and high traffic speeds make this bridge less than desirable for pedestrian or bicycle use in its current state. This bridge has a Sufficiency Rating of 81.69, with no weight restrictions.



Looking east at Back Creek Bridge

Haw Creek Bridge

This 2-lane bridge is 150′ long, with a 42′ wide travelway including 8′ shoulders. Railings are very low, and there is no sidewalk. Lack of separation from traffic lanes, low guardrails, and relatively high traffic speeds make this bridge less than desirable for pedestrian or bicycle use, as currently configured. It has a Sufficiency Rating of 99.25, with no weight restrictions.



Looking east at Haw Creek Bridge

Cane Creek Bridge

Very similar to the Haw Creek Bridge, this Orange County bridge is 150′ long, with a 42′ wide travelway including 8′ shoulders. Railings are very low, and there is no sidewalk. Proximity to traffic, low guardrails, and relatively high traffic speeds make this bridge less than desirable for pedestrian or bicycle use in its current configuration. It has a Sufficiency Rating of 97.27, with no weight restrictions.

Morgan Creek Culvert

This structure consists of a pair of 13′ by 13′ concrete box culverts just over 120′ long. It has a Sufficiency Rating of 85.12, with no weight restrictions.

2.1.4 Pedestrian Facilities

Sidewalks are largely absent from this rural NC Highway corridor. The lone exception is a retail strip development located at 1264 NC Hwy 54, Graham, NC. This 4-foot wide, 320-foot long sidewalk that runs along the road frontage of this property was a local development requirement. Curb and gutter is present along this portion of the corridor, which is typically installed in conjunction with sidewalks.

Sidewalks are absent near Alexander Wilson Elementary School (2518 NC Hwy 54, Haw River, NC). Marked pedestrian crosswalks at the signalized intersection of NC Hwy 54 and NC Hwy 119 are also absent. One school administrator noted that no children have been observed walking along NC Hwy 54, although some parents have inquired about whether walking to school along NC Hwy 119 (nearby Autumn Trace neighborhood) would be possible.

Worn paths along the roadside shoulders of the corridor were not observed, suggesting that pedestrians are rarely or infrequently walking along the roadside. Lawn mower or all-terrain vehicle paths (two paths) were observed along portions of the roadside shoulder.

2.1.5 Bicycle Facilities

Striped bicycle lanes are present for a 500-foot-long portion of the corridor, at the very eastern end and within the Carrboro Town limits.

Paved shoulders are present along the two-lane section of roadway, which represents the largest portion of the corridor. The width of these paved shoulders is less than three feet. Roadside debris, gravel, and grass was observed within the paved shoulder, which poses a potential safety concern by encouraging a cyclist to ride closer to the travel lane.

Paved shoulders are not present within the five-lane section of roadway, west of NC Hwy 119 (Alamance County). Share the Road signs were not observed. Such signage would not be considered a bicycle facility unless accompanied by shared lane markings. Bicycle facilities along the corridor are depicted in the photos below.



End of bicycle facilities west of Carrboro



Bicycle lane near Old Fayetteville Road in Carrboro



Bicycle crossing warning sign near Mt Willen Road



Bicycle crossing warning sign near Mt Willen Road



Bicycle crossing warning sign near Salem Church Road



Roadway shoulder west of Carrboro

2.1.6 System Connectivity

I-40 has supplanted much of NC 54's role in connecting the Burlington urban area and parts west with Chapel Hill/Carrboro, and even RTP. While the proportion of traffic traveling the entire length of the corridor has declined, new development--especially along the western portion of the corridor--generates trips that use part of the corridor in travelling to jobs, residences, schools, stores, and other services or activities. Roadway volumes continue to increase along the entire corridor.

There are few alternate routes for such trips. NC 87 parallels about half the corridor, but it is 2-4 miles to the west, and separated by the Haw River, which limits connectivity. Old Greensboro Road (SR 1005) roughly parallels the other half of the NC 54 corridor at a similar distance to the south, connecting NC 87 with Carrboro. Neither of these facilities are competitive with NC 54 in terms of capacity or travel time.

Orange Grove Road (SR 1006) links NC 54 with Hillsborough, and serves intervening destinations. Mebane Oaks Road (SR 1007) serves a similar function for Mebane, while Saxapahaw/Saxapahaw-Bethlehem Church/Church Roads connects with Saxapahaw and NC 87. Cherry Lane and NC 119 provide access to I-40/I-85 (east), as well as adjacent commercial development and downtown Mebane.

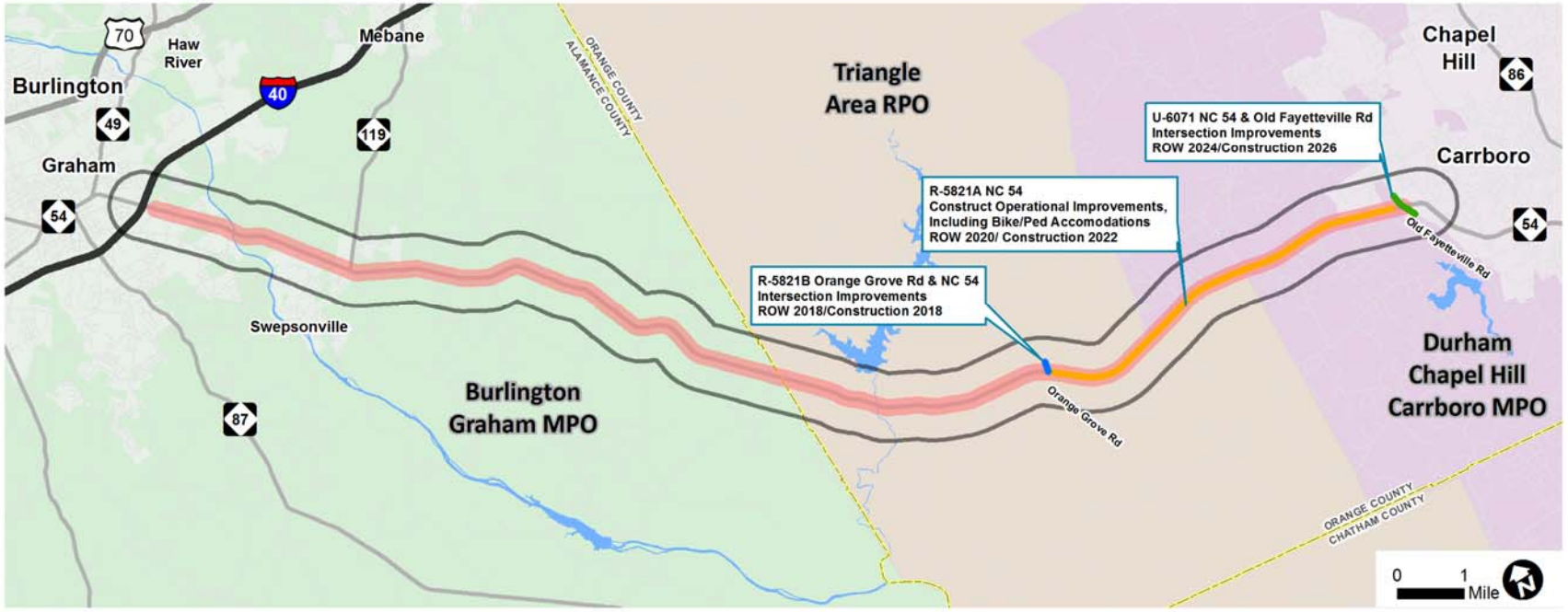
2.1.7 Planned & Committed Improvements

The following sections describe many projects that directly or indirectly affect –or are affected by– travel in the NC 54 corridor.

2.1.7.1.1. STIP Projects

The 2018-2027 State Transportation Improvement Program (STIP) recently released by the NCDOT includes three projects of critical relevance to the NC 54 Corridor Study (see Figure 3). The nature, purpose, and schedule of each project is summarized below. The State had indicated that these three projects are coordinated. Note: project schedules are subject to change.

Figure 3: 2018-2027 STIP Projects in Corridor



STIP # U-6071 – NC 54

U-6071 is a Regional intersection improvement project at Old Fayetteville Road and NC 54 in Carrboro, NC. Right of way acquisition is scheduled for 2024 with construction in 2026.

STIP # R-5821A – NC 54

R-5821A is also a Regional operational improvement project with bicycle and pedestrian accommodations along NC 54 from Orange Grove Road in Orange County to Old Fayetteville Road in Carrboro. Right of way acquisition is scheduled for 2020 with construction in 2022. VHB is coordinating the project's National Environmental Policy Act (NEPA) study process.



STIP # R-5821B – NC 54

R-5821B is a Division intersection improvement project at NC 54 and Orange Grove Road in Orange County. Right of way acquisition is scheduled for 2018 with construction in anticipated in 2019.

2.2 Corridor Travel Demand Characteristics

This section summarizes characteristics of travel in the study corridor, including historic and current average annual daily traffic volumes (AADTs) and associated trends; truck/heavy vehicle volumes; traffic speeds; time-of-day characteristics; peak-period turning movements at signalized intersections; and relevant attributes of pedestrian, bicycle, transit, and rail modes.

2.2.1 Historic Traffic Volumes (AADTs)

NCDOT's count program provides a consistent source of data for assessing traffic volume trends over time. There are 16 count stations on NC 54 within the study limits, ten in Alamance County and six in Orange County. In most cases these counts yield at least semi-annual data points between 2002 and 2016. Counts are summarized in Table 1 and Figure 4.

Average Annual Daily Traffic volumes (AADTs) on NC 54 are highest near I-40/I-85 (18,000), and at the eastern end of the corridor (15,000 vpd). Volumes steadily decrease towards the middle of the study corridor, reaching a low of 6,000 vpd near the County Line. These data indicate that over the preceding decade, traffic growth has been modest, averaging just over 1.2% annually. This translates to a typical annual increase of between 70 vpd and 300 vpd, depending on the location. By comparison, I-40/I-85 traffic at the NC 54 interchange grew by more than 2.2% annually during the same period, with a 15% increase (8,000 vpd) between 2015 and 2016 alone. NCDOT conducted counts in 2016 at five locations within the study area, and Table 1 and Figure 4 illustrate that those increases surpass 2015 levels. These new counts—while a portion of the corridor—indicate support for projected growth in traffic volumes.

Additional counts collected by VHB in September of 2017 also suggest a recent acceleration in growth rates along NC 54, especially towards the western limits of the study. AADTs at the three locations cited above increased as follows:

- East of I-40/I-85: 21,100 vpd (+3,100 vpd, or 17.2%)
- Near the County Line: 6,900 vpd (+900 vpd, or 15.0%)
- West of Old Fayetteville Road: 16,000 vpd (+1,000 vpd, or 6.67%)

Further analysis of NCDOT count data reveals no sustained growth trends on NC 54 immediately beyond the study limits; in fact, some minor decreases were observed. The NCDOT count program also includes AADT records for approximately two dozen intersecting roads along the corridor. In general, traffic trends at these locations are consistent with NC 54 observations.

Table 1: NC 54 Historic AADT (by location)

	Location	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
1	E of I-40/I-85	16,000	--	17,000	--	14,000	--	16,000	--	16,000	--	16,000	--	18,000	--
2	E of SR 2183	13,000	--	13,000	--	13,000	--	13,000	--	14,000	--	13,000	--	14,000	--
3	E of SR 2123	13,000	--	12,000	--	13,000	--	13,000	--	14,000	--	14,000	--	15,000	--
4	E of NC 119	10,000	--	9,400	--	9,900	--	11,000	--	11,000	--	10,000	--	11,000	--
5	E of SR 2138	10,000	--	10,000	--	10,000	--	11,000	--	--	--	10,000	--	10,000	--
6	W of SR 2142	9,000	8,000	8,100	7,600	7,500	7,600	7,100	8,400	7,500	7,500	8,400	8,500	8,000	8,600
7	E of SR 2145	6,500	5,900	5,800	5,300	5,700	5,900	5,400	6,400	5,800	5,700	6,500	--	6,200	6,300
8	W of SR 1007	5,700	5,800	5,600	5,300	5,400	5,500	5,300	5,800	5,700	4,900	--	5,300	5,700	6,000
9	E of SR 1006	8,800	9,200	8,900	8,500	8,700	8,900	8,400	9,300	9,200	10,000	10,000	--	9,000	10,000
10	E of SR 1207	11,000	11,000	12,000	11,000	12,000	11,000	11,000	12,000	12,000	13,000	--	11,000	11,000	13,000
11	W of SR 1945	12,000	--	11,000	--	12,000	--	13,000	--	12,000	--	13,000	--	12,000	--
12	W of SR 1107	14,000	--	14,000	--	15,000	--	14,000	--	15,000	--	15,000	--	15,000	--

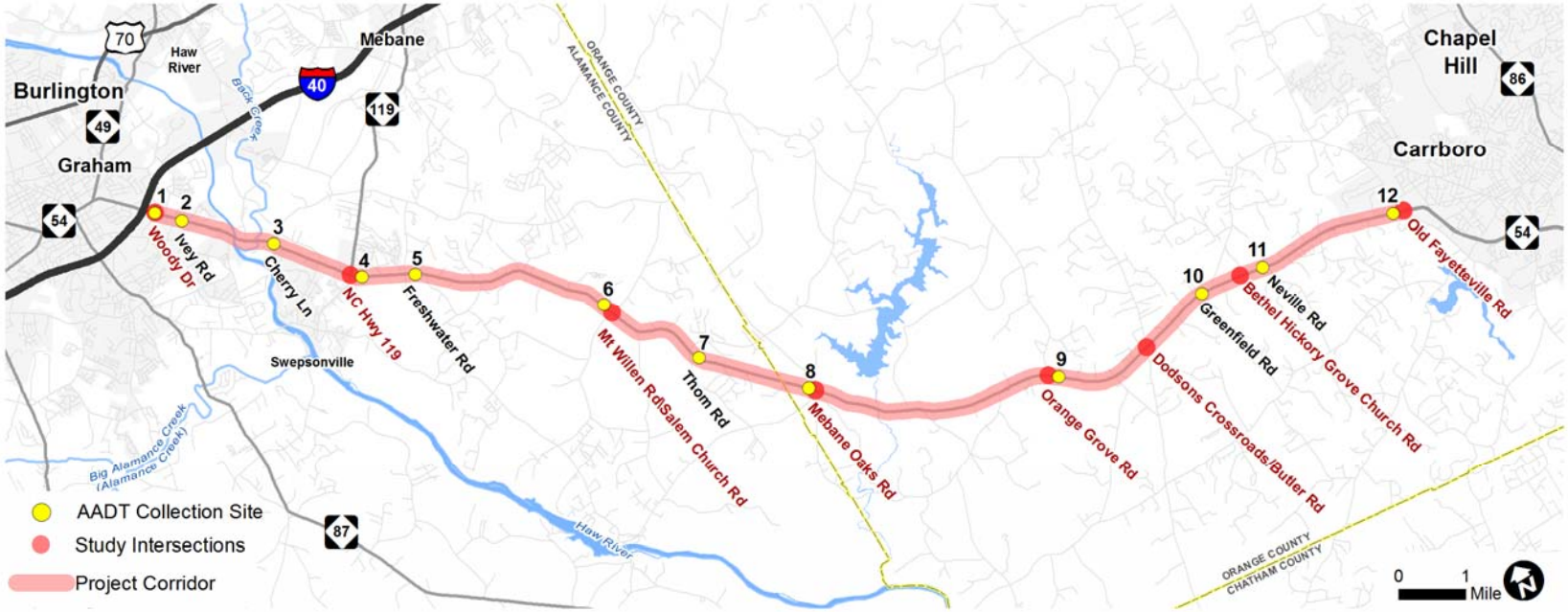
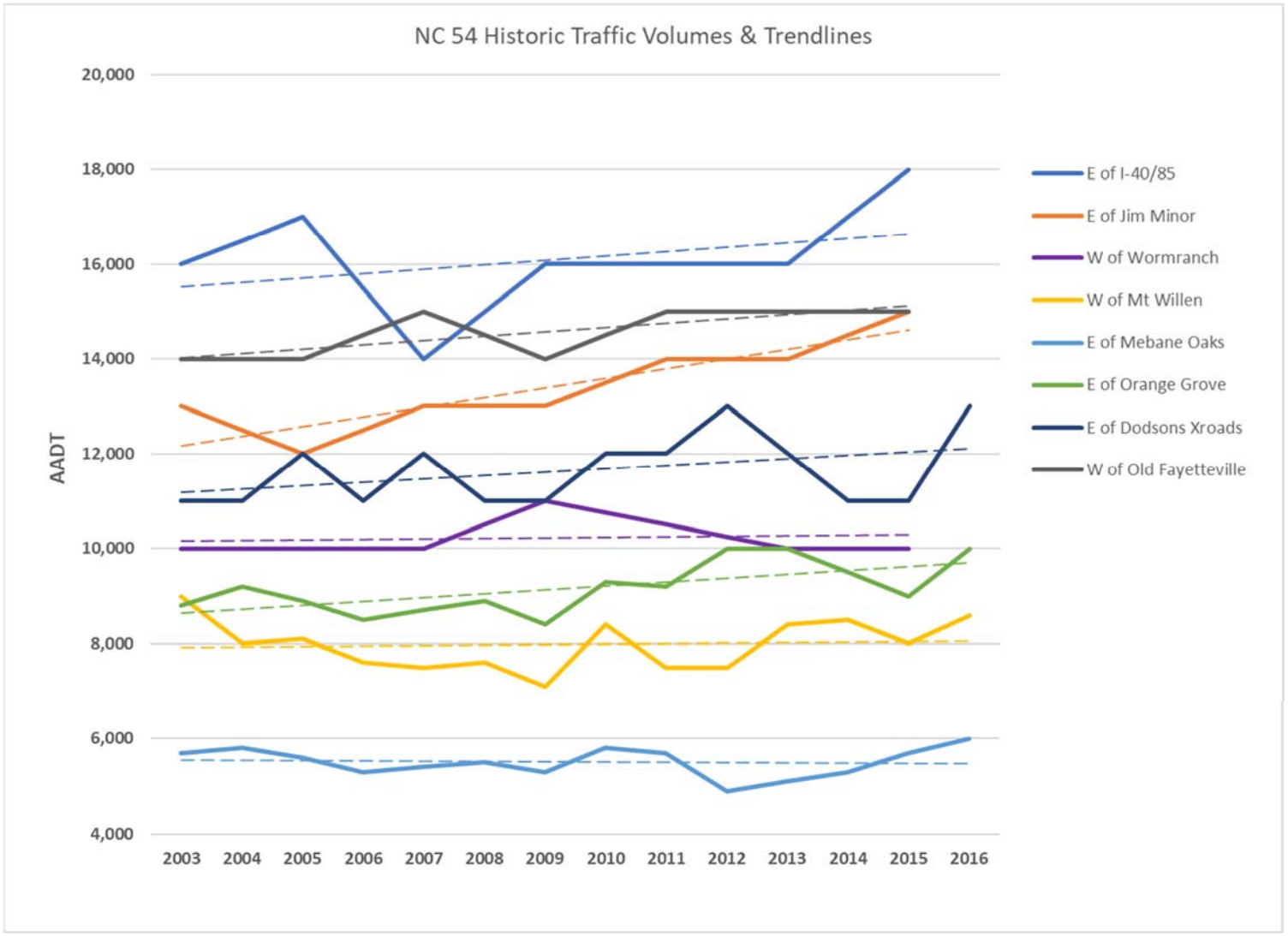


Figure 4: Selected NC 54 Traffic Trends (by location)



2.2.2 Traffic Data

VHB collected traffic data at locations along the corridor in September of 2017. These data are discussed below.

2.2.2.1.1. Traffic Characteristics

2017 Average Annual Daily Traffic (AADT) Volumes

MioVision cameras were used to collect 48-hour traffic counts at eight locations on September 12th and 13th, 2017 (see Figure 5). Due to heavy rains on Tuesday, the Wednesday counts were used for calculating AADTs, directional splits, peaking characteristics, and vehicle classifications. Locations counted were:

1. NC 54, east of I-40/I-85
2. NC 54, near the Alamance-Orange County Line
3. NC 119, north of NC 54
4. Salem Church Road (SR 2142), south of NC 54
5. Orange Grove Road (SR 1006), north of NC 54
6. Dodsons Crossroads (SR 1102), north of NC 54
7. Bethel Hickory Grove Church Rd (SR 1104), north of NC 54
8. NC 54, west of Old Fayetteville Road (SR 1107/SR 1937)

The resulting traffic counts were adjusted using the appropriate NCDOT seasonal and day-of-week factors to obtain annul daily traffic volumes (AADTs). summarizes the results, and compares them against 2015-16 NCDOT counts at nearby locations. Collection sites are identified in Figure 5. Overall, the NC 54 counts at these locations grew between 3% and 15% annually between 2015-16 and 2017. Annual traffic growth on the intersecting roads ranged from 0% to 16.7%, but given the low volumes involved relative to roadway capacities, these increases are not that impactful. The exception is the 9% annual growth over two years for NC 119, from 6,900 vpd to 8,200 vpd.

Table 2: 2017 AADTs

Location	2015 NCDOT	2016 NCDOT	2017
1. NC 54 east of I-40/I-85	18,000	---	21,100
2. NC 119 north of NC 54	6,900	---	8,200
3. Salem Church Road south of NC 54	---	1,500	1,500
4. NC 54 near the Alamance-Orange County Line	5,700	6,000	6,900
5. Orange Grove Road north of NC 54	---	1,400	1,500
6. Dodsons Crossroads north of NC 54	---	1,800	2,100
7. Bethel Hickory Grove Church Rd north of NC 54	---	---	2,300
8. NC 54 west of Old Fayetteville Road	15,000	---	16,000

Figure 5: VHB Traffic Count Collection Sites, 2017



Peaking Characteristics

The 48-hour counts obtained at the above locations also yield valuable information about the hourly distribution of traffic (its peaking characteristics), as well as directional variations in demand. Figure 6 depicts the variations in total (two-way) traffic volumes throughout the day at three locations, as well as a corridor-wide composite or average hourly distribution.

The westernmost count exhibits a "bump" in the midday "saddle" attributable to lunch trips using the interchange. The smaller 8 PM peak is a consistent artifact, possibly caused by shift work at a nearby industrial plant. The higher AM and PM peaks exhibited in the middle location are typical of lower-volume rural roads with high proportions of commute trips. Throughout the corridor, volumes during the AM peak period (7 AM – 8 AM) are slightly higher than during the PM peak (usually 5 PM – 6 PM).

Total traffic volumes do not tell the entire story, however. Directional variations can also have significant impacts on traffic congestion. Figure 7, Figure 8, and Figure 9 depict traffic volumes in opposing directions throughout the day at three locations. At the corridor's western end, there is little difference between volumes in either direction during peak periods, although westbound traffic appears slightly higher in both periods, a mildly unusual condition. The heavier eastbound flow later in the evening westbound is also atypical. Moving eastward, the directional imbalances shift, and become more pronounced. In the morning, the proportion of traffic heading east becomes greater, with flows reversing in the evening, reflecting the substantial regional commuting influence of the University and the Medical Center in Chapel Hill. This extreme directionality places greater demands on available roadway capacity than does a more balanced distribution of traffic, increasing delay and creating longer queues at signalized intersections.

Figure 6: NC 54 Traffic Peaking Characteristics

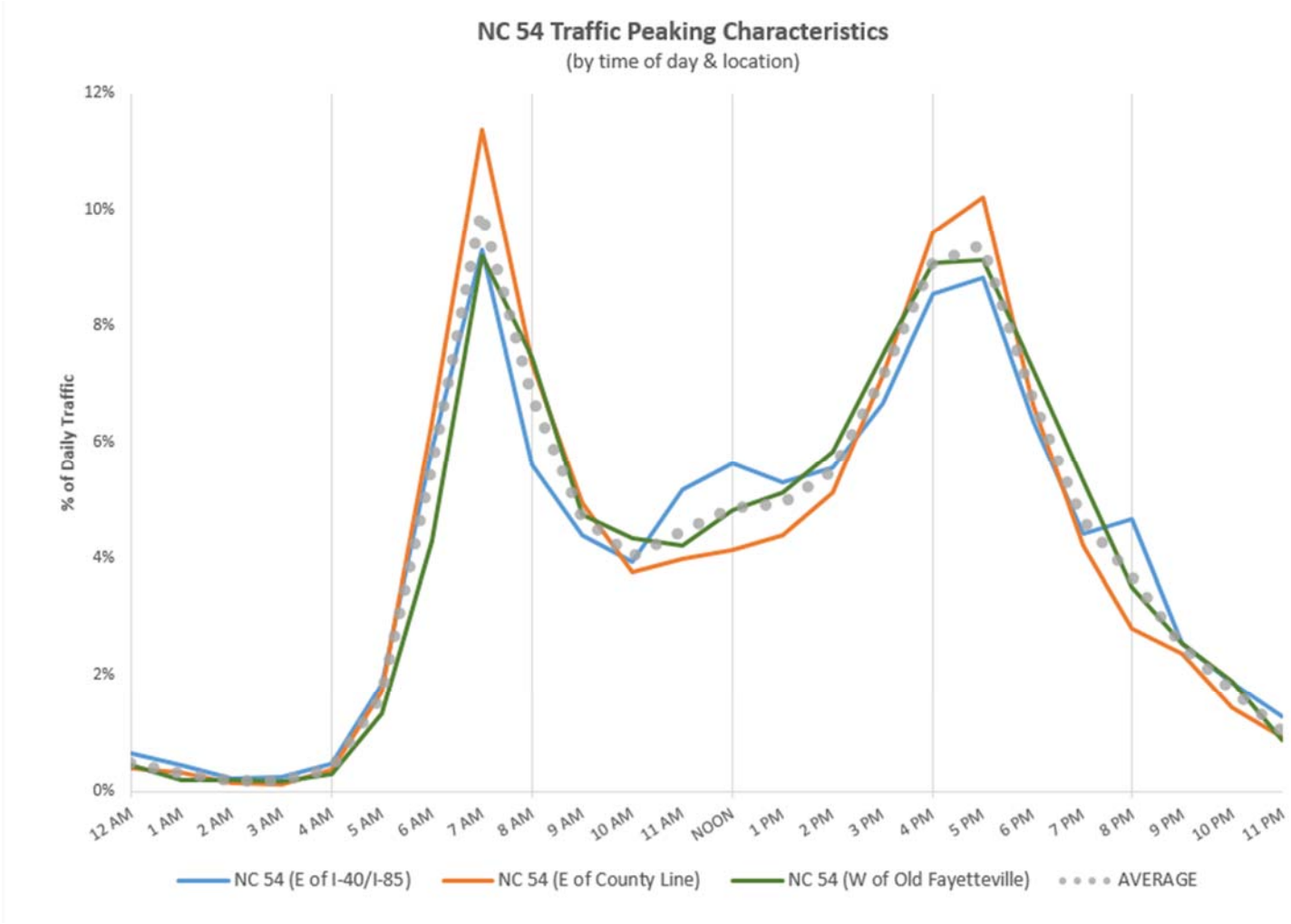


Figure 7: NC 54 Traffic Peaking by Direction (western end of corridor)

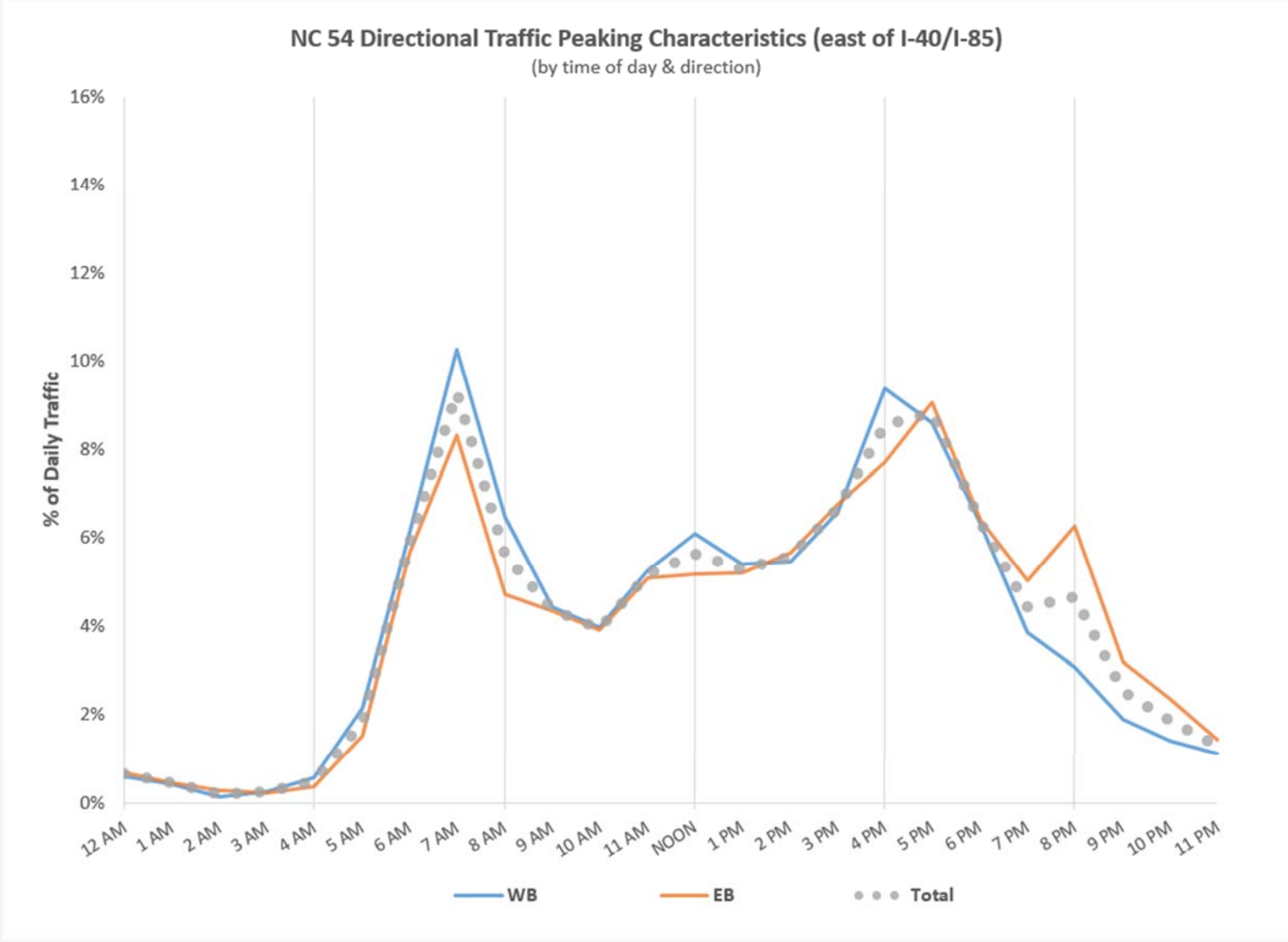


Figure 8: NC 54 Traffic Peaking by Direction (middle of corridor)

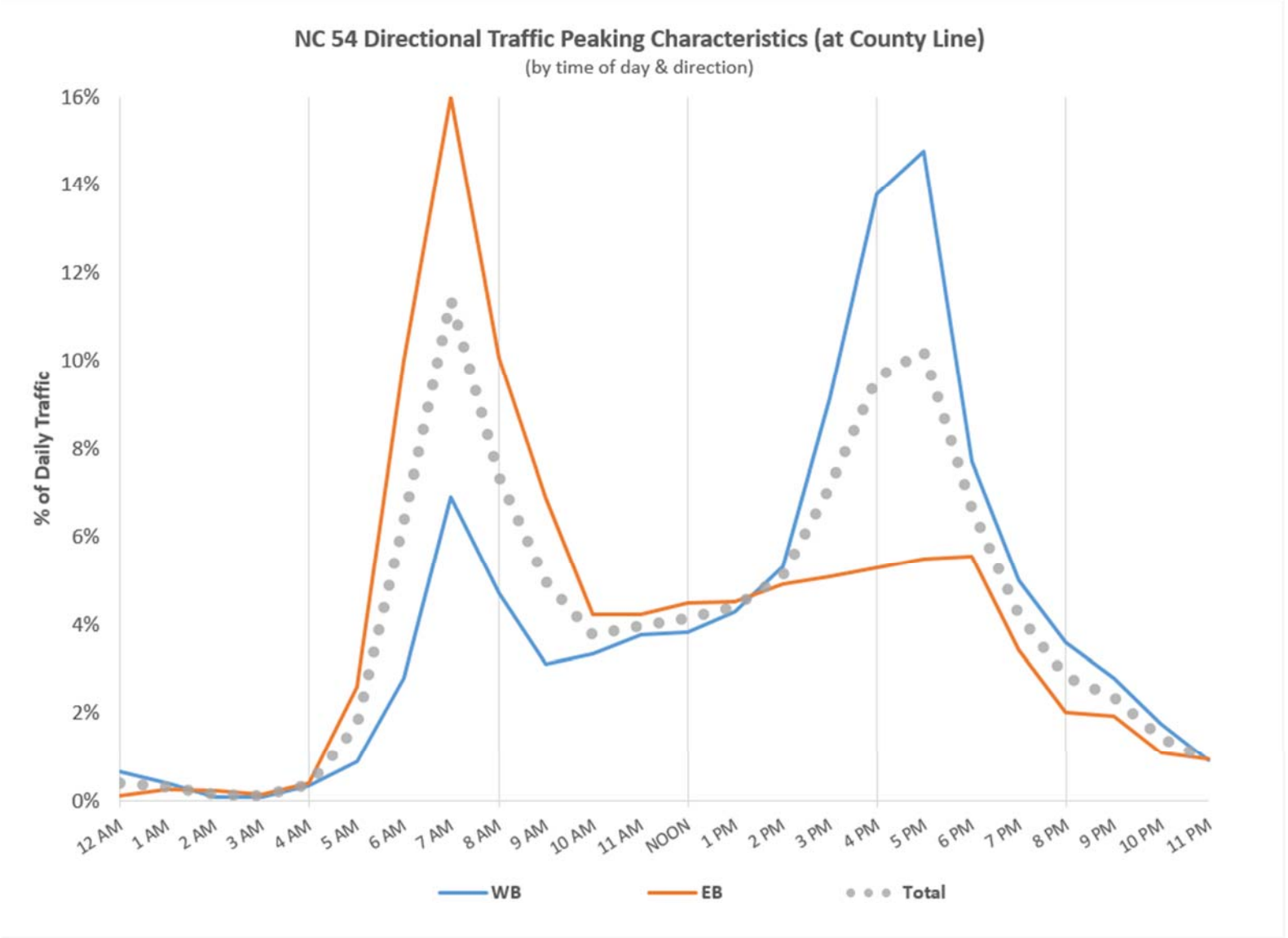
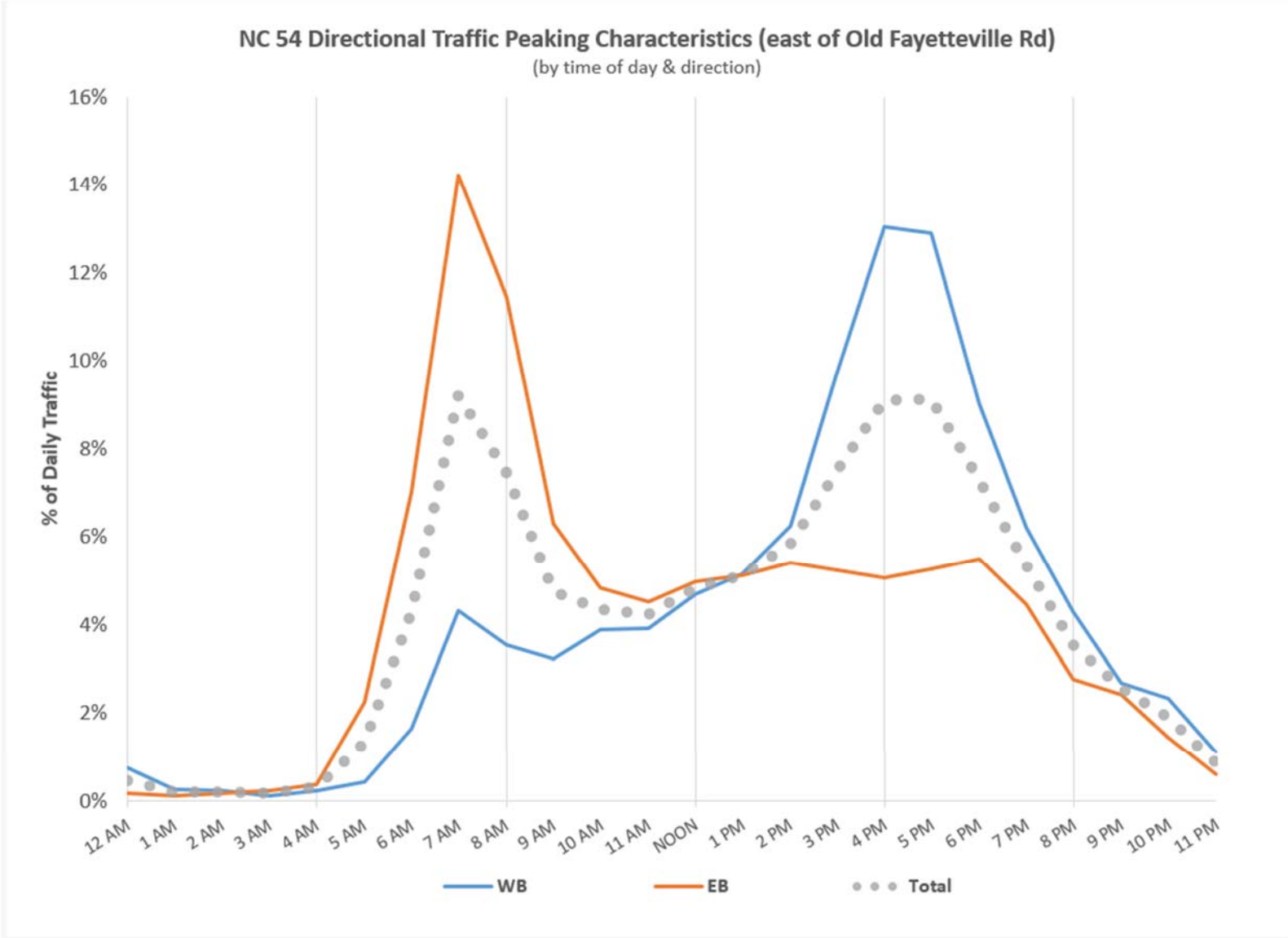


Figure 9: NC 54 Traffic Peaking by Direction (eastern end of corridor)



These variations in traffic demand patterns affect the design of potential solutions. The degree to which this characteristic persists into the future depends largely on land use changes, both inside and outside the corridor. Assumptions regarding the location, nature, and magnitude of development must be carefully considered in forecasting design year traffic volumes.

Vehicle Speeds

Given the length of the corridor, comprehensive speed studies were not feasible. However, vehicle speeds are considered in the analysis of crash statistics later in this report.

Truck Volumes / Freight Movement

Data is divided into single unit trucks, which have two or more axles but no towed trailer, and truck tractor semitrailers (TTST), which are trucks towing separate trailer units.

Table 3 summarizes the results of this data collection effort.

Table 3: Truck Percentages (from 48-hour counts)

Location	Single Unit	TTST	All Trucks
1. NC 54 east of I-40/I-85	2.3%	1.3%	3.3%
2. NC 54 near Alamance-Orange Co Line	1.5%	1.0%	2.5%
3. NC 54 west of Old Fayetteville Road	1.7%	0.8%	2.4%

These truck percentages are slightly lower than would be expected for a Minor Arterial like NC 54. This may be due to the presence of I-40 as a more direct thru route across Alamance and Orange counties.

Intersection turning movement counts conducted for this study also include truck data, used in calculating intersection levels-of-service during peak periods, when trucks typically comprise a smaller share of total traffic.

2.2.2.2 Intersection Turning Movement Counts

MioVision cameras were used to collect intersection turning movement counts at eight locations on Tuesday and Wednesday, September 12th and 13th, 2017. Due to heavy rains, the Tuesday counts were not used. Passenger vehicles, motorcycles, light goods vehicles, single-unit trucks, articulated trucks, bicycles, pedestrians, and buses were counted over a 16-hour period (6:00 AM to 10:00 PM) and summarized. AM and PM peak hours were also identified and summarized. Detailed summaries of the traffic counts can be found in the Appendix. Counts were conducted at the following locations:

Signalized Intersections

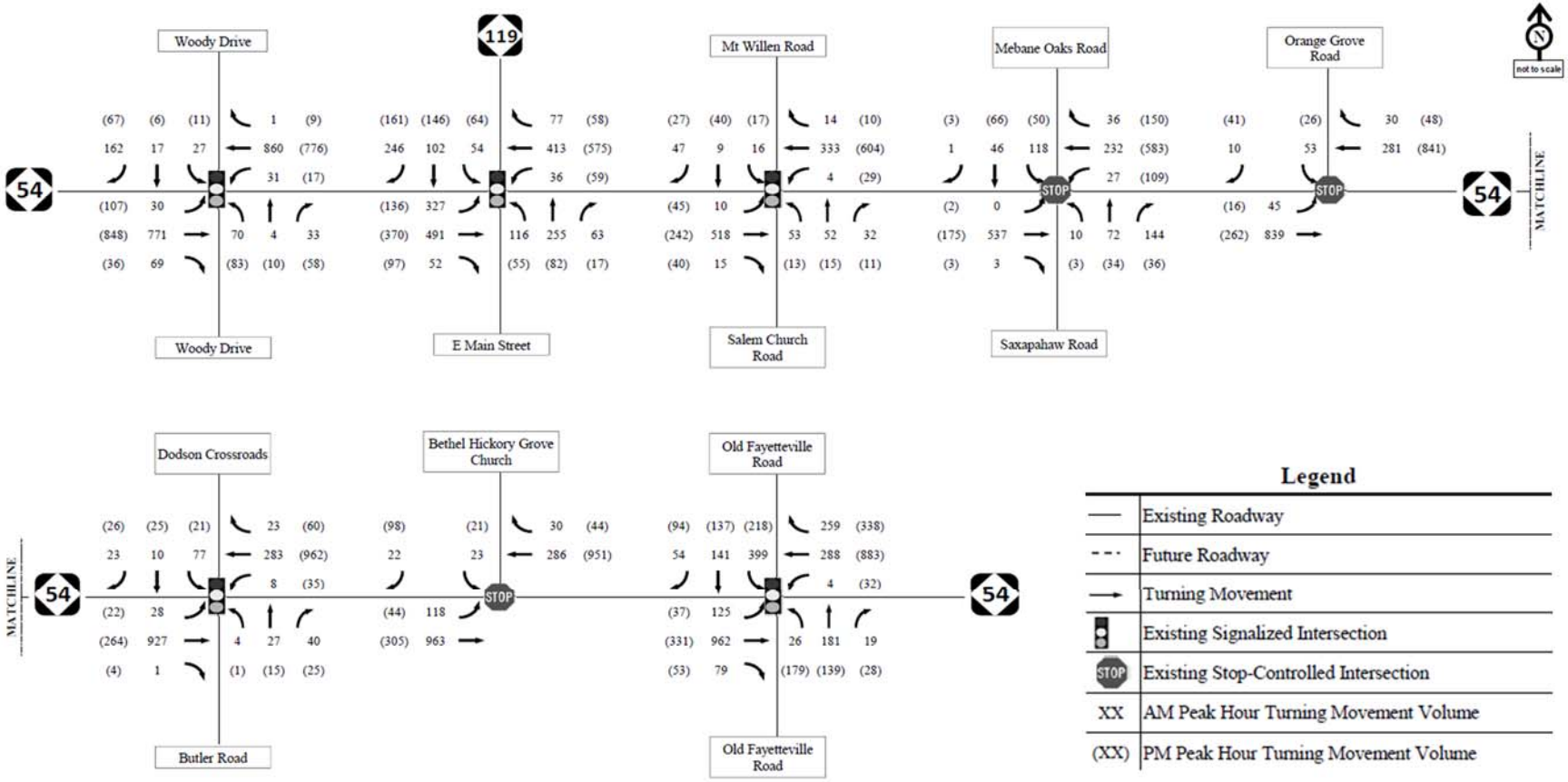
- Woody Dr (SR 2105)
- NC 119/E Main St (SR 2159)
- Mt Willen Rd/Salem Church Rd (SR 2142)
- Dodsons Crossroads (SR 1102)/Butler Rd (SR 1951)
- Old Fayetteville Rd (SR 1107/SR 1937)

Unsignalized Intersections

- Mebane Oaks Rd (SR 1007)/Saxapahaw Rd (SR 1961)
- Orange Grove Rd (SR 1006)
- Bethel Hickory Grove Church Rd (SR 1104)*

Figure 10 depicts peak hour turning movements at each intersection.

Figure 10: Peak Hour Turning Movements



2.2.3 Pedestrian and Bicycle Trips

Pedestrian counts collected for this study revealed a total of 57 pedestrians crossing the corridor during the 16-hour count period (6 Am – 10 PM Wednesday, September 13, 2017). Eight pedestrians were observed at three studies intersections on the western end (Alamance County), and 49 pedestrians were observed at two intersections within Orange County.

The intersection of Old Fayetteville Road observed 48 of the 57 pedestrians (84%). Sidewalks are present along one side of Old Fayetteville Road, as are Chapel Hill Transit bus stops. This roadway connects commercial/retail development to the south of NC Hwy 54 with residential and McDougle Elementary/Middle School to the north.

Bicycle counts collected for this study revealed a total of 77 cyclists among seven intersection count locations. More than 60 cyclists (84%) were observed east of the Orange Grove Road intersection in Orange County.

Most cyclists within the corridor are crossing NC 54 rather than riding along it. There are a variety of formal and informal cycling clubs and groups rides throughout the week in the corridor's vicinity. Higher levels of group bicycle rides are reported during the weekend. Cycle club members who choose to ride along the corridor are experienced, and comfortable operating a relatively high speed with vehicular traffic. A majority of cyclists are less experienced, and therefore do not choose to ride along this corridor (see Figure 11).

Strava is an online exercise community where users contribute GPS data from their watch or smart phone to map their route and calculate distances, speed (pace), and/or calories burned. Strava data suggests that cyclists are crossing the corridor at several intersections, associated with regional bicycle routes. Some of the more significant intersections include (from west to east):

- Jim Minor Road,
- Salem Church Road – Mt Willen Road (Alamance County Regional Bicycle Route),
- Thorn Road,
- Saxapahaw Road – Mebane Oaks Road,
- Butler Road – Dodsons Crossroads,
- Bethel Hickory Grove Church Road, and
- Old Fayetteville Rd.

Figure 11: Bicycle Routes and Hiking Trails in Corridor



2.2.4 Transit Service

There are five transit service providers in the NC 54 corridor, and the provision of service ranges from an on-demand service to an express regional service. All routes are served by shuttle vans or transit buses.

- Alamance County Transportation Authority operates an on-demand reservation-based shuttle van service across the county Monday-Friday, 5:00 AM - 5:30 PM.
- Chapel Hill Transit operates the weekday peak-hour CPX route that connects the Carrboro Plaza Park and Ride on NC 54 and Old Fayetteville Road to the Chapel Hill downtown and UNC Chapel Hill Campus.

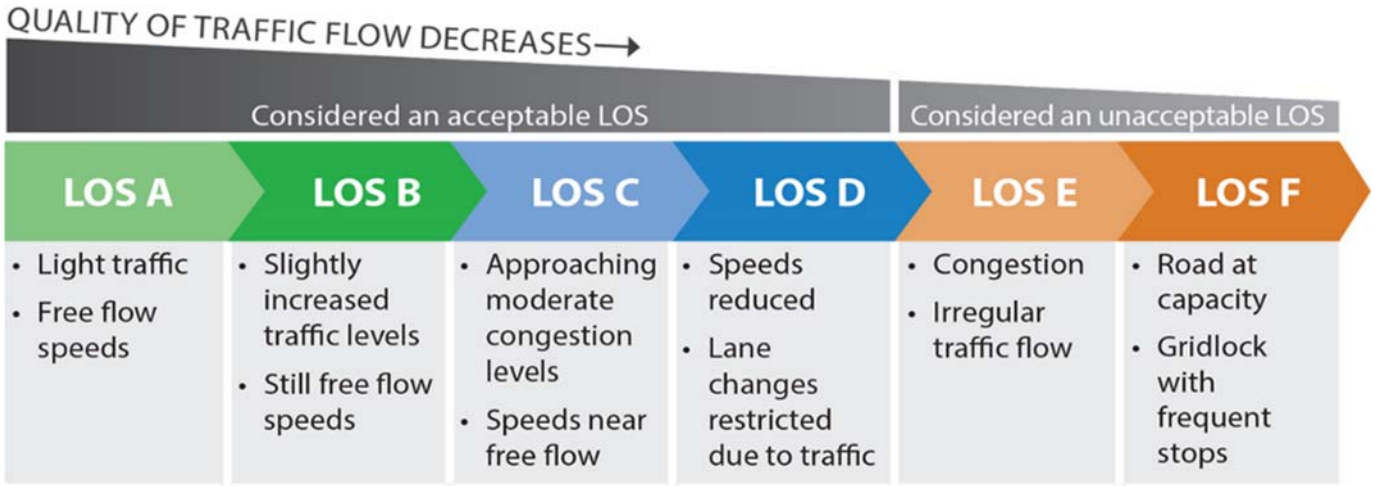
- The Piedmont Authority for Regional Transportation operates the Route 4: Alamance Burlington Express. Route 4 is a fixed route and schedule service that departs from the Greensboro Depot three times in the morning and two times in the evening and terminates at the Ambulatory Care center at the University of North Carolina Hospital in Chapel Hill. The route travels along I-85 and I-40, and it stops at the Alamance Park & Ride on Kirkpatrick Road in the study corridor's north-west proximity.
- Link Transit operates light transit service vehicles on fixed routes and schedules for the communities of Burlington and Gibsonville and Alamance Community College. The Orange Route crosses the north-western portion of the corridor on I-85. The two stops in the corridor's vicinity are a Park & Ride Lot (located at Hwy 87 and Crescent Square Drive) and Alamance Community College. The Orange Route service maintains 90-minute headways beginning in 6:35AM and concludes shortly before 8PM.
- Orange County Public Transportation (OPT) operates demand response services across Orange County, including the study corridor. OPT also operates a commuter connector route to the north of the corridor between Hillsborough and Mebane, Monday through Friday, from 10AM-3PM along I/40 I/85 and US 70.

2.3 Traffic Operations and Quality of Service

There are a variety of ways to measure the performance of a transportation facility. Transportation professionals typically rely on guidance from the Highway Capacity Manual, which describes performance from the traveler point of view that is designed to be useful to roadway operators, decisions makers and member of the community. Individuals may travel along NC 54 via personal vehicle, walking, bicycling, or via transit, each of which can be quantitatively measured using standard criteria such as delay, average speed, percent time spent following or other measures. The dominant form of transportation currently along NC 54 is by automobile. As a result, this section covers traffic operations along the corridor on a corridor basis (i.e. distinguishable segments with common roadway characteristics), as well as by individual intersections. Given the low volume of pedestrian and bicycle trips, and the lack of dedicated facilities, providing a meaningful assessment of bicycle level-of-service is difficult; however, deficiencies and opportunities can be identified.

The conventional concept of traffic, level-of-service (LOS) can be summarized—at least qualitatively—in Figure 12 below. More detailed, qualitative tables are presented in subsequent sections. Generally, LOS D is acceptable in most rural and suburban situations. In some highly urbanized settings, or where there are unacceptable environmental/community impacts, excessive costs, or other policy or planning objectives, LOS E can be appropriate.

Figure 12: Level of Service Illustration



2.3.1 Corridor-Level

For corridor-level capacity analysis using Highway Capacity Software Plus (HCS+), NC 54 was divided into seven segments, each assessed for level-of-service (LOS) in the AM and PM peak hours. The 5-lane segment between I-40/I-85 and NC 119 was treated as a multilane highway (its predominant character). The remaining segments were classified as Class I two-lane highway. This classification applies to intercity routes connecting major traffic generators and serving commuters who expect to travel at relatively high speeds. For these segments, directional analysis was required to capture the effects of opposing traffic and passing restrictions.

Segmental corridor analyses were conducted using the Highway Capacity Software Plus (HCS+) software package. Segmental corridor LOS results reflect daily operations; however, peak-hour parameters are considered. To analyze segments, various parameters are accounted for, including daily volume, lane width, shoulder width, peak hour directional split, terrain type, access point density and truck percentages. The LOS analysis integrated data from the

traffic count VHB conducted in fall 2017. Figure 13 graphically represents the worst case (AM or PM peak) directional LOS for the corridor.

Figure 13: Peak Period Corridor Level of Service Summary for NC 54

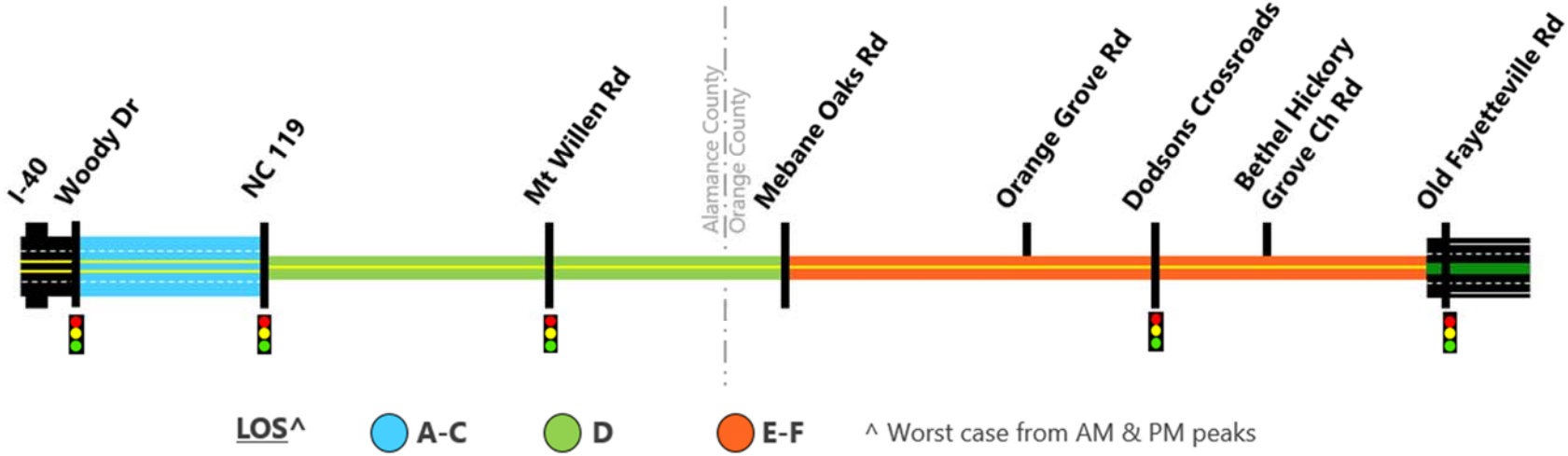


Table 4 summarizes results for the 5-lane segment between I-40/I-85 and NC 119. LOS for this type of facility is determined by traffic density (passenger-cars per mile per lane, or pc/mi/ln). Conditions are very good, with both directions operating at LOS B or better during both peak hours. Intersection LOS appears to be the more critical capacity consideration in this portion of the corridor.

Table 5 describes level of service criteria relating to average travel speed (ATS) and percent time-spent following (PTSF) for Class I facilities. PTSF can have a significant impact on LOS when there are

What is Percent Time-Spent Following (PTSF)?

PTSF is a traffic performance measure for two-lane highways that describes the average percent of travel time that vehicles spend in platoons (i.e. groups) behind a slower moving vehicle due to the inability to pass. Higher PTSF percentages indicate decreasing levels of service (e.g. travel speed relative to posted speed).

Source: Highway Capacity Manual, 6th Edition: A Guide for Multimodal Mobility Analysis (2010)

few opportunities to pass slower-moving vehicles, typically because of sight-distance limitations.

Table 6 summarizes the results of HCS capacity analysis by segment and direction for the AM and PM peak periods. In general, LOS is slightly lower in the AM peak due to a combination of higher volumes and more pronounced directionality.

Table 4: Corridor Level of Service Summary for NC 54: 5-Lane w/ Two-Way Left Turn Lane

Segment Location	Segment Length (miles)	AM Peak			PM Peak		
		Segment LOS	Avg. Speed (mph)	Density (pc/mi/ln)	Segment LOS	Avg. Speed (mph)	Density (pc/mi/ln)
Woody Dr – Mebane Oaks Rd (EB / WB)	3.2	A / B	45 / 45	11 / 11	B / B	45 / 45	12 / 11

Table 5: Level of Service Description for Two-Lane Highways

Level of Service	Class I Highways	
	ATS (mph)	PTSF (%)
A	>55	<=35%
B	>50 - 55	35% - 50%
C	>45 - 50	50% - 65%
D	>40 - 45	65% - 80%
E	<= 40	>80%
F	Flow rate exceeds segment capacity	Flow rate exceeds segment capacity

The segments between NC 119 and Mebane Oaks Road operate at acceptable levels of service at all times. East of Mebane Oaks Road, all four segments operate at LOS E in one direction during peak periods. During the AM peak, the eastbound

direction is deficient; the westbound direction fails during the PM peak. This is attributable not only to increasing traffic volumes to the east, but to the highly imbalanced directional flows discussed in Section 1.3.2.1. This characteristic is especially problematic given the limited passing opportunities within these segments. For example, the 2.6-mile segment between Bethel Hickory Grove Church and Old Fayetteville Roads is over 80% "no-passing," and averages 12 access points per mile, the highest density in the entire study corridor.



Example of no-passing and passing zone transition in corridor, near Thom Road

Table 6: Corridor Level of Service Summary for NC 54: 2-Lane Highway

Segment Location	Segment Length (miles)	AM Peak			PM Peak		
		Segment LOS	Avg. Speed (mph)	PTSF (%)	Segment LOS	Avg. Speed (mph)	PFFS (%)
NC 119 – Mt Willen Rd (EB / WB)	4.1	D / D	45 / 45	76 / 74	C / D	45 / 44	68 / 83
Mt Willen Rd – Mebane Oaks Rd (EB / WB)	3.3	D / C	46 / 47	77 / 62	B / D	47 / 46	53 / 79
Mebane Oaks Rd – Orange Grove Rd (EB / WB)	3.6	E / B	44 / 46	86 / 54	B / E	46 / 44	53 / 86
Orange Grove Rd – Dodsons Crossroads (EB / WB)	1.6	E / C	42 / 44	87 / 57	B / E	44 / 42	54 / 88
Dodsons Crossroads – Bethel Hickory Grove Church Rd (EB / WB)	1.8	E / C	41 / 43	92 / 57	C / E	42 / 41	61 / 90
Bethel Hickory Grove Church Rd – Old Fayetteville Rd (EB / WB)	2.6	E / C	40 / 41	92 / 62	C / E	40 / 40	65 / 93

The HCS methodology for estimating LOS for travel by bicycle (BLOS) is an empirically-derived procedure that assesses a facility's suitability for bicycle travel using a specified set of roadway characteristics, including traffic volume and speed; heavy vehicle percentage; pavement condition; access points on right side; presence of bicycle lane; and bicycle lane, shoulder, and outside travel lane widths. Table 7 summarizes the BLOS for each segment by direction and peak period. Note that BLOS for individual intersections has not been calculated.

In its current state, this corridor is generally not well-suited for bicycle travel. The segments at each end of the corridor operate at LOS E in at least one direction during at least one peak period. The most important contributing factors appear to be traffic volumes and speeds; lack of bicycle lanes; limited width of shoulders and outside travel lanes; and density of access points.

Table 7: Corridor Segment Bicycle LOS Summary for NC 54

Segment Location	Segment Length (miles)	AM Peak		PM Peak	
		Segment BLOS	BLOS Score	Segment BLOS	BLOS Score
Woody Dr – Mebane Oaks Rd (EB / WB)	3.2	B / B	2.3 / 2.3	B / B	2.4 / 2.5
NC 119 – Mt Willen Rd (EB / WB)	4.1	D / D	4.3 / 4.19	D / D	4.2 / 4.1
Mt Willen Rd – Mebane Oaks Rd (EB / WB)	3.3	D / D	4.2 / 4.0	D / D	3.9 / 4.3
Mebane Oaks Rd – Orange Grove Rd (EB / WB)	3.6	D / D	4.4 / 3.9	D / D	3.9 / 4.5
Orange Grove Rd – Dodsons Crossroads (EB / WB)	1.6	D / D	4.5 / 3.9	D / E	3.9 / 4.5
Dodsons Crossroads – Bethel Hickory Grove Church Rd (EB / WB)	1.8	E / D	4.6 / 3.9	D / E	4.0 / 4.5
Bethel Hickory Grove Church Rd – Old Fayetteville Rd (EB / WB)	2.6	E / D	4.6 / 4.0	D / E	4.1 / 4.6

2.3.2 Intersections

Peak hour LOS measures the adequacy of the intersection geometrics and traffic controls of a particular intersection or approach for the given turning 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 total delay attributed to traffic control devices (e.g., signals or stop signs). The engineering profession generally accepts LOS D as an acceptable operating condition for signalized intersections in urban areas LOS C for rural areas.

At unsignalized intersections, LOS E is generally considered acceptable only if the side street encounters delay. Nevertheless, side streets sometimes function at LOS F during peak traffic periods; however, the traffic volumes often do

not warrant a traffic signal to assist side street traffic. Table 8 provides a general description of various levels of service categories and delay ranges.

Table 8: Level of Service Description for Intersections

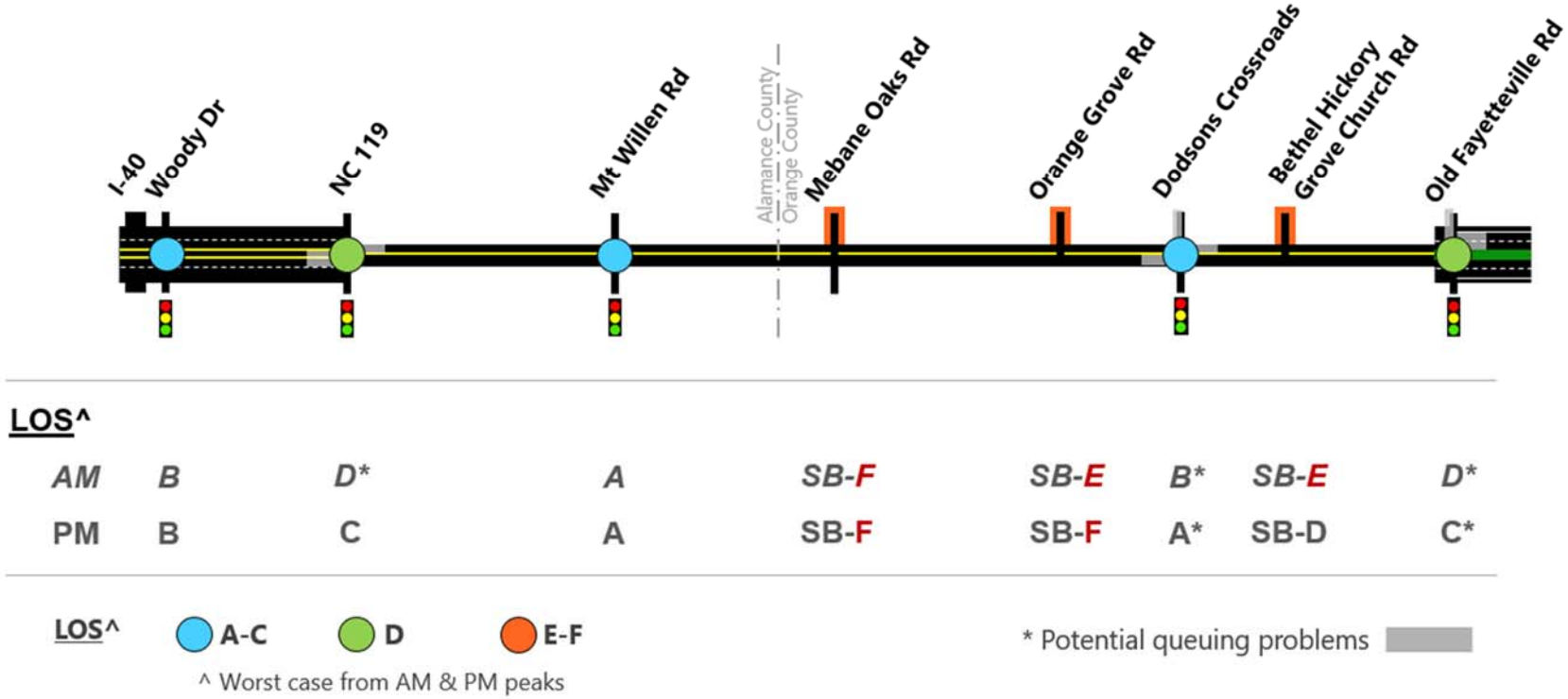
Level of Service	Description	Signalized	Unsignalized
A	Little or no delay	<= 10 sec.	<= 10 sec.
B	Short traffic delay	10-20 sec.	10-15 sec.
C	Average traffic delay	20-35 sec.	15-25 sec.
D	Long traffic delay	35-55 sec.	25-35 sec.
E	Very long traffic delay	55-80 sec.	35-50 sec.
F	Unacceptable delay	> 80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

Level of Service Analysis

Intersection LOS analyses were performed for the typical weekday AM and PM peak hours using *Synchro/SimTraffic Professional Version 9.* The Existing (2017) scenario analysis utilized the existing signal plans from the NCDOT. The intersection cycle lengths were optimized, and in some cases, where the optimized cycle length fell below the recommended minimum, the cycle length was set manually at the NCDOT minimum cycle length. A summary of the findings for the Existing (2017) scenario level of service analysis can be found in Table 9, and the full *Synchro/HCS* output can be found in Appendix II. Figure 14 graphically depicts the worst case (AM or PM peak) LOS for signalized intersections and unsignalized approaches, as well as identifying locations with potential for queuing problems.

All five signalized intersections analyzed are operating at acceptable overall LOS during peak hours, and in every case, conditions are worse during the AM peak. In terms of individual approaches, except for the NC 119/East Main Street intersection, NC 54 generally experiences a better LOS than do cross streets. The only approach with a failing LOS is southbound Old Fayetteville Road, which operates at LOS E during the AM peak.

Figure 14: Intersection LOS



Long vehicle queues have the potential to create problems (typically by exceeding available storage length) at several signalized intersections:

- NC 54 westbound through and left-turn lanes at East Main Street (City of Graham) (AM peak only)
- NC 54 westbound through turn lane at Dodsons Crossroads (PM peak only)
- NC 54 westbound through lane at Old Fayetteville Road (PM peak only)
- Old Fayetteville Road southbound left-turn lane at NC 54 (AM peak only)

All three 2-way STOP-controlled intersections analyzed have a cross street approach operating at LOS E or F during at least one peak period. However, only the Mebane Oaks Road/Saxapahaw Road intersection fails overall, operating at LOS E during the AM peak. The Mebane Oaks Road approach experiences LOS F during both peak hours.

These LOS deficiencies are due mainly to vehicles waiting to turn left onto NC 54, although crossing and right-turning vehicles contribute. Combined with heavy peak-hour traffic, high speeds and some visibility constraints create long delays as drivers wait for adequate gaps in traffic. In many cases, a single left-turning vehicle can block several other vehicles that could otherwise have safely executed a right turn onto NC 54. The location with the greatest potential for long vehicle queues is southbound Mebane Oaks Road (95th percentile queues of >12 cars in the AM, and nearly 6 cars in the PM).

As delays build, impatient drivers sometimes make unsafe maneuvers, leading to higher crash rates. These delays—as well as left-turn delays *from* NC 54—can also encourage traffic to take alternate routes, such as Stanford Road instead of Orange Grove Road.

Table 9: Intersection LOS and Delay

Intersection and Approach	Traffic Control	2017 LOS & Avg Delay/Veh (sec) AM	PM
NC 54 & Woody Drive	Signalized	B (15.9)	A (11.7)
Eastbound		B-10.4	A-6.6
Westbound		B-10.6	A-8.8
Northbound		D-41.5	D-45.0
Southbound		D-49.0	D-40.8
NC 54 & NC 119 / East Main Street	Signalized	D (42.0)	C (20.8)
Eastbound		D-41.7	B-14.5
Westbound		D-48.1	C-23.8
Northbound		C-26.7	C-20.7
Southbound		D-47.6	C-27.8
NC 54 & Mt Willen Road / Salem Church Road	Signalized	A (9.2)	A (7.6)
Eastbound		A-6.9	A-4.3
Westbound		A-5.5	A-6.5
Northbound		C-22.9	C-20.5
Southbound		B-19.4	C-22.9
NC 54 & Mebane Oaks Road / Saxapahaw Road	2-Way STOP	E (12.3)	B (26.4)
Eastbound		---	---
Westbound		---	---
Northbound		D-33.6	C-22.9
Southbound		F-306.8	F-96.8
NC 54 & Orange Grove Road	2-Way STOP	A (2.2)	A (1.5)
Eastbound		---	---
Westbound		---	---
Southbound		E-38.7	D-25.5
NC 54 & Dodsons Crossroads / Butler Road	Signalized	B (12.2)	A (9.0)
Eastbound		B-10.7	A-3.2
Westbound		A-3.7	A-8.7
Northbound		C-26.6	C-24.6
Southbound		D-40.0	C-27.7
NC 54 & Bethel Hickory Church Rd	2-Way STOP	A (1.7)	A (3.7)
Eastbound		---	---
Westbound		---	---
Southbound		D-33.4	E-41.2
NC 54 & Old Fayetteville Road	Signalized	D (39.4)	C (34.6)
Eastbound		C-23.5	B-18.0
Westbound		C-27.4	C-31.6
Northbound		D-53.5	D-43.4
Southbound		E-76.3	D-51.9

2.4 Safety

Given the changes in the corridor segments to the west and east of NC 119, some differentiation is warranted in performing crash analysis. The cross-sections are the most significant difference, although traffic volumes and speeds, development/access density, signalized intersection spacing, and vertical and horizontal alignments also contribute. For this reason, the portion of the corridor west of NC 119 is compared against a typical NC route in an urban area with a 5-lane cross section. While the corridor's context is qualitatively and narratively described as rural in nature, the two-lane highway segment to the east of NC 119 is also compared to urban routes for the safety analysis. This comparison is supported by a conservative analytical approach and because most of it the section lies within an MPO-designated urbanized area.

Analysis of crashes reported along the study corridor from November 2012 through October 2017 reveals that total crash rates for the NC 54 study area are slightly higher overall than the Critical Crash Rates determined by comparing NC 54 with similar facilities in North Carolina (see Tables 10 and 11). However, rates for fatal crashes are lower on NC 54. NC 54 exceeds the respective Critical Crash Rates for non-fatal injuries and for wet conditions, but not for nighttime crashes.

There were 714 recorded crashes in the study corridor during the analysis period. The 3.2 miles west of NC 119 (16% of the corridor length) accounted for 29% of the crashes. Rear-end collisions accounted for 227 crashes, or nearly one-third of the total. These crashes were distributed the most evenly between the two corridor segments. The frequency of this crash type is not surprising, given the combination of frequent driveways and intersections, relatively high travel speeds, and rolling terrain.

The second most common crash type involved animal strikes. These 136 crashes represented 19% of the total, and were distributed very unevenly through the corridor: only 9 occurred in the western segment. The 126 animal strikes in the eastern portion of the corridor represented 25% of all crashes there. This disparity is not surprising given its more wooded and rural character. Thirty of these crashes were concentrated within a ½-mile of two locations: Freshwater Drive and Hatch Road.

Left turns accounted for 14% of all crashes, and angle collisions 9%. These crash types were heavily concentrated in the western portion of the corridor, together comprising 43% of all crashes west of NC 119 (compared with only 14% to the east). This difference can be attributed to the 5-lane cross-section and higher traffic volumes, which greatly increase the number of potential conflict points for any turning movement.

Sideswipes represent 6% of the crash total, running-off-the-road 3%, and right turns 1%. All other types of crashes combine to make up 17% of the total.

Table 10: Crash Rate Comparison for Western 5-Lane Segment (2013-2015 NC Data, per 100M veh-miles)

Rate	NC 54 Crashes	Crashes per 100 MVM	Statewide Rate [1]	Critical Rate [2]
Total	208	282.5	196.6	222.5
Fatal	2	1.0	1.7	4.7
Non-Fatal	76	82.5	60.7	75.4
Night	60	55.7	54.1	68.0
Wet	35	50.4	23.9	33.3

[1] 2013-2015 statewide crash rate for Total, All North Carolina (NC) Routes in North Carolina
[2] Based on the statewide crash rate (95% level of confidence).



Looking west towards I-40/I-85



Looking west towards Long Dairy Rd



Looking east towards Bethel Hickory Grove Church Road



Looking west at Wormranch Road

Table 11: Crash Rate Comparison Eastern 2-Lane Segment (2013-2015 NC Data, per 100M veh-miles)

Rate	NC 54 Crashes	Crashes per 100 MVM	Statewide Rate [1]	Critical Rate [2]
Total	507	241.4	196.6	209.8
Fatal	2	1.3	1.7	3.1
Non-Fatal	182	75.6	60.7	68.1
Night	165	57.6	54.1	61.1
Wet	57	41.5	23.9	28.6

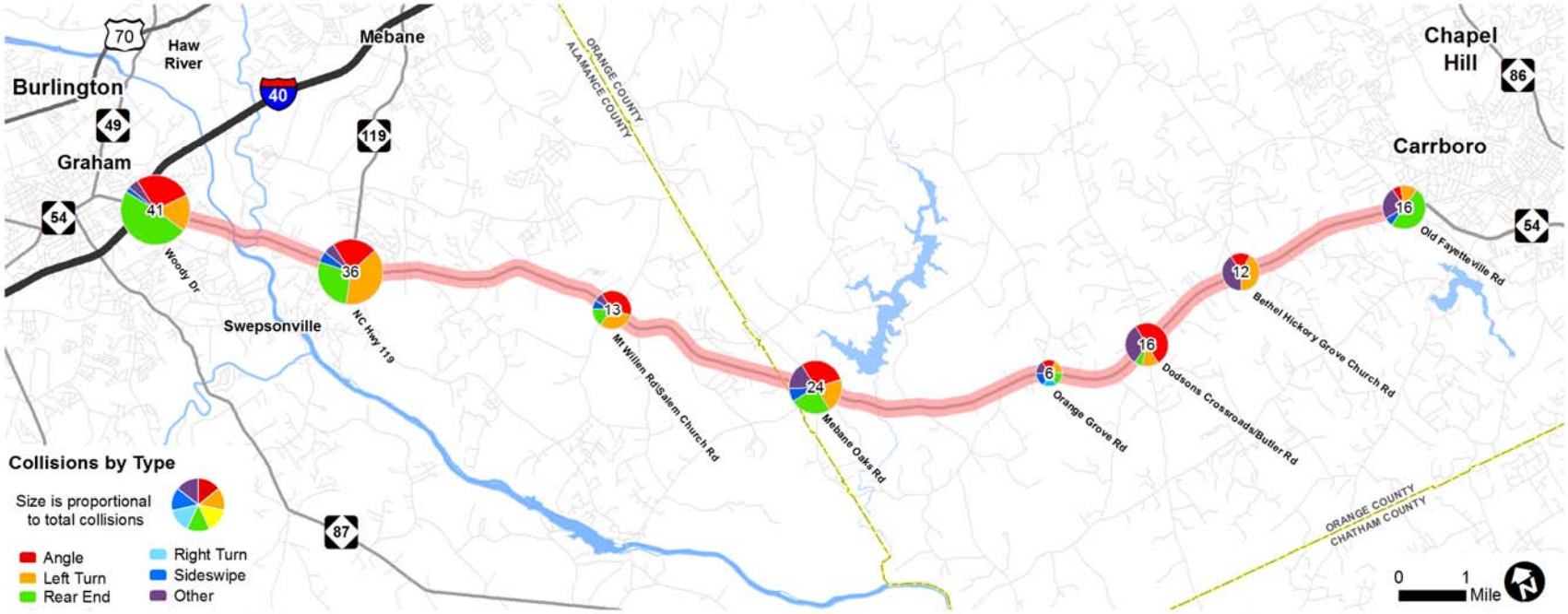
[1] 2013-2015 statewide crash rate for Total, All North Carolina (NC) Routes in North Carolina
[2] Based on the statewide crash rate (95% level of confidence).

Figure 15 depicts the number and types of crashes at the major intersections analyzed in this study. The number of crashes is generally proportional to the total volume of traffic passing through the intersection; the higher the volume, the greater the exposure to potential conflicts. The relatively high number of crashes relative to volumes at the Mebane

Oaks/Saxapahaw Road intersection indicates a problem, possibly due to intersection skew, curving approaches, and nearby intersections on Saxapahaw Road.

As would be expected, Rear End, Angle, and Left Turn crashes are the most common. The fact that Rear End collisions make up about half of the crashes at either end of the corridor suggests that drivers may not be anticipating the transitions occurring there between more rural and more urban conditions. The high proportion of Angle and Left Turn collisions at the Mebane Oaks/Saxapahaw Road and Mt Willen/Same Church Road intersections points to turning traffic as a contributing factor. Most of the large share of "Other" crashes at Bethel Hickory Grove Church Road and Dodsons Crossroads/Butler Road consist of Animal and Fixed Object strikes, as well as Ran Off Road, implying that speed and/or roadway alignment may be a major factor.

Figure 15: Intersection Crash Locations and Analysis



Six pedestrian crashes and three bicycle crashes **reported** along the corridor between 2007 and 2014 are summarized in Table 12 below from west to east. Many bicycle or pedestrian "near-misses" are not reported, and therefore unsubstantiated. Both travelling along NC 54 and crossing NC 54 are potentially hazardous, given the lack of appropriate accommodations for pedestrians and bicyclists. Traffic speeds, rolling terrain, driver expectations, and access locations all contribute to crash potential, and suggest that pedestrian and bicycle demand is suppressed due to discomfort and risk.

Although the number of bicycle and pedestrian crashes may not appear substantial for a corridor of this length, the severity of the results is a matter of concern. Due primarily to high vehicle speeds, one-third of these crashes resulted in a fatality, and over half caused either death or disabling injury. Whether for discretionary trips or because the traveler has no other options, this level of risk is difficult to accept, both in terms of personal costs and costs to society.

Table 12: Bicycle and Pedestrian Crashes (2007-14)

Type	Date	Day	Time	Location	Nearest Intersection	Severity
Pedestrian	Dec 2012	Monday	5:57 AM	Graham, Alamance County	Whittemore Rd	K: Killed
Pedestrian	Mar 2008	Sunday	2:27 AM	Graham, Alamance County	Ivey Road	A: Disabling Injury
Bicyclist	Jul 2007	Monday	5:45 PM	Alamance County	Clifford Ray Rd	B: Evident Injury
Pedestrian	Jun 2012	Sunday	4:56 PM	Alamance County	Brucewood Rd	B: Evident Injury
Pedestrian	Sep 2014	Wednesday	8:57 PM	Alamance County	Brucewood Rd	B: Evident Injury
Pedestrian	Nov 2010	Thursday	10:37 PM	Alamance County	Mt Willen Rd	K: Killed
Bicycle	Jun 2012	Sunday	12:42 AM	Orange County	Brookfield Dr	K: Killed
Bicycle	Jun 2009	Tuesday	9:13 AM	Orange County	Lavenia Ln	C: Possible Injury
Pedestrian	Oct 2010	Friday	3:00 PM	Carrboro, Orange County	Old Fayetteville Rd	A: Disabling Injury

Source: NCDOT Division of Bicycle and Pedestrian Transportation, https://www.ncdot.gov/divisions/bike-ped/Pages/research-data.aspx

2.5 Environmental Context

An environmental screening was completed for the project study area utilizing existing GIS resources. This screening analysis indicated areas of possible environmental concern, including streams and wetland areas, community resources, and locations of hazardous waste sites. These data were obtained from a variety of sources including those listed below:

- Local Government GIS Departments - Alamance County, Orange County, Burlington, Carrboro
- NC Center for Geographic Information and Analysis (NC One Map)
- NCDENR Division of Water Quality (DWQ)
- NC Department of Cultural Resources – State Historic Preservation Office (NC SHPO)
- NC Department of Environmental Quality – Waste Management (DEQ-WM)
- NC Department of Transportation GIS Unit
- NC Natural Heritage Program (NHP)
- NC Wildlife Resources Commission (WRC)
- US Fish and Wildlife Services (FWS)

Figures 16 through 18 illustrate the known environmental features present within the project study area as indicated by the environmental screening process.

This summary references environmental features that are located within the:

- Project corridor
- Project study area
- Vicinity of the project study area

The project corridor refers to the right-of-way, which varies between 100-124 feet wide along the corridor. The project study area refers to a quarter-mile buffer (2,640 feet total width) of the exiting roadway centerline, displayed as a red line in Figure 16. Features within the vicinity of the project study area are located beyond the quarter-mile buffer, however still relevant because they are nearby or downstream of the roadway.

2.5.1 Built Environment

The built environment in the study area is primarily rural residential, with agricultural farms scattered in between. There are commercial, highway retail, retail, and industrial developments at the eastern and western ends of the study area. Overall, the study area is low density.

A review of places of worship in the vicinity of the study area identified eight churches and three cemeteries. The full list is included as an Appendix item. One school (Alexander Wilson Elementary School) is located along the corridor at the NC 119 intersection, and there are two additional child care facilities in the corridor vicinity: Creative Child Care in Graham, and Our Playhouse Preschool near White Cross Road. One additional school (McDougle Elementary/Middle) is located more than 0.5 miles from the corridor, at its eastern end.

Other notable points of interest include a private airstrip (The Duchy Airstrip) adjacent to the corridor, off of Thorn Road in Alamance County and near the Alamance-Orange county border. This airstrip serves residents of The Duchy neighborhood. The Swepsonville Volunteer Fire Station 10 is located on the corridor's western end, near Salem Church Road – Mt Willen Road. The White Cross Volunteer Fire Station 2 is located on Neville Road, nearly 0.5 miles off of the corridor.

2.5.2 Land Use

Historic Properties

The North Carolina State Historic Properties Office (SHPO) is responsible for surveying and designating structures and districts of historical significance, and maintains an online webviewer with more information http://gis.ncdcr.gov/hpoweb/. The highest level of preservation is the National Register. All properties and districts listed in or eligible for listing in the National Register are considered in the planning of federal undertakings such as highway construction and Community Development Block Grant projects. The following historic properties were identified within the project study area:

National Register

- Bingham School (1978) – 1845 Greek Revival School – NE Corner of NC 54 & Mebane Oaks Rd.

State Study List

- Oaks Rural Historic District (1993) – contains Bingham School property – Mebane-Oaks Rd./Saxapahaw Bethlehem Church Rd intersection with NC Hwy 54 corridor.
- White Cross School (1993) – 3501 NC 54 Chapel Hill, NC 27516
- Hickory Grove School (1999) – 1101 NC 54 Chapel Hill, NC 27516

Determined Eligible for Study List

- Bethlehem Presbyterian Church (1998) – within Oaks Rural Historic District – 3624 Saxapahaw Bethlehem Church Rd. Mebane, NC 27302

Hazardous Materials

Ten gas stations were identified, each with underground storage tanks that may pose a potential challenge for redevelopment of these parcels.

- Kangaroo Express - 801 E. Harden St. Graham, NC 27253
- Shell Gas Station - 901 E. Harden St. Graham, NC 27253
- BP Gas Station - 924 E. Harden St. Graham, NC 27253
- Talbert's Grocery - 4848 NC 54 Graham, NC 27253
- PSM Food Mart - 4908 NC 54 Graham, NC 27253
- White Cross Citgo - 3322 NC 54 Chapel Hill, NC 27516
- White Cross Shell Gas Station - 3233 NC 54 Chapel Hill, NC 27516
- Exxon Gas Station - 601 NC 54 Chapel Hill, NC 27514
- Kangaroo Express Gas Station - 102 B Hwy 54W Carrboro, NC 27510
- Han-Dee Hugo Gas Station - 1401 W. Main St. Carrboro, NC 27510

A former landfill (Graham Disposal facility) previously operated along Cooper Road, approximately 0.25 miles off of the NC 54 Hwy corridor near the western end.

This GIS-level screening included the following hazardous waste categories; however, no features were identified within the study area: Active landfills, Brownfield sites, Dry-cleaning sites, Hazardous substance disposal sites.

Conservation

The Cane Creek Reservoir (8705 Stanford Road) near Mebane Oaks Road along the eastern end of the corridor, serves as a drinking water supply for 70,000 people and is operated by the Orange Water and Sewer Authority (OWASA). This reservoir includes recreational opportunities, including boat rental, fishing, nature trail and picnic areas. OWASA has acquired more than 1,600 acres of land within the Cane Creek watershed to protect the quality of this resource.

For additional background visit https://deq.nc.gov/about/divisions/water-resources/drinking-water/drinking-water-protection-program/success-stories/orange-county

2.5.2.1 Natural Environment

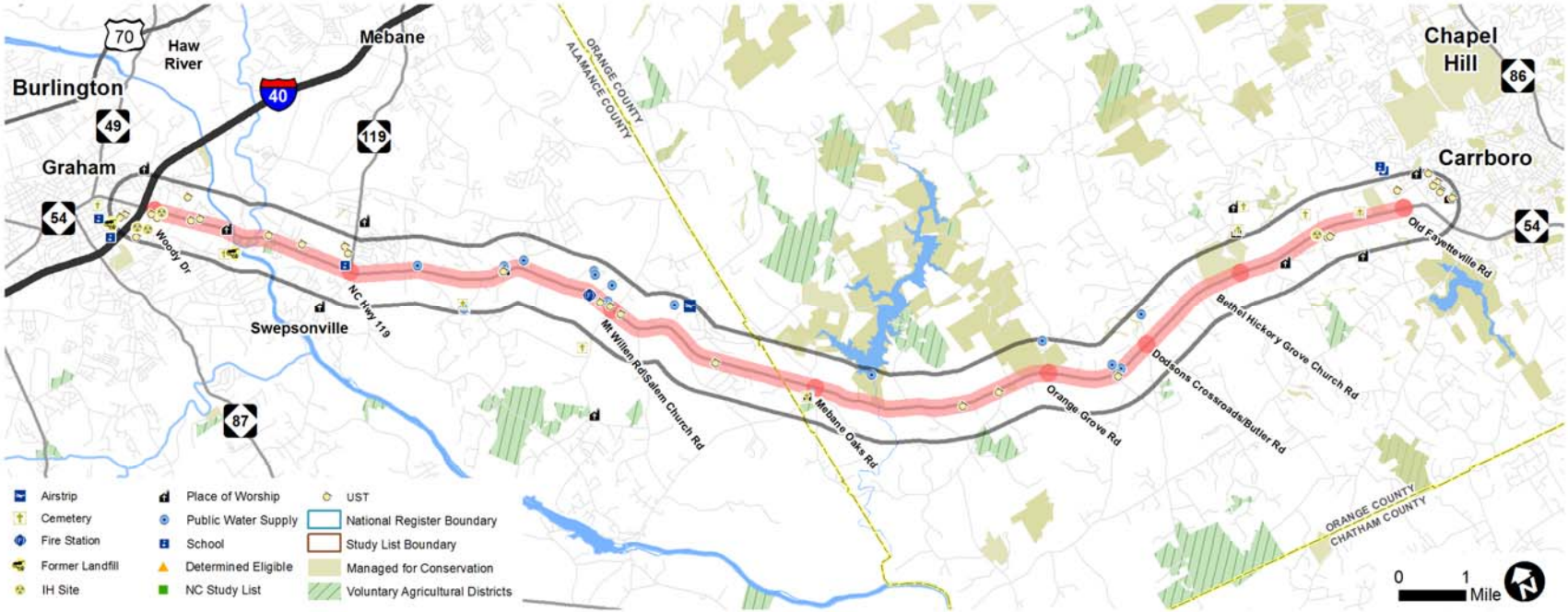
The NC Natural Heritage Program (NHP) is responsible for identifying occurrences of rare plants and animals, exemplary or unique natural communities, and important animal assemblages (see Figure 16). Collectively, these plants, animals, natural communities, and animal assemblages are referred to as elements of natural diversity, or simply as elements.

Some of the NHP resources that have been identified include:

- Easements of land managed by several agencies:
  - NC Clean Water Management Trust Fund (State)
  - NC Division of Mitigation Services (State)
  - Triangle Land Conservation Easement (Private)
- Orange County Water and Sewer Authority (OWASA) Property (Local)
- Orange County Open Space (Local)
- Natural Heritage Areas
  - Lower Cane Creek Slopes and Bottom – NAID #2160
  - Calvander Laurel Bluff and Bottom – NAID #30
- Natural Heritage Elements (Name – Significance level – Category ID – Year)
  - Unnamed Animal – Medium – Animal EOID# 8723 – 1988
  - Eastern Creekshell – Medium – Aquatic Community EOID# 29628 – 1996
  - Notched Rainbow – Medium – Aquatic Community EOID# 29488 – 1996

- Piedmont Alluvial Forest – Medium – Natural Community EOID# 13426 – 2010
- Piedmont Alluvial Forest – High – Natural Community EOID# 29368 – 1988
- Mesic Mixed Hardwood Forest – Low – Natural Community EOID# 29388 – 1988

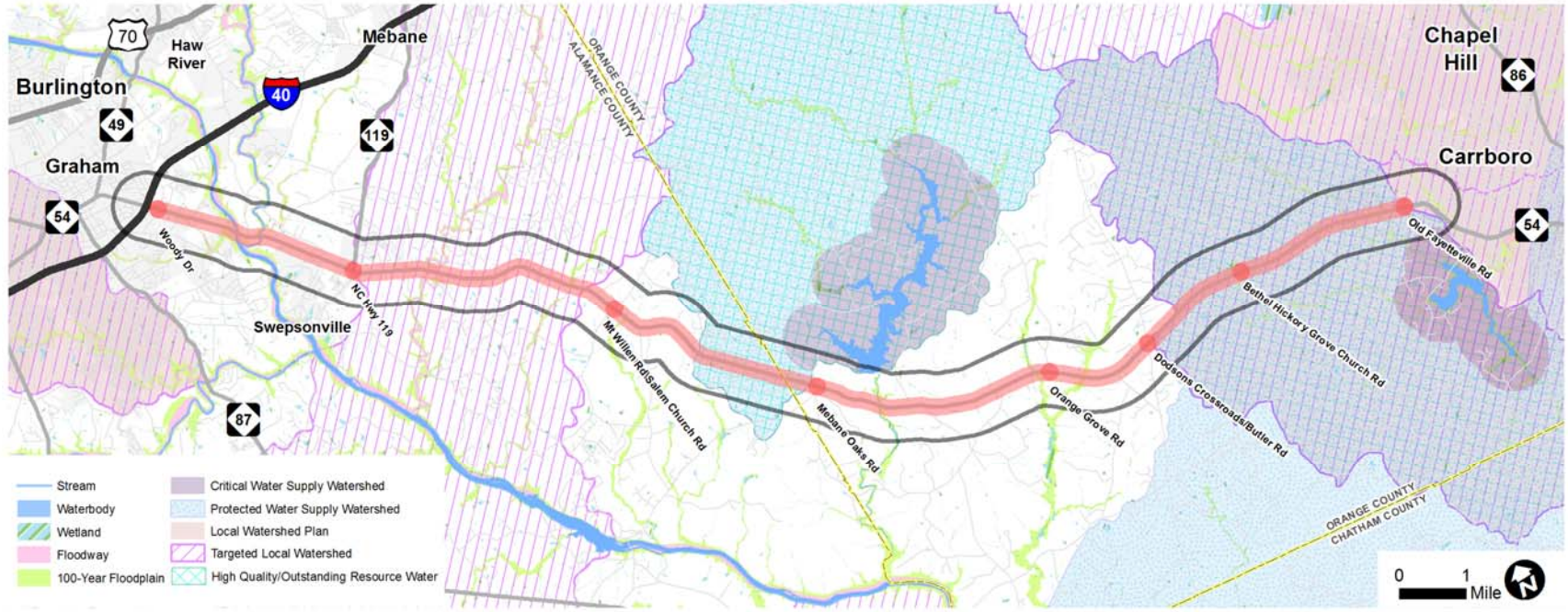
Figure 16: Places of Interest and Natural Features in Corridor



2.5.2.2 Water Quality

The Division of Water Resources (DWR), a subset of the NC Department of Environmental Quality, is responsible for the protection, classification and enhancement of all streams and water bodies within North Carolina. The project study area is located within the Cape Fear River Basin of North Carolina (see Figure 17).

Figure 17: Water Quality, Sources, and Watersheds in Corridor



There are no fewer than 12 named stream crossings along the corridor, with designated floodplains along 10 of them. The Haw River is the most regionally-significant stream crossed by the NC 54 Hwy corridor, which flows southeast into Jordan Lake and becomes the Cape Fear River below its US Army Corps of Engineer-controlled dam. The full list of streams along the corridor included in Table 13 below. Local watershed plans and floodplain presence is also included.

The local watershed plan for Morgan and Little Creek protects 74.5 square miles of land within Orange, Durham, and Chatham counties. More information on this Local Watershed Plan (LWP) is available here: https://files.nc.gov/ncdeq/Mitigation%20Services/Watershed_Planning/Cape_Fear_River_Basin/Morgan_Little_CK/Morgan%20and%20Little%20LWP%20Fact%20Sheet%20.pdf

Table 13: Identified Streams Along NC Hwy 54 Corridor

Number	Stream Name	Classification	Local Watershed Plan / Targeted Watershed Plan	Designated Floodplain
1	Town Branch	WS-V; NSW	-	Yes
2	Haw River	WS-V; NSW	-	Yes
3	Back Creek	WS-V; NSW	-	Yes
4	Haw Creek	WS-V; NSW	Targeted – Cape Fear CPF2	Yes
5	McAdams Creek	WS-V; NSW	Targeted – Cape Fear CPF2	No
6	Meadow Creek	WS-V; NSW	Targeted – Cape Fear CPF2	Yes
7	Motes Creek (Newland Creek)	WS-V; NSW	-	Yes
8	Caterpillar Creek	WS-II; HQW; NSW	-	No
9	Cane Creek	WS-V; NSW	Cane Creek Reservoir (OWASA)	Yes
10	Collins Creek	WS-V; NSW	-	Yes
11	Phils Creek	WS-II; HQW; NSW	Local (Morgan & Little Creeks), Targeted (Cape Fear CFP6)	Yes
12	Morgan Creek	WS-II; HQW; NSW	Local (Morgan & Little Creeks), Targeted (Cape Fear CFP6)	Yes

Water supply watersheds (WSW) are portions of land that drain into a reservoir that serves as a municipal drinking water supply. The portion of land that is immediately adjacent to the water intake is designated as 'critical', and the land that is upstream of this area is designated as a 'protected' water supply watershed.

Two water supply watersheds are present within the study area, Cane Creek and Morgan Creek. The Cane Creek WSW is class II, and protected as a nutrient-sensitive water (NSW). This WSW begins at the reservoir on Stanford Road and protects 20,200 acres of land upstream within Cane Creek. There are portions of critical and protected WSW along the corridor. The Morgan Creek protected WSW includes portions of the corridor, near the eastern end, however the critical portion surrounds University Lake further south of the study area. The Morgan Creek WSW protects 19,200 acres of land upstream.

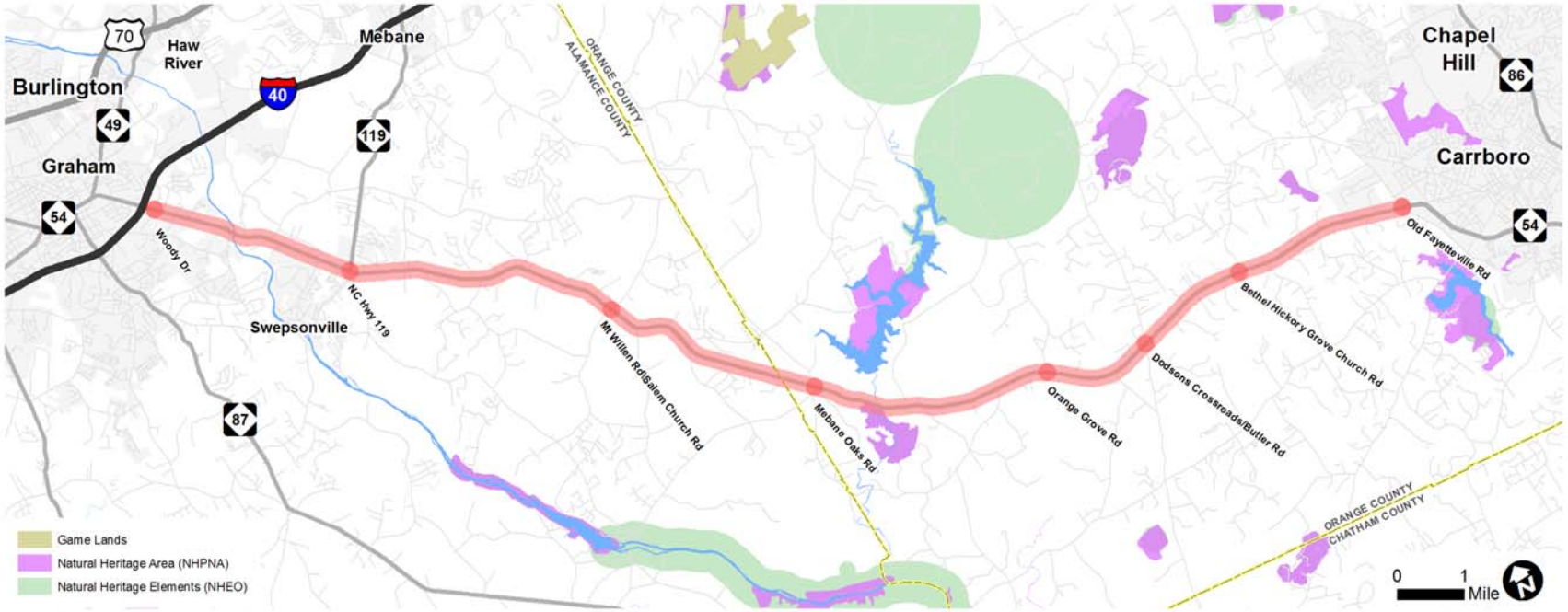
More information on water supply planning is available at https://deq.nc.gov/about/divisions/water-resources/planning/water-supply-planning.

2.5.2.3 Wildlife Resources

While it is not expected that this corridor study project would directly impact plant or animal species, best management strategies during construction must be implemented protect aquatic habitats within and downstream of the project study area.

This GIS-level screening included the following wildlife resource categories; however, no features were identified within the study area: Game lands, Dedicated nature preserves, Conservation for tax credit purposes (see Figure 18).

Figure 18: Wildlife Resources in Corridor



2.6 Relevant Plans

This section summarizes relevant planning and policy efforts, focusing on the most recent transportation-related plans, and on those specific elements that affect the NC 54 Corridor Study, or which could be affected by it.

2.6.1 Pedestrian and Bicycle Plans

Alamance County Trails Plan (2015)

The plan details the existing inventory of recreational trails in Alamance County and identifies goals to improve and extend trails through 2025. Two proposed recreation trail segments cross the study corridor. The Haw Creek Trail is a second priority proposed 9-mile trail that would follow Little Haw Creek, cross the corridor at Wormranch Road, and terminate at the Haw River. The other proposed trail is the extension of the high priority Haw River Trail north from Red Slide Park to along the Haw River to Swepsonville River Park to the south. The extension is noted as a 0-4-year Short Term goal. The proposed trail extension crosses the study corridor near Cherry Lane north of Swepsonville.

NCDOT Pedestrian and Bicycle Plan, "WalkBike NC" (2013)

The State Division of Bicycle and Pedestrian Transportation convened stakeholders and community members statewide to review and update the State's bicycling routes (among other objectives). The plan adopted an alternate alignment of the NC 2 – Mountains to Sea Route that crosses the study corridor at Bethlehem Saxapahaw Church Road in Orange County. Funding has not been programmed to implement wayfinding for this alternate route.

Orange County Bicycling Routes (2010)

Orange County's bicycling plan consists of existing signed routes, greenway trails, and unsigned connector routes. Two routes parallel the eastern portion of the NC 54 corridor, the Perimeter Route to the north and a segment of the Mountains-to-Sea Bicycle Route to the south. The North-South Route crosses NC 54 at Dodsons Crossroads Road, and this intersection is noted for higher traffic volumes. The County's plan lists NC 54 as a primary road.

Burlington-Graham MPO Bicycling Routes (2009)

The BGMPO's bicycling plan displays the area's primary and alternative routes. The Western Loop Route crosses NC 54 at Salem Church Road, and a segment of an unnamed alternative connector runs parallel to the corridor south of the Haw River.

TARPO Regional Bicycle and Pedestrian Planning Framework (2015)

The plan from the corridor's rural planning organization recommended paved shoulders for bicycles on both NC 54 and Orange Grove Road, and identifies other unspecified on-road bike accommodations on Mebane Oaks/Saxapahaw Bethlehem Church Road and on Dodsons Crossroad/Butler road. The plan also recommended pedestrian trails in the NC 54 corridor from White Cross eastward connecting to the Carrboro area and the development of the Mountains-to-Sea Trail from the Hillsborough area to the Alamance County line.

Burlington Greenways and Bikeways Plan (2017)

The purpose of the plan is to create a connected and comprehensive system of greenways and bikeways that enhance the quality of life throughout Burlington. The plan includes proposed shared use paths, separated bike lanes, neighborhood bikeways, and sidepaths. None of the plan elements intersect with the NC 54 West study corridor.

Town of Carrboro Comprehensive Bicycle Transportation Plan (2009)

The Town's bicycle plan recommended improvements for roadways and intersections to create a robust non-motorized network and establish viable alternative transportation routes. Among the plan's Top 10 Prioritized Projects is improvement at the Old Fayetteville and NC 54 intersection to include bicycle signal loop indicators and bicycle crossing signage to facilitate crossing NC 54 (this project's associated sidewalks and bicycle lanes along Old Fayetteville have been constructed). Non-priority projects along the NC 54 corridor include general bicycle improvements from Old Fayetteville Road along NC 54 west to the Town Limits and a sidepath along NC 54 from W Main St to Henry Anderson III Community Park

2.6.2 Regional/Long Range Transportation Plans

2013 Orange County Comprehensive Transportation Plan (CTP)

This plan addresses the aspirational transportation improvements within the TARPO jurisdiction of Orange County through the year 2035. It identifies several roadway, transit, bicycle, and pedestrian improvements within the NC 54 corridor area.

- Widen NC 54 from a two-lane road to a four-lane divided roadway between Orange Grove Road and Neville Road. This segment is anticipated to exceed acceptable Level of Service levels by the year 2035, and the widening and addition of a median is anticipated to alleviate congestion and allow for better access control.
- Increase cross section of Mebane Oaks Road to 24 feet wide between NC 54 to the Alamance County line. This widening would permit turn lanes and wider shoulders for other vehicular needs.
- Establish an express bus service on NC 54 from the Alamance County border to Neville Road (SR 1945).
- Provide a park-and-ride lot at the intersection of NC 54 and White Cross Road (SR 1951) to support transit and non-motorized users.
- Add 4-foot shoulders to Orange Grove Road (SR 1006) from NC 54 to Arthur Minnis Road (SR 1115) to support bicycle use.
- Recommend an off-road pedestrian facility from White Cross along NC 54 eastward to the DCHC MPO line.

2017 Burlington Graham Metropolitan Planning Organization Comprehensive Transportation Plan (CTP)

This plan addresses the aspirational transportation improvements in the Burlington-Graham Metropolitan Planning Organization (BGMPO) area through the year 2030. The noted recommendations along the NC 54 corridor include roadway and bicycle improvements:

- Widen NC 54 from two-lanes to an undivided four-lane facility from Swepsonville Road (SR 2116) to the BGMPO boundary and include a shoulder section for 0.8 miles.
- Widen NC 54 from a two-lane to a five-lane facility from Swepsonville Road to Freshwater Road
- Widen Jimmy Kerr Road from a two-lane to a five-lane facility from Trollingwood Road to Cherry Lane Road.
- Widen Swepsonville Road from a two-lane to a three-lane facility from NC 87 to Swepsonville Methodist Church Road.
- Widen Swepsonville Methodist Church Road from a two-lane to three-lane facility from Swepsonville Road to NC 54.

- General on-road bicycle network improvements.

An update in fall 2017 removed the Southern Alamance Loop project from the CTP. The project had included a new four-lane roadway that intersected NC 54 north of Swepsonville.

2017 Durham-Chapel Hill-Carrboro Metropolitan Planning Organization Metropolitan Transportation Plan (MTP)

This plan identifies the planned transportation improvements in the Durham-Chapel Hill-Carrboro Metropolitan Planning Organization (DCHC MPO) area through the year 2045. The notable recommendation along the NC 54 corridor addresses roadway and bicycle improvements.

- Modernization of NC 54 from Old Fayetteville Road to the DCHC MPO boundary (Butler Road). Improvements included in modernization may include widened shoulders to accommodate bicycling and the addition of a median for vehicle turning movements. The project is categorized as Regional and is scheduled for completion in 2023.

2015 Burlington-Graham Metropolitan Planning Organization Metropolitan Transportation Plan (MTP)

This plan identifies the planned transportation improvements in the Burlington-Graham area through the year 2040. There are two projects within the NC 54 corridor. The first is the Southern Alamance Loop, a combination of a new four-lane modernized four-lane roadway that intersected NC 54 north of Swepsonville. However, an update in fall 2017 removed the Southern Alamance Loop project from the BGMPO's CTP. The second project is a 2040 widening of Jimmy Kerr Road from two to four-lanes between Trollingwood Road and Alamance Community College.

The 2040 MTP also references short-term through long-term pedestrian improvements from the City of Graham's 2006 Pedestrian Transportation Plan. Improvements along the project corridor include parallel five-foot sidewalks along NC 54 from E Pine Street to Cooper Road (short-term).

2.6.3 Corridor and Intersection Studies

US 15-501 Corridor Study Traffic Analysis Report (2014)

The US 15-501 study assesses level of service (LOS) changes from interchange improvements and roadway widenings on the portion of the corridor from NC 54 in Orange County to US 64 in Chatham County. Traffic volumes, vehicle delays, and LOS are compared across a 2013, 2040 no build, 2040 partial build (interchange improvements only) and 2040 full build (widenings and interchange improvements). The report predicts that without improvements at the NC 54/US 15-501 interchange, there will be an unacceptable LOS and vehicle delay in the AM and PM peak periods.

2.6.4 Other Plans, Studies, Policies, and Documents

Alamance County Zoning

Unincorporated areas within Alamance County are not regulated by zoning.

Orange County Unified Development Ordinance (Updated 2015)

Orange County has adopted zoning classifications and subdivision regulations to protect the natural environment and to promote compatible development of land. The Unified Development Ordinance was originally adopted in 2011, and has been updated as recently as 2015.

Properties along the corridor and within the Orange County jurisdiction fall into one of eight zoning classifications. Agricultural Service (AS) and Agricultural Residential (AR) relate to preserving land suitable for farming activities. Rural Buffer (RB) and Rural Residential (R1) relate to low density development without water or sewer utilities. Four commercial zones (Existing Commercial (EC5), Local Commercial (LC1), Neighborhood Commercial (NC2), and General Commercial (GC4) all relate to businesses that serve the needs of nearby residents, with a varying degree of proximity and density. More specific zoning definitions are available at http://www.orangecountync.gov/departments/planning_and_inspections/ordinances.php

Orange County Future Land Use (2016)

The future land use plan balances environmental constraints and community needs by accommodating a particular combination of compatible land uses and relating them to current zoning classifications. There are three basic land use categories (Developed, Transition, and Rural) and several overlays (watershed protection).

The project corridor is predominantly within the rural land use category. There are resource protection areas along streams and flood-prone areas, one rural industrial area (American Stone Quarry), and one public interest area (Phils Creek and dam) adjacent to the quarry.

Traveling eastward along the corridor from the Orange County line, the following future land uses are represented:

- Agricultural Residential (4 miles), until Orange Grove Road intersection
- Rural Residential (1 mile), between Orange Grove Road and Carl Durham Road intersections
- Rural Buffer (3 miles), between Carl Durham Road and Carrboro Town Limits/ETJ near Shannon Road intersection

The future land use map features two activity nodes at specific roadway intersections along the corridor:

- Rural Neighborhood activity node (1,000-foot radius) at the Morrow Mill Road intersection, which is appropriate for small-scale commercial uses, such as convenience stores and gas stations.
- Rural Community activity node (half-mile radius) at the White Cross Road intersection, which is appropriate for church, fire station, post office, school, or similar institutional uses and one or more commercial uses.

The Cane Creek Watershed and University Lake Watersheds encompass a large portion of the corridor. These water supply watersheds exist to protect the water quality upstream of two drinking water supply reservoirs in the area.

- Cane Creek Watershed (Critical and Protected portions) - north and east of the reservoir, located on the north side of the NC Hwy 54 corridor near Stanford Road.
- University Lake Watershed (Protected portion) - land upstream of the reservoir, which includes both sides of the NC Hwy 54 corridor east of Carl Durham Road towards Carrboro.

For more information on the location(s) of Orange County zoning, future land uses, and water supply watershed boundaries visit https://gis.orangecountync.gov:8443/orangeNCGIS/zoning.htm.

City of Graham Zoning (1999)

The City of Graham adopted zoning in 1950, and more recently updated in 1999 in accordance with their comprehensive plan to conserve the value of buildings and encourage the most appropriate use of land.

Properties along the corridor and within the City of Graham jurisdiction fall into one of 11 zoning classifications. Two business zones (B-2, B-3), one office and institutional (O-I), two industrial (I-1, I-2), and six residential (R-MF, R-12, R-15, R-18, R-G, and C-R) are present along the corridor.

The City of Graham also enforces an NC 54 (E. Harden Street) Overlay District along the corridor, west of Back Creek (near Cherry Lane). The Overlay District imposes additional development requirements for signage, lighting and access, however this does not affect the allowable type or intensity of use. Refer to Article XI Section 10.461 of the Graham Development Ordinance for more information http://www.cityofgraham.com/departments/planning/development-processes/.

Town of Carrboro Zoning (2017)

Properties along the corridor and within the Carrboro Town limits fall into one of four zoning classifications. All four are watershed zones, influenced by the University Lake Area: Watershed Commercial Uses (B5); Watershed Residential (WR); Watershed Light Industrial (WM3); and Conservation District (C).

All four zones are intended to conserve the overall quality of water resources within this watershed by limiting development intensity. More specific zoning definitions are available at http://gis.ci.carrboro.nc.us/ZoningQuery/pickzone.asp.

Voluntary Agricultural District(s) - Alamance and Orange Counties

Both Alamance and Orange Counties participate in a program for Voluntary Farmland Preservation. These programs aim to promote and encourage the preservation of farmland in the rural portions of the county, where agricultural uses predominate, by means which are voluntary, rather than regulatory. Designating land as a Voluntary Agricultural District (VAD) is the mechanism for this protection. The minimum acreage required for a VAD is 5 acres for horticulture use, 10

acres for agricultural use, and 20 acres for forestry use. Once designated as an agricultural district, the property is considered a conservation easement that prohibits non-farm use for a period of 10 years. Agricultural districts, once designated, are eligible for preservation grants from federal, state, and local funding sources.

More information may be found at:

- Alamance County https://alamance.ces.ncsu.edu/
- Orange County http://www.orangecountync.gov/departments/deapr/voluntary_agricultural_districts.php

Many VADs are located more than 1 mile off the corridor. There are two (2) Voluntary Agricultural Districts along the project corridor:

- 1183 Reatkin Lane, Graham – Alamance County (two properties, 35.8 acres)
- 5332 Teer Road, Chapel Hill – Orange County (three properties, 139.1 acres) Est. 2015

Alamance County Transportation Authority Community Connectivity Plan (2018)

The plan describes initiatives, projects, and milestones for the on-demand Alamance County Transportation Authority (ACTA) to meet the mobility needs of Alamance County residents over the upcoming five-year planning period. The plan includes several potential initiatives that may affect the western portion of the project corridor. These initiatives include improved service coordination between ACTA, PART, and Link Transit, updating regional transit plans, introducing Saturday service, increasing service in Graham, and increasing service to rural Alamance County communities. Noted disadvantages include cost of additional service and low population density.

Orange County Transit Plan through 2045 (2017)

The plan describes the operation and expansion of Orange County's existing and planned transit systems from 2017 through 2045. Orange Public Transportation (OPT) operates two fixed routes, the north-south Orange Chapel Hill Midday Connector and the Hillsborough Circulator; neither of these routes are within the study corridor. In 2018, the Orange County Commissioners will consider service improvements of approximately 1,700 hours that will support deviated fixed routes to three different parts of the county.

Piedmont Authority for Regional Transportation Vision 2025 (2014)

The transit plan proposed the improvement, realignment, and creation of new transit routes serving the communities of Alamance, Davidson, Davie, Randolph, Rockingham, Stokes, Surry, and Yadkin counties by the year 2025. One of the recommendations that has been implemented is creation of Route 4, the Alamance Burlington Express, as noted above.

Orange County Comprehensive Parks and Recreation Master Plan 2030 (2014)

The plan identifies facilities, parks, and trails for expansion, improvement, and creation across Orange County by 2030. A proposed segment of the Mountains-to-Sea Trail (MST) is planned to cross the study corridor at the confluence of Cane Creek and the Haw River. The Orange County trail segment is planned to parallel Cane Creek north from the Alamance County line to the Town of Hillsborough where the trail follows the Eno River westward. The plan recommends that the county and other stakeholders develop a master plan to facilitate the completion of the trail segment and consider the location of a node or way station on county or Orange Water and Sewer Authority land to provide basic hiking services.

In January 2018, the Orange County Commissioners approved a revised MST route—known as Section 11—that diverges from the Comprehensive Parks plan near the Alamance County boundary. In this revision, the MST has two route options that follow Saxapahaw Bethlehem Church Road and Morrow Mill Road from the Haw River north to the Alamance County line, where the trail turns southeast and runs adjacent to NC 54. The MST then jogs north to once upon OWASA property and rejoins the previously planned route. The planned route is subject to change depending on voluntary landowner easements.

2.7 Existing Conditions Conclusions

Although public and stakeholder input will add to the study's understudying of the function and adequacy of the NC 54 corridor, the analysis of existing conditions has revealed a number of issues to be addressed in developing a viable improvement plan:

- Although traffic growth over the last 10-15 years has not been dramatic, there are signs of a recent increase.

- Pending and planned development along (or accessed by) NC 54 will be a major determinant of traffic growth.
- This facility serves a substantial volume of trips with one end outside the study area, so regional context is important.

- Challenges and opportunities vary along the corridor, requiring different solutions.
- The intersection at NC 119/East Main Street presents obvious safety and congestion problems. The overlapping schedules of Alexander-Wilson Elementary and the Honda plant result in concentrated congestion, especially in the afternoon. Long vehicle queues often spill back to NC 54 and beyond, creating gridlock conditions. Adding to the disruption, NC 54 transitions here between 5-lane and 2-lane sections. Conditions will worsen with inevitable development in the immediate vicinity of this intersection, as well as along East Main Street and NC 119. The lack of pedestrian and bicycle accommodations will become an even more critical deficiency over time.
- Any effective solution must carefully consider and address the highly directional peaking exhibited by traffic, especially towards the eastern end of the corridor.
- At unsignalized intersections, delay on crossroad approaches will become more problematic as volumes increase. Delay will also increase for traffic attempting left turns from NC 54. Either situation can also increase crash potential.
- Several unsignalized intersections are likely to warrant signalization, either in the near term or over a longer period.
  - More traffic signals will change the character of this roadway by adding turn lanes and tapers, interrupting free-flowing traffic, and facilitating crossings by vehicles, pedestrians, and bicyclists.
  - The number, type, and location of crashes will change.
  - Signalized intersections can increase attractiveness for adjacent commercial development.
- Access point density, combined with limited passing zones (due to roadway alignment and resulting sight distance constraints) contribute to low levels-of-service in the western portion of the corridor. These conditions will noticeably worsen and spread as traffic volumes increase.
- Spot safety improvements should be considered for various locations throughout the corridor.
- Environmental constraints are significant, especially in the eastern (Orange County) portion of the corridor. Any roadway design solutions must be sensitive to these constraints.

- Combined with traffic growth, increasing pedestrian and bicycle demand will multiply possibilities for conflicts and crashes.
- Existing bridges are not conducive to bicycle and pedestrian travel, and 2-lane bridges constrain traffic capacity expansion.
- No special accommodations are currently in place for transit service, changing conditions may warrant some improvements.
- Especially to the east of NC 119, adequate ROW is available for a range of enhancements.

Subsequent tasks in this study will identify specific criteria or performance measures that are sensitive to these and other concerns. Those measures will be applied in evaluating the effectiveness of various solution options and guiding their refinement.

3 Critical Issues

3.0 Critical Issues

This chapter describes the qualitative and quantitative impacts of growth on the corridor's operation and safety through the year 2045. There are numerous implications that arise from the forecasted 1%-1.5% annual growth in vehicle volumes along the corridor. These challenges include managing access to NC 54, increased collisions for all users, decreasing levels of service, providing access for non-motorized users, and providing transit access, among others. The estimated effects of such pressures on the existing corridor's roadway cross sections are the basis for multimodal improvements identified in Chapters 5 and 6.

3.1 Safety and Access Management

As summarized in Chapter 1, Section 1.5, historical data, engineering analysis, and community feedback confirm the importance of reducing crashes throughout this corridor. Several anticipated trends suggest this issue will become even more critical in the future, as vehicular, pedestrian, and bicycle volumes grow, and additional development occurs. The number of conflicts will increase, and without intervention, the number of crashes will, as well. Of particular concern is the possibility that serious crashes involving pedestrians and bicycles are likely to become more frequent.

The locations and spacing of numerous driveways and intersections along the corridor reduce both safety and capacity.

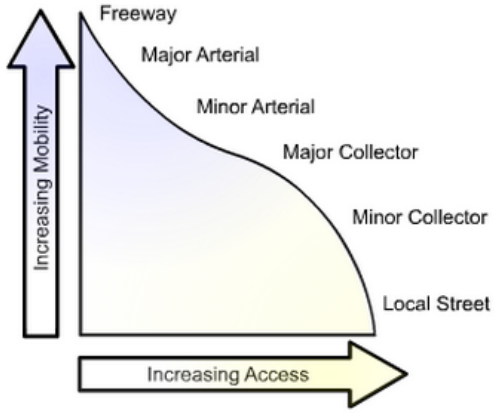
- Vehicles attempting left turns from NC 54 can block following traffic, contributing to both rear-end collisions and significant delays. Less frequent—but more serious—collisions occur between left-turning vehicles and oncoming traffic.
- Cars attempting to turn onto or cross NC 54 must accurately judge speeds, distances, and acceleration rates to identify acceptable gaps in oncoming traffic. Long delays can generate impatience, leading to riskier decision-making, increasing the potential for more serious collisions.
- Vehicles turning in/out of side roads or driveways are especially hazardous to cyclists, as well as pedestrians.

All of these situations will become more pronounced as volumes increase over time. Conflicts will become more frequent, and acceptable gaps less frequent.

The primary strategy for addressing such challenges employs access management, which is a set of proactive management techniques that state and local governments can use to control access to highways, major arterials, and other roadways. Access management seeks to reduce conflicts and provide access that lessens risk while preserving reasonable capacity and convenience. These objectives can be accomplished by appropriate use of turning lanes and median treatments to separate conflicts, as well as managing the spacing and location of driveway access points to promote safer and more efficient traffic maneuvers. At a minimum, redundant driveways and those with constrained visibility or other hazards should be eliminated or avoided.

NC 54 is a Minor Arterial under the Federal Functional Classification System, reflecting the fact that while this facility serves an important mobility function for longer trips between destinations in Orange and Alamance Counties, it also plays an essential role in accessing adjacent land uses. Roadway design decisions in this corridor must balance these competing—and sometimes conflicting—needs, recognizing that the precise equilibrium between mobility and access varies along the corridor, and can change over time. Furthermore, mobility and access roles also differ by mode. Planning for the NC 54 corridor must appreciate and incorporate these considerations. Promoting good access management encourages safe and efficient transportation network access. Managing access spacing, adding safe turning lanes, and employing median

Conceptual Roadway Functional Hierarchy





treatments helps preserve mobility by reducing crashes while increasing roadway capacity and yielding shorter, more consistent travel times.

3.2 Congestion

3.2.1 Traffic Forecasts

The NC 54 West Study Area spans multiple jurisdictions, requiring a combination of sources and techniques to develop consistent forecasts of future traffic volumes.

In the absence of substantial changes in land use or transportation systems, historic traffic count trends can provide reliable short-range forecasts, typically less than 5 years ahead. Data available from NCDOT traffic count stations (2002 through 2015 or 2016) were supplemented with some 2017 counts. This set of counts demonstrated considerable variability, both over time and among different locations. The most notable observation concerned locations where counts have been collected since 2015. These stations exhibited dramatic traffic growth, often the greatest increases experienced since 2003.

This study requires longer-range forecasts that account for anticipated changes in land use, employment, population, transportation system improvements. To estimate such a forecast, the following travel demand models were employed:

- **Piedmont Triad Regional Model (PTRMv4.2 – 2013 Base Year / 2040 Design Year).** The PTRMv4.2 is the travel demand model officially adopted by BGMPO and other agencies for long-range transportation planning. PTRMv4.2 includes the portion of the corridor west of Orange County.
- **Triangle Regional Model (TRMv5 – 2010 Base Year / 2040 Design Year).** The TRMv5 was the official travel demand model used by DCHC and other agencies at the start of this project. In this corridor, TRMv5 extends only as far west as the Alamance County Line. An interpolated 2016 interim year was used in this study.
- **Triangle Regional Model (TRMv6 – 2013 Base Year / 2045 Design Year).** As of February 2018, TRMv6 is the official travel demand model used by DCHC and other agencies. For the purposes of this study, the primary difference between TRMv5 and TRMv6 is updated socio-economic (land use) data and forecasts. Since TRMv6 was available, it



was also employed in developing the NC 54 forecasts, since Version 6 would be adopted by the time the study was completed.

- **NC Statewide Travel Model (NCSTM – 2015 Base Year / 2040 Design Year).** The NC Statewide Travel Model covers the entire state of NC, although at a highly aggregated scale. Only major routes are represented, including the entire NC 54 West corridor used in this study.

As simplified regional representations, none of the above models include all roads or intersections in their networks.

The methodology for using model outputs in forecasting future traffic for this corridor consists of applying traffic growth from a pair of model runs (Base Year and Future Year) to a corresponding location with a recent traffic count. Both absolute (Future Year – Base Year) and relative or percentage growth (Base Year / Future Year) were considered. Since the Base Years and Future Years of the models are not consistent (with each other or with this study), an annual percentage growth rate was calculated from model outputs for any corresponding count locations. This growth rate was then applied to the traffic count to obtain a forecast for that location.

For the Alamance County portion of the corridor, PTRMv4.2 suggests substantial traffic increases (up to 4,900 vehicles/day) in the northwestern end of the corridor (especially I-40 and NC 119). Proceeding towards Orange County, however, growth gradually reduces. The NCSWM suggests a similar growth pattern in Alamance County.

In Orange County, however, the NCSWM generates sharp traffic reductions (on the order of 2,000 to 3,500 vehicles/day) at all locations. In contrast, TRMv5 indicates growth of between 2,700 and 5,300 vehicles/day, with volumes increasing towards the southeast. TRMv6 demonstrates a similar directional trend. However, the shift is much more dramatic in Version 6, with almost no growth at the Alamance County line, but a 9,400 vehicle/day increase at Old Fayetteville Rd.

None of the models accurately reproduced actual traffic count volumes for specific locations and years, and their errors were generally inconsistent. (TRMv5 performed best in this respect; PTRMv4.2 was somewhat consistent between Jim Minor Road and I-40.) A variety of aggregation, normalization, and smoothing techniques were used in attempting to establish a consistent traffic forecast scenario. The most reliable data generated annual growth rates ranging from 0.7% to 1.8%. Ultimately, a 1.5% annual growth rate was used throughout the corridor, with 1.0% also tested as a lower limit. The 1.5% rate is most consistent with conditions near the Carrboro end of the corridor, and reflects new and anticipated development (beyond assumptions in the PTRM) near the Graham end. The relatively low volumes closer to the middle of the corridor are less sensitive to the difference between 1.0% and 1.5% growth; in either case, the existing 2-lane cross-

section appears adequate for the immediate future of the corridor's middle, if level of traffic service (or the ratio of traffic volume to roadway capacity) is the only criteria used (as opposed to safety or multimodal considerations). On the other hand, a single unanticipated subdivision or industrial/commercial site of adequate size could substantially increase volumes in this vicinity. Relatively minor changes in future assumptions could have a disproportionate impact in this lower-volume portion of the corridor.

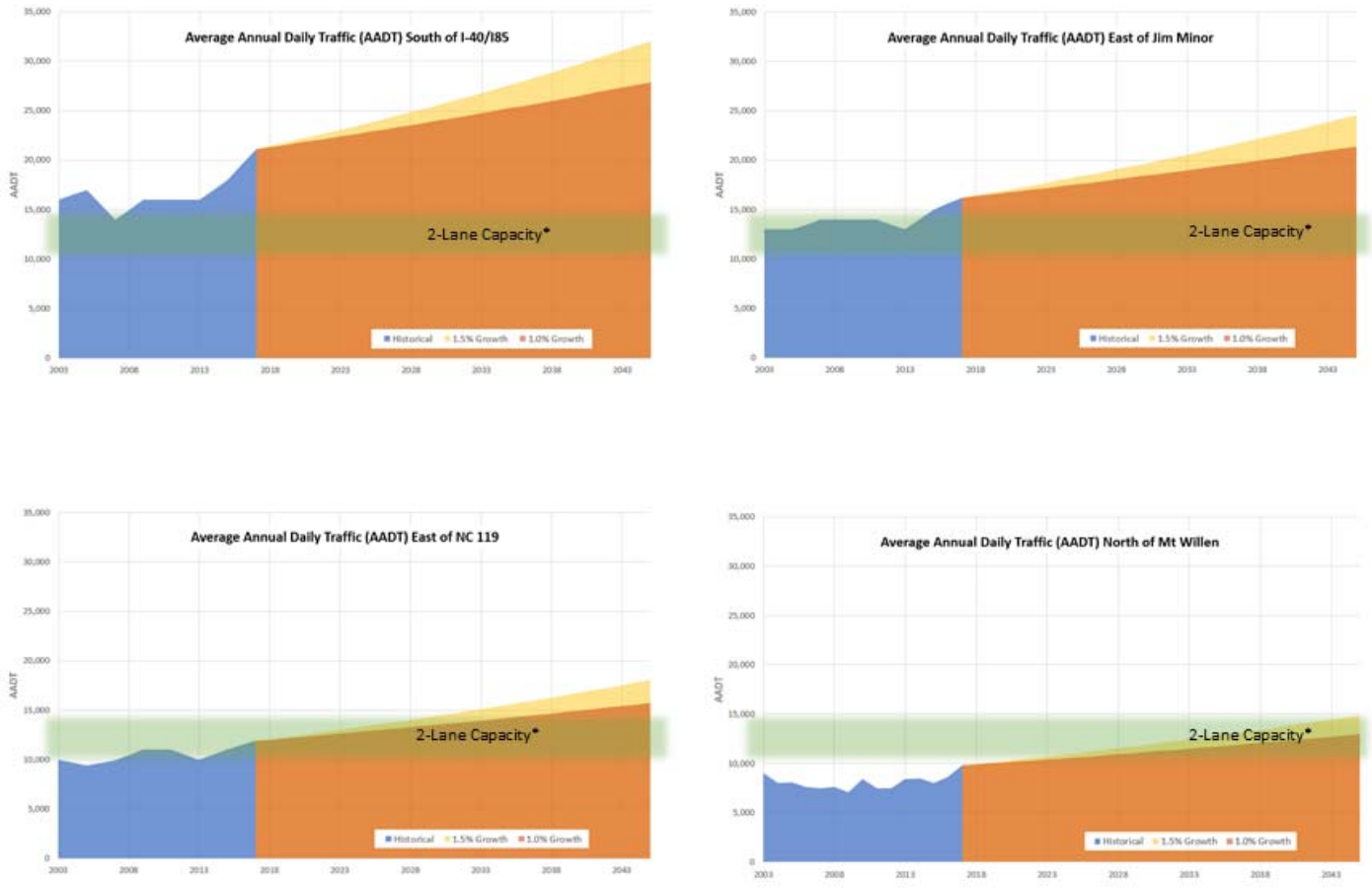
Table 14 summarizes forecast traffic volumes for 5-year intervals at each NCDOT count location, for both 1.5% and 1.0% annual growth estimates. Figure 19 and Figure 20 graphically depict some of these forecasts at representative locations along the corridor, combined with historic AADTs and an indication of typical capacity for a 2-lane rural highway. These graphs help emphasize the presence of higher traffic volumes at either end of the corridor; variations in traffic volumes over time; how forecasts relate to past volumes; the timing and location of capacity deficiencies; and the relatively minor impacts of 1.0% versus 1.5% annual growth rate assumptions.

Table 14: NC 54 Traffic Forecasts for High and Low Growth Estimates (vehicles/day)

		Year								
		Estimated	1.0% Annual Growth				1.5% Annual Growth			
County	Location	2017	2030	2035	2040	2045	2030	2035	2040	2045
ALAMANCE	South of I-40/ I-85	21,100	24,000	25,200	26,500	27,900	25,600	27,600	29,700	32,000
	East of Ivey Road/ Sunset Drive	15,200	17,300	18,200	19,100	20,100	18,400	19,900	21,400	23,100
	East of Cooper Road	16,200	18,400	19,400	20,400	21,400	19,700	21,200	22,800	24,600
	East of Cherry Lane	16,200	18,400	19,400	20,400	21,400	19,700	21,200	22,800	24,600
	East of Reatkin Lane/ N Jim Minor Road	16,200	18,400	19,400	20,400	21,400	19,700	21,200	22,800	24,600
	West of NC 119/ E Main Street	16,200	18,400	19,400	20,400	21,400	19,700	21,200	22,800	24,600
	East of NC 119/ E Main Street	11,900	13,500	14,200	15,000	15,700	14,400	15,600	16,800	18,100
	East of Freshwater Road	10,800	12,300	12,900	13,600	14,300	13,100	14,100	15,200	16,400
	North of Mt. Willen Road/ Salem Church Road	9,800	11,200	11,700	12,300	12,900	11,900	12,800	13,800	14,900
	South of Thom Road	7,400	8,400	8,900	9,300	9,800	9,000	9,700	10,400	11,200
ORANGE	West of Mebane Oaks Road/ Saxapahaw Road	6,900	7,900	8,300	8,700	9,100	8,400	9,000	9,700	10,500
	West of Orange Grove Road	10,800	12,300	12,900	13,600	14,300	13,100	14,100	15,200	16,400
	East of Orange Grove Road	11,200	12,700	13,400	14,100	14,800	13,600	14,600	15,800	17,000

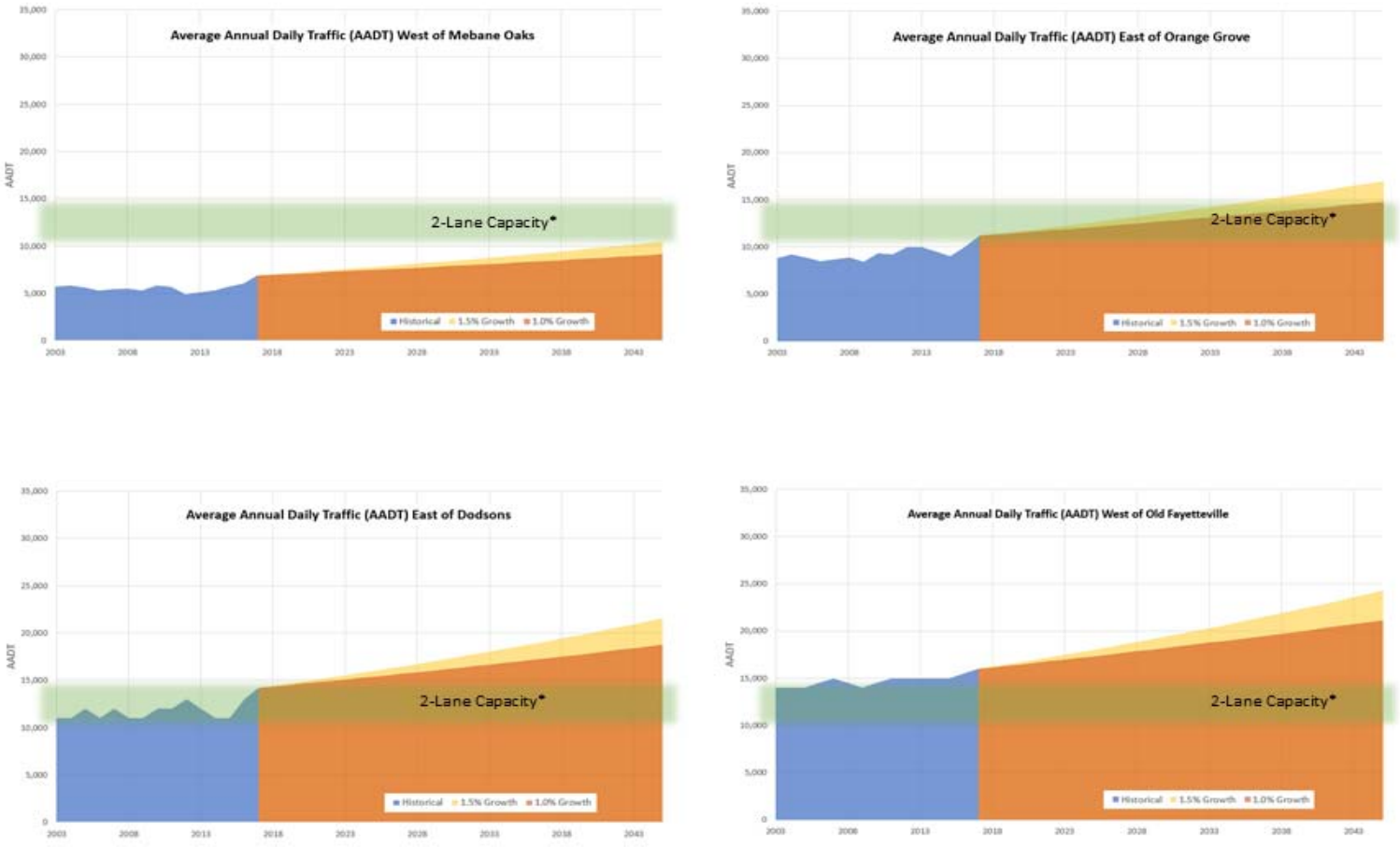
	East of Dodsons Crossroads/ Butler Road	14,200	16,200	17,000	17,900	18,800		17,200	18,600	20,000	21,500
	West of Neville Road	14,500	16,500	17,300	18,200	19,200		17,600	19,000	20,400	22,000
	West of Old Fayetteville Road	16,000	18,200	19,100	20,100	21,100		19,400	20,900	22,500	24,300

Figure 19: Traffic Trends & Forecasts at Key Locations



*Typical LOS E capacity range; actual values can be higher or lower depending on traffic and roadway characteristics.

Figure 20: Traffic Trends & Forecasts at Key Locations, Continued



*Typical LOS E capacity range; actual values can be higher or lower depending on traffic and roadway characteristics.

3.2.2 Corridor-Level

Consistent with the earlier analysis of exiting conditions, HCS capacity analysis was performed on seven segments of NC 54 between major intersections. Table 15 summarizes 2045 No-Build conditions for the 5-lane segment between I-40/I-85 and NC 119. Conditions remain good, with each direction operating at LOS B during both peak hours. Intersection LOS remains the more critical capacity consideration in this portion of the corridor.

Table 15: 2045 No-Build Corridor Level of Service Summary for NC 54: 5-Lane w/ Two-Way Left Turn Lane

Segment Location	Segment Length (miles)	AM Peak			PM Peak		
		Segment LOS	Ave. Speed (mph)	Density (pc/mi/ln)	Segment LOS	Ave. Speed (mph)	Density (pc/mi/ln)
Woody Dr – NC 119 (EB / WB)	3.2	B / B	45.0 / 45.0	16.0 / 17.2	B / B	45.0 / 45.0	17.7 / 15.5

Table 16 summarizes the results of HCS capacity analysis for the primarily two-lane highway between NC 119 and Old Fayetteville Road, by segment and direction for the AM and PM peak periods. Conditions are markedly worse than existing conditions. In 2017, the segment between NC 119 and Mebane Oaks Road experienced LOS D or worse in each direction during both peak hours; by 2045, at least one direction operates at LOS E. The portion of the NC 54 corridor from Mebane Oaks Road to Dodsons Crossroads operates at LOS E or F in 2045, while the remaining segment eastward to Old Fayetteville Road experiences LOS F in both directions, during both peak periods. East of Mebane Oaks Road, average travel speeds (in mph) drop from the mid/low 40s to the mid/low 30s, and the percent of travel time spend following a slower vehicle without being able to pass ranges from 96% to 100% during the worst-case peak hour. This deterioration in LOS results from higher traffic volumes, exacerbated by limited passing zones and extreme directionality of traffic flows.

Table 16: 2045 No-Build Corridor Level of Service Summary for NC 54: 2-Lane Highway

Segment Location	Segment Length (miles)	AM Peak			PM Peak		
		Segment LOS	Ave. Speed (mph)	PTSF (%)	Segment LOS	Ave. Speed (mph)	PTFS (%)
NC 119 – Mt Willen Rd (EB / WB)	4.1	E / E	38.7 / 38.9	87.7 / 83.9	E / E	38.7 / 38.3	78.9 / 91.0
Mt Willen Rd – Mebane Oaks Rd (EB / WB)	3.3	E / D	40.9 / 41.6	86.5 / 71.3	D / E	41.6 / 40.4	63.4 / 88.6
Mebane Oaks Rd – Orange Grove Rd (EB / WB)	3.6	E / F	35.9 / 35.9	96.0 / 68.2	E / E	37.0 / 35.5	66.8 / 96.9
Orange Grove Rd – Dodsons Crossroads (EB / WB)	1.6	E / F	35.9 / 35.9	96.0 / 68.2	E / E	37.0 / 35.5	66.8 / 96.9
Dodsons Crossroads – Bethel Hickory Grove Church Rd (EB / WB)	1.8	F / F	34.1 / 35.6	98.7 / 68.1	F / F	35.5 / 34.5	72.1 / 98.2
Bethel Hickory Grove Church Rd – Old Fayetteville Rd (EB / WB)	2.6	F / F	32.7 / 33.7	100 / 73.2	F / F	33.2 / 32.4	77.2 / 100

3.2.3 Intersections

As traffic volumes on both NC 54 and side roads increase, conflicts and delay at major intersections also grow, creating capacity deficiencies at several locations. It is assumed that the remaining STOP-controlled study intersections are signalized, with turn lanes added as warranted. Furthermore, additional through lanes and turn lanes were introduced at the NC 119 and Old Fayetteville Road intersections, reflecting anticipated reasonable attempts to improve intersection performance without major roadway reconstruction or widening. Typically, at least one separate left-turn lane is needed on each approach leg, and NC 54 requires two or more through lanes in each direction. Without signalization and intersection lane additions, most of the subject intersections fail.

As in the existing conditions analysis, intersection cycle lengths and phasings are optimized, and in cases where the optimized cycle length falls below the recommended minimum, the cycle length is set to the NCDOT minimum cycle length. A summary of the findings for the 2045 No Build scenario level of service analysis can be found in Table 17, and the full *Synchro/HCS* output can be found in the Appendix.

Table 17: Intersection LOS and Delay

Intersection and Approach	Traffic Control	2045 LOS & Avg Delay/Veh (sec) AM	PM
NC 54 & Woody Drive	Signalized	C (24.8)	C (21.2)
Eastbound		C-20.1	B-16.5
Westbound		C-20.7	C-22.4
Northbound		D-53.8	D-39.6
Southbound		D-47.0	C-30.7
NC 54 & NC 119 / East Main Street	Signalized	D (53.7)	D (41.7)
Eastbound		D-40.4	D-36.4
Westbound		E-67.7	D-38.3
Northbound		E-71.7	E-57.6
Southbound		E-61.2	D-50.1
NC 54 & Mt Willen Road / Salem Church Road	Signalized	B (18.8)	B (11.5)
Eastbound		C-20.5	A-6.3
Westbound		A-7.4	B-10.5
Northbound		D-37.9	C-25.6
Southbound		C-26.1	C-32.7
NC 54 & Mebane Oaks Road / Saxapahaw Road	Signalized	C (34.5)	C (21.8)
Eastbound		C-30.7	A-3.1
Westbound		D-35.9	B-19.8
Northbound		C-28.6	D-48.2
Southbound		D-52.4	D-48.0
NC 54 & Orange Grove Road	Signalized	B (15.5)	B (16.2)
Eastbound		B-17.7	A-3.5
Westbound		A-2.9	B-18.0
Southbound		D-47.3	D-45.1
NC 54 & Dodsons Crossroads / Butler Road	Signalized	B (16.7)	B (15.4)
Eastbound		B-12.4	A-9.4
Westbound		B-12.8	B-14.2
Northbound		C-29.2	D-37.7
Southbound		E-56.3	D-44.3
NC 54 & Bethel Hickory Church Rd	Signalized	C (21.0)	B (10.6)
Eastbound		C-24.6	A-8.3
Westbound		A-1.4	A-8.2
Southbound		E-72.3	D-36.9
NC 54 & Old Fayetteville Road	Signalized	E (74.7)	F (124.4)
Eastbound		E-58.5	C-34.4
Westbound		D-50.0	F-147.8
Northbound		E-79.6	F-133.4
Southbound		F-127.5	F-136.3

While these limited widenings improve calculated LOS at individual intersections, they do not address the deficiencies identified in the preceding corridor segment analysis. Nor do these calculations reflect the effects of the frequent adding

and dropping of lanes along the corridor. Each of these transitions introduces turbulence into the flow of traffic, and increases crash potential. However, isolated intersection improvements can provide cost-effective safety and capacity benefits (including for pedestrians) at specific locations, while incrementally building towards a long-range corridor vision.

With the assumed lane additions, most of the studied intersections operate at acceptable levels of service, at least for the intersection as a whole, if not for individual approaches. For example, while the NC 119/East Main Street intersection operates at LOS D (nearing LOS E in the AM), the westbound, southbound, and northbound approaches experience LOS E during at least during one peak period, frequently resulting in long vehicle queues. Dodsons Crossroads and Bethel Hickory Church Road also exhibit long side street delays. Even with additional lanes, however, the Old Fayetteville Road intersection operates at LOS E or F.

3.3 Bicycle and Pedestrian Issues

While future traffic deficiencies can be quantified through demand forecasts and capacity and crash analyses, the absence of substantial volumes and adequate facilities make it difficult to forecast and quantify pedestrian and bicycle deficiencies. As a result, anticipated pedestrian and bicycle problems tend to be defined more qualitatively, and identified in terms of inadequate infrastructure networks.

The lack of bicycle and pedestrian connectivity throughout the corridor was frequently cited by community workshop attendees and Study Team members as a major source of concern and frustration. Support for greater continuity, convenience, and safety for bicycle and pedestrian travel options has grown, a trend that appears likely to continue. There is consensus that the lack of safe and convenient facilities is suppressing walking and bicycle trips; in other words, support for a strategy of "build it and they will come." At the same time, there is a reasonable expectation that the number of bicyclists and pedestrians will increase even in the absence of improved facilities due to population growth and the corridor's recreational assets. While ongoing plans and projects are beginning to address this deficiency, concern remains that given the substantial growth in vehicular traffic, crashes involving pedestrians and bicycles could increase both in frequency and severity.

There is also recognition that adequate funding for both construction and maintenance of bicycle and pedestrian facilities—especially off-street multi-use paths—is a significant obstacle to implementing a continuous network across various jurisdictions, land uses, and environmental conditions. This is true with respect to travel both along and across the corridor. Although ultimate completion requires a long-term commitment, people want to see improvements in the near-term. However, there is also a strong desire to avoid investments that would be disrupted by subsequent widening or other improvements to NC 54.

While there is apparent consensus on most of the items described above, there is not universal agreement on the best types of pedestrian and bicycle facilities to build, or on prioritization. Positions diverge most notably regarding:

- On-street and off-street bicycle treatments, including multi-use paths, bike lanes, and wide shoulders
- Whether to locate sidewalks or multi-use paths on one side of the road or the other, or both
- How close to the road to locate sidewalks or multi-use paths

The primary concerns with off-street facilities relate to impacts of right-of-way and construction easements on private property, especially given the proximity of many wells and septic fields to the existing roadway. While greater separation from the road has benefits in terms of increased safety and comfort, and reduced risk of conflicts with future widening, trade-offs associated with additional earthwork, environmental impacts, and costs cannot be accurately quantified without more detailed design work.

Table 18 summarizes HCS Bicycle Level of Service (BLOS) for each segment by direction and peak period. Note that BLOS for individual intersections has not been calculated. The HCS BLOS methodology is generalized and not highly rigorous. It is not sensitive to several key factors that contribute to bicyclist comfort. Nevertheless, it indicates degradation in bicycle suitability along the corridor, especially during the PM peak period. This is due primarily to increased traffic volumes.

The needs identified above can be effectively addressed only by a parallel and complementary approach that coordinates roadway and bicycle improvement programs. Awareness of constraints and opportunities associated with roadway improvements when developing bicycle projects must be combined with sensitivity to bicycle needs in the planning and design of roadway projects.

Table 18: 2045 No-Build Corridor Segment Bicycle LOS Summary for NC 54

Segment Location	Segment Length (miles)	AM Peak		PM Peak	
		Segment BLOS	BLOS Score	Segment BLOS	BLOS Score
Woody Dr – NC 119 (EB / WB)	3.2	B / C	2.5 / 2.6	C / C	2.6 / 2.6
NC 119 – Mt Willen Rd (EB / WB)	4.1	D / D	4.5 / 4.4	D / E	4.3 / 4.5
Mt Willen Rd – Mebane Oaks Rd (EB / WB)	3.3	D / D	4.4 / 4.2	D / E	4.1 / 4.5
Mebane Oaks Rd – Orange Grove Rd (EB / WB)	3.6	E / D	4.7 / 4.1	D / E	4.1 / 4.7
Orange Grove Rd – Dodsons Crossroads (EB / WB)	1.6	E / D	4.7 / 4.1	D / E	4.1 / 4.7
Dodsons Crossroads – Bethel Hickory Grove Church Rd (EB / WB)	1.8	E / D	4.8 / 4.1	D / E	4.2 / 4.8
Bethel Hickory Grove Church Rd – Old Fayetteville Rd (EB / WB)	2.6	E / D	4.8 / 4.2	D / E	4.3 / 4.8

3.4 Transit Issues

Like the bicycle and pedestrian elements of this study, long-range planning for transit in NC 54 corridor lacks current demand and service data to provide a strong basis for reliable forecasting and analysis. While there is certainly latent transit demand, it is difficult to quantify, and to determine appropriate services in such a long, primarily low-density rural corridor. However, as growth continues, demand for transit (both among the transit-dependent and as an option to driving) should increase, especially given the overall aging of the population.

Adding to both uncertainty and opportunity in the NC 54 west corridor is the rapid evolution of transit service in response to innovative technologies. The convergence of smart phones, transportation network companies (or TNCs, such as Uber and Lyft), and autonomous vehicles is poised to transform transit service, creating a wider range of more dynamic options better tailored to individual needs. This portion of the NC 54 corridor is not well-suited to the traditional

urban transit paradigm of larger vehicles operating on fixed routes and schedules, due to high operator costs and poor user convenience. More viable services might employ real-time or instant ridesharing (also known as dynamic carpooling, or ride-sourcing when provided by a TNC) either as a feeder system for more traditional transit, or as its own single-ride mode. The precise nature of such services is unclear, as is the likely timeframe; however, enhancing pedestrian and bicycle connectivity and encouraging nodes of denser mixed-use development will support just about any alternative to the single-occupant vehicle. Park-and-ride lots (possibly incorporating drop-and-ride and bike-and-ride options) are another missing piece of a potentially successful transit system in this corridor. Several transportation plans, such as the Orange County CTP (2013) and the Draft Chapel Hill Transit Short Range Transit Plan (2018), have made fiscally unconstrained recommendations for a park-and-ride lot near White Cross with transit service along NC 54. Other candidate locations for further evaluation could include Cinder Fox Trail.

3.5 Alexander Wilson Elementary School / Honda Manufacturing Plant

Overlapping peaks of school and manufacturing plant traffic generate congestion at the intersection of NC 54 and NC 119/East Main. Pending development along NC 119 will combine with overall traffic growth to worsen conditions at this location. The likely development of the remaining three quadrants of this intersection will further complicate the situation, adding not only vehicular traffic but pedestrian, bicycle, and possibly even transit trips. Ongoing residential construction near Alexander Wilson Elementary School will further increase demand for safe and convenient walk and bicycle routes to school. Truck access to the Honda Manufacturing Plant could also become a more significant problem as traffic increases.

The spillover of school pick-up and drop-off traffic onto NC 119 and NC 54 appears to be a major contributor to delays and long queues. This problem stems from inadequate on-site storage and circulation space for buses and cars, and limited access options. Driveways are closely spaced to each other, and are less than 500 feet from the NC 54/NC 119 intersection, creating conflicts that can result in temporary gridlock due to turning-lane constraints. Moving even a portion of school and/or plant away from the signalized intersection would free up critical capacity, improving LOS and reducing (or at least delaying) the need for major widening.

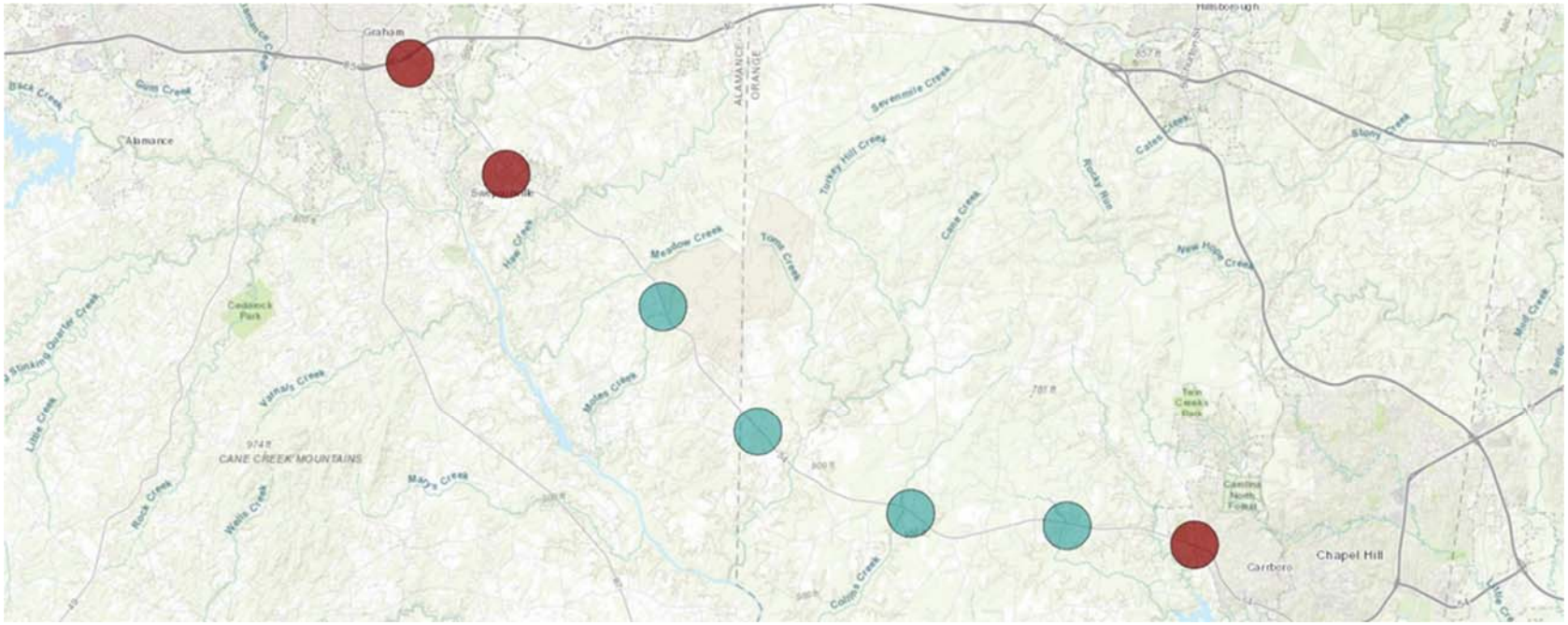
3.6 Market Assessment

Rose & Associates completed a market assessment and land use analysis for the counties composing the corridor (Alamance and Orange) and at major intersections along the corridor. The complete report is included in the Appendix. Key trends and findings from the report indicate demand for land use and real estate products at specific nodal and zonal locations, promotion of tourism as an economic development strategy, and transportation improvement coordination with a focus on multimodal and Complete Streets investments.

The corridor exhibits demand for additional commercial product development (i.e. office space, industrial, and retail) in the Economic Nodes at the intersections of Woody Drive, NC 119, and Old Fayetteville (see Figure 21 below, identified in red). However, physical limitations, topography, and zoning may limit development in one or more of these areas. Each economic node could benefit from additional office and/or light industrial product, where appropriate. Consumer trends and the preponderance of mixed-use and infill development throughout the region also suggest that in addition to retail, dining, and entertainment, additional housing may also be considered for integration and to support other product types. Options to guide land use development in accordance with the corridor's vision include:

- Provide small area planning in the Economic Nodes to further frame appropriate land uses, density and infrastructure;
- Provide opportunities in the Economic Nodes for mixed-use development, including additional multifamily housing, workplace space (office/light industrial), retail, and entertainment uses;
- Provide opportunities in the Heritage Nodes for additional recreational and rural housing development.

Figure 21: Market Assessment Economic Nodes & Heritage Zones



The existence of sensitive watersheds and significant historical, recreational, and agricultural assets along and adjacent to the corridor, together with the corridor's popularity for cyclists, suggests strategies for preservation over development, and tourism over traditional, employment-based economic development. While local workforce, students, commuters, and residents predominantly drive economic growth along the corridor, the current and potential economic impact of tourism for the corridor cannot be understated. There are four Heritage Zones along the corridor (identified in blue) that would benefit from targeted marketing, recreation, and tourism initiatives: Mt. Willen Rd, Orange Grove Rd, Mebane Oaks Rd, and Bethel-Hickory Grove Church Rd. Strategies for increasing economic activity to support the corridor's long-term vision include:

- Provide opportunities for "shovel ready" sites or mixed-use development in the Economic Nodes for expanded employment.
- Create a brand and marketing strategy to link recreational and tourism assets along the corridor, especially in relation to the Heritage Nodes

- Engage county and regional tourism agencies in further collaborating to promote cultural, recreational, and agricultural assets within or adjacent to the corridor.

Economic development and tourism promotion will increase congestion and exacerbate the corridor's poor vehicle performance during peak conditions. Also, tourists and those seeking the recreational assets along the corridor will seek safe non-motorized routes to access the area. Transportation improvements and land use development decisions based upon regional development pressures must consider the experience for all users. Strategies to support successful integration of transportation investments with corresponding development include:

- Coordinate transportation and land use strategies;
- Provide opportunities for Complete Streets sections in the Economic Nodes to enhance user experience and provide a safe biking/pedestrian amenity which supports existing uses (e.g. Alexander Wilson Elementary School) and encourages private investment;
- Provide for multimodal options along the Heritage Zone to link bicycle and pedestrian routes to recreational assets, including the Haw River and Mountains-to-Sea trails.

4 Public Input

4.0 Public Input

The Study Team solicited public input on this project through a diversity of channels. This included creating and recruiting a stakeholder group which was composed of community and business leaders and interested residents who provided feedback throughout the project. The project team also created a website, www.NC54West.com, that provided project updates and gathered public input through an interactive map. Finally, the project team scheduled two rounds of community workshops, the first of which began in January 2018. The project team also conducted interviews with several key stakeholders along the corridor.

4.1 Stakeholder Interviews

As part of the Public Involvement Plan, the project team solicited interviews from groups that possessed specialized knowledge of the NC 54 West corridor. Approximately twenty-six interviews were conducted over the phone during November-December 2017 timeframe. Interview subjects were selected based on their subject matter specialization and ability to complement the Study Team and existing data sources. These sources included public safety, education, and real estate and development perspectives. Major findings from these discussions are identified below.

- Public Safety – Three NC 54 intersections present vehicular safety concerns: Morrow Mill Road, Dodsons Road, and Mebane Oaks Road. Contributing factors of motor vehicle crashes at these locations include turning movements, passing, speed, and significant vehicular speed differentials. Congestion is noticeable during the AM and PM commuting periods that has been attributed to employees of the UNC Chapel Hill system and hospital. Recent and anticipated residential growth are perceived to also contribute to increasing collisions and congestion.

- Education – There is reported heavy congestion during morning and afternoon periods when school children are arriving/departing Alexander Wilson Elementary School, coinciding with shift changes at a nearby industrial site. These periods are at approximately 7:30AM and 3:00 PM. Vehicle backups are noticeable during these periods along NC 119 as well as on the elementary school's drop-off circle. School enrollment is anticipated to increase, and the number of students using school buses has also increased.
- Real Estate and Development – Rose and Associates conducted this series of discussions, and the associated findings are detailed in the Appendix.

4.2 Community Workshops

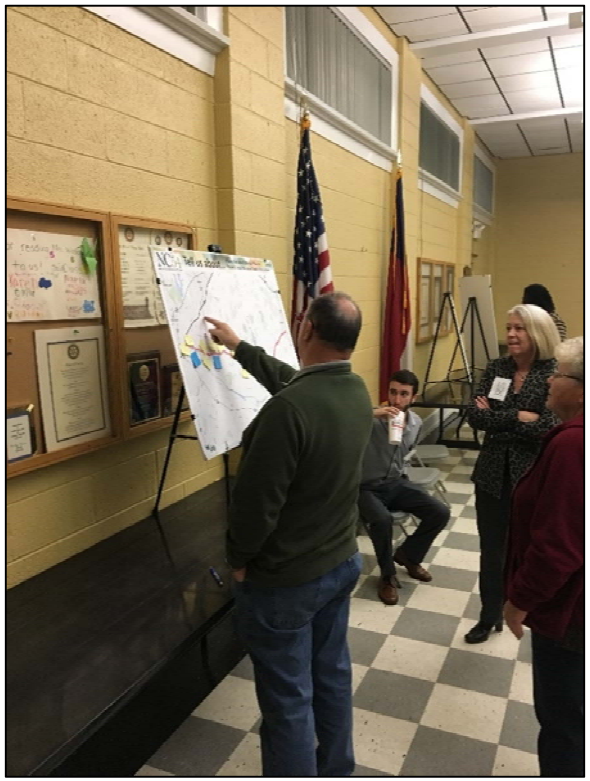


Community workshops occurred in two rounds with three-to-four workshops per round. The sessions were scheduled for locations that balanced the geography of the corridor and were intended to engage—but not limited to—the general public and affected populations. The first round of community workshops occurred in January 2018 and the second round in May 2018 (the second round included an additional workshop to capture interest from the middle of the corridor). Workshop content was designed to inform stakeholders about identified deficiencies, and to confirm that the Study Team had captured the concerns, needs, and vision of the community as the project team proceeded with developing project alternatives and recommendations. Feedback and responses from the first round of workshops were incorporated into subsequent project exhibits, analysis, and deliverables. Summary memos from the two community workshop rounds are included in the Appendix. Attendance at the community workshops ranged from 12 to 44 attendees during the drop-in style sessions.

The first round of community workshops included the following locations, dates, and times:

- Mid Corridor – Rigmor House Event Center, January 23, 2018, 4:30 PM to 6:30 PM (to capture commuting residents)

- West Corridor – Graham Civic Center, January 24, 2018, 6:30 PM to 8:30 PM
- East Corridor – Carrboro City Hall, January 25, 2018, 6:30 PM to 8:30 PM



Comments in response to the initial project presentation and interaction with the displays focused primarily on preservation, roadway safety, and developing a vision for the corridor. Themes included:

- Preservation of the corridor's center from Mt Willen to Bethel Hickory Road for watershed protection and maintaining rural character;
- Safety concerns of high-speed vehicle passing in no-passing lanes, poor visibility due to trees or vegetation, curved roadway geometry, the sun's position, and turning vehicle conflicts;
- Competing visions of multimodal roadway design.

The second round of community workshops included the following locations, dates, and times:

- Orange County – Rigmor House Event Center, May 1, 2018, 4:30 PM to 6:30 PM (to capture commuting residents)
- East Corridor – Carrboro Century Center, May 2, 2018, 6:30 PM to 8:30 PM
- West Corridor – Graham Civic Center, May 3, 2018, 6:30 PM to 8:30 PM
- Alamance County – Swepsonville Fire Department, May 10, 2018, 4:30 PM to 6:30 PM (to capture commuting residents)

Public feedback during the second community workshop round consisted of reactions to VHB's proposed conceptual corridor improvements. These comments fell along the following themes:

- Skepticism of projected vehicle volume growth rates through the year 2045 (i.e. too high);
- Interaction of roadway widening and new development that would conflict with the corridor's rural character;
- Promoting safety improvements such as additional turn lanes, signals, lighting, and intersection treatments;

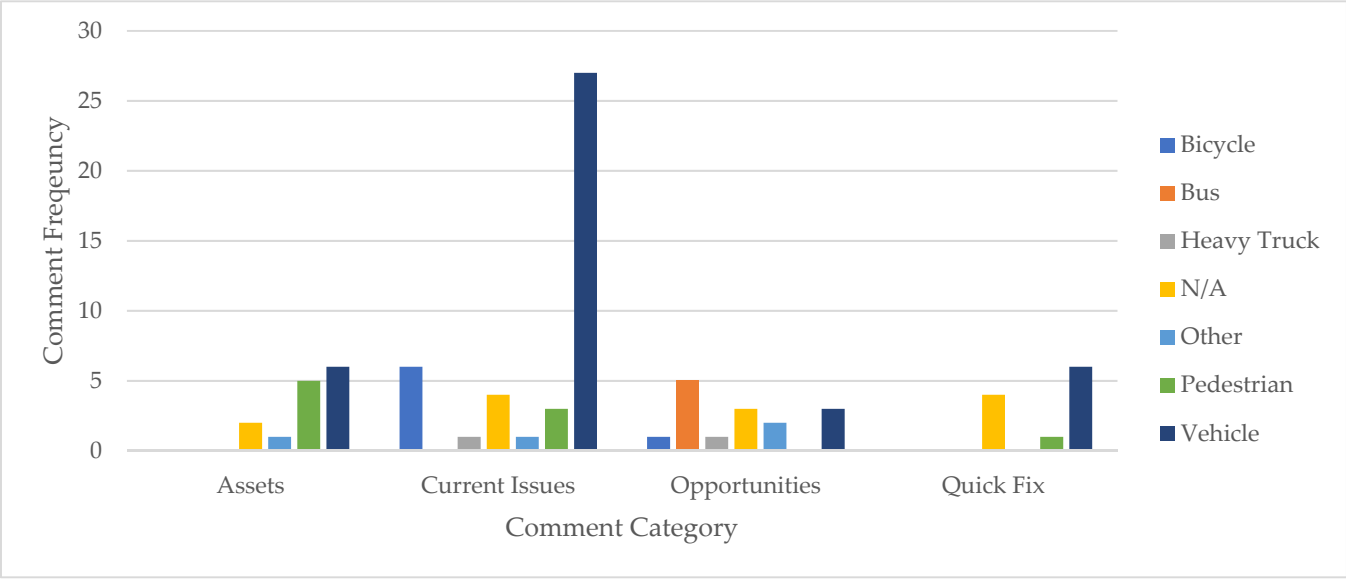
- Opposing preferences for five-lane and three-lane cross sections and maintaining the existing two-lane configuration throughout the corridor;
- Pedestrian and bicyclist difficulty in crossing larger improved intersections;
- Concern for farm and freight vehicle access and navigation of median divided four-lane roadways and roundabouts;
- Opposing preferences for on-road and off-road separated bicycle facilities;
- Identification of potential right-of-way constraints such as residential wells and property preservation.

The project team recorded community workshop comments and discussions and summarized in memo format. Meeting summary memos and workshop presentations were then posted to the project website after the respective community event.

4.3 Interactive Map

From fall 2017 through spring 2018, the project team welcomed corridor comments through an interactive map. The interactive map was prominently featured on the project website and promoted through the workshops, newsletters, and Study Team communications to the public. Residents, commuters, and other users of the NC 54 West corridor were encouraged to contribute to the Study Team's understanding of the corridor by placing "markers'" on assets, issues, opportunities, and quick fixes on locations of interest. Figure 22 below displays the distribution of the 82 interactive submissions by comment category and transportation mode. A plurality of submissions was vehicle-related current issues that addressed safety, visibility, speed, passing, and other operational problems.

Figure 22: Interactive Map Submissions by Category and Transportation Modes



4.4 Community Events

The community event component was eliminated to increase the level of public workshops from four to seven. The project team created a "Meeting in a Box" for the participating organizations and municipalities to communicate the project's status and purpose at community events of their choosing.

5 Corridor Vision

5.0 Corridor Vision

This chapter describes in detail the final roadway cross sections, intersection treatments, and bicycle and pedestrian features for the complete corridor buildout by the year 2045. It summarizes roadway levels of service for the recommended improvements, explores other critical issues, and discusses improvement alternatives that were considered, but not ultimately selected.

The recommendations described in this chapter are based on the best information currently available. As various projects in the corridor proceed through project development and construction, more detailed surveys, analysis, and design will be performed. Given the long-range nature of many of the recommendations, these efforts will incorporate changes in development, travel, and policy that may not have been anticipated. Refinements—and even major changes—to recommendations may result. It is not until the documentation of environmental impacts though the NEPA and SEPA (National and State Environmental Policy Acts) processes that critical design elements relating to cross-section and alignment will be determined.

5.1 Committed Improvements

There are a number of transportation improvements already planned along this corridor. The most significant are in the current 2018-2027 STIP. Some are associated with development projects, and others are already in the process of being implemented.

5.1.1 2018-2027 NC State Transportation Improvement Plan

The 2018-2027 State Transportation Improvement Program (STIP) released by NCDOT in July 2018 includes two committed projects of relevance to the NC 54 Corridor Study. See report Section 2.1.7 for the projects' locations and additional details. Projects are considered "committed" if right-of-way or construction is scheduled within the first 5 years of the STIP.

STIP # R-5821A – NC 54

R-5821A is also a Regional operational improvement project with bicycle and pedestrian accommodations along NC 54 from Orange Grove Road in Orange County to Old Fayetteville Road in Carrboro. Right of way acquisition is scheduled for 2020 with construction in 2022. Findings from this corridor study will help to develop the SEPA process of R-5821A.

STIP # R-5821B – NC 54

R-5821B is a Division intersection improvement project at NC 54 and Orange Grove Road in Orange County. The purpose of this near-term project is to address operational and visibility concerns.

5.2 Recommended Improvements

5.2.1 Corridor-Level

Typical Cross-Sections

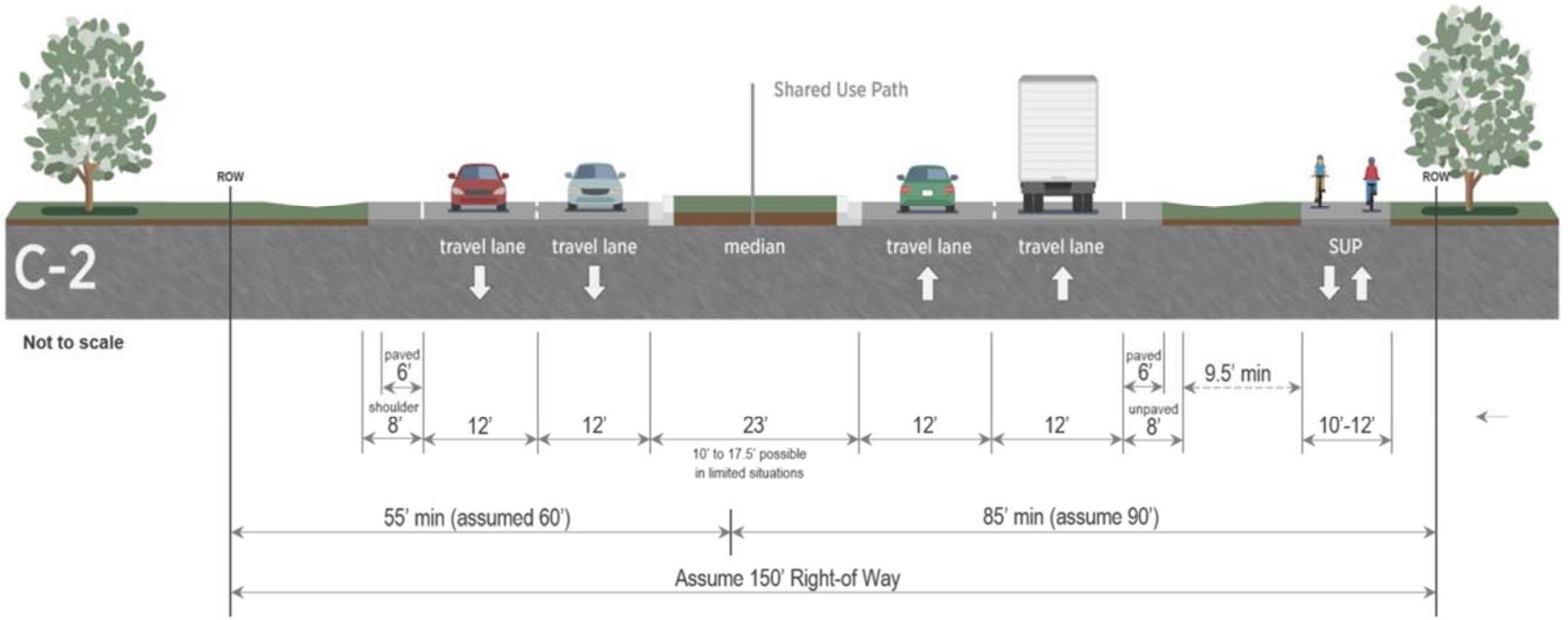
Given the length of the corridor, this discussion is divided into recommendations by segment, as depicted in a series of six (west-to-east) maps depicted from Figure 25 through Figure 30. The primary focus is on the ultimate (2045) facility cross-sections and general improvements; individual intersection recommendations will be described in more detail in the next section. Two cross-section variations are proposed, both versions of 4-lane median-divided roadways adapted from NCDOT's *Complete Streets Guidelines.*

One potential cross-section is a "ditch and swale" design (referred to as C-2, see Figure 23), with shoulders and shallow, vegetated, open-channel drainage, rather than concrete curb-&-gutter with piped runoff. The 23-foot grassed median has mountable concrete curbs (although medians as narrow as 10 feet are possible in limited circumstances). Travel lanes are 12 feet wide, with 8-foot shoulders, at least 6 feet of which are paved. This potential design includes a 10-12-foot-wide paved shared-use path (SUP) on one side of the road, ideally spaced 9'-6" or more from the edge of shoulder, though this distance may vary in a steep cut or fill section and necessitate a guardrail. This cross section requires approximately 150 feet of right-of-way (90 feet on the side of the SUP, 60 feet on the other side), but could be reduced by up to 10 feet in some cases.

There are several trade-offs between the two cross-sections. Context determines the most appropriate solution, and the ultimate decision requires more detailed design and analysis beyond the scope of this corridor study. Future land use along the corridor will also affect this determination. Key considerations include:

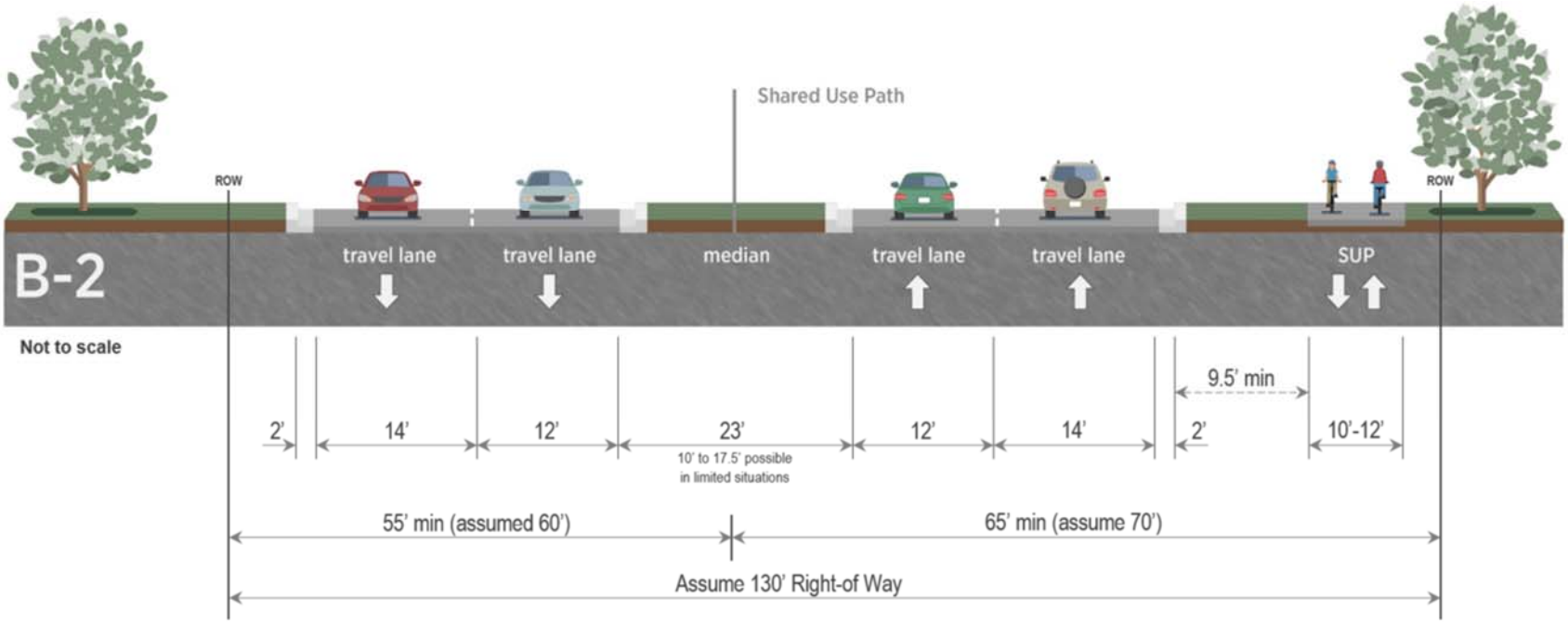
- The narrower footprint of the curb-and-gutter version can reduce ROW costs and impacts on property and sensitive environmental areas.
- Curb-and-gutter cross-sections have a maximum posted speed of 45 MPH.
- Ditch or swale versions typically costs less to construct and maintain.
- The wide shoulders on the swale section can accommodate bicycles for those who are comfortable riding along the shoulder; the curb-and-gutter does not, without additional width for traditional bike lanes.
- The swale section is more appropriate in a rural context, and can provide better access for farm equipment.
- Compared to traditional curb-and-gutter and storm sewer systems, properly-engineered swales will slow stormwater runoff, increasing infiltration and the removal of sediment and pollutants.

Figure 23: 4-Lane Divided Typical Swale Section



For the purposes of this study, widening is assumed to occur symmetrically from the existing NC 54 roadway centerline. More refined survey and design work to follow will determine whether that is the preferred solution or if the new centerline will shift to one side or the other. It is likely that widening will typically be symmetric, but could shift based on conditions at specific locations. Such conditions could include avoiding environmental hazards or sensitive areas; minimizing ROW impacts or grading and construction costs; or improving roadway alignment (for example, straightening a tight curve to enhance visibility and safety).

Figure 24: 4-Lane Divided Typical Curb-&-Gutter Section



The second potential cross-section is a curb-and-gutter version (referred to as B-2, see Figure 24). The median and inner travel lane have the same dimensions as the ditch and swale version, but the outer lane is 14 feet wide, with a 2-foot curb and gutter pan. The shared-use path should ideally be at least spaced 9'-6" from the back of curb. This cross-section requires ROW width of about 130 feet (70 feet on the side of the SUP, 60 feet on the other side), but could in some situations fit within 120 feet. This cross-section is not suitable for posted speeds greater than 45 mph; however, this speed would be appropriate in locations where it is being considered, since these are more developed, with more frequent access/conflict points.

Median Breaks

Median breaks at major intersections are assumed, and likely locations for additional breaks are identified. Depending on design considerations and future traffic and development patterns, these breaks could be shifted or eliminated, and new breaks added at other locations. Median breaks can provide full access for all turning movements, or may permit only some movements. Examples include:

- U-turns only (for one or both directions). Not signalized.
- "Left-overs" in which left turns from NC 54 are allowed, but left turns onto NC 54 are not. No crossing through-movements are permitted. Not signalized.
- No left turns permitted onto (and usually from) NC 54; these are accommodated by median U-turns. Typically signalized.

Pedestrian and Bicycle Accommodations

The shared-use path (SUP) depicted in the cross-sections represents a configuration that is more desirable from the perspective of the typical SUP walker or cyclist. Greater separation from traffic lanes reduces noise and increases both actual and perceived safety. It also provides more alignment flexibility, increases landscaping options, and improves appearance. However, ROW, construction, and maintenance costs and other impacts increase. In addition, constructing a pedestrian facility on an alignment independent of the roadway can trigger more restrictive design standards, especially with respect to allowable grades. This can result in additional length, earthwork, and/or retaining walls. A shared-use path near or adjacent to the roadway would be able to more closely follow its alignment, taking advantage of grading associated with its construction. However, this is more difficult to achieve with a swale cross-section than with curb-and-gutter.

Due to cost and ROW considerations, as well as anticipated demand, a SUP is recommended along only one side of NC 54. An initial determination of the preferred side was made based on adjacent land uses, terrain, and desirable opportunities for crossing NC 54. The estimated probable cost for the entire SUP is $22 million; cost estimation is further explored in Chapter 6. Future development and information obtained from more detailed design will ultimately influence this decision.

Segment Descriptions/Discussions/Recommendations

Segment-specific recommendations are described below.

I-40 – NC 119/East Main Street

No major changes are suggested for the existing 5-lane cross-section with continuous two-way left-turn lane (TWLTL) extending from I-40 to NC 119. This cross-section is adequate for anticipated traffic growth. While no specific intersection improvements are recommended for the analyzed intersections, signal timing and phasing (especially with respect to left-turns) should be regularly monitored and modified as needed. Turn lanes may also need to be added or lengthened, especially on side streets. It is also possible that some intersections will eventually warrant signalization.

A more critical concern, however, is the number and spacing of driveways, especially near I-40. Frequent driveways introduce conflicts that will both reduce capacity and increase crash rates as traffic volumes increase, especially if allowed to further proliferate. To maximize capacity and safety, a more rigorous access management plan should be implemented for both new and existing development. Potential measures include driveway consolidation, shared parking, primary access via side streets, frontage/backage roads, and increased driveway spacing, especially from intersections. At some locations, conditions may warrant replacing the center TWLTL with a median.

By reducing conflict points, improved access management would also provide a better starting point for enhancing bicycle and pedestrian travel options. The most notable transportation deficiencies in this part of the NC 54 corridor relate to pedestrian and bicycle travel.

Figure 25 indicates possible sidewalk locations, along with a possible route for a wider shared-use (or multi-use) path that combines roadside and off-street alignments. To the west, available ROW favors a sidewalk on the north side of NC 54, and in fact as part of recent commercial construction, a short segment has been built just east of Riverdale Drive. The northern side is also more feasible east of Jim Minor Road.

Between Cooper Road and Jim Minor Road, a SUP on the south side of NC 54 is most viable, due to ROW availability and the configuration of the two bridges that need to be traversed. Both the Haw River and Back Creek bridges maintain the 5-lane cross-section typical of this portion of NC 54. Since the center turn-lane is not needed on the bridges, it may be

possible to eliminate or narrow it, and using the freed-up pavement for a bicycle/pedestrian facility. Such a treatment would require higher guardrails, and possibly a buffer or barrier to better separate the traffic lane.

Because of ROW availability and connectivity with Alexander-Wilson Elementary School, the sidewalk proposed east of Jim Minor Road could also be implemented as a SUP on the north side of NC 54, especially east of Long Dairy Road. Traveling the entire length of this sidewalk/shared-use path network between I-40 and NC 119 would require at least two crossings of NC 54; one at Jim Minor Road, and another at either Cooper Road or Ivey Road/Sunset Drive. Since both the Jim Minor Road and Ivey Road/Sunset Drive intersections are signalized, crosswalks and pedestrian/bicycle signal accommodations can be readily added. Unless the Cooper Road intersection is eventually signalized, some other appropriate signage or activated signal would be desirable. Crosswalks (and signals, where appropriate) should also be considered on intersecting streets, and on all approaches at other signalized intersections.

NC 119/East Main Street – Wormranch Road

The recommended cross-section for this segment is a 4-lane divided curb-and-gutter, with a shared-use path along the north side (see Figure 25 and Figure 26). This decision is based on the existing cross-section west of NC 119/East Main Street, and on existing land use and anticipated changes near this intersection (identified as a development node). It is possible that sidewalks (and/or tighter SUP spacing) would be appropriate for at least part of this segment, depending on the nature of future development. In addition to the endpoints, median breaks are anticipated for intersection-related U-turns about 600 feet east of NC 119/East Main Street, at Clifford-Ray Road, and possibly Freshwater Road.

Wormranch Road – Mineral Springs Road

The ultimate cross-section recommended for this segment of NC 54 is the 4-lane median-divided swale, with a SUP along the north side (see Figure 26 and Figure 27). However, due to existing and possible future development, the curb-and-gutter version may be appropriate for at least some of the corridor, such as the segment between Cedar Point Road and Woods Lane, or the vicinity of Mt Willen/Salem Church Roads (which is a full-access intersection). Additional median breaks are likely at Brucewood Road and several other locations to be finalized in the design process. The existing bridge over Haw Creek will need to be widened or replaced, or a parallel bridge added.

Mineral Springs Road – Morrow Mill Road

A 4-lane median-divided swale cross-section is recommended for this portion of NC 54 (see Figure 27 and Figure 28). Mebane Oaks Road/Saxapahaw Bethlehem Church Road will be a full-movement intersection, and Thom Road is expected to have a median break, along with Gold Mine Road and/or Sanford Road. At least one other break is likely at a location to be determined.

The SUP is indicated on the north side of NC 54; however, there is not a major advantage over the south side. In fact, east of Mebane Oaks Road/ Saxapahaw Bethlehem Church Road, the south side may be preferable. An important unknown is the precise location of the Mountains-to-Sea Trail crossing of NC 54, and where trailhead access could be provided. Somewhere just east of the Mebane Oaks Road/Saxapahaw Bethlehem Church Road intersection appears most likely, so a major pedestrian/bicycle crossing at this intersection seems probable.

Morrow Mill Road – Dodson's Crossroad/Butler Road

Although a 4-lane median-divided swale cross-section is recommended, a curb-and-gutter treatment may be appropriate for segments between Morrow Mill and Orange Grove Roads, or from White Cross Road to Dodsons Crossroads/ Butler Road (see Figure 28 and Figure 29.) The Orange Grove Road and White Cross Road intersections will have median breaks.

Although a SUP on the north side of NC 54 is depicted, there may be advantages to an alignment on the south side. More detailed survey and design work will determine this outcome.

Dodson's Crossroad/Butler Road – Old Fayetteville Road

A 4-lane median-divided swale cross-section is recommended for most of this corridor segment. However, the current curb-and-gutter treatment at the eastern end of the corridor will probably be extended at least as far westward as the Henry Anderson III Park entrance. In addition, a cub-and-gutter cross-section may be more suitable for the segment between Newell and Hatch Roads (see Figure 29 and Figure 30). Median breaks are assumed at Bethel Hickory Grove Church Road, Neville Road, Hatch Road, the entrance to Henry Anderson III Park, and about 600 feet west of Old Fayetteville Road for intersection-related U-turns. Up to two other median breaks are likely.

Along this portion of NC 54, the north side is the preferred location for a SUP. The north side is less developed with more available room, and it is adjacent to existing and potential future recreational areas.

Segment Level-of-Service

Table 19 summarizes the 2045 HCS corridor level-of-service (LOS) for each segment, based on the recommended widening. Since there are no cross-section changes to the existing 5-lane segment west of NC 119, it remains at LOS B. All segments between NC 119 and Bethel Hickory Grove Church Road operate at LOS A or B. The final segment east of Bethel Hickory Grove Church Road to Old Fayetteville Road operates at either LOS A or C, depending on the direction and time of day. These are significantly better than the corresponding 2045 No-Build LOS values, and are also better than existing conditions. It is notable that for all segments east of Mebane Oaks Road, LOS in the eastbound direction is worse during the AM peak, while the westbound direction is in the PM. This reflects the highly imbalanced directional flow experienced in the eastern portion of the corridor, attributable mainly to trips associated with UNC-CH and the UNC Medical Center.

Table 20 summarizes the 2045 HCS Bicycle Level of Service (BLOS) by each segment, direction, and peak period for bicycle trips using the shoulder or travel lane of the proposed 4-lane facility. This measure does not apply to the separate SUP, nor does it incorporate BLOS for intersections. All segments have LOS B or C; the corresponding values east of NC 119 were LOS D or E, both in the 2045 No Build scenario, and for existing conditions.

Figure 25: Corridor Recommendations – Segment 1

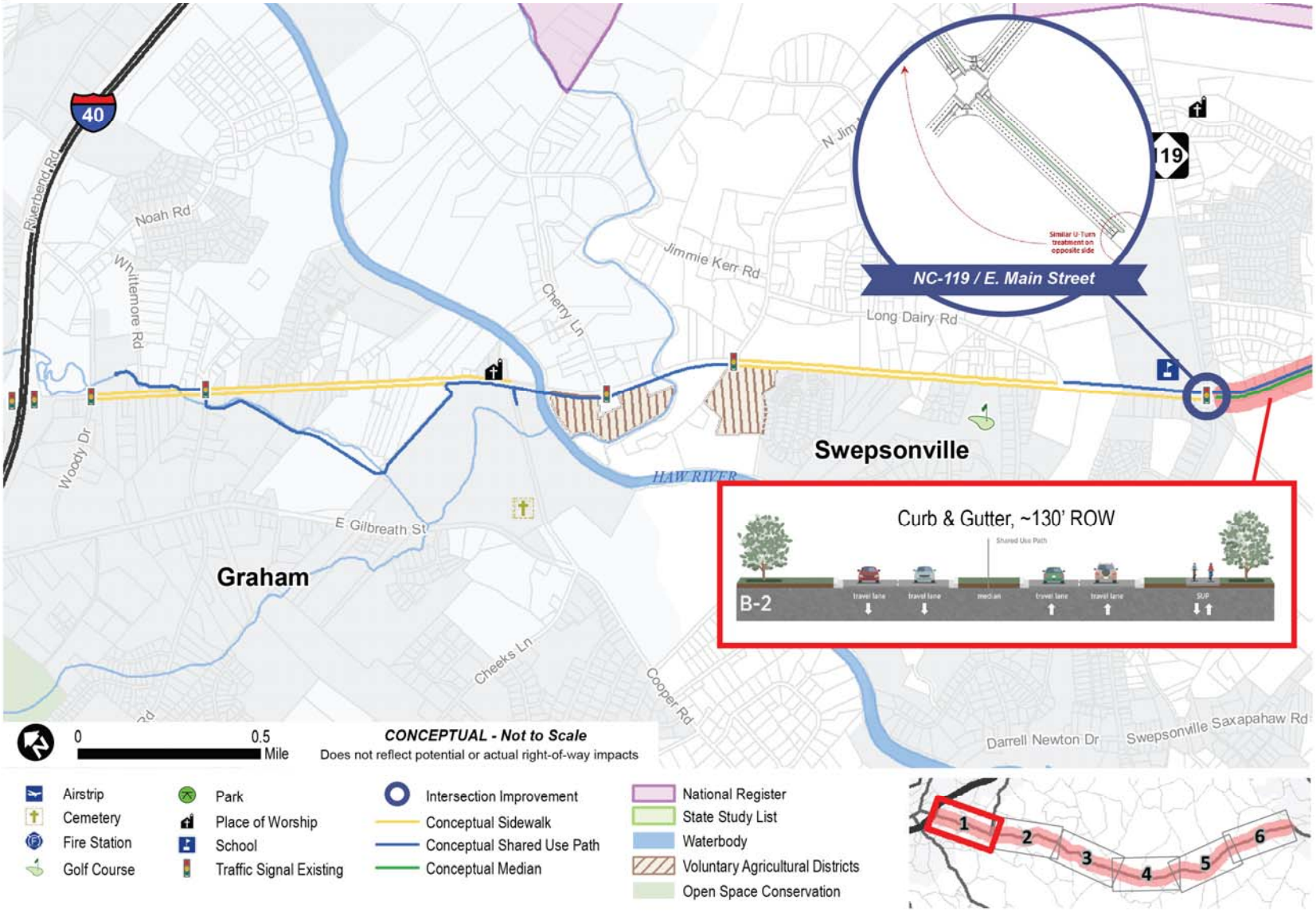


Figure 26: Corridor Recommendations – Segment 2

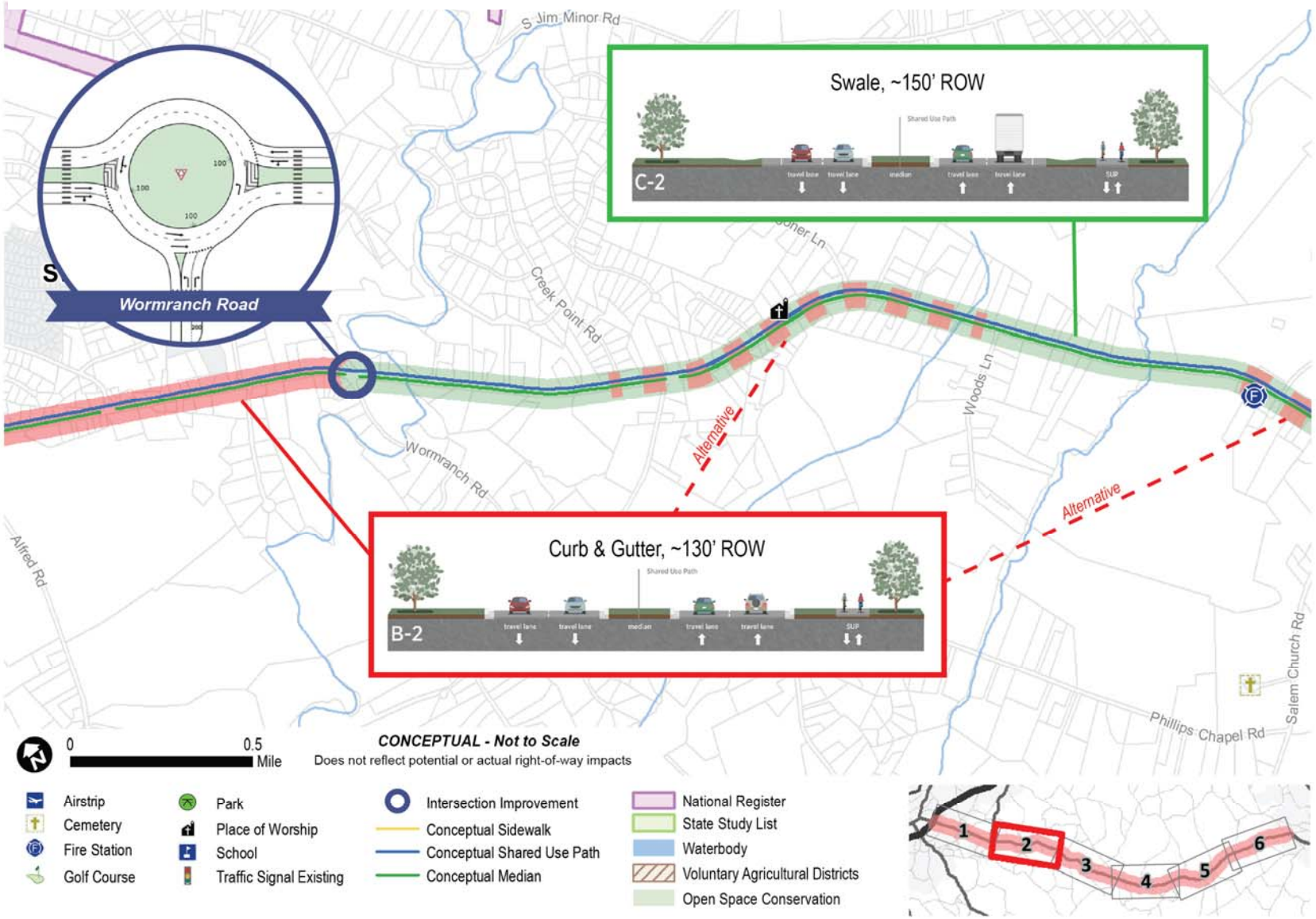


Figure 27: Corridor Recommendations – Segment 3

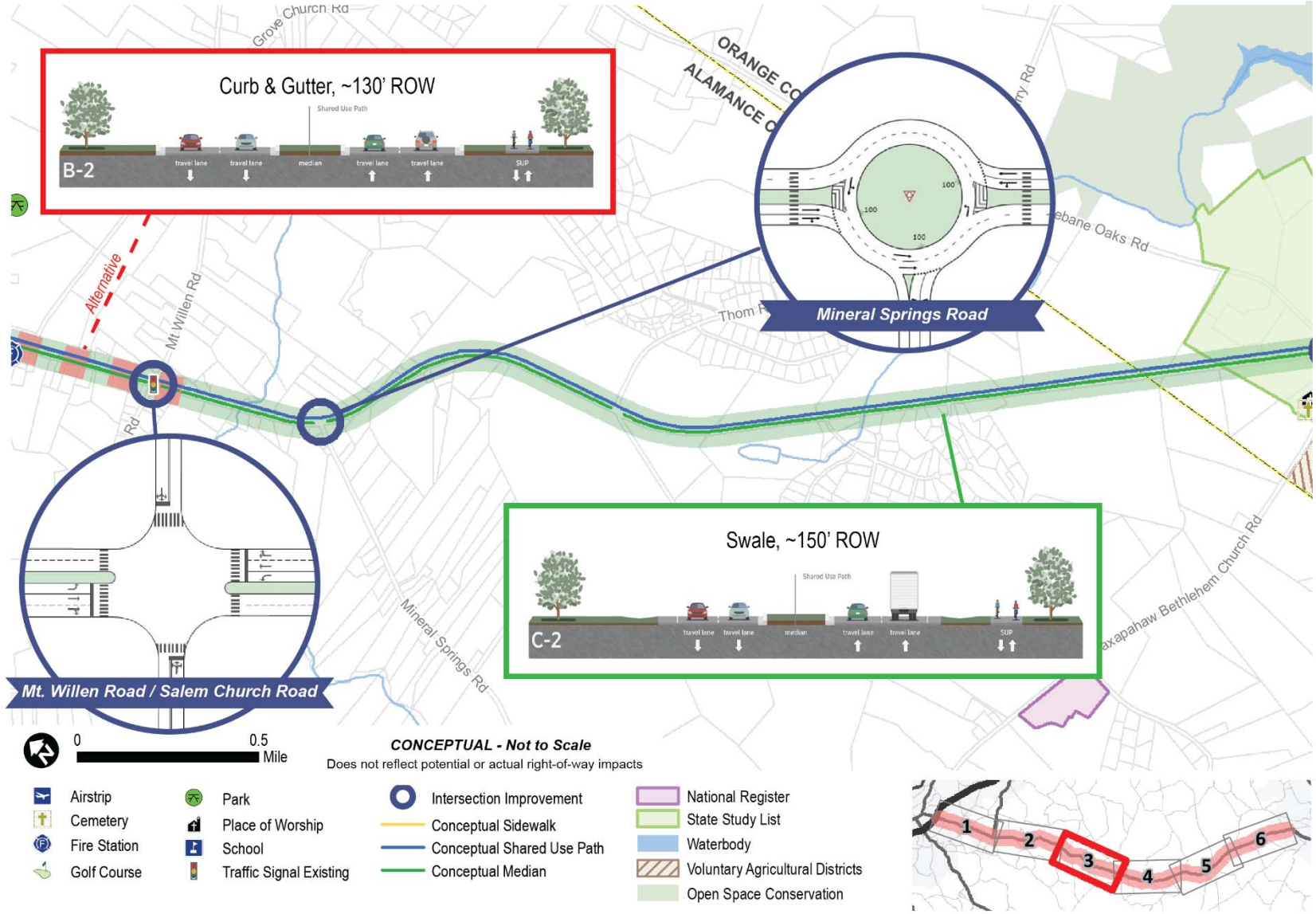


Figure 28: Corridor Recommendations – Segment 4

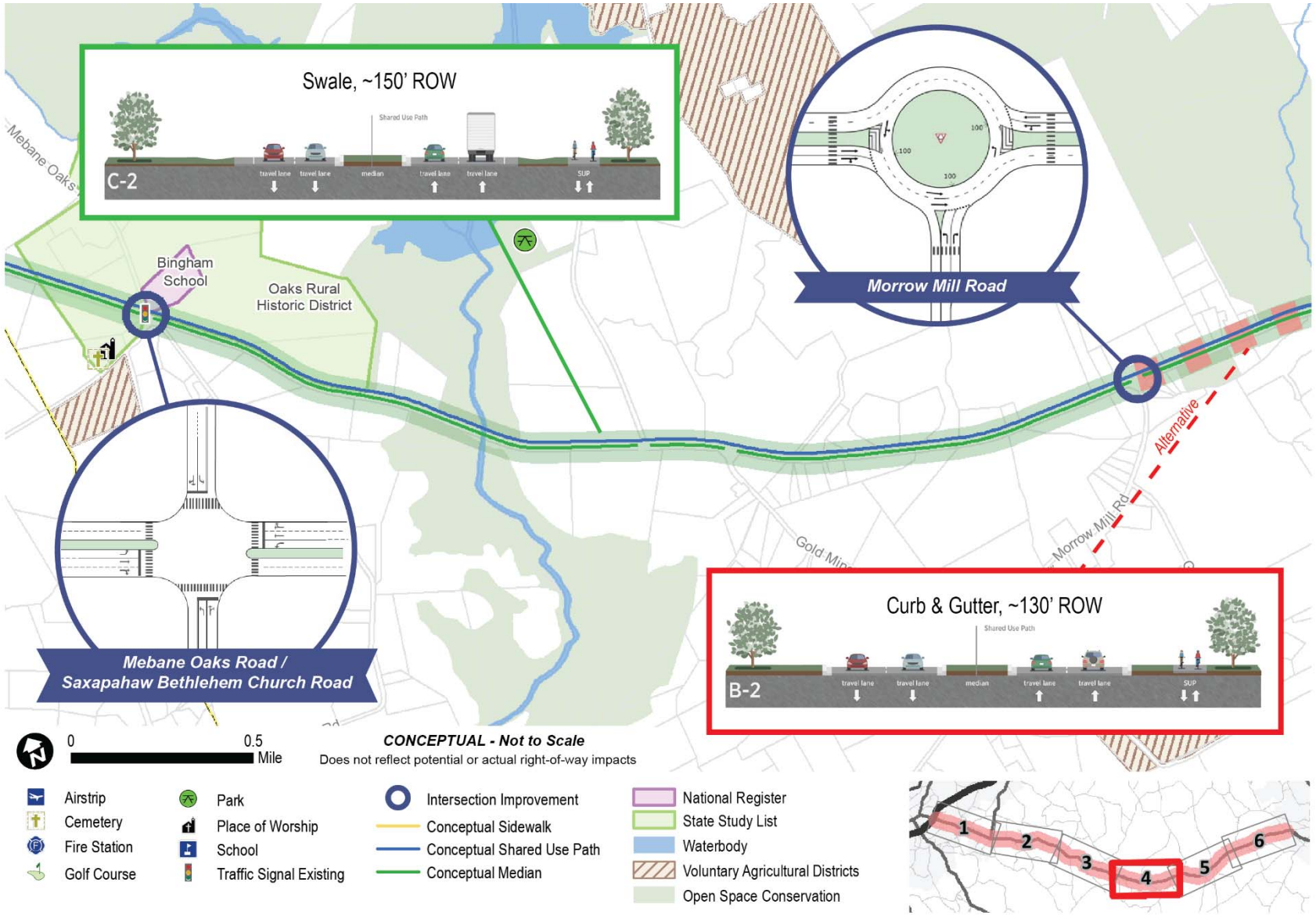


Figure 29: Corridor Recommendations – Segment 5

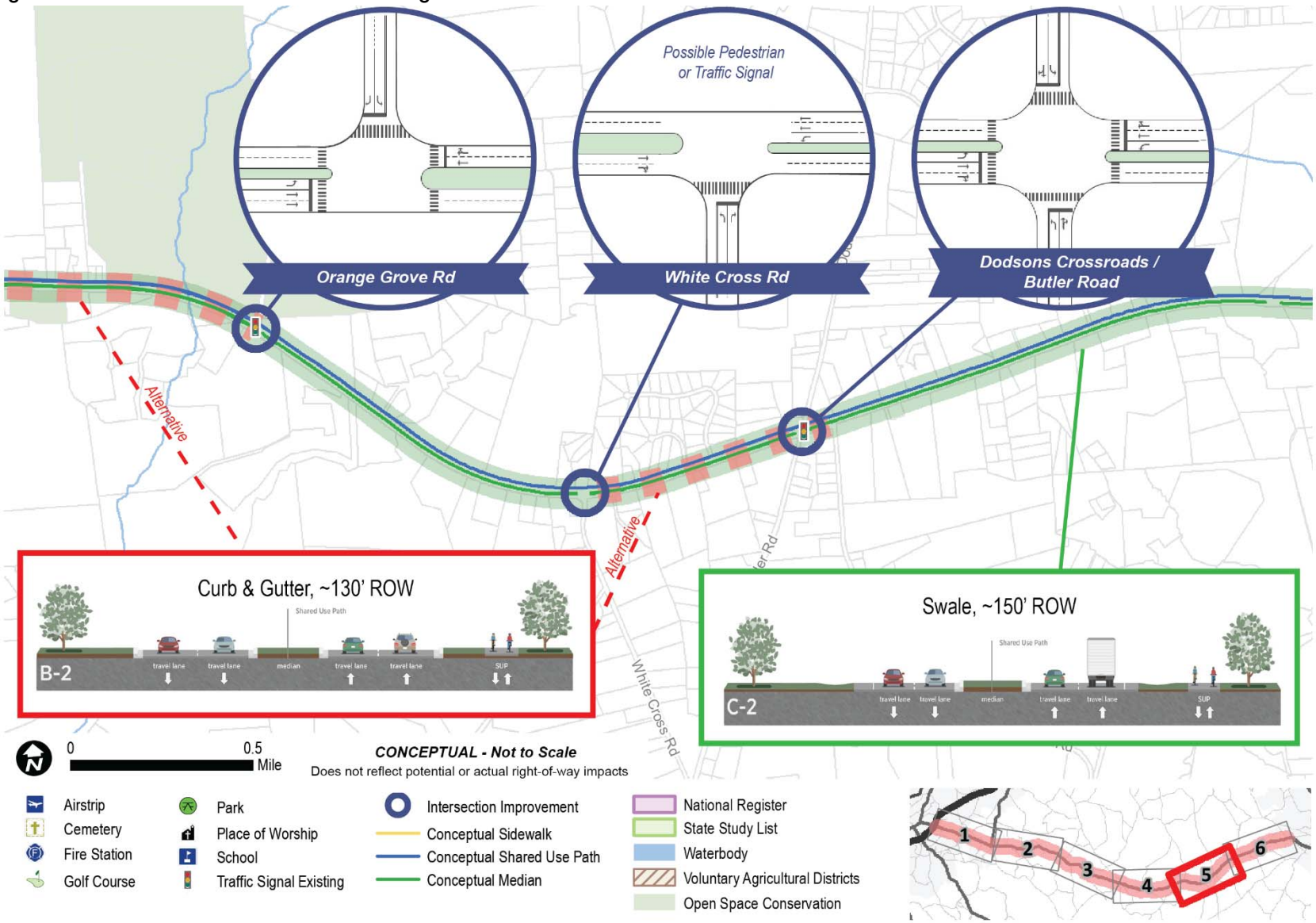


Figure 30: Corridor Recommendations - Segment 6

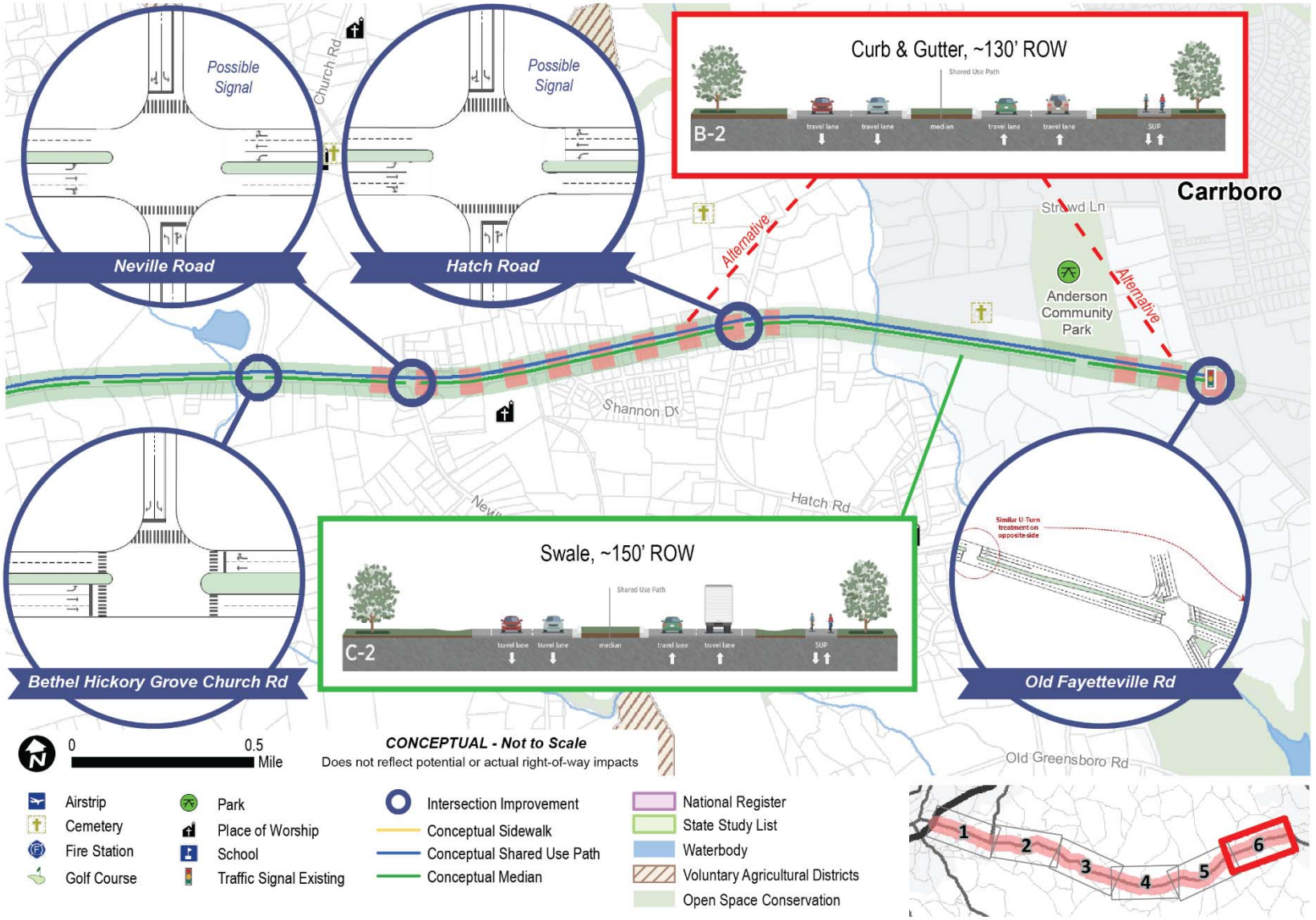


Table 19: 2045 Build Corridor Level of Service Summary for NC 54: 4-Lane Divided

Segment Location	Segment Length (miles)	AM Peak			PM Peak		
		Segment LOS	Ave. Speed (mph)	Density (pc/mi/ln)	Segment LOS	Ave. Speed (mph)	Density (pc/mi/ln)
Woody Dr – NC 119 (EB / WB)	3.2	B / B	45.0 / 45.0	16.0 / 17.2	B / B	45.0 / 45.0	17.7 / 15.5
NC 119 – Mt Willen Rd (EB / WB)	4.1	A / A	55.0 / 55.0	9.6 / 8.3	A / A	55.0 / 55.0	7.1 / 10.9
Mt Willen Rd – Mebane Oaks Rd (EB / WB)	3.3	A / A	55.0 / 55.0	8.9 / 5.5	A / A	55.0 / 55.0	4.3 / 10.1
Mebane Oaks Rd – Orange Grove Rd (EB / WB)	3.6	B / A	55.0 / 55.0	13.9 / 4.6	A / B	55.0 / 55.0	4.4 / 13.9
Orange Grove Rd – Dodsons Crossroads (EB / WB)	1.6	B / A	55.0 / 55.0	15.1 / 4.9	A / B	55.0 / 55.0	4.6 / 15.6
Dodsons Crossroads – Bethel Hickory Grove Church Rd (EB / WB)	1.8	B / A	55.0 / 55.0	17.1 / 4.9	A / B	55.0 / 55.0	5.5 / 16.5
Bethel Hickory Grove Church Rd – Old Fayetteville Rd (EB / WB)	2.6	C / A	55.0 / 55.0	18.4 / 5.8	A / C	55.0 / 55.0	6.6 / 18.2

Table 20: 2045 Build Corridor Segment Bicycle LOS Summary for NC 54: 4-Lane Divided

Segment Location	Segment Length (miles)	AM Peak		PM Peak	
		Segment BLOS	BLOS Score	Segment BLOS	BLOS Score
Woody Dr – NC 119 (EB / WB)	3.2	B / C	2.5 / 2.5	C / C	2.6 / 2.6
NC 119 – Mt Willen Rd (EB / WB)	4.1	C / B	2.5 / 2.5	B / C	2.4 / 2.6
Mt Willen Rd – Mebane Oaks Rd (EB / WB)	3.3	B / B	2.5 / 2.2	B / C	2.1 / 2.6
Mebane Oaks Rd – Orange Grove Rd (EB / WB)	3.6	C / B	2.7 / 2.2	B / C	2.1 / 2.7
Orange Grove Rd – Dodsons Crossroads (EB / WB)	1.6	C / B	2.8 / 2.2	B / C	2.2 / 2.8
Dodsons Crossroads – Bethel Hickory Grove Church Rd (EB / WB)	1.8	C / B	2.8 / 2.2	B / C	2.2 / 2.8
Bethel Hickory Grove Church Rd – Old Fayetteville Rd (EB / WB)	2.6	C / B	2.9 / 2.3	B / C	2.3 / 2.9

Other Cross-Section Options Considered

Several other cross-sections were suggested or considered in developing the recommended plan. Both three-lane and five-lane sections with center two-way left-turn lanes (TWLTL) were rejected due to NCDOT's policy to avoid new construction of these types of roadways, especially on NC and US routes, and in higher-speed rural settings. State and national research confirms that median cross-sections are significantly safer than corresponding TWLTL facilities, regardless of traffic volumes or driveway density. Converting from TWLTL to median-separated reduces sideswipe crashes by 21%, and head-on and fatal crashes by 47%, respectively. Even two-lane undivided roadways (such as existing NC 54) have lower crash rates for multi-vehicle non-driveway crashes.

Four-lane undivided facilities present similar head-on, rear-end, and sideswipe crash problems, due to left-turning vehicles slowing down or stopping in the inner lanes, which typically carry faster traffic. The resulting conflicts and lane changes also reduce the effective capacity of the inner lanes. In addition, drivers crossing or turning left from driveways or unsignalized intersections must simultaneously deal with multiple lanes of traffic from both directions. The same conditions present an even greater hazard for pedestrians and bicyclists. For this reason, NCDOT also avoids building 4-lane undivided roads in this type of situation.

A less common cross-section was also considered: an imbalanced or asymmetrical 3-lane roadway, in which an alternating third lane is constructed to facilitate passing. The hope was that for the lower-volume middle portion segments of NC 54 near the Alamance/Orange County Line, increasing opportunities to pass slower-moving vehicles would improve the level-of-service. These types of facilities are more common in mountainous areas, although an older portion of US 70 between Sedalia and McLeansville still retains this cross-section. However, crashes and congestion have become problems, and part of the corridor was converted to a 3-lane TWLTL some years ago, and planning has been underway to widen to a 4-lane divided facility. While this portion of US 70 has traffic volumes and driveway/intersection densities slightly higher than anticipated for relevant segments of NC 54, they share similar shortcomings. It is difficult to find a long enough stretch of roadway without (or with very few) driveways or intersection roads on one side, and then on the other. Otherwise, left-turning vehicles will be slowing/stopping in the passing lane, an unsafe condition that also undermines any capacity benefit. A median-divided version was also considered, but deemed impractical, especially since it required only about 12' less ROW than a 4-lane divided road. With the volume of highly-directional peak-period traffic in this part of the corridor, at least one-quarter mile in each direction is needed to allow enough passing to generate even a slight improvement; such segments are not available at suitable locations. Given these challenges, the potentially unexpected nature of this treatment, and need for other widening for turn lanes and transitions, this concept was eventually dropped from consideration.

Short-Range Improvements

The recommendations described to this point relate to longer-term improvements representing the "ultimate" condition of this NC 54 study corridor. There are a number of smaller, cost-effective improvements that should be considered in the meantime. Most of these short-range or interim improvements address safety concerns, and can be implemented without contravening longer-range plans.

- **Centerline and shoulder rumble strips** can reduce lane and roadway departure crashes, which have high injury and fatality potential. These relatively inexpensive treatments can be implemented along most of the corridor as part of regular repaving. Although rumble strips can have noise impacts on adjacent land uses, this should not be a problem in most of the corridor, given its low density and the fact that these types of rumble strips are rarely activated. Impacts on ride quality and safety for bicyclists can be a more significant concern. Rumble strip treatments should be located close to the outer lane marking to provide the widest usable shoulder possible; some designs even place the rumble strips just inside the traffic lane. There should also be frequent gaps, allowing bicyclists to cross without riding over rumble strips.
- **SafetyEdge** technology angles the edge of pavement to lessen vertical drop-off, allowing drifting vehicles to better maintain control when returning to the pavement, avoiding fixed-object crashes. As part of regular repaving in the absence of curbs, this treatment has minimal effect on asphalt paving costs, and can improve pavement life. This treatment can also benefit access for agricultural and maintenance equipment.
- **High-friction surface treatment** reduces crashes on wet roads and sharp curves, especially at higher speeds. This is a highly cost-effective countermeasure.
- **Retroreflective chevrons, post-mounted delineators, and enhanced pavement markings** are low-to-moderate cost treatments providing advance warning of changes in roadway curvature and operating speeds. Measures include larger, more reflective signs and markings, and dynamic or sequential warning signs.
- **Left-turn lanes** can reduce rear-end crashes.
- **Acceleration/deceleration and right-turn lanes** can cut down on rear-end and other crashes.
- **Access management** reduces conflicts, helping preserve capacity while reducing turning and rear-end crashes, as well as benefitting bicycle and pedestrian travel.
- **Intersection lighting** can help prevent nighttime left-turn crashes, especially at unsignalized intersections, and assist in wayfinding and support anticipated increases in pedestrian crossings.
- **Enhanced wayfinding** and street signage can reduce driver uncertainty, especially at night, possibly diminishing the potential for some rear-end and turning crashes**.**

5.2.2 Intersections

Detailed intersection capacity analysis and improvement recommendations are limited to the eight major intersections discussed earlier in this report. However, qualitative assessments and recommendations are provided for a number of other intersections.

General recommendations for all intersections (some of which can be deployed as relatively low-cost, short-range improvements) include:

- Provide pedestrian crossing treatments, such as crosswalks, signage, and signals, where appropriate. The addition of the shared-use path and other pedestrian facilities would warrant further review of additional and appropriate crossing treatments outside of intersections
- Where warranted, provide turn lanes (especially left-turns) of adequate length should to accommodate typical vehicle queues
- Monitor and update signal timing and phasing as necessary to optimize efficiency
- Periodically assess unsignalized intersections to determine if traffic volumes, delay, or crash history warrant signalization
- Enhance lighting, pavement marking, and signage as needed to improve visibility where appropriate
- Incorporate Intelligent Transportation System (ITS) technologies where appropriate, pending final project design and individual location characteristics

Roundabouts

Roundabouts are recommended as long-range solutions at three locations in the corridor (Wormranch Road, Mineral Springs Road, and Morrow Mill Road). Other locations evaluated for roundabout installation were better suited to STOP or signal control, typically due to topography, ROW impacts, or traffic volumes. All three of the proposed roundabouts would be constructed at T-intersections that are currently unsignalized. Given the volumes of through traffic forecast for NC 54, these roundabouts would eventually require two lanes, or possibly incorporate one or more bypass lanes. These roundabouts may require slightly more right-of-way than a typical intersection, but will not require signalization, and

provide safety and operational advantages for both motorized and non-motorized travel. If needed, they can also better accommodate a low-volume driveway opposite the intersecting roadway.

It is not desirable or cost-effective to install a multilane roundabout on a two-lane road, nor to build a single-lane roundabout that would subsequently be enlarged. Anticipated traffic volumes suggest the best course of action would be to maintain the existing STOP-controls, adding turn lanes or other interim improvements as warranted, until at least one leg of NC 54 is widened. The recommended roundabouts coincide with the ends of proposed construction phases for the NC 54 widening, providing effective transitions between 4-lane and 2-lane cross-sections.

Figure 31: Example Roundabout Treatment for On-Road Bicycles



Roundabouts help moderate traffic speeds and reduce crash severity comparted to STOP or signal control. Two-lane roundabouts accommodate most large vehicles and include a mountable apron for vehicles with challenging turning radii. Pedestrian crossings occur at crosswalks that incorporate splitter islands as pedestrian refuges, allowing separate crossing of each direction of slower-moving traffic. Bicycles can use the same crossing (as a shared-use path), or a parallel path, or be dismounted and walked. Bicycles can also circulate with traffic, although this is not recommended for multi-lane rural roundabouts. To provide an alternative for cyclists using the road or shoulder, bicycle access "ramps" are

proposed to connect the road with the shared-use path or crosswalk before and after a roundabout. Figure 31 depicts examples of this type of treatment at commercial and suburban nodes in rural and recreational areas.

Individual Intersection Descriptions/Discussions/Recommendations

Recommendations for key intersections are discussed in detail below.

NC 119/East Main Street

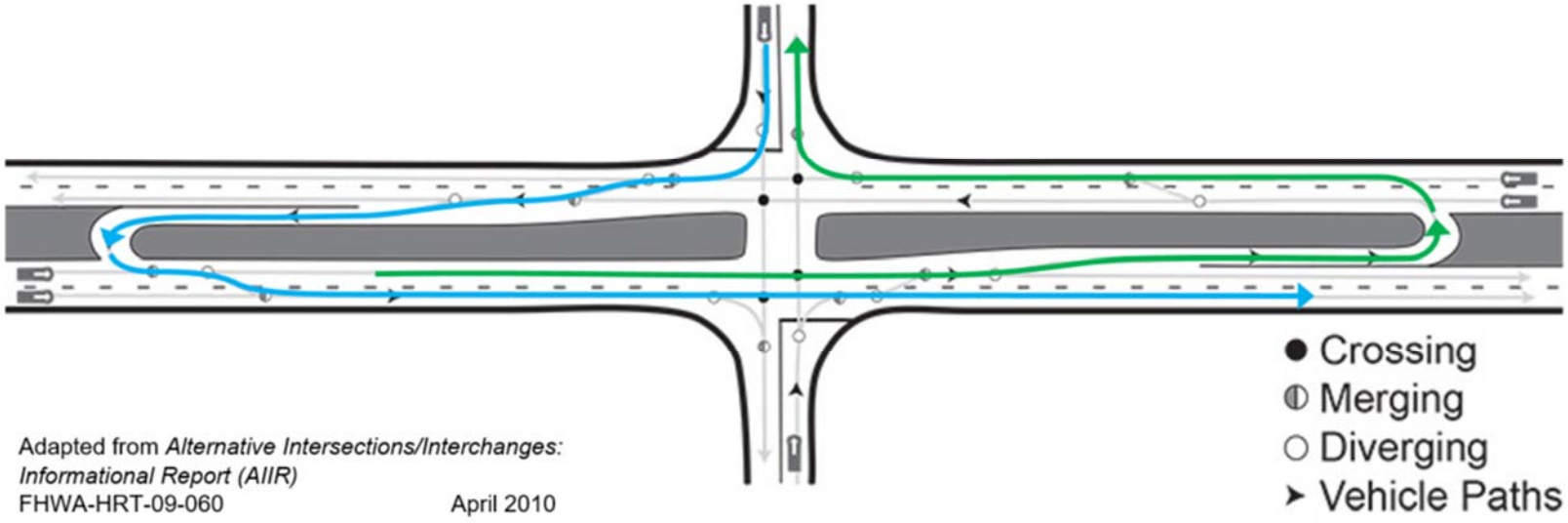
Delays and long queues at this intersection worsen as volumes increase. Turn-lanes and through-lanes can be added to improve LOS, but the resulting enlargement of the intersection footprint has significant impacts on adjacent properties. Some dual turn-lanes are required, along with increased storage lengths. The larger cross-section also reduces intersection efficiency, and impedes pedestrian crossings. Several alternate intersection designs were evaluated with respect to managing traffic delay and queue lengths, minimizing cost and ROW impacts, and promoting safe and convenient pedestrian and bicycle travel.

- A median U-turn (MUT) intersection (seen in Figure 30 and diagrammed in Figure 32) is recommended. The MUT allows through movements and right turns as in a typical intersection, but replaces direct left turns with indirect left turns via U-turns occurring on NC 54 at median cuts approximately 600 feet from the intersection. These U-turns can be signalized or unsignalized, and depending on median width and the number of lanes, additional widening in the form of bulb-outs may be required to accommodate large trucks.

  Traffic wishing to turn left from NC 54 first travels straight through the intersection, turns left through the median cut, then turns right onto NC 119/East Main Street. Left turns from the side street reverse this sequence, turning right onto NC 54, then making a U-turn before proceeding back through the intersection. Because left-turn conflicts and turn lanes are eliminated, the number of signal phases and conflict points at the primary intersection are reduced, enhancing operational efficiency and safety for all travel modes. Special consideration of school bus access and routing will be required, but this is the case for all options considered other than—to a degree—a roundabout or a traditional intersection. This proposed configuration does not permit left-overs at the intersection, but such a variation could be considered, depending on left-turn volumes.

- A quadrant intersection performs well overall, but requires construction of a new road in the southwest quadrant of the intersection, along with realignment of Alfred Road. The associated cost and impacts were deemed excessive.
- The size required for a roundabout, combined with pedestrian and bicycle impacts, eliminated a roundabout.
- The large footprint, ROW requirements, cost, access restrictions, and poor pedestrian and bicycle service disqualified a displaced left turn intersection.

Figure 32: Example of Median U-Turn Left-Turn Movements



Wormranch Road

Upon widening of NC 54 west of Wormranch Road, a two-lane roundabout (or one that employs bypass lanes) is recommended for this intersection (see Figure 26 for a schematic plan). This roundabout configuration is well-suited to

the traffic volumes forecast for this three-legged intersection. It also creates an effective transition between the widened 4-lane segment and the existing/improved 2-lane cross-section to the east.

Mt Willen Road/Salem Church Road

A standard intersection with dedicated left-turn lanes off NC 54 will be sufficient for this location (see Figure 27). Additional through lanes can be constructed in advance of widening, if warranted. Left-turn lanes on either cross-street approach are not needed, but are an option. Pedestrian and bicycle crossing treatments (crosswalks and signals) should be incorporated at this location, even prior to widening.

Mineral Springs Road

A roundabout with two lanes (or a bypass lane) is recommended for this intersection as part of any widening of NC 54 (see Figure 27 for a schematic plan). The traffic volumes forecast for this three-legged intersection are well-served by a roundabout of this type. Assuming NC 54 west of Mineral Springs Road is widened before the portion to the east, this roundabout will provide an effective transition.

Mebane Oaks Road/Saxapahaw Bethlehem Church Road

The ultimate design recommended for this recently-signalized intersection includes separate left-turn lanes on all approaches (see Figure 28). Additional through lanes may be needed in advance of widening. Lloydtown Road intersects Saxapahaw Bethlehem Church Road less than 100 feet from NC 54, and just over 500 feet from the Morrow Mill Road intersection. Some realignment of Lloydtown road away from NC 54 will be needed to accommodate increased traffic and improvements to the NC 54 intersection.

Pedestrian and bicycle crossing treatments (crosswalks and signals) should be incorporated at this location in the near term. This is especially important in light of the planned crossing of the Mountains-to-Sea Trail (MTS) at this location, which will increase existing bicycle and pedestrian trips already passing through this intersection. Unused NCDOT right-of-way between Lloydtown Road and NC 54 east of Saxapahaw Bethlehem Church Road could provide an opportunity for MTS trailhead parking, and possibly serve as a small park-and-ride lot for carpooling and transit service. The utility

easement to the south and any realignment of Lloydtown Road should also be considered in planning for this parking option.

This study identifies the Mebane Oaks Road/Saxapahaw Bethlehem Church Road intersection as an important node for recreational and heritage activity and related development (and protection). This context should be carefully considered in the planning and design of intersection improvements, including pedestrian and bicycle connectivity, parking availability, and even transit access.

Morrow Mill Road

A two-lane roundabout (or one incorporating bypass lanes) is recommended for this intersection in conjunction with widening of NC 54 (see Figure 28 for a conceptual diagram). A roundabout will function well at this three-legged intersection, and would provide an effective transition assuming NC 54 to the east of Morrow Mill Road is widened before the west.

Orange Grove Road

A typical signalized intersection with left-turn lanes on both approaches will provide adequate capacity at this location (see Figure 29). Additional through lanes may be needed in advance of widening. Pedestrian and bicycle crossing treatments (crosswalks and signals) should be incorporated at this location in the near term.

White Cross Road

This intersection may warrant signalization in the future, and left-turn lanes are anticipated for all approaches (see Figure 29). Appropriate pedestrian and bicycle crossing treatments should be installed in advance of eventual widening.

Dodson's Crossroad/Butler Road

A standard intersection with dedicated left-turn lanes on all approaches will be sufficient for this recently signalized location (see Figure 29). Additional through lanes may be required in advance of NC 54's widening. Pedestrian and bicycle crossing treatments (crosswalks and signals) should be incorporated at this location at the earliest opportunity.

Bethel Hickory Grove Church Road

A typical signalized intersection with left-turn lanes on both approaches will provide adequate capacity at this location (see Figure 30). Additional through lanes may be needed in advance of widening. Appropriate pedestrian and bicycle crossing treatments should be incorporated at this location in the near term.

Neville Road

This intersection may warrant signalization in the future, and left-turn lanes are anticipated (see Figure 30). Appropriate pedestrian and bicycle crossing treatments should be incorporated in advance of eventual widening. Note: NCDOT is currently investigating intersection improvements at this location.

Hatch Road

This intersection may warrant signalization in the future, and left-turn lanes are anticipated for all approaches (see Figure 30). Appropriate pedestrian and bicycle crossing treatments should be installed in advance of eventual widening. Note: NCDOT is currently investigating intersection improvements at this location.

Old Fayetteville Road

Improving operations (or even maintaining an acceptable level-of-service) in the face of traffic growth at this intersection can be achieved by adding turn-lanes and through-lanes. However, the resulting expansion of the intersection footprint will adversely impact adjoining land uses. Dual turn-lanes and increased storage lengths will be needed. The larger cross-section reduces intersection efficiency, and impedes pedestrian and bicycle crossings. Several alternate intersection designs were evaluated with respect to managing traffic delay and queue lengths, minimizing cost and ROW impacts, and promoting safe and convenient pedestrian and bicycle travel.

- A median U-turn (MUT) intersection (see Figure 30 and Figure 32) is recommended. The MUT allows through movements and right turns as in a typical intersection, but replaces direct left turns with indirect left turns via U-turns occurring on NC 54 at median cuts approximately 600 feet from the intersection. These U-turns can be signalized or unsignalized, and depending on median width and the number of lanes, additional widening in the form of bulb-outs may be required to accommodate large trucks.

Traffic wishing to turn left from NC 54 continues straight through the intersection, turning left through the median cut, then right onto Old Fayetteville Road. Left turns from the side street reverse this sequence, turning right onto NC 54, then making a U-turn before proceeding back through the intersection. Because left-turn conflicts and turn lanes are eliminated, the number of signal phases and conflict points at the primary intersection are reduced, enhancing operational efficiency and safety for all travel modes. It is also possible that median U-turns could instead be located on Old Fayetteville Road; however, this would require additional widening and bulb-outs, and could impact existing access to parcels along Old Fayetteville Road. Coordination with the pending Lloyd Farms development, additional traffic analysis, roadway design, and STIP R-5821 will be needed to determine the most appropriate design.

Special consideration of transit and school bus access and routing will be required, but this is the case for all options considered, other than—to a degree—a roundabout or a traditional intersection. It is possible that a bus-only lane and signal could be implemented at the main intersection, but it is not clear that this measure would be warranted.

- A quadrant intersection performs well overall, but requires construction of a new road in one of the northern quadrants of the intersection, resulting in excessive costs and impacts.
- The size required for a roundabout (up to three lanes in one quadrant), combined with pedestrian and bicycle impacts, eliminated a roundabout.
- The large footprint, ROW requirements, cost, access restrictions, and poor pedestrian and bicycle service disqualified a displaced left turn intersection.

Intersection Level-of-Service

Table 21 summarizes 2045 peak-hour levels-of-service by intersection and approach for each of the improved intersections. All primary intersections operate at LOS C or better; the only exception is the median U-turn east of Old Fayetteville Road during the morning peak period. This is due to the heavy eastbound flow of traffic.

Table 21: 2045 Build Intersection LOS and Delay

Intersection and Approach	Traffic Control	2045 LOS & Avg Delay/Veh (sec) AM	PM
NC 54 & Woody Drive	Signalized	**C (24.8)**	**C (21.6)**
Eastbound		C-20.1	B-18.2
Westbound		C-20.7	C-21.8
Northbound		D-53.8	D-37.0
Southbound		D-47.0	C-32.3
NC 54 & NC 119 / East Main Street	Signalized	**C (32.5)**	**B (16.7)**
Eastbound		C-31.6	B-13.6
Westbound		B-19.2	B-11.9
Northbound		C-30.8	B-15.3
Southbound		D-53.6	C-29.1
NC 54 & EB U–Turn (East of NC 119)	Signalized	**B (10.8)**	**A (8.1)**
Eastbound		A-4.2	A-4.6
Westbound		C-23.8	B-11.3
NC 54 & WB U–Turn (West of NC 119)	Signalized	**A (5.9)**	**A (4.8)**
Eastbound		A-8.7	A-8.8
Westbound		A-3.1	A-2.1
NC 54 & Mt Willen Road / Salem Church Road	Signalized	**B (18.8)**	**B (11.5)**
Eastbound		C-20.5	A-6.3
Westbound		A-7.4	B-10.5
Northbound		D-37.9	C-25.6
Southbound		C-26.1	C-32.7
NC 54 & Mebane Oaks Road / Saxapahaw Road	Signalized	**C (34.5)**	**C (21.8)**
Eastbound		C-30.7	A-3.1
Westbound		D-35.9	B-19.8
Northbound		C-28.6	D-48.2
Southbound		D-52.4	D-48.0
NC 54 & Orange Grove Road	Signalized	**B (15.5)**	**B (16.2)**
Eastbound		B-17.7	A-3.5
Westbound		A-2.9	B-18.0
Southbound		D-47.3	D-45.1
NC 54 & Dodsons Crossroads / Butler Road	Signalized	**B (16.7)**	**B (15.4)**
Eastbound		B-12.4	A-9.4
Westbound		B-12.8	B-14.2
Northbound		C-29.2	D-37.7
Southbound		E-56.3	D-44.3
NC 54 & Bethel Hickory Church Rd	Signalized	**C (21.0)**	**B (10.6)**
Eastbound		C-24.6	A-8.2
Westbound		A-1.4	A-7.9
Southbound		E-72.3	D-39.9
NC 54 & Old Fayetteville Road	Signalized	**B (17.0)**	**B (15.8)**
Eastbound		B-12.0	A-7.7
Westbound		B-12.5	B-15.4
Northbound		C-23.7	C-23.1
Southbound		C-34.2	C-23.4
NC 54 & EB U–Turn (East of Old Fayetteville Road)	Signalized	**D (47.8)**	**A (6.0)**
Eastbound		E-55.3	B-12.1
Westbound		D-36.4	A-4.2
NC 54 & WB U–Turn (West of Old Fayetteville Road)	Signalized	**A (7.8)**	**B (19.2)**
Eastbound		A-6.6	B-13.0
Westbound		B-10.4	C-23.1

5.3 Watershed and Environmental Protection Rules

The NC 54 West corridor sections in Alamance and Orange Counties fall within the Jordan Lake Watershed. To prevent pollution entering upstream and restore drinking water quality to the Jordan Reservoir, the Jordan Lake Nutrient Strategy was implemented in August 2009. The rules focus on reducing nutrient discharges from various sources, including stormwater from new and existing development. The Nutrient Strategy requires any new land development projects above a minimum size requirement to develop stormwater management plans that ensure best management practices (BMP) to handle stormwater and outflows of nitrogen and phosphorus. Buffer and stormwater permitting authority may involve a local government, county, or the NC Department of Water Resources depending on the affected site location. These plans must be approved before new development is allowed. Similarly, there are nutrient load reduction targets for existing developments as well. In addition to requirements for development activity, there are requirements for stormwater BMP for new or improved roadway sections to ensure that increased roadway surfaces do not increase nutrient loads. These rules and requirements are proven strategies to improve water quality downstream in Jordan Lake. They also impose new costs on development by adding costly stormwater management strategies. This can increase the time for approval of site plans as well as increasing development costs and reducing the amount of land on a parcel which can be developed. Further, it may lead to changes in roadway design to accommodate a stormwater BMP. The roadway improvements envisioned in this plan were not evaluated specifically in response to the Jordan Lake Strategy; this will need to be considered and implemented in the design phase for any roadway improvements and for the associated construction impacts.

6 Implementation

6.0 Implementation

This report chapter describes the recommended construction timeframes, phasing, estimated costs, and supporting initiatives and policies to achieve the NC 54 West corridor vision by the year 2045.

Implementation of any project recommendation entails a lengthy process of detailed studies identifying impacts and refining designs. This is especially true of a project of this magnitude, which will be implemented in a series of phases over many years. Adjustments will be needed to accommodate unanticipated variations in land use, travel demand, and policy and funding priorities. Estimates of probable costs are especially vulnerable to uncertainty, due both to variations in construction and right-of-way costs, and to design changes. Design decisions cannot be finalized until late in project development and construction, with the documentation of environmental impacts in the NEPA and SEPA (National and State Environmental Policy Acts) process being a critical point in this regard.

6.1 Potential construction phasing

Project recommendations are grouped in geographic segments for construction phasing (see Figure 33). Based on traffic forecasts, the range of years when practical capacity should be exceeded is identified along the entire corridor; this determines by when the recommended widening and related improvements should be complete. Since this implementation year varies by location, rational segments are defined and assigned to four, overlapping ten-year phases:

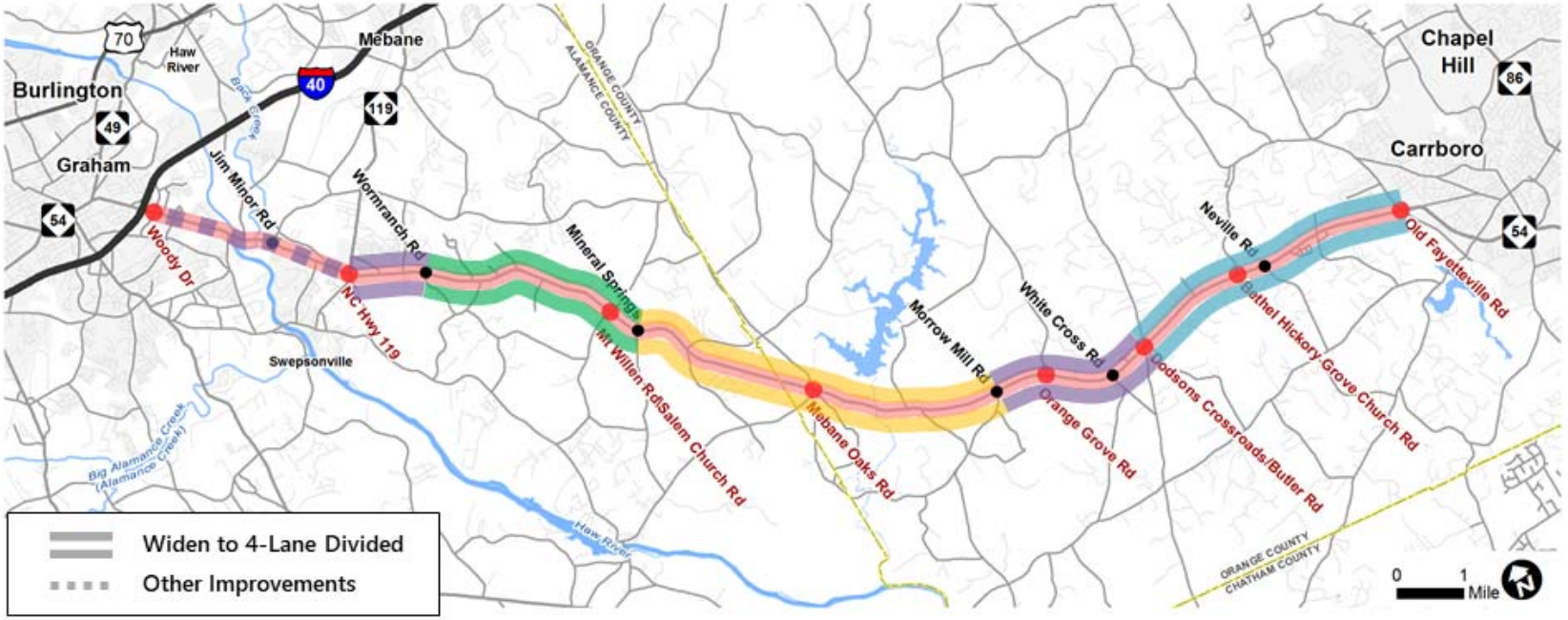
- Phase 1: 2020-2030
- Phase 2: 2025-2035
- Phase 3: 2035-2045
- Phase 4: 2040-2045+

This widening schedule is preliminary, and reflects reasonable assumptions about overall conditions within each corridor segment; while capacity may be substantially exceeded in some locations, conditions may be acceptable or only marginally deficient in others. However, it is neither practical nor desirable to construct numerous small-scale widenings, since this is less cost-effective, more disruptive, and less safe and efficient due to numerous cross-section transitions. While there is some flexibility in defining segment limits, the proposed phasing attempts to align minimum feasible segments with anticipated traffic growth and capacity deficiencies, while considering safety issues and providing effective transition points.

The proposed phasing scheme does not explicitly consider funding availability, or constraints associated with prioritization and programming. There are currently two P5.0 submitted widening projects in the study area. These include H141391, which would widen NC 54 from Orange Grove Road to NC 119, and H140374-A, which would widen NC 54 from Old Fayetteville Road to Orange Grove Road. Assuming a project is successfully submitted to SPOT 6.0 in 2019, completion is unlikely before 2030, or the end of Phase 1. Even completing significant "interim" improvements such as intersection widenings within Phase 1 will require an aggressive schedule. The potential cost-effectiveness of these projects could be jeopardized if they are not carefully coordinated with the subsequent widening, especially if that widening occurs only a few years later. Achieving such a "seamless" implementation will require more detailed design of the ultimate four-lane cross-section and alignment in advance of the interim improvements, so a sense of urgency is warranted.

Although intersection projects and other improvements (such as turn lanes and wider shoulders) can provide localized interim benefits, they do not address the growing capacity and safety deficiencies of the existing two-lane cross-section. Significant portions of NC 54 are already operating at LOS E or worse during at least one peak hour; these segments experienced a surge in traffic growth in the last two-to-three years, and continued growth is anticipated. Even with suggested interim improvements, conditions will deteriorate along the corridor, especially along lengthier segments between improved intersections.

Figure 33: Proposed Phasing for NC 54 Widening





6.2 Funding Pedestrian and Bicycle Facilities

The pedestrian and bicycle recommendations in Chapter 5 are based on design and cost considerations. However, current NCDOT policy does not treat all facilities the same in terms of funding. These differences in funding eligibility are substantial enough that they can determine the viability of a specific facility type or design in jurisdictions dependent on NCDOT participation to pay for construction, and even maintenance. In such cases, design compromises may be needed if the project is to have a realistic chance for implementation, especially within a given timeframe.
Bicycle and pedestrian facilities may be added along a roadway either incidental to a roadway improvement or as an independent project. The North Carolina Strategic Transportation Investments (STI) law requires NCDOT to rank highway improvement projects (such widening, upgrades, or a new alignment) separately from independent bicycle or pedestrian projects.

NCDOT may work with a local agency to determine and construct bicycle or pedestrian improvements as part of the roadway project. Otherwise, local agencies may apply for federal funding to add bicycle or pedestrian improvements separate from a roadway project.

NCDOT policy currently allows the Department to pay for and maintain all improvements within the curb or edge of pavement, including wide shoulders and bicycle lanes. When separated by a curb, swale, or vertical element, the Department may require the local jurisdiction to acquire additional right-of-way, share in the cost of construction, and maintain the separated bicycle or pedestrian facility (such as a sidewalk or shared use path). Despite these costs, incidental bicycle and pedestrian improvements are often less expensive than constructing the same improvements through an independent project.

In August 2019, the NCDOT Board of Transportation adopted an updated Complete Streets Policy that requires NCDOT planners and engineers to consider and incorporate multimodal facilities in the design and improvement of all appropriate transportation projects in the state. Under the new policy, pedestrian, bicycle, and public transportation projects within adopted state, regional, or local transportation plans will be included as part of the proposed roadway project.[1] When a facility is included in an adopted plan, NCDOT is expected to pay the full cost of the Shared-Use path, for example, including right-of-way, as part of a larger roadway project (Table 22). This financial arrangement could

[1] North Carolina Department of Transportation, *Memorandum: Complete Streets Policy Guidance*, 30 August 2019, https://connect.ncdot.gov/projects/Roadway/RoadwayDesignAdministrativeDocuments/CS%20Policy%20Update%20Memo%20Secretary%208.28.19.pdf

prove beneficial to the development of this study's recommended SUP in coordination with the recommended phased widening, should the updates be reflected in an adopted plan. In instances where the project is not included in a plan or is considered a betterment, cost share requirements apply (Table 23). The policy allows exceptions to a project's inclusion, and the policy's newness may lead to updates and clarifications on implementation and what constitutes an adopted plan, among other issues.

Table 22 - Complete Streets Cost Share

Complete Streets Cost Share			
Facility Type	**In Plan**	**Not in Plan, but Need Identified**	**Betterment**
Pedestrian Facility	NCDOT pays full	Cost Share	Local
Bicycle Facility	NCDOT pays full	NCDOT pays full	Local
Side Path	NCDOT pays full	Cost Share	Local
Greenway Crossing	NCDOT pays full	Cost Share	Local
Bus Pull Out	NCDOT pays full	Cost Share	Local
Bus Stop (pad only)	NCDOT pays full	Cost Share	Local

Table 23 - Complete Streets Betterment Cost Share

Betterment Cost Share		
	Cost Participation	
Municipal Population	**NCDOT**	**Local**
>100,000	80%	20%
50,000 to 100,000	85%	15%
10,000 to 50,000	90%	10%
< 10,000	95%	5%

However, there are several reasons why a local agency may choose to add bicycle and pedestrian improvements in advance of or separate from a roadway improvement. The roadway project may not be scheduled for design and construction for many years after a future need has been identified. This delay may not be acceptable to an agency whose interest is to provide a connected and safe network for cyclists and pedestrians as soon as possible.

Local agencies must also consider maintenance of separated facilities such as shared use paths, sidewalks, and separated bicycle lanes, regardless of funding options. Under current NCDOT policy, local governments sign an agreement to maintain separated facilities when constructed within NCDOT right-of-way. If the facility is outside an incorporated area, then either a County government or nearby city must assume maintenance responsibilities

6.3 Estimates of Probable Costs

Probable costs have been estimated for the entire set of recommendations for the NC 54 West Corridor Study. The basic cost consists of construction, design and engineering, contingency and other costs directly related to roadway widening (e.g. generalized utility relocation costs), intersection improvements, signalization, bridge replacement, traffic control devices, shared-use paths, and pedestrian crossings. More details are provided in the project phase descriptions below, and in the Appendices. Not included in these estimates are costs associated with purchasing rights-of-way and residential or commercial structures, relocations, loss of use, landscaping, or extraordinary stormwater treatment costs.

Note that these recommendations and their timing are focused on the estimated years by which the entire package of improvements will be needed. Interim steps can be taken earlier, depending on the situation. It must also be emphasized that costs are based on planning-level analysis, and incorporate large contingency factors. Detailed design work is needed to refine cost estimates to be more precise and reliable.

Estimates are expressed in constant 2018 dollars, and various subtotals may not add up precisely due to rounding.

The probable cost of the entire package of widening improvements described totals just under **$180 million**. The costs are divided nearly equally between counties:

Alamance County: **$ 79 million (say $ 80 million)**

Orange County: **$ 99 million (say $100 million)**

Summing costs by planning organization yields the following subtotals:

BGMPO: **$ 80 million**
TARPO: **$ 56 million**
DCHC MPO: **$ 44 million**

A more detailed breakdown by project segment (from west to east) and phase follows.

6.3.1 Segment Subtotals

Segment 1: Woody Drive to NC 119/East Main Street (Phase 2: 2025-2035)

This segment does not require roadway widening, but will need intersection improvements. These projects can be implemented incrementally, based on traffic conditions and future development. The major cost is associated with an admittedly aggressive level of sidewalk and SUP construction. This cost represents the high end of what might actually be implemented.

$ 2,800,000 – Intersection improvements, including pedestrian crossings
$ 500,000 – Sidewalks
$ 4,600,000 – Shared-Use Path, including bridge improvements
$ 7,900,000 – Segment 1 Total

Segment 2: NC 119/East Main Street to Wormranch Road (Phase 2: 2025-2035)

Recommendations for this portion of the corridor are likely to be implemented as a single project, rather than piecemeal, and could occur before many of the improvements to the east are realized. Adjacent development will play a major role in the timing and specific type of improvements, and may even result in participation in construction or ROW dedication.

$ 9,200,000 – Widening to 4-lane divided

$ 2,800,000 – MUT Intersection at NC 119/East Main Street
$ 2,600,000 – Roundabout at Wormranch Road
$ 1,800,000 – Shared-Use Path
$16,400,000 – Segment 2 Total

Segment 3: Wormranch Road to Mineral Springs Road (Phase 3: 2035-2045)

The greatest uncertainty in estimating improvement costs in this part of the corridor involves the necessary widening or replacement of the bridge over Haw Creek. In fact, avoiding this commitment played a major role in deciding to terminate Segment 2 improvements at Wormranch Road. The extent of intersection improvements at Mt Willen/Salem Church Roads is another source of uncertainty. These improvements could be implemented in advance of other recommendations, and the shared-use path could be built before or after, depending on priorities and funding availability. The Mt Willen Rd/Salem Church Rd intersection could also serve as the eastern terminus of an initial stage of the recommended widening in this segment of NC 54.

$25,000,000 – Widening to 4-lane divided
$ 2,200,000 – Haw Creek bridge widening
$ 1,000,000 – Intersection improvements at Mt Willen Rd/Salem Church Rd
$ 2,600,000 – Roundabout at Mineral Springs Road
$ 4,600,000 – Shared-Use Path
$35,400,000 – Segment 3 Total

Segment 4: Mineral Springs Road to Morrow Mill Road (Phase 4: 2040-2045+)

Based on traffic forecasts and on the rural nature of this portion of the corridor, this set of recommendations should be the last requiring implementation. However, improvements at NC 54 and Mebane Oaks/Saxapahaw-Bethlehem Church Roads could happen sooner, especially in conjunction with a proposed MTS Trail crossing and trailhead/park-and-ride lot. The Mebane Oaks/Saxapahaw-Bethlehem Church Road intersection also provides a logical break point for subdividing this widening project into two stages.

Other key observations:

- Constructing a 4-lane divided NC 54 through this segment requires widening or replacement of the existing Cane Creek bridge, a source of uncertainty in estimating probable costs without more detailed analysis and design.
- A moderate increase in anticipated development along (or just off) this part of the corridor could accelerate the need for widening.

Since this segment crosses the county line, cost estimates are further subdivided to provide totals by county:

Alamance County:

$16,400,000 – Widening to 4-lane divided
$ 3,100,000 – Shared-Use Path
$19,500,000 – Segment 4: Alamance County Subtotal

Orange County:

$23,000,000 – Widening to 4-lane divided
$ 2,200,000 – Cane Creek bridge
$ 2,600,000 – Roundabout at Morrow Mill Road
$ 1,800,000 – Intersection improvements at Mebane Oaks/Saxapahaw-Bethlehem Church Roads (includes Lloydtown Road realignment and MTS trailhead improvements)
$ 3,100,000 – Shared-Use Path
$32,700,000 – Segment 4: Orange County Subtotal

$52,200,000 – Segment 4 Total

Segment 5: Morrow Mill Road to Dodsons Crossroads/Butler Road (Phase 2: 2025-2035)

Miscellaneous intersection improvements at Orange Grove Road, White Cross Road, and Dodsons Crossroads/Butler Road could be warranted in advance of the proposed widening to a 4-lane divided roadway. These or other improvements (such as additional/longer turn lanes or wider shoulders) could be implemented by 2022 under STIP project R-5821A, which is currently assessing operational improvements east of Orange Grove Road.

The suggested Phase 1 widening east of Dodsons Crossroads/Butler Road could be extended farther west, to White Cross Road or Orange Grove Road, if funding is available.

$18,100,000 – Widening to 4-lane divided
$ 600,000 – Intersection improvements at Orange Grove Road
$ 400,000 – Intersection improvements at White Cross Road
$ 1,000,000 – Intersection improvements at Dodsons Crossroads/Butler Road
$ 3,300,000 – Shared-Use Path
$23,400,000 – Segment 5 Total

Segment 6: Dodsons Crossroads/Butler Road to Old Fayetteville Road (Phase 1: 2020-2030)

The current DCHC 2045 MTP does not include any widening of NC 54 west of Old Fayetteville Road, so the improvement cannot be submitted for STIP consideration without an MTP amendment that meets fiscal constrained requirements. This project could instead be added in the 2050 MTP update; however, this would preclude construction before 2030. Some interim improvements could be implemented as "operational improvements" included in the current MTP, although funding for these projects would be limited.

The most critical element of this segment is the Old Fayetteville Road intersection improvement. The recommended conversion to a median U-turn configuration interacts significantly with the anticipated mixed-use development in the northeast quadrant of the intersection, potentially affecting the timing, coordination, design and even funding of this project. Access management should be a priority, and any interim improvements should carefully consider long-range expansion needs. U-6071 is currently studying improvement options for the intersection of Old Fayetteville Road and NC 54. Construction is scheduled for 2026. However, the pending mixed-use Lloyds Farm development could result in improvements prior to 2026. Coordination between these two projects is ongoing, addressing vehicular access and circulation, bicycle and pedestrian accommodations, and intersection improvements.

It is recommended that any intersection improvements at Old Fayetteville Road also consider the entrance of Henry Anderson III Community Park, about 2,000 feet west, and address pedestrian and bicycle access at and between these two intersections. This segment of shared-use path is being considered for inclusion in the upcoming STIP, and appears very competitive for funding under SPOT 5.0.

Improvements to intersections at Hatch Road, Neville Road, and Bethel Hickory Road could be initiated in advance of the overall widening project. These or other improvements (such as additional/longer turn lanes or wider shoulders) could be

implemented by 2022 under STIP project R-5821A, which is currently assessing operational improvements east of Orange Grove Road. Additional improvements may also be warranted at some point after the initial widening.

$32,500,000 – Widening to 4-lane divided
$ 700,000 – Signalization and intersection improvements at Bethel Hickory Church Road
$ 400,000 – Intersection improvements at Neville Road
$ 800,000 – Intersection improvements at Hatch Road
$ 3,000,000 – Intersection improvements at Old Fayetteville Road
$ 5,800,000 – Shared-Use Path
$43,200,000 – Segment 6 Total

6.3.2 Phase Subtotals

For financial programming purposes, total project costs associated with each proposed phase of the NC 54 widening are summarized below, broken down by county, as well. These costs represent the sum of all identified improvements, even though some may be implemented earlier than the defined phase.

$43,200,000 – Phase 1 Subtotal (Orange County)

$47,700,000 – Phase 2 Subtotal
$24,300,000 – Phase 2: Alamance County
$23,400,000 – Phase 2: Orange County

$35,400,000 – Phase 3 Subtotal (Alamance County)

$52,200,000 – Phase 4 Subtotal
$19,500,000 – Phase 4: Alamance County
$32,700,000 – Phase 4: Orange County

6.4 NC 54 West Council of Planning

The governing bodies with jurisdiction in or near the NC 54 West Corridor may elect to form a Council of Planning to help implement the ideas contained in this report and aid in the full implementation of the final corridor vision. The basic premise of a Council of Planning is a voluntary group (also referred to as a workgroup) comprised of staff from the local jurisdictions who work cooperatively with developers to ensure their developments are compatible with the planned roadway improvements. For a NC 54 West Council of Planning, staff from Graham, Carrboro, BGMPO, DCHC MPO, TARPO, NCDOT, Alamance and Orange Counties would meet on an as-needed basis to review new land development plans. The review would examine development site plans to ensure that they are compatible with the planned roadway cross-section for NC 54 at the site of the development, including examining building location, parking configuration, ingress/egress, site landscaping, stormwater management, and other site design elements. The Council of Planning makes any recommendations regarding the site plan and forwards these to the local government with jurisdiction for their consideration. This review would not aim to be a regulatory hurdle and would not give Council of Planning members authority to approve or deny development applications in other jurisdictions. In no way would a Council of Planning restrict or remove development approval authority from the local jurisdiction. The US 1 Corridor in Wake and Franklin counties uses a Council of Planning, which has been successful.

6.5 Local Ordinances and Statutes

Successfully implementing the proposed set of recommendations for the NC 54 West Corridor requires, in part, coordinating land use and transportation together and managing project costs. Allowing development to occur uncoordinated with roadway improvements can lead to higher costs in the long run, project delays, and complications. Many counties and municipalities require developers to construct parts of roadways during rezoning or site plan approval processes, or at the very least to tailor site plans to accommodate future roadway plans. This can be accomplished without antagonizing developers or dampening development, and can even be positive for developers by ensuring their developments will be viable even when changes to the roadway occur.

There are several different policies, strategies, and local ordinance examples that have been successful at getting developer exactions and making sure new development is compatible with long-term roadway plans. The times when municipalities and counties have the most leverage to require developers to make concessions or accommodate future roadway plans are at the time of rezoning and during site plan review. An important note is that any concessions required should be rational and proportional to the size and scale of the development, so as not to discourage development. Table 24 includes several examples of these policies and ordinances, but the specifics of policies and the mix of policies will be up to local jurisdictions to find those that best fit their situation and goals.

These are only brief descriptions of several policies and ordinances that could help localities exact some roadway improvements from a developer to realize the NC 54 West Corridor vision. These are not meant to overburden the developer but rather to protect existing and future residents by making sure new development does not place an undue burden on shared public resources. The exact mix of policies and ordinances will need to be decided by each regulatory entity, but the goal is to create collaborative processes that offer developers incentives in exchange for land, site configuration, or infrastructure.

Table 24: Planning and Land Use Policies

Planning and Land Use Tool	Description
Require traffic studies at rezoning	Rezoning is the time when municipalities have the most leverage to ask for concessions from developers. Requiring a traffic study allows municipalities to negotiate for transportation improvements before a site plan is even created. For a developer, traffic studies at this stage allow for greater transparency at the site plan review stage.
Require traffic management plans for large developments	New developments that meet certain unit, acreage, or square footage levels could be required to complete traffic management plans which may include constructing elements of roads in accordance with plans.
Require CTP improvements at time of site or subdivision plan	A developer may be required to tailor their development to construct CTP road improvements or at least to accommodate future CTP road improvements at the time of site plan review in order to have the site plan accepted.
Transportation development fees	The legality of some transportation development fees has been challenged recently, but there still may be instances when a developer could be asked to provide funds for transportation as part of development approval.
Create an Access Management Overlay District	A new zoning type that could be overlaid on a district could carry with it additional access management requirements that would trigger during development or redevelopment.

Driveway delineation, consolidation, or permitting	NCDOT has driveway guidance and the municipality could work to enforce driveways during zoning or site plan review by requiring permitting or negotiating for driveway consolidation.
Require stub out streets for developments	Aimed primarily at subdivisions, requiring stub out streets (incomplete and unconnected street ends) can improve future connectivity as more greenfield parcels develop and new roads connect to the stubs.
Site design guidelines	Guidelines could be set for a variety of site criteria that may affect future road improvements, but common requirements are for layout, building orientation, parking configuration, landscaping, screening, and lighting.
Shared stormwater management	Instead of requiring individual parcels and developments construct stormwater management systems for their own parcels, fees could be paid by several developments to construct joint stormwater systems, potentially saving money and creating better stormwater management.
Land swaps	Right of way or municipal land could be swapped with a developer in exchange for the development providing right of way for the planned roadway improvements.

7 Appendices

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Land Use Analysis

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Land Use Analysis

Market & Economic Assessment – Addendum to Report

1.1 Introduction

In support of the NC 54 West Corridor transportation goals as defined by lead consultant VHB, we conducted a series of analyses to identify the optimum approach to address land uses, public improvements and development strategies to assist in creating a dynamic and economically sustainable corridor. This introduction outlines the study purpose, context and our methodologies.

1.1.1 Study Purpose

Market and economic analysis helps to set the stage for the NC 54 West Corridor Study, as we evaluate the various clusters of activity along the corridor and determine the capacity for future growth of housing, retail, office, industrial, civic and other uses that will impact transportation and future capital projects. Our work includes three phases:

Phase I – Discovery and Investigation. We collect data from both public and proprietary sources at various geographic levels. In support of the corridor study, the market analysis builds upon prior studies produced by the respective municipalities and counties, including but not limited to:

- Orange County 2030 Comprehensive Plan
- The Graham 2035 Comprehensive Plan
- Town of Carrboro Zoning Ordinance

Meetings and interviews were also conducted with study team and stakeholders, based upon a list compiled by the study team.

Phase II - Market & Economic Analysis. The outcome of the Phase I work leads us to key indicators which determine land uses, nodes or zones, and programmatic themes. The analysis assists in framing an outline plan that is market driven and subject to industry best practices.

Phase III – Corridor Strategies & Implementation. This is prescriptive, with tools and resources for implementation.

1.1.2 Methodologies

This market analysis incorporates both macro and micro data and trends. Therefore, it should not be considered in a broad sense or used for any other purpose other than for the study area. The analyses and forecasting of market data which includes demographic and population estimates, together with real estate, economic and employment estimates, is both art and science. All market research analysts begin with US Census Bureau data – which has limitations as to accuracy and timeliness. Nonetheless, the data provides a benchmark as much for a retrospective look as a prospective one. Three factors must be considered when looking exclusively at demographic data: the role of economic drivers that are a departure from past trends; growth from primary centers spilling over into outlying areas (i.e., "sprawl"); and constraints due to availability of land physically and legally suited for such development. Therefore, several methodologies are utilized throughout this report, including but not limited to, Economic Base Analysis, Highest & Best Use Analysis and Central Place Theory. They are described as follows:

Economic Base Analysis is used to determine real estate demand. The underlying theme suggests that jobs drive demand for real estate: in other words, for every (basic) job that is created, a multiplier effect increases overall employment (both basic and non-basic), thus increasing both population and income within an area benefiting from such job growth. The corresponding growth (or decline) in jobs, population and income correspond to demand for commercial and residential uses of real estate. Employment and industry data is often defined by traditional Standard Industry Classification (SIC). However, the North American Free Trade Agreement (NAFTA) expanded these classifications to the North American Industrial Classification System (NAICS), which provides both two-digit sector and three-digit sub-sector data for analysis.

Highest & Best Use is used to determine the most appropriate use of land, given the underlying economic base. It is site specific. Highest & Best Use, as defined in *The Dictionary of Real Estate Appraisal*, is:

> ***The reasonably probable and legal use of vacant land or an improved property, which is physically possible, appropriately supported, financially feasible, and that results in the highest value. The four criteria the Highest & Best Use must meet are legal permissibility, physical possibility, financial feasibility and maximum profitability.***

Using the Highest & Best Use concept, a site is analyzed "As if Vacant." The premise of the concept is that an analysis of all reasonable alternative uses will identify the use that yields the highest present land value, after payments are made for labor, capital, and coordination, and, therefore, is the Highest & Best Use.

Central Place Theory (CPT) is utilized to evaluate commercial feasibility and trade areas. It can also be used for certain types of non-traditional housing, such as senior or student housing, whose locations are dependent upon central places, such as a hospital or university. The underlying theme of CPT is that the location decision of commercial establishments is driven by rent maximizing forces. That is, providers of goods and services will locate where they believe they can maximize profits. CPT suggests that certain locations are more "desirable" than others, primarily due to the location of existing businesses that are already attracting customers. This means that there are "central places" with varying degrees of magnitude that attract such customers. The fundamental theme of CPT is that commercial locations are spatially interdependent, implying that growth is not random, but ordered and rational. Therefore, CPT relies on three basic concepts:

- Threshold Population
- Higher vs. lower order of goods and services
- Trade area or "range" of goods and services

· Threshold population: Businesses need a certain number of customers to break even. The threshold refers to the number of persons or households of a target customer group. When the population density is known, this can be expressed in terms of a trade or service area. Most employers and retailers know their threshold population and it is common for them to specify minimum site requirements in terms of population, households, and workforce or customer type (by age, income, occupation, etc.) within certain radial or drive-time areas around a site. The trade area for this analysis includes typical benchmarks for determining threshold consumer or employee populations.

· Higher vs. lower order of goods and services: Goods and services with low thresholds are called lower order of goods (i.e., gas stations, eating/drinking establishments, beauty salons, etc.), also referred to as convenience-oriented locations. Those with high thresholds are called higher order of goods (i.e., shopping malls, hospitals, office parks, etc.), also referred to as destination-oriented locations. The location of higher order goods and services may influence the location of lower order goods and services. This is often seen where retail/office uses will cluster together around certain centers of influence such as regional malls, large shopping centers, hospitals and business parks or major employment centers.

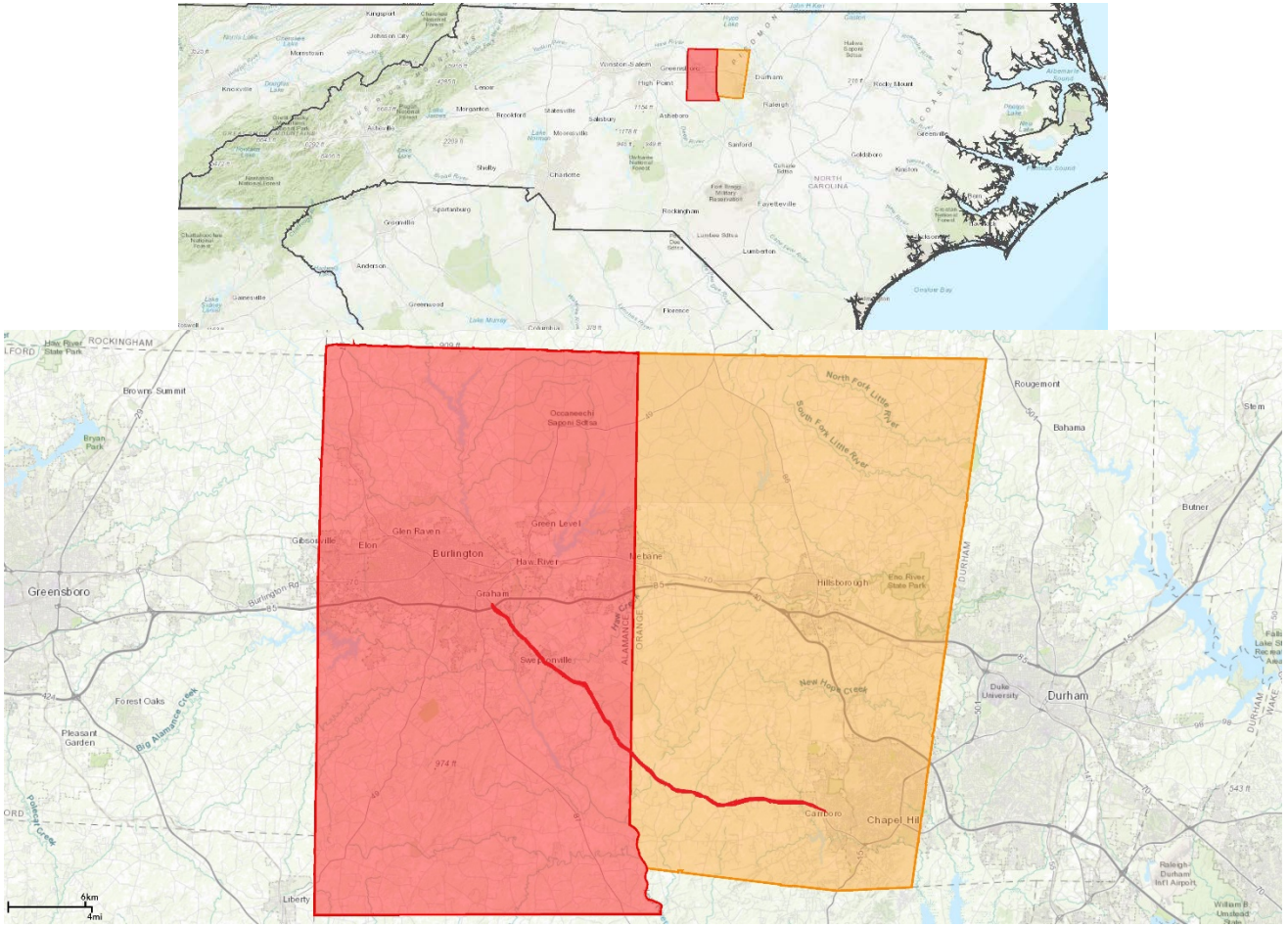
· Trade area or "range" of goods and services: Demand for a good or service is constrained to a limit or "range" (measured in terms of distance or drive time) beyond which customers will not travel to a specific store location. Therefore, demand for most goods/services decreases with distance or travel (drive) time from a retail/commercial location. The existence of competitors diminishes the range and more accurately determines the actual market area for a good or service. The market or trade area will also vary according to street patterns and population density. However, not all businesses seek to maximize distance from competitors, but rather cluster together to attract more customers per business than if they were to distance themselves from each other.

Together, these concepts determine that a business seeking to maximize accessibility and profits will select one location over another and be willing to pay higher (or lower) rents for a specific location.

Qualitative Research includes data and anecdotal information obtained through interviews with the client, municipal staff, stakeholders and other relevant sources. Our research includes phone or in-person conversations with some or all of those provided on a list compiled by the client.

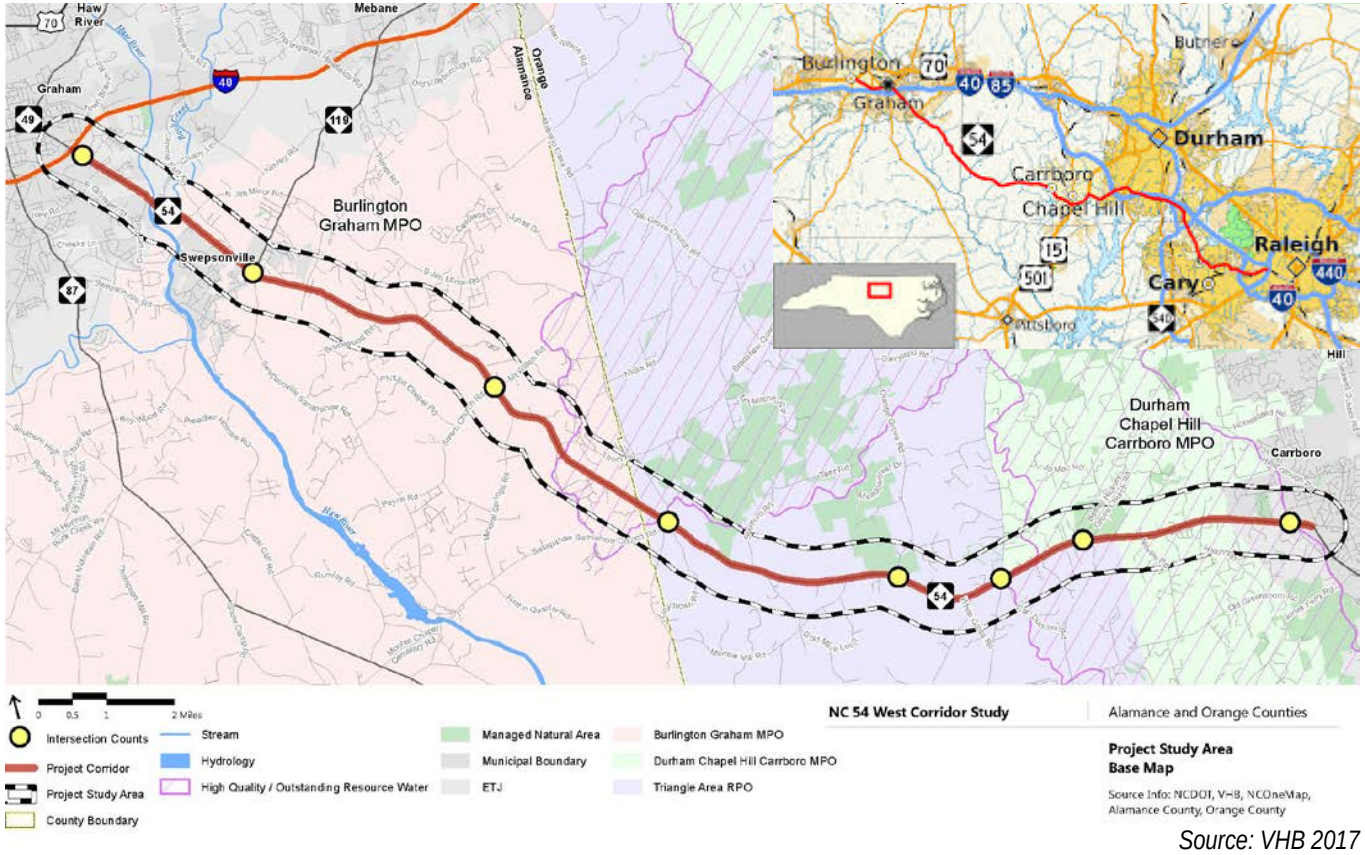
1.1.3 Study Area and Context

The NC 54 Corridor Study begins at the I-40/85 interchange in the City of Graham at Exit 148, traveling southeast from the interstate and stretches 20+ miles, ending at the intersection of Old Fayetteville Street in the Town of Carrboro. The corridor provides a diverse backdrop, crossing the line between Alamance and Orange counties, with smaller municipalities such as Saxapahaw and Swepsonville located in the center of the corridor, or just outside the study area. While the corridor primarily serves as an alternate, more scenic rural route to the Carrboro/Chapel Hill area, it also supports local commuters between these two metropolitan areas of Burlington and Durham-Chapel Hill, as well as visitors and other users traveling to and through the area for recreation.



Alamance and Orange Counties - NC 54 Corridor *Source: Rose Associates, ESRI 2017*

The Study Area shown below includes a half mile buffer along the route of the corridor which includes commercial, residential, agricultural and recreational uses. The key intersections highlighted serve as primary placeholders used for transportation analysis and as markers for market and economic development assessment.



Source: VHB 2017

1.2 Executive Summary

This section summarizes the data and findings of Rose & Associates Southeast, Inc. related to existing conditions, demographics, economics, land use and the real estate market associated with the NC 54 Corridor. The evaluation of the market to determine land uses and a viable corridor project strategy begins with a few simple questions:

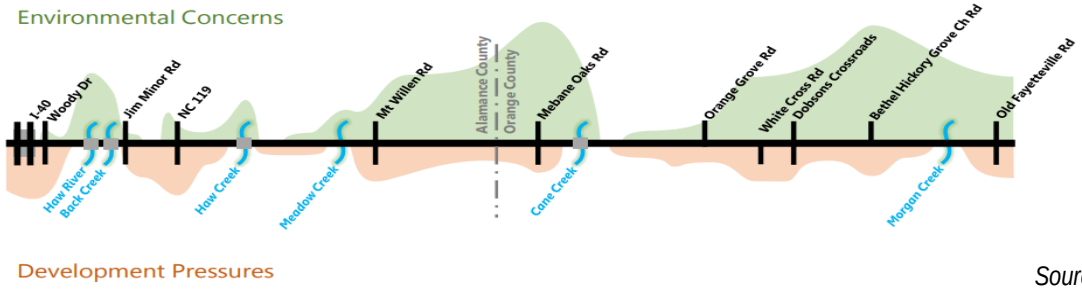


Source: VHB 2017

- Who is the customer? Customers using the corridor include farmers, residents, visitors, medical patients, employees, students and other commuters.
- What are we trying to attract – or preserve? Preservation of the natural resources and landmarks along the corridor is a primary objective, while providing services to its users.
- Where do people want to go? They are traveling to work, to school, to visit parks and other locations along the corridor. And they are traveling through to other destinations.
- When and how should we take action? As the funding, the market and communities dictate, to provide convenient and safe passage to, and through, the region.
- Why does it matter? Balancing the interests of transportation, land use, real estate and economic and community development is a challenge that requires collaboration by the public and private sectors.

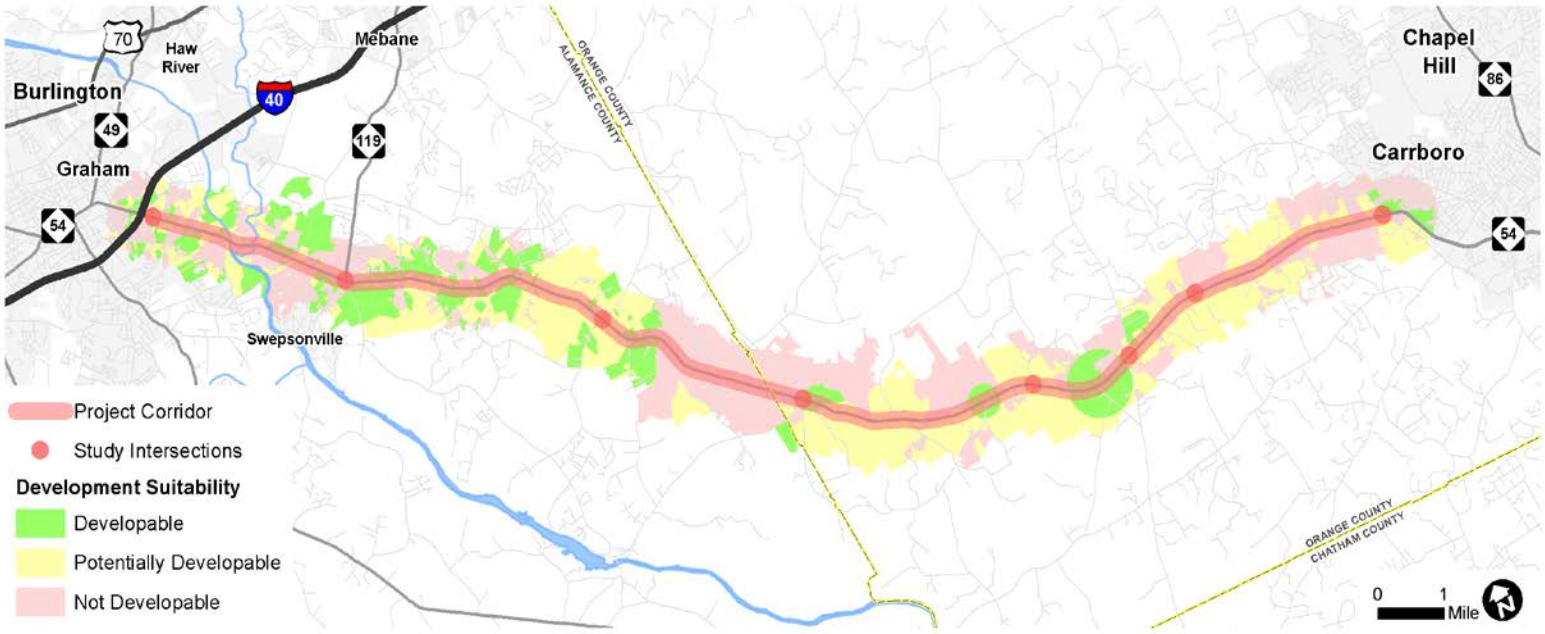
1.2.1 Existing Conditions

The corridor currently serves as an alternative route and *drive through* for those commuting between the Burlington and Durham-Chapel Hill metropolitan areas. It also serves as a destination for bicyclists and recreational visitors. Analysis, together with interviews with the study team and stakeholders, sets the vision of what is to become and what is to remain, given the corridor's strategic location and development pressures, as well as its physical, regulatory and environmental constraints.



Source: VHB 2017

A significant portion of the corridor is located within the confluence of the Cane Creek, University Lake and the Haw River watersheds. Therefore, preserving the natural resources and rural character enjoyed by both local residents and visitors is a key objective of this study. The map below highlights the development constraints along the corridor:



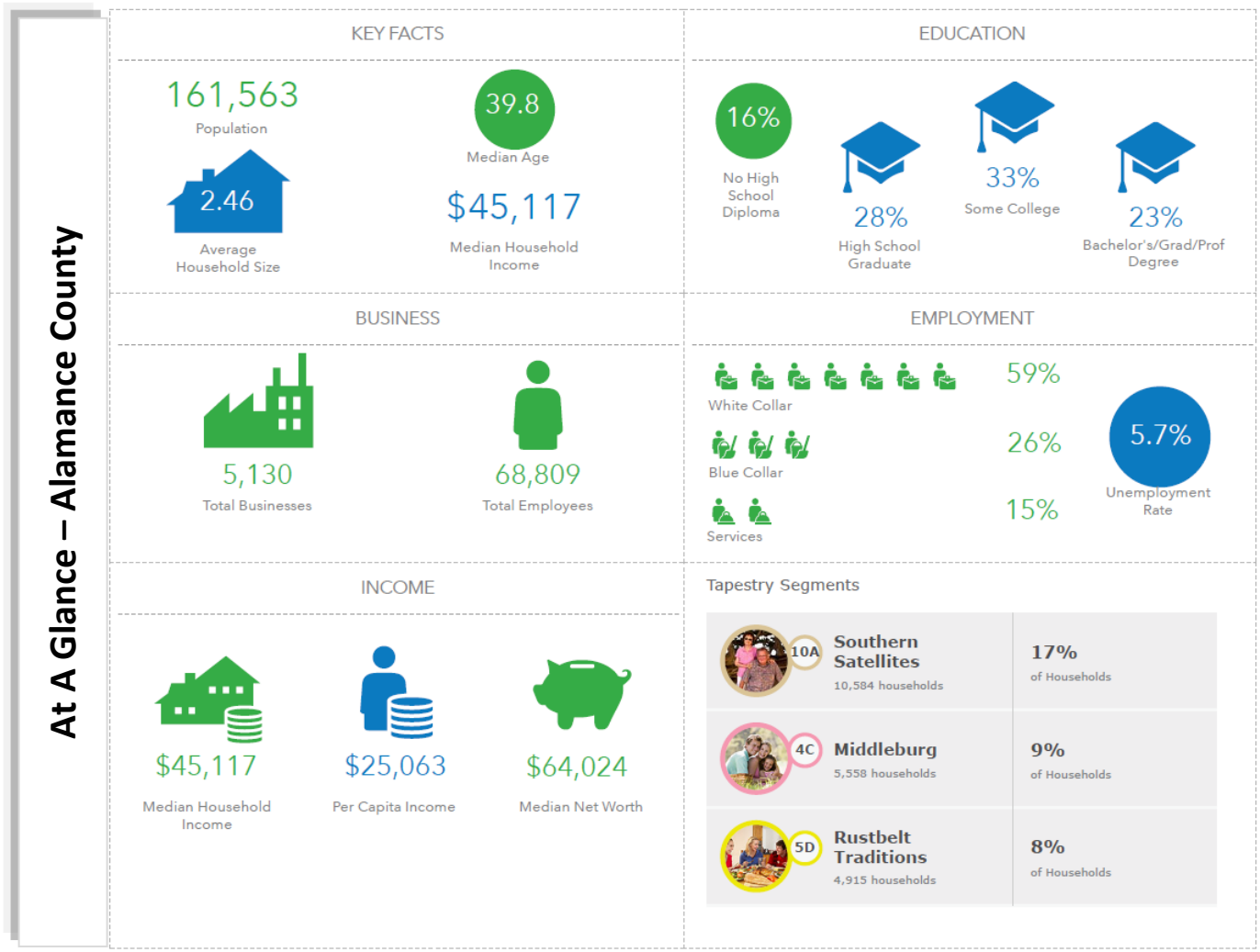
Source: Rose Associates, VHB 2017

The corridor exhibits both strengths and challenges when considering existing land use patterns, traffic volumes, regulatory jurisdictions and physical constraints. Based upon commentary from study team meetings and stakeholder interviews, these strengths and challenges are summarized below:

Strategic Location	Zoning and Entitlements
Exit 148 Interstate interchange	Development Constraints
Connectivity	Limited Infrastructure
Visibility & Accessibility	Differing Interests & Plans
Traffic Volumes	Multiple Jurisdictions
Existing Business & Industry	Development Pressures & Impacts
Points of Interest	

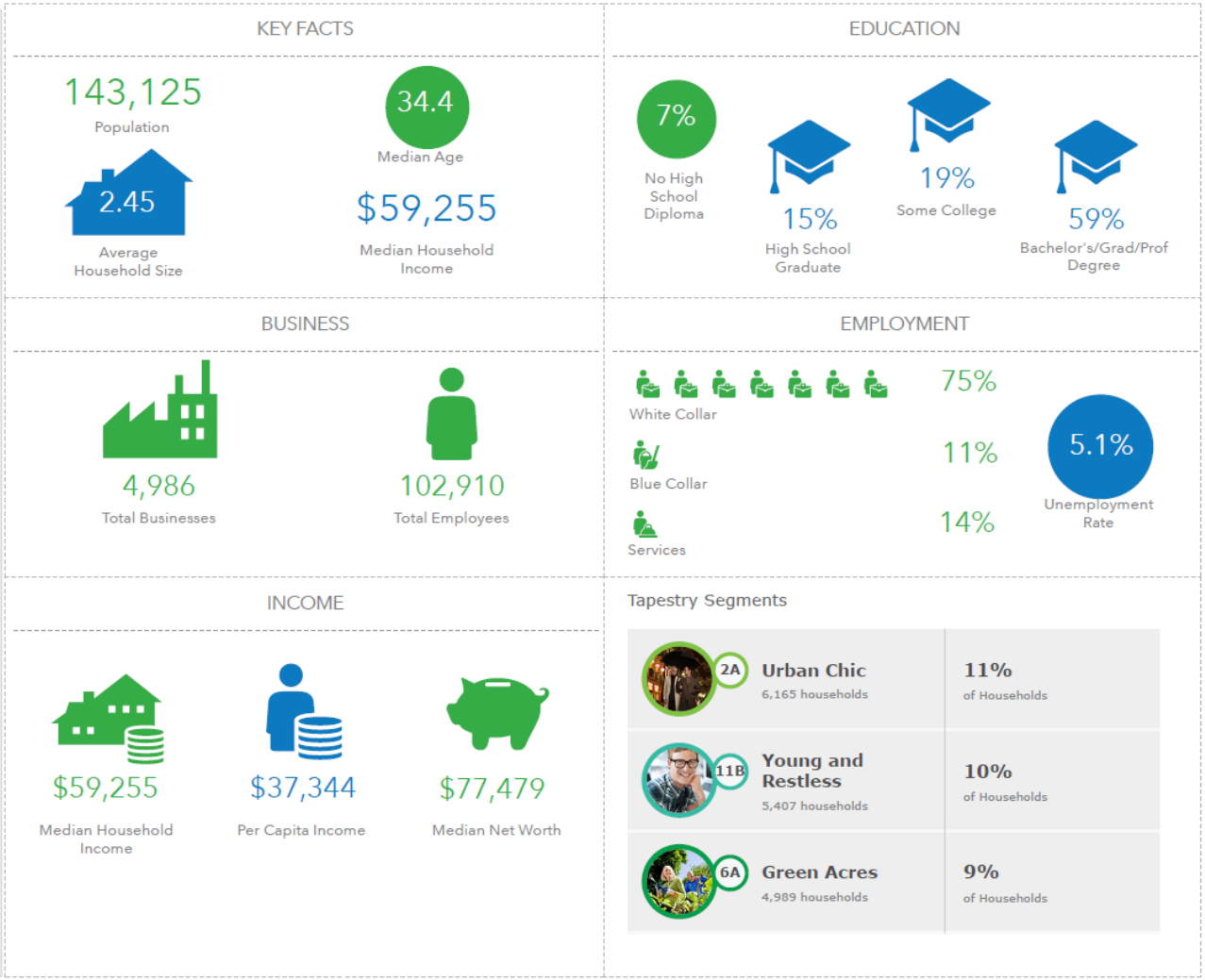
1.2.2 Market At A Glance

Baseline demographic and economic data was collected and evaluated to determine the characteristics of, and differences between, each jurisdiction further described in section 1.3 Demographic & Economic Analysis. The highlights of each of the two counties serving the corridor are shown below. The synthesis of this data provides insight into the socioeconomic differences between the two counties that share the NC 54 corridor:



Source: Rose Associates, ESRI 2017

At A Glance – Orange County



Source: Rose Associates. ESRI 2017

1.2.3 Corridor Nodes and Zones

Highest and Best Use analysis serves as the foundation for determining the location of nodes and zones. Determining the maximum potential of a specific site analysis includes the site parcels and surrounding area, entitlements, constraints and market analyses. The exact definition of highest and best use varies; however, *The Dictionary of Real Estate Appraisal* most appropriately defines Highest and Best Use. In order to be considered, any potential use must pass a series of tests:

- legally permissible – based upon current zoning and future land use designations. The corridor and intersections include:
  - zoning which allows for limited commercial and low density residential development, as well as agricultural uses.
  - farmland and watershed preservation districts, and rural buffers which limits future development.
  - Alamance County and Mountains to Sea Trail Plans envision two priority trails crossing the corridor.

- physically possible – based upon site size, shape, topography, and infrastructure (utilities). The corridor and intersections include:
  - multiple watersheds, flood plains and lack of suitable soils.
  - abundance of 5 acre or smaller parcels together with 25 acre or larger parcels interspersed, specifically near the county lines.
  - varying topography and limited infrastructure/utilities.

- financially feasible – based upon proposed use, property revenue and costs.
  - to be determined.

- maximally productive – based upon the highest net profit return to property owner.
  - not applicable to this study.



NC 54, VHB

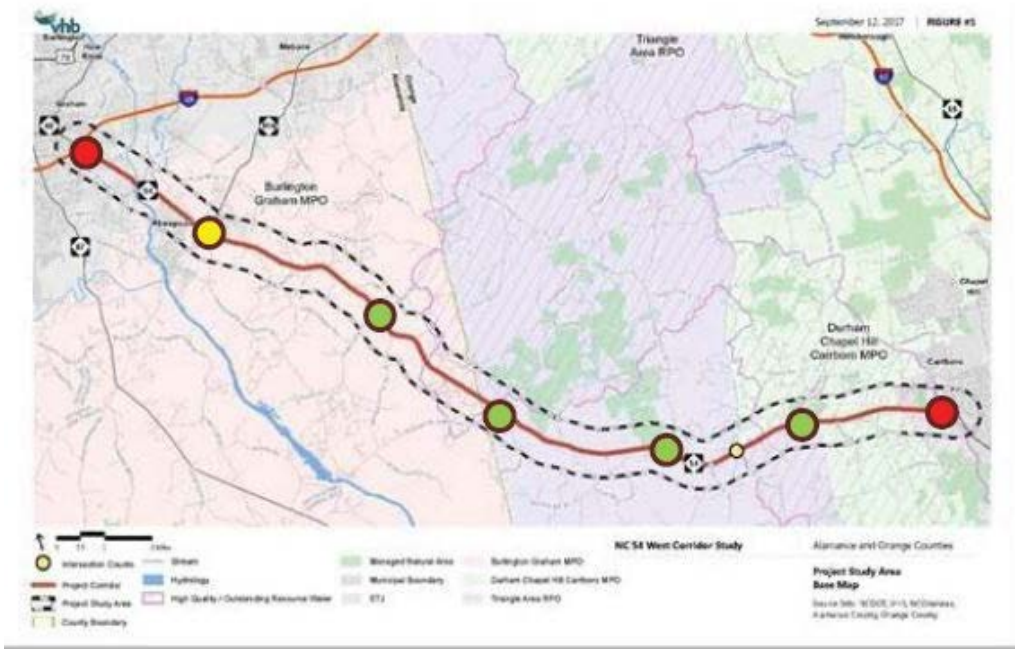
The character of the corridor evolves from a 5-lane commercial highway in Graham to a rural 2-lane highway at NC 119 through a substantial portion of the study area until reaching the town limits of Carrboro. The corridor is bookended by two areas of commercial development. Gas stations, a hotel, medical facility, industrial parks and an apartment development at the western edge, and a neighborhood shopping center and commercial district at Carrboro's town center at the eastern edge. Our initial findings determined three ranges of potential development impact: low, medium and high, suggesting three types of nodes:

Nodes

High

- **Economic**
  - Woody Dr.
  - Old Fayetteville Rd.
- **Local**
  - NC 119
- **Preservation**
  - Orange Grove Rd.
  - Mt. Willen Rd.
  - Mebane Oaks Rd.
  - Bethel-Hickory Grove Church Rd.

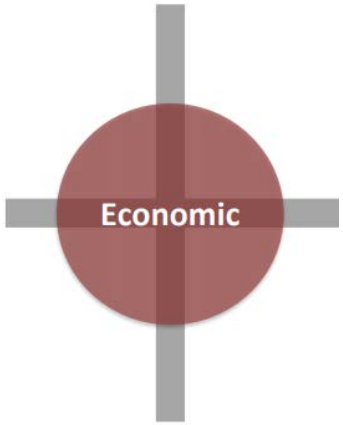
Low



Source: Rose Associates, VHB 2017

However, further review and analysis refines our recommendations, largely due to overlapping trade areas (see Section 1.4.1) and other factors, to two types of nodes or zones:

Economic Nodes
(Future Development)



Heritage Zone
(Preservation)



Economic Nodes are those which have the greatest potential for future development, based upon existing land uses, physical character, traffic volumes, market dynamics and infrastructure. The key theme is employment, therefore land uses might include office/industrial with complementary high density residential (e.g. mixed-use) and retail, most notably dining and entertainment. Economic Nodes along the corridor include:

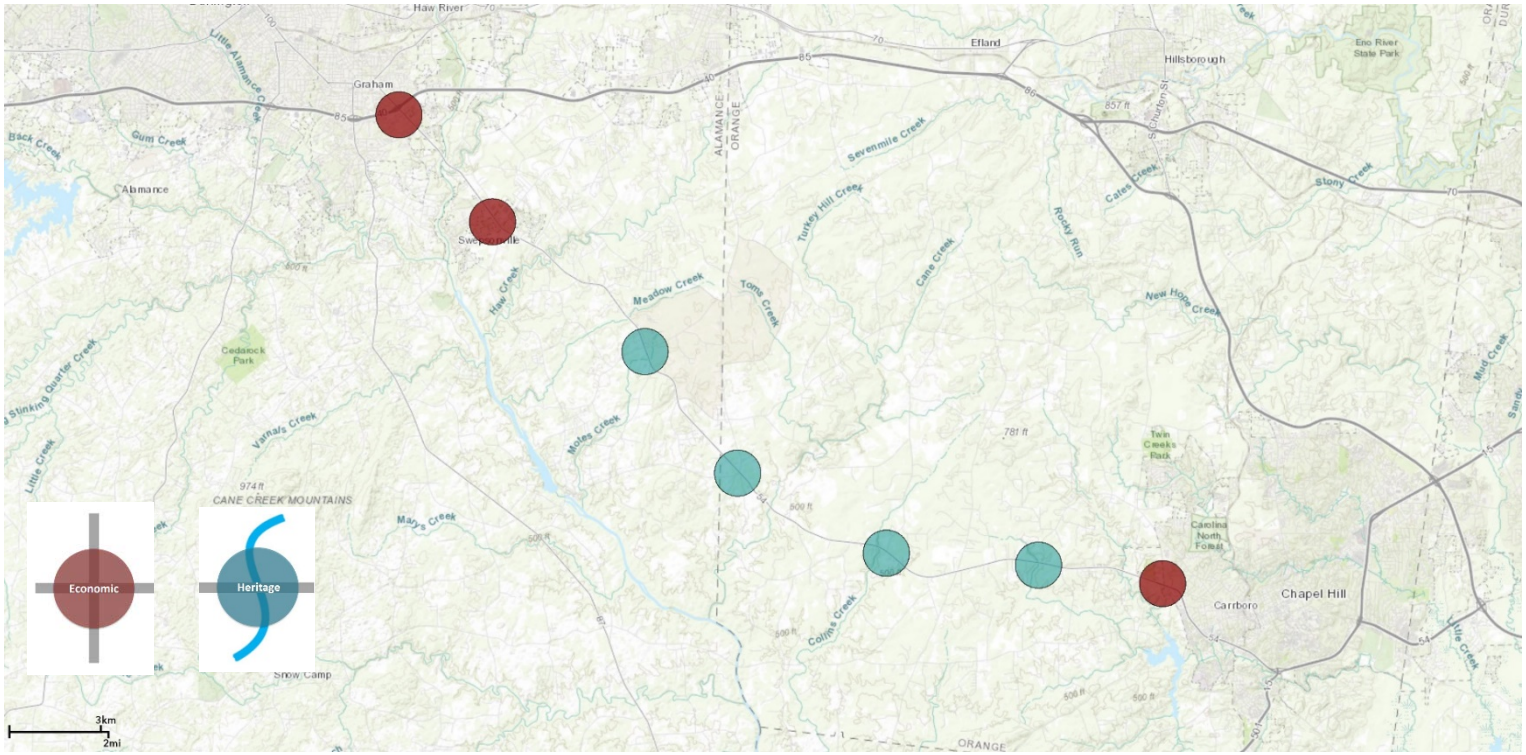
- Woody Drive – Alamance County. This area is transitioning from traditional highway commercial to a more mixed-use environment with the addition of multifamily housing. Additional land uses could include office/industrial space and limited retail.

- NC 119 – Alamance County. Given development pressures from the north, this area may serve as a future neighborhood center for local services, if and/or when utilities/infrastructure expanded.

- Old Fayetteville Rd – Orange County. This area has the highest potential for mixed-use development, to include office, housing and retail based on strong market dynamics.

Heritage Zone is the area spanning from NC 119 through the two counties to the Carrboro town limits. While some limited development may be supported, preservation is the highest priority. The key theme is tourism, as this zone incorporates recreational, agricultural and cultural areas, which could be linked together to form a heritage trail. Land uses for these areas might include low impact development, housing, agrihoods, farming and tourism destinations. The Heritage Zone includes the following intersections, all of which are rural in composition with some existing commercial uses integrated throughout:

- Mt. Willen Rd. – Alamance County
- Orange Grove Rd. – Orange County
- Mebane Oaks Rd. – Orange County
- Bethel-Hickory Grove Church Rd – Orange County



NC 54 Recommended Nodes/Zones *Source: Rose Associates, ESRI 2017*

1.2.4 Findings

The summary of our findings can be categorized into three key components:

Land Use & Real Estate

- Provide small area planning in the Economic Nodes to further frame appropriate land uses, density and infrastructure.
- Provide opportunities in the Economic Nodes for mixed-use development, including additional multifamily housing, workplace space (office/light industrial), retail and entertainment uses.
- Provide opportunities in the Heritage Zone for additional recreational and rural housing development, including Agrihoods [see section 1.4.2 Land Use & Product Types for details].

Real Estate Demand & Product Type (10 Year Build Out)		
	Alamance County	Orange County
Corridor Capture Rate	5%	10%
Office	19,800 s.f.	7,800 s.f.
Industrial	119,000 s.f.	nominal
Retail	62,000 s.f.	141,000 s.f.

Economic Development

- Provide opportunities for "shovel ready" sites or mixed-use development in the Economic Nodes for expanded employment.
- Create a brand and marketing strategy to link recreational and tourism assets along the corridor.
- Engage county and regional tourism agencies in further collaborating to promote cultural, recreational and agricultural assets within or adjacent to the corridor.

Transportation & Mobility

- Coordinate transportation and land use strategies.
- Provide opportunities for "complete street" sections in the Economic Nodes to enhance user experience and provide a safe biking/pedestrian amenity which supports existing uses (e.g. Alexander Wilson Elementary School) and encourages private investment.
- Provide for multi-modal options along the Heritage Zone section to link bike and pedestrian paths to recreational assets, including the Haw River and Mountains to Sea trails.

1.3 Demographic & Economic Analysis

In this section we explore the socioeconomic characteristics of the region and the corridor, and its impact on land use, real estate and economic opportunity. These subsequently influence how the corridor is used as it relates to transportation.

1.3.1 Demographic Characteristics

When compiling demographic and economic data, the most appropriate geography must be determined to understand the community from a macro to micro view to determine competitive advantages or disadvantages. The NC 54 corridor lies between two metropolitan statistical areas (MSA): Burlington and Durham-Chapel Hill, and is located within both Alamance County and Orange County, which includes the City of Graham and the Town of Carrboro, respectively. The corridor is bookended by more populated, suburban and urban areas, resulting in the corridor serving as an alternative route to I-40 and as a *drive through* for commuters and visitors traveling between the two metropolitan areas. Data for each of the counties and municipalities along the corridor reveal the differing dynamics between these jurisdictions along the corridor:

Demographics	2017 Key Facts			
	Population	Median Age	Average Household Size	Average Household Income
MSA				
Burlington	161,563	39.8	2.46	$62,215
Durham-Chapel Hill	571,231	36.5	2.41	$80,714
County				
Alamance	161,563	39.8	2.46	$62,215
Orange	143,125	34.4	2.45	$96,012
City/Town				
Graham	14,447	39.2	2.41	$51,852
Carrboro	20,970	32.0	2.31	$81,766

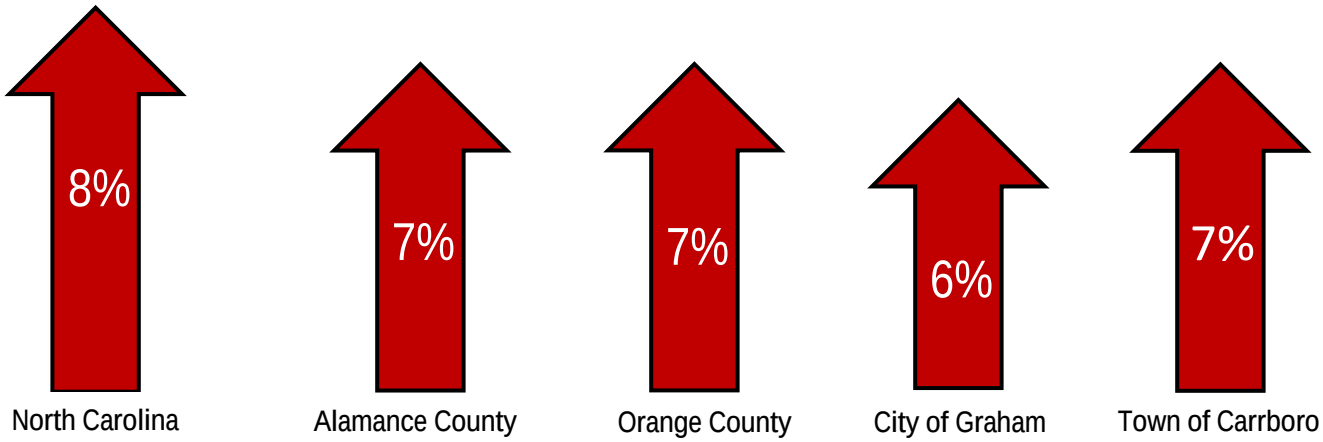
Source: Rose Associates, ESRI 2017

Interesting to note, Alamance County contains an older and larger population than its eastern counterpart Orange County. This is exemplified by a nearly 5 year spread in the median age between the two counties, and nearly 7 years between the two municipalities. This is largely influenced by the student populations in Orange County surrounding the University of North Carolina at Chapel Hill. There is also a disparate difference in affluence between these areas as demonstrated by average household incomes.

2017 Estimates Income, Age & Household Size	Alamance County	Orange County	City of Graham	Town of Carrboro
2017 Total Population	161,563	143,125	14,447	20,970
2017 Median Household Income	$45,117	$59,255	$38,525	$50,593
2017 Average Household Income	$62,215	$96,012	$51,852	$81,766
2017 Median Age	39.8	34.4	39.2	32.0
2017 Average Household Size	2.46	2.45	2.41	2.31

Source: Rose Associates, US Census, ESRI 2017

Population Growth 2010 - 2017

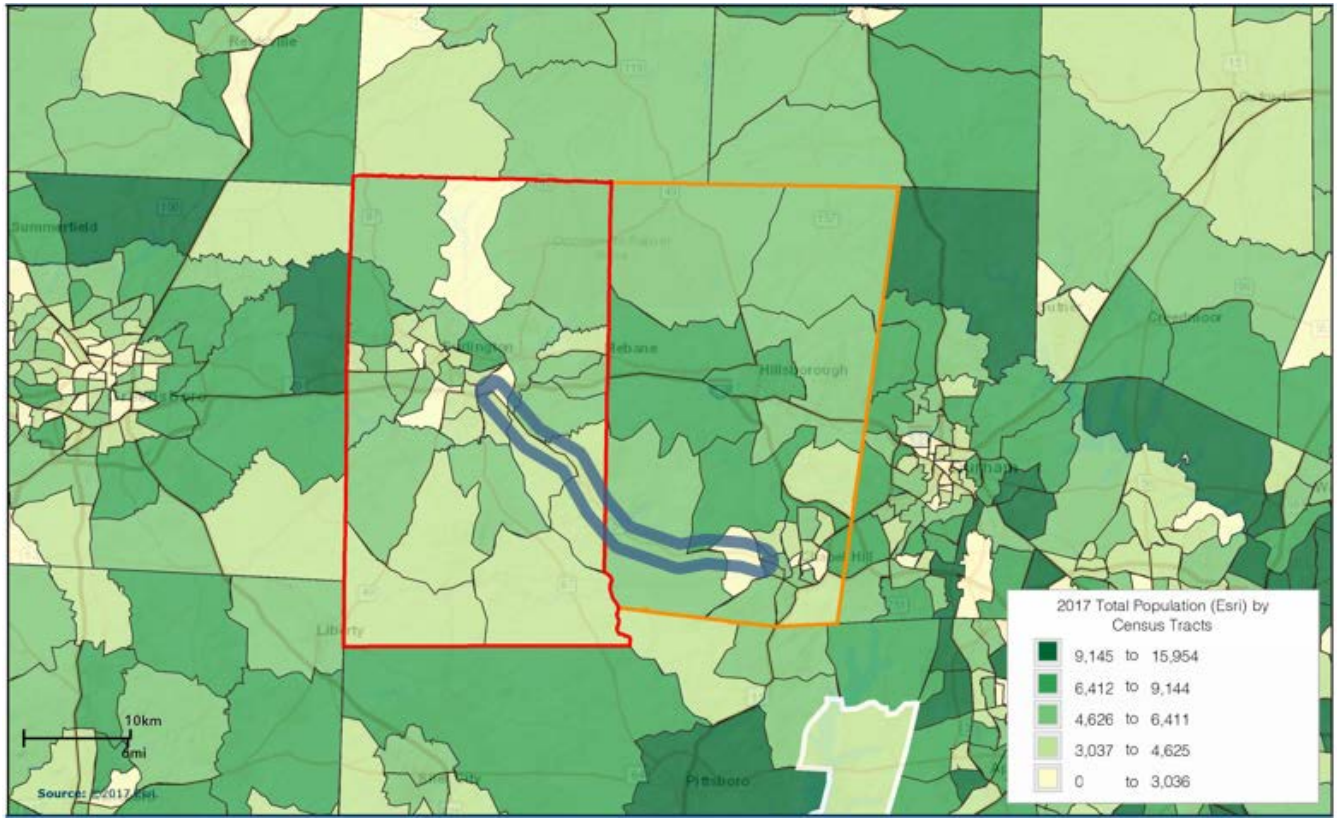


Despite the substantial growth seen throughout the region and the state from the 2010 census to 2017, estimates for future growth from 2017 – 2022 moderate this trend. Population growth 2017- 2022 is projected to be 2.2% lower in Alamance County, 1.9% lower in Orange County and 1.4% lower in Graham, as well as a full 2.2% lower in Carrboro.

2017 Estimated Population Growth	Alamance County	Orange County	City of Graham	Town of Carrboro
2017 Total Population	161,563	143,125	14,447	20,970
2010 – 2017 Population Growth Rate	6.9%	6.9%	5.6%	7.0%
2017 – 2022 Population Growth Rate	4.7%	5.0%	4.2%	4.8%
2022 Estimated Total Population	169,151	150,231	15,056	21,976

Source: Rose Associates, US Census, ESRI 2017

When evaluating population growth, it is helpful to understand the density of population along the corridor and how physical or regulatory limitations, as well as transportation patterns, will affect future development. The existing conditions highlighted in the previous section demonstrate the conditions which have constrained development and population densities. The map below highlights the population densities along the corridor and those higher density areas (darkest shades of green) which are creating development pressures impacting the corridor:



Source: Rose Associates, ESRI 2017



1.3.2 Lifestyle Segmentation

Lifestyle Segmentation, as defined by ESRI's Tapestry©, combines demographic and socio-economic data to further understand the residents in a neighborhood and the consumers in an area. It assists in understanding lifestyle characteristics including housing, consumer and entertainment preferences. The entire U.S. population is categorized within 14 Tapestry LifeMode groups, from which 65 Lifestyle Segments can be identified, grouped from rural to urban center populations. These provide in-depth information about the character of all households in the designated areas, combining demographic, social and behavior patterns. The percentage of households in the geographic areas below highlights the top three (3) LifeMode groups in each area that dominate the landscape and further demonstrate the diversity of the populations between these areas:

Tapestry LifeModes

Both counties include over 10 of the 14 LifeMode Groups showing a socioeconomically diverse population, while the respective municipalities narrow diversity to only a few groups, five in the City of Graham and four in the Town of Carrboro.

LifeMode Groups	Alamance County	Orange County	City of Graham	Town of Carrboro
Affluent Estates	3.3%	19.4%	-	23.6%
Upscale Avenues	-	15.0%	-	-
Uptown Individuals	-	5.6%	-	20.2%
Family Landscapes	11.0%	5.7%	17.8%	-
GenXurban	19.7%	2.3%	25.2%	-
Cozy Country Living	11.3%	13.7%	7.9%	-
Ethnic Enclaves	4.1%	-	-	-
Middle Ground	16.6%	10.3%	41.2%	15.2%
Senior Styles	3.0%	2.1%	-	-
Rustic Outposts	22.5%	3.7%	7.8%	-
Midtown Singles	1.5%	9.9%	-	41.0%
Hometown	5.4%	2.6%	-	-
Next Wave	-	-	-	-
Scholars and Patriots	1.5%	9.6%	-	-

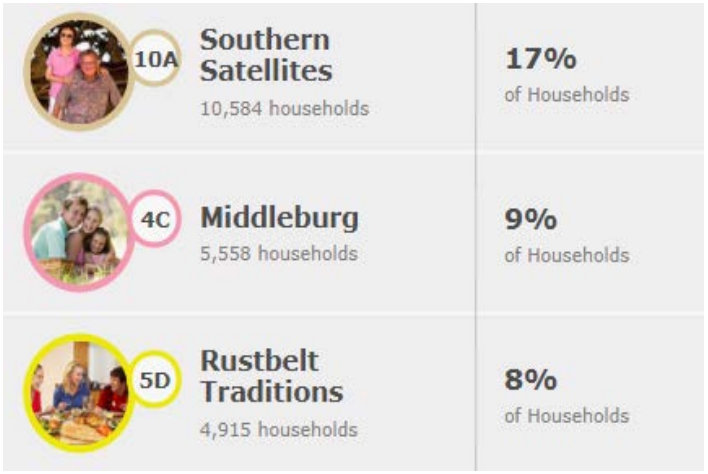
Source: Rose Associates, ESRI 2017

Tapestry Segments

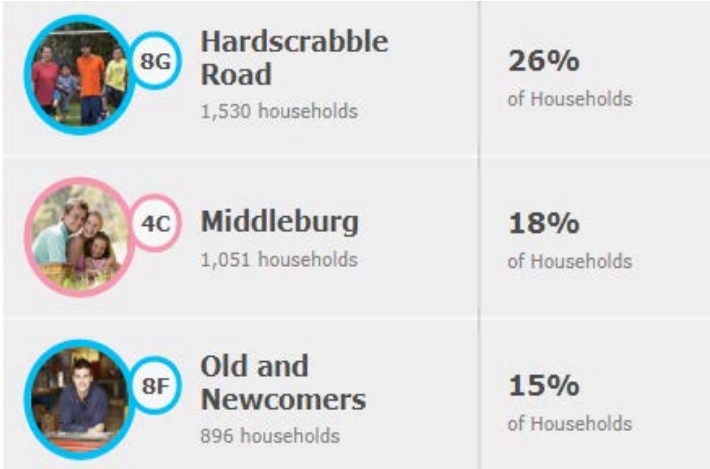
The Tapestry Lifestyle Segments within each of these LifeMode groups provides more in-depth detail about the lifestyle characteristics, including marital status, housing choices, spending habits, and other interests. The segments are colored by LifeMode Group, to include the top 3 Segments by percentage of households in each geography.

Southern Satellites accounts for 10,548 households in Alamance County. Southern Satellites are the second largest market in the U.S., found in rural settlements but within metropolitan areas located primarily in the South. This market is typically nondiverse, slightly older, settled married-couple families, who own their homes. Almost two-thirds of the homes are single-family structures. Median household income and home values are below the national average. Workers are employed in a variety of industries, such as manufacturing, health care, retail trade, and construction, with higher proportions in mining and agriculture than the US. Residents enjoy country living, preferring outdoor activities and DIY home projects. They listen to country music, usually own and actively maintain a truck or more durable vehicle and shop at Walmart. The next prevalent segment at both the county and city level is Middleburg. These are up and coming southern families, married couples with college degrees living in single family housing which is usually owned. They share similar interests and lifestyles with their older Southern Satellite counterparts, only slightly younger and making a higher income on average, and are more tech savvy. Most of their entertainment is centered around the family including dining out.

Alamance County



City of Graham



Source: Rose Associates, ESRI 2017

The LifeMode group Middle Ground is a larger factor in Graham, with two segments Hardscrabble Road and Old and Newcomers making up 41% of the total city's households. The larger segment Hardscrabble Road are primarily a family market, married couples (with and without children) and single parents. Younger, highly diverse, and less educated, they work mainly in service, manufacturing, and retail trade industries. Approximately 60% of householders are renters, living primarily in single-family homes, with a higher proportion of dwellings in 2–4 unit buildings. Old and Newcomers are singles that have relocated or remained for work in professional and service related jobs with college degrees that live in either single of multifamily housing. They are tech savvy, convenience oriented and use their car as their primary mode of transportation. They are also strong advocates of the environment.

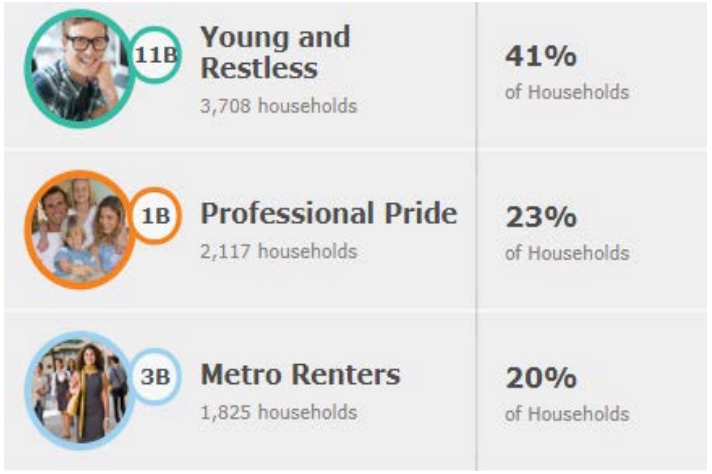
On the other end of the corridor nearing Carrboro we see a shift in the population type, with the segment Young and Restless comprising nearly half of the town's households and 10% of the households in the county. Well-educated young workers, some of whom are still completing their education, are employed in professional/technical occupations, as well as sales and office/administrative support roles. These residents are not established yet, but striving to get ahead and improve themselves. These millennials are mostly renters living in multifamily housing either alone or with a roommate, are very price conscious, using what disposable income they have on dining and entertainment options.

Orange County has 6,165 households belonging to the segment Urban Chic. These upscale professionals, two thirds of whom are married, live in single family housing that they own, while those single choose to rent apartments. This is a slightly older market, well-educated with college degrees and very tech savvy. They enjoy upscale living and own two or more vehicles. Very conscious about the environment they live in and the food they eat, they try to maintain a healthy and active lifestyle, including cycling and yoga.

Orange County



Town of Carrboro



Source: Rose Associates, ESRI 2017

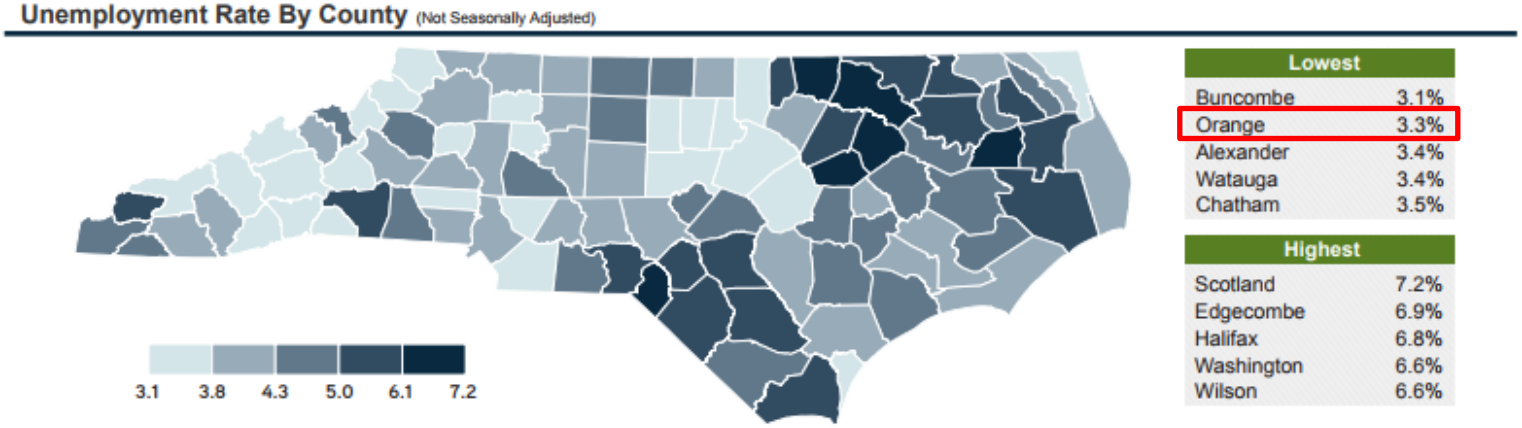
Details of each Tapestry© Segment can be found in the Appendix.

1.3.3 Economic Characteristics

Development strategy begins with understanding the local labor market and the community's economic base. This provides guidance in land use and development, as real estate demand is determined by job growth.

Labor and Employment

Employment is strong throughout both the Burlington and Durham-Chapel Hill regions. In fact, Orange County is among the top 5 counties in NC with the lowest unemployment rate as of October 2017.

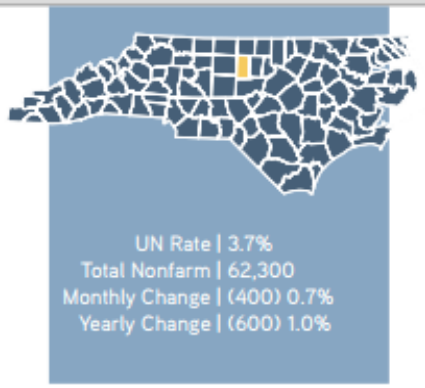


Source: NC Dept. of Commerce 2017

Local employment is assessed by many data points, the employed, the unemployed and the growth of the labor force. Often the percentage of civilian population aged 16 or higher that is employed or seeking employment is defined as the labor force participation rate. However, these figures do not consider those that are unemployable (due to lack of skills or minimum educational attainment), workers who have dropped out of the workforce, and the unemployed.

The data below shows regional employment growth in major industry sectors from September 2016 to September 2017, with the Other Services sector leading the Burlington MSA growth at 5.0% followed by Mining, Logging and Construction at 3.7%. The Durham/Chapel Hill MSA experienced a significant increase in Professional and Business Services, 9.1% over the year, followed by Educational and Health Services at 3.9%. Both regions experienced a drop in the Trade, Transportation and Utilities sector.

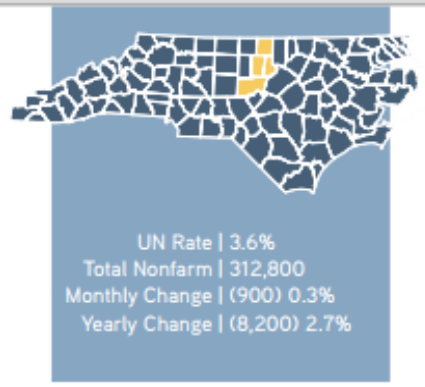
Burlington MSA | Total Nonfarm Employment | September 2017



Over-the-Month Employment Change		
Industry	Change	
Mining, Logging & Construction	0	0.0%
Manufacturing	0	0.0%
Trade, Transportation & Utilities	0	0.0%
Information	0	0.0%
Financial Activities	0	0.0%
Professional & Business Services	0	0.0%
Education & Health Services	100	0.8%
Leisure & Hospitality	-200	-2.5%
Other Services	-100	-4.6%
Government	600	9.4%

Over-the-Year Employment Change		
Industry	Change	
Mining, Logging & Construction	100	3.7%
Manufacturing	100	1.1%
Trade, Transportation & Utilities	-100	-0.8%
Information	0	0.0%
Financial Activities	0	0.0%
Professional & Business Services	0	0.0%
Education & Health Services	300	2.5%
Leisure & Hospitality	100	1.3%
Other Services	100	5.0%
Government	0	0.0%

Durham/Chapel Hill MSA | Total Nonfarm Employment | September 2017



Over-the-Month Employment Change		
Industry	Change	
Mining, Logging & Construction	-100	-1.2%
Manufacturing	100	0.3%
Trade, Transportation & Utilities	-600	-1.7%
Information	-100	-2.2%
Financial Activities	-200	-1.3%
Professional & Business Services	300	0.7%
Education & Health Services	-600	-0.9%
Leisure & Hospitality	-800	-2.8%
Other Services	-100	-0.8%
Government	3,000	4.6%

Over-the-Year Employment Change		
Industry	Change	
Mining, Logging & Construction	100	1.3%
Manufacturing	900	3.2%
Trade, Transportation & Utilities	-800	-2.2%
Information	-200	-4.3%
Financial Activities	200	1.3%
Professional & Business Services	3,800	9.1%
Education & Health Services	2,500	3.9%
Leisure & Hospitality	700	2.6%
Other Services	200	1.7%
Government	800	1.2%

Source: BLS 2017

Educational Attainment

In addition to demographic and economic characteristics, other factors such as education influence local workforce, wages, income and consumer expenditures. The correlation between education, employment and income is impacted by job readiness. The key determining factor is educational attainment. The chart below highlights the education and employment in white collar, blue collar and service industries, which influence real estate markets and economic development strategies:



	Educational Attainment				Business		Employment			
	No HS Diploma	HS Graduate	Some College	Bachelors/Grad/Prof Degree	Total Businesses	Total Employees	White Collar	Blue Collar	Services	Unemployment Rate
MSA										
Burlington	16%	28%	33%	23%	5,130	68,809	59%	26%	15%	3.7%
Durham-Chapel Hill	11%	19%	24%	47%	18,767	308,087	70%	16%	14%	3.5%
County										
Alamance	16%	28%	33%	23%	5,130	68,809	59%	26%	15%	3.7%
Orange	7%	15%	19%	59%	4,986	102,910	75%	11%	14%	3.3%
City/Town										
Graham	18%	33%	31%	18%	585	7,676	56%	28%	16%	6.8%
Carrboro	7%	10%	15%	69%	605	6,136	76%	8%	16%	3.2%

Source: Rose Associates, NC Dept. of Commerce, ESRI 2017

Alamance County: K-12 public education is provided by the Alamance-Burlington school system, which includes 40 public schools serving approximately 25,000 students. North Carolina Career Pathways provides students in the Alamance-Burlington school system career advice and guidance to high quality, high skill or, high demand careers. Combining core academic and technical instruction with work-based learning experiences to provide marketable skills and credentials to local industries and companies. In addition, STEM (Science, Technology, Engineering and Math) programs, early college programs and specialized training are offered through the Alamance-Burlington school system. Within the corridor, Alexander Wilson Elementary (K-5) is located at the intersection of NC 54 and NC 119.

Other key educational facilities include:

- Alamance Community College – This growing campus in Graham is located one exit east of NC 54 on Interstate 40/85. The main campus recently opened its new $16 million, 55,000 square foot state-of-the-art Advanced Applied Technology Center which provides training for local industry. Influence from regional industry and these institutions provide opportunities for expanded STEM education and resources. NC 54 serves as the “back door” to the main campus, as students travel this route to Cherry Lane and to the campus, thus avoiding the interstate. [https://www.alamancecc.edu/about-acc-site/files/2016/12/2016_annual_report_web.pdf]

- Elon University – A private liberal arts college with 6,739 students (2016) is located in western Alamance County. According to U.S. News & World Report, it leads the nation ranking eight programs that promote student success, and it touts being a leader in its study abroad program, making it internationally focused.

Orange County: K-12 public education is provided by the Orange County school system including 18 high schools, 7 middle schools, 6 elementary and 2 alternative schools. A student population of over 7,400 supports the suburban and rural populations of this area. The Chapel Hill-Carrboro City School District includes over 12,000 students, ranking among the top school districts in North Carolina in many academic measures including test performance, graduation rates and SAT/ACT scores.
Other key post-secondary institutions within commuting distance of the corridor include:

- University of North Carolina at Chapel Hill (UNC) – Currently among one of the top-rated universities in both North Carolina and the US. UNC covers approximately 730 acres and provides education to about 29,000 students. Influence from regional industry and institutions such as this provide opportunities for expanded STEM education and resources.

- Durham Technical Community College - A public two-year accredited institution of higher education and technical training school, Durham Tech serves over 26,000 students with credit, non-credit, adult and continuing education offerings and offers career programs leading to over 100 degrees, certificates and diplomas and university transfer programs, with its main campus located in Durham, North Carolina. The Orange County Campus is a 20-acre campus centrally located in the Waterstone Development outside of Hillsborough. The campus in Orange County works collaboratively to develop training programs to meet the needs of specific industries, as well as specific company training or re-training needs within the region.

Economic Base

Economic Base Analysis is used to determine what industry sectors drive the local economy and determine real estate demand. The underlying theme suggests that jobs drive demand for real estate. In other words, for every base industry job that is created, a multiplier effect increases overall employment [see section 1.1.2 Methodologies], in turn increasing both population and household income. There are two types of jobs: those which export their goods and services outside the community (also referred to as basic employment), and those which service the local community (otherwise referred to as non-basic or service employment). The corresponding demand is correlated to housing and various commercial uses of real estate. The ratio of the county percentage of employment as compared to U.S. employment, or location quotient ("LQ") identifies which basic industry sectors contribute the greatest local economic growth. The sectors with location quotients ("LQ") greater than 1.00 demonstrate higher than U.S. averages, thus the primary drivers of the local economy.

The following charts highlight the leading economic sectors and sub-sectors in both Orange and Alamance County. The economic base in Alamance County is dominated by the manufacturing sector, while in Orange County education and local services drive its local economy. Leading industries based on LQ may vary from those industries providing the highest percentages of employment. Each county's economic base and percentage of employment is shown below (those of most significance are in bold):

Economic Base Industry Key Sectors (NAICS) **Orange County 2016**	**LQ**	**% Employment**	**Product Type**
Total Annual Average Employment: 70,294			
Retail Trade (44-45)	*0.86*	**9.63%**	Retail
Food and beverage stores (445)	**1.29**	**2.80%**	Retail
Miscellaneous store retailers (453)	1.00	0.58%	Retail
Nonstore retailers (454)	**4.75**	1.80%	Retail
Information (51)	*0.76*	1.50%	Office
Other information services (519)	**1.90**	0.35%	Office
Real estate and rental leasing (53)	*0.84*	1.25%	Office
Real estate (531)	**1.11**	1.21%	Office
Professional and technical services (54)	*0.71*	**4.44%**	Office
Health care and social assitance (62)	*0.59*	**7.81%**	Institutional/Office
Accommodation and food services (72)	*0.94*	**8.86%**	Retail
Food services and drinking places (722)	1.00	**8.02%**	Retail
Other services, except public administration (81)	**1.16**	**3.58%**	Other
Membership associations and organizations (813)	**1.90**	1.82%	Other
Private households (814)	**1.91**	0.38%	Other

Source: BLS 2017

Economic Base Industry Key Sectors (NAICS) Alamance County 2016	LQ	% Employment	Product Type
Total Annual Average Employment: 52,806			
Construction (23)	*0.90*	**4.80%**	Other
Specialty trade contractors (238)	1.16	**3.93%**	Other
Manufacturing (31-33)	**1.79**	**17.56%**	Industrial
Textile mills (313)	**43.04**	**3.89%**	Industrial
Textile product mills (314)	2.01	0.19%	Industrial
Apparel manufacturing (315)	17.84	1.82%	Industrial
Wood product manufacturing (321)	2.20	0.68%	Industrial
Paper manufacturing (322)	2.73	0.80%	Industrial
Printing and related support activities (323)	1.42	0.51%	Industrial
Plastics and rubber manufacturing (326)	2.79	1.55%	Industrial
Nonmetallic mineral product manufacturing (327)	1.07	0.34%	Industrial
Fabricated metal product manufacturing (332)	1.15	1.29%	Industrial
Machinery manufacturing (333)	2.18	1.86%	Industrial
Miscellaneous manufacturing (339)	1.13	0.53%	Industrial
Wholesale trade (42)	**1.06**	**4.93%**	Industrial
Merchant wholesalers, durable goods (423)	1.20	2.79%	Industrial
Merchant wholesalers, nondurable goods (424)	1.20	1.94%	Industrial
Retail trade (44-45)	**1.32**	**16.66%**	Retail
Motor vehicle & parts dealers (441)	1.30	2.05%	Retail
Furniture and home furnishings stores (442)	1.09	0.41%	Retail
Building material and garden supply stores (444)	1.14	1.16%	Retail
Health and personal care stores (446)	1.20	0.10%	Retail
Gasoline stations (447)	1.77	1.30%	Retail
Clothing and clothing accessories stores (448)	1.94	2.07%	Retail
Sports,hobby,instrument & book stores (451)	**2.24**	1.10%	Retail
General merchandise stores (452)	1.54	**3.93%**	Retail
Miscellaneous store retailers (453)	1.27	0.83%	Retail
Transportation and warehousing (48-49)	*0.57*	2.14%	Industrial
Warehousing and storage (493)	1.19	0.87%	Industrial
Administrative and waste services (56)	**1.02**	**7.26%**	Office/Other
Administrative and support services (561)	1.01	**6.87%**	Office/Other
Waste management and remediation services (562)	1.21	0.39%	Office/Other
Educational services (61)	**1.56**	**3.44%**	Institutional/Office
Health care and social assistance (62)	**1.24**	**18.63%**	Institutional/Office
Ambulatory health care services (621)	**1.80**	**10.13%**	Office/Retail
Nursing and residential care facilities (623)	1.38	3.64%	Institutional
Accommodation and food services (72)	**1.22**	**12.91%**	Retail
Food services and drinking places (722)	1.36	**12.27%**	Retail
Other services, except public administration (81)	*0.75*	2.61%	Other
Personal and laundry services (812)	1.10	1.27%	Other

Source: BLS 2017

Commuting Patterns

Local economies influence transportation, commuting patterns and mobility. According to 2014 data provided by the NC Department of Commerce, the net flow of workers for each of the counties provides some insight as to job flow and commuting patterns. Orange County imports workers each day, while Alamance County exports them:

Resident Flow (Live/Work in Orange County)	Jobs
Resident Live/Work in Orange County	19,611
Worker inflow	42,696
Resident Outflow	35,545
Net Flow	7,151

Resident Flow (Live/Work in Alamance County)	Jobs
Resident Live/Work in Alamance County	28,739
Worker inflow	28,048
Resident Outflow	33,687
Net Flow	-5,639

Source: NC Dept. of Commerce 2014

The majority of workers traveling into Orange County are traveling from Wake and Durham Counties. There was a net positive inflow of over 7,000 workers dominated by jobs in service industries traveling into Orange County.

In Alamance County, most workers are traveling into Guilford County, followed by Orange County. This resulted in a net negative outflow of nearly 6,000 workers, with the majority of them traveling out of the county for jobs in services industries.

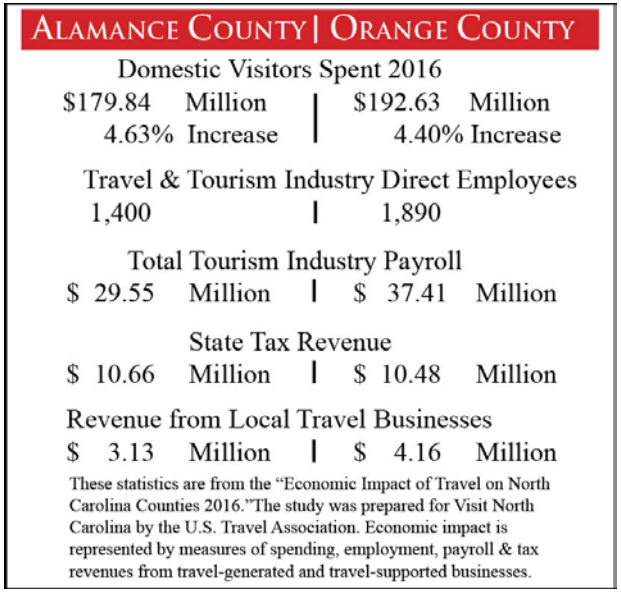
1.3.4 Economic Development & Tourism

Economic development organizations are primarily charged with creating jobs and economic growth. Each may focus on any, or all, of the following four primary areas:

- ATTRACTION (LARGE INDUSTRY)
- BUSINESS RETENTION/EXPANSION (BRE)
- SMALL BUSINESS/ENTREPRENEURSHIP (SBE)
- TOURISM

Each of these areas plays a part in both the history and future of the corridor. Alamance County has focused on industry attraction and retention/expansion as demonstrated in its economic base. Based upon our inventory of assets found along or adjacent to the corridor, the areas which stand out include large industry and employment found at the western end of the corridor, including the Honda Aero plant.

Most notably, tourism plays a key role, given the various destination locations along the corridor in both counties. Visitors are not aware of county boundaries, and expenditures are high in both Alamance and Orange County. According to Visit North Carolina 2016 visitor profile, 89% of domestic visitors came to North Carolina for pleasure purposes, while 8% came for business. Of these visitors, 91% of travelers drove, while 7% traveled by air. They come to the region for a variety of experiences, including rural, historic and cultural, while enjoying recreation and sporting venues. This includes the Alamance County Civil War Trail, which crosses NC 54, at Highway 119. While in the region, they enjoy lodging, dining and shopping which bring significant expenditures to the local economy. In addition to the public recreational assets such as the Cane Creek Reservoir, The Mountains to Sea and Haw River Trails, many farms, stables and barns support small businesses and provide unique destinations for visitors along the NC 54 corridor.



"DESPITE HEADWINDS IN THE BROADER LODGING INDUSTRY, SMALLER, TOURISM-FOCUSED MARKETS HAVE REPORTED HEALTHIER REVENUES AND SHOW MORE UPSIDE. FALLING U.S. UNEMPLOYMENT RATES AND A SLOW BUT STEADY PICK-UP IN WAGES IS POSITIVE FOR GROWTH IN DOMESTIC TOURISM. HOWEVER, THESE FACTORS ARE NOT LIKELY TO PROVIDE SIGNIFICANT INCREASES IN HOTEL DEMAND. THUS, WE SEE POCKETS OF OPPORTUNITY IN SMALLER, TOURISM-FOCUSED MARKETS, BUT DO NOT SEE SUBSTANTIAL UPSIDE POTENTIAL FOR THE HOTEL SECTOR OVERALL AT THIS POINT IN THE CYCLE."

~ WELLS FARGO ECONOMIC GROUP REPORT, AUGUST 28, 2017

What is Experiential Tourism?



Haw River viewed from NC 54, VHB

Experiential tourism is a new term encompassing a variety of tourism and traveler categories. Activities are environmentally sensitive, displaying respect for the culture of the host area. Visitors looking to experience and learn rather than merely stand back and gaze. Experiential tourism involves active participation, involvement and even immersion based on exposure to the people met, the places visited, the activities participated in and the memories created.

The NC 54 corridor has deep seated agricultural roots, with substantial agricultural land and farms in both counties. These farms are the focus of a number of local and state organizations who support them. The North Carolina Agritourism Association [http://www.nc-ana.org/] serves Agritourism Farmers and Agritourism Professionals throughout North Carolina and surrounding states. According to its website, it "promotes networking between Agritourism Professionals, works to grow the Agritourism Industry by public education and promotion of agritourism and education to our dedicated members, governmental and elected officials and policy makers."

These farms and their products are appealing to travelers seeking a more rural experience with amenities such as outdoor activities, dining, shopping and lodging. The corridor is an alternative country route to Interstate 40/85. Located along the corridor are environments that are becoming recognized as experiential, adventure, environmental, agritourism and ecotourism destinations. Some include small heritage centers for information about a place, its people and the natural features of the area. The business models for these attractions are not only visitor driven, they also grow produce to be sold or used locally as well as shipped from sales on the internet. The following are a sampling of these tourism related assets found along or adjacent to the corridor:

- Located 3 miles from Carrboro, the Rock Quarry Farms' mission is to be a sustainable farm preserving its cultural and natural heritage. It attracts visitors with the beauty of its open-air barn, the old farmhouse, a wooded firepit and small meadow. In addition to growing herbs, edible flowers and vegetables, they make furniture from pine harvested from the farm and provide a decorating service.



Rock Quarry Farms



The Barn at Valhalla

- The Barn at Valhalla is a destination experience with a natural beauty of meadows, pines, lake, unique barn and charming 24-person lodge on 30 acres. Special events, weddings, retreats, team building or receptions for up to 150 people can utilize the property for those that will be inspired by its setting.



Fireside Farms

- Fireside Farms is deep in the woods beside Cane Creek Reservoir in Graham. Selling produce, flowers, farm-fresh eggs to restaurants in Saxahapaw, Chapel Hill & Durham. They also build large farmhouse-style tables, from slabs of walnut, white oak, ash, beech, hickory and pecan trees.

Other small businesses and tourism assets along or adjacent to the corridor include:

- Haw River Ballroom is set in the former Dye House of Saxahapaw Historic Cotton Mill. With a riverside deck, concessions bar, a full-service stage in a rural setting. The adjacent Saxahapaw General Store includes their geolocation in proximity to Chapel Hill/Carrboro, Durham, Graham, Hillsborough, Mebane and Pittsboro.
- Haw River Canoe & Kayak is marketed as "winding through rural & urban areas, past cultural & historical sites, the Haw River provides a wild refuge from the frantic pace of life."
- Hidden Lake Park & Campground, Graham, NC is a year-round campground featuring special activities June through August, fishing, swimming, water slide, playground, paddle boats, concession, picnic areas, 2 modern bathhouses and RV hook-ups.
- The Inn at Bingham School describes itself as "our Chapel Hill Bed & Breakfast" although physically located 11 miles away, in Mebane, NC (Alamance County). They suggest using the Inn as a home base to visit the area such as UNC Chapel Hill, the Historic Milltown of Saxahapaw, the shopper going to Tanger Outlets, Duke University and the Research Triangle Park.
- Mapleview Farms located off NC 54, is located in Hillsborough but marketed as "the Triangles highest quality farm fresh milk or ice cream" with a country store.
- Main Event Stables, Chapel Hill, provides riding lessons, horse training, full care horse boarding, birthday parties, family riding activities and horse sales. They also conduct equine-assisted healing activities and therapeutic riding.
- Reverence Farms, Graham, NC is a polyculture where animals are "treated with reverence and grace." Pastured eggs from chickens fed a locally milled organic grain. Hens are moved to fresh pastures daily and broiler hens get a fresh salad bar diet.
- Rigmor House Event Center markets itself as a beautiful retreat near the Triad & Triangle areas of NC.

NC 54 is the primary link between these destinations. Connectivity to neighboring communities, conveniences and interconnectivity between these businesses is important to support and grow small business and agritourism along the corridor. According to Travel & Leisure Magazine," people want to spend less time getting there and more time being there." The NC 54 corridor could provide both a memorable trip and a host of recreational, agritourism and other destinations.

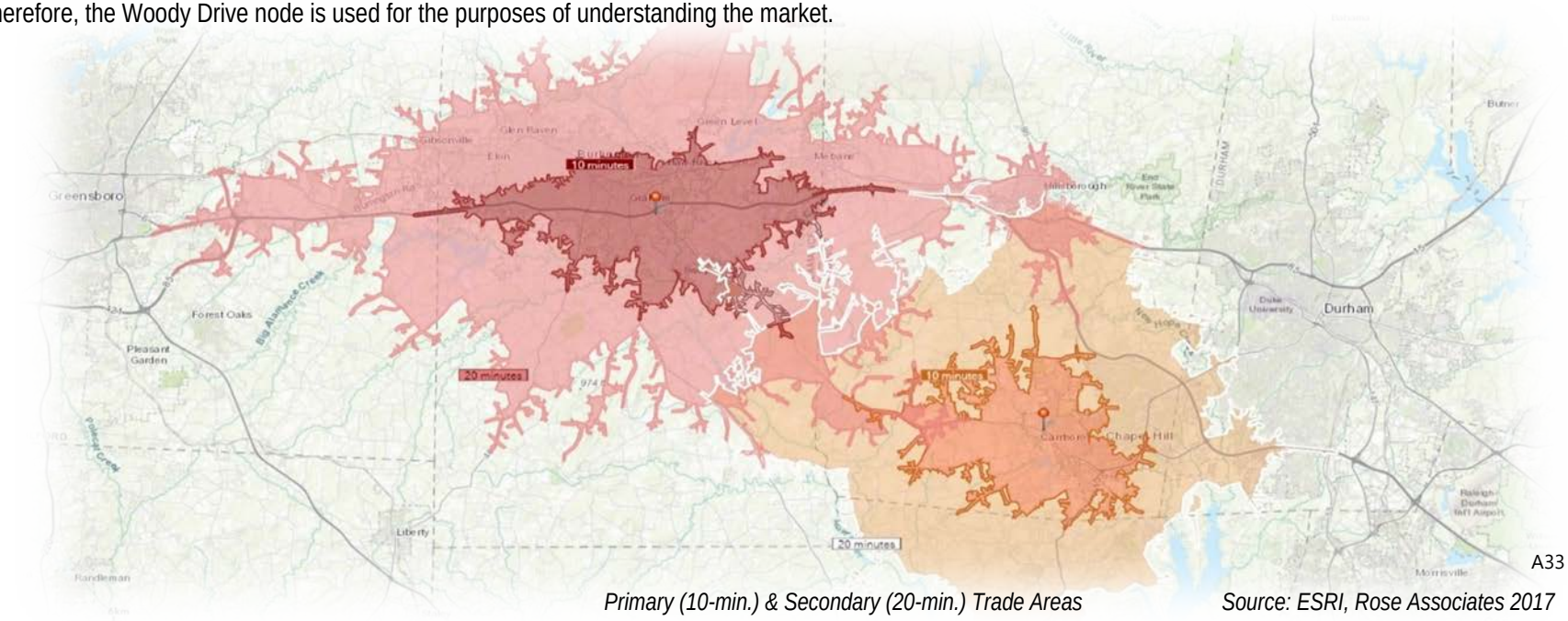
1.4 Real Estate Market

1.4.1 Trade Areas

Trade areas are defined by the distance which a location may attract employees or consumers. Within each trade area, thresholds are measured to determine adequate capacity, or demand, for a particular use. Often trade areas are defined by a radius distance around a site in terms of miles. While a useful benchmark, trade areas are more accurately defined based upon drive-time, which is dictated by traffic volumes, convenience and the number of alternative options within the trade area.

Larger destination-oriented uses such as major employers, colleges/universities, hospitals and major retail centers for furniture, clothing, specialty items and automobiles have a larger trade area, or distance that a consumer would be willing to drive - generally 20+ minutes or more. The average commute time for employment in Alamance County is 23.7 minutes, and 22.3 minutes in Orange County, according to 2015 estimates from the NC Dept. of Commerce. Local employment and small service businesses for purchases made for daily living, such as gas, food, drugs, grocery and household items, and local services, draw from a smaller, more convenience-oriented, trade area. The average consumer will generally not travel more than 10+/- minutes for these purchases and services.

The location of the corridor and commuting patterns found throughout the counties, indicate that the primary trade area be defined within a 10-minute drive time. While the secondary trade area includes a 20-minute drive time surrounding each economic node, providing access to major employers in the region. These highlight opportunities for both convenience-oriented and destination-oriented uses. Due to their proximity to each other, the Woody Drive and NC 119 trade areas substantially overlap. Therefore, the Woody Drive node is used for the purposes of understanding the market.



Primary (10-min.) & Secondary (20-min.) Trade Areas *Source: ESRI, Rose Associates 2017*

1.4.2 Land Use & Product Types

Real estate market data represents both a snapshot in real time and prevailing economic cycles and real estate trends. Current and proposed future land use strategies are benchmarked against these trends as demand for space is driven by several factors including, but not limited to, the local economy and job growth, transportation, infrastructure, land entitlements and quality of life.

Real estate data is tracked by product type and submarkets, which may include specific geographic areas, such as counties, cities or census tracts. These are important elements when determining local market capture in the context of the larger regional marketplace. CoStar, a national commercial real estate data provider, tracks and reports product supply data within the region by major metropolitan areas (MSA) and each county or submarket within these MSAs. The data includes the total square footage of space for each product category, as well as available space (vacant space and vacancy rate), absorption of vacant space and average rental rates. Industry standards suggest that low vacancy rates (5% or below) indicate full occupancy or market equilibrium, while high vacancy rates (10% or above) suggest product oversupply, or in some instances, product obsolescence.

Work Space (Industrial and Office) Demand Dynamics

The successful recruitment of new business generally results in demand in the form of work space, such as office and industrial buildings. The next generation of space reflects the behaviors and attitudes of a changing workforce, and impacts the design of traditional office and industrial space. New work environments are less formal structures that are flexible and offer open spaces where workers can collaborate or perhaps be used for light assembly. These structures may look more like a brewery or coffee house than a traditional office or industrial building, as the workspace environment has now become a recruiting tool.

The emphasis on business attraction and expansion for the basic industries (those noted above with LQ substantially higher than 1.0) suggest that of the 1,518 new jobs in Alamance County from 2015 to 2016, 67% of its employment is basic, or exporting their goods and services outside of the market. This points primarily to manufacturing and flex industrial uses in Alamance County. In Orange County the 3,301 new jobs created (double that of Alamance County) show that only 17% of its employment is basic, thus dominated by the local service sector, namely retail. While other industries such as healthcare and education services do provide 15% of the local employment, it is not considered a basic industry. These drive demand for office and/or institutional space, where other amenities and complementary uses exist. Only 2% is attributable to Information and Real Estate sectors, driving a limited office market. However, the corridor's location and adjacencies to major transportation networks and key assets, such as the University of North Carolina, make it well positioned to drive additional employment in the economic nodes of both counties.

Based upon annual county job growth and an estimated capture rate for each county, annual square footage demand estimates can be projected using each county's percentage of basic employment sectors that correlate with industrial and office uses. Given the existing submarket supply absorption data, conservative capture rates for each product type is estimated for each county. Based upon current estimates of space per employee for each product type, the results in demand are shown in the table below:

Product Type	Flex/ Industrial	Office/Institutional	Office/Institutional
Submarket Area	Alamance County	Alamance County	Orange County
Submarket Capture	5%	5%	10%
% of Basic Sector Employment	18%	17%	2%
Annual Demand (sq. ft.)	11,942	1,980	771

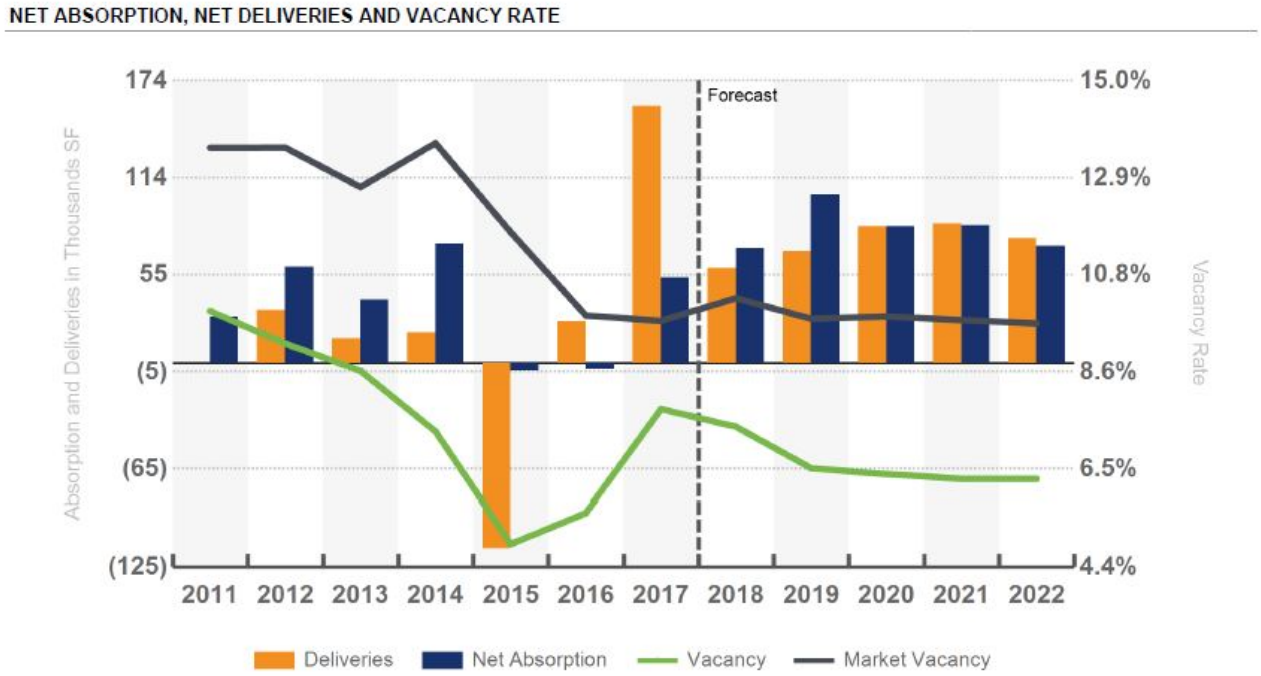
Source: Rose Associates, NC Commerce, US Bureau of Labor Statistics 2015-2016

Work Space Supply

Orange County Office Supply: CoStar reports on real estate supply throughout the US, defining office space quality by a Star rating of 1 through 5. Within the industry new construction is often defined as Class A (5 Stars) and older or more obsolete space rated, B or C (1-4 Stars).

The Durham office market includes seven submarkets, including Orange County containing over 4.3 million total square feet of space. During the past twelve months, Orange County vacancies increased to 7.8%, well below the overall market vacancy which hovered near 9%. Net absorption of 50,000 square feet was reported for 4 & 5 Star (Class A & B) space continuing an upward trend in net absorptions while 1,2 and 3 Star absorptions declined over the same period in the submarket. Rents showed a modest 1% increase compared to the historic 1.3% average in Orange County, bringing average rents to $23.42 per square foot.

Orange County Office Net Absorption, Net Deliveries and Vacancy Rate



Source: CoStar Group 2017

SE Alamance County Office Supply: The Burlington/Alamance market contains six submarkets, including the SE Alamance submarket containing 78,000 square feet of office space. A mere 2% the size of Orange County's office submarket, this signifies the comparative limited supply in this submarket. The ten-year trend of volatility of the overall Alamance County and the SE submarket office sector is evident in the graphic below. In SE Alamance County vacancies increased from a three-year trend of 0% to 3.7%, with negative net absorption of -3,000 square feet. Rents also showed a decline with -0.1% rent growth through the Q4 2017 bringing average rents to $13.91 per square foot, approximately 40% lower than rents in Orange County.

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SE Alamance County Office Net Absorption, Net Deliveries and Vacancy Rate



Source: CoStar Group 2017

Industrial product is tracked by two types: Warehouse/Distribution and Flex/Light Industrial, which combines office and industrial space in various ratios to include drive-in or dock-high overhead doors. While warehouse/distribution space dominates the Alamance County market, the product found along the corridor in both counties includes flex/light industrial.

Orange County Light Industrial Supply: With over 1.5 million square feet of light industrial space in the Orange County submarket, CoStar reported tight vacancies of 1.2%, well below the overall market vacancy of just under 6% for the past twelve months. No new deliveries were reported in the submarket during the past twelve months. For the same period rents increased by 4.8% with CoStar forecasting annual rent growths to level in the coming year, bringing the average rent to $6.83 per square foot.

Orange County Light Industrial Net Absorption, Net Deliveries and Vacancy Rate



Source: CoStar Group 2017

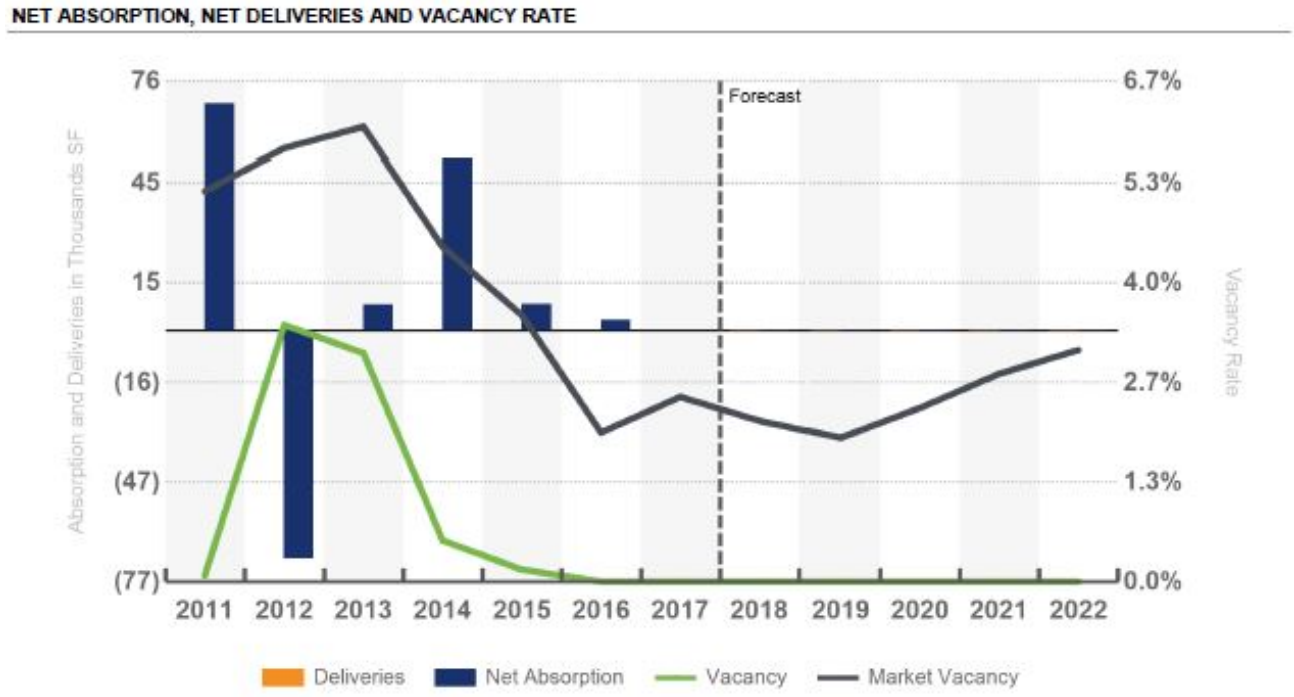
The WM3 (watershed light industrial) Zoning District in Carrboro (Orange County) was amended in 1983 to confine prior or grandfathered uses, stating that "this area shall not be expanded, and no new WM-3 areas shall be designated." Therefore, despite demand for this product type, additional future industrial uses or developments are severely restricted in the central and eastern portions of the corridor.

There are two proposed light industrial/commercial development projects along the corridor located within the Town of Carrboro zoning jurisdiction:

- Matthews Family Building, 609-611 NC54W – construction of an additional 3,000 sq. ft. single story flex industrial building on existing commercial site (approved in 2007).
- Boer Bros. Office, 626 & 630 NC54W – construction of 15,306 sq. ft. building including office and industrial warehouse storage on old Safelle Company site, which previously burned down.

SE Alamance County Light Industrial Supply: CoStar reports over 2 million square feet of light industrial space in the SE Alamance County submarket. Vacancies remained at 0% through 4Q 2017 with CoStar projecting the same through 2021. Rents increased by a healthy 4.6% during the same period, bringing average rents to $3.45 per square foot, lower than the Orange County market. Lacking any net absorption or new deliveries and with no new space under construction, the submarket is poised to support additional new light industrial space.

SE Alamance County Light Industrial Net Absorption, Net Deliveries and Vacancy Rate



Source: CoStar Group 2017

Shopping & Entertainment

The retail industry is dramatically changing and exercising caution as it focuses on profitability and online sales over expansion through new store openings. Retail formats are shrinking and shifting from traditional malls and shopping centers to mixed-use, and more urban Main Street formats. The corridor provides opportunities to provide new retail lifestyle environments in appropriate locations that appeal to local residents and students, as well as visitors traveling to and through the area.

Retail Demand Dynamics

The demand dynamics for retail differ from other uses, as demand comes primarily from population, household and income growth. The disparate average household income between the counties suggest that the primary disposable income and retail demand resides in Orange County. In addition to population and income, the volume of automobile traffic is an important factor for the success of retail. The 2017 annual average daily traffic volume collected by VHB indicates that the areas carrying the greatest traffic to support retail lie at either end of the corridor – at the Woody Drive and Old Fayetteville Rd. economic nodes, which serve as destinations.

> *"MILLENNIALS ARE EXPECTED TO DRIVE GROWTH IN SUBURBAN SHOPPING AS THEY AGE, FORM FAMILIES AND SEEK PLACES TO LIVE AS AFFORDABILITY CONCERNS RISE IN URBAN AREAS. DEVELOPERS OF SUBURBAN DESTINATIONS WANT TO CREATE MIXED-USE DISTRICTS THAT HAVE AN URBAN FEEL AND ARE WALKABLE."*
>
> *~ GARRICK BROWN, CUSHMAN & WAKEFIELD @ 2016 ICSC CONVENTION*

Employment in retail industry sectors (Retail Trade and Food Services) totals 13.20% in Orange County and 25.21% in Alamance County, providing jobs and bringing consumer expenditures to the region. As mentioned, trade areas include several components that determine which retail operators might find adequate demand for their goods/services and retail sales potential. Given the dynamics of the NC 54 corridor serving both destination and convenience-oriented businesses, the trade areas around each economic node are defined as primary and secondary trade areas within 10- minute and 20- minute drive times, respectively. Consumer Expenditures outline the average dollars spent in major retail segments on an annual basis within each trade area and assess both demand and supply factors based upon consumer incomes and spending. These are used to determine gaps in the market for each segment.

Retail Gap

Retail gaps compare the actual dollar expenditures within each category measured against demand within a given trade area. Negative gaps (surplus) suggest oversupply or a market where customers are drawn in from outside the area as in destination-oriented retail, while positive gaps (leakage) indicate areas of opportunity for additional retail within a given trade area. Where gaps exist in select categories, the potential expenditures must meet the income thresholds of per square foot sales. The surplus and leakage for the industry group sectors (3-digit NAICS) and subsectors (4-digit NAICS) in the primary and secondary trade areas for both the Woody Drive and Old Fayetteville Economic Nodes can be found below. While there are negative gaps (surplus) in most group sectors at Woody Drive, some of the subsectors demonstrate leakage opportunities within the trade area:

Retail Gap Opportunities for NC54 @ Woody Drive			
Retail Industry Group	**NAICS #**	**Primary (10 minute drive)**	**Secondary (20 minute drive)**
Motor Vehicles & Parts Dealers	**441**	($124,011,086)	$41,851,435
Automobile Dealers	4411	($112,645,566)	$43,346,613
Other Motor Vehicle Dealers	4412	($124,097)	$8,946,088
Furniture & Home Furnishings Stores	**442**	($3,490,327)	($103,419,058)
Home Furnishings Stores	4422	$372,894	($79,757,309)
Electronics & Appliance Stores	**443**	($123,964)	$2,488,317
Clothing & Clothing Accessories Stores	**448**	($22,045,931)	($23,844,184)
Jewelry, Luggage & Leather Goods Stores	4483	$1,874,550	$4,538,096
Sporting Goods, Hobby, Book & Music Stores	**451**	($4,729,701)	($59,601,765)
Book, Periodical & Music Stores	4512	$529,201	($654,853)
Miscellaneous Store Retailers	**453**	($35,018,069)	($129,469,146)
Florists	4531	($97,507)	$560,343
Office Supplies, Stationery & Gift Stores	4532	$3,024,364	($30,902,729)
Nonstore Retailers	**454**	$1,410,424	($9,928,888)
Electronic Shopping & Mail-Order Houses	4541	$3,959,579	$14,821,048
Vending Machine Operators	4542	$316,448	($6,023,110)
Food Services & Drinking Places	**722**	($71,361,839)	($76,809,499)
Drinking Places - Alcholic Beverages	7224	$3,584,160	$9,910,017

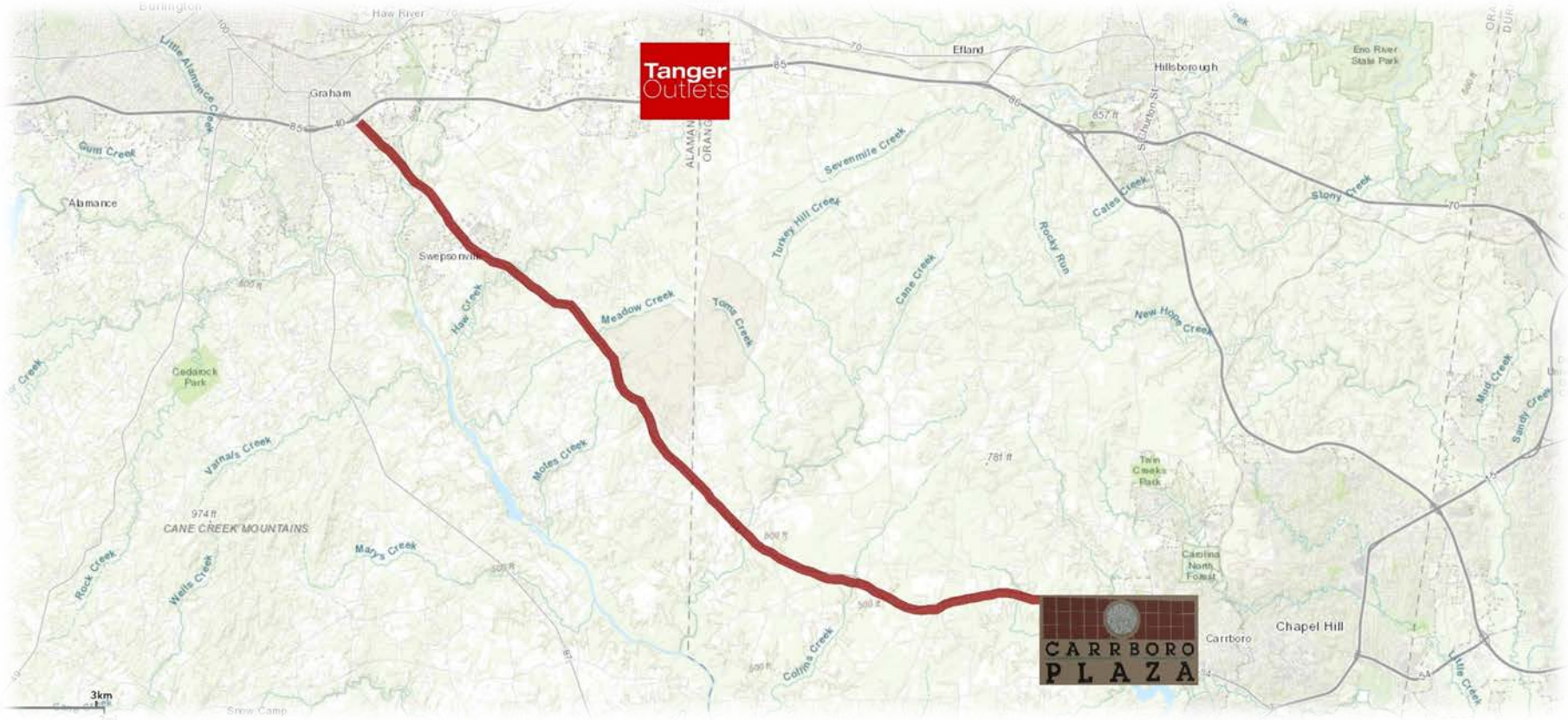
Retail Gap Opportunities for NC54 @ Old Fayetteville Rd.			
Retail Industry Group	**NAICS #**	**Primary (10 minute drive)**	**Secondary (20 minute drive)**
Motor Vehicles & Parts Dealers	**441**	$141,084,581	($35,000,668)
Furniture & Home Furnishings Stores	**442**	$25,641,041	$30,968,741
Electronics & Appliance Stores	**443**	$15,323,456	$12,059,638
Bldg Materials, Garden Equip. & Supply Stores	**444**	$19,734,429	$56,077,918
Food & Beverage Stores	**445**	$18,602,865	$26,561,183
Health & Personal Care Stores	**446**	$7,209,702	$19,414,943
Gasoline Stations	**447**	$37,032,914	$103,899,943
Clothing & Clothing Accessories Stores	**448**	$19,346,927	($81,794,750)
Sporting Goods, Hobby, Book & Music Stores	**451**	$1,086,621	($99,534,123)
General Merchandise Stores	**452**	$94,306,081	$83,372,823
Miscellaneous Store Retailers	**453**	$12,566,634	($4,352,980)
Nonstore Retailers	**454**	$5,661,395	$7,208,190
Food Services & Drinking Places	**722**	($15,027,928)	($57,765,436)

Source: Rose Associates, STDB/ESRI - 2017 Retail Profile

Due to the high volume of leakage for the primary trade area at Old Fayetteville Rd. (see table above), please reference the Appendix for further information on the gap analyses for the subsectors of the retail industry (4-digit NAICS #) for each node. Comparison of the two nodes indicates a substantially larger gap (leakage) surrounding the Old Fayetteville Rd. economic node.

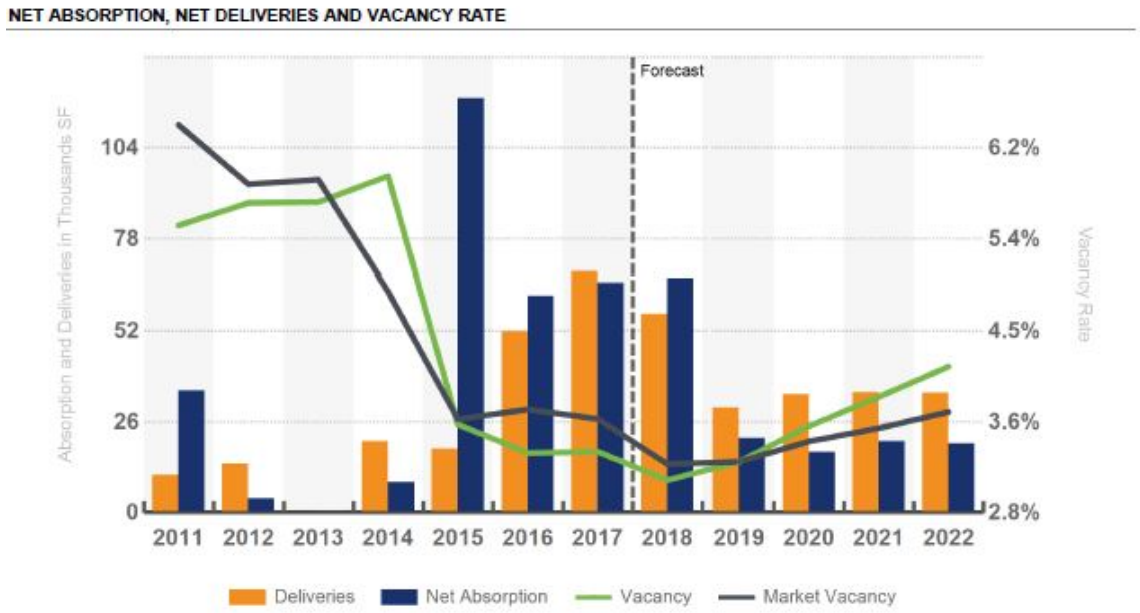
Retail Space Supply

Regional and local shopping venues along or adjacent to the corridor provide goods/services for a wide variety of categories. The two having the greatest impact on the NC 54 corridor include the Tanger Outlet Center totaling 318,910 square feet with 80+ upscale outlet stores in Mebane (Alamance County) at Exit 154 and the Carrboro Plaza shopping center at Old Fayetteville Road in Carrboro (Orange County), which includes a Food Lion grocery store anchor and various outparcels, including a variety of international cuisine restaurants. For the local shopper, a visit to the outlets and big-box regional centers generate 12-15 trips per year, while local neighborhood shopping centers generate 35-40 trips per year.



Orange County Retail Supply: CoStar reports on the Durham retail market which contains seven submarkets, including Orange County. The submarket vacancy rate of 3.4% mirrored the trend of declining vacancies in the overall market during the twelve-month reporting period. With over 4.4 million square feet of rental space in the submarket, the highest vacancies were reported in Mall space; a full 10% compared with 1.1% vacancy in Power Centers and 3.1% vacancy in Neighborhood Centers. Within the submarket overall rent growth was minimal at 0.9% yet average rents in the submarket ($20.07) continuing to outpace the overall Durham market by almost $2.00. Deliveries for the past twelve months were 69,000 square feet with a net absorption of 67,000 square feet.

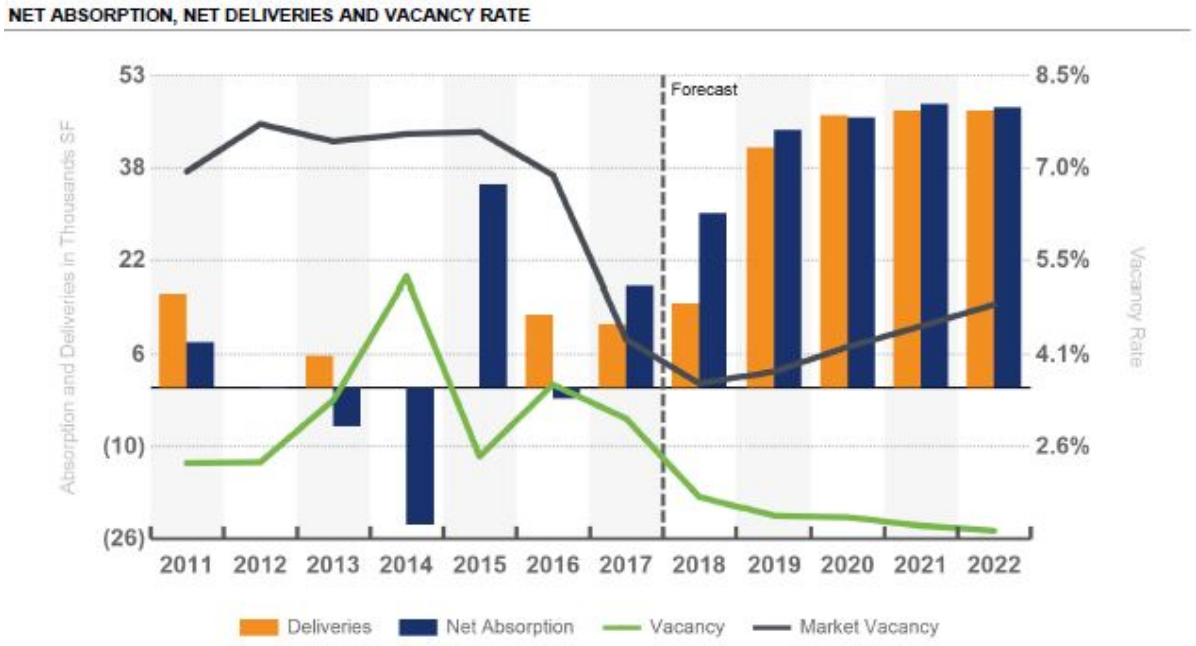
Orange County Retail Net Absorption, Net Deliveries and Vacancy Rate



Source: CoStar Group 2017

SE Alamance County Retail Supply: SE Alamance County is one of six submarkets in Alamance County reported by CoStar. Vacancies in the submarket continued their downward trend to 3% for Q4 2017 with the overall Alamance County market following the trend with vacancy near 4%. CoStar projects retail vacancies to continue to decrease in SE Alamance in the next 24 months. With only 1.2 million square feet of rental space in the submarket, this trend suggests additional new retail space may be needed. However, with average rents of $12.39, additional new product will be challenged by rising construction costs. Other indicators include 15,000 square feet of net absorption, a minimal 9,000 square feet of deliveries in the past twelve months and only 2,000 square feet under construction for the future.

Alamance County Retail Net Absorption, Net Deliveries and Vacancy Rate



Source: CoStar Group 2017

Summary

While the primary focus of the study is transportation, existing and future land uses will influence the corridor. There are currently stresses during peak a.m./p.m. commute times in sections of the corridor confined to two lanes, thus transportation improvements and land use development decisions based upon regional development pressures must consider the experience for all users.

While demand dynamics support additional commercial product development in the economic nodes, physical limitations, topography and zoning may limit development in one or more of these areas. Each economic node could benefit from additional office and/or light industrial product, where appropriate. Consumer trends and the preponderance of mixed-use and infill development throughout the region also suggest that in addition to retail, dining and entertainment, additional housing may also be considered to be integrated and support other product types. Housing markets and options are further detailed in the next section.

Real Estate Demand & Product Type (10 Year Build Out)		
	Alamance County	Orange County
Corridor Capture Rate	5%	10%
Office	20,000 s.f.	8,000 s.f.
Industrial	119,000 s.f.	nominal
Retail	62,000 s.f.	141,000 s.f.

Housing Demand

Housing demand is driven by two factors: employment growth and population growth, which in turn results in household growth. New residents are attracted by jobs in the region or those relocating for lifestyle preferences. They may also choose an area based on affordability. This results in a wide range of potential housing demand, given the disparity between job and population growth estimates. Housing demand influenced by job growth has resulted in more commuters through the corridor.

An industry benchmark for housing based on employment suggests that for every 100 new jobs, 80 new housing units are needed. Demand based on anticipated job growth and the ratio of employees to population provides insight for housing demand within each county:

Employment Growth to Housing	Alamance County	Orange County
Total Businesses	5,130	4,986
Total Employees	68,809	102,910
Total Resident Population	161,563	143,125
Employee/Resident Population Ratio	0.43	0.72
Annual Estimated Employment Growth	1,518	3,301
Annual Housing Unit Demand	1,214	2,641

Source: Rose Associates, ESRI 2017

Estimated population growth over the next five years (2017 – 2022) presumes demand of housing units based upon average household size for each area. Annual housing demand is substantially lower than that estimated from job growth. With the estimated continued rise in home pricing, this suggests demand for market rate new rental units as well as single-family homes. This coincides with the lifestyle preferences of those living in and around the corridor, as described in the Tapestry© segments (see Appendix for details).

Estimated Population Growth	Alamance County	Orange County	City of Graham	Town of Carrboro
2017 Total Population	161,563	143,125	14,447	20,970
2022 Estimated Total Population	169,151	150,231	15,056	21,976
Added Population	7,588	7,106	609	1,006
2017 Average HH Size	2.46	2.45	2.41	2.31

Source: Rose Associates, ESRI 2017

Housing Unit Demand (2017 – 2022)	3,085	2,900	253	435

Next, housing demand based upon predicted household growth is evaluated, which provides another perspective regarding home values and affordability. The table below indicates estimated growth or contraction (as shown in red) for each housing value segment. The reduction in lower value range housing is presumed to be a function of rising demand, home values and construction costs:

Housing Data Summary	Alamance County			Orange County		
	2010	2017	2022	2010	2017	2022
Total Population	151,131	161,563	169,151	133,801	143,125	150,231
Households	59,960	63,783	66,734	51,457	54,665	57,217
Average Household Size	2.45	2.46	2.47	2.41	2.45	2.46
Total Housing Units	66,576	70,712	74,034	55,597	59,069	61,764
Owner Occupied	60.2%	57.5%	57.3%	55.6%	52.5%	52.4%
Owner Occupied Total	-	40,669	11,961	-	30,987	32,372
Owner Occupied Housing Units by Value						
<$50,000	-	10.6%	8.4%	-	4.6%	3.0%
$50,000 - $99,000	-	16.6%	14.7%	-	4.0%	3.0%
$100,000 - $149,000	-	23.2%	21.9%	-	7.4%	5.9%
$150,000 - $199,999	-	18.1%	17.2%	-	10.6%	8.7%
$200,000 - $249,999	-	9.8%	9.7%	-	11.1%	9.2%
$250,000 - $299,999	-	7.0%	7.7%	-	9.7%	9.0%
$300,000 - $399,999	-	7.3%	9.2%	-	17.2%	17.8%
$400,000 - $499,999	-	3.4%	4.9%	-	13.1%	15.2%
$500,000 - $749,999	-	2.6%	3.8%	-	13.3%	16.3%
$750,000 - $999,999	-	0.7%	1.0%	-	4.6%	5.9%
$1,000,000 +	-	0.7%	1.3%	-	4.5%	5.9%
Average Home Value	-	$188,691	$217,440	-	$381,424	$428,796
Renter Occupied	29.8%	32.7%	32.8%	36.9%	40.1%	40.2%
Vacant Housing Units	9.9%	9.8%	9.9%	7.4%	7.5%	12.3%

Source: Rose Associates, ESRI 2017

Housing Supply

Single family home prices are tracked by local realtor organizations, which include existing homes and new construction. Months of Supply Inventory dropped by 50% in Alamance County and was reported to be 20% lower in Orange County from 2016 to 2017. These historically low levels of inventory continue to drive home builders to find land, develop lots and have available product in the market. This most notable with the residential development of over 600 units of housing along NC 119 north of NC 54 corridor. Single family home permits totaled 887 in Alamance County, and 496 in Orange County for 2016, according to County/US Census figures.

Housing Market November 2017	Alamance County	Orange County
New Listings	79	117
Median Sales Price	$175,000	$350,000
Average Sales Price	$225,417	$409,384
Percent of List Price Received	97.4%	98.8%
Months of Supply Inventory	2.5	2.6

Source: Rose Associates, Triangle MLS, Fonville Morisey

"To date, the Triad market has been mostly dominated by a handful of builders focused on products targeting buyers seeking homes priced under $250k, particularly buyers who might already be priced out of the more expensive communities in the nearby Triangle housing market and are willing to commute for jobs,". "As the Triad housing market continues to stabilize and start to grow again, it's attracting the attention of a larger pool of builder companies both regionally and nationally that could increase competition in the region."

-Amanda Hoyle, Regional Director of Metrostudy's Triad region

The apartment market throughout the region has also experienced significant growth. RENT Café, which analyzes new apartment construction in 134 US metro areas, reports the Burlington MSA is expected to add 1,264 new multi- family units in the coming months. The Piedmont Triad Apartment Association reported a 6.5 % vacancy rate. According to Executive Director Jon Lowder, "Construction in the Triad, while strong, has not been as white-hot as other larger markets like Charlotte and Raleigh, which has helped our rent and vacancy rates. We are starting to see more apartment acquisitions by non-local companies, likely because the larger markets have been saturated, and they are now moving into secondary and tertiary markets like those in the Triad in order to find adequate returns on investment." 2017 Triangle Submarket reports Orange County has a total of 11,635 units, or 9% of the Raleigh-Durham market with an asking rent of $991, 6% below the average asking rent for the market. With a 7.7% vacancy rate, this is just below the market average of 8%.



Watercourse Apartments *Source: Google Maps*

Within the NC 54 corridor, Signature Development recently built Watercourse, a 288-unit apartment complex, just off Interstate 85-40 at Exit 148 in Alamance County. Lease up has been reported as unexpectedly strong, prompting the expansion and addition of 260 more rental apartment units adjacent to this complex.

Housing Summary

The two largest population groups in terms of housing demand are Millennials and Baby Boomers/early retiree groups. Extensive research, including multiple national surveys, concluded that the housing preferences of these groups while similar, are substantially different than much of the existing housing stock. Millennials are primarily renters; both because they don't have the funds to buy a house and, for some, because they are making a lifestyle decision to rent rather than own. They want to live where you can walk to things, where a lot of others just like them live and where arts, culture, restaurants, and clubs are available. Access to downtowns and to vibrant mixed-use and town centers are what both generations seek.

The same dynamics driving the demand for more mixed-use development within the Carrboro area is also a driver for the same uses on the opposite end of the corridor. As noted in Tapestry and other reports, residents of all ages/cohorts are making housing and location choices on affordability and commuting patterns. As Orange County's constraints push land and development costs, the availability of existing zoned land in Graham and Alamance County, will continue to support demand for more affordable new housing within commuting distance into Orange County. This is consistent with the vision of Graham's Long-Range Land Use Plan to support a mix of residential uses.

Another housing trend to consider along the corridor in the Heritage Zone is the integration of farming, gardens and food into the fabric of neighborhoods. This "back to roots" movement with more rural lifestyles is fueling the concept of Agrihoods [https://urbanland.uli.org/inside-uli/video-agrihoods-food-halls-connection-food-real-estate/] Agrihoods are new communities which have as their centerpiece a farm or garden, which residents may actively engage in with family and enjoy as an amenity.

Two examples of Agrihoods include Serenbe Farms, in Chattahoochee Hills, GA and Wetrock Farms in Durham, North Carolina:

Serenbe Farms [https://serenbefarms.com/] is a certified organic 8-acre farm nestled in a sustainable residential community. They together grow their food on site and host a farmer's market for the community. Serenbe Farms has been a model for other Argrihoods around the southeast.



Farm Managers @ Serenbe Farms



Wetrock Farms © Diana Pappas

Wetrock Farms [http://www.wetrockfarm.com/] is a new community with single family homes, an organic farm, and over 100 acres of preserved open space. Just 15 minutes from the heart of Durham, the 230-acre community is being development among the gently-sloping fields of northern Durham County. According to its website, "A life at Wetrock Farm allows for residents to connect with their neighbors, to the nourishing food they eat, and to the natural environment that surrounds them. The development reaches beyond its borders to make an impact, connecting with the entire Triangle community and prioritizing the preservation of our environment."

1.5 Corridor Strategies

1.5.1 Economic Nodes

As outlined in the Executive Summary, Section 1.2.4, the key findings for the corridor include land use, economic development and transportation strategies. We identified targeted areas along the corridor in which there are existing central places, or centers of influence, as well as transportation patterns, existing infrastructure/investment, proposed development and available property, ripe for development and/or redevelopment. The economic nodes are located at intersections within 4-5 lane sections of the corridor. The nodes in Alamance County, located at Woody Drive and NC 119 suggest the following land use strategies:

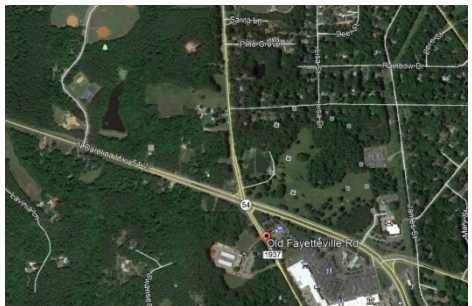
Woody Drive has already begun the transition from highway commercial at the interchange, to a mix of uses, including industrial, a gas station, a hotel, medical facility and the most recent addition of 288+ apartments in the Watercourse development. This area would benefit from continued expansion of employment (office/industrial) as well as retail and dining options to support the additional housing that has been constructed and successfully leased. Additional retail and dining options would also support the existing lodging.

NC 119 has experienced significant growth of single-family housing, including the addition of a new high school and a 600-unit development north of the NC 54 corridor. The existing employment and future growth of housing in this node suggests expanded convenience-oriented retail, to perhaps include a grocery store, when and/or if the requisite utilities and infrastructure are in place.

In Orange County, the dynamics of population, economy and regulatory constraints drive the need for more mixed-use development, which should include office/workspace options to support additional housing and retail. Lifestyle developments will support Carrboro's downtown retail market and expand offerings for residents and visitors. Market demand and development pressures on the parcels in the Old Fayetteville Road area suggests expansion of employment (workplace), retail and entertainment options, as well as additional housing choices.







Land use product types and design should be further developed through a small area planning process for each of the economic nodes, so that future development may be driven by local policy and vision, highest and best use, and market forces. Economic Development may occur in each of the zones by adding additional employment and lifestyle options, based upon each future small area plan. This will assist in attracting private investment to fund public infrastructure projects.

Woody Drive *NC 119* *Old Fayetteville Rd.*

Through future transportation infrastructure projects, public investment in mobility improvements will demonstrate willingness for public-private partnership and support private investment. This includes intersection improvements, crosswalks, sidewalks and bike pathways where appropriate to improve the user experience, ensure safety and create additional investment opportunities.

1.5.2 Heritage Zone

The existence of significant historical, recreational and agricultural assets along and adjacent to the corridor, together with the corridor's popularity for cyclists, suggests strategies for preservation over development, and tourism over traditional employment based economic development. While local workforce, students, commuters and residents predominantly drive economic growth along the corridor, the current and potential economic impact of tourism for the corridor cannot be understated.

Land use strategies supporting tourism, including some limited development of agrihoods and farms which promote agritourism could be considered. From a tourism perspective, branding and marketing of the corridor from a combined effort on behalf of the multiple jurisdictions would strengthen the success of each of the existing assets. This would further support current collaborative efforts for recreational assets, such as the Mountains to Sea Trail.

However, such focus on a marketing and branding campaign will drive additional traffic, and so the delicate balance between cars, cyclists and pedestrians must be taken into consideration. Therefore, transportation strategies and projects at various intersections along this section of the corridor must transition the experience for all users – and create a unique experience as it transitions from country rural byway to more urbanized areas at either end of the corridor. Both can equally co-exist, providing convenience, lifestyle amenities and economic benefits for all.



NC54 Heritage Zone

1.6 Appendix & References

Sources:

- CoStar Group
- Fonville Morisey
- Google Earth
- International Council of Shopping Centers (ICSC)
- Orange County Economic Development
- Metrostudy
- NC Department of Commerce
- Rent Café
- Triangle Multiple Listing Service (MLS)
- US Bureau of Labor Statistics
- Visit North Carolina
- Wells Fargo Securities Economics Group

Data/Reports (attached):

- ESRI Community Profiles
- ESRI Retail Marketplace Profiles (Nodes)
- ESRI Tapestry Segment Descriptions

We thank the following Study Team members and Stakeholders for their insights and input into our deliberations:

- Tom Hartman, Alamance Community College
- Steve Brantley, Orange County Economic Development
- Patty Griffin, Orange County/Chapel Hill Visitors Bureau
- Mac Williams, Alamance County Chamber/Economic Development
- Laurie Paolicelli, Orange County/Chapel Hill Visitors Bureau
- Freddie Wynn, Honda Power Equipment
- Doug Williams, Buckner Companies/RiverMill Village
- Daniel Habla, Alexander Wilson Elementary School
- Annette Lafferty, Carrboro Economic & Community Development

Community Profile

Alamance County, NC
Alamance County, NC (37001)
Geography: County

Prepared by Esri

	Alamance Coun...
Population Summary	
2000 Total Population	130,800
2010 Total Population	151,131
2017 Total Population	161,563
2017 Group Quarters	4,599
2022 Total Population	169,151
2017-2022 Annual Rate	0.92%
2017 Total Daytime Population	152,500
Workers	65,129
Residents	87,371
Household Summary	
2000 Households	51,584
2000 Average Household Size	2.46
2010 Households	59,960
2010 Average Household Size	2.45
2017 Households	63,783
2017 Average Household Size	2.46
2022 Households	66,734
2022 Average Household Size	2.47
2017-2022 Annual Rate	0.91%
2010 Families	39,848
2010 Average Family Size	2.98
2017 Families	41,858
2017 Average Family Size	3.01
2022 Families	43,561
2022 Average Family Size	3.03
2017-2022 Annual Rate	0.80%
Housing Unit Summary	
2000 Housing Units	55,463
Owner Occupied Housing Units	65.2%
Renter Occupied Housing Units	27.8%
Vacant Housing Units	7.0%
2010 Housing Units	66,576
Owner Occupied Housing Units	60.2%
Renter Occupied Housing Units	29.8%
Vacant Housing Units	9.9%
2017 Housing Units	70,712
Owner Occupied Housing Units	57.5%
Renter Occupied Housing Units	32.7%
Vacant Housing Units	9.8%
2022 Housing Units	74,034
Owner Occupied Housing Units	57.3%
Renter Occupied Housing Units	32.8%
Vacant Housing Units	9.9%
Median Household Income	
2017	$45,117
2022	$49,259
Median Home Value	
2017	$149,182
2022	$164,401
Per Capita Income	
2017	$25,063
2022	$28,263
Median Age	
2010	38.5
2017	39.8
2022	40.3

Data Note: Household population includes persons not residing in group quarters. Average Household Size is the household population divided by total households. Persons in families include the householder and persons related to the householder by birth, marriage, or adoption. Per Capita Income represents the income received by all persons aged 15 years and over divided by the total population.

Source: U.S. Census Bureau, Census 2010 Summary File 1. Esri forecasts for 2017 and 2022 Esri converted Census 2000 data into 2010 geography.

July 25, 2017

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	Alamance Coun...
2017 Households by Income	
Household Income Base	63,783
<$15,000	13.7%
$15,000 - $24,999	13.1%
$25,000 - $34,999	12.1%
$35,000 - $49,999	15.0%
$50,000 - $74,999	17.8%
$75,000 - $99,999	11.9%
$100,000 - $149,999	10.9%
$150,000 - $199,999	2.8%
$200,000+	2.7%
Average Household Income	$62,215
2022 Households by Income	
Household Income Base	66,734
<$15,000	13.7%
$15,000 - $24,999	12.4%
$25,000 - $34,999	10.9%
$35,000 - $49,999	13.5%
$50,000 - $74,999	15.4%
$75,000 - $99,999	14.2%
$100,000 - $149,999	13.4%
$150,000 - $199,999	3.3%
$200,000+	3.2%
Average Household Income	$70,424
2017 Owner Occupied Housing Units by Value	
Total	40,669
<$50,000	10.6%
$50,000 - $99,999	16.6%
$100,000 - $149,999	23.2%
$150,000 - $199,999	18.1%
$200,000 - $249,999	9.8%
$250,000 - $299,999	7.0%
$300,000 - $399,999	7.3%
$400,000 - $499,999	3.4%
$500,000 - $749,999	2.6%
$750,000 - $999,999	0.7%
$1,000,000 +	0.7%
Average Home Value	$188,691
2022 Owner Occupied Housing Units by Value	
Total	42,415
<$50,000	8.4%
$50,000 - $99,999	14.7%
$100,000 - $149,999	21.9%
$150,000 - $199,999	17.2%
$200,000 - $249,999	9.7%
$250,000 - $299,999	7.7%
$300,000 - $399,999	9.2%
$400,000 - $499,999	4.9%
$500,000 - $749,999	3.8%
$750,000 - $999,999	1.0%
$1,000,000 +	1.3%
Average Home Value	$217,440

Data Note: Income represents the preceding year, expressed in current dollars. Household income includes wage and salary earnings, interest dividends, net rents, pensions, SSI and welfare payments, child support, and alimony.
Source: U.S. Census Bureau, Census 2010 Summary File 1. Esri forecasts for 2017 and 2022 Esri converted Census 2000 data into 2010 geography.

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	Alamance Coun...
2010 Population by Age	
Total	151,131
0 - 4	6.3%
5 - 9	6.5%
10 - 14	6.6%
15 - 24	14.5%
25 - 34	11.4%
35 - 44	13.7%
45 - 54	14.5%
55 - 64	11.9%
65 - 74	7.6%
75 - 84	4.9%
85 +	2.1%
18 +	76.5%
2017 Population by Age	
Total	161,563
0 - 4	5.8%
5 - 9	6.1%
10 - 14	6.1%
15 - 24	14.1%
25 - 34	12.2%
35 - 44	12.1%
45 - 54	13.5%
55 - 64	13.0%
65 - 74	9.7%
75 - 84	4.9%
85 +	2.4%
18 +	78.5%
2022 Population by Age	
Total	169,151
0 - 4	5.7%
5 - 9	5.9%
10 - 14	6.2%
15 - 24	13.5%
25 - 34	12.3%
35 - 44	12.1%
45 - 54	12.4%
55 - 64	13.2%
65 - 74	10.7%
75 - 84	5.8%
85 +	2.3%
18 +	78.7%
2010 Population by Sex	
Males	71,890
Females	79,241
2017 Population by Sex	
Males	77,234
Females	84,329
2022 Population by Sex	
Males	81,206
Females	87,945

Source: U.S. Census Bureau, Census 2010 Summary File 1. Esri forecasts for 2017 and 2022 Esri converted Census 2000 data into 2010 geography.

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	Alamance Coun...
2010 Population by Race/Ethnicity	
Total	151,131
White Alone	71.1%
Black Alone	18.8%
American Indian Alone	0.7%
Asian Alone	1.2%
Pacific Islander Alone	0.0%
Some Other Race Alone	6.1%
Two or More Races	2.1%
Hispanic Origin	11.0%
Diversity Index	56.5
2017 Population by Race/Ethnicity	
Total	161,563
White Alone	68.3%
Black Alone	19.5%
American Indian Alone	0.7%
Asian Alone	1.8%
Pacific Islander Alone	0.0%
Some Other Race Alone	7.3%
Two or More Races	2.4%
Hispanic Origin	13.1%
Diversity Index	61.0
2022 Population by Race/Ethnicity	
Total	169,151
White Alone	66.0%
Black Alone	19.7%
American Indian Alone	0.7%
Asian Alone	2.3%
Pacific Islander Alone	0.0%
Some Other Race Alone	8.4%
Two or More Races	2.8%
Hispanic Origin	14.9%
Diversity Index	64.5
2010 Population by Relationship and Household Type	
Total	151,131
In Households	97.2%
In Family Households	80.8%
Householder	26.4%
Spouse	18.7%
Child	29.9%
Other relative	3.5%
Nonrelative	2.2%
In Nonfamily Households	16.4%
In Group Quarters	2.8%
Institutionalized Population	0.6%
Noninstitutionalized Population	2.2%

Data Note: Persons of Hispanic Origin may be of any race. The Diversity Index measures the probability that two people from the same area will be from different race/ethnic groups.
Source: U.S. Census Bureau, Census 2010 Summary File 1. Esri forecasts for 2017 and 2022 Esri converted Census 2000 data into 2010 geography.

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	Alamance Coun...
2017 Population 25+ by Educational Attainment	
Total	109,758
Less than 9th Grade	5.8%
9th - 12th Grade, No Diploma	9.8%
High School Graduate	22.1%
GED/Alternative Credential	6.3%
Some College, No Degree	23.0%
Associate Degree	10.1%
Bachelor's Degree	15.4%
Graduate/Professional Degree	7.5%
2017 Population 15+ by Marital Status	
Total	132,477
Never Married	30.5%
Married	51.0%
Widowed	6.8%
Divorced	11.7%
2017 Civilian Population 16+ in Labor Force	
Civilian Employed	94.3%
Civilian Unemployed (Unemployment Rate)	5.7%
2017 Employed Population 16+ by Industry	
Total	75,104
Agriculture/Mining	1.2%
Construction	7.1%
Manufacturing	16.0%
Wholesale Trade	2.2%
Retail Trade	12.3%
Transportation/Utilities	2.7%
Information	1.2%
Finance/Insurance/Real Estate	5.4%
Services	48.4%
Public Administration	3.6%
2017 Employed Population 16+ by Occupation	
Total	75,104
White Collar	56.0%
Management/Business/Financial	12.4%
Professional	19.3%
Sales	11.0%
Administrative Support	13.3%
Services	17.6%
Blue Collar	26.3%
Farming/Forestry/Fishing	0.6%
Construction/Extraction	5.7%
Installation/Maintenance/Repair	4.3%
Production	9.9%
Transportation/Material Moving	5.7%
2010 Population By Urban/ Rural Status	
Total Population	151,131
Population Inside Urbanized Area	71.4%
Population Inside Urbanized Cluster	0.0%
Rural Population	28.6%

Source: U.S. Census Bureau, Census 2010 Summary File 1. Esri forecasts for 2017 and 2022 Esri converted Census 2000 data into 2010 geography.

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	Alamance Coun...
2010 Households by Type	
Total	59,960
Households with 1 Person	27.8%
Households with 2+ People	72.2%
Family Households	66.5%
Husband-wife Families	47.2%
With Related Children	19.8%
Other Family (No Spouse Present)	19.2%
Other Family with Male Householder	4.7%
With Related Children	2.9%
Other Family with Female Householder	14.5%
With Related Children	9.6%
Nonfamily Households	5.7%
All Households with Children	32.8%
Multigenerational Households	3.7%
Unmarried Partner Households	6.0%
Male-female	5.3%
Same-sex	0.7%
2010 Households by Size	
Total	59,960
1 Person Household	27.8%
2 Person Household	34.0%
3 Person Household	17.2%
4 Person Household	12.5%
5 Person Household	5.5%
6 Person Household	1.9%
7 + Person Household	1.1%
2010 Households by Tenure and Mortgage Status	
Total	59,960
Owner Occupied	66.9%
Owned with a Mortgage/Loan	45.4%
Owned Free and Clear	21.4%
Renter Occupied	33.1%
2010 Housing Units By Urban/ Rural Status	
Total Housing Units	66,576
Housing Units Inside Urbanized Area	71.6%
Housing Units Inside Urbanized Cluster	0.0%
Rural Housing Units	28.4%

Data Note: Households with children include any households with people under age 18, related or not. Multigenerational households are families with 3 or more parent-child relationships. Unmarried partner households are usually classified as nonfamily households unless there is another member of the household related to the householder. Multigenerational and unmarried partner households are reported only to the tract level. Esri estimated block group data, which is used to estimate polygons or non-standard geography.
Source: U.S. Census Bureau, Census 2010 Summary File 1. Esri forecasts for 2017 and 2022 Esri converted Census 2000 data into 2010 geography.

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		Alamance Coun...
Top 3 Tapestry Segments		
	1.	Southern Satellites (10A)
	2.	Middleburg (4C)
	3.	Rustbelt Traditions (5D)
2017 Consumer Spending		
Apparel & Services: Total $		$106,081,306
Average Spent		$1,663.16
Spending Potential Index		77
Education: Total $		$66,766,985
Average Spent		$1,046.78
Spending Potential Index		72
Entertainment/Recreation: Total $		$156,029,258
Average Spent		$2,446.25
Spending Potential Index		78
Food at Home: Total $		$255,910,916
Average Spent		$4,012.21
Spending Potential Index		80
Food Away from Home: Total $		$166,753,792
Average Spent		$2,614.39
Spending Potential Index		78
Health Care: Total $		$287,713,136
Average Spent		$4,510.81
Spending Potential Index		81
HH Furnishings & Equipment: Total $		$97,754,718
Average Spent		$1,532.61
Spending Potential Index		79
Personal Care Products & Services: Total $		$39,307,878
Average Spent		$616.28
Spending Potential Index		77
Shelter: Total $		$780,340,327
Average Spent		$12,234.30
Spending Potential Index		75
Support Payments/Cash Contributions/Gifts in Kind: Total $		$117,836,964
Average Spent		$1,847.47
Spending Potential Index		79
Travel: Total $		$97,918,101
Average Spent		$1,535.18
Spending Potential Index		74
Vehicle Maintenance & Repairs: Total $		$54,471,206
Average Spent		$854.01
Spending Potential Index		80

Data Note: Consumer spending shows the amount spent on a variety of goods and services by households that reside in the area. Expenditures are shown by broad budget categories that are not mutually exclusive. Consumer spending does not equal business revenue. Total and Average Amount Spent Per Household represent annual figures. The Spending Potential Index represents the amount spent in the area relative to a national average of 100.
Source: Consumer Spending data are derived from the 2013 and 2014 Consumer Expenditure Surveys, Bureau of Labor Statistics. Esri.
Source: U.S. Census Bureau, Census 2010 Summary File 1. Esri forecasts for 2017 and 2022 Esri converted Census 2000 data into 2010 geography.

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Community Profile

Graham City, NC
Graham City, NC (3727280)
Geography: Place

Prepared by Esri

	Graham city, ...
Population Summary	
2000 Total Population	12,919
2010 Total Population	13,675
2017 Total Population	14,447
2017 Group Quarters	249
2022 Total Population	15,056
2017-2022 Annual Rate	0.83%
2017 Total Daytime Population	15,072
Workers	7,189
Residents	7,883
Household Summary	
2000 Households	5,261
2000 Average Household Size	2.37
2010 Households	5,617
2010 Average Household Size	2.39
2017 Households	5,892
2017 Average Household Size	2.41
2022 Households	6,125
2022 Average Household Size	2.42
2017-2022 Annual Rate	0.78%
2010 Families	3,620
2010 Average Family Size	2.97
2017 Families	3,775
2017 Average Family Size	3.00
2022 Families	3,907
2022 Average Family Size	3.02
2017-2022 Annual Rate	0.69%
Housing Unit Summary	
2000 Housing Units	5,705
Owner Occupied Housing Units	52.8%
Renter Occupied Housing Units	39.4%
Vacant Housing Units	7.8%
2010 Housing Units	6,329
Owner Occupied Housing Units	50.6%
Renter Occupied Housing Units	38.1%
Vacant Housing Units	11.2%
2017 Housing Units	6,642
Owner Occupied Housing Units	48.9%
Renter Occupied Housing Units	39.8%
Vacant Housing Units	11.3%
2022 Housing Units	6,923
Owner Occupied Housing Units	48.6%
Renter Occupied Housing Units	39.8%
Vacant Housing Units	11.5%
Median Household Income	
2017	$38,525
2022	$40,535
Median Home Value	
2017	$133,280
2022	$139,579
Per Capita Income	
2017	$21,640
2022	$24,144
Median Age	
2010	37.3
2017	39.2
2022	39.3

Data Note: Household population includes persons not residing in group quarters. Average Household Size is the household population divided by total households. Persons in families include the householder and persons related to the householder by birth, marriage, or adoption. Per Capita Income represents the income received by all persons aged 15 years and over divided by the total population.

Source: U.S. Census Bureau, Census 2010 Summary File 1. Esri forecasts for 2017 and 2022 Esri converted Census 2000 data into 2010 geography.

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	Graham city, ...
2017 Households by Income	
Household Income Base	5,893
<$15,000	15.6%
$15,000 - $24,999	16.4%
$25,000 - $34,999	13.3%
$35,000 - $49,999	15.4%
$50,000 - $74,999	16.4%
$75,000 - $99,999	11.4%
$100,000 - $149,999	9.7%
$150,000 - $199,999	0.8%
$200,000+	1.1%
Average Household Income	$51,852
2022 Households by Income	
Household Income Base	6,125
<$15,000	15.9%
$15,000 - $24,999	15.6%
$25,000 - $34,999	12.2%
$35,000 - $49,999	14.1%
$50,000 - $74,999	14.4%
$75,000 - $99,999	13.8%
$100,000 - $149,999	11.7%
$150,000 - $199,999	1.0%
$200,000+	1.4%
Average Household Income	$58,175
2017 Owner Occupied Housing Units by Value	
Total	3,248
<$50,000	10.2%
$50,000 - $99,999	20.4%
$100,000 - $149,999	29.1%
$150,000 - $199,999	23.7%
$200,000 - $249,999	7.6%
$250,000 - $299,999	4.7%
$300,000 - $399,999	2.5%
$400,000 - $499,999	1.2%
$500,000 - $749,999	0.6%
$750,000 - $999,999	0.0%
$1,000,000 +	0.0%
Average Home Value	$143,573
2022 Owner Occupied Housing Units by Value	
Total	3,366
<$50,000	8.6%
$50,000 - $99,999	19.0%
$100,000 - $149,999	28.2%
$150,000 - $199,999	23.4%
$200,000 - $249,999	8.1%
$250,000 - $299,999	5.7%
$300,000 - $399,999	3.6%
$400,000 - $499,999	2.1%
$500,000 - $749,999	1.2%
$750,000 - $999,999	0.0%
$1,000,000 +	0.0%
Average Home Value	$156,558

Data Note: Income represents the preceding year, expressed in current dollars. Household income includes wage and salary earnings, interest dividends, net rents, pensions, SSI and welfare payments, child support, and alimony.
Source: U.S. Census Bureau, Census 2010 Summary File 1. Esri forecasts for 2017 and 2022 Esri converted Census 2000 data into 2010 geography.

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Community Profile

Graham City, NC
Graham City, NC (3727280)
Geography: Place

Prepared by Esri

	Graham city, ...
2010 Population by Age	
Total	13,675
0 - 4	7.5%
5 - 9	7.1%
10 - 14	6.9%
15 - 24	11.6%
25 - 34	14.0%
35 - 44	13.0%
45 - 54	13.5%
55 - 64	11.7%
65 - 74	7.8%
75 - 84	4.9%
85 +	2.0%
18 +	74.7%
2017 Population by Age	
Total	14,445
0 - 4	6.6%
5 - 9	6.6%
10 - 14	6.5%
15 - 24	11.8%
25 - 34	13.1%
35 - 44	12.6%
45 - 54	13.0%
55 - 64	12.3%
65 - 74	9.8%
75 - 84	5.4%
85 +	2.4%
18 +	76.6%
2022 Population by Age	
Total	15,054
0 - 4	6.6%
5 - 9	6.5%
10 - 14	6.7%
15 - 24	12.0%
25 - 34	12.7%
35 - 44	12.8%
45 - 54	12.1%
55 - 64	12.3%
65 - 74	10.1%
75 - 84	6.0%
85 +	2.2%
18 +	76.4%
2010 Population by Sex	
Males	6,402
Females	7,273
2017 Population by Sex	
Males	6,852
Females	7,593
2022 Population by Sex	
Males	7,198
Females	7,856

Source: U.S. Census Bureau, Census 2010 Summary File 1. Esri forecasts for 2017 and 2022 Esri converted Census 2000 data into 2010 geography.

November 13, 2017
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	Graham city, ...
2010 Population by Race/Ethnicity	
Total	13,675
White Alone	62.4%
Black Alone	23.0%
American Indian Alone	1.2%
Asian Alone	1.3%
Pacific Islander Alone	0.0%
Some Other Race Alone	9.7%
Two or More Races	2.4%
Hispanic Origin	16.2%
Diversity Index	67.7
2017 Population by Race/Ethnicity	
Total	14,446
White Alone	60.5%
Black Alone	23.4%
American Indian Alone	1.2%
Asian Alone	1.8%
Pacific Islander Alone	0.0%
Some Other Race Alone	10.5%
Two or More Races	2.7%
Hispanic Origin	17.8%
Diversity Index	70.2
2022 Population by Race/Ethnicity	
Total	15,055
White Alone	57.8%
Black Alone	23.6%
American Indian Alone	1.2%
Asian Alone	2.2%
Pacific Islander Alone	0.0%
Some Other Race Alone	12.1%
Two or More Races	3.1%
Hispanic Origin	20.3%
Diversity Index	73.6
2010 Population by Relationship and Household Type	
Total	13,675
In Households	98.3%
In Family Households	81.3%
Householder	26.5%
Spouse	16.8%
Child	31.2%
Other relative	4.2%
Nonrelative	2.6%
In Nonfamily Households	17.1%
In Group Quarters	1.7%
Institutionalized Population	1.3%
Noninstitutionalized Population	0.4%

Data Note: Persons of Hispanic Origin may be of any race. The Diversity Index measures the probability that two people from the same area will be from different race/ethnic groups.
Source: U.S. Census Bureau, Census 2010 Summary File 1. Esri forecasts for 2017 and 2022 Esri converted Census 2000 data into 2010 geography.

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	Graham city, ...
2017 Population 25+ by Educational Attainment	
Total	9,892
Less than 9th Grade	6.4%
9th - 12th Grade, No Diploma	11.5%
High School Graduate	25.3%
GED/Alternative Credential	7.7%
Some College, No Degree	20.9%
Associate Degree	9.7%
Bachelor's Degree	13.5%
Graduate/Professional Degree	5.0%
2017 Population 15+ by Marital Status	
Total	11,605
Never Married	30.0%
Married	48.7%
Widowed	8.3%
Divorced	13.0%
2017 Civilian Population 16+ in Labor Force	
Civilian Employed	93.2%
Civilian Unemployed (Unemployment Rate)	6.8%
2017 Employed Population 16+ by Industry	
Total	6,299
Agriculture/Mining	0.6%
Construction	7.6%
Manufacturing	14.9%
Wholesale Trade	1.8%
Retail Trade	12.4%
Transportation/Utilities	2.6%
Information	2.0%
Finance/Insurance/Real Estate	5.5%
Services	49.6%
Public Administration	3.0%
2017 Employed Population 16+ by Occupation	
Total	6,298
White Collar	52.6%
Management/Business/Financial	10.5%
Professional	16.1%
Sales	9.4%
Administrative Support	16.6%
Services	19.6%
Blue Collar	27.7%
Farming/Forestry/Fishing	0.2%
Construction/Extraction	4.4%
Installation/Maintenance/Repair	6.4%
Production	11.2%
Transportation/Material Moving	5.5%
2010 Population By Urban/ Rural Status	
Total Population	13,675
Population Inside Urbanized Area	99.5%
Population Inside Urbanized Cluster	0.0%
Rural Population	0.5%

Source: U.S. Census Bureau, Census 2010 Summary File 1. Esri forecasts for 2017 and 2022 Esri converted Census 2000 data into 2010 geography.

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	Graham city, ...
2010 Households by Type	
Total	5,617
Households with 1 Person	30.7%
Households with 2+ People	69.3%
Family Households	64.4%
Husband-wife Families	40.9%
With Related Children	17.3%
Other Family (No Spouse Present)	23.6%
Other Family with Male Householder	5.4%
With Related Children	3.4%
Other Family with Female Householder	18.1%
With Related Children	12.8%
Nonfamily Households	4.8%
All Households with Children	33.9%
Multigenerational Households	3.8%
Unmarried Partner Households	6.1%
Male-female	5.5%
Same-sex	0.6%
2010 Households by Size	
Total	5,617
1 Person Household	30.7%
2 Person Household	32.9%
3 Person Household	16.7%
4 Person Household	11.1%
5 Person Household	5.4%
6 Person Household	2.2%
7 + Person Household	1.0%
2010 Households by Tenure and Mortgage Status	
Total	5,617
Owner Occupied	57.1%
Owned with a Mortgage/Loan	38.2%
Owned Free and Clear	18.9%
Renter Occupied	42.9%
2010 Housing Units By Urban/ Rural Status	
Total Housing Units	6,329
Housing Units Inside Urbanized Area	99.3%
Housing Units Inside Urbanized Cluster	0.0%
Rural Housing Units	0.7%

Data Note: Households with children include any households with people under age 18, related or not. Multigenerational households are families with 3 or more parent-child relationships. Unmarried partner households are usually classified as nonfamily households unless there is another member of the household related to the householder. Multigenerational and unmarried partner households are reported only to the tract level. Esri estimated block group data, which is used to estimate polygons or non-standard geography.
Source: U.S. Census Bureau, Census 2010 Summary File 1. Esri forecasts for 2017 and 2022 Esri converted Census 2000 data into 2010 geography.

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Community Profile

Graham City, NC
Graham City, NC (3727280)
Geography: Place

Prepared by Esri

		Graham city, ...
Top 3 Tapestry Segments		
	1.	Hardscrabble Road (8G)
	2.	Middleburg (4C)
	3.	Old and Newcomers (8F)
2017 Consumer Spending		
Apparel & Services: Total $		$8,167,241
Average Spent		$1,386.16
Spending Potential Index		64
Education: Total $		$5,262,179
Average Spent		$893.11
Spending Potential Index		61
Entertainment/Recreation: Total $		$12,004,239
Average Spent		$2,037.38
Spending Potential Index		65
Food at Home: Total $		$19,895,343
Average Spent		$3,376.67
Spending Potential Index		67
Food Away from Home: Total $		$12,834,277
Average Spent		$2,178.25
Spending Potential Index		65
Health Care: Total $		$21,947,398
Average Spent		$3,724.95
Spending Potential Index		67
HH Furnishings & Equipment: Total $		$7,539,382
Average Spent		$1,279.60
Spending Potential Index		66
Personal Care Products & Services: Total $		$3,028,230
Average Spent		$513.96
Spending Potential Index		65
Shelter: Total $		$60,812,486
Average Spent		$10,321.20
Spending Potential Index		64
Support Payments/Cash Contributions/Gifts in Kind: Total $		$8,948,385
Average Spent		$1,518.73
Spending Potential Index		65
Travel: Total $		$7,494,821
Average Spent		$1,272.03
Spending Potential Index		61
Vehicle Maintenance & Repairs: Total $		$4,197,152
Average Spent		$712.35
Spending Potential Index		66

Data Note: Consumer spending shows the amount spent on a variety of goods and services by households that reside in the area. Expenditures are shown by broad budget categories that are not mutually exclusive. Consumer spending does not equal business revenue. Total and Average Amount Spent Per Household represent annual figures. The Spending Potential Index represents the amount spent in the area relative to a national average of 100.
Source: Consumer Spending data are derived from the 2013 and 2014 Consumer Expenditure Surveys, Bureau of Labor Statistics. Esri.
Source: U.S. Census Bureau, Census 2010 Summary File 1. Esri forecasts for 2017 and 2022 Esri converted Census 2000 data into 2010 geography.

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Community Profile

Orange County, NC
Orange County, NC (37135)
Geography: County

Prepared by Esri

	Orange County...
Population Summary	
2000 Total Population	118,233
2010 Total Population	133,801
2017 Total Population	143,125
2017 Group Quarters	9,303
2022 Total Population	150,231
2017-2022 Annual Rate	0.97%
2017 Total Daytime Population	151,800
Workers	81,361
Residents	70,439
Household Summary	
2000 Households	45,866
2000 Average Household Size	2.36
2010 Households	51,457
2010 Average Household Size	2.41
2017 Households	54,665
2017 Average Household Size	2.45
2022 Households	57,217
2022 Average Household Size	2.46
2017-2022 Annual Rate	0.92%
2010 Families	30,659
2010 Average Family Size	2.99
2017 Families	32,074
2017 Average Family Size	3.05
2022 Families	33,356
2022 Average Family Size	3.08
2017-2022 Annual Rate	0.79%
Housing Unit Summary	
2000 Housing Units	49,292
Owner Occupied Housing Units	53.6%
Renter Occupied Housing Units	39.5%
Vacant Housing Units	7.0%
2010 Housing Units	55,597
Owner Occupied Housing Units	55.6%
Renter Occupied Housing Units	36.9%
Vacant Housing Units	7.4%
2017 Housing Units	59,069
Owner Occupied Housing Units	52.5%
Renter Occupied Housing Units	40.1%
Vacant Housing Units	7.5%
2022 Housing Units	61,764
Owner Occupied Housing Units	52.4%
Renter Occupied Housing Units	40.2%
Vacant Housing Units	7.4%
Median Household Income	
2017	$59,255
2022	$70,469
Median Home Value	
2017	$314,830
2022	$362,368
Per Capita Income	
2017	$37,344
2022	$41,890
Median Age	
2010	33.2
2017	34.4
2022	35.3

Data Note: Household population includes persons not residing in group quarters. Average Household Size is the household population divided by total households. Persons in families include the householder and persons related to the householder by birth, marriage, or adoption. Per Capita Income represents the income received by all persons aged 15 years and over divided by the total population.

Source: U.S. Census Bureau, Census 2010 Summary File 1. Esri forecasts for 2017 and 2022 Esri converted Census 2000 data into 2010 geography.

November 13, 2017

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	Orange County...
2017 Households by Income	
Household Income Base	54,663
<$15,000	12.9%
$15,000 - $24,999	9.5%
$25,000 - $34,999	9.7%
$35,000 - $49,999	11.7%
$50,000 - $74,999	13.7%
$75,000 - $99,999	10.0%
$100,000 - $149,999	14.1%
$150,000 - $199,999	7.6%
$200,000+	10.8%
Average Household Income	$96,012
2022 Households by Income	
Household Income Base	57,215
<$15,000	12.4%
$15,000 - $24,999	8.6%
$25,000 - $34,999	8.5%
$35,000 - $49,999	10.2%
$50,000 - $74,999	12.0%
$75,000 - $99,999	11.8%
$100,000 - $149,999	16.1%
$150,000 - $199,999	8.5%
$200,000+	12.0%
Average Household Income	$108,304
2017 Owner Occupied Housing Units by Value	
Total	30,987
<$50,000	4.6%
$50,000 - $99,999	4.0%
$100,000 - $149,999	7.4%
$150,000 - $199,999	10.6%
$200,000 - $249,999	11.1%
$250,000 - $299,999	9.7%
$300,000 - $399,999	17.2%
$400,000 - $499,999	13.1%
$500,000 - $749,999	13.3%
$750,000 - $999,999	4.6%
$1,000,000 +	4.5%
Average Home Value	$381,424
2022 Owner Occupied Housing Units by Value	
Total	32,372
<$50,000	3.0%
$50,000 - $99,999	3.0%
$100,000 - $149,999	5.9%
$150,000 - $199,999	8.7%
$200,000 - $249,999	9.2%
$250,000 - $299,999	9.0%
$300,000 - $399,999	17.8%
$400,000 - $499,999	15.2%
$500,000 - $749,999	16.3%
$750,000 - $999,999	5.9%
$1,000,000 +	5.9%
Average Home Value	$428,796

Data Note: Income represents the preceding year, expressed in current dollars. Household income includes wage and salary earnings, interest dividends, net rents, pensions, SSI and welfare payments, child support, and alimony.
Source: U.S. Census Bureau, Census 2010 Summary File 1. Esri forecasts for 2017 and 2022 Esri converted Census 2000 data into 2010 geography.

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Community Profile

Orange County, NC
Orange County, NC (37135)
Geography: County

Prepared by Esri

	Orange County...
2010 Population by Age	
Total	133,801
0 - 4	5.1%
5 - 9	6.0%
10 - 14	6.0%
15 - 24	22.0%
25 - 34	13.0%
35 - 44	12.7%
45 - 54	14.1%
55 - 64	11.5%
65 - 74	5.6%
75 - 84	2.8%
85 +	1.2%
18 +	79.1%
2017 Population by Age	
Total	143,125
0 - 4	4.7%
5 - 9	5.1%
10 - 14	5.7%
15 - 24	21.5%
25 - 34	13.8%
35 - 44	11.3%
45 - 54	12.7%
55 - 64	12.6%
65 - 74	8.1%
75 - 84	3.2%
85 +	1.3%
18 +	81.0%
2022 Population by Age	
Total	150,231
0 - 4	4.6%
5 - 9	4.8%
10 - 14	5.2%
15 - 24	20.4%
25 - 34	14.6%
35 - 44	11.4%
45 - 54	11.5%
55 - 64	12.2%
65 - 74	9.7%
75 - 84	4.2%
85 +	1.4%
18 +	82.0%
2010 Population by Sex	
Males	63,954
Females	69,847
2017 Population by Sex	
Males	68,649
Females	74,476
2022 Population by Sex	
Males	72,192
Females	78,039

Source: U.S. Census Bureau, Census 2010 Summary File 1. Esri forecasts for 2017 and 2022 Esri converted Census 2000 data into 2010 geography.

November 13, 2017
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Community Profile

Orange County, NC
Orange County, NC (37135)
Geography: County

Prepared by Esri

	Orange County...
2010 Population by Race/Ethnicity	
Total	133,801
White Alone	74.4%
Black Alone	11.9%
American Indian Alone	0.4%
Asian Alone	6.7%
Pacific Islander Alone	0.0%
Some Other Race Alone	4.0%
Two or More Races	2.5%
Hispanic Origin	8.2%
Diversity Index	51.5
2017 Population by Race/Ethnicity	
Total	143,125
White Alone	72.3%
Black Alone	12.0%
American Indian Alone	0.4%
Asian Alone	8.1%
Pacific Islander Alone	0.0%
Some Other Race Alone	4.2%
Two or More Races	3.0%
Hispanic Origin	8.8%
Diversity Index	54.4
2022 Population by Race/Ethnicity	
Total	150,231
White Alone	70.4%
Black Alone	11.7%
American Indian Alone	0.4%
Asian Alone	9.3%
Pacific Islander Alone	0.0%
Some Other Race Alone	4.7%
Two or More Races	3.4%
Hispanic Origin	9.6%
Diversity Index	57.2
2010 Population by Relationship and Household Type	
Total	133,801
In Households	92.9%
In Family Households	70.1%
Householder	22.9%
Spouse	17.8%
Child	25.2%
Other relative	2.5%
Nonrelative	1.6%
In Nonfamily Households	22.8%
In Group Quarters	7.1%
Institutionalized Population	0.5%
Noninstitutionalized Population	6.6%

Data Note: Persons of Hispanic Origin may be of any race. The Diversity Index measures the probability that two people from the same area will be from different race/ethnic groups.
Source: U.S. Census Bureau, Census 2010 Summary File 1. Esri forecasts for 2017 and 2022 Esri converted Census 2000 data into 2010 geography.

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	Orange County...
2017 Population 25+ by Educational Attainment	
Total	90,240
Less than 9th Grade	3.4%
9th - 12th Grade, No Diploma	3.7%
High School Graduate	12.2%
GED/Alternative Credential	2.7%
Some College, No Degree	13.1%
Associate Degree	6.0%
Bachelor's Degree	25.6%
Graduate/Professional Degree	33.2%
2017 Population 15+ by Marital Status	
Total	120,947
Never Married	42.3%
Married	45.4%
Widowed	3.2%
Divorced	9.0%
2017 Civilian Population 16+ in Labor Force	
Civilian Employed	94.9%
Civilian Unemployed (Unemployment Rate)	5.1%
2017 Employed Population 16+ by Industry	
Total	74,040
Agriculture/Mining	0.8%
Construction	5.4%
Manufacturing	5.6%
Wholesale Trade	1.4%
Retail Trade	9.0%
Transportation/Utilities	2.0%
Information	1.6%
Finance/Insurance/Real Estate	5.3%
Services	66.4%
Public Administration	2.5%
2017 Employed Population 16+ by Occupation	
Total	74,040
White Collar	72.8%
Management/Business/Financial	16.7%
Professional	39.0%
Sales	7.4%
Administrative Support	9.8%
Services	16.1%
Blue Collar	11.1%
Farming/Forestry/Fishing	0.2%
Construction/Extraction	3.8%
Installation/Maintenance/Repair	2.0%
Production	2.5%
Transportation/Material Moving	2.5%
2010 Population By Urban/ Rural Status	
Total Population	133,801
Population Inside Urbanized Area	71.5%
Population Inside Urbanized Cluster	0.0%
Rural Population	28.5%

Source: U.S. Census Bureau, Census 2010 Summary File 1. Esri forecasts for 2017 and 2022 Esri converted Census 2000 data into 2010 geography.

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Community Profile

Orange County, NC
Orange County, NC (37135)
Geography: County

Prepared by Esri

	Orange County...
2010 Households by Type	
Total	51,457
Households with 1 Person	27.9%
Households with 2+ People	72.1%
Family Households	59.6%
Husband-wife Families	46.3%
With Related Children	21.8%
Other Family (No Spouse Present)	13.3%
Other Family with Male Householder	3.4%
With Related Children	1.9%
Other Family with Female Householder	10.0%
With Related Children	6.6%
Nonfamily Households	12.5%
All Households with Children	30.5%
Multigenerational Households	2.3%
Unmarried Partner Households	5.9%
Male-female	4.9%
Same-sex	1.0%
2010 Households by Size	
Total	51,457
1 Person Household	27.9%
2 Person Household	34.9%
3 Person Household	15.9%
4 Person Household	14.0%
5 Person Household	4.8%
6 Person Household	1.7%
7 + Person Household	0.8%
2010 Households by Tenure and Mortgage Status	
Total	51,457
Owner Occupied	60.1%
Owned with a Mortgage/Loan	44.1%
Owned Free and Clear	16.0%
Renter Occupied	39.9%
2010 Housing Units By Urban/ Rural Status	
Total Housing Units	55,597
Housing Units Inside Urbanized Area	70.2%
Housing Units Inside Urbanized Cluster	0.0%
Rural Housing Units	29.8%

Data Note: Households with children include any households with people under age 18, related or not. Multigenerational households are families with 3 or more parent-child relationships. Unmarried partner households are usually classified as nonfamily households unless there is another member of the household related to the householder. Multigenerational and unmarried partner households are reported only to the tract level. Esri estimated block group data, which is used to estimate polygons or non-standard geography.
Source: U.S. Census Bureau, Census 2010 Summary File 1. Esri forecasts for 2017 and 2022 Esri converted Census 2000 data into 2010 geography.

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Community Profile

Orange County, NC
Orange County, NC (37135)
Geography: County

Prepared by Esri

		Orange County...
Top 3 Tapestry Segments		
	1.	Urban Chic (2A)
	2.	Young and Restless (11B)
	3.	Green Acres (6A)
2017 Consumer Spending		
Apparel & Services: Total $		$143,117,630
Average Spent		$2,618.09
Spending Potential Index		121
Education: Total $		$104,942,071
Average Spent		$1,919.73
Spending Potential Index		132
Entertainment/Recreation: Total $		$201,137,267
Average Spent		$3,679.45
Spending Potential Index		118
Food at Home: Total $		$322,609,317
Average Spent		$5,901.57
Spending Potential Index		117
Food Away from Home: Total $		$221,839,185
Average Spent		$4,058.16
Spending Potential Index		122
Health Care: Total $		$345,487,138
Average Spent		$6,320.08
Spending Potential Index		113
HH Furnishings & Equipment: Total $		$126,889,024
Average Spent		$2,321.21
Spending Potential Index		119
Personal Care Products & Services: Total $		$52,077,216
Average Spent		$952.66
Spending Potential Index		120
Shelter: Total $		$1,074,189,684
Average Spent		$19,650.41
Spending Potential Index		121
Support Payments/Cash Contributions/Gifts in Kind: Total $		$149,632,344
Average Spent		$2,737.26
Spending Potential Index		117
Travel: Total $		$135,478,855
Average Spent		$2,478.35
Spending Potential Index		120
Vehicle Maintenance & Repairs: Total $		$68,674,026
Average Spent		$1,256.27
Spending Potential Index		117

Data Note: Consumer spending shows the amount spent on a variety of goods and services by households that reside in the area. Expenditures are shown by broad budget categories that are not mutually exclusive. Consumer spending does not equal business revenue. Total and Average Amount Spent Per Household represent annual figures. The Spending Potential Index represents the amount spent in the area relative to a national average of 100.
Source: Consumer Spending data are derived from the 2013 and 2014 Consumer Expenditure Surveys, Bureau of Labor Statistics. Esri.
Source: U.S. Census Bureau, Census 2010 Summary File 1. Esri forecasts for 2017 and 2022 Esri converted Census 2000 data into 2010 geography.

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Community Profile

Carrboro Town, NC
Carrboro Town, NC (3710620)
Geography: Place

Prepared by Esri

	Carrboro town...
Population Summary	
2000 Total Population	17,706
2010 Total Population	19,582
2017 Total Population	20,970
2017 Group Quarters	38
2022 Total Population	21,976
2017-2022 Annual Rate	0.94%
2017 Total Daytime Population	12,862
Workers	4,851
Residents	8,011
Household Summary	
2000 Households	7,891
2000 Average Household Size	2.23
2010 Households	8,625
2010 Average Household Size	2.27
2017 Households	9,044
2017 Average Household Size	2.31
2022 Households	9,382
2022 Average Household Size	2.34
2017-2022 Annual Rate	0.74%
2010 Families	4,020
2010 Average Family Size	3.07
2017 Families	4,287
2017 Average Family Size	3.14
2022 Families	4,448
2022 Average Family Size	3.18
2017-2022 Annual Rate	0.74%
Housing Unit Summary	
2000 Housing Units	8,521
Owner Occupied Housing Units	31.9%
Renter Occupied Housing Units	60.7%
Vacant Housing Units	7.4%
2010 Housing Units	9,258
Owner Occupied Housing Units	35.9%
Renter Occupied Housing Units	57.3%
Vacant Housing Units	6.8%
2017 Housing Units	9,685
Owner Occupied Housing Units	34.6%
Renter Occupied Housing Units	58.8%
Vacant Housing Units	6.6%
2022 Housing Units	9,992
Owner Occupied Housing Units	35.3%
Renter Occupied Housing Units	58.6%
Vacant Housing Units	6.1%
Median Household Income	
2017	$50,593
2022	$58,888
Median Home Value	
2017	$350,989
2022	$371,982
Per Capita Income	
2017	$35,260
2022	$40,267
Median Age	
2010	30.2
2017	32.0
2022	32.9

Data Note: Household population includes persons not residing in group quarters. Average Household Size is the household population divided by total households. Persons in families include the householder and persons related to the householder by birth, marriage, or adoption. Per Capita Income represents the income received by all persons aged 15 years and over divided by the total population.

Source: U.S. Census Bureau, Census 2010 Summary File 1. Esri forecasts for 2017 and 2022 Esri converted Census 2000 data into 2010 geography.

October 10, 2017
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	Carrboro town...
2017 Households by Income	
Household Income Base	9,045
<$15,000	11.8%
$15,000 - $24,999	10.9%
$25,000 - $34,999	12.1%
$35,000 - $49,999	14.6%
$50,000 - $74,999	15.2%
$75,000 - $99,999	9.0%
$100,000 - $149,999	11.2%
$150,000 - $199,999	7.7%
$200,000+	7.5%
Average Household Income	$81,766
2022 Households by Income	
Household Income Base	9,382
<$15,000	11.1%
$15,000 - $24,999	9.6%
$25,000 - $34,999	10.3%
$35,000 - $49,999	12.7%
$50,000 - $74,999	14.2%
$75,000 - $99,999	11.4%
$100,000 - $149,999	13.3%
$150,000 - $199,999	8.7%
$200,000+	8.7%
Average Household Income	$94,361
2017 Owner Occupied Housing Units by Value	
Total	3,348
<$50,000	0.7%
$50,000 - $99,999	1.5%
$100,000 - $149,999	3.7%
$150,000 - $199,999	6.9%
$200,000 - $249,999	9.8%
$250,000 - $299,999	12.7%
$300,000 - $399,999	28.7%
$400,000 - $499,999	16.2%
$500,000 - $749,999	15.0%
$750,000 - $999,999	3.3%
$1,000,000 +	1.5%
Average Home Value	$389,105
2022 Owner Occupied Housing Units by Value	
Total	3,527
<$50,000	0.6%
$50,000 - $99,999	1.0%
$100,000 - $149,999	2.8%
$150,000 - $199,999	5.3%
$200,000 - $249,999	7.6%
$250,000 - $299,999	12.0%
$300,000 - $399,999	28.9%
$400,000 - $499,999	18.1%
$500,000 - $749,999	17.8%
$750,000 - $999,999	4.0%
$1,000,000 +	2.0%
Average Home Value	$417,607

Data Note: Income represents the preceding year, expressed in current dollars. Household income includes wage and salary earnings, interest dividends, net rents, pensions, SSI and welfare payments, child support, and alimony.
Source: U.S. Census Bureau, Census 2010 Summary File 1. Esri forecasts for 2017 and 2022 Esri converted Census 2000 data into 2010 geography.

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Community Profile

Carrboro Town, NC
Carrboro Town, NC (3710620)
Geography: Place

Prepared by Esri

	Carrboro town...
2010 Population by Age	
Total	19,582
0 - 4	5.8%
5 - 9	6.0%
10 - 14	6.1%
15 - 24	19.1%
25 - 34	21.7%
35 - 44	14.3%
45 - 54	13.2%
55 - 64	8.5%
65 - 74	2.9%
75 - 84	1.6%
85 +	0.8%
18 +	78.5%
2017 Population by Age	
Total	20,968
0 - 4	5.3%
5 - 9	5.3%
10 - 14	5.8%
15 - 24	16.4%
25 - 34	23.5%
35 - 44	13.5%
45 - 54	12.8%
55 - 64	10.0%
65 - 74	4.9%
75 - 84	1.8%
85 +	0.7%
18 +	79.8%
2022 Population by Age	
Total	21,976
0 - 4	5.3%
5 - 9	4.9%
10 - 14	5.3%
15 - 24	15.7%
25 - 34	23.3%
35 - 44	14.0%
45 - 54	11.9%
55 - 64	10.4%
65 - 74	6.2%
75 - 84	2.3%
85 +	0.8%
18 +	80.9%
2010 Population by Sex	
Males	9,475
Females	10,107
2017 Population by Sex	
Males	10,275
Females	10,693
2022 Population by Sex	
Males	10,782
Females	11,194

Source: U.S. Census Bureau, Census 2010 Summary File 1. Esri forecasts for 2017 and 2022 Esri converted Census 2000 data into 2010 geography.

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Community Profile

Carrboro Town, NC
Carrboro Town, NC (3710620)
Geography: Place

Prepared by Esri

	Carrboro town...
2010 Population by Race/Ethnicity	
Total	19,582
White Alone	70.9%
Black Alone	10.1%
American Indian Alone	0.4%
Asian Alone	8.2%
Pacific Islander Alone	0.0%
Some Other Race Alone	7.5%
Two or More Races	2.9%
Hispanic Origin	13.8%
Diversity Index	60.4
2017 Population by Race/Ethnicity	
Total	20,970
White Alone	67.0%
Black Alone	10.7%
American Indian Alone	0.5%
Asian Alone	10.1%
Pacific Islander Alone	0.0%
Some Other Race Alone	8.1%
Two or More Races	3.5%
Hispanic Origin	15.0%
Diversity Index	64.9
2022 Population by Race/Ethnicity	
Total	21,975
White Alone	64.8%
Black Alone	10.4%
American Indian Alone	0.4%
Asian Alone	11.7%
Pacific Islander Alone	0.1%
Some Other Race Alone	8.7%
Two or More Races	4.0%
Hispanic Origin	15.9%
Diversity Index	67.4
2010 Population by Relationship and Household Type	
Total	19,582
In Households	99.8%
In Family Households	64.9%
Householder	20.5%
Spouse	15.2%
Child	24.3%
Other relative	2.9%
Nonrelative	2.0%
In Nonfamily Households	34.9%
In Group Quarters	0.2%
Institutionalized Population	0.0%
Noninstitutionalized Population	0.2%

Data Note: Persons of Hispanic Origin may be of any race. The Diversity Index measures the probability that two people from the same area will be from different race/ethnic groups.
Source: U.S. Census Bureau, Census 2010 Summary File 1. Esri forecasts for 2017 and 2022 Esri converted Census 2000 data into 2010 geography.

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	Carrboro town...
2017 Population 25+ by Educational Attainment	
Total	14,104
Less than 9th Grade	3.6%
9th - 12th Grade, No Diploma	3.0%
High School Graduate	8.9%
GED/Alternative Credential	1.1%
Some College, No Degree	10.0%
Associate Degree	4.6%
Bachelor's Degree	30.8%
Graduate/Professional Degree	38.0%
2017 Population 15+ by Marital Status	
Total	17,534
Never Married	48.4%
Married	40.6%
Widowed	2.4%
Divorced	8.7%
2017 Civilian Population 16+ in Labor Force	
Civilian Employed	96.8%
Civilian Unemployed (Unemployment Rate)	3.2%
2017 Employed Population 16+ by Industry	
Total	13,165
Agriculture/Mining	0.0%
Construction	6.0%
Manufacturing	3.7%
Wholesale Trade	0.9%
Retail Trade	6.7%
Transportation/Utilities	2.0%
Information	2.3%
Finance/Insurance/Real Estate	2.9%
Services	72.8%
Public Administration	2.5%
2017 Employed Population 16+ by Occupation	
Total	13,166
White Collar	74.1%
Management/Business/Financial	16.3%
Professional	45.2%
Sales	4.8%
Administrative Support	7.8%
Services	17.8%
Blue Collar	8.1%
Farming/Forestry/Fishing	0.0%
Construction/Extraction	3.9%
Installation/Maintenance/Repair	0.4%
Production	1.0%
Transportation/Material Moving	2.8%
2010 Population By Urban/ Rural Status	
Total Population	19,582
Population Inside Urbanized Area	99.7%
Population Inside Urbanized Cluster	0.0%
Rural Population	0.3%

Source: U.S. Census Bureau, Census 2010 Summary File 1. Esri forecasts for 2017 and 2022 Esri converted Census 2000 data into 2010 geography.

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Community Profile

Carrboro Town, NC
Carrboro Town, NC (3710620)
Geography: Place

Prepared by Esri

	Carrboro town...
2010 Households by Type	
Total	8,625
Households with 1 Person	35.5%
Households with 2+ People	64.5%
Family Households	46.6%
Husband-wife Families	34.5%
With Related Children	19.3%
Other Family (No Spouse Present)	12.1%
Other Family with Male Householder	3.3%
With Related Children	1.7%
Other Family with Female Householder	8.8%
With Related Children	6.2%
Nonfamily Households	17.9%
All Households with Children	27.5%
Multigenerational Households	1.6%
Unmarried Partner Households	8.2%
Male-female	7.1%
Same-sex	1.1%
2010 Households by Size	
Total	8,625
1 Person Household	35.5%
2 Person Household	31.4%
3 Person Household	13.6%
4 Person Household	12.9%
5 Person Household	4.4%
6 Person Household	1.4%
7 + Person Household	0.7%
2010 Households by Tenure and Mortgage Status	
Total	8,625
Owner Occupied	38.5%
Owned with a Mortgage/Loan	31.5%
Owned Free and Clear	6.9%
Renter Occupied	61.5%
2010 Housing Units By Urban/ Rural Status	
Total Housing Units	9,258
Housing Units Inside Urbanized Area	99.8%
Housing Units Inside Urbanized Cluster	0.0%
Rural Housing Units	0.2%

Data Note: Households with children include any households with people under age 18, related or not. Multigenerational households are families with 3 or more parent-child relationships. Unmarried partner households are usually classified as nonfamily households unless there is another member of the household related to the householder. Multigenerational and unmarried partner households are reported only to the tract level. Esri estimated block group data, which is used to estimate polygons or non-standard geography.
Source: U.S. Census Bureau, Census 2010 Summary File 1. Esri forecasts for 2017 and 2022 Esri converted Census 2000 data into 2010 geography.

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Community Profile

Carrboro Town, NC
Carrboro Town, NC (3710620)
Geography: Place

Prepared by Esri

		Carrboro town...
Top 3 Tapestry Segments		
	1.	Young and Restless (11B)
	2.	Professional Pride (1B)
	3.	Metro Renters (3B)
2017 Consumer Spending		
Apparel & Services: Total $		$21,000,033
Average Spent		$2,321.99
Spending Potential Index		108
Education: Total $		$14,861,181
Average Spent		$1,643.21
Spending Potential Index		113
Entertainment/Recreation: Total $		$28,068,330
Average Spent		$3,103.53
Spending Potential Index		99
Food at Home: Total $		$47,430,081
Average Spent		$5,244.37
Spending Potential Index		104
Food Away from Home: Total $		$33,090,767
Average Spent		$3,658.86
Spending Potential Index		110
Health Care: Total $		$45,681,028
Average Spent		$5,050.98
Spending Potential Index		90
HH Furnishings & Equipment: Total $		$17,881,374
Average Spent		$1,977.15
Spending Potential Index		102
Personal Care Products & Services: Total $		$7,441,540
Average Spent		$822.82
Spending Potential Index		103
Shelter: Total $		$157,494,472
Average Spent		$17,414.25
Spending Potential Index		107
Support Payments/Cash Contributions/Gifts in Kind: Total $		$19,918,869
Average Spent		$2,202.44
Spending Potential Index		94
Travel: Total $		$18,139,358
Average Spent		$2,005.68
Spending Potential Index		97
Vehicle Maintenance & Repairs: Total $		$9,687,123
Average Spent		$1,071.11
Spending Potential Index		100

Data Note: Consumer spending shows the amount spent on a variety of goods and services by households that reside in the area. Expenditures are shown by broad budget categories that are not mutually exclusive. Consumer spending does not equal business revenue. Total and Average Amount Spent Per Household represent annual figures. The Spending Potential Index represents the amount spent in the area relative to a national average of 100.
Source: Consumer Spending data are derived from the 2013 and 2014 Consumer Expenditure Surveys, Bureau of Labor Statistics. Esri.
Source: U.S. Census Bureau, Census 2010 Summary File 1. Esri forecasts for 2017 and 2022 Esri converted Census 2000 data into 2010 geography.

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Retail MarketPlace Profile

Woody Dr, Graham, North Carolina, 27253
Drive Time: 10 minute radius

Prepared by Esri
Latitude: 36.06148
Longitude: -79.38110

Summary Demographics	
2017 Population	60,510
2017 Households	24,755
2017 Median Disposable Income	$35,281
2017 Per Capita Income	$22,902

Industry Summary	NAICS	Demand (Retail Potential)	Supply (Retail Sales)	Retail Gap	Leakage/Surplus Factor	Number of Businesses
Total Retail Trade and Food & Drink	44-45,722	$676,033,287	$1,412,683,164	-$736,649,877	-35.3	662
Total Retail Trade	44-45	$610,661,994	$1,275,950,032	-$665,288,038	-35.3	476
Total Food & Drink	722	$65,371,293	$136,733,132	-$71,361,839	-35.3	186

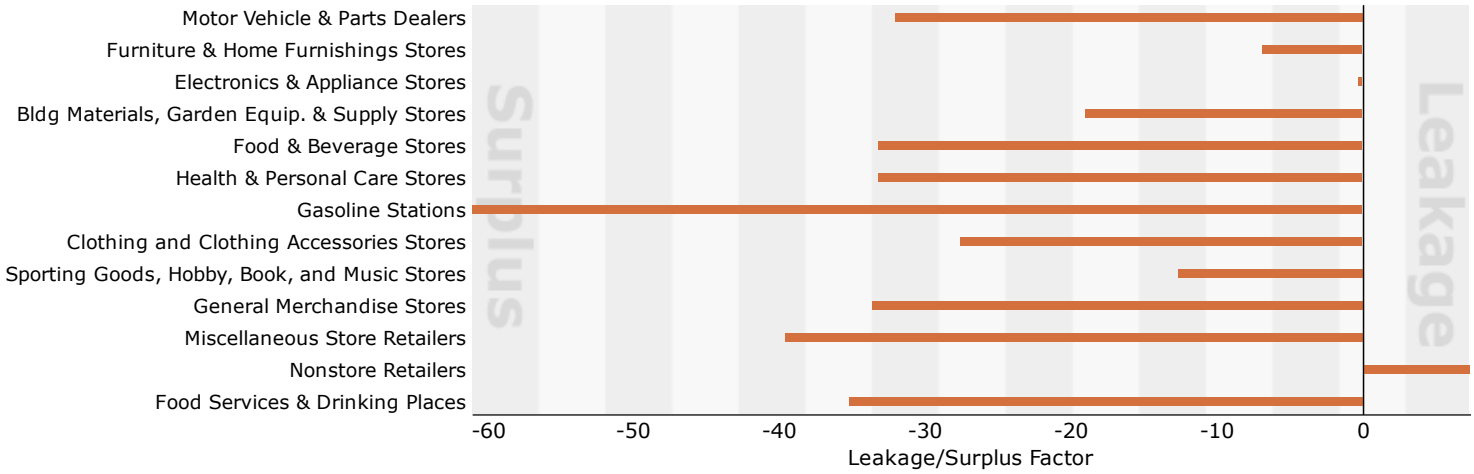
Industry Group	NAICS	Demand (Retail Potential)	Supply (Retail Sales)	Retail Gap	Leakage/Surplus Factor	Number of Businesses
Motor Vehicle & Parts Dealers	441	$131,212,023	$255,223,109	-$124,011,086	-32.1	72
Automobile Dealers	4411	$107,814,757	$220,460,323	-$112,645,566	-34.3	40
Other Motor Vehicle Dealers	4412	$10,430,467	$10,554,564	-$124,097	-0.6	8
Auto Parts, Accessories & Tire Stores	4413	$12,966,799	$24,208,222	-$11,241,423	-30.2	24
Furniture & Home Furnishings Stores	442	$23,528,510	$27,018,837	-$3,490,327	-6.9	27
Furniture Stores	4421	$14,430,685	$18,293,907	-$3,863,222	-11.8	17
Home Furnishings Stores	4422	$9,097,825	$8,724,931	$372,894	2.1	10
Electronics & Appliance Stores	443	$18,270,431	$18,394,395	-$123,964	-0.3	17
Bldg Materials, Garden Equip. & Supply Stores	444	$42,156,592	$61,909,101	-$19,752,509	-19.0	30
Bldg Material & Supplies Dealers	4441	$39,576,186	$56,714,005	-$17,137,819	-17.8	25
Lawn & Garden Equip & Supply Stores	4442	$2,580,406	$5,195,096	-$2,614,690	-33.6	5
Food & Beverage Stores	445	$107,132,602	$214,244,357	-$107,111,755	-33.3	56
Grocery Stores	4451	$99,548,776	$194,047,702	-$94,498,926	-32.2	40
Specialty Food Stores	4452	$3,914,230	$13,622,070	-$9,707,840	-55.4	12
Beer, Wine & Liquor Stores	4453	$3,669,596	$6,574,585	-$2,904,989	-28.4	3
Health & Personal Care Stores	446,4461	$38,316,112	$76,529,650	-$38,213,538	-33.3	38
Gasoline Stations	447,4471	$66,329,461	$274,843,428	-$208,513,967	-61.1	46
Clothing & Clothing Accessories Stores	448	$28,930,633	$50,976,564	-$22,045,931	-27.6	59
Clothing Stores	4481	$19,023,532	$40,825,152	-$21,801,620	-36.4	46
Shoe Stores	4482	$4,640,560	$6,759,421	-$2,118,861	-18.6	7
Jewelry, Luggage & Leather Goods Stores	4483	$5,266,541	$3,391,991	$1,874,550	21.6	6
Sporting Goods, Hobby, Book & Music Stores	451	$16,205,410	$20,935,111	-$4,729,701	-12.7	17
Sporting Goods/Hobby/Musical Instr Stores	4511	$13,650,422	$18,909,324	-$5,258,902	-16.2	15
Book, Periodical & Music Stores	4512	$2,554,988	$2,025,787	$529,201	11.6	2
General Merchandise Stores	452	$101,774,720	$205,462,337	-$103,687,617	-33.7	29
Department Stores Excluding Leased Depts.	4521	$73,387,432	$173,597,085	-$100,209,653	-40.6	11
Other General Merchandise Stores	4529	$28,387,288	$31,865,251	-$3,477,963	-5.8	19
Miscellaneous Store Retailers	453	$26,543,481	$61,561,550	-$35,018,069	-39.7	80
Florists	4531	$854,676	$952,183	-$97,507	-5.4	8
Office Supplies, Stationery & Gift Stores	4532	$5,572,512	$2,548,148	$3,024,364	37.2	11
Used Merchandise Stores	4533	$3,126,467	$13,769,545	-$10,643,078	-63.0	21
Other Miscellaneous Store Retailers	4539	$16,989,825	$44,291,675	-$27,301,850	-44.6	39
Nonstore Retailers	454	$10,262,018	$8,851,594	$1,410,424	7.4	6
Electronic Shopping & Mail-Order Houses	4541	$7,402,009	$3,442,430	$3,959,579	36.5	2
Vending Machine Operators	4542	$585,571	$269,123	$316,448	37.0	1
Direct Selling Establishments	4543	$2,274,438	$5,140,041	-$2,865,603	-38.6	4
Food Services & Drinking Places	722	$65,371,293	$136,733,132	-$71,361,839	-35.3	186
Special Food Services	7223	$594,112	$692,914	-$98,802	-7.7	3
Drinking Places - Alcoholic Beverages	7224	$4,421,144	$836,984	$3,584,160	68.2	10
Restaurants/Other Eating Places	7225	$60,356,036	$135,203,234	-$74,847,198	-38.3	172

Data Note: Supply (retail sales) estimates sales to consumers by establishments. Sales to businesses are excluded. Demand (retail potential) estimates the expected amount spent by consumers at retail establishments. Supply and demand estimates are in current dollars. The Leakage/Surplus Factor presents a snapshot of retail opportunity. This is a measure of the relationship between supply and demand that ranges from +100 (total leakage) to -100 (total surplus). A positive value represents 'leakage' of retail opportunity outside the trade area. A negative value represents a surplus of retail sales, a market where customers are drawn in from outside the trade area. The Retail Gap represents the difference between Retail Potential and Retail Sales. Esri uses the North American Industry Classification System (NAICS) to classify businesses by their primary type of economic activity. Retail establishments are classified into 27 industry groups in the Retail Trade sector, as well as four industry groups within the Food Services & Drinking Establishments subsector. For more information on the Retail MarketPlace data, please click the link below to view the Methodology Statement.
http://www.esri.com/library/whitepapers/pdfs/esri-data-retail-marketplace.pdf

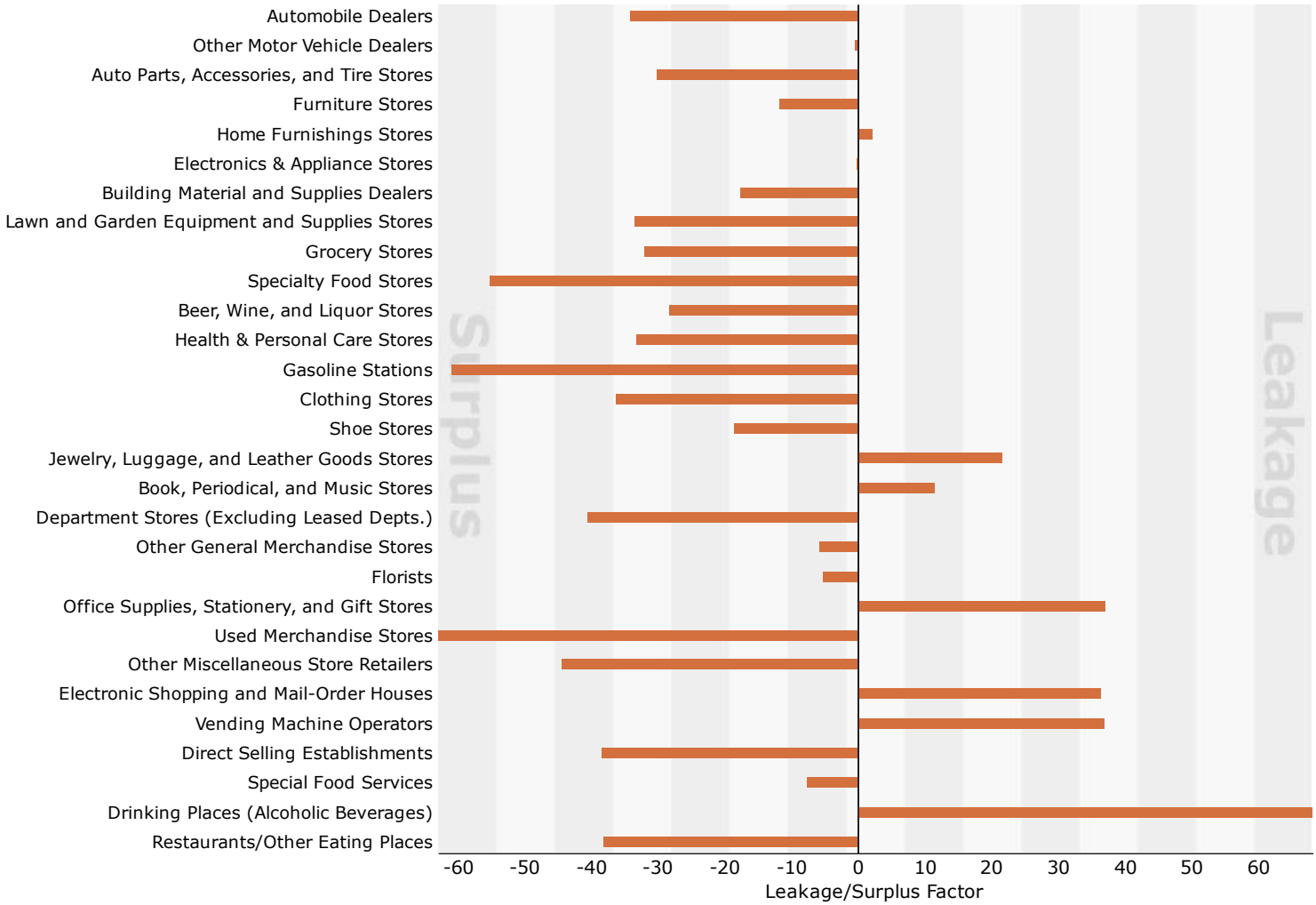
Source: Esri and Infogroup. Retail MarketPlace 2017. Copyright 2017 Infogroup, Inc. All rights reserved.

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Leakage/Surplus Factor by Industry Subsector



Leakage/Surplus Factor by Industry Group



Source: Esri and Infogroup. Retail MarketPlace 2017. Copyright 2017 Infogroup, Inc. All rights reserved.

Retail MarketPlace Profile

Woody Dr, Graham, North Carolina, 27253
Drive Time: 20 minute radius

Prepared by Esri
Latitude: 36.06148
Longitude: -79.38110

Summary Demographics	
2017 Population	174,404
2017 Households	69,102
2017 Median Disposable Income	$38,449
2017 Per Capita Income	$25,913

Industry Summary	NAICS	Demand (Retail Potential)	Supply (Retail Sales)	Retail Gap	Leakage/Surplus Factor	Number of Businesses
Total Retail Trade and Food & Drink	44-45,722	$2,154,462,391	$3,086,352,682	-$931,890,291	-17.8	1,475
Total Retail Trade	44-45	$1,946,891,834	$2,801,972,626	-$855,080,792	-18.0	1,065
Total Food & Drink	722	$207,570,557	$284,380,056	-$76,809,499	-15.6	410

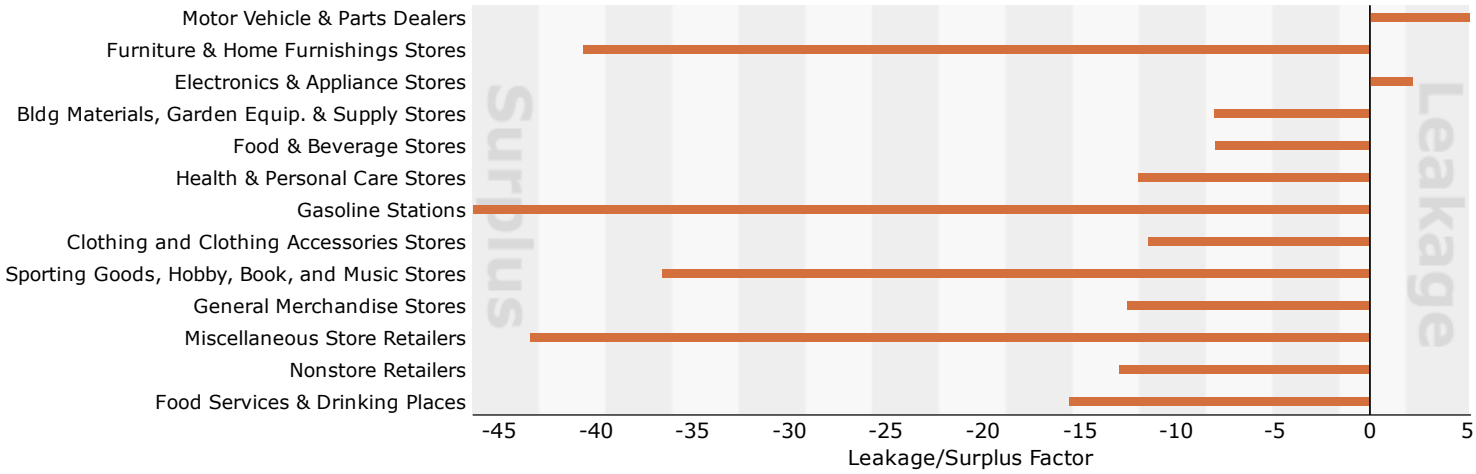
Industry Group	NAICS	Demand (Retail Potential)	Supply (Retail Sales)	Retail Gap	Leakage/Surplus Factor	Number of Businesses
Motor Vehicle & Parts Dealers	441	$420,136,358	$378,284,923	$41,851,435	5.2	132
Automobile Dealers	4411	$344,910,323	$301,563,710	$43,346,613	6.7	65
Other Motor Vehicle Dealers	4412	$33,845,622	$24,899,534	$8,946,088	15.2	18
Auto Parts, Accessories & Tire Stores	4413	$41,380,413	$51,821,679	-$10,441,266	-11.2	49
Furniture & Home Furnishings Stores	442	$75,308,465	$178,727,523	-$103,419,058	-40.7	55
Furniture Stores	4421	$45,736,409	$69,398,159	-$23,661,750	-20.6	32
Home Furnishings Stores	4422	$29,572,055	$109,329,364	-$79,757,309	-57.4	23
Electronics & Appliance Stores	443	$57,986,399	$55,498,082	$2,488,317	2.2	39
Bldg Materials, Garden Equip. & Supply Stores	444	$139,364,726	$163,919,234	-$24,554,508	-8.1	62
Bldg Material & Supplies Dealers	4441	$130,745,907	$154,667,432	-$23,921,525	-8.4	46
Lawn & Garden Equip & Supply Stores	4442	$8,618,819	$9,251,803	-$632,984	-3.5	16
Food & Beverage Stores	445	$337,873,766	$396,816,972	-$58,943,206	-8.0	121
Grocery Stores	4451	$313,821,149	$369,499,541	-$55,678,392	-8.1	92
Specialty Food Stores	4452	$12,337,987	$15,501,809	-$3,163,822	-11.4	17
Beer, Wine & Liquor Stores	4453	$11,714,629	$11,815,621	-$100,992	-0.4	12
Health & Personal Care Stores	446,4461	$122,577,683	$155,979,485	-$33,401,802	-12.0	82
Gasoline Stations	447,4471	$209,752,665	$572,595,907	-$362,843,242	-46.4	101
Clothing & Clothing Accessories Stores	448	$91,995,896	$115,840,080	-$23,844,184	-11.5	133
Clothing Stores	4481	$60,352,800	$83,565,567	-$23,212,767	-16.1	95
Shoe Stores	4482	$14,696,563	$19,866,074	-$5,169,511	-15.0	18
Jewelry, Luggage & Leather Goods Stores	4483	$16,946,534	$12,408,438	$4,538,096	15.5	20
Sporting Goods, Hobby, Book & Music Stores	451	$51,607,593	$111,209,358	-$59,601,765	-36.6	63
Sporting Goods/Hobby/Musical Instr Stores	4511	$43,596,302	$102,543,213	-$58,946,911	-40.3	53
Book, Periodical & Music Stores	4512	$8,011,292	$8,666,145	-$654,853	-3.9	10
General Merchandise Stores	452	$322,707,313	$416,122,059	-$93,414,746	-12.6	66
Department Stores Excluding Leased Depts.	4521	$232,934,652	$319,424,543	-$86,489,891	-15.7	22
Other General Merchandise Stores	4529	$89,772,661	$96,697,516	-$6,924,855	-3.7	44
Miscellaneous Store Retailers	453	$84,444,416	$213,913,562	-$129,469,146	-43.4	192
Florists	4531	$2,845,653	$2,285,310	$560,343	10.9	17
Office Supplies, Stationery & Gift Stores	4532	$17,753,251	$48,655,980	-$30,902,729	-46.5	32
Used Merchandise Stores	4533	$9,876,883	$23,200,467	-$13,323,584	-40.3	50
Other Miscellaneous Store Retailers	4539	$53,968,629	$139,771,805	-$85,803,176	-44.3	93
Nonstore Retailers	454	$33,136,554	$43,065,442	-$9,928,888	-13.0	18
Electronic Shopping & Mail-Order Houses	4541	$23,705,530	$8,884,482	$14,821,048	45.5	5
Vending Machine Operators	4542	$1,843,812	$7,866,922	-$6,023,110	-62.0	2
Direct Selling Establishments	4543	$7,587,212	$26,314,038	-$18,726,826	-55.2	11
Food Services & Drinking Places	722	$207,570,557	$284,380,056	-$76,809,499	-15.6	410
Special Food Services	7223	$1,904,762	$2,123,690	-$218,928	-5.4	7
Drinking Places - Alcoholic Beverages	7224	$14,241,245	$4,331,228	$9,910,017	53.4	23
Restaurants/Other Eating Places	7225	$191,424,551	$277,925,138	-$86,500,587	-18.4	379

Data Note: Supply (retail sales) estimates sales to consumers by establishments. Sales to businesses are excluded. Demand (retail potential) estimates the expected amount spent by consumers at retail establishments. Supply and demand estimates are in current dollars. The Leakage/Surplus Factor presents a snapshot of retail opportunity. This is a measure of the relationship between supply and demand that ranges from +100 (total leakage) to -100 (total surplus). A positive value represents 'leakage' of retail opportunity outside the trade area. A negative value represents a surplus of retail sales, a market where customers are drawn in from outside the trade area. The Retail Gap represents the difference between Retail Potential and Retail Sales. Esri uses the North American Industry Classification System (NAICS) to classify businesses by their primary type of economic activity. Retail establishments are classified into 27 industry groups in the Retail Trade sector, as well as four industry groups within the Food Services & Drinking Establishments subsector. For more information on the Retail MarketPlace data, please click the link below to view the Methodology Statement.
http://www.esri.com/library/whitepapers/pdfs/esri-data-retail-marketplace.pdf

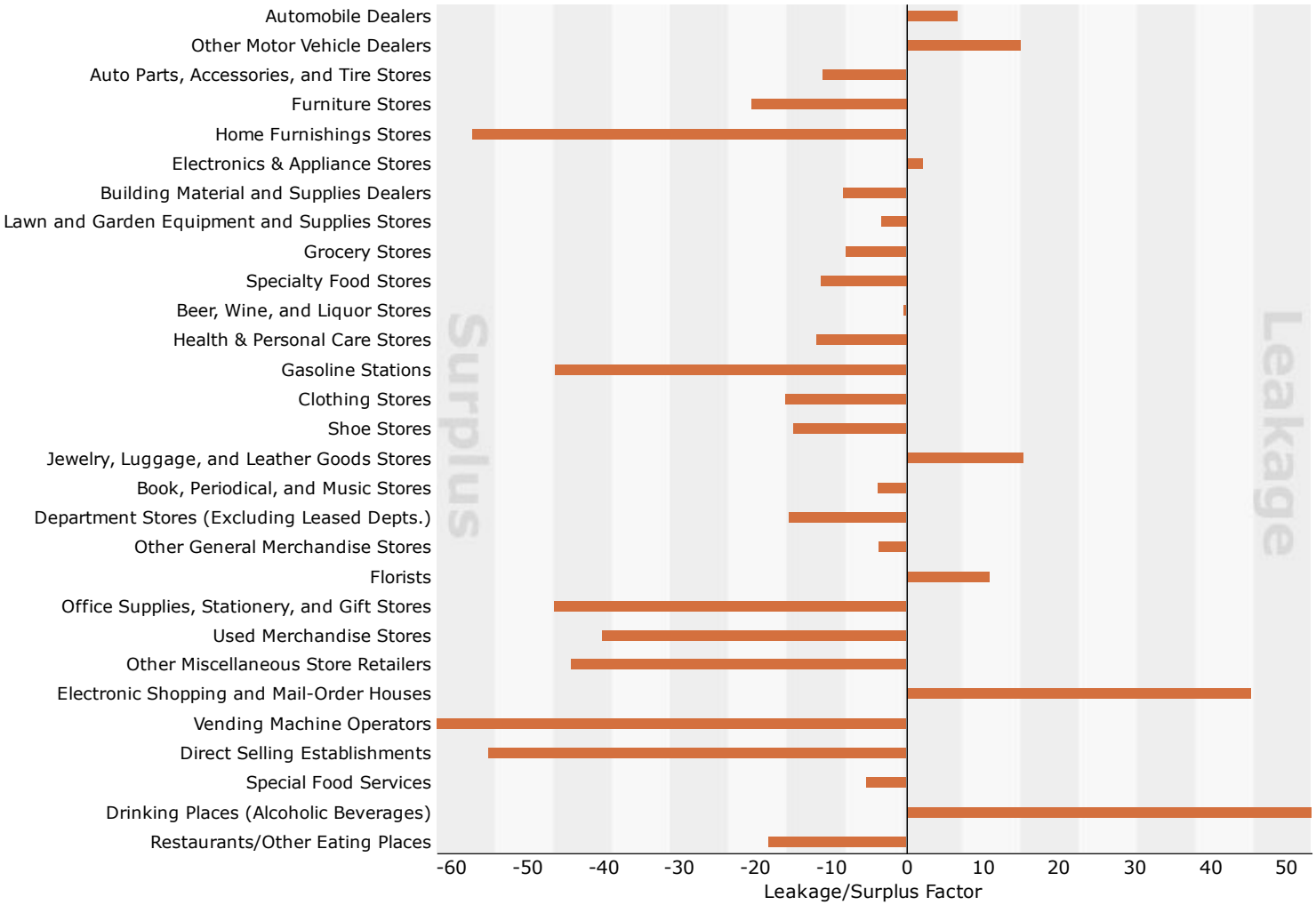
Source: Esri and Infogroup. Retail MarketPlace 2017. Copyright 2017 Infogroup, Inc. All rights reserved.

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Leakage/Surplus Factor by Industry Subsector



Leakage/Surplus Factor by Industry Group



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Retail MarketPlace Profile

Old Fayetteville Rd.
701 Old Fayetteville Rd, Chapel Hill, North Carolina, 27516
Drive Time: 10 minute radius

Prepared by Esri
Latitude: 35.92004
Longitude: -79.10002

Summary Demographics	
2017 Population	46,390
2017 Households	17,913
2017 Median Disposable Income	$45,023
2017 Per Capita Income	$36,119

Industry Summary	NAICS	Demand (Retail Potential)	Supply (Retail Sales)	Retail Gap	Leakage/Surplus Factor	Number of Businesses
Total Retail Trade and Food & Drink	44-45,722	$758,367,300	$375,798,585	$382,568,715	33.7	282
Total Retail Trade	44-45	$680,291,683	$282,695,040	$397,596,643	41.3	155
Total Food & Drink	722	$78,075,617	$93,103,545	-$15,027,928	-8.8	127

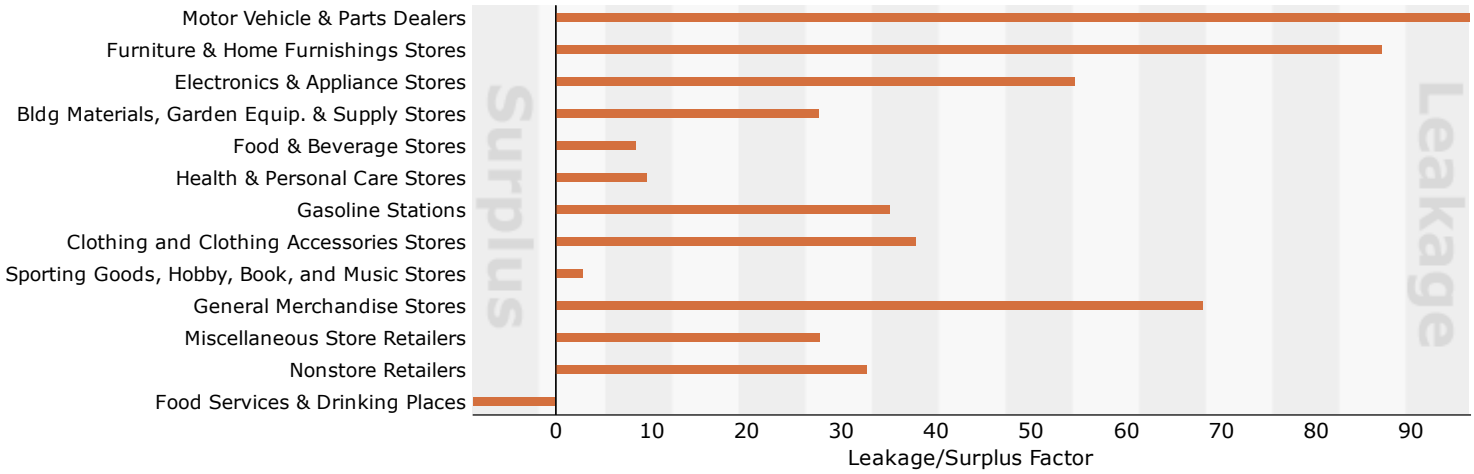
Industry Group	NAICS	Demand (Retail Potential)	Supply (Retail Sales)	Retail Gap	Leakage/Surplus Factor	Number of Businesses
Motor Vehicle & Parts Dealers	441	$143,761,760	$2,677,179	$141,084,581	96.3	4
Automobile Dealers	4411	$118,031,004	$843,461	$117,187,543	98.6	1
Other Motor Vehicle Dealers	4412	$11,245,120	$0	$11,245,120	100.0	0
Auto Parts, Accessories & Tire Stores	4413	$14,485,635	$1,833,718	$12,651,917	77.5	3
Furniture & Home Furnishings Stores	442	$27,563,413	$1,922,372	$25,641,041	87.0	7
Furniture Stores	4421	$17,052,791	$625,091	$16,427,700	92.9	2
Home Furnishings Stores	4422	$10,510,622	$1,297,281	$9,213,341	78.0	5
Electronics & Appliance Stores	443	$21,674,060	$6,350,604	$15,323,456	54.7	7
Bldg Materials, Garden Equip. & Supply Stores	444	$45,490,036	$25,755,607	$19,734,429	27.7	16
Bldg Material & Supplies Dealers	4441	$42,691,665	$23,760,529	$18,931,136	28.5	11
Lawn & Garden Equip & Supply Stores	4442	$2,798,371	$1,995,078	$803,293	16.8	5
Food & Beverage Stores	445	$119,078,328	$100,475,463	$18,602,865	8.5	23
Grocery Stores	4451	$110,178,100	$95,923,644	$14,254,456	6.9	16
Specialty Food Stores	4452	$4,350,428	$3,398,981	$951,447	12.3	5
Beer, Wine & Liquor Stores	4453	$4,549,801	$1,152,838	$3,396,963	59.6	2
Health & Personal Care Stores	446,4461	$40,791,304	$33,581,602	$7,209,702	9.7	17
Gasoline Stations	447,4471	$71,065,799	$34,032,885	$37,032,914	35.2	12
Clothing & Clothing Accessories Stores	448	$35,211,722	$15,864,795	$19,346,927	37.9	21
Clothing Stores	4481	$22,750,968	$12,002,680	$10,748,288	30.9	17
Shoe Stores	4482	$5,512,076	$3,058,090	$2,453,986	28.6	2
Jewelry, Luggage & Leather Goods Stores	4483	$6,948,678	$804,025	$6,144,653	79.3	2
Sporting Goods, Hobby, Book & Music Stores	451	$18,971,795	$17,885,174	$1,086,621	2.9	17
Sporting Goods/Hobby/Musical Instr Stores	4511	$15,858,081	$7,396,126	$8,461,955	36.4	11
Book, Periodical & Music Stores	4512	$3,113,714	$10,489,049	-$7,375,335	-54.2	5
General Merchandise Stores	452	$116,423,061	$22,116,980	$94,306,081	68.1	4
Department Stores Excluding Leased Depts.	4521	$85,019,948	$18,906,992	$66,112,956	63.6	1
Other General Merchandise Stores	4529	$31,403,112	$3,209,988	$28,193,124	81.5	3
Miscellaneous Store Retailers	453	$28,790,039	$16,223,405	$12,566,634	27.9	25
Florists	4531	$1,026,965	$525,741	$501,224	32.3	2
Office Supplies, Stationery & Gift Stores	4532	$6,429,062	$4,474,068	$1,954,994	17.9	7
Used Merchandise Stores	4533	$3,714,794	$3,760,028	-$45,234	-0.6	6
Other Miscellaneous Store Retailers	4539	$17,619,218	$7,463,568	$10,155,650	40.5	10
Nonstore Retailers	454	$11,470,366	$5,808,971	$5,661,395	32.8	3
Electronic Shopping & Mail-Order Houses	4541	$8,477,459	$377,677	$8,099,782	91.5	1
Vending Machine Operators	4542	$653,816	$162,199	$491,617	60.2	1
Direct Selling Establishments	4543	$2,339,092	$5,269,096	-$2,930,004	-38.5	2
Food Services & Drinking Places	722	$78,075,617	$93,103,545	-$15,027,928	-8.8	127
Special Food Services	7223	$700,185	$0	$700,185	100.0	0
Drinking Places - Alcoholic Beverages	7224	$5,633,871	$7,286,324	-$1,652,453	-12.8	15
Restaurants/Other Eating Places	7225	$71,741,561	$85,812,950	-$14,071,389	-8.9	112

Data Note: Supply (retail sales) estimates sales to consumers by establishments. Sales to businesses are excluded. Demand (retail potential) estimates the expected amount spent by consumers at retail establishments. Supply and demand estimates are in current dollars. The Leakage/Surplus Factor presents a snapshot of retail opportunity. This is a measure of the relationship between supply and demand that ranges from +100 (total leakage) to -100 (total surplus). A positive value represents 'leakage' of retail opportunity outside the trade area. A negative value represents a surplus of retail sales, a market where customers are drawn in from outside the trade area. The Retail Gap represents the difference between Retail Potential and Retail Sales. Esri uses the North American Industry Classification System (NAICS) to classify businesses by their primary type of economic activity. Retail establishments are classified into 27 industry groups in the Retail Trade sector, as well as four industry groups within the Food Services & Drinking Establishments subsector. For more information on the Retail MarketPlace data, please click the link below to view the Methodology Statement.
http://www.esri.com/library/whitepapers/pdfs/esri-data-retail-marketplace.pdf

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Leakage/Surplus Factor by Industry Subsector



Leakage/Surplus Factor by Industry Group



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Retail MarketPlace Profile

Old Fayetteville Rd.
701 Old Fayetteville Rd, Chapel Hill, North Carolina, 27516
Drive Time: 20 minute radius

Prepared by Esri
Latitude: 35.92004
Longitude: -79.10002

Summary Demographics	
2017 Population	152,668
2017 Households	61,604
2017 Median Disposable Income	$51,707
2017 Per Capita Income	$40,813

Industry Summary	NAICS	Demand (Retail Potential)	Supply (Retail Sales)	Retail Gap	Leakage/Surplus Factor	Number of Businesses
Total Retail Trade and Food & Drink	44-45,722	$2,841,644,615	$2,780,529,193	$61,115,422	1.1	1,136
Total Retail Trade	44-45	$2,551,278,899	$2,432,398,041	$118,880,858	2.4	737
Total Food & Drink	722	$290,365,716	$348,131,152	-$57,765,436	-9.0	399

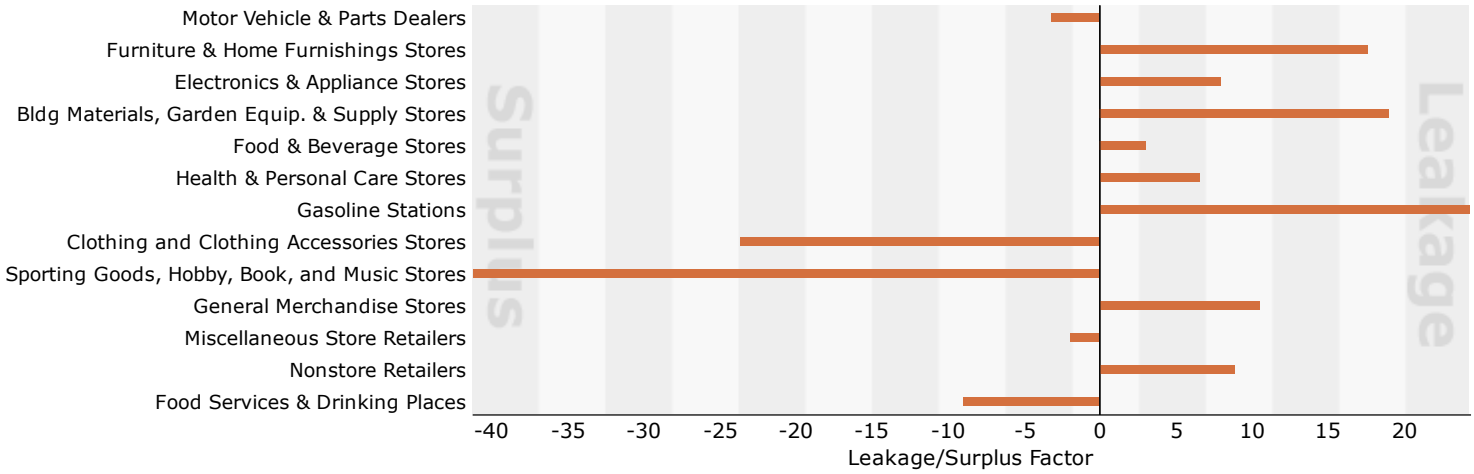
Industry Group	NAICS	Demand (Retail Potential)	Supply (Retail Sales)	Retail Gap	Leakage/Surplus Factor	Number of Businesses
Motor Vehicle & Parts Dealers	441	$535,207,666	$570,208,334	-$35,000,668	-3.2	42
Automobile Dealers	4411	$438,574,056	$549,072,634	-$110,498,578	-11.2	22
Other Motor Vehicle Dealers	4412	$42,057,205	$8,302,437	$33,754,768	67.0	4
Auto Parts, Accessories & Tire Stores	4413	$54,576,404	$12,833,263	$41,743,141	61.9	16
Furniture & Home Furnishings Stores	442	$102,917,009	$71,948,268	$30,968,741	17.7	43
Furniture Stores	4421	$63,079,576	$45,742,771	$17,336,805	15.9	19
Home Furnishings Stores	4422	$39,837,434	$26,205,497	$13,631,937	20.6	24
Electronics & Appliance Stores	443	$81,226,931	$69,167,293	$12,059,638	8.0	29
Bldg Materials, Garden Equip. & Supply Stores	444	$174,961,792	$118,883,874	$56,077,918	19.1	46
Bldg Material & Supplies Dealers	4441	$164,187,409	$114,091,404	$50,096,005	18.0	29
Lawn & Garden Equip & Supply Stores	4442	$10,774,383	$4,792,471	$5,981,912	38.4	17
Food & Beverage Stores	445	$446,089,252	$419,528,069	$26,561,183	3.1	88
Grocery Stores	4451	$412,657,595	$377,639,687	$35,017,908	4.4	55
Specialty Food Stores	4452	$16,239,770	$30,563,441	-$14,323,671	-30.6	17
Beer, Wine & Liquor Stores	4453	$17,191,888	$11,324,941	$5,866,947	20.6	16
Health & Personal Care Stores	446,4461	$156,355,175	$136,940,232	$19,414,943	6.6	76
Gasoline Stations	447,4471	$264,884,293	$160,984,350	$103,899,943	24.4	43
Clothing & Clothing Accessories Stores	448	$131,607,583	$213,402,333	-$81,794,750	-23.7	148
Clothing Stores	4481	$84,911,419	$168,527,788	-$83,616,369	-33.0	97
Shoe Stores	4482	$20,297,771	$25,484,690	-$5,186,919	-11.3	21
Jewelry, Luggage & Leather Goods Stores	4483	$26,398,392	$19,389,855	$7,008,537	15.3	30
Sporting Goods, Hobby, Book & Music Stores	451	$70,865,487	$170,399,610	-$99,534,123	-41.3	66
Sporting Goods/Hobby/Musical Instr Stores	4511	$59,411,348	$137,326,612	-$77,915,264	-39.6	51
Book, Periodical & Music Stores	4512	$11,454,139	$33,072,998	-$21,618,859	-48.6	15
General Merchandise Stores	452	$434,905,462	$351,532,639	$83,372,823	10.6	30
Department Stores Excluding Leased Depts.	4521	$317,542,132	$330,975,730	-$13,433,598	-2.1	15
Other General Merchandise Stores	4529	$117,363,330	$20,556,909	$96,806,421	70.2	15
Miscellaneous Store Retailers	453	$108,286,079	$112,639,059	-$4,352,980	-2.0	105
Florists	4531	$3,932,277	$3,007,901	$924,376	13.3	7
Office Supplies, Stationery & Gift Stores	4532	$24,152,235	$13,833,750	$10,318,485	27.2	27
Used Merchandise Stores	4533	$13,814,233	$14,015,476	-$201,243	-0.7	29
Other Miscellaneous Store Retailers	4539	$66,387,334	$81,781,931	-$15,394,597	-10.4	42
Nonstore Retailers	454	$43,972,170	$36,763,980	$7,208,190	8.9	22
Electronic Shopping & Mail-Order Houses	4541	$32,009,863	$12,897,040	$19,112,823	42.6	12
Vending Machine Operators	4542	$2,442,343	$212,430	$2,229,913	84.0	1
Direct Selling Establishments	4543	$9,519,964	$23,654,510	-$14,134,546	-42.6	9
Food Services & Drinking Places	722	$290,365,716	$348,131,152	-$57,765,436	-9.0	399
Special Food Services	7223	$2,564,838	$1,571,366	$993,472	24.0	9
Drinking Places - Alcoholic Beverages	7224	$21,344,546	$13,753,698	$7,590,848	21.6	23
Restaurants/Other Eating Places	7225	$266,456,332	$332,806,087	-$66,349,755	-11.1	367

Data Note: Supply (retail sales) estimates sales to consumers by establishments. Sales to businesses are excluded. Demand (retail potential) estimates the expected amount spent by consumers at retail establishments. Supply and demand estimates are in current dollars. The Leakage/Surplus Factor presents a snapshot of retail opportunity. This is a measure of the relationship between supply and demand that ranges from +100 (total leakage) to -100 (total surplus). A positive value represents 'leakage' of retail opportunity outside the trade area. A negative value represents a surplus of retail sales, a market where customers are drawn in from outside the trade area. The Retail Gap represents the difference between Retail Potential and Retail Sales. Esri uses the North American Industry Classification System (NAICS) to classify businesses by their primary type of economic activity. Retail establishments are classified into 27 industry groups in the Retail Trade sector, as well as four industry groups within the Food Services & Drinking Establishments subsector. For more information on the Retail MarketPlace data, please click the link below to view the Methodology Statement.
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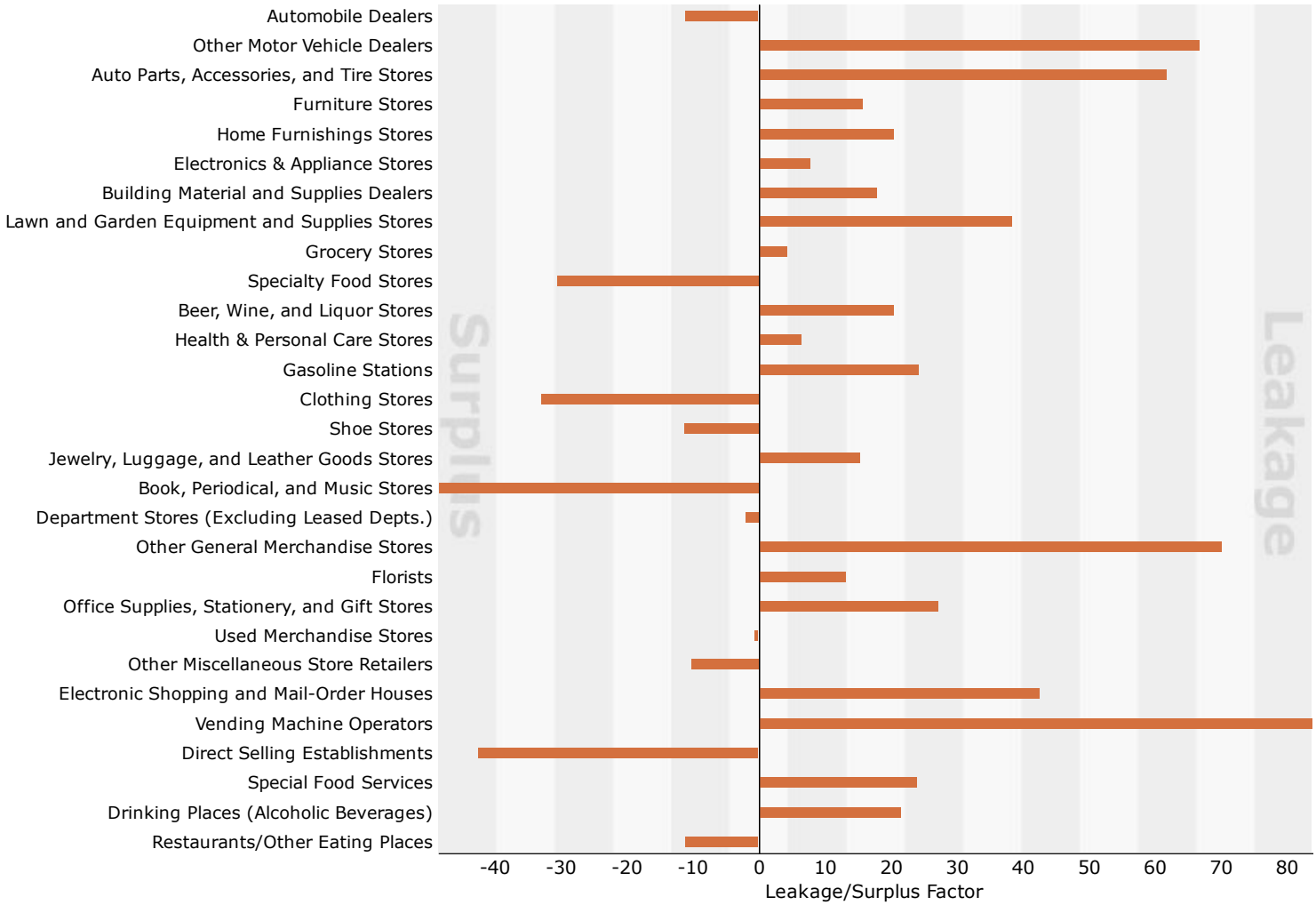
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Leakage/Surplus Factor by Industry Subsector



Leakage/Surplus Factor by Industry Group



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LifeMode Group: Rustic Outposts

Southern Satellites

10A

Households: 3,775,000

Average Household Size: 2.65

Median Age: 39.7

Median Household Income: $44,000

WHO ARE WE?

Southern Satellites is the second largest market found in rural settlements but within metropolitan areas located primarily in the South. This market is typically nondiverse, slightly older, settled married-couple families, who own their homes. Almost two-thirds of the homes are single-family structures; a third are mobile homes. Median household income and home value are below average. Workers are employed in a variety of industries, such as manufacturing, health care, retail trade, and construction, with higher proportions in mining and agriculture than the US. Residents enjoy country living, preferring outdoor activities and DIY home projects.

OUR NEIGHBORHOOD

- About 79% of households are owned.
- Married couples with no children are the dominant household type, with a number of multigenerational households (Index 112).
- Most are single-family homes (65%), with a number of mobile homes (Index 523).
- Most housing units were built in 1970 or later.
- Most households own 1 or 2 vehicles, but owning 3+ vehicles is common (Index 146).

SOCIOECONOMIC TRAITS

- Education: almost 40% have a high school diploma only (Index 137); 41% have college education (Index 72).
- Unemployment rate is 9.2%, slightly higher than the US rate.
- Labor force participation rate is 59.7%, slightly lower than the US.
- These consumers are more concerned about cost rather than quality or brand loyalty.
- They tend to be somewhat late in adapting to technology.
- They obtain a disproportionate amount of their information from TV, compared to other media.

TAPESTRY SEGMENTATION
esri.com/tapestry

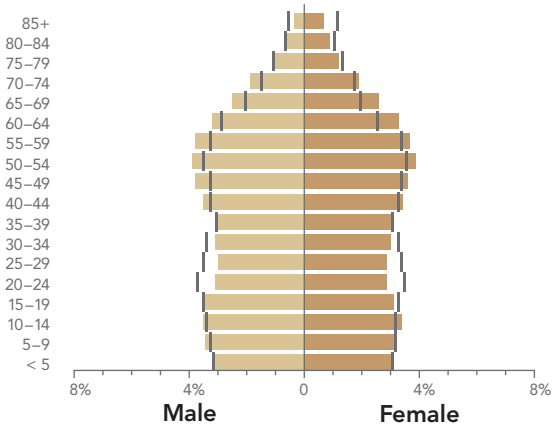
Note: The Index represents the ratio of the segment rate to the US rate multiplied by 100.
Consumer preferences are estimated from data by GfK MRI.

Southern Satellites

AGE BY SEX (Esri data)

Median Age: 39.7 US: 37.6

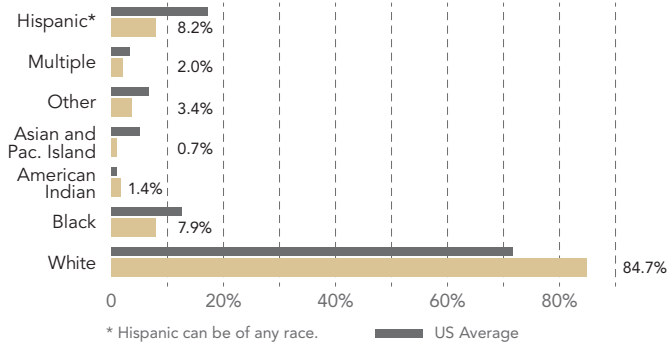
Indicates US



RACE AND ETHNICITY (Esri data)

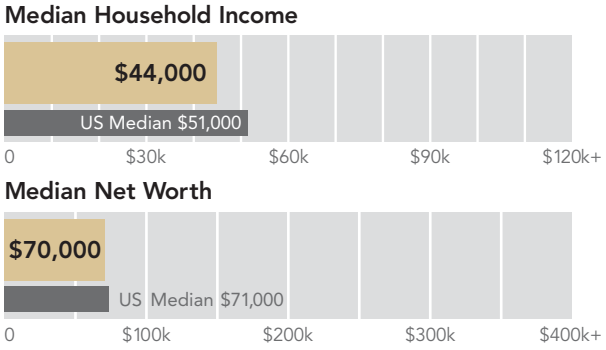
The Diversity Index summarizes racial and ethnic diversity. The index shows the likelihood that two persons, chosen at random from the same area, belong to different race or ethnic groups. The index ranges from 0 (no diversity) to 100 (complete diversity).

Diversity Index: 38.6 US: 62.1



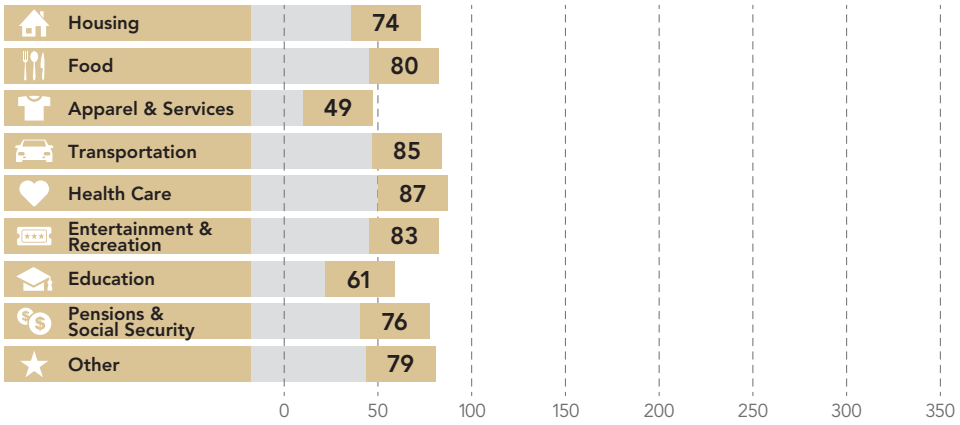
INCOME AND NET WORTH

Net worth measures total household assets (homes, vehicles, investments, etc.) less any debts, secured (e.g., mortgages) or unsecured (credit cards). Household income and net worth are estimated by Esri.



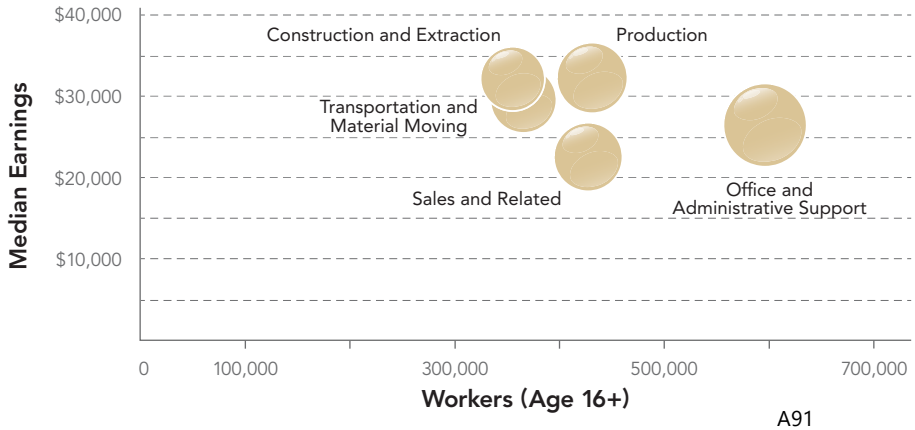
AVERAGE HOUSEHOLD BUDGET INDEX

The index compares the average amount spent in this market's household budgets for housing, food, apparel, etc., to the average amount spent by all US households. An index of 100 is average. An index of 120 shows that average spending by consumers in this market is 20 percent above the national average. Consumer expenditures are estimated by Esri.



OCCUPATION BY EARNINGS

The five occupations with the highest number of workers in the market are displayed by median earnings. Data from the Census Bureau's American Community Survey.



10A

LifeMode Group: Rustic Outposts

Southern Satellites

TAPESTRY SEGMENTATION
esri.com/tapestry

MARKET PROFILE (Consumer preferences are estimated from data by GfK MRI)

- Usually own a truck; likely to service it themselves.
- Frequent the convenience store, usually to fill up a vehicle with gas.
- Typical household has a satellite dish.
- Work on home improvement and remodeling projects.
- Own a pet, commonly a dog.
- Participate in fishing and hunting.
- Prefer to listen to country music and watch Country Music Television (CMT).
- Read fishing/hunting and home service magazines.
- Partial to eating at low-cost family restaurants and drive-ins.
- Use Walmart for all their shopping needs (groceries, clothing, pharmacy, etc.).

HOUSING

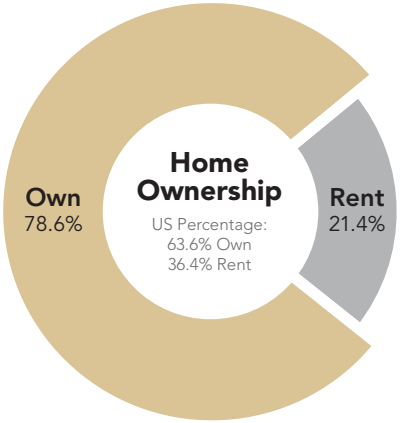
Median home value is displayed for markets that are primarily owner occupied; average rent is shown for renter-occupied markets. Tenure and home value are estimated by Esri. Housing type and average rent are from the Census Bureau's American Community Survey.



Typical Housing:
Single Family;
Mobile Homes

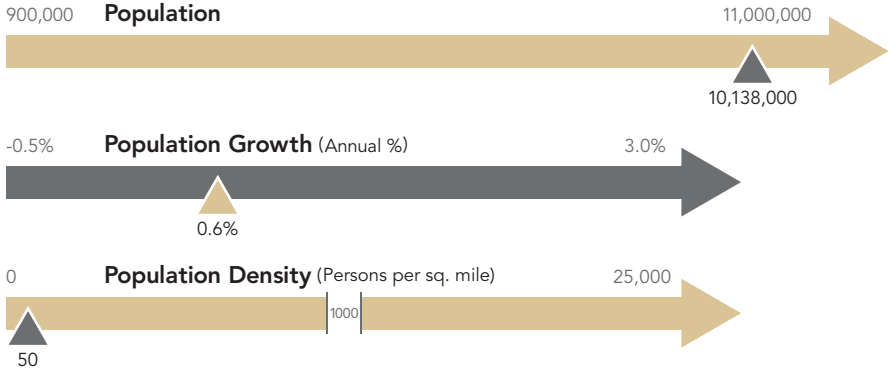
Median Value:
$119,000

US Median: $177,000



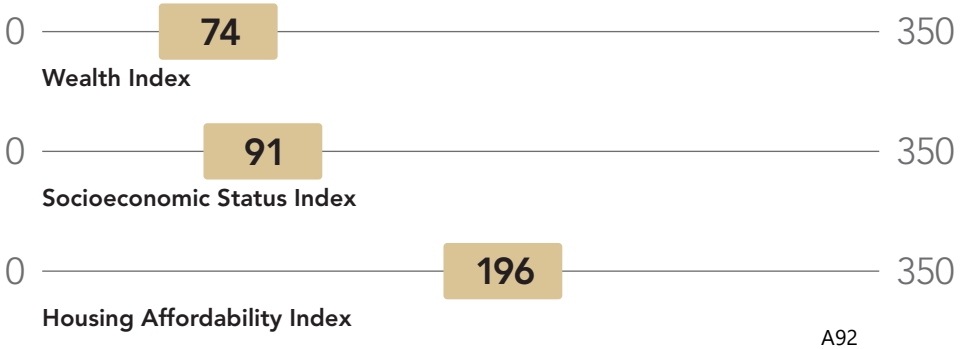
POPULATION CHARACTERISTICS

Total population, average annual population change since Census 2010, and average density (population per square mile) are displayed for the market relative to the size and change among all Tapestry markets. Data estimated by Esri.



ESRI INDEXES

Esri developed three indexes to display average household wealth, socioeconomic status, and housing affordability for the market relative to US standards.







LifeMode Group: Family Landscapes

Middleburg

4C

Households: 3,319,000

Average Household Size: 2.73

Median Age: 35.3

Median Household Income: $55,000

WHO ARE WE?

Middleburg neighborhoods transformed from the easy pace of country living to semirural subdivisions in the last decade, when the housing boom reached out. Residents are conservative, family-oriented consumers. Still more country than rock and roll, they are thrifty but willing to carry some debt and are already investing in their futures. They rely on their smartphones and mobile devices to stay in touch and pride themselves on their expertise. They prefer to buy American and travel in the US. This market is younger but growing in size and assets.

OUR NEIGHBORHOOD

- Semirural locales within metropolitan areas.
- Neighborhoods changed rapidly in the previous decade with the addition of new single-family homes.
- Include a number of mobile homes (Index 152).
- Affordable housing, median value of $158,000 (Index 89) with a low vacancy rate.
- Young couples, many with children; average household size is 2.73.

SOCIOECONOMIC TRAITS

- Education: 66% with a high school diploma or some college.
- Unemployment rate lower at 7.4% (Index 85).
- Labor force participation typical of a younger population at 66.7% (Index 106).
- Traditional values are the norm here—faith, country, and family.
- Prefer to buy American and for a good price.
- Comfortable with the latest in technology, for convenience (online banking or saving money on landlines) and entertainment.

TAPESTRY SEGMENTATION
esri.com/tapestry

Note: The Index represents the ratio of the segment rate to the US rate multiplied by 100.
Consumer preferences are estimated from data by GfK MRI.

Middleburg

AGE BY SEX (Esri data)

Median Age: 35.3 US: 37.6

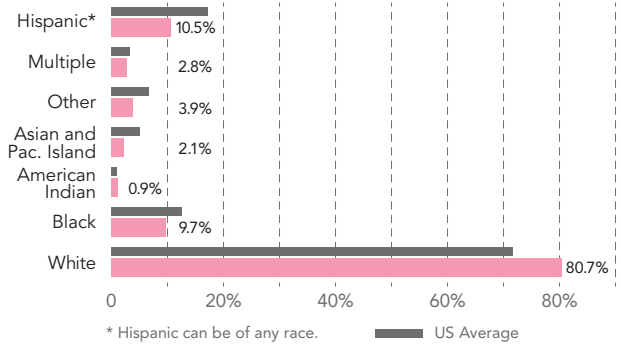
Indicates US



RACE AND ETHNICITY (Esri data)

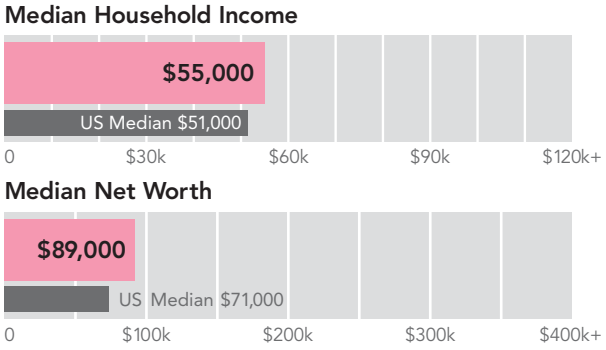
The Diversity Index summarizes racial and ethnic diversity. The index shows the likelihood that two persons, chosen at random from the same area, belong to different race or ethnic groups. The index ranges from 0 (no diversity) to 100 (complete diversity).

Diversity Index: 46.3 US: 62.1



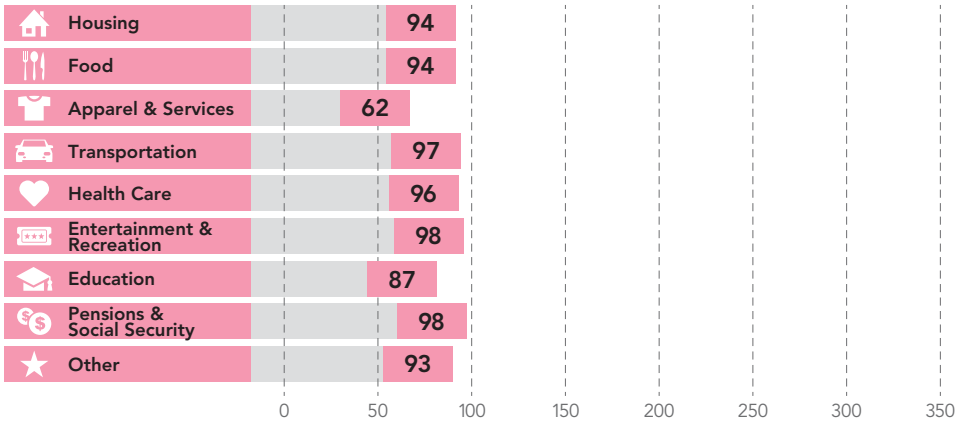
INCOME AND NET WORTH

Net worth measures total household assets (homes, vehicles, investments, etc.) less any debts, secured (e.g., mortgages) or unsecured (credit cards). Household income and net worth are estimated by Esri.



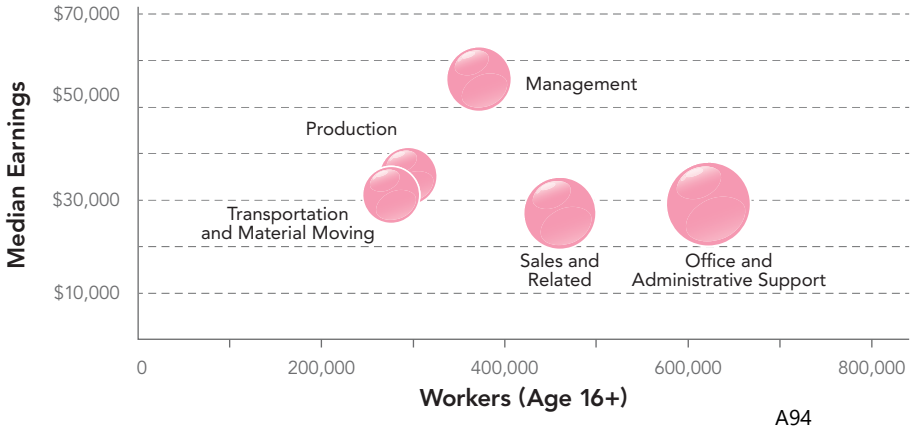
AVERAGE HOUSEHOLD BUDGET INDEX

The index compares the average amount spent in this market's household budgets for housing, food, apparel, etc., to the average amount spent by all US households. An index of 100 is average. An index of 120 shows that average spending by consumers in this market is 20 percent above the national average. Consumer expenditures are estimated by Esri.



OCCUPATION BY EARNINGS

The five occupations with the highest number of workers in the market are displayed by median earnings. Data from the Census Bureau's American Community Survey.



Middleburg

MARKET PROFILE (Consumer preferences are estimated from data by GfK MRI)

- Residents are partial to trucks, SUVs, and occasionally, convertibles, or motorcycles.
- Entertainment is primarily family-oriented, TV and movie rentals or theme parks and family restaurants.
- Spending priorities also focus on family (children's toys and apparel) or home DIY projects.
- Sports include hunting, target shooting, bowling, and baseball.
- TV and magazines provide entertainment and information.
- Media preferences include country and Christian channels.

HOUSING

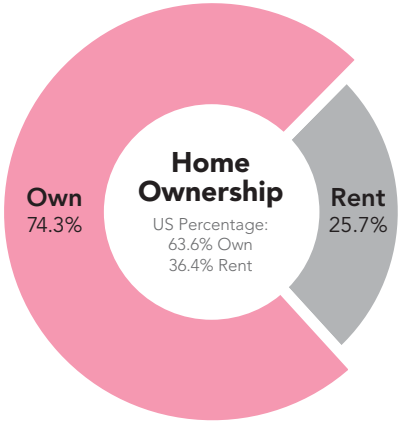
Median home value is displayed for markets that are primarily owner occupied; average rent is shown for renter-occupied markets. Tenure and home value are estimated by Esri. Housing type and average rent are from the Census Bureau's American Community Survey.



Typical Housing:
Single Family

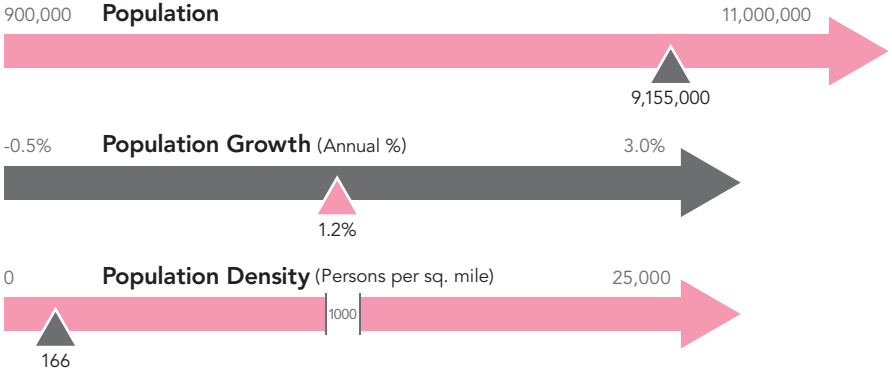
Median Value:
$158,000

US Median: $177,000



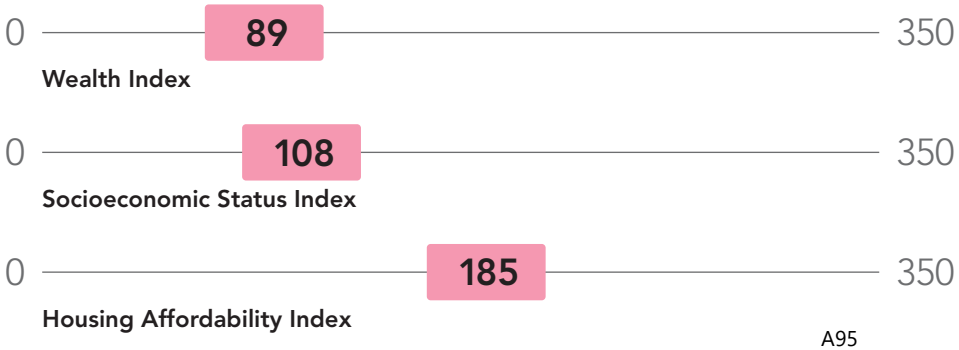
POPULATION CHARACTERISTICS

Total population, average annual population change since Census 2010, and average density (population per square mile) are displayed for the market relative to the size and change among all Tapestry markets. Data estimated by Esri.



ESRI INDEXES

Esri developed three indexes to display average household wealth, socioeconomic status, and housing affordability for the market relative to US standards.







LifeMode Group: GenXurban

Rustbelt Traditions

5D

Households: 2,685,000

Average Household Size: 2.46

Median Age: 38.4

Median Household Income: $49,000

WHO ARE WE?

The backbone of older industrial cities in states surrounding the Great Lakes, *Rustbelt Traditions* residents are a mix of married-couple families and singles living in older developments of single-family homes. While varied, the work force is primarily white collar, with a higher concentration of skilled workers in manufacturing, retail trade, and health care. *Rustbelt Traditions* represents a large market of stable, hard-working consumers with modest incomes but above average net worth (Index 111). Family oriented, they value time spent at home. Most have lived, worked, and played in the same area for years.

TAPESTRY SEGMENTATION
esri.com/tapestry

OUR NEIGHBORHOOD

- Almost half (46%) of the households are married-couple families, similar to the US (48%), most without children (also similar to the US); the slightly higher proportion of singles (Index 105) reflects the aging of the population.
- Average household size is slightly lower at 2.46.
- They are movers, slightly more mobile than the US population (Index 109), but almost half of householders (46%) moved into their current homes before 2000.
- Most residents live in modest, single-family homes in older neighborhoods built in the 1950s (Index 218).
- Nearly three quarters own their homes; over half of households have mortgages.
- A large and growing market, *Rustbelt Traditions* residents are located in the dense urban fringe of metropolitan areas throughout the Midwest and South.
- Most households have two or more vehicles available.

SOCIOECONOMIC TRAITS

- Most have graduated from high school or spent some time at a college or university.
- Unemployment below the US at 8%; labor force participation slightly higher than the US at 67%.
- While most income derived from wages and salaries, nearly 30% of households collecting Social Security and nearly 20% drawing income from retirement accounts.
- Family-oriented consumers who value time spent at home.
- Most lived, worked, and played in the same area for years.
- Budget aware shoppers that favor American-made products.
- Read newspapers, especially the Sunday editions.

Note: The Index represents the ratio of the segment rate to the US rate multiplied by 100.
Consumer preferences are estimated from data by GfK MRI.

5D

LifeMode Group: GenXurban

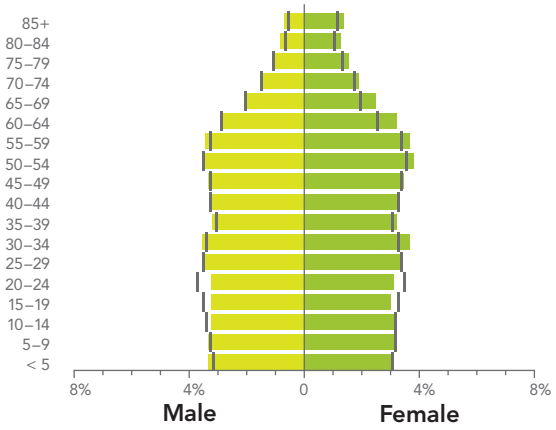
Rustbelt Traditions

TAPESTRY SEGMENTATION
esri.com/tapestry

AGE BY SEX (Esri data)

Median Age: 38.4 US: 37.6

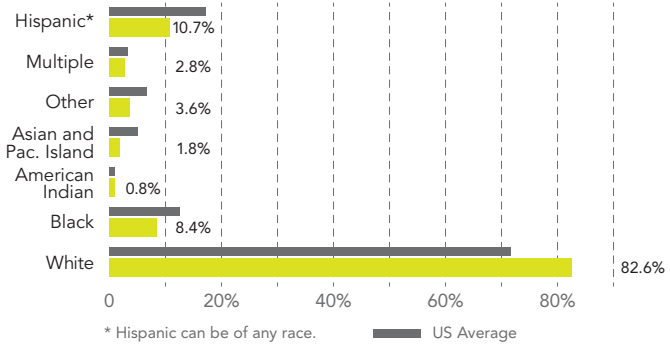
Indicates US



RACE AND ETHNICITY (Esri data)

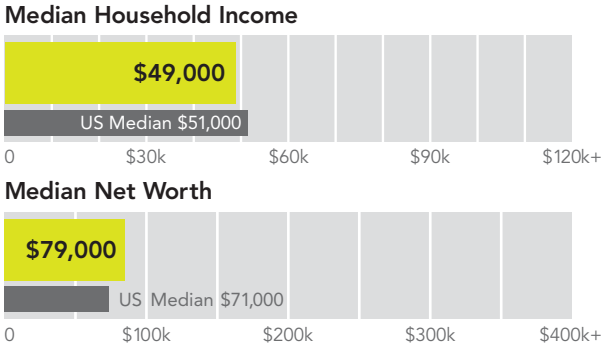
The Diversity Index summarizes racial and ethnic diversity. The index shows the likelihood that two persons, chosen at random from the same area, belong to different race or ethnic groups. The index ranges from 0 (no diversity) to 100 (complete diversity).

Diversity Index: 44.2 US: 62.1



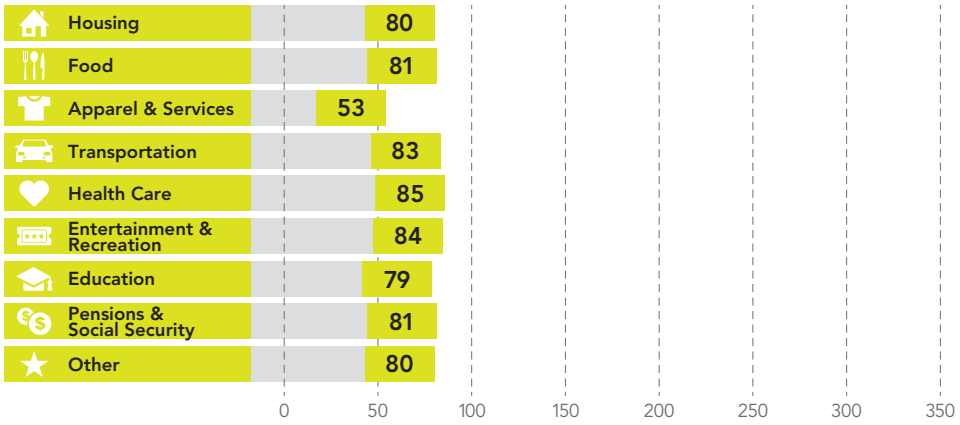
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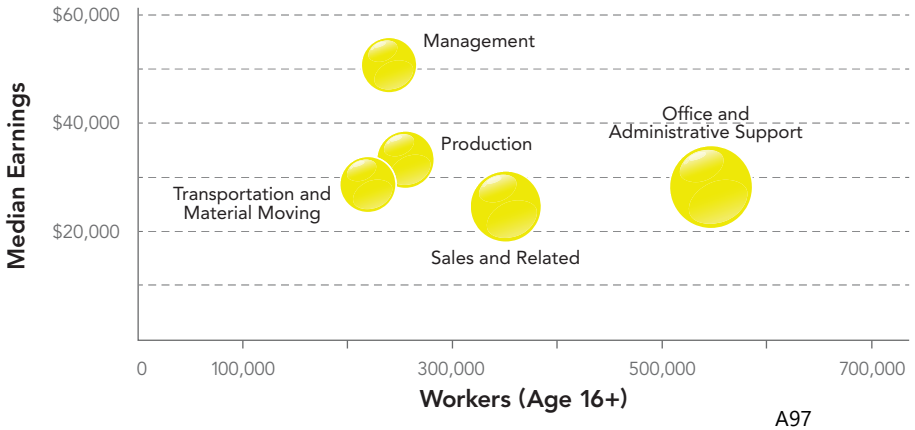
AVERAGE HOUSEHOLD BUDGET INDEX

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OCCUPATION BY EARNINGS

The five occupations with the highest number of workers in the market are displayed by median earnings. Data from the Census Bureau's American Community Survey.



5D

LifeMode Group: GenXurban

Rustbelt Traditions

TAPESTRY SEGMENTATION
esri.com/tapestry

MARKET PROFILE (Consumer preferences are estimated from data by GfK MRI)

- Residents take advantage of convenience stores for fueling up and picking up incidentals.
- Watching television is a common pastime; many households have more than four TVs.
- Favorite programming ranges from ESPN, Animal Planet, and AMC to children's shows on Nickelodeon and Cartoon Network.
- Residents are connected; entertainment activities like online gaming dominate their Internet usage.
- Favorite family restaurants include Applebee's, Outback Steakhouse, and Texas Roadhouse.
- Radio dials are typically tuned to classic rock stations.

HOUSING

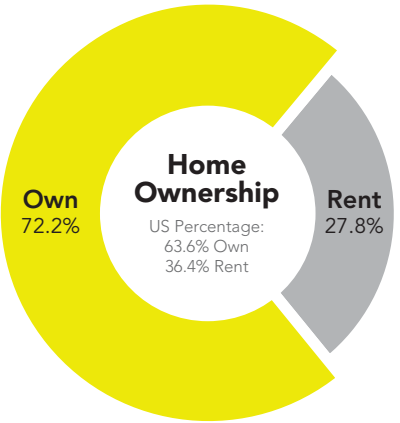
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Typical Housing:
Single Family

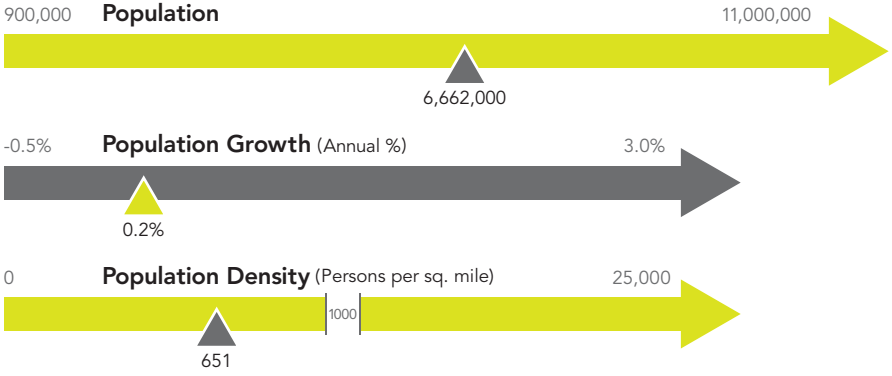
Median Value:
$118,000

US Median: $177,000



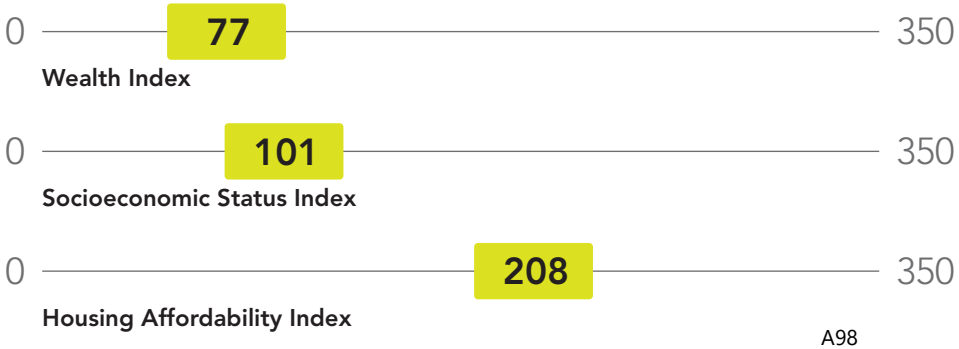
POPULATION CHARACTERISTICS

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ESRI INDEXES

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LifeMode Group: Middle Ground

Hardscrabble Road

8G

Households: 1,489,000

Average Household Size: 2.64

Median Age: 31.7

Median Household Income: $26,000

WHO ARE WE?

Hardscrabble Road neighborhoods are in urbanized areas within central cities, with older housing, located chiefly in the Midwest and South. This slightly smaller market is primarily a family market, married couples (with and without children) and single parents. Younger, highly diverse (with higher proportions of black, multiracial, and Hispanic populations), and less educated, they work mainly in service, manufacturing, and retail trade industries. Unemployment is high (almost twice the US rate), and median household income is half the US median. Almost 1 in 3 households have income below the poverty level. Approximately 60% of householders are renters, living primarily in single-family homes, with a higher proportion of dwellings in 2–4 unit buildings. This market is struggling to get by.

TAPESTRY SEGMENTATION
esri.com/tapestry

OUR NEIGHBORHOOD

- Renters: About three-fifths of households.
- Primarily family households, married couples with or without children, single parents (Index 203), and multigenerational households (Index 137).
- Primarily single-family homes (61%), with a higher proportion of dwellings in 2–4 unit buildings (Index 225).
- Older housing, built before 1960 (62%), with a higher proportion built in the 1940s (Index 211) or earlier (Index 252).
- Four-fifths of owned homes valued under $100,000 (more than 3.5 times the US).
- Higher percentage of vacant housing units at 17% (Index 147).
- Most households with 1 or 2 vehicles (71%), but 18% have no vehicle (Index 202).

SOCIOECONOMIC TRAITS

- Education completed: 38% with a high school diploma only (Index 133); 25% with some college or an associate's degree (Index 86).
- Unemployment rate is higher at 16.6%, almost twice the US rate.
- Labor force participation rate is lower at 57.4%.
- Wages and salaries are the primary source of income for 71% of households, with contributions from Supplemental Security Income for 10% (Index 242) and public assistance for 7% (Index 280).
- These cost-conscious consumers purchase sale items in bulk and buy generic over name brands.
- They tend to save money for a specific purpose.

Note: The Index represents the ratio of the segment rate to the US rate multiplied by 100.
Consumer preferences are estimated from data by GfK MRI.

8G

LifeMode Group: Middle Ground

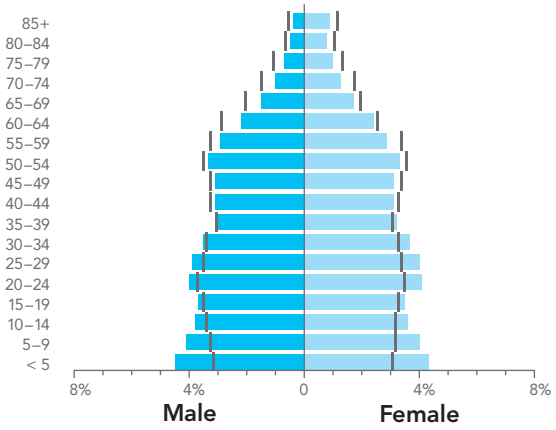
Hardscrabble Road

TAPESTRY SEGMENTATION
esri.com/tapestry

AGE BY SEX (Esri data)

Median Age: 31.7 US: 37.6

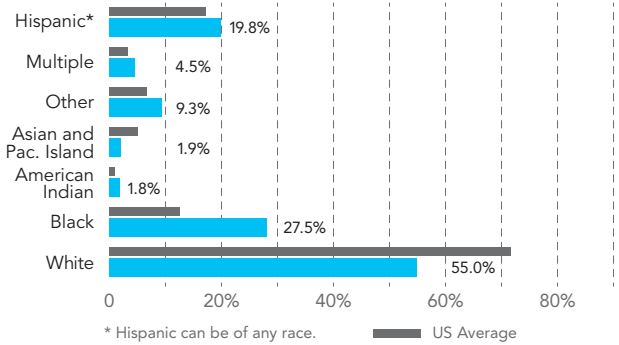
Indicates US



RACE AND ETHNICITY (Esri data)

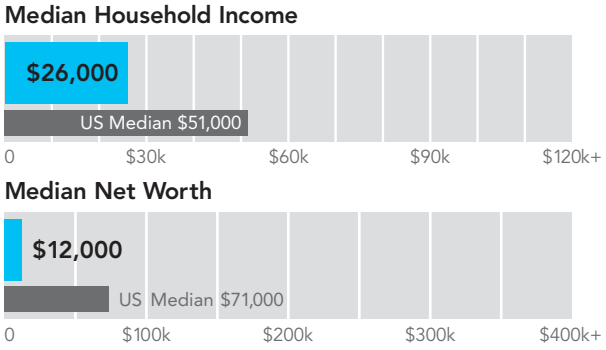
The Diversity Index summarizes racial and ethnic diversity. The index shows the likelihood that two persons, chosen at random from the same area, belong to different race or ethnic groups. The index ranges from 0 (no diversity) to 100 (complete diversity).

Diversity Index: 74.2 US: 62.1



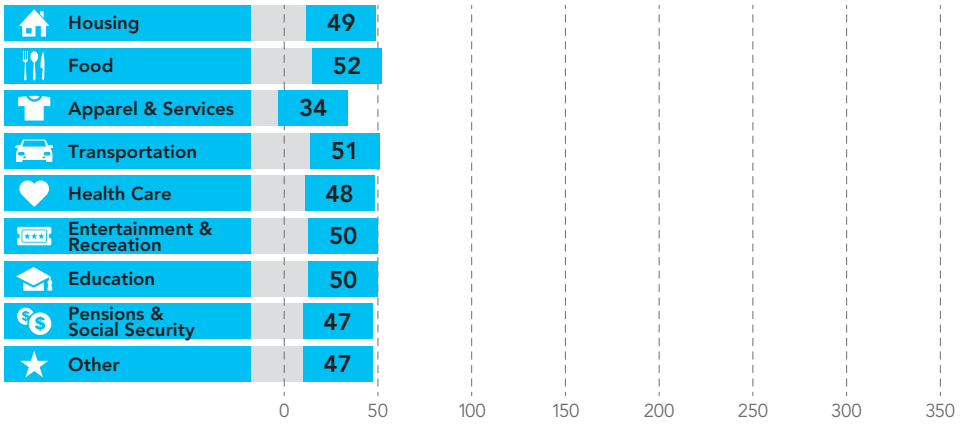
INCOME AND NET WORTH

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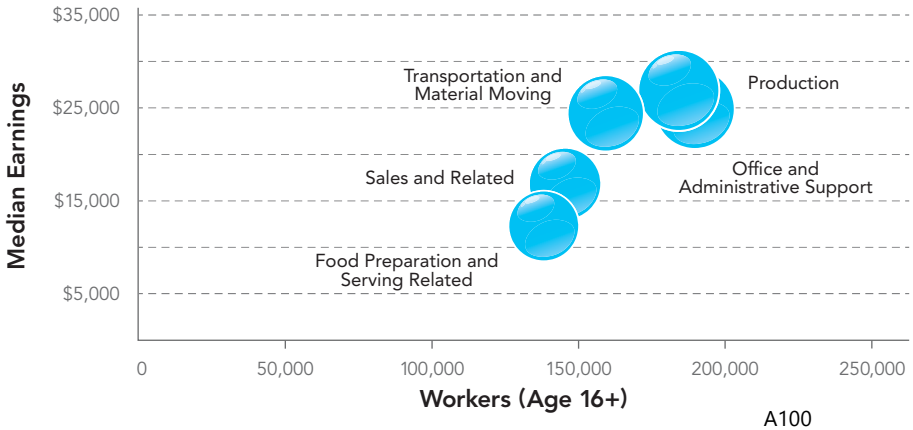
AVERAGE HOUSEHOLD BUDGET INDEX

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OCCUPATION BY EARNINGS

The five occupations with the highest number of workers in the market are displayed by median earnings. Data from the Census Bureau's American Community Survey.



8G

LifeMode Group: Middle Ground

Hardscrabble Road

TAPESTRY SEGMENTATION
esri.com/tapestry

MARKET PROFILE (Consumer preferences are estimated from data by GfK MRI)

- Little extra money to invest in retirement savings plans, stocks, or bonds.
- For those with young children at home, watching Disney Channel, Cartoon Network, and Nickelodeon on TV is popular; diapers, baby food, and children's clothing are priority expenditures.
- Favor shopping through an in-home sales rep, QVC, or HSN.
- Read parenting and health magazines.
- Watch programs on BET, MTV, and Game Show Network.
- Prefer to listen to gospel, R&B, rap, and hip-hop music.
- Participate in basketball, football, and volleyball.

HOUSING

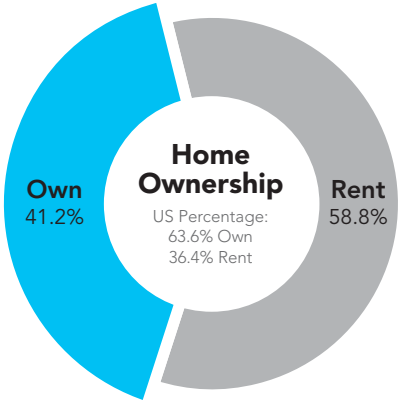
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Typical Housing:
Single Family

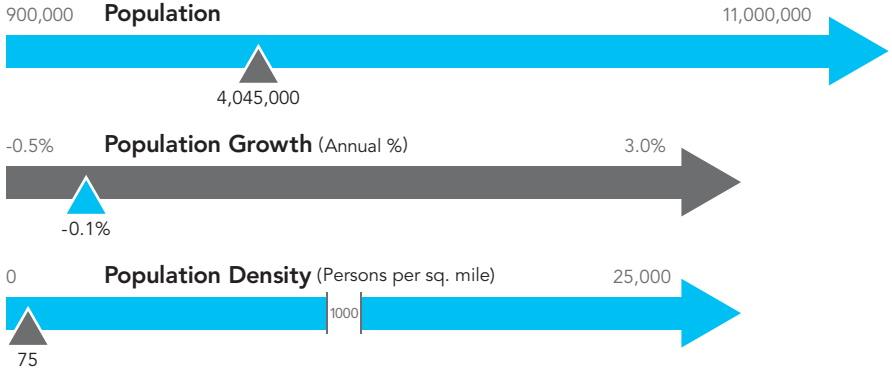
Average Rent:
$690

US Average: $990



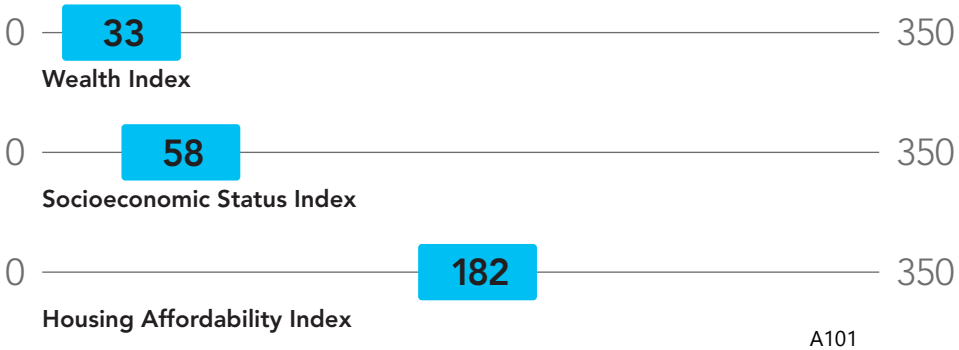
POPULATION CHARACTERISTICS

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ESRI INDEXES

Esri developed three indexes to display average household wealth, socioeconomic status and housing affordability for the market relative to the US.







LifeMode Group: Middle Ground

Old and Newcomers

8F

Households: 2,774,000

Average Household Size: 2.11

Median Age: 38.5

Median Household Income: $39,000

WHO ARE WE?

This market features singles' lifestyles, on a budget. The focus is more on convenience than consumerism, economy over acquisition. *Old and Newcomers* is composed of neighborhoods in transition, populated by renters who are just beginning their careers or retiring. Some are still in college; some are taking adult education classes. They support environmental causes and Starbucks. Age is not always obvious from their choices.

OUR NEIGHBORHOOD

- Metropolitan city dwellers.
- Predominantly single households (Index 148), with a mix of married couples (no children); average household size lower at 2.11.
- 54% renter occupied; average rent, $800 (Index 88).
- 45% of housing units are single-family dwellings; 44% are multiunit buildings in older neighborhoods, built before 1980.
- Average vacancy rate at 11%.

SOCIOECONOMIC TRAITS

- Unemployment is lower at 7.8% (Index 91), with an average labor force participation rate of 62.6%, despite the increasing number of retired workers.
- 30% of households are currently receiving Social Security.
- 28% have a college degree (Index 99), 33% have some college education, 10% are still enrolled in college (Index 126).
- Consumers are price aware and coupon clippers, but open to impulse buys.
- They are attentive to environmental concerns.
- They are more comfortable with the latest technology than buying a car.

Note: The Index represents the ratio of the segment rate to the US rate multiplied by 100.
Consumer preferences are estimated from data by GfK MRI.

8F

LifeMode Group: Middle Ground

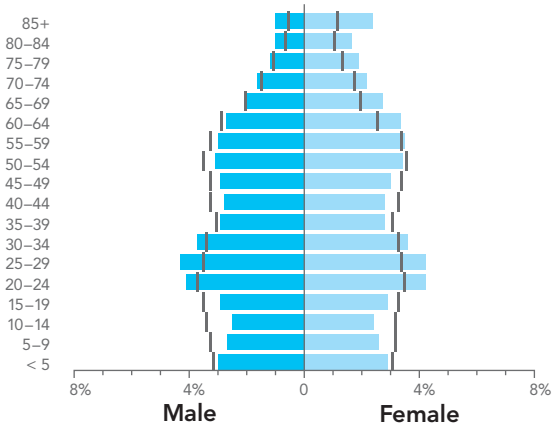
Old and Newcomers

TAPESTRY SEGMENTATION
esri.com/tapestry

AGE BY SEX (Esri data)

Median Age: 38.5 US: 37.6

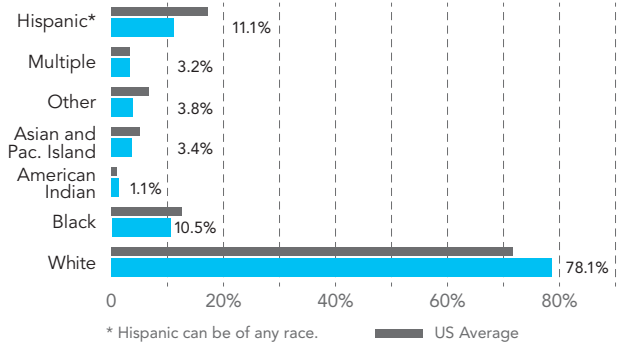
Indicates US



RACE AND ETHNICITY (Esri data)

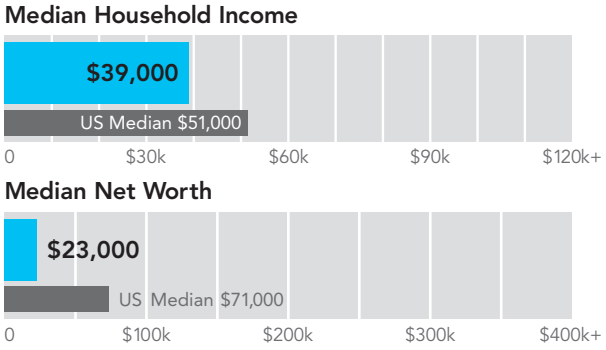
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Diversity Index: 50.1 US: 62.1



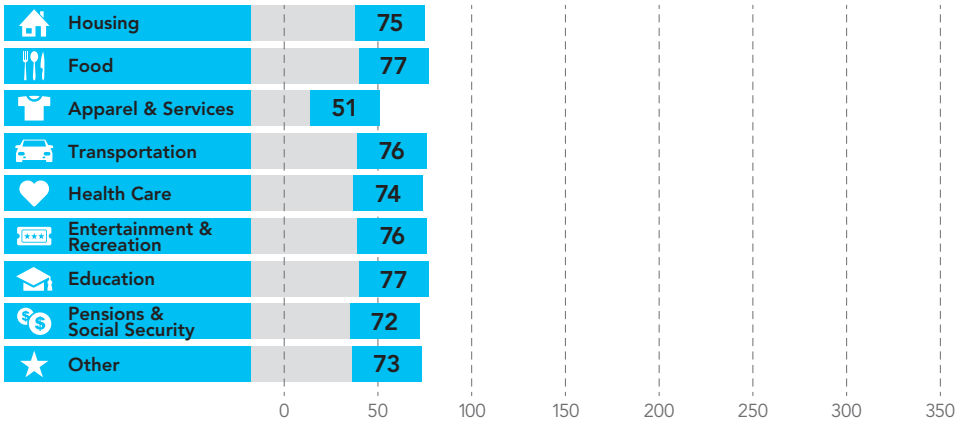
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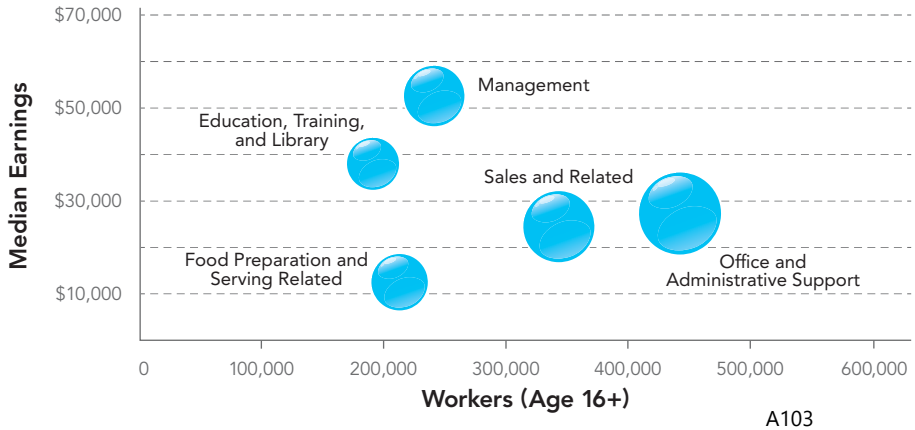
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OCCUPATION BY EARNINGS

The five occupations with the highest number of workers in the market are displayed by median earnings. Data from the Census Bureau's American Community Survey.



8F

LifeMode Group: Middle Ground

Old and Newcomers

TAPESTRY SEGMENTATION
esri.com/tapestry

MARKET PROFILE (Consumer preferences are estimated from data by GfK MRI)

- Residents are strong supporters of environmental organizations.
- They prefer cell phones to landlines.
- Entertainment features the Internet (dating sites and games), movies at home, country music, and newspapers.
- Vehicles are basically just a means of transportation.
- Food features convenience, frozen and fast food.
- They do banking as likely in person as online.

HOUSING

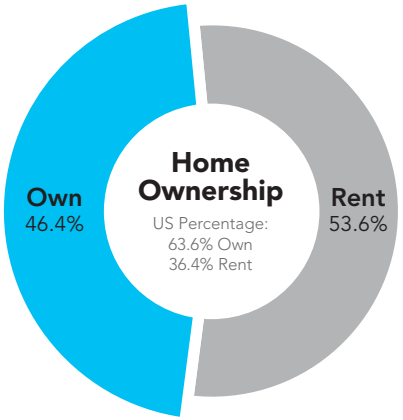
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Typical Housing:
Single Family;
Multiunits

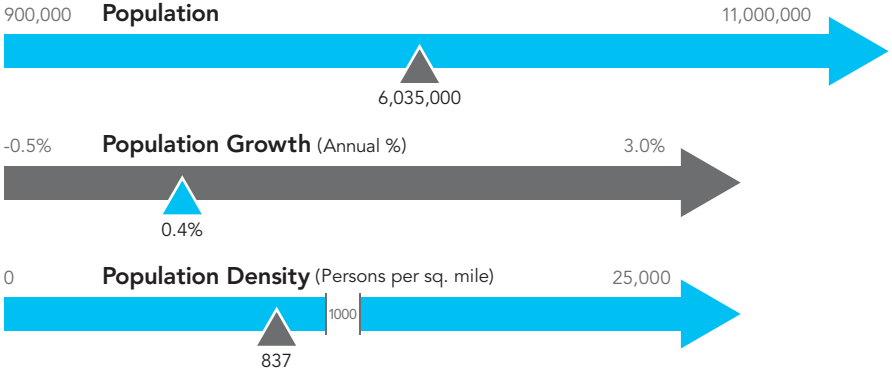
Average Rent:
$850

US Average: $990



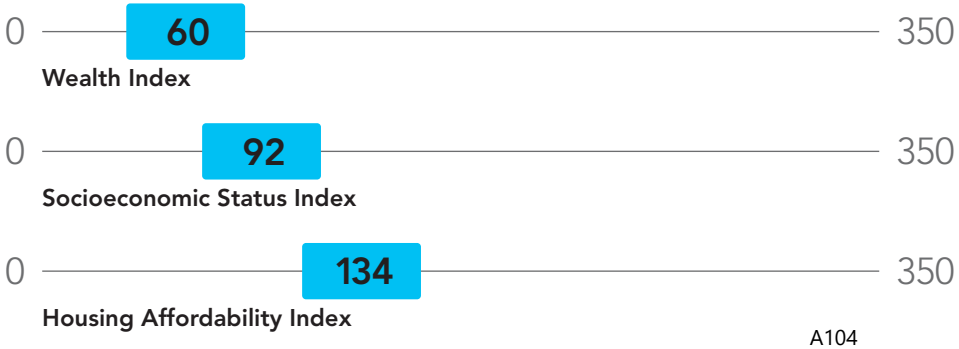
POPULATION CHARACTERISTICS

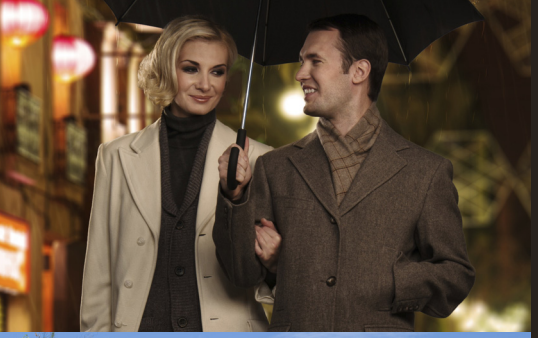
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ESRI INDEXES

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LifeMode Group: Upscale Avenues

Urban Chic

2A

Households: 1,574,000

Average Household Size: 2.37

Median Age: 42.6

Median Household Income: $98,000

WHO ARE WE?

Urban Chic residents are professionals that live a sophisticated, exclusive lifestyle. Half of all households are occupied by married-couple families and about 30% are singles. These are busy, well-connected, and well-educated consumers—avid readers and moviegoers, environmentally active, and financially stable. This market is a bit older, with a median age of almost 43 years, and growing slowly, but steadily.

OUR NEIGHBORHOOD

- More than half of *Urban Chic* households include married couples; 30% are singles.
- Average household size is slightly lower at 2.37.
- Homes range from prewar to recent construction, high-rise to single family. Over 60% of householders live in single-family homes; more than one in four live in multiunit structures.
- Two-thirds of homes are owner occupied.
- Major concentrations of these neighborhoods are found in the suburban periphery of large metropolitan areas on the California coast and along the East Coast.
- Most households have two vehicles available. Commuting time is slightly longer, but commuting by bicycle is common (Index 236).

SOCIOECONOMIC TRAITS

- Well educated, more than 60% of residents hold a bachelor's degree or higher (Index 223).
- Unemployment rate is well below average at 5% (Index 62); labor force participation is higher at 69%.
- Residents are employed in white collar occupations—in managerial, technical, and legal positions.
- Over 40% of households receive income from investments.
- Environmentally aware, residents actively recycle and maintain a "green" lifestyle.
- These busy, tech-savvy residents use PCs extensively for an array of activities such as shopping, banking, and staying current—a top market for Apple computers.

TAPESTRY SEGMENTATION
esri.com/tapestry

Note: The Index represents the ratio of the segment rate to the US rate multiplied by 100.
Consumer preferences are estimated from data by GfK MRI.

2A

LifeMode Group: Upscale Avenues

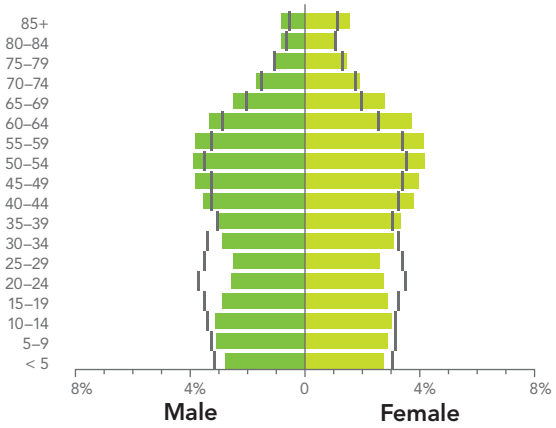
Urban Chic

TAPESTRY SEGMENTATION
esri.com/tapestry

AGE BY SEX (Esri data)

Median Age: 42.6 US: 37.6

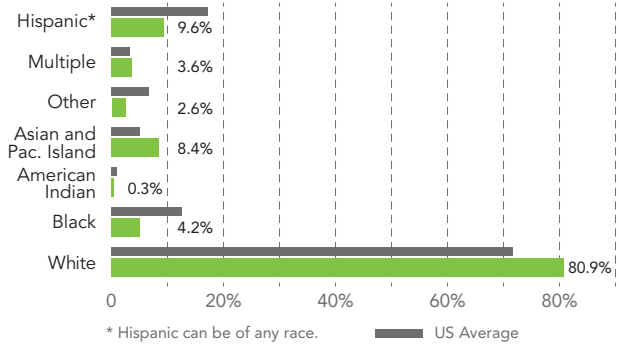
Indicates US



RACE AND ETHNICITY (Esri data)

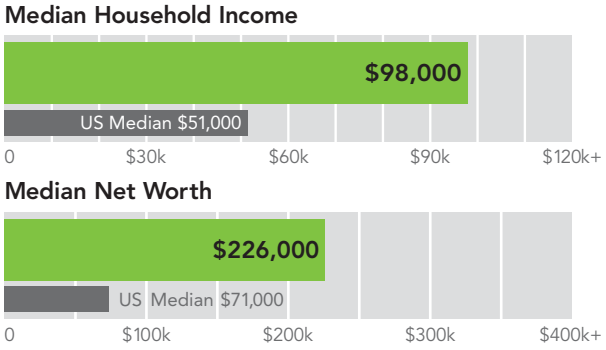
The Diversity Index summarizes racial and ethnic diversity. The index shows the likelihood that two persons, chosen at random from the same area, belong to different race or ethnic groups. The index ranges from 0 (no diversity) to 100 (complete diversity).

Diversity Index: 45.2 US: 62.1



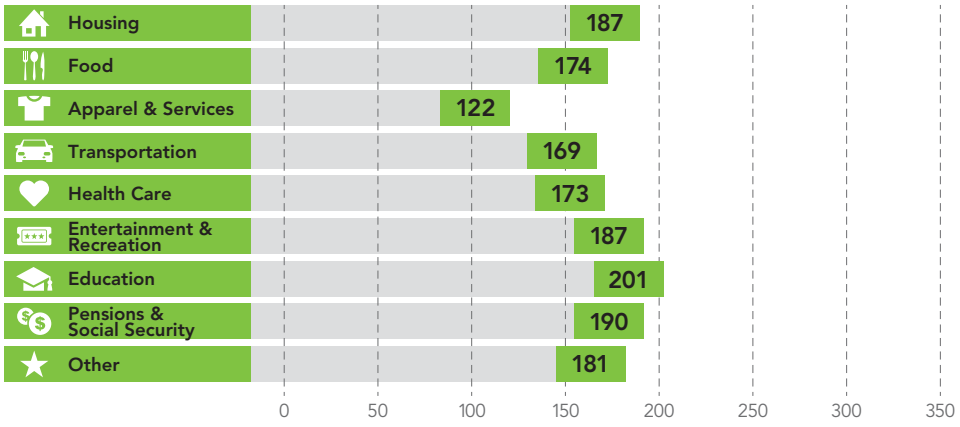
INCOME AND NET WORTH

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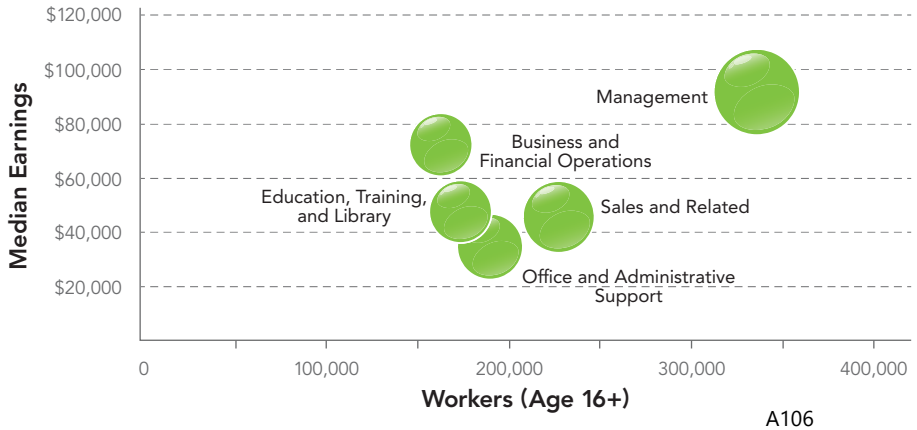
AVERAGE HOUSEHOLD BUDGET INDEX

The index compares the average amount spent in this market's household budgets for housing, food, apparel, etc., to the average amount spent by all US households. An index of 100 is average. An index of 120 shows that average spending by consumers in this market is 20 percent above the national average. Consumer expenditures are estimated by Esri.



OCCUPATION BY EARNINGS

The five occupations with the highest number of workers in the market are displayed by median earnings. Data from the Census Bureau's American Community Survey.



2A

LifeMode Group: Upscale Avenues

Urban Chic

TAPESTRY SEGMENTATION
esri.com/tapestry

MARKET PROFILE (Consumer preferences are estimated from data by GfK MRI)

- Shop at Trader Joe's, Costco, or Whole Foods.
- Eat organic foods, drink imported wine, and truly appreciate a good cup of coffee.
- Travel extensively (domestically and internationally).
- Prefer to drive luxury imports and shop at upscale establishments.
- Embrace city life by visiting museums, art galleries, and movie theaters for a night out.
- Avid book readers of both digital and audio formats.
- Financially shrewd residents that maintain a healthy portfolio of stocks, bonds, and real estate.
- In their downtime, enjoy activities such as skiing, yoga, hiking, and tennis.

HOUSING

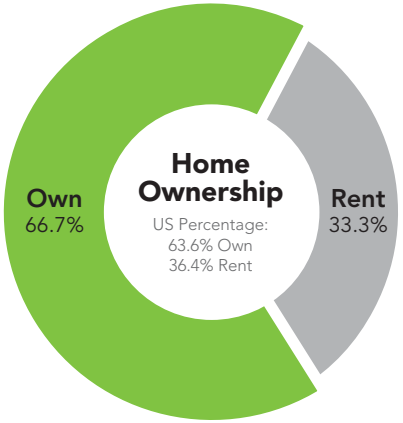
Median home value is displayed for markets that are primarily owner occupied; average rent is shown for renter-occupied markets. Tenure and home value are estimated by Esri. Housing type and average rent are from the Census Bureau's American Community Survey.



Typical Housing:
Single Family

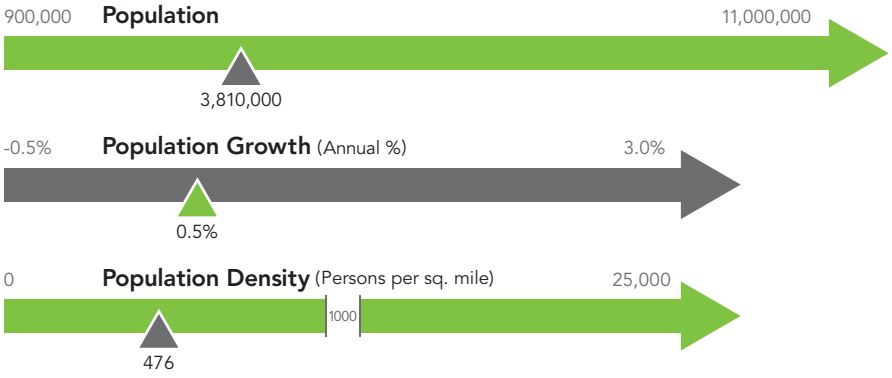
Median Value:
$465,000

US Median: $177,000



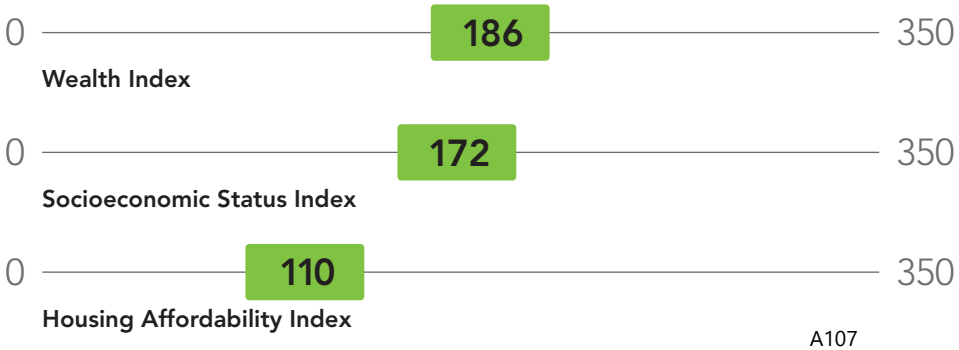
POPULATION CHARACTERISTICS

Total population, average annual population change since Census 2010, and average density (population per square mile) are displayed for the market relative to the size and change among all Tapestry markets. Data estimated by Esri.



ESRI INDEXES

Esri developed three indexes to display average household wealth, socioeconomic status, and housing affordability for the market relative to US standards.







LifeMode Group: Midtown Singles

Young and Restless

11B

Households: 2,005,000

Average Household Size: 2.02

Median Age: 29.4

Median Household Income: $36,000

WHO ARE WE?

Gen Y comes of age: Well-educated young workers, some of whom are still completing their education, are employed in professional/technical occupations, as well as sales and office/administrative support roles. These residents are not established yet, but striving to get ahead and improve themselves. This market ranks in the top 5 for renters, movers, college enrollment, and labor force participation rate. Almost 1 in 5 residents move each year. Close to half of all householders are under the age of 35, the majority living alone or in shared nonfamily dwellings. Median household income is still below the US. Smartphones are a way of life, and they use the Internet extensively. *Young and Restless* consumers are diverse, favoring densely populated neighborhoods in large metropolitan areas; over 50% are located in the South (almost a fifth in Texas), with the rest chiefly in the West and Midwest.

TAPESTRY SEGMENTATION
esri.com/tapestry

OUR NEIGHBORHOOD

- One of the youngest markets: Half the householders under age 35; median age 29.4.
- Primarily single-person households (Index 163) with some shared households (Index 201).
- Highly mobile market, beginning careers and changing addresses frequently.
- Naturally, one of the top 5 renter markets (Index 237).
- Apartment rentals popular: 45% in 5–19 unit buildings (Index 507), 26% in 20+ unit buildings (Index 325).
- Majority of housing built in 1970 or later (83%).

SOCIOECONOMIC TRAITS

- Education completed: 2 out of 3 have some college, an associate's degree, or a bachelor's degree or higher. Education in progress: almost 15% are still enrolled in college (Index 185).
- Labor force participation rate is exceptionally high at 75.4%; unemployment is low at 7.8%.
- These are careful shoppers, aware of prices, and demonstrate little brand loyalty.
- They like to be the first to try new products, but prefer to do research before buying the latest electronics.
- Most of their information comes from the Internet and TV, rather than traditional media.
- Carry their cell phone everywhere they go.

Note: The Index represents the ratio of the segment rate to the US rate multiplied by 100.
Consumer preferences are estimated from data by GfK MRI.

11B

LifeMode Group: Midtown Singles

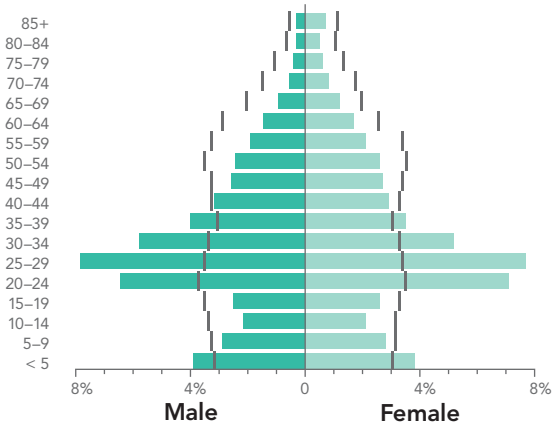
Young and Restless

TAPESTRY SEGMENTATION
esri.com/tapestry

AGE BY SEX (Esri data)

Median Age: 29.4 US: 37.6

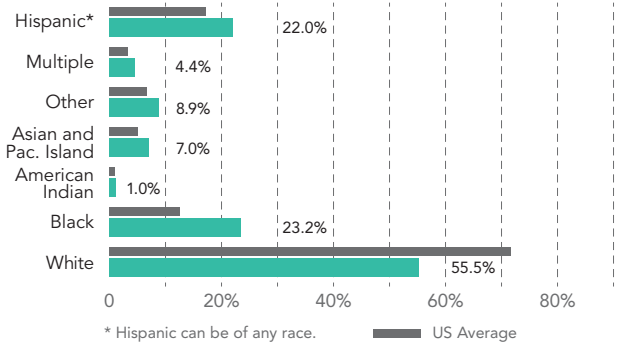
Indicates US



RACE AND ETHNICITY (Esri data)

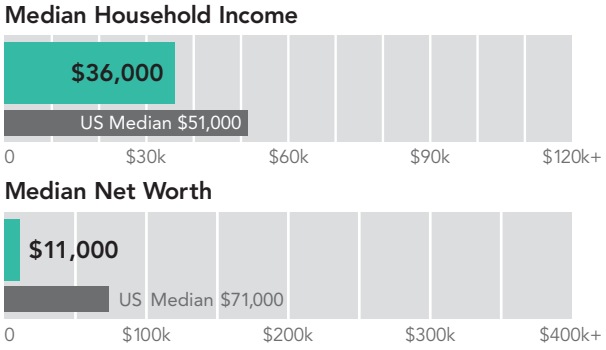
The Diversity Index summarizes racial and ethnic diversity. The index shows the likelihood that two persons, chosen at random from the same area, belong to different race or ethnic groups. The index ranges from 0 (no diversity) to 100 (complete diversity).

Diversity Index: 76.0 US: 62.1



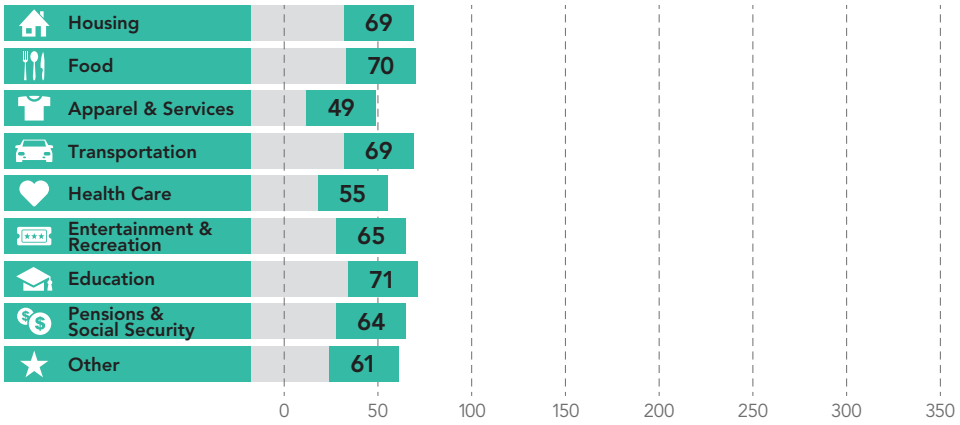
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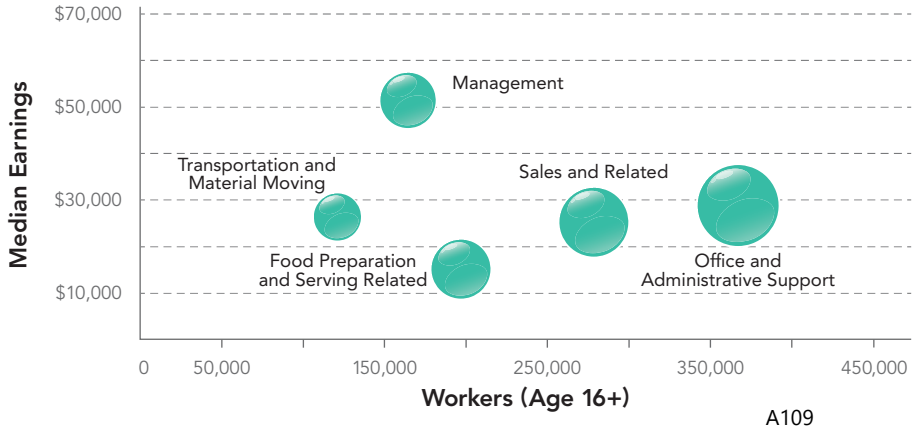
AVERAGE HOUSEHOLD BUDGET INDEX

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OCCUPATION BY EARNINGS

The five occupations with the highest number of workers in the market are displayed by median earnings. Data from the Census Bureau's American Community Survey.



11B

LifeMode Group: Midtown Singles

Young and Restless

TAPESTRY SEGMENTATION
esri.com/tapestry

MARKET PROFILE (Consumer preferences are estimated from data by GfK MRI)

- No landline telephone for majority of HHs, preferring a cell phone only.
- Use their cell phone to text, listen to music, pay bills, redeem coupons, look up directions, and access financial information.
- Online activities include banking (with paperless statements), purchasing items on eBay, accessing Twitter and Facebook, and watching movies and TV shows.
- Enjoy dancing, playing pool, watching MTV and Comedy Central programs, reading fashion magazines, and playing volleyball.
- Listen to blues, jazz, rap, hip hop, and dance music, and read music magazines.
- Purchase natural/organic food, but frequent fast food restaurants.

HOUSING

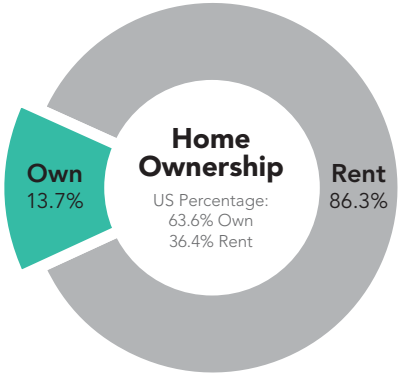
Median home value is displayed for markets that are primarily owner occupied; average rent is shown for renter-occupied markets. Tenure and home value are estimated by Esri. Housing type and average rent are from the Census Bureau's American Community Survey.



Typical Housing:
Multiunit Rentals

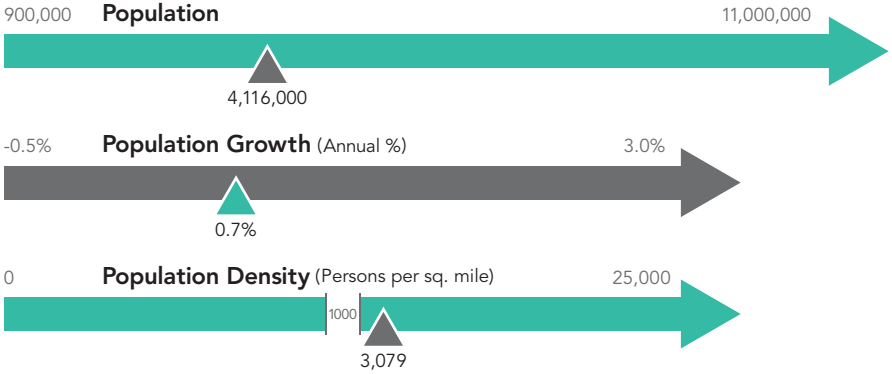
Average Rent:
$920

US Average: $990



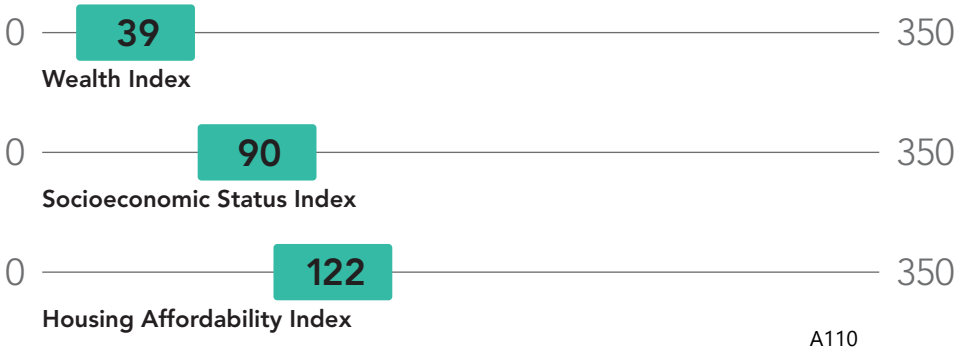
POPULATION CHARACTERISTICS

Total population, average annual population change since Census 2010, and average density (population per square mile) are displayed for the market relative to the size and change among all Tapestry markets. Data estimated by Esri.



ESRI INDEXES

Esri developed three indexes to display average household wealth, socioeconomic status, and housing affordability for the market relative to US standards.







LifeMode Group: Cozy Country Living

Green Acres

6A

Households: 3,794,000

Average Household Size: 2.69

Median Age: 43.0

Median Household Income: $72,000

WHO ARE WE?

The *Green Acres* lifestyle features country living and self-reliance. They are avid do-it-yourselfers, maintaining and remodeling their homes, with all the necessary power tools to accomplish the jobs. Gardening, especially growing vegetables, is also a priority, again with the right tools, tillers, tractors, and riding mowers. Outdoor living also features a variety of sports: hunting and fishing, motorcycling, hiking and camping, and even golf. Self-described conservatives, residents of *Green Acres* remain pessimistic about the near future yet are heavily invested in it.

OUR NEIGHBORHOOD

- Rural enclaves in metropolitan areas, primarily (not exclusively) older homes with acreage; new housing growth in the past 10 years.
- Single-family, owner-occupied housing, with a median value of $197,000.
- An older market, primarily married couples, most with no children.

SOCIOECONOMIC TRAITS

- Education: 60% are college educated.
- Unemployment is low at 6% (Index 70); labor force participation rate is high at 67.4% (Index 108).
- Income is derived not only from wages and salaries but also from self-employment (more than 15% of households), investments (30% of households), and increasingly, from retirement.
- They are cautious consumers with a focus on quality and durability.
- Comfortable with technology, more as a tool than a trend: banking or paying bills online is convenient; but the Internet is not viewed as entertainment.
- Economic outlook is professed as pessimistic, but consumers are comfortable with debt, primarily as home and auto loans, and investments.

TAPESTRY SEGMENTATION
esri.com/tapestry

Note: The Index represents the ratio of the segment rate to the US rate multiplied by 100.
Consumer preferences are estimated from data by GfK MRI.

6A

LifeMode Group: Cozy Country Living

Green Acres

TAPESTRY SEGMENTATION
esri.com/tapestry

AGE BY SEX (Esri data)

Median Age: 43.0 US: 37.6

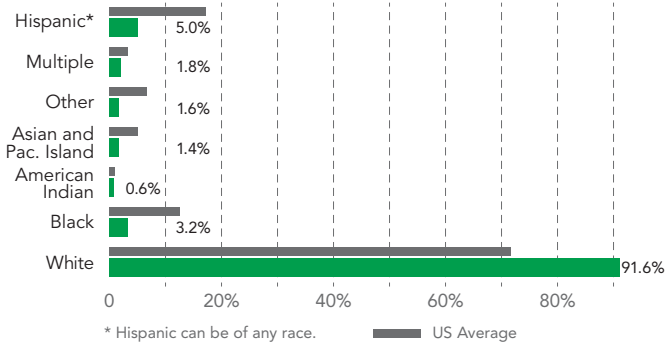
Indicates US



RACE AND ETHNICITY (Esri data)

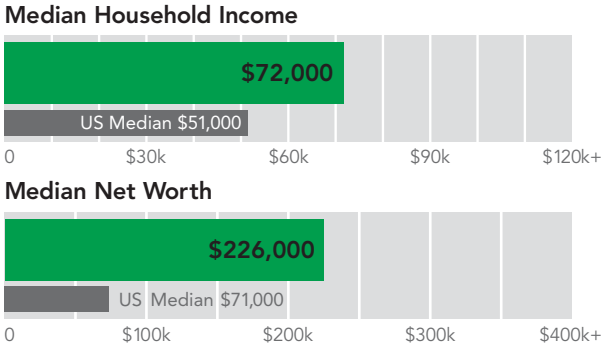
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Diversity Index: 24.0 US: 62.1



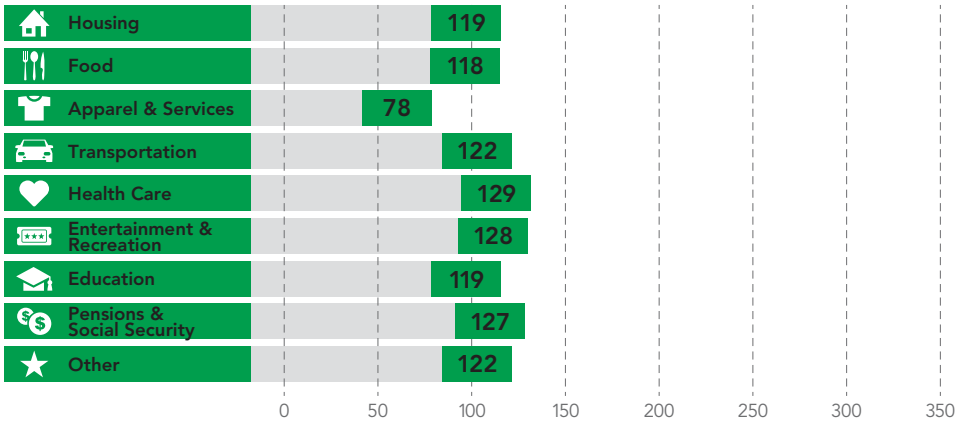
INCOME AND NET WORTH

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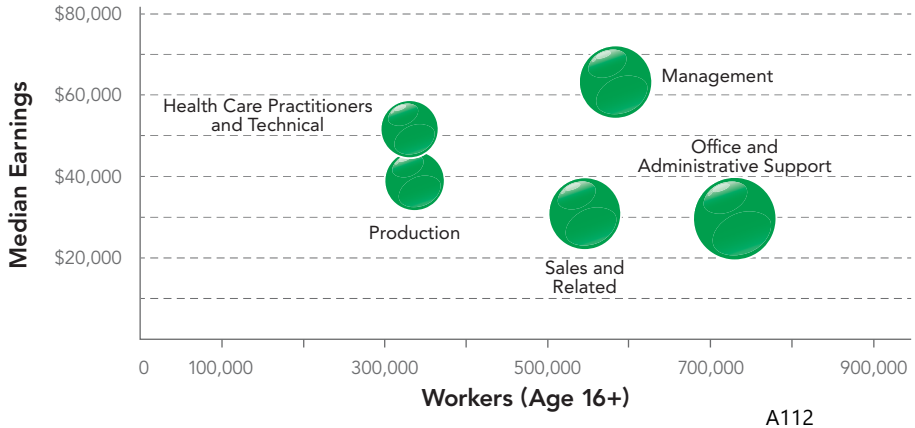
AVERAGE HOUSEHOLD BUDGET INDEX

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OCCUPATION BY EARNINGS

The five occupations with the highest number of workers in the market are displayed by median earnings. Data from the Census Bureau's American Community Survey.



6A

LifeMode Group: Cozy Country Living

Green Acres

TAPESTRY SEGMENTATION
esri.com/tapestry

MARKET PROFILE (Consumer preferences are estimated from data by GfK MRI)

- Purchasing choices reflect *Green Acres'* residents country life, including a variety of vehicles from trucks and SUVs to ATVs and motorcycles, preferably late model.
- Homeowners favor DIY home improvement projects and gardening.
- Media of choice are provided by satellite service, radio, and television, also with an emphasis on country and home and garden.
- *Green Acres* residents pursue physical fitness vigorously, from working out on home exercise equipment to playing a variety of sports.
- Residents are active in their communities and a variety of social organizations, from fraternal orders to veterans' clubs.

HOUSING

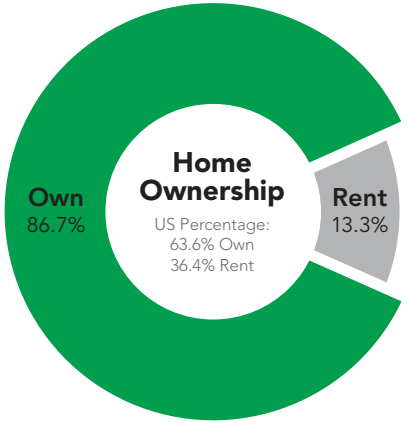
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Typical Housing:
Single Family

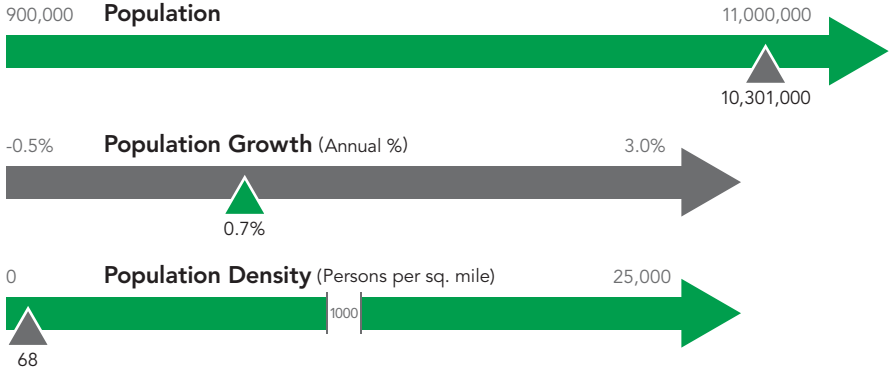
Median Value:
$197,000

US Median: $177,000



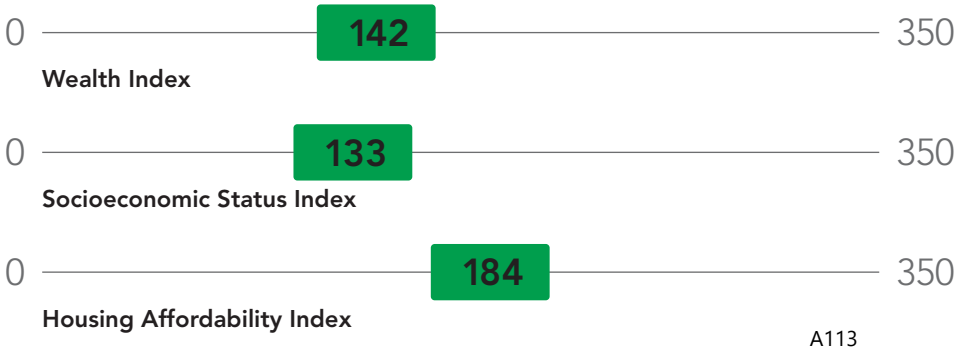
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ESRI INDEXES

Esri developed three indexes to display average household wealth, socioeconomic status, and housing affordability for the market relative to US standards.







LifeMode Group: Affluent Estates

Professional Pride

1B

Households: 1,878,000

Average Household Size: 3.11

Median Age: 40.5

Median Household Income: $127,000

WHO ARE WE?

Professional Pride consumers are well-educated career professionals that have prospered through the Great Recession. To maintain their upscale suburban lifestyles, these goal oriented couples work, often commuting far and working long hours. However, their schedules are fine-tuned to meet the needs of their school age children. They are financially savvy; they invest wisely and benefit from interest and dividend income. So far, these established families have accumulated an average of 1.5 million dollars in net worth, and their annual household income runs at more than twice the US level. They take pride in their newer homes and spend valuable time and energy upgrading. Their homes are furnished with the latest in home trends, including finished basements equipped with home gyms and in-home theaters.

TAPESTRY SEGMENTATION
esri.com/tapestry

OUR NEIGHBORHOOD

- Typically owner occupied (Index 173), single-family homes are in newer neighbor hoods: 59% of units were built in the last 20 years.
- Neighborhoods are primarily located in the suburban periphery of large metropolitan areas.
- Most households own two or three vehicles; long commutes are the norm.
- Homes are valued at more than twice the US median home value, although three out of four homeowners have mortgages to pay off.
- Families are mostly married couples (almost 80% of households), and more than half of these families have kids. Their average household size, 3.11, reflects the presence of children.

SOCIOECONOMIC TRAITS

- *Professional Pride* consumers are highly qualified in the science, technology, law, or finance fields; they've worked hard to build their professional reputation or their start-up businesses.
- These consumers are willing to risk their accumulated wealth in the stock market.
- They have a preferred financial institution, regularly read financial news, and use the Internet for banking transactions.
- These residents are goal oriented and strive for lifelong earning and learning.
- Life here is well organized; routine is a key ingredient to daily life.

Note: The Index represents the ratio of the segment rate to the US rate multiplied by 100.
Consumer preferences are estimated from data by GfK MRI.

1B

LifeMode Group: Affluent Estates

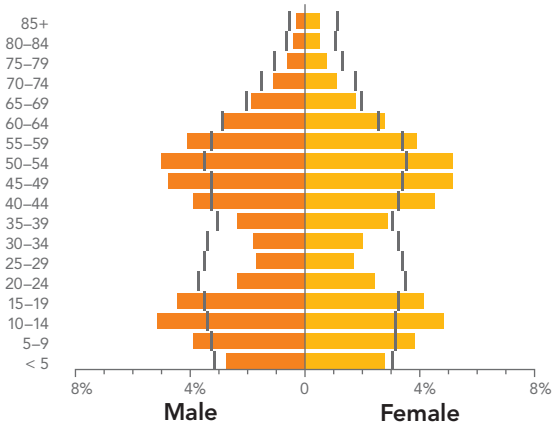
Professional Pride

TAPESTRY SEGMENTATION
esri.com/tapestry

AGE BY SEX (Esri data)

Median Age: 40.5 US: 37.6

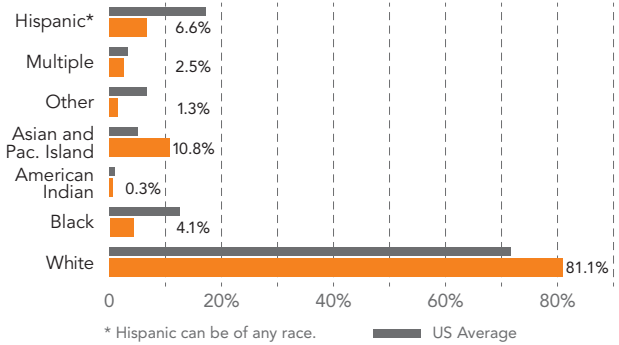
Indicates US



RACE AND ETHNICITY (Esri data)

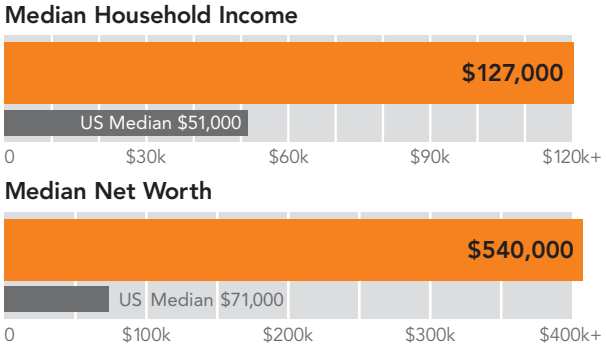
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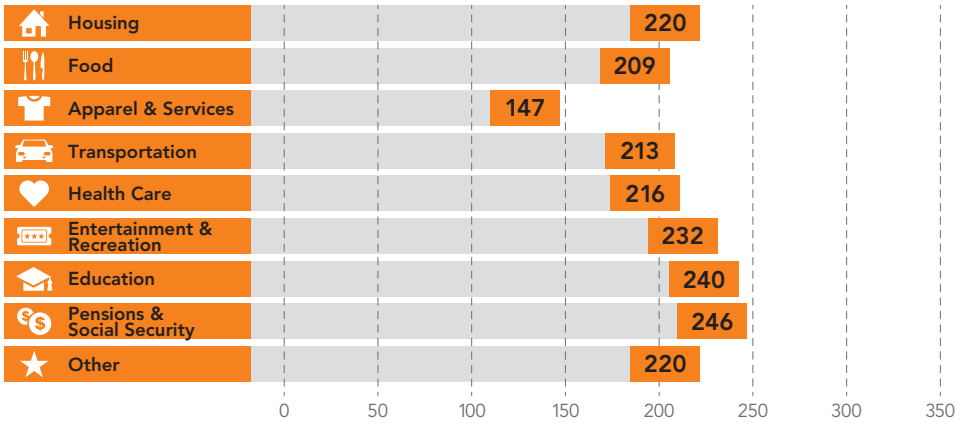
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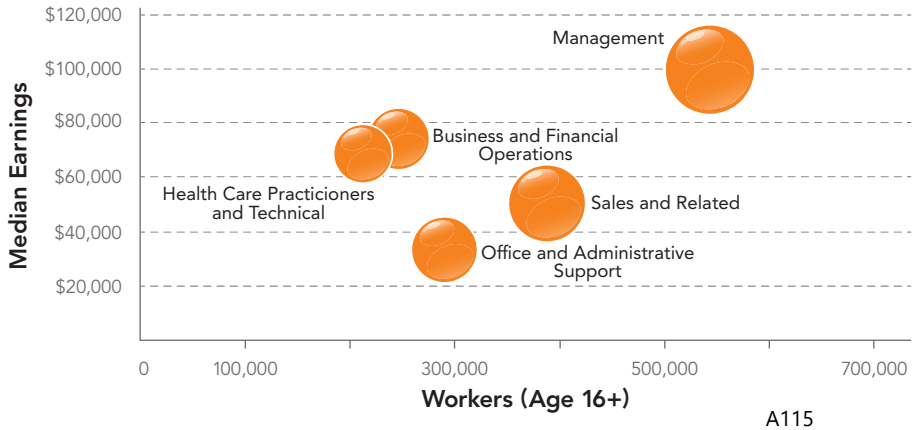
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OCCUPATION BY EARNINGS

The five occupations with the highest number of workers in the market are displayed by median earnings. Data from the Census Bureau's American Community Survey.



1B

LifeMode Group: Affluent Estates

Professional Pride

TAPESTRY SEGMENTATION
esri.com/tapestry

MARKET PROFILE (Consumer preferences are estimated from data by GfK MRI)

- These frequent travelers take several domestic trips a year, preferring to book their plane tickets, accommodations, and rental cars via the Internet.
- Residents take pride in their picture-perfect homes, which they continually upgrade. They shop at Home Depot and Bed Bath & Beyond to tackle the smaller home improvement and remodeling tasks but contract out the larger projects.
- To keep up with their busy households, they hire housekeepers or professional cleaners.
- Residents are prepared for the ups and downs in life; they maintain life insurance; homeowners and auto insurance; as well as medical, vision, dental, and prescription insurance through work. They are actively investing for the future; they hold 401(k) and IRA retirement plans, plus securities.
- Consumers spend on credit but have the disposable income to avoid a balance on their credit cards. They spend heavily on Internet shopping; Amazon.com is a favorite website.
- Consumers find time in their busy schedules for themselves. They work out in their home gyms, owning at least a treadmill, an elliptical, or weightlifting equipment. They also visit the salon and spa regularly.
- All family members are avid readers; they read on their smartphones, tablets, and e-readers but also read hard copies of epicurean, home service, and sports magazines.
- Residents, both young and old, are tech savvy; they not only own the latest and greatest in tablets, smartphones, and laptops but actually use the features each has to offer.

HOUSING

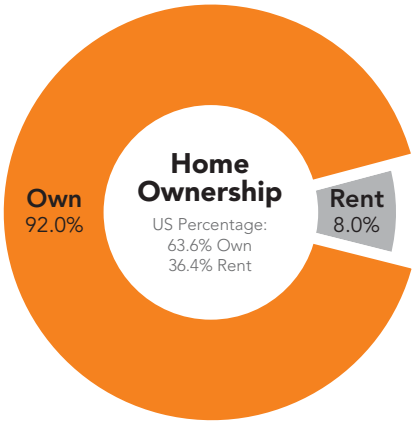
Median home value is displayed for markets that are primarily owner occupied; average rent is shown for renter-occupied markets. Tenure and home value are estimated by Esri. Housing type and average rent are from the Census Bureau's American Community Survey.



Typical Housing:
Single Family

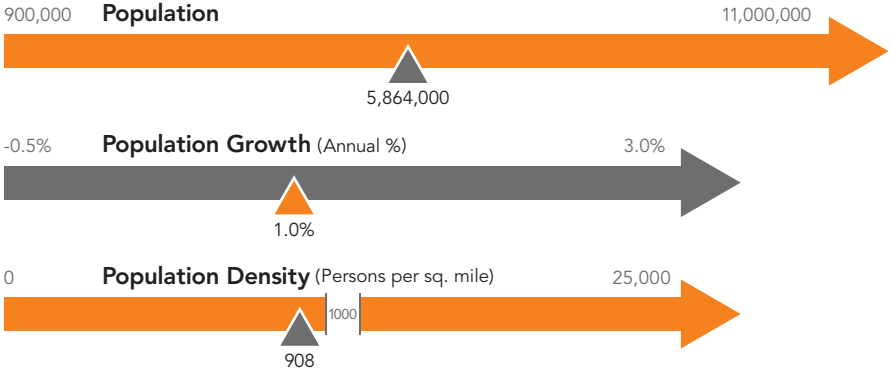
Median Value:
$387,000

US Median: $177,000



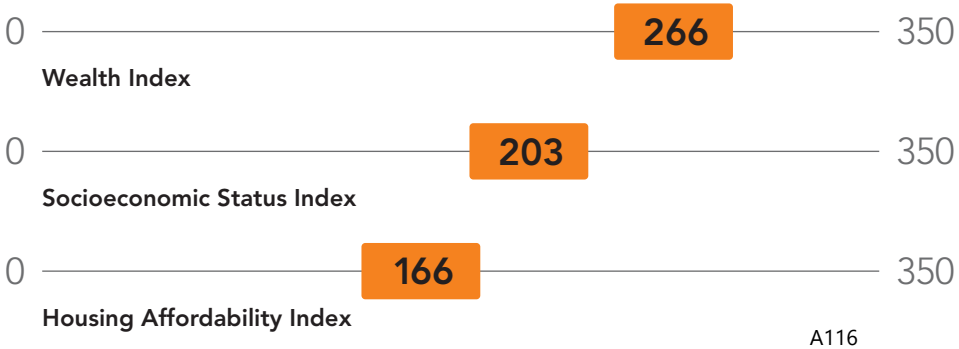
POPULATION CHARACTERISTICS

Total population, average annual population change since Census 2010, and average density (population per square mile) are displayed for the market relative to the size and change among all Tapestry markets. Data estimated by Esri.



ESRI INDEXES

Esri developed three indexes to display average household wealth, socioeconomic status, and housing affordability for the market relative to US standards.







LifeMode Group: Uptown Individuals

Metro Renters

3B

Households: 1,734,000

Average Household Size: 1.66

Median Age: 31.8

Median Household Income: $52,000

WHO ARE WE?

Residents in this highly mobile and educated market live alone or with a roommate in older apartment buildings and condos located in the urban core of the city. This is one of the fastest growing segments; the popularity of urban life continues to increase for consumers in their late twenties and thirties. *Metro Renters* residents income is close to the US average, but they spend a large portion of their wages on rent, clothes, and the latest technology. Computers and cell phones are an integral part of everyday life and are used interchangeably for news, entertainment, shopping, and social media. *Metro Renters* residents live close to their jobs and usually walk or take a taxi to get around the city.

OUR NEIGHBORHOOD

- Over half of all households are occupied by singles, resulting in the smallest average household size among the markets, 1.66.
- Neighborhoods feature 20+ unit apartment buildings, typically surrounded by offices and businesses.
- Renters occupy close to 80% of all households.
- Public transportation, taxis, walking, and biking are popular ways to navigate the city.

SOCIOECONOMIC TRAITS

- Well-educated consumers, many currently enrolled in college.
- Very interested in the fine arts and strive to be sophisticated; value education and creativity.
- Willing to take risks and work long hours to get to the top of their profession.
- Become well informed before purchasing the newest technology.
- Prefer environmentally safe products.
- Socializing and social status very important.

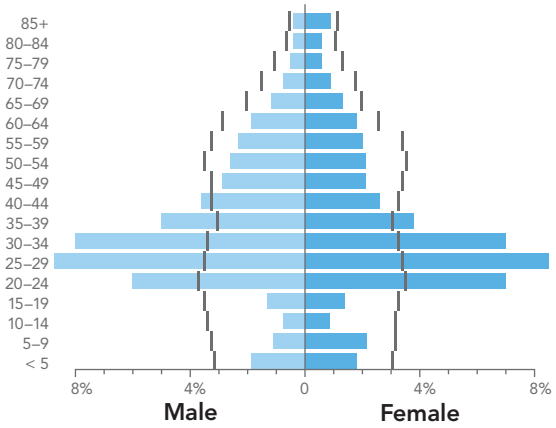
Note: The Index represents the ratio of the segment rate to the US rate multiplied by 100.
Consumer preferences are estimated from data by GfK MRI.

Metro Renters

AGE BY SEX (Esri data)

Median Age: 31.8 US: 37.6

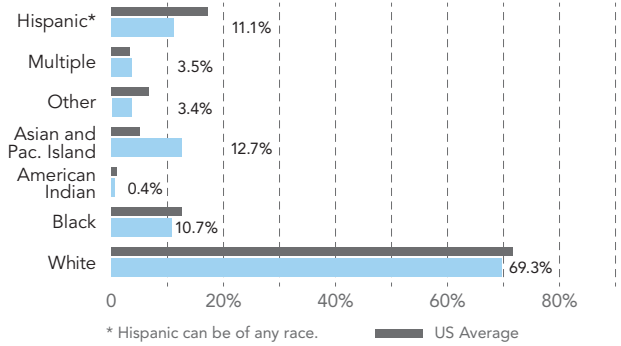
Indicates US



RACE AND ETHNICITY (Esri data)

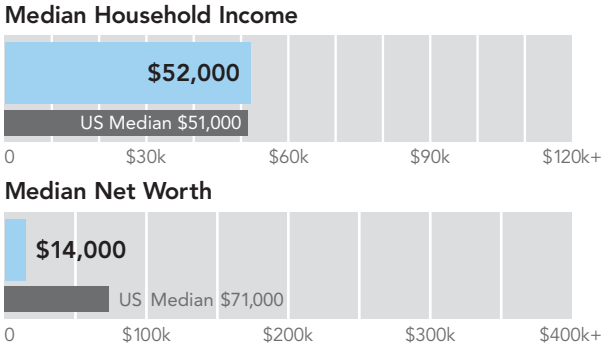
The Diversity Index summarizes racial and ethnic diversity. The index shows the likelihood that two persons, chosen at random from the same area, belong to different race or ethnic groups. The index ranges from 0 (no diversity) to 100 (complete diversity).

Diversity Index: 59.3 US: 62.1



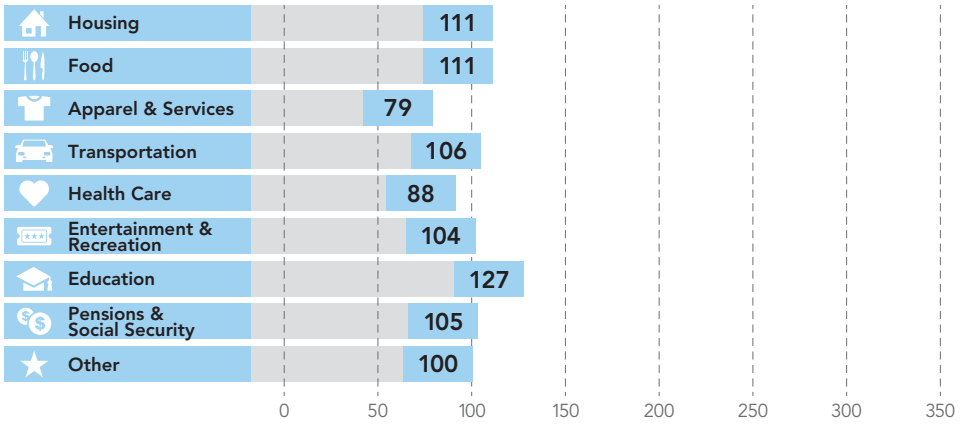
INCOME AND NET WORTH

Net worth measures total household assets (homes, vehicles, investments, etc.) less any debts, secured (e.g., mortgages) or unsecured (credit cards). Household income and net worth are estimated by Esri.



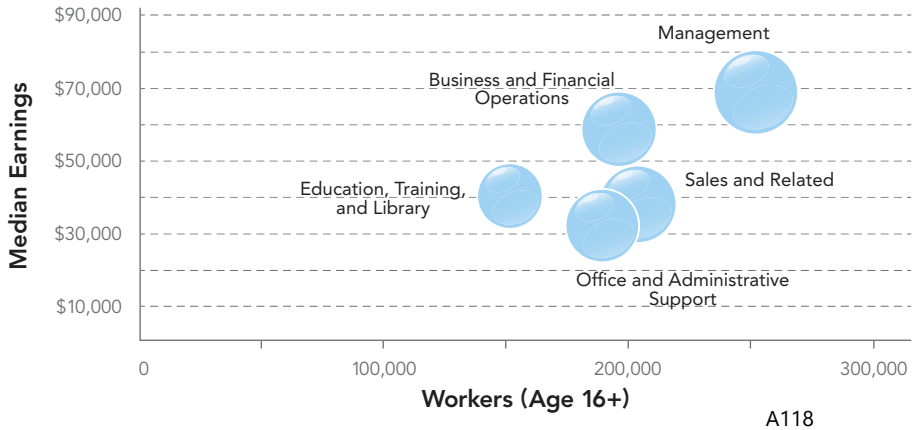
AVERAGE HOUSEHOLD BUDGET INDEX

The index compares the average amount spent in this market's household budgets for housing, food, apparel, etc., to the average amount spent by all US households. An index of 100 is average. An index of 120 shows that average spending by consumers in this market is 20 percent above the national average. Consumer expenditures are estimated by Esri.



OCCUPATION BY EARNINGS

The five occupations with the highest number of workers in the market are displayed by median earnings. Data from the Census Bureau's American Community Survey.



3B

LifeMode Group: Uptown Individuals

Metro Renters

TAPESTRY SEGMENTATION
esri.com/tapestry

MARKET PROFILE (Consumer preferences are estimated from data by GfK MRI)

- Enjoy wine at bars and restaurants.
- Shop at Trader Joe's and Whole Foods for groceries; partial to organic foods.
- Own a Mac computer and use it for reading/writing blogs, accessing dating websites, and watching TV programs and movies.
- Favorite websites: Facebook, Twitter, YouTube, and LinkedIn.
- Use a tablet for reading newspapers and magazines.
- Participate in leisure activities including yoga, Pilates, and downhill skiing.
- Shop for clothes at Banana Republic, The Gap, and Nordstrom.

HOUSING

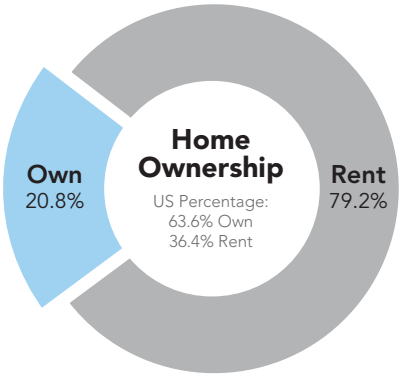
Median home value is displayed for markets that are primarily owner occupied; average rent is shown for renter-occupied markets. Tenure and home value are estimated by Esri. Housing type and average rent are from the Census Bureau's American Community Survey.



Typical Housing:
Multiunit Rentals

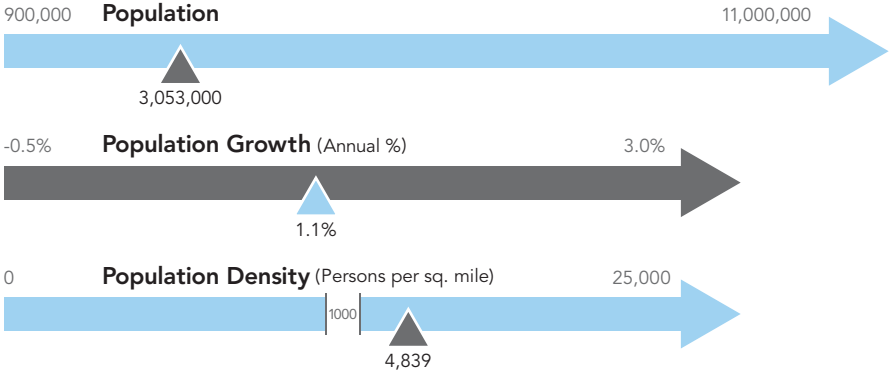
Average Rent:
$1,310

US Average: $990



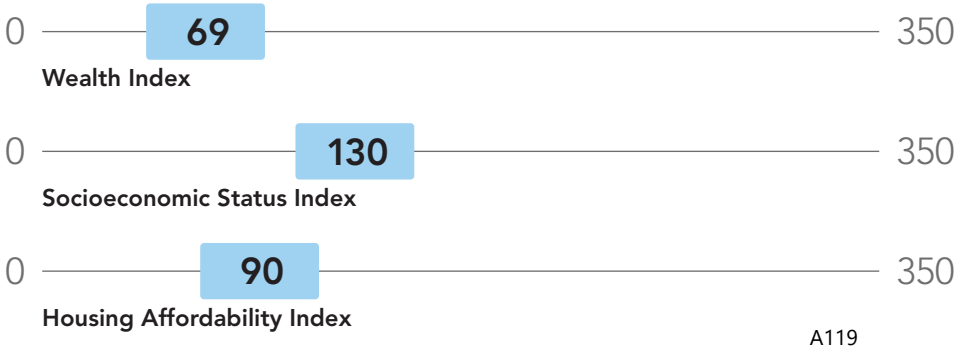
POPULATION CHARACTERISTICS

Total population, average annual population change since Census 2010, and average density (population per square mile) are displayed for the market relative to the size and change among all Tapestry markets. Data estimated by Esri.



ESRI INDEXES

Esri developed three indexes to display average household wealth, socioeconomic status, and housing affordability for the market relative to US standards.



NC 54 West Corridor Study - Environmental Screening Summary

VHB, November 2017

Public (USA Institutions)

Cemetery

- Graham Memorial Park - 1300 E. Gilbreath St. Graham, NC 27253
- Cheek Cemetery - Approximately 1000' north of NC 54 & Hatch Rd.
- Tilley Cemetery - 334 NC 54 Chapel Hill, NC 27516

Place of Worship

- Riverside Baptist Church - 1568 E Harden St. (NC54) Graham, NC 27253
- Phillip Chapel United Methodist Church - 2362 Brucewood Rd. Haw River, NC 27258
- Trinity Baptist Church - 4008 NC-54 Graham, NC 27253
- Salem United Methodist Church *duplicate point - church not at this location*
- Iglesia Penetecostal De Jesuscristo Poder De Dios - 997 NC 54 Chapel Hill, NC 27516
- St John Holy Church - 607 Pine Acres Rd Chapel Hill, NC 27516
- Carrboro United Methodist - 200 Hillsborough Rd. Carrboro, NC 27510
- Calvary Baptist Church - 1000 W. Main St. Carrboro, NC 27510

School

- Alexander-Wilson Elementary School - 2513 NC 54 Haw River, NC 27258
- Creative Child Care - 3216 NC 54 Graham, NC 27253
- Avon Center of Storybook Farm *location not found when georeferenced*
- Our Playhouse Preschool - 3501 NC 54 Chapel Hill, NC 27516
- McDougle Elementary & Middle School - 900 Old Fayetteville Rd. Chapel Hill, NC 27516
    - Located > 0.5 miles from corridor

NC One Map - Political

Airport/Airstrip

- The Duchy Airstrip - 5352 Osprey Dr. Mebane, NC 27302

Fire Station

- Swepsonville Volunteer Fire Station 10 - 4671 NC 54 Graham, NC 27253
- White Cross Volunteer Fire Station 2 – 2521 Neville Road, Chapel Hill, NC 27516
    - Located > 0.5 miles from corridor

Gas Station – assumed to include underground storage tanks

- Kangaroo Express - 801 E. Harden St. Graham, NC 27253
- Shell Gas Station - 901 E. Harden St. Graham, NC 27253
- BP Gas Station - 924 E. Harden St. Graham, NC 27253
- Talbert's Grocery - 4848 NC 54 Graham, NC 27253
- PSM Food Mart - 4908 NC 54 Graham, NC 27253
- White Cross Citgo - 3322 NC 54 Chapel Hill, NC 27516
- White Cross Shell Gas Station - 3233 NC 54 Chapel Hill, NC 27516
- Exxon Gas Station - 601 NC 54 Chapel Hill, NC 27514
- Kangaroo Express Gas Station - 102 B Hwy 54W Carrboro, NC 27510
- Han-Dee Hugo Gas Station - 1401 W. Main St. Carrboro, NC 27510

NPDES

- City of Graham - Cooper Rd. approximately 1300' SW of NC 54 (former landfill site)

Public Water Supply

- Cane Creek Reservoir – OWASA – 8705 Stanford Road, Chapel Hill, NC 27516
- Well - 3216 NC 54 Graham, NC 27253
- Well - 2362 Brucewood Rd. Graham, NC 27253
- Well - 4008 NC 54 Graham, NC 27253
- Well - 4124 NC 54 Graham, NC 27253
- Well - 4460 NC 54 Graham, NC 27253
- Well - 3025 Steel Way Graham, NC 27253
- Well - 4848 NC 54 Graham, NC 27253
- Well - 3151 Caroline Dr. Haw River, NC 27258
- Well - 8705 Stanford Rd. Chapel Hill, NC 27516
- Well - 9501 Orange Grove Rd. Chapel Hill, NC 27516
- Well - 3501 NC 54 Chapel Hill, NC 27516
- Well - 4908 NC 54 Chapel Hill, NC 27516
- Well - 3307 NC 54 Chapel Hill, NC 27516
- Well - 4600 Dodsons Crossroads Chapel Hill, NC 27516
- Well - 302 NC 54 Chapel Hill, NC 27510

Not present in/near study area

- College/University
- Government Office
- Library
- Hospital/Clinic

Environmental Resources & Conservation

Former Landfill Site

- Civic Center Area - 503 McGee St. Graham, NC 27253
- Graham Disposal – Cooper Rd. approximately 0.25 miles south of NC 54

***Inactive* Hazardous Waste Site**

- Woody Dr VOCS – 609 Woody Dr Graham, NC 27253
- Rental Towel and Uniform – 610 Woody Dr Graham, NC 27253
- B & C Grocery 942 E Harden St Graham, NC 27253
- Exxon Gas Station - 601 NC 54 Chapel Hill, NC 27514

Underground Storage Tanks (non-gas station)

- Elizabeth Boozer Estate - 505 Jones St Graham, NC 27253
- Martin Property - 621 McGee St Graham, NC 27253
- Waste Industries Inc. - 703 E. Gilbreath St. Graham, NC 27253
- Callahan Residence - 909 E Harden St. Graham, NC 27253
- B & C Grocery - 942 E Harden St. Graham, NC 27253
- 1100 block of Ray Ln - Graham, NC 27253

- Jessie Mae Campannella Residence - 1205 Harden St Graham, NC 27253
- Conklin Oil Company INC. - 1268 E Harden St Graham, NC 27253
- Scotts Lawn and Garden Center - 1864 NC 54 Graham, NC 27253
- 2103 Long Dairy Rd - Burlington, NC 27258
- 2 tanks - Honda Power Equipment Manufacturing INC. 3721 NC 119 Haw River, NC 27258
- T & B Grocery - 3965 NC 54 Graham, NC 27253
- Brogden Auto Salvage - 4763 NC 54 Graham, NC 27253
- Purgason Grocery - 4956 NC 54 Graham, NC 27253
- Susan Atkinson Residence - 5825 NC 54 Mebane, NC 27302
- 5420 NC 54 - Chapel Hill, NC 27516
- John Miller Residence - 1223 Brookfield Dr Chapel Hill, NC 27516
- Irons Residential - 1229 Brookfield Dr Chapel Hill, NC 27516
- Clara Ragan Property - 804 Old Fayetteville Rd Carrboro, NC 27510
- Jared Resnick Property - 904 Hillsborough Rd Chapel Hill, NC 27516
- Richard Redfoot Property - 105 Phipps St Carrboro, NC 27510
- Browning Property - 105 Simpson St Carrboro, NC 27510
- Jane Watts Property - 211 Simpson St Carrboro, NC 27510
- Kennedy Estate Property - 203 Simpson St Carrboro, NC 27510
- Zona Norwood Property - 207 Simpson St Carrboro NC, 27510
- Linda Walker Residence - 100 Westview Dr Carrboro, NC 27510

Publicly Owned Lands

County Open Spaces (CTCP)

- TBD if included

State Owned Lands

- UNC Hospital Warehouse Site – 4800 NC 54 Chapel Hill, NC 27516

Land Trust Conservation Property (LTCP)

- Triangle Land Conservancy - Morgan Glen – 2300' SW of intersection of NC 54 and Old Fayetteville Rd.

Natural Heritage Program

Managed Lands (MAREA)

- NC Clean Water Management Trust Fund Easement (State)
- NC Division of Mitigation Services Easement (State)
- Orange County Water and Sewer Authority Property (Local)
- Orange County Open Space (Local)
- Triangle Land Conservation Easement (Private)

Natural Heritage Elements (plants/animals) (NHEO)

- EOID# 8723 1988 Animal (not listed 3 – Medium) - 2500' north of NC 54 at Hatch Rd.
- EOID# 13426 2010 Natural Community (2010 Piedmont Alluvial Forest 3 – Medium) - 2500' north of intersection of NC 54 and Hatch Rd.
- EOID# 29628 1996 Aquatic (Eastern Creekshell 3 – Medium) – 2500' north of intersection of NC 54 and Bethel Hickory Grove Church Rd.

- EOID# 29488 1996 Aquatic (Notched Rainbow 3 – Medium) – near intersection of NC 54 and Bethel Hickory Grove Church Rd.
- EOID# 29368 1988 Natural Community (Piedmont Alluvial Forest 2-High) – near 6800 NC 54 on southside of NC 54
- EOID# 29388 1988 Natural Community (Mesic Mixed Hardwood Forest 4-Low) – near 6800 NC 54 on southside of NC 54

NHEO Table Location:

\\vhb\proj\Raleigh\38587.01 Durham NC 54 Corr DCHC\GIS\Data\GeoDatabase\Project_Database.gdb\

Natural Heritage Areas (habitats) (NHPNA)

- NAID#2160 (2016 Lower Cane Creek Slopes and Bottom) – near 6800 NC54 on southside
- NAID#30 (Calvander Laurel Bluff and Bottom) - 2500' north of intersection of NC54 and Hatch Rd

NHPNA Table Location:

\\vhb\proj\Raleigh\38587.01 Durham NC 54 Corr DCHC\GIS\Data\GeoDatabase\Project_Database.gdb\

Not present in/near study area

- Active Landfill
- Brownfield Site
- Dry Cleaning Site
- Hazardous Substance Disposal Site
- Federally Owned Landss
- Game lands
- Dedicated Nature Preserves
- Conservation for Tax Credit Purposes

NCHPO – Cultural Resources

The North Carolina State Historic Preservation Office (SHPO) assists with the identification, evaluation, protection, and enhancement of properties significant in North Carolina history and archaeology. Their chief services include a statewide survey of historic buildings, districts and landscapes, nominations of eligible properties for the National Register of Historic Places, environmental review of state and federal actions that may affect historic properties, and technical assistance for restoration projects. For more information see http://www.hpo.ncdcr.gov/services.htm

Historic properties within North Carolina have been mapped and are available in an online web viewer service: http://gis.ncdcr.gov/hpoweb/. This map viewer is a valuable resource when screening for historic properties.

National Register Points/Districts

- 1845 Greek Revival School - NE Corner of NC 54 & Mebane Oaks Rd.

NC Study List Points/Districts

- Oaks Rural Historic District - Intersection of NC 54 & Mebane-Oaks Rd./Saxapahaw Bethlehem Church Rd.
- White Cross School - 3501 NC 54 Chapel Hill, NC 27516
- Hickory Grove School - 1101 NC 54 Chapel Hill, NC 27516

Determined Eligible Points/Districts

- Bethlehem Presbyterian Church - 3624 Saxapahaw Rd. Graham, NC 27253

Hydrologic Resources – NC Div of Water Resources & US Fish & Wildlife

See DWR surface water classifications map: https://deq.nc.gov/about/divisions/water-resources/planning/classification-standards

Local Watershed Plan (LWP)

- **Morgan & Little Creeks** (Cape Fear basin) – (HUCODE8 03030002)

Targeted Local Watershed (TLW)

- Cape Fear River Basin - SUBBASIN_N **CPF2** (HUCODE 03030002050010 & (HUCODE8 03030002)
- Cape Fear River Basin - SUBBASIN_N **CPF6** (HUCODE 03030002060070 & (HUCODE8 03030002)

NC-DWR Streams

Stream Name (Listed West to East)	Watershed (Targeted/Local)	Floodway	100 Year Floodplain
Town Branch	None	Yes	Yes
Haw River	None	Yes	Yes
Back Creek	None	Yes	Yes
Haw Creek	Targeted – Cape Fear CPF2	Yes	Yes
McAdams Creek	Targeted – Cape Fear CPF2	No	No
Meadow Creek	Targeted – Cape Fear CPF2	Yes	Yes
Motes Creek (Newland Creek)	None	No	Yes
Caterpillar Creek	None	No	No
Cane Creek	None	No	Yes
Collins Creek	None	No	Yes
Phils Creek	Local (Morgan & Little Creeks), Targeted (Cape Fear CFP6)	Yes	Yes
Morgan Creek	Local (Morgan & Little Creeks), Targeted (Cape Fear CFP6)	Yes	Yes

NC-DWR Ponds

- Ponds present

High Quality / Outstanding Resource Waters

- Water Supply Watershed (WSW) – Cape Fear, Neuse, Roanoke river basins – 492 square miles

Water Supply Watershed

- Cane Creek: Water Supply II – Nutrient-Sensitive Waters (NSW) – Critical and Protected Areas
- Morgan Creek: Water Supply II – Nutrient-Sensitive Waters (NSW) – Critical and Protected Areas

Wetlands (USF&W)

- Wetlands present – total acreage not quantified until preliminary design phase.

NC Floodplain - 10 floodplain crossing locations - ***See table above - NC-DWR Streams****

To: NC 54 Study Team Date: January 31, 2018

Project #: 38587.01

From: VHB Re: NC 54 West Corridor Community Workshop Round #1

Three community workshops were held on successive days from January 23 through January 25 at three locations spread across the NC 54 West corridor: the Rigmor House Event Center, Graham Civic Center, and Carrboro Town Hall. Workshop participants' comments and feedback are summarized below within the themes of participation, development, safety, corridor vision goals, and other issues.

Overall Participation

The Rigmor House workshop had the highest level of signed-in attendees (33), followed by the Graham Civic Center (24), and Carrboro Town Hall (12). The most feedback forms were submitted during the Graham Civic Center workshop (13), followed by the Rigmor House (8), and Carrboro Town Hall (7).

Development and Preservation

Workshop participants were asked to identify corridor locations that should change and those that should not. This task was intended to contrast development and preservation areas. The intersection of Lloydtown Road and NC 54 was identified as a change area across the three workshops. Other areas identified for change correlated to the specific workshop's location; the Graham workshop centered on changes to the intersections of Jim Minor Road, NC 119, the I-40/I-85 interchange, Alfred Road; Rigmor House feedback centered on the intersections of Bethel Hickory Grove Church Road, Orange Grove Road, and White Cross Road; and the Carrboro audience addressed the Haw River access point and general wayfinding towards Carrboro.

Areas that were indicated for no-change (interpreted as preservation) largely fell within the corridor's center, between Mt. Willen Road and Bethel Hickory Church Road across all three workshops. These no-change areas were noted for their rural character and watershed protection (OWASA).

Safety Concerns

Workshop participants indicated safety concerns through an interactive station that collected near-miss collision locations and other unrecorded unsafe roadway conditions. Bethel Hickory Grove Church Road was indicated as an unsafe driving area during both the Rigmor House and Graham Civic Center events. Otherwise, there were geographical breaks for unsafe corridor locations: Rigmor House's feedback focused on the intersections in the corridor's center, while Graham focused on the I-40/I-85 interchange, NC 119, intersections west of Mebane Oaks Road, and high vehicle speed in school zones, whereas Carrboro's participants identified Mebane Oaks Road and Orange Grove Road.

Common safety-related themes across the three workshops included high-speed vehicle passing in no-passing lanes, poor visibility due to trees or vegetation, curved roadway geometry, the sun's position, and turning vehicle conflicts in the roadway and at intersections. Recently installed traffic signals at key corridor intersections (Mebane Oaks Road, Orange Grove Road) were noted and generally praised.

Corridor Visions and Goals

Workshop attendees were invited to contribute near-term (2-year) and long-term (20-year) visions corridor improvements. The near-term vision responses were largely similar across the corridor's workshops, as they focused on incorporating all transportation modes, easing congestion through intersection improvements, rural preservation, and protecting sensitive environmental areas. Long-term goals conveyed similar themes across locations, too, that focused on including preserving open space and the rural community's character. There were divisions on other long-term preferences, however: the Rigmor House participants recommended managing development and prohibiting bicycles; the Graham event addressed widening the roadway and providing separated bicycle facilities, and; Carrboro's workshop discussed the implementation of transit and mixed-use development.

Other Issues

Additional discussions with participants yielded comments that did not fit within the above framework. During the Rigmor House workshop, several participants expressed interest in establishing a Park-and-Ride location in the corridor's center with transit service to Graham and Carrboro and points beyond. Presumably this park-&-ride would be serviced by Chapel Hill Transit. At the Graham Civic Center workshop, participants indicated the need to consider the effect of a new public high school and housing development near the corridor's western end (I-40/I-85 interchange).

Next Steps

Comments and feedback from the first round of community workshops will be combined with entries from the Interactive Online Map and feedback from other engagement events to understand local preferences. These contributions will be evaluated with the study's other research components to offer recommendations for targeted and corridor-wide improvements.

ATTACHMENTS

Photos

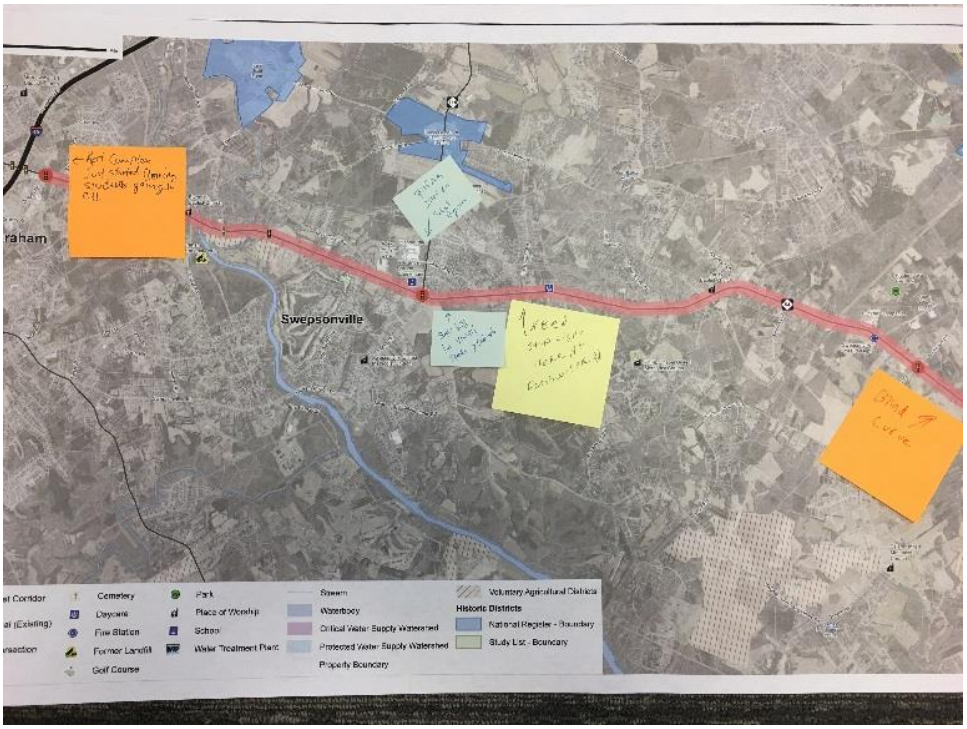
Attendees – Origins and Destinations

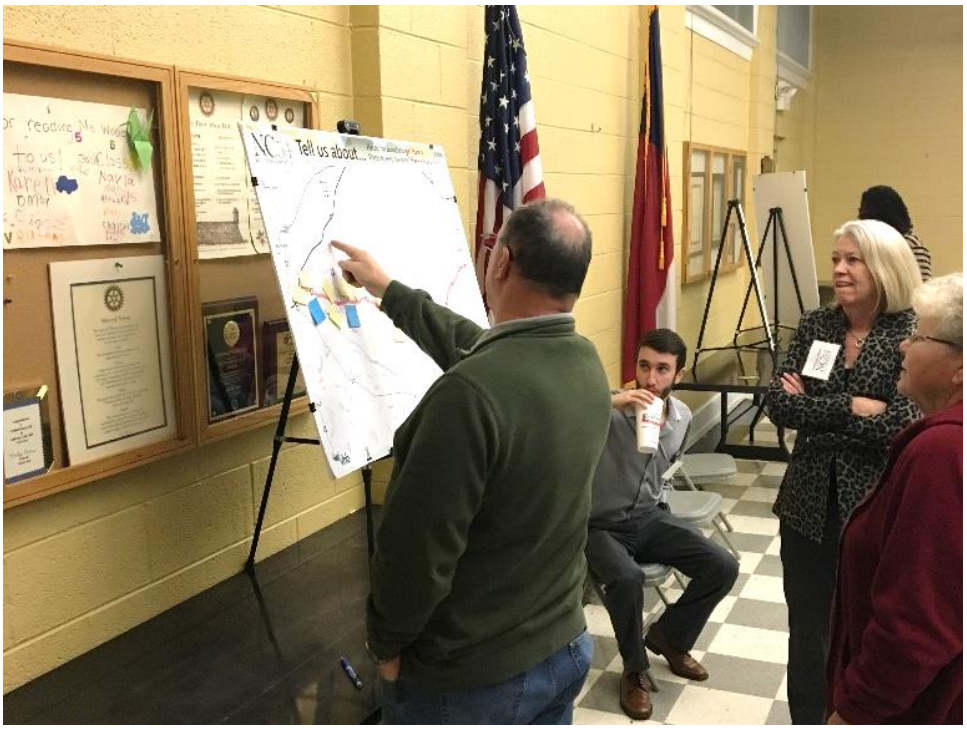
Individual Meeting Summaries

Public Workshop #1 Photos

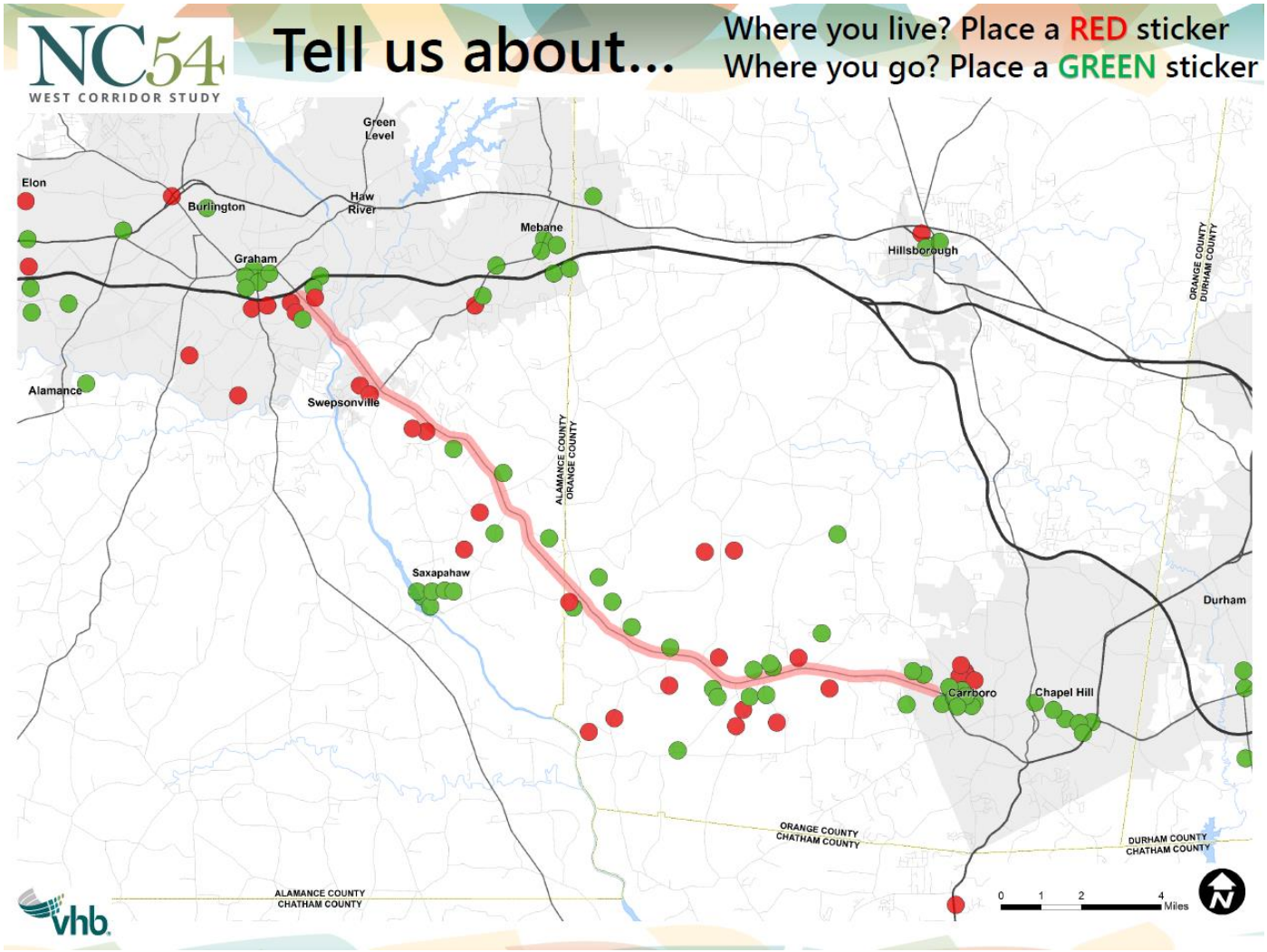





Swepsonville
Cemetery
Daycare
Fire Station
Former Landfill
Golf Course
Park
Place of Worship
School
Water Treatment Plant
Stream
Waterbody
Critical Water Supply Watershed
Protected Water Supply Watershed
Property Boundary
Voluntary Agricultural Districts
Historic Districts
National Register - Boundary
Study List - Boundary


Tell us about...

Public Workshop #1 Attendees – Origins and Destinations



Public Workshop #1 – Individual Meeting Summaries

Tuesday 1/23 Meeting @ Rigmor House

- **General Attendance**
  - 33 attendees signed in and 8 feedback forms submitted
  - Concerns included the placement of the Mountains-to-Sea hiking trail route near homes and conflicts over privacy, phasing of NC 54 improvements for decisions affecting homeowners' driveways, preservation of rural viewsheds, roadway planning effects on development patterns, and bicycling safety.
- **Development Areas**
  - Areas indicated for change included the intersections of NC 54 at Lloydtown Road, Bethel Hickory Grove Church Road, Orange Grove Road, and White Cross Road.
  - Areas indicated for no change included NC 54 at White Cross Road, Wildcat Creek Road, and Butler Road.
- **Safety Concerns**
  - Areas with noted near-miss collisions included the intersection of NC 54 and Bradshaw Quarry Rd, Saxapahaw Bethlehem Church Rd, Morrow Mill Rd, White Cross Rd, Butler Rd, Dodsons Crossroads, and Bethel Hickory Grove Church Rd.
- **Additional Needs and Requests**
  - Park and Ride at Mebane-Oaks Rd, Lloydtown Road, or Saxapahaw Bethlehem Church Road with busses along NC 54 to Carrboro with stops at major intersections.
- **Other poster comments:**
  - Dangerous passing near Alamance/Durham County line, vehicles travelling in excess of 70 mph, passing into oncoming traffic
  - Rough roadway between Stanford Rd and Orange Grove Rd
  - Bethel Hickory Grove Church Rd – difficult to enter highway from driveway
- **Feedback forms:**
  - Popular destinations included the municipalities of Carrboro, Chapel Hill, and Graham. Other locations included Piedmont Feed & Garden, White Cross, Saxapahaw, Fiesta Grill, Maple View Ice-cream, and Dodson's Crossroads.
  - Near term (2-year) goals included limiting bicycles, improving bicycle safety, more traffic controls, improved intersection turning movements, reducing speeding and reckless driving, implementing a Park and Ride, preserving community, including transit, widening the roadway, smoothing traffic flow, and preserving the environment.
  - 20-year goals included managing thoughtful development, preserving the route's rural nature, and prohibiting bicycles.

Wednesday 1/24 Meeting @ Graham Civic Center

- **General Attendance**
  - 24 attendees signed in and 13 feedback forms submitted
  - Concerns over existing traffic signal timing near I-40/85 interchange, especially during rush hours. There were also comments indicating future development pressures on public facilities, including a future high school to be constructed between Kimrey Rd & Cherry Lane, and a proposed residential development (600+ units) near Jones Drive in Mebane.
- **Development Areas**
  - Areas identified for change included NC 54 at Johnson/Riverbend, the City of Graham during peak hours, Jim Minor Road, NC 119, between NC 119 and Salem Church Road, Alfred Road, Salem Church Road, Thorn Rd, and Lloydtown Rd.
  - Areas identified for no change included NC 54 at Mebane-Oaks Road and Butler Rd
- **Safety Concerns**
  - Noted safety concerns included crossing NC 54 near the I-40/85 end of corridor, as well at the NC-119 intersection. There were also comments on the need to reduce speed limits near NC-119 and AW Elementary school (Melville township) and address unlawful vehicle passing near Bethel Hickory Grove Church Rd.
  - Areas with noted near-miss collisions included NC 54 at Johnson & Riverbend, Freshwater Rd, Alexander Wilson Elementary, Mineral Springs Road, Morrow Mill Rd, Thorn Rd to Butler Rd, and Butler Rd.
- **Other poster comments:**
  - NC 199 at NC 54 – School congestion at Alexander Wilson Elementary (7:15 am. 2:45 pm), low visibility eastwards, and high vehicle speeds
  - New Graham Regional Park opened fall 2017 near Alexander Wilson Elementary, and a new high school is in development near the Hawfields neighborhood
  - Freshwater Rd at NC 54 would benefit from a signal
  - Blind curve on NC 54 east of Mt. Willen Rd
  - High speeds on curves near White Cross Rd, especially at night
  - Sharp right turn from NC 54 onto Dodsons Crossroads
  - The new stoplight at NC 54 and Mebane-Oaks Rd "will be very useful"
- **Feedback forms:**
  - Popular municipal destinations included Carrboro, Chapel Hill, Mebane, and Graham. Other noted destinations included Saxapahaw, Fiesta Grill, Haw River Ballroom, local parks, the Kraken, Dodsons Crossroads, Maple View Ice-cream, Reverence Farms Café, Honeysuckle Tea House, and the landfill.
  - Near term (2-year) goals included improving bicycle facilities/safety, improving pedestrian access, reducing commercial truck traffic, improving signalized intersection phasing, add turn lanes, widening, not widening, integrating hiking facilities, preserving natural areas, easing congestion, and implementing transit.
  - Long term (20-year) goals included preserving rural character and open space, implementing transit, widening to 4-lanes, and installing separated bicycle facilities.

Thursday 1/25 Meeting @ Carrboro Town Hall

- **General Attendance**
  - 12 attendees signed in and 7 feedback forms submitted
  - Concerns included the opportunity for a gateway wayfinding between rural NC 54 and the Town of Carrboro at the Carrboro Town Plaza, wayfinding for inter-county bicycle routes, and the potential conflict for roadway widening in sensitive water resource areas.
- **Development Areas**
  - Areas identified for no change included the corridor portion between NC 119 and Mt. Willen Rd, Cane Creek Park, White Cross Rd at Butler Rd, Mebane Oaks Rd, and the neighborhood at Orange Grove Rd.
  - Areas identified for change included the Haw River Trail Boat Launch, Lloydtown Rd. pedestrian signal, and a wayfinding gateway to Carrboro.
- **Safety Concerns**
  - Noted safety concerns and near-miss collisions included the intersection of Mebane-Oaks Rd at NC 54 during Saxapahaw weekend events, driveway access near Orange Grove Rd, and the tree line between Orange Grove Rd and Butler Rd.
- **Feedback forms:**
  - Popular municipal destinations included Carrboro and Hillsborough. Other destinations included Saxapahaw, Fiesta Grill, Piedmont Feed and Garden. Maple View Farms, White Cross, and the Honeysuckle Tea House.
  - Near term (2-year) goals included improving on-road and separated bicycle facilities, integrating safety and access for all road users, improving intersections and pedestrian signals, incorporating multimodal and asset wayfinding, preserving rural character and existing residents, mitigating storm water, and protecting Cane Creek Reservoir.
  - Long term (20-year) goals included rural area preservation, limiting light pollution, implementing Bus Rapid Transit, bicycle facilities and other modes, and supporting mixed-use development.

To: NC 54 Study Team

Date: May 14, 2018

Project #: 38587.01

From: VHB

Re: NC 54 West Corridor Community Meeting Round #2

Four community meetings were held between May 1st through May 10th at four different locations spread across the NC 54 West corridor: the Rigmor House Event Center, Carrboro Town Hall, Graham Civic Center, and Swepsonville Fire Department. Workshop participants' comments and feedback are summarized below within the themes of participation, general discussion, safety-speed-lighting, conceptual roadway cross sections, and conceptual intersection treatments. Refer to the full meeting summaries at the very end for individual comments received.

Overall Participation

The Rigmor House meeting had the highest level of signed-in attendees (44), probably influenced by the schedule, as this was the first of the four meetings. Attendance for the remaining three meetings ranged between 16 signed in for the Swepsonville meeting, and a headcount of 20 for the Carrboro meeting.

General discussion

Meeting participants asked whether property owners were considered stakeholders during the engagement process, and whether their input would be more heavily weighted than others during the recommendations phase of the project.

Timeline was a common question during meetings. Participants requested an overall sense of how quickly an improvement, or a series of improvements, would be made to the corridor. Similarly, participants asked about the future traffic volumes, and how these were generated. The project team described how this project has a 2045 horizon year, so the traffic forecasts project out to this date based on local and regional inputs for population, housing, and employment. Project recommendations will be made working backwards for mid-term and near-term. The emphasis is to recommend an improvement that would *not need to be removed* and reconstructed by a future widening of the corridor.

Participants were skeptical of the projected 1% annual growth rate used for traffic, and expressed doubts about the assumptions for long-term forecast. Several participants suggested that travel demand management (TDM) considerations serve as the central focus for future traffic projections, citing a corridor-long bus rapid transit (BRT) lane is needed rather than two vehicle travel lanes. Park and ride was also mentioned for a western and mid-point location along the corridor.

Safety, Speed, and Lighting

Crash data was a common theme, involving discussions of vehicle speeds, concerns of safety, visibility around curves, and lighting. All participants were in favor of improving safety along the corridor, however, many seeking to maintain the five-lane cross-section, which was presented as generating a higher rate of crashes than compared with two-, three-, and four-lane roadways. A more detailed analysis of contributing factors to crashes along NC 54 was suggested, which is beyond the scope of this corridor study.

Questions were raised about the vehicle design speed for roundabouts, and whether they would be safe for this corridor. The Oak Hollow Road and Leslie Drive neighborhood was identified specifically for difficulties turning left onto NC 54 due to a roadway curve, vegetation, and vehicle speed.

Improved lighting was discussed for several intersections, include Morrow Mill Road, and Neville Road. Light pollution was also mentioned as something to avoid in order to preserve the rural heritage of the corridor. Related to lighting, advanced signage of upcoming roadways was discussed as a near-term improvement, citing drivers who must slowdown in order to read the (small) roadway name signs.

Conceptual roadway cross-sections

Farming equipment sharing the roadway was a theme mentioned at all four meetings, citing the challenges of total width being much larger than a typical vehicle, their slow operating speed (less than 15 mph), their large turning radius, and potential difficulty using the NC 54 roadway if there were to be a median installed. School buses, large dump trucks, and industrial freight vehicles were also identified as challenged by a potential median. The project team discussed this as an engineering design-level element that can be managed appropriately during future stages of future projects. This project is conceptual-level, to identify and document such challenges and constraints.

Concerns were raised about the location of private drinking waters wells in relation to a widened NC 54, specifically on the north side of NC54 just east of McAdams Creek. Trees and existing mailboxes were also identified concerning potentially impacted by future widening.

Businesses within and around the White Cross area were identified by meeting participants, who cited the desire for a five-lane roadway cross section for this area. Some were adamant that a median would be bad for business, while others mentioned that they wouldn't mind performing a U-turn if safety were improved. The median concept was the most polarizing topic discussed.

The width of shoulders was discussed as a potential improvement for bicyclists who feel comfortable riding along NC 54, though most bicyclists would likely choose the shared use path that is more distant from vehicles. Some avid cyclists were suggesting a wider shoulder by reducing the travel lanes to 11' widths.

Conceptual intersection treatments

Traditional intersection treatments were discussed in relation to alternative intersection options, such as roundabouts, quadrant intersections, superstreet, and median U-turn treatments. Several attendees endorsed the roundabout treatments for Neville and Bethel Hickory Road intersections, as well as the quadrant intersection treatment for NC 119 and Old Fayetteville Road. One question was raised about whether bicyclists would benefit from a roundabout intersection, or whether it would be a hindrance.

Additional comments received are included as an attachment, and separated by meeting date.

Next Steps

Comments and feedback from the second round of community meetings will be combined with entries from the Interactive Online Map and feedback from previous meetings to document local preferences. These qualitative

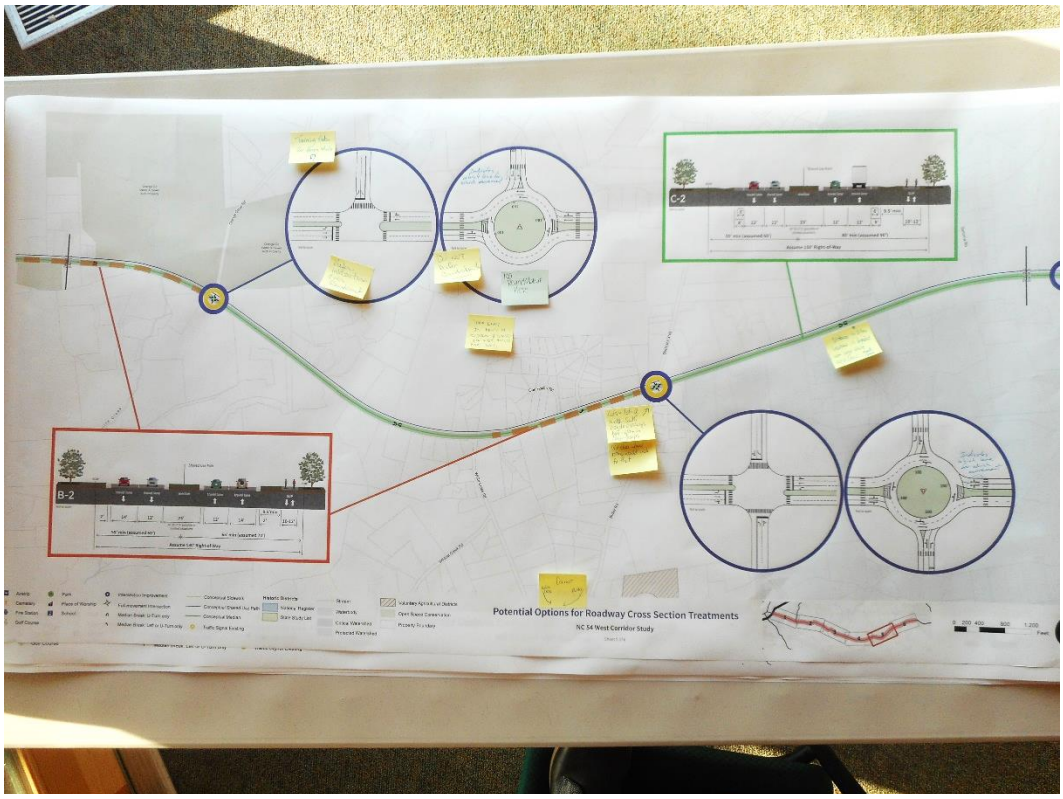
contributions will be evaluated with the study's quantitative and other research components to offer recommendations for targeted and corridor-wide improvements.

ATTACHMENTS

Photos

Individual Meeting Summaries

Community Meeting #2 Photos






Land Use Nodes
EXIT





Community Meeting #2 – Individual Meeting Summaries

Tuesday 5/1 Meeting @ Rigmor House

- **General Attendance and feedback regarding outreach**
  - 44 attendees signed in, and a headcount of 47 persons was observed.
  - Attendees commented that they heard of the meeting only hours before, and were unaware of the three public meetings in January (23-25).
    - Suggested media announcement via WCLH radio station and direct mailing.
- **Discussion topics that are non-geographic**
  - NC54 corridor "Should have been four-lanes years ago"
  - "How long of a timeframe" for these recommendations to be built?
  - "Too many roundabouts – will make it take forever to get anywhere."
- **Proposed roadway cross-section comments**
  - One bicyclist would prefer bicycle lane rather than shoulder or curb & gutter.
- **West End – Graham + Swepsonville - Sheets 1-2**
  - Quadrant intersection @ NC-119/Main St and Alfred Road is "great option for future development."
  - "Excited about possible bike trail connection" near Meadow Creek
- **Central Portion – Saxapahaw + Reservoir – Sheets 3-4**
  - Mountains-to-Sea Trail crossing would likely be closer to Saxapahaw Bethlehem Church Road due to property ownership closer to Cane Creek reservoir (east).
- **East End – White Cross + Carrboro – Sheets 5-6**
  - Orange Grove Road: prefer traditional three-leg intersection over roundabouts (x3)
  - Oak Hollow Road and Leslie Drive neighborhood (~40 homes): Is there potential safety improvement project, or additional center turn lane in the very near term? Entering/existing neighborhood is perceived to be dangerous.
  - "Why not five-lane between White Cross Road and Butler/Dodson's Crossroads?"
    - Businesses (Sturdivant's Tire) and farm equipment in this area
    - Businesses prefer (five-lane) center turn lane, with deceleration lanes
  - Not sure how roundabout would help or hinder bicyclists.
  - Concerns for farm equipment entering highway near (east of) Carl Durham Road, traveling at very low speeds, and requiring more than 12' wide lanes. Median would be difficult for farm vehicles to turn right, merge with traffic, change lanes to left, and perform U-turn at low speeds. This presents an engineering design challenge for U-turn areas, and may need to be spaced further apart.
  - Rock Quarry is potential site for future park, is there potential for parallel road connection here?
  - Recommend additional turn lanes for Hatch Road, Shannon Drive and Southern Drive neighborhood
  - Have severe crashes occurred at Old Fayetteville Road intersection? Is this the justification for superstreet?

Wednesday 5/2 Meeting @ Carrboro Century Center

- **General Attendance and feedback regarding outreach**
  - 17 attendees signed in, and a headcount of 20 persons was observed.
  - "Can property owners be considered stakeholders for the engagement process?"
- **Discussion topics that are non-geographic**
  - "What is the breakdown of animal and rear end collisions," and what is the level of non-intersection crashes, as well as crashes by time of day and directionality.
  - "How will the widening affect future development," will said widening encourage development across the corridor in agricultural areas?
  - "What are the sizes of the shoulders and why? Could the shoulders be increased by reducing the width of the travel lanes to 11' instead of 12'"
  - Instead of widening NC 54, there should be corridor-long BRT lanes and more transit service.
  - "Park and Ride should be located at Mebane Oaks"
  - "TDM should be considered" as a ***solution*** for traffic congestion"
  - "Would like to see more wayfinding and advance signage for roads and other points of interest."
  - "Would like to see scenarios that include the development and preservation of farmland."
  - Doubts were expressed about the growth rates and travel assumptions for the long-term forecasts.
  - "Could the SUP be located far off the corridor to encourage use among people who don't want to bike near the corridor?"
  - "Shade should play a role in determining which side of the road the SUP is on."
  - "Make the SUP continuous from Carrboro to Mebane Oaks Road."
  - "Vehicle speeds will be much higher on the four-lane road than the current cross section" despite dropping the speed limit to 45mph.
  - There were conflict comments on lighting at roundabouts: roundabouts should be lit, while others said that lighting should be limited in the rural areas. "Not a fan of lighting and light pollution."
  - "What is the effect on crashes for five lane roads with and without traffic signals?"
- **Proposed roadway cross-section comments**
  - B2: Four-lane with curb & gutter 130' ROW
    - "What are the costs of construction and maintenance for curb and gutter?"
    - "Why a 14' outside lane? Is it for vehicle breakdowns?"
  - C2: Four-lane with ditch & swale 150' ROW
    - None
- **West End – Graham + Swepsonville – Sheets 1-2**
  - "The railroad tracks near the Honda Plant would prevent rear access to the school." (unconfirmed)
  - "The Buckner Companies operates large freight vehicles that need access to NC54, so the U-turn through the median should be located closer to their property." (location east of Meadow Creek)
- **Central Portion – Saxapahaw + Reservoir – Sheets 3-4**

    - There had been mention of a recently approved SUP or greenway trail north of NC54, and that would negate the value of the SUP along the corridor.
    - "In the rural areas, please consider narrower lanes to preserve active agriculture in the ROW."
    - "It is unlikely that the landowners at Morrow Mill and NC54 would permit a trail head at their property."
    - "Would prefer that the SUP be on the south side on this portion of the corridor."
- **East End – White Cross + Carrboro – Sheets 5-6**
    - "Could the quadrant intersection design provide rear access for the new development at Old Fayetteville and NC 54?"
    - "Roundabouts won't work well at White Cross due to heavy directional commuting volumes."
    - "The eight-lane intersection at Old Fayetteville would be dehumanizing for someone on a bicycle."
    - "The road should be divided"
    - "The left turn into Anderson Park is dangerous"
    - There were disagreeing comments on whether to install lighting near Neville Road
    - The Neville Road area should have noise abatement considerations
    - The section of NC54 at Neville Road should be graded to address visibility and speed issues.
    - Several comments endorsed the use of roundabouts at Neville Road and Bethel Hickory Road

Thursday 5/3 Meeting @ Graham Civic Center

- **General Attendance and feedback regarding outreach**
  - 17 attendees signed in, and a headcount of 17 persons was observed.
- **Discussion topics that are non-geographic**
  - "What is the timeline for implementation of roadway and intersection improvements?"
  - "Would like to see more land use scenarios that account for zoning changes (i.e. more density) in relation to the widening of NC 54."
- **Proposed roadway cross-section comments**
    - None
- **West End – Graham + Swepsonville – Sheets 1-2**
  - "What sides of the road would sidewalks be on?"
  - The SUP as shown on the map would go through the WWTP's new entrance road.
  - "Trucks from the landfill, school buses, and industrial freight will not work with roundabouts"
  - Residential and commercial growth in Graham will send more cars down a widened NC 54 from I-40.
  - There was citizen concern about the grading of NC 54 in Graham and the ability of a four-lane segment to adequately drain storm water.
  - Concerns were raised about the location of wells in relation to a widened NC 54, specifically on the north side of NC54 just east of McAdams Creek.
  - "What can be done to reduce the # of crashes on the existing five-lane portion of NC 54 in Graham?"
  - Left turn location requested for the signal at Ivey Road.
  - Whittenmore Drive noted as a future intersection that could use an improvement
  - "The SUP should extend towards downtown Graham."
  - "The signals at I-40 should undergo review for improving the sequencing."
  - "Make Graham more walkable and bike able."
  - A U-turn should be added to the T-intersection diagram.
  - There is a daycare on NC54 at Wormranch Road on the north side.
  - Visibility issues persist on the curve just west and north of Creek Point Road.
- **Central Portion – Saxapahaw + Reservoir – Sheets 3-4**
  - None
- **East End – White Cross + Carrboro – Sheets 5-6**
  - Development is anticipated near the intersection of Old Fayetteville and NC 45.
  - Land use and zoning changes should assume greater density and conversion from farmland after the road is widened.

Thursday 5/10 Meeting @ Swepsonville Fire Department

- **General Attendance and feedback regarding outreach**
  - 16 attendees signed in, and a headcount of 17 persons was observed.
  - Who is a stakeholder, how are their comments gathered, and whose opinions and input matter more in the recommendations process? How is local input used to prioritize improvements?
- **Discussion topics that are non-geographic**
  - Could the crash data be shared for more than the intersections?
  - Is light rail and other transit part of the study?
  - What are the volume projections for NC54 based on?
  - How can roundabouts be designed to keep safe speeds through the intersection and support 55MPH travel speeds on the corridor?
  - How will the study team consider the tradeoffs of speed, access, and safety? What is weighted more?
  - Comment that expanded roads will increase traffic volumes on NC54.
  - During the evening, alternative routes to NC54 are too dark/have poor visibility
  - Sense that distracted driving and other unsafe vehicle operating behavior will get worse as roadway volumes increase.
- **Proposed roadway cross-section comments**
  - "How do farming communities use the proposed lanes with their farm equipment?"
- **West End – Graham + Swepsonville – Sheets 1-2**
  - Concerned about the use of eminent domain for the acquisition of ROW for a SUP
  - Worried that new sidewalks/SUP will bring crime to neighborhoods in Graham and Swepsonville areas
  - Comment that rear end collisions near I-40 are more from inattentiveness than other factors
  - "Sidewalks are needed for children and other pedestrians" on the segment between Alexander Wilson Elementary School and Long Dairy Road
- **Central Portion – Saxapahaw + Reservoir – Sheets 3-4**
  - "Consider the existing grade for the proposed intersection improvement"
  - How has the LOS at intersections been affected by the new traffic signals at Mebane Oaks?
  - "Build the four-lane section as quickly as possible"
  - Without lighting, the proposed T-intersection at Morrow Mill Road will be impossible to turn left against the lanes and head west (exiting Morrow Mill Road). Difficulty turning right heading east from Morrow Mill Road during rush hour"
- **East End – White Cross + Carrboro – Sheets 5-6**
  - "Larger radii on roundabout needed traffic faster"
  - "Why do communities outside of Carrboro need a bike path?
  - "How do farming communities use the proposed lanes with their farm equipment?"

Study Criteria Summary

County: ALAMANCE **City:** All and Rural
Date: 11/01/2012 **to** 10/31/2017 **Study:** MW41000050143
Location:
Crash analysis on NC 54 from I 40/I 85 in Alamance County to SR 1931 (Old Fayetteville Rd) in Orange County.

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	**103900491**	4.929	10/09/2013 07:56	LEFT TURN, DIFFERENT ROADWAYS	$ 8500	0	1	3	0	1	1	2	1	0	3	1
Unit 1 : 5	**Alchl/Drgs:** 0	**Speed:** 30 MPH	**Dir:** E	**Veh Mnvr/Ped Actn:** 8	**Obj Strk:**											
Unit 2 : 1	**Alchl/Drgs:** 0	**Speed:** 30 MPH	**Dir:** NW	**Veh Mnvr/Ped Actn:** 4	**Obj Strk:**											
Unit 3 : 2	**Alchl/Drgs:** 0	**Speed:** 35 MPH	**Dir:** NW	**Veh Mnvr/Ped Actn:** 1	**Obj Strk:**											
2	**103924609**	4.929	11/04/2013 12:47	LEFT TURN, DIFFERENT ROADWAYS	$ 5600	0	0	0	0	1	1	1	1	0	3	1
Unit 1 : 3	**Alchl/Drgs:** 0	**Speed:** 0 MPH	**Dir:** E	**Veh Mnvr/Ped Actn:** 8	**Obj Strk:**											
Unit 2 : 2	**Alchl/Drgs:** 0	**Speed:** 20 MPH	**Dir:** W	**Veh Mnvr/Ped Actn:** 4	**Obj Strk:**											
3	**103987904**	4.929	02/05/2014 10:05	FIXED OBJECT	$ 2000	0	0	0	0	2	1	3	1	0	3	1
Unit 1 : 4	**Alchl/Drgs:** 0	**Speed:** 20 MPH	**Dir:** W	**Veh Mnvr/Ped Actn:** 8	**Obj Strk:**											
4	**103993863**	4.929	02/15/2014 16:03	SIDESWIPE, SAME DIRECTION	$ 7000	0	0	0	0	1	1	1	1	0	3	1
Unit 1 : 5	**Alchl/Drgs:** 0	**Speed:** 20 MPH	**Dir:** NW	**Veh Mnvr/Ped Actn:** 5	**Obj Strk:**											
Unit 2 : 1	**Alchl/Drgs:** 0	**Speed:** 25 MPH	**Dir:** NW	**Veh Mnvr/Ped Actn:** 4	**Obj Strk:**											
5	**104558680**	4.929	11/07/2015 16:25	LEFT TURN, SAME ROADWAY	$ 12000	0	0	1	2	1	1	2	1	0	3	1
Unit 1 : 1	**Alchl/Drgs:** 0	**Speed:** 10 MPH	**Dir:** SE	**Veh Mnvr/Ped Actn:** 8	**Obj Strk:**											
Unit 2 : 1	**Alchl/Drgs:** 0	**Speed:** 35 MPH	**Dir:** NW	**Veh Mnvr/Ped Actn:** 4	**Obj Strk:**											
6	**104578734**	4.929	11/14/2015 22:37	LEFT TURN, DIFFERENT ROADWAYS	$ 7000	0	0	0	2	1	1	1	1	0	3	1
Unit 1 : 1	**Alchl/Drgs:** 0	**Speed:** 15 MPH	**Dir:** S	**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:**											
7	**104651186**	4.929	02/09/2016 08:04	REAR END, SLOW OR STOP	$ 4000	0	0	0	0	1	1	1	1	0	3	
Unit 1 : 1	**Alchl/Drgs:** 0	**Speed:** 15 MPH	**Dir:** E	**Veh Mnvr/Ped Actn:** 4	**Obj Strk:**											
Unit 2 : 1	**Alchl/Drgs:** 0	**Speed:** 15 MPH	**Dir:** E	**Veh Mnvr/Ped Actn:** 4	**Obj Strk:**											
8	**104813885**	4.929	07/12/2016 15:48	LEFT TURN, SAME ROADWAY	$ 7000	0	0	0	0	1	1	1	1	0	3	1
Unit 1 : 1	**Alchl/Drgs:** 0	**Speed:** 15 MPH	**Dir:** NW	**Veh Mnvr/Ped Actn:** 4	**Obj Strk:**											
Unit 2 : 1	**Alchl/Drgs:** 0	**Speed:** 5 MPH	**Dir:** SE	**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
9	**104872381**	4.929	09/12/2016 17:25	LEFT TURN, DIFFERENT ROADWAYS	$ 7000	0	0	1	0	1	1	1	1	0	3	1
Unit	**1 :** 2	**Alchl/Drgs:** 0	**Speed:** 0 MPH	**Dir:** E	**Veh Mnvr/Ped Actn:** 8					**Obj Strk:** 42						
Unit	**2 :** 1	**Alchl/Drgs:** 0	**Speed:** 25 MPH	**Dir:** N	**Veh Mnvr/Ped Actn:** 4					**Obj Strk:**						
10	**104902202**	4.929	10/19/2016 17:36	ANGLE	$ 3500	0	0	0	2	1	1	1	1	0	3	1
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:** 40 MPH	**Dir:** N	**Veh Mnvr/Ped Actn:** 4					**Obj Strk:**						
11	**105023677**	4.929	02/21/2017 18:15	ANGLE	$ 22000	0	0	0	3	1	2	1	1	0	3	1
Unit	**1 :** 1	**Alchl/Drgs:** 0	**Speed:** 40 MPH	**Dir:** N	**Veh Mnvr/Ped Actn:** 4					**Obj Strk:** 34						
Unit	**2 :** 1	**Alchl/Drgs:** 0	**Speed:** 10 MPH	**Dir:** S	**Veh Mnvr/Ped Actn:** 8					**Obj Strk:**						
12	**105102274**	4.929	05/10/2017 15:54	LEFT TURN, SAME ROADWAY	$ 10000	0	0	0	0	1	1	1	1	0	3	1
Unit	**1 :** 1	**Alchl/Drgs:** 0	**Speed:** 15 MPH	**Dir:** SE	**Veh Mnvr/Ped Actn:** 8					**Obj Strk:**						
Unit	**2 :** 1	**Alchl/Drgs:** 0	**Speed:** 37 MPH	**Dir:** NW	**Veh Mnvr/Ped Actn:** 4					**Obj Strk:**						
13	**105109095**	4.929	05/16/2017 22:01	ANGLE	$ 24000	0	0	1	1	1	4	1	1	0	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:** 15 MPH	**Dir:** N	**Veh Mnvr/Ped Actn:** 11					**Obj Strk:**						
14	**105223125**	4.929	09/09/2017 20:31	ANGLE	$ 4000	0	0	0	0	1	4	1	1	0	3	1
Unit	**1 :** 2	**Alchl/Drgs:** 0	**Speed:** 20 MPH	**Dir:** E	**Veh Mnvr/Ped Actn:** 8					**Obj Strk:**						
Unit	**2 :** 4	**Alchl/Drgs:** 0	**Speed:** 25 MPH	**Dir:** W	**Veh Mnvr/Ped Actn:** 4					**Obj Strk:**						
15	**105260296**	4.929	10/19/2017 17:20	LEFT TURN, DIFFERENT ROADWAYS	$ 9000	0	0	1	2	1	1	1	1	0	3	1
Unit	**1 :** 1	**Alchl/Drgs:** 0	**Speed:** 3 MPH	**Dir:** E	**Veh Mnvr/Ped Actn:** 8					**Obj Strk:**						
Unit	**2 :** 4	**Alchl/Drgs:** 0	**Speed:** 30 MPH	**Dir:** E	**Veh Mnvr/Ped Actn:** 4					**Obj Strk:**						
16	**103818503**	4.940	07/19/2013 16:02	REAR END, SLOW OR STOP	$ 4600	0	0	0	1	1	1	1	1	0	3	1
Unit	**1 :** 2	**Alchl/Drgs:** 0	**Speed:** 20 MPH	**Dir:** NW	**Veh Mnvr/Ped Actn:** 4					**Obj Strk:**						
Unit	**2 :** 4	**Alchl/Drgs:** 0	**Speed:** 0 MPH	**Dir:** NW	**Veh Mnvr/Ped Actn:** 1					**Obj Strk:**						
Unit	**3 :** 1	**Alchl/Drgs:** 0	**Speed:** 0 MPH	**Dir:** NW	**Veh Mnvr/Ped Actn:** 1					**Obj Strk:**						
17	**103987903**	4.946	02/03/2014 17:29	REAR END, SLOW OR STOP	$ 2000	0	0	0	0	1	1	1	1	0	0	
Unit	**1 :** 1	**Alchl/Drgs:** 0	**Speed:** 20 MPH	**Dir:** W	**Veh Mnvr/Ped Actn:** 4					**Obj Strk:**						
Unit	**2 :** 4	**Alchl/Drgs:** 0	**Speed:** 10 MPH	**Dir:** W	**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
18	**103805479**	4.953	07/08/2013 08:06	FIXED OBJECT	$ 5500	0	0	0	0	2	1	2	1	0	3	1
Unit	**1 :** 1	**Alchl/Drgs:** 0	**Speed:** 35 MPH	**Dir:** W	**Veh Mnvr/Ped Actn:** 4	**Obj Strk:** 42										
Unit	**2 :** 2	**Alchl/Drgs:** 0	**Speed:** 35 MPH	**Dir:** W	**Veh Mnvr/Ped Actn:** 4	**Obj Strk:**										
19	**104344303**	4.957	03/30/2015 07:07	REAR END, SLOW OR STOP	$ 3400	0	0	0	0	1	1	2	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:** 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:**										
20	**104697841**	4.992	03/24/2016 07:11	RAN OFF ROAD - RIGHT	$ 1200	0	0	0	0	1	4	1	1	0	0	
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:** 50 MPH	**Dir:** S	**Veh Mnvr/Ped Actn:** 4	**Obj Strk:** 46										
21	**103982440**	5.006	01/17/2014 16:52	REAR END, SLOW OR STOP	$ 4500	0	0	0	2	1	1	1	1	0	13	1
Unit	**1 :** 2	**Alchl/Drgs:** 0	**Speed:** 25 MPH	**Dir:** N	**Veh Mnvr/Ped Actn:** 4	**Obj Strk:**										
Unit	**2 :** 1	**Alchl/Drgs:** 0	**Speed:** 5 MPH	**Dir:** N	**Veh Mnvr/Ped Actn:** 4	**Obj Strk:**										
22	**104351674**	5.006	04/10/2015 07:49	REAR END, SLOW OR STOP	$ 3500	0	0	0	0	1	1	2	1	0	0	
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:** NW	**Veh Mnvr/Ped Actn:** 1	**Obj Strk:**										
23	**104201022**	5.007	09/09/2013 06:45	REAR END, SLOW OR STOP	$ 1375	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:** 4	**Obj Strk:**										
Unit	**2 :** 1	**Alchl/Drgs:** 0	**Speed:** 5 MPH	**Dir:** W	**Veh Mnvr/Ped Actn:** 11	**Obj Strk:**										
24	**104750043**	5.016	05/17/2016 17:11	REAR END, SLOW OR STOP	$ 2600	0	0	0	0	2	1	3	1	0	0	
Unit	**1 :** 1	**Alchl/Drgs:** 0	**Speed:** 20 MPH	**Dir:** NW	**Veh Mnvr/Ped Actn:** 11	**Obj Strk:**										
Unit	**2 :** 5	**Alchl/Drgs:** 0	**Speed:** 15 MPH	**Dir:** NW	**Veh Mnvr/Ped Actn:** 1	**Obj Strk:**										
25	**105140201**	5.024	06/19/2017 07:04	ANGLE	$ 6500	0	0	0	1	2	1	1	1	0	0	
Unit	**1 :** 1	**Alchl/Drgs:** 0	**Speed:** 5 MPH	**Dir:** NE	**Veh Mnvr/Ped Actn:** 12	**Obj Strk:**										
Unit	**2 :** 1	**Alchl/Drgs:** 0	**Speed:** 45 MPH	**Dir:** SE	**Veh Mnvr/Ped Actn:** 4	**Obj Strk:**										
26	**104936018**	5.039	11/04/2016 15:44	REAR END, SLOW OR STOP	$ 3300	0	0	0	0	1	1	1	3	0	3	1
Unit	**1 :** 1	**Alchl/Drgs:** 0	**Speed:** 40 MPH	**Dir:** N	**Veh Mnvr/Ped Actn:** 4	**Obj Strk:**										
Unit	**2 :** 4	**Alchl/Drgs:** 0	**Speed:** 40 MPH	**Dir:** N	**Veh Mnvr/Ped Actn:** 1	**Obj Strk:**										
Unit	**3 :** 4	**Alchl/Drgs:** 0	**Speed:** 40 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	**103683216**	5.044	02/12/2013 16:05	REAR END, SLOW OR STOP	$ 6000	0	0	0	0	1	1	2	1	0	3	1
Unit	**1 :** 1	**Alchl/Drgs:** 0	**Speed:** 35 MPH	**Dir:** NW	**Veh Mnvr/Ped Actn:** 4	**Obj Strk:**										
Unit	**2 :** 1	**Alchl/Drgs:** 0	**Speed:** 0 MPH	**Dir:** NW	**Veh Mnvr/Ped Actn:** 1	**Obj Strk:**										
28	**104482008**	5.044	09/01/2015 13:49	REAR END, SLOW OR STOP	$ 4000	0	0	0	0	1	1	1	1	0	3	1
Unit	**1 :** 1	**Alchl/Drgs:** 0	**Speed:** 35 MPH	**Dir:** N	**Veh Mnvr/Ped Actn:** 4	**Obj Strk:**										
Unit	**2 :** 4	**Alchl/Drgs:** 0	**Speed:** 0 MPH	**Dir:** N	**Veh Mnvr/Ped Actn:** 1	**Obj Strk:**										
29	**105074454**	5.044	04/13/2017 15:48	REAR END, SLOW OR STOP	$ 2000	0	0	0	0	1	1	1	1	0	0	
Unit	**1 :** 32	**Alchl/Drgs:** 7	**Speed:** 10 MPH	**Dir:** NW	**Veh Mnvr/Ped Actn:** 4	**Obj Strk:**										
Unit	**2 :** 5	**Alchl/Drgs:** 0	**Speed:** 0 MPH	**Dir:** NW	**Veh Mnvr/Ped Actn:** 1	**Obj Strk:**										
30	**105214312**	5.044	08/22/2017 16:55	REAR END, SLOW OR STOP	$ 8000	0	0	0	1	1	1	1	1	0	0	
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:** 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:**										
Unit	**4 :** 1	**Alchl/Drgs:** 0	**Speed:** 25 MPH	**Dir:** N	**Veh Mnvr/Ped Actn:** 4	**Obj Strk:**										
31	**104364900**	5.054	04/25/2015 11:31	REAR END, SLOW OR STOP	$ 3000	0	0	0	0	2	1	3	1	0	0	
Unit	**1 :** 1	**Alchl/Drgs:** 0	**Speed:** 0 MPH	**Dir:** NW	**Veh Mnvr/Ped Actn:** 4	**Obj Strk:**										
Unit	**2 :** 2	**Alchl/Drgs:** 0	**Speed:** 20 MPH	**Dir:** NW	**Veh Mnvr/Ped Actn:** 3	**Obj Strk:**										
32	**103987901**	5.055	02/03/2014 17:00	REAR END, SLOW OR STOP	$ 8500	0	0	0	2	1	1	1	1	0		
Unit	**1 :** 1	**Alchl/Drgs:** 0	**Speed:** 20 MPH	**Dir:** W	**Veh Mnvr/Ped Actn:** 4	**Obj Strk:**										
Unit	**2 :** 1	**Alchl/Drgs:** 0	**Speed:** 15 MPH	**Dir:** W	**Veh Mnvr/Ped Actn:** 11	**Obj Strk:**										
33	**104070062**	5.059	05/16/2014 12:33	SIDESWIPE, SAME DIRECTION	$ 3000	0	0	0	0	1	1	1	1	0	0	
Unit	**1 :** 1	**Alchl/Drgs:** 0	**Speed:** 20 MPH	**Dir:** W	**Veh Mnvr/Ped Actn:** 4	**Obj Strk:**										
Unit	**2 :** 1	**Alchl/Drgs:** 0	**Speed:** 10 MPH	**Dir:** W	**Veh Mnvr/Ped Actn:** 5	**Obj Strk:**										
34	**104575995**	5.063	11/13/2015 19:45	ANGLE	$ 3000	0	0	0	0	1	4	1	1	0	0	
Unit	**1 :** 1	**Alchl/Drgs:** 0	**Speed:** 45 MPH	**Dir:** W	**Veh Mnvr/Ped Actn:** 8	**Obj Strk:**										
Unit	**2 :** 2	**Alchl/Drgs:** 0	**Speed:** 45 MPH	**Dir:** E	**Veh Mnvr/Ped Actn:** 4	**Obj Strk:**										
35	**104715670**	5.068	04/08/2016 16:23	REAR END, SLOW OR STOP	$ 13500	0	0	0	1	1	1	1	1	0	3	1
Unit	**1 :** 4	**Alchl/Drgs:** 0	**Speed:** 20 MPH	**Dir:** NW	**Veh Mnvr/Ped Actn:** 11	**Obj Strk:**										
Unit	**2 :** 1	**Alchl/Drgs:** 0	**Speed:** 0 MPH	**Dir:** NW	**Veh Mnvr/Ped Actn:** 11	**Obj Strk:**										
Unit	**3 :** 4	**Alchl/Drgs:** 0	**Speed:** 0 MPH	**Dir:** NW	**Veh Mnvr/Ped Actn:** 11	**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
36	**103905040**	5.073	10/25/2013 16:17	REAR END, SLOW OR STOP	$ 3500	0	0	1	0	1	1	1	1	0	0	
Unit	**1 :** 1	**Alchl/Drgs:** 0	**Speed:** 28 MPH	**Dir:** NW	**Veh Mnvr/Ped Actn:** 4	**Obj Strk:**										
Unit	**2 :** 4	**Alchl/Drgs:** 0	**Speed:** 15 MPH	**Dir:** NW	**Veh Mnvr/Ped Actn:** 11	**Obj Strk:**										
Unit	**3 :** 1	**Alchl/Drgs:** 0	**Speed:** 10 MPH	**Dir:** NW	**Veh Mnvr/Ped Actn:** 11	**Obj Strk:**										
37	**104846588**	5.073	08/14/2016 17:58	LEFT TURN, DIFFERENT ROADWAYS	$ 10000	0	0	0	2	1	1	1	3	0	3	1
Unit	**1 :** 4	**Alchl/Drgs:** 0	**Speed:** 20 MPH	**Dir:** SE	**Veh Mnvr/Ped Actn:** 4	**Obj Strk:**										
Unit	**2 :** 1	**Alchl/Drgs:** 0	**Speed:** 20 MPH	**Dir:** NW	**Veh Mnvr/Ped Actn:** 8	**Obj Strk:**										
38	**104972452**	5.073	12/08/2016 21:03	ANGLE	$ 6000	0	0	0	1	1	4	1	3	0	0	
Unit	**1 :** 1	**Alchl/Drgs:** 0	**Speed:** 20 MPH	**Dir:** W	**Veh Mnvr/Ped Actn:** 8	**Obj Strk:**										
Unit	**2 :** 1	**Alchl/Drgs:** 0	**Speed:** 20 MPH	**Dir:** SE	**Veh Mnvr/Ped Actn:** 4	**Obj Strk:**										
39	**105252339**	5.076	10/06/2017 13:25	REAR END, SLOW OR STOP	$ 3500	0	0	0	3	1	1	1	1	0	3	1
Unit	**1 :** 5	**Alchl/Drgs:** 0	**Speed:** 10 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:**										
40	**104364896**	5.078	04/24/2015 16:22	REAR END, SLOW OR STOP	$ 3400	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:**										
Unit	**2 :** 4	**Alchl/Drgs:** 0	**Speed:** 0 MPH	**Dir:** W	**Veh Mnvr/Ped Actn:** 1	**Obj Strk:**										
41	**104165048**	5.082	10/07/2013 07:53	REAR END, SLOW OR STOP	$ 3500	0	0	0	0	2	1	2	1	0	3	1
Unit	**1 :** 1	**Alchl/Drgs:** 0	**Speed:** 30 MPH	**Dir:** NW	**Veh Mnvr/Ped Actn:** 4	**Obj Strk:**										
Unit	**2 :** 1	**Alchl/Drgs:** 0	**Speed:** 5 MPH	**Dir:** NW	**Veh Mnvr/Ped Actn:** 4	**Obj Strk:**										
Unit	**3 :** 1	**Alchl/Drgs:** 0	**Speed:** 5 MPH	**Dir:** NW	**Veh Mnvr/Ped Actn:** 4	**Obj Strk:**										
Unit	**4 :** 32	**Alchl/Drgs:** 7	**Speed:** 5 MPH	**Dir:** W	**Veh Mnvr/Ped Actn:** 4	**Obj Strk:**										
42	**103888640**	5.082	10/24/2013 18:06	REAR END, SLOW OR STOP	$ 2700	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:** 4	**Obj Strk:**										
Unit	**2 :** 2	**Alchl/Drgs:** 0	**Speed:** 10 MPH	**Dir:** N	**Veh Mnvr/Ped Actn:** 4	**Obj Strk:**										
43	**104363216**	5.082	04/16/2015 17:08	ANGLE	$ 3500	0	0	0	0	2	1	3	3	0	3	1
Unit	**1 :** 2	**Alchl/Drgs:** 0	**Speed:** 35 MPH	**Dir:** NE	**Veh Mnvr/Ped Actn:** 7	**Obj Strk:**										
Unit	**2 :** 4	**Alchl/Drgs:** 0	**Speed:** 40 MPH	**Dir:** SE	**Veh Mnvr/Ped Actn:** 4	**Obj Strk:**										
44	**104388176**	5.082	05/19/2015 16:18	LEFT TURN, SAME ROADWAY	$ 8000	0	0	0	1	2	1	3	1	0	3	1
Unit	**1 :** 1	**Alchl/Drgs:** 0	**Speed:** 0 MPH	**Dir:** NE	**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
Unit	**2 :** 1	**Alchl/Drgs:**	0	**Speed:** 45 MPH	**Dir:** NW	**Veh Mnvr/Ped Actn:**				4			**Obj Strk:**			
45	**104415863**	5.082	06/15/2015 12:51	ANGLE	$ 10000	0	0	0	0	1	1	1	1	0	3	1
Unit	**1 :** 1	**Alchl/Drgs:**	0	**Speed:** 40 MPH	**Dir:** SE	**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:**			
46	**104503025**	5.082	09/21/2015 10:27	ANGLE	$ 5500	0	0	0	0	1	1	2	1	0	3	1
Unit	**1 :** 2	**Alchl/Drgs:**	0	**Speed:** 5 MPH	**Dir:** NE	**Veh Mnvr/Ped Actn:**				8			**Obj Strk:**			
Unit	**2 :** 1	**Alchl/Drgs:**	0	**Speed:** 10 MPH	**Dir:** SW	**Veh Mnvr/Ped Actn:**				4			**Obj Strk:**			
47	**104697409**	5.082	03/17/2016 07:52	ANGLE	$ 11200	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 :** 5	**Alchl/Drgs:**	0	**Speed:** 30 MPH	**Dir:** S	**Veh Mnvr/Ped Actn:**				8			**Obj Strk:**			
Unit	**3 :** 1	**Alchl/Drgs:**	0	**Speed:** 0 MPH	**Dir:** E	**Veh Mnvr/Ped Actn:**				1			**Obj Strk:**			
Unit	**4 :** 4	**Alchl/Drgs:**	0	**Speed:** 0 MPH	**Dir:** E	**Veh Mnvr/Ped Actn:**				1			**Obj Strk:**			
48	**104708000**	5.082	04/08/2016 16:14	ANGLE	$ 10000	0	0	0	1	1	1	1	1	0	3	1
Unit	**1 :** 1	**Alchl/Drgs:**	0	**Speed:** 20 MPH	**Dir:** NW	**Veh Mnvr/Ped Actn:**				4			**Obj Strk:**			
Unit	**2 :** 1	**Alchl/Drgs:**	0	**Speed:** 5 MPH	**Dir:** SE	**Veh Mnvr/Ped Actn:**				8			**Obj Strk:**	18		
49	**104828342**	5.082	08/07/2016 15:26	ANGLE	$ 2800	0	0	0	0	1	1	1	1	0	3	1
Unit	**1 :** 1	**Alchl/Drgs:**	0	**Speed:** 35 MPH	**Dir:** E	**Veh Mnvr/Ped Actn:**				8			**Obj Strk:**			
Unit	**2 :** 1	**Alchl/Drgs:**	0	**Speed:** 30 MPH	**Dir:** S	**Veh Mnvr/Ped Actn:**				4			**Obj Strk:**			
50	**104936710**	5.082	11/22/2016 15:49	REAR END, SLOW OR STOP	$ 7000	0	0	0	0	1	1	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:** 45 MPH	**Dir:** N	**Veh Mnvr/Ped Actn:**				1			**Obj Strk:**			
Unit	**3 :** 1	**Alchl/Drgs:**	0	**Speed:** 45 MPH	**Dir:** N	**Veh Mnvr/Ped Actn:**				1			**Obj Strk:**			
51	**105006518**	5.082	01/25/2017 09:51	ANGLE	$ 11800	0	0	0	0	1	1	1	1	0	3	1
Unit	**1 :** 5	**Alchl/Drgs:**	0	**Speed:** 40 MPH	**Dir:** NE	**Veh Mnvr/Ped Actn:**				4			**Obj Strk:**			
Unit	**2 :** 2	**Alchl/Drgs:**	0	**Speed:** 35 MPH	**Dir:** W	**Veh Mnvr/Ped Actn:**				4			**Obj Strk:**			
Unit	**3 :** 1	**Alchl/Drgs:**	0	**Speed:** 0 MPH	**Dir:** SE	**Veh Mnvr/Ped Actn:**				1			**Obj Strk:**			
52	**105011814**	5.082	02/10/2017 19:51	REAR END, SLOW OR STOP	$ 400	0	0	0	2	1	4	1	3	0	3	1
Unit	**1 :** 1	**Alchl/Drgs:**	0	**Speed:** 40 MPH	**Dir:** SE	**Veh Mnvr/Ped Actn:**				11			**Obj Strk:**			
Unit	**2 :** 1	**Alchl/Drgs:**	0	**Speed:** 5 MPH	**Dir:** SE	**Veh Mnvr/Ped Actn:**				11			**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
53	**105254401**	5.082	10/06/2017 13:25	LEFT TURN, SAME ROADWAY	$ 6500	0	0	1	1	1	1	1	3	0	3	1
Unit	**1 :** 1	**Alchl/Drgs:** 0	**Speed:** 10 MPH	**Dir:** N	**Veh Mnvr/Ped Actn:** 8	**Obj Strk:**										
Unit	**2 :** 4	**Alchl/Drgs:** 0	**Speed:** 40 MPH	**Dir:** W	**Veh Mnvr/Ped Actn:** 4	**Obj Strk:**										
54	**105260297**	5.082	10/18/2017 16:48	LEFT TURN, DIFFERENT ROADWAYS	$ 6600	0	0	0	0	1	1	1	1	0	3	1
Unit	**1 :** 2	**Alchl/Drgs:** 0	**Speed:** 0 MPH	**Dir:** NW	**Veh Mnvr/Ped Actn:** 8	**Obj Strk:**										
Unit	**2 :** 1	**Alchl/Drgs:** 0	**Speed:** 30 MPH	**Dir:** W	**Veh Mnvr/Ped Actn:** 4	**Obj Strk:**										
55	**105117186**	5.087	05/24/2017 12:00	REAR END, SLOW OR STOP	$ 4025	0	0	0	1	1	1	2	1	0	3	1
Unit	**1 :** 1	**Alchl/Drgs:** 0	**Speed:** 30 MPH	**Dir:** W	**Veh Mnvr/Ped Actn:** 4	**Obj Strk:**										
Unit	**2 :** 3	**Alchl/Drgs:** 0	**Speed:** 0 MPH	**Dir:** W	**Veh Mnvr/Ped Actn:** 1	**Obj Strk:**										
56	**103800081**	5.093	06/22/2013 14:07	LEFT TURN, DIFFERENT ROADWAYS	$ 8350	0	0	0	0	1	1	2	1	0		
Unit	**1 :** 2	**Alchl/Drgs:** 0	**Speed:** 5 MPH	**Dir:** N	**Veh Mnvr/Ped Actn:** 8	**Obj Strk:**										
Unit	**2 :** 1	**Alchl/Drgs:** 0	**Speed:** 25 MPH	**Dir:** S	**Veh Mnvr/Ped Actn:** 4	**Obj Strk:**										
57	**105178217**	5.093	06/10/2017 11:09	LEFT TURN, DIFFERENT ROADWAYS	$ 3250	0	0	0	0	1	1	1	1	0	0	
Unit	**1 :** 5	**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:** S	**Veh Mnvr/Ped Actn:** 4	**Obj Strk:**										
58	**104065445**	5.096	05/12/2014 15:55	HEAD ON	$ 3500	0	0	0	0	1	1	1	1	0	3	1
Unit	**1 :** 2	**Alchl/Drgs:** 0	**Speed:** 15 MPH	**Dir:** W	**Veh Mnvr/Ped Actn:** 8	**Obj Strk:**										
Unit	**2 :** 1	**Alchl/Drgs:** 0	**Speed:** 10 MPH	**Dir:** E	**Veh Mnvr/Ped Actn:** 7	**Obj Strk:**										
59	**103888808**	5.098	10/01/2013 11:38	LEFT TURN, SAME ROADWAY	$ 4000	0	0	0	1	1	1	1	1	0	3	1
Unit	**1 :** 1	**Alchl/Drgs:** 0	**Speed:** 20 MPH	**Dir:** N	**Veh Mnvr/Ped Actn:** 8	**Obj Strk:**										
Unit	**2 :** 1	**Alchl/Drgs:** 0	**Speed:** 50 MPH	**Dir:** S	**Veh Mnvr/Ped Actn:** 4	**Obj Strk:**										
60	**103704833**	5.099	03/05/2013 13:55	FIXED OBJECT	$ 5200	0	0	1	3	1	1	1	1	0	0	
Unit	**1 :** 1	**Alchl/Drgs:** 0	**Speed:** 0 MPH	**Dir:** W	**Veh Mnvr/Ped Actn:** 8	**Obj Strk:**										
Unit	**2 :** 1	**Alchl/Drgs:** 0	**Speed:** 40 MPH	**Dir:** N	**Veh Mnvr/Ped Actn:** 4	**Obj Strk:**										
61	**104911370**	5.102	10/28/2016 16:00	REAR END, SLOW OR STOP	$ 6500	0	0	0	0	1	1	1	1	0	3	1
Unit	**1 :** 1	**Alchl/Drgs:** 0	**Speed:** 55 MPH	**Dir:** NW	**Veh Mnvr/Ped Actn:** 4	**Obj Strk:**										
Unit	**2 :** 1	**Alchl/Drgs:** 0	**Speed:** 55 MPH	**Dir:** NW	**Veh Mnvr/Ped Actn:** 1	**Obj Strk:**										
Unit	**3 :** 1	**Alchl/Drgs:** 0	**Speed:** 55 MPH	**Dir:** N	**Veh Mnvr/Ped Actn:** 16	**Obj Strk:** 64										

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
62	**104924232**	5.106	11/07/2016 07:48	REAR END, SLOW OR STOP	$ 3000	0	0	0	0	1	1	1	1	0	3	1
Unit	**1 :** 4	**Alchl/Drgs:**	0	**Speed:** 15 MPH	**Dir:** NW	**Veh Mnvr/Ped Actn:**				4			**Obj Strk:**			
Unit	**2 :** 4	**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:**			
63	**103642223**	5.107	12/04/2012 09:52	REAR END, SLOW OR STOP	$ 10000	0	0	2	0	1	1	1	1	0	3	1
Unit	**1 :** 2	**Alchl/Drgs:**	0	**Speed:** 35 MPH	**Dir:** NW	**Veh Mnvr/Ped Actn:**				4			**Obj Strk:**			
Unit	**2 :** 1	**Alchl/Drgs:**	0	**Speed:** 0 MPH	**Dir:** NW	**Veh Mnvr/Ped Actn:**				1			**Obj Strk:**			
64	**104983421**	5.117	12/23/2016 17:08	ANGLE	$ 6200	0	0	0	1	1	2	1	1	0		
Unit	**1 :** 4	**Alchl/Drgs:**	0	**Speed:** 0 MPH	**Dir:** S	**Veh Mnvr/Ped Actn:**				12			**Obj Strk:**			
Unit	**2 :** 2	**Alchl/Drgs:**	0	**Speed:** 40 MPH	**Dir:** N	**Veh Mnvr/Ped Actn:**				4			**Obj Strk:**			
65	**103924690**	5.120	11/21/2013 06:38	REAR END, SLOW OR STOP	$ 3500	0	0	0	1	1	3	1	1	0	3	1
Unit	**1 :** 1	**Alchl/Drgs:**	0	**Speed:** 40 MPH	**Dir:** NW	**Veh Mnvr/Ped Actn:**				4			**Obj Strk:**			
Unit	**2 :** 1	**Alchl/Drgs:**	0	**Speed:** 40 MPH	**Dir:** NW	**Veh Mnvr/Ped Actn:**				11			**Obj Strk:**			
66	**105006564**	5.120	01/27/2017 16:18	ANGLE	$ 7000	0	0	0	0	1	1	1	3	0		
Unit	**1 :** 4	**Alchl/Drgs:**	0	**Speed:** 10 MPH	**Dir:** NE	**Veh Mnvr/Ped Actn:**				8			**Obj Strk:**			
Unit	**2 :** 2	**Alchl/Drgs:**	0	**Speed:** 45 MPH	**Dir:** NW	**Veh Mnvr/Ped Actn:**				4			**Obj Strk:**			
67	**104697419**	5.136	03/18/2016 17:46	LEFT TURN, SAME ROADWAY	$ 10000	0	0	0	0	1	1	1	1	0	0	
Unit	**1 :** 1	**Alchl/Drgs:**	0	**Speed:** 15 MPH	**Dir:** E	**Veh Mnvr/Ped Actn:**				8			**Obj Strk:**			
Unit	**2 :** 1	**Alchl/Drgs:**	0	**Speed:** 30 MPH	**Dir:** NW	**Veh Mnvr/Ped Actn:**				4			**Obj Strk:**			
68	**104863133**	5.139	09/23/2016 14:10	LEFT TURN, DIFFERENT ROADWAYS	$ 8800	0	0	0	2	1	1	1	3	0	0	
Unit	**1 :** 4	**Alchl/Drgs:**	0	**Speed:** 10 MPH	**Dir:** NW	**Veh Mnvr/Ped Actn:**				8			**Obj Strk:**			
Unit	**2 :** 1	**Alchl/Drgs:**	0	**Speed:** 35 MPH	**Dir:** SE	**Veh Mnvr/Ped Actn:**				4			**Obj Strk:**			
69	**104989774**	5.139	01/12/2017 17:46	LEFT TURN, SAME ROADWAY	$ 13000	0	0	0	1	1	2	1	1	0		
Unit	**1 :** 4	**Alchl/Drgs:**	0	**Speed:** 0 MPH	**Dir:** SE	**Veh Mnvr/Ped Actn:**				8			**Obj Strk:**			
Unit	**2 :** 1	**Alchl/Drgs:**	0	**Speed:** 40 MPH	**Dir:** NW	**Veh Mnvr/Ped Actn:**				4			**Obj Strk:**			
70	**105011142**	5.139	02/03/2017 16:21	REAR END, SLOW OR STOP	$ 2600	0	0	0	0	1	1	1	1	0		
Unit	**1 :** 1	**Alchl/Drgs:**	0	**Speed:** 40 MPH	**Dir:** W	**Veh Mnvr/Ped Actn:**				4			**Obj Strk:**			
Unit	**2 :** 4	**Alchl/Drgs:**	0	**Speed:** 0 MPH	**Dir:** W	**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
71	**104646609**	5.148	01/15/2016 08:01	REAR END, SLOW OR STOP	$ 5200	0	0	0	0	1	1	1	3	0		
Unit	**1 :** 1	**Alchl/Drgs:**	0	**Speed:** 40 MPH	**Dir:** NW	**Veh Mnvr/Ped Actn:**			4			**Obj Strk:**				
Unit	**2 :** 2	**Alchl/Drgs:**	0	**Speed:** 20 MPH	**Dir:** NW	**Veh Mnvr/Ped Actn:**			1			**Obj Strk:**				
72	**104497336**	5.158	09/04/2015 17:15	REAR END, SLOW OR STOP	$ 8100	0	0	0	3	1	1	1	1	0	3	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:**				
Unit	**3 :** 1	**Alchl/Drgs:**	0	**Speed:** 0 MPH	**Dir:** W	**Veh Mnvr/Ped Actn:**			1			**Obj Strk:**				
73	**104975995**	5.174	12/14/2016 20:15	ANGLE	$ 4500	0	0	0	0	1	5	1	1	0	0	
Unit	**1 :** 2	**Alchl/Drgs:**	0	**Speed:** 40 MPH	**Dir:** W	**Veh Mnvr/Ped Actn:**			5			**Obj Strk:**				
Unit	**2 :** 2	**Alchl/Drgs:**	0	**Speed:** 10 MPH	**Dir:** SE	**Veh Mnvr/Ped Actn:**			8			**Obj Strk:**				
74	**103653805**	5.182	12/24/2012 05:57	PEDESTRIAN	$ 2500	1	0	0	0	2	5	2	3	0	0	
Unit	**1 :** 1	**Alchl/Drgs:**	1	**Speed:** 40 MPH	**Dir:** SE	**Veh Mnvr/Ped Actn:**			4			**Obj Strk:**			14	
Unit	**2 :** 24	**Alchl/Drgs:**	1	**Speed:** 0 MPH	**Dir:**	**Veh Mnvr/Ped Actn:**						**Obj Strk:**			14	
75	**104961810**	5.193	11/23/2016 17:27	ANGLE	$ 11000	0	0	0	0	1	2	1	1	0		
Unit	**1 :** 1	**Alchl/Drgs:**	0	**Speed:** 10 MPH	**Dir:** SE	**Veh Mnvr/Ped Actn:**			8			**Obj Strk:**				
Unit	**2 :** 1	**Alchl/Drgs:**	0	**Speed:** 45 MPH	**Dir:** NW	**Veh Mnvr/Ped Actn:**			4			**Obj Strk:**			34	
76	**104883796**	5.240	09/14/2014 18:52	REAR END, SLOW OR STOP	$ 2900	0	0	0	0	1	3	1	1	0	0	
Unit	**1 :** 1	**Alchl/Drgs:**	0	**Speed:** 35 MPH	**Dir:** NW	**Veh Mnvr/Ped Actn:**			4			**Obj Strk:**				
Unit	**2 :** 1	**Alchl/Drgs:**	0	**Speed:** 0 MPH	**Dir:** NW	**Veh Mnvr/Ped Actn:**			1			**Obj Strk:**				
77	**104887900**	5.332	09/28/2016 11:30	ANGLE	$ 4000	0	0	0	0	1	1	1	1	0	0	
Unit	**1 :** 1	**Alchl/Drgs:**	0	**Speed:** 10 MPH	**Dir:** N	**Veh Mnvr/Ped Actn:**			4			**Obj Strk:**				
Unit	**2 :** 14	**Alchl/Drgs:**	0	**Speed:** 35 MPH	**Dir:** E	**Veh Mnvr/Ped Actn:**			4			**Obj Strk:**				
78	**103817749**	5.379	07/16/2013 16:46	REAR END, SLOW OR STOP	$ 3100	0	0	0	0	1	1	1	1	0	3	1
Unit	**1 :** 1	**Alchl/Drgs:**	0	**Speed:** 15 MPH	**Dir:** SE	**Veh Mnvr/Ped Actn:**			4			**Obj Strk:**				
Unit	**2 :** 2	**Alchl/Drgs:**	0	**Speed:** 10 MPH	**Dir:** SE	**Veh Mnvr/Ped Actn:**			4			**Obj Strk:**				
79	**103698827**	5.382	02/01/2013 21:51	REAR END, SLOW OR STOP	$ 6500	0	0	0	0	1	4	1	1	0	3	1
Unit	**1 :** 12	**Alchl/Drgs:**	0	**Speed:** 10 MPH	**Dir:** SE	**Veh Mnvr/Ped Actn:**			4			**Obj Strk:**				
Unit	**2 :** 1	**Alchl/Drgs:**	0	**Speed:** 50 MPH	**Dir:** SE	**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
80	**103697910**	5.382	02/23/2013 19:07	LEFT TURN, SAME ROADWAY	$ 10200	0	0	1	1	2	5	1	1	0	3	1
Unit	**1 :** 1	**Alchl/Drgs:**	0	**Speed:** 40 MPH	**Dir:** SE	**Veh Mnvr/Ped Actn:**				4			**Obj Strk:**			
Unit	**2 :** 4	**Alchl/Drgs:**	0	**Speed:** 15 MPH	**Dir:** N	**Veh Mnvr/Ped Actn:**				8			**Obj Strk:**			
Unit	**3 :** 1	**Alchl/Drgs:**	0	**Speed:** 0 MPH	**Dir:** E	**Veh Mnvr/Ped Actn:**				1			**Obj Strk:**			
81	**105119228**	5.382	05/24/2017 11:23	LEFT TURN, SAME ROADWAY	$ 6000	0	0	0	2	2	1	2	1	0	3	1
Unit	**1 :** 1	**Alchl/Drgs:**	0	**Speed:** 50 MPH	**Dir:** NW	**Veh Mnvr/Ped Actn:**				8			**Obj Strk:**			
Unit	**2 :** 1	**Alchl/Drgs:**	0	**Speed:** 50 MPH	**Dir:** SE	**Veh Mnvr/Ped Actn:**				4			**Obj Strk:**			
82	**105120410**	5.382	05/26/2017 09:23	LEFT TURN, SAME ROADWAY	$ 5000	0	0	0	1	1	1	1	1	0	3	1
Unit	**1 :** 1	**Alchl/Drgs:**	0	**Speed:** 20 MPH	**Dir:** N	**Veh Mnvr/Ped Actn:**				8			**Obj Strk:**			
Unit	**2 :** 1	**Alchl/Drgs:**	0	**Speed:** 50 MPH	**Dir:** S	**Veh Mnvr/Ped Actn:**				4			**Obj Strk:**			
83	**105140202**	5.382	06/19/2017 16:19	LEFT TURN, DIFFERENT ROADWAYS	$ 5500	0	0	0	1	1	1	1	1	0	3	1
Unit	**1 :** 1	**Alchl/Drgs:**	0	**Speed:** 15 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:**			
84	**104260529**	5.410	12/19/2014 12:14	ANGLE	$ 4000	0	0	0	0	1	1	2	3	0	3	1
Unit	**1 :** 4	**Alchl/Drgs:**	0	**Speed:** 35 MPH	**Dir:** E	**Veh Mnvr/Ped Actn:**				9			**Obj Strk:**			
Unit	**2 :** 2	**Alchl/Drgs:**	0	**Speed:** 50 MPH	**Dir:** SE	**Veh Mnvr/Ped Actn:**				4			**Obj Strk:**			
85	**104917664**	5.507	11/12/2016 19:13	RAN OFF ROAD - RIGHT	$ 11000	0	0	0	0	1	5	1	1	0	0	
Unit	**1 :** 1	**Alchl/Drgs:**	0	**Speed:** 50 MPH	**Dir:** NW	**Veh Mnvr/Ped Actn:**				4			**Obj Strk:**		60	
86	**104725957**	5.592	05/05/2016 19:14	RAN OFF ROAD - RIGHT	$ 3300	0	0	1	0	2	1	3	1	0	0	
Unit	**1 :** 1	**Alchl/Drgs:**	0	**Speed:** 65 MPH	**Dir:** W	**Veh Mnvr/Ped Actn:**				4			**Obj Strk:**		33	
87	**104099871**	5.892	07/06/2014 05:50	ANIMAL	$ 4000	0	0	0	0	1	3	1	1	0	0	
Unit	**1 :** 4	**Alchl/Drgs:**	0	**Speed:** 45 MPH	**Dir:** E	**Veh Mnvr/Ped Actn:**				4			**Obj Strk:**		17	
88	**105213035**	6.024	09/05/2017 11:59	REAR END, SLOW OR STOP	$ 2000	0	0	0	0	1	1	1	1	0	0	
Unit	**1 :** 5	**Alchl/Drgs:**	0	**Speed:** 50 MPH	**Dir:** W	**Veh Mnvr/Ped Actn:**				4			**Obj Strk:**			
Unit	**2 :** 1	**Alchl/Drgs:**	0	**Speed:** 50 MPH	**Dir:** W	**Veh Mnvr/Ped Actn:**				11			**Obj Strk:**			
89	**104002951**	6.105	03/12/2014 20:49	SIDESWIPE, SAME DIRECTION	$ 1200	0	0	0	0	1	5	1	1	0	0	
Unit	**1 :** 1	**Alchl/Drgs:**	0	**Speed:** 10 MPH	**Dir:** E	**Veh Mnvr/Ped Actn:**				5			**Obj Strk:**			
Unit	**2 :** 32	**Alchl/Drgs:**	7	**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
90	**103976392**	6.187	02/13/2014 20:16	FIXED OBJECT	$ 1500	0	0	0	0	4	5	9	1	0	0	
Unit	**1 :** 1	**Alchl/Drgs:** 0	**Speed:** 45 MPH	**Dir:** E	**Veh Mnvr/Ped Actn:** 4					**Obj Strk:** 42						
91	**103934599**	6.224	12/21/2013 17:27	ANIMAL	$ 1500	0	0	0	0	1	1	1	1	0	0	
Unit	**1 :** 4	**Alchl/Drgs:** 0	**Speed:** 35 MPH	**Dir:** W	**Veh Mnvr/Ped Actn:** 8					**Obj Strk:** 17						
92	**103987892**	6.224	01/31/2014 15:52	LEFT TURN, DIFFERENT ROADWAYS	$ 6500	0	0	0	0	1	1	1	3	0	1	1
Unit	**1 :** 1	**Alchl/Drgs:** 0	**Speed:** 30 MPH	**Dir:** NW	**Veh Mnvr/Ped Actn:** 8					**Obj Strk:**						
Unit	**2 :** 1	**Alchl/Drgs:** 0	**Speed:** 50 MPH	**Dir:** SE	**Veh Mnvr/Ped Actn:** 4					**Obj Strk:**						
93	**104960380**	6.224	11/30/2016 07:09	ANGLE	$ 17000	0	0	0	2	2	1	2	6	0	1	1
Unit	**1 :** 2	**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:** S	**Veh Mnvr/Ped Actn:** 4					**Obj Strk:**						
94	**105056761**	6.224	03/28/2017 16:36	LEFT TURN, DIFFERENT ROADWAYS	$ 6500	0	0	0	0	1	1	1	1	0	0	
Unit	**1 :** 1	**Alchl/Drgs:** 0	**Speed:** 15 MPH	**Dir:** E	**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:**						
95	**105256897**	6.224	10/15/2017 02:02	LEFT TURN, DIFFERENT ROADWAYS	$ 6000	0	0	0	0	1	5	1		0		
Unit	**1 :** 1	**Alchl/Drgs:** 0	**Speed:** 15 MPH	**Dir:** N	**Veh Mnvr/Ped Actn:** 8					**Obj Strk:**						
Unit	**2 :** 4	**Alchl/Drgs:** 0	**Speed:** 50 MPH	**Dir:** S	**Veh Mnvr/Ped Actn:** 4					**Obj Strk:**						
96	**105213240**	6.264	09/07/2017 05:10	REAR END, SLOW OR STOP	$ 21000	0	0	0	2	1	5	5	1	0	0	
Unit	**1 :** 1	**Alchl/Drgs:** 0	**Speed:** 50 MPH	**Dir:** SE	**Veh Mnvr/Ped Actn:** 4					**Obj Strk:**						
Unit	**2 :** 31	**Alchl/Drgs:** 7	**Speed:** 0 MPH	**Dir:** SE	**Veh Mnvr/Ped Actn:** 3					**Obj Strk:**						
Unit	**3 :** 2	**Alchl/Drgs:** 7	**Speed:** 0 MPH	**Dir:** SE	**Veh Mnvr/Ped Actn:** 1					**Obj Strk:**						
97	**104225244**	6.287	11/26/2014 12:08	SIDESWIPE, OPPOSITE DIRECTION	$ 6500	0	0	0	0	2	1	3	2	0	0	
Unit	**1 :** 1	**Alchl/Drgs:** 0	**Speed:** 50 MPH	**Dir:** E	**Veh Mnvr/Ped Actn:** 4					**Obj Strk:** 58						
Unit	**2 :** 1	**Alchl/Drgs:** 0	**Speed:** 50 MPH	**Dir:** W	**Veh Mnvr/Ped Actn:** 4					**Obj Strk:**						
98	**104795626**	6.332	07/20/2016 06:36	SIDESWIPE, SAME DIRECTION	$ 3500	0	0	0	0	1	3	1	1	0	0	
Unit	**1 :** 4	**Alchl/Drgs:** 0	**Speed:** 45 MPH	**Dir:** S	**Veh Mnvr/Ped Actn:** 5					**Obj Strk:**						
Unit	**2 :** 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
99	**104982759**	6.387	01/22/2017 00:58	FIXED OBJECT	$ 3500	0	0	0	0	2	5	3	1	0	0	
Unit	**1 :** 4	**Alchl/Drgs:** 0	**Speed:** 60 MPH	**Dir:** W	**Veh Mnvr/Ped Actn:** 4	**Obj Strk:** 61										
100	**104097327**	6.424	06/23/2014 06:41	OTHER COLLISION WITH VEHICLE	$ 5000	0	0	0	1	1	1	1	7	0	0	
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:** 50 MPH	**Dir:** N	**Veh Mnvr/Ped Actn:** 4	**Obj Strk:**										
101	**104271430**	6.474	01/14/2015 03:30	FIXED OBJECT	$ 1200	0	0	0	0	4	5	3	1	0	0	
Unit	**1 :** 2	**Alchl/Drgs:** 0	**Speed:** 45 MPH	**Dir:** N	**Veh Mnvr/Ped Actn:** 4	**Obj Strk:** 50										
102	**104049211**	6.484	05/05/2014 07:49	REAR END, SLOW OR STOP	$ 1000	0	0	0	0	1	1	1	1	0	3	1
Unit	**1 :** 5	**Alchl/Drgs:** 0	**Speed:** 10 MPH	**Dir:** W	**Veh Mnvr/Ped Actn:** 11	**Obj Strk:**										
Unit	**2 :** 4	**Alchl/Drgs:** 0	**Speed:** 0 MPH	**Dir:** W	**Veh Mnvr/Ped Actn:** 1	**Obj Strk:**										
103	**103651482**	6.487	01/14/2013 07:48	LEFT TURN, SAME ROADWAY	$ 7500	0	0	0	0	1	1	2	1	0	3	1
Unit	**1 :** 4	**Alchl/Drgs:** 0	**Speed:** 50 MPH	**Dir:** N	**Veh Mnvr/Ped Actn:** 4	**Obj Strk:**										
Unit	**2 :** 1	**Alchl/Drgs:** 0	**Speed:** 5 MPH	**Dir:** S	**Veh Mnvr/Ped Actn:** 8	**Obj Strk:**										
104	**103669461**	6.487	02/04/2013 07:25	FIXED OBJECT	$ 800	0	0	0	0	1	1	1	1	0	3	1
Unit	**1 :** 1	**Alchl/Drgs:** 0	**Speed:** 35 MPH	**Dir:** S	**Veh Mnvr/Ped Actn:** 8	**Obj Strk:** 58										
105	**103837183**	6.487	08/30/2013 08:29	LEFT TURN, SAME ROADWAY	$ 14000	0	0	0	0	1	1	1	1	0	5	1
Unit	**1 :** 1	**Alchl/Drgs:** 0	**Speed:** 10 MPH	**Dir:** E	**Veh Mnvr/Ped Actn:** 8	**Obj Strk:**										
Unit	**2 :** 5	**Alchl/Drgs:** 0	**Speed:** 50 MPH	**Dir:** W	**Veh Mnvr/Ped Actn:** 4	**Obj Strk:**										
106	**104158752**	6.487	09/20/2014 10:43	REAR END, SLOW OR STOP	$ 1000	0	0	0	0	1	1	1	1	0	0	
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:** 50 MPH	**Dir:** E	**Veh Mnvr/Ped Actn:** 11	**Obj Strk:**										
107	**104355321**	6.487	04/22/2015 10:50	RIGHT TURN, DIFFERENT ROADWAYS	$ 3200	0	0	0	0	1	1	1	1	0	3	1
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:** 50 MPH	**Dir:** N	**Veh Mnvr/Ped Actn:** 4	**Obj Strk:**										
108	**104447309**	6.487	07/30/2015 18:03	LEFT TURN, SAME ROADWAY	$ 6000	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:** 8	**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	A	B	C	Condition R	L	W	Road Ch	Ci	Trfc Ctl Dv	Op
109	**104477887**	6.487	09/01/2015 19:08	ANGLE	$ 10000	0	0	0	2	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:** 30 MPH	**Dir:** W	**Veh Mnvr/Ped Actn:** 8	**Obj Strk:**										
110	**104636377**	6.487	02/05/2016 13:58	LEFT TURN, SAME ROADWAY	$ 7000	0	0	0	1	1	1	1	1	0	0	
Unit	**1 :** 1	**Alchl/Drgs:** 0	**Speed:** 50 MPH	**Dir:** E	**Veh Mnvr/Ped Actn:** 8	**Obj Strk:**										
Unit	**2 :** 4	**Alchl/Drgs:** 0	**Speed:** 50 MPH	**Dir:** W	**Veh Mnvr/Ped Actn:** 4	**Obj Strk:**										
Unit	**3 :** 4	**Alchl/Drgs:** 0	**Speed:** 20 MPH	**Dir:** E	**Veh Mnvr/Ped Actn:** 4	**Obj Strk:**										
111	**104756446**	6.487	06/06/2016 07:05	LEFT TURN, SAME ROADWAY	$ 3000	0	0	0	0	1	1	1	1	0	3	1
Unit	**1 :** 1	**Alchl/Drgs:** 0	**Speed:** 50 MPH	**Dir:** SE	**Veh Mnvr/Ped Actn:** 8	**Obj Strk:**										
Unit	**2 :** 1	**Alchl/Drgs:** 0	**Speed:** 50 MPH	**Dir:** NW	**Veh Mnvr/Ped Actn:** 4	**Obj Strk:**										
112	**104979519**	6.487	01/14/2017 14:52	REAR END, SLOW OR STOP	$ 12500	0	0	3	0	1	1	2	3	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:** 1	**Obj Strk:**										
113	**104998025**	6.487	02/02/2017 08:17	LEFT TURN, SAME ROADWAY	$ 6000	0	0	0	0	1	1	1	1	0	5	1
Unit	**1 :** 1	**Alchl/Drgs:** 0	**Speed:** 50 MPH	**Dir:** E	**Veh Mnvr/Ped Actn:** 8	**Obj Strk:**										
Unit	**2 :** 4	**Alchl/Drgs:** 0	**Speed:** 50 MPH	**Dir:** W	**Veh Mnvr/Ped Actn:** 4	**Obj Strk:**										
114	**105151912**	6.487	07/05/2017 08:37	RIGHT TURN, DIFFERENT ROADWAYS	$ 1100	0	0	0	1	1	1	2	1	0	3	1
Unit	**1 :** 2	**Alchl/Drgs:** 0	**Speed:** 45 MPH	**Dir:** SW	**Veh Mnvr/Ped Actn:** 7	**Obj Strk:**										
Unit	**2 :** 4	**Alchl/Drgs:** 0	**Speed:** 50 MPH	**Dir:** NW	**Veh Mnvr/Ped Actn:** 4	**Obj Strk:**										
115	**104094484**	6.497	06/12/2014 23:49	RAN OFF ROAD - LEFT	$ 1000	0	0	0	1	1	5	1	2	0	0	
Unit	**1 :** 1	**Alchl/Drgs:** 0	**Speed:** 80 MPH	**Dir:** W	**Veh Mnvr/Ped Actn:** 4	**Obj Strk:** 55										
116	**104271431**	6.574	01/14/2015 03:35	FIXED OBJECT	$ 1750	0	0	0	1	4	5	3	1	0	0	
Unit	**1 :** 1	**Alchl/Drgs:** 0	**Speed:** 50 MPH	**Dir:** S	**Veh Mnvr/Ped Actn:** 4	**Obj Strk:** 42										
117	**104154910**	6.587	09/07/2014 02:17	RAN OFF ROAD - LEFT	$ 3000	0	0	0	0	1	5	1	1	0	0	
Unit	**1 :** 1	**Alchl/Drgs:** 7	**Speed:** 65 MPH	**Dir:** E	**Veh Mnvr/Ped Actn:** 4	**Obj Strk:** 64										
118	**104297417**	6.587	02/13/2015 13:33	SIDESWIPE, SAME DIRECTION	$ 1300	0	0	0	0	1	1	1	1	0	0	
Unit	**1 :** 2	**Alchl/Drgs:** 0	**Speed:** 20 MPH	**Dir:** W	**Veh Mnvr/Ped Actn:** 12	**Obj Strk:**										
Unit	**2 :** 5	**Alchl/Drgs:** 0	**Speed:** 50 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
119	**105134780**	6.587	06/16/2017 17:06	REAR END, SLOW OR STOP	$ 500	0	0	0	0	1	1	1	3	0	0	
Unit	**1 :** 1	**Alchl/Drgs:**	0	**Speed:** 50 MPH	**Dir:** NW	**Veh Mnvr/Ped Actn:**				11			**Obj Strk:**			
Unit	**2 :** 4	**Alchl/Drgs:**	0	**Speed:** 50 MPH	**Dir:** NW	**Veh Mnvr/Ped Actn:**				4			**Obj Strk:**			
120	**104931996**	6.607	11/22/2016 13:00	REAR END, SLOW OR STOP	$ 12000	0	0	0	0	1	1	1	1	0	0	
Unit	**1 :** 2	**Alchl/Drgs:**	0	**Speed:** 20 MPH	**Dir:** SE	**Veh Mnvr/Ped Actn:**				11			**Obj Strk:**			
Unit	**2 :** 1	**Alchl/Drgs:**	0	**Speed:** 50 MPH	**Dir:** SE	**Veh Mnvr/Ped Actn:**				4			**Obj Strk:**			
121	**104965213**	6.624	01/03/2017 05:34	FIXED OBJECT	$ 2000	0	0	0	0	2	5	3	5	0	13	1
Unit	**1 :** 1	**Alchl/Drgs:**	0	**Speed:** 55 MPH	**Dir:** S	**Veh Mnvr/Ped Actn:**				4			**Obj Strk:**		42	
122	**104711628**	6.644	04/23/2016 06:29	FIXED OBJECT	$ 4900	0	0	0	1	2	1	1	3	0	13	1
Unit	**1 :** 1	**Alchl/Drgs:**	0	**Speed:** 50 MPH	**Dir:** NW	**Veh Mnvr/Ped Actn:**				4			**Obj Strk:**		42	
123	**103996961**	6.647	03/08/2014 14:05	ANGLE	$ 5300	0	0	1	0	1	1	1	3	0	0	
Unit	**1 :** 1	**Alchl/Drgs:**	0	**Speed:** 35 MPH	**Dir:** S	**Veh Mnvr/Ped Actn:**				4			**Obj Strk:**			
Unit	**2 :** 5	**Alchl/Drgs:**	0	**Speed:** 10 MPH	**Dir:** E	**Veh Mnvr/Ped Actn:**				12			**Obj Strk:**			
124	**103688132**	6.674	02/10/2013 04:19	FIXED OBJECT	$ 5000	1	0	0	0	1	5	1	7	0	0	
Unit	**1 :** 1	**Alchl/Drgs:**	1	**Speed:** 80 MPH	**Dir:** NW	**Veh Mnvr/Ped Actn:**				4			**Obj Strk:**		64	
125	**103652972**	6.677	01/16/2013 12:30	SIDESWIPE, SAME DIRECTION	$ 4000	0	0	0	0	2	1	3	1	0	0	
Unit	**1 :** 4	**Alchl/Drgs:**	0	**Speed:** 35 MPH	**Dir:** N	**Veh Mnvr/Ped Actn:**				5			**Obj Strk:**			
Unit	**2 :** 1	**Alchl/Drgs:**	0	**Speed:** 35 MPH	**Dir:** N	**Veh Mnvr/Ped Actn:**				4			**Obj Strk:**		42	
126	**104673238**	6.687	03/05/2016 04:00	RAN OFF ROAD - RIGHT	$ 3500	0	0	0	2	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:**		42	
127	**104797624**	6.687	07/21/2016 15:04	REAR END, SLOW OR STOP	$ 1900	0	0	0	0	1	1	1	1	0	0	
Unit	**1 :** 1	**Alchl/Drgs:**	0	**Speed:** 50 MPH	**Dir:** SE	**Veh Mnvr/Ped Actn:**				4			**Obj Strk:**			
Unit	**2 :** 4	**Alchl/Drgs:**	0	**Speed:** 50 MPH	**Dir:** SE	**Veh Mnvr/Ped Actn:**				11			**Obj Strk:**			
128	**103998611**	6.737	03/10/2014 13:53	REAR END, SLOW OR STOP	$ 8000	0	0	1	1	1	1	1	1	0	0	
Unit	**1 :** 2	**Alchl/Drgs:**	0	**Speed:** 50 MPH	**Dir:** S	**Veh Mnvr/Ped Actn:**				11			**Obj Strk:**			
Unit	**2 :** 2	**Alchl/Drgs:**	0	**Speed:** 50 MPH	**Dir:** S	**Veh Mnvr/Ped Actn:**				4			**Obj Strk:**			
Unit	**3 :** 1	**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
129	**104418874**	6.737	06/26/2015 05:50	FIXED OBJECT	$ 1800	0	0	0	0	1	3	1	7	0		
Unit	**1 :** 1	**Alchl/Drgs:** 0	**Speed:** 75 MPH	**Dir:** N	**Veh Mnvr/Ped Actn:** 4	**Obj Strk:** 42										
130	**104090131**	6.744	06/21/2014 01:58	FIXED OBJECT	$ 4000	0	0	0	1	1	5	2	7	0	13	1
Unit	**1 :** 1	**Alchl/Drgs:** 1	**Speed:** 50 MPH	**Dir:** N	**Veh Mnvr/Ped Actn:** 4	**Obj Strk:** 33										
131	**103996547**	6.787	03/08/2014 09:17	FIXED OBJECT	$ 3000	0	0	0	0	2	1	1	3	0	0	
Unit	**1 :** 1	**Alchl/Drgs:** 7	**Speed:** 60 MPH	**Dir:** S	**Veh Mnvr/Ped Actn:** 4	**Obj Strk:** 33										
132	**104324880**	6.821	03/18/2015 21:00	FIXED OBJECT	$ 3000	0	0	0	0	1	5	1	7	0	3	1
Unit	**1 :** 4	**Alchl/Drgs:** 0	**Speed:** 65 MPH	**Dir:** S	**Veh Mnvr/Ped Actn:** 4	**Obj Strk:** 64										
133	**104038563**	6.834	04/09/2014 08:45	RAN OFF ROAD - LEFT	$ 4000	0	0	0	0	1	1	1	3	0	0	
Unit	**1 :** 2	**Alchl/Drgs:** 0	**Speed:** 45 MPH	**Dir:** N	**Veh Mnvr/Ped Actn:** 4	**Obj Strk:** 33										
134	**104335024**	6.834	03/26/2015 15:20	SIDESWIPE, SAME DIRECTION	$ 4500	0	0	0	0	1	1	1	7	0	13	1
Unit	**1 :** 1	**Alchl/Drgs:** 0	**Speed:** 35 MPH	**Dir:** E	**Veh Mnvr/Ped Actn:** 5	**Obj Strk:**										
Unit	**2 :** 2	**Alchl/Drgs:** 0	**Speed:** 45 MPH	**Dir:** E	**Veh Mnvr/Ped Actn:** 4	**Obj Strk:**										
135	**104167189**	6.838	09/29/2014 07:37	LEFT TURN, SAME ROADWAY	$ 5500	0	0	0	2	2	1	2	3	0	14	1
Unit	**1 :** 2	**Alchl/Drgs:** 0	**Speed:** 20 MPH	**Dir:** E	**Veh Mnvr/Ped Actn:** 8	**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:** 5 MPH	**Dir:** S	**Veh Mnvr/Ped Actn:** 1	**Obj Strk:**										
136	**105195223**	6.838	07/25/2017 12:47	REAR END, SLOW OR STOP	$ 2800	0	0	0	0	1	1	1	1	0	5	1
Unit	**1 :** 5	**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:** E	**Veh Mnvr/Ped Actn:** 4	**Obj Strk:**										
137	**103934879**	6.844	12/22/2013 16:43	REAR END, SLOW OR STOP	$ 6000	0	0	0	0	2	1	3	1	0	3	1
Unit	**1 :** 1	**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:** 1	**Obj Strk:**										
138	**104376116**	6.844	05/09/2015 10:44	LEFT TURN, DIFFERENT ROADWAYS	$ 10000	0	1	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 :** 1	**Alchl/Drgs:** 0	**Speed:** 25 MPH	**Dir:** S	**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
139	**104442631**	6.844	07/24/2015 19:04	LEFT TURN, SAME ROADWAY	$ 4000	0	0	0	0	1	1	1	1	0	3	1
Unit	**1 :** 1	**Alchl/Drgs:** 0	**Speed:** 50 MPH	**Dir:** N	**Veh Mnvr/Ped Actn:** 4					**Obj Strk:** 18						
Unit	**2 :** 2	**Alchl/Drgs:** 0	**Speed:** 15 MPH	**Dir:** S	**Veh Mnvr/Ped Actn:** 8					**Obj Strk:**						
140	**105123295**	6.844	06/05/2017 12:15	FIXED OBJECT	$ 4400	0	0	1	0	2	1	3	2	0	13	1
Unit	**1 :** 4	**Alchl/Drgs:** 0	**Speed:** 50 MPH	**Dir:** E	**Veh Mnvr/Ped Actn:** 4					**Obj Strk:** 61						
141	**104972722**	6.863	01/09/2017 16:33	SIDESWIPE, SAME DIRECTION	$ 8000	0	0	0	0	1	1	2	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:** 0 MPH	**Dir:** N	**Veh Mnvr/Ped Actn:** 1					**Obj Strk:**						
Unit	**3 :** 4	**Alchl/Drgs:** 0	**Speed:** 50 MPH	**Dir:** N	**Veh Mnvr/Ped Actn:** 4					**Obj Strk:**						
142	**103747660**	6.944	05/09/2013 20:48	ANIMAL	$ 2200	0	0	0	0	1	1	1	1	0	0	
Unit	**1 :** 1	**Alchl/Drgs:** 0	**Speed:** 50 MPH	**Dir:** N	**Veh Mnvr/Ped Actn:** 4					**Obj Strk:** 17						
143	**105188026**	7.051	08/05/2017 14:34	FIXED OBJECT	$ 3600	0	0	1	0	1	1	1	1	0	0	
Unit	**1 :** 1	**Alchl/Drgs:** 0	**Speed:** 50 MPH	**Dir:** N	**Veh Mnvr/Ped Actn:** 4					**Obj Strk:** 56						
144	**105187949**	7.051	08/09/2017 12:06	FIXED OBJECT	$ 6000	0	0	0	0	1	1	1	1	0	0	
Unit	**1 :** 1	**Alchl/Drgs:** 1	**Speed:** 55 MPH	**Dir:** N	**Veh Mnvr/Ped Actn:** 8					**Obj Strk:** 64						
145	**104679087**	7.114	03/08/2016 22:04	SIDESWIPE, SAME DIRECTION	$ 6000	0	0	0	0	1	5	1	1	0	13	1
Unit	**1 :** 1	**Alchl/Drgs:** 0	**Speed:** 50 MPH	**Dir:** W	**Veh Mnvr/Ped Actn:** 4					**Obj Strk:**						
Unit	**2 :** 1	**Alchl/Drgs:** 0	**Speed:** 50 MPH	**Dir:** W	**Veh Mnvr/Ped Actn:** 4					**Obj Strk:**						
146	**105247442**	7.214	10/09/2017 08:09	PARKED MOTOR VEHICLE	$ 22000	0	0	0	1	2	1	2	1	0	13	1
Unit	**1 :** 4	**Alchl/Drgs:** 0	**Speed:** 60 MPH	**Dir:** NW	**Veh Mnvr/Ped Actn:** 4					**Obj Strk:** 20						
Unit	**2 :** 10	**Alchl/Drgs:** 7	**Speed:** 0 MPH	**Dir:** SE	**Veh Mnvr/Ped Actn:** 2					**Obj Strk:** 20						
147	**104348526**	7.444	04/13/2015 13:58	LEFT TURN, DIFFERENT ROADWAYS	$ 28500	0	0	0	3	1	1	1	1	0	1	1
Unit	**1 :** 1	**Alchl/Drgs:** 0	**Speed:** 5 MPH	**Dir:** E	**Veh Mnvr/Ped Actn:** 8					**Obj Strk:**						
Unit	**2 :** 4	**Alchl/Drgs:** 0	**Speed:** 55 MPH	**Dir:** S	**Veh Mnvr/Ped Actn:** 4					**Obj Strk:** 34						
148	**105116085**	7.514	05/25/2017 15:44	SIDESWIPE, SAME DIRECTION	$ 5500	0	0	0	0	1	1	2	3	0	0	
Unit	**1 :** 1	**Alchl/Drgs:** 0	**Speed:** 50 MPH	**Dir:** S	**Veh Mnvr/Ped Actn:** 5					**Obj Strk:**						
Unit	**2 :** 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
149	**105172888**	7.544	07/25/2017 06:31	ANIMAL	$ 3300	0	0	0	0	1	1	1	1	0	0	
Unit	**1 :** 1	**Alchl/Drgs:** 0	**Speed:** 50 MPH	**Dir:** NW	**Veh Mnvr/Ped Actn:** 4	**Obj Strk:** 17										
150	**104500526**	7.584	09/22/2015 07:15	REAR END, SLOW OR STOP	$ 7500	0	0	1	14	1	1	1	3	0	0	1
Unit	**1 :** 7	**Alchl/Drgs:** 0	**Speed:** 30 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:** 4	**Obj Strk:**										
151	**104335162**	7.586	03/30/2015 06:40	SIDESWIPE, SAME DIRECTION	$ 10500	0	0	0	0	1	5	2	1	0	0	
Unit	**1 :** 1	**Alchl/Drgs:** 0	**Speed:** 60 MPH	**Dir:** E	**Veh Mnvr/Ped Actn:** 4	**Obj Strk:**										
Unit	**2 :** 2	**Alchl/Drgs:** 0	**Speed:** 40 MPH	**Dir:** E	**Veh Mnvr/Ped Actn:** 4	**Obj Strk:**										
152	**103819026**	7.614	08/01/2013 12:38	ANGLE	$ 6500	0	0	0	0	1	1	2	1	0	13	1
Unit	**1 :** 1	**Alchl/Drgs:** 0	**Speed:** 50 MPH	**Dir:** SE	**Veh Mnvr/Ped Actn:** 4	**Obj Strk:**										
Unit	**2 :** 1	**Alchl/Drgs:** 0	**Speed:** 10 MPH	**Dir:** NW	**Veh Mnvr/Ped Actn:** 8	**Obj Strk:**										
153	**104196350**	7.614	10/22/2014 17:33	LEFT TURN, DIFFERENT ROADWAYS	$ 9200	0	0	0	0	1	1	1	2	0	0	
Unit	**1 :** 1	**Alchl/Drgs:** 1	**Speed:** 25 MPH	**Dir:** NE	**Veh Mnvr/Ped Actn:** 8	**Obj Strk:**										
Unit	**2 :** 4	**Alchl/Drgs:** 0	**Speed:** 50 MPH	**Dir:** W	**Veh Mnvr/Ped Actn:** 4	**Obj Strk:** 60										
154	**104659285**	7.614	02/21/2016 17:34	ANGLE	$ 9000	0	0	1	1	2	5	1	3	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:** 48 MPH	**Dir:** S	**Veh Mnvr/Ped Actn:** 4	**Obj Strk:**										
155	**105269571**	7.614	10/29/2017 22:39	ANIMAL	$ 1000	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:** 17										
156	**105012739**	7.644	02/16/2017 20:58	REAR END, SLOW OR STOP	$ 6000	0	0	0	0	1	5	1	1	0	0	
Unit	**1 :** 1	**Alchl/Drgs:** 0	**Speed:** 50 MPH	**Dir:** E	**Veh Mnvr/Ped Actn:** 1	**Obj Strk:**										
Unit	**2 :** 1	**Alchl/Drgs:** 0	**Speed:** 50 MPH	**Dir:** E	**Veh Mnvr/Ped Actn:** 4	**Obj Strk:**										
157	**105289245**	7.644	10/18/2017 03:55	LEFT TURN, DIFFERENT ROADWAYS	$ 2800	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 :** 2	**Alchl/Drgs:** 7	**Speed:** 20 MPH	**Dir:** SW	**Veh Mnvr/Ped Actn:** 8	**Obj Strk:**										
158	**103758970**	7.716	05/24/2013 14:40	MOVABLE OBJECT	$ 1100	0	0	0	0	1	1	1	1	0	0	
Unit	**1 :** 10	**Alchl/Drgs:** 0	**Speed:** 40 MPH	**Dir:** S	**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:** 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
159	**103856015**	7.744	09/24/2013 07:08	ANIMAL	$ 2000	0	0	0	0	1	3	1	1	0	0	
Unit	**1 :** 1	**Alchl/Drgs:** 0	**Speed:** 45 MPH	**Dir:** S	**Veh Mnvr/Ped Actn:** 4	**Obj Strk:** 17										
160	**103856001**	7.744	09/24/2013 08:02	ANIMAL	$ 1000	0	0	0	0	1	3	1	1	0	0	
Unit	**1 :** 4	**Alchl/Drgs:** 0	**Speed:** 45 MPH	**Dir:** S	**Veh Mnvr/Ped Actn:** 4	**Obj Strk:** 17										
161	**104672577**	7.744	03/11/2016 15:50	RAN OFF ROAD - RIGHT	$ 2000	0	0	1	0	1	1	1	1	0	0	
Unit	**1 :** 1	**Alchl/Drgs:** 0	**Speed:** 65 MPH	**Dir:** W	**Veh Mnvr/Ped Actn:** 4	**Obj Strk:**										
162	**104903938**	7.744	11/04/2016 07:24	LEFT TURN, DIFFERENT ROADWAYS	$ 5200	0	0	0	1	1	1	1	1	0	1	1
Unit	**1 :** 1	**Alchl/Drgs:** 0	**Speed:** 20 MPH	**Dir:** S	**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:**										
163	**105258704**	7.744	10/18/2017 20:32	LEFT TURN, DIFFERENT ROADWAYS	$ 4500	0	0	0	0	1	5	1	1	0	1	1
Unit	**1 :** 1	**Alchl/Drgs:** 0	**Speed:** 50 MPH	**Dir:** S	**Veh Mnvr/Ped Actn:** 4	**Obj Strk:** 55										
Unit	**2 :** 2	**Alchl/Drgs:** 7	**Speed:** 15 MPH	**Dir:** W	**Veh Mnvr/Ped Actn:** 9	**Obj Strk:**										
164	**105216542**	7.763	08/18/2017 23:52	SIDESWIPE, SAME DIRECTION	$ 6000	0	0	0	0	1	5	1	1	0	0	
Unit	**1 :** 1	**Alchl/Drgs:** 0	**Speed:** 0 MPH	**Dir:** S	**Veh Mnvr/Ped Actn:** 9	**Obj Strk:**										
Unit	**2 :** 1	**Alchl/Drgs:** 0	**Speed:** 50 MPH	**Dir:** S	**Veh Mnvr/Ped Actn:** 6	**Obj Strk:**										
165	**104456406**	7.782	08/10/2015 16:35	SIDESWIPE, SAME DIRECTION	$ 5000	0	0	0	0	1	1	1	1	0	0	
Unit	**1 :** 1	**Alchl/Drgs:** 0	**Speed:** 45 MPH	**Dir:** W	**Veh Mnvr/Ped Actn:** 5	**Obj Strk:**										
Unit	**2 :** 4	**Alchl/Drgs:** 0	**Speed:** 45 MPH	**Dir:** W	**Veh Mnvr/Ped Actn:** 4	**Obj Strk:**										
166	**104963348**	7.844	12/29/2016 16:49	SIDESWIPE, SAME DIRECTION	$ 700	0	0	0	0	1	2	1	1	0	0	
Unit	**1 :** 2	**Alchl/Drgs:** 0	**Speed:** 40 MPH	**Dir:** W	**Veh Mnvr/Ped Actn:** 5	**Obj Strk:**										
Unit	**2 :** 1	**Alchl/Drgs:** 0	**Speed:** 40 MPH	**Dir:** W	**Veh Mnvr/Ped Actn:** 4	**Obj Strk:**										
167	**103593447**	7.994	11/07/2012 18:38	ANIMAL	$ 200	0	0	0	0	1	5	1	1	0	0	
Unit	**1 :** 1	**Alchl/Drgs:** 0	**Speed:** 45 MPH	**Dir:** W	**Veh Mnvr/Ped Actn:** 4	**Obj Strk:** 17										
168	**104461750**	8.038	08/16/2015 14:30	LEFT TURN, DIFFERENT ROADWAYS	$ 8500	0	0	0	1	1	1	1	1	0	0	
Unit	**1 :** 1	**Alchl/Drgs:** 1	**Speed:** 20 MPH	**Dir:** S	**Veh Mnvr/Ped Actn:** 7	**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
169	**103597841**	8.044	11/13/2012 06:16	ANIMAL	$ 1200	0	0	0	0	2	5	3	1	0	0	
Unit	**1 :** 4	**Alchl/Drgs:** 0	**Speed:** 55 MPH	**Dir:** S	**Veh Mnvr/Ped Actn:** 4	**Obj Strk:** 17										
170	**103910244**	8.044	11/23/2013 19:45	ANIMAL	$ 2000	0	0	0	0	1	4	1		0		
Unit	**1 :** 1	**Alchl/Drgs:** 0	**Speed:** 0 MPH	**Dir:** W	**Veh Mnvr/Ped Actn:** 4	**Obj Strk:** 17										
171	**104590551**	8.049	12/18/2015 08:28	LEFT TURN, DIFFERENT ROADWAYS	$ 8000	0	0	0	0	1	1	1	1	0	0	
Unit	**1 :** 1	**Alchl/Drgs:** 0	**Speed:** 5 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:**										
172	**104405745**	8.054	06/09/2015 16:06	LEFT TURN, SAME ROADWAY	$ 800	0	1	0	0	1	1	1	1	0	0	
Unit	**1 :** 1	**Alchl/Drgs:** 0	**Speed:** 40 MPH	**Dir:** N	**Veh Mnvr/Ped Actn:** 8	**Obj Strk:**										
Unit	**2 :** 22	**Alchl/Drgs:** 0	**Speed:** 0 MPH	**Dir:**	**Veh Mnvr/Ped Actn:** 4	**Obj Strk:**										
173	**104299145**	8.087	02/10/2015 14:34	REAR END, SLOW OR STOP	$ 7000	0	0	0	0	1	1	1	1	0	0	
Unit	**1 :** 1	**Alchl/Drgs:** 1	**Speed:** 45 MPH	**Dir:** E	**Veh Mnvr/Ped Actn:** 11	**Obj Strk:**										
Unit	**2 :** 2	**Alchl/Drgs:** 0	**Speed:** 5 MPH	**Dir:** E	**Veh Mnvr/Ped Actn:** 4	**Obj Strk:**										
174	**103885011**	8.106	10/25/2013 06:30	SIDESWIPE, OPPOSITE DIRECTION	$ 13000	0	0	2	0	1	4	1	1	0	0	
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:** 40 MPH	**Dir:** W	**Veh Mnvr/Ped Actn:** 4	**Obj Strk:**										
Unit	**3 :** 1	**Alchl/Drgs:** 0	**Speed:** 40 MPH	**Dir:** W	**Veh Mnvr/Ped Actn:** 4	**Obj Strk:**										
175	**104896124**	8.120	10/28/2016 07:13	REAR END, SLOW OR STOP	$ 750	0	0	0	0	1	3	1	1	0	0	
Unit	**1 :** 1	**Alchl/Drgs:** 0	**Speed:** 5 MPH	**Dir:** E	**Veh Mnvr/Ped Actn:** 11	**Obj Strk:**										
Unit	**2 :** 4	**Alchl/Drgs:** 0	**Speed:** 5 MPH	**Dir:** E	**Veh Mnvr/Ped Actn:** 11	**Obj Strk:**										
176	**103969488**	8.135	02/05/2014 07:34	REAR END, SLOW OR STOP	$ 2800	0	0	0	1	2	1	2	1	0	3	1
Unit	**1 :** 4	**Alchl/Drgs:** 0	**Speed:** 50 MPH	**Dir:** S	**Veh Mnvr/Ped Actn:** 4	**Obj Strk:**										
Unit	**2 :** 1	**Alchl/Drgs:** 0	**Speed:** 50 MPH	**Dir:** S	**Veh Mnvr/Ped Actn:** 1	**Obj Strk:**										
Unit	**3 :** 4	**Alchl/Drgs:** 0	**Speed:** 50 MPH	**Dir:** S	**Veh Mnvr/Ped Actn:** 1	**Obj Strk:**										
177	**105027680**	8.140	03/03/2017 18:27	REAR END, SLOW OR STOP	$ 5000	0	0	0	0	1	1	1	1	0	0	
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	A	B	C	Condition R	L	W	Road Ch	Ci	Trfc Ctl Dv	Op
178	**104090123**	8.142	06/19/2014 05:52	REAR END, SLOW OR STOP	$ 1100	0	0	0	0	1	3	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:** 5 MPH	**Dir:** S	**Veh Mnvr/Ped Actn:** 11							**Obj Strk:**				
179	**103719164**	8.144	04/05/2013 07:15	LEFT TURN, DIFFERENT ROADWAYS	$ 1900	0	0	0	0	2	1	2	1	0	3	1
Unit	**1 :** 1	**Alchl/Drgs:** 0	**Speed:** 30 MPH	**Dir:** S	**Veh Mnvr/Ped Actn:** 8							**Obj Strk:**				
Unit	**2 :** 1	**Alchl/Drgs:** 0	**Speed:** 0 MPH	**Dir:** W	**Veh Mnvr/Ped Actn:** 1							**Obj Strk:**				
180	**103742177**	8.144	05/04/2013 21:22	ANGLE	$ 11300	0	0	0	1	1	5	1	1	0	3	1
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:** 50 MPH	**Dir:** S	**Veh Mnvr/Ped Actn:** 4							**Obj Strk:**				
Unit	**3 :** 1	**Alchl/Drgs:** 0	**Speed:** 55 MPH	**Dir:** E	**Veh Mnvr/Ped Actn:** 4							**Obj Strk:**				
181	**103797372**	8.144	07/07/2013 14:13	LEFT TURN, SAME ROADWAY	$ 4000	0	0	1	5	1	1	1	1	0	5	1
Unit	**1 :** 5	**Alchl/Drgs:** 0	**Speed:** 45 MPH	**Dir:** S	**Veh Mnvr/Ped Actn:** 8							**Obj Strk:**				
Unit	**2 :** 1	**Alchl/Drgs:** 0	**Speed:** 45 MPH	**Dir:** N	**Veh Mnvr/Ped Actn:** 4							**Obj Strk:**				
182	**103988643**	8.144	02/13/2014 06:36	SIDESWIPE, SAME DIRECTION	$ 5000	0	0	0	0	4	3	2	1	1	3	1
Unit	**1 :** 4	**Alchl/Drgs:** 0	**Speed:** 15 MPH	**Dir:** NW	**Veh Mnvr/Ped Actn:** 7							**Obj Strk:**				
Unit	**2 :** 2	**Alchl/Drgs:** 0	**Speed:** 25 MPH	**Dir:** NW	**Veh Mnvr/Ped Actn:** 4							**Obj Strk:**				
183	**104034530**	8.144	04/10/2014 22:54	LEFT TURN, SAME ROADWAY	$ 1600	0	0	0	0	1	4	1	1	0	1	1
Unit	**1 :** 1	**Alchl/Drgs:** 0	**Speed:** 20 MPH	**Dir:** E	**Veh Mnvr/Ped Actn:** 8							**Obj Strk:**				
Unit	**2 :** 4	**Alchl/Drgs:** 0	**Speed:** 50 MPH	**Dir:** W	**Veh Mnvr/Ped Actn:** 4							**Obj Strk:**				
184	**104149330**	8.144	08/31/2014 10:58	LEFT TURN, SAME ROADWAY	$ 19500	0	0	0	0	1	1	1	1	0	3	1
Unit	**1 :** 4	**Alchl/Drgs:** 0	**Speed:** 20 MPH	**Dir:** SE	**Veh Mnvr/Ped Actn:** 8							**Obj Strk:**				
Unit	**2 :** 2	**Alchl/Drgs:** 0	**Speed:** 50 MPH	**Dir:** NW	**Veh Mnvr/Ped Actn:** 4							**Obj Strk:**				
185	**104165514**	8.144	09/26/2014 00:26	FIXED OBJECT	$ 1350	0	0	0	0	2	5	3	1	0	3	1
Unit	**1 :** 2	**Alchl/Drgs:** 0	**Speed:** 30 MPH	**Dir:** S	**Veh Mnvr/Ped Actn:** 4							**Obj Strk:** 38				
186	**104207164**	8.144	11/06/2014 23:14	LEFT TURN, DIFFERENT ROADWAYS	$ 2500	0	0	0	0	1	4	1	1	0	3	1
Unit	**1 :** 4	**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:** E	**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
187	**104241147**	8.144	12/09/2014 06:51	ANGLE	$ 3800	0	0	0	0	2	1	2	1	0	3	1
Unit	**1 :** 1	**Alchl/Drgs:** 0	**Speed:** 45 MPH	**Dir:** SW	**Veh Mnvr/Ped Actn:** 4								**Obj Strk:**			
Unit	**2 :** 2	**Alchl/Drgs:** 0	**Speed:** 50 MPH	**Dir:** NW	**Veh Mnvr/Ped Actn:** 4								**Obj Strk:**			
188	**104343665**	8.144	03/06/2015 16:46	LEFT TURN, SAME ROADWAY	$ 3500	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:** 8								**Obj Strk:**			
Unit	**2 :** 22	**Alchl/Drgs:** 0	**Speed:** 0 MPH	**Dir:**	**Veh Mnvr/Ped Actn:**								**Obj Strk:**			
189	**104345436**	8.144	04/08/2015 06:57	LEFT TURN, SAME ROADWAY	$ 7500	0	0	0	1	2	1	2	1	0	3	1
Unit	**1 :** 1	**Alchl/Drgs:** 0	**Speed:** 35 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:**			
190	**104344908**	8.144	04/08/2015 07:31	LEFT TURN, SAME ROADWAY	$ 4500	0	0	0	0	2	1	2	1	0	3	1
Unit	**1 :** 3	**Alchl/Drgs:** 0	**Speed:** 10 MPH	**Dir:** N	**Veh Mnvr/Ped Actn:** 8								**Obj Strk:**			
Unit	**2 :** 2	**Alchl/Drgs:** 0	**Speed:** 35 MPH	**Dir:** S	**Veh Mnvr/Ped Actn:** 4								**Obj Strk:**			
191	**104385144**	8.144	05/19/2015 07:41	LEFT TURN, SAME ROADWAY	$ 8000	0	0	0	0	1	1	1	1	0	3	1
Unit	**1 :** 2	**Alchl/Drgs:** 0	**Speed:** 35 MPH	**Dir:** W	**Veh Mnvr/Ped Actn:** 4								**Obj Strk:**			
Unit	**2 :** 2	**Alchl/Drgs:** 0	**Speed:** 5 MPH	**Dir:** E	**Veh Mnvr/Ped Actn:** 8								**Obj Strk:**			
192	**104405955**	8.144	06/07/2015 19:29	LEFT TURN, DIFFERENT ROADWAYS	$ 5000	0	0	0	2	1	1	1	1	0	14	1
Unit	**1 :** 1	**Alchl/Drgs:** 0	**Speed:** 30 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:** 8								**Obj Strk:**			
193	**104405832**	8.144	06/09/2015 16:07	ANGLE	$ 11000	0	0	0	2	1	1	1	1	0	3	1
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:** 25 MPH	**Dir:** W	**Veh Mnvr/Ped Actn:** 8								**Obj Strk:**			
194	**104421546**	8.144	06/30/2015 16:51	ANGLE	$ 14000	0	0	0	1	1	1	1	1	0	3	1
Unit	**1 :** 5	**Alchl/Drgs:** 0	**Speed:** 45 MPH	**Dir:** SW	**Veh Mnvr/Ped Actn:** 4								**Obj Strk:**			
Unit	**2 :** 2	**Alchl/Drgs:** 0	**Speed:** 50 MPH	**Dir:** NW	**Veh Mnvr/Ped Actn:** 4								**Obj Strk:**			
195	**104492976**	8.144	09/15/2015 16:58	ANGLE	$ 12000	0	0	0	4	1	1	1	1	0	14	1
Unit	**1 :** 1	**Alchl/Drgs:** 0	**Speed:** 30 MPH	**Dir:** E	**Veh Mnvr/Ped Actn:** 4								**Obj Strk:**			
Unit	**2 :** 1	**Alchl/Drgs:** 0	**Speed:** 30 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
196	**104651728**	8.144	02/10/2016 07:21	LEFT TURN, SAME ROADWAY	$ 4500	0	0	0	0	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:** 45 MPH	**Dir:** N	**Veh Mnvr/Ped Actn:**			8		**Obj Strk:**					
197	**104753205**	8.144	06/03/2016 16:28	ANGLE	$ 1500	0	0	0	0	1	1	1	1	0	3	1
Unit	**1 :** 2	**Alchl/Drgs:**	0	**Speed:** 45 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:**			4		**Obj Strk:**					
198	**104787204**	8.144	06/30/2016 18:46	LEFT TURN, SAME ROADWAY	$ 4000	0	0	0	0	1	1	1	1	0	3	1
Unit	**1 :** 1	**Alchl/Drgs:**	0	**Speed:** 35 MPH	**Dir:** E	**Veh Mnvr/Ped Actn:**			8		**Obj Strk:**					
Unit	**2 :** 4	**Alchl/Drgs:**	0	**Speed:** 50 MPH	**Dir:** W	**Veh Mnvr/Ped Actn:**			4		**Obj Strk:**					
199	**104821695**	8.144	08/01/2016 17:34	REAR END, SLOW OR STOP	$ 650	0	0	0	0	1	1	1	1	0	3	1
Unit	**1 :** 1	**Alchl/Drgs:**	0	**Speed:** 0 MPH	**Dir:** SE	**Veh Mnvr/Ped Actn:**			1		**Obj Strk:**					
Unit	**2 :** 1	**Alchl/Drgs:**	0	**Speed:** 10 MPH	**Dir:** SE	**Veh Mnvr/Ped Actn:**			12		**Obj Strk:**					
200	**104812432**	8.144	08/06/2016 20:43	ANGLE	$ 2500	0	0	0	0	1	5	1	1	0	5	1
Unit	**1 :** 1	**Alchl/Drgs:**	0	**Speed:** 0 MPH	**Dir:** W	**Veh Mnvr/Ped Actn:**			8		**Obj Strk:**					
Unit	**2 :** 1	**Alchl/Drgs:**	0	**Speed:** 0 MPH	**Dir:** E	**Veh Mnvr/Ped Actn:**			4		**Obj Strk:**					
201	**104822674**	8.144	08/18/2016 01:32	FIXED OBJECT	$ 2500	0	0	0	0	1	5	1	1	0	3	1
Unit	**1 :** 4	**Alchl/Drgs:**	0	**Speed:** 55 MPH	**Dir:** W	**Veh Mnvr/Ped Actn:**			4		**Obj Strk:**		33			
202	**104843611**	8.144	09/06/2016 23:17	ANGLE	$ 12000	0	0	0	1	1	5	1	1	0	3	1
Unit	**1 :** 1	**Alchl/Drgs:**	0	**Speed:** 40 MPH	**Dir:** S	**Veh Mnvr/Ped Actn:**			4		**Obj Strk:**					
Unit	**2 :** 32	**Alchl/Drgs:**	0	**Speed:** 50 MPH	**Dir:** E	**Veh Mnvr/Ped Actn:**			4		**Obj Strk:**					
203	**105099121**	8.144	05/14/2017 21:46	REAR END, SLOW OR STOP	$ 1100	0	0	0	1	1	4	1	1	0	3	1
Unit	**1 :** 4	**Alchl/Drgs:**	0	**Speed:** 50 MPH	**Dir:** S	**Veh Mnvr/Ped Actn:**			11		**Obj Strk:**					
Unit	**2 :** 1	**Alchl/Drgs:**	0	**Speed:** 50 MPH	**Dir:** S	**Veh Mnvr/Ped Actn:**			1		**Obj Strk:**					
204	**105213018**	8.144	09/03/2017 15:47	REAR END, SLOW OR STOP	$ 1000	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 :** 20	**Alchl/Drgs:**	0	**Speed:** 0 MPH	**Dir:** S	**Veh Mnvr/Ped Actn:**			1		**Obj Strk:**					
205	**105229682**	8.144	09/22/2017 13:33	LEFT TURN, DIFFERENT ROADWAYS	$ 1000	0	0	0	0	1	1	1	1	0	3	1
Unit	**1 :** 1	**Alchl/Drgs:**	0	**Speed:** 50 MPH	**Dir:** E	**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
Unit	**2 :** 1	**Alchl/Drgs:**	0	**Speed:** 50 MPH	**Dir:** W	**Veh Mnvr/Ped Actn:**				4			**Obj Strk:**			
206	**105244064**	8.144	10/02/2017 16:14	LEFT TURN, SAME ROADWAY	$ 6000	0	0	0	0	1	1	1	1	0	12	1
Unit	**1 :** 2	**Alchl/Drgs:**	0	**Speed:** 25 MPH	**Dir:** W	**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:**			
207	**104858804**	8.147	09/23/2016 10:37	REAR END, SLOW OR STOP	$ 1000	0	0	0	1	1	1	1	1	0	3	1
Unit	**1 :** 1	**Alchl/Drgs:**	0	**Speed:** 35 MPH	**Dir:** N	**Veh Mnvr/Ped Actn:**				4			**Obj Strk:**			
Unit	**2 :** 1	**Alchl/Drgs:**	0	**Speed:** 15 MPH	**Dir:** N	**Veh Mnvr/Ped Actn:**				4			**Obj Strk:**			
208	**104796707**	8.154	07/21/2016 10:04	REAR END, SLOW OR STOP	$ 4500	0	0	0	0	1	1	1	3	4	13	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:** 35 MPH	**Dir:** N	**Veh Mnvr/Ped Actn:**				4			**Obj Strk:**			
209	**103604819**	8.244	11/20/2012 08:29	SIDESWIPE, OPPOSITE DIRECTION	$ 5000	0	0	0	0	1	1	1	5	0	13	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:** 50 MPH	**Dir:** S	**Veh Mnvr/Ped Actn:**				4			**Obj Strk:**			
210	**103990442**	8.244	03/01/2014 17:23	FIXED OBJECT	$ 21500	0	0	1	0	1	1	1	5	0	13	1
Unit	**1 :** 4	**Alchl/Drgs:**	5	**Speed:** 55 MPH	**Dir:** E	**Veh Mnvr/Ped Actn:**				4			**Obj Strk:**		34	
Unit	**2 :** 10	**Alchl/Drgs:**	0	**Speed:** 35 MPH	**Dir:** W	**Veh Mnvr/Ped Actn:**				4			**Obj Strk:**		18	
211	**104487733**	8.244	09/11/2015 18:05	FIXED OBJECT	$ 4600	0	0	0	1	1	1	1	1	0	13	1
Unit	**1 :** 1	**Alchl/Drgs:**	1	**Speed:** 65 MPH	**Dir:** S	**Veh Mnvr/Ped Actn:**				4			**Obj Strk:**		37	
212	**104697797**	8.244	04/03/2016 07:27	FIXED OBJECT	$ 9200	0	0	0	2	1	3	1	1	0	13	1
Unit	**1 :** 1	**Alchl/Drgs:**	0	**Speed:** 75 MPH	**Dir:** E	**Veh Mnvr/Ped Actn:**				4			**Obj Strk:**		34	
213	**105084418**	8.244	04/17/2017 12:21	REAR END, SLOW OR STOP	$ 3800	0	0	0	0	1	1	1	1	0	13	1
Unit	**1 :** 1	**Alchl/Drgs:**	0	**Speed:** 25 MPH	**Dir:** S	**Veh Mnvr/Ped Actn:**				4			**Obj Strk:**			
Unit	**2 :** 3	**Alchl/Drgs:**	0	**Speed:** 20 MPH	**Dir:** S	**Veh Mnvr/Ped Actn:**				4			**Obj Strk:**			
214	**105234364**	8.244	09/19/2017 05:10	FIXED OBJECT	$ 17500	0	0	0	0	1	5	1	4	0	13	1
Unit	**1 :** 1	**Alchl/Drgs:**	1	**Speed:** 60 MPH	**Dir:** E	**Veh Mnvr/Ped Actn:**				4			**Obj Strk:**		34	
215	**104250293**	8.344	12/12/2014 22:40	HEAD ON	$ 14500	0	0	0	2	1	5	1	3	0	13	1
Unit	**1 :** 1	**Alchl/Drgs:**	0	**Speed:** 60 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
Unit	**2 :** 1	**Alchl/Drgs:**	0	**Speed:** 60 MPH	**Dir:** S	**Veh Mnvr/Ped Actn:**				4			**Obj Strk:**			
216	**104252993**	8.344	12/18/2014 21:35	REAR END, SLOW OR STOP	$ 3500	0	0	0	1	1	5	1	1	0	13	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:** 50 MPH	**Dir:** E	**Veh Mnvr/Ped Actn:**				4			**Obj Strk:**			
217	**104468530**	8.344	08/21/2015 17:28	REAR END, SLOW OR STOP	$ 6000	0	0	0	1	1	1	1	3	0	13	1
Unit	**1 :** 2	**Alchl/Drgs:**	0	**Speed:** 45 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:**			
218	**104802681**	8.344	07/11/2016 07:36	SIDESWIPE, SAME DIRECTION	$ 24500	0	0	1	0	1	1	1	3	0	13	1
Unit	**1 :** 1	**Alchl/Drgs:**	0	**Speed:** 55 MPH	**Dir:** S	**Veh Mnvr/Ped Actn:**				6			**Obj Strk:**			
Unit	**2 :** 10	**Alchl/Drgs:**	0	**Speed:** 45 MPH	**Dir:** S	**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:**			
219	**104993039**	8.344	01/30/2017 18:04	ANIMAL	$ 10000	0	0	0	0	1	5	1	3	0	13	1
Unit	**1 :** 1	**Alchl/Drgs:**	0	**Speed:** 50 MPH	**Dir:** NW	**Veh Mnvr/Ped Actn:**				4			**Obj Strk:**		17	
220	**105051397**	8.384	03/26/2017 06:41	ANIMAL	$ 2100	0	0	0	0	1	5	1	4	0	13	1
Unit	**1 :** 1	**Alchl/Drgs:**	0	**Speed:** 0 MPH	**Dir:** E	**Veh Mnvr/Ped Actn:**				4			**Obj Strk:**		17	
221	**103911445**	8.444	11/21/2013 07:41	ANIMAL	$ 2500	0	0	0	0	1	3	1	1	0	13	1
Unit	**1 :** 1	**Alchl/Drgs:**	0	**Speed:** 35 MPH	**Dir:** S	**Veh Mnvr/Ped Actn:**				4			**Obj Strk:**		17	
222	**103665121**	8.454	01/29/2013 07:17	ANIMAL	$ 2500	0	0	0	0	1	1	1	3	0	13	1
Unit	**1 :** 1	**Alchl/Drgs:**	0	**Speed:** 50 MPH	**Dir:** E	**Veh Mnvr/Ped Actn:**				4			**Obj Strk:**		17	
223	**104107367**	8.484	07/16/2014 17:51	REAR END, SLOW OR STOP	$ 6000	0	0	0	1	1	1	1	3	0	13	1
Unit	**1 :** 2	**Alchl/Drgs:**	0	**Speed:** 55 MPH	**Dir:** W	**Veh Mnvr/Ped Actn:**				11			**Obj Strk:**			
Unit	**2 :** 1	**Alchl/Drgs:**	0	**Speed:** 50 MPH	**Dir:** W	**Veh Mnvr/Ped Actn:**				1			**Obj Strk:**			
224	**104552881**	8.484	11/12/2015 17:47	ANIMAL	$ 2500	0	0	0	0	1	5	1	1	0	13	1
Unit	**1 :** 4	**Alchl/Drgs:**	0	**Speed:** 50 MPH	**Dir:** NW	**Veh Mnvr/Ped Actn:**				4			**Obj Strk:**		17	
225	**104896343**	8.484	10/27/2016 18:18	REAR END, SLOW OR STOP	$ 2700	0	0	0	0	1	5	1	1	0	13	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:** 30 MPH	**Dir:** E	**Veh Mnvr/Ped Actn:**				11			**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
226	**104477902**	8.554	09/03/2015 06:40	ANIMAL	$ 1500	0	0	0	0	1	1	1	1	0	13	1
Unit	**1 :** 2	**Alchl/Drgs:** 0	**Speed:** 45 MPH	**Dir:** NW	**Veh Mnvr/Ped Actn:** 4	**Obj Strk:** 17										
227	**103827958**	8.556	08/16/2013 14:31	REAR END, SLOW OR STOP	$ 8000	0	0	0	0	1	1	2	1	0	13	1
Unit	**1 :** 1	**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:** 1	**Obj Strk:**										
228	**103995488**	8.560	03/07/2014 07:25	FIXED OBJECT	$ 1175	0	0	0	0	6	1	6	1	0	13	1
Unit	**1 :** 1	**Alchl/Drgs:** 0	**Speed:** 50 MPH	**Dir:** N	**Veh Mnvr/Ped Actn:** 4	**Obj Strk:** 60										
229	**104834965**	8.574	08/30/2016 08:15	ANIMAL	$ 1000	0	0	0	0	1	1	1	1	0	13	1
Unit	**1 :** 2	**Alchl/Drgs:** 0	**Speed:** 45 MPH	**Dir:** N	**Veh Mnvr/Ped Actn:** 4	**Obj Strk:** 17										
230	**104865756**	8.584	09/28/2016 15:08	LEFT TURN, DIFFERENT ROADWAYS	$ 1100	0	0	0	0	1	1	1	3	0	1	1
Unit	**1 :** 5	**Alchl/Drgs:** 0	**Speed:** 20 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:**										
231	**103797231**	8.591	07/11/2013 09:38	REAR END, SLOW OR STOP	$ 7000	0	0	0	0	1	1	2	3	0	13	1
Unit	**1 :** 2	**Alchl/Drgs:** 0	**Speed:** 40 MPH	**Dir:** NW	**Veh Mnvr/Ped Actn:** 4	**Obj Strk:**										
Unit	**2 :** 11	**Alchl/Drgs:** 0	**Speed:** 5 MPH	**Dir:** NW	**Veh Mnvr/Ped Actn:** 11	**Obj Strk:**										
232	**103721223**	8.684	04/08/2013 13:37	REAR END, SLOW OR STOP	$ 22000	0	0	3	1	1	1	1	1	0	13	1
Unit	**1 :** 4	**Alchl/Drgs:** 0	**Speed:** 60 MPH	**Dir:** NW	**Veh Mnvr/Ped Actn:** 4	**Obj Strk:**										
Unit	**2 :** 2	**Alchl/Drgs:** 0	**Speed:** 0 MPH	**Dir:** NW	**Veh Mnvr/Ped Actn:** 1	**Obj Strk:**										
233	**105129600**	8.684	06/10/2017 17:09	REAR END, SLOW OR STOP	$ 9000	0	0	0	1	1	1	1	1	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:** 40 MPH	**Dir:** E	**Veh Mnvr/Ped Actn:** 4	**Obj Strk:**										
234	**103793165**	8.724	07/06/2013 14:47	ANIMAL	$ 500	0	0	0	0	1	1	1	1	0	13	1
Unit	**1 :** 1	**Alchl/Drgs:** 0	**Speed:** 50 MPH	**Dir:** SE	**Veh Mnvr/Ped Actn:** 4	**Obj Strk:** 17										
235	**103877055**	8.784	10/19/2013 05:00	ANIMAL	$ 900	0	0	0	0	1	5	1	1	0	0	
Unit	**1 :** 1	**Alchl/Drgs:** 0	**Speed:** 50 MPH	**Dir:** N	**Veh Mnvr/Ped Actn:** 4	**Obj Strk:** 17										
236	**104155148**	8.784	09/15/2014 00:26	ANIMAL	$ 2500	0	0	0	0	1	5	1	1	0	13	1
Unit	**1 :** 1	**Alchl/Drgs:** 0	**Speed:** 55 MPH	**Dir:** N	**Veh Mnvr/Ped Actn:** 4	**Obj Strk:** 17										

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
237	**104553235**	8.854	11/14/2015 06:00	ANIMAL	$ 1500	0	0	0	0	1	5	1	3	0	0	
Unit	**1 :** 1	**Alchl/Drgs:** 0	**Speed:** 40 MPH	**Dir:** S	**Veh Mnvr/Ped Actn:** 4	**Obj Strk:** 17										
238	**103656916**	8.926	01/08/2013 14:40	REAR END, SLOW OR STOP	$ 2500	0	0	0	0	1	1	1	1	0	13	1
Unit	**1 :** 1	**Alchl/Drgs:** 0	**Speed:** 0 MPH	**Dir:** SE	**Veh Mnvr/Ped Actn:** 1	**Obj Strk:**										
Unit	**2 :** 1	**Alchl/Drgs:** 0	**Speed:** 50 MPH	**Dir:** SE	**Veh Mnvr/Ped Actn:** 4	**Obj Strk:**										
239	**104250816**	8.954	12/08/2014 08:21	REAR END, SLOW OR STOP	$ 3600	0	0	0	1	1	1	1	3	0	13	1
Unit	**1 :** 4	**Alchl/Drgs:** 0	**Speed:** 45 MPH	**Dir:** E	**Veh Mnvr/Ped Actn:** 4	**Obj Strk:**										
Unit	**2 :** 1	**Alchl/Drgs:** 0	**Speed:** 40 MPH	**Dir:** E	**Veh Mnvr/Ped Actn:** 11	**Obj Strk:**										
240	**104543043**	8.954	11/04/2015 17:57	SIDESWIPE, OPPOSITE DIRECTION	$ 5000	0	0	0	0	1	2	1	1	0	1	1
Unit	**1 :** 4	**Alchl/Drgs:** 0	**Speed:** 0 MPH	**Dir:** SW	**Veh Mnvr/Ped Actn:** 7	**Obj Strk:**										
Unit	**2 :** 5	**Alchl/Drgs:** 0	**Speed:** 50 MPH	**Dir:** E	**Veh Mnvr/Ped Actn:** 4	**Obj Strk:**										
241	**104841301**	8.954	09/06/2016 16:55	REAR END, SLOW OR STOP	$ 4500	0	0	0	3	1	1	1	1	0	13	1
Unit	**1 :** 4	**Alchl/Drgs:** 0	**Speed:** 60 MPH	**Dir:** S	**Veh Mnvr/Ped Actn:** 4	**Obj Strk:**										
Unit	**2 :** 1	**Alchl/Drgs:** 0	**Speed:** 50 MPH	**Dir:** S	**Veh Mnvr/Ped Actn:** 11	**Obj Strk:**										
242	**104863539**	8.954	09/27/2016 11:00	REAR END, SLOW OR STOP	$ 10000	0	0	0	1	1	1	1	3	0	13	1
Unit	**1 :** 1	**Alchl/Drgs:** 0	**Speed:** 0 MPH	**Dir:** S	**Veh Mnvr/Ped Actn:** 1	**Obj Strk:**										
Unit	**2 :** 2	**Alchl/Drgs:** 0	**Speed:** 35 MPH	**Dir:** S	**Veh Mnvr/Ped Actn:** 4	**Obj Strk:**										
243	**104978963**	8.954	01/14/2017 19:07	LEFT TURN, SAME ROADWAY	$ 4000	0	0	0	0	1	5	1	1	0	13	1
Unit	**1 :** 4	**Alchl/Drgs:** 1	**Speed:** 50 MPH	**Dir:** E	**Veh Mnvr/Ped Actn:** 8	**Obj Strk:**										
Unit	**2 :** 1	**Alchl/Drgs:** 0	**Speed:** 50 MPH	**Dir:** E	**Veh Mnvr/Ped Actn:** 6	**Obj Strk:**										
244	**104822671**	8.979	08/18/2016 17:09	REAR END, SLOW OR STOP	$ 16800	0	0	0	2	1	1	1	3	0	13	1
Unit	**1 :** 4	**Alchl/Drgs:** 0	**Speed:** 45 MPH	**Dir:** E	**Veh Mnvr/Ped Actn:** 4	**Obj Strk:**										
Unit	**2 :** 3	**Alchl/Drgs:** 0	**Speed:** 0 MPH	**Dir:** E	**Veh Mnvr/Ped Actn:** 1	**Obj Strk:**										
Unit	**3 :** 1	**Alchl/Drgs:** 0	**Speed:** 0 MPH	**Dir:** E	**Veh Mnvr/Ped Actn:** 1	**Obj Strk:**										
245	**104636189**	8.995	02/05/2016 12:49	REAR END, SLOW OR STOP	$ 8500	0	0	0	1	1	1	1	1	0	13	1
Unit	**1 :** 1	**Alchl/Drgs:** 0	**Speed:** 60 MPH	**Dir:** W	**Veh Mnvr/Ped Actn:** 4	**Obj Strk:**										
Unit	**2 :** 4	**Alchl/Drgs:** 0	**Speed:** 0 MPH	**Dir:** W	**Veh Mnvr/Ped Actn:** 11	**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
246	**104190354**	9.014	10/22/2014 13:25	REAR END, TURN	$ 3450	0	0	0	0	1	1	1	3	0	0	
Unit	**1 :** 1	**Alchl/Drgs:** 0	**Speed:** 45 MPH	**Dir:** S	**Veh Mnvr/Ped Actn:** 7	**Obj Strk:**										
Unit	**2 :** 2	**Alchl/Drgs:** 0	**Speed:** 50 MPH	**Dir:** S	**Veh Mnvr/Ped Actn:** 4	**Obj Strk:**										
247	**103887429**	9.054	10/30/2013 16:50	REAR END, SLOW OR STOP	$ 500	0	0	0	0	1	1	1	1	0	13	1
Unit	**1 :** 4	**Alchl/Drgs:** 0	**Speed:** 45 MPH	**Dir:** S	**Veh Mnvr/Ped Actn:** 4	**Obj Strk:**										
Unit	**2 :** 5	**Alchl/Drgs:** 0	**Speed:** 0 MPH	**Dir:** S	**Veh Mnvr/Ped Actn:** 4	**Obj Strk:**										
248	**104890854**	9.054	10/19/2016 20:43	ANIMAL	$ 1700	0	0	0	0	1	5	1	3	0	13	1
Unit	**1 :** 1	**Alchl/Drgs:** 0	**Speed:** 50 MPH	**Dir:** N	**Veh Mnvr/Ped Actn:** 4	**Obj Strk:** 17										
249	**105222769**	9.054	09/16/2017 02:59	ANIMAL	$ 1200	0	0	0	0	1	5	1	1	0	13	1
Unit	**1 :** 1	**Alchl/Drgs:** 0	**Speed:** 55 MPH	**Dir:** E	**Veh Mnvr/Ped Actn:** 4	**Obj Strk:** 17										
250	**104389300**	9.154	05/27/2015 09:37	REAR END, SLOW OR STOP	$ 7500	0	0	1	1	1	1	1	7	0	13	1
Unit	**1 :** 1	**Alchl/Drgs:** 0	**Speed:** 50 MPH	**Dir:** N	**Veh Mnvr/Ped Actn:** 4	**Obj Strk:**										
Unit	**2 :** 10	**Alchl/Drgs:** 0	**Speed:** 50 MPH	**Dir:** N	**Veh Mnvr/Ped Actn:** 11	**Obj Strk:**										
251	**104748515**	9.154	05/23/2016 16:53	REAR END, SLOW OR STOP	$ 6800	0	0	0	1	1	1	1	1	0	13	1
Unit	**1 :** 2	**Alchl/Drgs:** 0	**Speed:** 5 MPH	**Dir:** SE	**Veh Mnvr/Ped Actn:** 11	**Obj Strk:**										
Unit	**2 :** 2	**Alchl/Drgs:** 0	**Speed:** 50 MPH	**Dir:** SE	**Veh Mnvr/Ped Actn:** 4	**Obj Strk:**										
252	**104053808**	9.164	05/09/2014 18:10	REAR END, TURN	$ 5000	0	0	0	1	2	1	3	3	0	13	1
Unit	**1 :** 4	**Alchl/Drgs:** 0	**Speed:** 50 MPH	**Dir:** E	**Veh Mnvr/Ped Actn:** 4	**Obj Strk:**										
Unit	**2 :** 1	**Alchl/Drgs:** 0	**Speed:** 2 MPH	**Dir:** E	**Veh Mnvr/Ped Actn:** 7	**Obj Strk:**										
253	**104237246**	9.164	12/08/2014 15:01	REAR END, SLOW OR STOP	$ 6500	0	0	0	1	1	1	2	3	0	13	1
Unit	**1 :** 2	**Alchl/Drgs:** 0	**Speed:** 50 MPH	**Dir:** E	**Veh Mnvr/Ped Actn:** 4	**Obj Strk:**										
Unit	**2 :** 1	**Alchl/Drgs:** 7	**Speed:** 35 MPH	**Dir:** E	**Veh Mnvr/Ped Actn:** 1	**Obj Strk:**										
254	**104509790**	9.164	10/05/2015 07:50	FIXED OBJECT	$ 1000	0	0	0	0	1	1	2	3	0	13	1
Unit	**1 :** 1	**Alchl/Drgs:** 0	**Speed:** 50 MPH	**Dir:** SE	**Veh Mnvr/Ped Actn:** 4	**Obj Strk:** 56										
255	**104936189**	9.164	11/29/2016 18:53	LEFT TURN, SAME ROADWAY	$ 11900	0	0	0	1	2	5	1	1	0	0	
Unit	**1 :** 1	**Alchl/Drgs:** 0	**Speed:** 10 MPH	**Dir:** E	**Veh Mnvr/Ped Actn:** 8	**Obj Strk:** 42										
Unit	**2 :** 3	**Alchl/Drgs:** 0	**Speed:** 50 MPH	**Dir:** E	**Veh Mnvr/Ped Actn:** 6	**Obj Strk:** 42										

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
256	**103698040**	9.174	03/11/2013 08:14	LEFT TURN, SAME ROADWAY	$ 6000	0	0	0	0	1	1	1	5	0	13	1
Unit	**1 :** 1	**Alchl/Drgs:** 0	**Speed:** 5 MPH	**Dir:** S	**Veh Mnvr/Ped Actn:** 8			**Obj Strk:**								
Unit	**2 :** 1	**Alchl/Drgs:** 0	**Speed:** 50 MPH	**Dir:** S	**Veh Mnvr/Ped Actn:** 4			**Obj Strk:**								
257	**103927804**	9.174	12/13/2013 07:48	REAR END, SLOW OR STOP	$ 8000	0	0	0	2	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 :** 1	**Alchl/Drgs:** 0	**Speed:** 0 MPH	**Dir:** S	**Veh Mnvr/Ped Actn:** 1			**Obj Strk:**								
Unit	**3 :** 2	**Alchl/Drgs:** 0	**Speed:** 45 MPH	**Dir:** S	**Veh Mnvr/Ped Actn:** 4			**Obj Strk:**								
258	**104117936**	9.264	08/02/2014 11:59	OTHER NON-COLLISION	$ 6000	0	0	0	0	1	1	2	3	0	13	1
Unit	**1 :** 2	**Alchl/Drgs:** 0	**Speed:** 55 MPH	**Dir:** W	**Veh Mnvr/Ped Actn:** 4			**Obj Strk:**								
259	**104232205**	9.264	12/01/2014 16:49	SIDESWIPE, SAME DIRECTION	$ 3000	0	0	0	1	1	1	1	1	0	1	1
Unit	**1 :** 1	**Alchl/Drgs:** 0	**Speed:** 35 MPH	**Dir:** N	**Veh Mnvr/Ped Actn:** 8			**Obj Strk:**								
Unit	**2 :** 20	**Alchl/Drgs:** 0	**Speed:** 50 MPH	**Dir:** N	**Veh Mnvr/Ped Actn:** 4			**Obj Strk:**								
260	**104155151**	9.364	09/10/2014 20:57	PEDESTRIAN	$ 2000	0	0	1	0	1	5	1	1	0	0	
Unit	**1 :** 2	**Alchl/Drgs:** 0	**Speed:** 50 MPH	**Dir:** W	**Veh Mnvr/Ped Actn:** 4			**Obj Strk:** 14								
Unit	**2 :** 24	**Alchl/Drgs:** 7	**Speed:** 0 MPH	**Dir:**	**Veh Mnvr/Ped Actn:**			**Obj Strk:** 14								
261	**104583721**	9.364	11/29/2015 22:24	RAN OFF ROAD - LEFT	$ 2300	0	0	0	0	2	5	3	1	0	13	1
Unit	**1 :** 4	**Alchl/Drgs:** 0	**Speed:** 55 MPH	**Dir:** S	**Veh Mnvr/Ped Actn:** 4			**Obj Strk:** 60								
262	**104787368**	9.364	07/11/2016 11:03	REAR END, TURN	$ 9000	0	0	0	1	1	1	1	1	0	13	1
Unit	**1 :** 2	**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:** 7			**Obj Strk:**								
263	**104982271**	9.464	01/18/2017 17:56	REAR END, SLOW OR STOP	$ 3500	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:** 1			**Obj Strk:**								
Unit	**2 :** 1	**Alchl/Drgs:** 0	**Speed:** 55 MPH	**Dir:** S	**Veh Mnvr/Ped Actn:** 4			**Obj Strk:**								
264	**105151638**	9.464	07/01/2017 08:08	REAR END, SLOW OR STOP	$ 2500	0	0	0	0	1	1	2	3	0	0	
Unit	**1 :** 1	**Alchl/Drgs:** 7	**Speed:** 60 MPH	**Dir:** S	**Veh Mnvr/Ped Actn:** 4			**Obj Strk:**								
Unit	**2 :** 2	**Alchl/Drgs:** 0	**Speed:** 55 MPH	**Dir:** S	**Veh Mnvr/Ped Actn:** 4			**Obj Strk:**								
265	**104532438**	9.504	10/26/2015 23:58	ANIMAL	$ 200	0	0	0	0	1	5	1	1	0	13	1
Unit	**1 :** 4	**Alchl/Drgs:** 0	**Speed:** 55 MPH	**Dir:** N	**Veh Mnvr/Ped Actn:** 4			**Obj Strk:** 17								

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
266	**104012389**	9.534	03/23/2014 12:50	HEAD ON	$ 8500	0	0	4	0	2	1	2	3	0	0	
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:** 55 MPH	**Dir:** N	**Veh Mnvr/Ped Actn:**			4			**Obj Strk:**				
267	**104634737**	9.704	02/04/2016 14:10	FIXED OBJECT	$ 400	0	0	0	0	1	1	2	2	0	13	1
Unit	**1 :** 32	**Alchl/Drgs:**	7	**Speed:** 55 MPH	**Dir:** N	**Veh Mnvr/Ped Actn:**			4			**Obj Strk:**	60			
268	**104329218**	9.724	03/23/2015 18:12	REAR END, TURN	$ 11300	0	0	0	0	1	1	1	2	0	0	
Unit	**1 :** 2	**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:**			11			**Obj Strk:**				
Unit	**3 :** 2	**Alchl/Drgs:**	7	**Speed:** 55 MPH	**Dir:** S	**Veh Mnvr/Ped Actn:**			11			**Obj Strk:**				
269	**103920885**	9.804	12/06/2013 22:50	ANIMAL	$ 2500	0	0	0	0	1	5	1	1	0	0	
Unit	**1 :** 1	**Alchl/Drgs:**	0	**Speed:** 55 MPH	**Dir:** E	**Veh Mnvr/Ped Actn:**			4			**Obj Strk:**	17			
270	**103946068**	9.804	01/08/2014 06:39	ANIMAL	$ 1000	0	0	0	0	1	1	1		0		
Unit	**1 :** 1	**Alchl/Drgs:**	0	**Speed:** 0 MPH	**Dir:** N	**Veh Mnvr/Ped Actn:**			4			**Obj Strk:**	17			
271	**103983699**	9.804	02/22/2014 15:00	ANIMAL	$ 2000	0	0	0	0	1	1	1		0		
Unit	**1 :** 1	**Alchl/Drgs:**	0	**Speed:** 0 MPH	**Dir:** N	**Veh Mnvr/Ped Actn:**			4			**Obj Strk:**	17			
272	**104929088**	9.864	10/22/2016 19:55	ANIMAL	$ 4500	0	0	0	0	1	5	1		0		
Unit	**1 :** 4	**Alchl/Drgs:**	0	**Speed:** 0 MPH	**Dir:** S	**Veh Mnvr/Ped Actn:**			4			**Obj Strk:**	17			
273	**104431890**	9.908	07/13/2015 09:19	FIXED OBJECT	$ 5000	0	0	0	0	1	1	1	1	0	0	
Unit	**1 :** 1	**Alchl/Drgs:**	0	**Speed:** 55 MPH	**Dir:** E	**Veh Mnvr/Ped Actn:**			4			**Obj Strk:**	58			
274	**104123974**	9.947	08/04/2014 20:32	ANIMAL	$ 1000	0	0	0	0	1	5	1	1	0	13	1
Unit	**1 :** 1	**Alchl/Drgs:**	0	**Speed:** 40 MPH	**Dir:** NW	**Veh Mnvr/Ped Actn:**			4			**Obj Strk:**	17			
275	**104838853**	10.003	09/05/2016 17:20	REAR END, SLOW OR STOP	$ 8000	0	0	0	1	1	1	1	2	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:** S	**Veh Mnvr/Ped Actn:**			11			**Obj Strk:**				
276	**103661860**	10.004	01/25/2013 13:45	FIXED OBJECT	$ 2600	0	0	0	0	4	1	6	3	0	13	1
Unit	**1 :** 1	**Alchl/Drgs:**	0	**Speed:** 45 MPH	**Dir:** N	**Veh Mnvr/Ped Actn:**			4			**Obj Strk:**	37			

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
277	**104854412**	10.004	09/21/2016 08:25	REAR END, SLOW OR STOP	$ 1000	0	0	0	0	2	1	3	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:** 50 MPH	**Dir:** N	**Veh Mnvr/Ped Actn:**				11			**Obj Strk:**			
278	**105087273**	10.004	04/24/2017 10:14	REAR END, SLOW OR STOP	$ 3500	0	0	0	0	2	1	3	1	0	13	1
Unit	**1 :** 1	**Alchl/Drgs:**	0	**Speed:** 50 MPH	**Dir:** E	**Veh Mnvr/Ped Actn:**				4			**Obj Strk:**			
Unit	**2 :** 1	**Alchl/Drgs:**	7	**Speed:** 0 MPH	**Dir:** E	**Veh Mnvr/Ped Actn:**				1			**Obj Strk:**			
279	**103662917**	10.008	01/27/2013 15:13	REAR END, SLOW OR STOP	$ 10000	0	0	0	2	1	1	1	1	0	13	1
Unit	**1 :** 1	**Alchl/Drgs:**	7	**Speed:** 55 MPH	**Dir:** S	**Veh Mnvr/Ped Actn:**				1			**Obj Strk:**			
Unit	**2 :** 1	**Alchl/Drgs:**	0	**Speed:** 55 MPH	**Dir:** S	**Veh Mnvr/Ped Actn:**				4			**Obj Strk:**			
280	**104858765**	10.134	09/23/2016 08:15	ANIMAL	$ 2000	0	0	0	0	1	1	1	1	0	13	1
Unit	**1 :** 1	**Alchl/Drgs:**	0	**Speed:** 55 MPH	**Dir:** S	**Veh Mnvr/Ped Actn:**				4			**Obj Strk:**	17		
281	**105125539**	10.134	05/31/2017 15:22	MOVABLE OBJECT	$ 200	0	0	0	1	1	1	1	5	2	13	1
Unit	**1 :** 11	**Alchl/Drgs:**	0	**Speed:** 55 MPH	**Dir:** N	**Veh Mnvr/Ped Actn:**				4			**Obj Strk:**	18		
282	**105085036**	10.144	04/11/2017 14:00	SIDESWIPE, SAME DIRECTION	$ 5000	0	0	0	0	1	1	1	1	0	13	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:** 55 MPH	**Dir:** W	**Veh Mnvr/Ped Actn:**				6			**Obj Strk:**			
283	**104633895**	10.264	02/03/2016 14:10	FIXED OBJECT	$ 1300	0	0	0	0	2	1	3	5	0	13	1
Unit	**1 :** 4	**Alchl/Drgs:**	3	**Speed:** 50 MPH	**Dir:** S	**Veh Mnvr/Ped Actn:**				4			**Obj Strk:**	60		
284	**104925489**	10.290	11/23/2016 08:19	REAR END, SLOW OR STOP	$ 2500	0	0	0	0	1	1	1	1	0	13	1
Unit	**1 :** 1	**Alchl/Drgs:**	0	**Speed:** 0 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:**			
285	**103979234**	10.348	02/18/2014 05:27	ANIMAL	$ 1000	0	0	0	0	1	5	1	1	0	13	1
Unit	**1 :** 1	**Alchl/Drgs:**	0	**Speed:** 55 MPH	**Dir:** W	**Veh Mnvr/Ped Actn:**				4			**Obj Strk:**	17		
286	**103839620**	10.353	09/02/2013 13:31	SIDESWIPE, SAME DIRECTION	$ 8100	0	0	0	0	1	1	2	1	0	13	1
Unit	**1 :** 1	**Alchl/Drgs:**	0	**Speed:** 55 MPH	**Dir:** E	**Veh Mnvr/Ped Actn:**				4			**Obj Strk:**	60		
Unit	**2 :** 2	**Alchl/Drgs:**	0	**Speed:** 10 MPH	**Dir:** E	**Veh Mnvr/Ped Actn:**				7			**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
287	**105192179**	10.353	08/10/2017 09:22	REAR END, SLOW OR STOP	$ 15000	0	0	1	0	1	1	1	1	0	13	1
Unit	**1 :** 4	**Alchl/Drgs:**	0	**Speed:** 55 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:**				
288	**104214151**	10.375	11/14/2014 09:22	FIXED OBJECT	$ 500	0	0	0	0	1	1	1	1	0	13	1
Unit	**1 :** 31	**Alchl/Drgs:**	0	**Speed:** 55 MPH	**Dir:** W	**Veh Mnvr/Ped Actn:**			4			**Obj Strk:**	60			
289	**104069309**	10.414	05/21/2014 11:19	FIXED OBJECT	$ 6500	0	0	0	1	1	1	1	1	0	13	1
Unit	**1 :** 1	**Alchl/Drgs:**	0	**Speed:** 50 MPH	**Dir:** N	**Veh Mnvr/Ped Actn:**			4			**Obj Strk:**	64			
290	**104392648**	10.424	05/27/2015 08:35	HEAD ON	$ 9000	0	0	1	0	1	1	1	1	0	0	
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:** 55 MPH	**Dir:** E	**Veh Mnvr/Ped Actn:**			6			**Obj Strk:**				
291	**105063028**	10.424	04/07/2017 11:40	SIDESWIPE, SAME DIRECTION	$ 5100	0	0	0	0	1	1	2	3	0	13	1
Unit	**1 :** 1	**Alchl/Drgs:**	0	**Speed:** 50 MPH	**Dir:** W	**Veh Mnvr/Ped Actn:**			4			**Obj Strk:**	56			
Unit	**2 :** 1	**Alchl/Drgs:**	0	**Speed:** 40 MPH	**Dir:** W	**Veh Mnvr/Ped Actn:**			7			**Obj Strk:**				
292	**104993031**	10.440	01/30/2017 12:01	REAR END, TURN	$ 8000	0	0	0	5	1	1	1	1	0	13	1
Unit	**1 :** 5	**Alchl/Drgs:**	0	**Speed:** 5 MPH	**Dir:** S	**Veh Mnvr/Ped Actn:**			7			**Obj Strk:**				
Unit	**2 :** 2	**Alchl/Drgs:**	0	**Speed:** 50 MPH	**Dir:** S	**Veh Mnvr/Ped Actn:**			4			**Obj Strk:**				
293	**104225038**	10.476	11/15/2014 22:00	PARKED MOTOR VEHICLE	$ 1000	0	0	0	0	1	5	1	1	0	13	1
Unit	**1 :** 2	**Alchl/Drgs:**	1	**Speed:** 45 MPH	**Dir:** N	**Veh Mnvr/Ped Actn:**			4			**Obj Strk:**	20			
Unit	**2 :** 1	**Alchl/Drgs:**	7	**Speed:** 0 MPH	**Dir:** E	**Veh Mnvr/Ped Actn:**			16			**Obj Strk:**	20			
294	**104956225**	10.504	12/21/2016 11:47	REAR END, SLOW OR STOP	$ 7500	0	0	0	0	1	1	1	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:** 55 MPH	**Dir:** S	**Veh Mnvr/Ped Actn:**			11			**Obj Strk:**				
295	**105161004**	10.524	07/06/2017 20:29	FIXED OBJECT	$ 4200	0	0	0	1	1	2	1	1	0	13	1
Unit	**1 :** 4	**Alchl/Drgs:**	3	**Speed:** 55 MPH	**Dir:** E	**Veh Mnvr/Ped Actn:**			4			**Obj Strk:**	56			
296	**104196386**	10.564	10/26/2014 06:16	FIXED OBJECT	$ 6150	0	0	0	1	1	5	1	5	0	0	
Unit	**1 :** 1	**Alchl/Drgs:**	1	**Speed:** 60 MPH	**Dir:** N	**Veh Mnvr/Ped Actn:**			4			**Obj Strk:**	60			

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
297	**103787605**	10.574	06/29/2013 05:20	FIXED OBJECT	$ 4600	0	0	0	0	1	5	2	5	0	0	
Unit	**1 :** 4	**Alchl/Drgs:** 0	**Speed:** 55 MPH	**Dir:** S	**Veh Mnvr/Ped Actn:** 4	**Obj Strk:** 58										
298	**104919548**	10.574	11/17/2016 07:22	ANIMAL	$ 3500	0	0	0	0	1	1	1	1	0	0	
Unit	**1 :** 4	**Alchl/Drgs:** 0	**Speed:** 55 MPH	**Dir:** E	**Veh Mnvr/Ped Actn:** 4	**Obj Strk:** 17										
299	**104682351**	10.576	03/23/2016 15:10	REAR END, SLOW OR STOP	$ 14000	0	0	0	0	1	1	1	5	0	13	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:** 5 MPH	**Dir:** E	**Veh Mnvr/Ped Actn:** 11	**Obj Strk:**										
300	**104538754**	10.579	10/31/2015 10:24	LEFT TURN, SAME ROADWAY	$ 6600	0	0	1	0	1	1	1	5	0	0	
Unit	**1 :** 5	**Alchl/Drgs:** 0	**Speed:** 20 MPH	**Dir:** S	**Veh Mnvr/Ped Actn:** 8	**Obj Strk:**										
Unit	**2 :** 1	**Alchl/Drgs:** 0	**Speed:** 55 MPH	**Dir:** W	**Veh Mnvr/Ped Actn:** 4	**Obj Strk:** 60										
301	**104492947**	10.590	09/18/2015 18:30	REAR END, SLOW OR STOP	$ 4000	0	0	0	0	1	1	1	1	0	13	1
Unit	**1 :** 1	**Alchl/Drgs:** 0	**Speed:** 45 MPH	**Dir:** E	**Veh Mnvr/Ped Actn:** 4	**Obj Strk:**										
Unit	**2 :** 4	**Alchl/Drgs:** 7	**Speed:** 0 MPH	**Dir:** E	**Veh Mnvr/Ped Actn:** 1	**Obj Strk:**										
302	**104486208**	10.676	09/10/2015 17:55	REAR END, SLOW OR STOP	$ 5000	0	0	0	0	2	1	3	5	0	13	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:**										
303	**104046493**	10.726	05/02/2014 05:10	OVERTURN/ROLLOVER	$ 6500	0	0	0	1	1	5	1	5	0	0	
Unit	**1 :** 1	**Alchl/Drgs:** 0	**Speed:** 55 MPH	**Dir:** N	**Veh Mnvr/Ped Actn:** 15	**Obj Strk:** 59										
304	**103652092**	10.767	01/15/2013 15:14	REAR END, SLOW OR STOP	$ 4500	0	0	0	2	2	1	2	1	0	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:**										
305	**104701163**	10.796	04/12/2016 15:58	REAR END, SLOW OR STOP	$ 7200	0	0	0	0	2	1	2	7	0	13	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:** 0 MPH	**Dir:** S	**Veh Mnvr/Ped Actn:** 1	**Obj Strk:**										
306	**103642778**	10.866	01/04/2013 08:05	REAR END, TURN	$ 6050	0	0	0	0	1	1	1	1	0	0	
Unit	**1 :** 1	**Alchl/Drgs:** 0	**Speed:** 45 MPH	**Dir:** S	**Veh Mnvr/Ped Actn:** 1	**Obj Strk:**										
Unit	**2 :** 1	**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
307	**104557584**	10.876	11/18/2015 18:27	ANIMAL	$ 3500	0	0	0	0	1	5	1	3	0	13	1
Unit	**1 :** 1	**Alchl/Drgs:** 0	**Speed:** 0 MPH	**Dir:** E	**Veh Mnvr/Ped Actn:** 4					**Obj Strk:** 17						
308	**104109996**	10.896	07/24/2014 12:35	ANIMAL	$ 1300	0	0	0	0	1	1	1		0		
Unit	**1 :** 1	**Alchl/Drgs:** 0	**Speed:** 0 MPH	**Dir:** S	**Veh Mnvr/Ped Actn:** 4					**Obj Strk:** 17						
309	**103858348**	11.124	09/23/2013 21:10	RAN OFF ROAD - LEFT	$ 200	0	0	0	0	1	5	1	1	0	13	1
Unit	**1 :** 1	**Alchl/Drgs:** 0	**Speed:** 55 MPH	**Dir:** E	**Veh Mnvr/Ped Actn:** 4					**Obj Strk:** 60						
310	**104697848**	11.196	04/04/2016 07:41	LEFT TURN, DIFFERENT ROADWAYS	$ 11500	0	0	0	1	1	1	1	3	0	0	
Unit	**1 :** 4	**Alchl/Drgs:** 0	**Speed:** 15 MPH	**Dir:** S	**Veh Mnvr/Ped Actn:** 8					**Obj Strk:**						
Unit	**2 :** 1	**Alchl/Drgs:** 0	**Speed:** 55 MPH	**Dir:** S	**Veh Mnvr/Ped Actn:** 4					**Obj Strk:**						
311	**103908120**	11.236	11/21/2013 19:48	ANIMAL	$ 3000	0	0	0	0	1	5	1	1	0	13	1
Unit	**1 :** 1	**Alchl/Drgs:** 0	**Speed:** 55 MPH	**Dir:** W	**Veh Mnvr/Ped Actn:** 4					**Obj Strk:** 17						
312	**104555356**	11.296	11/16/2015 23:49	ANIMAL	$ 4000	0	0	0	0	1	5	1	3	0	0	
Unit	**1 :** 1	**Alchl/Drgs:** 0	**Speed:** 55 MPH	**Dir:** W	**Veh Mnvr/Ped Actn:** 4					**Obj Strk:** 17						
313	**104410010**	11.346	06/17/2015 09:00	RIGHT TURN, SAME ROADWAY	$ 4400	0	0	0	0	1	1	1	1	0	0	
Unit	**1 :** 2	**Alchl/Drgs:** 0	**Speed:** 45 MPH	**Dir:** N	**Veh Mnvr/Ped Actn:** 7					**Obj Strk:**						
Unit	**2 :** 2	**Alchl/Drgs:** 0	**Speed:** 50 MPH	**Dir:** N	**Veh Mnvr/Ped Actn:** 4					**Obj Strk:**						
314	**104767535**	11.416	06/19/2016 05:04	FIXED OBJECT	$ 8000	0	0	0	0	1	5	1	1	0	13	1
Unit	**1 :** 3	**Alchl/Drgs:** 7	**Speed:** 55 MPH	**Dir:** S	**Veh Mnvr/Ped Actn:** 4					**Obj Strk:** 56						
315	**104617797**	11.496	01/17/2016 11:14	LEFT TURN, SAME ROADWAY	$ 4200	0	0	0	0	2	1	2	1	0	13	1
Unit	**1 :** 4	**Alchl/Drgs:** 0	**Speed:** 55 MPH	**Dir:** S	**Veh Mnvr/Ped Actn:** 6					**Obj Strk:**						
Unit	**2 :** 1	**Alchl/Drgs:** 0	**Speed:** 50 MPH	**Dir:** S	**Veh Mnvr/Ped Actn:** 8					**Obj Strk:**						
316	**103987839**	11.606	02/27/2014 07:53	REAR END, SLOW OR STOP	$ 6000	0	0	0	0	1	1	1	1	0	13	1
Unit	**1 :** 2	**Alchl/Drgs:** 0	**Speed:** 15 MPH	**Dir:** S	**Veh Mnvr/Ped Actn:** 4					**Obj Strk:** 33						
Unit	**2 :** 5	**Alchl/Drgs:** 0	**Speed:** 45 MPH	**Dir:** S	**Veh Mnvr/Ped Actn:** 11					**Obj Strk:**						
317	**104921075**	11.736	11/14/2016 15:35	LEFT TURN, DIFFERENT ROADWAYS	$ 12000	0	0	0	1	2	1	2	3	0	13	1
Unit	**1 :** 4	**Alchl/Drgs:** 0	**Speed:** 15 MPH	**Dir:** S	**Veh Mnvr/Ped Actn:** 8					**Obj Strk:**						
Unit	**2 :** 1	**Alchl/Drgs:** 0	**Speed:** 55 MPH	**Dir:** S	**Veh Mnvr/Ped Actn:** 4					**Obj Strk:** 58						

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
318	**104133276**	11.936	08/18/2014 18:13	RAN OFF ROAD - RIGHT	$ 4000	0	0	0	0	2	4	3	6	0	13	1
Unit	**1 :** 1	**Alchl/Drgs:**	0	**Speed:** 50 MPH	**Dir:** S	**Veh Mnvr/Ped Actn:**			4		**Obj Strk:**		34			
319	**104418955**	11.936	06/23/2015 09:49	FIXED OBJECT	$ 7050	0	0	1	1	1	1	1	1	0	0	
Unit	**1 :** 4	**Alchl/Drgs:**	0	**Speed:** 60 MPH	**Dir:** S	**Veh Mnvr/Ped Actn:**			4		**Obj Strk:**		33			
320	**103707687**	11.956	03/21/2013 07:28	FIXED OBJECT	$ 6000	0	0	0	0	1	1	1	3	0	0	
Unit	**1 :** 1	**Alchl/Drgs:**	0	**Speed:** 50 MPH	**Dir:** N	**Veh Mnvr/Ped Actn:**			4		**Obj Strk:**		41			
321	**103828469**	12.036	08/19/2013 16:37	REAR END, SLOW OR STOP	$ 3000	0	0	0	0	1	1	2	1	0	0	
Unit	**1 :** 3	**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:**			1		**Obj Strk:**					
322	**105251035**	12.036	10/12/2017 10:07	MOVABLE OBJECT	$ 1000	0	0	0	0	1	1	2	1	2	13	1
Unit	**1 :** 1	**Alchl/Drgs:**	0	**Speed:** 55 MPH	**Dir:** S	**Veh Mnvr/Ped Actn:**			4		**Obj Strk:**		18			
323	**103661879**	12.086	01/25/2013 11:50	REAR END, SLOW OR STOP	$ 3000	0	0	0	0	4	1	6	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:** 45 MPH	**Dir:** S	**Veh Mnvr/Ped Actn:**			1		**Obj Strk:**					
324	**103701710**	12.096	03/14/2013 22:58	ANIMAL	$ 900	0	0	0	0	1	5	1		0		
Unit	**1 :** 1	**Alchl/Drgs:**	0	**Speed:** 0 MPH	**Dir:** E	**Veh Mnvr/Ped Actn:**			4		**Obj Strk:**		17			
325	**103742756**	12.116	05/06/2013 08:10	LEFT TURN, SAME ROADWAY	$ 3000	0	0	0	0	2	1	3	1	0	0	
Unit	**1 :** 1	**Alchl/Drgs:**	0	**Speed:** 50 MPH	**Dir:** NW	**Veh Mnvr/Ped Actn:**			4		**Obj Strk:**					
Unit	**2 :** 1	**Alchl/Drgs:**	0	**Speed:** 45 MPH	**Dir:** SE	**Veh Mnvr/Ped Actn:**			8		**Obj Strk:**					
326	**104822308**	12.124	08/16/2016 13:38	REAR END, SLOW OR STOP	$ 7000	0	0	0	3	1	1	1	1	0	13	1
Unit	**1 :** 1	**Alchl/Drgs:**	0	**Speed:** 55 MPH	**Dir:** W	**Veh Mnvr/Ped Actn:**			1		**Obj Strk:**					
Unit	**2 :** 1	**Alchl/Drgs:**	0	**Speed:** 55 MPH	**Dir:** W	**Veh Mnvr/Ped Actn:**			4		**Obj Strk:**					
327	**103897858**	12.136	10/27/2013 18:57	RAN OFF ROAD - LEFT	$ 13000	0	0	1	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:**					
Unit	**2 :** 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
328	**104418689**	12.136	06/19/2015 07:55	REAR END, SLOW OR STOP	$ 7000	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:**			11		**Obj Strk:**					
Unit	**2 :** 1	**Alchl/Drgs:**	0	**Speed:** 45 MPH	**Dir:** N	**Veh Mnvr/Ped Actn:**			4		**Obj Strk:**					
329	**104854382**	12.136	09/20/2016 21:32	MOVABLE OBJECT	$ 1200	0	0	0	0	1	5	2	1	0	13	1
Unit	**1 :** 1	**Alchl/Drgs:**	0	**Speed:** 52 MPH	**Dir:** S	**Veh Mnvr/Ped Actn:**			4		**Obj Strk:**		18			
330	**103901835**	12.185	11/15/2013 06:59	REAR END, SLOW OR STOP	$ 6500	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 :** 5	**Alchl/Drgs:**	0	**Speed:** 0 MPH	**Dir:** S	**Veh Mnvr/Ped Actn:**			1		**Obj Strk:**					
331	**103691879**	12.192	03/02/2013 15:21	SIDESWIPE, SAME DIRECTION	$ 1600	0	0	0	0	1	1	1	1	0	13	1
Unit	**1 :** 1	**Alchl/Drgs:**	0	**Speed:** 55 MPH	**Dir:** E	**Veh Mnvr/Ped Actn:**			4		**Obj Strk:**					
Unit	**2 :** 1	**Alchl/Drgs:**	7	**Speed:** 0 MPH	**Dir:** E	**Veh Mnvr/Ped Actn:**			8		**Obj Strk:**					
332	**104944411**	12.206	12/13/2016 00:05	ANIMAL	$ 1500	0	0	0	0	1	5	1	3	0	0	
Unit	**1 :** 1	**Alchl/Drgs:**	0	**Speed:** 55 MPH	**Dir:** S	**Veh Mnvr/Ped Actn:**			4		**Obj Strk:**		17			
333	**104282676**	12.226	01/30/2015 16:04	LEFT TURN, SAME ROADWAY	$ 19000	0	0	0	1	1	1	1	1	0	13	1
Unit	**1 :** 4	**Alchl/Drgs:**	0	**Speed:** 15 MPH	**Dir:** E	**Veh Mnvr/Ped Actn:**			8		**Obj Strk:**					
Unit	**2 :** 2	**Alchl/Drgs:**	0	**Speed:** 55 MPH	**Dir:** W	**Veh Mnvr/Ped Actn:**			4		**Obj Strk:**					
334	**103702149**	12.236	03/15/2013 07:32	ANGLE	$ 12000	0	0	0	0	1	3	1	1	0	1	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:** 15 MPH	**Dir:** E	**Veh Mnvr/Ped Actn:**			12		**Obj Strk:**					
335	**103776938**	12.236	06/16/2013 16:30	ANGLE	$ 8000	0	0	0	0	1	1	1	1	0	1	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:** 15 MPH	**Dir:** E	**Veh Mnvr/Ped Actn:**			12		**Obj Strk:**					
336	**103890769**	12.236	11/03/2013 04:23	ANGLE	$ 9000	0	0	0	2	1	5	1	1	0	1	1
Unit	**1 :** 4	**Alchl/Drgs:**	0	**Speed:** 5 MPH	**Dir:** W	**Veh Mnvr/Ped Actn:**			4		**Obj Strk:**					
Unit	**2 :** 4	**Alchl/Drgs:**	0	**Speed:** 50 MPH	**Dir:** N	**Veh Mnvr/Ped Actn:**			4		**Obj Strk:**					
337	**104045199**	12.236	04/30/2014 15:33	LEFT TURN, DIFFERENT ROADWAYS	$ 3050	0	0	0	1	1	1	2	1	0	3	1
Unit	**1 :** 7	**Alchl/Drgs:**	0	**Speed:** 45 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:**			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
338	**104483601**	12.236	09/03/2015 06:05	LEFT TURN, SAME ROADWAY	$ 2000	0	0	0	0	1	3	1	3	0	3	1
Unit	**1 :** 21	**Alchl/Drgs:**	0	**Speed:** 10 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:**				8			**Obj Strk:**			
339	**105013685**	12.236	02/17/2017 12:32	ANGLE	$ 8000	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:** 20 MPH	**Dir:** W	**Veh Mnvr/Ped Actn:**				4			**Obj Strk:**			
340	**105036393**	12.236	03/11/2017 10:19	ANGLE	$ 14000	0	0	0	0	1	1	2	1	0	3	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:** 55 MPH	**Dir:** N	**Veh Mnvr/Ped Actn:**				4			**Obj Strk:**			
341	**105110559**	12.236	05/16/2017 20:50	LEFT TURN, SAME ROADWAY	$ 21000	0	3	0	0	1	5	1	2	0	3	1
Unit	**1 :** 1	**Alchl/Drgs:**	0	**Speed:** 40 MPH	**Dir:** E	**Veh Mnvr/Ped Actn:**				8			**Obj Strk:**			
Unit	**2 :** 1	**Alchl/Drgs:**	0	**Speed:** 55 MPH	**Dir:** W	**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:**			
342	**105260843**	12.283	10/19/2017 18:07	REAR END, SLOW OR STOP	$ 8500	0	0	0	1	1	2	1	1	0	3	1
Unit	**1 :** 2	**Alchl/Drgs:**	0	**Speed:** 55 MPH	**Dir:** N	**Veh Mnvr/Ped Actn:**				4			**Obj Strk:**			
Unit	**2 :** 4	**Alchl/Drgs:**	0	**Speed:** 0 MPH	**Dir:** N	**Veh Mnvr/Ped Actn:**				1			**Obj Strk:**			
343	**104370328**	12.336	05/05/2015 16:24	REAR END, SLOW OR STOP	$ 13000	0	0	0	1	1	1	1	1	0	13	1
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:**			
344	**104443816**	12.336	07/24/2015 17:04	REAR END, SLOW OR STOP	$ 3000	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:** 55 MPH	**Dir:** W	**Veh Mnvr/Ped Actn:**				4			**Obj Strk:**			
345	**105070059**	12.336	04/11/2017 15:59	REAR END, SLOW OR STOP	$ 13700	0	0	0	5	1	1	1	3	0	13	1
Unit	**1 :** 1	**Alchl/Drgs:**	0	**Speed:** 50 MPH	**Dir:** N	**Veh Mnvr/Ped Actn:**				1			**Obj Strk:**			
Unit	**2 :** 1	**Alchl/Drgs:**	0	**Speed:** 50 MPH	**Dir:** N	**Veh Mnvr/Ped Actn:**				1			**Obj Strk:**			
Unit	**3 :** 1	**Alchl/Drgs:**	0	**Speed:** 55 MPH	**Dir:** N	**Veh Mnvr/Ped Actn:**				4			**Obj Strk:**			
346	**105070068**	12.336	04/12/2017 17:00	REAR END, SLOW OR STOP	$ 17000	0	0	0	1	1	1	1	1	0	13	1
Unit	**1 :** 1	**Alchl/Drgs:**	0	**Speed:** 0 MPH	**Dir:** S	**Veh Mnvr/Ped Actn:**				1			**Obj Strk:**			
Unit	**2 :** 2	**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
Unit	**3 :** 1	**Alchl/Drgs:**	0	**Speed:** 40 MPH	**Dir:** S	**Veh Mnvr/Ped Actn:**				4			**Obj Strk:**			
347	**105101360**	12.336	05/16/2017 08:38	HEAD ON	$ 26000	0	0	1	0	1	1	1	1	0	13	1
Unit	**1 :** 14	**Alchl/Drgs:**	0	**Speed:** 55 MPH	**Dir:** E	**Veh Mnvr/Ped Actn:**				4			**Obj Strk:**			
Unit	**2 :** 2	**Alchl/Drgs:**	0	**Speed:** 55 MPH	**Dir:** W	**Veh Mnvr/Ped Actn:**				4			**Obj Strk:**			
348	**104442619**	12.606	07/25/2015 12:50	REAR END, SLOW OR STOP	$ 1000	0	0	0	0	1	1	1	1	0	3	1
Unit	**1 :** 1	**Alchl/Drgs:**	0	**Speed:** 30 MPH	**Dir:** W	**Veh Mnvr/Ped Actn:**				4			**Obj Strk:**			
Unit	**2 :** 2	**Alchl/Drgs:**	0	**Speed:** 20 MPH	**Dir:** W	**Veh Mnvr/Ped Actn:**				11			**Obj Strk:**			
349	**104957475**	12.606	12/23/2016 09:41	MOVABLE OBJECT	$ 100	0	0	0	0	1	1	1	1	0	13	1
Unit	**1 :** 2	**Alchl/Drgs:**	0	**Speed:** 55 MPH	**Dir:** E	**Veh Mnvr/Ped Actn:**				4			**Obj Strk:**			
Unit	**2 :** 2	**Alchl/Drgs:**	0	**Speed:** 55 MPH	**Dir:** W	**Veh Mnvr/Ped Actn:**				4			**Obj Strk:**	18		
350	**105105456**	12.606	05/12/2017 09:26	FIXED OBJECT	$ 650	0	0	0	0	1	1	2	3	0	13	1
Unit	**1 :** 1	**Alchl/Drgs:**	0	**Speed:** 55 MPH	**Dir:** NW	**Veh Mnvr/Ped Actn:**				4			**Obj Strk:**	60		
351	**104663390**	12.626	03/02/2016 02:44	ANIMAL	$ 4000	0	0	0	0	2	5	2	2	0	13	1
Unit	**1 :** 5	**Alchl/Drgs:**	0	**Speed:** 50 MPH	**Dir:** S	**Veh Mnvr/Ped Actn:**				4			**Obj Strk:**	17		
352	**103769933**	12.696	06/07/2013 16:37	SIDESWIPE, SAME DIRECTION	$ 900	0	0	0	0	2	1	2	3	0	0	
Unit	**1 :** 4	**Alchl/Drgs:**	0	**Speed:** 60 MPH	**Dir:** N	**Veh Mnvr/Ped Actn:**				6			**Obj Strk:**			
Unit	**2 :** 1	**Alchl/Drgs:**	0	**Speed:** 55 MPH	**Dir:** N	**Veh Mnvr/Ped Actn:**				4			**Obj Strk:**			
353	**104612115**	12.706	01/12/2016 13:35	REAR END, TURN	$ 1500	0	0	0	1	1	1	1	6	0	13	1
Unit	**1 :** 2	**Alchl/Drgs:**	0	**Speed:** 50 MPH	**Dir:** E	**Veh Mnvr/Ped Actn:**				4			**Obj Strk:**	20		
Unit	**2 :** 2	**Alchl/Drgs:**	0	**Speed:** 20 MPH	**Dir:** E	**Veh Mnvr/Ped Actn:**				7			**Obj Strk:**			
354	**104914983**	12.706	11/10/2016 15:57	REAR END, SLOW OR STOP	$ 5000	0	0	1	1	1	1	1	1	0	1	1
Unit	**1 :** 2	**Alchl/Drgs:**	0	**Speed:** 55 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:**				4			**Obj Strk:**			
355	**104660892**	12.736	02/27/2016 21:36	FIXED OBJECT	$ 3000	0	0	0	0	1	5	1	7	0	13	1
Unit	**1 :** 1	**Alchl/Drgs:**	0	**Speed:** 55 MPH	**Dir:** S	**Veh Mnvr/Ped Actn:**				4			**Obj Strk:**	33		
356	**103615271**	12.906	12/01/2012 21:12	ANIMAL	$ 2000	0	0	0	0	1	5	1	1	0	13	1
Unit	**1 :** 1	**Alchl/Drgs:**	0	**Speed:** 55 MPH	**Dir:** W	**Veh Mnvr/Ped Actn:**				4			**Obj Strk:**	17		

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
357	**104541051**	12.906	11/02/2015 22:17	ANIMAL	$ 1800	0	0	0	0	2	5	2	1	0	13	1
Unit	**1 :** 1	**Alchl/Drgs:** 0	**Speed:** 0 MPH	**Dir:** W	**Veh Mnvr/Ped Actn:** 4	**Obj Strk:** 17										
358	**104767321**	12.906	06/17/2016 22:06	ANIMAL	$ 3000	0	0	0	0	1	5	1	3	0	13	1
Unit	**1 :** 1	**Alchl/Drgs:** 0	**Speed:** 0 MPH	**Dir:** E	**Veh Mnvr/Ped Actn:** 4	**Obj Strk:** 17										
359	**105093558**	12.906	04/26/2017 16:46	FIXED OBJECT	$ 300	0	0	0	0	1	1	2	3	0	13	1
Unit	**1 :** 1	**Alchl/Drgs:** 0	**Speed:** 45 MPH	**Dir:** S	**Veh Mnvr/Ped Actn:** 8	**Obj Strk:** 60										
360	**103824345**	13.206	08/14/2013 06:15	ANIMAL	$ 5000	0	0	0	0	1	3	1	6	0	13	1
Unit	**1 :** 1	**Alchl/Drgs:** 0	**Speed:** 50 MPH	**Dir:** S	**Veh Mnvr/Ped Actn:** 4	**Obj Strk:** 17										
361	**104226823**	13.206	11/29/2014 18:32	ANIMAL	$ 3000	0	0	0	0	1	5	1	3	0	13	1
Unit	**1 :** 1	**Alchl/Drgs:** 0	**Speed:** 55 MPH	**Dir:** N	**Veh Mnvr/Ped Actn:** 4	**Obj Strk:** 17										
362	**105213204**	13.236	09/02/2017 23:31	ANIMAL	$ 6000	0	0	0	0	1	5	1	1	0	13	1
Unit	**1 :** 1	**Alchl/Drgs:** 0	**Speed:** 55 MPH	**Dir:** E	**Veh Mnvr/Ped Actn:** 4	**Obj Strk:** 17										
363	**104389554**	13.376	05/26/2015 07:27	MOVABLE OBJECT	$ 500	0	0	0	0	1	1	1	1	0	13	1
Unit	**1 :** 1	**Alchl/Drgs:** 0	**Speed:** 50 MPH	**Dir:** S	**Veh Mnvr/Ped Actn:** 4	**Obj Strk:** 18										
364	**104237291**	13.406	12/06/2014 05:55	ANIMAL	$ 18000	0	0	0	0	1	5	1	3	0	13	1
Unit	**1 :** 14	**Alchl/Drgs:** 0	**Speed:** 55 MPH	**Dir:** N	**Veh Mnvr/Ped Actn:** 4	**Obj Strk:** 17										
365	**104494276**	13.406	09/21/2015 00:29	FIXED OBJECT	$ 3000	0	0	0	1	1	5	1	4	0	0	
Unit	**1 :** 1	**Alchl/Drgs:** 0	**Speed:** 55 MPH	**Dir:** E	**Veh Mnvr/Ped Actn:** 4	**Obj Strk:** 34										
366	**105268786**	13.406	10/26/2017 19:55	ANIMAL	$ 8000	0	0	0	0	1	5	1	1	0	13	1
Unit	**1 :** 1	**Alchl/Drgs:** 0	**Speed:** 55 MPH	**Dir:** S	**Veh Mnvr/Ped Actn:** 4	**Obj Strk:** 17										
367	**103977505**	13.456	02/12/2014 15:00	REAR END, SLOW OR STOP	$ 2100	0	0	0	0	5	1	2	7	1	0	
Unit	**1 :** 10	**Alchl/Drgs:** 0	**Speed:** 35 MPH	**Dir:** S	**Veh Mnvr/Ped Actn:** 11	**Obj Strk:** 60										
Unit	**2 :** 1	**Alchl/Drgs:** 0	**Speed:** 20 MPH	**Dir:** S	**Veh Mnvr/Ped Actn:** 1	**Obj Strk:**										
368	**104795624**	13.486	07/20/2016 06:04	ANIMAL	$ 3000	0	0	0	0	1	3	1	1	0	13	1
Unit	**1 :** 5	**Alchl/Drgs:** 0	**Speed:** 45 MPH	**Dir:** S	**Veh Mnvr/Ped Actn:** 4	**Obj Strk:** 17										

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
369	**104471171**	13.606	08/25/2015 09:00	LEFT TURN, SAME ROADWAY	$ 4000	0	0	0	0	1	1	1	3	0	1	1
Unit	**1 :** 1	**Alchl/Drgs:** 0	**Speed:** 50 MPH	**Dir:** S	**Veh Mnvr/Ped Actn:** 6	**Obj Strk:**										
Unit	**2 :** 4	**Alchl/Drgs:** 0	**Speed:** 50 MPH	**Dir:** S	**Veh Mnvr/Ped Actn:** 8	**Obj Strk:**										
370	**104526659**	13.606	10/18/2015 12:13	PEDALCYCLIST	$ 0	0	0	1	0	1	1	1	3	0	1	1
Unit	**1 :** 4	**Alchl/Drgs:** 0	**Speed:** 40 MPH	**Dir:** S	**Veh Mnvr/Ped Actn:** 6	**Obj Strk:** 15										
Unit	**2 :** 23	**Alchl/Drgs:** 0	**Speed:** 0 MPH	**Dir:**	**Veh Mnvr/Ped Actn:** 8	**Obj Strk:** 15										
371	**104553388**	13.606	11/14/2015 21:00	REAR END, SLOW OR STOP	$ 4000	0	0	0	2	1	5	1	4	0	13	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:** 40 MPH	**Dir:** S	**Veh Mnvr/Ped Actn:** 11	**Obj Strk:**										
372	**104697866**	13.606	04/05/2016 14:19	REAR END, SLOW OR STOP	$ 9000	0	0	0	0	1	1	1	1	0	0	
Unit	**1 :** 1	**Alchl/Drgs:** 0	**Speed:** 60 MPH	**Dir:** E	**Veh Mnvr/Ped Actn:** 4	**Obj Strk:**										
Unit	**2 :** 1	**Alchl/Drgs:** 7	**Speed:** 0 MPH	**Dir:** E	**Veh Mnvr/Ped Actn:** 1	**Obj Strk:**										
373	**103895849**	13.706	11/08/2013 18:00	ANIMAL	$ 2500	0	0	0	0	1	5	1	1	0	13	1
Unit	**1 :** 1	**Alchl/Drgs:** 0	**Speed:** 55 MPH	**Dir:** W	**Veh Mnvr/Ped Actn:** 4	**Obj Strk:** 17										
374	**103897189**	13.806	11/10/2013 04:31	RAN OFF ROAD - RIGHT	$ 6000	0	0	0	1	1	5	1	5	0	13	1
Unit	**1 :** 4	**Alchl/Drgs:** 0	**Speed:** 55 MPH	**Dir:** E	**Veh Mnvr/Ped Actn:** 4	**Obj Strk:**										
375	**104066753**	13.806	05/22/2014 19:49	OVERTURN/ROLLOVER	$ 6000	0	0	1	0	1	1	1	7	0	13	1
Unit	**1 :** 1	**Alchl/Drgs:** 0	**Speed:** 65 MPH	**Dir:** W	**Veh Mnvr/Ped Actn:** 4	**Obj Strk:** 59										
376	**104329168**	13.806	03/23/2015 07:10	ANIMAL	$ 200	0	0	0	0	1	3	2	7	0	13	1
Unit	**1 :** 1	**Alchl/Drgs:** 0	**Speed:** 55 MPH	**Dir:** N	**Veh Mnvr/Ped Actn:** 4	**Obj Strk:** 17										
377	**105245498**	13.806	10/05/2017 21:50	ANIMAL	$ 6000	0	0	0	0	1	5	1	5	0	13	1
Unit	**1 :** 1	**Alchl/Drgs:** 0	**Speed:** 55 MPH	**Dir:** W	**Veh Mnvr/Ped Actn:** 4	**Obj Strk:** 17										
378	**103890779**	13.856	11/04/2013 05:15	ANIMAL	$ 1200	0	0	0	0	1	5	1		0		
Unit	**1 :** 1	**Alchl/Drgs:** 0	**Speed:** 0 MPH	**Dir:** N	**Veh Mnvr/Ped Actn:** 4	**Obj Strk:** 17										
379	**103620679**	13.986	12/07/2012 10:30	FIXED OBJECT	$ 4000	0	0	1	0	2	1	2	1	0	0	
Unit	**1 :** 1	**Alchl/Drgs:** 0	**Speed:** 55 MPH	**Dir:** S	**Veh Mnvr/Ped Actn:** 4	**Obj Strk:** 34										

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
380	**105125841**	14.096	06/08/2017 09:08	ANIMAL	$ 3600	0	0	0	0	1	8	1	1	0	0	
Unit	**1 :** 1	**Alchl/Drgs:**	7	**Speed:** 55 MPH	**Dir:** W	**Veh Mnvr/Ped Actn:**			4			**Obj Strk:**			17	
381	**105265585**	14.106	10/25/2017 07:53	ANIMAL	$ 6000	0	0	0	0	1	1	1	1	0	0	
Unit	**1 :** 1	**Alchl/Drgs:**	0	**Speed:** 55 MPH	**Dir:** S	**Veh Mnvr/Ped Actn:**			4			**Obj Strk:**			17	
382	**103637719**	14.126	12/27/2012 20:46	ANIMAL	$ 1500	0	0	0	0	1	5	1	1	0	0	
Unit	**1 :** 1	**Alchl/Drgs:**	0	**Speed:** 55 MPH	**Dir:** W	**Veh Mnvr/Ped Actn:**			4			**Obj Strk:**			17	
383	**104603428**	14.236	01/03/2016 18:50	ANIMAL	$ 3000	0	0	0	2	1	5	1	1	0	0	
Unit	**1 :** 4	**Alchl/Drgs:**	0	**Speed:** 55 MPH	**Dir:** E	**Veh Mnvr/Ped Actn:**			4			**Obj Strk:**			17	
384	**103832473**	14.526	08/23/2013 16:22	MOVABLE OBJECT	$ 2000	0	0	1	0	1	1	1	1	0	0	
Unit	**1 :** 11	**Alchl/Drgs:**	0	**Speed:** 55 MPH	**Dir:** E	**Veh Mnvr/Ped Actn:**			4			**Obj Strk:**				
Unit	**2 :** 1	**Alchl/Drgs:**	0	**Speed:** 60 MPH	**Dir:** E	**Veh Mnvr/Ped Actn:**			4			**Obj Strk:**			18	
385	**104170179**	14.587	08/08/2014 14:41	SIDESWIPE, SAME DIRECTION	$ 900	0	0	0	0	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:**				
Unit	**2 :** 1	**Alchl/Drgs:**	0	**Speed:** 45 MPH	**Dir:** N	**Veh Mnvr/Ped Actn:**			4			**Obj Strk:**				
386	**104099978**	14.626	07/05/2014 20:00	FIXED OBJECT	$ 8000	0	0	0	2	1	2	1	1	11	0	
Unit	**1 :** 1	**Alchl/Drgs:**	0	**Speed:** 55 MPH	**Dir:** E	**Veh Mnvr/Ped Actn:**			4			**Obj Strk:**			61	
387	**104698739**	14.626	04/10/2016 08:03	OVERTURN/ROLLOVER	$ 5000	0	0	1	0	1	1	1	1	0	0	
Unit	**1 :** 4	**Alchl/Drgs:**	4	**Speed:** 55 MPH	**Dir:** E	**Veh Mnvr/Ped Actn:**			4			**Obj Strk:**				
388	**104715353**	14.706	04/26/2016 20:26	ANIMAL	$ 3200	0	0	0	0	1	5	1	3	0	0	
Unit	**1 :** 1	**Alchl/Drgs:**	0	**Speed:** 0 MPH	**Dir:** S	**Veh Mnvr/Ped Actn:**			4			**Obj Strk:**			17	
389	**103604390**	14.906	11/19/2012 20:56	ANIMAL	$ 2000	0	0	0	0	1	5	1	1	0	13	1
Unit	**1 :** 1	**Alchl/Drgs:**	0	**Speed:** 55 MPH	**Dir:** S	**Veh Mnvr/Ped Actn:**			4			**Obj Strk:**			17	
390	**104701174**	14.926	04/12/2016 16:30	REAR END, SLOW OR STOP	$ 5500	0	0	0	0	2	1	2	1	0	13	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:** W	**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
391	**104945927**	14.926	12/11/2016 17:10	SIDESWIPE, OPPOSITE DIRECTION	$ 15000	0	0	0	0	1	5	1	1	0	13	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:** S	**Veh Mnvr/Ped Actn:** 4	**Obj Strk:**										
Unit	**3 :** 1	**Alchl/Drgs:** 0	**Speed:** 55 MPH	**Dir:** S	**Veh Mnvr/Ped Actn:** 4	**Obj Strk:**										
392	**103830601**	15.026	08/22/2013 05:23	ANIMAL	$ 1500	0	0	0	0	1	5	1	1	0	13	1
Unit	**1 :** 1	**Alchl/Drgs:** 0	**Speed:** 55 MPH	**Dir:** E	**Veh Mnvr/Ped Actn:** 4	**Obj Strk:** 17										
393	**104101752**	15.296	07/12/2014 09:30	LEFT TURN, SAME ROADWAY	$ 12000	0	0	0	0	1	1	1	4	0	0	
Unit	**1 :** 4	**Alchl/Drgs:** 0	**Speed:** 55 MPH	**Dir:** W	**Veh Mnvr/Ped Actn:** 6	**Obj Strk:**										
Unit	**2 :** 1	**Alchl/Drgs:** 0	**Speed:** 0 MPH	**Dir:** W	**Veh Mnvr/Ped Actn:** 8	**Obj Strk:**										
394	**105258714**	15.296	10/18/2017 22:28	REAR END, SLOW OR STOP	$ 5800	0	0	0	0	1	5	1	1	0	0	
Unit	**1 :** 4	**Alchl/Drgs:** 0	**Speed:** 65 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:** 4	**Obj Strk:**										
395	**103825496**	15.326	08/14/2013 23:01	ANIMAL	$ 5000	0	0	0	0	1	5	1	3	0	0	
Unit	**1 :** 4	**Alchl/Drgs:** 0	**Speed:** 55 MPH	**Dir:** E	**Veh Mnvr/Ped Actn:** 4	**Obj Strk:** 17										
396	**103768429**	15.496	06/06/2013 06:27	ANIMAL	$ 1500	0	0	0	0	1	1	1	1	0	13	1
Unit	**1 :** 1	**Alchl/Drgs:** 0	**Speed:** 55 MPH	**Dir:** E	**Veh Mnvr/Ped Actn:** 4	**Obj Strk:** 17										
397	**103990245**	15.587	03/01/2014 12:38	ANGLE	$ 19000	0	0	0	2	1	1	1	1	0	0	
Unit	**1 :** 13	**Alchl/Drgs:** 0	**Speed:** 55 MPH	**Dir:** E	**Veh Mnvr/Ped Actn:** 4	**Obj Strk:** 58										
Unit	**2 :** 1	**Alchl/Drgs:** 0	**Speed:** 55 MPH	**Dir:** W	**Veh Mnvr/Ped Actn:** 8	**Obj Strk:**										
398	**105133315**	15.587	06/14/2017 17:53	LEFT TURN, SAME ROADWAY	$ 10000	0	0	0	0	1	1	1	1	0	1	1
Unit	**1 :** 4	**Alchl/Drgs:** 0	**Speed:** 15 MPH	**Dir:** W	**Veh Mnvr/Ped Actn:** 8	**Obj Strk:**										
Unit	**2 :** 5	**Alchl/Drgs:** 0	**Speed:** 55 MPH	**Dir:** E	**Veh Mnvr/Ped Actn:** 4	**Obj Strk:**										
399	**105194878**	15.587	08/16/2017 18:01	ANGLE	$ 16500	0	0	1	1	1	1	1	1	0	1	1
Unit	**1 :** 4	**Alchl/Drgs:** 0	**Speed:** 15 MPH	**Dir:** W	**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:**										
400	**105232078**	15.587	09/23/2017 15:09	LEFT TURN, SAME ROADWAY	$ 12000	0	0	2	0	1	1	1	1	0	0	
Unit	**1 :** 1	**Alchl/Drgs:** 0	**Speed:** 20 MPH	**Dir:** W	**Veh Mnvr/Ped Actn:** 8	**Obj Strk:**										
Unit	**2 :** 4	**Alchl/Drgs:** 0	**Speed:** 55 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
401	**103696096**	15.596	03/07/2013 17:04	ANGLE	$ 1700	0	0	0	0	1	1	1	1	0	1	1
Unit 1 : 4	**Alchl/Drgs:** 0	**Speed:** 15 MPH	**Dir:** S	**Veh Mnvr/Ped Actn:** 8	**Obj Strk:**											
Unit 2 : 2	**Alchl/Drgs:** 0	**Speed:** 20 MPH	**Dir:** E	**Veh Mnvr/Ped Actn:** 4	**Obj Strk:**											
402	**103968474**	15.596	12/11/2013 18:33	REAR END, SLOW OR STOP	$ 7500	0	0	0	0	1	5	1	1	0	13	2
Unit 1 : 1	**Alchl/Drgs:** 0	**Speed:** 25 MPH	**Dir:** E	**Veh Mnvr/Ped Actn:** 7	**Obj Strk:**											
Unit 2 : 1	**Alchl/Drgs:** 0	**Speed:** 35 MPH	**Dir:** W	**Veh Mnvr/Ped Actn:** 4	**Obj Strk:**											
Unit 3 : 4	**Alchl/Drgs:** 0	**Speed:** 35 MPH	**Dir:** W	**Veh Mnvr/Ped Actn:** 4	**Obj Strk:**											
403	**103943515**	15.596	01/04/2014 12:01	ANGLE	$ 10000	0	0	0	1	1	1	2	3	0	1	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:** 55 MPH	**Dir:** E	**Veh Mnvr/Ped Actn:** 4	**Obj Strk:**											
404	**103962048**	15.596	01/27/2014 18:01	REAR END, SLOW OR STOP	$ 7000	0	0	0	2	1	5	1	1	0	13	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:** 0 MPH	**Dir:** W	**Veh Mnvr/Ped Actn:** 1	**Obj Strk:**											
405	**103966265**	15.596	01/31/2014 12:24	ANGLE	$ 14000	0	0	0	0	1	1	1	1	0	1	1
Unit 1 : 4	**Alchl/Drgs:** 0	**Speed:** 0 MPH	**Dir:** S	**Veh Mnvr/Ped Actn:** 12	**Obj Strk:**											
Unit 2 : 4	**Alchl/Drgs:** 0	**Speed:** 55 MPH	**Dir:** E	**Veh Mnvr/Ped Actn:** 4	**Obj Strk:**											
406	**104214977**	15.596	11/13/2014 16:12	ANGLE	$ 10000	0	0	0	0	1	1	2	1	0	1	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:** 55 MPH	**Dir:** W	**Veh Mnvr/Ped Actn:** 4	**Obj Strk:**											
407	**104700956**	15.596	04/11/2016 08:12	LEFT TURN, DIFFERENT ROADWAYS	$ 9200	0	0	0	1	1	1	1	1	0	1	1
Unit 1 : 5	**Alchl/Drgs:** 0	**Speed:** 0 MPH	**Dir:** S	**Veh Mnvr/Ped Actn:** 8	**Obj Strk:**											
Unit 2 : 4	**Alchl/Drgs:** 7	**Speed:** 55 MPH	**Dir:** W	**Veh Mnvr/Ped Actn:** 4	**Obj Strk:** 38											
408	**104744625**	15.596	05/18/2016 23:06	SIDESWIPE, SAME DIRECTION	$ 3500	0	0	0	1	1	5	1	1	0	1	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:** 8	**Obj Strk:**											
409	**104772351**	15.596	06/21/2016 17:59	ANGLE	$ 7000	0	0	0	0	1	1	1	1	0	1	1
Unit 1 : 32	**Alchl/Drgs:** 7	**Speed:** 0 MPH	**Dir:** S	**Veh Mnvr/Ped Actn:** 12	**Obj Strk:**											
Unit 2 : 1	**Alchl/Drgs:** 0	**Speed:** 55 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
410	**104852625**	15.596	09/10/2016 15:09	REAR END, SLOW OR STOP	$ 300	0	0	0	0	1	1	1	1	0	1	1
Unit	**1 :** 4	**Alchl/Drgs:**	0	**Speed:** 5 MPH	**Dir:** W	**Veh Mnvr/Ped Actn:**			11		**Obj Strk:**					
Unit	**2 :** 4	**Alchl/Drgs:**	0	**Speed:** 40 MPH	**Dir:** W	**Veh Mnvr/Ped Actn:**			4		**Obj Strk:**					
411	**104911656**	15.596	11/11/2016 07:31	LEFT TURN, DIFFERENT ROADWAYS	$ 2500	0	0	0	0	1	1	1	1	0	1	1
Unit	**1 :** 11	**Alchl/Drgs:**	1	**Speed:** 10 MPH	**Dir:** N	**Veh Mnvr/Ped Actn:**			7		**Obj Strk:**					
Unit	**2 :** 1	**Alchl/Drgs:**	0	**Speed:** 10 MPH	**Dir:** S	**Veh Mnvr/Ped Actn:**			8		**Obj Strk:**					
412	**104927925**	15.596	11/26/2016 13:15	FIXED OBJECT	$ 3500	0	0	0	0	1	1	1	1	0	13	1
Unit	**1 :** 4	**Alchl/Drgs:**	0	**Speed:** 55 MPH	**Dir:** W	**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:**				37	
413	**104934118**	15.596	11/29/2016 15:42	SIDESWIPE, OPPOSITE DIRECTION	$ 9000	0	0	0	0	2	1	2	1	0	13	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:** 55 MPH	**Dir:** W	**Veh Mnvr/Ped Actn:**			4		**Obj Strk:**					
414	**104957425**	15.596	12/22/2016 18:17	LEFT TURN, SAME ROADWAY	$ 4000	0	0	0	0	1	5	1	1	0	1	1
Unit	**1 :** 1	**Alchl/Drgs:**	0	**Speed:** 15 MPH	**Dir:** E	**Veh Mnvr/Ped Actn:**			8		**Obj Strk:**					
Unit	**2 :** 4	**Alchl/Drgs:**	0	**Speed:** 20 MPH	**Dir:** S	**Veh Mnvr/Ped Actn:**			4		**Obj Strk:**					
415	**105029292**	15.596	03/06/2017 09:56	OVERTURN/ROLLOVER	$ 6000	0	0	0	0	1	1	1	1	0	13	1
Unit	**1 :** 4	**Alchl/Drgs:**	0	**Speed:** 55 MPH	**Dir:** W	**Veh Mnvr/Ped Actn:**			4		**Obj Strk:**					
416	**105262869**	15.596	10/20/2017 20:12	OVERTURN/ROLLOVER	$ 15000	0	0	1	0	1	5	1	1	0	1	1
Unit	**1 :** 1	**Alchl/Drgs:**	0	**Speed:** 0 MPH	**Dir:** S	**Veh Mnvr/Ped Actn:**			12		**Obj Strk:**					
Unit	**2 :** 4	**Alchl/Drgs:**	0	**Speed:** 58 MPH	**Dir:** E	**Veh Mnvr/Ped Actn:**			4		**Obj Strk:**					
417	**103961528**	15.600	12/11/2013 17:49	REAR END, SLOW OR STOP	$ 2500	0	0	0	0	1	5	1	1	0	13	1
Unit	**1 :** 1	**Alchl/Drgs:**	0	**Speed:** 50 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:**					
418	**103615280**	15.605	11/28/2012 18:15	REAR END, SLOW OR STOP	$ 6000	0	0	0	0	1	1	1	1	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:** 55 MPH	**Dir:** W	**Veh Mnvr/Ped Actn:**			4		**Obj Strk:**					
419	**103724340**	15.615	04/11/2013 21:04	REAR END, SLOW OR STOP	$ 7000	0	0	0	1	1	5	1	1	0	13	1
Unit	**1 :** 2	**Alchl/Drgs:**	7	**Speed:** 55 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
Unit 2 : 1	**Alchl/Drgs:** 0	**Speed:** 20 MPH	**Dir:** E	**Veh Mnvr/Ped Actn:** 4	**Obj Strk:**											
420	**104395687**	15.653	06/03/2015 04:16	ANIMAL	$ 600	0	0	0	0	2	5	3	1	0	0	
Unit 1 : 5	**Alchl/Drgs:** 0	**Speed:** 55 MPH	**Dir:** W	**Veh Mnvr/Ped Actn:** 4	**Obj Strk:** 17											
421	**103915567**	15.696	12/01/2013 21:44	ANIMAL	$ 4000	0	0	0	0	1	5	1		0		
Unit 1 : 4	**Alchl/Drgs:** 0	**Speed:** 0 MPH	**Dir:** E	**Veh Mnvr/Ped Actn:** 4	**Obj Strk:** 17											
422	**104546679**	15.796	11/06/2015 02:11	ANIMAL	$ 2000	0	0	0	0	1	5	1	1	0	13	1
Unit 1 : 4	**Alchl/Drgs:** 0	**Speed:** 55 MPH	**Dir:** W	**Veh Mnvr/Ped Actn:** 4	**Obj Strk:** 17											
423	**103621512**	15.896	12/08/2012 12:17	HEAD ON	$ 8000	0	1	1	4	1	1	1	7	0	13	1
Unit 1 : 5	**Alchl/Drgs:** 0	**Speed:** 55 MPH	**Dir:** E	**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:**											
424	**104549956**	16.096	11/11/2015 22:15	ANIMAL	$ 3000	0	0	0	0	1	5	1	3	0	13	1
Unit 1 : 1	**Alchl/Drgs:** 0	**Speed:** 55 MPH	**Dir:** E	**Veh Mnvr/Ped Actn:** 4	**Obj Strk:** 17											
425	**104867494**	16.096	10/01/2016 22:25	ANIMAL	$ 1500	0	0	0	0	1	5	1	7	0	13	1
Unit 1 : 29	**Alchl/Drgs:** 0	**Speed:** 65 MPH	**Dir:** E	**Veh Mnvr/Ped Actn:** 4	**Obj Strk:** 17											
426	**104098161**	16.336	06/26/2014 17:34	OVERTURN/ROLLOVER	$ 5000	0	0	1	2	1	1	1	6	0	13	1
Unit 1 : 4	**Alchl/Drgs:** 0	**Speed:** 65 MPH	**Dir:** W	**Veh Mnvr/Ped Actn:** 6	**Obj Strk:**											
427	**103897239**	16.536	10/29/2013 08:12	SIDESWIPE, SAME DIRECTION	$ 20000	0	0	1	0	1	1	2	1	0	0	
Unit 1 : 4	**Alchl/Drgs:** 0	**Speed:** 55 MPH	**Dir:** E	**Veh Mnvr/Ped Actn:** 4	**Obj Strk:**											
Unit 2 : 2	**Alchl/Drgs:** 0	**Speed:** 55 MPH	**Dir:** E	**Veh Mnvr/Ped Actn:** 4	**Obj Strk:**											
Unit 3 : 4	**Alchl/Drgs:** 0	**Speed:** 65 MPH	**Dir:** W	**Veh Mnvr/Ped Actn:** 4	**Obj Strk:**											
428	**103938239**	16.536	12/26/2013 05:45	PARKED MOTOR VEHICLE	$ 1000	0	0	0	0	4	5	1	5	0	13	1
Unit 1 : 4	**Alchl/Drgs:** 0	**Speed:** 45 MPH	**Dir:** E	**Veh Mnvr/Ped Actn:** 4	**Obj Strk:** 20											
Unit 2 : 1	**Alchl/Drgs:** 7	**Speed:** 0 MPH	**Dir:** W	**Veh Mnvr/Ped Actn:** 2	**Obj Strk:** 20											
429	**103619844**	16.596	12/06/2012 22:26	REAR END, SLOW OR STOP	$ 2400	0	0	0	0	1	5	1	6	0	13	1
Unit 1 : 1	**Alchl/Drgs:** 0	**Speed:** 55 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:**											

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
430	**104195719**	16.636	10/23/2014 01:01	ANIMAL	$ 1000	0	0	0	0	1	5	1	3	0	13	1
Unit	**1 :** 1	**Alchl/Drgs:** 0	**Speed:** 50 MPH	**Dir:** W	**Veh Mnvr/Ped Actn:** 4					**Obj Strk:** 17						
431	**104609837**	16.836	01/08/2016 15:56	FIXED OBJECT	$ 1000	0	0	0	0	2	1	3	3	0	0	
Unit	**1 :** 2	**Alchl/Drgs:** 0	**Speed:** 55 MPH	**Dir:** W	**Veh Mnvr/Ped Actn:** 4					**Obj Strk:** 33						
432	**103641876**	16.846	01/03/2013 04:44	ANIMAL	$ 4000	0	0	0	0	1	5	2	1	0	0	
Unit	**1 :** 1	**Alchl/Drgs:** 0	**Speed:** 55 MPH	**Dir:** W	**Veh Mnvr/Ped Actn:** 4					**Obj Strk:** 17						
433	**103938246**	16.936	12/26/2013 04:42	FIXED OBJECT	$ 3000	0	0	0	1	4	5	1	5	0	13	1
Unit	**1 :** 1	**Alchl/Drgs:** 0	**Speed:** 50 MPH	**Dir:** E	**Veh Mnvr/Ped Actn:** 4					**Obj Strk:** 33						
434	**104877515**	16.936	10/05/2016 11:59	FIXED OBJECT	$ 1200	0	0	0	0	1	1	2	3	0	0	
Unit	**1 :** 4	**Alchl/Drgs:** 0	**Speed:** 55 MPH	**Dir:** E	**Veh Mnvr/Ped Actn:** 4					**Obj Strk:** 37						
435	**104780121**	16.966	07/01/2016 15:46	SIDESWIPE, OPPOSITE DIRECTION	$ 9000	0	0	1	1	1	1	1	3	0	0	
Unit	**1 :** 1	**Alchl/Drgs:** 0	**Speed:** 50 MPH	**Dir:** W	**Veh Mnvr/Ped Actn:** 4					**Obj Strk:**						
Unit	**2 :** 1	**Alchl/Drgs:** 1	**Speed:** 50 MPH	**Dir:** E	**Veh Mnvr/Ped Actn:** 16					**Obj Strk:** 33						
436	**104072849**	16.986	06/02/2014 21:49	ANIMAL	$ 3000	0	0	0	0	1	5	1	3	0	0	
Unit	**1 :** 1	**Alchl/Drgs:** 0	**Speed:** 65 MPH	**Dir:** W	**Veh Mnvr/Ped Actn:** 4					**Obj Strk:** 17						
437	**103820059**	17.036	08/08/2013 13:44	REAR END, SLOW OR STOP	$ 4000	0	0	0	0	1	1	1	3	0	0	
Unit	**1 :** 1	**Alchl/Drgs:** 0	**Speed:** 55 MPH	**Dir:** E	**Veh Mnvr/Ped Actn:** 4					**Obj Strk:**						
Unit	**2 :** 4	**Alchl/Drgs:** 0	**Speed:** 20 MPH	**Dir:** E	**Veh Mnvr/Ped Actn:** 8					**Obj Strk:**						
438	**104956253**	17.036	12/18/2016 16:12	REAR END, SLOW OR STOP	$ 5000	0	0	0	1	1	1	1	1	0	13	1
Unit	**1 :** 4	**Alchl/Drgs:** 0	**Speed:** 55 MPH	**Dir:** W	**Veh Mnvr/Ped Actn:** 4					**Obj Strk:**						
Unit	**2 :** 1	**Alchl/Drgs:** 0	**Speed:** 40 MPH	**Dir:** W	**Veh Mnvr/Ped Actn:** 4					**Obj Strk:**						
439	**105177426**	17.056	07/31/2017 17:23	ANIMAL	$ 1000	0	0	0	0	1	1	1	3	0	13	1
Unit	**1 :** 4	**Alchl/Drgs:** 0	**Speed:** 55 MPH	**Dir:** W	**Veh Mnvr/Ped Actn:** 4					**Obj Strk:** 17						
440	**104977924**	17.086	01/12/2017 07:55	REAR END, SLOW OR STOP	$ 4000	0	0	1	0	2	1	1	3	0	13	1
Unit	**1 :** 2	**Alchl/Drgs:** 0	**Speed:** 50 MPH	**Dir:** E	**Veh Mnvr/Ped Actn:** 4					**Obj Strk:**						
Unit	**2 :** 1	**Alchl/Drgs:** 0	**Speed:** 5 MPH	**Dir:** E	**Veh Mnvr/Ped Actn:** 11					**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
441	**104812027**	17.126	07/23/2016 23:38	LEFT TURN, SAME ROADWAY	$ 3400	0	0	0	0	1	5	1	1	0	0	
Unit	**1 :** 17	**Alchl/Drgs:** 0	**Speed:** 45 MPH	**Dir:** W	**Veh Mnvr/Ped Actn:** 6					**Obj Strk:**						
Unit	**2 :** 3	**Alchl/Drgs:** 0	**Speed:** 35 MPH	**Dir:** W	**Veh Mnvr/Ped Actn:** 8					**Obj Strk:**						
442	**104273545**	17.136	01/14/2015 07:04	JACKKNIFE	$ 4000	0	0	0	0	4	3	6	2	1	13	1
Unit	**1 :** 10	**Alchl/Drgs:** 0	**Speed:** 45 MPH	**Dir:** W	**Veh Mnvr/Ped Actn:** 4					**Obj Strk:**						
443	**104221977**	17.166	11/19/2014 17:13	ANIMAL	$ 1000	0	0	0	0	1	2	1	1	0	0	
Unit	**1 :** 2	**Alchl/Drgs:** 0	**Speed:** 55 MPH	**Dir:** W	**Veh Mnvr/Ped Actn:** 4					**Obj Strk:** 17						
444	**103892497**	17.266	11/04/2013 08:00	REAR END, SLOW OR STOP	$ 11000	0	0	0	0	1	1	1	1	0	13	1
Unit	**1 :** 4	**Alchl/Drgs:** 0	**Speed:** 50 MPH	**Dir:** W	**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:**						
445	**104131408**	17.266	08/16/2014 22:30	REAR END, SLOW OR STOP	$ 3000	0	0	0	0	1	5	1	1	0	13	1
Unit	**1 :** 4	**Alchl/Drgs:** 1	**Speed:** 65 MPH	**Dir:** E	**Veh Mnvr/Ped Actn:** 4					**Obj Strk:**						
Unit	**2 :** 1	**Alchl/Drgs:** 0	**Speed:** 55 MPH	**Dir:** E	**Veh Mnvr/Ped Actn:** 4					**Obj Strk:**						
446	**104953991**	17.267	12/13/2016 16:25	REAR END, SLOW OR STOP	$ 5000	0	0	0	1	2	1	2	2	0	13	1
Unit	**1 :** 4	**Alchl/Drgs:** 0	**Speed:** 55 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:**						
447	**103691776**	17.323	03/02/2013 10:43	ANIMAL	$ 1500	0	0	0	0	1	1	1	1	0	13	1
Unit	**1 :** 2	**Alchl/Drgs:** 0	**Speed:** 55 MPH	**Dir:** W	**Veh Mnvr/Ped Actn:** 4					**Obj Strk:** 17						
448	**104158870**	17.466	09/20/2014 12:27	FIXED OBJECT	$ 800	0	0	0	0	1	1	1	1	0	0	
Unit	**1 :** 1	**Alchl/Drgs:** 0	**Speed:** 65 MPH	**Dir:** E	**Veh Mnvr/Ped Actn:** 4					**Obj Strk:** 60						
449	**104670447**	17.636	03/07/2016 19:11	ANIMAL	$ 800	0	0	0	0	1	5	1	5	0	13	1
Unit	**1 :** 1	**Alchl/Drgs:** 0	**Speed:** 55 MPH	**Dir:** W	**Veh Mnvr/Ped Actn:** 4					**Obj Strk:** 17						
450	**105258590**	17.716	10/16/2017 21:50	ANIMAL	$ 1000	0	0	0	0	1	5	1	1	0	0	
Unit	**1 :** 1	**Alchl/Drgs:** 0	**Speed:** 55 MPH	**Dir:** W	**Veh Mnvr/Ped Actn:** 4					**Obj Strk:** 17						
451	**103733053**	17.796	04/23/2013 17:44	REAR END, SLOW OR STOP	$ 5000	0	0	0	0	1	1	1	1	4	9	1
Unit	**1 :** 1	**Alchl/Drgs:** 0	**Speed:** 30 MPH	**Dir:** W	**Veh Mnvr/Ped Actn:** 4					**Obj Strk:**						
Unit	**2 :** 2	**Alchl/Drgs:** 0	**Speed:** 25 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
452	**105023265**	17.866	02/28/2017 05:44	ANIMAL	$ 3000	0	0	0	0	1	5	1		0		
Unit	**1 :** 1	**Alchl/Drgs:** 0	**Speed:** 0 MPH	**Dir:** E	**Veh Mnvr/Ped Actn:** 4	**Obj Strk:** 17										
453	**104080856**	17.916	06/12/2014 05:51	ANIMAL	$ 1500	0	0	0	0	1	5	5	1	0	13	1
Unit	**1 :** 1	**Alchl/Drgs:** 0	**Speed:** 55 MPH	**Dir:** E	**Veh Mnvr/Ped Actn:** 4	**Obj Strk:** 17										
454	**104200398**	18.016	11/02/2014 18:26	ANIMAL	$ 4500	0	0	0	0	1	5	1		0		
Unit	**1 :** 4	**Alchl/Drgs:** 0	**Speed:** 0 MPH	**Dir:** E	**Veh Mnvr/Ped Actn:** 4	**Obj Strk:** 17										
455	**104722595**	18.116	04/28/2016 17:35	REAR END, SLOW OR STOP	$ 26000	0	0	1	0	2	1	6	3	0	0	
Unit	**1 :** 4	**Alchl/Drgs:** 0	**Speed:** 55 MPH	**Dir:** E	**Veh Mnvr/Ped Actn:** 4	**Obj Strk:** 33										
Unit	**2 :** 1	**Alchl/Drgs:** 0	**Speed:** 35 MPH	**Dir:** E	**Veh Mnvr/Ped Actn:** 11	**Obj Strk:**										
Unit	**3 :** 1	**Alchl/Drgs:** 0	**Speed:** 55 MPH	**Dir:** E	**Veh Mnvr/Ped Actn:** 4	**Obj Strk:** 33										
Unit	**4 :** 2	**Alchl/Drgs:** 0	**Speed:** 55 MPH	**Dir:** E	**Veh Mnvr/Ped Actn:** 4	**Obj Strk:** 33										
456	**103606757**	18.216	11/20/2012 08:58	HEAD ON	$ 27500	0	0	3	1	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:** 55 MPH	**Dir:** E	**Veh Mnvr/Ped Actn:** 4	**Obj Strk:**										
Unit	**3 :** 1	**Alchl/Drgs:** 0	**Speed:** 55 MPH	**Dir:** W	**Veh Mnvr/Ped Actn:** 4	**Obj Strk:**										
457	**104261900**	18.216	01/06/2015 18:35	ANIMAL	$ 1750	0	0	0	0	1	5	1	5	0	13	1
Unit	**1 :** 1	**Alchl/Drgs:** 0	**Speed:** 55 MPH	**Dir:** E	**Veh Mnvr/Ped Actn:** 4	**Obj Strk:** 17										
458	**104870902**	18.216	10/02/2016 16:06	REAR END, SLOW OR STOP	$ 1750	0	0	1	0	1	1	1	1	0	0	
Unit	**1 :** 20	**Alchl/Drgs:** 0	**Speed:** 55 MPH	**Dir:** W	**Veh Mnvr/Ped Actn:** 4	**Obj Strk:**										
Unit	**2 :** 1	**Alchl/Drgs:** 0	**Speed:** 50 MPH	**Dir:** W	**Veh Mnvr/Ped Actn:** 11	**Obj Strk:**										
459	**105133323**	18.397	06/14/2017 18:07	OTHER COLLISION WITH VEHICLE	$ 24000	0	0	0	0	1	1	1	1	0	14	1
Unit	**1 :** 1	**Alchl/Drgs:** 0	**Speed:** 55 MPH	**Dir:** W	**Veh Mnvr/Ped Actn:** 16	**Obj Strk:** 58										
Unit	**2 :** 2	**Alchl/Drgs:** 0	**Speed:** 25 MPH	**Dir:** W	**Veh Mnvr/Ped Actn:** 8	**Obj Strk:**										
460	**104420079**	18.413	06/29/2015 09:36	REAR END, SLOW OR STOP	$ 8000	0	1	0	0	1	1	1	1	0	13	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:** 45 MPH	**Dir:** W	**Veh Mnvr/Ped Actn:** 4	**Obj Strk:** 33										

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
461	**103674254**	18.416	02/08/2013 17:06	LEFT TURN, SAME ROADWAY	$ 5500	0	0	0	0	1	1	1	1	0	13	1
Unit	**1 :** 1	**Alchl/Drgs:** 0	**Speed:** 55 MPH	**Dir:** W	**Veh Mnvr/Ped Actn:** 6	**Obj Strk:** 58										
Unit	**2 :** 4	**Alchl/Drgs:** 0	**Speed:** 55 MPH	**Dir:** W	**Veh Mnvr/Ped Actn:** 8	**Obj Strk:** 58										
462	**103770857**	18.416	06/09/2013 07:50	FIXED OBJECT	$ 8000	0	0	2	0	1	1	1	7	0	13	1
Unit	**1 :** 1	**Alchl/Drgs:** 2	**Speed:** 65 MPH	**Dir:** N	**Veh Mnvr/Ped Actn:** 4	**Obj Strk:** 58										
463	**103916362**	18.416	12/02/2013 10:50	HEAD ON	$ 14000	0	0	2	1	1	1	1	1	0	0	
Unit	**1 :** 1	**Alchl/Drgs:** 0	**Speed:** 15 MPH	**Dir:** W	**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:**										
464	**104370314**	18.416	05/05/2015 11:27	REAR END, SLOW OR STOP	$ 10000	0	0	0	0	1	1	1	1	0	1	1
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:** 0 MPH	**Dir:** W	**Veh Mnvr/Ped Actn:** 11	**Obj Strk:**										
465	**104509796**	18.416	10/02/2015 19:24	REAR END, SLOW OR STOP	$ 11300	0	0	0	3	2	5	2	1	0	13	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:** 0 MPH	**Dir:** W	**Veh Mnvr/Ped Actn:** 1	**Obj Strk:**										
Unit	**3 :** 1	**Alchl/Drgs:** 0	**Speed:** 0 MPH	**Dir:** W	**Veh Mnvr/Ped Actn:** 1	**Obj Strk:**										
466	**105060482**	18.416	04/05/2017 13:37	FIXED OBJECT	$ 1100	0	0	0	0	1	1	1	1	0	13	1
Unit	**1 :** 5	**Alchl/Drgs:** 0	**Speed:** 45 MPH	**Dir:** N	**Veh Mnvr/Ped Actn:** 4	**Obj Strk:** 33										
467	**105113477**	18.416	05/26/2017 14:03	REAR END, SLOW OR STOP	$ 7500	0	0	0	2	1	1	1	1	0	13	1
Unit	**1 :** 1	**Alchl/Drgs:** 0	**Speed:** 60 MPH	**Dir:** W	**Veh Mnvr/Ped Actn:** 4	**Obj Strk:**										
Unit	**2 :** 4	**Alchl/Drgs:** 0	**Speed:** 0 MPH	**Dir:** W	**Veh Mnvr/Ped Actn:** 11	**Obj Strk:**										
468	**105179389**	18.416	07/17/2017 21:02	REAR END, SLOW OR STOP	$ 12000	0	0	0	1	1	5	1	1	0	13	1
Unit	**1 :** 1	**Alchl/Drgs:** 3	**Speed:** 70 MPH	**Dir:** N	**Veh Mnvr/Ped Actn:** 4	**Obj Strk:**										
Unit	**2 :** 4	**Alchl/Drgs:** 0	**Speed:** 15 MPH	**Dir:** N	**Veh Mnvr/Ped Actn:** 8	**Obj Strk:**										
469	**105219362**	18.416	09/12/2017 20:39	REAR END, SLOW OR STOP	$ 15000	0	0	0	0	1	1	2	1	0	1	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:** 0 MPH	**Dir:** W	**Veh Mnvr/Ped Actn:** 1	**Obj Strk:**										
470	**105095379**	18.419	05/10/2017 12:46	REAR END, SLOW OR STOP	$ 3700	0	0	0	1	1	1	1	1	0	0	
Unit	**1 :** 1	**Alchl/Drgs:** 0	**Speed:** 55 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:** W	**Veh Mnvr/Ped Actn:**				1			**Obj Strk:**			
471	**105254735**	18.421	10/14/2017 19:11	REAR END, SLOW OR STOP	$ 11000	0	0	0	2	1	5	1	1	0	13	1
Unit	**1 :** 4	**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:**				4			**Obj Strk:**			
472	**104072885**	18.446	06/03/2014 15:52	REAR END, SLOW OR STOP	$ 17000	0	0	0	1	1	1	1	1	0	13	1
Unit	**1 :** 10	**Alchl/Drgs:**	0	**Speed:** 65 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:**			
Unit	**3 :** 1	**Alchl/Drgs:**	0	**Speed:** 55 MPH	**Dir:** E	**Veh Mnvr/Ped Actn:**				4			**Obj Strk:**		33	
473	**105258673**	18.526	10/18/2017 17:10	REAR END, SLOW OR STOP	$ 3300	0	0	0	0	1	1	1	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:** 40 MPH	**Dir:** W	**Veh Mnvr/Ped Actn:**				11			**Obj Strk:**			
474	**103867660**	18.556	10/07/2013 07:03	ANIMAL	$ 4000	0	0	0	0	2	3	3	1	0	0	
Unit	**1 :** 1	**Alchl/Drgs:**	0	**Speed:** 55 MPH	**Dir:** E	**Veh Mnvr/Ped Actn:**				4			**Obj Strk:**		17	
475	**104772307**	18.616	06/17/2016 03:12	ANIMAL	$ 1000	0	0	0	0	1	5	1	3	0	13	1
Unit	**1 :** 4	**Alchl/Drgs:**	0	**Speed:** 55 MPH	**Dir:** E	**Veh Mnvr/Ped Actn:**				4			**Obj Strk:**		17	
476	**105219458**	18.626	09/08/2017 08:40	REAR END, SLOW OR STOP	$ 6000	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 :** 1	**Alchl/Drgs:**	0	**Speed:** 55 MPH	**Dir:** W	**Veh Mnvr/Ped Actn:**				8			**Obj Strk:**			
477	**103824255**	18.716	08/04/2013 20:13	BACKING UP	$ 900	0	0	0	0	1	2	1	1	0	13	1
Unit	**1 :** 2	**Alchl/Drgs:**	0	**Speed:** 55 MPH	**Dir:** W	**Veh Mnvr/Ped Actn:**				4			**Obj Strk:**			
Unit	**2 :** 31	**Alchl/Drgs:**	0	**Speed:** 15 MPH	**Dir:** S	**Veh Mnvr/Ped Actn:**				10			**Obj Strk:**			
478	**105056033**	18.726	04/02/2017 05:47	ANIMAL	$ 3500	0	0	0	0	1	5	1	1	0	0	
Unit	**1 :** 1	**Alchl/Drgs:**	0	**Speed:** 60 MPH	**Dir:** W	**Veh Mnvr/Ped Actn:**				4			**Obj Strk:**		17	
479	**104250413**	18.816	12/13/2014 20:43	SIDESWIPE, SAME DIRECTION	$ 2500	0	0	0	2	1	4	1	1	0	13	1
Unit	**1 :** 1	**Alchl/Drgs:**	0	**Speed:** 60 MPH	**Dir:** E	**Veh Mnvr/Ped Actn:**				4			**Obj Strk:**			
Unit	**2 :** 1	**Alchl/Drgs:**	0	**Speed:** 15 MPH	**Dir:** E	**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
480	**105066283**	18.826	04/09/2017 13:21	ANIMAL	$ 1000	0	0	0	0	1	5	1	3	0	13	1
Unit	**1 :** 14	**Alchl/Drgs:** 0	**Speed:** 55 MPH	**Dir:** E	**Veh Mnvr/Ped Actn:** 4	**Obj Strk:** 17										
481	**104774314**	18.916	06/24/2016 15:02	REAR END, SLOW OR STOP	$ 7000	0	0	0	2	1	1	1	1	0	13	1
Unit	**1 :** 1	**Alchl/Drgs:** 0	**Speed:** 50 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:** 11	**Obj Strk:**										
482	**104617177**	18.926	01/17/2016 23:21	ANIMAL	$ 1000	0	0	0	0	1	5	1	1	0	13	1
Unit	**1 :** 5	**Alchl/Drgs:** 0	**Speed:** 55 MPH	**Dir:** W	**Veh Mnvr/Ped Actn:** 4	**Obj Strk:** 17										
483	**103885556**	19.026	10/25/2013 20:50	ANIMAL	$ 1500	0	0	0	0	1	5	1		0		
Unit	**1 :** 1	**Alchl/Drgs:** 0	**Speed:** 0 MPH	**Dir:** E	**Veh Mnvr/Ped Actn:** 4	**Obj Strk:** 17										
484	**103964809**	19.026	01/28/2014 23:15	FIXED OBJECT	$ 3000	0	0	0	0	5	5	4	3	0	13	1
Unit	**1 :** 1	**Alchl/Drgs:** 7	**Speed:** 50 MPH	**Dir:** E	**Veh Mnvr/Ped Actn:** 4	**Obj Strk:** 58										
485	**104776337**	19.026	06/24/2016 21:49	ANIMAL	$ 3000	0	0	0	0	1	5	1	1	0	0	
Unit	**1 :** 5	**Alchl/Drgs:** 0	**Speed:** 0 MPH	**Dir:** W	**Veh Mnvr/Ped Actn:** 4	**Obj Strk:** 17										
486	**105099077**	19.222	05/13/2017 13:05	REAR END, SLOW OR STOP	$ 5700	0	0	0	0	1	1	1	1	0	13	1
Unit	**1 :** 4	**Alchl/Drgs:** 0	**Speed:** 50 MPH	**Dir:** E	**Veh Mnvr/Ped Actn:** 4	**Obj Strk:**										
Unit	**2 :** 2	**Alchl/Drgs:** 0	**Speed:** 0 MPH	**Dir:** E	**Veh Mnvr/Ped Actn:** 1	**Obj Strk:**										
Unit	**3 :** 1	**Alchl/Drgs:** 0	**Speed:** 0 MPH	**Dir:** E	**Veh Mnvr/Ped Actn:** 1	**Obj Strk:**										
487	**103593526**	19.226	11/07/2012 18:31	ANGLE	$ 8000	0	0	0	0	1	5	1	1	0	1	1
Unit	**1 :** 4	**Alchl/Drgs:** 0	**Speed:** 10 MPH	**Dir:** S	**Veh Mnvr/Ped Actn:** 12	**Obj Strk:**										
Unit	**2 :** 5	**Alchl/Drgs:** 0	**Speed:** 55 MPH	**Dir:** W	**Veh Mnvr/Ped Actn:** 4	**Obj Strk:**										
488	**103831119**	19.226	08/21/2013 16:05	SIDESWIPE, OPPOSITE DIRECTION	$ 11500	0	0	2	0	3	1	2	3	0	13	1
Unit	**1 :** 5	**Alchl/Drgs:** 0	**Speed:** 20 MPH	**Dir:** W	**Veh Mnvr/Ped Actn:** 4	**Obj Strk:**										
Unit	**2 :** 4	**Alchl/Drgs:** 0	**Speed:** 45 MPH	**Dir:** E	**Veh Mnvr/Ped Actn:** 4	**Obj Strk:**										
489	**104679623**	19.226	03/09/2016 08:49	RIGHT TURN, DIFFERENT ROADWAYS	$ 8000	0	0	0	0	1	1	1	1	0	1	1
Unit	**1 :** 1	**Alchl/Drgs:** 0	**Speed:** 55 MPH	**Dir:** S	**Veh Mnvr/Ped Actn:** 7	**Obj Strk:**										
Unit	**2 :** 4	**Alchl/Drgs:** 0	**Speed:** 55 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
490	**104825122**	19.226	08/04/2016 14:39	MOVABLE OBJECT	$ 100	0	0	0	0	1	1	1	1	2	13	1
Unit	**1 :** 12	**Alchl/Drgs:** 0	**Speed:** 55 MPH	**Dir:** E	**Veh Mnvr/Ped Actn:** 4					**Obj Strk:**						
Unit	**2 :** 1	**Alchl/Drgs:** 0	**Speed:** 55 MPH	**Dir:** E	**Veh Mnvr/Ped Actn:** 4					**Obj Strk:** 18						
491	**104779694**	19.233	07/01/2016 16:53	LEFT TURN, DIFFERENT ROADWAYS	$ 10000	0	0	1	1	1	1	1	1	0	1	1
Unit	**1 :** 1	**Alchl/Drgs:** 0	**Speed:** 20 MPH	**Dir:** E	**Veh Mnvr/Ped Actn:** 8					**Obj Strk:**						
Unit	**2 :** 1	**Alchl/Drgs:** 0	**Speed:** 55 MPH	**Dir:** W	**Veh Mnvr/Ped Actn:** 4					**Obj Strk:**						
492	**103804470**	19.326	07/18/2013 06:12	FIXED OBJECT	$ 5000	0	0	1	0	1	2	1	3	0	13	1
Unit	**1 :** 1	**Alchl/Drgs:** 0	**Speed:** 60 MPH	**Dir:** E	**Veh Mnvr/Ped Actn:** 4					**Obj Strk:** 33						
493	**104090442**	19.326	06/16/2014 15:37	ANIMAL	$ 1500	0	0	0	1	1	1	1	2	0	13	1
Unit	**1 :** 4	**Alchl/Drgs:** 0	**Speed:** 55 MPH	**Dir:** E	**Veh Mnvr/Ped Actn:** 4					**Obj Strk:** 17						
494	**105244660**	19.426	10/01/2017 21:21	FIXED OBJECT	$ 4000	0	0	0	0	1	5	1	1	0	13	1
Unit	**1 :** 5	**Alchl/Drgs:** 0	**Speed:** 55 MPH	**Dir:** E	**Veh Mnvr/Ped Actn:** 4					**Obj Strk:** 58						
495	**104108416**	19.526	07/18/2014 02:39	ANIMAL	$ 1800	0	0	0	0	1	5	1	1	0	13	1
Unit	**1 :** 1	**Alchl/Drgs:** 0	**Speed:** 55 MPH	**Dir:** E	**Veh Mnvr/Ped Actn:** 4					**Obj Strk:** 17						
496	**104953971**	19.526	12/03/2016 18:34	ANIMAL	$ 1200	0	0	0	0	1	5	1	1	0	13	1
Unit	**1 :** 1	**Alchl/Drgs:** 0	**Speed:** 55 MPH	**Dir:** E	**Veh Mnvr/Ped Actn:** 4					**Obj Strk:** 17						
497	**104066255**	19.626	05/25/2014 15:41	SIDESWIPE, OPPOSITE DIRECTION	$ 17500	0	2	0	0	1	1	1	1	0	13	1
Unit	**1 :** 1	**Alchl/Drgs:** 0	**Speed:** 55 MPH	**Dir:** E	**Veh Mnvr/Ped Actn:** 4					**Obj Strk:**						
Unit	**2 :** 4	**Alchl/Drgs:** 0	**Speed:** 55 MPH	**Dir:** W	**Veh Mnvr/Ped Actn:** 4					**Obj Strk:**						
498	**104517654**	19.626	10/07/2015 19:28	REAR END, SLOW OR STOP	$ 9000	0	0	1	0	1	5	1	1	0	13	1
Unit	**1 :** 1	**Alchl/Drgs:** 0	**Speed:** 65 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:** 7					**Obj Strk:**						
499	**105092894**	19.626	05/05/2017 06:25	FIXED OBJECT	$ 10000	0	0	0	0	2	5	3	1	0	0	
Unit	**1 :** 4	**Alchl/Drgs:** 0	**Speed:** 50 MPH	**Dir:** E	**Veh Mnvr/Ped Actn:** 4					**Obj Strk:** 59						
500	**105091717**	19.666	04/19/2017 10:14	FIXED OBJECT	$ 1000	0	0	0	0	2	1	3	1	0	0	
Unit	**1 :** 1	**Alchl/Drgs:** 0	**Speed:** 55 MPH	**Dir:** W	**Veh Mnvr/Ped Actn:** 4					**Obj Strk:** 58						

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
501	**104111929**	19.866	07/15/2014 17:31	REAR END, SLOW OR STOP	$ 3300	0	0	0	0	2	1	3	1	0	13	1
Unit	**1 :** 1	**Alchl/Drgs:**	0	**Speed:** 40 MPH	**Dir:** W	**Veh Mnvr/Ped Actn:**				4			**Obj Strk:**			
Unit	**2 :** 5	**Alchl/Drgs:**	0	**Speed:** 10 MPH	**Dir:** W	**Veh Mnvr/Ped Actn:**				11			**Obj Strk:**			
502	**104922385**	19.946	11/18/2016 20:49	ANIMAL	$ 2000	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	
503	**103598380**	20.066	11/13/2012 02:04	ANIMAL	$ 1800	0	0	0	0	1	5	1	1	0	13	1
Unit	**1 :** 1	**Alchl/Drgs:**	0	**Speed:** 55 MPH	**Dir:** W	**Veh Mnvr/Ped Actn:**				4			**Obj Strk:**		17	
504	**103647666**	20.146	12/19/2012 16:45	REAR END, SLOW OR STOP	$ 7500	0	0	0	0	1	1	1	5	0	13	1
Unit	**1 :** 1	**Alchl/Drgs:**	0	**Speed:** 35 MPH	**Dir:** W	**Veh Mnvr/Ped Actn:**				11			**Obj Strk:**			
Unit	**2 :** 1	**Alchl/Drgs:**	0	**Speed:** 45 MPH	**Dir:** W	**Veh Mnvr/Ped Actn:**				4			**Obj Strk:**			
505	**103879507**	20.146	10/22/2013 07:23	ANIMAL	$ 1500	0	0	0	0	1	3	1	1	0	13	1
Unit	**1 :** 2	**Alchl/Drgs:**	0	**Speed:** 0 MPH	**Dir:** E	**Veh Mnvr/Ped Actn:**				4			**Obj Strk:**		17	
506	**103872746**	20.208	10/13/2013 17:44	ANGLE	$ 6500	0	0	0	0	1	1	2	1	0	13	1
Unit	**1 :** 1	**Alchl/Drgs:**	0	**Speed:** 0 MPH	**Dir:** SW	**Veh Mnvr/Ped Actn:**				9			**Obj Strk:**			
Unit	**2 :** 4	**Alchl/Drgs:**	0	**Speed:** 55 MPH	**Dir:** W	**Veh Mnvr/Ped Actn:**				4			**Obj Strk:**			
507	**104904104**	20.266	10/24/2016 06:46	ANIMAL	$ 1000	0	0	0	0	1	5	1	1	0	13	1
Unit	**1 :** 4	**Alchl/Drgs:**	0	**Speed:** 55 MPH	**Dir:** E	**Veh Mnvr/Ped Actn:**				4			**Obj Strk:**		17	
508	**103592030**	20.366	11/06/2012 06:34	ANIMAL	$ 3000	0	0	0	0	1	2	2	1	0	0	
Unit	**1 :** 2	**Alchl/Drgs:**	0	**Speed:** 55 MPH	**Dir:** W	**Veh Mnvr/Ped Actn:**				4			**Obj Strk:**		17	
509	**104670286**	20.366	03/04/2016 22:06	SIDESWIPE, OPPOSITE DIRECTION	$ 14000	0	0	1	0	1	5	2	7	0	0	
Unit	**1 :** 2	**Alchl/Drgs:**	1	**Speed:** 55 MPH	**Dir:** W	**Veh Mnvr/Ped Actn:**				4			**Obj Strk:**			
Unit	**2 :** 4	**Alchl/Drgs:**	0	**Speed:** 55 MPH	**Dir:** E	**Veh Mnvr/Ped Actn:**				4			**Obj Strk:**			
510	**105019176**	20.546	02/23/2017 06:50	ANIMAL	$ 1500	0	0	0	0	1	3	1	1	0	13	1
Unit	**1 :** 1	**Alchl/Drgs:**	0	**Speed:** 55 MPH	**Dir:** E	**Veh Mnvr/Ped Actn:**				4			**Obj Strk:**		17	
511	**105227073**	20.566	09/21/2017 07:41	REAR END, SLOW OR STOP	$ 9900	0	0	1	0	1	1	1	1	0	13	1
Unit	**1 :** 2	**Alchl/Drgs:**	0	**Speed:** 65 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:**		33	

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:** 0 MPH	**Dir:** W	**Veh Mnvr/Ped Actn:**				8			**Obj Strk:**			
512	**103691349**	20.666	02/07/2013 21:10	REAR END, SLOW OR STOP	$ 1000	0	0	1	0	2	5	3	1	0	13	1
Unit	**1 :** 5	**Alchl/Drgs:**	0	**Speed:** 45 MPH	**Dir:** W	**Veh Mnvr/Ped Actn:**				4			**Obj Strk:**			
Unit	**2 :** 21	**Alchl/Drgs:**	0	**Speed:** 0 MPH	**Dir:**	**Veh Mnvr/Ped Actn:**							**Obj Strk:**			
513	**103863380**	20.666	10/02/2013 11:29	REAR END, SLOW OR STOP	$ 1000	0	0	0	0	1	1	1	5	0	13	1
Unit	**1 :** 2	**Alchl/Drgs:**	0	**Speed:** 50 MPH	**Dir:** W	**Veh Mnvr/Ped Actn:**				4			**Obj Strk:**			
Unit	**2 :** 2	**Alchl/Drgs:**	0	**Speed:** 60 MPH	**Dir:** W	**Veh Mnvr/Ped Actn:**				4			**Obj Strk:**			
514	**103970978**	20.666	02/06/2014 16:37	REAR END, SLOW OR STOP	$ 1000	0	0	0	0	1	1	1	1	0	13	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:**				11			**Obj Strk:**			
515	**104266927**	20.666	01/12/2015 05:37	SIDESWIPE, OPPOSITE DIRECTION	$ 4500	0	0	0	0	2	5	3	1	0	13	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:** 50 MPH	**Dir:** E	**Veh Mnvr/Ped Actn:**				4			**Obj Strk:**			
516	**104585823**	20.666	12/08/2015 17:56	REAR END, SLOW OR STOP	$ 12000	0	0	3	0	1	5	1	1	0	13	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:** 55 MPH	**Dir:** E	**Veh Mnvr/Ped Actn:**				1			**Obj Strk:**			
Unit	**3 :** 1	**Alchl/Drgs:**	0	**Speed:** 55 MPH	**Dir:** W	**Veh Mnvr/Ped Actn:**				4			**Obj Strk:**			
517	**104934021**	20.666	11/28/2016 08:01	REAR END, SLOW OR STOP	$ 8000	0	0	0	1	1	1	2	1	0	13	1
Unit	**1 :** 1	**Alchl/Drgs:**	0	**Speed:** 45 MPH	**Dir:** E	**Veh Mnvr/Ped Actn:**				4			**Obj Strk:**			
Unit	**2 :** 2	**Alchl/Drgs:**	0	**Speed:** 0 MPH	**Dir:** E	**Veh Mnvr/Ped Actn:**				1			**Obj Strk:**			
518	**104473945**	20.716	08/24/2015 09:46	REAR END, SLOW OR STOP	$ 17100	0	1	2	0	1	1	1	1	0	13	1
Unit	**1 :** 10	**Alchl/Drgs:**	0	**Speed:** 60 MPH	**Dir:** W	**Veh Mnvr/Ped Actn:**				4			**Obj Strk:**			
Unit	**2 :** 1	**Alchl/Drgs:**	0	**Speed:** 50 MPH	**Dir:** W	**Veh Mnvr/Ped Actn:**				11			**Obj Strk:**	60		
Unit	**3 :** 1	**Alchl/Drgs:**	0	**Speed:** 55 MPH	**Dir:** E	**Veh Mnvr/Ped Actn:**				4			**Obj Strk:**			
Unit	**4 :** 1	**Alchl/Drgs:**	0	**Speed:** 10 MPH	**Dir:** W	**Veh Mnvr/Ped Actn:**				1			**Obj Strk:**			
519	**103596966**	20.766	11/12/2012 07:23	ANIMAL	$ 1500	0	0	0	0	1	1	1	1	0	13	1
Unit	**1 :** 2	**Alchl/Drgs:**	0	**Speed:** 55 MPH	**Dir:** W	**Veh Mnvr/Ped Actn:**				4			**Obj Strk:**	17		
520	**103740800**	20.766	04/26/2013 15:00	REAR END, SLOW OR STOP	$ 2250	0	0	0	1	1	1	1	5	0	13	1
Unit	**1 :** 1	**Alchl/Drgs:**	0	**Speed:** 0 MPH	**Dir:** W	**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	**2 :** 2	**Alchl/Drgs:**	0	**Speed:** 45 MPH	**Dir:** W	**Veh Mnvr/Ped Actn:**				4			**Obj Strk:**			
521	**103839746**	20.766	09/03/2013 12:36	REAR END, SLOW OR STOP	$ 1500	0	0	0	0	1	1	1	1	0	13	1
Unit	**1 :** 2	**Alchl/Drgs:**	0	**Speed:** 55 MPH	**Dir:** W	**Veh Mnvr/Ped Actn:**				4			**Obj Strk:**			
Unit	**2 :** 5	**Alchl/Drgs:**	0	**Speed:** 45 MPH	**Dir:** W	**Veh Mnvr/Ped Actn:**				4			**Obj Strk:**			
522	**104811138**	20.766	08/04/2016 21:49	FIXED OBJECT	$ 6600	0	1	0	0	1	5	1	1	0	13	1
Unit	**1 :** 2	**Alchl/Drgs:**	0	**Speed:** 55 MPH	**Dir:** E	**Veh Mnvr/Ped Actn:**				4			**Obj Strk:**		58	
523	**104922379**	20.857	11/18/2016 17:41	ANIMAL	$ 3000	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	
524	**104260025**	20.864	01/02/2015 16:06	ANGLE	$ 9500	0	0	1	0	1	1	1	1	0	1	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:** 55 MPH	**Dir:** W	**Veh Mnvr/Ped Actn:**				4			**Obj Strk:**			
525	**103781591**	20.866	06/20/2013 08:13	LEFT TURN, DIFFERENT ROADWAYS	$ 9000	0	0	0	2	1	1	1	2	0	1	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:** 55 MPH	**Dir:** W	**Veh Mnvr/Ped Actn:**				4			**Obj Strk:**			
526	**103892597**	20.866	11/05/2013 07:54	HEAD ON	$ 18000	0	1	0	2	1	1	2	1	0	13	1
Unit	**1 :** 12	**Alchl/Drgs:**	0	**Speed:** 50 MPH	**Dir:** W	**Veh Mnvr/Ped Actn:**				4			**Obj Strk:**			
Unit	**2 :** 2	**Alchl/Drgs:**	0	**Speed:** 15 MPH	**Dir:** E	**Veh Mnvr/Ped Actn:**				8			**Obj Strk:**			
527	**103953802**	20.866	01/15/2014 17:12	ANGLE	$ 8000	0	0	1	1	1	1	1	2	0	1	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:** 45 MPH	**Dir:** E	**Veh Mnvr/Ped Actn:**				4			**Obj Strk:**			
528	**104098412**	20.866	06/26/2014 13:03	ANGLE	$ 2700	0	0	0	0	1	1	1	1	0	1	1
Unit	**1 :** 4	**Alchl/Drgs:**	0	**Speed:** 5 MPH	**Dir:** S	**Veh Mnvr/Ped Actn:**				4			**Obj Strk:**			
Unit	**2 :** 2	**Alchl/Drgs:**	0	**Speed:** 55 MPH	**Dir:** E	**Veh Mnvr/Ped Actn:**				4			**Obj Strk:**			
529	**104137905**	20.866	08/23/2014 17:28	ANGLE	$ 8000	0	2	0	0	1	1	1	1	0	13	1
Unit	**1 :** 1	**Alchl/Drgs:**	0	**Speed:** 35 MPH	**Dir:** S	**Veh Mnvr/Ped Actn:**				8			**Obj Strk:**			
Unit	**2 :** 2	**Alchl/Drgs:**	0	**Speed:** 55 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
530	**104253190**	20.866	12/01/2014 18:05	ANGLE	$ 3400	0	0	0	0	1	1	1	3	0	1	1
Unit	**1 :** 2	**Alchl/Drgs:**	0	**Speed:**	0 MPH	**Dir:**	E	**Veh Mnvr/Ped Actn:**		2		**Obj Strk:**		20		
Unit	**2 :** 1	**Alchl/Drgs:**	0	**Speed:**	55 MPH	**Dir:**	W	**Veh Mnvr/Ped Actn:**		4		**Obj Strk:**				
Unit	**3 :** 3	**Alchl/Drgs:**	7	**Speed:**	0 MPH	**Dir:**	W	**Veh Mnvr/Ped Actn:**		2		**Obj Strk:**		20		
531	**104352893**	20.866	04/16/2015 03:39	FIXED OBJECT	$ 1200	0	0	0	0	2	5	2	3	0	13	1
Unit	**1 :** 31	**Alchl/Drgs:**	0	**Speed:**	25 MPH	**Dir:**	W	**Veh Mnvr/Ped Actn:**		8		**Obj Strk:**		64		
532	**104349934**	20.866	04/16/2015 07:41	ANGLE	$ 6100	0	0	0	0	2	1	3	1	0	1	1
Unit	**1 :** 5	**Alchl/Drgs:**	0	**Speed:**	0 MPH	**Dir:**	S	**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:**				
533	**104531798**	20.866	10/24/2015 09:20	ANGLE	$ 1500	0	0	0	0	1	1	1	1	0	1	1
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:**	55 MPH	**Dir:**	W	**Veh Mnvr/Ped Actn:**		4		**Obj Strk:**				
534	**104579964**	20.866	12/02/2015 16:34	REAR END, SLOW OR STOP	$ 20500	0	0	0	2	2	5	2	1	0	13	1
Unit	**1 :** 4	**Alchl/Drgs:**	0	**Speed:**	0 MPH	**Dir:**	W	**Veh Mnvr/Ped Actn:**		1		**Obj Strk:**				
Unit	**2 :** 1	**Alchl/Drgs:**	0	**Speed:**	0 MPH	**Dir:**	W	**Veh Mnvr/Ped Actn:**		1		**Obj Strk:**				
Unit	**3 :** 1	**Alchl/Drgs:**	0	**Speed:**	40 MPH	**Dir:**	W	**Veh Mnvr/Ped Actn:**		11		**Obj Strk:**				
Unit	**4 :** 1	**Alchl/Drgs:**	0	**Speed:**	55 MPH	**Dir:**	W	**Veh Mnvr/Ped Actn:**		4		**Obj Strk:**				
535	**104657417**	20.866	02/20/2016 10:13	LEFT TURN, SAME ROADWAY	$ 10000	0	0	0	0	1	1	1	1	0	13	1
Unit	**1 :** 2	**Alchl/Drgs:**	0	**Speed:**	0 MPH	**Dir:**	W	**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:**				
536	**104716345**	20.866	04/16/2016 21:53	ANIMAL	$ 2000	0	0	0	0	1	5	1	1	0	13	1
Unit	**1 :** 5	**Alchl/Drgs:**	0	**Speed:**	55 MPH	**Dir:**	E	**Veh Mnvr/Ped Actn:**		4		**Obj Strk:**		17		
537	**104733283**	20.866	05/12/2016 20:39	FIXED OBJECT	$ 3850	0	0	0	0	2	5	3	1	0	13	1
Unit	**1 :** 4	**Alchl/Drgs:**	0	**Speed:**	65 MPH	**Dir:**	E	**Veh Mnvr/Ped Actn:**		4		**Obj Strk:**		38		
538	**105262856**	20.866	10/20/2017 18:31	ANGLE	$ 7000	0	0	2	1	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 :** 4	**Alchl/Drgs:**	0	**Speed:**	10 MPH	**Dir:**	S	**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
539	**104995492**	20.956	01/26/2017 16:23	LEFT TURN, DIFFERENT ROADWAYS	$ 4000	1	0	0	0	1	1	1	1	0	1	1
Unit	**1 :** 21	**Alchl/Drgs:**	1	**Speed:** 10 MPH	**Dir:** W	**Veh Mnvr/Ped Actn:**			8			**Obj Strk:**				
Unit	**2 :** 2	**Alchl/Drgs:**	0	**Speed:** 40 MPH	**Dir:** E	**Veh Mnvr/Ped Actn:**			4			**Obj Strk:**				
540	**104394589**	21.036	05/30/2015 17:06	REAR END, SLOW OR STOP	$ 5500	0	1	0	1	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 :** 2	**Alchl/Drgs:**	0	**Speed:** 0 MPH	**Dir:** W	**Veh Mnvr/Ped Actn:**			1			**Obj Strk:**				
541	**103656322**	21.056	01/18/2013 21:53	SIDESWIPE, OPPOSITE DIRECTION	$ 8000	0	0	0	0	1	5	1	1	0	13	1
Unit	**1 :** 1	**Alchl/Drgs:**	1	**Speed:** 55 MPH	**Dir:** E	**Veh Mnvr/Ped Actn:**			4			**Obj Strk:**				
Unit	**2 :** 4	**Alchl/Drgs:**	0	**Speed:** 55 MPH	**Dir:** W	**Veh Mnvr/Ped Actn:**			4			**Obj Strk:**				
Unit	**3 :** 4	**Alchl/Drgs:**	0	**Speed:** 55 MPH	**Dir:** W	**Veh Mnvr/Ped Actn:**			4			**Obj Strk:**				
542	**103752050**	21.056	05/16/2013 14:05	REAR END, SLOW OR STOP	$ 300	0	0	0	0	1	1	1	1	4	9	1
Unit	**1 :** 10	**Alchl/Drgs:**	0	**Speed:** 5 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:**				
543	**104715384**	21.056	04/27/2016 07:31	ANIMAL	$ 2500	0	0	0	0	1	1	1		0		
Unit	**1 :** 4	**Alchl/Drgs:**	0	**Speed:** 0 MPH	**Dir:** E	**Veh Mnvr/Ped Actn:**			4			**Obj Strk:**		17		
544	**104051627**	21.066	05/02/2014 18:40	REAR END, SLOW OR STOP	$ 17000	0	0	0	2	1	1	1	1	0	13	1
Unit	**1 :** 4	**Alchl/Drgs:**	0	**Speed:** 55 MPH	**Dir:** N	**Veh Mnvr/Ped Actn:**			4			**Obj Strk:**				
Unit	**2 :** 4	**Alchl/Drgs:**	0	**Speed:** 45 MPH	**Dir:** N	**Veh Mnvr/Ped Actn:**			11			**Obj Strk:**				
545	**104101376**	21.066	06/24/2014 12:13	REAR END, SLOW OR STOP	$ 15000	0	0	0	0	1	1	1	1	0	0	
Unit	**1 :** 4	**Alchl/Drgs:**	0	**Speed:** 55 MPH	**Dir:** E	**Veh Mnvr/Ped Actn:**			4			**Obj Strk:**				
Unit	**2 :** 4	**Alchl/Drgs:**	0	**Speed:** 55 MPH	**Dir:** E	**Veh Mnvr/Ped Actn:**			4			**Obj Strk:**				
546	**104261087**	21.066	01/04/2015 14:26	REAR END, SLOW OR STOP	$ 9500	0	0	0	2	2	1	2	1	0	13	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:** 55 MPH	**Dir:** E	**Veh Mnvr/Ped Actn:**			1			**Obj Strk:**				
547	**105013101**	21.066	02/16/2017 19:34	LEFT TURN, SAME ROADWAY	$ 5500	0	0	0	1	1	5	1	1	0	0	
Unit	**1 :** 1	**Alchl/Drgs:**	0	**Speed:** 70 MPH	**Dir:** W	**Veh Mnvr/Ped Actn:**			6			**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
548	**103647180**	21.156	01/10/2013 08:19	REAR END, SLOW OR STOP	$ 3000	0	0	0	0	1	1	1	1	0	13	1
Unit	**1 :** 3	**Alchl/Drgs:** 0	**Speed:** 55 MPH	**Dir:** E	**Veh Mnvr/Ped Actn:** 4	**Obj Strk:**										
Unit	**2 :** 4	**Alchl/Drgs:** 0	**Speed:** 55 MPH	**Dir:** E	**Veh Mnvr/Ped Actn:** 1	**Obj Strk:**										
549	**104817674**	21.166	08/12/2016 17:51	REAR END, SLOW OR STOP	$ 12500	0	0	0	0	1	1	1	1	0	0	
Unit	**1 :** 4	**Alchl/Drgs:** 0	**Speed:** 50 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:**										
550	**104255459**	21.216	12/29/2014 07:51	FIXED OBJECT	$ 3000	0	0	0	0	2	3	3	1	0	14	1
Unit	**1 :** 4	**Alchl/Drgs:** 0	**Speed:** 55 MPH	**Dir:** W	**Veh Mnvr/Ped Actn:** 4	**Obj Strk:** 58										
551	**104540260**	21.236	10/31/2015 21:19	ANIMAL	$ 1000	0	0	0	0	1	5	1	1	0	0	
Unit	**1 :** 2	**Alchl/Drgs:** 0	**Speed:** 0 MPH	**Dir:** E	**Veh Mnvr/Ped Actn:** 4	**Obj Strk:** 17										
552	**104793269**	21.256	07/13/2016 13:02	REAR END, SLOW OR STOP	$ 3600	0	0	0	0	1	1	1	1	0	0	
Unit	**1 :** 5	**Alchl/Drgs:** 0	**Speed:** 50 MPH	**Dir:** W	**Veh Mnvr/Ped Actn:** 4	**Obj Strk:**										
Unit	**2 :** 10	**Alchl/Drgs:** 0	**Speed:** 5 MPH	**Dir:** W	**Veh Mnvr/Ped Actn:** 11	**Obj Strk:**										
Unit	**3 :** 1	**Alchl/Drgs:** 0	**Speed:** 0 MPH	**Dir:** W	**Veh Mnvr/Ped Actn:** 1	**Obj Strk:**										
553	**104817880**	21.256	08/11/2016 14:44	REAR END, SLOW OR STOP	$ 1300	0	0	0	0	1	1	1	1	0	13	1
Unit	**1 :** 11	**Alchl/Drgs:** 0	**Speed:** 50 MPH	**Dir:** E	**Veh Mnvr/Ped Actn:** 4	**Obj Strk:**										
Unit	**2 :** 2	**Alchl/Drgs:** 0	**Speed:** 5 MPH	**Dir:** E	**Veh Mnvr/Ped Actn:** 8	**Obj Strk:**										
554	**104480326**	21.266	08/30/2015 08:26	ANGLE	$ 27500	1	0	1	0	1	1	2	1	0	13	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:** 10 MPH	**Dir:** NE	**Veh Mnvr/Ped Actn:** 12	**Obj Strk:**										
555	**104277404**	21.326	01/19/2015 15:53	REAR END, SLOW OR STOP	$ 6000	0	0	0	0	1	1	1	1	0	13	1
Unit	**1 :** 4	**Alchl/Drgs:** 0	**Speed:** 0 MPH	**Dir:** W	**Veh Mnvr/Ped Actn:** 11	**Obj Strk:**										
Unit	**2 :** 4	**Alchl/Drgs:** 0	**Speed:** 45 MPH	**Dir:** W	**Veh Mnvr/Ped Actn:** 4	**Obj Strk:**										
Unit	**3 :** 1	**Alchl/Drgs:** 0	**Speed:** 55 MPH	**Dir:** W	**Veh Mnvr/Ped Actn:** 4	**Obj Strk:**										
556	**103599679**	21.356	11/14/2012 07:35	ANIMAL	$ 1500	0	0	0	0	1	1	1		0		
Unit	**1 :** 1	**Alchl/Drgs:** 0	**Speed:** 0 MPH	**Dir:** E	**Veh Mnvr/Ped Actn:** 4	**Obj Strk:** 17										
557	**105219433**	21.366	09/13/2017 07:47	REAR END, SLOW OR STOP	$ 4200	0	0	0	0	1	1	1	1	0	13	1
Unit	**1 :** 4	**Alchl/Drgs:** 0	**Speed:** 40 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
Unit	**2 :** 2	**Alchl/Drgs:**	0	**Speed:** 0 MPH	**Dir:** E	**Veh Mnvr/Ped Actn:**				11			**Obj Strk:**			
558	**105181390**	21.436	07/31/2017 21:30	ANIMAL	$ 3000	0	0	0	0	1	5	1	1	0	0	
Unit	**1 :** 1	**Alchl/Drgs:**	0	**Speed:** 50 MPH	**Dir:** E	**Veh Mnvr/Ped Actn:**				4			**Obj Strk:**		17	
559	**103788250**	21.456	06/29/2013 02:01	FIXED OBJECT	$ 8000	0	0	0	2	2	5	2	1	0	0	
Unit	**1 :** 2	**Alchl/Drgs:**	1	**Speed:** 55 MPH	**Dir:** E	**Veh Mnvr/Ped Actn:**				4			**Obj Strk:**		33	
560	**104960924**	21.456	12/24/2016 01:09	OVERTURN/ROLLOVER	$ 6700	0	0	0	0	1	5	1	1	0	0	
Unit	**1 :** 4	**Alchl/Drgs:**	1	**Speed:** 55 MPH	**Dir:** W	**Veh Mnvr/Ped Actn:**				4			**Obj Strk:**		60	
561	**105106681**	21.456	05/16/2017 15:29	SIDESWIPE, SAME DIRECTION	$ 5000	0	0	2	0	1	1	1	1	0	13	1
Unit	**1 :** 1	**Alchl/Drgs:**	0	**Speed:** 50 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:**			
562	**105019120**	21.516	02/16/2017 10:43	RIGHT TURN, SAME ROADWAY	$ 3000	0	0	0	0	1	1	1	1	0	13	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:** 20 MPH	**Dir:** E	**Veh Mnvr/Ped Actn:**				7			**Obj Strk:**			
563	**103953014**	21.536	01/15/2014 08:26	REAR END, SLOW OR STOP	$ 800	0	0	0	0	2	1	5	1	0	0	
Unit	**1 :** 4	**Alchl/Drgs:**	0	**Speed:** 55 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:**			
564	**104210835**	21.566	11/09/2014 13:20	LEFT TURN, SAME ROADWAY	$ 10000	0	0	0	1	1	1	1	1	0	0	
Unit	**1 :** 1	**Alchl/Drgs:**	7	**Speed:** 65 MPH	**Dir:** E	**Veh Mnvr/Ped Actn:**				6			**Obj Strk:**			
Unit	**2 :** 1	**Alchl/Drgs:**	0	**Speed:** 55 MPH	**Dir:** E	**Veh Mnvr/Ped Actn:**				8			**Obj Strk:**			
Unit	**3 :** 1	**Alchl/Drgs:**	0	**Speed:** 55 MPH	**Dir:** W	**Veh Mnvr/Ped Actn:**				4			**Obj Strk:**			
565	**105219332**	21.566	09/12/2017 15:49	REAR END, SLOW OR STOP	$ 9000	0	0	0	1	2	1	3	1	0	13	1
Unit	**1 :** 2	**Alchl/Drgs:**	0	**Speed:** 50 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:**			
566	**104323725**	21.616	03/16/2015 18:29	REAR END, SLOW OR STOP	$ 3000	0	0	0	0	1	1	1	1	0	13	1
Unit	**1 :** 1	**Alchl/Drgs:**	0	**Speed:** 55 MPH	**Dir:** W	**Veh Mnvr/Ped Actn:**				4			**Obj Strk:**			
Unit	**2 :** 2	**Alchl/Drgs:**	0	**Speed:** 55 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
567	**104474277**	21.616	08/30/2015 10:36	REAR END, SLOW OR STOP	$ 10000	0	0	1	0	1	1	1	1	0	0	
Unit	**1 :** 4	**Alchl/Drgs:**	0	**Speed:** 55 MPH	**Dir:** W	**Veh Mnvr/Ped Actn:**		4		**Obj Strk:**						
Unit	**2 :** 2	**Alchl/Drgs:**	0	**Speed:** 20 MPH	**Dir:** W	**Veh Mnvr/Ped Actn:**		11		**Obj Strk:**						
568	**103892893**	21.636	11/05/2013 18:31	REAR END, SLOW OR STOP	$ 3500	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:**						
Unit	**2 :** 1	**Alchl/Drgs:**	0	**Speed:** 0 MPH	**Dir:** E	**Veh Mnvr/Ped Actn:**		1		**Obj Strk:**						
569	**103997932**	21.676	03/08/2014 02:46	FIXED OBJECT	$ 26000	0	0	0	1	4	5	1	5	0	13	1
Unit	**1 :** 4	**Alchl/Drgs:**	0	**Speed:** 60 MPH	**Dir:** W	**Veh Mnvr/Ped Actn:**		4		**Obj Strk:**	58					
570	**104089171**	21.716	05/24/2014 16:08	ANGLE	$ 9000	0	0	1	2	1	1	1	1	0	3	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:** 55 MPH	**Dir:** W	**Veh Mnvr/Ped Actn:**		4		**Obj Strk:**						
571	**104922387**	21.716	11/18/2016 19:00	REAR END, SLOW OR STOP	$ 23000	0	0	0	3	1	5	1	3	0	13	1
Unit	**1 :** 2	**Alchl/Drgs:**	0	**Speed:** 55 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:**		9		**Obj Strk:**						
Unit	**3 :** 1	**Alchl/Drgs:**	0	**Speed:** 55 MPH	**Dir:** E	**Veh Mnvr/Ped Actn:**		4		**Obj Strk:**						
572	**104438740**	21.736	07/18/2015 12:52	REAR END, SLOW OR STOP	$ 7000	0	0	1	3	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 :** 1	**Alchl/Drgs:**	0	**Speed:** 0 MPH	**Dir:** W	**Veh Mnvr/Ped Actn:**		1		**Obj Strk:**						
573	**105023225**	21.736	02/25/2017 09:00	SIDESWIPE, OPPOSITE DIRECTION	$ 1700	0	0	0	2	1	1	1	3	0	0	
Unit	**1 :** 5	**Alchl/Drgs:**	0	**Speed:** 55 MPH	**Dir:** E	**Veh Mnvr/Ped Actn:**		4		**Obj Strk:**						
Unit	**2 :** 2	**Alchl/Drgs:**	0	**Speed:** 55 MPH	**Dir:** W	**Veh Mnvr/Ped Actn:**		4		**Obj Strk:**						
574	**104065867**	21.816	04/26/2014 12:10	SIDESWIPE, SAME DIRECTION	$ 4900	0	0	0	0	1	1	1	1	0	0	
Unit	**1 :** 4	**Alchl/Drgs:**	0	**Speed:** 35 MPH	**Dir:** W	**Veh Mnvr/Ped Actn:**		8		**Obj Strk:**						
Unit	**2 :** 4	**Alchl/Drgs:**	0	**Speed:** 35 MPH	**Dir:** W	**Veh Mnvr/Ped Actn:**		6		**Obj Strk:**	60					
575	**104825121**	21.816	08/05/2016 00:02	FIXED OBJECT	$ 6000	0	0	0	1	2	5	3	1	0	13	1
Unit	**1 :** 1	**Alchl/Drgs:**	1	**Speed:** 55 MPH	**Dir:** W	**Veh Mnvr/Ped Actn:**		4		**Obj Strk:**	33					
576	**105091641**	21.816	04/29/2017 15:45	REAR END, SLOW OR STOP	$ 3000	0	0	0	0	1	1	1	1	0	13	1
Unit	**1 :** 4	**Alchl/Drgs:**	0	**Speed:** 50 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 :** 4	**Alchl/Drgs:**	0	**Speed:** 10 MPH	**Dir:** W	**Veh Mnvr/Ped Actn:**				11			**Obj Strk:**			
577	**104549993**	21.836	11/12/2015 07:58	REAR END, SLOW OR STOP	$ 7000	0	0	0	0	1	1	1	1	0	13	1
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:** 0 MPH	**Dir:** W	**Veh Mnvr/Ped Actn:**				1			**Obj Strk:**			
578	**104419202**	21.916	06/27/2015 17:35	REAR END, SLOW OR STOP	$ 6700	0	0	1	0	2	1	3	1	0	13	1
Unit	**1 :** 2	**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:**				11			**Obj Strk:**			
579	**105244593**	21.916	10/03/2017 09:02	ANIMAL	$ 4000	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:**	17		
580	**105249570**	21.916	10/03/2017 10:27	REAR END, SLOW OR STOP	$ 31200	0	0	1	1	1	1	1	1	0	13	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:** 0 MPH	**Dir:** W	**Veh Mnvr/Ped Actn:**				1			**Obj Strk:**			
Unit	**3 :** 2	**Alchl/Drgs:**	0	**Speed:** 0 MPH	**Dir:** W	**Veh Mnvr/Ped Actn:**				1			**Obj Strk:**			
581	**104480294**	22.016	09/03/2015 14:28	REAR END, SLOW OR STOP	$ 6000	0	0	0	0	1	1	1	3	0	13	1
Unit	**1 :** 4	**Alchl/Drgs:**	0	**Speed:** 55 MPH	**Dir:** E	**Veh Mnvr/Ped Actn:**				4			**Obj Strk:**			
Unit	**2 :** 2	**Alchl/Drgs:**	0	**Speed:** 55 MPH	**Dir:** E	**Veh Mnvr/Ped Actn:**				4			**Obj Strk:**			
582	**103648710**	22.066	01/10/2013 17:55	REAR END, SLOW OR STOP	$ 9000	0	0	0	1	1	5	1	3	0	13	1
Unit	**1 :** 1	**Alchl/Drgs:**	0	**Speed:** 55 MPH	**Dir:** W	**Veh Mnvr/Ped Actn:**				4			**Obj Strk:**			
Unit	**2 :** 5	**Alchl/Drgs:**	0	**Speed:** 45 MPH	**Dir:** W	**Veh Mnvr/Ped Actn:**				4			**Obj Strk:**			
583	**103591091**	22.116	11/05/2012 11:27	ANIMAL	$ 1500	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:**	17		
584	**103791416**	22.116	07/03/2013 14:16	FIXED OBJECT	$ 9000	0	0	0	2	2	1	3	4	0	13	1
Unit	**1 :** 4	**Alchl/Drgs:**	0	**Speed:** 60 MPH	**Dir:** W	**Veh Mnvr/Ped Actn:**				4			**Obj Strk:**	60		
585	**104505819**	22.116	10/01/2015 12:34	FIXED OBJECT	$ 10200	0	0	0	1	1	1	2	2	0	13	1
Unit	**1 :** 2	**Alchl/Drgs:**	0	**Speed:** 65 MPH	**Dir:** W	**Veh Mnvr/Ped Actn:**				4			**Obj Strk:**	60		
586	**104584607**	22.116	12/08/2015 18:45	LEFT TURN, DIFFERENT ROADWAYS	$ 14000	0	0	1	1	1	5	1	3	0	13	1
Unit	**1 :** 12	**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	A	B	C	Condition R	L	W	Road Ch	Ci	Trfc Ctl Dv	Op
Unit	**2 :** 1	**Alchl/Drgs:**	0	**Speed:** 55 MPH	**Dir:** E	**Veh Mnvr/Ped Actn:**				4			**Obj Strk:**			
587	**104688811**	22.116	03/26/2016 17:07	LEFT TURN, DIFFERENT ROADWAYS	$ 1500	0	0	0	0	1	1	2	1	0	13	1
Unit	**1 :** 1	**Alchl/Drgs:**	0	**Speed:** 15 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:**			
588	**105157361**	22.116	07/05/2017 17:38	SIDESWIPE, OPPOSITE DIRECTION	$ 2000	0	0	0	1	1	1	1	3	0	13	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:** 55 MPH	**Dir:** W	**Veh Mnvr/Ped Actn:**				4			**Obj Strk:**			
589	**103819364**	22.136	08/02/2013 00:49	FIXED OBJECT	$ 8000	0	0	0	1	2	5	3	4	0	13	1
Unit	**1 :** 2	**Alchl/Drgs:**	0	**Speed:** 55 MPH	**Dir:** W	**Veh Mnvr/Ped Actn:**				4			**Obj Strk:**	61		
590	**103938430**	22.167	12/26/2013 06:40	FIXED OBJECT	$ 6000	0	0	0	0	4	3	1	4	0	13	1
Unit	**1 :** 5	**Alchl/Drgs:**	0	**Speed:** 50 MPH	**Dir:** W	**Veh Mnvr/Ped Actn:**				4			**Obj Strk:**	61		
591	**105224078**	22.213	09/15/2017 23:12	LEFT TURN, SAME ROADWAY	$ 7000	0	0	0	2	1	5	1	1	0	13	1
Unit	**1 :** 1	**Alchl/Drgs:**	0	**Speed:** 55 MPH	**Dir:** W	**Veh Mnvr/Ped Actn:**				4			**Obj Strk:**			
Unit	**2 :** 4	**Alchl/Drgs:**	1	**Speed:** 55 MPH	**Dir:** E	**Veh Mnvr/Ped Actn:**				8			**Obj Strk:**			
592	**103660187**	22.216	01/24/2013 13:20	ANGLE	$ 1000	0	0	0	1	1	1	1	1	0	1	1
Unit	**1 :** 2	**Alchl/Drgs:**	0	**Speed:** 45 MPH	**Dir:** E	**Veh Mnvr/Ped Actn:**				8			**Obj Strk:**			
Unit	**2 :** 21	**Alchl/Drgs:**	0	**Speed:** 0 MPH	**Dir:**	**Veh Mnvr/Ped Actn:**							**Obj Strk:**			
593	**103938676**	22.216	12/28/2013 15:06	RAN OFF ROAD - RIGHT	$ 3500	0	0	0	0	1	1	1	3	0	13	1
Unit	**1 :** 4	**Alchl/Drgs:**	7	**Speed:** 60 MPH	**Dir:** E	**Veh Mnvr/Ped Actn:**				8			**Obj Strk:**	42		
594	**104511399**	22.216	10/07/2015 07:47	LEFT TURN, SAME ROADWAY	$ 15600	0	0	1	1	1	1	1	4	0	13	1
Unit	**1 :** 1	**Alchl/Drgs:**	0	**Speed:** 55 MPH	**Dir:** E	**Veh Mnvr/Ped Actn:**				8			**Obj Strk:**			
Unit	**2 :** 5	**Alchl/Drgs:**	0	**Speed:** 55 MPH	**Dir:** W	**Veh Mnvr/Ped Actn:**				4			**Obj Strk:**			
595	**104603307**	22.216	01/01/2016 02:06	FIXED OBJECT	$ 5500	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:**	61		
596	**104754509**	22.216	06/04/2016 22:59	LEFT TURN, DIFFERENT ROADWAYS	$ 13500	0	0	0	2	2	5	3	1	0	1	1
Unit	**1 :** 1	**Alchl/Drgs:**	0	**Speed:** 0 MPH	**Dir:** S	**Veh Mnvr/Ped Actn:**				8			**Obj Strk:**			
Unit	**2 :** 3	**Alchl/Drgs:**	0	**Speed:** 50 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
597	**104895815**	22.216	09/07/2016 01:01	FIXED OBJECT	$ 5000	0	0	0	0	1	5	1	1	0	1	1
Unit	**1 :** 4	**Alchl/Drgs:** 7	**Speed:** 55 MPH	**Dir:** S	**Veh Mnvr/Ped Actn:** 4	**Obj Strk:** 33										
598	**104889977**	22.216	10/15/2016 07:24	ANIMAL	$ 3000	0	0	1	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:** 17										
599	**105113782**	22.216	05/26/2017 16:37	LEFT TURN, SAME ROADWAY	$ 6000	0	0	0	0	1	1	1	3	0	13	1
Unit	**1 :** 1	**Alchl/Drgs:** 0	**Speed:** 20 MPH	**Dir:** W	**Veh Mnvr/Ped Actn:** 9	**Obj Strk:**										
Unit	**2 :** 1	**Alchl/Drgs:** 0	**Speed:** 55 MPH	**Dir:** W	**Veh Mnvr/Ped Actn:** 4	**Obj Strk:**										
600	**105194836**	22.216	08/16/2017 13:35	LEFT TURN, DIFFERENT ROADWAYS	$ 4000	0	0	0	1	1	1	1	2	0	1	1
Unit	**1 :** 1	**Alchl/Drgs:** 0	**Speed:** 15 MPH	**Dir:** W	**Veh Mnvr/Ped Actn:** 8	**Obj Strk:**										
Unit	**2 :** 1	**Alchl/Drgs:** 0	**Speed:** 50 MPH	**Dir:** E	**Veh Mnvr/Ped Actn:** 4	**Obj Strk:**										
601	**105208448**	22.216	08/26/2017 18:02	ANGLE	$ 1000	0	0	0	2	1	1	1	4	0	1	1
Unit	**1 :** 32	**Alchl/Drgs:** 7	**Speed:** 0 MPH	**Dir:** S	**Veh Mnvr/Ped Actn:** 12	**Obj Strk:**										
Unit	**2 :** 21	**Alchl/Drgs:** 0	**Speed:** 30 MPH	**Dir:** W	**Veh Mnvr/Ped Actn:** 4	**Obj Strk:**										
602	**104180903**	22.286	10/13/2014 07:39	ANIMAL	$ 8000	0	0	0	0	2	1	2	3	0	13	1
Unit	**1 :** 1	**Alchl/Drgs:** 0	**Speed:** 55 MPH	**Dir:** E	**Veh Mnvr/Ped Actn:** 4	**Obj Strk:** 17										
603	**103708692**	22.386	03/22/2013 13:22	LEFT TURN, SAME ROADWAY	$ 8500	0	0	3	0	1	1	1	1	0	0	
Unit	**1 :** 1	**Alchl/Drgs:** 0	**Speed:** 55 MPH	**Dir:** E	**Veh Mnvr/Ped Actn:** 8	**Obj Strk:**										
Unit	**2 :** 5	**Alchl/Drgs:** 0	**Speed:** 55 MPH	**Dir:** E	**Veh Mnvr/Ped Actn:** 4	**Obj Strk:**										
604	**104659514**	22.416	02/17/2016 16:22	SIDESWIPE, OPPOSITE DIRECTION	$ 12700	0	0	0	1	1	1	1	3	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:** W	**Veh Mnvr/Ped Actn:** 4	**Obj Strk:**										
Unit	**3 :** 1	**Alchl/Drgs:** 0	**Speed:** 45 MPH	**Dir:** W	**Veh Mnvr/Ped Actn:** 4	**Obj Strk:**										
605	**104222329**	22.586	11/22/2014 05:20	ANIMAL	$ 2000	0	0	0	0	1	5	1	1	0	13	1
Unit	**1 :** 2	**Alchl/Drgs:** 0	**Speed:** 55 MPH	**Dir:** E	**Veh Mnvr/Ped Actn:** 4	**Obj Strk:** 17										
606	**103594732**	22.596	11/08/2012 18:49	REAR END, SLOW OR STOP	$ 6500	0	0	0	2	1	5	1	1	0	13	1
Unit	**1 :** 1	**Alchl/Drgs:** 1	**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:**										

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
607	**103956250**	22.616	01/20/2014 18:11	ANIMAL	$ 3000	0	0	0	0	1	5	1	3	0	13	1
Unit	**1 :** 4	**Alchl/Drgs:** 0	**Speed:** 55 MPH	**Dir:** E	**Veh Mnvr/Ped Actn:** 4					**Obj Strk:** 17						
608	**104616508**	22.896	01/15/2016 18:30	ANIMAL	$ 6000	0	0	1	0	2	5	3	3	0	0	
Unit	**1 :** 1	**Alchl/Drgs:** 0	**Speed:** 55 MPH	**Dir:** E	**Veh Mnvr/Ped Actn:** 4					**Obj Strk:** 17						
609	**103778076**	22.986	06/17/2013 18:43	REAR END, SLOW OR STOP	$ 1000	0	0	0	0	1	1	1	2	0	13	1
Unit	**1 :** 1	**Alchl/Drgs:** 0	**Speed:** 20 MPH	**Dir:** E	**Veh Mnvr/Ped Actn:** 11					**Obj Strk:**						
Unit	**2 :** 1	**Alchl/Drgs:** 0	**Speed:** 45 MPH	**Dir:** E	**Veh Mnvr/Ped Actn:** 4					**Obj Strk:**						
610	**104112138**	22.986	07/28/2014 13:43	FIXED OBJECT	$ 3000	0	0	0	1	1	1	1	3	0	13	1
Unit	**1 :** 1	**Alchl/Drgs:** 0	**Speed:** 47 MPH	**Dir:** W	**Veh Mnvr/Ped Actn:** 4					**Obj Strk:** 33						
611	**104362234**	22.986	04/19/2015 10:29	FIXED OBJECT	$ 4900	0	0	0	0	1	1	2	3	0	0	
Unit	**1 :** 2	**Alchl/Drgs:** 0	**Speed:** 55 MPH	**Dir:** E	**Veh Mnvr/Ped Actn:** 4					**Obj Strk:** 60						
612	**104554668**	22.986	11/13/2015 09:49	ANIMAL	$ 500	0	0	0	0	1	5	1	1	0	13	1
Unit	**1 :** 1	**Alchl/Drgs:** 0	**Speed:** 65 MPH	**Dir:** E	**Veh Mnvr/Ped Actn:** 4					**Obj Strk:** 17						
613	**105093497**	22.986	05/08/2017 17:20	ANIMAL	$ 2000	0	0	0	0	1	1	1	3	0	0	
Unit	**1 :** 1	**Alchl/Drgs:** 0	**Speed:** 0 MPH	**Dir:** W	**Veh Mnvr/Ped Actn:** 4					**Obj Strk:** 17						
614	**103743450**	23.086	05/02/2013 10:11	FIXED OBJECT	$ 19400	0	0	3	0	1	1	2	1	0	1	1
Unit	**1 :** 1	**Alchl/Drgs:** 0	**Speed:** 55 MPH	**Dir:** E	**Veh Mnvr/Ped Actn:** 4					**Obj Strk:** 38						
Unit	**2 :** 1	**Alchl/Drgs:** 7	**Speed:** 0 MPH	**Dir:** S	**Veh Mnvr/Ped Actn:** 2					**Obj Strk:**						
Unit	**3 :** 2	**Alchl/Drgs:** 7	**Speed:** 0 MPH	**Dir:** S	**Veh Mnvr/Ped Actn:** 2					**Obj Strk:**						
Unit	**4 :** 1	**Alchl/Drgs:** 0	**Speed:** 10 MPH	**Dir:** S	**Veh Mnvr/Ped Actn:** 8					**Obj Strk:**						
615	**104890076**	23.133	10/18/2016 22:14	ANIMAL	$ 4000	0	0	0	0	1	5	1	5	0	13	1
Unit	**1 :** 4	**Alchl/Drgs:** 0	**Speed:** 50 MPH	**Dir:** W	**Veh Mnvr/Ped Actn:** 4					**Obj Strk:** 17						
616	**103781035**	23.186	06/12/2013 17:01	REAR END, SLOW OR STOP	$ 3400	0	0	0	0	1	1	2	3	0	13	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:** 60 MPH	**Dir:** W	**Veh Mnvr/Ped Actn:** 4					**Obj Strk:**						
617	**104444343**	23.196	07/21/2015 18:42	REAR END, SLOW OR STOP	$ 2000	0	0	0	3	1	1	2	1	0	13	1
Unit	**1 :** 1	**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
Unit	**2 :** 4	**Alchl/Drgs:**	0	**Speed:** 0 MPH	**Dir:** W	**Veh Mnvr/Ped Actn:**				1			**Obj Strk:**			
618	**105121321**	23.286	06/03/2017 09:57	ANIMAL	$ 1800	0	0	0	0	1	1	1		0		
Unit	**1 :** 1	**Alchl/Drgs:**	0	**Speed:** 0 MPH	**Dir:** W	**Veh Mnvr/Ped Actn:**				4			**Obj Strk:**		17	
619	**105171311**	23.286	07/22/2017 22:50	FIXED OBJECT	$ 5000	0	0	0	1	1	5	1	1	0	13	1
Unit	**1 :** 1	**Alchl/Drgs:**	2	**Speed:** 55 MPH	**Dir:** E	**Veh Mnvr/Ped Actn:**				4			**Obj Strk:**		33	
620	**104838811**	23.296	09/04/2016 10:24	REAR END, SLOW OR STOP	$ 6500	0	0	0	0	1	1	1	2	0	13	1
Unit	**1 :** 5	**Alchl/Drgs:**	0	**Speed:** 55 MPH	**Dir:** W	**Veh Mnvr/Ped Actn:**				4			**Obj Strk:**			
Unit	**2 :** 5	**Alchl/Drgs:**	0	**Speed:** 55 MPH	**Dir:** W	**Veh Mnvr/Ped Actn:**				4			**Obj Strk:**			
621	**103717798**	23.396	04/04/2013 12:09	REAR END, SLOW OR STOP	$ 3500	0	0	0	0	1	1	2	1	0	13	1
Unit	**1 :** 5	**Alchl/Drgs:**	0	**Speed:** 55 MPH	**Dir:** W	**Veh Mnvr/Ped Actn:**				4			**Obj Strk:**			
Unit	**2 :** 1	**Alchl/Drgs:**	0	**Speed:** 25 MPH	**Dir:** W	**Veh Mnvr/Ped Actn:**				8			**Obj Strk:**			
622	**104907717**	23.396	11/04/2016 19:01	REAR END, SLOW OR STOP	$ 8000	0	0	1	4	1	4	1	3	0	13	1
Unit	**1 :** 32	**Alchl/Drgs:**	1	**Speed:** 50 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:**			
Unit	**3 :** 5	**Alchl/Drgs:**	0	**Speed:** 0 MPH	**Dir:** W	**Veh Mnvr/Ped Actn:**				1			**Obj Strk:**			
623	**104524860**	23.474	10/19/2015 13:45	REAR END, SLOW OR STOP	$ 4000	0	0	0	0	1	1	1	1	0	13	1
Unit	**1 :** 4	**Alchl/Drgs:**	0	**Speed:** 0 MPH	**Dir:** E	**Veh Mnvr/Ped Actn:**				4			**Obj Strk:**			
Unit	**2 :** 4	**Alchl/Drgs:**	0	**Speed:** 5 MPH	**Dir:** E	**Veh Mnvr/Ped Actn:**				4			**Obj Strk:**			
624	**104838676**	23.486	09/03/2016 14:41	MOVABLE OBJECT	$ 4000	0	0	0	0	1	1	2	1	0	13	1
Unit	**1 :** 10	**Alchl/Drgs:**	0	**Speed:** 55 MPH	**Dir:** E	**Veh Mnvr/Ped Actn:**				4			**Obj Strk:**		18	
625	**104522746**	23.487	10/17/2015 13:10	REAR END, SLOW OR STOP	$ 6000	0	0	0	0	1	1	1	1	0	13	1
Unit	**1 :** 1	**Alchl/Drgs:**	0	**Speed:** 55 MPH	**Dir:** W	**Veh Mnvr/Ped Actn:**				4			**Obj Strk:**			
Unit	**2 :** 5	**Alchl/Drgs:**	0	**Speed:** 55 MPH	**Dir:** W	**Veh Mnvr/Ped Actn:**				11			**Obj Strk:**			
626	**104984089**	23.487	01/21/2017 10:39	FIXED OBJECT	$ 1000	0	0	0	0	2	5	3	1	0	13	1
Unit	**1 :** 1	**Alchl/Drgs:**	0	**Speed:** 55 MPH	**Dir:** W	**Veh Mnvr/Ped Actn:**				4			**Obj Strk:**		60	
627	**103923310**	23.496	12/10/2013 01:27	ANIMAL	$ 2800	0	0	0	0	1	5	3	1	0	13	1
Unit	**1 :** 1	**Alchl/Drgs:**	0	**Speed:** 50 MPH	**Dir:** W	**Veh Mnvr/Ped Actn:**				4			**Obj Strk:**		17	

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
628	**104081998**	23.496	04/14/2014 14:53	REAR END, SLOW OR STOP	$ 2350	0	0	0	0	1	1	2	3	0	13	1
Unit	**1 :** 2	**Alchl/Drgs:**	0	**Speed:** 50 MPH	**Dir:** E	**Veh Mnvr/Ped Actn:**				4			**Obj Strk:**			
Unit	**2 :** 1	**Alchl/Drgs:**	0	**Speed:** 50 MPH	**Dir:** E	**Veh Mnvr/Ped Actn:**				11			**Obj Strk:**			
629	**103863358**	23.596	09/28/2013 13:39	REAR END, SLOW OR STOP	$ 4500	0	0	0	0	1	1	2	1	0	13	1
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:** 55 MPH	**Dir:** W	**Veh Mnvr/Ped Actn:**				4			**Obj Strk:**		56	
630	**104210585**	23.596	11/10/2014 15:41	REAR END, SLOW OR STOP	$ 1500	0	0	0	0	1	1	1	1	0	13	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:** W	**Veh Mnvr/Ped Actn:**				1			**Obj Strk:**			
631	**104124971**	23.616	08/09/2014 23:50	RAN OFF ROAD - RIGHT	$ 2000	0	0	0	0	2	4	3	2	0	13	1
Unit	**1 :** 5	**Alchl/Drgs:**	0	**Speed:** 60 MPH	**Dir:** W	**Veh Mnvr/Ped Actn:**				4			**Obj Strk:**		58	
632	**104473834**	23.656	08/25/2015 14:38	REAR END, SLOW OR STOP	$ 3000	0	0	2	0	1	1	1	1	0	13	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:** 55 MPH	**Dir:** E	**Veh Mnvr/Ped Actn:**				1			**Obj Strk:**			
633	**104802663**	23.656	07/26/2016 10:05	HEAD ON	$ 11000	0	0	0	2	1	1	1	1	0	13	1
Unit	**1 :** 2	**Alchl/Drgs:**	0	**Speed:** 25 MPH	**Dir:** W	**Veh Mnvr/Ped Actn:**				8			**Obj Strk:**			
Unit	**2 :** 4	**Alchl/Drgs:**	0	**Speed:** 55 MPH	**Dir:** E	**Veh Mnvr/Ped Actn:**				4			**Obj Strk:**			
634	**104866300**	23.696	09/30/2016 14:40	REAR END, SLOW OR STOP	$ 4500	0	0	0	0	2	1	3	3	0	13	1
Unit	**1 :** 5	**Alchl/Drgs:**	0	**Speed:** 55 MPH	**Dir:** W	**Veh Mnvr/Ped Actn:**				4			**Obj Strk:**			
Unit	**2 :** 2	**Alchl/Drgs:**	0	**Speed:** 55 MPH	**Dir:** W	**Veh Mnvr/Ped Actn:**				4			**Obj Strk:**			
635	**103712523**	23.756	03/28/2013 05:42	ANIMAL	$ 1500	0	0	0	0	1	5	1	1	0	13	1
Unit	**1 :** 2	**Alchl/Drgs:**	0	**Speed:** 55 MPH	**Dir:** E	**Veh Mnvr/Ped Actn:**				4			**Obj Strk:**		17	
636	**104978005**	23.796	01/11/2017 19:50	ANIMAL	$ 2000	0	0	0	0	2	5	1	1	0	13	1
Unit	**1 :** 1	**Alchl/Drgs:**	0	**Speed:** 55 MPH	**Dir:** E	**Veh Mnvr/Ped Actn:**				4			**Obj Strk:**		17	
637	**104978006**	23.796	01/11/2017 20:44	ANIMAL	$ 1000	0	0	0	0	1	5	1	1	0	13	1
Unit	**1 :** 4	**Alchl/Drgs:**	0	**Speed:** 55 MPH	**Dir:** E	**Veh Mnvr/Ped Actn:**				4			**Obj Strk:**		17	

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
638	**105253035**	23.796	10/12/2017 23:33	ANIMAL	$ 2000	0	0	0	0	2	5	2	1	0	13	1
Unit	**1 :** 1	**Alchl/Drgs:** 0	**Speed:** 55 MPH	**Dir:** E	**Veh Mnvr/Ped Actn:** 4	**Obj Strk:** 17										
639	**104347174**	23.886	04/12/2015 11:48	ANIMAL	$ 1200	0	0	0	0	1	1	1	1	0	13	1
Unit	**1 :** 2	**Alchl/Drgs:** 0	**Speed:** 55 MPH	**Dir:** E	**Veh Mnvr/Ped Actn:** 4	**Obj Strk:** 17										
640	**104629240**	23.896	01/25/2016 20:57	REAR END, SLOW OR STOP	$ 9000	0	0	0	0	1	5	1	3	0	13	1
Unit	**1 :** 4	**Alchl/Drgs:** 0	**Speed:** 50 MPH	**Dir:** W	**Veh Mnvr/Ped Actn:** 4	**Obj Strk:**										
Unit	**2 :** 4	**Alchl/Drgs:** 0	**Speed:** 55 MPH	**Dir:** W	**Veh Mnvr/Ped Actn:** 11	**Obj Strk:**										
641	**104696202**	23.896	04/02/2016 19:45	REAR END, SLOW OR STOP	$ 7500	0	0	0	1	1	5	1	3	0	13	1
Unit	**1 :** 1	**Alchl/Drgs:** 1	**Speed:** 55 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:**										
642	**104999415**	23.896	02/03/2017 20:32	ANIMAL	$ 2000	0	0	0	0	1	5	1	1	0	13	1
Unit	**1 :** 1	**Alchl/Drgs:** 0	**Speed:** 55 MPH	**Dir:** W	**Veh Mnvr/Ped Actn:** 4	**Obj Strk:** 17										
643	**105269147**	23.896	10/27/2017 01:36	ANIMAL	$ 1200	0	0	0	0	1	5	1	1	0	0	
Unit	**1 :** 4	**Alchl/Drgs:** 0	**Speed:** 55 MPH	**Dir:** W	**Veh Mnvr/Ped Actn:** 4	**Obj Strk:** 17										
644	**104679221**	23.946	03/17/2016 14:38	HEAD ON	$ 7000	0	0	4	0	1	1	1	1	0	13	1
Unit	**1 :** 1	**Alchl/Drgs:** 0	**Speed:** 15 MPH	**Dir:** W	**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:**										
645	**105166578**	23.956	07/18/2017 05:47	FIXED OBJECT	$ 2100	0	0	0	0	1	5	2	3	0	0	
Unit	**1 :** 4	**Alchl/Drgs:** 0	**Speed:** 45 MPH	**Dir:** E	**Veh Mnvr/Ped Actn:** 7	**Obj Strk:** 60										
646	**105277258**	23.966	10/28/2017 19:51	ANIMAL	$ 2300	0	0	0	0	1	5	1		0		
Unit	**1 :** 4	**Alchl/Drgs:** 0	**Speed:** 0 MPH	**Dir:** E	**Veh Mnvr/Ped Actn:** 4	**Obj Strk:** 17										
647	**104907733**	23.979	11/04/2016 17:41	REAR END, SLOW OR STOP	$ 5000	0	1	0	0	1	1	1	3	0	13	1
Unit	**1 :** 1	**Alchl/Drgs:** 0	**Speed:** 45 MPH	**Dir:** W	**Veh Mnvr/Ped Actn:** 4	**Obj Strk:**										
Unit	**2 :** 20	**Alchl/Drgs:** 0	**Speed:** 0 MPH	**Dir:** W	**Veh Mnvr/Ped Actn:** 11	**Obj Strk:**										
Unit	**3 :** 4	**Alchl/Drgs:** 0	**Speed:** 0 MPH	**Dir:** W	**Veh Mnvr/Ped Actn:** 11	**Obj Strk:**										
648	**105168812**	23.990	07/22/2017 23:39	FIXED OBJECT	$ 2500	0	0	0	0	1	5	1	1	0	13	1
Unit	**1 :** 1	**Alchl/Drgs:** 0	**Speed:** 55 MPH	**Dir:** W	**Veh Mnvr/Ped Actn:** 8	**Obj Strk:** 58										

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
649	**104632075**	23.992	01/26/2016 18:06	REAR END, SLOW OR STOP	$ 4600	0	0	0	1	1	1	1	3	0	13	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:**				8			**Obj Strk:**			
650	**103594584**	23.996	11/07/2012 17:48	LEFT TURN, SAME ROADWAY	$ 10000	0	0	0	0	1	5	1	1	0	13	1
Unit	**1 :** 1	**Alchl/Drgs:**	0	**Speed:** 55 MPH	**Dir:** SW	**Veh Mnvr/Ped Actn:**				8			**Obj Strk:**			
Unit	**2 :** 4	**Alchl/Drgs:**	0	**Speed:** 55 MPH	**Dir:** E	**Veh Mnvr/Ped Actn:**				4			**Obj Strk:**			
651	**104366118**	23.996	04/25/2015 12:03	REAR END, SLOW OR STOP	$ 9000	0	0	0	0	1	1	3	3	0	13	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:** 0 MPH	**Dir:** W	**Veh Mnvr/Ped Actn:**				4			**Obj Strk:**			
652	**104501867**	23.996	09/18/2015 16:43	ANGLE	$ 21000	0	0	0	1	1	1	1	3	0	13	1
Unit	**1 :** 1	**Alchl/Drgs:**	0	**Speed:** 16 MPH	**Dir:** N	**Veh Mnvr/Ped Actn:**				12			**Obj Strk:**			
Unit	**2 :** 2	**Alchl/Drgs:**	0	**Speed:** 55 MPH	**Dir:** E	**Veh Mnvr/Ped Actn:**				4			**Obj Strk:**			
653	**104524131**	23.996	10/16/2015 16:56	FIXED OBJECT	$ 3000	0	0	1	0	1	1	1	1	0	1	1
Unit	**1 :** 1	**Alchl/Drgs:**	1	**Speed:** 50 MPH	**Dir:** N	**Veh Mnvr/Ped Actn:**				4			**Obj Strk:**	59		
654	**105115960**	23.996	05/29/2017 11:51	ANIMAL	$ 1200	0	0	0	0	1	1	1	1	0	0	
Unit	**1 :** 4	**Alchl/Drgs:**	0	**Speed:** 55 MPH	**Dir:** E	**Veh Mnvr/Ped Actn:**				4			**Obj Strk:**	17		
655	**105258549**	23.996	10/14/2017 10:26	LEFT TURN, DIFFERENT ROADWAYS	$ 12000	0	0	1	1	1	1	2	1	0	13	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:** 60 MPH	**Dir:** E	**Veh Mnvr/Ped Actn:**				4			**Obj Strk:**			
Unit	**3 :** 5	**Alchl/Drgs:**	0	**Speed:** 0 MPH	**Dir:** N	**Veh Mnvr/Ped Actn:**				1			**Obj Strk:**			
656	**104657420**	24.000	02/20/2016 21:44	REAR END, TURN	$ 1500	0	0	0	0	1	5	1	1	0	13	1
Unit	**1 :** 2	**Alchl/Drgs:**	7	**Speed:** 45 MPH	**Dir:** W	**Veh Mnvr/Ped Actn:**				6			**Obj Strk:**			
Unit	**2 :** 1	**Alchl/Drgs:**	0	**Speed:** 0 MPH	**Dir:** W	**Veh Mnvr/Ped Actn:**				1			**Obj Strk:**			
657	**103851193**	24.036	09/15/2013 10:26	REAR END, SLOW OR STOP	$ 1500	0	0	0	2	1	1	1	3	0	0	
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:** 35 MPH	**Dir:** W	**Veh Mnvr/Ped Actn:**				11			**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
658	**103630098**	24.096	12/18/2012 04:23	ANIMAL	$ 1500	0	0	0	0	1	5	1		0		
Unit	**1 :** 11	**Alchl/Drgs:**	0	**Speed:** 0 MPH	**Dir:** W	**Veh Mnvr/Ped Actn:**			4			**Obj Strk:**		17		
659	**105013028**	24.096	02/15/2017 07:40	ANIMAL	$ 2000	0	0	0	0	2	1	2		0		
Unit	**1 :** 1	**Alchl/Drgs:**	0	**Speed:** 0 MPH	**Dir:** E	**Veh Mnvr/Ped Actn:**			4			**Obj Strk:**		17		
660	**104082164**	24.136	06/14/2014 16:49	REAR END, SLOW OR STOP	$ 7300	0	0	0	0	1	1	1	3	0	13	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:** 0 MPH	**Dir:** E	**Veh Mnvr/Ped Actn:**			1			**Obj Strk:**				
661	**105161342**	24.136	07/11/2017 14:48	LEFT TURN, SAME ROADWAY	$ 1300	0	0	1	0	1	1	1	1	0	13	1
Unit	**1 :** 1	**Alchl/Drgs:**	0	**Speed:** 55 MPH	**Dir:** W	**Veh Mnvr/Ped Actn:**			4			**Obj Strk:**				
Unit	**2 :** 21	**Alchl/Drgs:**	0	**Speed:** 5 MPH	**Dir:** W	**Veh Mnvr/Ped Actn:**			8			**Obj Strk:**				
662	**104838480**	24.196	08/25/2016 23:54	ANIMAL	$ 3000	0	0	0	0	1	5	1	3	0	0	
Unit	**1 :** 1	**Alchl/Drgs:**	7	**Speed:** 50 MPH	**Dir:** W	**Veh Mnvr/Ped Actn:**			4			**Obj Strk:**		17		
663	**104696072**	24.296	04/06/2016 20:48	ANIMAL	$ 4000	0	0	0	0	1	5	1	1	0	13	1
Unit	**1 :** 2	**Alchl/Drgs:**	0	**Speed:** 55 MPH	**Dir:** E	**Veh Mnvr/Ped Actn:**			4			**Obj Strk:**		17		
664	**103595787**	24.316	11/09/2012 21:29	ANIMAL	$ 1800	0	0	0	0	1	5	1	1	0	13	1
Unit	**1 :** 1	**Alchl/Drgs:**	0	**Speed:** 55 MPH	**Dir:** E	**Veh Mnvr/Ped Actn:**			4			**Obj Strk:**		17		
665	**104982460**	24.416	01/19/2017 17:22	ANIMAL	$ 2000	0	0	0	0	1	2	1	3	0	0	
Unit	**1 :** 1	**Alchl/Drgs:**	0	**Speed:** 55 MPH	**Dir:** W	**Veh Mnvr/Ped Actn:**			4			**Obj Strk:**		17		
666	**104233233**	24.516	11/25/2014 17:55	REAR END, SLOW OR STOP	$ 4750	0	0	0	2	1	5	2	2	0	13	1
Unit	**1 :** 2	**Alchl/Drgs:**	0	**Speed:** 0 MPH	**Dir:** W	**Veh Mnvr/Ped Actn:**			1			**Obj Strk:**				
Unit	**2 :** 1	**Alchl/Drgs:**	0	**Speed:** 0 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:**			4			**Obj Strk:**				
667	**103965392**	24.616	01/29/2014 00:10	FIXED OBJECT	$ 5500	0	0	0	0	5	5	2	3	1	0	
Unit	**1 :** 3	**Alchl/Drgs:**	0	**Speed:** 40 MPH	**Dir:** E	**Veh Mnvr/Ped Actn:**			4			**Obj Strk:**		33		
668	**105245147**	24.616	10/06/2017 07:55	ANIMAL	$ 2000	0	0	0	0	1	1	1		0		
Unit	**1 :** 1	**Alchl/Drgs:**	0	**Speed:** 0 MPH	**Dir:** E	**Veh Mnvr/Ped Actn:**			4			**Obj Strk:**		17		

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
669	**103881544**	24.716	10/24/2013 08:26	REAR END, SLOW OR STOP	$ 7500	0	0	0	0	1	1	1	3	0	0	
Unit	**1 :** 4	**Alchl/Drgs:** 0	**Speed:** 50 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:**										
670	**105286969**	24.730	10/26/2017 08:01	REAR END, SLOW OR STOP	$ 7000	0	0	2	0	1	1	1	1	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:** 50 MPH	**Dir:** W	**Veh Mnvr/Ped Actn:** 4	**Obj Strk:**										
671	**103610649**	24.816	11/24/2012 18:40	ANIMAL	$ 1000	0	0	0	0	1	5	1		0		
Unit	**1 :** 4	**Alchl/Drgs:** 0	**Speed:** 0 MPH	**Dir:** E	**Veh Mnvr/Ped Actn:** 4	**Obj Strk:** 17										
672	**103859695**	24.816	09/26/2013 17:46	REAR END, SLOW OR STOP	$ 5500	0	0	0	0	1	1	1	3	0	13	1
Unit	**1 :** 1	**Alchl/Drgs:** 0	**Speed:** 55 MPH	**Dir:** W	**Veh Mnvr/Ped Actn:** 4	**Obj Strk:**										
Unit	**2 :** 2	**Alchl/Drgs:** 0	**Speed:** 35 MPH	**Dir:** W	**Veh Mnvr/Ped Actn:** 11	**Obj Strk:**										
Unit	**3 :** 1	**Alchl/Drgs:** 0	**Speed:** 55 MPH	**Dir:** W	**Veh Mnvr/Ped Actn:** 11	**Obj Strk:**										
673	**104298581**	24.816	02/10/2015 08:06	REAR END, SLOW OR STOP	$ 14000	0	0	2	0	2	1	2	1	1	0	
Unit	**1 :** 4	**Alchl/Drgs:** 0	**Speed:** 55 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:**										
Unit	**3 :** 4	**Alchl/Drgs:** 0	**Speed:** 0 MPH	**Dir:** E	**Veh Mnvr/Ped Actn:** 1	**Obj Strk:**										
Unit	**4 :** 5	**Alchl/Drgs:** 0	**Speed:** 0 MPH	**Dir:** E	**Veh Mnvr/Ped Actn:** 1	**Obj Strk:**										
674	**105161419**	24.816	07/13/2017 11:31	FIXED OBJECT	$ 4500	0	0	0	1	1	1	1	3	0	13	1
Unit	**1 :** 1	**Alchl/Drgs:** 0	**Speed:** 55 MPH	**Dir:** E	**Veh Mnvr/Ped Actn:** 4	**Obj Strk:** 58										
Unit	**2 :** 1	**Alchl/Drgs:** 0	**Speed:** 40 MPH	**Dir:** W	**Veh Mnvr/Ped Actn:** 4	**Obj Strk:**										
675	**104083483**	24.826	06/04/2014 21:39	ANIMAL	$ 3000	0	0	0	0	1	4	1	1	0	0	2
Unit	**1 :** 5	**Alchl/Drgs:** 0	**Speed:** 45 MPH	**Dir:** E	**Veh Mnvr/Ped Actn:** 4	**Obj Strk:** 17										
676	**103994160**	24.846	02/08/2014 13:34	REAR END, SLOW OR STOP	$ 8000	0	0	1	0	1	1	1	1	0	0	
Unit	**1 :** 4	**Alchl/Drgs:** 0	**Speed:** 30 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:** 4	**Obj Strk:**										
677	**103814576**	24.866	08/01/2013 19:15	REAR END, SLOW OR STOP	$ 700	0	0	0	0	1	5	1	1	0	13	1
Unit	**1 :** 4	**Alchl/Drgs:** 1	**Speed:** 45 MPH	**Dir:** W	**Veh Mnvr/Ped Actn:** 4	**Obj Strk:**										
Unit	**2 :** 1	**Alchl/Drgs:** 0	**Speed:** 45 MPH	**Dir:** W	**Veh Mnvr/Ped Actn:** 11	**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
678	**104442698**	24.916	07/25/2015 16:40	REAR END, SLOW OR STOP	$ 9000	0	0	0	1	1	1	1	1	0	13	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:** 0 MPH	**Dir:** W	**Veh Mnvr/Ped Actn:** 1	**Obj Strk:**										
679	**104817296**	24.916	08/06/2016 19:19	REAR END, SLOW OR STOP	$ 6000	0	0	0	0	1	1	1	3	0	13	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:** 55 MPH	**Dir:** E	**Veh Mnvr/Ped Actn:** 4	**Obj Strk:**										
680	**105234579**	24.916	09/21/2017 12:30	LEFT TURN, DIFFERENT ROADWAYS	$ 14000	0	0	3	1	1	1	1	3	0	0	
Unit	**1 :** 4	**Alchl/Drgs:** 0	**Speed:** 10 MPH	**Dir:** S	**Veh Mnvr/Ped Actn:** 8	**Obj Strk:**										
Unit	**2 :** 1	**Alchl/Drgs:** 0	**Speed:** 45 MPH	**Dir:** W	**Veh Mnvr/Ped Actn:** 4	**Obj Strk:**										
Unit	**3 :** 4	**Alchl/Drgs:** 0	**Speed:** 50 MPH	**Dir:** E	**Veh Mnvr/Ped Actn:** 4	**Obj Strk:**										
681	**103869141**	24.926	10/09/2013 15:25	REAR END, SLOW OR STOP	$ 9500	0	0	1	0	1	1	2	1	0	13	1
Unit	**1 :** 1	**Alchl/Drgs:** 0	**Speed:** 10 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:** 4	**Obj Strk:**										
Unit	**3 :** 1	**Alchl/Drgs:** 0	**Speed:** 45 MPH	**Dir:** W	**Veh Mnvr/Ped Actn:** 4	**Obj Strk:**										
682	**104272186**	24.956	01/14/2015 18:33	ANGLE	$ 8500	0	0	1	0	1	5	1	3	0	13	1
Unit	**1 :** 1	**Alchl/Drgs:** 0	**Speed:** 10 MPH	**Dir:** S	**Veh Mnvr/Ped Actn:** 12	**Obj Strk:**										
Unit	**2 :** 2	**Alchl/Drgs:** 1	**Speed:** 45 MPH	**Dir:** W	**Veh Mnvr/Ped Actn:** 4	**Obj Strk:**										
683	**104900043**	24.973	10/04/2016 17:33	REAR END, SLOW OR STOP	$ 3700	0	0	0	0	1	1	1	1	0		
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:**										
Unit	**3 :** 32	**Alchl/Drgs:** 7	**Speed:** 25 MPH	**Dir:** E	**Veh Mnvr/Ped Actn:** 4	**Obj Strk:**										
684	**104438700**	24.976	07/13/2015 15:51	REAR END, SLOW OR STOP	$ 4500	0	0	0	1	1	1	1	3	0	13	1
Unit	**1 :** 1	**Alchl/Drgs:** 0	**Speed:** 35 MPH	**Dir:** W	**Veh Mnvr/Ped Actn:** 4	**Obj Strk:**										
Unit	**2 :** 5	**Alchl/Drgs:** 0	**Speed:** 15 MPH	**Dir:** W	**Veh Mnvr/Ped Actn:** 4	**Obj Strk:**										
685	**103597866**	25.016	11/13/2012 07:00	ANIMAL	$ 1500	0	0	0	0	1	1	2		0		
Unit	**1 :** 2	**Alchl/Drgs:** 0	**Speed:** 0 MPH	**Dir:** E	**Veh Mnvr/Ped Actn:** 4	**Obj Strk:** 17										
686	**103649897**	25.016	01/12/2013 03:22	RAN OFF ROAD - RIGHT	$ 1250	0	0	0	0	1	5	5	1	0	13	1
Unit	**1 :** 1	**Alchl/Drgs:** 0	**Speed:** 45 MPH	**Dir:** E	**Veh Mnvr/Ped Actn:** 15	**Obj Strk:** 37										

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
687	**104379088**	25.016	05/09/2015 15:32	REAR END, SLOW OR STOP	$ 5000	0	0	0	0	1	1	1	1	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:** 30 MPH	**Dir:** E	**Veh Mnvr/Ped Actn:**				11			**Obj Strk:**			
688	**104854949**	25.016	09/18/2016 20:48	RAN OFF ROAD - LEFT	$ 1000	0	0	0	0	2	5	3	3	0	13	1
Unit	**1 :** 1	**Alchl/Drgs:**	0	**Speed:** 45 MPH	**Dir:** W	**Veh Mnvr/Ped Actn:**				4			**Obj Strk:**		59	
689	**104768375**	25.066	06/01/2016 18:32	RAN OFF ROAD - RIGHT	$ 1000	0	0	0	0	1	2	1	4	0	0	
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:** W	**Veh Mnvr/Ped Actn:**				12			**Obj Strk:**			
690	**103894226**	25.116	11/07/2013 06:49	ANIMAL	$ 2000	0	0	0	0	1	1	5	1	0	13	1
Unit	**1 :** 4	**Alchl/Drgs:**	0	**Speed:** 55 MPH	**Dir:** E	**Veh Mnvr/Ped Actn:**				4			**Obj Strk:**		17	
691	**103994242**	25.116	03/05/2014 16:54	REAR END, SLOW OR STOP	$ 7000	0	0	0	0	1	1	1	1	0	0	
Unit	**1 :** 1	**Alchl/Drgs:**	1	**Speed:** 45 MPH	**Dir:** E	**Veh Mnvr/Ped Actn:**				11			**Obj Strk:**			
Unit	**2 :** 1	**Alchl/Drgs:**	0	**Speed:** 45 MPH	**Dir:** E	**Veh Mnvr/Ped Actn:**				11			**Obj Strk:**			
692	**103973291**	25.160	12/16/2013 08:32	RAN OFF ROAD - RIGHT	$ 2000	0	0	0	0	4	1	1	3	0	0	
Unit	**1 :** 4	**Alchl/Drgs:**	0	**Speed:** 35 MPH	**Dir:** W	**Veh Mnvr/Ped Actn:**				4			**Obj Strk:**		33	
693	**103881673**	25.216	10/23/2013 19:52	ANIMAL	$ 2500	0	0	0	0	1	5	1	1	0	0	
Unit	**1 :** 1	**Alchl/Drgs:**	0	**Speed:** 45 MPH	**Dir:** W	**Veh Mnvr/Ped Actn:**				4			**Obj Strk:**		17	
694	**103913624**	25.216	11/27/2013 22:39	FIXED OBJECT	$ 3500	0	0	0	0	1	5	1	3	1	13	1
Unit	**1 :** 4	**Alchl/Drgs:**	0	**Speed:** 45 MPH	**Dir:** W	**Veh Mnvr/Ped Actn:**				4			**Obj Strk:**		58	
695	**104077759**	25.216	06/08/2014 18:45	REAR END, SLOW OR STOP	$ 9000	0	0	0	2	1	1	1	3	0	13	1
Unit	**1 :** 1	**Alchl/Drgs:**	0	**Speed:** 35 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:**				4			**Obj Strk:**			
696	**104663385**	25.216	02/29/2016 19:34	SIDESWIPE, OPPOSITE DIRECTION	$ 5000	0	0	0	0	1	5	1	1	0	13	1
Unit	**1 :** 1	**Alchl/Drgs:**	0	**Speed:** 55 MPH	**Dir:** E	**Veh Mnvr/Ped Actn:**				4			**Obj Strk:**			
Unit	**2 :** 32	**Alchl/Drgs:**	7	**Speed:** 55 MPH	**Dir:** W	**Veh Mnvr/Ped Actn:**				4			**Obj Strk:**			
697	**105286101**	25.216	10/28/2017 16:40	REAR END, SLOW OR STOP	$ 1000	0	0	0	0	1	1	2	3	0	13	1
Unit	**1 :** 1	**Alchl/Drgs:**	0	**Speed:** 5 MPH	**Dir:** W	**Veh Mnvr/Ped Actn:**				11			**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
Unit	**2 :** 1	**Alchl/Drgs:**	0	**Speed:** 0 MPH	**Dir:** W	**Veh Mnvr/Ped Actn:**	1		**Obj Strk:**							
698	**104348750**	25.259	04/01/2015 02:00	ANIMAL	$ 1500	0	0	0	0	1	4	1	2	0	0	
Unit	**1 :** 1	**Alchl/Drgs:**	0	**Speed:** 45 MPH	**Dir:** SE	**Veh Mnvr/Ped Actn:**	4		**Obj Strk:**	17						
699	**104282552**	25.276	01/25/2015 07:51	FIXED OBJECT	$ 800	0	0	0	0	4	1	1	3	0	13	1
Unit	**1 :** 31	**Alchl/Drgs:**	0	**Speed:** 45 MPH	**Dir:** W	**Veh Mnvr/Ped Actn:**	4		**Obj Strk:**	58						

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	699	100.00
Fatal Crashes	4	0.57
Non-Fatal Injury Crashes	254	36.34
Total Injury Crashes	258	36.91
Property Damage Only Crashes	441	63.09
Night Crashes	219	31.33
Wet Crashes	88	12.59
Alcohol/Drugs Involvement Crashes	33	4.72

Crash Severity Summary

Crash Type	Number of Crashes	Percent of Total
Total Crashes	699	100.00
Fatal Crashes	4	0.57
Class A Crashes	13	1.86
Class B Crashes	85	12.16
Class C Crashes	156	22.32
Property Damage Only Crashes	441	63.09

Vehicle Exposure Statistics

Annual ADT = 10400

Total Length = 20.434 (Miles) 32.885 (Kilometers)

Total Vehicle Exposure = 388.05 (MVMT) 624.51 (MVKMT)

Crash Rate	Crashes Per 100 Million Vehicle Miles	Crashes Per 100 Million Vehicle Kilometers
Total Crash Rate	180.13	111.93
Fatal Crash Rate	1.03	0.64
Non Fatal Crash Rate	65.46	40.67
Night Crash Rate	56.44	35.07
Wet Crash Rate	22.68	14.09
EPDO Rate	971.78	603.84

Miscellaneous Statistics

Severity Index =	5.39
EPDO Crash Index =	3771.00
Estimated Property Damage Total = $	3992625.00

Accident Type Summary

Accident Type	Number of Crashes	Percent of Total
ANGLE	61	8.73
ANIMAL	135	19.31
BACKING UP	1	0.14
FIXED OBJECT	81	11.59
HEAD ON	11	1.57
JACKKNIFE	1	0.14
LEFT TURN, DIFFERENT ROADWAYS	41	5.87
LEFT TURN, SAME ROADWAY	55	7.87
MOVABLE OBJECT	9	1.29
OTHER COLLISION WITH VEHICLE	2	0.29
OTHER NON-COLLISION	1	0.14
OVERTURN/ROLLOVER	7	1.00
PARKED MOTOR VEHICLE	3	0.43
PEDALCYCLIST	1	0.14
PEDESTRIAN	2	0.29
RAN OFF ROAD - LEFT	7	1.00
RAN OFF ROAD - RIGHT	12	1.72
REAR END, SLOW OR STOP	212	30.33
REAR END, TURN	8	1.14
RIGHT TURN, DIFFERENT ROADWAYS	3	0.43
RIGHT TURN, SAME ROADWAY	2	0.29
SIDESWIPE, OPPOSITE DIRECTION	16	2.29
SIDESWIPE, SAME DIRECTION	28	4.01

Injury Summary

Injury Type	Number of Injuries	Percent of Total
Fatal Injuries	4	0.91
Class A Injuries	17	3.85
Class B Injuries	123	27.89
Class C Injuries	297	67.35
Total Non-Fatal Injuries	437	99.09
Total Injuries	441	100.00

Monthly Summary

Month	Number of Crashes	Percent of Total
Jan	64	9.16
Feb	48	6.87
Mar	46	6.58
Apr	54	7.73
May	50	7.15
Jun	57	8.15
Jul	51	7.30
Aug	52	7.44
Sep	65	9.30
Oct	80	11.44
Nov	81	11.59
Dec	51	7.30

Daily Summary

Day	Number of Crashes	Percent of Total
Mon	99	14.16
Tue	99	14.16
Wed	111	15.88
Thu	110	15.74
Fri	120	17.17
Sat	104	14.88
Sun	56	8.01

Hourly Summary

Hour	Number of Crashes	Percent of Total
0000-0059	8	1.14
0100-0159	7	1.00
0200-0259	11	1.57
0300-0359	6	0.86
0400-0459	8	1.14
0500-0559	23	3.29
0600-0659	29	4.15
0700-0759	61	8.73
0800-0859	38	5.44
0900-0959	24	3.43
1000-1059	27	3.86
1100-1159	21	3.00
1200-1259	33	4.72
1300-1359	32	4.58
1400-1459	30	4.29
1500-1559	46	6.58
1600-1659	61	8.73
1700-1759	62	8.87
1800-1859	48	6.87
1900-1959	28	4.01
2000-2059	29	4.15
2100-2159	28	4.01
2200-2259	22	3.15
2300-2359	17	2.43

Light and Road Conditions Summary

Condition	Dry	Wet	Other	Total
Day	379	56	6	441
Dark	181	30	8	219
Other	34	2	3	39
Total	594	88	17	699

Object Struck Summary

Object Type	Times Struck	Percent of Total
ANIMAL	135	46.39
BRIDGE RAIL FACE	1	0.34
CATCH BASIN OR CULVERT ON SHOULDER	6	2.06
DITCH	21	7.22
EMBANKMENT	5	1.72
FENCE OR FENCE POST	6	2.06
GUARDRAIL END ON SHOULDER	1	0.34
GUARDRAIL FACE ON SHOULDER	12	4.12
MAILBOX	23	7.90
MOVABLE OBJECT	12	4.12
OFFICIAL HIGHWAY SIGN BREAKAWAY	4	1.37
OFFICIAL HIGHWAY SIGN NON-BREAKAWAY	5	1.72
OTHER FIXED OBJECT	7	2.41
PARKED MOTOR VEHICLE	9	3.09
PEDALCYCLIST	2	0.69
PEDESTRIAN	4	1.37
SHOULDER BARRIER FACE	1	0.34
TRAFFIC ISLAND CURB OR MEDIAN	2	0.69
TREE	26	8.93
UTILITY POLE	9	3.09

Vehicle Type Summary

Vehicle Type	Number Involved	Percent of Total
EMS VEHICLE, AMBULANCE, RESCUE SQUAD	1	0.08
LIGHT TRUCK (MINI-VAN, PANEL)	13	1.06
MOPED	6	0.49
MOTOR SCOOTER OR MOTOR BIKE	2	0.16
MOTORCYCLE	4	0.33
PASSENGER CAR	706	57.54

Vehicle Type	Number Involved	Percent of Total
PEDALCYCLE	1	0.08
PEDESTRIAN	2	0.16
PICKUP	168	13.69
POLICE	5	0.41
SCHOOL BUS	2	0.16
SINGLE UNIT TRUCK (2-AXLE, 6-TIRE)	12	0.98
SINGLE UNIT TRUCK (3 OR MORE AXLES)	6	0.49
SPORT UTILITY	219	17.85
TAXICAB	1	0.08
TRACTOR/SEMI-TRAILER	4	0.33
TRUCK/TRACTOR	1	0.08
TRUCK/TRAILER	4	0.33
UNKNOWN	10	0.81
VAN	60	4.89

Yearly Totals Summary

Accident Totals

Year	Total Accidents	Fatal Accidents	Injury Accidents	Property Damage Only Accidents
2012	26	1	5	20
2013	131	1	39	91
2014	115	0	43	72
2015	121	1	51	69
2016	160	0	60	100
2017	146	1	56	89
Total	699	4	254	441

Injury Totals

Year	Fatal Injuries	Class A, B, or C Injuries
2012	1	15
2013	1	73
2014	0	65
2015	1	101
2016	0	88
2017	1	95
Total	4	437

Miscellaneous Totals

Year	Property Damage	EPDO Index
2012	$ 119400	207.20
2013	$ 662675	632.20
2014	$ 623575	570.00
2015	$ 761850	916.20
2016	$ 912000	740.80
2017	$ 913125	704.60
Total	$ 3992625	3771.00

Type of Accident Totals

Year	Left Turn	Right Turn	Rear End	Run Off Road & Fixed Object	Angle	Side Swipe	Other
2012	1	0	5	1	1	1	17
2013	14	0	45	22	8	8	34
2014	9	0	32	22	12	10	30

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

Year	Left Turn	Right Turn	Rear End	Run Off Road & Fixed Object	Angle	Side Swipe	Other
2015	21	2	43	15	14	6	20
2016	23	1	53	22	15	11	35
2017	28	2	42	18	11	8	37
Total	96	5	220	100	61	44	173

Strip Diagram

Features	Milepost	Crash IDs
BEGIN | I 40 WB COUPLET	4.88	
I 40 | I 85	4.89	
	4.90	
	4.91	
	4.92	
EB RAMPS	4.93	103900491 | 103924609 | 103987904 | 103993863 | 104558680 | 104578734 | 104651186 | 104813885 | 104872381 | 104902202 | 105023677 | 105102274 | 105109095 | 105223125 | 105260296
	4.94	103818503
	4.95	103987903 | 103805479
	4.96	104344303
	4.97	
	4.98	
	4.99	104697841
	5.00	
	5.01	103982440 | 104351674 | 104201022
	5.02	104750043 | 105140201
	5.03	
	5.04	104936018 | 103683216 | 104482008 | 105074454 | 105214312
	5.05	104364900 | 103987901
	5.06	104070062 | 104575995
	5.07	104715670 | 103905040 | 104846588 | 104972452
SR 2106 | SR 2217 | WOODY	5.08	105252339 | 104364896 | 104165048 | 103888640 | 104363216 | 104388176 | 104415863 | 104503025 | 104697409 | 104708000 | 104828342 | 104936710 | 105006518 | 105011814 | 105254401 | 105260297
	5.09	105117186 | 103800081 | 105178217
	5.10	104065445 | 103888808 | 103704833 | 104911370
	5.11	104924232 | 103642223
	5.12	104983421 | 103924690 | 105006564
	5.13	
	5.14	104697419 | 104863133 | 104989774 | 105011142
	5.15	104646609
	5.16	104497336
	5.17	104975995
	5.18	103653805
	5.19	104961810
	5.20	
SR 2107 | WHITMORE	5.21	

Features	Milepost	Crash IDs
	5.22	
	5.23	
	5.24	104883796
	5.25	
	5.26	
	5.27	
	5.28	
	5.29	
	5.30	
STRUCTURE	5.31	
	5.32	
	5.33	104887900
	5.34	
SR 2108 | SUNSET	5.35	
	5.36	
	5.37	
IVY | SR 2183	5.38	103817749 | 103698827 | 103697910 | 105119228 | 105120410 | 105140202
	5.39	
	5.40	
	5.41	104260529
	5.42	
	5.43	
	5.44	
	5.45	
	5.46	
	5.47	
	5.48	
	5.49	
	5.50	
	5.51	104917664
	5.52	
	5.53	
	5.54	
	5.55	
	5.56	
	5.57	
RASPBERRY RUN	5.58	
	5.59	104725957
	5.60	
	5.61	
	5.62	
	5.63	
	5.64	
	5.65	
	5.66	

Features	Milepost	Crash IDs
	5.67	
	5.68	
	5.69	
	5.70	
	5.71	
	5.72	
	5.73	
	5.74	
	5.75	
	5.76	
RIVERDALE	5.77	
	5.78	
	5.79	
	5.80	
	5.81	
	5.82	
	5.83	
	5.84	
	5.85	
	5.86	
	5.87	
	5.88	
CATHY	5.89	104099871
	5.90	
	5.91	
	5.92	
	5.93	
	5.94	
	5.95	
	5.96	
	5.97	
	5.98	
	5.99	
	6.00	
	6.01	
	6.02	105213035
	6.03	
	6.04	
	6.05	
	6.06	
	6.07	
	6.08	
	6.09	
ML-GRAHAM	6.10	
	6.11	104002951
	6.12	

Features	Milepost	Crash IDs
	6.13	
	6.14	
	6.15	
	6.16	
	6.17	
	6.18	
	6.19	103976392
	6.20	
	6.21	
COOPER | SR 2100 | SR 2109	6.22	103934599 | 103987892 | 104960380 | 105056761 | 105256897
	6.23	
	6.24	
	6.25	
	6.26	105213240
	6.27	
	6.28	
	6.29	104225244
	6.30	
STRUCTURE	6.31	
	6.32	
	6.33	104795626
	6.34	
	6.35	
	6.36	
	6.37	
	6.38	
	6.39	104982759
	6.40	
	6.41	
	6.42	104097327
	6.43	
	6.44	
	6.45	
	6.46	
	6.47	104271430
	6.48	104049211
CHERRY | SR 2123	6.49	103651482 | 103669461 | 103837183 | 104158752 | 104355321 | 104447309 | 104477887 | 104636377 | 104756446 | 104979519 | 104998025 | 105151912
	6.50	104094484
	6.51	
	6.52	
	6.53	
	6.54	

Features	Milepost	Crash IDs
	6.55	
	6.56	
	6.57	104271431
	6.58	
	6.59	104154910 | 104297417 | 105134780
	6.60	
	6.61	104931996
	6.62	104965213
	6.63	
	6.64	104711628
STRUCTURE	6.65	103996961
	6.66	
	6.67	103688132
	6.68	103652972
	6.69	104673238 | 104797624
	6.70	
	6.71	
	6.72	
	6.73	
	6.74	103998611 | 104418874 | 104090131
	6.75	
	6.76	
	6.77	
	6.78	
	6.79	103996547
	6.80	
	6.81	
	6.82	104324880
	6.83	104038563 | 104335024
JIM MINOR | SR 2135	6.84	104167189 | 105195223 | 103934879 | 104376116 | 104442631 | 105123295
BASON | BENTWOOD | JIM MINOR	6.85	
	6.86	104972722
	6.87	
	6.88	
	6.89	
	6.90	
	6.91	
	6.92	
	6.93	
	6.94	103747660
	6.95	
	6.96	
	6.97	
	6.98	

Features	Milepost	Crash IDs
	6.99	
	7.00	
	7.01	
	7.02	
	7.03	
	7.04	
CAPSTONE | LONGSHADOW	7.05	105188026 | 105187949
	7.06	
	7.07	
	7.08	
	7.09	
	7.10	
	7.11	104679087
	7.12	
	7.13	
	7.14	
	7.15	
	7.16	
	7.17	
	7.18	
	7.19	
	7.20	
	7.21	105247442
	7.22	
	7.23	
	7.24	
	7.25	
	7.26	
	7.27	
	7.28	
	7.29	
	7.30	
	7.31	
	7.32	
	7.33	
	7.34	
	7.35	
	7.36	
	7.37	
	7.38	
	7.39	
	7.40	
	7.41	
	7.42	
	7.43	
BENTWOOD | SR 2264	7.44	104348526

Features	Milepost	Crash IDs
	7.45	
	7.46	
	7.47	
	7.48	
	7.49	
	7.50	
	7.51	105116085
	7.52	
	7.53	
	7.54	105172888
	7.55	
	7.56	
	7.57	
	7.58	104500526
	7.59	104335162
	7.60	
SR 2156	7.61	103819026 | 104196350 | 104659285 | 105269571
BASON | GEORGE BASON	7.62	
	7.63	
	7.64	105012739 | 105289245
	7.65	
	7.66	
	7.67	
	7.68	
	7.69	
	7.70	
	7.71	
	7.72	103758970
	7.73	
LONG DAIRY | SR 2136	7.74	103856015 | 103856001 | 104672577 | 104903938 | 105258704
	7.75	
	7.76	105216542
	7.77	
	7.78	104456406
	7.79	
	7.80	
	7.81	
	7.82	
	7.83	
	7.84	104963348
	7.85	
	7.86	
	7.87	
	7.88	

Features	Milepost	Crash IDs
	7.89	
	7.90	
	7.91	
	7.92	
	7.93	
	7.94	
	7.95	
	7.96	
	7.97	
	7.98	
	7.99	103593447
	8.00	
	8.01	
	8.02	
	8.03	
	8.04	104461750 | 103597841 | 103910244
	8.05	104590551 | 104405745
	8.06	
	8.07	
	8.08	
	8.09	104299145
	8.10	
	8.11	103885011
	8.12	104896124
	8.13	
NC 119 | SR 2159	8.14	103969488 | 105027680 | 104090123 | 103719164 | 103742177 | 103797372 | 103988643 | 104034530 | 104149330 | 104165514 | 104207164 | 104241147 | 104343665 | 104345436 | 104344908 | 104385144 | 104405955 | 104405832 | 104421546 | 104492976 | 104651728 | 104753205 | 104787204 | 104821695 | 104812432 | 104822674 | 104843611 | 105099121 | 105213018 | 105229682 | 105244064
	8.15	104858804 | 104796707
	8.16	
	8.17	
	8.18	
	8.19	
	8.20	
	8.21	
	8.22	
	8.23	
	8.24	103604819 | 103990442 | 104487733 | 104697797 | 105084418 | 105234364
	8.25	

Features	Milepost	Crash IDs
	8.26	
	8.27	
	8.28	
	8.29	
	8.30	
	8.31	
	8.32	
	8.33	
	8.34	104250293 | 104252993 | 104468530 | 104802681 | 104993039
	8.35	
	8.36	
	8.37	
	8.38	105051397
	8.39	
	8.40	
	8.41	
	8.42	
	8.43	
	8.44	103911445
	8.45	103665121
	8.46	
	8.47	
	8.48	104107367 | 104552881 | 104896343
	8.49	
	8.50	
	8.51	
	8.52	
	8.53	
	8.54	
	8.55	104477902
	8.56	103827958 | 103995488
	8.57	104834965
SR 2154	8.58	104865756
	8.59	103797231
	8.60	
	8.61	
	8.62	
	8.63	
	8.64	
	8.65	
	8.66	
	8.67	
	8.68	103721223 | 105129600
	8.69	

Features	Milepost	Crash IDs
	8.70	
	8.71	
	8.72	103793165
	8.73	
	8.74	
	8.75	
	8.76	
	8.77	
	8.78	103877055 | 104155148
	8.79	
	8.80	
	8.81	
	8.82	
	8.83	
	8.84	
	8.85	104553235
	8.86	
	8.87	
	8.88	
	8.89	
	8.90	
	8.91	
	8.92	
	8.93	103656916
	8.94	
FARREL | FRESHWATER | SR 2134 | SR 2138	8.95	104250816 | 104543043 | 104841301 | 104863539 | 104978963
	8.96	
	8.97	
	8.98	104822671
	8.99	104636189
	9.00	
	9.01	104190354
	9.02	
	9.03	
	9.04	
	9.05	103887429 | 104890854 | 105222769
	9.06	
	9.07	
	9.08	
	9.09	
	9.10	
	9.11	
	9.12	
	9.13	
	9.14	

Features	Milepost	Crash IDs
	9.15	104389300 | 104748515
	9.16	104053808 | 104237246 | 104509790 | 104936189
	9.17	103698040 | 103927804
	9.18	
	9.19	
	9.20	
	9.21	
	9.22	
	9.23	
	9.24	
	9.25	
SR 2153	9.26	104117936 | 104232205
	9.27	
	9.28	
	9.29	
	9.30	
	9.31	
	9.32	
	9.33	
	9.34	
	9.35	
	9.36	104155151 | 104583721 | 104787368
	9.37	
	9.38	
	9.39	
	9.40	
	9.41	
STRUCTURE	9.42	
	9.43	
	9.44	
	9.45	
	9.46	104982271 | 105151638
	9.47	
	9.48	
	9.49	
	9.50	104532438
	9.51	
	9.52	
	9.53	104012389
	9.54	
	9.55	
	9.56	
	9.57	
	9.58	
	9.59	
	9.60	

Features	Milepost	Crash IDs
	9.61	
	9.62	
	9.63	
	9.64	
	9.65	
	9.66	
	9.67	
	9.68	
	9.69	
	9.70	104634737
	9.71	
	9.72	104329218
	9.73	
	9.74	
	9.75	
	9.76	
	9.77	
	9.78	
	9.79	
	9.80	103920885 | 103946068 | 103983699
	9.81	
	9.82	
	9.83	
	9.84	
	9.85	
	9.86	104929088
	9.87	
	9.88	
	9.89	
	9.90	
	9.91	104431890
	9.92	
	9.93	
	9.94	
	9.95	104123974
	9.96	
	9.97	
	9.98	
	9.99	
SR 2605	10.00	104838853 | 103661860 | 104854412 | 105087273
CREEK POINT	10.01	103662917
	10.02	
	10.03	
	10.04	
	10.05	
	10.06	

Features	Milepost	Crash IDs
	10.07	
	10.08	
	10.09	
	10.10	
	10.11	
BRUCEWOOD | SR 2153 | SR 2165	10.12	
	10.13	104858765 | 105125539
	10.14	105085036
	10.15	
	10.16	
	10.17	
	10.18	
	10.19	
	10.20	
	10.21	
	10.22	
	10.23	
	10.24	
	10.25	
	10.26	104633895
	10.27	
	10.28	
	10.29	104925489
	10.30	
	10.31	
	10.32	
	10.33	
	10.34	
MEADOW CREEK	10.35	103979234 | 103839620 | 105192179
	10.36	
	10.37	
	10.38	104214151
SR 2652	10.39	
	10.40	
	10.41	104069309
	10.42	104392648 | 105063028
	10.43	
	10.44	104993031
	10.45	
	10.46	
	10.47	
	10.48	104225038
	10.49	
	10.50	104956225
	10.51	

Features	Milepost	Crash IDs
	10.52	105161004
	10.53	
	10.54	
	10.55	
	10.56	104196386
	10.57	103787605 | 104919548
	10.58	104682351 | 104538754
	10.59	104492947
	10.60	
	10.61	
	10.62	
	10.63	
	10.64	
	10.65	
	10.66	
	10.67	
SR 2141 | WAGNER	10.68	104486208
	10.69	
	10.70	
	10.71	
	10.72	
	10.73	104046493
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CLINTON | VICKI	10.87	103642778
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Features	Milepost	Crash IDs
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SR 2152 | WOOD	11.10	
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Features	Milepost	Crash IDs
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Features	Milepost	Crash IDs
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	12.12	103742756 | 104822308
	12.13	
	12.14	103897858 | 104418689 | 104854382
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	12.20	
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	12.23	104282676
SR 2142	12.24	103702149 | 103776938 | 103890769 | 104045199 | 104483601 | 105013685 | 105036393 | 105110559
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Features	Milepost	Crash IDs
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MINERAL SPRINGS | SR 2147	12.71	104612115 | 104914983
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Features	Milepost	Crash IDs
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CAROLINE	13.14	
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Features	Milepost	Crash IDs
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	13.49	104795624
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SR 2145	13.61	104471171 | 104526659 | 104553388 | 104697866
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Features	Milepost	Crash IDs
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	14.11	105265585
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	14.13	103637719
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Features	Milepost	Crash IDs
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CROSS CREEK	14.19	
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Features	Milepost	Crash IDs
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	14.91	103604390
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	14.93	104701174 | 104945927
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CL-ALAMANCE | CL-ORANGE | END	15.03	103830601
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Features	Milepost	Crash IDs
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Features	Milepost	Crash IDs
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SR 1961	15.59	103990245 | 105133315 | 105194878 | 105232078
SR 1007	15.60	103696096 | 103968474 | 103943515 | 103962048 |
		103966265 | 104214977 | 104700956 | 104744625 |
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Features	Milepost	Crash IDs
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Features	Milepost	Crash IDs
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STRUCTURE	16.58	
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Features	Milepost	Crash IDs
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	16.97	104780121
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	16.99	104072849
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SR 1101 | TEER	17.04	103820059 | 104956253
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	17.06	105177426
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	17.09	104977924
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	17.17	104221977
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GOLDMINE | SR 1957	17.27	103892497 | 104131408 | 104953991
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	17.32	103691776

Features	Milepost	Crash IDs
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Features	Milepost	Crash IDs
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	18.02	104200398
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Features	Milepost	Crash IDs
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ANTIOCH CHURCH | SR 1958 | SR 1972	18.42	103674254 | 103770857 | 103916362 | 104370314 | 104509796 | 105060482 | 105113477 | 105179389 | 105219362 | 105095379 | 105254735
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Features	Milepost	Crash IDs
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	18.92	104774314
	18.93	104617177
LABRADOR	18.94	
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Features	Milepost	Crash IDs
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	19.22	105099077
ORANGE GROVE | SR 1006	19.23	103593526 | 103831119 | 104679623 | 104825122 | 104779694
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	19.53	104108416 | 104953971
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Features	Milepost	Crash IDs
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Features	Milepost	Crash IDs
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	20.21	103872746
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SR 1952 | WARD	20.25	
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	20.27	104904104
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	20.37	103592030 | 104670286
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Features	Milepost	Crash IDs
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OAK HOLLOW | SR 1240	20.53	
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	20.55	105019176
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	20.57	105227073
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SR 1240	20.60	
LESLIE	20.61	
	20.62	
	20.63	
	20.64	
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	20.67	103691349 | 103863380 | 103970978 | 104266927 | 104585823 | 104934021
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	20.72	104473945
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	20.83	
	20.84	
	20.85	
	20.86	104922379 | 104260025
ATWATER | DODSON | SR 1102 | SR 1951	20.87	103781591 | 103892597 | 103953802 | 104098412 | 104137905 | 104253190 | 104352893 | 104349934 | 104531798 | 104579964 | 104657417 | 104716345 | 104733283 | 105262856
	20.88	
	20.89	
	20.90	
	20.91	
	20.92	

Features	Milepost	Crash IDs
	20.93	
	20.94	
	20.95	
DURHAM | SR 1950	20.96	104995492
	20.97	
	20.98	
	20.99	
	21.00	
	21.01	
	21.02	
	21.03	
	21.04	104394589
	21.05	
	21.06	103656322 | 103752050 | 104715384
	21.07	104051627 | 104101376 | 104261087 | 105013101
	21.08	
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	21.16	103647180
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	21.21	
	21.22	104255459
	21.23	
	21.24	104540260
	21.25	
	21.26	104793269 | 104817880
	21.27	104480326
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	21.33	104277404
	21.34	
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	21.36	103599679
	21.37	105219433

Features	Milepost	Crash IDs
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	21.43	
	21.44	105181390
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	21.46	103788250 | 104960924 | 105106681
	21.47	
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	21.50	
	21.51	
	21.52	105019120
	21.53	
	21.54	103953014
	21.55	
	21.56	
	21.57	104210835 | 105219332
	21.58	
	21.59	
	21.60	
	21.61	
	21.62	104323725 | 104474277
	21.63	
	21.64	103892893
	21.65	
	21.66	
	21.67	
	21.68	103997932
	21.69	
	21.70	
	21.71	
	21.72	104089171 | 104922387
	21.73	
	21.74	104438740 | 105023225
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	21.82	104065867 | 104825121 | 105091641

Features	Milepost	Crash IDs
	21.83	
	21.84	104549993
	21.85	
	21.86	
	21.87	
	21.88	
SR 1207	21.89	
	21.90	
	21.91	
	21.92	104419202 | 105244593 | 105249570
	21.93	
GREENFIELD | SR 1207	21.94	
	21.95	
	21.96	
	21.97	
	21.98	
	21.99	
	22.00	
	22.01	
	22.02	104480294
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	22.04	
	22.05	
	22.06	
	22.07	103648710
	22.08	
	22.09	
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	22.12	103591091 | 103791416 | 104505819 | 104584607 | 104688811 | 105157361
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	22.14	103819364
	22.15	
	22.16	
	22.17	103938430
	22.18	
	22.19	
	22.20	
	22.21	105224078
OLD NC 54 | SR 1104	22.22	103660187 | 103938676 | 104511399 | 104603307 | 104754509 | 104895815 | 104889977 | 105113782 | 105194836 | 105208448
	22.23	
	22.24	

Features	Milepost	Crash IDs
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	22.28	
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	22.39	103708692
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	22.42	104659514
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	22.59	104222329
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	22.62	103956250
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	22.70	

Features	Milepost	Crash IDs
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	22.90	104616508
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	22.94	
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	22.97	
	22.98	
	22.99	103778076 | 104112138 | 104362234 | 104554668 | 105093497
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	23.04	
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	23.08	
SR 1945	23.09	103743450
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	23.13	104890076
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	23.15	

Features	Milepost	Crash IDs
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	23.20	104444343
EUBANK	23.21	
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	23.23	
	23.24	
	23.25	
	23.26	
	23.27	
	23.28	
	23.29	105121321 | 105171311
	23.30	104838811
	23.31	
	23.32	
	23.33	
	23.34	
	23.35	
	23.36	
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	23.40	103717798 | 104907717
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	23.42	
	23.43	
	23.44	
	23.45	
	23.46	
	23.47	104524860
	23.48	
	23.49	104838676 | 104522746 | 104984089
SHANNON | SR 2013	23.50	103923310 | 104081998
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	23.60	103863358 | 104210585
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Features	Milepost	Crash IDs
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	23.65	
SOUTHERN | SR 2016	23.66	104473834 | 104802663
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	23.69	
	23.70	104866300
	23.71	
	23.72	
	23.73	
	23.74	
	23.75	
CARRIE	23.76	103712523
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	23.78	
	23.79	
	23.80	104978005 | 104978006 | 105253035
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	23.82	
	23.83	
	23.84	
	23.85	
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	23.89	104347174
	23.90	104629240 | 104696202 | 104999415 | 105269147
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	23.92	
	23.93	
	23.94	
	23.95	104679221
	23.96	105166578
	23.97	105277258
	23.98	104907733
	23.99	105168812 | 104632075
HATCH | SR 1944	24.00	103594584 | 104366118 | 104501867 | 104524131 | 105115960 | 105258549 | 104657420
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	24.02	
	24.03	
	24.04	103851193
	24.05	

Features	Milepost	Crash IDs
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	24.10	103630098 | 105013028
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BROOKFIELD | SR 1975	24.14	104082164 | 105161342
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	24.28	
TIMOTHY	24.29	
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	24.32	103595787
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STRUCTURE	24.39	
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Features	Milepost	Crash IDs
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	24.61	
	24.62	103965392 | 105245147
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	24.64	
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	24.66	
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	24.68	
	24.69	
	24.70	
	24.71	
	24.72	103881544
	24.73	105286969
	24.74	
LAVINA	24.75	
	24.76	
	24.77	
	24.78	
	24.79	
	24.80	
	24.81	
	24.82	103610649 | 103859695 | 104298581 | 105161419
	24.83	104083483
	24.84	
	24.85	103994160
	24.86	
	24.87	103814576
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	24.89	
	24.90	
	24.91	
	24.92	104442698 | 104817296 | 105234579
	24.93	103869141
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	24.95	
	24.96	104272186

Features	Milepost	Crash IDs
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	24.98	104438700
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	25.01	
	25.02	103597866 | 103649897 | 104379088 | 104854949
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	25.04	
	25.05	
	25.06	
	25.07	104768375
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	25.09	
	25.10	
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	25.12	103894226 | 103994242
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	25.14	
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	25.16	103973291
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NC 54 WB COUPLET	25.19	
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	25.22	103881673 | 103913624 | 104077759 | 104663385 | 105286101
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	25.24	
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	25.28	104282552
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END | FAYETTEVILLE | OLD FAYETTEVILLE | SR 1107 | SR 1937	25.32	

Study Criteria

Study Name	Log No.	PH No.	TIP No.	K/A Cf.	B/C Cf.	ADT	ADT Route
MW41000050143	41000050143			76.8	8.4	10400	30000054

Request Date	Courier Service	Phone No.	Ext.	Fax No.
11/17/2017		984-960-5062		

County			Municipality					
Name	Code	Div.	Name	Code	Y-Line Ft.	Begin Date	End Date	Years
ALAMANCE	1	7	All and Rural		0	11/01/2012	10/31/2017	5.00

Location Text

Crash analysis on NC 54 from I 40/I 85 in Alamance County to SR 1931 (Old Fayetteville Rd) in Orange County.

Requestor

Nathaniel Rhomberg
VHB
940 Main Campus Dr
Raleigh
NC 27606

Included Accidents	Old MP	New MP	Type
105289245		7.644	I
105286969		24.73	I
105286101		25.216	I
105277258		23.966	I
105269571		7.614	I
105269147		23.896	I
105268786		13.406	I
105265585		14.106	I
105262869		15.596	I
105262856		20.866	I
105260843		12.283	I
105260297		5.082	I
105260296		4.929	I
105258714		15.296	I
105258704		7.744	I
105258673		18.526	I
105258590		17.716	I
105258549		23.996	I
105256897		6.224	I
105254735		18.421	I
105254401		5.082	I
105253035		23.796	I
105252339		5.076	I
105251035		12.036	I
105249570		21.916	I

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105245147	24.616	I
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105244064	8.144	I
105234579	24.916	I
105234364	8.244	I
105232078	15.587	I
105229682	8.144	I
105227073	20.566	I
105224078	22.213	I
105223125	4.929	I
105222769	9.054	I
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105219433	21.366	I
105219362	18.416	I
105219332	21.566	I
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105213240	6.264	I
105213204	13.236	I
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105213018	8.144	I
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105187949	7.051	I
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105179389	18.416	I
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105161342	24.136	I

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105140202	5.382	I
105140201	5.024	I
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105133315	15.587	I
105129600	8.684	I
105125841	14.096	I
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105123295	6.844	I
105121321	23.286	I
105120410	5.382	I
105119228	5.382	I
105117186	5.087	I
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105115960	23.996	I
105113782	22.216	I
105113477	18.416	I
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105060482	18.416	I
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105056033	18.726	I
105051397	8.384	I
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105029292	15.596	I
105027680	8.14	I
105023677	4.929	I
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105023225	21.736	I
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104978005	23.796	I
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104925489	10.29	I
104924232	5.106	I
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104922379	20.857	I
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104914983	12.706	I
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104841301	8.954	I
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104774314	18.916	I
104772351	15.596	I
104772307	18.616	I
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104753205	8.144	I
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104697848	11.196	I
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104532438	9.504	I
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104524860	23.474	I
104524131	23.996	I
104522746	23.487	I
104517654	19.626	I
104511399	22.216	I
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104492947	10.59	I
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104471171	13.606	I
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104461750	8.038	I
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104442698	24.916	I
104442631	6.844	I
104442619	12.606	I
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104421546	8.144	I
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104388176	5.082	I
104385144	8.144	I
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104370314	18.416	I
104366118	23.996	I
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104344908	8.144	I
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104210835	21.566	I
104210585	23.596	I
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104155148	8.784	I
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104090123	8.142	I
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104082164	24.136	I
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104072849	16.986	I
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104065867	21.816	I
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104053808	9.164	I
104051627	21.066	I
104049211	6.484	I
104046493	10.726	I
104045199	12.236	I
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104034530	8.144	I
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103996547	6.787	I
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103965392	24.616	I
103964809	19.026	I
103962048	15.596	I
103961528	15.6	I
103956250	22.616	I
103953802	20.866	I
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103934599	6.224	I
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103924690	5.12	I
103924609	4.929	I
103923310	23.496	I
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103897189	13.806	I
103895849	13.706	I
103894226	25.116	I
103892893	21.636	I
103892597	20.866	I
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103890769	12.236	I
103888808	5.098	I
103888640	5.082	I
103887429	9.054	I
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103885011	8.106	I
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103879507	20.146	I
103877055	8.784	I
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103869141	24.926	I
103867660	18.556	I
103863380	20.666	I
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103776938	12.236	I
103770857	18.416	I
103769933	12.696	I
103768429	15.496	I
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103743450	23.086	I
103742756	12.116	I
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103740800	20.766	I
103733053	17.796	I
103724340	15.615	I
103721223	8.684	I
103719164	8.144	I

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103708692	22.386	I
103707687	11.956	I
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103702149	12.236	I
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103696096	15.596	I
103691879	12.192	I
103691776	17.323	I
103691349	20.666	I
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103683216	5.044	I
103674254	18.416	I
103669461	6.487	I
103665121	8.454	I
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103661879	12.086	I
103661860	10.004	I
103660187	22.216	I
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103641876	16.846	I
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103630098	24.096	I
103621512	15.896	I
103620679	13.986	I
103619844	16.596	I

103615280	15.605	I
103615271	12.906	I
103610649	24.816	I
103606757	18.216	I
103604819	8.244	I
103604390	14.906	I
103599679	21.356	I
103598380	20.066	I
103597866	25.016	I
103597841	8.044	I
103596966	20.766	I
103595787	24.316	I
103594732	22.596	I
103594584	23.996	I
103593526	19.226	I
103593447	7.994	I
103592030	20.366	I
103591091	22.116	I

Fiche Roads

Name	Code
I 1	10000001
NC 54	30000054
HARDEN	50013116

Strip Road

Name	Code	Begin MP	End MP	Miles	Kilometers
I 1	10000001	4.882	25.316	20.434	32.885

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

Study Criteria Summary

County: ORANGE **City:** All and Rural
Date: 11/1/2012 **to** 10/31/2017 **Study:** NC54ATOLDFAYETTEVILLERD
Location: NC 54 Crash Analysis Expansion
NC 54 at Old Fayetteville 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	**103619017**	10.240	11/21/2012 20:45	ANIMAL	$ 3000	0	0	0	0	1	5	1	3	0	3	1
Unit	**1 :** 1	**Alchl/Drgs:** 0	**Speed:** 45 MPH	**Dir:** E	**Veh Mnvr/Ped Actn:** 4	**Obj Strk:** 17										
2	**105253724**	10.276	07/10/2017 00:16	PEDESTRIAN	$ 250	0	1	0	0	1	4	1	1	0	0	
Unit	**1 :** 1	**Alchl/Drgs:** 0	**Speed:** 45 MPH	**Dir:** SW	**Veh Mnvr/Ped Actn:** 4	**Obj Strk:** 14										
Unit	**2 :** 24	**Alchl/Drgs:** 0	**Speed:** 0 MPH	**Dir:**	**Veh Mnvr/Ped Actn:**	**Obj Strk:** 14										
3	**103658179**	10.290	12/26/2012 12:24	LEFT TURN, SAME ROADWAY	$ 1000	0	0	0	0	2	1	3	1	0	3	1
Unit	**1 :** 1	**Alchl/Drgs:** 0	**Speed:** 20 MPH	**Dir:** N	**Veh Mnvr/Ped Actn:** 4	**Obj Strk:**										
Unit	**2 :** 32	**Alchl/Drgs:** 7	**Speed:** 20 MPH	**Dir:** S	**Veh Mnvr/Ped Actn:** 8	**Obj Strk:**										
4	**103665724**	10.290	01/01/2013 17:56	LEFT TURN, SAME ROADWAY	$ 9000	0	0	1	1	2	4	3	1	0	3	1
Unit	**1 :** 3	**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:** S	**Veh Mnvr/Ped Actn:** 8	**Obj Strk:**										
5	**103699239**	10.290	02/22/2013 14:40	REAR END, SLOW OR STOP	$ 2000	0	0	0	0	2	1	2	2	0	3	1
Unit	**1 :** 4	**Alchl/Drgs:** 0	**Speed:** 20 MPH	**Dir:** E	**Veh Mnvr/Ped Actn:** 11	**Obj Strk:**										
Unit	**2 :** 1	**Alchl/Drgs:** 0	**Speed:** 40 MPH	**Dir:** E	**Veh Mnvr/Ped Actn:** 4	**Obj Strk:**										
6	**103817899**	10.290	07/15/2013 15:57	REAR END, SLOW OR STOP	$ 1300	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:** 11	**Obj Strk:**										
Unit	**2 :** 1	**Alchl/Drgs:** 0	**Speed:** 20 MPH	**Dir:** S	**Veh Mnvr/Ped Actn:** 11	**Obj Strk:**										
7	**104380677**	10.290	05/10/2015 19:51	HEAD ON	$ 14500	0	0	0	4	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:** 30 MPH	**Dir:** N	**Veh Mnvr/Ped Actn:** 4	**Obj Strk:**										
Unit	**3 :** 1	**Alchl/Drgs:** 0	**Speed:** 10 MPH	**Dir:** S	**Veh Mnvr/Ped Actn:** 11	**Obj Strk:**										
8	**104530188**	10.290	10/09/2015 21:44	ANIMAL	$ 1500	0	0	0	0	1	5	1	1	0		
Unit	**1 :** 1	**Alchl/Drgs:** 0	**Speed:** 50 MPH	**Dir:** E	**Veh Mnvr/Ped Actn:** 4	**Obj Strk:** 17										

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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	**104547132**	10.290	10/31/2015 11:05	SIDESWIPE, OPPOSITE DIRECTION	$ 8000	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 :** 2	**Alchl/Drgs:**	0	**Speed:** 35 MPH	**Dir:** N	**Veh Mnvr/Ped Actn:**				4			**Obj Strk:**			
10	**104684168**	10.290	03/02/2016 15:16	ANGLE	$ 10000	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 :** 4	**Alchl/Drgs:**	0	**Speed:** 10 MPH	**Dir:** E	**Veh Mnvr/Ped Actn:**				8			**Obj Strk:**			
11	**104357516**	10.294	04/14/2015 15:59	REAR END, SLOW OR STOP	$ 1400	0	0	0	1	1	1	2	1	0	3	1
Unit	**1 :** 4	**Alchl/Drgs:**	0	**Speed:** 20 MPH	**Dir:** W	**Veh Mnvr/Ped Actn:**				11			**Obj Strk:**			
Unit	**2 :** 5	**Alchl/Drgs:**	0	**Speed:** 0 MPH	**Dir:** W	**Veh Mnvr/Ped Actn:**				1			**Obj Strk:**			
12	**104723372**	10.294	04/18/2016 09:13	REAR END, SLOW OR STOP	$ 2200	0	0	0	0	1	1	1	1	0	3	1
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:** 15 MPH	**Dir:** W	**Veh Mnvr/Ped Actn:**				11			**Obj Strk:**			
13	**104976435**	10.300	11/30/2016 18:00	REAR END, SLOW OR STOP	$ 1900	0	0	0	0	1	4	1	1	0	3	1
Unit	**1 :** 4	**Alchl/Drgs:**	0	**Speed:** 15 MPH	**Dir:** NW	**Veh Mnvr/Ped Actn:**				12			**Obj Strk:**			
Unit	**2 :** 1	**Alchl/Drgs:**	0	**Speed:** 0 MPH	**Dir:** NW	**Veh Mnvr/Ped Actn:**				1			**Obj Strk:**			
14	**105034231**	10.307	03/09/2017 19:26	REAR END, SLOW OR STOP	$ 1000	0	0	0	0	1	5	1	1	0	3	1
Unit	**1 :** 1	**Alchl/Drgs:**	7	**Speed:** 0 MPH	**Dir:** W	**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:**			
15	**105121213**	10.309	05/24/2017 09:50	REAR END, SLOW OR STOP	$ 2000	0	0	0	0	2	1	2	1	0	3	1
Unit	**1 :** 1	**Alchl/Drgs:**	0	**Speed:** 45 MPH	**Dir:** W	**Veh Mnvr/Ped Actn:**				12			**Obj Strk:**			
Unit	**2 :** 1	**Alchl/Drgs:**	0	**Speed:** 3 MPH	**Dir:** W	**Veh Mnvr/Ped Actn:**				12			**Obj Strk:**			
16	**104493570**	10.318	09/09/2015 17:30	REAR END, SLOW OR STOP	$ 9000	0	0	0	0	1	1	1	1	0	3	1
Unit	**1 :** 4	**Alchl/Drgs:**	0	**Speed:** 30 MPH	**Dir:** W	**Veh Mnvr/Ped Actn:**				11			**Obj Strk:**			
Unit	**2 :** 4	**Alchl/Drgs:**	0	**Speed:** 0 MPH	**Dir:** W	**Veh Mnvr/Ped Actn:**				1			**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				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

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Summary Statistics

High Level Crash Summary

Crash Type	Number of Crashes	Percent of Total
Total Crashes	16	100.00
Fatal Crashes	0	0.00
Non-Fatal Injury Crashes	4	25.00
Total Injury Crashes	4	25.00
Property Damage Only Crashes	12	75.00
Night Crashes	6	37.50
Wet Crashes	4	25.00
Alcohol/Drugs Involvement Crashes	0	0.00

Crash Severity Summary

Crash Type	Number of Crashes	Percent of Total
Total Crashes	16	100.00
Fatal Crashes	0	0.00
Class A Crashes	1	6.25
Class B Crashes	1	6.25
Class C Crashes	2	12.50
Property Damage Only Crashes	12	75.00

Vehicle Exposure Statistics

Annual ADT = 15000

Total Length = 0.1 (Miles) **0.161 (Kilometers)**

Total Vehicle Exposure = 2.74 (MVMT) **4.41 (MVKMT)**

Crash Rate	Crashes Per 100 Million Vehicle Miles	Crashes Per 100 Million Vehicle Kilometers
Total Crash Rate	584.15	362.98
Fatal Crash Rate	0.00	0.00
Non Fatal Crash Rate	146.04	90.74
Night Crash Rate	219.06	136.12
Wet Crash Rate	146.04	90.74
EPDO Rate	4162.09	2586.20

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criteria provided by the report's creator. The onus is strictly upon the user of this report to exercise due diligence in in
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Miscellaneous Statistics

Severity Index =	7.12
EPDO Crash Index =	114.00
Estimated Property Damage Total = $	68050.00

Accident Type Summary

Accident Type	Number of Crashes	Percent of Total
ANGLE	1	6.25
ANIMAL	2	12.50
HEAD ON	1	6.25
LEFT TURN, SAME ROADWAY	2	12.50
PEDESTRIAN	1	6.25
REAR END, SLOW OR STOP	8	50.00
SIDESWIPE, OPPOSITE DIRECTION	1	6.25

Injury Summary

Injury Type	Number of Injuries	Percent of Total
Fatal Injuries	0	0.00
Class A Injuries	1	12.50
Class B Injuries	1	12.50
Class C Injuries	6	75.00
Total Non-Fatal Injuries	8	100.00
Total Injuries	8	100.00

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criteria provided by the report's creator. The onus is strictly upon the user of this report to exercise due diligence in in
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Monthly Summary

Month	Number of Crashes	Percent of Total
Jan	1	6.25
Feb	1	6.25
Mar	2	12.50
Apr	2	12.50
May	2	12.50
Jun	0	0.00
Jul	2	12.50
Aug	0	0.00
Sep	1	6.25
Oct	2	12.50
Nov	2	12.50
Dec	1	6.25

Daily Summary

Day	Number of Crashes	Percent of Total
Mon	3	18.75
Tue	2	12.50
Wed	6	37.50
Thu	1	6.25
Fri	2	12.50
Sat	1	6.25
Sun	1	6.25

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Hourly Summary

Hour	Number of Crashes	Percent of Total
0000-0059	1	6.25
0100-0159	0	0.00
0200-0259	0	0.00
0300-0359	0	0.00
0400-0459	0	0.00
0500-0559	0	0.00
0600-0659	0	0.00
0700-0759	0	0.00
0800-0859	0	0.00
0900-0959	2	12.50
1000-1059	0	0.00
1100-1159	1	6.25
1200-1259	1	6.25
1300-1359	0	0.00
1400-1459	1	6.25
1500-1559	3	18.75
1600-1659	0	0.00
1700-1759	2	12.50
1800-1859	1	6.25
1900-1959	2	12.50
2000-2059	1	6.25
2100-2159	1	6.25
2200-2259	0	0.00
2300-2359	0	0.00

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criteria provided by the report's creator. The onus is strictly upon the user of this report to exercise due diligence in in
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Light and Road Conditions Summary

Condition	Dry	Wet	Other	Total
Day	7	3	0	10
Dark	5	1	0	6
Other	0	0	0	0
Total	12	4	0	16

Object Struck Summary

Object Type	Times Struck	Percent of Total
ANIMAL	2	50.00
PEDESTRIAN	2	50.00

Vehicle Type Summary

Vehicle Type	Number Involved	Percent of Total
LIGHT TRUCK (MINI-VAN, PANEL)	1	3.23
PASSENGER CAR	20	64.52
PEDESTRIAN	1	3.23
PICKUP	1	3.23
SPORT UTILITY	6	19.35
UNKNOWN	1	3.23
VAN	1	3.23

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criteria provided by the report's creator. The onus is strictly upon the user of this report to exercise due diligence in in
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Yearly Totals Summary

Accident Totals

Year	Total Accidents	Fatal Accidents	Injury Accidents	Property Damage Only Accidents
2012	2	0	0	2
2013	3	0	1	2
2014	0	0	0	0
2015	5	0	2	3
2016	3	0	0	3
2017	3	0	1	2
Total	16	0	4	12

Injury Totals

Year	Fatal Injuries	Class A, B, or C Injuries
2012	0	0
2013	0	2
2014	0	0
2015	0	5
2016	0	0
2017	0	1
Total	0	8

Miscellaneous Totals

Year	Property Damage	EPDO Index
2012	$ 4000	2.00
2013	$ 12300	10.40
2014	$ 0	0.00
2015	$ 34400	19.80
2016	$ 14100	3.00
2017	$ 3250	78.80
Total	$ 68050	114.00

Type of Accident Totals

Year	Left Turn	Right Turn	Rear End	Run Off Road & Fixed Object	Angle	Side Swipe	Other
2012	1	0	0	0	0	0	1
2013	1	0	2	0	0	0	0

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Year	Left Turn	Right Turn	Rear End	Run Off Road & Fixed Object	Angle	Side Swipe	Other
2014	0	0	0	0	0	0	0
2015	0	0	2	0	0	1	2
2016	0	0	2	0	1	0	0
2017	0	0	2	0	0	0	1
Total	2	0	8	0	1	1	4

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Strip Diagram

Features	Milepost	Crash IDs
	10.24	103619017
	10.25	
	10.26	
	10.27	
	10.28	105253724
SR 1107 | SR 1937 | FAYETTEVILLE | OLD	10.29	103658179 | 103665724 | 103699239 | 103817899 |
FAYETTEVILLE		104380677 | 104530188 | 104547132 | 104684168 |
		104357516 | 104723372
	10.30	104976435
	10.31	105034231 | 105121213
	10.32	104493570
	10.33	
	10.34	

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Study Criteria

Study Name	Log No.	PH No.	TIP No.	K/A Cf.	B/C Cf.	ADT	ADT Route
NC54ATOLDFAYETTEVILLERD				76.8	8.4	15000	30000054

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

County			Municipality					
Name	Code	Div.	Name	Code	Y-Line Ft.	Begin Date	End Date	Years
ORANGE	68	7	All and Rural		0	11/1/2012	10/31/2017	5.00

Location Text

NC 54 Crash Analysis Expansion
NC 54 at Old Fayetteville Rd

Requestor

Included Accidents	Old MP	New MP	Type
103619017	999.999	10.24	I
104976435	999.999	10.3	I

Excluded Accidents
104206728

Fiche Roads

Name	Code
NC 54	30000054

Strip Road

Name	Code	Begin MP	End MP	Miles	Kilometers
NC 54	30000054	10.240	10.340	0.100	0.161

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VHB Engineering NC, P.C.

Venture I
940 Main Campus Drive, Suite 500
Raleigh, NC 27606
p: 919.829.0328 f: 919.833.0034

File Name : NC54@Bethel
Site Code :
Start Date : 9/13/2017
Page No : 1

Groups Printed- Motorcycles - Cars - Light Goods Vehicles - Buses - Unit Trucks - Articulated Trucks - Bicycles on Road - Bicycles on Crosswalk - Pedestrians

	Bethel Hickory Grove Church Road Southbound				NC 54 Westbound				No Approach Northbound				NC 54 Eastbound						
Start Time	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Exclu. Total	Inclu. Total	Int. Total
06:00 AM	5	0	4	0	0	18	2	0	0	0	0	0	6	60	0	0	0	95	95
06:15 AM	3	0	3	0	0	21	0	0	0	0	0	0	14	128	0	0	0	169	169
06:30 AM	4	0	2	0	0	29	0	0	0	0	0	0	16	161	0	0	0	212	212
06:45 AM	4	0	5	0	0	42	5	0	0	0	0	0	16	178	0	0	0	250	250
Total	16	0	14	0	0	110	7	0	0	0	0	0	52	527	0	0	0	726	726
07:00 AM	5	0	8	0	0	50	4	0	0	0	0	0	25	208	0	0	0	300	300
07:15 AM	4	0	3	0	0	69	5	0	0	0	0	0	25	238	0	0	0	344	344
07:30 AM	7	0	6	0	0	72	3	0	0	0	0	0	29	291	0	0	0	408	408
07:45 AM	5	0	7	0	0	81	8	0	0	0	0	0	44	228	0	0	0	373	373
Total	21	0	24	0	0	272	20	0	0	0	0	0	123	965	0	0	0	1425	1425
08:00 AM	6	0	7	0	0	64	14	0	0	0	0	0	20	206	0	0	0	317	317
08:15 AM	6	0	6	0	0	49	4	0	0	0	0	0	29	206	0	0	0	300	300
08:30 AM	17	0	16	0	0	52	5	0	0	0	0	0	14	162	0	0	0	266	266
08:45 AM	10	0	10	0	0	62	5	0	0	0	0	0	20	144	0	0	0	251	251
Total	39	0	39	0	0	227	28	0	0	0	0	0	83	718	0	0	0	1134	1134
09:00 AM	9	0	12	0	0	40	5	0	0	0	0	0	12	96	0	0	0	174	174
09:15 AM	6	0	6	0	0	57	5	0	0	0	0	0	7	124	0	0	0	205	205
09:30 AM	5	0	4	0	0	46	2	0	0	0	0	0	7	97	0	0	0	161	161
09:45 AM	4	0	6	0	0	44	4	0	0	0	0	0	7	98	0	0	0	163	163
Total	24	0	28	0	0	187	16	0	0	0	0	0	33	415	0	0	0	703	703
10:00 AM	10	0	8	0	0	60	4	0	0	0	0	0	7	73	0	0	0	162	162
10:15 AM	7	0	7	0	0	55	11	0	0	0	0	0	12	64	0	0	0	156	156
10:30 AM	5	0	6	0	0	59	12	0	0	0	0	0	7	86	0	0	0	175	175
10:45 AM	5	0	8	0	0	60	2	0	0	0	0	0	8	68	0	0	0	151	151
Total	27	0	29	0	0	234	29	0	0	0	0	0	34	291	0	0	0	644	644
11:00 AM	8	0	4	0	1	54	5	0	0	0	0	0	9	69	0	0	0	150	150
11:15 AM	7	0	6	0	0	69	5	0	0	0	0	0	5	68	0	0	0	160	160
11:30 AM	7	0	7	0	0	73	5	0	0	0	0	0	5	73	0	0	0	170	170
11:45 AM	6	0	10	0	0	63	4	0	0	0	0	0	8	69	0	0	0	160	160
Total	28	0	27	0	1	259	19	0	0	0	0	0	27	279	0	0	0	640	640
12:00 PM	4	0	11	0	0	57	3	0	0	0	0	0	6	71	0	0	0	152	152
12:15 PM	11	0	13	0	0	84	5	0	0	0	0	0	13	76	0	0	0	202	202
12:30 PM	10	0	6	0	0	72	8	0	0	0	0	0	12	75	0	0	0	183	183
12:45 PM	4	0	8	0	0	70	5	0	0	0	0	0	13	81	0	0	0	181	181
Total	29	0	38	0	0	283	21	0	0	0	0	0	44	303	0	0	0	718	718
01:00 PM	6	0	14	0	0	70	8	0	0	0	0	0	9	81	0	0	0	188	188
01:15 PM	9	0	7	0	0	81	6	0	0	0	0	0	4	57	0	0	0	164	164
01:30 PM	6	0	8	0	0	77	10	0	0	0	0	0	12	83	0	0	0	196	196
01:45 PM	8	0	8	0	0	85	7	0	0	0	0	0	9	69	0	0	0	186	186
Total	29	0	37	0	0	313	31	0	0	0	0	0	34	290	0	0	0	734	734
02:00 PM	8	0	8	0	0	75	5	0	0	0	0	0	9	69	0	0	0	174	174
02:15 PM	11	0	12	0	1	98	6	0	0	0	0	0	8	82	0	0	0	218	218
02:30 PM	6	0	15	0	0	105	7	0	0	0	0	0	7	83	0	0	0	223	223
02:45 PM	4	0	17	0	0	103	9	0	0	0	0	0	12	83	0	0	0	228	228
Total	29	0	52	0	1	381	27	0	0	0	0	0	36	317	0	0	0	843	843
03:00 PM	4	0	14	0	1	108	9	0	0	0	0	0	10	83	0	0	0	229	229
03:15 PM	8	0	17	0	0	158	4	0	0	0	0	0	3	83	0	0	0	273	273
03:30 PM	5	0	18	0	0	166	10	0	0	0	0	0	14	78	0	0	0	291	291
03:45 PM	4	0	22	0	0	199	12	0	0	0	0	0	11	72	0	0	0	320	320
Total	21	0	71	0	1	631	35	0	0	0	0	0	38	316	0	0	0	1113	1113
04:00 PM	8	0	17	0	0	189	8	0	0	0	0	0	9	66	0	0	0	297	297
04:15 PM	11	0	31	0	0	199	8	0	0	0	0	0	8	68	0	0	0	325	325
04:30 PM	5	0	15	0	0	216	14	0	0	0	0	0	10	83	0	0	0	343	343
04:45 PM	6	0	22	0	0	253	14	0	0	0	0	0	9	82	0	0	0	386	386
Total	30	0	85	0	0	857	44	0	0	0	0	0	36	299	0	0	0	1351	1351

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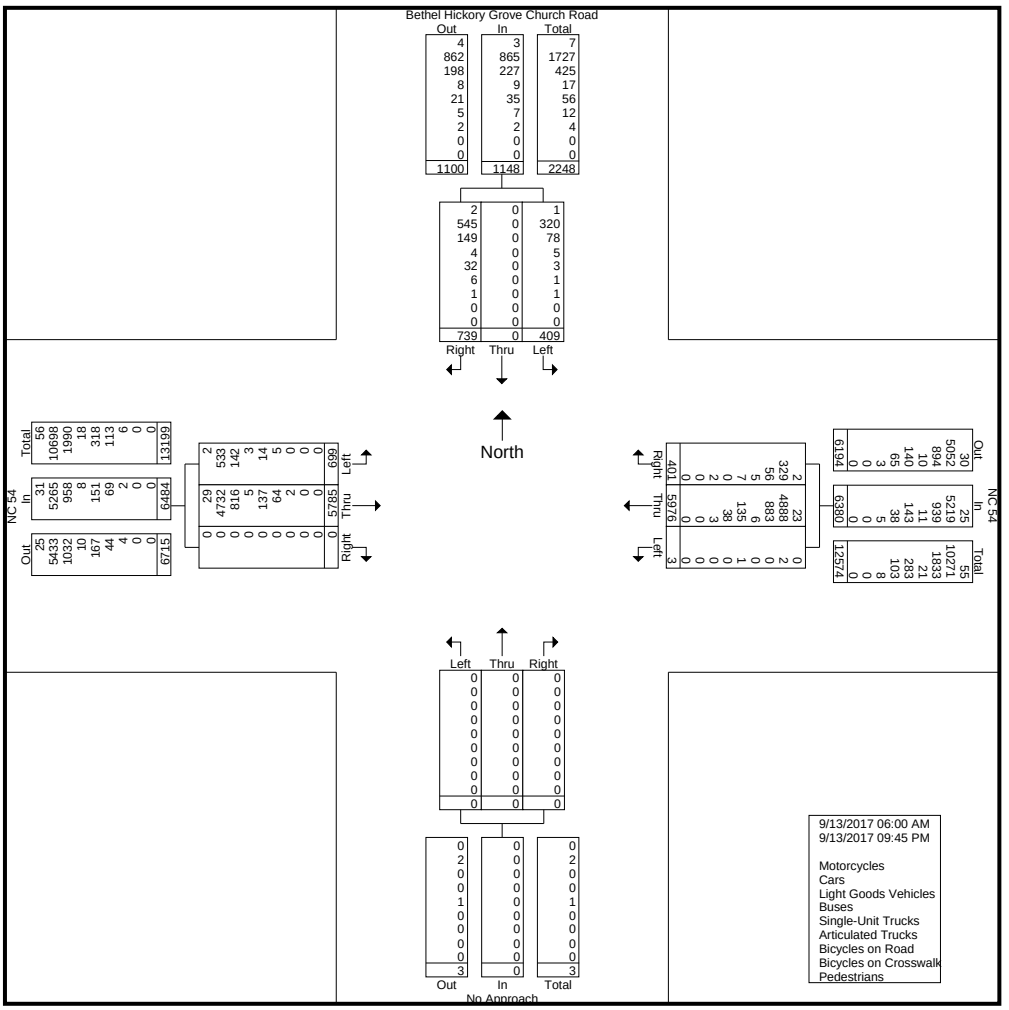
Groups Printed- Motorcycles - Cars - Light Goods Vehicles - Buses - Unit Trucks - Articulated Trucks - Bicycles on Road - Bicycles on Crosswalk - Pedestrians

	Bethel Hickory Grove Church Road Southbound				NC 54 Westbound				No Approach Northbound				NC 54 Eastbound						
Start Time	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Exclu. Total	Inclu. Total	Int. Total
05:00 PM	7	0	26	0	0	241	7	0	0	0	0	0	12	71	0	0	0	364	364
05:15 PM	3	0	35	0	0	241	9	0	0	0	0	0	13	69	0	0	0	370	370
05:30 PM	6	0	31	0	0	211	7	0	0	0	0	0	13	70	0	0	0	338	338
05:45 PM	7	0	19	0	0	176	8	0	0	0	0	0	13	65	0	0	0	288	288
Total	23	0	111	0	0	869	31	0	0	0	0	0	51	275	0	0	0	1360	1360
06:00 PM	9	0	32	0	0	134	8	0	0	0	0	0	13	105	0	0	0	301	301
06:15 PM	12	0	15	0	0	172	13	0	0	0	0	0	14	87	0	0	0	313	313
06:30 PM	8	0	13	0	0	112	8	0	0	0	0	0	11	61	0	0	0	213	213
06:45 PM	8	0	17	0	0	123	5	0	0	0	0	0	10	77	0	0	0	240	240
Total	37	0	77	0	0	541	34	0	0	0	0	0	48	330	0	0	0	1067	1067
07:00 PM	5	0	13	0	0	112	4	0	0	0	0	0	10	70	0	0	0	214	214
07:15 PM	4	0	8	0	0	101	10	0	0	0	0	0	8	64	0	0	0	195	195
07:30 PM	15	0	16	0	0	80	6	0	0	0	0	0	2	56	0	0	0	175	175
07:45 PM	8	0	16	0	0	82	4	0	0	0	0	0	4	37	0	0	0	151	151
Total	32	0	53	0	0	375	24	0	0	0	0	0	24	227	0	0	0	735	735
08:00 PM	4	0	3	0	0	67	4	0	0	0	0	0	5	33	0	0	0	116	116
08:15 PM	1	0	11	0	0	82	3	0	0	0	0	0	2	37	0	0	0	136	136
08:30 PM	4	0	8	0	0	49	8	0	0	0	0	0	7	33	0	0	0	109	109
08:45 PM	2	0	8	0	0	59	4	0	0	0	0	0	8	26	0	0	0	107	107
Total	11	0	30	0	0	257	19	0	0	0	0	0	22	129	0	0	0	468	468
09:00 PM	7	0	8	0	0	58	4	0	0	0	0	0	7	25	0	0	0	109	109
09:15 PM	3	0	11	0	0	40	1	0	0	0	0	0	7	28	0	0	0	90	90
09:30 PM	2	0	2	0	0	47	3	0	0	0	0	0	0	28	0	0	0	82	82
09:45 PM	1	0	3	0	0	35	8	0	0	0	0	0	0	23	0	0	0	70	70
Total	13	0	24	0	0	180	16	0	0	0	0	0	14	104	0	0	0	351	351
Grand Total	409	0	739	0	3	5976	401	0	0	0	0	0	699	5785	0	0	0	14012	14012
Apprch %	35.6	0	64.4		0	93.7	6.3		0	0	0		10.8	89.2	0				
Total %	2.9	0	5.3		0	42.6	2.9		0	0	0		5	41.3	0		0	100	
Motorcycles	1	0	2		0	23	2		0	0	0		2	29	0		0	0	59
% Motorcycles	0.2	0	0.3	0	0	0.4	0.5	0	0	0	0	0	0.3	0.5	0	0	0	0	0.4
Cars	320	0	545		2	4888	329		0	0	0		533	4732	0		0	0	11349
% Cars	78.2	0	73.7	0	66.7	81.8	82	0	0	0	0	0	76.3	81.8	0	0	0	0	81
Light Goods Vehicles	78	0	149		0	883	56		0	0	0		142	816	0		0	0	2124
% Light Goods Vehicles	19.1	0	20.2	0	0	14.8	14	0	0	0	0	0	20.3	14.1	0	0	0	0	15.2
Buses	5	0	4		0	6	5		0	0	0		3	5	0		0	0	28
% Buses	1.2	0	0.5	0	0	0.1	1.2	0	0	0	0	0	0.4	0.1	0	0	0	0	0.2
Single-Unit Trucks	3	0	32		1	135	7		0	0	0		14	137	0		0	0	329
% Single-Unit Trucks	0.7	0	4.3	0	33.3	2.3	1.7	0	0	0	0	0	2	2.4	0	0	0	0	2.3
Articulated Trucks	1	0	6		0	38	0		0	0	0		5	64	0		0	0	114
% Articulated Trucks	0.2	0	0.8	0	0	0.6	0	0	0	0	0	0	0.7	1.1	0	0	0	0	0.8
Bicycles on Road	1	0	1		0	3	2		0	0	0		0	2	0		0	0	9
% Bicycles on Road	0.2	0	0.1	0	0	0.1	0.5	0	0	0	0	0	0	0	0	0	0	0	0.1
Bicycles on Crosswalk																			
% Bicycles on Crosswalk	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrians	0	0	0		0	0	0		0	0	0		0	0	0		0	0	0
% Pedestrians	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

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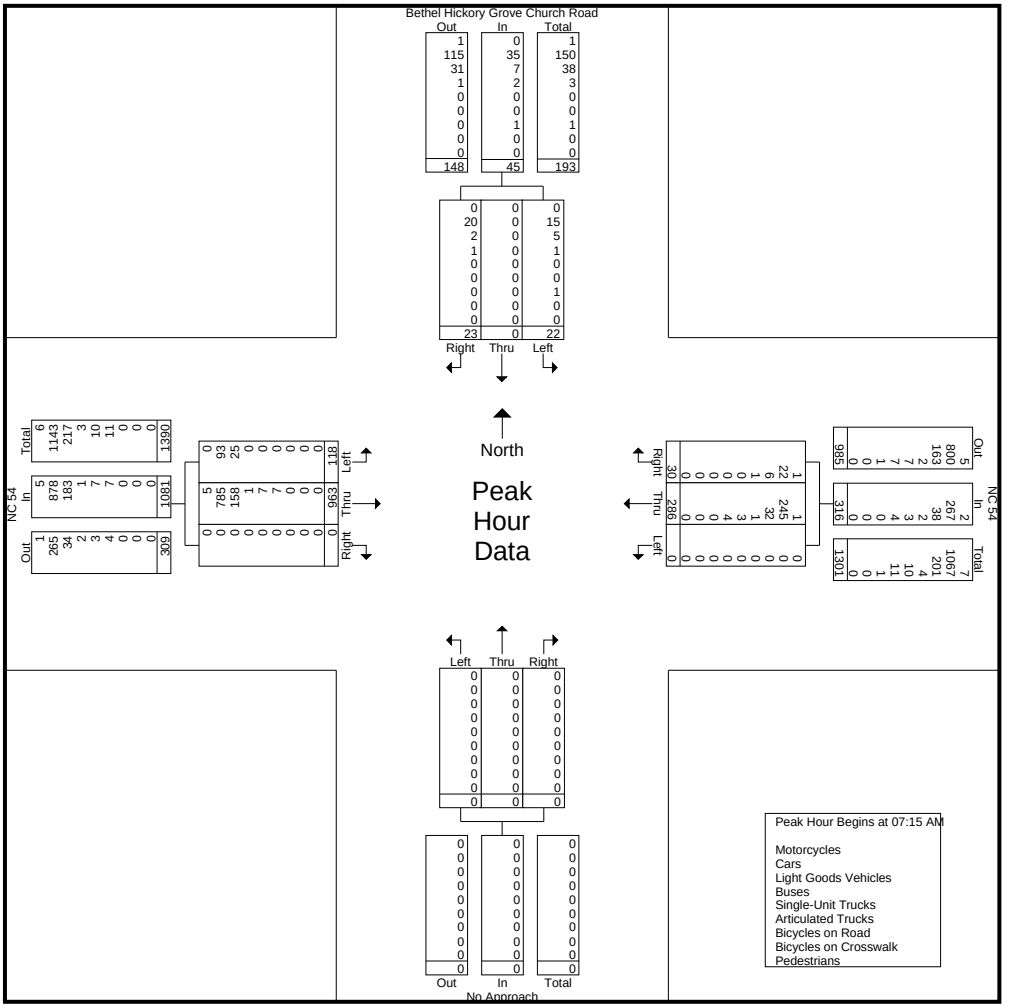
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	Bethel Hickory Grove Church Road Southbound				NC 54 Westbound				No Approach Northbound				NC 54 Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 06:00 AM to 11:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:15 AM																	
07:15 AM	4	0	3	7	0	69	5	74	0	0	0	0	25	238	0	263	344
07:30 AM	7	0	6	13	0	72	3	75	0	0	0	0	29	291	0	320	408
07:45 AM	5	0	7	12	0	81	8	89	0	0	0	0	44	228	0	272	373
08:00 AM	6	0	7	13	0	64	14	78	0	0	0	0	20	206	0	226	317
Total Volume	22	0	23	45	0	286	30	316	0	0	0	0	118	963	0	1081	1442
% App. Total	48.9	0	51.1		0	90.5	9.5		0	0	0		10.9	89.1	0		
PHF	.786	.000	.821	.865	.000	.883	.536	.888	.000	.000	.000	.000	.670	.827	.000	.845	.884
Motorcycles	0	0	0	0	0	1	1	2	0	0	0	0	0	5	0	5	7
% Motorcycles	0	0	0	0	0	0.3	3.3	0.6	0	0	0	0	0	0.5	0	0.5	0.5
Cars	15	0	20	35	0	245	22	267	0	0	0	0	93	785	0	878	1180
% Cars	68.2	0	87.0	77.8	0	85.7	73.3	84.5	0	0	0	0	78.8	81.5	0	81.2	81.8
Light Goods Vehicles	5	0	2	7	0	32	6	38	0	0	0	0	25	158	0	183	228
% Light Goods Vehicles	22.7	0	8.7	15.6	0	11.2	20.0	12.0	0	0	0	0	21.2	16.4	0	16.9	15.8
Buses	1	0	1	2	0	1	1	2	0	0	0	0	0	1	0	1	5
% Buses	4.5	0	4.3	4.4	0	0.3	3.3	0.6	0	0	0	0	0	0.1	0	0.1	0.3
Single-Unit Trucks	0	0	0	0	0	3	0	3	0	0	0	0	0	7	0	7	10
% Single-Unit Trucks	0	0	0	0	0	1.0	0	0.9	0	0	0	0	0	0.7	0	0.6	0.7
Articulated Trucks	0	0	0	0	0	4	0	4	0	0	0	0	0	7	0	7	11
% Articulated Trucks	0	0	0	0	0	1.4	0	1.3	0	0	0	0	0	0.7	0	0.6	0.8
Bicycles on Road	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
% Bicycles on Road	4.5	0	0	2.2	0	0	0	0	0	0	0	0	0	0	0	0	0.1
Bicycles on Crosswalk	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Bicycles on Crosswalk	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrians	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Pedestrians	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

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Venture I
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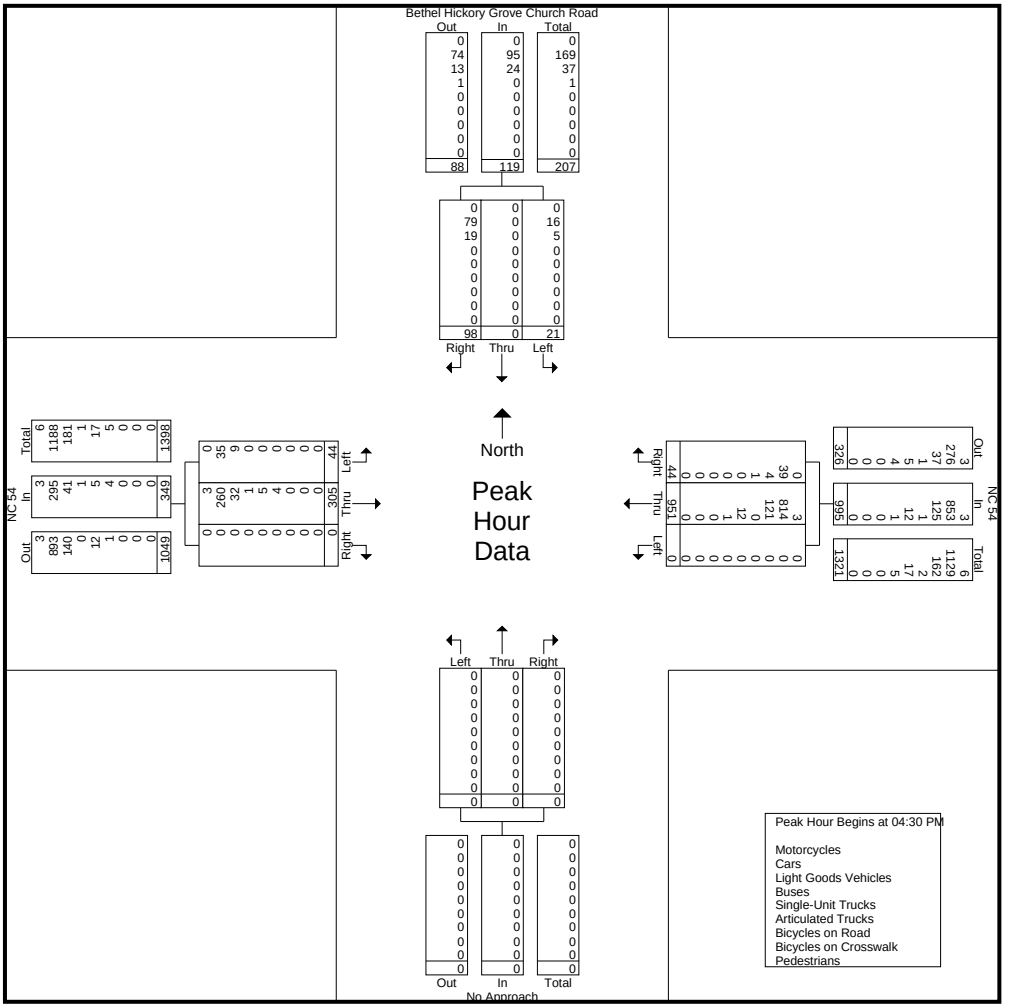
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	Bethel Hickory Grove Church Road Southbound				NC 54 Westbound				No Approach Northbound				NC 54 Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 12:00 PM to 09:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:30 PM																	
04:30 PM	5	0	15	20	0	216	14	230	0	0	0	0	10	83	0	93	343
04:45 PM	6	0	22	28	0	253	14	267	0	0	0	0	9	82	0	91	386
05:00 PM	7	0	26	33	0	241	7	248	0	0	0	0	12	71	0	83	364
05:15 PM	3	0	35	38	0	241	9	250	0	0	0	0	13	69	0	82	370
Total Volume	21	0	98	119	0	951	44	995	0	0	0	0	44	305	0	349	1463
% App. Total	17.6	0	82.4		0	95.6	4.4		0	0	0		12.6	87.4	0		
PHF	.750	.000	.700	.783	.000	.940	.786	.932	.000	.000	.000	.000	.846	.919	.000	.938	.948
Motorcycles	0	0	0	0	0	3	0	3	0	0	0	0	0	3	0	3	6
% Motorcycles	0	0	0	0	0	0.3	0	0.3	0	0	0	0	0	1.0	0	0.9	0.4
Cars	16	0	79	95	0	814	39	853	0	0	0	0	35	260	0	295	1243
% Cars	76.2	0	80.6	79.8	0	85.6	88.6	85.7	0	0	0	0	79.5	85.2	0	84.5	85.0
Light Goods Vehicles	5	0	19	24	0	121	4	125	0	0	0	0	9	32	0	41	190
% Light Goods Vehicles	23.8	0	19.4	20.2	0	12.7	9.1	12.6	0	0	0	0	20.5	10.5	0	11.7	13.0
Buses	0	0	0	0	0	0	1	1	0	0	0	0	0	1	0	1	2
% Buses	0	0	0	0	0	0	2.3	0.1	0	0	0	0	0	0.3	0	0.3	0.1
Single-Unit Trucks	0	0	0	0	0	12	0	12	0	0	0	0	0	5	0	5	17
% Single-Unit Trucks	0	0	0	0	0	1.3	0	1.2	0	0	0	0	0	1.6	0	1.4	1.2
Articulated Trucks	0	0	0	0	0	1	0	1	0	0	0	0	0	4	0	4	5
% Articulated Trucks	0	0	0	0	0	0.1	0	0.1	0	0	0	0	0	1.3	0	1.1	0.3
Bicycles on Road	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Bicycles on Road	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bicycles on Crosswalk	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Bicycles on Crosswalk	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrians	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Pedestrians	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

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Groups Printed- Motorcycles - Cars - Light Goods Vehicles - Buses - Unit Trucks - Articulated Trucks - Bicycles on Road - Bicycles on Crosswalk - Pedestrians

	Dodsons Crossroads Southbound				NC 54 Westbound				Butler Road Northbound				NC 54 Eastbound						
Start Time	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Exclu. Total	Inclu. Total	Int. Total
06:00 AM	4	0	0	0	0	23	0	0	1	3	0	0	0	62	0	0	0	93	93
06:15 AM	6	3	1	0	1	21	1	0	1	3	1	0	1	136	0	0	0	175	175
06:30 AM	8	2	2	0	1	33	1	0	0	3	6	0	5	161	0	0	0	222	222
06:45 AM	7	0	1	0	1	38	3	0	0	5	7	0	5	182	0	0	0	249	249
Total	25	5	4	0	3	115	5	0	2	14	14	0	11	541	0	0	0	739	739
07:00 AM	12	0	4	0	0	47	4	0	1	5	10	0	4	221	0	0	0	308	308
07:15 AM	18	4	6	0	0	69	7	0	1	9	7	0	12	227	0	0	0	360	360
07:30 AM	13	1	2	0	0	73	4	0	1	9	7	0	5	282	0	0	0	397	397
07:45 AM	21	1	7	0	6	81	5	0	1	4	15	0	5	224	0	0	0	370	370
Total	64	6	19	0	6	270	20	0	4	27	39	0	26	954	0	0	0	1435	1435
08:00 AM	25	4	8	0	2	60	7	0	1	5	11	0	6	194	1	0	0	324	324
08:15 AM	16	6	3	0	2	57	4	0	0	1	10	0	6	171	0	0	0	276	276
08:30 AM	10	5	4	0	6	56	7	0	1	7	10	0	7	162	0	0	0	275	275
08:45 AM	12	3	3	0	3	60	8	0	1	5	1	0	3	145	1	0	0	245	245
Total	63	18	18	0	13	233	26	0	3	18	32	0	22	672	2	0	0	1120	1120
09:00 AM	9	1	0	0	6	36	7	0	0	1	3	0	2	89	0	0	0	154	154
09:15 AM	9	2	4	0	6	49	3	0	0	2	4	0	5	102	0	0	0	186	186
09:30 AM	9	1	1	0	3	41	5	0	1	2	6	0	3	83	2	0	0	157	157
09:45 AM	9	1	1	0	2	33	7	0	0	1	4	0	4	89	3	0	0	154	154
Total	36	5	6	0	17	159	22	0	1	6	17	0	14	363	5	0	0	651	651
10:00 AM	3	2	4	0	1	55	8	0	2	1	2	0	1	65	1	0	0	145	145
10:15 AM	10	3	5	0	2	55	3	0	0	2	2	0	4	62	1	0	0	149	149
10:30 AM	8	1	0	0	3	49	4	0	0	2	2	0	5	71	1	0	0	146	146
10:45 AM	10	0	2	0	2	53	0	0	0	3	3	0	5	60	0	0	0	138	138
Total	31	6	11	0	8	212	15	0	2	8	9	0	15	258	3	0	0	578	578
11:00 AM	3	3	3	0	4	53	4	0	0	5	4	0	6	66	0	0	0	151	151
11:15 AM	8	0	2	0	3	60	11	0	2	4	4	0	3	56	2	0	0	155	155
11:30 AM	9	0	6	0	3	60	8	0	0	2	5	0	6	58	0	0	0	157	157
11:45 AM	7	2	5	0	2	62	6	0	1	6	5	0	6	62	1	0	0	165	165
Total	27	5	16	0	12	235	29	0	3	17	18	0	21	242	3	0	0	628	628
12:00 PM	6	4	5	0	2	52	7	0	2	3	3	0	4	69	1	0	0	158	158
12:15 PM	6	2	3	0	4	79	8	0	0	4	2	0	5	76	1	0	0	190	190
12:30 PM	4	2	5	0	4	63	8	0	1	0	5	0	5	75	0	0	0	172	172
12:45 PM	12	6	5	0	4	60	9	0	1	3	8	0	3	77	0	0	0	188	188
Total	28	14	18	0	14	254	32	0	4	10	18	0	17	297	2	0	0	708	708
01:00 PM	10	3	0	0	3	70	11	0	1	3	2	0	2	77	1	0	0	183	183
01:15 PM	10	5	3	0	3	70	5	0	0	5	3	0	4	40	2	0	0	150	150
01:30 PM	9	5	6	0	6	73	10	0	0	4	2	0	2	74	4	0	0	195	195
01:45 PM	11	1	7	0	1	72	7	0	0	3	5	0	4	63	0	0	0	174	174
Total	40	14	16	0	13	285	33	0	1	15	12	0	12	254	7	0	0	702	702
02:00 PM	4	5	3	0	6	80	9	0	3	4	1	0	4	61	0	0	0	180	180
02:15 PM	10	1	0	0	1	94	10	0	0	3	5	0	4	90	0	0	0	218	218
02:30 PM	9	2	3	0	4	84	7	0	0	3	5	0	4	71	2	0	0	194	194
02:45 PM	7	3	3	0	1	108	12	0	1	3	5	0	6	64	2	0	0	215	215
Total	30	11	9	0	12	366	38	0	4	13	16	0	18	286	4	0	0	807	807
03:00 PM	10	4	2	0	5	110	7	0	0	3	2	0	6	82	5	0	0	236	236
03:15 PM	6	3	8	0	8	122	15	0	0	2	2	0	9	71	1	0	0	247	247
03:30 PM	6	3	4	0	9	164	13	0	0	3	5	1	5	70	0	0	1	282	283
03:45 PM	6	1	5	0	6	192	12	0	0	5	3	0	2	72	0	0	0	304	304
Total	28	11	19	0	28	588	47	0	0	13	12	1	22	295	6	0	1	1069	1070
04:00 PM	7	4	9	0	3	191	20	0	1	4	6	0	6	59	0	0	0	310	310
04:15 PM	3	8	2	0	11	193	13	0	1	3	2	0	5	73	0	0	0	314	314
04:30 PM	3	3	9	0	6	179	13	0	1	6	2	0	3	84	0	0	0	309	309
04:45 PM	9	7	9	0	6	263	14	0	0	5	6	0	5	78	1	0	0	403	403
Total	22	22	29	0	26	826	60	0	3	18	16	0	19	294	1	0	0	1336	1336

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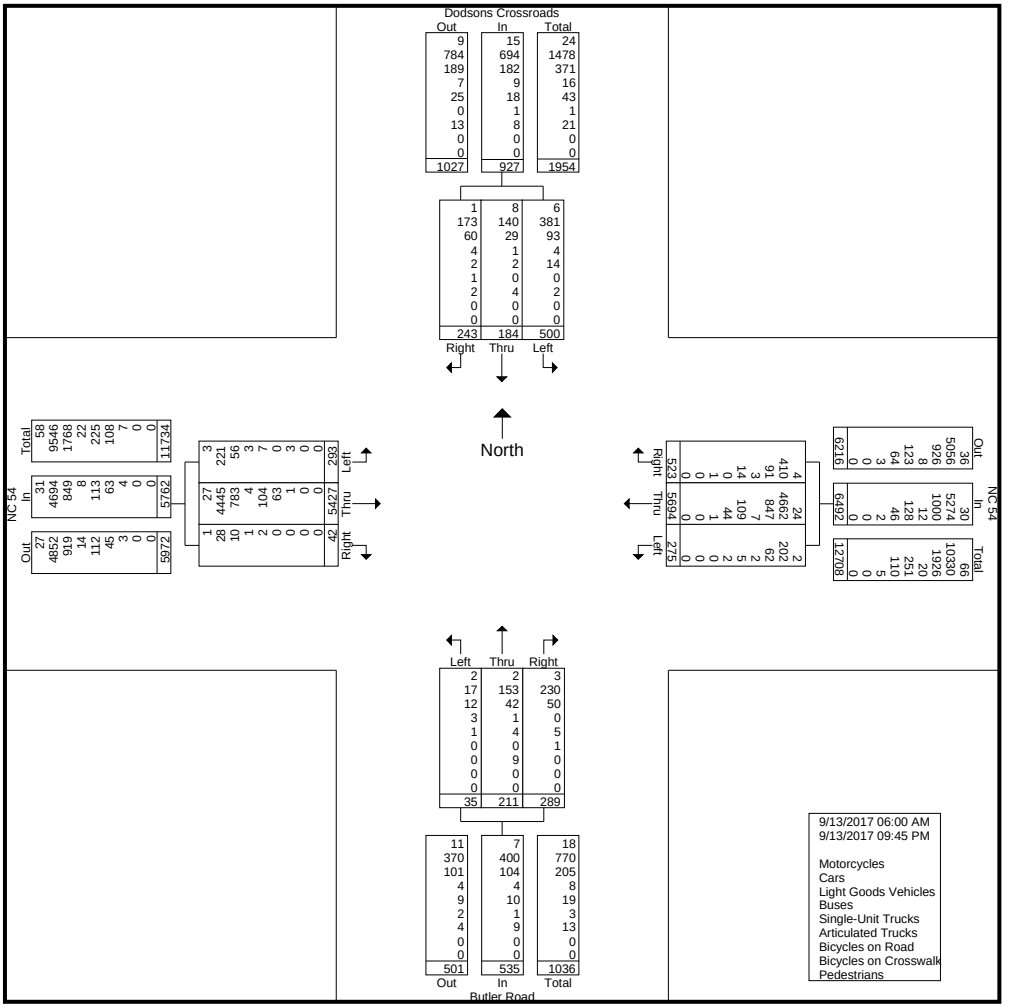
Groups Printed- Motorcycles - Cars - Light Goods Vehicles - Buses - Unit Trucks - Articulated Trucks - Bicycles on Road - Bicycles on Crosswalk - Pedestrians

	Dodsons Crossroads Southbound				NC 54 Westbound				Butler Road Northbound				NC 54 Eastbound						
Start Time	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Exclu. Total	Inclu. Total	Int. Total
05:00 PM	3	6	6	0	7	235	15	0	0	3	6	0	5	60	3	0	0	349	349
05:15 PM	6	5	6	0	10	243	16	0	1	4	10	0	3	57	0	0	0	361	361
05:30 PM	3	7	5	0	12	221	15	0	0	3	3	0	9	69	0	0	0	347	347
05:45 PM	4	8	9	0	8	170	15	0	0	3	3	0	9	76	0	0	0	305	305
Total	16	26	26	0	37	869	61	0	1	13	22	0	26	262	3	0	0	1362	1362
06:00 PM	14	6	9	0	9	148	14	0	0	4	7	0	3	97	0	0	0	311	311
06:15 PM	9	6	5	0	10	156	16	0	1	4	5	0	13	87	0	0	0	312	312
06:30 PM	2	7	7	0	4	116	13	0	0	2	8	0	13	59	0	0	0	231	231
06:45 PM	12	4	4	0	9	127	6	0	3	2	8	0	6	63	1	0	0	245	245
Total	37	23	25	0	32	547	49	0	4	12	28	0	35	306	1	0	0	1099	1099
07:00 PM	13	4	2	0	3	92	12	0	2	5	9	0	3	60	1	0	0	206	206
07:15 PM	8	0	4	0	7	92	8	0	1	5	5	0	5	52	0	0	0	187	187
07:30 PM	8	1	2	0	5	77	13	0	0	0	0	0	6	40	0	0	0	152	152
07:45 PM	3	3	4	0	9	73	10	0	0	2	1	0	1	36	1	0	0	143	143
Total	32	8	12	0	24	334	43	0	3	12	15	0	15	188	2	0	0	688	688
08:00 PM	4	1	2	0	5	64	7	0	0	3	1	0	5	31	0	0	0	123	123
08:15 PM	2	1	4	0	4	74	8	0	0	0	3	0	3	33	0	0	0	132	132
08:30 PM	3	2	3	0	6	42	3	0	0	5	4	0	5	31	0	0	0	104	104
08:45 PM	2	0	2	0	5	59	5	0	0	0	1	0	6	30	1	0	0	111	111
Total	11	4	11	0	20	239	23	0	0	8	9	0	19	125	1	0	0	470	470
09:00 PM	1	1	1	0	2	56	8	0	0	4	8	0	0	22	1	0	0	104	104
09:15 PM	5	1	2	0	1	42	2	0	0	1	1	0	0	22	0	0	0	77	77
09:30 PM	1	3	1	0	5	28	9	0	0	1	2	0	1	27	1	0	0	79	79
09:45 PM	3	1	0	0	2	36	1	0	0	1	1	0	0	19	0	0	0	64	64
Total	10	6	4	0	10	162	20	0	0	7	12	0	1	90	2	0	0	324	324
Grand Total	500	184	243	0	275	5694	523	0	35	211	289	1	293	5427	42	0	1	13716	13717
Apprch %	53.9	19.8	26.2		4.2	87.7	8.1		6.5	39.4	54		5.1	94.2	0.7				
Total %	3.6	1.3	1.8		2	41.5	3.8		0.3	1.5	2.1		2.1	39.6	0.3		0	100	
Motorcycles	6	8	1		2	24	4		2	2	3		3	27	1		0	0	83
% Motorcycles	1.2	4.3	0.4	0	0.7	0.4	0.8	0	5.7	0.9	1	0	1	0.5	2.4	0	0	0	0.6
Cars	381	140	173		202	4662	410		17	153	230		221	4445	28		0	0	11062
% Cars	76.2	76.1	71.2	0	73.5	81.9	78.4	0	48.6	72.5	79.6	0	75.4	81.9	66.7	0	0	0	80.6
Light Goods Vehicles	93	29	60		62	847	91		12	42	50		56	783	10		0	0	2135
% Light Goods Vehicles	18.6	15.8	24.7	0	22.5	14.9	17.4	0	34.3	19.9	17.3	0	19.1	14.4	23.8	0	0	0	15.6
Buses	4	1	4		2	7	3		3	1	0		3	4	1		0	0	33
% Buses	0.8	0.5	1.6	0	0.7	0.1	0.6	0	8.6	0.5	0	0	1	0.1	2.4	0	0	0	0.2
Single-Unit Trucks	14	2	2		5	109	14		1	4	5		7	104	2		0	0	269
% Single-Unit Trucks	2.8	1.1	0.8	0	1.8	1.9	2.7	0	2.9	1.9	1.7	0	2.4	1.9	4.8	0	0	0	2
Articulated Trucks	0	0	1		2	44	0		0	0	1		0	63	0		0	0	111
% Articulated Trucks	0	0	0.4	0	0.7	0.8	0	0	0	0	0.3	0	0	1.2	0	0	0	0	0.8
Bicycles on Road	2	4	2		0	1	1		0	9	0		3	1	0		0	0	23
% Bicycles on Road	0.4	2.2	0.8	0	0	0	0.2	0	0	4.3	0	0	1	0	0	0	0	0	0.2
Bicycles on Crosswalk	0	0	0		0	0	0		0	0	0		0	0	0		0	0	1
% Bicycles on Crosswalk	0	0	0	0	0	0	0	0	0	0	0	100	0	0	0	0	0	0	0
Pedestrians	0	0	0		0	0	0		0	0	0		0	0	0		0	0	0
% Pedestrians	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

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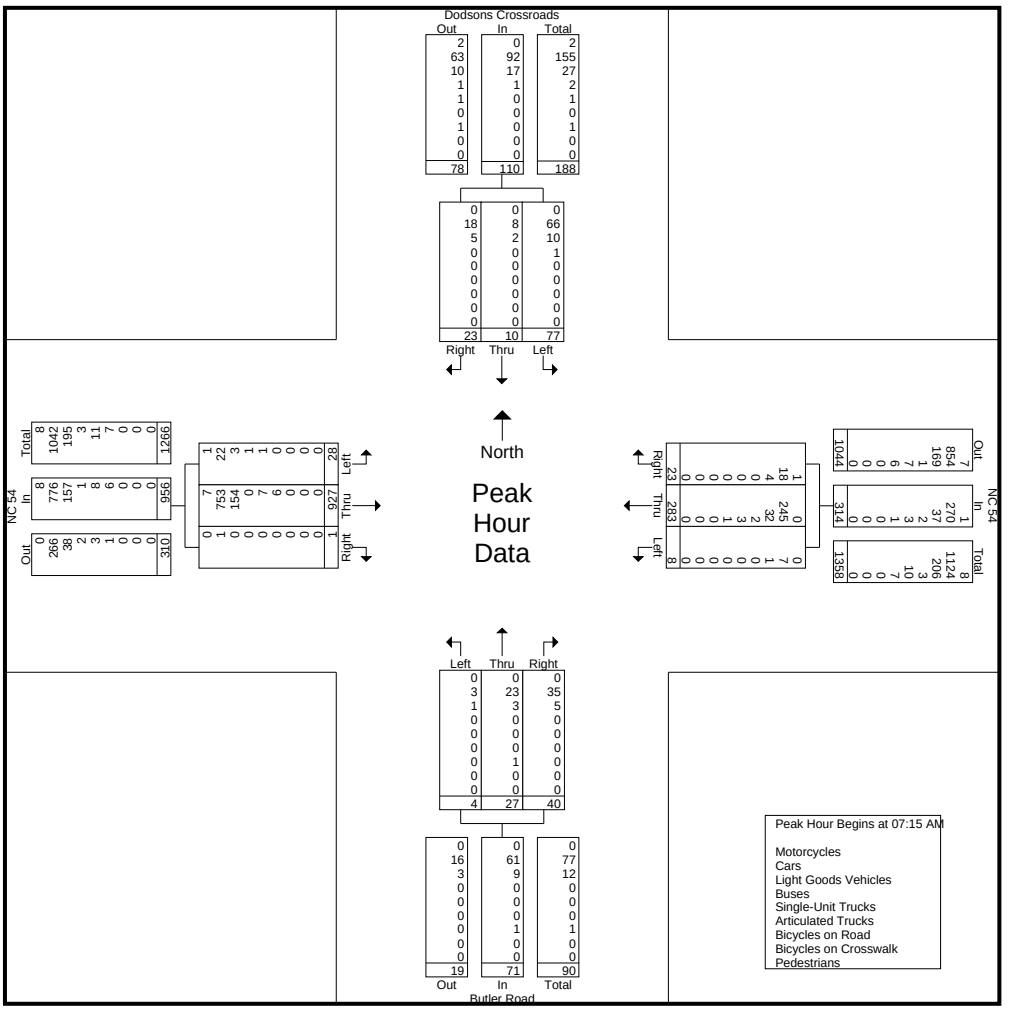
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	Dodsons Crossroads Southbound				NC 54 Westbound				Butler Road Northbound				NC 54 Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 06:00 AM to 11:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:15 AM																	
07:15 AM	18	4	6	28	0	69	7	76	1	9	7	17	12	227	0	239	360
07:30 AM	13	1	2	16	0	73	4	77	1	9	7	17	5	282	0	287	397
07:45 AM	21	1	7	29	6	81	5	92	1	4	15	20	5	224	0	229	370
08:00 AM	25	4	8	37	2	60	7	69	1	5	11	17	6	194	1	201	324
Total Volume	77	10	23	110	8	283	23	314	4	27	40	71	28	927	1	956	1451
% App. Total	70	9.1	20.9		2.5	90.1	7.3		5.6	38	56.3		2.9	97	0.1		
PHF	.770	.625	.719	.743	.333	.873	.821	.853	1.00	.750	.667	.888	.583	.822	.250	.833	.914
Motorcycles	0	0	0	0	0	0	1	1	0	0	0	0	1	7	0	8	9
% Motorcycles	0	0	0	0	0	0	4.3	0.3	0	0	0	0	3.6	0.8	0	0.8	0.6
Cars	66	8	18	92	7	245	18	270	3	23	35	61	22	753	1	776	1199
% Cars	85.7	80.0	78.3	83.6	87.5	86.6	78.3	86.0	75.0	85.2	87.5	85.9	78.6	81.2	100	81.2	82.6
Light Goods Vehicles	10	2	5	17	1	32	4	37	1	3	5	9	3	154	0	157	220
% Light Goods Vehicles	13.0	20.0	21.7	15.5	12.5	11.3	17.4	11.8	25.0	11.1	12.5	12.7	10.7	16.6	0	16.4	15.2
Buses	1	0	0	1	0	2	0	2	0	0	0	0	1	0	0	1	4
% Buses	1.3	0	0	0.9	0	0.7	0	0.6	0	0	0	0	3.6	0	0	0.1	0.3
Single-Unit Trucks	0	0	0	0	0	3	0	3	0	0	0	0	1	7	0	8	11
% Single-Unit Trucks	0	0	0	0	0	1.1	0	1.0	0	0	0	0	3.6	0.8	0	0.8	0.8
Articulated Trucks	0	0	0	0	0	1	0	1	0	0	0	0	0	6	0	6	7
% Articulated Trucks	0	0	0	0	0	0.4	0	0.3	0	0	0	0	0	0.6	0	0.6	0.5
Bicycles on Road	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	1
% Bicycles on Road	0	0	0	0	0	0	0	0	0	3.7	0	1.4	0	0	0	0	0.1
Bicycles on Crosswalk	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Bicycles on Crosswalk	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrians	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Pedestrians	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

VHB Engineering NC, P.C.

Venture I
940 Main Campus Drive, Suite 500
Raleigh, NC 27606
p: 919.829.0328 f: 919.833.0034

File Name : NC54@Dodsons
Site Code :
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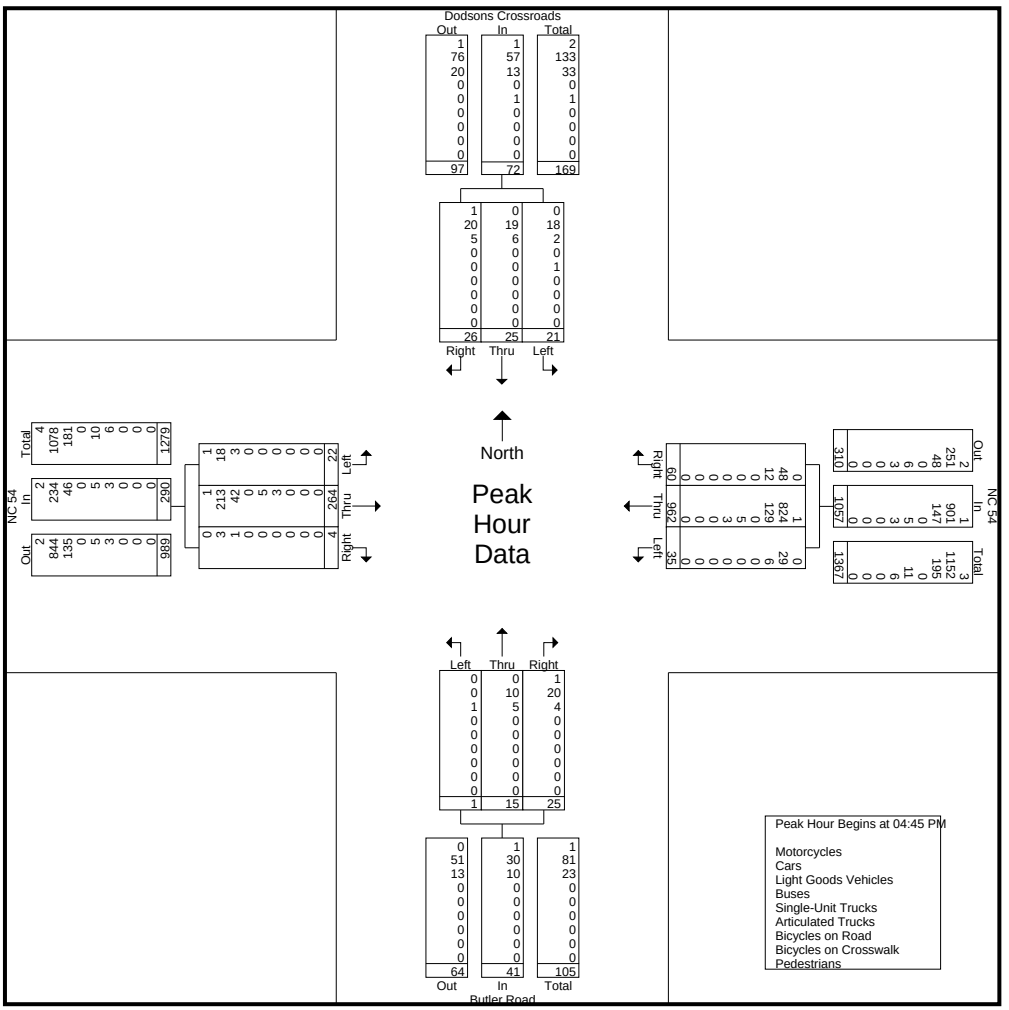


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File Name : NC54@Dodsons
Site Code :
Start Date : 9/13/2017
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	Dodsons Crossroads Southbound				NC 54 Westbound				Butler Road Northbound				NC 54 Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 12:00 PM to 09:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:45 PM																	
04:45 PM	9	7	9	25	6	263	14	283	0	5	6	11	5	78	1	84	403
05:00 PM	3	6	6	15	7	235	15	257	0	3	6	9	5	60	3	68	349
05:15 PM	6	5	6	17	10	243	16	269	1	4	10	15	3	57	0	60	361
05:30 PM	3	7	5	15	12	221	15	248	0	3	3	6	9	69	0	78	347
Total Volume	21	25	26	72	35	962	60	1057	1	15	25	41	22	264	4	290	1460
% App. Total	29.2	34.7	36.1		3.3	91	5.7		2.4	36.6	61		7.6	91	1.4		
PHF	.583	.893	.722	.720	.729	.914	.938	.934	.250	.750	.625	.683	.611	.846	.333	.863	.906
Motorcycles	0	0	1	1	0	1	0	1	0	0	1	1	1	1	0	2	5
% Motorcycles	0	0	3.8	1.4	0	0.1	0	0.1	0	0	4.0	2.4	4.5	0.4	0	0.7	0.3
Cars	18	19	20	57	29	824	48	901	0	10	20	30	18	213	3	234	1222
% Cars	85.7	76.0	76.9	79.2	82.9	85.7	80.0	85.2	0	66.7	80.0	73.2	81.8	80.7	75.0	80.7	83.7
Light Goods Vehicles	2	6	5	13	6	129	12	147	1	5	4	10	3	42	1	46	216
% Light Goods Vehicles	9.5	24.0	19.2	18.1	17.1	13.4	20.0	13.9	100	33.3	16.0	24.4	13.6	15.9	25.0	15.9	14.8
Buses	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Buses	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Single-Unit Trucks	1	0	0	1	0	5	0	5	0	0	0	0	0	5	0	5	11
% Single-Unit Trucks	4.8	0	0	1.4	0	0.5	0	0.5	0	0	0	0	0	1.9	0	1.7	0.8
Articulated Trucks	0	0	0	0	0	3	0	3	0	0	0	0	0	3	0	3	6
% Articulated Trucks	0	0	0	0	0	0.3	0	0.3	0	0	0	0	0	1.1	0	1.0	0.4
Bicycles on Road	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Bicycles on Road	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bicycles on Crosswalk	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Bicycles on Crosswalk	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrians	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Pedestrians	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0



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Start Date : 9/13/2017
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Groups Printed- Motorcycles - Cars - Light Goods Vehicles - Buses - Unit Trucks - Articulated Trucks - Bicycles on Road - Bicycles on Crosswalk - Pedestrians

	NC 119 Southbound				NC 54 Westbound				East Main Street Northbound				NC 54 Eastbound						
Start Time	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Exclu. Total	Inclu. Total	Int. Total
06:00 AM	7	16	73	0	0	27	1	0	6	19	9	0	27	53	6	0	0	244	244
06:15 AM	1	3	36	0	3	40	10	0	12	34	6	0	31	70	4	0	0	250	250
06:30 AM	6	9	37	0	2	62	12	0	14	38	5	0	91	95	6	0	0	377	377
06:45 AM	2	8	33	0	2	42	12	0	23	37	13	0	100	73	9	0	0	354	354
Total	16	36	179	0	7	171	35	0	55	128	33	0	249	291	25	0	0	1225	1225
07:00 AM	13	10	29	0	6	83	16	0	32	58	16	0	103	121	12	0	0	499	499
07:15 AM	8	14	37	0	8	98	22	0	23	67	16	0	107	147	9	0	0	556	556
07:30 AM	20	41	119	0	10	125	30	0	36	99	19	0	83	111	10	0	0	703	703
07:45 AM	13	37	61	1	12	107	9	0	25	31	12	0	34	112	21	0	1	474	475
Total	54	102	246	1	36	413	77	0	116	255	63	0	327	491	52	0	1	2232	2233
08:00 AM	8	24	16	0	3	107	5	0	17	26	10	0	17	114	14	0	0	361	361
08:15 AM	9	11	23	0	3	86	7	0	11	23	10	0	17	80	8	0	0	288	288
08:30 AM	5	9	18	0	4	74	9	0	15	19	3	0	16	77	12	0	0	261	261
08:45 AM	8	12	15	0	2	91	3	0	19	8	8	0	7	67	8	0	0	248	248
Total	30	56	72	0	12	358	24	0	62	76	31	0	57	338	42	0	0	1158	1158
09:00 AM	4	5	26	0	4	43	7	0	10	18	5	0	16	73	4	0	0	215	215
09:15 AM	6	13	15	0	0	59	3	0	13	15	6	0	13	63	10	0	0	216	216
09:30 AM	5	7	16	0	4	50	5	0	15	22	1	0	17	68	6	0	0	216	216
09:45 AM	4	9	12	0	1	41	5	0	11	13	3	0	16	42	3	0	0	160	160
Total	19	34	69	0	9	193	20	0	49	68	15	0	62	246	23	0	0	807	807
10:00 AM	5	12	19	0	0	57	4	0	7	11	0	0	20	51	16	0	0	202	202
10:15 AM	3	6	7	0	4	59	5	0	11	18	4	0	15	71	9	0	0	212	212
10:30 AM	4	9	18	0	3	50	7	0	10	18	5	0	13	47	5	0	0	189	189
10:45 AM	2	11	17	1	5	43	4	0	11	31	2	0	17	52	9	0	1	204	205
Total	14	38	61	1	12	209	20	0	39	78	11	0	65	221	39	0	1	807	808
11:00 AM	5	8	15	0	1	57	7	0	7	29	0	0	44	47	12	0	0	232	232
11:15 AM	7	12	14	0	3	58	7	0	6	36	2	0	47	75	13	0	0	280	280
11:30 AM	6	31	45	0	3	51	6	0	10	36	6	0	12	59	19	0	0	284	284
11:45 AM	11	41	60	0	6	74	11	0	6	26	3	0	29	56	12	0	0	335	335
Total	29	92	134	0	13	240	31	0	29	127	11	0	132	237	56	0	0	1131	1131
12:00 PM	12	22	51	0	10	68	13	0	8	18	2	0	30	51	17	0	0	302	302
12:15 PM	13	17	19	0	4	54	10	0	10	18	8	0	25	63	17	0	0	258	258
12:30 PM	11	29	17	0	7	61	4	0	14	30	9	0	26	61	25	0	0	294	294
12:45 PM	22	24	23	0	3	65	7	0	22	27	9	0	22	69	13	0	0	306	306
Total	58	92	110	0	24	248	34	0	54	93	28	0	103	244	72	0	0	1160	1160
01:00 PM	6	17	20	0	1	66	2	0	8	17	3	0	24	67	13	0	0	244	244
01:15 PM	11	12	23	0	5	64	9	0	25	14	3	0	20	81	12	0	0	279	279
01:30 PM	7	20	16	0	5	71	7	0	14	23	6	0	32	61	17	0	0	279	279
01:45 PM	8	19	19	0	6	56	4	0	11	21	5	0	24	53	14	0	0	240	240
Total	32	68	78	0	17	257	22	0	58	75	17	0	100	262	56	0	0	1042	1042
02:00 PM	11	21	18	0	7	55	7	0	11	23	3	0	24	67	13	0	0	260	260
02:15 PM	6	23	21	0	1	64	5	0	18	17	3	0	26	69	10	0	0	263	263
02:30 PM	11	17	25	0	3	77	7	0	10	17	3	0	32	64	11	0	0	277	277
02:45 PM	10	16	19	0	3	60	8	0	11	21	1	0	24	87	16	0	0	276	276
Total	38	77	83	0	14	256	27	0	50	78	10	0	106	287	50	0	0	1076	1076
03:00 PM	11	27	26	0	7	79	6	0	11	21	5	0	19	80	16	0	0	308	308
03:15 PM	12	22	20	0	6	90	10	0	17	13	5	0	26	77	23	0	0	321	321
03:30 PM	15	41	74	0	5	90	9	0	15	15	5	0	31	74	20	0	0	394	394
03:45 PM	14	28	32	0	18	90	14	0	15	14	5	0	29	67	19	0	0	345	345
Total	52	118	152	0	36	349	39	0	58	63	20	0	105	298	78	0	0	1368	1368
04:00 PM	7	35	127	0	6	118	7	0	10	6	10	0	26	75	22	0	0	449	449
04:15 PM	10	35	105	0	10	122	11	0	10	24	9	0	18	81	15	0	0	450	450
04:30 PM	17	30	52	0	9	129	6	0	8	18	3	0	22	86	26	0	0	406	406
04:45 PM	13	29	47	0	11	133	14	0	15	19	3	0	27	99	25	0	0	435	435
Total	47	129	331	0	36	502	38	0	43	67	25	0	93	341	88	0	0	1740	1740

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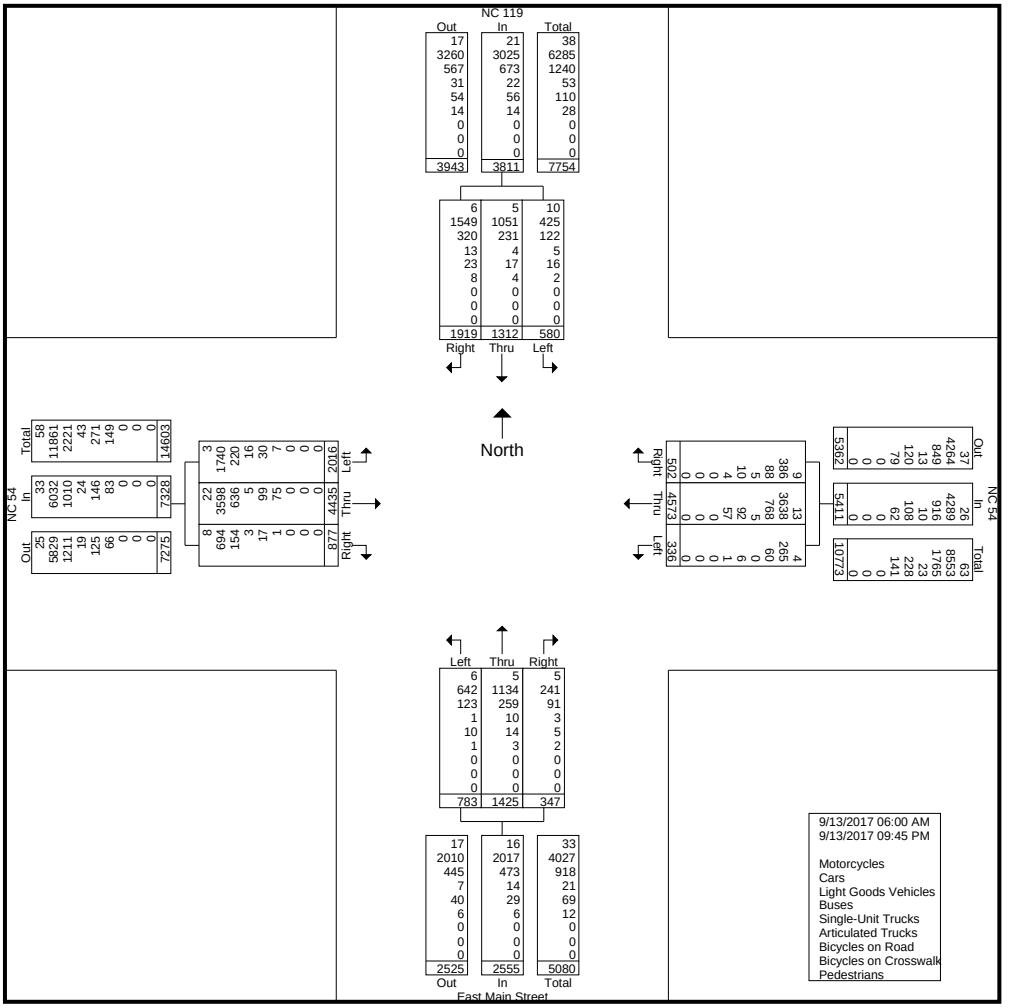
Groups Printed- Motorcycles - Cars - Light Goods Vehicles - Buses - Unit Trucks - Articulated Trucks - Bicycles on Road - Bicycles on Crosswalk - Pedestrians

	NC 119 Southbound				NC 54 Westbound				East Main Street Northbound				NC 54 Eastbound						
Start Time	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Exclu. Total	Inclu. Total	Int. Total
05:00 PM	17	30	36	0	17	158	22	0	11	16	5	0	39	84	19	0	0	454	454
05:15 PM	25	45	42	0	16	141	10	0	14	20	6	0	39	101	28	0	0	487	487
05:30 PM	9	42	36	0	15	143	12	0	15	27	3	0	31	86	25	0	0	444	444
05:45 PM	19	27	30	0	3	142	12	0	10	20	4	0	28	91	28	0	0	414	414
Total	70	144	144	0	51	584	56	0	50	83	18	0	137	362	100	0	0	1799	1799
06:00 PM	13	36	36	0	12	95	8	0	13	14	9	0	20	100	24	0	0	380	380
06:15 PM	13	36	21	0	7	79	6	0	8	22	3	0	32	71	20	0	0	318	318
06:30 PM	8	22	15	0	8	87	8	0	12	19	7	0	26	65	10	0	0	287	287
06:45 PM	6	19	14	0	6	64	5	0	13	24	5	0	25	62	18	0	0	261	261
Total	40	113	86	0	33	325	27	0	46	79	24	0	103	298	72	0	0	1246	1246
07:00 PM	9	28	23	0	4	61	8	0	8	23	7	0	19	59	18	0	0	267	267
07:15 PM	6	26	19	0	1	55	6	0	10	17	4	0	12	56	12	0	0	224	224
07:30 PM	11	25	20	0	6	53	5	0	4	16	2	0	17	48	12	0	0	219	219
07:45 PM	10	24	16	0	1	38	5	0	7	12	1	0	35	40	12	0	0	201	201
Total	36	103	78	0	12	207	24	0	29	68	14	0	83	203	54	0	0	911	911
08:00 PM	6	27	5	0	7	53	4	0	6	13	8	0	30	44	10	0	0	213	213
08:15 PM	6	18	22	0	8	44	5	0	4	13	3	0	53	34	12	0	0	222	222
08:30 PM	10	11	16	0	1	38	5	0	8	16	6	0	99	50	17	0	0	277	277
08:45 PM	5	13	16	0	1	33	5	0	7	15	5	0	63	47	6	0	0	216	216
Total	27	69	59	0	17	168	19	0	25	57	22	0	245	175	45	0	0	928	928
09:00 PM	6	12	7	0	1	27	3	0	10	10	0	0	10	44	8	0	0	138	138
09:15 PM	8	14	13	0	4	29	1	0	5	8	4	0	10	47	5	0	0	148	148
09:30 PM	1	8	10	0	2	25	2	0	4	6	0	0	16	25	6	0	0	105	105
09:45 PM	3	7	7	0	0	12	3	0	1	6	1	0	13	25	6	0	0	84	84
Total	18	41	37	0	7	93	9	0	20	30	5	0	49	141	25	0	0	475	475
Grand Total	580	1312	1919	2	336	4573	502	0	783	1425	347	0	2016	4435	877	0	2	19105	19107
Apprch %	15.2	34.4	50.4		6.2	84.5	9.3		30.6	55.8	13.6		27.5	60.5	12				
Total %	3	6.9	10		1.8	23.9	2.6		4.1	7.5	1.8		10.6	23.2	4.6		0	100	
Motorcycles	10	5	6		4	13	9		6	5	5		3	22	8		0	0	96
% Motorcycles	1.7	0.4	0.3	0	1.2	0.3	1.8	0	0.8	0.4	1.4	0	0.1	0.5	0.9	0	0	0	0.5
Cars	425	1051	1549		265	3638	386		642	1134	241		1740	3598	694		0	0	15363
% Cars	73.3	80.1	80.7	0	78.9	79.6	76.9	0	82	79.6	69.5	0	86.3	81.1	79.1	0	0	0	80.4
Light Goods Vehicles	122	231	320		60	768	88		123	259	91		220	636	154		0	0	3072
% Light Goods Vehicles	21	17.6	16.7	0	17.9	16.8	17.5	0	15.7	18.2	26.2	0	10.9	14.3	17.6	0	0	0	16.1
Buses	5	4	13		0	5	5		1	10	3		16	5	3		0	0	70
% Buses	0.9	0.3	0.7	0	0	0.1	1	0	0.1	0.7	0.9	0	0.8	0.1	0.3	0	0	0	0.4
Single-Unit Trucks	16	17	23		6	92	10		10	14	5		30	99	17		0	0	339
% Single-Unit Trucks	2.8	1.3	1.2	0	1.8	2	2	0	1.3	1	1.4	0	1.5	2.2	1.9	0	0	0	1.8
Articulated Trucks	2	4	8		1	57	4		1	3	2		7	75	1		0	0	165
% Articulated Trucks	0.3	0.3	0.4	0	0.3	1.2	0.8	0	0.1	0.2	0.6	0	0.3	1.7	0.1	0	0	0	0.9
Bicycles on Road	0	0	0		0	0	0		0	0	0		0	0	0		0	0	0
% Bicycles on Road	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bicycles on Crosswalk	0	0	0		0	0	0		0	0	0		0	0	0		0	0	0
% Bicycles on Crosswalk	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrians	0	0	0		0	0	0		0	0	0		0	0	0		0	0	2
% Pedestrians	0	0	0	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

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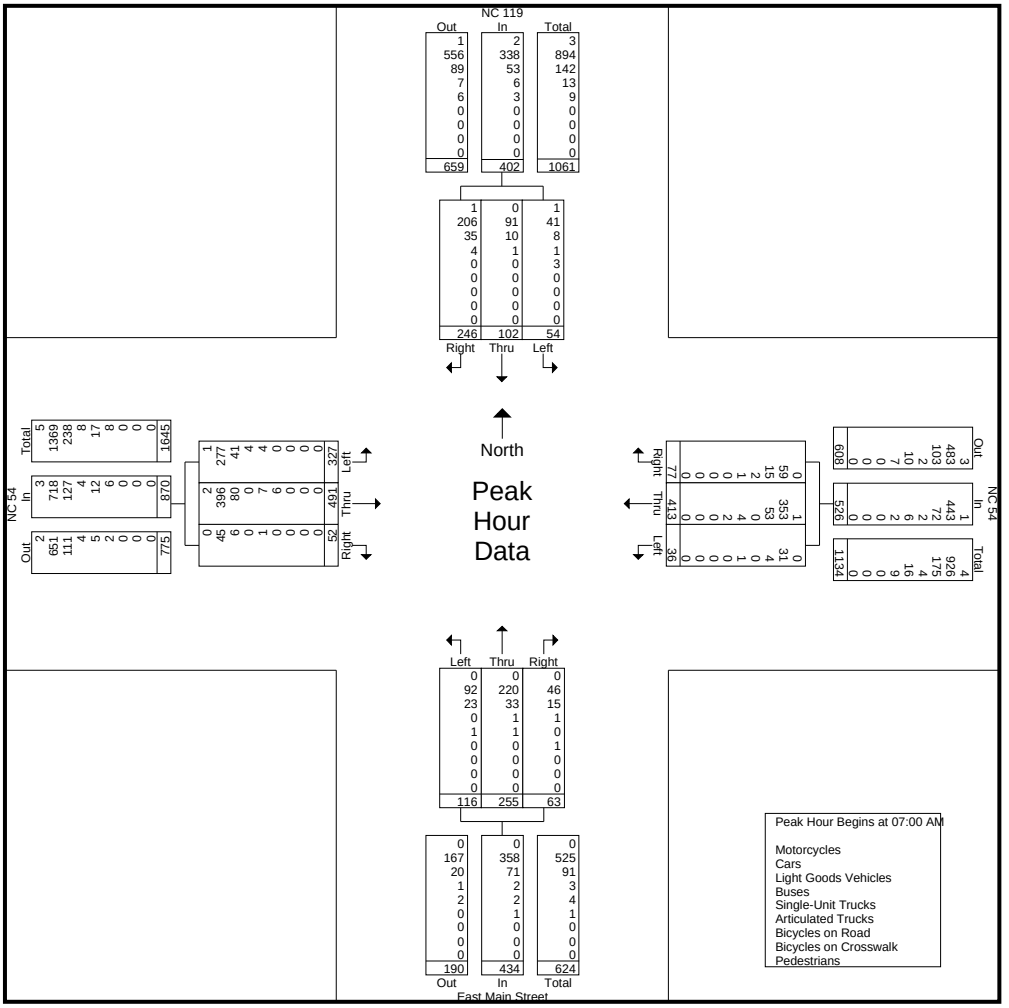
File Name : NC54@EMain
Site Code :
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	NC 119 Southbound				NC 54 Westbound				East Main Street Northbound				NC 54 Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 06:00 AM to 11:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:00 AM																	
07:00 AM	13	10	29	52	6	83	16	105	32	58	16	106	103	121	12	236	499
07:15 AM	8	14	37	59	8	98	22	128	23	67	16	106	107	147	9	263	556
07:30 AM	20	41	119	180	10	125	30	165	36	99	19	154	83	111	10	204	703
07:45 AM	13	37	61	111	12	107	9	128	25	31	12	68	34	112	21	167	474
Total Volume	54	102	246	402	36	413	77	526	116	255	63	434	327	491	52	870	2232
% App. Total	13.4	25.4	61.2		6.8	78.5	14.6		26.7	58.8	14.5		37.6	56.4	6		
PHF	.675	.622	.517	.558	.750	.826	.642	.797	.806	.644	.829	.705	.764	.835	.619	.827	.794
Motorcycles	1	0	1	2	0	1	0	1	0	0	0	0	1	2	0	3	6
% Motorcycles	1.9	0	0.4	0.5	0	0.2	0	0.2	0	0	0	0	0.3	0.4	0	0.3	0.3
Cars	41	91	206	338	31	353	59	443	92	220	46	358	277	396	45	718	1857
% Cars	75.9	89.2	83.7	84.1	86.1	85.5	76.6	84.2	79.3	86.3	73.0	82.5	84.7	80.7	86.5	82.5	83.2
Light Goods Vehicles	8	10	35	53	4	53	15	72	23	33	15	71	41	80	6	127	323
% Light Goods Vehicles	14.8	9.8	14.2	13.2	11.1	12.8	19.5	13.7	19.8	12.9	23.8	16.4	12.5	16.3	11.5	14.6	14.5
Buses	1	1	4	6	0	0	2	2	0	1	1	2	4	0	0	4	14
% Buses	1.9	1.0	1.6	1.5	0	0	2.6	0.4	0	0.4	1.6	0.5	1.2	0	0	0.5	0.6
Single-Unit Trucks	3	0	0	3	1	4	1	6	1	1	0	2	4	7	1	12	23
% Single-Unit Trucks	5.6	0	0	0.7	2.8	1.0	1.3	1.1	0.9	0.4	0	0.5	1.2	1.4	1.9	1.4	1.0
Articulated Trucks	0	0	0	0	0	2	0	2	0	0	1	1	0	6	0	6	9
% Articulated Trucks	0	0	0	0	0	0.5	0	0.4	0	0	1.6	0.2	0	1.2	0	0.7	0.4
Bicycles on Road	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Bicycles on Road	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bicycles on Crosswalk	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Bicycles on Crosswalk	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrians	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Pedestrians	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

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Venture I
940 Main Campus Drive, Suite 500
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File Name : NC54@EMain
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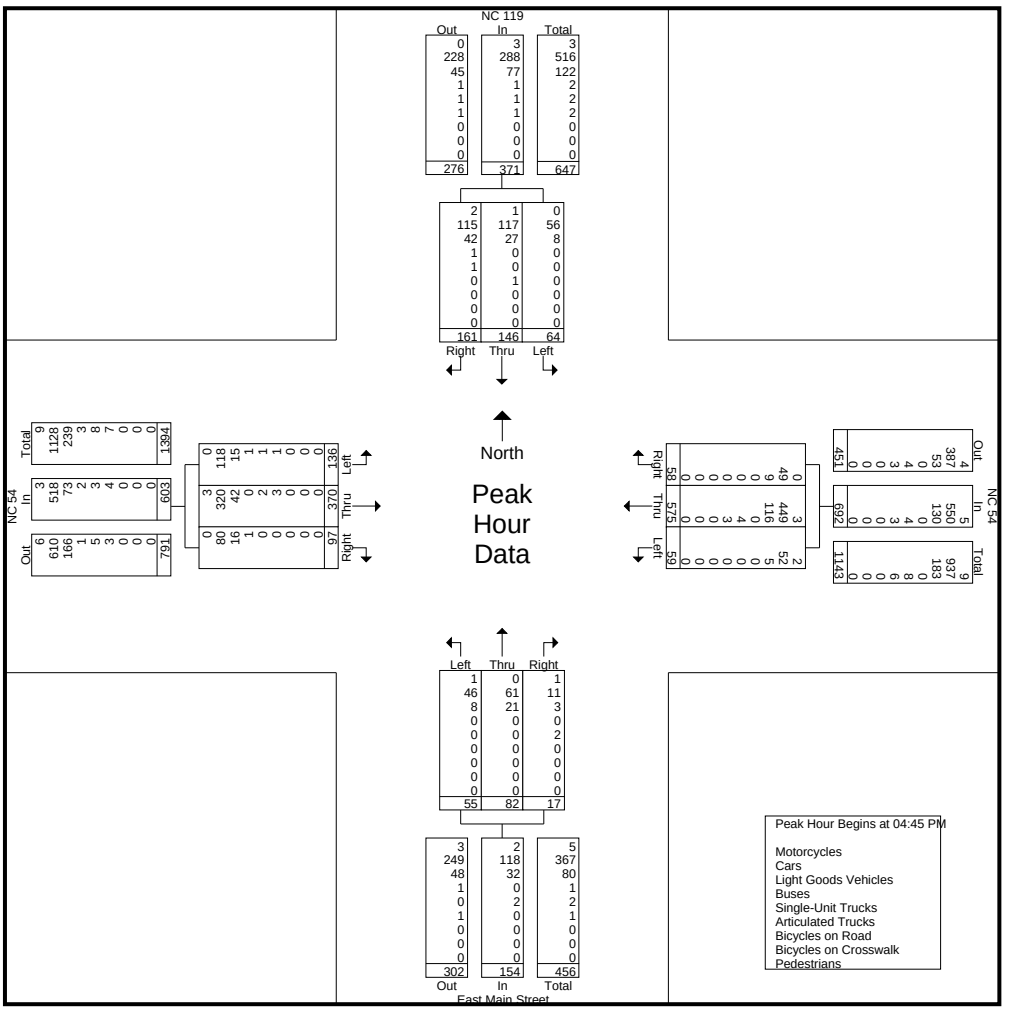


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File Name : NC54@EMain
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	NC 119 Southbound				NC 54 Westbound				East Main Street Northbound				NC 54 Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 12:00 PM to 09:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:45 PM																	
04:45 PM	13	29	47	89	11	133	14	158	15	19	3	37	27	99	25	151	435
05:00 PM	17	30	36	83	17	158	22	197	11	16	5	32	39	84	19	142	454
05:15 PM	25	45	42	112	16	141	10	167	14	20	6	40	39	101	28	168	487
05:30 PM	9	42	36	87	15	143	12	170	15	27	3	45	31	86	25	142	444
Total Volume	64	146	161	371	59	575	58	692	55	82	17	154	136	370	97	603	1820
% App. Total	17.3	39.4	43.4		8.5	83.1	8.4		35.7	53.2	11		22.6	61.4	16.1		
PHF	.640	.811	.856	.828	.868	.910	.659	.878	.917	.759	.708	.856	.872	.916	.866	.897	.934
Motorcycles	0	1	2	3	2	3	0	5	1	0	1	2	0	3	0	3	13
% Motorcycles	0	0.7	1.2	0.8	3.4	0.5	0	0.7	1.8	0	5.9	1.3	0	0.8	0	0.5	0.7
Cars	56	117	115	288	52	449	49	550	46	61	11	118	118	320	80	518	1474
% Cars	87.5	80.1	71.4	77.6	88.1	78.1	84.5	79.5	83.6	74.4	64.7	76.6	86.8	86.5	82.5	85.9	81.0
Light Goods Vehicles	8	27	42	77	5	116	9	130	8	21	3	32	15	42	16	73	312
% Light Goods Vehicles	12.5	18.5	26.1	20.8	8.5	20.2	15.5	18.8	14.5	25.6	17.6	20.8	11.0	11.4	16.5	12.1	17.1
Buses	0	0	1	1	0	0	0	0	0	0	0	0	1	0	1	2	3
% Buses	0	0	0.6	0.3	0	0	0	0	0	0	0	0	0.7	0	1.0	0.3	0.2
Single-Unit Trucks	0	0	1	1	0	4	0	4	0	0	2	2	1	2	0	3	10
% Single-Unit Trucks	0	0	0.6	0.3	0	0.7	0	0.6	0	0	11.8	1.3	0.7	0.5	0	0.5	0.5
Articulated Trucks	0	1	0	1	0	3	0	3	0	0	0	0	1	3	0	4	8
% Articulated Trucks	0	0.7	0	0.3	0	0.5	0	0.4	0	0	0	0	0.7	0.8	0	0.7	0.4
Bicycles on Road	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Bicycles on Road	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bicycles on Crosswalk	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Bicycles on Crosswalk	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrians	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Pedestrians	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0



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Venture I
940 Main Campus Drive, Suite 500
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File Name : NC54@Mebane
Site Code :
Start Date : 9/13/2017
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Groups Printed- Motorcycles - Cars - Light Goods Vehicles - Buses - Unit Trucks - Articulated Trucks - Bicycles on Road - Bicycles on Crosswalk - Pedestrians

	Mebane Oaks Road Southbound				NC 54 Westbound				Saxapahaw Road Northbound				NC 54 Eastbound						
Start Time	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Exclu. Total	Inclu. Total	Int. Total
06:00 AM	9	2	0	0	1	13	2	0	1	4	10	0	0	70	0	0	0	112	112
06:15 AM	20	2	1	0	0	19	4	0	2	6	29	0	0	74	0	0	0	157	157
06:30 AM	19	5	0	0	2	29	6	0	2	10	35	0	0	96	0	0	0	204	204
06:45 AM	15	5	0	0	0	30	4	0	2	10	38	0	1	101	0	0	0	206	206
Total	63	14	1	0	3	91	16	0	7	30	112	0	1	341	0	0	0	679	679
07:00 AM	32	12	0	0	3	48	6	0	3	13	40	0	0	130	1	0	0	288	288
07:15 AM	34	7	0	0	5	59	9	0	3	17	37	0	0	162	0	0	0	333	333
07:30 AM	23	11	1	0	6	61	12	0	2	28	44	0	0	125	1	0	0	314	314
07:45 AM	29	16	0	0	13	64	9	0	2	14	23	0	0	120	1	0	0	291	291
Total	118	46	1	0	27	232	36	0	10	72	144	0	0	537	3	0	0	1226	1226
08:00 AM	25	12	0	0	10	54	11	0	0	20	34	0	0	101	0	0	0	267	267
08:15 AM	25	5	1	0	5	34	7	0	2	13	33	0	0	97	1	0	0	223	223
08:30 AM	10	7	0	0	8	41	10	0	2	7	16	0	1	94	0	0	0	196	196
08:45 AM	8	6	0	0	5	30	7	0	2	9	18	0	0	50	1	0	0	136	136
Total	68	30	1	0	28	159	35	0	6	49	101	0	1	342	2	0	0	822	822
09:00 AM	10	9	0	0	6	30	2	0	3	10	15	0	0	53	1	0	0	139	139
09:15 AM	5	2	1	0	6	20	9	0	4	5	10	0	0	68	1	0	0	131	131
09:30 AM	12	5	1	0	6	24	6	0	3	14	9	0	0	58	0	0	0	138	138
09:45 AM	7	1	0	0	5	21	3	0	2	15	7	0	0	52	1	0	0	114	114
Total	34	17	2	0	23	95	20	0	12	44	41	0	0	231	3	0	0	522	522
10:00 AM	4	4	0	0	5	33	7	0	0	10	8	0	0	29	0	0	0	100	100
10:15 AM	10	9	1	0	7	28	5	0	2	6	7	0	0	38	0	0	0	113	113
10:30 AM	6	4	1	0	6	25	9	0	0	3	9	0	1	42	2	0	0	108	108
10:45 AM	6	8	0	0	5	31	11	0	1	7	7	0	0	30	2	0	0	108	108
Total	26	25	2	0	23	117	32	0	3	26	31	0	1	139	4	0	0	429	429
11:00 AM	5	10	1	0	5	33	7	0	3	12	12	0	1	38	2	0	0	129	129
11:15 AM	4	7	1	0	8	26	8	0	0	6	8	0	0	28	0	0	0	96	96
11:30 AM	9	10	0	0	9	35	6	0	3	4	8	0	0	42	2	0	0	128	128
11:45 AM	7	7	2	0	7	38	5	0	0	8	10	0	1	32	0	0	0	117	117
Total	25	34	4	0	29	132	26	0	6	30	38	0	2	140	4	0	0	470	470
12:00 PM	9	5	0	0	8	28	8	0	0	10	12	0	0	44	1	0	0	125	125
12:15 PM	8	13	0	0	12	32	11	0	0	9	9	0	0	42	1	0	0	137	137
12:30 PM	13	6	2	0	5	36	8	0	1	7	7	0	1	23	1	0	0	110	110
12:45 PM	9	9	0	0	8	34	9	0	1	7	8	0	0	41	1	0	0	127	127
Total	39	33	2	0	33	130	36	0	2	33	36	0	1	150	4	0	0	499	499
01:00 PM	10	8	0	0	5	43	11	0	2	13	11	0	4	33	1	0	0	141	141
01:15 PM	7	6	0	0	13	30	4	0	0	6	8	0	0	38	0	0	0	112	112
01:30 PM	10	11	0	0	5	34	10	0	1	7	15	0	2	45	1	0	0	141	141
01:45 PM	11	10	1	0	8	51	5	0	1	7	7	0	1	33	0	0	0	135	135
Total	38	35	1	0	31	158	30	0	4	33	41	0	7	149	2	0	0	529	529
02:00 PM	5	8	0	0	12	39	4	1	1	5	11	0	1	32	2	0	1	120	121
02:15 PM	10	7	2	0	9	49	11	0	0	8	10	0	0	51	2	0	0	159	159
02:30 PM	10	6	0	0	12	39	8	0	2	5	8	0	0	37	1	0	0	128	128
02:45 PM	7	10	0	0	21	56	9	0	0	6	8	0	1	45	0	0	0	163	163
Total	32	31	2	0	54	183	32	1	3	24	37	0	2	165	5	0	1	570	571
03:00 PM	4	13	0	0	11	54	9	0	1	7	9	0	0	45	0	0	0	153	153
03:15 PM	6	21	0	0	26	75	14	0	3	5	4	0	0	43	0	0	0	197	197
03:30 PM	10	8	0	0	22	78	18	0	0	12	13	0	0	41	2	0	0	204	204
03:45 PM	5	7	1	0	20	111	32	0	4	14	12	0	0	39	2	0	0	247	247
Total	25	49	1	0	79	318	73	0	8	38	38	0	0	168	4	0	0	801	801
04:00 PM	11	11	0	0	29	116	22	0	1	7	10	0	1	39	3	0	0	250	250
04:15 PM	9	15	2	0	17	116	22	0	0	10	12	0	0	44	0	0	0	247	247
04:30 PM	7	11	1	0	26	97	19	0	4	10	7	0	1	57	0	0	0	240	240
04:45 PM	15	15	2	0	30	167	37	0	0	11	9	0	0	40	2	0	0	328	328
Total	42	52	5	0	102	496	100	0	5	38	38	0	2	180	5	0	0	1065	1065

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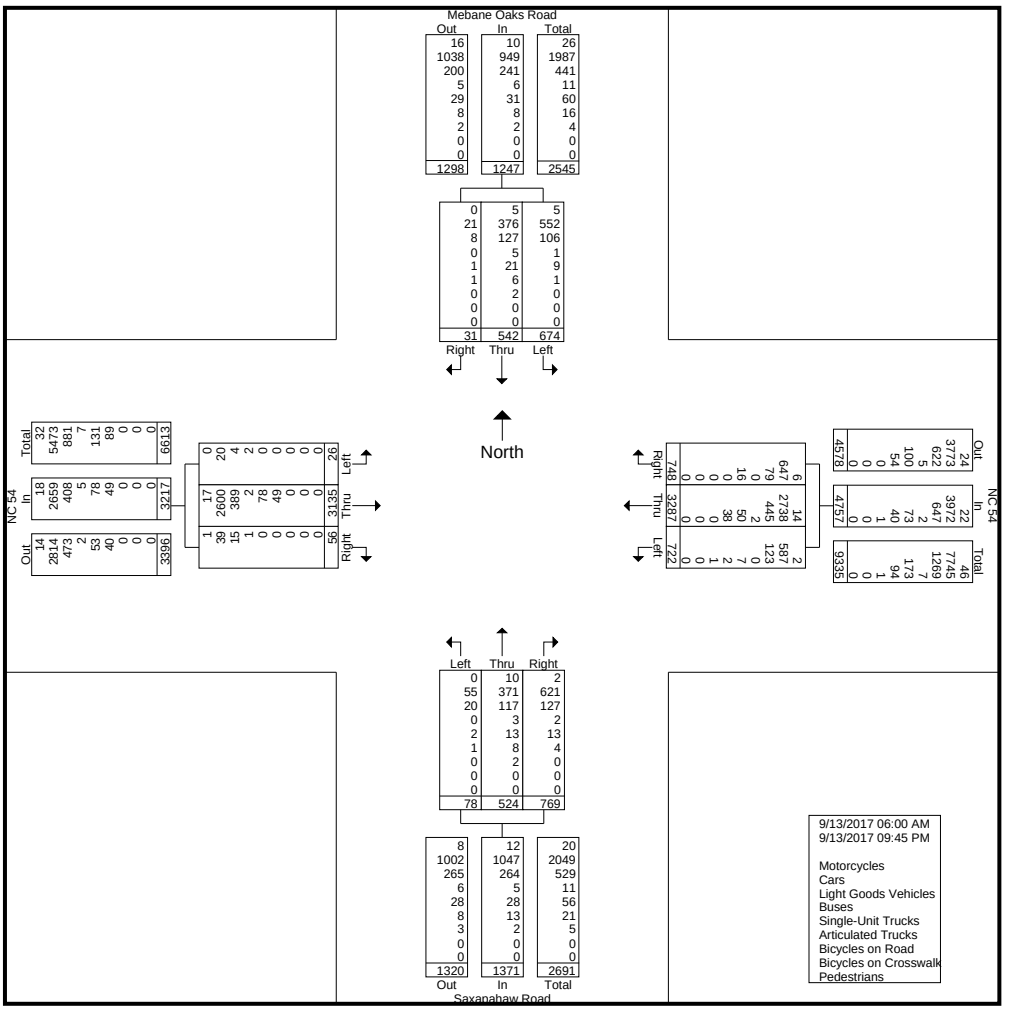
Groups Printed- Motorcycles - Cars - Light Goods Vehicles - Buses - Unit Trucks - Articulated Trucks - Bicycles on Road - Bicycles on Crosswalk - Pedestrians

	Mebane Oaks Road Southbound				NC 54 Westbound				Saxapahaw Road Northbound				NC 54 Eastbound						
Start Time	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Exclu. Total	Inclu. Total	Int. Total
05:00 PM	11	16	0	0	27	137	38	0	1	7	7	0	1	38	1	0	0	284	284
05:15 PM	11	19	1	0	31	150	42	0	2	9	11	0	0	33	0	0	0	309	309
05:30 PM	13	16	0	0	21	129	33	0	0	7	9	0	1	64	0	0	0	293	293
05:45 PM	8	14	2	0	27	99	29	0	1	11	11	0	0	48	0	0	0	250	250
Total	43	65	3	0	106	515	142	0	4	34	38	0	2	183	1	0	0	1136	1136
06:00 PM	12	14	0	0	23	88	18	0	0	10	7	0	0	61	0	0	0	233	233
06:15 PM	16	14	1	0	26	55	20	0	1	7	7	0	0	50	2	0	0	199	199
06:30 PM	11	11	0	0	16	64	22	0	1	6	6	0	2	32	2	0	0	173	173
06:45 PM	10	3	2	0	15	58	14	0	1	4	9	0	1	33	2	0	0	152	152
Total	49	42	3	0	80	265	74	0	3	27	29	0	3	176	6	0	0	757	757
07:00 PM	4	9	0	0	19	49	13	0	0	7	6	0	0	40	2	0	0	149	149
07:15 PM	5	6	0	0	11	52	12	0	0	6	4	0	0	30	0	0	0	126	126
07:30 PM	10	5	0	0	7	34	13	0	0	1	4	0	1	24	2	0	0	101	101
07:45 PM	7	7	1	0	6	39	11	0	1	4	5	0	0	18	0	0	0	99	99
Total	26	27	1	0	43	174	49	0	1	18	19	0	1	112	4	0	0	475	475
08:00 PM	9	5	0	0	7	37	7	0	1	5	8	0	0	14	0	0	0	93	93
08:15 PM	4	7	0	0	8	36	9	0	1	2	2	0	0	20	2	0	0	91	91
08:30 PM	12	6	0	0	13	28	4	0	0	2	6	0	0	12	0	0	0	83	83
08:45 PM	7	9	0	0	10	24	9	0	2	6	3	0	0	13	5	0	0	88	88
Total	32	27	0	0	38	125	29	0	4	15	19	0	0	59	7	0	0	355	355
09:00 PM	4	1	1	0	10	38	6	0	0	6	2	0	2	18	2	0	0	90	90
09:15 PM	5	6	0	0	3	24	6	0	0	3	2	0	0	17	0	0	0	66	66
09:30 PM	4	4	1	0	4	19	2	0	0	2	1	0	1	17	0	0	0	55	55
09:45 PM	1	4	0	0	6	16	4	0	0	2	2	0	0	11	0	0	0	46	46
Total	14	15	2	0	23	97	18	0	0	13	7	0	3	63	2	0	0	257	257
Grand Total	674	542	31	0	722	3287	748	1	78	524	769	0	26	3135	56	0	1	10592	10593
Apprch %	54	43.5	2.5		15.2	69.1	15.7		5.7	38.2	56.1		0.8	97.5	1.7				
Total %	6.4	5.1	0.3		6.8	31	7.1		0.7	4.9	7.3		0.2	29.6	0.5		0	100	
Motorcycles	5	5	0		2	14	6		0	10	2		0	17	1		0	0	62
% Motorcycles	0.7	0.9	0	0	0.3	0.4	0.8	0	0	1.9	0.3	0	0	0.5	1.8	0	0	0	0.6
Cars	552	376	21		587	2738	647		55	371	621		20	2600	39		0	0	8627
% Cars	81.9	69.4	67.7	0	81.3	83.3	86.5	0	70.5	70.8	80.8	0	76.9	82.9	69.6	0	0	0	81.4
Light Goods Vehicles	106	127	8		123	445	79		20	117	127		4	389	15		0	0	1560
% Light Goods Vehicles	15.7	23.4	25.8	0	17	13.5	10.6	0	25.6	22.3	16.5	0	15.4	12.4	26.8	0	0	0	14.7
Buses	1	5	0		0	2	0		0	3	2		2	2	1		0	0	18
% Buses	0.1	0.9	0	0	0	0.1	0	0	0	0.6	0.3	0	7.7	0.1	1.8	0	0	0	0.2
Single-Unit Trucks	9	21	1		7	50	16		2	13	13		0	78	0		0	0	210
% Single-Unit Trucks	1.3	3.9	3.2	0	1	1.5	2.1	0	2.6	2.5	1.7	0	0	2.5	0	0	0	0	2
Articulated Trucks	1	6	1		2	38	0		1	8	4		0	49	0		0	0	110
% Articulated Trucks	0.1	1.1	3.2	0	0.3	1.2	0	0	1.3	1.5	0.5	0	0	1.6	0	0	0	0	1
Bicycles on Road	0	2	0		1	0	0		0	2	0		0	0	0		0	0	5
% Bicycles on Road	0	0.4	0	0	0.1	0	0	0	0	0.4	0	0	0	0	0	0	0	0	0
Bicycles on Crosswalk	0	0	0		0	0	0		0	0	0		0	0	0		0	0	1
% Bicycles on Crosswalk	0	0	0	0	0	0	0	100	0	0	0	0	0	0	0	0	0	0	0
Pedestrians	0	0	0		0	0	0		0	0	0		0	0	0		0	0	0
% Pedestrians	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

VHB Engineering NC, P.C.

Venture I
940 Main Campus Drive, Suite 500
Raleigh, NC 27606
p: 919.829.0328 f: 919.833.0034

File Name : NC54@Mebane
Site Code :
Start Date : 9/13/2017
Page No : 3



VHB Engineering NC, P.C.

Venture I
940 Main Campus Drive, Suite 500
Raleigh, NC 27606
p: 919.829.0328 f: 919.833.0034

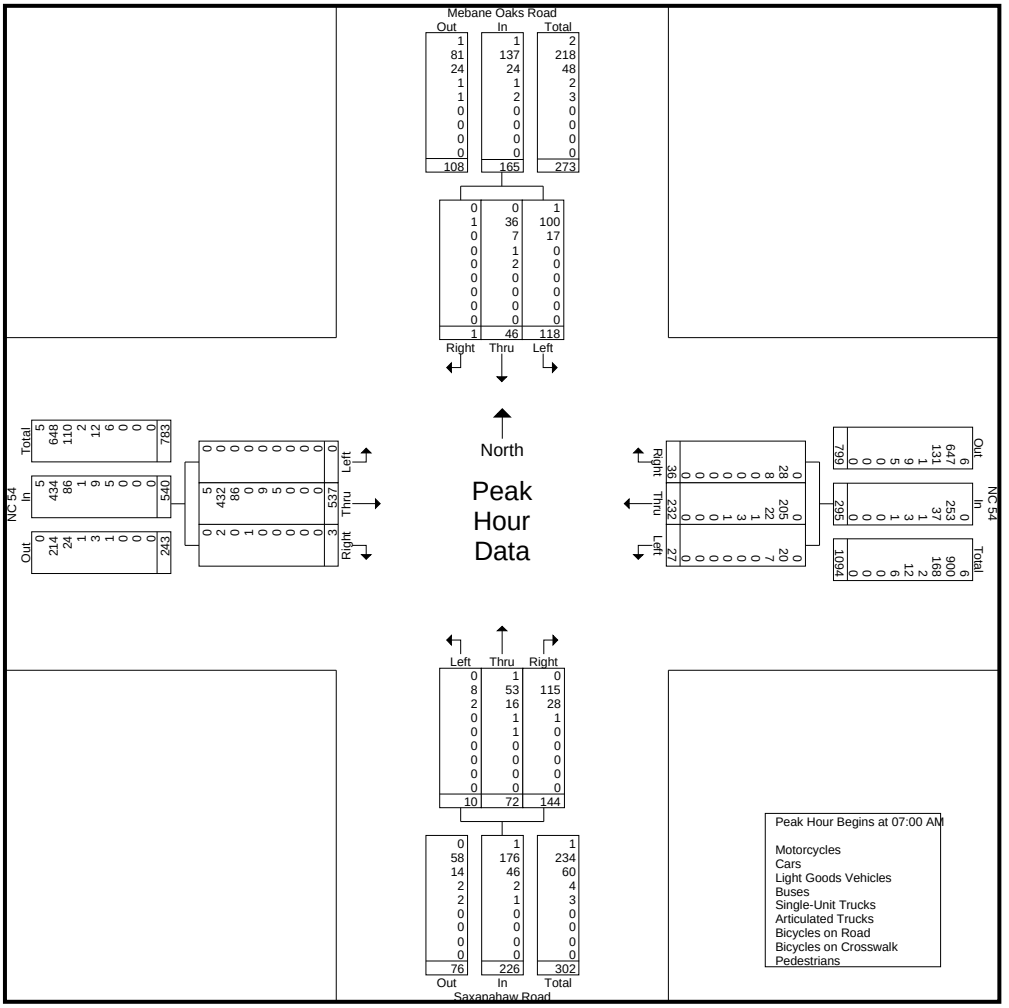
File Name : NC54@Mebane
Site Code :
Start Date : 9/13/2017
Page No : 4

	Mebane Oaks Road Southbound				NC 54 Westbound				Saxapahaw Road Northbound				NC 54 Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 06:00 AM to 11:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:00 AM																	
07:00 AM	32	12	0	44	3	48	6	57	3	13	40	56	0	130	1	131	288
07:15 AM	34	7	0	41	5	59	9	73	3	17	37	57	0	162	0	162	333
07:30 AM	23	11	1	35	6	61	12	79	2	28	44	74	0	125	1	126	314
07:45 AM	29	16	0	45	13	64	9	86	2	14	23	39	0	120	1	121	291
Total Volume	118	46	1	165	27	232	36	295	10	72	144	226	0	537	3	540	1226
% App. Total	71.5	27.9	0.6		9.2	78.6	12.2		4.4	31.9	63.7		0	99.4	0.6		
PHF	.868	.719	.250	.917	.519	.906	.750	.858	.833	.643	.818	.764	.000	.829	.750	.833	.920
Motorcycles	1	0	0	1	0	0	0	0	0	1	0	1	0	5	0	5	7
% Motorcycles	0.8	0	0	0.6	0	0	0	0	0	1.4	0	0.4	0	0.9	0	0.9	0.6
Cars	100	36	1	137	20	205	28	253	8	53	115	176	0	432	2	434	1000
% Cars	84.7	78.3	100	83.0	74.1	88.4	77.8	85.8	80.0	73.6	79.9	77.9	0	80.4	66.7	80.4	81.6
Light Goods Vehicles	17	7	0	24	7	22	8	37	2	16	28	46	0	86	0	86	193
% Light Goods Vehicles	14.4	15.2	0	14.5	25.9	9.5	22.2	12.5	20.0	22.2	19.4	20.4	0	16.0	0	15.9	15.7
Buses	0	1	0	1	0	1	0	1	0	1	1	2	0	0	1	1	5
% Buses	0	2.2	0	0.6	0	0.4	0	0.3	0	1.4	0.7	0.9	0	0	33.3	0.2	0.4
Single-Unit Trucks	0	2	0	2	0	3	0	3	0	1	0	1	0	9	0	9	15
% Single-Unit Trucks	0	4.3	0	1.2	0	1.3	0	1.0	0	1.4	0	0.4	0	1.7	0	1.7	1.2
Articulated Trucks	0	0	0	0	0	1	0	1	0	0	0	0	0	5	0	5	6
% Articulated Trucks	0	0	0	0	0	0.4	0	0.3	0	0	0	0	0	0.9	0	0.9	0.5
Bicycles on Road	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Bicycles on Road	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bicycles on Crosswalk	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Bicycles on Crosswalk	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrians	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Pedestrians	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

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Site Code :
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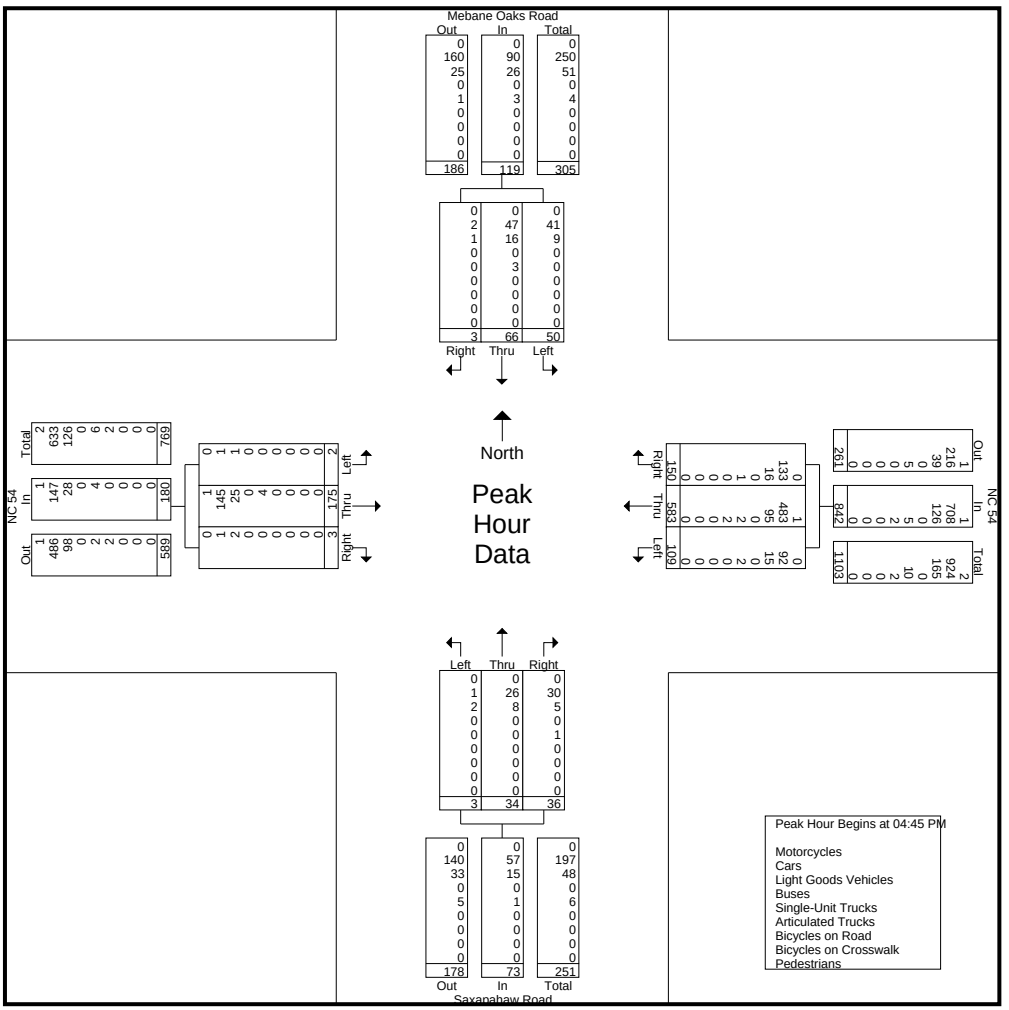


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p: 919.829.0328 f: 919.833.0034

File Name : NC54@Mebane
Site Code :
Start Date : 9/13/2017
Page No : 6

	Mebane Oaks Road Southbound				NC 54 Westbound				Saxapahaw Road Northbound				NC 54 Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 12:00 PM to 09:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:45 PM																	
04:45 PM	15	15	2	32	30	167	37	234	0	11	9	20	0	40	2	42	328
05:00 PM	11	16	0	27	27	137	38	202	1	7	7	15	1	38	1	40	284
05:15 PM	11	19	1	31	31	150	42	223	2	9	11	22	0	33	0	33	309
05:30 PM	13	16	0	29	21	129	33	183	0	7	9	16	1	64	0	65	293
Total Volume	50	66	3	119	109	583	150	842	3	34	36	73	2	175	3	180	1214
% App. Total	42	55.5	2.5		12.9	69.2	17.8		4.1	46.6	49.3		1.1	97.2	1.7		
PHF	.833	.868	.375	.930	.879	.873	.893	.900	.375	.773	.818	.830	.500	.684	.375	.692	.925
Motorcycles	0	0	0	0	0	1	0	1	0	0	0	0	0	1	0	1	2
% Motorcycles	0	0	0	0	0	0.2	0	0.1	0	0	0	0	0	0.6	0	0.6	0.2
Cars	41	47	2	90	92	483	133	708	1	26	30	57	1	145	1	147	1002
% Cars	82.0	71.2	66.7	75.6	84.4	82.8	88.7	84.1	33.3	76.5	83.3	78.1	50.0	82.9	33.3	81.7	82.5
Light Goods Vehicles	9	16	1	26	15	95	16	126	2	8	5	15	1	25	2	28	195
% Light Goods Vehicles	18.0	24.2	33.3	21.8	13.8	16.3	10.7	15.0	66.7	23.5	13.9	20.5	50.0	14.3	66.7	15.6	16.1
Buses	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Buses	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Single-Unit Trucks	0	3	0	3	2	2	1	5	0	0	1	1	0	4	0	4	13
% Single-Unit Trucks	0	4.5	0	2.5	1.8	0.3	0.7	0.6	0	0	2.8	1.4	0	2.3	0	2.2	1.1
Articulated Trucks	0	0	0	0	0	2	0	2	0	0	0	0	0	0	0	0	2
% Articulated Trucks	0	0	0	0	0	0.3	0	0.2	0	0	0	0	0	0	0	0	0.2
Bicycles on Road	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Bicycles on Road	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bicycles on Crosswalk	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Bicycles on Crosswalk	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrians	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Pedestrians	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0



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Venture I
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p: 919.829.0328 f: 919.833.0034

File Name : NC54@MtWillen
Site Code :
Start Date : 9/13/2017
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Groups Printed- Motorcycles - Cars - Light Goods Vehicles - Buses - Unit Trucks - Articulated Trucks - Bicycles on Road - Bicycles on Crosswalk - Pedestrians

	Mount Willen Street Southbound				NC 54 Westbound				Salem Church Road Northbound				NC 54 Eastbound						
Start Time	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Exclu. Total	Inclu. Total	Int. Total
06:00 AM	3	1	4	0	0	20	1	0	2	3	7	0	3	67	2	0	0	113	113
06:15 AM	1	1	2	0	0	38	4	0	7	8	5	0	1	81	0	0	0	148	148
06:30 AM	3	0	10	0	0	45	2	0	11	8	7	0	4	90	1	0	0	181	181
06:45 AM	10	1	6	0	0	45	5	0	2	7	6	0	4	108	1	0	0	195	195
Total	17	3	22	0	0	148	12	0	22	26	25	0	12	346	4	0	0	637	637
07:00 AM	2	1	8	0	2	77	1	0	11	10	9	0	1	121	3	0	0	246	246
07:15 AM	6	4	17	0	0	76	3	0	16	15	9	0	1	146	1	0	0	294	294
07:30 AM	2	0	12	0	1	100	3	0	18	18	5	0	4	129	4	1	1	296	297
07:45 AM	6	4	10	0	1	80	7	0	8	9	9	0	4	122	7	0	0	267	267
Total	16	9	47	0	4	333	14	0	53	52	32	0	10	518	15	1	1	1103	1104
08:00 AM	3	1	4	0	2	78	1	0	5	1	6	0	1	102	2	0	0	206	206
08:15 AM	1	3	4	0	1	52	3	0	12	3	2	0	2	106	2	0	0	191	191
08:30 AM	4	1	3	0	1	55	2	0	5	2	2	0	4	91	5	0	0	175	175
08:45 AM	1	5	3	0	0	51	0	0	3	3	2	0	4	51	4	0	0	127	127
Total	9	10	14	0	4	236	6	0	25	9	12	0	11	350	13	0	0	699	699
09:00 AM	0	3	3	0	1	36	0	0	5	3	4	0	5	67	4	0	0	131	131
09:15 AM	1	3	4	0	0	41	1	0	1	2	3	0	3	75	1	0	0	135	135
09:30 AM	1	2	5	0	0	36	2	0	2	2	4	0	3	65	1	0	0	123	123
09:45 AM	1	1	4	0	1	37	1	0	2	6	2	0	2	57	5	0	0	119	119
Total	3	9	16	0	2	150	4	0	10	13	13	0	13	264	11	0	0	508	508
10:00 AM	3	2	3	0	2	38	0	0	3	7	1	0	3	40	2	0	0	104	104
10:15 AM	2	1	2	0	2	43	3	0	4	1	3	0	8	48	1	0	0	118	118
10:30 AM	0	1	5	0	0	43	2	0	5	1	0	0	7	51	3	0	0	118	118
10:45 AM	3	6	4	0	0	38	3	0	2	7	1	0	1	35	4	0	0	104	104
Total	8	10	14	0	4	162	8	0	14	16	5	0	19	174	10	0	0	444	444
11:00 AM	5	3	6	0	2	46	1	0	3	2	2	0	6	43	6	0	0	125	125
11:15 AM	1	4	3	0	2	34	4	0	4	1	1	0	5	48	6	0	0	113	113
11:30 AM	4	1	5	0	2	39	5	0	3	2	1	0	5	51	6	0	0	124	124
11:45 AM	2	3	1	0	2	57	2	0	3	3	2	0	5	42	4	0	0	126	126
Total	12	11	15	0	8	176	12	0	13	8	6	0	21	184	22	0	0	488	488
12:00 PM	2	2	9	0	3	48	8	0	5	7	2	0	10	55	5	0	0	156	156
12:15 PM	3	5	11	1	1	39	2	1	3	2	0	0	6	59	5	0	2	136	138
12:30 PM	1	5	3	0	1	48	9	0	5	2	2	0	7	28	1	0	0	112	112
12:45 PM	8	1	6	0	2	53	3	0	5	3	4	0	9	66	3	0	0	163	163
Total	14	13	29	1	7	188	22	1	18	14	8	0	32	208	14	0	2	567	569
01:00 PM	2	1	8	0	1	56	1	0	7	4	2	0	6	47	9	0	0	144	144
01:15 PM	2	4	7	0	0	46	1	0	4	5	0	0	3	61	6	0	0	139	139
01:30 PM	3	8	5	0	1	48	1	0	6	2	0	0	5	60	8	0	0	147	147
01:45 PM	5	3	4	0	3	59	4	0	2	3	1	0	5	43	6	0	0	138	138
Total	12	16	24	0	5	209	7	0	19	14	3	0	19	211	29	0	0	568	568
02:00 PM	0	2	4	0	2	55	1	1	3	1	3	0	4	51	1	0	1	127	128
02:15 PM	2	5	2	0	2	52	0	0	4	3	1	0	4	61	4	0	0	140	140
02:30 PM	3	4	5	0	1	61	5	0	5	2	2	0	9	51	7	0	0	155	155
02:45 PM	3	7	4	0	1	61	1	0	6	3	1	0	4	54	7	0	0	152	152
Total	8	18	15	0	6	229	7	1	18	9	7	0	21	217	19	0	1	574	575
03:00 PM	5	2	7	0	5	64	4	0	4	2	3	0	3	65	9	0	0	173	173
03:15 PM	7	2	4	0	2	79	2	0	5	3	1	0	9	64	4	0	0	182	182
03:30 PM	4	6	5	0	4	105	8	0	4	3	2	0	7	63	7	0	0	218	218
03:45 PM	3	3	1	0	3	122	8	0	2	4	1	0	4	42	8	0	0	201	201
Total	19	13	17	0	14	370	22	0	15	12	7	0	23	234	28	0	0	774	774
04:00 PM	4	6	5	0	3	127	7	0	7	4	3	0	5	56	11	0	0	238	238
04:15 PM	2	5	7	0	7	113	5	0	3	7	1	0	3	72	13	0	0	238	238
04:30 PM	4	14	7	0	10	126	3	0	3	3	2	0	7	60	8	0	0	247	247
04:45 PM	2	9	3	0	9	145	1	0	4	5	3	0	15	49	7	0	0	252	252
Total	12	34	22	0	29	511	16	0	17	19	9	0	30	237	39	0	0	975	975

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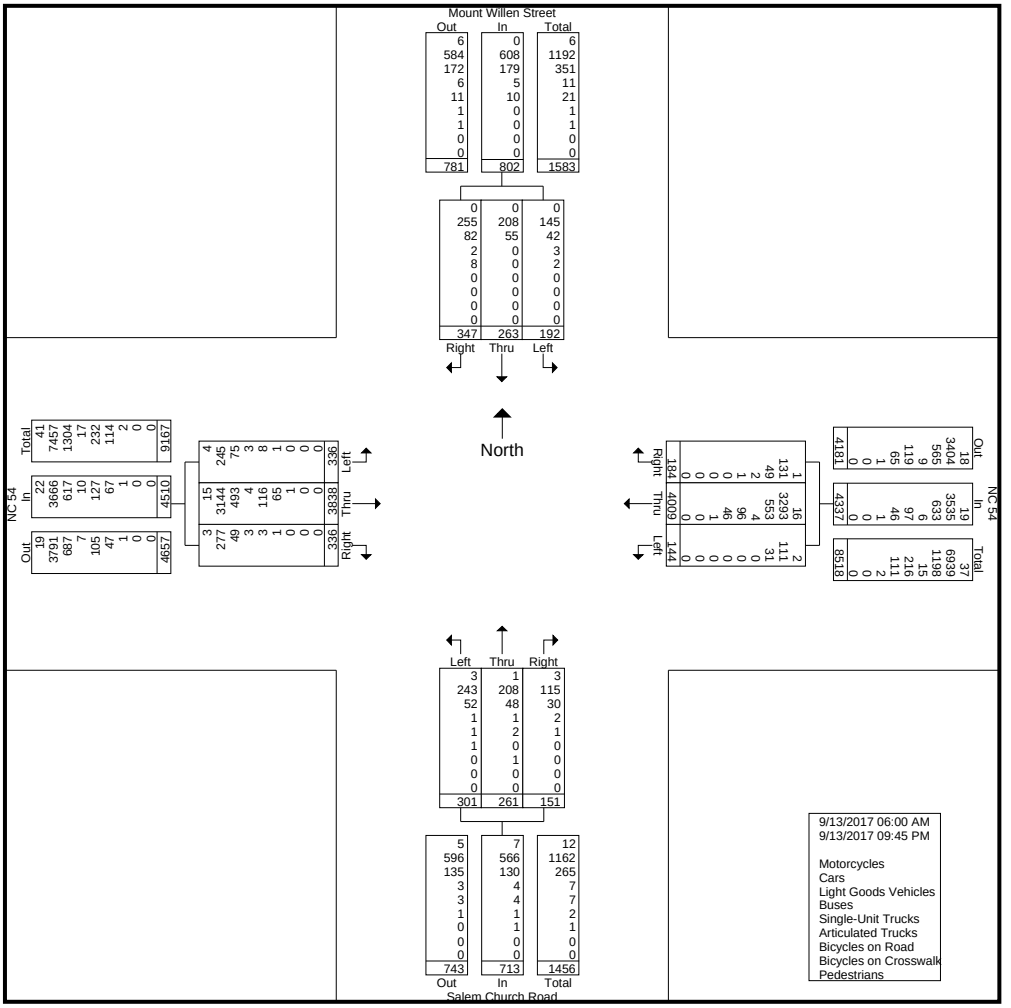
Groups Printed- Motorcycles - Cars - Light Goods Vehicles - Buses - Unit Trucks - Articulated Trucks - Bicycles on Road - Bicycles on Crosswalk - Pedestrians

	Mount Willen Street Southbound				NC 54 Westbound				Salem Church Road Northbound				NC 54 Eastbound						
Start Time	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Exclu. Total	Inclu. Total	Int. Total
05:00 PM	7	12	9	0	3	166	4	0	5	4	3	0	11	57	11	0	0	292	292
05:15 PM	5	10	7	0	9	152	1	0	3	2	2	0	12	63	13	0	0	279	279
05:30 PM	3	9	8	0	8	141	4	0	1	4	3	0	7	73	9	0	0	270	270
05:45 PM	1	6	7	0	5	124	5	0	5	4	1	0	8	73	9	0	0	248	248
Total	16	37	31	0	25	583	14	0	14	14	9	0	38	266	42	0	0	1089	1089
06:00 PM	2	12	9	0	5	79	3	0	8	10	3	0	10	87	7	0	0	235	235
06:15 PM	2	3	10	0	3	79	2	0	8	4	0	0	6	61	9	0	0	187	187
06:30 PM	4	12	3	0	2	73	6	0	4	6	0	0	11	46	6	0	0	173	173
06:45 PM	4	6	8	0	0	62	1	0	4	3	0	0	3	49	13	0	0	153	153
Total	12	33	30	0	10	293	12	0	24	23	3	0	30	243	35	0	0	748	748
07:00 PM	3	3	3	0	4	52	6	0	5	5	1	0	7	48	2	0	0	139	139
07:15 PM	4	8	8	0	4	54	6	0	7	3	2	0	10	44	4	0	0	154	154
07:30 PM	2	6	4	0	2	41	3	0	6	5	4	0	8	44	6	0	0	131	131
07:45 PM	3	3	5	0	3	39	4	0	3	6	1	0	4	33	9	0	0	113	113
Total	12	20	20	0	13	186	19	0	21	19	8	0	29	169	21	0	0	537	537
08:00 PM	3	3	9	0	2	47	4	0	2	2	0	0	3	30	3	0	0	108	108
08:15 PM	1	7	4	0	2	39	2	0	4	2	0	0	2	27	4	0	0	94	94
08:30 PM	3	3	5	0	3	26	0	0	5	0	1	0	2	26	5	0	0	79	79
08:45 PM	3	0	2	0	0	30	1	0	2	5	0	0	5	32	8	0	0	88	88
Total	10	13	20	0	7	142	7	0	13	9	1	0	12	115	20	0	0	369	369
09:00 PM	4	6	4	0	0	27	1	0	1	2	0	0	8	27	4	0	0	84	84
09:15 PM	2	6	2	0	1	28	1	0	3	1	0	0	4	29	5	0	0	82	82
09:30 PM	2	2	4	0	4	22	0	0	1	1	2	0	4	25	4	0	0	71	71
09:45 PM	4	0	1	0	1	16	0	0	0	0	1	0	0	21	1	0	0	45	45
Total	12	14	11	0	6	93	2	0	5	4	3	0	16	102	14	0	0	282	282
Grand Total	192	263	347	1	144	4009	184	2	301	261	151	0	336	3838	336	1	4	10362	10366
Apprch %	23.9	32.8	43.3		3.3	92.4	4.2		42.2	36.6	21.2		7.5	85.1	7.5				
Total %	1.9	2.5	3.3		1.4	38.7	1.8		2.9	2.5	1.5		3.2	37	3.2		0	100	
Motorcycles	0	0	0		2	16	1		3	1	3		4	15	3		0	0	48
% Motorcycles	0	0	0	0	1.4	0.4	0.5	0	1	0.4	2	0	1.2	0.4	0.9	0	0	0	0.5
Cars	145	208	255		111	3293	131		243	208	115		245	3144	277		0	0	8375
% Cars	75.5	79.1	73.5	0	77.1	82.1	71.2	0	80.7	79.7	76.2	0	72.9	81.9	82.4	0	0	0	80.8
Light Goods Vehicles	42	55	82		31	553	49		52	48	30		75	493	49		0	0	1559
% Light Goods Vehicles	21.9	20.9	23.6	0	21.5	13.8	26.6	0	17.3	18.4	19.9	0	22.3	12.8	14.6	0	0	0	15
Buses	3	0	2		0	4	2		1	1	2		3	4	3		0	0	25
% Buses	1.6	0	0.6	0	0	0.1	1.1	0	0.3	0.4	1.3	0	0.9	0.1	0.9	0	0	0	0.2
Single-Unit Trucks	2	0	8		0	96	1		1	2	1		8	116	3		0	0	238
% Single-Unit Trucks	1	0	2.3	0	0	2.4	0.5	0	0.3	0.8	0.7	0	2.4	3	0.9	0	0	0	2.3
Articulated Trucks	0	0	0		0	46	0		1	0	0		1	65	1		0	0	114
% Articulated Trucks	0	0	0	0	0	1.1	0	0	0.3	0	0	0	0.3	1.7	0.3	0	0	0	1.1
Bicycles on Road	0	0	0		0	1	0		0	1	0		0	1	0		0	0	3
% Bicycles on Road	0	0	0	0	0	0	0	0	0	0.4	0	0	0	0	0	0	0	0	0
Bicycles on Crosswalk	0	0	0		0	0	0		0	0	0		0	0	0		0	0	1
% Bicycles on Crosswalk	0	0	0	0	0	0	0	50	0	0	0	0	0	0	0	0	0	0	0
Pedestrians	0	0	0		0	0	0		0	0	0		0	0	0		0	0	3
% Pedestrians	0	0	0	100	0	0	0	50	0	0	0	0	0	0	0	100	0	0	0

VHB Engineering NC, P.C.

Venture I
940 Main Campus Drive, Suite 500
Raleigh, NC 27606
p: 919.829.0328 f: 919.833.0034

File Name : NC54@MtWillen
Site Code :
Start Date : 9/13/2017
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VHB Engineering NC, P.C.

Venture I
940 Main Campus Drive, Suite 500
Raleigh, NC 27606
p: 919.829.0328 f: 919.833.0034

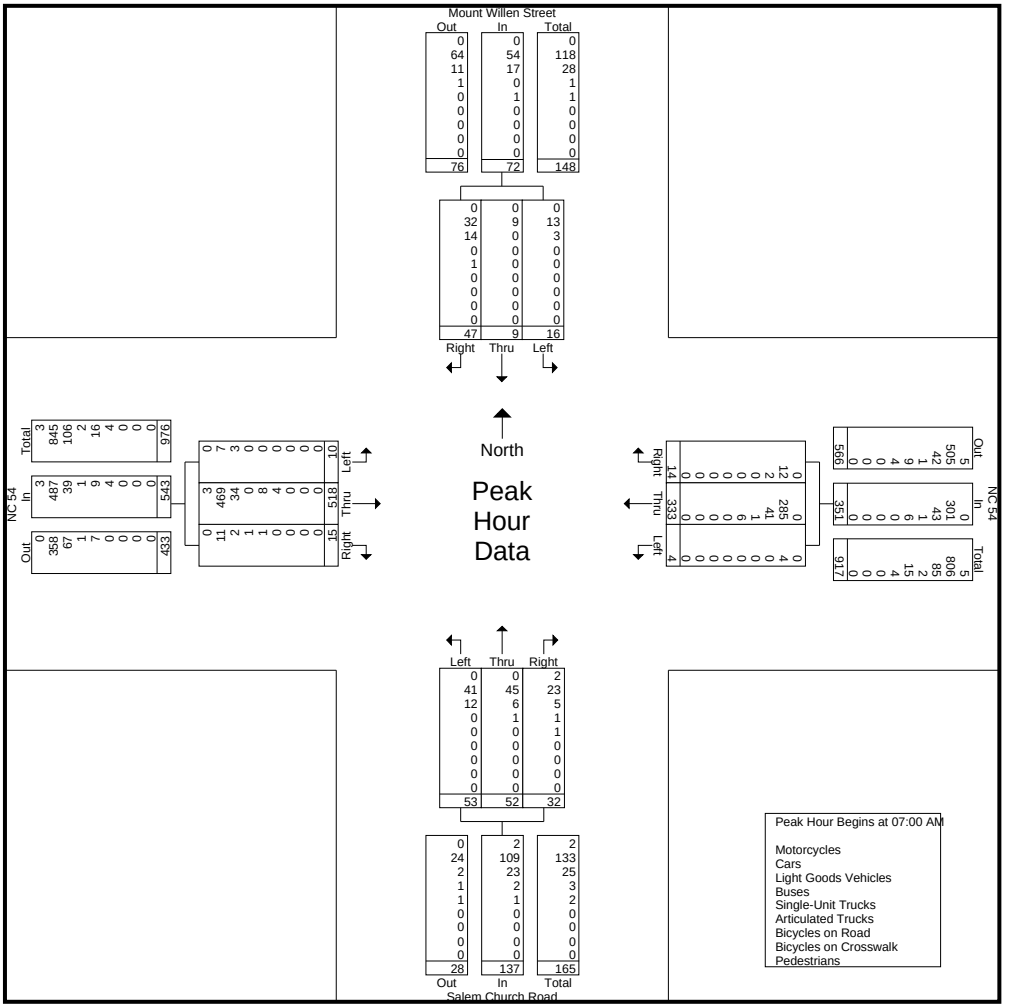
File Name : NC54@MtWillen
Site Code :
Start Date : 9/13/2017
Page No : 4

	Mount Willen Street Southbound				NC 54 Westbound				Salem Church Road Northbound				NC 54 Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 06:00 AM to 11:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:00 AM																	
07:00 AM	2	1	8	11	2	77	1	80	11	10	9	30	1	121	3	125	246
07:15 AM	6	4	17	27	0	76	3	79	16	15	9	40	1	146	1	148	294
07:30 AM	2	0	12	14	1	100	3	104	18	18	5	41	4	129	4	137	296
07:45 AM	6	4	10	20	1	80	7	88	8	9	9	26	4	122	7	133	267
Total Volume	16	9	47	72	4	333	14	351	53	52	32	137	10	518	15	543	1103
% App. Total	22.2	12.5	65.3		1.1	94.9	4		38.7	38	23.4		1.8	95.4	2.8		
PHF	.667	.563	.691	.667	.500	.833	.500	.844	.736	.722	.889	.835	.625	.887	.536	.917	.932
Motorcycles	0	0	0	0	0	0	0	0	0	0	2	2	0	3	0	3	5
% Motorcycles	0	0	0	0	0	0	0	0	0	0	6.3	1.5	0	0.6	0	0.6	0.5
Cars	13	9	32	54	4	285	12	301	41	45	23	109	7	469	11	487	951
% Cars	81.3	100	68.1	75.0	100	85.6	85.7	85.8	77.4	86.5	71.9	79.6	70.0	90.5	73.3	89.7	86.2
Light Goods Vehicles	3	0	14	17	0	41	2	43	12	6	5	23	3	34	2	39	122
% Light Goods Vehicles	18.8	0	29.8	23.6	0	12.3	14.3	12.3	22.6	11.5	15.6	16.8	30.0	6.6	13.3	7.2	11.1
Buses	0	0	0	0	0	1	0	1	0	1	1	2	0	0	1	1	4
% Buses	0	0	0	0	0	0.3	0	0.3	0	1.9	3.1	1.5	0	0	6.7	0.2	0.4
Single-Unit Trucks	0	0	1	1	0	6	0	6	0	0	1	1	0	8	1	9	17
% Single-Unit Trucks	0	0	2.1	1.4	0	1.8	0	1.7	0	0	3.1	0.7	0	1.5	6.7	1.7	1.5
Articulated Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0	4	0	4	4
% Articulated Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0	0.8	0	0.7	0.4
Bicycles on Road	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Bicycles on Road	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bicycles on Crosswalk	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Bicycles on Crosswalk	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrians	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Pedestrians	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

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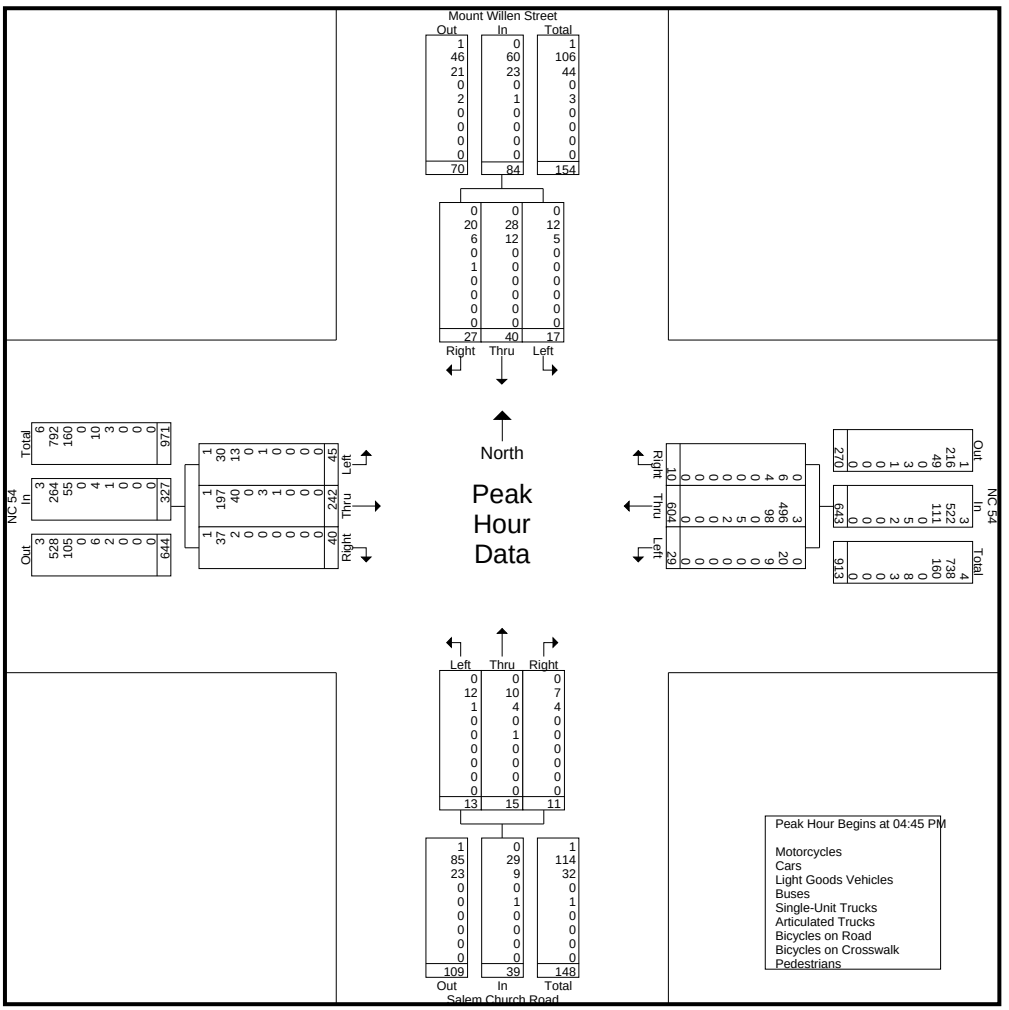


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File Name : NC54@MtWillen
Site Code :
Start Date : 9/13/2017
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	Mount Willen Street Southbound				NC 54 Westbound				Salem Church Road Northbound				NC 54 Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 12:00 PM to 09:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:45 PM																	
04:45 PM	2	9	3	14	9	145	1	155	4	5	3	12	15	49	7	71	252
05:00 PM	7	12	9	28	3	166	4	173	5	4	3	12	11	57	11	79	292
05:15 PM	5	10	7	22	9	152	1	162	3	2	2	7	12	63	13	88	279
05:30 PM	3	9	8	20	8	141	4	153	1	4	3	8	7	73	9	89	270
Total Volume	17	40	27	84	29	604	10	643	13	15	11	39	45	242	40	327	1093
% App. Total	20.2	47.6	32.1		4.5	93.9	1.6		33.3	38.5	28.2		13.8	74	12.2		
PHF	.607	.833	.750	.750	.806	.910	.625	.929	.650	.750	.917	.813	.750	.829	.769	.919	.936
Motorcycles	0	0	0	0	0	3	0	3	0	0	0	0	1	1	1	3	6
% Motorcycles	0	0	0	0	0	0.5	0	0.5	0	0	0	0	2.2	0.4	2.5	0.9	0.5
Cars	12	28	20	60	20	496	6	522	12	10	7	29	30	197	37	264	875
% Cars	70.6	70.0	74.1	71.4	69.0	82.1	60.0	81.2	92.3	66.7	63.6	74.4	66.7	81.4	92.5	80.7	80.1
Light Goods Vehicles	5	12	6	23	9	98	4	111	1	4	4	9	13	40	2	55	198
% Light Goods Vehicles	29.4	30.0	22.2	27.4	31.0	16.2	40.0	17.3	7.7	26.7	36.4	23.1	28.9	16.5	5.0	16.8	18.1
Buses	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Buses	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Single-Unit Trucks	0	0	1	1	0	5	0	5	0	1	0	1	1	3	0	4	11
% Single-Unit Trucks	0	0	3.7	1.2	0	0.8	0	0.8	0	6.7	0	2.6	2.2	1.2	0	1.2	1.0
Articulated Trucks	0	0	0	0	0	2	0	2	0	0	0	0	0	1	0	1	3
% Articulated Trucks	0	0	0	0	0	0.3	0	0.3	0	0	0	0	0	0.4	0	0.3	0.3
Bicycles on Road	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Bicycles on Road	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bicycles on Crosswalk	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Bicycles on Crosswalk	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrians	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Pedestrians	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0



VHB Engineering NC, P.C.

Venture I
940 Main Campus Drive, Suite 500
Raleigh, NC 27606
p: 919.829.0328 f: 919.833.0034

File Name : NC54@OldFayetteville
Site Code :
Start Date : 9/13/2017
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Groups Printed- Motorcycles - Cars - Light Goods Vehicles - Buses - Unit Trucks - Articulated Trucks - Bicycles on Road - Bicycles on Crosswalk - Pedestrians

	Old Fayettville Road Southbound				NC 54 Westbound				Old Fayettville Road Northbound				NC 54 Eastbound						
Start Time	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Exclu. Total	Inclu. Total	Int. Total
06:00 AM	24	4	1	0	0	20	9	0	1	1	0	0	3	62	4	0	0	129	129
06:15 AM	22	5	1	0	0	18	9	0	2	3	1	0	5	118	5	0	0	189	189
06:30 AM	36	5	3	0	0	27	18	0	2	4	0	0	2	154	7	0	0	258	258
06:45 AM	42	14	2	0	0	46	17	1	6	17	2	0	10	161	25	0	1	342	343
Total	124	28	7	0	0	111	53	1	11	25	3	0	20	495	41	0	1	918	919
07:00 AM	44	10	5	0	0	54	60	5	4	22	3	0	11	181	11	0	5	405	410
07:15 AM	88	15	5	0	2	64	47	1	9	40	4	0	34	260	13	0	1	581	582
07:30 AM	75	41	18	0	0	85	64	2	1	58	5	0	50	249	16	0	2	662	664
07:45 AM	116	53	20	0	0	82	79	0	8	39	7	0	32	253	29	0	0	718	718
Total	323	119	48	0	2	285	250	8	22	159	19	0	127	943	69	0	8	2366	2374
08:00 AM	120	32	11	0	2	57	69	0	8	44	3	0	9	200	21	0	0	576	576
08:15 AM	102	32	12	0	2	46	47	3	3	31	7	0	6	198	20	0	3	506	509
08:30 AM	75	42	10	0	7	52	45	0	7	28	9	0	9	189	23	0	0	496	496
08:45 AM	69	12	13	0	3	49	39	0	10	20	8	0	12	179	14	0	0	428	428
Total	366	118	46	0	14	204	200	3	28	123	27	0	36	766	78	0	3	2006	2009
09:00 AM	56	21	6	0	4	48	22	0	5	21	5	0	5	116	16	0	0	325	325
09:15 AM	51	14	8	0	4	61	31	0	6	17	3	0	11	107	12	0	0	325	325
09:30 AM	42	23	8	0	7	46	39	1	8	12	7	0	3	102	4	0	1	301	302
09:45 AM	33	24	10	0	8	53	24	1	7	13	8	0	5	113	10	0	1	308	309
Total	182	82	32	0	23	208	116	2	26	63	23	0	24	438	42	0	2	1259	1261
10:00 AM	35	15	10	0	4	48	26	1	12	14	3	0	7	93	8	0	1	275	276
10:15 AM	34	15	5	0	4	65	36	0	10	13	3	0	3	73	8	0	0	269	269
10:30 AM	33	10	4	0	6	65	25	0	11	13	12	0	5	75	11	0	0	270	270
10:45 AM	32	11	8	0	11	60	33	0	18	22	12	0	6	85	5	0	0	303	303
Total	134	51	27	0	25	238	120	1	51	62	30	0	21	326	32	0	1	1117	1118
11:00 AM	29	9	4	0	4	57	36	0	9	8	8	0	8	74	7	0	0	253	253
11:15 AM	27	19	3	0	5	70	35	1	5	12	10	0	8	70	8	0	1	272	273
11:30 AM	40	15	4	0	2	79	31	0	12	16	4	0	5	73	12	0	0	293	293
11:45 AM	31	9	6	0	1	63	39	1	8	16	7	0	7	78	6	0	1	271	272
Total	127	52	17	0	12	269	141	2	34	52	29	0	28	295	33	0	2	1089	1091
12:00 PM	26	26	10	0	4	63	39	0	16	13	7	0	7	67	9	0	0	287	287
12:15 PM	42	21	11	0	6	77	37	0	15	27	7	0	3	93	12	0	0	351	351
12:30 PM	35	21	9	0	12	69	39	1	20	31	4	0	8	73	10	0	1	331	332
12:45 PM	53	27	6	0	16	69	34	0	26	23	6	0	10	84	13	0	0	367	367
Total	156	95	36	0	38	278	149	1	77	94	24	0	28	317	44	0	1	1336	1337
01:00 PM	28	16	9	0	14	75	34	0	8	19	7	0	7	88	10	0	0	315	315
01:15 PM	43	24	7	0	10	87	41	0	13	24	6	0	7	69	14	0	0	345	345
01:30 PM	33	17	6	0	8	95	46	0	10	24	10	0	0	87	8	0	0	344	344
01:45 PM	35	17	6	0	7	84	36	0	16	16	3	0	3	99	9	0	0	331	331
Total	139	74	28	0	39	341	157	0	47	83	26	0	17	343	41	0	0	1335	1335
02:00 PM	29	12	9	0	12	82	45	0	18	17	6	0	10	82	11	0	0	333	333
02:15 PM	49	23	12	0	5	104	56	1	19	43	5	0	17	88	12	0	1	433	434
02:30 PM	40	29	18	0	11	109	37	0	22	21	6	0	10	82	14	0	0	399	399
02:45 PM	54	37	18	0	10	99	55	0	14	25	6	0	7	89	8	0	0	422	422
Total	172	101	57	0	38	394	193	1	73	106	23	0	44	341	45	0	1	1587	1588
03:00 PM	40	22	17	0	6	105	60	2	22	24	8	0	12	72	8	0	2	396	398
03:15 PM	73	35	25	0	6	153	63	1	25	27	4	0	8	99	12	0	1	530	531
03:30 PM	54	29	16	0	9	180	83	4	23	23	4	0	7	83	10	0	4	521	525
03:45 PM	54	24	18	0	11	176	45	0	31	34	6	0	9	86	8	0	0	502	502
Total	221	110	76	0	32	614	251	7	101	108	22	0	36	340	38	0	7	1949	1956
04:00 PM	49	39	23	0	5	182	45	0	39	20	8	0	2	63	5	0	0	480	480
04:15 PM	45	32	17	0	10	177	60	0	43	30	7	0	1	73	16	0	0	511	511
04:30 PM	56	31	26	0	11	208	55	0	47	26	6	0	6	89	13	0	0	574	574
04:45 PM	59	28	23	0	10	221	73	1	46	37	12	0	6	83	15	0	1	613	614
Total	209	130	89	0	36	788	233	1	175	113	33	0	15	308	49	0	1	2178	2179

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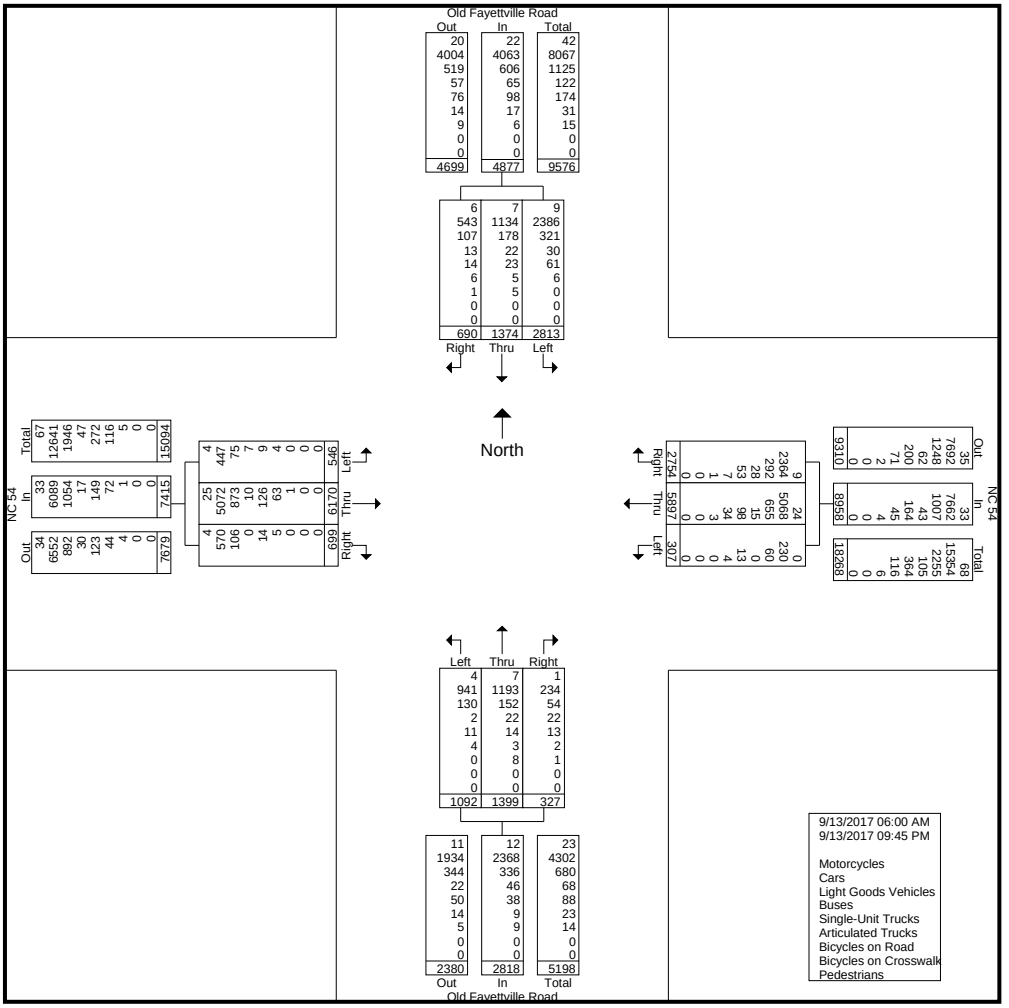
Groups Printed- Motorcycles - Cars - Light Goods Vehicles - Buses - Unit Trucks - Articulated Trucks - Bicycles on Road - Bicycles on Crosswalk - Pedestrians

	Old Fayettville Road Southbound				NC 54 Westbound				Old Fayettville Road Northbound				NC 54 Eastbound						
Start Time	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Exclu. Total	Inclu. Total	Int. Total
05:00 PM	50	33	21	0	8	235	101	1	46	41	6	0	17	85	14	0	1	657	658
05:15 PM	53	45	24	0	3	219	109	1	40	35	4	0	8	74	11	0	1	625	626
05:30 PM	67	31	18	0	3	197	88	0	38	33	5	0	7	67	15	0	0	569	569
05:45 PM	61	30	22	0	6	156	80	0	24	35	7	0	8	99	9	0	0	537	537
Total	231	139	85	0	20	807	378	2	148	144	22	0	40	325	49	0	2	2388	2390
06:00 PM	48	39	25	0	1	151	60	0	24	24	6	0	12	86	9	0	0	485	485
06:15 PM	61	30	23	0	2	152	74	0	33	20	4	0	12	117	12	0	0	540	540
06:30 PM	43	30	17	0	3	130	43	0	29	24	6	0	6	65	12	0	0	408	408
06:45 PM	33	24	5	0	1	119	58	3	22	22	2	0	10	76	13	0	3	385	388
Total	185	123	70	0	7	552	235	3	108	90	18	0	40	344	46	0	3	1818	1821
07:00 PM	23	26	5	0	5	101	38	2	23	25	5	0	6	82	13	0	2	352	354
07:15 PM	21	15	8	0	3	113	32	1	22	20	2	0	9	82	6	0	1	333	334
07:30 PM	29	13	8	0	3	90	38	1	19	18	3	0	8	64	7	0	1	300	301
07:45 PM	25	18	11	0	2	83	35	3	17	11	3	0	11	47	14	0	3	277	280
Total	98	72	32	0	13	387	143	7	81	74	13	0	34	275	40	0	7	1262	1269
08:00 PM	38	18	3	0	1	73	24	5	15	27	2	0	12	37	10	0	5	260	265
08:15 PM	24	16	11	0	1	62	22	5	27	17	2	0	2	51	10	0	5	245	250
08:30 PM	17	8	8	0	0	57	25	0	15	18	2	0	4	37	9	0	0	200	200
08:45 PM	22	7	6	0	0	58	12	0	17	13	0	0	2	34	4	0	0	175	175
Total	101	49	28	0	2	250	83	10	74	75	6	0	20	159	33	0	10	880	890
09:00 PM	14	12	1	0	2	42	14	0	12	11	5	0	6	32	4	0	0	155	155
09:15 PM	13	8	4	0	0	44	15	0	5	4	2	0	4	50	8	0	0	157	157
09:30 PM	7	8	4	0	2	46	18	0	11	9	1	0	5	45	4	0	0	160	160
09:45 PM	11	3	3	0	2	39	5	0	8	4	1	0	1	28	3	0	0	108	108
Total	45	31	12	0	6	171	52	0	36	28	9	0	16	155	19	0	0	580	580
Grand Total	2813	1374	690	0	307	5897	2754	49	1092	1399	327	0	546	6170	699	0	49	24068	24117
Apprch %	57.7	28.2	14.1		3.4	65.8	30.7		38.8	49.6	11.6		7.4	83.2	9.4				
Total %	11.7	5.7	2.9		1.3	24.5	11.4		4.5	5.8	1.4		2.3	25.6	2.9		0.2	99.8	
Motorcycles	9	7	6		0	24	9		4	7	1		4	25	4		0	0	100
% Motorcycles	0.3	0.5	0.9	0	0	0.4	0.3	0	0.4	0.5	0.3	0	0.7	0.4	0.6	0	0	0	0.4
Cars	2386	1134	543		230	5068	2364		941	1193	234		447	5072	570		0	0	20182
% Cars	84.8	82.5	78.7	0	74.9	85.9	85.8	0	86.2	85.3	71.6	0	81.9	82.2	81.5	0	0	0	83.7
Light Goods Vehicles	321	178	107		60	655	292		130	152	54		75	873	106		0	0	3003
% Light Goods Vehicles	11.4	13	15.5	0	19.5	11.1	10.6	0	11.9	10.9	16.5	0	13.7	14.1	15.2	0	0	0	12.5
Buses	30	22	13		0	15	28		2	22	22		7	10	0		0	0	171
% Buses	1.1	1.6	1.9	0	0	0.3	1	0	0.2	1.6	6.7	0	1.3	0.2	0	0	0	0	0.7
Single-Unit Trucks	61	23	14		13	98	53		11	14	13		9	126	14		0	0	449
% Single-Unit Trucks	2.2	1.7	2	0	4.2	1.7	1.9	0	1	1	4	0	1.6	2	2	0	0	0	1.9
Articulated Trucks	6	5	6		4	34	7		4	3	2		4	63	5		0	0	143
% Articulated Trucks	0.2	0.4	0.9	0	1.3	0.6	0.3	0	0.4	0.2	0.6	0	0.7	1	0.7	0	0	0	0.6
Bicycles on Road	0	5	1		0	3	1		0	8	1		0	1	0		0	0	20
% Bicycles on Road	0	0.4	0.1	0	0	0.1	0	0	0	0.6	0.3	0	0	0	0	0	0	0	0.1
Bicycles on Crosswalk	0	0	0		0	0	0		0	0	0		0	0	0		0	0	1
% Bicycles on Crosswalk	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0
Pedestrians	0	0	0		0	0	0		0	0	0		0	0	0		0	0	48
% Pedestrians	0	0	0	0	0	0	0	98	0	0	0	0	0	0	0	0	0	0	0.2

VHB Engineering NC, P.C.

Venture I
940 Main Campus Drive, Suite 500
Raleigh, NC 27606
p: 919.829.0328 f: 919.833.0034

File Name : NC54@OldFayetteville
Site Code :
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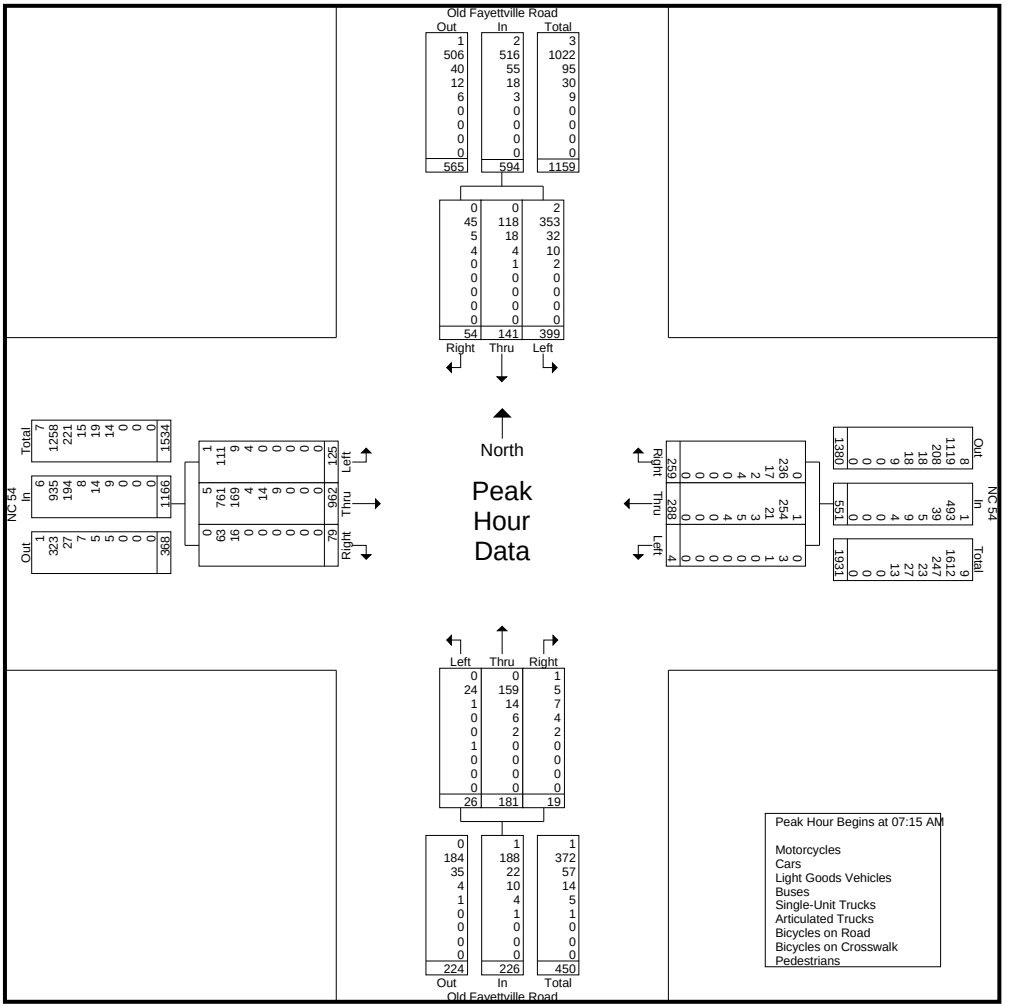
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Site Code :
Start Date : 9/13/2017
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	Old Fayettville Road Southbound				NC 54 Westbound				Old Fayettville Road Northbound				NC 54 Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 06:00 AM to 11:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:15 AM																	
07:15 AM	88	15	5	108	2	64	47	113	9	40	4	53	34	260	13	307	581
07:30 AM	75	41	18	134	0	85	64	149	1	58	5	64	50	249	16	315	662
07:45 AM	116	53	20	189	0	82	79	161	8	39	7	54	32	253	29	314	718
08:00 AM	120	32	11	163	2	57	69	128	8	44	3	55	9	200	21	230	576
Total Volume	399	141	54	594	4	288	259	551	26	181	19	226	125	962	79	1166	2537
% App. Total	67.2	23.7	9.1		0.7	52.3	47		11.5	80.1	8.4		10.7	82.5	6.8		
PHF	.831	.665	.675	.786	.500	.847	.820	.856	.722	.780	.679	.883	.625	.925	.681	.925	.883
Motorcycles	2	0	0	2	0	1	0	1	0	0	1	1	1	5	0	6	10
% Motorcycles	0.5	0	0	0.3	0	0.3	0	0.2	0	0	5.3	0.4	0.8	0.5	0	0.5	0.4
Cars	353	118	45	516	3	254	236	493	24	159	5	188	111	761	63	935	2132
% Cars	88.5	83.7	83.3	86.9	75.0	88.2	91.1	89.5	92.3	87.8	26.3	83.2	88.8	79.1	79.7	80.2	84.0
Light Goods Vehicles	32	18	5	55	1	21	17	39	1	14	7	22	9	169	16	194	310
% Light Goods Vehicles	8.0	12.8	9.3	9.3	25.0	7.3	6.6	7.1	3.8	7.7	36.8	9.7	7.2	17.6	20.3	16.6	12.2
Buses	10	4	4	18	0	3	2	5	0	6	4	10	4	4	0	8	41
% Buses	2.5	2.8	7.4	3.0	0	1.0	0.8	0.9	0	3.3	21.1	4.4	3.2	0.4	0	0.7	1.6
Single-Unit Trucks	2	1	0	3	0	5	4	9	0	2	2	4	0	14	0	14	30
% Single-Unit Trucks	0.5	0.7	0	0.5	0	1.7	1.5	1.6	0	1.1	10.5	1.8	0	1.5	0	1.2	1.2
Articulated Trucks	0	0	0	0	0	4	0	4	1	0	0	1	0	9	0	9	14
% Articulated Trucks	0	0	0	0	0	1.4	0	0.7	3.8	0	0	0.4	0	0.9	0	0.8	0.6
Bicycles on Road	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Bicycles on Road	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bicycles on Crosswalk	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Bicycles on Crosswalk	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrians	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Pedestrians	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

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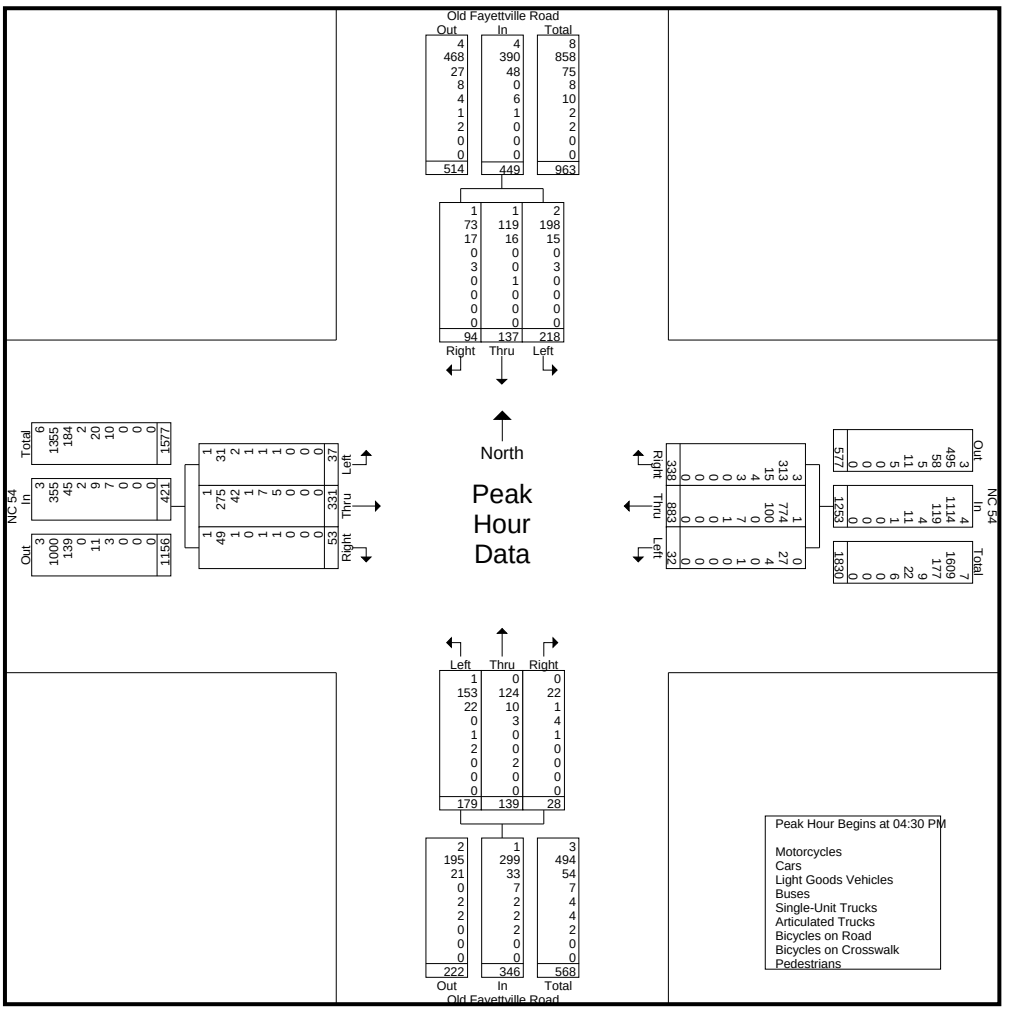


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File Name : NC54@OldFayetteville
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Start Date : 9/13/2017
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	Old Fayettville Road Southbound				NC 54 Westbound				Old Fayettville Road Northbound				NC 54 Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 12:00 PM to 09:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:30 PM																	
04:30 PM	56	31	26	113	11	208	55	274	47	26	6	79	6	89	13	108	574
04:45 PM	59	28	23	110	10	221	73	304	46	37	12	95	6	83	15	104	613
05:00 PM	50	33	21	104	8	235	101	344	46	41	6	93	17	85	14	116	657
05:15 PM	53	45	24	122	3	219	109	331	40	35	4	79	8	74	11	93	625
Total Volume	218	137	94	449	32	883	338	1253	179	139	28	346	37	331	53	421	2469
% App. Total	48.6	30.5	20.9		2.6	70.5	27		51.7	40.2	8.1		8.8	78.6	12.6		
PHF	.924	.761	.904	.920	.727	.939	.775	.911	.952	.848	.583	.911	.544	.930	.883	.907	.939
Motorcycles	2	1	1	4	0	1	3	4	1	0	0	1	1	1	1	3	12
% Motorcycles	0.9	0.7	1.1	0.9	0	0.1	0.9	0.3	0.6	0	0	0.3	2.7	0.3	1.9	0.7	0.5
Cars	198	119	73	390	27	774	313	1114	153	124	22	299	31	275	49	355	2158
% Cars	90.8	86.9	77.7	86.9	84.4	87.7	92.6	88.9	85.5	89.2	78.6	86.4	83.8	83.1	92.5	84.3	87.4
Light Goods Vehicles	15	16	17	48	4	100	15	119	22	10	1	33	2	42	1	45	245
% Light Goods Vehicles	6.9	11.7	18.1	10.7	12.5	11.3	4.4	9.5	12.3	7.2	3.6	9.5	5.4	12.7	1.9	10.7	9.9
Buses	0	0	0	0	0	0	4	4	0	3	4	7	1	1	0	2	13
% Buses	0	0	0	0	0	0	1.2	0.3	0	2.2	14.3	2.0	2.7	0.3	0	0.5	0.5
Single-Unit Trucks	3	0	3	6	1	7	3	11	1	0	1	2	1	7	1	9	28
% Single-Unit Trucks	1.4	0	3.2	1.3	3.1	0.8	0.9	0.9	0.6	0	3.6	0.6	2.7	2.1	1.9	2.1	1.1
Articulated Trucks	0	1	0	1	0	1	0	1	2	0	0	2	1	5	1	7	11
% Articulated Trucks	0	0.7	0	0.2	0	0.1	0	0.1	1.1	0	0	0.6	2.7	1.5	1.9	1.7	0.4
Bicycles on Road	0	0	0	0	0	0	0	0	0	2	0	2	0	0	0	0	2
% Bicycles on Road	0	0	0	0	0	0	0	0	0	1.4	0	0.6	0	0	0	0	0.1
Bicycles on Crosswalk	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Bicycles on Crosswalk	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrians	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Pedestrians	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0



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Venture I
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File Name : NC54@OrangeGrove
Site Code :
Start Date : 9/13/2017
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Groups Printed- Motorcycles - Cars - Light Goods Vehicles - Buses - Unit Trucks - Articulated Trucks - Bicycles on Road - Bicycles on Crosswalk - Pedestrians

	Orange Grove Road Southbound				NC 54 Westbound				No Approach Northbound				NC 54 Eastbound						
Start Time	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Exclu. Total	Inclu. Total	Int. Total
06:00 AM	4	0	2	0	0	22	1	0	0	0	0	0	3	75	0	0	0	107	107
06:15 AM	4	0	1	0	0	26	1	0	0	0	0	0	7	108	0	0	0	147	147
06:30 AM	12	0	3	0	0	33	1	0	0	0	0	0	7	175	0	0	0	231	231
06:45 AM	9	0	1	0	0	46	4	0	0	0	0	0	6	143	0	0	0	209	209
Total	29	0	7	0	0	127	7	0	0	0	0	0	23	501	0	0	0	694	694
07:00 AM	12	0	3	0	0	46	7	0	0	0	0	0	13	204	0	0	0	285	285
07:15 AM	7	0	2	0	0	79	9	0	0	0	0	0	14	237	0	0	0	348	348
07:30 AM	15	0	0	0	0	71	8	0	0	0	0	0	10	227	0	0	0	331	331
07:45 AM	19	0	5	0	0	85	6	0	0	0	0	0	8	171	0	0	0	294	294
Total	53	0	10	0	0	281	30	0	0	0	0	0	45	839	0	0	0	1258	1258
08:00 AM	6	0	4	0	0	67	7	0	0	0	0	0	6	183	0	0	0	273	273
08:15 AM	8	0	4	0	0	58	8	0	0	0	0	0	4	157	0	0	0	239	239
08:30 AM	12	0	4	0	0	56	7	0	0	0	0	0	4	140	0	0	0	223	223
08:45 AM	10	0	7	0	0	48	2	0	0	0	0	0	4	105	0	0	0	176	176
Total	36	0	19	0	0	229	24	0	0	0	0	0	18	585	0	0	0	911	911
09:00 AM	7	0	0	0	0	36	4	0	0	0	0	0	7	74	0	0	0	128	128
09:15 AM	7	0	8	0	0	35	6	0	0	0	0	0	5	91	0	0	0	152	152
09:30 AM	3	0	3	0	0	41	2	0	0	0	0	0	3	76	0	0	0	128	128
09:45 AM	7	0	6	0	0	26	7	0	0	0	0	0	2	76	0	0	0	124	124
Total	24	0	17	0	0	138	19	0	0	0	0	0	17	317	0	0	0	532	532
10:00 AM	7	0	0	0	0	51	2	0	0	0	0	0	3	56	0	0	0	119	119
10:15 AM	9	0	1	0	0	50	12	0	0	0	0	0	0	50	0	0	0	122	122
10:30 AM	9	0	9	0	0	35	6	0	0	0	0	0	4	65	0	0	0	128	128
10:45 AM	6	0	1	0	0	52	7	0	0	0	0	0	2	56	0	0	0	124	124
Total	31	0	11	0	0	188	27	0	0	0	0	0	9	227	0	0	0	493	493
11:00 AM	6	0	2	0	0	47	8	0	0	0	0	0	3	52	0	0	0	118	118
11:15 AM	9	0	4	0	0	43	10	0	0	0	0	0	5	38	0	0	0	109	109
11:30 AM	3	0	8	0	0	53	8	0	0	0	0	0	3	73	0	0	0	148	148
11:45 AM	7	0	6	0	0	46	6	0	0	0	0	0	2	48	0	0	0	115	115
Total	25	0	20	0	0	189	32	0	0	0	0	0	13	211	0	0	0	490	490
12:00 PM	7	0	5	0	0	50	6	0	0	0	0	0	6	62	0	0	0	136	136
12:15 PM	6	0	3	0	0	60	6	0	0	0	0	0	9	66	0	0	0	150	150
12:30 PM	9	0	3	0	0	59	10	0	0	0	0	0	2	67	0	0	0	150	150
12:45 PM	7	0	2	0	0	55	6	0	0	0	0	0	5	53	0	0	0	128	128
Total	29	0	13	0	0	224	28	0	0	0	0	0	22	248	0	0	0	564	564
01:00 PM	4	0	8	0	0	58	8	0	0	0	0	0	4	62	0	0	0	144	144
01:15 PM	7	0	8	0	0	50	7	0	0	0	0	0	1	51	0	0	0	124	124
01:30 PM	7	0	3	0	0	65	7	0	0	0	0	0	7	85	0	0	0	174	174
01:45 PM	6	0	7	0	0	58	11	0	0	0	0	0	3	50	0	0	0	135	135
Total	24	0	26	0	0	231	33	0	0	0	0	0	15	248	0	0	0	577	577
02:00 PM	10	0	0	0	0	71	5	0	0	0	0	0	2	53	0	0	0	141	141
02:15 PM	10	0	5	0	0	76	7	0	0	0	0	0	2	63	0	0	0	163	163
02:30 PM	6	0	0	0	0	64	5	0	0	0	0	0	3	62	0	0	0	140	140
02:45 PM	12	0	3	0	0	93	5	0	0	0	0	0	3	60	0	0	0	176	176
Total	38	0	8	0	0	304	22	0	0	0	0	0	10	238	0	0	0	620	620
03:00 PM	10	0	6	0	0	89	2	0	0	0	0	0	5	66	0	0	0	178	178
03:15 PM	3	0	5	0	0	113	6	0	0	0	0	0	1	53	0	0	0	181	181
03:30 PM	6	0	5	0	0	137	12	0	0	0	0	0	2	68	0	0	0	230	230
03:45 PM	6	0	3	0	0	182	13	0	0	0	0	0	5	48	0	0	0	257	257
Total	25	0	19	0	0	521	33	0	0	0	0	0	13	235	0	0	0	846	846
04:00 PM	13	0	8	0	0	172	12	0	0	0	0	1	7	61	0	0	1	273	274
04:15 PM	7	0	11	0	0	168	13	0	0	0	0	0	3	71	0	0	0	273	273
04:30 PM	4	0	9	0	0	162	10	0	0	0	0	0	4	78	0	0	0	267	267
04:45 PM	4	0	12	0	0	233	12	0	0	0	0	0	7	61	0	0	0	329	329
Total	28	0	40	0	0	735	47	0	0	0	0	1	21	271	0	0	1	1142	1143

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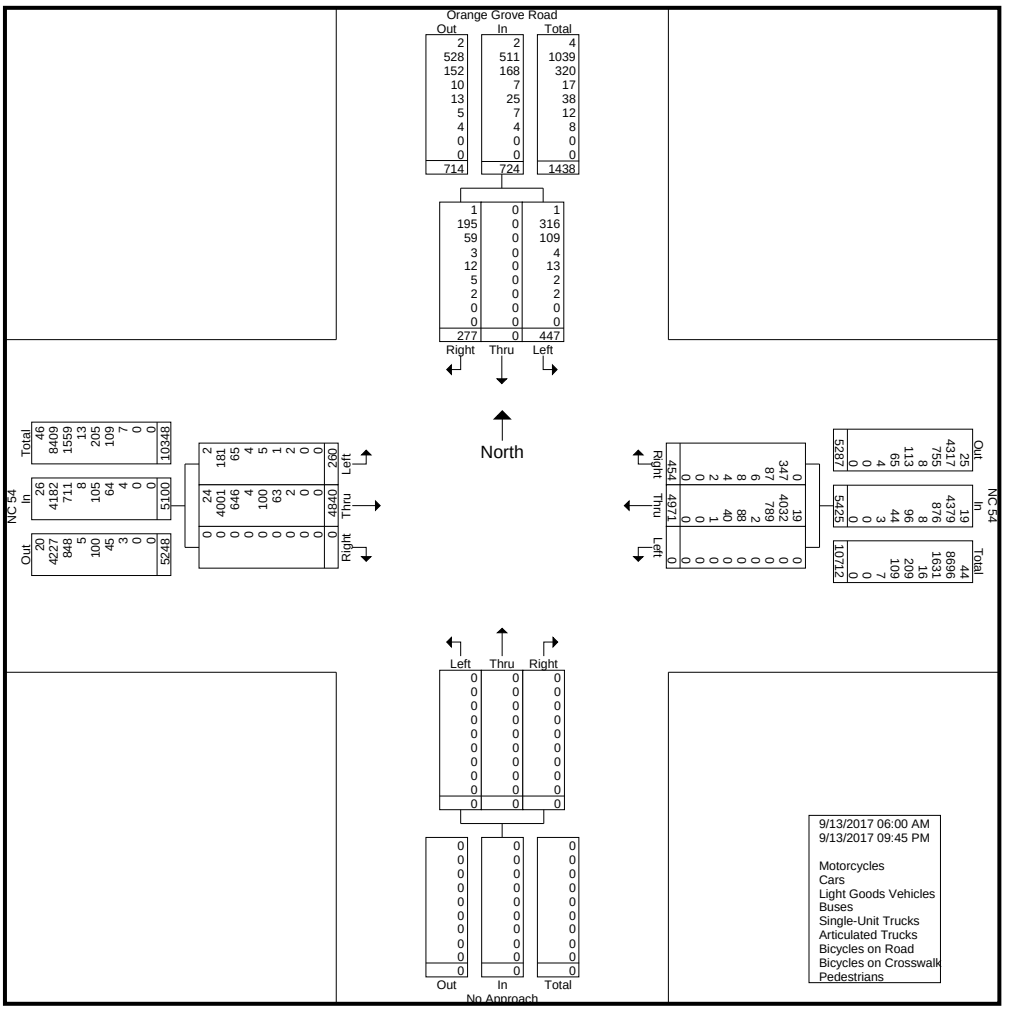
Groups Printed- Motorcycles - Cars - Light Goods Vehicles - Buses - Unit Trucks - Articulated Trucks - Bicycles on Road - Bicycles on Crosswalk - Pedestrians

	Orange Grove Road Southbound				NC 54 Westbound				No Approach Northbound				NC 54 Eastbound						
Start Time	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Exclu. Total	Inclu. Total	Int. Total
05:00 PM	12	0	9	0	0	206	7	0	0	0	0	0	0	62	0	0	0	296	296
05:15 PM	5	0	10	0	0	204	17	0	0	0	0	0	6	53	0	0	0	295	295
05:30 PM	5	0	10	0	0	198	12	0	0	0	0	0	3	86	0	0	0	314	314
05:45 PM	5	0	8	0	0	149	8	0	0	0	0	0	1	74	0	0	0	245	245
Total	27	0	37	0	0	757	44	0	0	0	0	0	10	275	0	0	0	1150	1150
06:00 PM	5	0	2	0	0	99	6	0	0	0	0	0	9	88	0	0	0	209	209
06:15 PM	9	0	7	0	0	121	13	0	0	0	0	0	4	82	0	0	0	236	236
06:30 PM	5	0	3	0	0	100	3	0	0	0	0	0	1	54	0	0	0	166	166
06:45 PM	5	0	2	0	0	98	12	0	0	0	0	0	4	59	0	0	0	180	180
Total	24	0	14	0	0	418	34	0	0	0	0	0	18	283	0	0	0	791	791
07:00 PM	9	0	4	0	0	86	10	0	0	0	0	0	4	53	0	0	0	166	166
07:15 PM	3	0	8	0	0	80	7	0	0	0	0	0	6	43	0	0	0	147	147
07:30 PM	9	0	0	0	0	67	8	0	0	0	0	0	2	39	0	0	0	125	125
07:45 PM	3	0	4	0	0	57	3	0	0	0	0	0	2	33	0	0	0	102	102
Total	24	0	16	0	0	290	28	0	0	0	0	0	14	168	0	0	0	540	540
08:00 PM	5	0	3	0	0	54	6	0	0	0	0	0	4	27	0	0	0	99	99
08:15 PM	3	0	6	0	0	63	6	0	0	0	0	0	1	29	0	0	0	108	108
08:30 PM	3	0	0	0	0	38	8	0	0	0	0	0	1	29	0	0	0	79	79
08:45 PM	7	0	1	0	0	44	5	0	0	0	0	0	0	25	0	0	0	82	82
Total	18	0	10	0	0	199	25	0	0	0	0	0	6	110	0	0	0	368	368
09:00 PM	2	0	4	0	0	50	7	0	0	0	0	0	2	24	0	0	0	89	89
09:15 PM	6	0	2	0	0	39	4	0	0	0	0	0	1	20	0	0	0	72	72
09:30 PM	3	0	0	0	0	23	3	0	0	0	0	0	3	26	0	0	0	58	58
09:45 PM	1	0	4	0	0	28	7	0	0	0	0	0	0	14	0	0	0	54	54
Total	12	0	10	0	0	140	21	0	0	0	0	0	6	84	0	0	0	273	273
Grand Total	447	0	277	0	0	4971	454	0	0	0	0	1	260	4840	0	0	1	11249	11250
Apprch %	61.7	0	38.3		0	91.6	8.4		0	0	0		5.1	94.9	0				
Total %	4	0	2.5		0	44.2	4		0	0	0		2.3	43	0		0	100	
Motorcycles	1	0	1		0	19	0		0	0	0		2	24	0		0	0	47
% Motorcycles	0.2	0	0.4	0	0	0.4	0	0	0	0	0	0	0.8	0.5	0	0	0	0	0.4
Cars	316	0	195		0	4032	347		0	0	0		181	4001	0		0	0	9072
% Cars	70.7	0	70.4	0	0	81.1	76.4	0	0	0	0	0	69.6	82.7	0	0	0	0	80.6
Light Goods Vehicles	109	0	59		0	789	87		0	0	0		65	646	0		0	0	1755
% Light Goods Vehicles	24.4	0	21.3	0	0	15.9	19.2	0	0	0	0	0	25	13.3	0	0	0	0	15.6
Buses	4	0	3		0	2	6		0	0	0		4	4	0		0	0	23
% Buses	0.9	0	1.1	0	0	0	1.3	0	0	0	0	0	1.5	0.1	0	0	0	0	0.2
Single-Unit Trucks	13	0	12		0	88	8		0	0	0		5	100	0		0	0	226
% Single-Unit Trucks	2.9	0	4.3	0	0	1.8	1.8	0	0	0	0	0	1.9	2.1	0	0	0	0	2
Articulated Trucks	2	0	5		0	40	4		0	0	0		1	63	0		0	0	115
% Articulated Trucks	0.4	0	1.8	0	0	0.8	0.9	0	0	0	0	0	0.4	1.3	0	0	0	0	1
Bicycles on Road	2	0	2		0	1	2		0	0	0		2	2	0		0	0	11
% Bicycles on Road	0.4	0	0.7	0	0	0	0.4	0	0	0	0	0	0.8	0	0	0	0	0	0.1
Bicycles on Crosswalk	0	0	0		0	0	0		0	0	0		0	0	0		0	0	0
% Bicycles on Crosswalk	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrians	0	0	0		0	0	0		0	0	0		0	0	0		0	0	1
% Pedestrians	0	0	0	0	0	0	0	0	0	0	0	100	0	0	0	0	0	0	0

VHB Engineering NC, P.C.

Venture I
940 Main Campus Drive, Suite 500
Raleigh, NC 27606
p: 919.829.0328 f: 919.833.0034

File Name : NC54@OrangeGrove
Site Code :
Start Date : 9/13/2017
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VHB Engineering NC, P.C.

Venture I
940 Main Campus Drive, Suite 500
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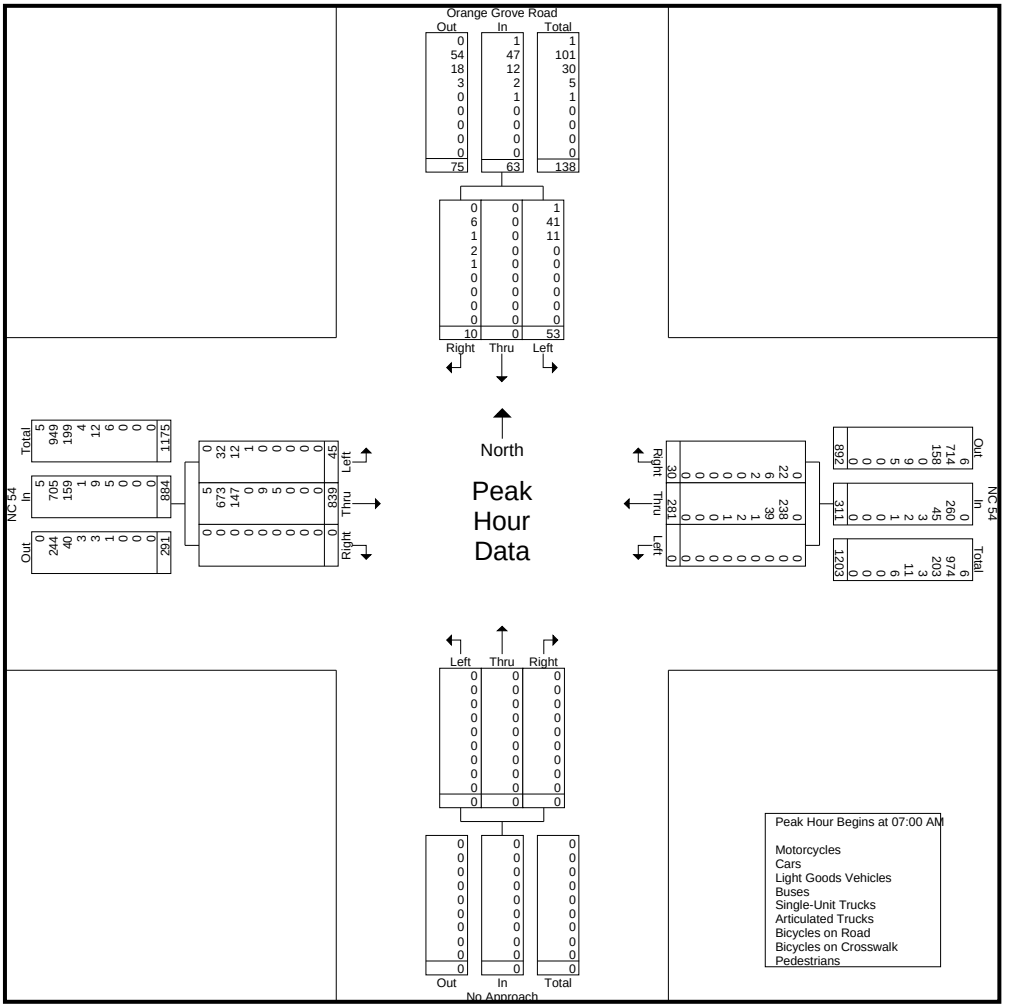
File Name : NC54@OrangeGrove
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	Orange Grove Road Southbound				NC 54 Westbound				No Approach Northbound				NC 54 Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 06:00 AM to 11:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:00 AM																	
07:00 AM	12	0	3	15	0	46	7	53	0	0	0	0	13	204	0	217	285
07:15 AM	7	0	2	9	0	79	9	88	0	0	0	0	14	237	0	251	348
07:30 AM	15	0	0	15	0	71	8	79	0	0	0	0	10	227	0	237	331
07:45 AM	19	0	5	24	0	85	6	91	0	0	0	0	8	171	0	179	294
Total Volume	53	0	10	63	0	281	30	311	0	0	0	0	45	839	0	884	1258
% App. Total	84.1	0	15.9		0	90.4	9.6		0	0	0		5.1	94.9	0		
PHF	.697	.000	.500	.656	.000	.826	.833	.854	.000	.000	.000	.000	.804	.885	.000	.880	.904
Motorcycles	1	0	0	1	0	0	0	0	0	0	0	0	0	5	0	5	6
% Motorcycles	1.9	0	0	1.6	0	0	0	0	0	0	0	0	0	0.6	0	0.6	0.5
Cars	41	0	6	47	0	238	22	260	0	0	0	0	32	673	0	705	1012
% Cars	77.4	0	60.0	74.6	0	84.7	73.3	83.6	0	0	0	0	71.1	80.2	0	79.8	80.4
Light Goods Vehicles	11	0	1	12	0	39	6	45	0	0	0	0	12	147	0	159	216
% Light Goods Vehicles	20.8	0	10.0	19.0	0	13.9	20.0	14.5	0	0	0	0	26.7	17.5	0	18.0	17.2
Buses	0	0	2	2	0	1	2	3	0	0	0	0	1	0	0	1	6
% Buses	0	0	20.0	3.2	0	0.4	6.7	1.0	0	0	0	0	2.2	0	0	0.1	0.5
Single-Unit Trucks	0	0	1	1	0	2	0	2	0	0	0	0	0	9	0	9	12
% Single-Unit Trucks	0	0	10.0	1.6	0	0.7	0	0.6	0	0	0	0	0	1.1	0	1.0	1.0
Articulated Trucks	0	0	0	0	0	1	0	1	0	0	0	0	0	5	0	5	6
% Articulated Trucks	0	0	0	0	0	0.4	0	0.3	0	0	0	0	0	0.6	0	0.6	0.5
Bicycles on Road	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Bicycles on Road	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bicycles on Crosswalk	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Bicycles on Crosswalk	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrians	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Pedestrians	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

VHB Engineering NC, P.C.

Venture I
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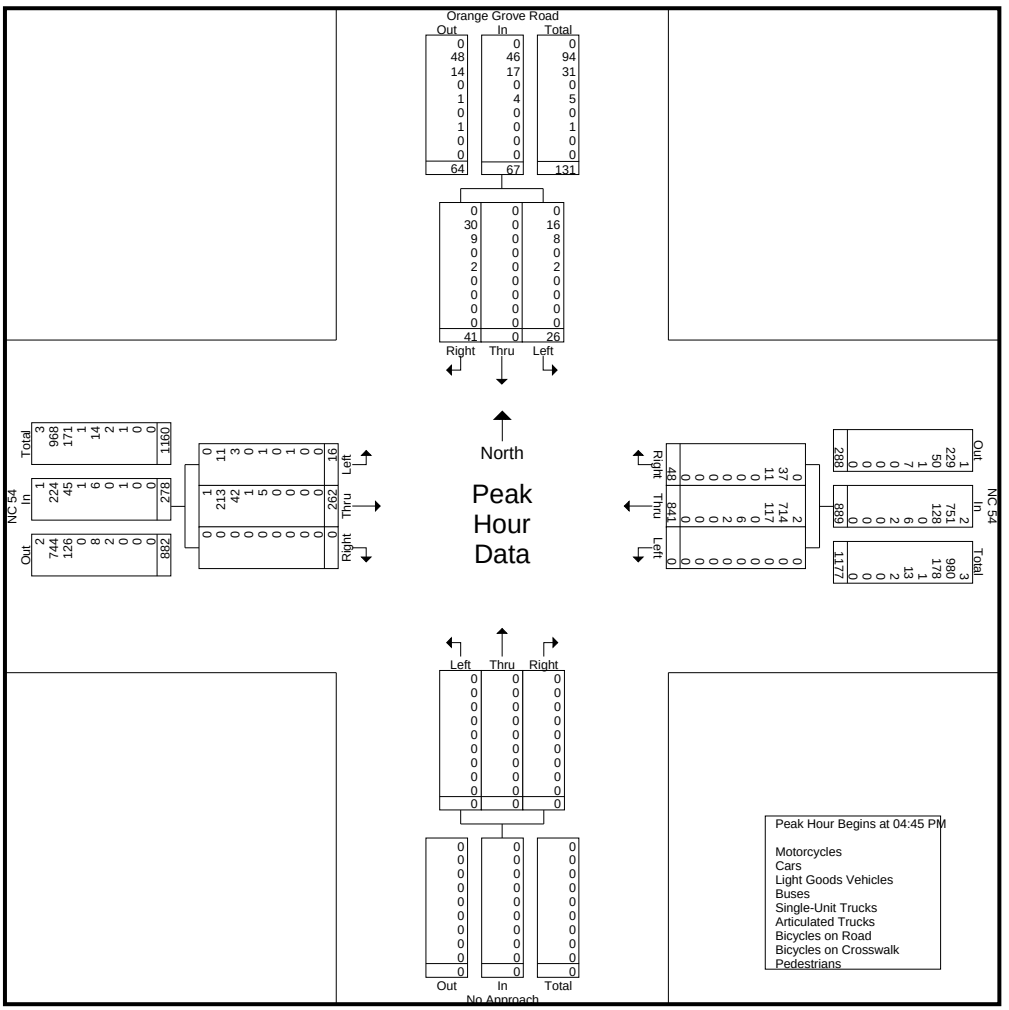


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	Orange Grove Road Southbound				NC 54 Westbound				No Approach Northbound				NC 54 Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 12:00 PM to 09:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:45 PM																	
04:45 PM	4	0	12	16	0	233	12	245	0	0	0	0	7	61	0	68	329
05:00 PM	12	0	9	21	0	206	7	213	0	0	0	0	0	62	0	62	296
05:15 PM	5	0	10	15	0	204	17	221	0	0	0	0	6	53	0	59	295
05:30 PM	5	0	10	15	0	198	12	210	0	0	0	0	3	86	0	89	314
Total Volume	26	0	41	67	0	841	48	889	0	0	0	0	16	262	0	278	1234
% App. Total	38.8	0	61.2		0	94.6	5.4		0	0	0		5.8	94.2	0		
PHF	.542	.000	.854	.798	.000	.902	.706	.907	.000	.000	.000	.000	.571	.762	.000	.781	.938
Motorcycles	0	0	0	0	0	2	0	2	0	0	0	0	0	1	0	1	3
% Motorcycles	0	0	0	0	0	0.2	0	0.2	0	0	0	0	0	0.4	0	0.4	0.2
Cars	16	0	30	46	0	714	37	751	0	0	0	0	11	213	0	224	1021
% Cars	61.5	0	73.2	68.7	0	84.9	77.1	84.5	0	0	0	0	68.8	81.3	0	80.6	82.7
Light Goods Vehicles	8	0	9	17	0	117	11	128	0	0	0	0	3	42	0	45	190
% Light Goods Vehicles	30.8	0	22.0	25.4	0	13.9	22.9	14.4	0	0	0	0	18.8	16.0	0	16.2	15.4
Buses	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	1
% Buses	0	0	0	0	0	0	0	0	0	0	0	0	0	0.4	0	0.4	0.1
Single-Unit Trucks	2	0	2	4	0	6	0	6	0	0	0	0	1	5	0	6	16
% Single-Unit Trucks	7.7	0	4.9	6.0	0	0.7	0	0.7	0	0	0	0	6.3	1.9	0	2.2	1.3
Articulated Trucks	0	0	0	0	0	2	0	2	0	0	0	0	0	0	0	0	2
% Articulated Trucks	0	0	0	0	0	0.2	0	0.2	0	0	0	0	0	0	0	0	0.2
Bicycles on Road	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	1
% Bicycles on Road	0	0	0	0	0	0	0	0	0	0	0	0	6.3	0	0	0.4	0.1
Bicycles on Crosswalk	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Bicycles on Crosswalk	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrians	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Pedestrians	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0



VHB Engineering NC, P.C.

Venture I
940 Main Campus Drive, Suite 500
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p: 919.829.0328 f: 919.833.0034

File Name : NC54@Woody
Site Code :
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Groups Printed- Motorcycles - Cars - Light Goods Vehicles - Buses - Unit Trucks - Articulated Trucks - Bicycles on Road - Bicycles on Crosswalk - Pedestrians

	Woody Drive Southbound				NC 54 (Harden Street) Westbound				Woody Drive Northbound				NC 54 (Harden Street) Eastbound						
Start Time	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Exclu. Total	Inclu. Total	Int. Total
06:00 AM	0	1	16	0	1	99	1	0	4	0	4	0	3	88	4	0	0	221	221
06:15 AM	0	1	12	0	3	124	0	0	11	2	5	0	2	88	5	0	0	253	253
06:30 AM	1	1	23	0	5	166	0	0	17	0	8	0	3	189	14	0	0	427	427
06:45 AM	5	0	16	0	11	144	2	0	12	0	6	0	6	180	22	0	0	404	404
Total	6	3	67	0	20	533	3	0	44	2	23	0	14	545	45	0	0	1305	1305
07:00 AM	6	3	42	0	4	157	0	0	16	1	6	0	6	207	17	0	0	465	465
07:15 AM	8	6	41	0	3	197	1	0	14	2	8	0	11	226	14	0	0	531	531
07:30 AM	8	1	45	0	8	256	0	0	17	0	9	0	6	166	9	0	0	525	525
07:45 AM	5	7	34	0	16	250	0	0	23	1	10	0	7	172	29	0	0	554	554
Total	27	17	162	0	31	860	1	0	70	4	33	0	30	771	69	0	0	2075	2075
08:00 AM	6	3	23	0	4	162	0	0	17	2	8	0	15	132	11	0	0	383	383
08:15 AM	6	0	21	0	8	160	0	0	17	2	16	0	13	119	8	0	0	370	370
08:30 AM	2	1	20	0	2	114	0	0	20	0	7	0	5	98	13	0	0	282	282
08:45 AM	0	1	17	0	10	116	1	0	13	0	3	0	6	81	5	1	1	253	254
Total	14	5	81	0	24	552	1	0	67	4	34	0	39	430	37	1	1	1288	1289
09:00 AM	0	0	16	0	4	97	3	0	8	1	11	0	5	112	10	0	0	267	267
09:15 AM	1	0	12	0	4	105	2	0	10	0	2	0	8	100	5	0	0	249	249
09:30 AM	1	1	15	0	7	91	1	0	9	0	7	0	2	109	6	0	0	249	249
09:45 AM	1	6	6	0	5	76	1	0	11	2	7	0	4	100	6	0	0	225	225
Total	3	7	49	0	20	369	7	0	38	3	27	0	19	421	27	0	0	990	990
10:00 AM	0	1	13	0	4	84	2	0	10	2	8	0	8	67	5	0	0	204	204
10:15 AM	0	0	6	0	4	90	0	0	12	2	13	0	6	95	10	0	0	238	238
10:30 AM	0	1	8	0	7	76	1	0	10	0	7	0	10	79	6	0	0	205	205
10:45 AM	0	1	10	0	1	94	1	0	12	0	2	0	7	87	5	0	0	220	220
Total	0	3	37	0	16	344	4	0	44	4	30	0	31	328	26	0	0	867	867
11:00 AM	1	0	11	0	6	88	0	0	15	0	10	0	8	121	7	0	0	267	267
11:15 AM	1	0	13	0	6	123	0	0	17	0	11	0	9	129	4	0	0	313	313
11:30 AM	0	3	15	0	9	112	3	0	13	2	10	0	10	102	14	0	0	293	293
11:45 AM	2	3	12	0	5	128	0	0	15	1	9	0	11	116	13	0	0	315	315
Total	4	6	51	0	26	451	3	0	60	3	40	0	38	468	38	0	0	1188	1188
12:00 PM	1	1	13	0	10	146	0	0	17	0	7	0	10	125	12	0	0	342	342
12:15 PM	0	2	13	0	9	135	2	0	17	1	7	0	12	110	8	0	0	316	316
12:30 PM	3	3	15	0	7	130	1	0	16	1	19	0	7	110	4	0	0	316	316
12:45 PM	2	0	13	0	4	125	1	0	12	0	21	0	8	128	13	0	0	327	327
Total	6	6	54	0	30	536	4	0	62	2	54	0	37	473	37	0	0	1301	1301
01:00 PM	4	2	15	0	8	125	2	0	16	2	9	0	11	111	6	0	0	311	311
01:15 PM	2	2	6	0	6	116	2	0	16	2	12	0	8	118	10	0	0	300	300
01:30 PM	2	1	12	0	8	121	1	0	12	0	8	0	15	106	4	0	0	290	290
01:45 PM	1	1	17	0	5	110	1	0	14	2	9	0	16	109	14	0	0	299	299
Total	9	6	50	0	27	472	6	0	58	6	38	0	50	444	34	0	0	1200	1200
02:00 PM	1	0	11	0	13	98	1	0	16	2	8	0	13	97	10	0	0	270	270
02:15 PM	1	1	8	0	3	128	0	0	16	0	7	0	8	142	9	0	0	323	323
02:30 PM	0	0	16	0	3	131	0	0	25	0	11	0	12	135	12	0	0	345	345
02:45 PM	1	1	11	0	6	111	2	0	14	2	12	0	18	136	15	0	0	329	329
Total	3	2	46	0	25	468	3	0	71	4	38	0	51	510	46	0	0	1267	1267
03:00 PM	2	3	18	0	7	114	2	0	13	2	14	0	12	156	8	0	0	351	351
03:15 PM	0	3	6	0	5	118	1	0	19	2	16	0	8	150	7	0	0	335	335
03:30 PM	0	3	12	0	6	157	2	1	39	3	20	0	14	164	6	0	1	426	427
03:45 PM	1	3	15	0	7	173	1	0	23	3	12	0	24	163	10	0	0	435	435
Total	3	12	51	0	25	562	6	1	94	10	62	0	58	633	31	0	1	1547	1548
04:00 PM	1	1	10	0	7	245	1	0	17	2	13	0	23	160	12	0	0	492	492
04:15 PM	4	2	14	0	5	257	1	0	16	4	13	0	17	153	7	0	0	493	493
04:30 PM	1	1	24	0	2	189	0	0	16	2	15	0	26	188	12	0	0	476	476
04:45 PM	3	4	16	0	5	182	1	0	19	0	12	0	21	193	10	0	0	466	466
Total	9	8	64	0	19	873	3	0	68	8	53	0	87	694	41	0	0	1927	1927

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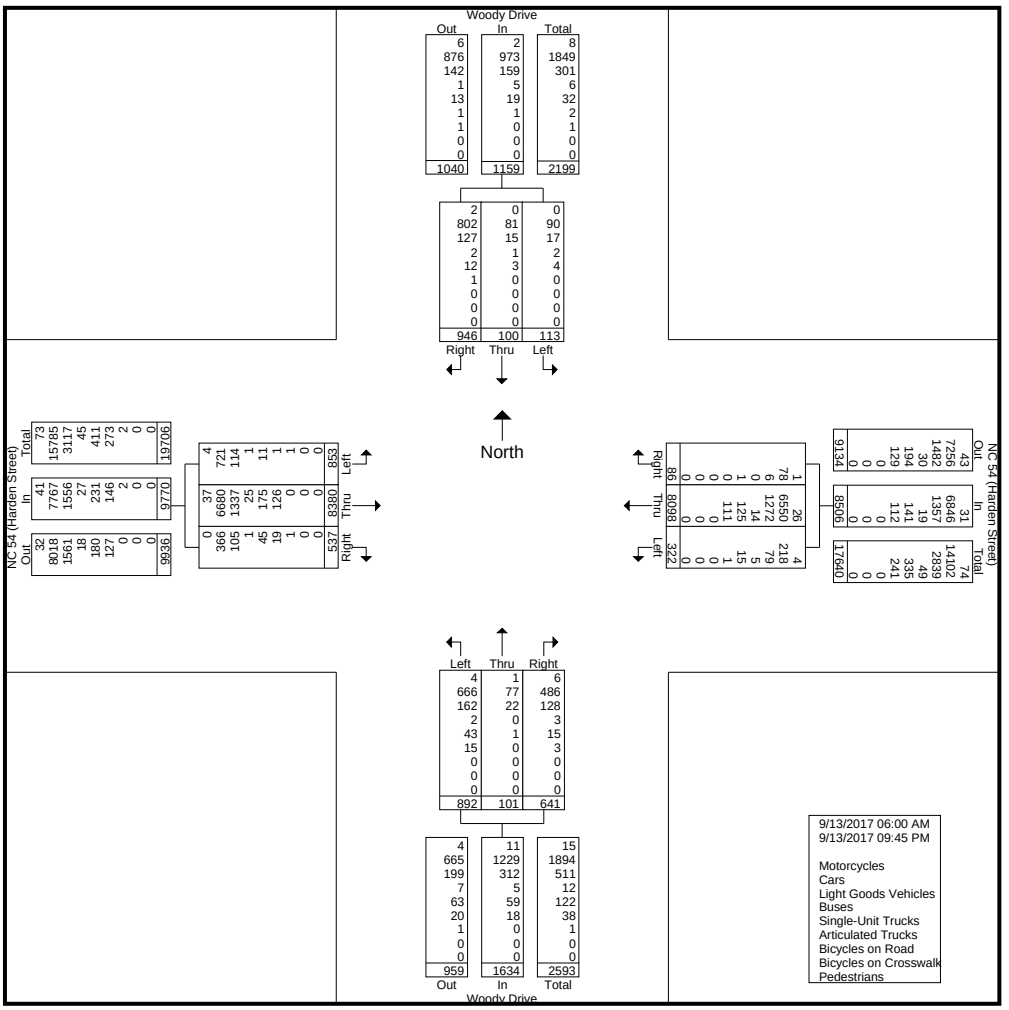
Groups Printed- Motorcycles - Cars - Light Goods Vehicles - Buses - Unit Trucks - Articulated Trucks - Bicycles on Road - Bicycles on Crosswalk - Pedestrians

	Woody Drive Southbound				NC 54 (Harden Street) Westbound				Woody Drive Northbound				NC 54 (Harden Street) Eastbound						
Start Time	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Exclu. Total	Inclu. Total	Int. Total
05:00 PM	4	0	24	0	2	181	3	0	26	3	11	0	20	215	7	0	0	496	496
05:15 PM	1	0	11	0	7	210	0	0	18	5	14	0	39	236	13	0	0	554	554
05:30 PM	3	2	16	0	3	203	5	0	20	2	21	0	27	204	6	0	0	512	512
05:45 PM	0	2	19	0	5	181	4	0	14	9	12	0	24	181	7	0	0	458	458
Total	8	4	70	0	17	775	12	0	78	19	58	0	110	836	33	0	0	2020	2020
06:00 PM	2	2	21	0	5	161	3	0	21	3	16	0	28	165	10	0	0	437	437
06:15 PM	4	2	20	0	1	137	1	0	17	4	17	0	28	140	2	0	0	373	373
06:30 PM	4	0	22	0	6	127	4	0	13	4	7	0	25	123	5	0	0	340	340
06:45 PM	3	3	7	0	1	121	4	0	10	1	15	0	13	112	7	0	0	297	297
Total	13	7	70	0	13	546	12	0	61	12	55	0	94	540	24	0	0	1447	1447
07:00 PM	2	2	10	0	2	93	3	0	7	1	9	0	25	112	3	0	0	269	269
07:15 PM	2	3	10	0	5	89	0	0	8	2	9	0	11	86	5	0	0	230	230
07:30 PM	1	1	11	0	2	105	0	0	6	2	6	1	20	117	4	0	1	275	276
07:45 PM	1	1	8	0	1	62	3	0	3	4	14	0	23	121	5	0	0	246	246
Total	6	7	39	0	10	349	6	0	24	9	38	1	79	436	17	0	1	1020	1021
08:00 PM	1	1	9	0	5	57	4	0	7	2	8	0	11	127	3	0	0	235	235
08:15 PM	0	3	15	0	4	64	2	0	13	2	9	0	23	130	2	0	0	267	267
08:30 PM	0	1	6	0	0	61	2	0	6	1	8	0	24	190	1	0	0	300	300
08:45 PM	0	1	3	0	5	64	1	0	5	3	7	0	17	126	8	0	0	240	240
Total	1	6	33	0	14	246	9	0	31	8	32	0	75	573	14	0	0	1042	1042
09:00 PM	0	0	3	0	1	49	0	0	3	2	11	0	20	72	4	0	0	165	165
09:15 PM	0	1	8	0	1	54	3	0	7	1	8	0	7	87	6	0	0	183	183
09:30 PM	1	0	7	0	2	39	2	0	3	0	3	0	6	61	3	0	0	127	127
09:45 PM	0	0	4	0	1	20	1	0	9	0	4	0	8	58	5	0	0	110	110
Total	1	1	22	0	5	162	6	0	22	3	26	0	41	278	18	0	0	585	585
Grand Total	113	100	946	0	322	8098	86	1	892	101	641	1	853	8380	537	1	3	21069	21072
Apprch %	9.7	8.6	81.6		3.8	95.2	1		54.6	6.2	39.2		8.7	85.8	5.5				
Total %	0.5	0.5	4.5		1.5	38.4	0.4		4.2	0.5	3		4	39.8	2.5		0	100	
Motorcycles	0	0	2		4	26	1		4	1	6		4	37	0		0	0	85
% Motorcycles	0	0	0.2	0	1.2	0.3	1.2	0	0.4	1	0.9	0	0.5	0.4	0	0	0	0	0.4
Cars	90	81	802		218	6550	78		666	77	486		721	6680	366		0	0	16815
% Cars	79.6	81	84.8	0	67.7	80.9	90.7	0	74.7	76.2	75.8	0	84.5	79.7	68.2	0	0	0	79.8
Light Goods Vehicles	17	15	127		79	1272	6		162	22	128		114	1337	105		0	0	3384
% Light Goods Vehicles	15	15	13.4	0	24.5	15.7	7	0	18.2	21.8	20	0	13.4	16	19.6	0	0	0	16.1
Buses	2	1	2		5	14	0		2	0	3		1	25	1		0	0	56
% Buses	1.8	1	0.2	0	1.6	0.2	0	0	0.2	0	0.5	0	0.1	0.3	0.2	0	0	0	0.3
Single-Unit Trucks	4	3	12		15	125	1		43	1	15		11	175	45		0	0	450
% Single-Unit Trucks	3.5	3	1.3	0	4.7	1.5	1.2	0	4.8	1	2.3	0	1.3	2.1	8.4	0	0	0	2.1
Articulated Trucks	0	0	1		1	111	0		15	0	3		1	126	19		0	0	277
% Articulated Trucks	0	0	0.1	0	0.3	1.4	0	0	1.7	0	0.5	0	0.1	1.5	3.5	0	0	0	1.3
Bicycles on Road	0	0	0		0	0	0		0	0	0		1	0	1		0	0	2
% Bicycles on Road	0	0	0	0	0	0	0	0	0	0	0	0	0.1	0	0.2	0	0	0	0
Bicycles on Crosswalk	0	0	0		0	0	0		0	0	0		0	0	0		0	0	0
% Bicycles on Crosswalk	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrians	0	0	0		0	0	0		0	0	0		0	0	0		0	0	3
% Pedestrians	0	0	0	0	0	0	0	100	0	0	0	100	0	0	0	100	0	0	0

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Venture I
940 Main Campus Drive, Suite 500
Raleigh, NC 27606
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File Name : NC54@Woody
Site Code :
Start Date : 9/13/2017
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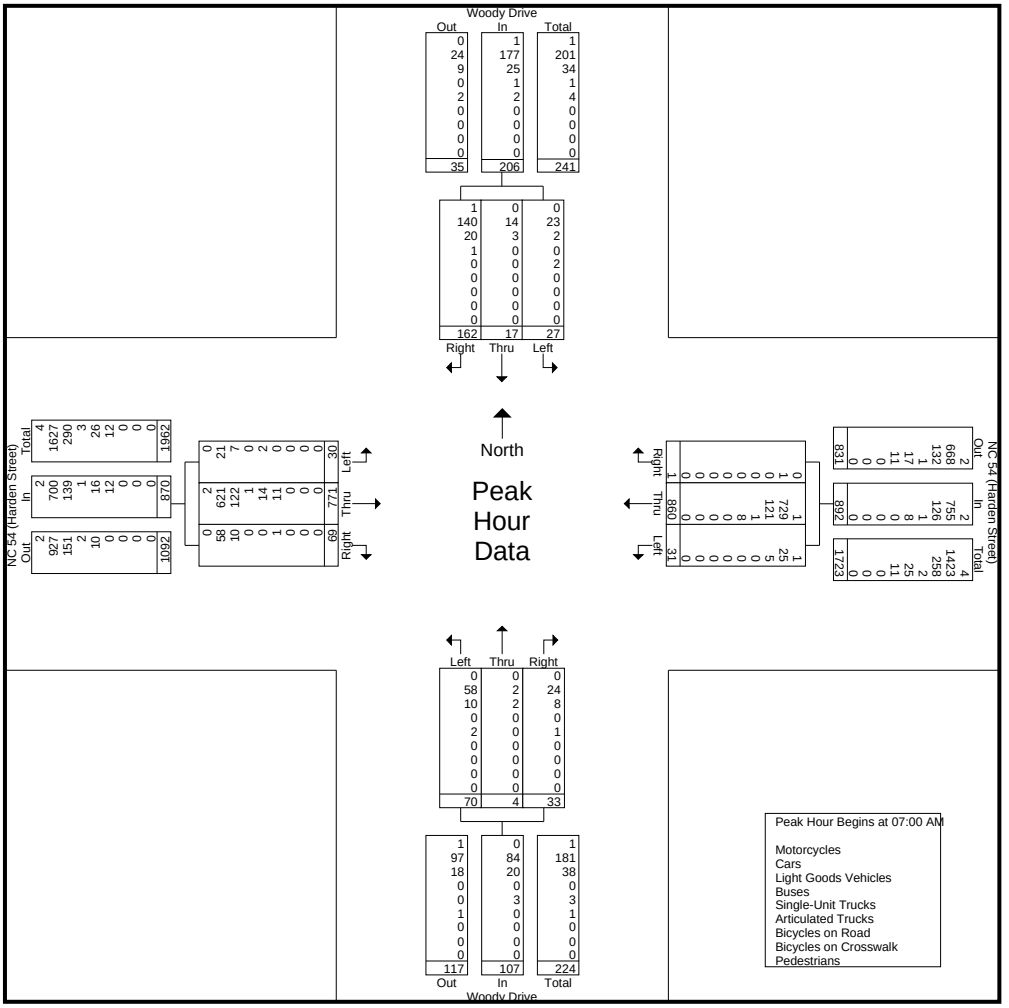
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	Woody Drive Southbound				NC 54 (Harden Street) Westbound				Woody Drive Northbound				NC 54 (Harden Street) Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 06:00 AM to 11:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:00 AM																	
07:00 AM	6	3	42	51	4	157	0	161	16	1	6	23	6	207	17	230	465
07:15 AM	8	6	41	55	3	197	1	201	14	2	8	24	11	226	14	251	531
07:30 AM	8	1	45	54	8	256	0	264	17	0	9	26	6	166	9	181	525
07:45 AM	5	7	34	46	16	250	0	266	23	1	10	34	7	172	29	208	554
Total Volume	27	17	162	206	31	860	1	892	70	4	33	107	30	771	69	870	2075
% App. Total	13.1	8.3	78.6		3.5	96.4	0.1		65.4	3.7	30.8		3.4	88.6	7.9		
PHF	.844	.607	.900	.936	.484	.840	.250	.838	.761	.500	.825	.787	.682	.853	.595	.867	.936
Motorcycles	0	0	1	1	1	1	0	2	0	0	0	0	0	2	0	2	5
% Motorcycles	0	0	0.6	0.5	3.2	0.1	0	0.2	0	0	0	0	0	0.3	0	0.2	0.2
Cars	23	14	140	177	25	729	1	755	58	2	24	84	21	621	58	700	1716
% Cars	85.2	82.4	86.4	85.9	80.6	84.8	100	84.6	82.9	50.0	72.7	78.5	70.0	80.5	84.1	80.5	82.7
Light Goods Vehicles	2	3	20	25	5	121	0	126	10	2	8	20	7	122	10	139	310
% Light Goods Vehicles	7.4	17.6	12.3	12.1	16.1	14.1	0	14.1	14.3	50.0	24.2	18.7	23.3	15.8	14.5	16.0	14.9
Buses	0	0	1	1	0	1	0	1	0	0	0	0	0	1	0	1	3
% Buses	0	0	0.6	0.5	0	0.1	0	0.1	0	0	0	0	0	0.1	0	0.1	0.1
Single-Unit Trucks	2	0	0	2	0	8	0	8	2	0	1	3	2	14	0	16	29
% Single-Unit Trucks	7.4	0	0	1.0	0	0.9	0	0.9	2.9	0	3.0	2.8	6.7	1.8	0	1.8	1.4
Articulated Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0	11	1	12	12
% Articulated Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0	1.4	1.4	1.4	0.6
Bicycles on Road	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Bicycles on Road	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bicycles on Crosswalk	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Bicycles on Crosswalk	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrians	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Pedestrians	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

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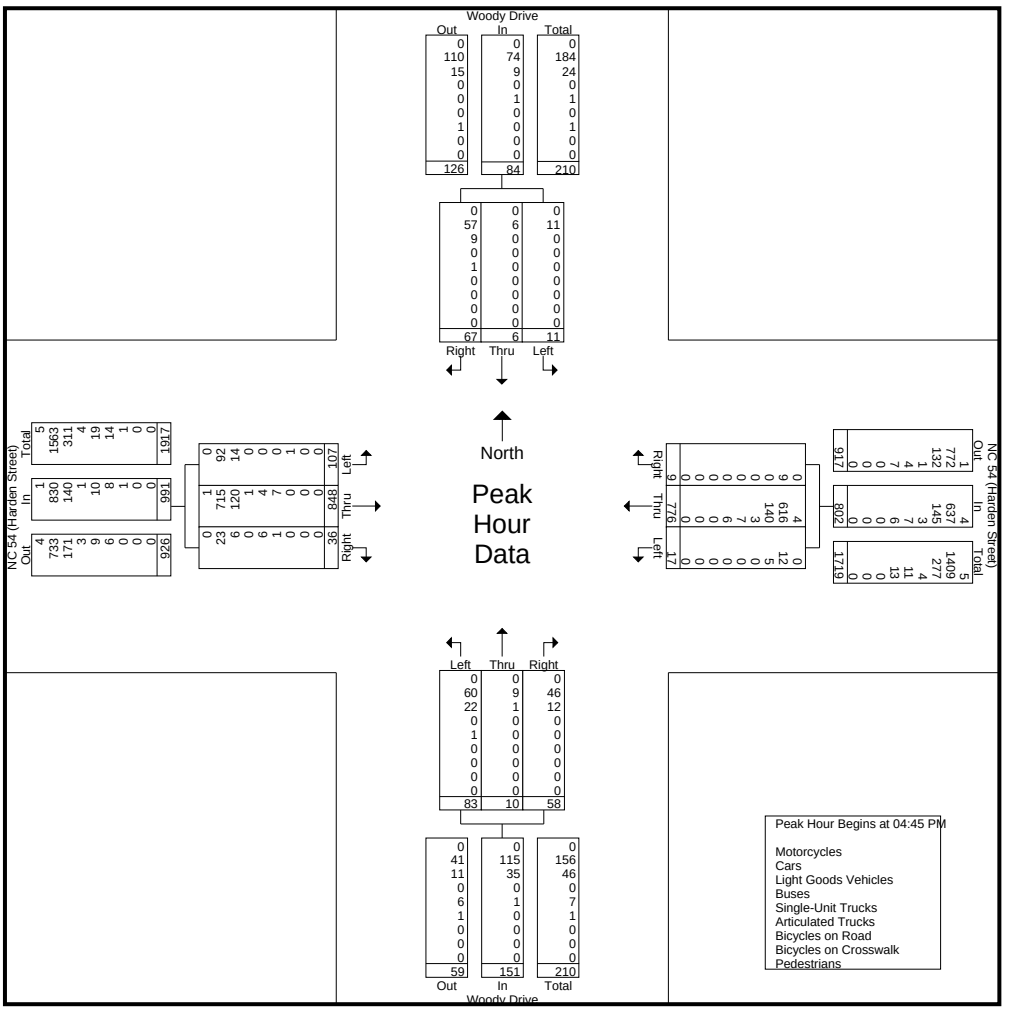


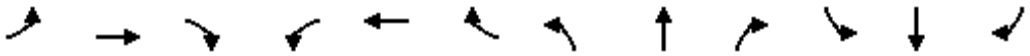
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	Woody Drive Southbound				NC 54 (Harden Street) Westbound				Woody Drive Northbound				NC 54 (Harden Street) Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 12:00 PM to 09:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:45 PM																	
04:45 PM	3	4	16	23	5	182	1	188	19	0	12	31	21	193	10	224	466
05:00 PM	4	0	24	28	2	181	3	186	26	3	11	40	20	215	7	242	496
05:15 PM	1	0	11	12	7	210	0	217	18	5	14	37	39	236	13	288	554
05:30 PM	3	2	16	21	3	203	5	211	20	2	21	43	27	204	6	237	512
Total Volume	11	6	67	84	17	776	9	802	83	10	58	151	107	848	36	991	2028
% App. Total	13.1	7.1	79.8		2.1	96.8	1.1		55	6.6	38.4		10.8	85.6	3.6		
PHF	.688	.375	.698	.750	.607	.924	.450	.924	.798	.500	.690	.878	.686	.898	.692	.860	.915
Motorcycles	0	0	0	0	0	4	0	4	0	0	0	0	0	1	0	1	5
% Motorcycles	0	0	0	0	0	0.5	0	0.5	0	0	0	0	0	0.1	0	0.1	0.2
Cars	11	6	57	74	12	616	9	637	60	9	46	115	92	715	23	830	1656
% Cars	100	100	85.1	88.1	70.6	79.4	100	79.4	72.3	90.0	79.3	76.2	86.0	84.3	63.9	83.8	81.7
Light Goods Vehicles	0	0	9	9	5	140	0	145	22	1	12	35	14	120	6	140	329
% Light Goods Vehicles	0	0	13.4	10.7	29.4	18.0	0	18.1	26.5	10.0	20.7	23.2	13.1	14.2	16.7	14.1	16.2
Buses	0	0	0	0	0	3	0	3	0	0	0	0	0	1	0	1	4
% Buses	0	0	0	0	0	0.4	0	0.4	0	0	0	0	0	0.1	0	0.1	0.2
Single-Unit Trucks	0	0	1	1	0	7	0	7	1	0	0	1	0	4	6	10	19
% Single-Unit Trucks	0	0	1.5	1.2	0	0.9	0	0.9	1.2	0	0	0.7	0	0.5	16.7	1.0	0.9
Articulated Trucks	0	0	0	0	0	6	0	6	0	0	0	0	0	7	1	8	14
% Articulated Trucks	0	0	0	0	0	0.8	0	0.7	0	0	0	0	0	0.8	2.8	0.8	0.7
Bicycles on Road	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	1
% Bicycles on Road	0	0	0	0	0	0	0	0	0	0	0	0	0.9	0	0	0.1	0.0
Bicycles on Crosswalk	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Bicycles on Crosswalk	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrians	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Pedestrians	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0





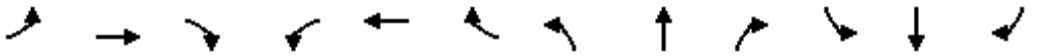
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	46	1170	105	47	1305	2	106	6	50	41	26	246
Future Volume (vph)	46	1170	105	47	1305	2	106	6	50	41	26	246
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		-2%			0%			-7%			0%	
Storage Length (ft)	0		0	0		0	100		0	100		0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (ft)	25			25			100			100		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.988						0.867			0.864	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1787	3532	0	1770	3539	0	1832	1672	0	1770	1609	0
Flt Permitted	0.950			0.950			0.325			0.716		
Satd. Flow (perm)	1787	3532	0	1770	3539	0	627	1672	0	1334	1609	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		40			40			35			35	
Link Distance (ft)		564			1045			1215			1014	
Travel Time (s)		9.6			17.8			23.7			19.8	
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)	51	1300	117	52	1450	2	118	7	56	46	29	273
Shared Lane Traffic (%)												
Lane Group Flow (vph)	51	1417	0	52	1452	0	118	63	0	46	302	0
Turn Type	Prot	NA		Prot	NA		Perm	NA		Perm	NA	
Protected Phases	5	2		1	6			8			4	
Permitted Phases							8			4		
Detector Phase	5	2		1	6		8	8		4	4	
Switch Phase												
Minimum Initial (s)	7.0	12.0		7.0	12.0		7.0	7.0		7.0	7.0	
Minimum Split (s)	14.0	19.0		14.0	19.0		14.0	14.0		14.0	14.0	
Total Split (s)	14.0	48.0		14.0	48.0		28.0	28.0		28.0	28.0	
Total Split (%)	15.6%	53.3%		15.6%	53.3%		31.1%	31.1%		31.1%	31.1%	
Maximum Green (s)	7.0	41.0		7.0	41.0		21.0	21.0		21.0	21.0	
Yellow Time (s)	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	
Lost Time Adjust (s)	-2.0	-2.0		-2.0	-2.0		-2.0	-2.0		-2.0	-2.0	
Total Lost Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Lead/Lag	Lead	Lag		Lead	Lag							
Lead-Lag Optimize?	Yes	Yes		Yes	Yes							
Vehicle Extension (s)	1.0	6.0		1.0	6.0		1.0	1.0		1.0	1.0	
Minimum Gap (s)	0.2	3.0		0.2	3.0		0.2	0.2		0.2	0.2	
Time Before Reduce (s)	0.0	15.0		0.0	15.0		0.0	0.0		0.0	0.0	
Time To Reduce (s)	0.0	30.0		0.0	30.0		0.0	0.0		0.0	0.0	
Recall Mode	None	C-Min		None	C-Min		None	None		None	None	
Act Effct Green (s)	9.0	51.0		9.0	51.0		20.6	20.6		20.6	20.6	
Actuated g/C Ratio	0.10	0.57		0.10	0.57		0.23	0.23		0.23	0.23	
v/c Ratio	0.29	0.71		0.29	0.72		0.83	0.16		0.15	0.82	
Control Delay	42.2	19.0		42.3	19.5		74.2	27.7		27.8	51.5	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Delay	42.2	19.0		42.3	19.5		74.2	27.7		27.8	51.5	
LOS	D	B		D	B		E	C		C	D	
Approach Delay		19.8			20.3			58.0			48.3	
Approach LOS		B			C			E			D	
Queue Length 50th (ft)	27	351		28	365		62	28		20	159	
Queue Length 95th (ft)	63	453		63	470		#153	60		48	#274	
Internal Link Dist (ft)		484			965			1135			934	
Turn Bay Length (ft)							100			100		
Base Capacity (vph)	178	2001		177	2005		160	427		340	411	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.29	0.71		0.29	0.72		0.74	0.15		0.14	0.73	

Intersection Summary			
Area Type:	Other		
Cycle Length: 90			
Actuated Cycle Length: 90			
Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBT, Start of Green			
Natural Cycle: 70			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.83			
Intersection Signal Delay: 24.8		Intersection LOS: C	
Intersection Capacity Utilization 74.0%		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: 101: Woody Drive & NC 54





Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	496	745	79	55	627	117	176	387	96	82	155	373
Future Volume (vph)	496	745	79	55	627	117	176	387	96	82	155	373
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		-2%			2%			3%			-2%	
Storage Length (ft)	0		0	175		150	250		200	0		250
Storage Lanes	1		1	1		1	1		1	1		1
Taper Length (ft)	25			100			100			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850		0.976				0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1787	1881	1599	1752	3420	0	1743	1835	1560	1787	1881	1599
Flt Permitted	0.950			0.129			0.379			0.224		
Satd. Flow (perm)	1787	1881	1599	238	3420	0	695	1835	1560	421	1881	1599
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		50			50			35			35	
Link Distance (ft)		1069			1063			1165			1025	
Travel Time (s)		14.6			14.5			22.7			20.0	
Peak Hour Factor	0.50	0.50	0.50	0.90	0.90	0.90	0.90	0.90	0.90	0.50	0.50	0.50
Adj. Flow (vph)	992	1490	158	61	697	130	196	430	107	164	310	746
Shared Lane Traffic (%)												
Lane Group Flow (vph)	992	1490	158	61	827	0	196	430	107	164	310	746
Turn Type	Prot	NA	Perm	Perm	NA		Perm	NA	Perm	Perm	NA	Perm
Protected Phases	5	2			6			8			4	
Permitted Phases			2	6			8		8	4		4
Detector Phase	5	2	2	6	6		8	8	8	4	4	4
Switch Phase												
Minimum Initial (s)	7.0	14.0	14.0	14.0	14.0		7.0	7.0	7.0	7.0	7.0	7.0
Minimum Split (s)	14.0	21.0	21.0	21.0	21.0		14.0	14.0	14.0	14.0	14.0	14.0
Total Split (s)	61.0	97.0	97.0	36.0	36.0		53.0	53.0	53.0	53.0	53.0	53.0
Total Split (%)	40.7%	64.7%	64.7%	24.0%	24.0%		35.3%	35.3%	35.3%	35.3%	35.3%	35.3%
Maximum Green (s)	54.0	90.0	90.0	29.0	29.0		46.0	46.0	46.0	46.0	46.0	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
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
Lead/Lag	Lead			Lag	Lag							
Lead-Lag Optimize?	Yes			Yes	Yes							
Vehicle Extension (s)	1.0	2.0	2.0	2.0	2.0		1.0	1.0	1.0	1.0	1.0	1.0
Recall Mode	None	Min	Min	Min	Min		None	None	None	None	None	None
Act Effct Green (s)	56.0	92.0	92.0	31.0	31.0		48.0	48.0	48.0	48.0	48.0	48.0
Actuated g/C Ratio	0.37	0.61	0.61	0.21	0.21		0.32	0.32	0.32	0.32	0.32	0.32
v/c Ratio	1.49	1.29	0.16	1.24	1.17		0.88	0.73	0.21	1.22	0.52	1.46
Control Delay	261.7	165.9	13.0	256.1	142.4		85.2	53.9	38.7	192.8	45.2	254.4
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	261.7	165.9	13.0	256.1	142.4		85.2	53.9	38.7	192.8	45.2	254.4
LOS	F	F	B	F	F		F	D	D	F	D	F
Approach Delay		192.8			150.2			60.1			193.0	

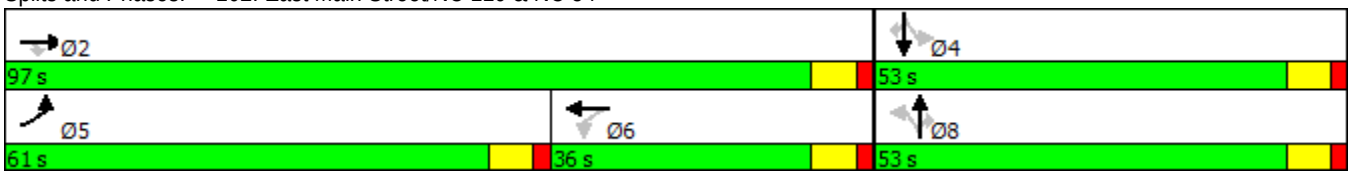
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Approach LOS		F			F			E			F	
Queue Length 50th (ft)	~1336	~1852	63	~74	~505		182	375	77	~196	248	~994
Queue Length 95th (ft)	585	625	51	#177	#640		#338	506	128	131	171	461
Internal Link Dist (ft)		989			983			1085			945	
Turn Bay Length (ft)				175			250		200			250
Base Capacity (vph)	667	1153	980	49	706		222	587	499	134	601	511
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	1.49	1.29	0.16	1.24	1.17		0.88	0.73	0.21	1.22	0.52	1.46

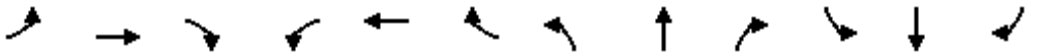
Intersection Summary			
Area Type:	Other		
Cycle Length: 150			
Actuated Cycle Length: 150			
Natural Cycle: 150			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 1.49			
Intersection Signal Delay: 168.2		Intersection LOS: F	
Intersection Capacity Utilization 93.7%		ICU Level of Service F	
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.

Splits and Phases: 102: East Main Street/NC 119 & NC 54



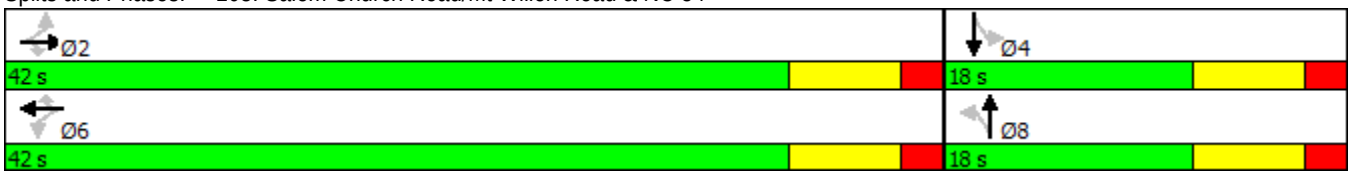


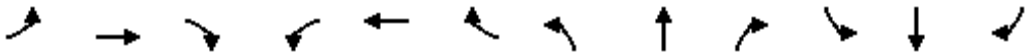
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	15	786	23	6	505	21	49	79	80	24	14	71
Future Volume (vph)	15	786	23	6	505	21	49	79	80	24	14	71
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		1%			0%			1%			2%	
Storage Length (ft)	275		200	225		150	0		0	0		0
Storage Lanes	1		1	1		1	0		0	0		0
Taper Length (ft)	100			100			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		0.948			0.913	
Flt Protected	0.950			0.950				0.988			0.989	
Satd. Flow (prot)	1761	1853	1575	1770	1863	1583	0	1736	0	0	1665	0
Flt Permitted	0.389			0.185				0.905			0.866	
Satd. Flow (perm)	721	1853	1575	345	1863	1583	0	1590	0	0	1458	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		55			55			55			55	
Link Distance (ft)		1116			1039			1050			1127	
Travel Time (s)		13.8			12.9			13.0			14.0	
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)	17	873	26	7	561	23	54	88	89	27	16	79
Shared Lane Traffic (%)												
Lane Group Flow (vph)	17	873	26	7	561	23	0	231	0	0	122	0
Turn Type	Perm	NA	Perm	Perm	NA	Perm	Perm	NA		Perm	NA	
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	14.0	14.0		14.0	14.0	
Total Split (s)	42.0	42.0	42.0	42.0	42.0	42.0	18.0	18.0		18.0	18.0	
Total Split (%)	70.0%	70.0%	70.0%	70.0%	70.0%	70.0%	30.0%	30.0%		30.0%	30.0%	
Maximum Green (s)	35.0	35.0	35.0	35.0	35.0	35.0	11.0	11.0		11.0	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	
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	
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0		5.0			5.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	6.0	6.0	6.0	6.0	6.0	6.0	2.0	2.0		2.0	2.0	
Minimum Gap (s)	3.4	3.4	3.4	3.4	3.4	3.4	0.2	0.2		0.2	0.2	
Time Before Reduce (s)	20.0	20.0	20.0	20.0	20.0	20.0	0.0	0.0		0.0	0.0	
Time To Reduce (s)	30.0	30.0	30.0	30.0	30.0	30.0	0.0	0.0		0.0	0.0	
Recall Mode	Min	Min	Min	Min	Min	Min	None	None		None	None	
Act Effct Green (s)	34.8	34.8	34.8	34.8	34.8	34.8		12.1			12.1	
Actuated g/C Ratio	0.61	0.61	0.61	0.61	0.61	0.61		0.21			0.21	
v/c Ratio	0.04	0.77	0.03	0.03	0.49	0.02		0.68			0.39	
Control Delay	4.9	14.4	4.6	5.0	8.1	4.6		33.7			24.4	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0		0.0			0.0	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Delay	4.9	14.4	4.6	5.0	8.1	4.6		33.7			24.4	
LOS	A	B	A	A	A	A		C			C	
Approach Delay		13.9			7.9			33.7			24.4	
Approach LOS		B			A			C			C	
Queue Length 50th (ft)	2	195	3	1	95	3		77			38	
Queue Length 95th (ft)	8	338	10	5	158	9		#164			81	
Internal Link Dist (ft)		1036			959			970			1047	
Turn Bay Length (ft)	275		200	225		150						
Base Capacity (vph)	470	1210	1029	225	1216	1034		364			334	
Starvation Cap Reductn	0	0	0	0	0	0		0			0	
Spillback Cap Reductn	0	0	0	0	0	0		0			0	
Storage Cap Reductn	0	0	0	0	0	0		0			0	
Reduced v/c Ratio	0.04	0.72	0.03	0.03	0.46	0.02		0.63			0.37	

Intersection Summary			
Area Type:	Other		
Cycle Length: 60			
Actuated Cycle Length: 57			
Natural Cycle: 60			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.77			
Intersection Signal Delay: 15.2		Intersection LOS: B	
Intersection Capacity Utilization 65.8%		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: 103: Salem Church Road/Mt Willen Road & NC 54





Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	6	815	5	41	352	55	15	109	218	179	70	2
Future Volume (vph)	6	815	5	41	352	55	15	109	218	179	70	2
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		100	0		100	0		0	0		0
Storage Lanes	0		1	0		1	0		0	0		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850			0.850		0.914			0.999	
Flt Protected					0.995			0.998			0.966	
Satd. Flow (prot)	0	1863	1583	0	1853	1583	0	1699	0	0	1798	0
Flt Permitted					0.995			0.998			0.966	
Satd. Flow (perm)	0	1863	1583	0	1853	1583	0	1699	0	0	1798	0
Link Speed (mph)		55			55			35			35	
Link Distance (ft)		1021			1036			1051			1036	
Travel Time (s)		12.7			12.8			20.5			20.2	
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)	7	906	6	46	391	61	17	121	242	199	78	2
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	913	6	0	437	61	0	380	0	0	279	0
Sign Control		Free			Free			Stop			Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 96.5%		ICU Level of Service F	
Analysis Period (min) 15			

Intersection	
Int Delay, s/veh	4491.2

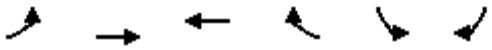
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	6	815	5	41	352	55	15	109	218	179	70	2
Future Vol, veh/h	6	815	5	41	352	55	15	109	218	179	70	2
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	100	-	-	100	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	7	906	6	46	391	61	17	121	242	199	78	2

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	391	0	0	906	0	0	1441	1401	906	1583	1401	391
Stage 1	-	-	-	-	-	-	919	919	-	482	482	-
Stage 2	-	-	-	-	-	-	522	482	-	1101	919	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1168	-	-	751	-	-	110	140	334	~ 88	140	658
Stage 1	-	-	-	-	-	-	325	350	-	565	553	-
Stage 2	-	-	-	-	-	-	538	553	-	257	350	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1168	-	-	751	-	-	53	127	334	~ 3	127	658
Mov Cap-2 Maneuver	-	-	-	-	-	-	53	127	-	~ 3	127	-
Stage 1	-	-	-	-	-	-	321	346	-	558	507	-
Stage 2	-	-	-	-	-	-	416	507	-	~ 45	346	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.1	0.9	$ 504.3	$ 32717.6
HCM LOS			F	F

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	191	1168	-	-	751	-	-	4
HCM Lane V/C Ratio	1.99	0.006	-	-	0.061	-	-	69.722
HCM Control Delay (s)	$ 504.3	8.1	0	-	10.1	0	-	$ 32717.6
HCM Lane LOS	F	A	A	-	B	A	-	F
HCM 95th %tile Q(veh)	28.6	0	-	-	0.2	-	-	37.2

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



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	68	1273	426	46	80	15
Future Volume (vph)	68	1273	426	46	80	15
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0			125	0	0
Storage Lanes	0			1	1	0
Taper Length (ft)	25				25	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt				0.850	0.978	
Flt Protected		0.997			0.960	
Satd. Flow (prot)	0	1857	1863	1583	1749	0
Flt Permitted		0.997			0.960	
Satd. Flow (perm)	0	1857	1863	1583	1749	0
Link Speed (mph)		55	55		55	
Link Distance (ft)		1002	1028		1069	
Travel Time (s)		12.4	12.7		13.3	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	76	1414	473	51	89	17
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	1490	473	51	106	0
Sign Control		Free	Free		Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 108.5%		ICU Level of Service G	
Analysis Period (min) 15			

Intersection	
Int Delay, s/veh	35.7

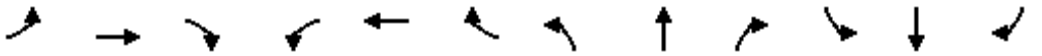
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	68	1273	426	46	80	15
Future Vol, veh/h	68	1273	426	46	80	15
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	125	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	76	1414	473	51	89	17

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	473	0	-	0	2039	473
Stage 1	-	-	-	-	473	-
Stage 2	-	-	-	-	1566	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1089	-	-	-	~ 62	591
Stage 1	-	-	-	-	627	-
Stage 2	-	-	-	-	189	-
Platoon blocked, %			-	-	-	
Mov Cap-1 Maneuver	1089	-	-	-	~ 42	591
Mov Cap-2 Maneuver	-	-	-	-	~ 42	-
Stage 1	-	-	-	-	627	-
Stage 2	-	-	-	-	127	-

Approach	EB	WB	SB
HCM Control Delay, s	0.4	0	$ 710.5
HCM LOS			F

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1089	-	-	-	49
HCM Lane V/C Ratio	0.069	-	-	-	2.154
HCM Control Delay (s)	8.6	0	-	-	$ 710.5
HCM Lane LOS	A	A	-	-	F
HCM 95th %tile Q(veh)	0.2	-	-	-	10.8

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

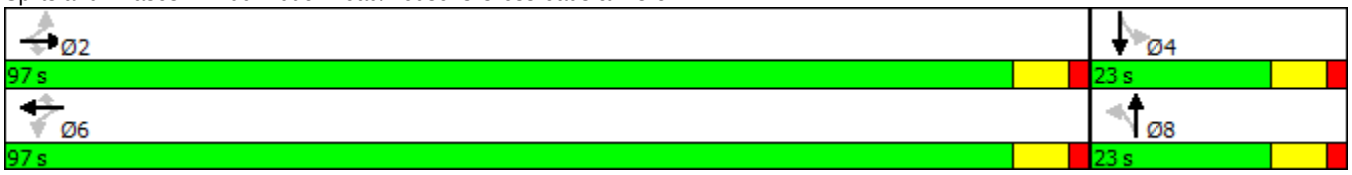


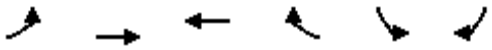
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	42	1406	2	12	429	35	6	41	61	117	15	35
Future Volume (vph)	42	1406	2	12	429	35	6	41	61	117	15	35
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		1%			0%			2%			4%	
Storage Length (ft)	100		125	200		125	0		0	0		0
Storage Lanes	1		1	1		1	0		0	0		0
Taper Length (ft)	100			100			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
Ped Bike Factor								0.99				
Frt			0.850			0.850		0.924			0.972	
Flt Protected	0.950			0.950				0.997			0.966	
Satd. Flow (prot)	1761	1853	1575	1770	1863	1583	0	1677	0	0	1714	0
Flt Permitted	0.463			0.043				0.981			0.588	
Satd. Flow (perm)	858	1853	1575	80	1863	1583	0	1650	0	0	1043	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		55			55			55			55	
Link Distance (ft)		1069			1419			1052			1039	
Travel Time (s)		13.3			17.6			13.0			12.9	
Confl. Bikes (#/hr)									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)	47	1562	2	13	477	39	7	46	68	130	17	39
Shared Lane Traffic (%)												
Lane Group Flow (vph)	47	1562	2	13	477	39	0	121	0	0	186	0
Turn Type	Perm	NA	Perm	Perm	NA	Perm	Perm	NA		Perm	NA	
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	14.0	14.0		14.0	14.0	
Total Split (s)	97.0	97.0	97.0	97.0	97.0	97.0	23.0	23.0		23.0	23.0	
Total Split (%)	80.8%	80.8%	80.8%	80.8%	80.8%	80.8%	19.2%	19.2%		19.2%	19.2%	
Maximum Green (s)	90.0	90.0	90.0	90.0	90.0	90.0	16.0	16.0		16.0	16.0	
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	
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0		5.0			5.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	6.0	6.0	6.0	6.0	6.0	6.0	2.0	2.0		2.0	2.0	
Minimum Gap (s)	3.2	3.2	3.2	3.2	3.2	3.2	0.2	0.2		0.2	0.2	
Time Before Reduce (s)	15.0	15.0	15.0	15.0	15.0	15.0	0.0	0.0		0.0	0.0	
Time To Reduce (s)	30.0	30.0	30.0	30.0	30.0	30.0	0.0	0.0		0.0	0.0	
Recall Mode	Min	Min	Min	Min	Min	Min	None	None		None	None	
Act Effct Green (s)	92.0	92.0	92.0	92.0	92.0	92.0		18.0			18.0	
Actuated g/C Ratio	0.77	0.77	0.77	0.77	0.77	0.77		0.15			0.15	
v/c Ratio	0.07	1.10	0.00	0.21	0.33	0.03		0.49			1.19	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Control Delay	3.8	72.9	3.5	13.0	5.1	3.5		54.3			177.3	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0		0.0			0.0	
Total Delay	3.8	72.9	3.5	13.0	5.1	3.5		54.3			177.3	
LOS	A	E	A	B	A	A		D			F	
Approach Delay		70.8			5.2			54.3			177.3	
Approach LOS		E			A			D			F	
Queue Length 50th (ft)	8	~1373	0	2	98	6		87			~174	
Queue Length 95th (ft)	17	#1637	2	13	138	14		150			#322	
Internal Link Dist (ft)		989			1339			972			959	
Turn Bay Length (ft)	100		125	200		125						
Base Capacity (vph)	657	1420	1207	61	1428	1213		247			156	
Starvation Cap Reductn	0	0	0	0	0	0		0			0	
Spillback Cap Reductn	0	0	0	0	0	0		0			0	
Storage Cap Reductn	0	0	0	0	0	0		0			0	
Reduced v/c Ratio	0.07	1.10	0.00	0.21	0.33	0.03		0.49			1.19	

Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 120			
Natural Cycle: 120			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 1.19			
Intersection Signal Delay: 63.9		Intersection LOS: E	
Intersection Capacity Utilization 98.4%		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.			

Splits and Phases: 106: Butler Road/Dodsons Crossroads & NC 54





Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	179	1461	434	46	33	35
Future Volume (vph)	179	1461	434	46	33	35
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	200			200	0	0
Storage Lanes	1			1	1	0
Taper Length (ft)	100				25	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt				0.850	0.931	
Flt Protected	0.950				0.976	
Satd. Flow (prot)	1770	1863	1863	1583	1693	0
Flt Permitted	0.950				0.976	
Satd. Flow (perm)	1770	1863	1863	1583	1693	0
Link Speed (mph)		55	55		35	
Link Distance (ft)		1172	1135		1067	
Travel Time (s)		14.5	14.1		20.8	
Confl. Bikes (#/hr)						1
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	199	1623	482	51	37	39
Shared Lane Traffic (%)						
Lane Group Flow (vph)	199	1623	482	51	76	0
Sign Control		Free	Free		Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 87.5%		ICU Level of Service E	
Analysis Period (min) 15			

Intersection	
Int Delay, s/veh	14

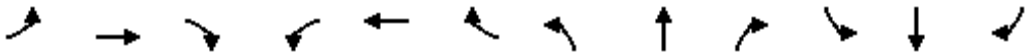
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	179	1461	434	46	33	35
Future Vol, veh/h	179	1461	434	46	33	35
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	200	-	-	200	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	199	1623	482	51	37	39

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	482	0	-	0	2503	482
Stage 1	-	-	-	-	482	-
Stage 2	-	-	-	-	2021	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1081	-	-	-	~ 32	584
Stage 1	-	-	-	-	621	-
Stage 2	-	-	-	-	112	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1081	-	-	-	~ 26	584
Mov Cap-2 Maneuver	-	-	-	-	~ 26	-
Stage 1	-	-	-	-	621	-
Stage 2	-	-	-	-	91	-

Approach	EB	WB	SB
HCM Control Delay, s	1	0	$ 426.4
HCM LOS			F

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1081	-	-	-	51
HCM Lane V/C Ratio	0.184	-	-	-	1.481
HCM Control Delay (s)	9.1	-	-	-	-$ 426.4
HCM Lane LOS	A	-	-	-	F
HCM 95th %tile Q(veh)	0.7	-	-	-	7.1

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

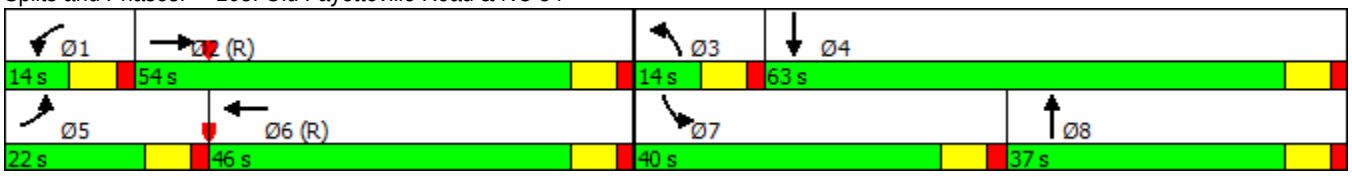


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	190	1460	120	6	437	393	39	275	29	605	214	82
Future Volume (vph)	190	1460	120	6	437	393	39	275	29	605	214	82
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		0%			3%			-2%			-3%	
Storage Length (ft)	300		0	225		0	150		0	225		0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (ft)	100			100			100			100		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.989			0.929			0.986			0.959	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1752	3466	0	1726	3207	0	1770	1837	0	1779	1796	0
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1752	3466	0	1726	3207	0	1770	1837	0	1779	1796	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		45			45			35			35	
Link Distance (ft)		611			1330			1021			1235	
Travel Time (s)		9.3			20.2			19.9			24.1	
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
Heavy Vehicles (%)	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%
Adj. Flow (vph)	211	1622	133	7	486	437	43	306	32	672	238	91
Shared Lane Traffic (%)												
Lane Group Flow (vph)	211	1755	0	7	923	0	43	338	0	672	329	0
Turn Type	Prot	NA		Prot	NA		Prot	NA		Prot	NA	
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases												
Detector Phase	5	2		1	6		3	8		7	4	
Switch Phase												
Minimum Initial (s)	7.0	12.0		7.0	12.0		7.0	7.0		7.0	7.0	
Minimum Split (s)	14.0	19.0		14.0	19.0		14.0	37.0		14.0	14.0	
Total Split (s)	22.0	54.0		14.0	46.0		14.0	37.0		40.0	63.0	
Total Split (%)	15.2%	37.2%		9.7%	31.7%		9.7%	25.5%		27.6%	43.4%	
Maximum Green (s)	15.0	47.0		7.0	39.0		7.0	30.0		33.0	56.0	
Yellow Time (s)	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	
Lost Time Adjust (s)	-2.0	-2.0		-2.0	-2.0		-2.0	-2.0		-2.0	-2.0	
Total Lost Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes		Yes	Yes	
Vehicle Extension (s)	2.0	6.0		2.0	6.0		2.0	2.0		2.0	2.0	
Minimum Gap (s)	0.2	3.0		0.2	3.0		0.2	0.2		0.2	0.2	
Time Before Reduce (s)	0.0	15.0		0.0	15.0		0.0	0.0		0.0	0.0	
Time To Reduce (s)	0.0	45.0		0.0	45.0		0.0	0.0		0.0	0.0	
Recall Mode	None	C-Min		None	C-Min		None	None		None	None	
Walk Time (s)								7.0				
Flash Dont Walk (s)								23.0				
Pedestrian Calls (#/hr)								0				
Act Effct Green (s)	18.8	62.0		9.0	41.0		9.0	30.2		35.0	59.0	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Actuated g/C Ratio	0.13	0.43		0.06	0.28		0.06	0.21		0.24	0.41	
v/c Ratio	0.93	1.18		0.07	1.02		0.39	0.88		1.57	0.45	
Control Delay	105.6	127.1		65.7	85.4		76.4	80.1		302.3	34.1	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	105.6	127.1		65.7	85.4		76.4	80.1		302.3	34.1	
LOS	F	F		E	F		E	F		F	C	
Approach Delay		124.8			85.3			79.6			214.1	
Approach LOS		F			F			E			F	
Queue Length 50th (ft)	~212	~1033		6	~484		40	308		~896	227	
Queue Length 95th (ft)	#381	#1342		24	#620		83	#465		#1139	318	
Internal Link Dist (ft)		531			1250			941			1155	
Turn Bay Length (ft)	300			225			150			225		
Base Capacity (vph)	227	1482		107	906		109	405		429	735	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.93	1.18		0.07	1.02		0.39	0.83		1.57	0.45	

Intersection Summary			
Area Type:	Other		
Cycle Length: 145			
Actuated Cycle Length: 145			
Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBT, Start of Green			
Natural Cycle: 145			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 1.57			
Intersection Signal Delay: 133.1		Intersection LOS: F	
Intersection Capacity Utilization 116.4%		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.			

Splits and Phases: 108: Old Fayetteville Road & NC 54



NC 54 2045_PM
101: Woody Drive & NC 54 Lanes, Volumes, Timings

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	1	2>	0	1	2>	0	1	1>	0	1	1>	0
Traffic Volume (vph)	162	1287	55	26	1177	14	126	15	88	17	9	102
Future Volume (vph)	162	1287	55	26	1177	14	126	15	88	17	9	102
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		-2%			0%			-7%			0%	
Storage Length (ft)	0		0	0		0	100		0	100		0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (ft)	25			25			100		100			
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.994			0.998			0.872			0.862	
Flt Protected	0.950			0.950				0.950			0.950	
Satd. Flow (prot)	1787	3553	0	1770	3532	0		1832	1681	0	1770	1606
Flt Permitted	0.950			0.950				0.651			0.674	
Satd. Flow (perm)	1787	3553	0	1770	3532	0		1255	1681	0	1255	1606
Right Turn on Red			No			No			No			
Satd. Flow (RTOR)												
Link Speed (mph)		40			40			35			35	
Link Distance (ft)		564			1045			1215			1014	
Travel Time (s)		9.6			17.8			23.7			19.8	
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
Adj. Flow (vph)	180	1430	61	29	1308	16	140	17	98	19	10	113

Shared Lane Traffic (%)												
Lane Group Flow (vph)			180	1491	0	29	1324	0	140	115	0	19
123	0											
Turn Type			Prot	NA		Prot	NA			Perm	NA	
Perm	NA											
Protected Phases			5	2		1	6			8		
4												
Permitted Phases									8			
4												
Detector Phase			5	2		1	6		8	8	4	4
Switch Phase												
Minimum Initial (s)			7.0	12.0		7.0	12.0		7.0	7.0	7.0	7.0
Minimum Split (s)			14.0	19.0		14.0	19.0			14.0	14.0	
14.0	14.0											
Total Split (s)			20.0	54.0		14.0	48.0			22.0	22.0	
22.0	22.0											
Total Split (%)			22.2%	60.0%		15.6%	53.3%			24.4%	24.4%	
24.4%	24.4%											
Maximum Green (s)			13.0	47.0		7.0	41.0			15.0	15.0	
15.0	15.0											
Yellow Time (s)			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
Lost Time Adjust (s)			-2.0	-2.0		-2.0	-2.0			-2.0	-2.0	
-2.0	-2.0											
Total Lost Time (s)			5.0	5.0		5.0	5.0		5.0	5.0	5.0	5.0
Lead/Lag			Lead	Lag		Lead	Lag					
Lead-Lag Optimize?			Yes	Yes		Yes	Yes					
Vehicle Extension (s)			1.0	6.0		1.0	6.0		1.0	1.0	1.0	1.0
Minimum Gap (s)			0.2	3.0		0.2	3.0		0.2	0.2	0.2	0.2
Time Before Reduce (s)			0.0	15.0		0.0	15.0		0.0	0.0	0.0	0.0
Time To Reduce (s)			0.0	30.0		0.0	30.0		0.0	0.0	0.0	0.0
Recall Mode			None	C-Min		None	C-Min			None	None	
None	None											
Act Effct Green (s)			13.1	60.3		9.0	47.7			14.1	14.1	
14.1	14.1											

Actuated g/C Ratio			0.15	0.67		0.10	0.53				
0.16	0.16		0.16	0.16							
v/c Ratio			0.69	0.63		0.16	0.71				
0.71	0.44		0.10	0.49							
Control Delay			50.6	12.1		39.5	19.6				
55.3	38.8		31.9	40.6							
Queue Delay			0.0	0.0		0.0	0.0			0.0	
0.0		0.0	0.0								
Total Delay			50.6	12.1		39.5	19.6				
55.3	38.8		31.9	40.6							
LOS			D	B		D	B			E	
D		C	D								
Approach Delay				16.2			20.0				
47.9		39.5									
Approach LOS				B			C				
D		D									
Queue Length 50th (ft)			97	180		15	298			75	
59		9	64								
Queue Length 95th (ft)			165	418		42	406			136	
108		28	115								
Internal Link Dist (ft)				484			965				
1135		934									
Turn Bay Length (ft)										100	
	100										
Base Capacity (vph)			297	2378		177	1873			237	
317		237	303								
Starvation Cap Reductn			0	0		0	0			0	
0		0	0								
Spillback Cap Reductn			0	0		0	0			0	
0		0	0								
Storage Cap Reductn			0	0		0	0			0	
0		0	0								
Reduced v/c Ratio			0.61	0.63		0.16	0.71				
0.59	0.36		0.08	0.41							

Intersection Summary
Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBT, Start of Green
Natural Cycle: 60
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.71
Intersection Signal Delay: 21.1 Intersection LOS: C
Intersection Capacity Utilization 69.3% ICU Level of Service C
Analysis Period (min) 15

NC54_2045_PM.syn VHB

NC 54 2045_PM
102: East Main Street/NC 119 & NC 54 Lanes, Volumes, Timings

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	1	1	1	1	2>	0	1	1	1	1	1	
Traffic Volume (vph)	206	561	147	90	872	88	83	124	26	97	222	244
Future Volume (vph)	206	561	147	90	872	88	83	124	26	97	222	244
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		-2%			2%			3%			-2%	
Storage Length (ft)	0		0	175		150	250		200	0		250
Storage Lanes	1		1	1		1	1		1	1		1
Taper Length (ft)	25			100			100		25			
Lane Util. Factor	1.00	1.00	1.00	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850		0.986				0.850			0.850
Flt Protected	0.950			0.950				0.950			0.950	
Satd. Flow (prot)	1787	1881	1599	1752	3455	0	1743	1835	1560	1787	1881	1599
Flt Permitted	0.950			0.108				0.190			0.646	
Satd. Flow (perm)	1787	1881	1599	199	3455	0	1835	1560	1215	1881	1599	
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		50			50			35			35	
Link Distance (ft)		1069			1063			1165			1025	
Travel Time (s)		14.6			14.5			22.7			20.0	
Peak Hour Factor	0.50	0.50	0.50	0.90	0.90	0.90						

0.90	0.90	0.90	0.50	0.50	0.50						
Adj. Flow (vph)				412	1122	294	100	969	98	92	
138	29	194	444	488							
Shared Lane Traffic (%)											
Lane Group Flow (vph)				412	1122	294	100	1067	0	92	
138	29	194	444	488							
Turn Type				Prot	NA	Perm	Perm	NA			
Perm	NA	Perm	Perm	NA	Perm						
Protected Phases				5	2			6			
8			4								
Permitted Phases						2	6			8	
	8		4		4						
Detector Phase				5	2	2	6	6		8	
8	8	4	4	4							
Switch Phase											
Minimum Initial (s)				7.0	14.0	14.0	14.0	14.0		7.0	
7.0	7.0	7.0	7.0	7.0							
Minimum Split (s)				14.0	21.0	21.0	21.0	21.0			
14.0	14.0	14.0	14.0	14.0	14.0						
Total Split (s)				22.0	64.0	64.0	42.0	42.0			
26.0	26.0	26.0	26.0	26.0	26.0						
Total Split (%)				24.4%	71.1%	71.1%	46.7%	46.7%			
28.9%	28.9%	28.9%	28.9%	28.9%	28.9%						
Maximum Green (s)				15.0	57.0	57.0	35.0	35.0			
19.0	19.0	19.0	19.0	19.0	19.0						
Yellow Time (s)				5.0	5.0	5.0	5.0	5.0		5.0	
5.0	5.0	5.0	5.0	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						
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							
Lead/Lag				Lead			Lag	Lag			
Lead-Lag Optimize?				Yes			Yes	Yes			
Vehicle Extension (s)				1.0	2.0	2.0	2.0	2.0		1.0	
1.0	1.0	1.0	1.0	1.0							
Recall Mode				None	Min	Min	Min	Min			
None	None	None	None	None	None						
Act Effct Green (s)				17.0	59.0	59.0	37.0	37.0			
21.0	21.0	21.0	21.0	21.0	21.0						
Actuated g/C Ratio				0.19	0.66	0.66	0.41	0.41			
0.23	0.23	0.23	0.23	0.23	0.23						
v/c Ratio				1.22	0.91	0.28	1.23	0.75			

1.14 0.32 0.08 0.69 1.01 1.31
Control Delay 157.8 26.2 7.4 205.8 26.7
178.3 31.1 27.8 45.7 82.8 188.1
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 157.8 26.2 7.4 205.8 26.7
178.3 31.1 27.8 45.7 82.8 188.1
LOS F C A F C F
C C D F F
Approach Delay 52.9 42.0
83.0 122.0
Approach LOS D D
F F
Queue Length 50th (ft) ~291 484 63 ~71 265 ~61
65 13 101 ~258 ~360
Queue Length 95th (ft) 176 210 48 #171 343
#158 117 35 86 176 203
Internal Link Dist (ft) 989 983
1085 945
Turn Bay Length (ft) 175 250
200 250
Base Capacity (vph) 337 1233 1048 81 1420 81
428 364 283 438 373
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 1.22 0.91 0.28 1.23 0.75
1.14 0.32 0.08 0.69 1.01 1.31

Intersection Summary
Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 90
Natural Cycle: 75
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 1.31
Intersection Signal Delay: 69.5 Intersection LOS: E
Intersection Capacity Utilization 75.4% 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.

NC54_2045_PM.syn VHB

NC 54 2045_PM

103: Salem Church Road/Mt Willen Road & NC 54 Lanes, Volumes, Timings

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	1	1	1	1	1	1	0	<1>	0	0	<1>	0
Traffic Volume (vph)	68	367	61	44	916	15	20	23	17	26	61	41
Future Volume (vph)	68	367	61	44	916	15	20	23	17	26	61	41
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		1%			0%			1%			2%	
Storage Length (ft)	275		200	225		150	0		0	0		0
Storage Lanes	1		1	1		1	0		0	0		0
Taper Length (ft)	100			100			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		0.962			0.957	
Flt Protected	0.950			0.950				0.984			0.990	
Satd. Flow (prot)	1761	1853	1575	1770	1863	1583	0	1754	0	0	1747	0
Flt Permitted	0.165			0.522				0.855			0.912	
Satd. Flow (perm)	306	1853	1575	972	1863	1583	0	1524	0	0	1610	0
Right Turn on Red			No			No			No			
Satd. Flow (RTOR)												
Link Speed (mph)		55			55			55				
Link Distance (ft)		1116			1039			1050			1127	
Travel Time (s)		13.8			12.9			13.0			14.0	
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)				76	408	68	49	1018	17	22	26	19	29	68
46														
Shared Lane Traffic (%)														
Lane Group Flow (vph)				76	408	68	49	1018	17	0	67	0	0	143
0														
Turn Type				Perm	NA	Perm	Perm	NA	Perm		Perm	NA		Perm
NA														
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		14.0	14.0	14.0	
14.0														
Total Split (s)				46.0	46.0	46.0	46.0	46.0	46.0		14.0	14.0	14.0	
14.0														
Total Split (%)				76.7%	76.7%	76.7%	76.7%	76.7%	76.7%		23.3%	23.3%	23.3%	
23.3%														
Maximum Green (s)				39.0	39.0	39.0	39.0	39.0	39.0	7.0	7.0	7.0	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	
All-Red Time (s)				2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	
Lost Time Adjust (s)				-2.0	-2.0	-2.0	-2.0	-2.0	-2.0		-2.0	-2.0	-2.0	
Total Lost Time (s)				5.0	5.0	5.0	5.0	5.0	5.0		5.0	5.0	5.0	
Lead/Lag														
Lead-Lag Optimize?														
Vehicle Extension (s)				6.0	6.0	6.0	6.0	6.0	6.0	2.0	2.0	2.0	2.0	
Minimum Gap (s)				3.4	3.4	3.4	3.4	3.4	3.4	0.2	0.2	0.2	0.2	
Time Before Reduce (s)				20.0	20.0	20.0	20.0	20.0	20.0	0.0	0.0	0.0	0.0	
Time To Reduce (s)				30.0	30.0	30.0	30.0	30.0	30.0	0.0	0.0	0.0	0.0	
Recall Mode				Min	Min	Min	Min	Min	Min					

None	None	None	None				
Act Effct Green (s)		41.0	41.0	41.0	41.0	41.0	41.0
9.2	9.2						
Actuated g/C Ratio		0.74	0.74	0.74	0.74	0.74	0.74
0.17	0.17						
v/c Ratio		0.34	0.30	0.06	0.07	0.74	0.01
0.26	0.54						
Control Delay		9.2	4.4	3.4	3.5	10.9	3.1
25.6	32.7						
Queue Delay		0.0	0.0	0.0	0.0	0.0	0.0
0.0	0.0						
Total Delay		9.2	4.4	3.4	3.5	10.9	3.1
25.6	32.7						
LOS		A	A	A	A	B	A
C	C						
Approach Delay			4.9			10.5	
25.6	32.7						
Approach LOS			A			B	
C	C						
Queue Length 50th (ft)		9	47	6	5	203	2
22	49						
Queue Length 95th (ft)		34	80	16	13	#383	6
54	#113						
Internal Link Dist (ft)			1036			959	
970	1047						
Turn Bay Length (ft)		275		200	225		150
Base Capacity (vph)		231	1402	1192	735	1410	1197
253	267						
Starvation Cap Reductn		0	0	0	0	0	0
0	0						
Spillback Cap Reductn		0	0	0	0	0	0
0	0						
Storage Cap Reductn		0	0	0	0	0	0
0	0						
Reduced v/c Ratio		0.33	0.29	0.06	0.07	0.72	0.01
0.26	0.54						

Intersection Summary
Area Type: Other
Cycle Length: 60
Actuated Cycle Length: 55.3
Natural Cycle: 60
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.74
Intersection Signal Delay: 11.1 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.

NC54_2045_PM.syn VHB

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NC 54 2045_PM

104: Saxapahaw Road/Mebane Oaks Road & NC 54 Lanes, Volumes, Timings

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL
NBT NBR SBL SBT SBR							
Lane Configurations	0	<1	1	0	<1	1	0
<1> 0 0 <1> 0							
Traffic Volume (vph)	3	266	5	165	885	228	5
52 55 76 100 5							
Future Volume (vph)	3	266	5	165	885	228	5
52 55 76 100 5							
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	
1900 1900 1900 1900 1900 1900							
Storage Length (ft)	0		100	0		100	0
0 0 0							
Storage Lanes	0		1	0		1	0
0 0 0							
Taper Length (ft)	25			25			25
25							
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	
1.00 1.00 1.00 1.00 1.00 1.00							
Frt			0.850			0.850	
0.934 0.996							
Flt Protected		0.999			0.992		
0.998 0.980							
Satd. Flow (prot)	0	1861	1583	0	1848	1583	0
1736 0 0 1818 0							
Flt Permitted		0.999			0.992		
0.998 0.980							
Satd. Flow (perm)	0	1861	1583	0	1848	1583	0
1736 0 0 1818 0							
Link Speed (mph)		55			55		
35 35							
Link Distance (ft)		1021			1036		
1051 1036							
Travel Time (s)		12.7			12.8		
20.5 20.2							
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)	3	296	6	183	983	253	6

58 61 84 111 6
Shared Lane Traffic (%)

Lane Group Flow (vph) 0 299 6 0 1166 253 0
125 0 0 201 0
Sign Control Free Free
Stop Stop

Intersection Summary
Area Type: Other
Control Type: Unsignalized
Intersection Capacity Utilization 96.3% ICU Level
of Service F
Analysis Period (min) 15

NC54_2045_PM.syn VHB
↟
NC 54 2045_PM
104: Saxapahaw Road/Mebane Oaks Road & NC 54 HCM 2010 TWSC

Intersection

Int Delay, s/veh 0.8

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL
NBT NBR SBL SBT SBR							
Lane Configurations	0	<1	1	0	<1	1	0
<1> 0 0 <1> 0							
Traffic Vol, veh/h	3	266	5	165	885	228	5
52 55 76 100 5							
Future Vol, veh/h	3	266	5	165	885	228	5
52 55 76 100 5							
Conflicting Peds, #/hr	0	0	0	0	0	0	0
0 0 0 0 0							
Sign Control	Free	Free	Free	Free	Free	Free	
Stop Stop Stop Stop Stop Stop							
RT Channelized	-	-	None	-	-	None	-
- None - - None							
Storage Length	-	-	100	-	-	100	-
- - - - -							
Veh in Median Storage, #	-	0	-	-	0	-	-
- 0 - - 0 -							
Grade, %	-	0	-	-	0	-	-
0 - - 0 -							

Peak Hour Factor				90	90	90	90	90	90	90	90	90
Heavy Vehicles, %				2	2	2	2	2	2	2	2	2
Mvmt Flow				3	296	6	183	983	253	6	58	61

Major/Minor	Major1			Major2			Minor1		
									Minor2
Conflicting Flow All	983	0	0	296	0	0	1710	1652	296
Stage 1	-	-	-	-	-	-	1712	1652	983
Stage 2	-	-	-	-	-	-	302	-	1350
Critical Hdwy	4.12	-	-	4.12	-	-	1350	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-	1408	1350	-
Critical Hdwy Stg 2	-	-	-	-	-	-	7.12	6.52	6.22
Follow-up Hdwy	2.218	-	-	2.218	-	-	6.12	5.52	-
Pot Cap-1 Maneuver	703	-	-	1265	-	-	6.12	5.52	-
Stage 1	-	-	-	-	-	-	3.518	4.018	3.318
Stage 2	-	-	-	-	-	-	3.518	4.018	3.318
Platoon blocked, %		-	-		-	-	72	98	743
Mov Cap-1 Maneuver	703	-	-	1265	-	-	707	664	-
Mov Cap-2 Maneuver	-	-	-	-	-	-	172	219	-
Stage 1	-	-	-	-	-	-	~ 71	~ 98	302
Stage 2	-	-	-	-	-	-	186	219	-
							657	664	-
							-	-	-
							~ 48	743	-
							~ 48	302	-
							-	-	-
							~ 48	-	-
							-	-	-
							703	-	-
							661	-	-
							185	~ 108	-
							-	-	-
							108	-	-
							548	661	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.1	1.1		

HCM LOS - -

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	-	703	-	-	1265	-	-	-
HCM Lane V/C Ratio	-	0.005	-	-	0.145	-	-	-
HCM Control Delay (s)	-	10.1	0	-	8.3	0	-	-
HCM Lane LOS	-	B	A	-	A	A	-	-
HCM 95th %tile Q(veh)	-	0	-	-	0.5	-	-	-

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

NC54_2045_PM.syn VHB

NC 54 2045_PM
105: NC 54 & Orange Grove Road Lanes, Volumes, Timings

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	0	<1			1	1		1>		0		
Traffic Volume (vph)	24	398			1276	73		39		62		
Future Volume (vph)	24	398			1276	73		39		62		
Ideal Flow (vphpl)	1900	1900			1900	1900		1900		1900		
Storage Length (ft)	0					125		0		0		
Storage Lanes	0					1		1		0		
Taper Length (ft)	25							25				
Lane Util. Factor	1.00	1.00			1.00	1.00		1.00		1.00		
Frt						0.850						

	0.917				
Flt Protected		0.997			
	0.981				
Satd. Flow (prot)	0	1857		1863	1583
	1676	0			
Flt Permitted		0.997			
	0.981				
Satd. Flow (perm)	0	1857		1863	1583
	1676	0			
Link Speed (mph)		55		55	
	55				
Link Distance (ft)		1002		1028	
	1069				
Travel Time (s)		12.4		12.7	
	13.3				
Peak Hour Factor	0.90	0.90		0.90	0.90
	0.90	0.90			
Adj. Flow (vph)	27	442		1418	81
	43	69			
Shared Lane Traffic (%)					
Lane Group Flow (vph)	0	469		1418	81
	112	0			
Sign Control		Free		Free	
	Stop				

Intersection Summary
Area Type: Other
Control Type: Unsignalized
Intersection Capacity Utilization 79.8% ICU Level of Service D
Analysis Period (min) 15

NC54_2045_PM.syn VHB

NC 54 2045_PM
105: NC 54 & Orange Grove Road HCM 2010 TWSC

Intersection
Int Delay, s/veh 9.5

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	0	<1	1	1	1>	0
Traffic Vol, veh/h	24	398	1276	73	39	62
Future Vol, veh/h	24	398	1276	73	39	62

Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	125	0	-
Veh in Median Storage, #		-	0	0	-	0 -
Grade, %	-	0	0	-	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	27	442	1418	81	43	69

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	1418	0	-	0	1914	1418
Stage 1	-	-	-	-	1418	-
Stage 2	-	-	-	-	496	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	480	-	-	-	75	168
Stage 1	-	-	-	-	224	-
Stage 2	-	-	-	-	612	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	480	-	-	-	69	168
Mov Cap-2 Maneuver	-	-	-	-	69	-
Stage 1	-	-	-	-	224	-
Stage 2	-	-	-	-	566	-

Approach	EB	WB	SB
HCM Control Delay, s	0.7	0	172.3
HCM LOS			F

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	480	-	-	-	108
HCM Lane V/C Ratio	0.056	-	-	-	1.039
HCM Control Delay (s)	12.9	0	-	-	172.3
HCM Lane LOS	B	A	-	-	F
HCM 95th %tile Q(veh)	0.2	-	-	-	6.8

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		1	1	1	1	1	0	<1>	0	0	<1>	0
Traffic Volume (vph)		33	401	6	53	1460	91	2	23	38	32	38	39
Future Volume (vph)		33	401	6	53	1460	91	2	23	38	32	38	39
Ideal Flow (vphpl)		1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)			1%			0%			2%			4%	
Storage Length (ft)		100		125	200		125	0		0	0		0
Storage Lanes		1		1	1		1	0		0	0		0
Taper Length (ft)		100			100			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
Ped Bike Factor													0.99
Frt				0.850			0.850						0.919
Flt Protected		0.950			0.950								0.999
Satd. Flow (prot)		1761	1853	1575	1770	1863	1583	0	1668	0	0	1712	0
Flt Permitted		0.043			0.498								0.972
Satd. Flow (perm)		80	1853	1575	928	1863	1583	0	1623	0	0	1507	0
Right Turn on Red				No			No						
Satd. Flow (RTOR)									No				
Link Speed (mph)			55			55							55
Link Distance (ft)			1069			1419							1052
Travel Time (s)			13.3			17.6							13.0
Confl. Bikes (#/hr)													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)		37	446	7	59	1622	101	2	26	42	36	42	43

Shared Lane Traffic (%)

Lane Group Flow (vph)			37	446	7	59	1622	101	0	70	0	0	121	0
Turn Type			Perm	NA	Perm	Perm	NA	Perm		Perm	NA		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		14.0	14.0	14.0	14.0	
Total Split (s)			96.0	96.0	96.0	96.0	96.0	96.0		14.0	14.0	14.0	14.0	
Total Split (%)			87.3%	87.3%	87.3%	87.3%	87.3%	87.3%		12.7%	12.7%	12.7%	12.7%	
Maximum Green (s)			89.0	89.0	89.0	89.0	89.0	89.0	7.0	7.0	7.0	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		
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		
Total Lost Time (s)			5.0	5.0	5.0	5.0	5.0	5.0		5.0		5.0		
Lead/Lag														
Lead-Lag Optimize?														
Vehicle Extension (s)			6.0	6.0	6.0	6.0	6.0	6.0	2.0	2.0	2.0	2.0		
Minimum Gap (s)			3.2	3.2	3.2	3.2	3.2	3.2	0.2	0.2	0.2	0.2		
Time Before Reduce (s)			15.0	15.0	15.0	15.0	15.0	15.0	0.0	0.0	0.0	0.0		
Time To Reduce (s)			30.0	30.0	30.0	30.0	30.0	30.0	0.0	0.0	0.0	0.0		
Recall Mode			Min	Min	Min	Min	Min	Min		None	None	None	None	
Act Effct Green (s)			93.0	93.0	93.0	93.0	93.0	93.0		9.0		9.0		

Actuated g/C Ratio		0.83	0.83	0.83	0.83	0.83	0.83
0.08	0.08						
v/c Ratio		0.56	0.29	0.01	0.08	1.05	0.08
0.54	1.00						
Control Delay		40.4	2.7	1.7	2.0	49.0	1.9
64.5	134.0						
Queue Delay		0.0	0.0	0.0	0.0	0.0	0.0
0.0	0.0						
Total Delay		40.4	2.7	1.7	2.0	49.0	1.9
64.5	134.0						
LOS		D	A	A	A	D	A
E	F						
Approach Delay			5.5			44.8	
64.5	134.0						
Approach LOS			A			D	
E	F						
Queue Length 50th (ft)		6	53	1	6	~1254	10
48	87						
Queue Length 95th (ft)		#29	76	3	12	#1518	18
#97	#208						
Internal Link Dist (ft)			989			1339	
972	959						
Turn Bay Length (ft)		100		125	200		125
Base Capacity (vph)		66	1537	1307	770	1546	1314
130	121						
Starvation Cap Reductn		0	0	0	0	0	0
0	0						
Spillback Cap Reductn		0	0	0	0	0	0
0	0						
Storage Cap Reductn		0	0	0	0	0	0
0	0						
Reduced v/c Ratio		0.56	0.29	0.01	0.08	1.05	0.08
0.54	1.00						

Intersection Summary
Area Type: Other
Cycle Length: 110
Actuated Cycle Length: 112
Natural Cycle: 110
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 1.05
Intersection Signal Delay: 41.9 Intersection LOS: D
Intersection Capacity Utilization 98.0% ICU Level of Service F
Analysis Period (min) 15
~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

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

NC54_2045_PM.syn VHB

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NC 54 2045_PM

107: NC 54 & Bethel Hickory Grove Church Road Lanes, Volumes, Timings

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		1			1	1				1>		0
Traffic Volume (vph)	67	463			1443	67				32	149	
Future Volume (vph)	67	463			1443	67				32	149	
Ideal Flow (vphpl)	1900	1900			1900	1900				1900	1900	
Storage Length (ft)	200					200				0	0	
Storage Lanes	1					1				1	0	
Taper Length (ft)	100									25		
Lane Util. Factor	1.00	1.00			1.00	1.00				1.00	1.00	
Ped Bike Factor												
Frt						0.850				0.889		
Flt Protected	0.950									0.991		
Satd. Flow (prot)	1770	1863			1863	1583				1641	0	
Flt Permitted	0.950									0.991		
Satd. Flow (perm)	1770	1863			1863	1583				1641	0	
Link Speed (mph)		55			55					35		
Link Distance (ft)		1172			1135					1067		
Travel Time (s)		14.5			14.1					20.8		
Confl. Bikes (#/hr)												
	1											

Peak Hour Factor		0.90	0.90		0.90	0.90	
	0.90	0.90					
Adj. Flow (vph)		74	514		1603	74	
	36	166					
Shared Lane Traffic (%)							
Lane Group Flow (vph)		74	514		1603	74	
	202	0					
Sign Control			Free		Free		
	Stop						

Intersection Summary
Area Type: Other
Control Type: Unsignalized
Intersection Capacity Utilization 93.6% ICU Level of Service F
Analysis Period (min) 15

NC54_2045_PM.syn VHB

NC 54 2045_PM
107: NC 54 & Bethel Hickory Grove Church Road HCM 2010 TWSC

Intersection
Int Delay, s/veh 54.7

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	1	1	1	1	1>	0
Traffic Vol, veh/h	67	463	1443	67	32	149
Future Vol, veh/h	67	463	1443	67	32	149
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	200	-	-	200	0	-
Veh in Median Storage, #		-	0	0	-	0 -
Grade, %	-	0	0	-	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	74	514	1603	74	36	166

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	1603	0	-	0	2266	1603
Stage 1	-	-	-	-	1603	-
Stage 2	-	-	-	-	663	-

Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	408	-	-	-	45	~ 130
Stage 1	-	-	-	-	181	-
Stage 2	-	-	-	-	512	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	408	-	-	-	37	~ 130
Mov Cap-2 Maneuver	-	-	-	-	37	-
Stage 1	-	-	-	-	181	-
Stage 2	-	-	-	-	419	-

Approach	EB	WB	SB
HCM Control Delay, s	2	0	$ 665.4
HCM LOS			F

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	408	-	-	-	90
HCM Lane V/C Ratio	0.182	-	-	-	2.235
HCM Control Delay (s)	15.8	-	-	-	$ 665.4
HCM Lane LOS	C	-	-	-	F
HCM 95th %tile Q(veh)	0.7	-	-	-	18.1

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

NC54_2045_PM.syn VHB

NC 54 2045_PM
108: Old Fayetteville Road & NC 54 Lanes, Volumes, Timings

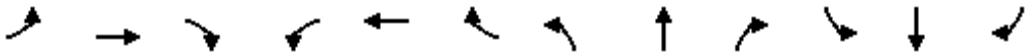
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL
NBT	NBR	SBL	SBT	SBR			
Lane Configurations	1	2>	0	1	2>	0	1
1>	0	1	1>	0			
Traffic Volume (vph)	56	502	80	49	1340	513	272
211	42	331	208	143			
Future Volume (vph)	56	502	80	49	1340	513	272
211	42	331	208	143			
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	
1900	1900	1900	1900	1900	1900		
Grade (%)		0%			3%		

-2%			-3%										
Storage Length (ft)				300		0		225			0		150
	0		225		0								
Storage Lanes				1		0		1			0		1
	0		1		0								
Taper Length (ft)				100				100					100
		100											
Lane Util. Factor				1.00		0.95		0.95		1.00		0.95	0.95
1.00	1.00		1.00	1.00		1.00		1.00					
Frt						0.979					0.958		
0.975			0.939										
Flt Protected				0.950				0.950					
0.950			0.950										
Satd. Flow (prot)				1752		3431		0		1726		3307	0
1770	1817		0	1779		1758		0					
Flt Permitted				0.950				0.950					
0.950			0.950										
Satd. Flow (perm)				1752		3431		0		1726		3307	0
1770	1817		0	1779		1758		0					
Right Turn on Red								No					No
	No					No							
Satd. Flow (RTOR)													
Link Speed (mph)						45					45		
35			35										
Link Distance (ft)						611					1330		
1021			1235										
Travel Time (s)						9.3					20.2		
19.9			24.1										
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							
Heavy Vehicles (%)				3%		3%		3%		3%		3%	3%
3%	3%		3%	3%									
Adj. Flow (vph)				62		558		89		54		1489	570
302	234		47	368		231		159					
Shared Lane Traffic (%)													
Lane Group Flow (vph)				62		647		0		54		2059	0
302	281		0	368		390		0					
Turn Type				Prot		NA				Prot		NA	
	Prot		NA			Prot		NA					
Protected Phases				5		2				1		6	
3	8		7	4									
Permitted Phases													
Detector Phase				5		2				1		6	
3	8		7	4									
Switch Phase													

Minimum Initial (s)			7.0	12.0		7.0	12.0		7.0	7.0	7.0
7.0	7.0	7.0									
Minimum Split (s)			14.0	19.0		14.0	19.0				
14.0	37.0	14.0	14.0								
Total Split (s)			14.0	66.0		15.0	67.0				
28.0	37.0	27.0	36.0								
Total Split (%)			9.7%	45.5%		10.3%	46.2%				
19.3%	25.5%	18.6%	24.8%								
Maximum Green (s)			7.0	59.0		8.0	60.0				
21.0	30.0	20.0	29.0								
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								
Total Lost Time (s)			5.0	5.0		5.0	5.0		5.0	5.0	5.0
5.0	5.0	5.0									
Lead/Lag			Lead	Lag		Lead	Lag				
Lead	Lag	Lead	Lag								
Lead-Lag Optimize?			Yes	Yes		Yes	Yes		Yes	Yes	Yes
Yes	Yes	Yes									
Vehicle Extension (s)			2.0	6.0		2.0	6.0		2.0	2.0	2.0
2.0	2.0	2.0									
Minimum Gap (s)			0.2	3.0		0.2	3.0		0.2	0.2	0.2
0.2	0.2	0.2									
Time Before Reduce (s)			0.0	15.0		0.0	15.0		0.0	0.0	0.0
0.0	0.0	0.0									
Time To Reduce (s)			0.0	45.0		0.0	45.0		0.0	0.0	0.0
0.0	0.0	0.0									
Recall Mode			None	C-Min		None	C-Min				
None	None	None	None								
Walk Time (s)											
7.0											
Flash Dont Walk (s)											
23.0											
Pedestrian Calls (#/hr)											
0											
Act Effct Green (s)			9.0	64.1		9.7	64.8				
23.0	32.0	22.0	31.0								
Actuated g/C Ratio			0.06	0.44		0.07	0.45				
0.16	0.22	0.15	0.21								
v/c Ratio			0.57	0.43		0.47	1.39				
1.08	0.70	1.37	1.04								
Control Delay			87.0	29.6		78.8	213.9				
132.1	62.7	232.1	111.5								
Queue Delay			0.0	0.0		0.0	0.0		0.0		

0.0		0.0		0.0									
Total Delay				87.0		29.6		78.8		213.9			
132.1	62.7			232.1		111.5							
LOS				F		C		E		F			F
E		F		F									
Approach Delay						34.7				210.4			
98.7				170.1									
Approach LOS						C				F			
F				F									
Queue Length 50th (ft)				58		227		50		~1394			
~317	247			~457		~396							
Queue Length 95th (ft)				#117		283		98		#1526			
#509	352			#662		#606							
Internal Link Dist (ft)						531				1250			
941				1155									
Turn Bay Length (ft)				300				225					150
	225												
Base Capacity (vph)				108		1517		119		1478			280
400		269		375									
Starvation Cap Reductn				0		0		0		0			0
0		0		0									
Spillback Cap Reductn				0		0		0		0			0
0		0		0									
Storage Cap Reductn				0		0		0		0			0
0		0		0									
Reduced v/c Ratio				0.57		0.43		0.45		1.39			
1.08	0.70			1.37		1.04							

Intersection Summary
Area Type: Other
Cycle Length: 145
Actuated Cycle Length: 145
Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBT, Start of Green
Natural Cycle: 145
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.39
Intersection Signal Delay: 157.5
Intersection LOS: F
Intersection Capacity Utilization 100.7% 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.



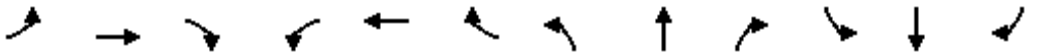
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	46	1170	105	47	1305	2	106	6	50	41	26	246
Future Volume (vph)	46	1170	105	47	1305	2	106	6	50	41	26	246
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		-2%			0%			-7%			0%	
Storage Length (ft)	0		0	0		0	100		0	100		0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (ft)	25			25			100			100		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.988						0.867			0.864	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1787	3532	0	1770	3539	0	1832	1672	0	1770	1609	0
Flt Permitted	0.950			0.950			0.336			0.716		
Satd. Flow (perm)	1787	3532	0	1770	3539	0	648	1672	0	1334	1609	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		40			40			35			35	
Link Distance (ft)		564			1045			1215			1014	
Travel Time (s)		9.6			17.8			23.7			19.8	
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)	51	1300	117	52	1450	2	118	7	56	46	29	273
Shared Lane Traffic (%)												
Lane Group Flow (vph)	51	1417	0	52	1452	0	118	63	0	46	302	0
Turn Type	Prot	NA		Prot	NA		Perm	NA		Perm	NA	
Protected Phases	5	2		1	6			8			4	
Permitted Phases							8			4		
Detector Phase	5	2		1	6		8	8		4	4	
Switch Phase												
Minimum Initial (s)	7.0	12.0		7.0	12.0		7.0	7.0		7.0	7.0	
Minimum Split (s)	14.8	19.0		14.6	19.0		14.0	14.0		14.0	14.0	
Total Split (s)	14.8	41.0		14.6	40.8		24.4	24.4		24.4	24.4	
Total Split (%)	18.5%	51.3%		18.3%	51.0%		30.5%	30.5%		30.5%	30.5%	
Maximum Green (s)	7.8	34.0		7.6	33.8		17.4	17.4		17.4	17.4	
Yellow Time (s)	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	
Lost Time Adjust (s)	-2.0	-2.0		-2.0	-2.0		-2.0	-2.0		-2.0	-2.0	
Total Lost Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Lead/Lag	Lead	Lag		Lead	Lag							
Lead-Lag Optimize?	Yes	Yes		Yes	Yes							
Vehicle Extension (s)	1.0	6.0		1.0	6.0		1.0	1.0		1.0	1.0	
Minimum Gap (s)	0.2	3.0		0.2	3.0		0.2	0.2		0.2	0.2	
Time Before Reduce (s)	0.0	15.0		0.0	15.0		0.0	0.0		0.0	0.0	
Time To Reduce (s)	0.0	30.0		0.0	30.0		0.0	0.0		0.0	0.0	
Recall Mode	None	C-Min		None	C-Min		None	None		None	None	
Act Effct Green (s)	9.2	43.5		9.1	43.4		18.0	18.0		18.0	18.0	
Actuated g/C Ratio	0.12	0.54		0.11	0.54		0.22	0.22		0.22	0.22	
v/c Ratio	0.25	0.74		0.26	0.76		0.81	0.17		0.15	0.83	
Control Delay	35.6	19.5		35.9	20.1		68.9	25.4		25.5	50.3	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Delay	35.6	19.5		35.9	20.1		68.9	25.4		25.5	50.3	
LOS	D	B		D	C		E	C		C	D	
Approach Delay		20.1			20.7			53.8			47.0	
Approach LOS		C			C			D			D	
Queue Length 50th (ft)	24	323		24	336		55	25		18	141	
Queue Length 95th (ft)	56	#474		57	#496		#143	56		45	#264	
Internal Link Dist (ft)		484			965			1135			934	
Turn Bay Length (ft)							100			100		
Base Capacity (vph)	218	1918		212	1920		157	405		323	390	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.23	0.74		0.25	0.76		0.75	0.16		0.14	0.77	

Intersection Summary			
Area Type:	Other		
Cycle Length: 80			
Actuated Cycle Length: 80			
Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBT, Start of Green			
Natural Cycle: 80			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.83			
Intersection Signal Delay: 24.8		Intersection LOS: C	
Intersection Capacity Utilization 74.0%		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: 101: Woody Drive & NC 54





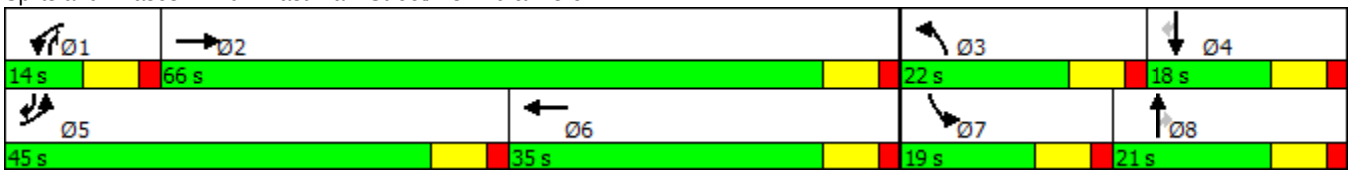
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	496	745	79	55	627	117	176	387	96	82	155	373
Future Volume (vph)	496	745	79	55	627	117	176	387	96	82	155	373
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		-2%			2%			3%			-2%	
Storage Length (ft)	150		150	175		150	250		200	150		250
Storage Lanes	2		0	1		0	1		1	1		1
Taper Length (ft)	100			100			100			100		
Lane Util. Factor	0.97	0.95	0.95	1.00	0.95	0.95	1.00	0.95	1.00	1.00	0.95	1.00
Frt		0.986			0.976				0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	3467	3525	0	1752	3420	0	1743	3486	1560	1787	3575	1599
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3467	3525	0	1752	3420	0	1743	3486	1560	1787	3575	1599
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		50			50			35			35	
Link Distance (ft)		1069			1063			1165			1025	
Travel Time (s)		14.6			14.5			22.7			20.0	
Peak Hour Factor	0.50	0.50	0.50	0.90	0.90	0.90	0.90	0.90	0.90	0.50	0.50	0.50
Adj. Flow (vph)	992	1490	158	61	697	130	196	430	107	164	310	746
Shared Lane Traffic (%)												
Lane Group Flow (vph)	992	1648	0	61	827	0	196	430	107	164	310	746
Turn Type	Prot	NA		Prot	NA		Prot	NA	pm+ov	Prot	NA	pm+ov
Protected Phases	5	2		1	6		3	8	1	7	4	5
Permitted Phases									8			4
Detector Phase	5	2		1	6		3	8	1	7	4	5
Switch Phase												
Minimum Initial (s)	7.0	14.0		7.0	14.0		7.0	7.0	7.0	7.0	7.0	7.0
Minimum Split (s)	14.0	21.0		14.0	21.0		14.0	14.0	14.0	14.0	14.0	14.0
Total Split (s)	45.0	66.0		14.0	35.0		22.0	21.0	14.0	19.0	18.0	45.0
Total Split (%)	37.5%	55.0%		11.7%	29.2%		18.3%	17.5%	11.7%	15.8%	15.0%	37.5%
Maximum Green (s)	38.0	59.0		7.0	28.0		15.0	14.0	7.0	12.0	11.0	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
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0		-2.0	-2.0		-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0		5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag	Lead	Lead	Lag	Lead
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	1.0	2.0		3.0	2.0		3.0	1.0	3.0	3.0	1.0	1.0
Recall Mode	None	Min		None	Min		None	None	None	None	None	None
Act Effct Green (s)	39.8	60.8		9.0	30.0		16.6	16.0	30.0	13.8	13.2	58.0
Actuated g/C Ratio	0.33	0.51		0.08	0.25		0.14	0.13	0.25	0.12	0.11	0.48
v/c Ratio	0.86	0.92		0.47	0.96		0.81	0.92	0.27	0.80	0.78	0.96
Control Delay	46.3	36.9		65.2	67.9		75.9	78.0	38.5	78.7	66.7	55.1
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	46.3	36.9		65.2	67.9		75.9	78.0	38.5	78.7	66.7	55.1
LOS	D	D		E	E		E	E	D	E	E	E
Approach Delay		40.4			67.7			71.7			61.2	

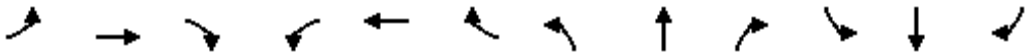
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Approach LOS		D			E			E			E	
Queue Length 50th (ft)	368	600		46	335		149	175	67	125	125	544
Queue Length 95th (ft)	207	273		92	#466		#268	#273	119	106	93	280
Internal Link Dist (ft)		989			983			1085			945	
Turn Bay Length (ft)	150			175			250		200	150		250
Base Capacity (vph)	1159	1797		131	858		247	466	391	209	395	778
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	0.86	0.92		0.47	0.96		0.79	0.92	0.27	0.78	0.78	0.96

Intersection Summary	
Area Type:	Other
Cycle Length: 120	
Actuated Cycle Length: 119.6	
Natural Cycle: 90	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.96	
Intersection Signal Delay: 53.7	Intersection LOS: D
Intersection Capacity Utilization 68.4%	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: 102: East Main Street/NC 119 & NC 54



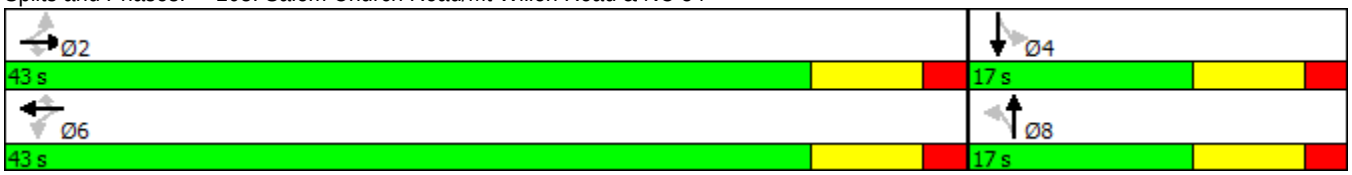


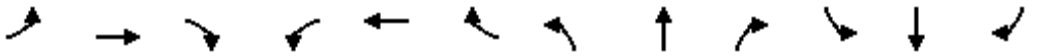
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	15	786	23	6	505	21	49	79	80	24	14	71
Future Volume (vph)	15	786	23	6	505	21	49	79	80	24	14	71
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		1%			0%			1%			2%	
Storage Length (ft)	275		200	225		150	0		0	0		0
Storage Lanes	1		1	1		1	0		0	0		0
Taper Length (ft)	100			100			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		0.948			0.913	
Flt Protected	0.950			0.950				0.988			0.989	
Satd. Flow (prot)	1761	1853	1575	1770	1863	1583	0	1736	0	0	1665	0
Flt Permitted	0.394			0.197				0.906			0.850	
Satd. Flow (perm)	730	1853	1575	367	1863	1583	0	1592	0	0	1431	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		55			55			55			55	
Link Distance (ft)		1116			1039			1050			1127	
Travel Time (s)		13.8			12.9			13.0			14.0	
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)	17	873	26	7	561	23	54	88	89	27	16	79
Shared Lane Traffic (%)												
Lane Group Flow (vph)	17	873	26	7	561	23	0	231	0	0	122	0
Turn Type	Perm	NA	Perm	Perm	NA	Perm	Perm	NA		Perm	NA	
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	14.0	14.0		14.0	14.0	
Total Split (s)	43.0	43.0	43.0	43.0	43.0	43.0	17.0	17.0		17.0	17.0	
Total Split (%)	71.7%	71.7%	71.7%	71.7%	71.7%	71.7%	28.3%	28.3%		28.3%	28.3%	
Maximum Green (s)	36.0	36.0	36.0	36.0	36.0	36.0	10.0	10.0		10.0	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	
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	
Total Lost Time (s)	5.0	9.0	5.0	5.0	5.0	5.0		5.0			5.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	6.0	6.0	6.0	6.0	6.0	6.0	2.0	2.0		2.0	2.0	
Minimum Gap (s)	3.4	3.4	3.4	3.4	3.4	3.4	0.2	0.2		0.2	0.2	
Time Before Reduce (s)	20.0	20.0	20.0	20.0	20.0	20.0	0.0	0.0		0.0	0.0	
Time To Reduce (s)	30.0	30.0	30.0	30.0	30.0	30.0	0.0	0.0		0.0	0.0	
Recall Mode	Min	Min	Min	Min	Min	Min	None	None		None	None	
Act Effct Green (s)	35.8	31.7	35.8	35.8	35.8	35.8		11.5			11.5	
Actuated g/C Ratio	0.62	0.55	0.62	0.62	0.62	0.62		0.20			0.20	
v/c Ratio	0.04	0.85	0.03	0.03	0.48	0.02		0.72			0.43	
Control Delay	4.4	21.3	4.2	4.5	7.5	4.2		37.9			26.1	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0		0.0			0.0	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Delay	4.4	21.3	4.2	4.5	7.5	4.2		37.9			26.1	
LOS	A	C	A	A	A	A		D			C	
Approach Delay		20.5			7.4			37.9			26.1	
Approach LOS		C			A			D			C	
Queue Length 50th (ft)	2	229	3	1	89	3		79			39	
Queue Length 95th (ft)	8	#466	10	5	149	9		#174			83	
Internal Link Dist (ft)		1036			959			970			1047	
Turn Bay Length (ft)	275		200	225		150						
Base Capacity (vph)	486	1105	1049	244	1241	1055		335			301	
Starvation Cap Reductn	0	0	0	0	0	0		0			0	
Spillback Cap Reductn	0	0	0	0	0	0		0			0	
Storage Cap Reductn	0	0	0	0	0	0		0			0	
Reduced v/c Ratio	0.03	0.79	0.02	0.03	0.45	0.02		0.69			0.41	

Intersection Summary			
Area Type:	Other		
Cycle Length: 60			
Actuated Cycle Length: 57.3			
Natural Cycle: 60			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.85			
Intersection Signal Delay: 18.8		Intersection LOS: B	
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: 103: Salem Church Road/Mt Willen Road & NC 54





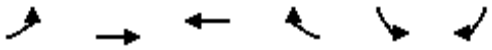
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	6	815	5	41	352	55	15	109	218	179	70	2
Future Volume (vph)	6	815	5	41	352	55	15	109	218	179	70	2
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		100	0		100	150		0	150		0
Storage Lanes	0		1	0		1	1		0	1		0
Taper Length (ft)	25			25			100			100		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850			0.850		0.900			0.996	
Flt Protected					0.995		0.950			0.950		
Satd. Flow (prot)	0	1863	1583	0	1853	1583	1770	1676	0	1770	1855	0
Flt Permitted		0.997			0.487		0.705			0.373		
Satd. Flow (perm)	0	1857	1583	0	907	1583	1313	1676	0	695	1855	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		55			55			35			35	
Link Distance (ft)		1021			1036			1051			1036	
Travel Time (s)		12.7			12.8			20.5			20.2	
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)	7	906	6	46	391	61	17	121	242	199	78	2
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	913	6	0	437	61	17	363	0	199	80	0
Turn Type	Perm	NA	Perm	Perm	NA	Perm	Perm	NA		Perm	NA	
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	14.0	14.0		14.0	14.0	
Total Split (s)	46.0	46.0	46.0	46.0	46.0	46.0	29.0	29.0		29.0	29.0	
Total Split (%)	61.3%	61.3%	61.3%	61.3%	61.3%	61.3%	38.7%	38.7%		38.7%	38.7%	
Maximum Green (s)	39.0	39.0	39.0	39.0	39.0	39.0	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	
Total Lost Time (s)		5.0	5.0		5.0	5.0	5.0	5.0		5.0	5.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Recall Mode	Min	Min	Min	Min	Min	Min	None	None		None	None	
Act Effct Green (s)		38.9	38.9		38.9	38.9	23.3	23.3		23.3	23.3	
Actuated g/C Ratio		0.54	0.54		0.54	0.54	0.32	0.32		0.32	0.32	
v/c Ratio		0.91	0.01		0.90	0.07	0.04	0.67		0.89	0.13	
Control Delay		30.8	7.8		39.8	8.4	18.1	29.1		65.8	19.0	
Queue Delay		0.0	0.0		0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay		30.8	7.8		39.8	8.4	18.1	29.1		65.8	19.0	
LOS		C	A		D	A	B	C		E	B	
Approach Delay		30.7			35.9			28.6			52.4	
Approach LOS		C			D			C			D	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 50th (ft)		350	1		164	12	5	145		87	26	
Queue Length 95th (ft)		#615	6		#355	29	19	237		#210	56	
Internal Link Dist (ft)		941			956			971			956	
Turn Bay Length (ft)			100			100	150			150		
Base Capacity (vph)		1059	902		516	902	438	559		232	619	
Starvation Cap Reductn		0	0		0	0	0	0		0	0	
Spillback Cap Reductn		0	0		0	0	0	0		0	0	
Storage Cap Reductn		0	0		0	0	0	0		0	0	
Reduced v/c Ratio		0.86	0.01		0.85	0.07	0.04	0.65		0.86	0.13	

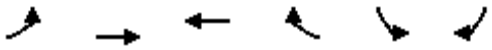
Intersection Summary			
Area Type:	Other		
Cycle Length: 75			
Actuated Cycle Length: 72.3			
Natural Cycle: 75			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.91			
Intersection Signal Delay: 34.5		Intersection LOS: C	
Intersection Capacity Utilization 94.4%		ICU Level of Service F	
Analysis Period (min) 15			
# 95th percentile volume exceeds capacity, queue may be longer.			
Queue shown is maximum after two cycles.			

Splits and Phases: 104: Saxapahaw Road/Mebane Oaks Road & NC 54





Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	68	1273	426	46	80	15
Future Volume (vph)	68	1273	426	46	80	15
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	150			125	0	150
Storage Lanes	1			1	1	1
Taper Length (ft)	100				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)	1770	1863	1863	1583	1770	1583
Flt Permitted	0.485				0.950	
Satd. Flow (perm)	903	1863	1863	1583	1770	1583
Right Turn on Red				No		No
Satd. Flow (RTOR)						
Link Speed (mph)		55	55		35	
Link Distance (ft)		1002	1028		1069	
Travel Time (s)		12.4	12.7		20.8	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	76	1414	473	51	89	17
Shared Lane Traffic (%)						
Lane Group Flow (vph)	76	1414	473	51	89	17
Turn Type	Perm	NA	NA	Perm	Prot	Perm
Protected Phases		2	6		4	
Permitted Phases	2			6		4
Detector Phase	2	2	6	6	4	4
Switch Phase						
Minimum Initial (s)	14.0	14.0	14.0	14.0	7.0	7.0
Minimum Split (s)	21.0	21.0	21.0	21.0	14.0	14.0
Total Split (s)	76.0	76.0	76.0	76.0	14.0	14.0
Total Split (%)	84.4%	84.4%	84.4%	84.4%	15.6%	15.6%
Maximum Green (s)	69.0	69.0	69.0	69.0	7.0	7.0
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 Optimize?						
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	Min	Min	Min	Min	None	None
Act Effct Green (s)	73.5	73.5	73.5	73.5	9.3	9.3
Actuated g/C Ratio	0.84	0.84	0.84	0.84	0.11	0.11
v/c Ratio	0.10	0.91	0.30	0.04	0.48	0.10
Control Delay	2.5	18.5	2.9	2.1	48.9	39.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	2.5	18.5	2.9	2.1	48.9	39.0
LOS	A	B	A	A	D	D
Approach Delay		17.7	2.9		47.3	
Approach LOS		B	A		D	



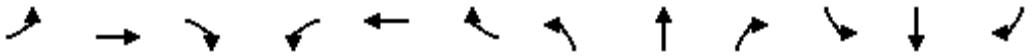
Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Queue Length 50th (ft)	8	532	57	5	50	9
Queue Length 95th (ft)	16	#1064	86	11	97	29
Internal Link Dist (ft)		922	948		989	
Turn Bay Length (ft)	150			125		150
Base Capacity (vph)	756	1561	1561	1326	187	167
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.10	0.91	0.30	0.04	0.48	0.10

Intersection Summary			
Area Type:	Other		
Cycle Length: 90			
Actuated Cycle Length: 87.7			
Natural Cycle: 90			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.91			
Intersection Signal Delay: 15.5		Intersection LOS: B	
Intersection Capacity Utilization 81.2%		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: 105: NC 54 & Orange Grove Road





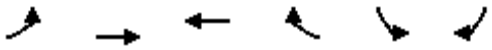
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	42	1406	2	12	429	35	6	41	61	117	15	35
Future Volume (vph)	42	1406	2	12	429	35	6	41	61	117	15	35
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		1%			0%			2%			4%	
Storage Length (ft)	100		125	200		125	0		0	0		0
Storage Lanes	1		0	1		1	0		0	0		0
Taper Length (ft)	100			100			25			25		
Lane Util. Factor	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor								0.99				
Frt						0.850		0.924			0.972	
Flt Protected	0.950			0.950				0.997			0.966	
Satd. Flow (prot)	1761	3522	0	1770	1863	1583	0	1686	0	0	1714	0
Flt Permitted	0.950			0.950				0.977			0.736	
Satd. Flow (perm)	1761	3522	0	1770	1863	1583	0	1652	0	0	1306	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		55			55			55			55	
Link Distance (ft)		1069			1419			1052			1039	
Travel Time (s)		13.3			17.6			13.0			12.9	
Confl. Bikes (#/hr)									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)	47	1562	2	13	477	39	7	46	68	130	17	39
Shared Lane Traffic (%)												
Lane Group Flow (vph)	47	1564	0	13	477	39	0	121	0	0	186	0
Turn Type	Prot	NA		Prot	NA	Perm	Perm	NA		Perm	NA	
Protected Phases	5	2		1	6			8			4	
Permitted Phases						6	8			4		
Detector Phase	5	2		1	6	6	8	8		4	4	
Switch Phase												
Minimum Initial (s)	7.0	14.0		7.0	14.0	14.0	7.0	7.0		7.0	7.0	
Minimum Split (s)	14.0	21.0		14.0	21.0	21.0	14.0	14.0		14.0	14.0	
Total Split (s)	14.0	40.0		14.0	40.0	40.0	16.0	16.0		16.0	16.0	
Total Split (%)	20.0%	57.1%		20.0%	57.1%	57.1%	22.9%	22.9%		22.9%	22.9%	
Maximum Green (s)	7.0	33.0		7.0	33.0	33.0	9.0	9.0		9.0	9.0	
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	
Total Lost Time (s)	5.0	5.0		5.0	5.0	5.0		5.0			5.0	
Lead/Lag	Lead	Lag		Lead	Lag	Lag						
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes						
Vehicle Extension (s)	3.0	6.0		3.0	6.0	6.0	2.0	2.0		2.0	2.0	
Minimum Gap (s)	3.0	3.2		3.0	3.2	3.2	0.2	0.2		0.2	0.2	
Time Before Reduce (s)	0.0	15.0		0.0	15.0	15.0	0.0	0.0		0.0	0.0	
Time To Reduce (s)	0.0	30.0		0.0	30.0	30.0	0.0	0.0		0.0	0.0	
Recall Mode	None	Min		None	Min	Min	None	None		None	None	
Act Effct Green (s)	9.1	39.5		9.1	33.9	33.9		11.1			11.1	
Actuated g/C Ratio	0.14	0.62		0.14	0.54	0.54		0.18			0.18	
v/c Ratio	0.19	0.71		0.05	0.48	0.05		0.42			0.82	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Control Delay	27.3	11.9		25.9	12.8	9.4		29.2			56.3	
Queue Delay	0.0	0.0		0.0	0.0	0.0		0.0			0.0	
Total Delay	27.3	11.9		25.9	12.8	9.4		29.2			56.3	
LOS	C	B		C	B	A		C			E	
Approach Delay		12.4			12.8			29.2			56.3	
Approach LOS		B			B			C			E	
Queue Length 50th (ft)	15	154		4	129	8		40			66	
Queue Length 95th (ft)	47	#457		20	207	22		96			#192	
Internal Link Dist (ft)		989			1339			972			959	
Turn Bay Length (ft)	100			200		125						
Base Capacity (vph)	252	2203		253	1086	923		289			228	
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	0.19	0.71		0.05	0.44	0.04		0.42			0.82	

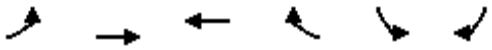
Intersection Summary			
Area Type:	Other		
Cycle Length: 70			
Actuated Cycle Length: 63.2			
Natural Cycle: 70			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.82			
Intersection Signal Delay: 16.7		Intersection LOS: B	
Intersection Capacity Utilization 63.3%		ICU Level of Service B	
Analysis Period (min) 15			
# 95th percentile volume exceeds capacity, queue may be longer.			
Queue shown is maximum after two cycles.			

Splits and Phases: 106: Butler Road/Dodsons Crossroads & NC 54





Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	179	1461	434	46	33	35
Future Volume (vph)	179	1461	434	46	33	35
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	200			200	0	150
Storage Lanes	1			0	1	1
Taper Length (ft)	100				25	
Lane Util. Factor	1.00	1.00	0.95	0.95	1.00	1.00
Ped Bike Factor						0.98
Frt			0.986			0.850
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1770	1863	3490	0	1770	1583
Flt Permitted	0.454				0.950	
Satd. Flow (perm)	846	1863	3490	0	1770	1559
Right Turn on Red				No		No
Satd. Flow (RTOR)						
Link Speed (mph)		55	55		35	
Link Distance (ft)		1172	1135		1067	
Travel Time (s)		14.5	14.1		20.8	
Confl. Bikes (#/hr)						1
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	199	1623	482	51	37	39
Shared Lane Traffic (%)						
Lane Group Flow (vph)	199	1623	533	0	37	39
Turn Type	Perm	NA	NA		Prot	Perm
Protected Phases		2	6		4	
Permitted Phases	2					4
Detector Phase	2	2	6		4	4
Switch Phase						
Minimum Initial (s)	14.0	14.0	14.0		7.0	7.0
Minimum Split (s)	21.0	21.0	21.0		14.0	14.0
Total Split (s)	126.0	126.0	126.0		14.0	14.0
Total Split (%)	90.0%	90.0%	90.0%		10.0%	10.0%
Maximum Green (s)	119.0	119.0	119.0		7.0	7.0
Yellow Time (s)	5.0	5.0	5.0		5.0	5.0
All-Red Time (s)	2.0	2.0	2.0		2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0		-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0		5.0	5.0
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0
Recall Mode	Min	Min	Min		None	None
Act Effct Green (s)	122.3	122.3	122.3		9.0	9.0
Actuated g/C Ratio	0.89	0.89	0.89		0.07	0.07
v/c Ratio	0.26	0.98	0.17		0.32	0.38
Control Delay	2.5	27.3	1.4		70.4	74.1
Queue Delay	0.0	0.0	0.0		0.0	0.0
Total Delay	2.5	27.3	1.4		70.4	74.1
LOS	A	C	A		E	E



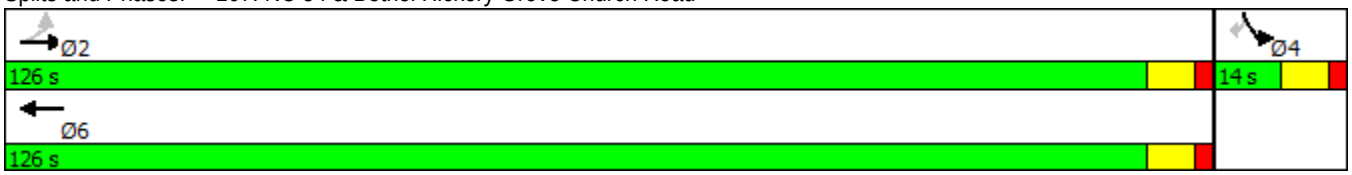
Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Approach Delay		24.6	1.4		72.3	
Approach LOS		C	A		E	
Queue Length 50th (ft)	24	~1218	30		33	35
Queue Length 95th (ft)	39	#1810	38		72	75
Internal Link Dist (ft)		1092	1055		987	
Turn Bay Length (ft)	200					150
Base Capacity (vph)	754	1661	3111		116	102
Starvation 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	0.26	0.98	0.17		0.32	0.38

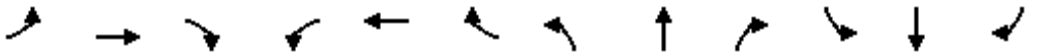
Intersection Summary			
Area Type:	Other		
Cycle Length: 140			
Actuated Cycle Length: 137.2			
Natural Cycle: 140			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.98			
Intersection Signal Delay: 21.0		Intersection LOS: C	
Intersection Capacity Utilization 91.1%		ICU Level of Service F	
Analysis Period (min) 15			

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

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

Splits and Phases: 107: NC 54 & Bethel Hickory Grove Church Road



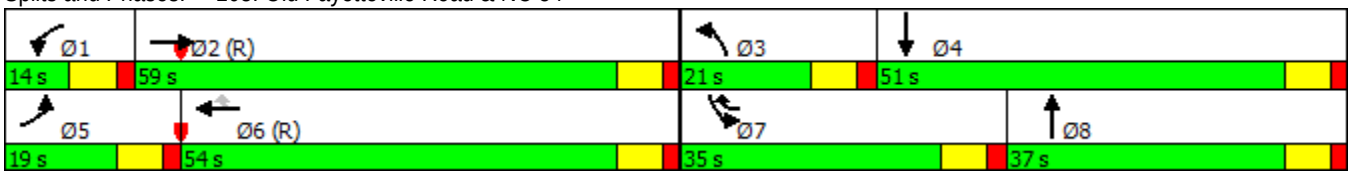


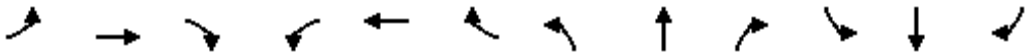
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	190	1460	120	6	437	393	39	275	29	605	214	82
Future Volume (vph)	190	1460	120	6	437	393	39	275	29	605	214	82
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		0%			3%			-2%			-3%	
Storage Length (ft)	300		0	225		0	150		0	225		0
Storage Lanes	2		0	2		1	2		0	2		0
Taper Length (ft)	100			100			100			100		
Lane Util. Factor	0.97	0.95	0.95	0.97	0.95	1.00	0.97	0.95	0.95	0.97	1.00	1.00
Frt		0.989				0.850		0.986			0.959	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	3400	3466	0	3349	3452	1544	3434	3490	0	3451	1796	0
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3400	3466	0	3349	3452	1544	3434	3490	0	3451	1796	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		45			45			35			35	
Link Distance (ft)		611			1330			1021			1235	
Travel Time (s)		9.3			20.2			19.9			24.1	
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
Heavy Vehicles (%)	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%
Adj. Flow (vph)	211	1622	133	7	486	437	43	306	32	672	238	91
Shared Lane Traffic (%)												
Lane Group Flow (vph)	211	1755	0	7	486	437	43	338	0	672	329	0
Turn Type	Prot	NA		Prot	NA	pm+ov	Prot	NA		Prot	NA	
Protected Phases	5	2		1	6	7	3	8		7	4	
Permitted Phases						6						
Detector Phase	5	2		1	6	7	3	8		7	4	
Switch Phase												
Minimum Initial (s)	7.0	12.0		7.0	12.0	7.0	7.0	7.0		7.0	7.0	
Minimum Split (s)	14.0	19.0		14.0	19.0	14.0	14.0	37.0		14.0	14.0	
Total Split (s)	19.0	59.0		14.0	54.0	35.0	21.0	37.0		35.0	51.0	
Total Split (%)	13.1%	40.7%		9.7%	37.2%	24.1%	14.5%	25.5%		24.1%	35.2%	
Maximum Green (s)	12.0	52.0		7.0	47.0	28.0	14.0	30.0		28.0	44.0	
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	0.0	-2.0	-2.0		-2.0	-2.0	
Total Lost Time (s)	5.0	5.0		5.0	5.0	7.0	5.0	5.0		5.0	5.0	
Lead/Lag	Lead	Lag		Lead	Lag	Lead	Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes	Yes	Yes		Yes	Yes	
Vehicle Extension (s)	2.0	6.0		2.0	6.0	2.0	2.0	2.0		2.0	2.0	
Minimum Gap (s)	0.2	3.0		0.2	3.0	0.2	0.2	0.2		0.2	0.2	
Time Before Reduce (s)	0.0	15.0		0.0	15.0	0.0	0.0	0.0		0.0	0.0	
Time To Reduce (s)	0.0	45.0		0.0	45.0	0.0	0.0	0.0		0.0	0.0	
Recall Mode	None	C-Min		None	C-Min	None	None	None		None	None	
Walk Time (s)								7.0				
Flash Dont Walk (s)								23.0				
Pedestrian Calls (#/hr)								0				
Act Effct Green (s)	15.3	76.9		9.0	59.4	92.3	9.2	20.4		29.9	43.9	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Actuated g/C Ratio	0.11	0.53		0.06	0.41	0.64	0.06	0.14		0.21	0.30	
v/c Ratio	0.59	0.96		0.03	0.34	0.45	0.20	0.69		0.94	0.60	
Control Delay	68.4	45.5		64.3	31.4	16.2	66.6	66.6		78.8	49.0	
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay	68.4	45.5		64.3	31.4	16.2	66.6	66.6		78.8	49.0	
LOS	E	D		E	C	B	E	E		E	D	
Approach Delay		48.0			24.5			66.6			69.0	
Approach LOS		D			C			E			E	
Queue Length 50th (ft)	99	772		3	164	198	20	162		325	273	
Queue Length 95th (ft)	139	#1197		12	234	326	41	209		#443	368	
Internal Link Dist (ft)		531			1250			941			1155	
Turn Bay Length (ft)	300			225			150			225		
Base Capacity (vph)	372	1837		207	1413	983	378	770		714	580	
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	0.57	0.96		0.03	0.34	0.44	0.11	0.44		0.94	0.57	

Intersection Summary			
Area Type:	Other		
Cycle Length: 145			
Actuated Cycle Length: 145			
Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBT, Start of Green			
Natural Cycle: 145			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.96			
Intersection Signal Delay: 49.5		Intersection LOS: D	
Intersection Capacity Utilization 92.5%		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.			

Splits and Phases: 108: Old Fayetteville Road & NC 54





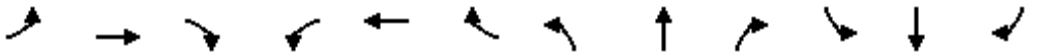
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	162	1287	55	26	1177	14	126	15	88	17	9	102
Future Volume (vph)	162	1287	55	26	1177	14	126	15	88	17	9	102
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		-2%			0%			-7%			0%	
Storage Length (ft)	0		0	0		0	100		0	100		0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (ft)	25			25			100			100		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.994			0.998			0.872			0.862	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1787	3553	0	1770	3532	0	1832	1681	0	1770	1606	0
Flt Permitted	0.950			0.950			0.678			0.683		
Satd. Flow (perm)	1787	3553	0	1770	3532	0	1307	1681	0	1272	1606	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		40			40			35			35	
Link Distance (ft)		564			1045			1215			1014	
Travel Time (s)		9.6			17.8			23.7			19.8	
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)	180	1430	61	29	1308	16	140	17	98	19	10	113
Shared Lane Traffic (%)												
Lane Group Flow (vph)	180	1491	0	29	1324	0	140	115	0	19	123	0
Turn Type	Prot	NA		Prot	NA		Perm	NA		Perm	NA	
Protected Phases	5	2		1	6			8			4	
Permitted Phases							8			4		
Detector Phase	5	2		1	6		8	8		4	4	
Switch Phase												
Minimum Initial (s)	7.0	12.0		7.0	12.0		7.0	7.0		7.0	7.0	
Minimum Split (s)	14.8	19.0		14.6	19.0		14.0	14.0		14.0	14.0	
Total Split (s)	14.8	31.4		14.6	31.2		14.0	14.0		14.0	14.0	
Total Split (%)	24.7%	52.3%		24.3%	52.0%		23.3%	23.3%		23.3%	23.3%	
Maximum Green (s)	7.8	24.4		7.6	24.2		7.0	7.0		7.0	7.0	
Yellow Time (s)	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	
Lost Time Adjust (s)	-2.0	-2.0		-2.0	-2.0		-2.0	-2.0		-2.0	-2.0	
Total Lost Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Lead/Lag	Lead	Lag		Lead	Lag							
Lead-Lag Optimize?	Yes	Yes		Yes	Yes							
Vehicle Extension (s)	1.0	6.0		1.0	6.0		1.0	1.0		1.0	1.0	
Minimum Gap (s)	0.2	3.0		0.2	3.0		0.2	0.2		0.2	0.2	
Time Before Reduce (s)	0.0	15.0		0.0	15.0		0.0	0.0		0.0	0.0	
Time To Reduce (s)	0.0	30.0		0.0	30.0		0.0	0.0		0.0	0.0	
Recall Mode	None	C-Min		None	C-Min		None	None		None	None	
Act Effct Green (s)	9.6	35.4		9.0	26.4		9.0	9.0		9.0	9.0	
Actuated g/C Ratio	0.16	0.59		0.15	0.44		0.15	0.15		0.15	0.15	
v/c Ratio	0.63	0.71		0.11	0.85		0.71	0.46		0.10	0.51	
Control Delay	34.9	14.3		23.3	22.4		47.7	29.8		23.5	31.9	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Delay	34.9	14.3		23.3	22.4		47.7	29.8		23.5	31.9	
LOS	C	B		C	C		D	C		C	C	
Approach Delay		16.5			22.4			39.6			30.7	
Approach LOS		B			C			D			C	
Queue Length 50th (ft)	61	122		9	215		49	39		6	42	
Queue Length 95th (ft)	#132	#403		29	#343		#128	82		22	87	
Internal Link Dist (ft)		484			965			1135			934	
Turn Bay Length (ft)							100			100		
Base Capacity (vph)	291	2095		283	1551		196	252		190	240	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.62	0.71		0.10	0.85		0.71	0.46		0.10	0.51	

Intersection Summary			
Area Type:	Other		
Cycle Length: 60			
Actuated Cycle Length: 60			
Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBT, Start of Green			
Natural Cycle: 60			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.85			
Intersection Signal Delay: 21.2		Intersection LOS: C	
Intersection Capacity Utilization 69.3%		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: 101: Woody Drive & NC 54





Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	206	561	147	90	872	88	83	124	26	97	222	244
Future Volume (vph)	206	561	147	90	872	88	83	124	26	97	222	244
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		-2%			2%			3%			-2%	
Storage Length (ft)	150		150	175		150	250		200	150		250
Storage Lanes	2		0	1		0	1		1	1		1
Taper Length (ft)	100			100			100			100		
Lane Util. Factor	0.97	0.95	0.95	1.00	0.95	0.95	1.00	0.95	1.00	1.00	0.95	1.00
Frt		0.969			0.986				0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	3467	3464	0	1752	3455	0	1743	3486	1560	1787	3575	1599
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3467	3464	0	1752	3455	0	1743	3486	1560	1787	3575	1599
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		50			50			35			35	
Link Distance (ft)		1069			1063			1165			1025	
Travel Time (s)		14.6			14.5			22.7			20.0	
Peak Hour Factor	0.50	0.50	0.50	0.90	0.90	0.90	0.90	0.90	0.90	0.50	0.50	0.50
Adj. Flow (vph)	412	1122	294	100	969	98	92	138	29	194	444	488
Shared Lane Traffic (%)												
Lane Group Flow (vph)	412	1416	0	100	1067	0	92	138	29	194	444	488
Turn Type	Prot	NA		Prot	NA		Prot	NA	pm+ov	Prot	NA	pm+ov
Protected Phases	5	2		1	6		3	8	1	7	4	5
Permitted Phases									8			4
Detector Phase	5	2		1	6		3	8	1	7	4	5
Switch Phase												
Minimum Initial (s)	7.0	14.0		7.0	14.0		7.0	7.0	7.0	7.0	7.0	7.0
Minimum Split (s)	14.0	21.0		14.0	21.0		14.0	14.0	14.0	14.0	14.0	14.0
Total Split (s)	30.0	65.0		16.0	51.0		15.0	14.0	16.0	25.0	24.0	30.0
Total Split (%)	25.0%	54.2%		13.3%	42.5%		12.5%	11.7%	13.3%	20.8%	20.0%	25.0%
Maximum Green (s)	23.0	58.0		9.0	44.0		8.0	7.0	9.0	18.0	17.0	23.0
Yellow Time (s)	5.0	5.0		5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0		-2.0	-2.0		-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0		5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag	Lead	Lead	Lag	Lead
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	1.0	2.0		3.0	2.0		3.0	1.0	3.0	3.0	1.0	1.0
Recall Mode	None	Min		None	Min		None	None	None	None	None	None
Act Effct Green (s)	19.6	51.7		10.7	42.7		9.9	9.8	25.5	17.5	17.4	42.1
Actuated g/C Ratio	0.18	0.47		0.10	0.39		0.09	0.09	0.23	0.16	0.16	0.38
v/c Ratio	0.67	0.87		0.59	0.79		0.59	0.45	0.08	0.68	0.78	0.80
Control Delay	48.2	32.9		65.2	35.7		67.2	55.4	37.9	58.1	56.3	41.4
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	48.2	32.9		65.2	35.7		67.2	55.4	37.9	58.1	56.3	41.4
LOS	D	C		E	D		E	E	D	E	E	D
Approach Delay		36.4			38.3			57.6			50.1	

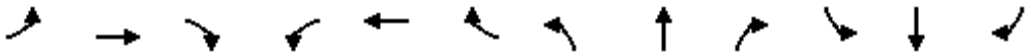
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Approach LOS		D			D			E			D	
Queue Length 50th (ft)	145	472		71	359		66	51	17	134	164	309
Queue Length 95th (ft)	103	232		#146	471		#141	90	45	115	121	198
Internal Link Dist (ft)		989			983			1085			945	
Turn Bay Length (ft)	150			175			250		200	150		250
Base Capacity (vph)	798	1915		177	1464		160	310	368	329	625	695
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	0.52	0.74		0.56	0.73		0.57	0.45	0.08	0.59	0.71	0.70

Intersection Summary	
Area Type:	Other
Cycle Length: 120	
Actuated Cycle Length: 109.9	
Natural Cycle: 90	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.87	
Intersection Signal Delay: 41.7	Intersection LOS: D
Intersection Capacity Utilization 61.4%	ICU Level of Service B
Analysis Period (min) 15	

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

Splits and Phases: 102: East Main Street/NC 119 & NC 54



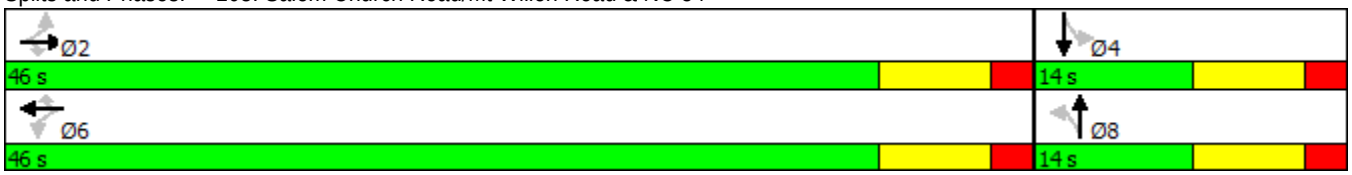


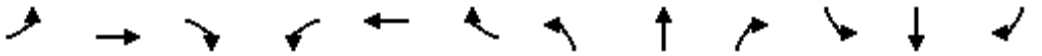
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	68	367	61	44	916	15	20	23	17	26	61	41
Future Volume (vph)	68	367	61	44	916	15	20	23	17	26	61	41
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		1%			0%			1%			2%	
Storage Length (ft)	275		200	225		150	0		0	0		0
Storage Lanes	1		1	1		1	0		0	0		0
Taper Length (ft)	100			100			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		0.962			0.957	
Flt Protected	0.950			0.950				0.984			0.990	
Satd. Flow (prot)	1761	1853	1575	1770	1863	1583	0	1754	0	0	1747	0
Flt Permitted	0.165			0.523				0.855			0.912	
Satd. Flow (perm)	306	1853	1575	974	1863	1583	0	1524	0	0	1610	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		55			55			55			55	
Link Distance (ft)		1116			1039			1050			1127	
Travel Time (s)		13.8			12.9			13.0			14.0	
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)	76	408	68	49	1018	17	22	26	19	29	68	46
Shared Lane Traffic (%)												
Lane Group Flow (vph)	76	408	68	49	1018	17	0	67	0	0	143	0
Turn Type	Perm	NA	Perm	Perm	NA	Perm	Perm	NA		Perm	NA	
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	14.0	14.0		14.0	14.0	
Total Split (s)	46.0	46.0	46.0	46.0	46.0	46.0	14.0	14.0		14.0	14.0	
Total Split (%)	76.7%	76.7%	76.7%	76.7%	76.7%	76.7%	23.3%	23.3%		23.3%	23.3%	
Maximum Green (s)	39.0	39.0	39.0	39.0	39.0	39.0	7.0	7.0		7.0	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	
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	
Total Lost Time (s)	5.0	9.0	5.0	5.0	5.0	5.0		5.0			5.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	6.0	6.0	6.0	6.0	6.0	6.0	2.0	2.0		2.0	2.0	
Minimum Gap (s)	3.4	3.4	3.4	3.4	3.4	3.4	0.2	0.2		0.2	0.2	
Time Before Reduce (s)	20.0	20.0	20.0	20.0	20.0	20.0	0.0	0.0		0.0	0.0	
Time To Reduce (s)	30.0	30.0	30.0	30.0	30.0	30.0	0.0	0.0		0.0	0.0	
Recall Mode	Min	Min	Min	Min	Min	Min	None	None		None	None	
Act Effct Green (s)	41.0	37.9	41.0	41.0	41.0	41.0		9.2			9.2	
Actuated g/C Ratio	0.74	0.69	0.74	0.74	0.74	0.74		0.17			0.17	
v/c Ratio	0.34	0.32	0.06	0.07	0.74	0.01		0.26			0.54	
Control Delay	9.2	6.2	3.4	3.5	10.9	3.1		25.6			32.7	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0		0.0			0.0	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Delay	9.2	6.2	3.4	3.5	10.9	3.1		25.6			32.7	
LOS	A	A	A	A	B	A		C			C	
Approach Delay		6.3			10.5			25.6			32.7	
Approach LOS		A			B			C			C	
Queue Length 50th (ft)	9	62	6	5	203	2		22			49	
Queue Length 95th (ft)	34	105	16	13	#383	6		54			#113	
Internal Link Dist (ft)		1036			959			970			1047	
Turn Bay Length (ft)	275		200	225		150						
Base Capacity (vph)	231	1265	1192	736	1410	1197		253			267	
Starvation Cap Reductn	0	0	0	0	0	0		0			0	
Spillback Cap Reductn	0	0	0	0	0	0		0			0	
Storage Cap Reductn	0	0	0	0	0	0		0			0	
Reduced v/c Ratio	0.33	0.32	0.06	0.07	0.72	0.01		0.26			0.54	

Intersection Summary			
Area Type:	Other		
Cycle Length: 60			
Actuated Cycle Length: 55.3			
Natural Cycle: 60			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.74			
Intersection Signal Delay: 11.5		Intersection LOS: B	
Intersection Capacity Utilization 76.4%		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: 103: Salem Church Road/Mt Willen Road & NC 54



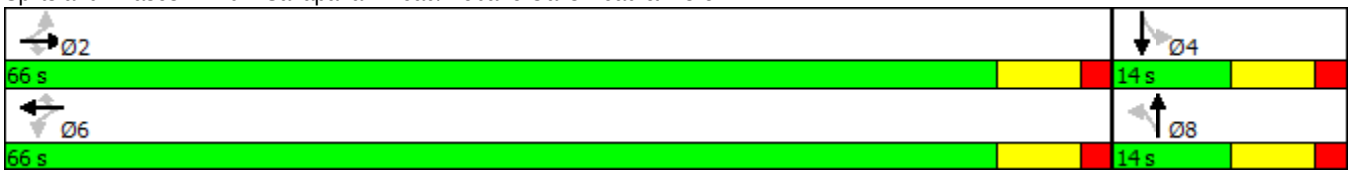


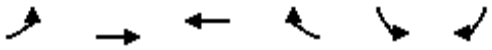
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	3	266	5	165	885	228	5	52	55	76	100	5
Future Volume (vph)	3	266	5	165	885	228	5	52	55	76	100	5
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	150		100	150		100	0		0	0		0
Storage Lanes	0		1	0		1	1		0	1		0
Taper Length (ft)	100			100			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		0.923			0.992	
Flt Protected		0.999			0.992		0.950			0.950		
Satd. Flow (prot)	0	1861	1583	0	1848	1583	1770	1719	0	1770	1848	0
Flt Permitted		0.992			0.883		0.682			0.681		
Satd. Flow (perm)	0	1848	1583	0	1645	1583	1270	1719	0	1269	1848	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		55			55			35			35	
Link Distance (ft)		1021			1036			1051			1036	
Travel Time (s)		12.7			12.8			20.5			20.2	
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)	3	296	6	183	983	253	6	58	61	84	111	6
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	299	6	0	1166	253	6	119	0	84	117	0
Turn Type	Perm	NA	Perm	Perm	NA	Perm	Perm	NA		Perm	NA	
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	14.0	14.0		14.0	14.0	
Total Split (s)	66.0	66.0	66.0	66.0	66.0	66.0	14.0	14.0		14.0	14.0	
Total Split (%)	82.5%	82.5%	82.5%	82.5%	82.5%	82.5%	17.5%	17.5%		17.5%	17.5%	
Maximum Green (s)	59.0	59.0	59.0	59.0	59.0	59.0	7.0	7.0		7.0	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	
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	
Total Lost Time (s)		5.0	5.0		5.0	5.0	5.0	5.0		5.0	5.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Recall Mode	Min	Min	Min	Min	Min	Min	None	None		None	None	
Act Effct Green (s)		60.6	60.6		60.6	60.6	9.0	9.0		9.0	9.0	
Actuated g/C Ratio		0.76	0.76		0.76	0.76	0.11	0.11		0.11	0.11	
v/c Ratio		0.21	0.00		0.93	0.21	0.04	0.61		0.59	0.56	
Control Delay		3.1	2.2		23.5	3.2	32.6	48.9		52.3	45.0	
Queue Delay		0.0	0.0		0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay		3.1	2.2		23.5	3.2	32.6	48.9		52.3	45.0	
LOS		A	A		C	A	C	D		D	D	
Approach Delay		3.1			19.8			48.2			48.0	
Approach LOS		A			B			D			D	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 50th (ft)		32	1		362	27	3	58		41	56	
Queue Length 95th (ft)		52	3		#805	46	14	#125		#101	#111	
Internal Link Dist (ft)		941			956			971			956	
Turn Bay Length (ft)			100			100						
Base Capacity (vph)		1415	1212		1260	1212	143	194		143	208	
Starvation Cap Reductn		0	0		0	0	0	0		0	0	
Spillback Cap Reductn		0	0		0	0	0	0		0	0	
Storage Cap Reductn		0	0		0	0	0	0		0	0	
Reduced v/c Ratio		0.21	0.00		0.93	0.21	0.04	0.61		0.59	0.56	

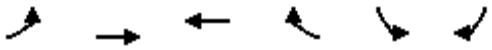
Intersection Summary			
Area Type:	Other		
Cycle Length: 80			
Actuated Cycle Length: 79.6			
Natural Cycle: 80			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.93			
Intersection Signal Delay: 21.8		Intersection LOS: C	
Intersection Capacity Utilization 93.2%		ICU Level of Service F	
Analysis Period (min) 15			
# 95th percentile volume exceeds capacity, queue may be longer.			
Queue shown is maximum after two cycles.			

Splits and Phases: 104: Saxapahaw Road/Mebane Oaks Road & NC 54





Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	24	398	1276	73	39	62
Future Volume (vph)	24	398	1276	73	39	62
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	150			125	0	150
Storage Lanes	1			1	1	1
Taper Length (ft)	100				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)	1770	1863	1863	1583	1770	1583
Flt Permitted	0.056				0.950	
Satd. Flow (perm)	104	1863	1863	1583	1770	1583
Right Turn on Red				No		No
Satd. Flow (RTOR)						
Link Speed (mph)		55	55		35	
Link Distance (ft)		1002	1028		1069	
Travel Time (s)		12.4	12.7		20.8	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	27	442	1418	81	43	69
Shared Lane Traffic (%)						
Lane Group Flow (vph)	27	442	1418	81	43	69
Turn Type	Perm	NA	NA	Perm	Prot	Perm
Protected Phases		2	6		4	
Permitted Phases	2			6		4
Detector Phase	2	2	6	6	4	4
Switch Phase						
Minimum Initial (s)	14.0	14.0	14.0	14.0	7.0	7.0
Minimum Split (s)	21.0	21.0	21.0	21.0	14.0	14.0
Total Split (s)	76.0	76.0	76.0	76.0	14.0	14.0
Total Split (%)	84.4%	84.4%	84.4%	84.4%	15.6%	15.6%
Maximum Green (s)	69.0	69.0	69.0	69.0	7.0	7.0
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 Optimize?						
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	Min	Min	Min	Min	None	None
Act Effct Green (s)	73.4	73.4	73.4	73.4	9.3	9.3
Actuated g/C Ratio	0.84	0.84	0.84	0.84	0.11	0.11
v/c Ratio	0.31	0.28	0.91	0.06	0.23	0.41
Control Delay	13.4	2.8	18.9	2.2	41.6	47.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	13.4	2.8	18.9	2.2	41.6	47.3
LOS	B	A	B	A	D	D
Approach Delay		3.5	18.0		45.1	
Approach LOS		A	B		D	

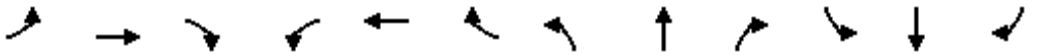


Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Queue Length 50th (ft)	3	53	538	8	23	38
Queue Length 95th (ft)	22	79	#1069	16	55	80
Internal Link Dist (ft)		922	948		989	
Turn Bay Length (ft)	150			125		150
Base Capacity (vph)	87	1560	1560	1325	187	167
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.31	0.28	0.91	0.06	0.23	0.41

Intersection Summary			
Area Type:	Other		
Cycle Length: 90			
Actuated Cycle Length: 87.7			
Natural Cycle: 90			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.91			
Intersection Signal Delay: 16.2		Intersection LOS: B	
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: 105: NC 54 & Orange Grove Road





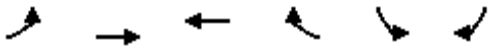
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	33	401	6	53	1460	91	2	23	38	32	38	39
Future Volume (vph)	33	401	6	53	1460	91	2	23	38	32	38	39
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		1%			0%			2%			4%	
Storage Length (ft)	100		125	200		125	0		0	0		0
Storage Lanes	1		0	1		0	0		0	0		0
Taper Length (ft)	100			100			25			25		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor								0.99				
Frt		0.998			0.991			0.919			0.952	
Flt Protected	0.950			0.950				0.999			0.985	
Satd. Flow (prot)	1761	3514	0	1770	3507	0	0	1679	0	0	1712	0
Flt Permitted	0.950			0.950				0.988			0.908	
Satd. Flow (perm)	1761	3514	0	1770	3507	0	0	1661	0	0	1578	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		55			55			55			55	
Link Distance (ft)		1069			1419			1052			1039	
Travel Time (s)		13.3			17.6			13.0			12.9	
Confl. Bikes (#/hr)									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)	37	446	7	59	1622	101	2	26	42	36	42	43
Shared Lane Traffic (%)												
Lane Group Flow (vph)	37	453	0	59	1723	0	0	70	0	0	121	0
Turn Type	Prot	NA		Prot	NA		Perm	NA		Perm	NA	
Protected Phases	5	2		1	6			8			4	
Permitted Phases							8			4		
Detector Phase	5	2		1	6		8	8		4	4	
Switch Phase												
Minimum Initial (s)	7.0	14.0		7.0	14.0		7.0	7.0		7.0	7.0	
Minimum Split (s)	14.0	21.0		14.0	21.0		14.0	14.0		14.0	14.0	
Total Split (s)	14.0	59.0		14.0	59.0		17.0	17.0		17.0	17.0	
Total Split (%)	15.6%	65.6%		15.6%	65.6%		18.9%	18.9%		18.9%	18.9%	
Maximum Green (s)	7.0	52.0		7.0	52.0		10.0	10.0		10.0	10.0	
Yellow Time (s)	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	
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							
Lead-Lag Optimize?	Yes	Yes		Yes	Yes							
Vehicle Extension (s)	3.0	6.0		3.0	6.0		2.0	2.0		2.0	2.0	
Minimum Gap (s)	3.0	3.2		3.0	3.2		0.2	0.2		0.2	0.2	
Time Before Reduce (s)	0.0	15.0		0.0	15.0		0.0	0.0		0.0	0.0	
Time To Reduce (s)	0.0	30.0		0.0	30.0		0.0	0.0		0.0	0.0	
Recall Mode	None	Min		None	Min		None	None		None	None	
Act Effct Green (s)	9.3	54.4		9.3	54.4			11.2			11.2	
Actuated g/C Ratio	0.12	0.69		0.12	0.69			0.14			0.14	
v/c Ratio	0.18	0.19		0.28	0.71			0.30			0.54	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Control Delay	38.7	7.0		40.2	13.3			37.7			44.3	
Queue Delay	0.0	0.0		0.0	0.0			0.0			0.0	
Total Delay	38.7	7.0		40.2	13.3			37.7			44.3	
LOS	D	A		D	B			D			D	
Approach Delay		9.4			14.2			37.7			44.3	
Approach LOS		A			B			D			D	
Queue Length 50th (ft)	20	56		32	371			37			66	
Queue Length 95th (ft)	49	80		70	476			77			#124	
Internal Link Dist (ft)		989			1339			972			959	
Turn Bay Length (ft)	100			200								
Base Capacity (vph)	209	2602		210	2597			263			249	
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	0.18	0.17		0.28	0.66			0.27			0.49	

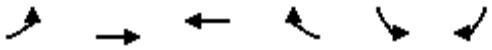
Intersection Summary			
Area Type:	Other		
Cycle Length: 90			
Actuated Cycle Length: 78.5			
Natural Cycle: 70			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.71			
Intersection Signal Delay: 15.4		Intersection LOS: B	
Intersection Capacity Utilization 65.2%		ICU Level of Service C	
Analysis Period (min) 15			
# 95th percentile volume exceeds capacity, queue may be longer.			
Queue shown is maximum after two cycles.			

Splits and Phases: 106: Butler Road/Dodsons Crossroads & NC 54





Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	67	463	1443	67	32	149
Future Volume (vph)	67	463	1443	67	32	149
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	200			200	0	150
Storage Lanes	1			0	1	1
Taper Length (ft)	100				25	
Lane Util. Factor	1.00	1.00	0.95	0.95	1.00	1.00
Ped Bike Factor						0.99
Frt			0.993			0.850
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1770	1863	3514	0	1770	1583
Flt Permitted	0.105				0.950	
Satd. Flow (perm)	196	1863	3514	0	1770	1562
Right Turn on Red				No		No
Satd. Flow (RTOR)						
Link Speed (mph)		55	55		35	
Link Distance (ft)		1172	1135		1067	
Travel Time (s)		14.5	14.1		20.8	
Confl. Bikes (#/hr)						1
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	74	514	1603	74	36	166
Shared Lane Traffic (%)						
Lane Group Flow (vph)	74	514	1677	0	36	166
Turn Type	Perm	NA	NA		Prot	Perm
Protected Phases		2	6		4	
Permitted Phases	2					4
Detector Phase	2	2	6		4	4
Switch Phase						
Minimum Initial (s)	14.0	14.0	14.0		7.0	7.0
Minimum Split (s)	21.0	21.0	21.0		14.0	14.0
Total Split (s)	46.0	46.0	46.0		14.0	14.0
Total Split (%)	76.7%	76.7%	76.7%		23.3%	23.3%
Maximum Green (s)	39.0	39.0	39.0		7.0	7.0
Yellow Time (s)	5.0	5.0	5.0		5.0	5.0
All-Red Time (s)	2.0	2.0	2.0		2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0		-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0		5.0	5.0
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0
Recall Mode	Min	Min	Min		None	None
Act Effct Green (s)	38.1	38.1	38.1		9.0	9.0
Actuated g/C Ratio	0.67	0.67	0.67		0.16	0.16
v/c Ratio	0.57	0.41	0.72		0.13	0.67
Control Delay	27.6	5.5	8.2		22.9	39.9
Queue Delay	0.0	0.0	0.0		0.0	0.0
Total Delay	27.6	5.5	8.2		22.9	39.9
LOS	C	A	A		C	D

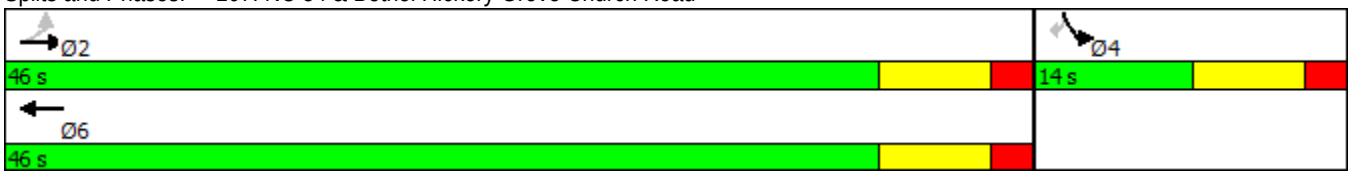


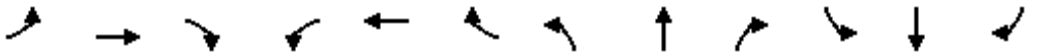
Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Approach Delay		8.3	8.2		36.9	
Approach LOS		A	A		D	
Queue Length 50th (ft)	11	64	152		10	53
Queue Length 95th (ft)	#77	107	215		33	#140
Internal Link Dist (ft)		1092	1055		987	
Turn Bay Length (ft)	200					150
Base Capacity (vph)	140	1341	2529		279	246
Starvation Cap 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	0.53	0.38	0.66		0.13	0.67

Intersection Summary			
Area Type:	Other		
Cycle Length: 60			
Actuated Cycle Length: 57.2			
Natural Cycle: 60			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.72			
Intersection Signal Delay: 10.6		Intersection LOS: B	
Intersection Capacity Utilization 69.8%		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: 107: NC 54 & Bethel Hickory Grove Church Road



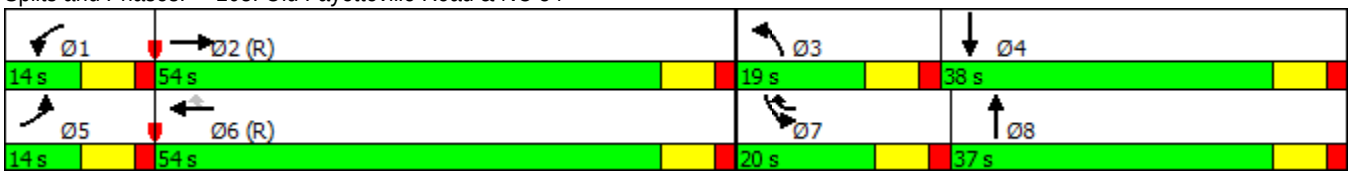


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	56	502	80	49	1340	513	272	211	42	331	208	143
Future Volume (vph)	56	502	80	49	1340	513	272	211	42	331	208	143
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		0%			3%			-2%			-3%	
Storage Length (ft)	300		0	225		0	150		0	225		0
Storage Lanes	2		0	2		1	2		0	2		0
Taper Length (ft)	100			100			100			100		
Lane Util. Factor	0.97	0.95	0.95	0.97	0.95	1.00	0.97	0.95	0.95	0.97	1.00	1.00
Frt		0.979				0.850		0.975			0.939	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	3400	3431	0	3349	3452	1544	3434	3451	0	3451	1758	0
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3400	3431	0	3349	3452	1544	3434	3451	0	3451	1758	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		45			45			35			35	
Link Distance (ft)		611			1330			1021			1235	
Travel Time (s)		9.3			20.2			19.9			24.1	
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
Heavy Vehicles (%)	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%
Adj. Flow (vph)	62	558	89	54	1489	570	302	234	47	368	231	159
Shared Lane Traffic (%)												
Lane Group Flow (vph)	62	647	0	54	1489	570	302	281	0	368	390	0
Turn Type	Prot	NA		Prot	NA	pm+ov	Prot	NA		Prot	NA	
Protected Phases	5	2		1	6	7	3	8		7	4	
Permitted Phases						6						
Detector Phase	5	2		1	6	7	3	8		7	4	
Switch Phase												
Minimum Initial (s)	7.0	12.0		7.0	12.0	7.0	7.0	7.0		7.0	7.0	
Minimum Split (s)	14.0	19.0		14.0	19.0	14.0	14.0	37.0		14.0	14.0	
Total Split (s)	14.0	54.0		14.0	54.0	20.0	19.0	37.0		20.0	38.0	
Total Split (%)	11.2%	43.2%		11.2%	43.2%	16.0%	15.2%	29.6%		16.0%	30.4%	
Maximum Green (s)	7.0	47.0		7.0	47.0	13.0	12.0	30.0		13.0	31.0	
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	0.0	-2.0	-2.0		-2.0	-2.0	
Total Lost Time (s)	5.0	5.0		5.0	5.0	7.0	5.0	5.0		5.0	5.0	
Lead/Lag	Lead	Lag		Lead	Lag	Lead	Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes	Yes	Yes		Yes	Yes	
Vehicle Extension (s)	2.0	6.0		2.0	6.0	2.0	2.0	2.0		2.0	2.0	
Minimum Gap (s)	0.2	3.0		0.2	3.0	0.2	0.2	0.2		0.2	0.2	
Time Before Reduce (s)	0.0	15.0		0.0	15.0	0.0	0.0	0.0		0.0	0.0	
Time To Reduce (s)	0.0	45.0		0.0	45.0	0.0	0.0	0.0		0.0	0.0	
Recall Mode	None	C-Min		None	C-Min	None	None	None		None	None	
Walk Time (s)								7.0				
Flash Dont Walk (s)								23.0				
Pedestrian Calls (#/hr)								0				
Act Effct Green (s)	9.0	53.8		9.0	53.8	71.8	13.9	30.0		15.0	31.1	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Actuated g/C Ratio	0.07	0.43		0.07	0.43	0.57	0.11	0.24		0.12	0.25	
v/c Ratio	0.25	0.44		0.22	1.00	0.64	0.79	0.34		0.89	0.89	
Control Delay	57.7	27.5		57.2	60.6	23.9	70.1	40.1		78.0	68.3	
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay	57.7	27.5		57.2	60.6	23.9	70.1	40.1		78.0	68.3	
LOS	E	C		E	E	C	E	D		E	E	
Approach Delay		30.1			50.6			55.6			73.0	
Approach LOS		C			D			E			E	
Queue Length 50th (ft)	24	204		21	~718	326	124	97		153	299	
Queue Length 95th (ft)	48	260		43	#858	466	#188	138		#239	#464	
Internal Link Dist (ft)		531			1250			941			1155	
Turn Bay Length (ft)	300			225			150			225		
Base Capacity (vph)	244	1476		241	1485	886	384	883		414	464	
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	0.25	0.44		0.22	1.00	0.64	0.79	0.32		0.89	0.84	

Intersection Summary			
Area Type:	Other		
Cycle Length: 125			
Actuated Cycle Length: 125			
Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBT, Start of Green			
Natural Cycle: 125			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 1.00			
Intersection Signal Delay: 51.9		Intersection LOS: D	
Intersection Capacity Utilization 77.0%		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: 108: Old Fayetteville Road & NC 54



Phone: Fax:
E-Mail:

Directional Two-Lane Highway Segment Analysis

Analyst	CFB
Agency/Co.	VHB
Date Performed	11/13/2017
Analysis Time Period	AM
Highway	NC 54
From/To	Bethel Hickory/Old Fayettevill
Jurisdiction	Orange County
Analysis Year	2017
Description	Capacity Analysis - NC 54 (EB)

Input Data

Highway class	Class 2		Peak hour factor, PHF	0.90	
Shoulder width	4.0	ft	% Trucks and buses	2	%
Lane width	12.0	ft	% Trucks crawling	0.0	%
Segment length	2.6	mi	Truck crawl speed	0.0	mi/hr
Terrain type	Rolling		% Recreational vehicles	0	%
Grade: Length	-	mi	% No-passing zones	81	%
Up/down	-	%	Access point density	16	/mi

Analysis direction volume, Vd	1166	veh/h
Opposing direction volume, Vo	368	veh/h

Average Travel Speed

Direction	Analysis(d)		Opposing (o)	
PCE for trucks, ET	1.3		2.0	
PCE for RVs, ER	1.1		1.1	
Heavy-vehicle adj. factor,(note-5) fHV	0.994		0.980	
Grade adj. factor,(note-1) fg	1.00		0.90	
Directional flow rate,(note-2) vi	1303	pc/h	464	pc/h

Free-Flow Speed from Field Measurement:		
Field measured speed,(note-3) S FM	-	mi/h
Observed total demand,(note-3) V	-	veh/h
Estimated Free-Flow Speed:		
Base free-flow speed,(note-3) BFFS	60.0	mi/h
Adj. for lane and shoulder width,(note-3) fLS	1.3	mi/h
Adj. for access point density,(note-3) fA	4.0	mi/h
Free-flow speed, FFSd	54.7	mi/h
Adjustment for no-passing zones, fnp	2.4	mi/h
Average travel speed, ATSd	38.6	mi/h
Percent Free Flow Speed, PFFS	70.5	%

Percent Time-Spent-Following

Direction	Analysis(d)	Opposing (o)
PCE for trucks, ET	1.0	1.4
PCE for RVs, ER	1.0	1.0
Heavy-vehicle adjustment factor, fHV	1.000	0.992
Grade adjustment factor,(note-1) fg	1.00	0.91
Directional flow rate,(note-2) vi	1296 pc/h	453 pc/h
Base percent time-spent-following,(note-4) BPTSFd	81.5 %	
Adjustment for no-passing zones, fnp	14.9	
Percent time-spent-following, PTSFd	92.5 %	

Level of Service and Other Performance Measures

Level of service, LOS	E	
Volume to capacity ratio, v/c	0.76	
Peak 15-min vehicle-miles of travel, VMT15	842	veh-mi
Peak-hour vehicle-miles of travel, VMT60	3032	veh-mi
Peak 15-min total travel time, TT15	21.8	veh-h
Capacity from ATS, CdATS	0	veh/h
Capacity from PTSF, CdPTSF	1700	veh/h
Directional Capacity	1700	veh/h

Passing Lane Analysis

Total length of analysis segment, Lt	2.6	mi
Length of two-lane highway upstream of the passing lane, Lu	-	mi
Length of passing lane including tapers, Lpl	-	mi
Average travel speed, ATSd (from above)	38.6	mi/h
Percent time-spent-following, PTSFd (from above)	92.5	
Level of service, LOSd (from above)	E	

Average Travel Speed with Passing Lane

Downstream length of two-lane highway within effective length of passing lane for average travel speed, Lde	-	mi
Length of two-lane highway downstream of effective length of the passing lane for average travel speed, Ld	-	mi
Adj. factor for the effect of passing lane on average speed, fpl	-	
Average travel speed including passing lane, ATSpl	-	
Percent free flow speed including passing lane, PFFSpl	0.0	%

Percent Time-Spent-Following with Passing Lane

Downstream length of two-lane highway within effective length of passing lane for percent time-spent-following, Lde	-	mi
Length of two-lane highway downstream of effective length of the passing lane for percent time-spent-following, Ld	-	mi
Adj. factor for the effect of passing lane on percent time-spent-following, fpl	-	
Percent time-spent-following including passing lane, PTSFpl	-	%

Level of Service and Other Performance Measures with Passing Lane

Level of service including passing lane, LOSpl	A	
Peak 15-min total travel time, TT15	-	veh-h

Bicycle Level of Service

Posted speed limit, Sp	55
Percent of segment with occupied on-highway parking	0
Pavement rating, P	3
Flow rate in outside lane, vOL	1295.6
Effective width of outside lane, We	16.00
Effective speed factor, St	4.79
Bicycle LOS Score, BLOS	4.59
Bicycle LOS	E

Notes:
1. Note that the adjustment factor for level terrain is 1.00, as level terrain is one of the base conditions. For the purpose of grade adjustment, specific dewngrade segments are treated as level terrain.
2. If vi (vd or vo) >= 1,700 pc/h, terminate analysis-the LOS is F.
3. For the analysis direction only and for v>200 veh/h.
4. For the analysis direction only.
5. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.

Phone: Fax:
E-Mail:

Directional Two-Lane Highway Segment Analysis

Analyst	CFB
Agency/Co.	VHB
Date Performed	11/13/2017
Analysis Time Period	AM
Highway	NC 54
From/To	Bethel Hickory/Old Fayettevill
Jurisdiction	Orange County
Analysis Year	2017
Description	Capacity Analysis - NC 54 (WB)

Input Data

Highway class	Class 2		Peak hour factor, PHF	0.90	
Shoulder width	4.0	ft	% Trucks and buses	2	%
Lane width	12.0	ft	% Trucks crawling	0.0	%
Segment length	2.6	mi	Truck crawl speed	0.0	mi/hr
Terrain type	Rolling		% Recreational vehicles	0	%
Grade: Length	-	mi	% No-passing zones	81	%
Up/down	-	%	Access point density	16	/mi

Analysis direction volume, Vd	368	veh/h
Opposing direction volume, Vo	1166	veh/h

Average Travel Speed

Direction	Analysis(d)		Opposing (o)	
PCE for trucks, ET	2.0		1.3	
PCE for RVs, ER	1.1		1.1	
Heavy-vehicle adj. factor,(note-5) fHV	0.980		0.994	
Grade adj. factor,(note-1) fg	0.90		1.00	
Directional flow rate,(note-2) vi	464	pc/h	1303	pc/h

Free-Flow Speed from Field Measurement:		
Field measured speed,(note-3) S FM	-	mi/h
Observed total demand,(note-3) V	-	veh/h
Estimated Free-Flow Speed:		
Base free-flow speed,(note-3) BFFS	60.0	mi/h
Adj. for lane and shoulder width,(note-3) fLS	1.3	mi/h
Adj. for access point density,(note-3) fA	4.0	mi/h
Free-flow speed, FFSd	54.7	mi/h
Adjustment for no-passing zones, fnp	0.8	mi/h
Average travel speed, ATSd	40.2	mi/h
Percent Free Flow Speed, PFFS	73.5	%

Percent Time-Spent-Following

Direction	Analysis(d)	Opposing (o)
PCE for trucks, ET	1.4	1.0
PCE for RVs, ER	1.0	1.0
Heavy-vehicle adjustment factor, fHV	0.992	1.000
Grade adjustment factor,(note-1) fg	0.91	1.00
Directional flow rate,(note-2) vi	453 pc/h	1296 pc/h
Base percent time-spent-following,(note-4) BPTSFd	57.7 %	
Adjustment for no-passing zones, fnp	14.9	
Percent time-spent-following, PTSFd	61.6 %	

Level of Service and Other Performance Measures

Level of service, LOS	C	
Volume to capacity ratio, v/c	0.53	
Peak 15-min vehicle-miles of travel, VMT15	266	veh-mi
Peak-hour vehicle-miles of travel, VMT60	957	veh-mi
Peak 15-min total travel time, TT15	6.6	veh-h
Capacity from ATS, CdATS	1690	veh/h
Capacity from PTSF, CdPTSF	1700	veh/h
Directional Capacity	1700	veh/h

Passing Lane Analysis

Total length of analysis segment, Lt	2.6	mi
Length of two-lane highway upstream of the passing lane, Lu	-	mi
Length of passing lane including tapers, Lpl	-	mi
Average travel speed, ATSd (from above)	40.2	mi/h
Percent time-spent-following, PTSFd (from above)	61.6	
Level of service, LOSd (from above)	C	

Average Travel Speed with Passing Lane

Downstream length of two-lane highway within effective length of passing lane for average travel speed, Lde	-	mi
Length of two-lane highway downstream of effective length of the passing lane for average travel speed, Ld	-	mi
Adj. factor for the effect of passing lane on average speed, fpl	-	
Average travel speed including passing lane, ATSpl	-	
Percent free flow speed including passing lane, PFFSpl	0.0	%

Percent Time-Spent-Following with Passing Lane

Downstream length of two-lane highway within effective length of passing lane for percent time-spent-following, Lde	-	mi
Length of two-lane highway downstream of effective length of the passing lane for percent time-spent-following, Ld	-	mi
Adj. factor for the effect of passing lane on percent time-spent-following, fpl	-	
Percent time-spent-following including passing lane, PTSFpl	-	%

Level of Service and Other Performance Measures with Passing Lane

Level of service including passing lane, LOSpl	A	
Peak 15-min total travel time, TT15	-	veh-h

Bicycle Level of Service

Posted speed limit, Sp	55
Percent of segment with occupied on-highway parking	0
Pavement rating, P	3
Flow rate in outside lane, vOL	408.9
Effective width of outside lane, We	16.00
Effective speed factor, St	4.79
Bicycle LOS Score, BLOS	4.01
Bicycle LOS	D

Notes:
1. Note that the adjustment factor for level terrain is 1.00, as level terrain is one of the base conditions. For the purpose of grade adjustment, specific dewngrade segments are treated as level terrain.
2. If vi (vd or vo) >= 1,700 pc/h, terminate analysis-the LOS is F.
3. For the analysis direction only and for v>200 veh/h.
4. For the analysis direction only.
5. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.

Phone: Fax:
E-Mail:

Directional Two-Lane Highway Segment Analysis

Analyst	CFB
Agency/Co.	VHB
Date Performed	11/13/2017
Analysis Time Period	PM
Highway	NC 54
From/To	Bethel Hickory/Old Fayettevill
Jurisdiction	Orange County
Analysis Year	2017
Description	Capacity Analysis - NC 54 (EB)

Input Data

Highway class	Class 2		Peak hour factor, PHF	0.90	
Shoulder width	4.0	ft	% Trucks and buses	2	%
Lane width	12.0	ft	% Trucks crawling	0.0	%
Segment length	2.6	mi	Truck crawl speed	0.0	mi/hr
Terrain type	Rolling		% Recreational vehicles	0	%
Grade: Length	-	mi	% No-passing zones	84	%
Up/down	-	%	Access point density	16	/mi

Analysis direction volume, Vd	421	veh/h
Opposing direction volume, Vo	1156	veh/h

Average Travel Speed

Direction	Analysis(d)	Opposing (o)
PCE for trucks, ET	1.9	1.3
PCE for RVs, ER	1.1	1.1
Heavy-vehicle adj. factor,(note-5) fHV	0.982	0.994
Grade adj. factor,(note-1) fg	0.93	1.00
Directional flow rate,(note-2) vi	512 pc/h	1292 pc/h

Free-Flow Speed from Field Measurement:		
Field measured speed,(note-3) S FM	-	mi/h
Observed total demand,(note-3) V	-	veh/h
Estimated Free-Flow Speed:		
Base free-flow speed,(note-3) BFFS	60.0	mi/h
Adj. for lane and shoulder width,(note-3) fLS	1.3	mi/h
Adj. for access point density,(note-3) fA	4.0	mi/h
Free-flow speed, FFSd	54.7	mi/h
Adjustment for no-passing zones, fnp	0.8	mi/h
Average travel speed, ATSd	39.9	mi/h
Percent Free Flow Speed, PFFS	72.9	%

Percent Time-Spent-Following

Direction	Analysis(d)	Opposing (o)
PCE for trucks, ET	1.4	1.0
PCE for RVs, ER	1.0	1.0
Heavy-vehicle adjustment factor, fHV	0.992	1.000
Grade adjustment factor,(note-1) fg	0.94	1.00
Directional flow rate,(note-2) vi	502 pc/h	1284 pc/h
Base percent time-spent-following,(note-4) BPTSFd	60.7 %	
Adjustment for no-passing zones, fnp	15.8	
Percent time-spent-following, PTSFd	65.1 %	

Level of Service and Other Performance Measures

Level of service, LOS	C	
Volume to capacity ratio, v/c	0.53	
Peak 15-min vehicle-miles of travel, VMT15	304	veh-mi
Peak-hour vehicle-miles of travel, VMT60	1095	veh-mi
Peak 15-min total travel time, TT15	7.6	veh-h
Capacity from ATS, CdATS	1690	veh/h
Capacity from PTSF, CdPTSF	1700	veh/h
Directional Capacity	1700	veh/h

Passing Lane Analysis

Total length of analysis segment, Lt	2.6	mi
Length of two-lane highway upstream of the passing lane, Lu	-	mi
Length of passing lane including tapers, Lpl	-	mi
Average travel speed, ATSd (from above)	39.9	mi/h
Percent time-spent-following, PTSFd (from above)	65.1	
Level of service, LOSd (from above)	C	

Average Travel Speed with Passing Lane

Downstream length of two-lane highway within effective length of passing lane for average travel speed, Lde	-	mi
Length of two-lane highway downstream of effective length of the passing lane for average travel speed, Ld	-	mi
Adj. factor for the effect of passing lane on average speed, fpl	-	
Average travel speed including passing lane, ATSpl	-	
Percent free flow speed including passing lane, PFFSpl	0.0	%

Percent Time-Spent-Following with Passing Lane

Downstream length of two-lane highway within effective length of passing lane for percent time-spent-following, Lde	-	mi
Length of two-lane highway downstream of effective length of the passing lane for percent time-spent-following, Ld	-	mi
Adj. factor for the effect of passing lane on percent time-spent-following, fpl	-	
Percent time-spent-following including passing lane, PTSFpl	-	%

Level of Service and Other Performance Measures with Passing Lane

Level of service including passing lane, LOSpl	A	
Peak 15-min total travel time, TT15	-	veh-h

Bicycle Level of Service

Posted speed limit, Sp	55
Percent of segment with occupied on-highway parking	0
Pavement rating, P	3
Flow rate in outside lane, vOL	467.8
Effective width of outside lane, We	16.00
Effective speed factor, St	4.79
Bicycle LOS Score, BLOS	4.08
Bicycle LOS	D

Notes:
1. Note that the adjustment factor for level terrain is 1.00, as level terrain is one of the base conditions. For the purpose of grade adjustment, specific dewngrade segments are treated as level terrain.
2. If vi (vd or vo) >= 1,700 pc/h, terminate analysis-the LOS is F.
3. For the analysis direction only and for v>200 veh/h.
4. For the analysis direction only.
5. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.

Phone: Fax:
E-Mail:

Directional Two-Lane Highway Segment Analysis

Analyst	CFB
Agency/Co.	VHB
Date Performed	11/13/2017
Analysis Time Period	PM
Highway	NC 54
From/To	Bethel Hickory/Old Fayettevill
Jurisdiction	Orange County
Analysis Year	2017
Description	Capacity Analysis - NC 54 (WB)

Input Data

Highway class	Class 2		Peak hour factor, PHF	0.90	
Shoulder width	4.0	ft	% Trucks and buses	2	%
Lane width	12.0	ft	% Trucks crawling	0.0	%
Segment length	2.6	mi	Truck crawl speed	0.0	mi/hr
Terrain type	Rolling		% Recreational vehicles	0	%
Grade: Length	-	mi	% No-passing zones	81	%
Up/down	-	%	Access point density	16	/mi

Analysis direction volume, Vd	1156	veh/h
Opposing direction volume, Vo	421	veh/h

Average Travel Speed

Direction	Analysis(d)		Opposing (o)	
PCE for trucks, ET	1.3		1.9	
PCE for RVs, ER	1.1		1.1	
Heavy-vehicle adj. factor,(note-5) fHV	0.994		0.982	
Grade adj. factor,(note-1) fg	1.00		0.93	
Directional flow rate,(note-2) vi	1292	pc/h	512	pc/h

Free-Flow Speed from Field Measurement:		
Field measured speed,(note-3) S FM	-	mi/h
Observed total demand,(note-3) V	-	veh/h
Estimated Free-Flow Speed:		
Base free-flow speed,(note-3) BFFS	60.0	mi/h
Adj. for lane and shoulder width,(note-3) fLS	1.3	mi/h
Adj. for access point density,(note-3) fA	4.0	mi/h
Free-flow speed, FFSd	54.7	mi/h
Adjustment for no-passing zones, fnp	2.2	mi/h
Average travel speed, ATSd	38.5	mi/h
Percent Free Flow Speed, PFFS	70.4	%

Percent Time-Spent-Following

Direction	Analysis(d)	Opposing (o)
PCE for trucks, ET	1.0	1.4
PCE for RVs, ER	1.0	1.0
Heavy-vehicle adjustment factor, fHV	1.000	0.992
Grade adjustment factor,(note-1) fg	1.00	0.94
Directional flow rate,(note-2) vi	1284 pc/h	502 pc/h
Base percent time-spent-following,(note-4) BPTSFd	81.9 %	
Adjustment for no-passing zones, fnp	15.5	
Percent time-spent-following, PTSFd	93.0 %	

Level of Service and Other Performance Measures

Level of service, LOS	E	
Volume to capacity ratio, v/c	0.76	
Peak 15-min vehicle-miles of travel, VMT15	835	veh-mi
Peak-hour vehicle-miles of travel, VMT60	3006	veh-mi
Peak 15-min total travel time, TT15	21.7	veh-h
Capacity from ATS, CdATS	0	veh/h
Capacity from PTSF, CdPTSF	1700	veh/h
Directional Capacity	1700	veh/h

Passing Lane Analysis

Total length of analysis segment, Lt	2.6	mi
Length of two-lane highway upstream of the passing lane, Lu	-	mi
Length of passing lane including tapers, Lpl	-	mi
Average travel speed, ATSd (from above)	38.5	mi/h
Percent time-spent-following, PTSFd (from above)	93.0	
Level of service, LOSd (from above)	E	

Average Travel Speed with Passing Lane

Downstream length of two-lane highway within effective length of passing lane for average travel speed, Lde	-	mi
Length of two-lane highway downstream of effective length of the passing lane for average travel speed, Ld	-	mi
Adj. factor for the effect of passing lane on average speed, fpl	-	
Average travel speed including passing lane, ATSpl	-	
Percent free flow speed including passing lane, PFFSpl	0.0	%

Percent Time-Spent-Following with Passing Lane

Downstream length of two-lane highway within effective length of passing lane for percent time-spent-following, Lde	-	mi
Length of two-lane highway downstream of effective length of the passing lane for percent time-spent-following, Ld	-	mi
Adj. factor for the effect of passing lane on percent time-spent-following, fpl	-	
Percent time-spent-following including passing lane, PTSFpl	-	%

Level of Service and Other Performance Measures with Passing Lane

Level of service including passing lane, LOSpl	A	
Peak 15-min total travel time, TT15	-	veh-h

Bicycle Level of Service

Posted speed limit, Sp	55
Percent of segment with occupied on-highway parking	0
Pavement rating, P	3
Flow rate in outside lane, vOL	1284.4
Effective width of outside lane, We	16.00
Effective speed factor, St	4.79
Bicycle LOS Score, BLOS	4.59
Bicycle LOS	E

Notes:
1. Note that the adjustment factor for level terrain is 1.00, as level terrain is one of the base conditions. For the purpose of grade adjustment, specific dewngrade segments are treated as level terrain.
2. If vi (vd or vo) >= 1,700 pc/h, terminate analysis-the LOS is F.
3. For the analysis direction only and for v>200 veh/h.
4. For the analysis direction only.
5. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.

Phone: Fax:
E-Mail:

Directional Two-Lane Highway Segment Analysis

Analyst	CFB
Agency/Co.	VHB
Date Performed	11/13/2017
Analysis Time Period	AM
Highway	NC 54
From/To	Dodsons Cross/Bethel Hickory
Jurisdiction	Orange County
Analysis Year	2017
Description	Capacity Analysis - NC 54 (EB)

Input Data

Highway class	Class 2		Peak hour factor, PHF	0.90	
Shoulder width	4.0	ft	% Trucks and buses	2	%
Lane width	12.0	ft	% Trucks crawling	0.0	%
Segment length	1.8	mi	Truck crawl speed	0.0	mi/hr
Terrain type	Rolling		% Recreational vehicles	0	%
Grade: Length	-	mi	% No-passing zones	87	%
Up/down	-	%	Access point density	16	/mi

Analysis direction volume, Vd	1081	veh/h
Opposing direction volume, Vo	309	veh/h

Average Travel Speed

Direction	Analysis(d)		Opposing (o)	
PCE for trucks, ET	1.3		2.1	
PCE for RVs, ER	1.1		1.1	
Heavy-vehicle adj. factor,(note-5) fHV	0.994		0.978	
Grade adj. factor,(note-1) fg	1.00		0.86	
Directional flow rate,(note-2) vi	1208	pc/h	408	pc/h

Free-Flow Speed from Field Measurement:		
Field measured speed,(note-3) S FM	-	mi/h
Observed total demand,(note-3) V	-	veh/h
Estimated Free-Flow Speed:		
Base free-flow speed,(note-3) BFFS	60.0	mi/h
Adj. for lane and shoulder width,(note-3) fLS	1.3	mi/h
Adj. for access point density,(note-3) fA	4.0	mi/h
Free-flow speed, FFSd	54.7	mi/h
Adjustment for no-passing zones, fnp	2.7	mi/h
Average travel speed, ATSd	39.5	mi/h
Percent Free Flow Speed, PFFS	72.2	%

Percent Time-Spent-Following

Direction	Analysis(d)	Opposing (o)
PCE for trucks, ET	1.0	1.6
PCE for RVs, ER	1.0	1.0
Heavy-vehicle adjustment factor, fHV	1.000	0.988
Grade adjustment factor,(note-1) fg	1.00	0.87
Directional flow rate,(note-2) vi	1201 pc/h	399 pc/h
Base percent time-spent-following,(note-4) BPTSFd	78.4 %	
Adjustment for no-passing zones, fnp	18.6	
Percent time-spent-following, PTSFd	92.4 %	

Level of Service and Other Performance Measures

Level of service, LOS	E	
Volume to capacity ratio, v/c	0.71	
Peak 15-min vehicle-miles of travel, VMT15	541	veh-mi
Peak-hour vehicle-miles of travel, VMT60	1946	veh-mi
Peak 15-min total travel time, TT15	13.7	veh-h
Capacity from ATS, CdATS	0	veh/h
Capacity from PTSF, CdPTSF	1700	veh/h
Directional Capacity	1700	veh/h

Passing Lane Analysis

Total length of analysis segment, Lt	1.8	mi
Length of two-lane highway upstream of the passing lane, Lu	-	mi
Length of passing lane including tapers, Lpl	-	mi
Average travel speed, ATSd (from above)	39.5	mi/h
Percent time-spent-following, PTSFd (from above)	92.4	
Level of service, LOSd (from above)	E	

Average Travel Speed with Passing Lane

Downstream length of two-lane highway within effective length of passing lane for average travel speed, Lde	-	mi
Length of two-lane highway downstream of effective length of the passing lane for average travel speed, Ld	-	mi
Adj. factor for the effect of passing lane on average speed, fpl	-	
Average travel speed including passing lane, ATSpl	-	
Percent free flow speed including passing lane, PFFSpl	0.0	%

Percent Time-Spent-Following with Passing Lane

Downstream length of two-lane highway within effective length of passing lane for percent time-spent-following, Lde	-	mi
Length of two-lane highway downstream of effective length of the passing lane for percent time-spent-following, Ld	-	mi
Adj. factor for the effect of passing lane on percent time-spent-following, fpl	-	
Percent time-spent-following including passing lane, PTSFpl	-	%

Level of Service and Other Performance Measures with Passing Lane

Level of service including passing lane, LOSpl	A	
Peak 15-min total travel time, TT15	-	veh-h

Bicycle Level of Service

Posted speed limit, Sp	55
Percent of segment with occupied on-highway parking	0
Pavement rating, P	3
Flow rate in outside lane, vOL	1201.1
Effective width of outside lane, We	16.00
Effective speed factor, St	4.79
Bicycle LOS Score, BLOS	4.55
Bicycle LOS	E

Notes:
1. Note that the adjustment factor for level terrain is 1.00, as level terrain is one of the base conditions. For the purpose of grade adjustment, specific dewngrade segments are treated as level terrain.
2. If vi (vd or vo) >= 1,700 pc/h, terminate analysis-the LOS is F.
3. For the analysis direction only and for v>200 veh/h.
4. For the analysis direction only.
5. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.

Phone: Fax:
E-Mail:

Directional Two-Lane Highway Segment Analysis

Analyst	CFB
Agency/Co.	VHB
Date Performed	11/13/2017
Analysis Time Period	AM
Highway	NC 54
From/To	Dodsons Cross/Bethel Hickory
Jurisdiction	Orange County
Analysis Year	2017
Description	Capacity Analysis - NC 54 (WB)

Input Data

Highway class	Class 2		Peak hour factor, PHF	0.90	
Shoulder width	4.0	ft	% Trucks and buses	2	%
Lane width	12.0	ft	% Trucks crawling	0.0	%
Segment length	1.8	mi	Truck crawl speed	0.0	mi/hr
Terrain type	Rolling		% Recreational vehicles	0	%
Grade: Length	-	mi	% No-passing zones	70	%
Up/down	-	%	Access point density	16	/mi

Analysis direction volume, Vd	309	veh/h
Opposing direction volume, Vo	1081	veh/h

Average Travel Speed

Direction	Analysis(d)		Opposing (o)	
PCE for trucks, ET	2.1		1.3	
PCE for RVs, ER	1.1		1.1	
Heavy-vehicle adj. factor,(note-5) fHV	0.978		0.994	
Grade adj. factor,(note-1) fg	0.86		1.00	
Directional flow rate,(note-2) vi	408	pc/h	1208	pc/h

Free-Flow Speed from Field Measurement:		
Field measured speed,(note-3) S FM	-	mi/h
Observed total demand,(note-3) V	-	veh/h
Estimated Free-Flow Speed:		
Base free-flow speed,(note-3) BFFS	60.0	mi/h
Adj. for lane and shoulder width,(note-3) fLS	1.3	mi/h
Adj. for access point density,(note-3) fA	4.0	mi/h
Free-flow speed, FFSd	54.7	mi/h
Adjustment for no-passing zones, fnp	0.8	mi/h
Average travel speed, ATSd	41.4	mi/h
Percent Free Flow Speed, PFFS	75.6	%

Percent Time-Spent-Following

Direction	Analysis(d)	Opposing (o)
PCE for trucks, ET	1.6	1.0
PCE for RVs, ER	1.0	1.0
Heavy-vehicle adjustment factor, fHV	0.988	1.000
Grade adjustment factor,(note-1) fg	0.87	1.00
Directional flow rate,(note-2) vi	399 pc/h	1201 pc/h
Base percent time-spent-following,(note-4) BPTSFd	53.0 %	
Adjustment for no-passing zones, fnp	15.4	
Percent time-spent-following, PTSFd	56.8 %	

Level of Service and Other Performance Measures

Level of service, LOS	C	
Volume to capacity ratio, v/c	0.53	
Peak 15-min vehicle-miles of travel, VMT15	155	veh-mi
Peak-hour vehicle-miles of travel, VMT60	556	veh-mi
Peak 15-min total travel time, TT15	3.7	veh-h
Capacity from ATS, CdATS	1690	veh/h
Capacity from PTSF, CdPTSF	1700	veh/h
Directional Capacity	1700	veh/h

Passing Lane Analysis

Total length of analysis segment, Lt	1.8	mi
Length of two-lane highway upstream of the passing lane, Lu	-	mi
Length of passing lane including tapers, Lpl	-	mi
Average travel speed, ATSd (from above)	41.4	mi/h
Percent time-spent-following, PTSFd (from above)	56.8	
Level of service, LOSd (from above)	C	

Average Travel Speed with Passing Lane

Downstream length of two-lane highway within effective length of passing lane for average travel speed, Lde	-	mi
Length of two-lane highway downstream of effective length of the passing lane for average travel speed, Ld	-	mi
Adj. factor for the effect of passing lane on average speed, fpl	-	
Average travel speed including passing lane, ATSpl	-	
Percent free flow speed including passing lane, PFFSpl	0.0	%

Percent Time-Spent-Following with Passing Lane

Downstream length of two-lane highway within effective length of passing lane for percent time-spent-following, Lde	-	mi
Length of two-lane highway downstream of effective length of the passing lane for percent time-spent-following, Ld	-	mi
Adj. factor for the effect of passing lane on percent time-spent-following, fpl	-	
Percent time-spent-following including passing lane, PTSFpl	-	%

Level of Service and Other Performance Measures with Passing Lane

Level of service including passing lane, LOSpl	A	
Peak 15-min total travel time, TT15	-	veh-h

Bicycle Level of Service

Posted speed limit, Sp	55
Percent of segment with occupied on-highway parking	0
Pavement rating, P	3
Flow rate in outside lane, vOL	343.3
Effective width of outside lane, We	16.00
Effective speed factor, St	4.79
Bicycle LOS Score, BLOS	3.92
Bicycle LOS	D

Notes:
1. Note that the adjustment factor for level terrain is 1.00, as level terrain is one of the base conditions. For the purpose of grade adjustment, specific dewngrade segments are treated as level terrain.
2. If vi (vd or vo) >= 1,700 pc/h, terminate analysis-the LOS is F.
3. For the analysis direction only and for v>200 veh/h.
4. For the analysis direction only.
5. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.

Phone: Fax:
E-Mail:

Directional Two-Lane Highway Segment Analysis

Analyst	CFB
Agency/Co.	VHB
Date Performed	11/13/2017
Analysis Time Period	PM
Highway	NC 54
From/To	Dodsons Cross/Bethel Hickory
Jurisdiction	Orange County
Analysis Year	2017
Description	Capacity Analysis - NC 54 (EB)

Input Data

Highway class	Class 2		Peak hour factor, PHF	0.90	
Shoulder width	4.0	ft	% Trucks and buses	2	%
Lane width	12.0	ft	% Trucks crawling	0.0	%
Segment length	1.8	mi	Truck crawl speed	0.0	mi/hr
Terrain type	Rolling		% Recreational vehicles	0	%
Grade: Length	-	mi	% No-passing zones	87	%
Up/down	-	%	Access point density	16	/mi

Analysis direction volume, Vd	349	veh/h
Opposing direction volume, Vo	1049	veh/h

Average Travel Speed

Direction	Analysis(d)		Opposing (o)	
PCE for trucks, ET	2.0		1.3	
PCE for RVs, ER	1.1		1.1	
Heavy-vehicle adj. factor,(note-5) fHV	0.980		0.994	
Grade adj. factor,(note-1) fg	0.89		1.00	
Directional flow rate,(note-2) vi	445	pc/h	1173	pc/h

Free-Flow Speed from Field Measurement:		
Field measured speed,(note-3) S FM	-	mi/h
Observed total demand,(note-3) V	-	veh/h
Estimated Free-Flow Speed:		
Base free-flow speed,(note-3) BFFS	60.0	mi/h
Adj. for lane and shoulder width,(note-3) fLS	1.3	mi/h
Adj. for access point density,(note-3) fA	4.0	mi/h
Free-flow speed, FFSd	54.7	mi/h
Adjustment for no-passing zones, fnp	0.9	mi/h
Average travel speed, ATSd	41.2	mi/h
Percent Free Flow Speed, PFFS	75.3	%

Percent Time-Spent-Following

Direction	Analysis(d)	Opposing (o)
PCE for trucks, ET	1.6	1.0
PCE for RVs, ER	1.0	1.0
Heavy-vehicle adjustment factor, fHV	0.988	1.000
Grade adjustment factor,(note-1) fg	0.89	1.00
Directional flow rate,(note-2) vi	441 pc/h	1166 pc/h
Base percent time-spent-following,(note-4) BPTSFd	55.5 %	
Adjustment for no-passing zones, fnp	18.7	
Percent time-spent-following, PTSFd	60.6 %	

Level of Service and Other Performance Measures

Level of service, LOS	C	
Volume to capacity ratio, v/c	0.53	
Peak 15-min vehicle-miles of travel, VMT15	175	veh-mi
Peak-hour vehicle-miles of travel, VMT60	628	veh-mi
Peak 15-min total travel time, TT15	4.2	veh-h
Capacity from ATS, CdATS	1690	veh/h
Capacity from PTSF, CdPTSF	1700	veh/h
Directional Capacity	1700	veh/h

Passing Lane Analysis

Total length of analysis segment, Lt	1.8	mi
Length of two-lane highway upstream of the passing lane, Lu	-	mi
Length of passing lane including tapers, Lpl	-	mi
Average travel speed, ATSd (from above)	41.2	mi/h
Percent time-spent-following, PTSFd (from above)	60.6	
Level of service, LOSd (from above)	C	

Average Travel Speed with Passing Lane

Downstream length of two-lane highway within effective length of passing lane for average travel speed, Lde	-	mi
Length of two-lane highway downstream of effective length of the passing lane for average travel speed, Ld	-	mi
Adj. factor for the effect of passing lane on average speed, fpl	-	
Average travel speed including passing lane, ATSpl	-	
Percent free flow speed including passing lane, PFFSpl	0.0	%

Percent Time-Spent-Following with Passing Lane

Downstream length of two-lane highway within effective length of passing lane for percent time-spent-following, Lde	-	mi
Length of two-lane highway downstream of effective length of the passing lane for percent time-spent-following, Ld	-	mi
Adj. factor for the effect of passing lane on percent time-spent-following, fpl	-	
Percent time-spent-following including passing lane, PTSFpl	-	%

Level of Service and Other Performance Measures with Passing Lane

Level of service including passing lane, LOSpl	A	
Peak 15-min total travel time, TT15	-	veh-h

Bicycle Level of Service

Posted speed limit, Sp	55
Percent of segment with occupied on-highway parking	0
Pavement rating, P	3
Flow rate in outside lane, vOL	387.8
Effective width of outside lane, We	16.00
Effective speed factor, St	4.79
Bicycle LOS Score, BLOS	3.98
Bicycle LOS	D

Notes:
1. Note that the adjustment factor for level terrain is 1.00, as level terrain is one of the base conditions. For the purpose of grade adjustment, specific dewngrade segments are treated as level terrain.
2. If vi (vd or vo) >= 1,700 pc/h, terminate analysis-the LOS is F.
3. For the analysis direction only and for v>200 veh/h.
4. For the analysis direction only.
5. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.

Phone: Fax:
E-Mail:

Directional Two-Lane Highway Segment Analysis

Analyst	CFB
Agency/Co.	VHB
Date Performed	11/13/2017
Analysis Time Period	PM
Highway	NC 54
From/To	Dodsons Cross/Bethel Hickory
Jurisdiction	Orange County
Analysis Year	2017
Description	Capacity Analysis - NC 54 (WB)

Input Data

Highway class	Class 2		Peak hour factor, PHF	0.90	
Shoulder width	4.0	ft	% Trucks and buses	2	%
Lane width	12.0	ft	% Trucks crawling	0.0	%
Segment length	1.8	mi	Truck crawl speed	0.0	mi/hr
Terrain type	Rolling		% Recreational vehicles	0	%
Grade: Length	-	mi	% No-passing zones	70	%
Up/down	-	%	Access point density	16	/mi

Analysis direction volume, Vd	1049	veh/h
Opposing direction volume, Vo	349	veh/h

Average Travel Speed

Direction	Analysis(d)		Opposing (o)	
PCE for trucks, ET	1.3		2.0	
PCE for RVs, ER	1.1		1.1	
Heavy-vehicle adj. factor,(note-5) fHV	0.994		0.980	
Grade adj. factor,(note-1) fg	1.00		0.89	
Directional flow rate,(note-2) vi	1173	pc/h	445	pc/h

Free-Flow Speed from Field Measurement:

Field measured speed,(note-3) S FM	-	mi/h
Observed total demand,(note-3) V	-	veh/h

Estimated Free-Flow Speed:

Base free-flow speed,(note-3) BFFS	60.0	mi/h
Adj. for lane and shoulder width,(note-3) fLS	1.3	mi/h
Adj. for access point density,(note-3) fA	4.0	mi/h
Free-flow speed, FFSd	54.7	mi/h
Adjustment for no-passing zones, fnp	2.3	mi/h
Average travel speed, ATSd	39.8	mi/h
Percent Free Flow Speed, PFFS	72.8	%

Percent Time-Spent-Following

Direction	Analysis(d)	Opposing (o)
PCE for trucks, ET	1.0	1.6
PCE for RVs, ER	1.0	1.0
Heavy-vehicle adjustment factor, fHV	1.000	0.988
Grade adjustment factor,(note-1) fg	1.00	0.89
Directional flow rate,(note-2) vi	1166 pc/h	441 pc/h
Base percent time-spent-following,(note-4) BPTSFd	77.8 %	
Adjustment for no-passing zones, fnp	16.5	
Percent time-spent-following, PTSFd	89.8 %	

Level of Service and Other Performance Measures

Level of service, LOS	E	
Volume to capacity ratio, v/c	0.69	
Peak 15-min vehicle-miles of travel, VMT15	525	veh-mi
Peak-hour vehicle-miles of travel, VMT60	1888	veh-mi
Peak 15-min total travel time, TT15	13.2	veh-h
Capacity from ATS, CdATS	0	veh/h
Capacity from PTSF, CdPTSF	1700	veh/h
Directional Capacity	1700	veh/h

Passing Lane Analysis

Total length of analysis segment, Lt	1.8	mi
Length of two-lane highway upstream of the passing lane, Lu	-	mi
Length of passing lane including tapers, Lpl	-	mi
Average travel speed, ATSd (from above)	39.8	mi/h
Percent time-spent-following, PTSFd (from above)	89.8	
Level of service, LOSd (from above)	E	

Average Travel Speed with Passing Lane

Downstream length of two-lane highway within effective length of passing lane for average travel speed, Lde	-	mi
Length of two-lane highway downstream of effective length of the passing lane for average travel speed, Ld	-	mi
Adj. factor for the effect of passing lane on average speed, fpl	-	
Average travel speed including passing lane, ATSpl	-	
Percent free flow speed including passing lane, PFFSpl	0.0	%

Percent Time-Spent-Following with Passing Lane

Downstream length of two-lane highway within effective length of passing lane for percent time-spent-following, Lde	-	mi
Length of two-lane highway downstream of effective length of the passing lane for percent time-spent-following, Ld	-	mi
Adj. factor for the effect of passing lane on percent time-spent-following, fpl	-	
Percent time-spent-following including passing lane, PTSFpl	-	%

Level of Service and Other Performance Measures with Passing Lane

Level of service including passing lane, LOSpl	A	
Peak 15-min total travel time, TT15	-	veh-h

Bicycle Level of Service

Posted speed limit, Sp	55
Percent of segment with occupied on-highway parking	0
Pavement rating, P	3
Flow rate in outside lane, vOL	1165.6
Effective width of outside lane, We	16.00
Effective speed factor, St	4.79
Bicycle LOS Score, BLOS	4.54
Bicycle LOS	E

Notes:
1. Note that the adjustment factor for level terrain is 1.00, as level terrain is one of the base conditions. For the purpose of grade adjustment, specific dewngrade segments are treated as level terrain.
2. If vi (vd or vo) >= 1,700 pc/h, terminate analysis-the LOS is F.
3. For the analysis direction only and for v>200 veh/h.
4. For the analysis direction only.
5. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.

Phone: Fax:
E-Mail:

Directional Two-Lane Highway Segment Analysis

Analyst	CFB
Agency/Co.	VHB
Date Performed	11/13/2017
Analysis Time Period	AM
Highway	NC 54
From/To	Mebane Oaks Rd/Orange Grove Rd
Jurisdiction	Orange County
Analysis Year	2017
Description	Capacity Analysis - NC 54 (EB)

Input Data

Highway class	Class 2		Peak hour factor, PHF	0.90	
Shoulder width	4.0	ft	% Trucks and buses	2	%
Lane width	12.0	ft	% Trucks crawling	0.0	%
Segment length	3.6	mi	Truck crawl speed	0.0	mi/hr
Terrain type	Rolling		% Recreational vehicles	0	%
Grade: Length	-	mi	% No-passing zones	68	%
Up/down	-	%	Access point density	16	/mi

Analysis direction volume, Vd	884	veh/h
Opposing direction volume, Vo	291	veh/h

Average Travel Speed

Direction	Analysis(d)		Opposing (o)	
PCE for trucks, ET	1.3		2.1	
PCE for RVs, ER	1.1		1.1	
Heavy-vehicle adj. factor,(note-5) fHV	0.994		0.978	
Grade adj. factor,(note-1) fg	1.00		0.85	
Directional flow rate,(note-2) vi	988	pc/h	389	pc/h

Free-Flow Speed from Field Measurement:		
Field measured speed,(note-3) S FM	-	mi/h
Observed total demand,(note-3) V	-	veh/h
Estimated Free-Flow Speed:		
Base free-flow speed,(note-3) BFFS	60.0	mi/h
Adj. for lane and shoulder width,(note-3) fLS	1.3	mi/h
Adj. for access point density,(note-3) fA	4.0	mi/h
Free-flow speed, FFSd	54.7	mi/h
Adjustment for no-passing zones, fnp	2.6	mi/h
Average travel speed, ATSd	41.4	mi/h
Percent Free Flow Speed, PFFS	75.8	%

Percent Time-Spent-Following

Direction	Analysis(d)	Opposing (o)
PCE for trucks, ET	1.0	1.6
PCE for RVs, ER	1.0	1.0
Heavy-vehicle adjustment factor, fHV	1.000	0.988
Grade adjustment factor,(note-1) fg	1.00	0.86
Directional flow rate,(note-2) vi	982 pc/h	380 pc/h
Base percent time-spent-following,(note-4) BPTSFd	71.5 %	
Adjustment for no-passing zones, fnp	19.5	
Percent time-spent-following, PTSFd	85.6 %	

Level of Service and Other Performance Measures

Level of service, LOS	E	
Volume to capacity ratio, v/c	0.58	
Peak 15-min vehicle-miles of travel, VMT15	884	veh-mi
Peak-hour vehicle-miles of travel, VMT60	3182	veh-mi
Peak 15-min total travel time, TT15	21.3	veh-h
Capacity from ATS, CdATS	0	veh/h
Capacity from PTSF, CdPTSF	1700	veh/h
Directional Capacity	1700	veh/h

Passing Lane Analysis

Total length of analysis segment, Lt	3.6	mi
Length of two-lane highway upstream of the passing lane, Lu	-	mi
Length of passing lane including tapers, Lpl	-	mi
Average travel speed, ATSd (from above)	41.4	mi/h
Percent time-spent-following, PTSFd (from above)	85.6	
Level of service, LOSd (from above)	E	

Average Travel Speed with Passing Lane

Downstream length of two-lane highway within effective length of passing lane for average travel speed, Lde	-	mi
Length of two-lane highway downstream of effective length of the passing lane for average travel speed, Ld	-	mi
Adj. factor for the effect of passing lane on average speed, fpl	-	
Average travel speed including passing lane, ATSpl	-	
Percent free flow speed including passing lane, PFFSpl	0.0	%

Percent Time-Spent-Following with Passing Lane

Downstream length of two-lane highway within effective length of passing lane for percent time-spent-following, Lde	-	mi
Length of two-lane highway downstream of effective length of the passing lane for percent time-spent-following, Ld	-	mi
Adj. factor for the effect of passing lane on percent time-spent-following, fpl	-	
Percent time-spent-following including passing lane, PTSFpl	-	%

Level of Service and Other Performance Measures with Passing Lane

Level of service including passing lane, LOSpl	A	
Peak 15-min total travel time, TT15	-	veh-h

Bicycle Level of Service

Posted speed limit, Sp	55
Percent of segment with occupied on-highway parking	0
Pavement rating, P	3
Flow rate in outside lane, vOL	982.2
Effective width of outside lane, We	16.00
Effective speed factor, St	4.79
Bicycle LOS Score, BLOS	4.45
Bicycle LOS	D

Notes:
1. Note that the adjustment factor for level terrain is 1.00, as level terrain is one of the base conditions. For the purpose of grade adjustment, specific dewngrade segments are treated as level terrain.
2. If vi (vd or vo) >= 1,700 pc/h, terminate analysis-the LOS is F.
3. For the analysis direction only and for v>200 veh/h.
4. For the analysis direction only.
5. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.

Phone: Fax:
E-Mail:

Directional Two-Lane Highway Segment Analysis

Analyst	CFB
Agency/Co.	VHB
Date Performed	11/13/2017
Analysis Time Period	AM
Highway	NC 54
From/To	Mebane Oaks Rd/Orange Grove Rd
Jurisdiction	Orange County
Analysis Year	2017
Description	Capacity Analysis - NC 54 (WB)

Input Data

Highway class	Class 2		Peak hour factor, PHF	0.90	
Shoulder width	4.0	ft	% Trucks and buses	2	%
Lane width	12.0	ft	% Trucks crawling	0.0	%
Segment length	3.6	mi	Truck crawl speed	0.0	mi/hr
Terrain type	Rolling		% Recreational vehicles	0	%
Grade: Length	-	mi	% No-passing zones	69	%
Up/down	-	%	Access point density	16	/mi

Analysis direction volume, Vd 291 veh/h
Opposing direction volume, Vo 884 veh/h

Average Travel Speed

Direction	Analysis(d)		Opposing (o)	
PCE for trucks, ET	2.1		1.3	
PCE for RVs, ER	1.1		1.1	
Heavy-vehicle adj. factor,(note-5) fHV	0.978		0.994	
Grade adj. factor,(note-1) fg	0.85		1.00	
Directional flow rate,(note-2) vi	389	pc/h	988	pc/h

Free-Flow Speed from Field Measurement:

Field measured speed,(note-3) S FM	-	mi/h
Observed total demand,(note-3) V	-	veh/h

Estimated Free-Flow Speed:

Base free-flow speed,(note-3) BFFS	60.0	mi/h
Adj. for lane and shoulder width,(note-3) fLS	1.3	mi/h
Adj. for access point density,(note-3) fA	4.0	mi/h
Free-flow speed, FFSd	54.7	mi/h
Adjustment for no-passing zones, fnp	0.9	mi/h
Average travel speed, ATSd	43.2	mi/h
Percent Free Flow Speed, PFFS	78.9	%

Percent Time-Spent-Following

Direction	Analysis(d)	Opposing (o)
PCE for trucks, ET	1.6	1.0
PCE for RVs, ER	1.0	1.0
Heavy-vehicle adjustment factor, fHV	0.988	1.000
Grade adjustment factor,(note-1) fg	0.86	1.00
Directional flow rate,(note-2) vi	380 pc/h	982 pc/h
Base percent time-spent-following,(note-4) BPTSFd	49.0 %	
Adjustment for no-passing zones, fnp	19.5	
Percent time-spent-following, PTSFd	54.4 %	

Level of Service and Other Performance Measures

Level of service, LOS	B	
Volume to capacity ratio, v/c	0.53	
Peak 15-min vehicle-miles of travel, VMT15	291	veh-mi
Peak-hour vehicle-miles of travel, VMT60	1048	veh-mi
Peak 15-min total travel time, TT15	6.7	veh-h
Capacity from ATS, CdATS	1690	veh/h
Capacity from PTSF, CdPTSF	1700	veh/h
Directional Capacity	1700	veh/h

Passing Lane Analysis

Total length of analysis segment, Lt	3.6	mi
Length of two-lane highway upstream of the passing lane, Lu	-	mi
Length of passing lane including tapers, Lpl	-	mi
Average travel speed, ATSd (from above)	43.2	mi/h
Percent time-spent-following, PTSFd (from above)	54.4	
Level of service, LOSd (from above)	B	

Average Travel Speed with Passing Lane

Downstream length of two-lane highway within effective length of passing lane for average travel speed, Lde	-	mi
Length of two-lane highway downstream of effective length of the passing lane for average travel speed, Ld	-	mi
Adj. factor for the effect of passing lane on average speed, fpl	-	
Average travel speed including passing lane, ATSpl	-	
Percent free flow speed including passing lane, PFFSpl	0.0	%

Percent Time-Spent-Following with Passing Lane

Downstream length of two-lane highway within effective length of passing lane for percent time-spent-following, Lde	-	mi
Length of two-lane highway downstream of effective length of the passing lane for percent time-spent-following, Ld	-	mi
Adj. factor for the effect of passing lane on percent time-spent-following, fpl	-	
Percent time-spent-following including passing lane, PTSFpl	-	%

Level of Service and Other Performance Measures with Passing Lane

Level of service including passing lane, LOSpl	A	
Peak 15-min total travel time, TT15	-	veh-h

Bicycle Level of Service

Posted speed limit, Sp	55
Percent of segment with occupied on-highway parking	0
Pavement rating, P	3
Flow rate in outside lane, vOL	323.3
Effective width of outside lane, We	16.00
Effective speed factor, St	4.79
Bicycle LOS Score, BLOS	3.89
Bicycle LOS	D

Notes:
1. Note that the adjustment factor for level terrain is 1.00, as level terrain is one of the base conditions. For the purpose of grade adjustment, specific dewngrade segments are treated as level terrain.
2. If vi (vd or vo) >= 1,700 pc/h, terminate analysis-the LOS is F.
3. For the analysis direction only and for v>200 veh/h.
4. For the analysis direction only.
5. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.

Phone: Fax:
E-Mail:

Directional Two-Lane Highway Segment Analysis

Analyst	CFB
Agency/Co.	VHB
Date Performed	11/13/2017
Analysis Time Period	PM
Highway	NC 54
From/To	Mebane Oaks Rd/Orange Grove Rd
Jurisdiction	Orange County
Analysis Year	2017
Description	Capacity Analysis - NC 54 (EB)

Input Data

Highway class	Class 2		Peak hour factor, PHF	0.90	
Shoulder width	4.0	ft	% Trucks and buses	2	%
Lane width	12.0	ft	% Trucks crawling	0.0	%
Segment length	3.6	mi	Truck crawl speed	0.0	mi/hr
Terrain type	Rolling		% Recreational vehicles	0	%
Grade: Length	-	mi	% No-passing zones	68	%
Up/down	-	%	Access point density	16	/mi

Analysis direction volume, Vd	278	veh/h
Opposing direction volume, Vo	882	veh/h

Average Travel Speed

Direction	Analysis(d)		Opposing (o)	
PCE for trucks, ET	2.1		1.3	
PCE for RVs, ER	1.1		1.1	
Heavy-vehicle adj. factor,(note-5) fHV	0.978		0.994	
Grade adj. factor,(note-1) fg	0.84		1.00	
Directional flow rate,(note-2) vi	376	pc/h	986	pc/h

Free-Flow Speed from Field Measurement:		
Field measured speed,(note-3) S FM	-	mi/h
Observed total demand,(note-3) V	-	veh/h
Estimated Free-Flow Speed:		
Base free-flow speed,(note-3) BFFS	60.0	mi/h
Adj. for lane and shoulder width,(note-3) fLS	1.3	mi/h
Adj. for access point density,(note-3) fA	4.0	mi/h
Free-flow speed, FFSd	54.7	mi/h
Adjustment for no-passing zones, fnp	0.9	mi/h
Average travel speed, ATSd	43.3	mi/h
Percent Free Flow Speed, PFFS	79.1	%

Percent Time-Spent-Following

Direction	Analysis(d)		Opposing (o)	
PCE for trucks, ET	1.6		1.0	
PCE for RVs, ER	1.0		1.0	
Heavy-vehicle adjustment factor, fHV	0.988		1.000	
Grade adjustment factor,(note-1) fg	0.85		1.00	
Directional flow rate,(note-2) vi	368	pc/h	980	pc/h
Base percent time-spent-following,(note-4) BPTSFd	48.1	%		
Adjustment for no-passing zones, fnp	19.4			
Percent time-spent-following, PTSFd	53.4	%		

Level of Service and Other Performance Measures

Level of service, LOS	B	
Volume to capacity ratio, v/c	0.53	
Peak 15-min vehicle-miles of travel, VMT15	278	veh-mi
Peak-hour vehicle-miles of travel, VMT60	1001	veh-mi
Peak 15-min total travel time, TT15	6.4	veh-h
Capacity from ATS, CdATS	1690	veh/h
Capacity from PTSF, CdPTSF	1700	veh/h
Directional Capacity	1700	veh/h

Passing Lane Analysis

Total length of analysis segment, Lt	3.6	mi
Length of two-lane highway upstream of the passing lane, Lu	-	mi
Length of passing lane including tapers, Lpl	-	mi
Average travel speed, ATSd (from above)	43.3	mi/h
Percent time-spent-following, PTSFd (from above)	53.4	
Level of service, LOSd (from above)	B	

Average Travel Speed with Passing Lane

Downstream length of two-lane highway within effective length of passing lane for average travel speed, Lde	-	mi
Length of two-lane highway downstream of effective length of the passing lane for average travel speed, Ld	-	mi
Adj. factor for the effect of passing lane on average speed, fpl	-	
Average travel speed including passing lane, ATSpl	-	
Percent free flow speed including passing lane, PFFSpl	0.0	%

Percent Time-Spent-Following with Passing Lane

Downstream length of two-lane highway within effective length of passing lane for percent time-spent-following, Lde	-	mi
Length of two-lane highway downstream of effective length of the passing lane for percent time-spent-following, Ld	-	mi
Adj. factor for the effect of passing lane on percent time-spent-following, fpl	-	
Percent time-spent-following including passing lane, PTSFpl	-	%

Level of Service and Other Performance Measures with Passing Lane

Level of service including passing lane, LOSpl	A	
Peak 15-min total travel time, TT15	-	veh-h

Bicycle Level of Service

Posted speed limit, Sp	55
Percent of segment with occupied on-highway parking	0
Pavement rating, P	3
Flow rate in outside lane, vOL	308.9
Effective width of outside lane, We	16.00
Effective speed factor, St	4.79
Bicycle LOS Score, BLOS	3.87
Bicycle LOS	D

Notes:
1. Note that the adjustment factor for level terrain is 1.00, as level terrain is one of the base conditions. For the purpose of grade adjustment, specific dewngrade segments are treated as level terrain.
2. If vi (vd or vo) >= 1,700 pc/h, terminate analysis-the LOS is F.
3. For the analysis direction only and for v>200 veh/h.
4. For the analysis direction only.
5. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.

Phone: Fax:
E-Mail:

Directional Two-Lane Highway Segment Analysis

Analyst	CFB
Agency/Co.	VHB
Date Performed	11/13/2017
Analysis Time Period	PM
Highway	NC 54
From/To	Mebane Oaks Rd/Orange Grove Rd
Jurisdiction	Orange County
Analysis Year	2017
Description	Capacity Analysis - NC 54 (WB)

Input Data

Highway class	Class 2		Peak hour factor, PHF	0.90	
Shoulder width	4.0	ft	% Trucks and buses	2	%
Lane width	12.0	ft	% Trucks crawling	0.0	%
Segment length	3.6	mi	Truck crawl speed	0.0	mi/hr
Terrain type	Rolling		% Recreational vehicles	0	%
Grade: Length	-	mi	% No-passing zones	69	%
Up/down	-	%	Access point density	16	/mi

Analysis direction volume, Vd	882	veh/h
Opposing direction volume, Vo	278	veh/h

Average Travel Speed

Direction	Analysis(d)		Opposing (o)	
PCE for trucks, ET	1.3		2.1	
PCE for RVs, ER	1.1		1.1	
Heavy-vehicle adj. factor,(note-5) fHV	0.994		0.978	
Grade adj. factor,(note-1) fg	1.00		0.84	
Directional flow rate,(note-2) vi	986	pc/h	376	pc/h

Free-Flow Speed from Field Measurement:		
Field measured speed,(note-3) S FM	-	mi/h
Observed total demand,(note-3) V	-	veh/h
Estimated Free-Flow Speed:		
Base free-flow speed,(note-3) BFFS	60.0	mi/h
Adj. for lane and shoulder width,(note-3) fLS	1.3	mi/h
Adj. for access point density,(note-3) fA	4.0	mi/h
Free-flow speed, FFSd	54.7	mi/h
Adjustment for no-passing zones, fnp	2.7	mi/h
Average travel speed, ATSd	41.5	mi/h
Percent Free Flow Speed, PFFS	75.8	%

Percent Time-Spent-Following

Direction	Analysis(d)		Opposing (o)	
PCE for trucks, ET	1.0		1.6	
PCE for RVs, ER	1.0		1.0	
Heavy-vehicle adjustment factor, fHV	1.000		0.988	
Grade adjustment factor,(note-1) fg	1.00		0.85	
Directional flow rate,(note-2) vi	980	pc/h	368	pc/h
Base percent time-spent-following,(note-4) BPTSFd	72.2	%		
Adjustment for no-passing zones, fnp	19.5			
Percent time-spent-following, PTSFd	86.4	%		

Level of Service and Other Performance Measures

Level of service, LOS	E	
Volume to capacity ratio, v/c	0.58	
Peak 15-min vehicle-miles of travel, VMT15	882	veh-mi
Peak-hour vehicle-miles of travel, VMT60	3175	veh-mi
Peak 15-min total travel time, TT15	21.3	veh-h
Capacity from ATS, CdATS	0	veh/h
Capacity from PTSF, CdPTSF	1700	veh/h
Directional Capacity	1700	veh/h

Passing Lane Analysis

Total length of analysis segment, Lt	3.6	mi
Length of two-lane highway upstream of the passing lane, Lu	-	mi
Length of passing lane including tapers, Lpl	-	mi
Average travel speed, ATSd (from above)	41.5	mi/h
Percent time-spent-following, PTSFd (from above)	86.4	
Level of service, LOSd (from above)	E	

Average Travel Speed with Passing Lane

Downstream length of two-lane highway within effective length of passing lane for average travel speed, Lde	-	mi
Length of two-lane highway downstream of effective length of the passing lane for average travel speed, Ld	-	mi
Adj. factor for the effect of passing lane on average speed, fpl	-	
Average travel speed including passing lane, ATSpl	-	
Percent free flow speed including passing lane, PFFSpl	0.0	%

Percent Time-Spent-Following with Passing Lane

Downstream length of two-lane highway within effective length of passing lane for percent time-spent-following, Lde	-	mi
Length of two-lane highway downstream of effective length of the passing lane for percent time-spent-following, Ld	-	mi
Adj. factor for the effect of passing lane on percent time-spent-following, fpl	-	
Percent time-spent-following including passing lane, PTSFpl	-	%

Level of Service and Other Performance Measures with Passing Lane

Level of service including passing lane, LOSpl	A	
Peak 15-min total travel time, TT15	-	veh-h

Bicycle Level of Service

Posted speed limit, Sp	55
Percent of segment with occupied on-highway parking	0
Pavement rating, P	3
Flow rate in outside lane, vOL	980.0
Effective width of outside lane, We	16.00
Effective speed factor, St	4.79
Bicycle LOS Score, BLOS	4.45
Bicycle LOS	D

Notes:
1. Note that the adjustment factor for level terrain is 1.00, as level terrain is one of the base conditions. For the purpose of grade adjustment, specific dewngrade segments are treated as level terrain.
2. If vi (vd or vo) >= 1,700 pc/h, terminate analysis-the LOS is F.
3. For the analysis direction only and for v>200 veh/h.
4. For the analysis direction only.
5. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.

Phone: Fax:
E-Mail:

Directional Two-Lane Highway Segment Analysis

Analyst	CFB
Agency/Co.	VHB
Date Performed	11/13/2017
Analysis Time Period	AM
Highway	NC 54
From/To	Mt Willen Rd/Mebane Oaks Rd
Jurisdiction	Alamance County/Orange County
Analysis Year	2017
Description	Capacity Analysis - NC 54 (EB)

Input Data

Highway class	Class 2		Peak hour factor, PHF	0.90	
Shoulder width	4.0	ft	% Trucks and buses	2	%
Lane width	12.0	ft	% Trucks crawling	0.0	%
Segment length	3.3	mi	Truck crawl speed	0.0	mi/hr
Terrain type	Rolling		% Recreational vehicles	0	%
Grade: Length	-	mi	% No-passing zones	59	%
Up/down	-	%	Access point density	16	/mi

Analysis direction volume, Vd 566 veh/h
Opposing direction volume, Vo 351 veh/h

Average Travel Speed

Direction	Analysis(d)		Opposing (o)	
PCE for trucks, ET	1.7		2.0	
PCE for RVs, ER	1.1		1.1	
Heavy-vehicle adj. factor,(note-5) fHV	0.986		0.980	
Grade adj. factor,(note-1) fg	0.97		0.89	
Directional flow rate,(note-2) vi	658	pc/h	447	pc/h

Free-Flow Speed from Field Measurement:

Field measured speed,(note-3) S FM	-	mi/h
Observed total demand,(note-3) V	-	veh/h

Estimated Free-Flow Speed:

Base free-flow speed,(note-3) BFFS	60.0	mi/h
Adj. for lane and shoulder width,(note-3) fLS	1.3	mi/h
Adj. for access point density,(note-3) fA	4.0	mi/h
Free-flow speed, FFSd	54.7	mi/h
Adjustment for no-passing zones, fnp	2.2	mi/h
Average travel speed, ATSd	44.0	mi/h
Percent Free Flow Speed, PFFS	80.3	%

Percent Time-Spent-Following

Direction	Analysis(d)	Opposing (o)
PCE for trucks, ET	1.0	1.6
PCE for RVs, ER	1.0	1.0
Heavy-vehicle adjustment factor, fHV	1.000	0.988
Grade adjustment factor,(note-1) fg	0.98	0.89
Directional flow rate,(note-2) vi	642 pc/h	443 pc/h
Base percent time-spent-following,(note-4) BPTSFd	58.2 %	
Adjustment for no-passing zones, fnp	31.3	
Percent time-spent-following, PTSFd	76.7 %	

Level of Service and Other Performance Measures

Level of service, LOS	D	
Volume to capacity ratio, v/c	0.53	
Peak 15-min vehicle-miles of travel, VMT15	519	veh-mi
Peak-hour vehicle-miles of travel, VMT60	1868	veh-mi
Peak 15-min total travel time, TT15	11.8	veh-h
Capacity from ATS, CdATS	1690	veh/h
Capacity from PTSF, CdPTSF	1700	veh/h
Directional Capacity	1700	veh/h

Passing Lane Analysis

Total length of analysis segment, Lt	3.3	mi
Length of two-lane highway upstream of the passing lane, Lu	-	mi
Length of passing lane including tapers, Lpl	-	mi
Average travel speed, ATSd (from above)	44.0	mi/h
Percent time-spent-following, PTSFd (from above)	76.7	
Level of service, LOSd (from above)	D	

Average Travel Speed with Passing Lane

Downstream length of two-lane highway within effective length of passing lane for average travel speed, Lde	-	mi
Length of two-lane highway downstream of effective length of the passing lane for average travel speed, Ld	-	mi
Adj. factor for the effect of passing lane on average speed, fpl	-	
Average travel speed including passing lane, ATSpl	-	
Percent free flow speed including passing lane, PFFSpl	0.0	%

Percent Time-Spent-Following with Passing Lane

Downstream length of two-lane highway within effective length of passing lane for percent time-spent-following, Lde	-	mi
Length of two-lane highway downstream of effective length of the passing lane for percent time-spent-following, Ld	-	mi
Adj. factor for the effect of passing lane on percent time-spent-following, fpl	-	
Percent time-spent-following including passing lane, PTSFpl	-	%

Level of Service and Other Performance Measures with Passing Lane

Level of service including passing lane, LOSpl	A	
Peak 15-min total travel time, TT15	-	veh-h

Bicycle Level of Service

Posted speed limit, Sp	55
Percent of segment with occupied on-highway parking	0
Pavement rating, P	3
Flow rate in outside lane, vOL	628.9
Effective width of outside lane, We	16.00
Effective speed factor, St	4.79
Bicycle LOS Score, BLOS	4.23
Bicycle LOS	D

Notes:
1. Note that the adjustment factor for level terrain is 1.00, as level terrain is one of the base conditions. For the purpose of grade adjustment, specific dewngrade segments are treated as level terrain.
2. If vi (vd or vo) >= 1,700 pc/h, terminate analysis-the LOS is F.
3. For the analysis direction only and for v>200 veh/h.
4. For the analysis direction only.
5. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.

Phone: Fax:
E-Mail:

Directional Two-Lane Highway Segment Analysis

Analyst	CFB
Agency/Co.	VHB
Date Performed	11/13/2017
Analysis Time Period	AM
Highway	NC 54
From/To	Mt Willen Rd/Mebane Oaks Rd
Jurisdiction	Alamance County/Orange County
Analysis Year	2017
Description	Capacity Analysis - NC 54 (WB)

Input Data

Highway class	Class 2		Peak hour factor, PHF	0.90	
Shoulder width	4.0	ft	% Trucks and buses	2	%
Lane width	12.0	ft	% Trucks crawling	0.0	%
Segment length	3.3	mi	Truck crawl speed	0.0	mi/hr
Terrain type	Rolling		% Recreational vehicles	0	%
Grade: Length	-	mi	% No-passing zones	58	%
Up/down	-	%	Access point density	16	/mi

Analysis direction volume, Vd 351 veh/h
Opposing direction volume, Vo 566 veh/h

Average Travel Speed

Direction	Analysis(d)		Opposing (o)	
PCE for trucks, ET	2.0		1.7	
PCE for RVs, ER	1.1		1.1	
Heavy-vehicle adj. factor,(note-5) fHV	0.980		0.986	
Grade adj. factor,(note-1) fg	0.89		0.97	
Directional flow rate,(note-2) vi	447	pc/h	658	pc/h

Free-Flow Speed from Field Measurement:

Field measured speed,(note-3) S FM	-	mi/h
Observed total demand,(note-3) V	-	veh/h

Estimated Free-Flow Speed:

Base free-flow speed,(note-3) BFFS	60.0	mi/h
Adj. for lane and shoulder width,(note-3) fLS	1.3	mi/h
Adj. for access point density,(note-3) fA	4.0	mi/h
Free-flow speed, FFSd	54.7	mi/h
Adjustment for no-passing zones, fnp	1.4	mi/h
Average travel speed, ATSd	44.7	mi/h
Percent Free Flow Speed, PFFS	81.8	%

Percent Time-Spent-Following

Direction	Analysis(d)	Opposing (o)
PCE for trucks, ET	1.6	1.0
PCE for RVs, ER	1.0	1.0
Heavy-vehicle adjustment factor, fHV	0.988	1.000
Grade adjustment factor,(note-1) fg	0.89	0.98
Directional flow rate,(note-2) vi	443 pc/h	642 pc/h
Base percent time-spent-following,(note-4) BPTSFd	49.7 %	
Adjustment for no-passing zones, fnp	31.0	
Percent time-spent-following, PTSFd	62.4 %	

Level of Service and Other Performance Measures

Level of service, LOS	C	
Volume to capacity ratio, v/c	0.53	
Peak 15-min vehicle-miles of travel, VMT15	322	veh-mi
Peak-hour vehicle-miles of travel, VMT60	1158	veh-mi
Peak 15-min total travel time, TT15	7.2	veh-h
Capacity from ATS, CdATS	1690	veh/h
Capacity from PTSF, CdPTSF	1700	veh/h
Directional Capacity	1700	veh/h

Passing Lane Analysis

Total length of analysis segment, Lt	3.3	mi
Length of two-lane highway upstream of the passing lane, Lu	-	mi
Length of passing lane including tapers, Lpl	-	mi
Average travel speed, ATSd (from above)	44.7	mi/h
Percent time-spent-following, PTSFd (from above)	62.4	
Level of service, LOSd (from above)	C	

Average Travel Speed with Passing Lane

Downstream length of two-lane highway within effective length of passing lane for average travel speed, Lde	-	mi
Length of two-lane highway downstream of effective length of the passing lane for average travel speed, Ld	-	mi
Adj. factor for the effect of passing lane on average speed, fpl	-	
Average travel speed including passing lane, ATSpl	-	
Percent free flow speed including passing lane, PFFSpl	0.0	%

Percent Time-Spent-Following with Passing Lane

Downstream length of two-lane highway within effective length of passing lane for percent time-spent-following, Lde	-	mi
Length of two-lane highway downstream of effective length of the passing lane for percent time-spent-following, Ld	-	mi
Adj. factor for the effect of passing lane on percent time-spent-following, fpl	-	
Percent time-spent-following including passing lane, PTSFpl	-	%

Level of Service and Other Performance Measures with Passing Lane

Level of service including passing lane, LOSpl	A	
Peak 15-min total travel time, TT15	-	veh-h

Bicycle Level of Service

Posted speed limit, Sp	55
Percent of segment with occupied on-highway parking	0
Pavement rating, P	3
Flow rate in outside lane, vOL	390.0
Effective width of outside lane, We	16.00
Effective speed factor, St	4.79
Bicycle LOS Score, BLOS	3.98
Bicycle LOS	D

Notes:
1. Note that the adjustment factor for level terrain is 1.00, as level terrain is one of the base conditions. For the purpose of grade adjustment, specific dewngrade segments are treated as level terrain.
2. If vi (vd or vo) >= 1,700 pc/h, terminate analysis-the LOS is F.
3. For the analysis direction only and for v>200 veh/h.
4. For the analysis direction only.
5. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.

Phone: Fax:
E-Mail:

Directional Two-Lane Highway Segment Analysis

Analyst	CFB
Agency/Co.	VHB
Date Performed	11/13/2017
Analysis Time Period	PM
Highway	NC 54
From/To	Mt Willen Rd/Mebane Oaks Rd
Jurisdiction	Alamance County/Orange County
Analysis Year	2017
Description	Capacity Analysis - NC 54 (EB)

Input Data

Highway class	Class 2		Peak hour factor, PHF	0.90	
Shoulder width	4.0	ft	% Trucks and buses	2	%
Lane width	12.0	ft	% Trucks crawling	0.0	%
Segment length	3.3	mi	Truck crawl speed	0.0	mi/hr
Terrain type	Rolling		% Recreational vehicles	0	%
Grade: Length	-	mi	% No-passing zones	59	%
Up/down	-	%	Access point density	16	/mi

Analysis direction volume, Vd 270 veh/h
Opposing direction volume, Vo 643 veh/h

Average Travel Speed

Direction	Analysis(d)		Opposing (o)	
PCE for trucks, ET	2.1		1.6	
PCE for RVs, ER	1.1		1.1	
Heavy-vehicle adj. factor,(note-5) fHV	0.978		0.988	
Grade adj. factor,(note-1) fg	0.83		0.98	
Directional flow rate,(note-2) vi	370	pc/h	738	pc/h

Free-Flow Speed from Field Measurement:

Field measured speed,(note-3) S FM	-	mi/h
Observed total demand,(note-3) V	-	veh/h

Estimated Free-Flow Speed:

Base free-flow speed,(note-3) BFFS	60.0	mi/h
Adj. for lane and shoulder width,(note-3) fLS	1.3	mi/h
Adj. for access point density,(note-3) fA	4.0	mi/h
Free-flow speed, FFSd	54.7	mi/h
Adjustment for no-passing zones, fnp	1.2	mi/h
Average travel speed, ATSd	44.9	mi/h
Percent Free Flow Speed, PFFS	82.0	%

Percent Time-Spent-Following

Direction	Analysis(d)	Opposing (o)
PCE for trucks, ET	1.7	1.0
PCE for RVs, ER	1.0	1.0
Heavy-vehicle adjustment factor, fHV	0.986	1.000
Grade adjustment factor,(note-1) fg	0.85	0.99
Directional flow rate,(note-2) vi	358 pc/h	722 pc/h
Base percent time-spent-following,(note-4) BPTSFd	44.1 %	
Adjustment for no-passing zones, fnp	27.1	
Percent time-spent-following, PTSFd	53.1 %	

Level of Service and Other Performance Measures

Level of service, LOS	B	
Volume to capacity ratio, v/c	0.53	
Peak 15-min vehicle-miles of travel, VMT15	248	veh-mi
Peak-hour vehicle-miles of travel, VMT60	891	veh-mi
Peak 15-min total travel time, TT15	5.5	veh-h
Capacity from ATS, CdATS	1690	veh/h
Capacity from PTSF, CdPTSF	1700	veh/h
Directional Capacity	1700	veh/h

Passing Lane Analysis

Total length of analysis segment, Lt	3.3	mi
Length of two-lane highway upstream of the passing lane, Lu	-	mi
Length of passing lane including tapers, Lpl	-	mi
Average travel speed, ATSd (from above)	44.9	mi/h
Percent time-spent-following, PTSFd (from above)	53.1	
Level of service, LOSd (from above)	B	

Average Travel Speed with Passing Lane

Downstream length of two-lane highway within effective length of passing lane for average travel speed, Lde	-	mi
Length of two-lane highway downstream of effective length of the passing lane for average travel speed, Ld	-	mi
Adj. factor for the effect of passing lane on average speed, fpl	-	
Average travel speed including passing lane, ATSpl	-	
Percent free flow speed including passing lane, PFFSpl	0.0	%

Percent Time-Spent-Following with Passing Lane

Downstream length of two-lane highway within effective length of passing lane for percent time-spent-following, Lde	-	mi
Length of two-lane highway downstream of effective length of the passing lane for percent time-spent-following, Ld	-	mi
Adj. factor for the effect of passing lane on percent time-spent-following, fpl	-	
Percent time-spent-following including passing lane, PTSFpl	-	%

Level of Service and Other Performance Measures with Passing Lane

Level of service including passing lane, LOSpl	A	
Peak 15-min total travel time, TT15	-	veh-h

Bicycle Level of Service

Posted speed limit, Sp	55
Percent of segment with occupied on-highway parking	0
Pavement rating, P	3
Flow rate in outside lane, vOL	300.0
Effective width of outside lane, We	16.00
Effective speed factor, St	4.79
Bicycle LOS Score, BLOS	3.85
Bicycle LOS	D

Notes:
1. Note that the adjustment factor for level terrain is 1.00, as level terrain is one of the base conditions. For the purpose of grade adjustment, specific dewngrade segments are treated as level terrain.
2. If vi (vd or vo) >= 1,700 pc/h, terminate analysis-the LOS is F.
3. For the analysis direction only and for v>200 veh/h.
4. For the analysis direction only.
5. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.

Phone: Fax:
E-Mail:

Directional Two-Lane Highway Segment Analysis

Analyst	CFB
Agency/Co.	VHB
Date Performed	11/13/2017
Analysis Time Period	PM
Highway	NC 54
From/To	Mt Willen Rd/Mebane Oaks Rd
Jurisdiction	Alamance County/Orange County
Analysis Year	2017
Description	Capacity Analysis - NC 54 (WB)

Input Data

Highway class	Class 2		Peak hour factor, PHF	0.90	
Shoulder width	4.0	ft	% Trucks and buses	2	%
Lane width	12.0	ft	% Trucks crawling	0.0	%
Segment length	3.3	mi	Truck crawl speed	0.0	mi/hr
Terrain type	Rolling		% Recreational vehicles	0	%
Grade: Length	-	mi	% No-passing zones	58	%
Up/down	-	%	Access point density	16	/mi

Analysis direction volume, Vd	643	veh/h
Opposing direction volume, Vo	270	veh/h

Average Travel Speed

Direction	Analysis(d)		Opposing (o)	
PCE for trucks, ET	1.6		2.1	
PCE for RVs, ER	1.1		1.1	
Heavy-vehicle adj. factor,(note-5) fHV	0.988		0.978	
Grade adj. factor,(note-1) fg	0.98		0.83	
Directional flow rate,(note-2) vi	738	pc/h	370	pc/h

Free-Flow Speed from Field Measurement:		
Field measured speed,(note-3) S FM	-	mi/h
Observed total demand,(note-3) V	-	veh/h
Estimated Free-Flow Speed:		
Base free-flow speed,(note-3) BFFS	60.0	mi/h
Adj. for lane and shoulder width,(note-3) fLS	1.3	mi/h
Adj. for access point density,(note-3) fA	4.0	mi/h
Free-flow speed, FFSd	54.7	mi/h
Adjustment for no-passing zones, fnp	2.5	mi/h
Average travel speed, ATSd	43.6	mi/h
Percent Free Flow Speed, PFFS	79.7	%

Percent Time-Spent-Following

Direction	Analysis(d)	Opposing (o)
PCE for trucks, ET	1.0	1.7
PCE for RVs, ER	1.0	1.0
Heavy-vehicle adjustment factor, fHV	1.000	0.986
Grade adjustment factor,(note-1) fg	0.99	0.85
Directional flow rate,(note-2) vi	722 pc/h	358 pc/h
Base percent time-spent-following,(note-4) BPTSFd	60.5 %	
Adjustment for no-passing zones, fnp	26.9	
Percent time-spent-following, PTSFd	78.5 %	

Level of Service and Other Performance Measures

Level of service, LOS	D	
Volume to capacity ratio, v/c	0.53	
Peak 15-min vehicle-miles of travel, VMT15	589	veh-mi
Peak-hour vehicle-miles of travel, VMT60	2122	veh-mi
Peak 15-min total travel time, TT15	13.5	veh-h
Capacity from ATS, CdATS	1690	veh/h
Capacity from PTSF, CdPTSF	1700	veh/h
Directional Capacity	1700	veh/h

Passing Lane Analysis

Total length of analysis segment, Lt	3.3	mi
Length of two-lane highway upstream of the passing lane, Lu	-	mi
Length of passing lane including tapers, Lpl	-	mi
Average travel speed, ATSd (from above)	43.6	mi/h
Percent time-spent-following, PTSFd (from above)	78.5	
Level of service, LOSd (from above)	D	

Average Travel Speed with Passing Lane

Downstream length of two-lane highway within effective length of passing lane for average travel speed, Lde	-	mi
Length of two-lane highway downstream of effective length of the passing lane for average travel speed, Ld	-	mi
Adj. factor for the effect of passing lane on average speed, fpl	-	
Average travel speed including passing lane, ATSpl	-	
Percent free flow speed including passing lane, PFFSpl	0.0	%

Percent Time-Spent-Following with Passing Lane

Downstream length of two-lane highway within effective length of passing lane for percent time-spent-following, Lde	-	mi
Length of two-lane highway downstream of effective length of the passing lane for percent time-spent-following, Ld	-	mi
Adj. factor for the effect of passing lane on percent time-spent-following, fpl	-	
Percent time-spent-following including passing lane, PTSFpl	-	%

Level of Service and Other Performance Measures with Passing Lane

Level of service including passing lane, LOSpl	A	
Peak 15-min total travel time, TT15	-	veh-h

Bicycle Level of Service

Posted speed limit, Sp	55
Percent of segment with occupied on-highway parking	0
Pavement rating, P	3
Flow rate in outside lane, vOL	714.4
Effective width of outside lane, We	16.00
Effective speed factor, St	4.79
Bicycle LOS Score, BLOS	4.29
Bicycle LOS	D

Notes:
1. Note that the adjustment factor for level terrain is 1.00, as level terrain is one of the base conditions. For the purpose of grade adjustment, specific dewngrade segments are treated as level terrain.
2. If vi (vd or vo) >= 1,700 pc/h, terminate analysis-the LOS is F.
3. For the analysis direction only and for v>200 veh/h.
4. For the analysis direction only.
5. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.

Phone: Fax:
E-Mail:

Directional Two-Lane Highway Segment Analysis

Analyst	CFB
Agency/Co.	VHB
Date Performed	11/13/2017
Analysis Time Period	AM
Highway	NC 54
From/To	NC 119/Mt Willen Road
Jurisdiction	Alamance County
Analysis Year	2017
Description	Capacity Analysis - NC 54 (EB)

Input Data

Highway class	Class 2		Peak hour factor, PHF	0.90	
Shoulder width	4.0	ft	% Trucks and buses	2	%
Lane width	12.0	ft	% Trucks crawling	0.0	%
Segment length	4.1	mi	Truck crawl speed	0.0	mi/hr
Terrain type	Rolling		% Recreational vehicles	0	%
Grade: Length	-	mi	% No-passing zones	79	%
Up/down	-	%	Access point density	16	/mi

Analysis direction volume, Vd 608 veh/h
Opposing direction volume, Vo 526 veh/h

Average Travel Speed

Direction	Analysis(d)		Opposing (o)	
PCE for trucks, ET	1.6		1.7	
PCE for RVs, ER	1.1		1.1	
Heavy-vehicle adj. factor,(note-5) fHV	0.988		0.986	
Grade adj. factor,(note-1) fg	0.98		0.97	
Directional flow rate,(note-2) vi	698	pc/h	611	pc/h

Free-Flow Speed from Field Measurement:

Field measured speed,(note-3) S FM	-	mi/h
Observed total demand,(note-3) V	-	veh/h

Estimated Free-Flow Speed:

Base free-flow speed,(note-3) BFFS	60.0	mi/h
Adj. for lane and shoulder width,(note-3) fLS	1.3	mi/h
Adj. for access point density,(note-3) fA	4.0	mi/h
Free-flow speed, FFSd	54.7	mi/h
Adjustment for no-passing zones, fnp	1.8	mi/h
Average travel speed, ATSd	42.8	mi/h
Percent Free Flow Speed, PFFS	78.2	%

Percent Time-Spent-Following

Direction	Analysis(d)	Opposing (o)
PCE for trucks, ET	1.0	1.2
PCE for RVs, ER	1.0	1.0
Heavy-vehicle adjustment factor, fHV	1.000	0.996
Grade adjustment factor,(note-1) fg	0.99	0.97
Directional flow rate,(note-2) vi	682 pc/h	605 pc/h
Base percent time-spent-following,(note-4) BPTSFd	61.6 %	
Adjustment for no-passing zones, fnp	30.0	
Percent time-spent-following, PTSFd	77.5 %	

Level of Service and Other Performance Measures

Level of service, LOS	D	
Volume to capacity ratio, v/c	0.53	
Peak 15-min vehicle-miles of travel, VMT15	692	veh-mi
Peak-hour vehicle-miles of travel, VMT60	2493	veh-mi
Peak 15-min total travel time, TT15	16.2	veh-h
Capacity from ATS, CdATS	1690	veh/h
Capacity from PTSF, CdPTSF	1700	veh/h
Directional Capacity	1700	veh/h

Passing Lane Analysis

Total length of analysis segment, Lt	4.1	mi
Length of two-lane highway upstream of the passing lane, Lu	-	mi
Length of passing lane including tapers, Lpl	-	mi
Average travel speed, ATSd (from above)	42.8	mi/h
Percent time-spent-following, PTSFd (from above)	77.5	
Level of service, LOSd (from above)	D	

Average Travel Speed with Passing Lane

Downstream length of two-lane highway within effective length of passing lane for average travel speed, Lde	-	mi
Length of two-lane highway downstream of effective length of the passing lane for average travel speed, Ld	-	mi
Adj. factor for the effect of passing lane on average speed, fpl	-	
Average travel speed including passing lane, ATSpl	-	
Percent free flow speed including passing lane, PFFSpl	0.0	%

Percent Time-Spent-Following with Passing Lane

Downstream length of two-lane highway within effective length of passing lane for percent time-spent-following, Lde	-	mi
Length of two-lane highway downstream of effective length of the passing lane for percent time-spent-following, Ld	-	mi
Adj. factor for the effect of passing lane on percent time-spent-following, fpl	-	
Percent time-spent-following including passing lane, PTSFpl	-	%

Level of Service and Other Performance Measures with Passing Lane

Level of service including passing lane, LOSpl	A	
Peak 15-min total travel time, TT15	-	veh-h

Bicycle Level of Service

Posted speed limit, Sp	55
Percent of segment with occupied on-highway parking	0
Pavement rating, P	3
Flow rate in outside lane, vOL	675.6
Effective width of outside lane, We	16.00
Effective speed factor, St	4.79
Bicycle LOS Score, BLOS	4.26
Bicycle LOS	D

Notes:
1. Note that the adjustment factor for level terrain is 1.00, as level terrain is one of the base conditions. For the purpose of grade adjustment, specific dewngrade segments are treated as level terrain.
2. If vi (vd or vo) >= 1,700 pc/h, terminate analysis-the LOS is F.
3. For the analysis direction only and for v>200 veh/h.
4. For the analysis direction only.
5. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.

Phone: Fax:
E-Mail:

Directional Two-Lane Highway Segment Analysis

Analyst	CFB
Agency/Co.	VHB
Date Performed	11/13/2017
Analysis Time Period	AM
Highway	NC 54
From/To	NC 119/Mt Willen Road
Jurisdiction	Alamance County
Analysis Year	2017
Description	Capacity Analysis - NC 54 (WB)

Input Data

Highway class	Class 2		Peak hour factor, PHF	0.90	
Shoulder width	4.0	ft	% Trucks and buses	2	%
Lane width	12.0	ft	% Trucks crawling	0.0	%
Segment length	4.1	mi	Truck crawl speed	0.0	mi/hr
Terrain type	Rolling		% Recreational vehicles	0	%
Grade: Length	-	mi	% No-passing zones	79	%
Up/down	-	%	Access point density	16	/mi

Analysis direction volume, Vd	526	veh/h
Opposing direction volume, Vo	608	veh/h

Average Travel Speed

Direction	Analysis(d)		Opposing (o)	
PCE for trucks, ET	1.7		1.6	
PCE for RVs, ER	1.1		1.1	
Heavy-vehicle adj. factor,(note-5) fHV	0.986		0.988	
Grade adj. factor,(note-1) fg	0.97		0.98	
Directional flow rate,(note-2) vi	611	pc/h	698	pc/h

Free-Flow Speed from Field Measurement:		
Field measured speed,(note-3) S FM	-	mi/h
Observed total demand,(note-3) V	-	veh/h
Estimated Free-Flow Speed:		
Base free-flow speed,(note-3) BFFS	60.0	mi/h
Adj. for lane and shoulder width,(note-3) fLS	1.3	mi/h
Adj. for access point density,(note-3) fA	4.0	mi/h
Free-flow speed, FFSd	54.7	mi/h
Adjustment for no-passing zones, fnp	1.5	mi/h
Average travel speed, ATSd	43.0	mi/h
Percent Free Flow Speed, PFFS	78.7	%

Percent Time-Spent-Following

Direction	Analysis(d)	Opposing (o)
PCE for trucks, ET	1.2	1.0
PCE for RVs, ER	1.0	1.0
Heavy-vehicle adjustment factor, fHV	0.996	1.000
Grade adjustment factor,(note-1) fg	0.97	0.99
Directional flow rate,(note-2) vi	605 pc/h	682 pc/h
Base percent time-spent-following,(note-4) BPTSFd	59.7 %	
Adjustment for no-passing zones, fnp	30.0	
Percent time-spent-following, PTSFd	73.8 %	

Level of Service and Other Performance Measures

Level of service, LOS	D	
Volume to capacity ratio, v/c	0.53	
Peak 15-min vehicle-miles of travel, VMT15	599	veh-mi
Peak-hour vehicle-miles of travel, VMT60	2157	veh-mi
Peak 15-min total travel time, TT15	13.9	veh-h
Capacity from ATS, CdATS	1690	veh/h
Capacity from PTSF, CdPTSF	1700	veh/h
Directional Capacity	1700	veh/h

Passing Lane Analysis

Total length of analysis segment, Lt	4.1	mi
Length of two-lane highway upstream of the passing lane, Lu	-	mi
Length of passing lane including tapers, Lpl	-	mi
Average travel speed, ATSd (from above)	43.0	mi/h
Percent time-spent-following, PTSFd (from above)	73.8	
Level of service, LOSd (from above)	D	

Average Travel Speed with Passing Lane

Downstream length of two-lane highway within effective length of passing lane for average travel speed, Lde	-	mi
Length of two-lane highway downstream of effective length of the passing lane for average travel speed, Ld	-	mi
Adj. factor for the effect of passing lane on average speed, fpl	-	
Average travel speed including passing lane, ATSpl	-	
Percent free flow speed including passing lane, PFFSpl	0.0	%

Percent Time-Spent-Following with Passing Lane

Downstream length of two-lane highway within effective length of passing lane for percent time-spent-following, Lde	-	mi
Length of two-lane highway downstream of effective length of the passing lane for percent time-spent-following, Ld	-	mi
Adj. factor for the effect of passing lane on percent time-spent-following, fpl	-	
Percent time-spent-following including passing lane, PTSFpl	-	%

Level of Service and Other Performance Measures with Passing Lane

Level of service including passing lane, LOSpl	A	
Peak 15-min total travel time, TT15	-	veh-h

Bicycle Level of Service

Posted speed limit, Sp	55
Percent of segment with occupied on-highway parking	0
Pavement rating, P	3
Flow rate in outside lane, vOL	584.4
Effective width of outside lane, We	16.00
Effective speed factor, St	4.79
Bicycle LOS Score, BLOS	4.19
Bicycle LOS	D

Notes:
1. Note that the adjustment factor for level terrain is 1.00, as level terrain is one of the base conditions. For the purpose of grade adjustment, specific dewngrade segments are treated as level terrain.
2. If vi (vd or vo) >= 1,700 pc/h, terminate analysis-the LOS is F.
3. For the analysis direction only and for v>200 veh/h.
4. For the analysis direction only.
5. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.

Phone: Fax:
E-Mail:

Directional Two-Lane Highway Segment Analysis

Analyst	CFB
Agency/Co.	VHB
Date Performed	11/13/2017
Analysis Time Period	PM
Highway	NC 54
From/To	NC 119/Mt Willen Road
Jurisdiction	Alamance County
Analysis Year	2017
Description	Capacity Analysis - NC 54 (EB)

Input Data

Highway class	Class 2		Peak hour factor, PHF	0.90	
Shoulder width	4.0	ft	% Trucks and buses	2	%
Lane width	12.0	ft	% Trucks crawling	0.0	%
Segment length	4.1	mi	Truck crawl speed	0.0	mi/hr
Terrain type	Rolling		% Recreational vehicles	0	%
Grade: Length	-	mi	% No-passing zones	79	%
Up/down	-	%	Access point density	16	/mi

Analysis direction volume, Vd	451	veh/h
Opposing direction volume, Vo	692	veh/h

Average Travel Speed

Direction	Analysis(d)		Opposing (o)	
PCE for trucks, ET	1.8		1.5	
PCE for RVs, ER	1.1		1.1	
Heavy-vehicle adj. factor,(note-5) fHV	0.984		0.990	
Grade adj. factor,(note-1) fg	0.95		0.99	
Directional flow rate,(note-2) vi	536	pc/h	785	pc/h

Free-Flow Speed from Field Measurement:		
Field measured speed,(note-3) S FM	-	mi/h
Observed total demand,(note-3) V	-	veh/h
Estimated Free-Flow Speed:		
Base free-flow speed,(note-3) BFFS	60.0	mi/h
Adj. for lane and shoulder width,(note-3) fLS	1.3	mi/h
Adj. for access point density,(note-3) fA	4.0	mi/h
Free-flow speed, FFSd	54.7	mi/h
Adjustment for no-passing zones, fnp	1.2	mi/h
Average travel speed, ATSd	43.2	mi/h
Percent Free Flow Speed, PFFS	79.0	%

Percent Time-Spent-Following

Direction	Analysis(d)	Opposing (o)
PCE for trucks, ET	1.2	1.0
PCE for RVs, ER	1.0	1.0
Heavy-vehicle adjustment factor, fHV	0.996	1.000
Grade adjustment factor,(note-1) fg	0.96	1.00
Directional flow rate,(note-2) vi	524 pc/h	769 pc/h
Base percent time-spent-following,(note-4) BPTSFd	56.1 %	
Adjustment for no-passing zones, fnp	28.5	
Percent time-spent-following, PTSFd	67.6 %	

Level of Service and Other Performance Measures

Level of service, LOS	C	
Volume to capacity ratio, v/c	0.53	
Peak 15-min vehicle-miles of travel, VMT15	514	veh-mi
Peak-hour vehicle-miles of travel, VMT60	1849	veh-mi
Peak 15-min total travel time, TT15	11.9	veh-h
Capacity from ATS, CdATS	1690	veh/h
Capacity from PTSF, CdPTSF	1700	veh/h
Directional Capacity	1700	veh/h

Passing Lane Analysis

Total length of analysis segment, Lt	4.1	mi
Length of two-lane highway upstream of the passing lane, Lu	-	mi
Length of passing lane including tapers, Lpl	-	mi
Average travel speed, ATSd (from above)	43.2	mi/h
Percent time-spent-following, PTSFd (from above)	67.6	
Level of service, LOSd (from above)	C	

Average Travel Speed with Passing Lane

Downstream length of two-lane highway within effective length of passing lane for average travel speed, Lde	-	mi
Length of two-lane highway downstream of effective length of the passing lane for average travel speed, Ld	-	mi
Adj. factor for the effect of passing lane on average speed, fpl	-	
Average travel speed including passing lane, ATSpl	-	
Percent free flow speed including passing lane, PFFSpl	0.0	%

Percent Time-Spent-Following with Passing Lane

Downstream length of two-lane highway within effective length of passing lane for percent time-spent-following, Lde	-	mi
Length of two-lane highway downstream of effective length of the passing lane for percent time-spent-following, Ld	-	mi
Adj. factor for the effect of passing lane on percent time-spent-following, fpl	-	
Percent time-spent-following including passing lane, PTSFpl	-	%

Level of Service and Other Performance Measures with Passing Lane

Level of service including passing lane, LOSpl	A	
Peak 15-min total travel time, TT15	-	veh-h

Bicycle Level of Service

Posted speed limit, Sp	55
Percent of segment with occupied on-highway parking	0
Pavement rating, P	3
Flow rate in outside lane, vOL	501.1
Effective width of outside lane, We	16.00
Effective speed factor, St	4.79
Bicycle LOS Score, BLOS	4.11
Bicycle LOS	D

Notes:
1. Note that the adjustment factor for level terrain is 1.00, as level terrain is one of the base conditions. For the purpose of grade adjustment, specific dewngrade segments are treated as level terrain.
2. If vi (vd or vo) >= 1,700 pc/h, terminate analysis-the LOS is F.
3. For the analysis direction only and for v>200 veh/h.
4. For the analysis direction only.
5. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.

Phone: Fax:
E-Mail:

Directional Two-Lane Highway Segment Analysis

Analyst	CFB
Agency/Co.	VHB
Date Performed	11/13/2017
Analysis Time Period	PM
Highway	NC 54
From/To	NC 119/Mt Willen Road
Jurisdiction	Alamance County
Analysis Year	2017
Description	Capacity Analysis - NC 54 (WB)

Input Data

Highway class	Class 2		Peak hour factor, PHF	0.90	
Shoulder width	4.0	ft	% Trucks and buses	2	%
Lane width	12.0	ft	% Trucks crawling	0.0	%
Segment length	4.1	mi	Truck crawl speed	0.0	mi/hr
Terrain type	Rolling		% Recreational vehicles	0	%
Grade: Length	-	mi	% No-passing zones	80	%
Up/down	-	%	Access point density	16	/mi

Analysis direction volume, Vd	692	veh/h
Opposing direction volume, Vo	451	veh/h

Average Travel Speed

Direction	Analysis(d)		Opposing (o)	
PCE for trucks, ET	1.5		1.8	
PCE for RVs, ER	1.1		1.1	
Heavy-vehicle adj. factor,(note-5) fHV	0.990		0.984	
Grade adj. factor,(note-1) fg	0.99		0.95	
Directional flow rate,(note-2) vi	785	pc/h	536	pc/h

Free-Flow Speed from Field Measurement:		
Field measured speed,(note-3) S FM	-	mi/h
Observed total demand,(note-3) V	-	veh/h
Estimated Free-Flow Speed:		
Base free-flow speed,(note-3) BFFS	60.0	mi/h
Adj. for lane and shoulder width,(note-3) fLS	1.3	mi/h
Adj. for access point density,(note-3) fA	4.0	mi/h
Free-flow speed, FFSd	54.7	mi/h
Adjustment for no-passing zones, fnp	2.1	mi/h
Average travel speed, ATSd	42.4	mi/h
Percent Free Flow Speed, PFFS	77.5	%

Percent Time-Spent-Following

Direction	Analysis(d)	Opposing (o)
PCE for trucks, ET	1.0	1.2
PCE for RVs, ER	1.0	1.0
Heavy-vehicle adjustment factor, fHV	1.000	0.996
Grade adjustment factor,(note-1) fg	1.00	0.96
Directional flow rate,(note-2) vi	769 pc/h	524 pc/h
Base percent time-spent-following,(note-4) BPTSFd	65.8 %	
Adjustment for no-passing zones, fnp	28.5	
Percent time-spent-following, PTSFd	82.8 %	

Level of Service and Other Performance Measures

Level of service, LOS	D	
Volume to capacity ratio, v/c	0.53	
Peak 15-min vehicle-miles of travel, VMT15	788	veh-mi
Peak-hour vehicle-miles of travel, VMT60	2837	veh-mi
Peak 15-min total travel time, TT15	18.6	veh-h
Capacity from ATS, CdATS	1690	veh/h
Capacity from PTSF, CdPTSF	1700	veh/h
Directional Capacity	1700	veh/h

Passing Lane Analysis

Total length of analysis segment, Lt	4.1	mi
Length of two-lane highway upstream of the passing lane, Lu	-	mi
Length of passing lane including tapers, Lpl	-	mi
Average travel speed, ATSd (from above)	42.4	mi/h
Percent time-spent-following, PTSFd (from above)	82.8	
Level of service, LOSd (from above)	D	

Average Travel Speed with Passing Lane

Downstream length of two-lane highway within effective length of passing lane for average travel speed, Lde	-	mi
Length of two-lane highway downstream of effective length of the passing lane for average travel speed, Ld	-	mi
Adj. factor for the effect of passing lane on average speed, fpl	-	
Average travel speed including passing lane, ATSpl	-	
Percent free flow speed including passing lane, PFFSpl	0.0	%

Percent Time-Spent-Following with Passing Lane

Downstream length of two-lane highway within effective length of passing lane for percent time-spent-following, Lde	-	mi
Length of two-lane highway downstream of effective length of the passing lane for percent time-spent-following, Ld	-	mi
Adj. factor for the effect of passing lane on percent time-spent-following, fpl	-	
Percent time-spent-following including passing lane, PTSFpl	-	%

Level of Service and Other Performance Measures with Passing Lane

Level of service including passing lane, LOSpl	A	
Peak 15-min total travel time, TT15	-	veh-h

Bicycle Level of Service

Posted speed limit, Sp	55
Percent of segment with occupied on-highway parking	0
Pavement rating, P	3
Flow rate in outside lane, vOL	768.9
Effective width of outside lane, We	16.00
Effective speed factor, St	4.79
Bicycle LOS Score, BLOS	4.33
Bicycle LOS	D

Notes:
1. Note that the adjustment factor for level terrain is 1.00, as level terrain is one of the base conditions. For the purpose of grade adjustment, specific dewngrade segments are treated as level terrain.
2. If vi (vd or vo) >= 1,700 pc/h, terminate analysis-the LOS is F.
3. For the analysis direction only and for v>200 veh/h.
4. For the analysis direction only.
5. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.

Phone: Fax:
E-Mail:

Directional Two-Lane Highway Segment Analysis

Analyst	CFB
Agency/Co.	VHB
Date Performed	11/13/2017
Analysis Time Period	AM
Highway	NC 54
From/To	Orange Grove Rd/Dodsons Cross
Jurisdiction	Orange County
Analysis Year	2017
Description	Capacity Analysis - NC 54 (EB)

Input Data

Highway class	Class 2		Peak hour factor, PHF	0.90	
Shoulder width	4.0	ft	% Trucks and buses	2	%
Lane width	12.0	ft	% Trucks crawling	0.0	%
Segment length	1.6	mi	Truck crawl speed	0.0	mi/hr
Terrain type	Rolling		% Recreational vehicles	0	%
Grade: Length	-	mi	% No-passing zones	71	%
Up/down	-	%	Access point density	16	/mi

Analysis direction volume, Vd	956	veh/h
Opposing direction volume, Vo	310	veh/h

Average Travel Speed

Direction	Analysis(d)		Opposing (o)	
PCE for trucks, ET	1.3		2.1	
PCE for RVs, ER	1.1		1.1	
Heavy-vehicle adj. factor,(note-5) fHV	0.994		0.978	
Grade adj. factor,(note-1) fg	1.00		0.86	
Directional flow rate,(note-2) vi	1069	pc/h	410	pc/h

Free-Flow Speed from Field Measurement:		
Field measured speed,(note-3) S FM	-	mi/h
Observed total demand,(note-3) V	-	veh/h
Estimated Free-Flow Speed:		
Base free-flow speed,(note-3) BFFS	60.0	mi/h
Adj. for lane and shoulder width,(note-3) fLS	1.3	mi/h
Adj. for access point density,(note-3) fA	4.0	mi/h
Free-flow speed, FFSd	54.7	mi/h
Adjustment for no-passing zones, fnp	2.5	mi/h
Average travel speed, ATSd	40.7	mi/h
Percent Free Flow Speed, PFFS	74.4	%

Percent Time-Spent-Following

Direction	Analysis(d)	Opposing (o)
PCE for trucks, ET	1.0	1.6
PCE for RVs, ER	1.0	1.0
Heavy-vehicle adjustment factor, fHV	1.000	0.988
Grade adjustment factor,(note-1) fg	1.00	0.87
Directional flow rate,(note-2) vi	1062 pc/h	401 pc/h
Base percent time-spent-following,(note-4) BPTSFd	74.5 %	
Adjustment for no-passing zones, fnp	18.0	
Percent time-spent-following, PTSFd	87.6 %	

Level of Service and Other Performance Measures

Level of service, LOS	E	
Volume to capacity ratio, v/c	0.62	
Peak 15-min vehicle-miles of travel, VMT15	425	veh-mi
Peak-hour vehicle-miles of travel, VMT60	1530	veh-mi
Peak 15-min total travel time, TT15	10.4	veh-h
Capacity from ATS, CdATS	0	veh/h
Capacity from PTSF, CdPTSF	1700	veh/h
Directional Capacity	1700	veh/h

Passing Lane Analysis

Total length of analysis segment, Lt	1.6	mi
Length of two-lane highway upstream of the passing lane, Lu	-	mi
Length of passing lane including tapers, Lpl	-	mi
Average travel speed, ATSd (from above)	40.7	mi/h
Percent time-spent-following, PTSFd (from above)	87.6	
Level of service, LOSd (from above)	E	

Average Travel Speed with Passing Lane

Downstream length of two-lane highway within effective length of passing lane for average travel speed, Lde	-	mi
Length of two-lane highway downstream of effective length of the passing lane for average travel speed, Ld	-	mi
Adj. factor for the effect of passing lane on average speed, fpl	-	
Average travel speed including passing lane, ATSpl	-	
Percent free flow speed including passing lane, PFFSpl	0.0	%

Percent Time-Spent-Following with Passing Lane

Downstream length of two-lane highway within effective length of passing lane for percent time-spent-following, Lde	-	mi
Length of two-lane highway downstream of effective length of the passing lane for percent time-spent-following, Ld	-	mi
Adj. factor for the effect of passing lane on percent time-spent-following, fpl	-	
Percent time-spent-following including passing lane, PTSFpl	-	%

Level of Service and Other Performance Measures with Passing Lane

Level of service including passing lane, LOSpl	A	
Peak 15-min total travel time, TT15	-	veh-h

Bicycle Level of Service

Posted speed limit, Sp	55
Percent of segment with occupied on-highway parking	0
Pavement rating, P	3
Flow rate in outside lane, vOL	1062.2
Effective width of outside lane, We	16.00
Effective speed factor, St	4.79
Bicycle LOS Score, BLOS	4.49
Bicycle LOS	D

Notes:
1. Note that the adjustment factor for level terrain is 1.00, as level terrain is one of the base conditions. For the purpose of grade adjustment, specific dewngrade segments are treated as level terrain.
2. If vi (vd or vo) >= 1,700 pc/h, terminate analysis-the LOS is F.
3. For the analysis direction only and for v>200 veh/h.
4. For the analysis direction only.
5. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.

Phone: Fax:
E-Mail:

Directional Two-Lane Highway Segment Analysis

Analyst	CFB
Agency/Co.	VHB
Date Performed	11/13/2017
Analysis Time Period	AM
Highway	NC 54
From/To	Orange Grove Rd/Dodsons Cross
Jurisdiction	Orange County
Analysis Year	2017
Description	Capacity Analysis - NC 54 (WB)

Input Data

Highway class	Class 2		Peak hour factor, PHF	0.90	
Shoulder width	4.0	ft	% Trucks and buses	2	%
Lane width	12.0	ft	% Trucks crawling	0.0	%
Segment length	1.6	mi	Truck crawl speed	0.0	mi/hr
Terrain type	Rolling		% Recreational vehicles	0	%
Grade: Length	-	mi	% No-passing zones	73	%
Up/down	-	%	Access point density	16	/mi

Analysis direction volume, Vd	310	veh/h
Opposing direction volume, Vo	956	veh/h

Average Travel Speed

Direction	Analysis(d)		Opposing (o)	
PCE for trucks, ET	2.1		1.3	
PCE for RVs, ER	1.1		1.1	
Heavy-vehicle adj. factor,(note-5) fHV	0.978		0.994	
Grade adj. factor,(note-1) fg	0.86		1.00	
Directional flow rate,(note-2) vi	410	pc/h	1069	pc/h

Free-Flow Speed from Field Measurement:		
Field measured speed,(note-3) S FM	-	mi/h
Observed total demand,(note-3) V	-	veh/h
Estimated Free-Flow Speed:		
Base free-flow speed,(note-3) BFFS	60.0	mi/h
Adj. for lane and shoulder width,(note-3) fLS	1.3	mi/h
Adj. for access point density,(note-3) fA	4.0	mi/h
Free-flow speed, FFSd	54.7	mi/h
Adjustment for no-passing zones, fnp	0.9	mi/h
Average travel speed, ATSd	42.4	mi/h
Percent Free Flow Speed, PFFS	77.5	%

Percent Time-Spent-Following

Direction	Analysis(d)	Opposing (o)
PCE for trucks, ET	1.6	1.0
PCE for RVs, ER	1.0	1.0
Heavy-vehicle adjustment factor, fHV	0.988	1.000
Grade adjustment factor,(note-1) fg	0.87	1.00
Directional flow rate,(note-2) vi	401 pc/h	1062 pc/h
Base percent time-spent-following,(note-4) BPTSFd	51.8 %	
Adjustment for no-passing zones, fnp	18.0	
Percent time-spent-following, PTSFd	56.7 %	

Level of Service and Other Performance Measures

Level of service, LOS	C	
Volume to capacity ratio, v/c	0.53	
Peak 15-min vehicle-miles of travel, VMT15	138	veh-mi
Peak-hour vehicle-miles of travel, VMT60	496	veh-mi
Peak 15-min total travel time, TT15	3.3	veh-h
Capacity from ATS, CdATS	1690	veh/h
Capacity from PTSF, CdPTSF	1700	veh/h
Directional Capacity	1700	veh/h

Passing Lane Analysis

Total length of analysis segment, Lt	1.6	mi
Length of two-lane highway upstream of the passing lane, Lu	-	mi
Length of passing lane including tapers, Lpl	-	mi
Average travel speed, ATSd (from above)	42.4	mi/h
Percent time-spent-following, PTSFd (from above)	56.7	
Level of service, LOSd (from above)	C	

Average Travel Speed with Passing Lane

Downstream length of two-lane highway within effective length of passing lane for average travel speed, Lde	-	mi
Length of two-lane highway downstream of effective length of the passing lane for average travel speed, Ld	-	mi
Adj. factor for the effect of passing lane on average speed, fpl	-	
Average travel speed including passing lane, ATSpl	-	
Percent free flow speed including passing lane, PFFSpl	0.0	%

Percent Time-Spent-Following with Passing Lane

Downstream length of two-lane highway within effective length of passing lane for percent time-spent-following, Lde	-	mi
Length of two-lane highway downstream of effective length of the passing lane for percent time-spent-following, Ld	-	mi
Adj. factor for the effect of passing lane on percent time-spent-following, fpl	-	
Percent time-spent-following including passing lane, PTSFpl	-	%

Level of Service and Other Performance Measures with Passing Lane

Level of service including passing lane, LOSpl	A	
Peak 15-min total travel time, TT15	-	veh-h

Bicycle Level of Service

Posted speed limit, Sp	55
Percent of segment with occupied on-highway parking	0
Pavement rating, P	3
Flow rate in outside lane, vOL	344.4
Effective width of outside lane, We	16.00
Effective speed factor, St	4.79
Bicycle LOS Score, BLOS	3.92
Bicycle LOS	D

Notes:
1. Note that the adjustment factor for level terrain is 1.00, as level terrain is one of the base conditions. For the purpose of grade adjustment, specific dewngrade segments are treated as level terrain.
2. If vi (vd or vo) >= 1,700 pc/h, terminate analysis-the LOS is F.
3. For the analysis direction only and for v>200 veh/h.
4. For the analysis direction only.
5. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.

Phone: Fax:
E-Mail:

Directional Two-Lane Highway Segment Analysis

Analyst	CFB
Agency/Co.	VHB
Date Performed	11/13/2017
Analysis Time Period	PM
Highway	NC 54
From/To	Orange Grove Rd/Dodsons Cross
Jurisdiction	Orange County
Analysis Year	2017
Description	Capacity Analysis - NC 54 (EB)

Input Data

Highway class	Class 2		Peak hour factor, PHF	0.90	
Shoulder width	4.0	ft	% Trucks and buses	2	%
Lane width	12.0	ft	% Trucks crawling	0.0	%
Segment length	1.6	mi	Truck crawl speed	0.0	mi/hr
Terrain type	Rolling		% Recreational vehicles	0	%
Grade: Length	-	mi	% No-passing zones	71	%
Up/down	-	%	Access point density	16	/mi

Analysis direction volume, Vd	290	veh/h
Opposing direction volume, Vo	989	veh/h

Average Travel Speed

Direction	Analysis(d)		Opposing (o)	
PCE for trucks, ET	2.1		1.3	
PCE for RVs, ER	1.1		1.1	
Heavy-vehicle adj. factor,(note-5) fHV	0.978		0.994	
Grade adj. factor,(note-1) fg	0.85		1.00	
Directional flow rate,(note-2) vi	388	pc/h	1106	pc/h

Free-Flow Speed from Field Measurement:		
Field measured speed,(note-3) S FM	-	mi/h
Observed total demand,(note-3) V	-	veh/h
Estimated Free-Flow Speed:		
Base free-flow speed,(note-3) BFFS	60.0	mi/h
Adj. for lane and shoulder width,(note-3) fLS	1.3	mi/h
Adj. for access point density,(note-3) fA	4.0	mi/h
Free-flow speed, FFSd	54.7	mi/h
Adjustment for no-passing zones, fnp	0.8	mi/h
Average travel speed, ATSd	42.3	mi/h
Percent Free Flow Speed, PFFS	77.3	%

Percent Time-Spent-Following

Direction	Analysis(d)	Opposing (o)
PCE for trucks, ET	1.6	1.0
PCE for RVs, ER	1.0	1.0
Heavy-vehicle adjustment factor, fHV	0.988	1.000
Grade adjustment factor,(note-1) fg	0.86	1.00
Directional flow rate,(note-2) vi	379 pc/h	1099 pc/h
Base percent time-spent-following,(note-4) BPTSFd	49.9 %	
Adjustment for no-passing zones, fnp	17.0	
Percent time-spent-following, PTSFd	54.3 %	

Level of Service and Other Performance Measures

Level of service, LOS	B	
Volume to capacity ratio, v/c	0.53	
Peak 15-min vehicle-miles of travel, VMT15	129	veh-mi
Peak-hour vehicle-miles of travel, VMT60	464	veh-mi
Peak 15-min total travel time, TT15	3.1	veh-h
Capacity from ATS, CdATS	1690	veh/h
Capacity from PTSF, CdPTSF	1700	veh/h
Directional Capacity	1700	veh/h

Passing Lane Analysis

Total length of analysis segment, Lt	1.6	mi
Length of two-lane highway upstream of the passing lane, Lu	-	mi
Length of passing lane including tapers, Lpl	-	mi
Average travel speed, ATSd (from above)	42.3	mi/h
Percent time-spent-following, PTSFd (from above)	54.3	
Level of service, LOSd (from above)	B	

Average Travel Speed with Passing Lane

Downstream length of two-lane highway within effective length of passing lane for average travel speed, Lde	-	mi
Length of two-lane highway downstream of effective length of the passing lane for average travel speed, Ld	-	mi
Adj. factor for the effect of passing lane on average speed, fpl	-	
Average travel speed including passing lane, ATSpl	-	
Percent free flow speed including passing lane, PFFSpl	0.0	%

Percent Time-Spent-Following with Passing Lane

Downstream length of two-lane highway within effective length of passing lane for percent time-spent-following, Lde	-	mi
Length of two-lane highway downstream of effective length of the passing lane for percent time-spent-following, Ld	-	mi
Adj. factor for the effect of passing lane on percent time-spent-following, fpl	-	
Percent time-spent-following including passing lane, PTSFpl	-	%

Level of Service and Other Performance Measures with Passing Lane

Level of service including passing lane, LOSpl	A	
Peak 15-min total travel time, TT15	-	veh-h

Bicycle Level of Service

Posted speed limit, Sp	55
Percent of segment with occupied on-highway parking	0
Pavement rating, P	3
Flow rate in outside lane, vOL	322.2
Effective width of outside lane, We	16.00
Effective speed factor, St	4.79
Bicycle LOS Score, BLOS	3.89
Bicycle LOS	D

Notes:
1. Note that the adjustment factor for level terrain is 1.00, as level terrain is one of the base conditions. For the purpose of grade adjustment, specific dewngrade segments are treated as level terrain.
2. If vi (vd or vo) >= 1,700 pc/h, terminate analysis-the LOS is F.
3. For the analysis direction only and for v>200 veh/h.
4. For the analysis direction only.
5. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.

Phone: Fax:
E-Mail:

Directional Two-Lane Highway Segment Analysis

Analyst	CFB
Agency/Co.	VHB
Date Performed	11/13/2017
Analysis Time Period	PM
Highway	NC 54
From/To	Orange Grove Rd/Dodsons Cross
Jurisdiction	Orange County
Analysis Year	2017
Description	Capacity Analysis - NC 54 (WB)

Input Data

Highway class	Class 2		Peak hour factor, PHF	0.90	
Shoulder width	4.0	ft	% Trucks and buses	2	%
Lane width	12.0	ft	% Trucks crawling	0.0	%
Segment length	1.6	mi	Truck crawl speed	0.0	mi/hr
Terrain type	Rolling		% Recreational vehicles	0	%
Grade: Length	-	mi	% No-passing zones	73	%
Up/down	-	%	Access point density	16	/mi

Analysis direction volume, Vd	989	veh/h
Opposing direction volume, Vo	290	veh/h

Average Travel Speed

Direction	Analysis(d)		Opposing (o)	
PCE for trucks, ET	1.3		2.1	
PCE for RVs, ER	1.1		1.1	
Heavy-vehicle adj. factor,(note-5) fHV	0.994		0.978	
Grade adj. factor,(note-1) fg	1.00		0.85	
Directional flow rate,(note-2) vi	1106	pc/h	388	pc/h

Free-Flow Speed from Field Measurement:		
Field measured speed,(note-3) S FM	-	mi/h
Observed total demand,(note-3) V	-	veh/h
Estimated Free-Flow Speed:		
Base free-flow speed,(note-3) BFFS	60.0	mi/h
Adj. for lane and shoulder width,(note-3) fLS	1.3	mi/h
Adj. for access point density,(note-3) fA	4.0	mi/h
Free-flow speed, FFSd	54.7	mi/h
Adjustment for no-passing zones, fnp	2.7	mi/h
Average travel speed, ATSd	40.4	mi/h
Percent Free Flow Speed, PFFS	73.9	%

Percent Time-Spent-Following

Direction	Analysis(d)	Opposing (o)
PCE for trucks, ET	1.0	1.6
PCE for RVs, ER	1.0	1.0
Heavy-vehicle adjustment factor, fHV	1.000	0.988
Grade adjustment factor,(note-1) fg	1.00	0.86
Directional flow rate,(note-2) vi	1099 pc/h	379 pc/h
Base percent time-spent-following,(note-4) BPTSFd	75.2 %	
Adjustment for no-passing zones, fnp	17.1	
Percent time-spent-following, PTSFd	87.9 %	

Level of Service and Other Performance Measures

Level of service, LOS	E	
Volume to capacity ratio, v/c	0.65	
Peak 15-min vehicle-miles of travel, VMT15	440	veh-mi
Peak-hour vehicle-miles of travel, VMT60	1582	veh-mi
Peak 15-min total travel time, TT15	10.9	veh-h
Capacity from ATS, CdATS	0	veh/h
Capacity from PTSF, CdPTSF	1700	veh/h
Directional Capacity	1700	veh/h

Passing Lane Analysis

Total length of analysis segment, Lt	1.6	mi
Length of two-lane highway upstream of the passing lane, Lu	-	mi
Length of passing lane including tapers, Lpl	-	mi
Average travel speed, ATSd (from above)	40.4	mi/h
Percent time-spent-following, PTSFd (from above)	87.9	
Level of service, LOSd (from above)	E	

Average Travel Speed with Passing Lane

Downstream length of two-lane highway within effective length of passing lane for average travel speed, Lde	-	mi
Length of two-lane highway downstream of effective length of the passing lane for average travel speed, Ld	-	mi
Adj. factor for the effect of passing lane on average speed, fpl	-	
Average travel speed including passing lane, ATSpl	-	
Percent free flow speed including passing lane, PFFSpl	0.0	%

Percent Time-Spent-Following with Passing Lane

Downstream length of two-lane highway within effective length of passing lane for percent time-spent-following, Lde	-	mi
Length of two-lane highway downstream of effective length of the passing lane for percent time-spent-following, Ld	-	mi
Adj. factor for the effect of passing lane on percent time-spent-following, fpl	-	
Percent time-spent-following including passing lane, PTSFpl	-	%

Level of Service and Other Performance Measures with Passing Lane

Level of service including passing lane, LOSpl	A	
Peak 15-min total travel time, TT15	-	veh-h

Bicycle Level of Service

Posted speed limit, Sp	55
Percent of segment with occupied on-highway parking	0
Pavement rating, P	3
Flow rate in outside lane, vOL	1098.9
Effective width of outside lane, We	16.00
Effective speed factor, St	4.79
Bicycle LOS Score, BLOS	4.51
Bicycle LOS	E

Notes:
1. Note that the adjustment factor for level terrain is 1.00, as level terrain is one of the base conditions. For the purpose of grade adjustment, specific dewngrade segments are treated as level terrain.
2. If vi (vd or vo) >= 1,700 pc/h, terminate analysis-the LOS is F.
3. For the analysis direction only and for v>200 veh/h.
4. For the analysis direction only.
5. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.

Phone: Fax:
E-mail:

OPERATIONAL ANALYSIS

Analyst:	CFB
Agency/Co:	VHB
Date:	11/13/2017
Analysis Period:	AM
Highway:	NC 54
From/To:	Woody Dr/NC 119
Jurisdiction:	Alamance County
Analysis Year:	2017
Project ID:	Capacity Analysis for NC 54 between Woody Drive and NC 119

FREE-FLOW SPEED

Direction	1		2	
Lane width	12.0	ft	12.0	ft
Lateral clearance:				
Right edge	6.0	ft	6.0	ft
Left edge	6.0	ft	6.0	ft
Total lateral clearance	12.0	ft	12.0	ft
Access points per mile	16		16	
Median type	Divided		Divided	
Free-flow speed:	Base		Base	
FFS or BFFS	60.0	mph	60.0	mph
Lane width adjustment, FLW	0.0	mph	0.0	mph
Lateral clearance adjustment, FLC	0.0	mph	0.0	mph
Median type adjustment, FM	0.0	mph	0.0	mph
Access points adjustment, FA	4.0	mph	4.0	mph
Free-flow speed	56.0	mph	56.0	mph

VOLUME

Direction	1		2	
Volume, V	831	vph	892	vph
Peak-hour factor, PHF	0.90		0.90	
Peak 15-minute volume, v15	231		248	
Trucks and buses	2	%	2	%
Recreational vehicles	0	%	0	%
Terrain type	Rolling		Rolling	
Grade	0.00	%	0.00	%
Segment length	0.00	mi	0.00	mi
Number of lanes	2		2	
Driver population adjustment, fP	1.00		1.00	
Trucks and buses PCE, ET	2.5		2.5	
Recreational vehicles PCE, ER	2.0		2.0	
Heavy vehicle adjustment, fHV	0.971		0.971	
Flow rate, vp	475	pcphpl	510	pcphpl

RESULTS

Direction	1		2	
Flow rate, vp	475	pcphpl	510	pcphpl
Free-flow speed, FFS	56.0	mph	56.0	mph
Avg. passenger-car travel speed, S	55.0	mph	55.0	mph
Level of service, LOS	A		A	
Density, D	8.6	pc/mi/ln	9.3	pc/mi/ln

Bicycle Level of Service

Posted speed limit, Sp		40
Percent of segment with occupied on-highway parking	0	0
Pavement rating, P	3	3
Flow rate in outside lane, vOL	461.7	495.6
Effective width of outside lane, We	24.00	24.00
Effective speed factor, St	4.17	4.17
Bicycle LOS Score, BLOS	2.29	2.32
Bicycle LOS	B	B

Overall results are not computed when free-flow speed is less than 45 mph.

Phone: Fax:
E-mail:

OPERATIONAL ANALYSIS

Analyst:	CFB
Agency/Co:	VHB
Date:	11/13/2017
Analysis Period:	PM
Highway:	NC 54
From/To:	Woody Dr/NC 119
Jurisdiction:	Alamance County
Analysis Year:	2017
Project ID:	Capacity Analysis for NC 54 between Woody Drive and NC 119

FREE-FLOW SPEED

Direction	1		2	
Lane width	12.0	ft	12.0	ft
Lateral clearance:				
Right edge	6.0	ft	6.0	ft
Left edge	6.0	ft	6.0	ft
Total lateral clearance	12.0	ft	12.0	ft
Access points per mile	16		16	
Median type	Divided		Divided	
Free-flow speed:	Base		Base	
FFS or BFFS	60.0	mph	60.0	mph
Lane width adjustment, FLW	0.0	mph	0.0	mph
Lateral clearance adjustment, FLC	0.0	mph	0.0	mph
Median type adjustment, FM	0.0	mph	0.0	mph
Access points adjustment, FA	4.0	mph	4.0	mph
Free-flow speed	56.0	mph	56.0	mph

VOLUME

Direction	1		2	
Volume, V	917	vph	802	vph
Peak-hour factor, PHF	0.90		0.90	
Peak 15-minute volume, v15	255		223	
Trucks and buses	2	%	2	%
Recreational vehicles	0	%	0	%
Terrain type	Rolling		Rolling	
Grade	0.00	%	0.00	%
Segment length	0.00	mi	0.00	mi
Number of lanes	2		2	
Driver population adjustment, fP	1.00		1.00	
Trucks and buses PCE, ET	2.5		2.5	
Recreational vehicles PCE, ER	2.0		2.0	
Heavy vehicle adjustment, fHV	0.971		0.971	
Flow rate, vp	524	pcphpl	458	pcphpl

RESULTS

Direction	1		2	
Flow rate, vp	524	pcphpl	458	pcphpl
Free-flow speed, FFS	56.0	mph	56.0	mph
Avg. passenger-car travel speed, S	55.0	mph	55.0	mph
Level of service, LOS	A		A	
Density, D	9.5	pc/mi/ln	8.3	pc/mi/ln

Bicycle Level of Service

Posted speed limit, Sp	45	45
Percent of segment with occupied on-highway parking	0	0
Pavement rating, P	3	3
Flow rate in outside lane, vOL	509.4	445.6
Effective width of outside lane, We	24.00	24.00
Effective speed factor, St	4.42	4.42
Bicycle LOS Score, BLOS	2.41	2.34
Bicycle LOS	B	B

Overall results are not computed when free-flow speed is less than 45 mph.

Phone: Fax:
E-mail:

OPERATIONAL ANALYSIS

Analyst: CEB
Agency/Co: VHB
Date: 4/3/2018
Analysis Period: AM
Highway: NC 54
From/To: Bethel Hickory/Old Fayettevill
Jurisdiction: Orange County
Analysis Year: 2017
Project ID: Capacity Analysis - NC 54 (East of Bethel Hickory)

FREE-FLOW SPEED

Direction	1		2	
Lane width	12.0	ft	12.0	ft
Lateral clearance:				
Right edge	6.0	ft	6.0	ft
Left edge	6.0	ft	6.0	ft
Total lateral clearance	12.0	ft	12.0	ft
Access points per mile	16		16	
Median type	Divided		Divided	
Free-flow speed:	Base		Base	
FFS or BFFS	60.0	mph	60.0	mph
Lane width adjustment, FLW	0.0	mph	0.0	mph
Lateral clearance adjustment, FLC	0.0	mph	0.0	mph
Median type adjustment, FM	0.0	mph	0.0	mph
Access points adjustment, FA	4.0	mph	4.0	mph
Free-flow speed	56.0	mph	56.0	mph

VOLUME

Direction	1		2	
Volume, V	985	vph	316	vph
Peak-hour factor, PHF	0.90		0.90	
Peak 15-minute volume, v15	274		88	
Trucks and buses	2	%	2	%
Recreational vehicles	0	%	0	%
Terrain type	Rolling		Rolling	
Grade	0.00	%	0.00	%
Segment length	0.00	mi	0.00	mi
Number of lanes	2		2	
Driver population adjustment, fP	1.00		1.00	
Trucks and buses PCE, ET	2.5		2.5	
Recreational vehicles PCE, ER	2.0		2.0	
Heavy vehicle adjustment, fHV	0.971		0.971	
Flow rate, vp	563	pcphpl	180	pcphpl

RESULTS

Direction	1		2	
Flow rate, vp	563	pcphpl	180	pcphpl
Free-flow speed, FFS	56.0	mph	56.0	mph
Avg. passenger-car travel speed, S	55.0	mph	55.0	mph
Level of service, LOS	A		A	
Density, D	10.2	pc/mi/ln	3.3	pc/mi/ln

Bicycle Level of Service

Posted speed limit, Sp		55
Percent of segment with occupied on-highway parking	0	0
Pavement rating, P	3	3
Flow rate in outside lane, vOL	547.2	175.6
Effective width of outside lane, We	24.00	24.00
Effective speed factor, St	4.79	4.79
Bicycle LOS Score, BLOS	2.56	1.98
Bicycle LOS	C	B

Overall results are not computed when free-flow speed is less than 45 mph.

Phone: Fax:
E-mail:

OPERATIONAL ANALYSIS

Analyst:	CEB
Agency/Co:	VHB
Date:	4/3/2018
Analysis Period:	PM
Highway:	NC 54
From/To:	Bethel Hickory/Old Fayettevill
Jurisdiction:	Orange County
Analysis Year:	2017
Project ID:	Capacity Analysis - NC 54 (East of Bethel Hickory)

FREE-FLOW SPEED

Direction	1		2	
Lane width	12.0	ft	12.0	ft
Lateral clearance:				
Right edge	6.0	ft	6.0	ft
Left edge	6.0	ft	6.0	ft
Total lateral clearance	12.0	ft	12.0	ft
Access points per mile	16		16	
Median type	Divided		Divided	
Free-flow speed:	Base		Base	
FFS or BFFS	60.0	mph	60.0	mph
Lane width adjustment, FLW	0.0	mph	0.0	mph
Lateral clearance adjustment, FLC	0.0	mph	0.0	mph
Median type adjustment, FM	0.0	mph	0.0	mph
Access points adjustment, FA	4.0	mph	4.0	mph
Free-flow speed	56.0	mph	56.0	mph

VOLUME

Direction	1		2	
Volume, V	326	vph	995	vph
Peak-hour factor, PHF	0.90		0.90	
Peak 15-minute volume, v15	91		276	
Trucks and buses	2	%	2	%
Recreational vehicles	0	%	0	%
Terrain type	Rolling		Rolling	
Grade	0.00	%	0.00	%
Segment length	0.00	mi	0.00	mi
Number of lanes	2		2	
Driver population adjustment, fP	1.00		1.00	
Trucks and buses PCE, ET	2.5		2.5	
Recreational vehicles PCE, ER	2.0		2.0	
Heavy vehicle adjustment, fHV	0.971		0.971	
Flow rate, vp	186	pcphpl	569	pcphpl

RESULTS

Direction	1		2	
Flow rate, vp	186	pcphpl	569	pcphpl
Free-flow speed, FFS	56.0	mph	56.0	mph
Avg. passenger-car travel speed, S	55.0	mph	55.0	mph
Level of service, LOS	A		A	
Density, D	3.4	pc/mi/ln	10.3	pc/mi/ln

Bicycle Level of Service

Posted speed limit, Sp		55
Percent of segment with occupied on-highway parking	0	0
Pavement rating, P	3	3
Flow rate in outside lane, vOL	181.1	552.8
Effective width of outside lane, We	24.00	24.00
Effective speed factor, St	4.79	4.79
Bicycle LOS Score, BLOS	1.99	2.56
Bicycle LOS	B	C

Overall results are not computed when free-flow speed is less than 45 mph.

Phone: Fax:
E-mail:

OPERATIONAL ANALYSIS

Analyst:	CEB
Agency/Co:	VHB
Date:	4/3/2018
Analysis Period:	AM
Highway:	NC 54
From/To:	Dodsons Cross/Bethel Hickory
Jurisdiction:	Orange County
Analysis Year:	2017
Project ID:	Capacity Analysis - NC 54 (West of Bethel Hickory)

FREE-FLOW SPEED

Direction	1		2	
Lane width	12.0	ft	12.0	ft
Lateral clearance:				
Right edge	6.0	ft	6.0	ft
Left edge	6.0	ft	6.0	ft
Total lateral clearance	12.0	ft	12.0	ft
Access points per mile	16		16	
Median type	Divided		Divided	
Free-flow speed:	Base		Base	
FFS or BFFS	60.0	mph	60.0	mph
Lane width adjustment, FLW	0.0	mph	0.0	mph
Lateral clearance adjustment, FLC	0.0	mph	0.0	mph
Median type adjustment, FM	0.0	mph	0.0	mph
Access points adjustment, FA	4.0	mph	4.0	mph
Free-flow speed	56.0	mph	56.0	mph

VOLUME

Direction	1		2	
Volume, V	1081	vph	309	vph
Peak-hour factor, PHF	0.90		0.90	
Peak 15-minute volume, v15	300		86	
Trucks and buses	2	%	2	%
Recreational vehicles	0	%	0	%
Terrain type	Rolling		Rolling	
Grade	0.00	%	0.00	%
Segment length	0.00	mi	0.00	mi
Number of lanes	2		2	
Driver population adjustment, fP	1.00		1.00	
Trucks and buses PCE, ET	2.5		2.5	
Recreational vehicles PCE, ER	2.0		2.0	
Heavy vehicle adjustment, fHV	0.971		0.971	
Flow rate, vp	618	pcphpl	176	pcphpl

RESULTS

Direction	1		2	
Flow rate, vp	618	pcphpl	176	pcphpl
Free-flow speed, FFS	56.0	mph	56.0	mph
Avg. passenger-car travel speed, S	55.0	mph	55.0	mph
Level of service, LOS	B		A	
Density, D	11.2	pc/mi/ln	3.2	pc/mi/ln

Bicycle Level of Service

Posted speed limit, Sp		55
Percent of segment with occupied on-highway parking	0	0
Pavement rating, P	3	3
Flow rate in outside lane, vOL	600.6	171.7
Effective width of outside lane, We	24.00	24.00
Effective speed factor, St	4.79	4.79
Bicycle LOS Score, BLOS	2.60	1.97
Bicycle LOS	C	B

Overall results are not computed when free-flow speed is less than 45 mph.

Phone: Fax:
E-mail:

OPERATIONAL ANALYSIS

Analyst:	CEB
Agency/Co:	VHB
Date:	4/3/2018
Analysis Period:	PM
Highway:	NC 54
From/To:	Dodsons Cross/Bethel Hickory
Jurisdiction:	Orange County
Analysis Year:	2017
Project ID:	Capacity Analysis - NC 54 (West of Bethel Hickory)

FREE-FLOW SPEED

Direction	1		2	
Lane width	12.0	ft	12.0	ft
Lateral clearance:				
Right edge	6.0	ft	6.0	ft
Left edge	6.0	ft	6.0	ft
Total lateral clearance	12.0	ft	12.0	ft
Access points per mile	16		16	
Median type	Divided		Divided	
Free-flow speed:	Base		Base	
FFS or BFFS	60.0	mph	60.0	mph
Lane width adjustment, FLW	0.0	mph	0.0	mph
Lateral clearance adjustment, FLC	0.0	mph	0.0	mph
Median type adjustment, FM	0.0	mph	0.0	mph
Access points adjustment, FA	4.0	mph	4.0	mph
Free-flow speed	56.0	mph	56.0	mph

VOLUME

Direction	1		2	
Volume, V	349	vph	1049	vph
Peak-hour factor, PHF	0.90		0.90	
Peak 15-minute volume, v15	97		291	
Trucks and buses	2	%	2	%
Recreational vehicles	0	%	0	%
Terrain type	Rolling		Rolling	
Grade	0.00	%	0.00	%
Segment length	0.00	mi	0.00	mi
Number of lanes	2		2	
Driver population adjustment, fP	1.00		1.00	
Trucks and buses PCE, ET	2.5		2.5	
Recreational vehicles PCE, ER	2.0		2.0	
Heavy vehicle adjustment, fHV	0.971		0.971	
Flow rate, vp	199	pcphpl	600	pcphpl

RESULTS

Direction	1		2	
Flow rate, vp	199	pcphpl	600	pcphpl
Free-flow speed, FFS	56.0	mph	56.0	mph
Avg. passenger-car travel speed, S	55.0	mph	55.0	mph
Level of service, LOS	A		A	
Density, D	3.6	pc/mi/ln	10.9	pc/mi/ln

Bicycle Level of Service

Posted speed limit, Sp		55
Percent of segment with occupied on-highway parking	0	0
Pavement rating, P	3	3
Flow rate in outside lane, vOL	193.9	582.8
Effective width of outside lane, We	24.00	24.00
Effective speed factor, St	4.79	4.79
Bicycle LOS Score, BLOS	2.03	2.59
Bicycle LOS	B	C

Overall results are not computed when free-flow speed is less than 45 mph.

Phone: Fax:
E-mail:

OPERATIONAL ANALYSIS

Analyst:	CEB
Agency/Co:	VHB
Date:	4/3/2018
Analysis Period:	AM
Highway:	NC 54
From/To:	Dodsons Cross/Bethel Hickory
Jurisdiction:	Orange County
Analysis Year:	2017
Project ID:	Capacity Analysis - NC 54 (East of Dodsons Crossing)

FREE-FLOW SPEED

Direction	1		2	
Lane width	12.0	ft	12.0	ft
Lateral clearance:				
Right edge	6.0	ft	6.0	ft
Left edge	6.0	ft	6.0	ft
Total lateral clearance	12.0	ft	12.0	ft
Access points per mile	16		16	
Median type	Divided		Divided	
Free-flow speed:	Base		Base	
FFS or BFFS	60.0	mph	60.0	mph
Lane width adjustment, FLW	0.0	mph	0.0	mph
Lateral clearance adjustment, FLC	0.0	mph	0.0	mph
Median type adjustment, FM	0.0	mph	0.0	mph
Access points adjustment, FA	4.0	mph	4.0	mph
Free-flow speed	56.0	mph	56.0	mph

VOLUME

Direction	1		2	
Volume, V	1044	vph	314	vph
Peak-hour factor, PHF	0.90		0.90	
Peak 15-minute volume, v15	290		87	
Trucks and buses	2	%	2	%
Recreational vehicles	0	%	0	%
Terrain type	Rolling		Rolling	
Grade	0.00	%	0.00	%
Segment length	0.00	mi	0.00	mi
Number of lanes	2		2	
Driver population adjustment, fP	1.00		1.00	
Trucks and buses PCE, ET	2.5		2.5	
Recreational vehicles PCE, ER	2.0		2.0	
Heavy vehicle adjustment, fHV	0.971		0.971	
Flow rate, vp	597	pcphpl	179	pcphpl

RESULTS

Direction	1		2	
Flow rate, vp	597	pcphpl	179	pcphpl
Free-flow speed, FFS	56.0	mph	56.0	mph
Avg. passenger-car travel speed, S	55.0	mph	55.0	mph
Level of service, LOS	A		A	
Density, D	10.9	pc/mi/ln	3.3	pc/mi/ln

Bicycle Level of Service

Posted speed limit, Sp		55
Percent of segment with occupied on-highway parking	0	0
Pavement rating, P	3	3
Flow rate in outside lane, vOL	580.0	174.4
Effective width of outside lane, We	24.00	24.00
Effective speed factor, St	4.79	4.79
Bicycle LOS Score, BLOS	2.59	1.97
Bicycle LOS	C	B

Overall results are not computed when free-flow speed is less than 45 mph.

Phone: Fax:
E-mail:

OPERATIONAL ANALYSIS

Analyst:	CEB
Agency/Co:	VHB
Date:	4/3/2018
Analysis Period:	PM
Highway:	NC 54
From/To:	Dodsons Cross/Bethel Hickory
Jurisdiction:	Orange County
Analysis Year:	2017
Project ID:	Capacity Analysis - NC 54 (East of Dodsons Crossing)

FREE-FLOW SPEED

Direction	1		2	
Lane width	12.0	ft	12.0	ft
Lateral clearance:				
Right edge	6.0	ft	6.0	ft
Left edge	6.0	ft	6.0	ft
Total lateral clearance	12.0	ft	12.0	ft
Access points per mile	16		16	
Median type	Divided		Divided	
Free-flow speed:	Base		Base	
FFS or BFFS	60.0	mph	60.0	mph
Lane width adjustment, FLW	0.0	mph	0.0	mph
Lateral clearance adjustment, FLC	0.0	mph	0.0	mph
Median type adjustment, FM	0.0	mph	0.0	mph
Access points adjustment, FA	4.0	mph	4.0	mph
Free-flow speed	56.0	mph	56.0	mph

VOLUME

Direction	1		2	
Volume, V	310	vph	1057	vph
Peak-hour factor, PHF	0.90		0.90	
Peak 15-minute volume, v15	86		294	
Trucks and buses	2	%	2	%
Recreational vehicles	0	%	0	%
Terrain type	Rolling		Rolling	
Grade	0.00	%	0.00	%
Segment length	0.00	mi	0.00	mi
Number of lanes	2		2	
Driver population adjustment, fP	1.00		1.00	
Trucks and buses PCE, ET	2.5		2.5	
Recreational vehicles PCE, ER	2.0		2.0	
Heavy vehicle adjustment, fHV	0.971		0.971	
Flow rate, vp	177	pcphpl	604	pcphpl

RESULTS

Direction	1		2	
Flow rate, vp	177	pcphpl	604	pcphpl
Free-flow speed, FFS	56.0	mph	56.0	mph
Avg. passenger-car travel speed, S	55.0	mph	55.0	mph
Level of service, LOS	A		A	
Density, D	3.2	pc/mi/ln	11.0-	pc/mi/ln

Bicycle Level of Service

Posted speed limit, Sp		55
Percent of segment with occupied on-highway parking	0	0
Pavement rating, P	3	3
Flow rate in outside lane, vOL	172.2	587.2
Effective width of outside lane, We	24.00	24.00
Effective speed factor, St	4.79	4.79
Bicycle LOS Score, BLOS	1.97	2.59
Bicycle LOS	B	C

Overall results are not computed when free-flow speed is less than 45 mph.

Phone: Fax:
E-mail:

OPERATIONAL ANALYSIS

Analyst:	CEB
Agency/Co:	VHB
Date:	4/3/2018
Analysis Period:	AM
Highway:	NC 54
From/To:	Orange Grove Rd/Dodsons Cross
Jurisdiction:	Orange County
Analysis Year:	2017
Project ID:	Capacity Analysis - NC 54 (West of Dodsons Crossing)

FREE-FLOW SPEED

Direction	1		2	
Lane width	12.0	ft	12.0	ft
Lateral clearance:				
Right edge	6.0	ft	6.0	ft
Left edge	6.0	ft	6.0	ft
Total lateral clearance	12.0	ft	12.0	ft
Access points per mile	16		16	
Median type	Divided		Divided	
Free-flow speed:	Base		Base	
FFS or BFFS	60.0	mph	60.0	mph
Lane width adjustment, FLW	0.0	mph	0.0	mph
Lateral clearance adjustment, FLC	0.0	mph	0.0	mph
Median type adjustment, FM	0.0	mph	0.0	mph
Access points adjustment, FA	4.0	mph	4.0	mph
Free-flow speed	56.0	mph	56.0	mph

VOLUME

Direction	1		2	
Volume, V	956	vph	310	vph
Peak-hour factor, PHF	0.90		0.90	
Peak 15-minute volume, v15	266		86	
Trucks and buses	2	%	2	%
Recreational vehicles	0	%	0	%
Terrain type	Rolling		Rolling	
Grade	0.00	%	0.00	%
Segment length	0.00	mi	0.00	mi
Number of lanes	2		2	
Driver population adjustment, fP	1.00		1.00	
Trucks and buses PCE, ET	2.5		2.5	
Recreational vehicles PCE, ER	2.0		2.0	
Heavy vehicle adjustment, fHV	0.971		0.971	
Flow rate, vp	547	pcphpl	177	pcphpl

RESULTS

Direction	1		2	
Flow rate, vp	547	pcphpl	177	pcphpl
Free-flow speed, FFS	56.0	mph	56.0	mph
Avg. passenger-car travel speed, S	55.0	mph	55.0	mph
Level of service, LOS	A		A	
Density, D	9.9	pc/mi/ln	3.2	pc/mi/ln

Bicycle Level of Service

Posted speed limit, Sp		55
Percent of segment with occupied on-highway parking	0	0
Pavement rating, P	3	3
Flow rate in outside lane, vOL	531.1	172.2
Effective width of outside lane, We	24.00	24.00
Effective speed factor, St	4.79	4.79
Bicycle LOS Score, BLOS	2.54	1.97
Bicycle LOS	C	B

Overall results are not computed when free-flow speed is less than 45 mph.

Phone: Fax:
E-mail:

OPERATIONAL ANALYSIS

Analyst:	CEB
Agency/Co:	VHB
Date:	4/3/2018
Analysis Period:	PM
Highway:	NC 54
From/To:	Orange Grove Rd/Dodsons Cross
Jurisdiction:	Orange County
Analysis Year:	2017
Project ID:	Capacity Analysis - NC 54 (West of Dodsons Crossing)

FREE-FLOW SPEED

Direction	1		2	
Lane width	12.0	ft	12.0	ft
Lateral clearance:				
Right edge	6.0	ft	6.0	ft
Left edge	6.0	ft	6.0	ft
Total lateral clearance	12.0	ft	12.0	ft
Access points per mile	16		16	
Median type	Divided		Divided	
Free-flow speed:	Base		Base	
FFS or BFFS	60.0	mph	60.0	mph
Lane width adjustment, FLW	0.0	mph	0.0	mph
Lateral clearance adjustment, FLC	0.0	mph	0.0	mph
Median type adjustment, FM	0.0	mph	0.0	mph
Access points adjustment, FA	4.0	mph	4.0	mph
Free-flow speed	56.0	mph	56.0	mph

VOLUME

Direction	1		2	
Volume, V	290	vph	989	vph
Peak-hour factor, PHF	0.90		0.90	
Peak 15-minute volume, v15	81		275	
Trucks and buses	2	%	2	%
Recreational vehicles	0	%	0	%
Terrain type	Rolling		Rolling	
Grade	0.00	%	0.00	%
Segment length	0.00	mi	0.00	mi
Number of lanes	2		2	
Driver population adjustment, fP	1.00		1.00	
Trucks and buses PCE, ET	2.5		2.5	
Recreational vehicles PCE, ER	2.0		2.0	
Heavy vehicle adjustment, fHV	0.971		0.971	
Flow rate, vp	165	pcphpl	565	pcphpl

RESULTS

Direction	1		2	
Flow rate, vp	165	pcphpl	565	pcphpl
Free-flow speed, FFS	56.0	mph	56.0	mph
Avg. passenger-car travel speed, S	55.0	mph	55.0	mph
Level of service, LOS	A		A	
Density, D	3.0	pc/mi/ln	10.3	pc/mi/ln

Bicycle Level of Service

Posted speed limit, Sp		55
Percent of segment with occupied on-highway parking	0	0
Pavement rating, P	3	3
Flow rate in outside lane, vOL	161.1	549.4
Effective width of outside lane, We	24.00	24.00
Effective speed factor, St	4.79	4.79
Bicycle LOS Score, BLOS	1.94	2.56
Bicycle LOS	B	C

Overall results are not computed when free-flow speed is less than 45 mph.

Phone: Fax:
E-mail:

OPERATIONAL ANALYSIS

Analyst:	CEB
Agency/Co:	VHB
Date:	4/9/2018
Analysis Period:	AM
Highway:	NC 54
From/To:	Mebane Oaks Rd/Orange Grove Rd
Jurisdiction:	Orange County
Analysis Year:	2017
Project ID:	Capacity Analysis - NC 54 (East of Mebane Oaks) (2EB,1WB)

FREE-FLOW SPEED

Direction	1		2	
Lane width	12.0	ft	12.0	ft
Lateral clearance:				
Right edge	6.0	ft	6.0	ft
Left edge	6.0	ft	6.0	ft
Total lateral clearance	12.0	ft	12.0	ft
Access points per mile	16		16	
Median type	Divided		Divided	
Free-flow speed:	Base		Base	
FFS or BFFS	60.0	mph	60.0	mph
Lane width adjustment, FLW	0.0	mph	0.0	mph
Lateral clearance adjustment, FLC	0.0	mph	0.0	mph
Median type adjustment, FM	0.0	mph	0.0	mph
Access points adjustment, FA	4.0	mph	4.0	mph
Free-flow speed	56.0	mph	56.0	mph

VOLUME

Direction	1		2	
Volume, V	799	vph	590	vph
Peak-hour factor, PHF	0.90		0.90	
Peak 15-minute volume, v15	222		164	
Trucks and buses	2	%	2	%
Recreational vehicles	0	%	0	%
Terrain type	Rolling		Rolling	
Grade	0.00	%	0.00	%
Segment length	0.00	mi	0.00	mi
Number of lanes	2		2	
Driver population adjustment, fP	1.00		1.00	
Trucks and buses PCE, ET	2.5		2.5	
Recreational vehicles PCE, ER	2.0		2.0	
Heavy vehicle adjustment, fHV	0.971		0.971	
Flow rate, vp	457	pcphpl	337	pcphpl

RESULTS

Direction	1		2	
Flow rate, vp	457	pcphpl	337	pcphpl
Free-flow speed, FFS	56.0	mph	56.0	mph
Avg. passenger-car travel speed, S	55.0	mph	55.0	mph
Level of service, LOS	A		A	
Density, D	8.3	pc/mi/ln	6.1	pc/mi/ln

Bicycle Level of Service

Posted speed limit, Sp	55	55
Percent of segment with occupied on-highway parking	0	0
Pavement rating, P	3	3
Flow rate in outside lane, vOL	443.9	327.8
Effective width of outside lane, We	24.00	24.00
Effective speed factor, St	4.79	4.79
Bicycle LOS Score, BLOS	2.45	2.30
Bicycle LOS	B	B

Overall results are not computed when free-flow speed is less than 45 mph.

Phone: Fax:
E-mail:

OPERATIONAL ANALYSIS

Analyst:	CEB
Agency/Co:	VHB
Date:	4/9/2018
Analysis Period:	PM
Highway:	NC 54
From/To:	Mebane Oaks Rd/Orange Grove Rd
Jurisdiction:	Orange County
Analysis Year:	2017
Project ID:	Capacity Analysis - NC 54 (East of Mebane Oaks) (2EB,1WB)

FREE-FLOW SPEED

Direction	1		2	
Lane width	12.0	ft	12.0	ft
Lateral clearance:				
Right edge	6.0	ft	6.0	ft
Left edge	6.0	ft	6.0	ft
Total lateral clearance	12.0	ft	12.0	ft
Access points per mile	16		16	
Median type	Divided		Divided	
Free-flow speed:	Base		Base	
FFS or BFFS	60.0	mph	60.0	mph
Lane width adjustment, FLW	0.0	mph	0.0	mph
Lateral clearance adjustment, FLC	0.0	mph	0.0	mph
Median type adjustment, FM	0.0	mph	0.0	mph
Access points adjustment, FA	4.0	mph	4.0	mph
Free-flow speed	56.0	mph	56.0	mph

VOLUME

Direction	1		2	
Volume, V	261	vph	1684	vph
Peak-hour factor, PHF	0.90		0.90	
Peak 15-minute volume, v15	73		468	
Trucks and buses	2	%	2	%
Recreational vehicles	0	%	0	%
Terrain type	Rolling		Rolling	
Grade	0.00	%	0.00	%
Segment length	0.00	mi	0.00	mi
Number of lanes	2		2	
Driver population adjustment, fP	1.00		1.00	
Trucks and buses PCE, ET	2.5		2.5	
Recreational vehicles PCE, ER	2.0		2.0	
Heavy vehicle adjustment, fHV	0.971		0.971	
Flow rate, vp	149	pcphpl	963	pcphpl

RESULTS

Direction	1		2	
Flow rate, vp	149	pcphpl	963	pcphpl
Free-flow speed, FFS	56.0	mph	56.0	mph
Avg. passenger-car travel speed, S	55.0	mph	55.0	mph
Level of service, LOS	A		B	
Density, D	2.7	pc/mi/ln	17.5	pc/mi/ln

Bicycle Level of Service

Posted speed limit, Sp	55	55
Percent of segment with occupied on-highway parking	0	0
Pavement rating, P	3	3
Flow rate in outside lane, vOL	145.0	935.6
Effective width of outside lane, We	24.00	24.00
Effective speed factor, St	4.79	4.79
Bicycle LOS Score, BLOS	1.88	2.83
Bicycle LOS	B	C

Overall results are not computed when free-flow speed is less than 45 mph.

Phone: Fax:
E-mail:

OPERATIONAL ANALYSIS

Analyst:	CEB
Agency/Co:	VHB
Date:	4/9/2018
Analysis Period:	AM
Highway:	NC 54
From/To:	Mt Willen Rd/Mebane Oaks Rd
Jurisdiction:	Orange County
Analysis Year:	2017
Project ID:	Capacity Analysis - NC 54 (West of Mebane Oaks) (2EB,1WB)

FREE-FLOW SPEED

Direction	1		2	
Lane width	12.0	ft	12.0	ft
Lateral clearance:				
Right edge	6.0	ft	6.0	ft
Left edge	6.0	ft	6.0	ft
Total lateral clearance	12.0	ft	12.0	ft
Access points per mile	16		16	
Median type	Divided		Divided	
Free-flow speed:	Base		Base	
FFS or BFFS	60.0	mph	60.0	mph
Lane width adjustment, FLW	0.0	mph	0.0	mph
Lateral clearance adjustment, FLC	0.0	mph	0.0	mph
Median type adjustment, FM	0.0	mph	0.0	mph
Access points adjustment, FA	4.0	mph	4.0	mph
Free-flow speed	56.0	mph	56.0	mph

VOLUME

Direction	1		2	
Volume, V	540	vph	486	vph
Peak-hour factor, PHF	0.90		0.90	
Peak 15-minute volume, v15	150		135	
Trucks and buses	2	%	2	%
Recreational vehicles	0	%	0	%
Terrain type	Rolling		Rolling	
Grade	0.00	%	0.00	%
Segment length	0.00	mi	0.00	mi
Number of lanes	2		2	
Driver population adjustment, fP	1.00		1.00	
Trucks and buses PCE, ET	2.5		2.5	
Recreational vehicles PCE, ER	2.0		2.0	
Heavy vehicle adjustment, fHV	0.971		0.971	
Flow rate, vp	309	pcphpl	278	pcphpl

RESULTS

Direction	1		2	
Flow rate, vp	309	pcphpl	278	pcphpl
Free-flow speed, FFS	56.0	mph	56.0	mph
Avg. passenger-car travel speed, S	55.0	mph	55.0	mph
Level of service, LOS	A		A	
Density, D	5.6	pc/mi/ln	5.1	pc/mi/ln

Bicycle Level of Service

Posted speed limit, Sp	55	55
Percent of segment with occupied on-highway parking	0	0
Pavement rating, P	3	3
Flow rate in outside lane, vOL	300.0	270.0
Effective width of outside lane, We	24.00	24.00
Effective speed factor, St	4.79	4.79
Bicycle LOS Score, BLOS	2.25	2.20
Bicycle LOS	B	B

Overall results are not computed when free-flow speed is less than 45 mph.

Phone: Fax:
E-mail:

OPERATIONAL ANALYSIS

Analyst:	CEB
Agency/Co:	VHB
Date:	4/9/2018
Analysis Period:	AM
Highway:	NC 54
From/To:	Mt Willen Rd/Mebane Oaks Rd
Jurisdiction:	Orange County
Analysis Year:	2017
Project ID:	Capacity Analysis - NC 54 (West of Mebane Oaks) (2WB,1EB)

FREE-FLOW SPEED

Direction	1		2	
Lane width	12.0	ft	12.0	ft
Lateral clearance:				
Right edge	6.0	ft	6.0	ft
Left edge	6.0	ft	6.0	ft
Total lateral clearance	12.0	ft	12.0	ft
Access points per mile	16		16	
Median type	Divided		Divided	
Free-flow speed:	Base		Base	
FFS or BFFS	60.0	mph	60.0	mph
Lane width adjustment, FLW	0.0	mph	0.0	mph
Lateral clearance adjustment, FLC	0.0	mph	0.0	mph
Median type adjustment, FM	0.0	mph	0.0	mph
Access points adjustment, FA	4.0	mph	4.0	mph
Free-flow speed	56.0	mph	56.0	mph

VOLUME

Direction	1		2	
Volume, V	1080	vph	243	vph
Peak-hour factor, PHF	0.90		0.90	
Peak 15-minute volume, v15	300		68	
Trucks and buses	2	%	2	%
Recreational vehicles	0	%	0	%
Terrain type	Rolling		Rolling	
Grade	0.00	%	0.00	%
Segment length	0.00	mi	0.00	mi
Number of lanes	2		2	
Driver population adjustment, fP	1.00		1.00	
Trucks and buses PCE, ET	2.5		2.5	
Recreational vehicles PCE, ER	2.0		2.0	
Heavy vehicle adjustment, fHV	0.971		0.971	
Flow rate, vp	618	pcphpl	139	pcphpl

RESULTS

Direction	1		2	
Flow rate, vp	618	pcphpl	139	pcphpl
Free-flow speed, FFS	56.0	mph	56.0	mph
Avg. passenger-car travel speed, S	55.0	mph	55.0	mph
Level of service, LOS	B		A	
Density, D	11.2	pc/mi/ln	2.5	pc/mi/ln

Bicycle Level of Service

Posted speed limit, Sp	55	55
Percent of segment with occupied on-highway parking	0	0
Pavement rating, P	3	3
Flow rate in outside lane, vOL	600.0	135.0
Effective width of outside lane, We	24.00	24.00
Effective speed factor, St	4.79	4.79
Bicycle LOS Score, BLOS	2.60	1.85
Bicycle LOS	C	B

Overall results are not computed when free-flow speed is less than 45 mph.

Phone: Fax:
E-mail:

OPERATIONAL ANALYSIS

Analyst:	CEB
Agency/Co:	VHB
Date:	4/9/2018
Analysis Period:	PM
Highway:	NC 54
From/To:	Mt Willen Rd/Mebane Oaks Rd
Jurisdiction:	Orange County
Analysis Year:	2017
Project ID:	Capacity Analysis - NC 54 (West of Mebane Oaks) (2EB,1WB)

FREE-FLOW SPEED

Direction	1		2	
Lane width	12.0	ft	12.0	ft
Lateral clearance:				
Right edge	6.0	ft	6.0	ft
Left edge	6.0	ft	6.0	ft
Total lateral clearance	12.0	ft	12.0	ft
Access points per mile	16		16	
Median type	Divided		Divided	
Free-flow speed:	Base		Base	
FFS or BFFS	60.0	mph	60.0	mph
Lane width adjustment, FLW	0.0	mph	0.0	mph
Lateral clearance adjustment, FLC	0.0	mph	0.0	mph
Median type adjustment, FM	0.0	mph	0.0	mph
Access points adjustment, FA	4.0	mph	4.0	mph
Free-flow speed	56.0	mph	56.0	mph

VOLUME

Direction	1		2	
Volume, V	180	vph	1178	vph
Peak-hour factor, PHF	0.90		0.90	
Peak 15-minute volume, v15	50		327	
Trucks and buses	2	%	2	%
Recreational vehicles	0	%	0	%
Terrain type	Rolling		Rolling	
Grade	0.00	%	0.00	%
Segment length	0.00	mi	0.00	mi
Number of lanes	2		2	
Driver population adjustment, fP	1.00		1.00	
Trucks and buses PCE, ET	2.5		2.5	
Recreational vehicles PCE, ER	2.0		2.0	
Heavy vehicle adjustment, fHV	0.971		0.971	
Flow rate, vp	103	pcphpl	674	pcphpl

RESULTS

Direction	1		2	
Flow rate, vp	103	pcphpl	674	pcphpl
Free-flow speed, FFS	56.0	mph	56.0	mph
Avg. passenger-car travel speed, S	55.0	mph	55.0	mph
Level of service, LOS	A		B	
Density, D	1.9	pc/mi/ln	12.3	pc/mi/ln

Bicycle Level of Service

Posted speed limit, Sp	55	55
Percent of segment with occupied on-highway parking	0	0
Pavement rating, P	3	3
Flow rate in outside lane, vOL	100.0	654.4
Effective width of outside lane, We	24.00	24.00
Effective speed factor, St	4.79	4.79
Bicycle LOS Score, BLOS	1.69	2.65
Bicycle LOS	B	C

Overall results are not computed when free-flow speed is less than 45 mph.

Phone: Fax:
E-mail:

OPERATIONAL ANALYSIS

Analyst:	CEB
Agency/Co:	VHB
Date:	4/9/2018
Analysis Period:	PM
Highway:	NC 54
From/To:	Mt Willen Rd/Mebane Oaks Rd
Jurisdiction:	Orange County
Analysis Year:	2017
Project ID:	Capacity Analysis - NC 54 (West of Mebane Oaks) (2WB,1EB)

FREE-FLOW SPEED

Direction	1		2	
Lane width	12.0	ft	12.0	ft
Lateral clearance:				
Right edge	6.0	ft	6.0	ft
Left edge	6.0	ft	6.0	ft
Total lateral clearance	12.0	ft	12.0	ft
Access points per mile	16		16	
Median type	Divided		Divided	
Free-flow speed:	Base		Base	
FFS or BFFS	60.0	mph	60.0	mph
Lane width adjustment, FLW	0.0	mph	0.0	mph
Lateral clearance adjustment, FLC	0.0	mph	0.0	mph
Median type adjustment, FM	0.0	mph	0.0	mph
Access points adjustment, FA	4.0	mph	4.0	mph
Free-flow speed	56.0	mph	56.0	mph

VOLUME

Direction	1		2	
Volume, V	360	vph	589	vph
Peak-hour factor, PHF	0.90		0.90	
Peak 15-minute volume, v15	100		164	
Trucks and buses	2	%	2	%
Recreational vehicles	0	%	0	%
Terrain type	Rolling		Rolling	
Grade	0.00	%	0.00	%
Segment length	0.00	mi	0.00	mi
Number of lanes	2		2	
Driver population adjustment, fP	1.00		1.00	
Trucks and buses PCE, ET	2.5		2.5	
Recreational vehicles PCE, ER	2.0		2.0	
Heavy vehicle adjustment, fHV	0.971		0.971	
Flow rate, vp	206	pcphpl	337	pcphpl

RESULTS

Direction	1		2	
Flow rate, vp	206	pcphpl	337	pcphpl
Free-flow speed, FFS	56.0	mph	56.0	mph
Avg. passenger-car travel speed, S	55.0	mph	55.0	mph
Level of service, LOS	A		A	
Density, D	3.7	pc/mi/ln	6.1	pc/mi/ln

Bicycle Level of Service

Posted speed limit, Sp	55	55
Percent of segment with occupied on-highway parking	0	0
Pavement rating, P	3	3
Flow rate in outside lane, vOL	200.0	327.2
Effective width of outside lane, We	24.00	24.00
Effective speed factor, St	4.79	4.79
Bicycle LOS Score, BLOS	2.05	2.29
Bicycle LOS	B	B

Overall results are not computed when free-flow speed is less than 45 mph.

Phone: Fax:
E-mail:

OPERATIONAL ANALYSIS

Analyst:	CEB
Agency/Co:	VHB
Date:	4/3/2018
Analysis Period:	AM
Highway:	NC 54
From/To:	Mt Willen Rd/Mebane Oaks Rd
Jurisdiction:	Alamance County/Orange County
Analysis Year:	2017
Project ID:	Capacity Analysis - NC 54 (East of Mt Willen)

FREE-FLOW SPEED

Direction	1		2	
Lane width	12.0	ft	12.0	ft
Lateral clearance:				
Right edge	6.0	ft	6.0	ft
Left edge	6.0	ft	6.0	ft
Total lateral clearance	12.0	ft	12.0	ft
Access points per mile	16		16	
Median type	Divided		Divided	
Free-flow speed:	Base		Base	
FFS or BFFS	60.0	mph	60.0	mph
Lane width adjustment, FLW	0.0	mph	0.0	mph
Lateral clearance adjustment, FLC	0.0	mph	0.0	mph
Median type adjustment, FM	0.0	mph	0.0	mph
Access points adjustment, FA	4.0	mph	4.0	mph
Free-flow speed	56.0	mph	56.0	mph

VOLUME

Direction	1		2	
Volume, V	566	vph	351	vph
Peak-hour factor, PHF	0.90		0.90	
Peak 15-minute volume, v15	157		98	
Trucks and buses	2	%	2	%
Recreational vehicles	0	%	0	%
Terrain type	Rolling		Rolling	
Grade	0.00	%	0.00	%
Segment length	0.00	mi	0.00	mi
Number of lanes	2		2	
Driver population adjustment, fP	1.00		1.00	
Trucks and buses PCE, ET	2.5		2.5	
Recreational vehicles PCE, ER	2.0		2.0	
Heavy vehicle adjustment, fHV	0.971		0.971	
Flow rate, vp	323	pcphpl	200	pcphpl

RESULTS

Direction	1		2	
Flow rate, vp	323	pcphpl	200	pcphpl
Free-flow speed, FFS	56.0	mph	56.0	mph
Avg. passenger-car travel speed, S	55.0	mph	55.0	mph
Level of service, LOS	A		A	
Density, D	5.9	pc/mi/ln	3.6	pc/mi/ln

Bicycle Level of Service

Posted speed limit, Sp		55
Percent of segment with occupied on-highway parking	0	0
Pavement rating, P	3	3
Flow rate in outside lane, vOL	314.4	195.0
Effective width of outside lane, We	24.00	24.00
Effective speed factor, St	4.79	4.79
Bicycle LOS Score, BLOS	2.27	2.03
Bicycle LOS	B	B

Overall results are not computed when free-flow speed is less than 45 mph.

Phone: Fax:
E-mail:

OPERATIONAL ANALYSIS

Analyst:	CEB
Agency/Co:	VHB
Date:	4/3/2018
Analysis Period:	PM
Highway:	NC 54
From/To:	Mt Willen Rd/Mebane Oaks Rd
Jurisdiction:	Alamance County/Orange County
Analysis Year:	2017
Project ID:	Capacity Analysis - NC 54 (East of Mt Willen)

FREE-FLOW SPEED

Direction	1		2	
Lane width	12.0	ft	12.0	ft
Lateral clearance:				
Right edge	6.0	ft	6.0	ft
Left edge	6.0	ft	6.0	ft
Total lateral clearance	12.0	ft	12.0	ft
Access points per mile	16		16	
Median type	Divided		Divided	
Free-flow speed:	Base		Base	
FFS or BFFS	60.0	mph	60.0	mph
Lane width adjustment, FLW	0.0	mph	0.0	mph
Lateral clearance adjustment, FLC	0.0	mph	0.0	mph
Median type adjustment, FM	0.0	mph	0.0	mph
Access points adjustment, FA	4.0	mph	4.0	mph
Free-flow speed	56.0	mph	56.0	mph

VOLUME

Direction	1		2	
Volume, V	270	vph	643	vph
Peak-hour factor, PHF	0.90		0.90	
Peak 15-minute volume, v15	75		179	
Trucks and buses	2	%	2	%
Recreational vehicles	0	%	0	%
Terrain type	Rolling		Rolling	
Grade	0.00	%	0.00	%
Segment length	0.00	mi	0.00	mi
Number of lanes	2		2	
Driver population adjustment, fP	1.00		1.00	
Trucks and buses PCE, ET	2.5		2.5	
Recreational vehicles PCE, ER	2.0		2.0	
Heavy vehicle adjustment, fHV	0.971		0.971	
Flow rate, vp	154	pcphpl	367	pcphpl

RESULTS

Direction	1		2	
Flow rate, vp	154	pcphpl	367	pcphpl
Free-flow speed, FFS	56.0	mph	56.0	mph
Avg. passenger-car travel speed, S	55.0	mph	55.0	mph
Level of service, LOS	A		A	
Density, D	2.8	pc/mi/ln	6.7	pc/mi/ln

Bicycle Level of Service

Posted speed limit, Sp		55
Percent of segment with occupied on-highway parking	0	0
Pavement rating, P	3	3
Flow rate in outside lane, vOL	150.0	357.2
Effective width of outside lane, We	24.00	24.00
Effective speed factor, St	4.79	4.79
Bicycle LOS Score, BLOS	1.90	2.34
Bicycle LOS	B	B

Overall results are not computed when free-flow speed is less than 45 mph.

Phone: Fax:
E-mail:

OPERATIONAL ANALYSIS

Analyst:	CEB
Agency/Co:	VHB
Date:	4/3/2018
Analysis Period:	AM
Highway:	NC 54
From/To:	NC 119/Mt Willen Road
Jurisdiction:	Alamance County
Analysis Year:	2017
Project ID:	Capacity Analysis - NC 54 (West of Mt Willen)

FREE-FLOW SPEED

Direction	1		2	
Lane width	12.0	ft	12.0	ft
Lateral clearance:				
Right edge	6.0	ft	6.0	ft
Left edge	6.0	ft	6.0	ft
Total lateral clearance	12.0	ft	12.0	ft
Access points per mile	16		16	
Median type	Divided		Divided	
Free-flow speed:	Base		Base	
FFS or BFFS	60.0	mph	60.0	mph
Lane width adjustment, FLW	0.0	mph	0.0	mph
Lateral clearance adjustment, FLC	0.0	mph	0.0	mph
Median type adjustment, FM	0.0	mph	0.0	mph
Access points adjustment, FA	4.0	mph	4.0	mph
Free-flow speed	56.0	mph	56.0	mph

VOLUME

Direction	1		2	
Volume, V	543	vph	433	vph
Peak-hour factor, PHF	0.90		0.90	
Peak 15-minute volume, v15	151		120	
Trucks and buses	2	%	2	%
Recreational vehicles	0	%	0	%
Terrain type	Rolling		Rolling	
Grade	0.00	%	0.00	%
Segment length	0.00	mi	0.00	mi
Number of lanes	2		2	
Driver population adjustment, fP	1.00		1.00	
Trucks and buses PCE, ET	2.5		2.5	
Recreational vehicles PCE, ER	2.0		2.0	
Heavy vehicle adjustment, fHV	0.971		0.971	
Flow rate, vp	310	pcphpl	247	pcphpl

RESULTS

Direction	1		2	
Flow rate, vp	310	pcphpl	247	pcphpl
Free-flow speed, FFS	56.0	mph	56.0	mph
Avg. passenger-car travel speed, S	55.0	mph	55.0	mph
Level of service, LOS	A		A	
Density, D	5.6	pc/mi/ln	4.5	pc/mi/ln

Bicycle Level of Service

Posted speed limit, Sp		55
Percent of segment with occupied on-highway parking	0	0
Pavement rating, P	3	3
Flow rate in outside lane, vOL	301.7	240.6
Effective width of outside lane, We	24.00	24.00
Effective speed factor, St	4.79	4.79
Bicycle LOS Score, BLOS	2.25	2.14
Bicycle LOS	B	B

Overall results are not computed when free-flow speed is less than 45 mph.

Phone: Fax:
E-mail:

OPERATIONAL ANALYSIS

Analyst:	CEB
Agency/Co:	VHB
Date:	4/3/2018
Analysis Period:	PM
Highway:	NC 54
From/To:	NC 119/Mt Willen Road
Jurisdiction:	Alamance County
Analysis Year:	2017
Project ID:	Capacity Analysis - NC 54 (West of Mt Willen)

FREE-FLOW SPEED

Direction	1		2	
Lane width	12.0	ft	12.0	ft
Lateral clearance:				
Right edge	6.0	ft	6.0	ft
Left edge	6.0	ft	6.0	ft
Total lateral clearance	12.0	ft	12.0	ft
Access points per mile	16		16	
Median type	Divided		Divided	
Free-flow speed:	Base		Base	
FFS or BFFS	60.0	mph	60.0	mph
Lane width adjustment, FLW	0.0	mph	0.0	mph
Lateral clearance adjustment, FLC	0.0	mph	0.0	mph
Median type adjustment, FM	0.0	mph	0.0	mph
Access points adjustment, FA	4.0	mph	4.0	mph
Free-flow speed	56.0	mph	56.0	mph

VOLUME

Direction	1		2	
Volume, V	327	vph	644	vph
Peak-hour factor, PHF	0.90		0.90	
Peak 15-minute volume, v15	91		179	
Trucks and buses	2	%	2	%
Recreational vehicles	0	%	0	%
Terrain type	Rolling		Rolling	
Grade	0.00	%	0.00	%
Segment length	0.00	mi	0.00	mi
Number of lanes	2		2	
Driver population adjustment, fP	1.00		1.00	
Trucks and buses PCE, ET	2.5		2.5	
Recreational vehicles PCE, ER	2.0		2.0	
Heavy vehicle adjustment, fHV	0.971		0.971	
Flow rate, vp	187	pcphpl	368	pcphpl

RESULTS

Direction	1		2	
Flow rate, vp	187	pcphpl	368	pcphpl
Free-flow speed, FFS	56.0	mph	56.0	mph
Avg. passenger-car travel speed, S	55.0	mph	55.0	mph
Level of service, LOS	A		A	
Density, D	3.4	pc/mi/ln	6.7	pc/mi/ln

Bicycle Level of Service

Posted speed limit, Sp		55
Percent of segment with occupied on-highway parking	0	0
Pavement rating, P	3	3
Flow rate in outside lane, vOL	181.7	357.8
Effective width of outside lane, We	24.00	24.00
Effective speed factor, St	4.79	4.79
Bicycle LOS Score, BLOS	2.00	2.34
Bicycle LOS	B	B

Overall results are not computed when free-flow speed is less than 45 mph.

Phone: Fax:
E-mail:

OPERATIONAL ANALYSIS

Analyst:	CEB
Agency/Co:	VHB
Date:	4/3/2018
Analysis Period:	AM
Highway:	NC 54
From/To:	NC 119/Mt Willen Road
Jurisdiction:	Alamance County
Analysis Year:	2017
Project ID:	Capacity Analysis - NC 54 (East of NC 119)

FREE-FLOW SPEED

Direction	1		2	
Lane width	12.0	ft	12.0	ft
Lateral clearance:				
Right edge	6.0	ft	6.0	ft
Left edge	6.0	ft	6.0	ft
Total lateral clearance	12.0	ft	12.0	ft
Access points per mile	16		16	
Median type	Divided		Divided	
Free-flow speed:	Base		Base	
FFS or BFFS	60.0	mph	60.0	mph
Lane width adjustment, FLW	0.0	mph	0.0	mph
Lateral clearance adjustment, FLC	0.0	mph	0.0	mph
Median type adjustment, FM	0.0	mph	0.0	mph
Access points adjustment, FA	4.0	mph	4.0	mph
Free-flow speed	56.0	mph	56.0	mph

VOLUME

Direction	1		2	
Volume, V	608	vph	526	vph
Peak-hour factor, PHF	0.90		0.90	
Peak 15-minute volume, v15	169		146	
Trucks and buses	2	%	2	%
Recreational vehicles	0	%	0	%
Terrain type	Rolling		Rolling	
Grade	0.00	%	0.00	%
Segment length	0.00	mi	0.00	mi
Number of lanes	2		2	
Driver population adjustment, fP	1.00		1.00	
Trucks and buses PCE, ET	2.5		2.5	
Recreational vehicles PCE, ER	2.0		2.0	
Heavy vehicle adjustment, fHV	0.971		0.971	
Flow rate, vp	347	pcphpl	300	pcphpl

RESULTS

Direction	1		2	
Flow rate, vp	347	pcphpl	300	pcphpl
Free-flow speed, FFS	56.0	mph	56.0	mph
Avg. passenger-car travel speed, S	55.0	mph	55.0	mph
Level of service, LOS	A		A	
Density, D	6.3	pc/mi/ln	5.5	pc/mi/ln

Bicycle Level of Service

Posted speed limit, Sp		55
Percent of segment with occupied on-highway parking	0	0
Pavement rating, P	3	3
Flow rate in outside lane, vOL	337.8	292.2
Effective width of outside lane, We	24.00	24.00
Effective speed factor, St	4.79	4.79
Bicycle LOS Score, BLOS	2.31	2.24
Bicycle LOS	B	B

Overall results are not computed when free-flow speed is less than 45 mph.

Phone: Fax:
E-mail:

OPERATIONAL ANALYSIS

Analyst:	CEB
Agency/Co:	VHB
Date:	4/3/2018
Analysis Period:	PM
Highway:	NC 54
From/To:	NC 119/Mt Willen Road
Jurisdiction:	Alamance County
Analysis Year:	2017
Project ID:	Capacity Analysis - NC 54 (East of NC 119)

FREE-FLOW SPEED

Direction	1		2	
Lane width	12.0	ft	12.0	ft
Lateral clearance:				
Right edge	6.0	ft	6.0	ft
Left edge	6.0	ft	6.0	ft
Total lateral clearance	12.0	ft	12.0	ft
Access points per mile	16		16	
Median type	Divided		Divided	
Free-flow speed:	Base		Base	
FFS or BFFS	60.0	mph	60.0	mph
Lane width adjustment, FLW	0.0	mph	0.0	mph
Lateral clearance adjustment, FLC	0.0	mph	0.0	mph
Median type adjustment, FM	0.0	mph	0.0	mph
Access points adjustment, FA	4.0	mph	4.0	mph
Free-flow speed	56.0	mph	56.0	mph

VOLUME

Direction	1		2	
Volume, V	451	vph	692	vph
Peak-hour factor, PHF	0.90		0.90	
Peak 15-minute volume, v15	125		192	
Trucks and buses	2	%	2	%
Recreational vehicles	0	%	0	%
Terrain type	Rolling		Rolling	
Grade	0.00	%	0.00	%
Segment length	0.00	mi	0.00	mi
Number of lanes	2		2	
Driver population adjustment, fP	1.00		1.00	
Trucks and buses PCE, ET	2.5		2.5	
Recreational vehicles PCE, ER	2.0		2.0	
Heavy vehicle adjustment, fHV	0.971		0.971	
Flow rate, vp	258	pcphpl	395	pcphpl

RESULTS

Direction	1		2	
Flow rate, vp	258	pcphpl	395	pcphpl
Free-flow speed, FFS	56.0	mph	56.0	mph
Avg. passenger-car travel speed, S	55.0	mph	55.0	mph
Level of service, LOS	A		A	
Density, D	4.7	pc/mi/ln	7.2	pc/mi/ln

Bicycle Level of Service

Posted speed limit, Sp		55
Percent of segment with occupied on-highway parking	0	0
Pavement rating, P	3	3
Flow rate in outside lane, vOL	250.6	384.4
Effective width of outside lane, We	24.00	24.00
Effective speed factor, St	4.79	4.79
Bicycle LOS Score, BLOS	2.16	2.38
Bicycle LOS	B	B

Overall results are not computed when free-flow speed is less than 45 mph.

Phone: Fax:
E-mail:

OPERATIONAL ANALYSIS

Analyst:	CEB
Agency/Co:	VHB
Date:	4/3/2018
Analysis Period:	AM
Highway:	NC 54
From/To:	Woody/ NC 119
Jurisdiction:	Alamance County
Analysis Year:	2017
Project ID:	Capacity Analysis - NC 54 (West of NC 119)

FREE-FLOW SPEED

Direction	1		2	
Lane width	12.0	ft	12.0	ft
Lateral clearance:				
Right edge	6.0	ft	6.0	ft
Left edge	6.0	ft	6.0	ft
Total lateral clearance	12.0	ft	12.0	ft
Access points per mile	16		16	
Median type	Divided		Divided	
Free-flow speed:	Base		Base	
FFS or BFFS	60.0	mph	60.0	mph
Lane width adjustment, FLW	0.0	mph	0.0	mph
Lateral clearance adjustment, FLC	0.0	mph	0.0	mph
Median type adjustment, FM	0.0	mph	0.0	mph
Access points adjustment, FA	4.0	mph	4.0	mph
Free-flow speed	56.0	mph	56.0	mph

VOLUME

Direction	1		2	
Volume, V	870	vph	775	vph
Peak-hour factor, PHF	0.90		0.90	
Peak 15-minute volume, v15	242		215	
Trucks and buses	2	%	2	%
Recreational vehicles	0	%	0	%
Terrain type	Rolling		Rolling	
Grade	0.00	%	0.00	%
Segment length	0.00	mi	0.00	mi
Number of lanes	2		2	
Driver population adjustment, fP	1.00		1.00	
Trucks and buses PCE, ET	2.5		2.5	
Recreational vehicles PCE, ER	2.0		2.0	
Heavy vehicle adjustment, fHV	0.971		0.971	
Flow rate, vp	497	pcphpl	443	pcphpl

RESULTS

Direction	1		2	
Flow rate, vp	497	pcphpl	443	pcphpl
Free-flow speed, FFS	56.0	mph	56.0	mph
Avg. passenger-car travel speed, S	55.0	mph	55.0	mph
Level of service, LOS	A		A	
Density, D	9.0	pc/mi/ln	8.1	pc/mi/ln

Bicycle Level of Service

Posted speed limit, Sp	40	40
Percent of segment with occupied on-highway parking	0	0
Pavement rating, P	3	3
Flow rate in outside lane, vOL	483.3	430.6
Effective width of outside lane, We	24.00	24.00
Effective speed factor, St	4.17	4.17
Bicycle LOS Score, BLOS	2.31	2.25
Bicycle LOS	B	B

Overall results are not computed when free-flow speed is less than 45 mph.

Phone: Fax:
E-mail:

OPERATIONAL ANALYSIS

Analyst:	CEB
Agency/Co:	VHB
Date:	4/3/2018
Analysis Period:	PM
Highway:	NC 54
From/To:	Woody/ NC 119
Jurisdiction:	Alamance County
Analysis Year:	2017
Project ID:	Capacity Analysis - NC 54 (West of NC 119)

FREE-FLOW SPEED

Direction	1		2	
Lane width	12.0	ft	12.0	ft
Lateral clearance:				
Right edge	6.0	ft	6.0	ft
Left edge	6.0	ft	6.0	ft
Total lateral clearance	12.0	ft	12.0	ft
Access points per mile	16		16	
Median type	Divided		Divided	
Free-flow speed:	Base		Base	
FFS or BFFS	60.0	mph	60.0	mph
Lane width adjustment, FLW	0.0	mph	0.0	mph
Lateral clearance adjustment, FLC	0.0	mph	0.0	mph
Median type adjustment, FM	0.0	mph	0.0	mph
Access points adjustment, FA	4.0	mph	4.0	mph
Free-flow speed	56.0	mph	56.0	mph

VOLUME

Direction	1		2	
Volume, V	603	vph	791	vph
Peak-hour factor, PHF	0.90		0.90	
Peak 15-minute volume, v15	168		220	
Trucks and buses	2	%	2	%
Recreational vehicles	0	%	0	%
Terrain type	Rolling		Rolling	
Grade	0.00	%	0.00	%
Segment length	0.00	mi	0.00	mi
Number of lanes	2		2	
Driver population adjustment, fP	1.00		1.00	
Trucks and buses PCE, ET	2.5		2.5	
Recreational vehicles PCE, ER	2.0		2.0	
Heavy vehicle adjustment, fHV	0.971		0.971	
Flow rate, vp	345	pcphpl	452	pcphpl

RESULTS

Direction	1		2	
Flow rate, vp	345	pcphpl	452	pcphpl
Free-flow speed, FFS	56.0	mph	56.0	mph
Avg. passenger-car travel speed, S	55.0	mph	55.0	mph
Level of service, LOS	A		A	
Density, D	6.3	pc/mi/ln	8.2	pc/mi/ln

Bicycle Level of Service

Posted speed limit, Sp	40	40
Percent of segment with occupied on-highway parking	0	0
Pavement rating, P	3	3
Flow rate in outside lane, vOL	335.0	439.4
Effective width of outside lane, We	24.00	24.00
Effective speed factor, St	4.17	4.17
Bicycle LOS Score, BLOS	2.12	2.26
Bicycle LOS	B	B

Overall results are not computed when free-flow speed is less than 45 mph.

Phone: Fax:
E-mail:

OPERATIONAL ANALYSIS

Analyst:	CEB
Agency/Co:	VHB
Date:	4/3/2018
Analysis Period:	AM
Highway:	NC 54
From/To:	Bethel Hickory/Old Fayettevill
Jurisdiction:	Orange County
Analysis Year:	2017
Project ID:	Capacity Analysis - NC 54 (West of Old Fayetteville)

FREE-FLOW SPEED

Direction	1		2	
Lane width	12.0	ft	12.0	ft
Lateral clearance:				
Right edge	6.0	ft	6.0	ft
Left edge	6.0	ft	6.0	ft
Total lateral clearance	12.0	ft	12.0	ft
Access points per mile	16		16	
Median type	Divided		Divided	
Free-flow speed:	Base		Base	
FFS or BFFS	60.0	mph	60.0	mph
Lane width adjustment, FLW	0.0	mph	0.0	mph
Lateral clearance adjustment, FLC	0.0	mph	0.0	mph
Median type adjustment, FM	0.0	mph	0.0	mph
Access points adjustment, FA	4.0	mph	4.0	mph
Free-flow speed	56.0	mph	56.0	mph

VOLUME

Direction	1		2	
Volume, V	1166	vph	368	vph
Peak-hour factor, PHF	0.90		0.90	
Peak 15-minute volume, v15	324		102	
Trucks and buses	2	%	2	%
Recreational vehicles	0	%	0	%
Terrain type	Rolling		Rolling	
Grade	0.00	%	0.00	%
Segment length	0.00	mi	0.00	mi
Number of lanes	2		2	
Driver population adjustment, fP	1.00		1.00	
Trucks and buses PCE, ET	2.5		2.5	
Recreational vehicles PCE, ER	2.0		2.0	
Heavy vehicle adjustment, fHV	0.971		0.971	
Flow rate, vp	667	pcphpl	210	pcphpl

RESULTS

Direction	1		2	
Flow rate, vp	667	pcphpl	210	pcphpl
Free-flow speed, FFS	56.0	mph	56.0	mph
Avg. passenger-car travel speed, S	55.0	mph	55.0	mph
Level of service, LOS	B		A	
Density, D	12.1	pc/mi/ln	3.8	pc/mi/ln

Bicycle Level of Service

Posted speed limit, Sp		55
Percent of segment with occupied on-highway parking	0	0
Pavement rating, P	3	3
Flow rate in outside lane, vOL	647.8	204.4
Effective width of outside lane, We	24.00	24.00
Effective speed factor, St	4.79	4.79
Bicycle LOS Score, BLOS	2.64	2.06
Bicycle LOS	C	B

Overall results are not computed when free-flow speed is less than 45 mph.

Phone: Fax:
E-mail:

OPERATIONAL ANALYSIS

Analyst:	CEB
Agency/Co:	VHB
Date:	4/3/2018
Analysis Period:	PM
Highway:	NC 54
From/To:	Bethel Hickory/Old Fayettevill
Jurisdiction:	Orange County
Analysis Year:	2017
Project ID:	Capacity Analysis - NC 54 (West of Old Fayetteville)

FREE-FLOW SPEED

Direction	1		2	
Lane width	12.0	ft	12.0	ft
Lateral clearance:				
Right edge	6.0	ft	6.0	ft
Left edge	6.0	ft	6.0	ft
Total lateral clearance	12.0	ft	12.0	ft
Access points per mile	16		16	
Median type	Divided		Divided	
Free-flow speed:	Base		Base	
FFS or BFFS	60.0	mph	60.0	mph
Lane width adjustment, FLW	0.0	mph	0.0	mph
Lateral clearance adjustment, FLC	0.0	mph	0.0	mph
Median type adjustment, FM	0.0	mph	0.0	mph
Access points adjustment, FA	4.0	mph	4.0	mph
Free-flow speed	56.0	mph	56.0	mph

VOLUME

Direction	1		2	
Volume, V	421	vph	1156	vph
Peak-hour factor, PHF	0.90		0.90	
Peak 15-minute volume, v15	117		321	
Trucks and buses	2	%	2	%
Recreational vehicles	0	%	0	%
Terrain type	Rolling		Rolling	
Grade	0.00	%	0.00	%
Segment length	0.00	mi	0.00	mi
Number of lanes	2		2	
Driver population adjustment, fP	1.00		1.00	
Trucks and buses PCE, ET	2.5		2.5	
Recreational vehicles PCE, ER	2.0		2.0	
Heavy vehicle adjustment, fHV	0.971		0.971	
Flow rate, vp	240	pcphpl	661	pcphpl

RESULTS

Direction	1		2	
Flow rate, vp	240	pcphpl	661	pcphpl
Free-flow speed, FFS	56.0	mph	56.0	mph
Avg. passenger-car travel speed, S	55.0	mph	55.0	mph
Level of service, LOS	A		B	
Density, D	4.4	pc/mi/ln	12.0	pc/mi/ln

Bicycle Level of Service

Posted speed limit, Sp		55
Percent of segment with occupied on-highway parking	0	0
Pavement rating, P	3	3
Flow rate in outside lane, vOL	233.9	642.2
Effective width of outside lane, We	24.00	24.00
Effective speed factor, St	4.79	4.79
Bicycle LOS Score, BLOS	2.12	2.64
Bicycle LOS	B	C

Overall results are not computed when free-flow speed is less than 45 mph.

Phone: Fax:
E-mail:

OPERATIONAL ANALYSIS

Analyst:	CEB
Agency/Co:	VHB
Date:	4/3/2018
Analysis Period:	AM
Highway:	NC 54
From/To:	Orange Grove Rd/Dodsons Cross
Jurisdiction:	Orange County
Analysis Year:	2017
Project ID:	Capacity Analysis - NC 54 (East of Orange Grove)

FREE-FLOW SPEED

Direction	1		2	
Lane width	12.0	ft	12.0	ft
Lateral clearance:				
Right edge	6.0	ft	6.0	ft
Left edge	6.0	ft	6.0	ft
Total lateral clearance	12.0	ft	12.0	ft
Access points per mile	16		16	
Median type	Divided		Divided	
Free-flow speed:	Base		Base	
FFS or BFFS	60.0	mph	60.0	mph
Lane width adjustment, FLW	0.0	mph	0.0	mph
Lateral clearance adjustment, FLC	0.0	mph	0.0	mph
Median type adjustment, FM	0.0	mph	0.0	mph
Access points adjustment, FA	4.0	mph	4.0	mph
Free-flow speed	56.0	mph	56.0	mph

VOLUME

Direction	1		2	
Volume, V	892	vph	311	vph
Peak-hour factor, PHF	0.90		0.90	
Peak 15-minute volume, v15	248		86	
Trucks and buses	2	%	2	%
Recreational vehicles	0	%	0	%
Terrain type	Rolling		Rolling	
Grade	0.00	%	0.00	%
Segment length	0.00	mi	0.00	mi
Number of lanes	2		2	
Driver population adjustment, fP	1.00		1.00	
Trucks and buses PCE, ET	2.5		2.5	
Recreational vehicles PCE, ER	2.0		2.0	
Heavy vehicle adjustment, fHV	0.971		0.971	
Flow rate, vp	510	pcphpl	177	pcphpl

RESULTS

Direction	1		2	
Flow rate, vp	510	pcphpl	177	pcphpl
Free-flow speed, FFS	56.0	mph	56.0	mph
Avg. passenger-car travel speed, S	55.0	mph	55.0	mph
Level of service, LOS	A		A	
Density, D	9.3	pc/mi/ln	3.2	pc/mi/ln

Bicycle Level of Service

Posted speed limit, Sp		55
Percent of segment with occupied on-highway parking	0	0
Pavement rating, P	3	3
Flow rate in outside lane, vOL	495.6	172.8
Effective width of outside lane, We	24.00	24.00
Effective speed factor, St	4.79	4.79
Bicycle LOS Score, BLOS	2.51	1.97
Bicycle LOS	C	B

Overall results are not computed when free-flow speed is less than 45 mph.

Phone: Fax:
E-mail:

OPERATIONAL ANALYSIS

Analyst:	CEB
Agency/Co:	VHB
Date:	4/3/2018
Analysis Period:	AM
Highway:	NC 54
From/To:	Orange Grove Rd/Dodsons Cross
Jurisdiction:	Orange County
Analysis Year:	2017
Project ID:	Capacity Analysis - NC 54 (East of Orange Grove)

FREE-FLOW SPEED

Direction	1		2	
Lane width	12.0	ft	12.0	ft
Lateral clearance:				
Right edge	6.0	ft	6.0	ft
Left edge	6.0	ft	6.0	ft
Total lateral clearance	12.0	ft	12.0	ft
Access points per mile	16		16	
Median type	Divided		Divided	
Free-flow speed:	Base		Base	
FFS or BFFS	60.0	mph	60.0	mph
Lane width adjustment, FLW	0.0	mph	0.0	mph
Lateral clearance adjustment, FLC	0.0	mph	0.0	mph
Median type adjustment, FM	0.0	mph	0.0	mph
Access points adjustment, FA	4.0	mph	4.0	mph
Free-flow speed	56.0	mph	56.0	mph

VOLUME

Direction	1		2	
Volume, V	288	vph	889	vph
Peak-hour factor, PHF	0.90		0.90	
Peak 15-minute volume, v15	80		247	
Trucks and buses	2	%	2	%
Recreational vehicles	0	%	0	%
Terrain type	Rolling		Rolling	
Grade	0.00	%	0.00	%
Segment length	0.00	mi	0.00	mi
Number of lanes	2		2	
Driver population adjustment, fP	1.00		1.00	
Trucks and buses PCE, ET	2.5		2.5	
Recreational vehicles PCE, ER	2.0		2.0	
Heavy vehicle adjustment, fHV	0.971		0.971	
Flow rate, vp	164	pcphpl	508	pcphpl

RESULTS

Direction	1		2	
Flow rate, vp	164	pcphpl	508	pcphpl
Free-flow speed, FFS	56.0	mph	56.0	mph
Avg. passenger-car travel speed, S	55.0	mph	55.0	mph
Level of service, LOS	A		A	
Density, D	3.0	pc/mi/ln	9.2	pc/mi/ln

Bicycle Level of Service

Posted speed limit, Sp		55
Percent of segment with occupied on-highway parking	0	0
Pavement rating, P	3	3
Flow rate in outside lane, vOL	160.0	493.9
Effective width of outside lane, We	24.00	24.00
Effective speed factor, St	4.79	4.79
Bicycle LOS Score, BLOS	1.93	2.50
Bicycle LOS	B	C

Overall results are not computed when free-flow speed is less than 45 mph.

Phone: Fax:
E-mail:

OPERATIONAL ANALYSIS

Analyst:	CEB
Agency/Co:	VHB
Date:	4/3/2018
Analysis Period:	AM
Highway:	NC 54
From/To:	Mebane Oaks Rd/Orange Grove Rd
Jurisdiction:	Orange County
Analysis Year:	2017
Project ID:	Capacity Analysis - NC 54 (West of Orange Grove)

FREE-FLOW SPEED

Direction	1		2	
Lane width	12.0	ft	12.0	ft
Lateral clearance:				
Right edge	6.0	ft	6.0	ft
Left edge	6.0	ft	6.0	ft
Total lateral clearance	12.0	ft	12.0	ft
Access points per mile	16		16	
Median type	Divided		Divided	
Free-flow speed:	Base		Base	
FFS or BFFS	60.0	mph	60.0	mph
Lane width adjustment, FLW	0.0	mph	0.0	mph
Lateral clearance adjustment, FLC	0.0	mph	0.0	mph
Median type adjustment, FM	0.0	mph	0.0	mph
Access points adjustment, FA	4.0	mph	4.0	mph
Free-flow speed	56.0	mph	56.0	mph

VOLUME

Direction	1		2	
Volume, V	884	vph	291	vph
Peak-hour factor, PHF	0.90		0.90	
Peak 15-minute volume, v15	246		81	
Trucks and buses	2	%	2	%
Recreational vehicles	0	%	0	%
Terrain type	Rolling		Rolling	
Grade	0.00	%	0.00	%
Segment length	0.00	mi	0.00	mi
Number of lanes	2		2	
Driver population adjustment, fP	1.00		1.00	
Trucks and buses PCE, ET	2.5		2.5	
Recreational vehicles PCE, ER	2.0		2.0	
Heavy vehicle adjustment, fHV	0.971		0.971	
Flow rate, vp	505	pcphpl	166	pcphpl

RESULTS

Direction	1		2	
Flow rate, vp	505	pcphpl	166	pcphpl
Free-flow speed, FFS	56.0	mph	56.0	mph
Avg. passenger-car travel speed, S	55.0	mph	55.0	mph
Level of service, LOS	A		A	
Density, D	9.2	pc/mi/ln	3.0	pc/mi/ln

Bicycle Level of Service

Posted speed limit, Sp		55
Percent of segment with occupied on-highway parking	0	0
Pavement rating, P	3	3
Flow rate in outside lane, vOL	491.1	161.7
Effective width of outside lane, We	24.00	24.00
Effective speed factor, St	4.79	4.79
Bicycle LOS Score, BLOS	2.50	1.94
Bicycle LOS	C	B

Overall results are not computed when free-flow speed is less than 45 mph.

Phone: Fax:
E-mail:

OPERATIONAL ANALYSIS

Analyst:	CEB
Agency/Co:	VHB
Date:	4/3/2018
Analysis Period:	PM
Highway:	NC 54
From/To:	Mebane Oaks Rd/Orange Grove Rd
Jurisdiction:	Orange County
Analysis Year:	2017
Project ID:	Capacity Analysis - NC 54 (West of Orange Grove)

FREE-FLOW SPEED

Direction	1		2	
Lane width	12.0	ft	12.0	ft
Lateral clearance:				
Right edge	6.0	ft	6.0	ft
Left edge	6.0	ft	6.0	ft
Total lateral clearance	12.0	ft	12.0	ft
Access points per mile	16		16	
Median type	Divided		Divided	
Free-flow speed:	Base		Base	
FFS or BFFS	60.0	mph	60.0	mph
Lane width adjustment, FLW	0.0	mph	0.0	mph
Lateral clearance adjustment, FLC	0.0	mph	0.0	mph
Median type adjustment, FM	0.0	mph	0.0	mph
Access points adjustment, FA	4.0	mph	4.0	mph
Free-flow speed	56.0	mph	56.0	mph

VOLUME

Direction	1		2	
Volume, V	278	vph	882	vph
Peak-hour factor, PHF	0.90		0.90	
Peak 15-minute volume, v15	77		245	
Trucks and buses	2	%	2	%
Recreational vehicles	0	%	0	%
Terrain type	Rolling		Rolling	
Grade	0.00	%	0.00	%
Segment length	0.00	mi	0.00	mi
Number of lanes	2		2	
Driver population adjustment, fP	1.00		1.00	
Trucks and buses PCE, ET	2.5		2.5	
Recreational vehicles PCE, ER	2.0		2.0	
Heavy vehicle adjustment, fHV	0.971		0.971	
Flow rate, vp	159	pcphpl	504	pcphpl

RESULTS

Direction	1		2	
Flow rate, vp	159	pcphpl	504	pcphpl
Free-flow speed, FFS	56.0	mph	56.0	mph
Avg. passenger-car travel speed, S	55.0	mph	55.0	mph
Level of service, LOS	A		A	
Density, D	2.9	pc/mi/ln	9.2	pc/mi/ln

Bicycle Level of Service

Posted speed limit, Sp		55
Percent of segment with occupied on-highway parking	0	0
Pavement rating, P	3	3
Flow rate in outside lane, vOL	154.4	490.0
Effective width of outside lane, We	24.00	24.00
Effective speed factor, St	4.79	4.79
Bicycle LOS Score, BLOS	1.91	2.50
Bicycle LOS	B	B

Overall results are not computed when free-flow speed is less than 45 mph.

Phone: Fax:
E-mail:

OPERATIONAL ANALYSIS

Analyst: CEB
Agency/Co: VHB
Date: 4/3/2018
Analysis Period: AM
Highway: NC 54
From/To: Woody/ NC 119
Jurisdiction: Alamance County
Analysis Year: 2017
Project ID: Capacity Analysis - NC 54 (East of Woody)

FREE-FLOW SPEED

Direction	1		2	
Lane width	12.0	ft	12.0	ft
Lateral clearance:				
Right edge	6.0	ft	6.0	ft
Left edge	6.0	ft	6.0	ft
Total lateral clearance	12.0	ft	12.0	ft
Access points per mile	16		16	
Median type	Divided		Divided	
Free-flow speed:	Base		Base	
FFS or BFFS	60.0	mph	60.0	mph
Lane width adjustment, FLW	0.0	mph	0.0	mph
Lateral clearance adjustment, FLC	0.0	mph	0.0	mph
Median type adjustment, FM	0.0	mph	0.0	mph
Access points adjustment, FA	4.0	mph	4.0	mph
Free-flow speed	56.0	mph	56.0	mph

VOLUME

Direction	1		2	
Volume, V	831	vph	892	vph
Peak-hour factor, PHF	0.90		0.90	
Peak 15-minute volume, v15	231		248	
Trucks and buses	2	%	2	%
Recreational vehicles	0	%	0	%
Terrain type	Rolling		Rolling	
Grade	0.00	%	0.00	%
Segment length	0.00	mi	0.00	mi
Number of lanes	2		2	
Driver population adjustment, fP	1.00		1.00	
Trucks and buses PCE, ET	2.5		2.5	
Recreational vehicles PCE, ER	2.0		2.0	
Heavy vehicle adjustment, fHV	0.971		0.971	
Flow rate, vp	475	pcphpl	510	pcphpl

RESULTS

Direction	1		2	
Flow rate, vp	475	pcphpl	510	pcphpl
Free-flow speed, FFS	56.0	mph	56.0	mph
Avg. passenger-car travel speed, S	55.0	mph	55.0	mph
Level of service, LOS	A		A	
Density, D	8.6	pc/mi/ln	9.3	pc/mi/ln

Bicycle Level of Service

Posted speed limit, Sp	40	40
Percent of segment with occupied on-highway parking	0	0
Pavement rating, P	3	3
Flow rate in outside lane, vOL	461.7	495.6
Effective width of outside lane, We	24.00	24.00
Effective speed factor, St	4.17	4.17
Bicycle LOS Score, BLOS	2.29	2.32
Bicycle LOS	B	B

Overall results are not computed when free-flow speed is less than 45 mph.

Phone: Fax:
E-mail:

OPERATIONAL ANALYSIS

Analyst:	CEB
Agency/Co:	VHB
Date:	4/3/2018
Analysis Period:	PM
Highway:	NC 54
From/To:	Woody/ NC 119
Jurisdiction:	Alamance County
Analysis Year:	2017
Project ID:	Capacity Analysis - NC 54 (East of Woody)

FREE-FLOW SPEED

Direction	1		2	
Lane width	12.0	ft	12.0	ft
Lateral clearance:				
Right edge	6.0	ft	6.0	ft
Left edge	6.0	ft	6.0	ft
Total lateral clearance	12.0	ft	12.0	ft
Access points per mile	16		16	
Median type	Divided		Divided	
Free-flow speed:	Base		Base	
FFS or BFFS	60.0	mph	60.0	mph
Lane width adjustment, FLW	0.0	mph	0.0	mph
Lateral clearance adjustment, FLC	0.0	mph	0.0	mph
Median type adjustment, FM	0.0	mph	0.0	mph
Access points adjustment, FA	4.0	mph	4.0	mph
Free-flow speed	56.0	mph	56.0	mph

VOLUME

Direction	1		2	
Volume, V	917	vph	802	vph
Peak-hour factor, PHF	0.90		0.90	
Peak 15-minute volume, v15	255		223	
Trucks and buses	2	%	2	%
Recreational vehicles	0	%	0	%
Terrain type	Rolling		Rolling	
Grade	0.00	%	0.00	%
Segment length	0.00	mi	0.00	mi
Number of lanes	2		2	
Driver population adjustment, fP	1.00		1.00	
Trucks and buses PCE, ET	2.5		2.5	
Recreational vehicles PCE, ER	2.0		2.0	
Heavy vehicle adjustment, fHV	0.971		0.971	
Flow rate, vp	524	pcphpl	458	pcphpl

RESULTS

Direction	1		2	
Flow rate, vp	524	pcphpl	458	pcphpl
Free-flow speed, FFS	56.0	mph	56.0	mph
Avg. passenger-car travel speed, S	55.0	mph	55.0	mph
Level of service, LOS	A		A	
Density, D	9.5	pc/mi/ln	8.3	pc/mi/ln

Bicycle Level of Service

Posted speed limit, Sp		40
Percent of segment with occupied on-highway parking	0	0
Pavement rating, P	3	3
Flow rate in outside lane, vOL	509.4	445.6
Effective width of outside lane, We	24.00	24.00
Effective speed factor, St	4.17	4.17
Bicycle LOS Score, BLOS	2.34	2.27
Bicycle LOS	B	B

Overall results are not computed when free-flow speed is less than 45 mph.

Phone: Fax:
E-Mail:

Directional Two-Lane Highway Segment Analysis

Analyst	CFB
Agency/Co.	VHB
Date Performed	11/13/2017
Analysis Time Period	AM
Highway	NC 54
From/To	Bethel Hickory/Old Fayettevill
Jurisdiction	Orange County
Analysis Year	2045
Description	Capacity Analysis - NC 54 (EB)

Input Data

Highway class	Class 1		Peak hour factor, PHF	0.90	
Shoulder width	4.0	ft	% Trucks and buses	2	%
Lane width	12.0	ft	% Trucks crawling	0.0	%
Segment length	2.6	mi	Truck crawl speed	0.0	mi/hr
Terrain type	Rolling		% Recreational vehicles	0	%
Grade: Length	-	mi	% No-passing zones	81	%
Up/down	-	%	Access point density	16	/mi

Analysis direction volume, Vd	1769	veh/h
Opposing direction volume, Vo	558	veh/h

Average Travel Speed

Direction	Analysis(d)		Opposing (o)	
PCE for trucks, ET	1.3		1.7	
PCE for RVs, ER	1.1		1.1	
Heavy-vehicle adj. factor,(note-5) fHV	0.994		0.986	
Grade adj. factor,(note-1) fg	1.00		0.97	
Directional flow rate,(note-2) vi	1977	pc/h	648	pc/h

Free-Flow Speed from Field Measurement:

Field measured speed,(note-3) S FM	-	mi/h
Observed total demand,(note-3) V	-	veh/h

Estimated Free-Flow Speed:

Base free-flow speed,(note-3) BFFS	60.0	mi/h
Adj. for lane and shoulder width,(note-3) fLS	1.3	mi/h
Adj. for access point density,(note-3) fA	4.0	mi/h
Free-flow speed, FFSd	54.7	mi/h
Adjustment for no-passing zones, fnp	1.7	mi/h
Average travel speed, ATSd	32.7	mi/h
Percent Free Flow Speed, PFFS	59.7	%

Percent Time-Spent-Following

Direction	Analysis(d)	Opposing (o)
PCE for trucks, ET	1.0	1.0
PCE for RVs, ER	1.0	1.0
Heavy-vehicle adjustment factor, fHV	1.000	1.000
Grade adjustment factor,(note-1) fg	1.00	0.97
Directional flow rate,(note-2) vi	1966 pc/h	639 pc/h
Base percent time-spent-following,(note-4) BPTSFd	91.2 %	
Adjustment for no-passing zones, fnp	11.9	
Percent time-spent-following, PTSFd	100.0 %	

Level of Service and Other Performance Measures

Level of service, LOS	F	
Volume to capacity ratio, v/c	1.16	
Peak 15-min vehicle-miles of travel, VMT15	1278	veh-mi
Peak-hour vehicle-miles of travel, VMT60	4599	veh-mi
Peak 15-min total travel time, TT15	39.1	veh-h
Capacity from ATS, CdATS	1690	veh/h
Capacity from PTSF, CdPTSF	1700	veh/h
Directional Capacity	1690	veh/h

Passing Lane Analysis

Total length of analysis segment, Lt	2.6	mi
Length of two-lane highway upstream of the passing lane, Lu	-	mi
Length of passing lane including tapers, Lpl	-	mi
Average travel speed, ATSd (from above)	32.7	mi/h
Percent time-spent-following, PTSFd (from above)	100.0	
Level of service, LOSd (from above)	F	

Average Travel Speed with Passing Lane

Downstream length of two-lane highway within effective length of passing lane for average travel speed, Lde	-	mi
Length of two-lane highway downstream of effective length of the passing lane for average travel speed, Ld	-	mi
Adj. factor for the effect of passing lane on average speed, fpl	-	
Average travel speed including passing lane, ATSpl	-	
Percent free flow speed including passing lane, PFFSpl	0.0	%

Percent Time-Spent-Following with Passing Lane

Downstream length of two-lane highway within effective length of passing lane for percent time-spent-following, Lde	-	mi
Length of two-lane highway downstream of effective length of the passing lane for percent time-spent-following, Ld	-	mi
Adj. factor for the effect of passing lane on percent time-spent-following, fpl	-	
Percent time-spent-following including passing lane, PTSFpl	-	%

Level of Service and Other Performance Measures with Passing Lane

Level of service including passing lane, LOSpl	E	
Peak 15-min total travel time, TT15	-	veh-h

Bicycle Level of Service

Posted speed limit, Sp	55
Percent of segment with occupied on-highway parking	0
Pavement rating, P	3
Flow rate in outside lane, vOL	1965.6
Effective width of outside lane, We	16.00
Effective speed factor, St	4.79
Bicycle LOS Score, BLOS	4.80
Bicycle LOS	E

Notes:
1. Note that the adjustment factor for level terrain is 1.00, as level terrain is one of the base conditions. For the purpose of grade adjustment, specific dewngrade segments are treated as level terrain.
2. If vi (vd or vo) >= 1,700 pc/h, terminate analysis-the LOS is F.
3. For the analysis direction only and for v>200 veh/h.
4. For the analysis direction only.
5. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.

Phone: Fax:
E-Mail:

Directional Two-Lane Highway Segment Analysis

Analyst	CFB
Agency/Co.	VHB
Date Performed	11/13/2017
Analysis Time Period	AM
Highway	NC 54
From/To	Bethel Hickory/Old Fayettevill
Jurisdiction	Orange County
Analysis Year	2045
Description	Capacity Analysis - NC 54 (WB)

Input Data

Highway class	Class 1		Peak hour factor, PHF	0.90	
Shoulder width	4.0	ft	% Trucks and buses	2	%
Lane width	12.0	ft	% Trucks crawling	0.0	%
Segment length	2.6	mi	Truck crawl speed	0.0	mi/hr
Terrain type	Rolling		% Recreational vehicles	0	%
Grade: Length	-	mi	% No-passing zones	81	%
Up/down	-	%	Access point density	16	/mi

Analysis direction volume, Vd 558 veh/h
Opposing direction volume, Vo 1769 veh/h

Average Travel Speed

Direction	Analysis(d)		Opposing (o)	
PCE for trucks, ET	1.7		1.3	
PCE for RVs, ER	1.1		1.1	
Heavy-vehicle adj. factor,(note-5) fHV	0.986		0.994	
Grade adj. factor,(note-1) fg	0.97		1.00	
Directional flow rate,(note-2) vi	648	pc/h	1977	pc/h

Free-Flow Speed from Field Measurement:

Field measured speed,(note-3) S FM	-	mi/h
Observed total demand,(note-3) V	-	veh/h

Estimated Free-Flow Speed:

Base free-flow speed,(note-3) BFFS	60.0	mi/h
Adj. for lane and shoulder width,(note-3) fLS	1.3	mi/h
Adj. for access point density,(note-3) fA	4.0	mi/h
Free-flow speed, FFSd	54.7	mi/h
Adjustment for no-passing zones, fnp	0.6	mi/h
Average travel speed, ATSd	33.7	mi/h
Percent Free Flow Speed, PFFS	61.7	%

Percent Time-Spent-Following

Direction	Analysis(d)	Opposing (o)
PCE for trucks, ET	1.0	1.0
PCE for RVs, ER	1.0	1.0
Heavy-vehicle adjustment factor, fHV	1.000	1.000
Grade adjustment factor,(note-1) fg	0.97	1.00
Directional flow rate,(note-2) vi	639 pc/h	1966 pc/h
Base percent time-spent-following,(note-4) BPTSFd	70.3 %	
Adjustment for no-passing zones, fnp	11.9	
Percent time-spent-following, PTSFd	73.2 %	

Level of Service and Other Performance Measures

Level of service, LOS	F	
Volume to capacity ratio, v/c	0.53	
Peak 15-min vehicle-miles of travel, VMT15	403	veh-mi
Peak-hour vehicle-miles of travel, VMT60	1451	veh-mi
Peak 15-min total travel time, TT15	11.9	veh-h
Capacity from ATS, CdATS	1690	veh/h
Capacity from PTSF, CdPTSF	1700	veh/h
Directional Capacity	1690	veh/h

Passing Lane Analysis

Total length of analysis segment, Lt	2.6	mi
Length of two-lane highway upstream of the passing lane, Lu	-	mi
Length of passing lane including tapers, Lpl	-	mi
Average travel speed, ATSd (from above)	33.7	mi/h
Percent time-spent-following, PTSFd (from above)	73.2	
Level of service, LOSd (from above)	F	

Average Travel Speed with Passing Lane

Downstream length of two-lane highway within effective length of passing lane for average travel speed, Lde	-	mi
Length of two-lane highway downstream of effective length of the passing lane for average travel speed, Ld	-	mi
Adj. factor for the effect of passing lane on average speed, fpl	-	
Average travel speed including passing lane, ATSpl	-	
Percent free flow speed including passing lane, PFFSpl	0.0	%

Percent Time-Spent-Following with Passing Lane

Downstream length of two-lane highway within effective length of passing lane for percent time-spent-following, Lde	-	mi
Length of two-lane highway downstream of effective length of the passing lane for percent time-spent-following, Ld	-	mi
Adj. factor for the effect of passing lane on percent time-spent-following, fpl	-	
Percent time-spent-following including passing lane, PTSFpl	-	%

Level of Service and Other Performance Measures with Passing Lane

Level of service including passing lane, LOSpl	E	
Peak 15-min total travel time, TT15	-	veh-h

Bicycle Level of Service

Posted speed limit, Sp	55
Percent of segment with occupied on-highway parking	0
Pavement rating, P	3
Flow rate in outside lane, vOL	620.0
Effective width of outside lane, We	16.00
Effective speed factor, St	4.79
Bicycle LOS Score, BLOS	4.22
Bicycle LOS	D

Notes:
1. Note that the adjustment factor for level terrain is 1.00, as level terrain is one of the base conditions. For the purpose of grade adjustment, specific dewngrade segments are treated as level terrain.
2. If vi (vd or vo) >= 1,700 pc/h, terminate analysis-the LOS is F.
3. For the analysis direction only and for v>200 veh/h.
4. For the analysis direction only.
5. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.

Phone: Fax:
E-Mail:

Directional Two-Lane Highway Segment Analysis

Analyst	CFB
Agency/Co.	VHB
Date Performed	11/13/2017
Analysis Time Period	PM
Highway	NC 54
From/To	Bethel Hickory/Old Fayettevill
Jurisdiction	Orange County
Analysis Year	2045
Description	Capacity Analysis - NC 54 (EB)

Input Data

Highway class	Class 1		Peak hour factor, PHF	0.90	
Shoulder width	4.0	ft	% Trucks and buses	2	%
Lane width	12.0	ft	% Trucks crawling	0.0	%
Segment length	2.6	mi	Truck crawl speed	0.0	mi/hr
Terrain type	Rolling		% Recreational vehicles	0	%
Grade: Length	-	mi	% No-passing zones	84	%
Up/down	-	%	Access point density	16	/mi

Analysis direction volume, Vd	639	veh/h
Opposing direction volume, Vo	1754	veh/h

Average Travel Speed

Direction	Analysis(d)		Opposing (o)	
PCE for trucks, ET	1.6		1.3	
PCE for RVs, ER	1.1		1.1	
Heavy-vehicle adj. factor,(note-5) fHV	0.988		0.994	
Grade adj. factor,(note-1) fg	0.98		1.00	
Directional flow rate,(note-2) vi	733	pc/h	1961	pc/h

Free-Flow Speed from Field Measurement:		
Field measured speed,(note-3) S FM	-	mi/h
Observed total demand,(note-3) V	-	veh/h
Estimated Free-Flow Speed:		
Base free-flow speed,(note-3) BFFS	60.0	mi/h
Adj. for lane and shoulder width,(note-3) fLS	1.3	mi/h
Adj. for access point density,(note-3) fA	4.0	mi/h
Free-flow speed, FFSd	54.7	mi/h
Adjustment for no-passing zones, fnp	0.6	mi/h
Average travel speed, ATSd	33.2	mi/h
Percent Free Flow Speed, PFFS	60.7	%

Percent Time-Spent-Following

Direction	Analysis(d)		Opposing (o)	
PCE for trucks, ET	1.0		1.0	
PCE for RVs, ER	1.0		1.0	
Heavy-vehicle adjustment factor, fHV	1.000		1.000	
Grade adjustment factor,(note-1) fg	0.99		1.00	
Directional flow rate,(note-2) vi	717	pc/h	1949	pc/h
Base percent time-spent-following,(note-4) BPTSFd	73.7	%		
Adjustment for no-passing zones, fnp	12.9			
Percent time-spent-following, PTSFd	77.2	%		

Level of Service and Other Performance Measures

Level of service, LOS	F	
Volume to capacity ratio, v/c	0.53	
Peak 15-min vehicle-miles of travel, VMT15	461	veh-mi
Peak-hour vehicle-miles of travel, VMT60	1661	veh-mi
Peak 15-min total travel time, TT15	13.9	veh-h
Capacity from ATS, CdATS	1690	veh/h
Capacity from PTSF, CdPTSF	1700	veh/h
Directional Capacity	1690	veh/h

Passing Lane Analysis

Total length of analysis segment, Lt	2.6	mi
Length of two-lane highway upstream of the passing lane, Lu	-	mi
Length of passing lane including tapers, Lpl	-	mi
Average travel speed, ATSd (from above)	33.2	mi/h
Percent time-spent-following, PTSFd (from above)	77.2	
Level of service, LOSd (from above)	F	

Average Travel Speed with Passing Lane

Downstream length of two-lane highway within effective length of passing lane for average travel speed, Lde	-	mi
Length of two-lane highway downstream of effective length of the passing lane for average travel speed, Ld	-	mi
Adj. factor for the effect of passing lane on average speed, fpl	-	
Average travel speed including passing lane, ATSpl	-	
Percent free flow speed including passing lane, PFFSpl	0.0	%

Percent Time-Spent-Following with Passing Lane

Downstream length of two-lane highway within effective length of passing lane for percent time-spent-following, Lde	-	mi
Length of two-lane highway downstream of effective length of the passing lane for percent time-spent-following, Ld	-	mi
Adj. factor for the effect of passing lane on percent time-spent-following, fpl	-	
Percent time-spent-following including passing lane, PTSFpl	-	%

Level of Service and Other Performance Measures with Passing Lane

Level of service including passing lane, LOSpl	E	
Peak 15-min total travel time, TT15	-	veh-h

Bicycle Level of Service

Posted speed limit, Sp	55
Percent of segment with occupied on-highway parking	0
Pavement rating, P	3
Flow rate in outside lane, vOL	710.0
Effective width of outside lane, We	16.00
Effective speed factor, St	4.79
Bicycle LOS Score, BLOS	4.29
Bicycle LOS	D

Notes:
1. Note that the adjustment factor for level terrain is 1.00, as level terrain is one of the base conditions. For the purpose of grade adjustment, specific dewngrade segments are treated as level terrain.
2. If vi (vd or vo) >= 1,700 pc/h, terminate analysis-the LOS is F.
3. For the analysis direction only and for v>200 veh/h.
4. For the analysis direction only.
5. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.

Phone: Fax:
E-Mail:

Directional Two-Lane Highway Segment Analysis

Analyst	CFB
Agency/Co.	VHB
Date Performed	11/13/2017
Analysis Time Period	PM
Highway	NC 54
From/To	Bethel Hickory/Old Fayettevill
Jurisdiction	Orange County
Analysis Year	2045
Description	Capacity Analysis - NC 54 (WB)

Input Data

Highway class	Class 1		Peak hour factor, PHF	0.90	
Shoulder width	4.0	ft	% Trucks and buses	2	%
Lane width	12.0	ft	% Trucks crawling	0.0	%
Segment length	2.6	mi	Truck crawl speed	0.0	mi/hr
Terrain type	Rolling		% Recreational vehicles	0	%
Grade: Length	-	mi	% No-passing zones	81	%
Up/down	-	%	Access point density	16	/mi

Analysis direction volume, Vd	1754	veh/h
Opposing direction volume, Vo	639	veh/h

Average Travel Speed

Direction	Analysis(d)		Opposing (o)	
PCE for trucks, ET	1.3		1.6	
PCE for RVs, ER	1.1		1.1	
Heavy-vehicle adj. factor,(note-5) fHV	0.994		0.988	
Grade adj. factor,(note-1) fg	1.00		0.98	
Directional flow rate,(note-2) vi	1961	pc/h	733	pc/h

Free-Flow Speed from Field Measurement:

Field measured speed,(note-3) S FM	-	mi/h
Observed total demand,(note-3) V	-	veh/h

Estimated Free-Flow Speed:

Base free-flow speed,(note-3) BFFS	60.0	mi/h
Adj. for lane and shoulder width,(note-3) fLS	1.3	mi/h
Adj. for access point density,(note-3) fA	4.0	mi/h
Free-flow speed, FFSd	54.7	mi/h
Adjustment for no-passing zones, fnp	1.4	mi/h
Average travel speed, ATSd	32.4	mi/h
Percent Free Flow Speed, PFFS	59.2	%

Percent Time-Spent-Following

Direction	Analysis(d)		Opposing (o)	
PCE for trucks, ET	1.0		1.0	
PCE for RVs, ER	1.0		1.0	
Heavy-vehicle adjustment factor, fHV	1.000		1.000	
Grade adjustment factor,(note-1) fg	1.00		0.99	
Directional flow rate,(note-2) vi	1949	pc/h	717	pc/h
Base percent time-spent-following,(note-4) BPTSFd	91.5	%		
Adjustment for no-passing zones, fnp	12.8			
Percent time-spent-following, PTSFd	100.0	%		

Level of Service and Other Performance Measures

Level of service, LOS	F	
Volume to capacity ratio, v/c	1.15	
Peak 15-min vehicle-miles of travel, VMT15	1267	veh-mi
Peak-hour vehicle-miles of travel, VMT60	4560	veh-mi
Peak 15-min total travel time, TT15	39.1	veh-h
Capacity from ATS, CdATS	1690	veh/h
Capacity from PTSF, CdPTSF	1700	veh/h
Directional Capacity	1690	veh/h

Passing Lane Analysis

Total length of analysis segment, Lt	2.6	mi
Length of two-lane highway upstream of the passing lane, Lu	-	mi
Length of passing lane including tapers, Lpl	-	mi
Average travel speed, ATSd (from above)	32.4	mi/h
Percent time-spent-following, PTSFd (from above)	100.0	
Level of service, LOSd (from above)	F	

Average Travel Speed with Passing Lane

Downstream length of two-lane highway within effective length of passing lane for average travel speed, Lde	-	mi
Length of two-lane highway downstream of effective length of the passing lane for average travel speed, Ld	-	mi
Adj. factor for the effect of passing lane on average speed, fpl	-	
Average travel speed including passing lane, ATSpl	-	
Percent free flow speed including passing lane, PFFSpl	0.0	%

Percent Time-Spent-Following with Passing Lane

Downstream length of two-lane highway within effective length of passing lane for percent time-spent-following, Lde	-	mi
Length of two-lane highway downstream of effective length of the passing lane for percent time-spent-following, Ld	-	mi
Adj. factor for the effect of passing lane on percent time-spent-following, fpl	-	
Percent time-spent-following including passing lane, PTSFpl	-	%

Level of Service and Other Performance Measures with Passing Lane

Level of service including passing lane, LOSpl	E	
Peak 15-min total travel time, TT15	-	veh-h

Bicycle Level of Service

Posted speed limit, Sp	55
Percent of segment with occupied on-highway parking	0
Pavement rating, P	3
Flow rate in outside lane, vOL	1948.9
Effective width of outside lane, We	16.00
Effective speed factor, St	4.79
Bicycle LOS Score, BLOS	4.80
Bicycle LOS	E

Notes:
1. Note that the adjustment factor for level terrain is 1.00, as level terrain is one of the base conditions. For the purpose of grade adjustment, specific dewngrade segments are treated as level terrain.
2. If vi (vd or vo) >= 1,700 pc/h, terminate analysis-the LOS is F.
3. For the analysis direction only and for v>200 veh/h.
4. For the analysis direction only.
5. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.

Phone: Fax:
E-Mail:

Directional Two-Lane Highway Segment Analysis

Analyst	CFB
Agency/Co.	VHB
Date Performed	11/13/2017
Analysis Time Period	AM
Highway	NC 54
From/To	Dodsons Cross/Bethel Hickory
Jurisdiction	Orange County
Analysis Year	2045
Description	Capacity Analysis - NC 54 (EB)

Input Data

Highway class	Class 1		Peak hour factor, PHF	0.90	
Shoulder width	4.0	ft	% Trucks and buses	2	%
Lane width	12.0	ft	% Trucks crawling	0.0	%
Segment length	1.8	mi	Truck crawl speed	0.0	mi/hr
Terrain type	Rolling		% Recreational vehicles	0	%
Grade: Length	-	mi	% No-passing zones	87	%
Up/down	-	%	Access point density	16	/mi

Analysis direction volume, Vd	1640	veh/h
Opposing direction volume, Vo	469	veh/h

Average Travel Speed

Direction	Analysis(d)		Opposing (o)	
PCE for trucks, ET	1.3		1.8	
PCE for RVs, ER	1.1		1.1	
Heavy-vehicle adj. factor,(note-5) fHV	0.994		0.984	
Grade adj. factor,(note-1) fg	1.00		0.95	
Directional flow rate,(note-2) vi	1833	pc/h	557	pc/h

Free-Flow Speed from Field Measurement:		
Field measured speed,(note-3) S FM	-	mi/h
Observed total demand,(note-3) V	-	veh/h
Estimated Free-Flow Speed:		
Base free-flow speed,(note-3) BFFS	60.0	mi/h
Adj. for lane and shoulder width,(note-3) fLS	1.3	mi/h
Adj. for access point density,(note-3) fA	4.0	mi/h
Free-flow speed, FFSd	54.7	mi/h
Adjustment for no-passing zones, fnp	2.0	mi/h
Average travel speed, ATSd	34.1	mi/h
Percent Free Flow Speed, PFFS	62.4	%

Percent Time-Spent-Following

Direction	Analysis(d)	Opposing (o)
PCE for trucks, ET	1.0	1.2
PCE for RVs, ER	1.0	1.0
Heavy-vehicle adjustment factor, fHV	1.000	0.996
Grade adjustment factor,(note-1) fg	1.00	0.96
Directional flow rate,(note-2) vi	1822 pc/h	545 pc/h
Base percent time-spent-following,(note-4) BPTSFd	90.0 %	
Adjustment for no-passing zones, fnp	11.3	
Percent time-spent-following, PTSFd	98.7 %	

Level of Service and Other Performance Measures

Level of service, LOS	F	
Volume to capacity ratio, v/c	1.08	
Peak 15-min vehicle-miles of travel, VMT15	820	veh-mi
Peak-hour vehicle-miles of travel, VMT60	2952	veh-mi
Peak 15-min total travel time, TT15	24.0	veh-h
Capacity from ATS, CdATS	1690	veh/h
Capacity from PTSF, CdPTSF	1700	veh/h
Directional Capacity	1690	veh/h

Passing Lane Analysis

Total length of analysis segment, Lt	1.8	mi
Length of two-lane highway upstream of the passing lane, Lu	-	mi
Length of passing lane including tapers, Lpl	-	mi
Average travel speed, ATSd (from above)	34.1	mi/h
Percent time-spent-following, PTSFd (from above)	98.7	
Level of service, LOSd (from above)	F	

Average Travel Speed with Passing Lane

Downstream length of two-lane highway within effective length of passing lane for average travel speed, Lde	-	mi
Length of two-lane highway downstream of effective length of the passing lane for average travel speed, Ld	-	mi
Adj. factor for the effect of passing lane on average speed, fpl	-	
Average travel speed including passing lane, ATSpl	-	
Percent free flow speed including passing lane, PFFSpl	0.0	%

Percent Time-Spent-Following with Passing Lane

Downstream length of two-lane highway within effective length of passing lane for percent time-spent-following, Lde	-	mi
Length of two-lane highway downstream of effective length of the passing lane for percent time-spent-following, Ld	-	mi
Adj. factor for the effect of passing lane on percent time-spent-following, fpl	-	
Percent time-spent-following including passing lane, PTSFpl	-	%

Level of Service and Other Performance Measures with Passing Lane

Level of service including passing lane, LOSpl	E	
Peak 15-min total travel time, TT15	-	veh-h

Bicycle Level of Service

Posted speed limit, Sp	55
Percent of segment with occupied on-highway parking	0
Pavement rating, P	3
Flow rate in outside lane, vOL	1822.2
Effective width of outside lane, We	16.00
Effective speed factor, St	4.79
Bicycle LOS Score, BLOS	4.77
Bicycle LOS	E

Notes:
1. Note that the adjustment factor for level terrain is 1.00, as level terrain is one of the base conditions. For the purpose of grade adjustment, specific dewngrade segments are treated as level terrain.
2. If vi (vd or vo) >= 1,700 pc/h, terminate analysis-the LOS is F.
3. For the analysis direction only and for v>200 veh/h.
4. For the analysis direction only.
5. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.

Phone: Fax:
E-Mail:

Directional Two-Lane Highway Segment Analysis

Analyst	CFB
Agency/Co.	VHB
Date Performed	11/13/2017
Analysis Time Period	AM
Highway	NC 54
From/To	Dodsons Cross/Bethel Hickory
Jurisdiction	Orange County
Analysis Year	2045
Description	Capacity Analysis - NC 54 (WB)

Input Data

Highway class	Class 1		Peak hour factor, PHF	0.90	
Shoulder width	4.0	ft	% Trucks and buses	2	%
Lane width	12.0	ft	% Trucks crawling	0.0	%
Segment length	1.8	mi	Truck crawl speed	0.0	mi/hr
Terrain type	Rolling		% Recreational vehicles	0	%
Grade: Length	-	mi	% No-passing zones	70	%
Up/down	-	%	Access point density	16	/mi

Analysis direction volume, Vd	469	veh/h
Opposing direction volume, Vo	1640	veh/h

Average Travel Speed

Direction	Analysis(d)		Opposing (o)	
PCE for trucks, ET	1.8		1.3	
PCE for RVs, ER	1.1		1.1	
Heavy-vehicle adj. factor,(note-5) fHV	0.984		0.994	
Grade adj. factor,(note-1) fg	0.95		1.00	
Directional flow rate,(note-2) vi	557	pc/h	1833	pc/h

Free-Flow Speed from Field Measurement:		
Field measured speed,(note-3) S FM	-	mi/h
Observed total demand,(note-3) V	-	veh/h
Estimated Free-Flow Speed:		
Base free-flow speed,(note-3) BFFS	60.0	mi/h
Adj. for lane and shoulder width,(note-3) fLS	1.3	mi/h
Adj. for access point density,(note-3) fA	4.0	mi/h
Free-flow speed, FFSd	54.7	mi/h
Adjustment for no-passing zones, fnp	0.6	mi/h
Average travel speed, ATSd	35.6	mi/h
Percent Free Flow Speed, PFFS	65.0	%

Percent Time-Spent-Following

Direction	Analysis(d)	Opposing (o)
PCE for trucks, ET	1.2	1.0
PCE for RVs, ER	1.0	1.0
Heavy-vehicle adjustment factor, fHV	0.996	1.000
Grade adjustment factor,(note-1) fg	0.96	1.00
Directional flow rate,(note-2) vi	545 pc/h	1822 pc/h
Base percent time-spent-following,(note-4) BPTSFd	65.6 %	
Adjustment for no-passing zones, fnp	11.0	
Percent time-spent-following, PTSFd	68.1 %	

Level of Service and Other Performance Measures

Level of service, LOS	F	
Volume to capacity ratio, v/c	0.53	
Peak 15-min vehicle-miles of travel, VMT15	234	veh-mi
Peak-hour vehicle-miles of travel, VMT60	844	veh-mi
Peak 15-min total travel time, TT15	6.6	veh-h
Capacity from ATS, CdATS	1690	veh/h
Capacity from PTSF, CdPTSF	1700	veh/h
Directional Capacity	1690	veh/h

Passing Lane Analysis

Total length of analysis segment, Lt	1.8	mi
Length of two-lane highway upstream of the passing lane, Lu	-	mi
Length of passing lane including tapers, Lpl	-	mi
Average travel speed, ATSd (from above)	35.6	mi/h
Percent time-spent-following, PTSFd (from above)	68.1	
Level of service, LOSd (from above)	F	

Average Travel Speed with Passing Lane

Downstream length of two-lane highway within effective length of passing lane for average travel speed, Lde	-	mi
Length of two-lane highway downstream of effective length of the passing lane for average travel speed, Ld	-	mi
Adj. factor for the effect of passing lane on average speed, fpl	-	
Average travel speed including passing lane, ATSpl	-	
Percent free flow speed including passing lane, PFFSpl	0.0	%

Percent Time-Spent-Following with Passing Lane

Downstream length of two-lane highway within effective length of passing lane for percent time-spent-following, Lde	-	mi
Length of two-lane highway downstream of effective length of the passing lane for percent time-spent-following, Ld	-	mi
Adj. factor for the effect of passing lane on percent time-spent-following, fpl	-	
Percent time-spent-following including passing lane, PTSFpl	-	%

Level of Service and Other Performance Measures with Passing Lane

Level of service including passing lane, LOSpl	E	
Peak 15-min total travel time, TT15	-	veh-h

Bicycle Level of Service

Posted speed limit, Sp	55
Percent of segment with occupied on-highway parking	0
Pavement rating, P	3
Flow rate in outside lane, vOL	521.1
Effective width of outside lane, We	16.00
Effective speed factor, St	4.79
Bicycle LOS Score, BLOS	4.13
Bicycle LOS	D

Notes:
1. Note that the adjustment factor for level terrain is 1.00, as level terrain is one of the base conditions. For the purpose of grade adjustment, specific dewngrade segments are treated as level terrain.
2. If vi (vd or vo) >= 1,700 pc/h, terminate analysis-the LOS is F.
3. For the analysis direction only and for v>200 veh/h.
4. For the analysis direction only.
5. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.

Phone: Fax:
E-Mail:

Directional Two-Lane Highway Segment Analysis

Analyst	CFB
Agency/Co.	VHB
Date Performed	11/13/2017
Analysis Time Period	PM
Highway	NC 54
From/To	Dodsons Cross/Bethel Hickory
Jurisdiction	Orange County
Analysis Year	2045
Description	Capacity Analysis - NC 54 (EB)

Input Data

Highway class	Class 1		Peak hour factor, PHF	0.90	
Shoulder width	4.0	ft	% Trucks and buses	2	%
Lane width	12.0	ft	% Trucks crawling	0.0	%
Segment length	1.8	mi	Truck crawl speed	0.0	mi/hr
Terrain type	Rolling		% Recreational vehicles	0	%
Grade: Length	-	mi	% No-passing zones	87	%
Up/down	-	%	Access point density	16	/mi

Analysis direction volume, Vd 530 veh/h
Opposing direction volume, Vo 1592 veh/h

Average Travel Speed

Direction	Analysis(d)		Opposing (o)	
PCE for trucks, ET	1.7		1.3	
PCE for RVs, ER	1.1		1.1	
Heavy-vehicle adj. factor,(note-5) fHV	0.986		0.994	
Grade adj. factor,(note-1) fg	0.97		1.00	
Directional flow rate,(note-2) vi	616	pc/h	1780	pc/h

Free-Flow Speed from Field Measurement:

Field measured speed,(note-3) S FM	-	mi/h
Observed total demand,(note-3) V	-	veh/h

Estimated Free-Flow Speed:

Base free-flow speed,(note-3) BFFS	60.0	mi/h
Adj. for lane and shoulder width,(note-3) fLS	1.3	mi/h
Adj. for access point density,(note-3) fA	4.0	mi/h
Free-flow speed, FFSd	54.7	mi/h
Adjustment for no-passing zones, fnp	0.6	mi/h
Average travel speed, ATSd	35.5	mi/h
Percent Free Flow Speed, PFFS	64.9	%

Percent Time-Spent-Following

Direction	Analysis(d)	Opposing (o)
PCE for trucks, ET	1.2	1.0
PCE for RVs, ER	1.0	1.0
Heavy-vehicle adjustment factor, fHV	0.996	1.000
Grade adjustment factor,(note-1) fg	0.97	1.00
Directional flow rate,(note-2) vi	610 pc/h	1769 pc/h
Base percent time-spent-following,(note-4) BPTSFd	68.9 %	
Adjustment for no-passing zones, fnp	12.3	
Percent time-spent-following, PTSFd	72.1 %	

Level of Service and Other Performance Measures

Level of service, LOS	F	
Volume to capacity ratio, v/c	0.53	
Peak 15-min vehicle-miles of travel, VMT15	265	veh-mi
Peak-hour vehicle-miles of travel, VMT60	954	veh-mi
Peak 15-min total travel time, TT15	7.5	veh-h
Capacity from ATS, CdATS	1690	veh/h
Capacity from PTSF, CdPTSF	1700	veh/h
Directional Capacity	1690	veh/h

Passing Lane Analysis

Total length of analysis segment, Lt	1.8	mi
Length of two-lane highway upstream of the passing lane, Lu	-	mi
Length of passing lane including tapers, Lpl	-	mi
Average travel speed, ATSd (from above)	35.5	mi/h
Percent time-spent-following, PTSFd (from above)	72.1	
Level of service, LOSd (from above)	F	

Average Travel Speed with Passing Lane

Downstream length of two-lane highway within effective length of passing lane for average travel speed, Lde	-	mi
Length of two-lane highway downstream of effective length of the passing lane for average travel speed, Ld	-	mi
Adj. factor for the effect of passing lane on average speed, fpl	-	
Average travel speed including passing lane, ATSpl	-	
Percent free flow speed including passing lane, PFFSpl	0.0	%

Percent Time-Spent-Following with Passing Lane

Downstream length of two-lane highway within effective length of passing lane for percent time-spent-following, Lde	-	mi
Length of two-lane highway downstream of effective length of the passing lane for percent time-spent-following, Ld	-	mi
Adj. factor for the effect of passing lane on percent time-spent-following, fpl	-	
Percent time-spent-following including passing lane, PTSFpl	-	%

Level of Service and Other Performance Measures with Passing Lane

Level of service including passing lane, LOSpl	E	
Peak 15-min total travel time, TT15	-	veh-h

Bicycle Level of Service

Posted speed limit, Sp	55
Percent of segment with occupied on-highway parking	0
Pavement rating, P	3
Flow rate in outside lane, vOL	588.9
Effective width of outside lane, We	16.00
Effective speed factor, St	4.79
Bicycle LOS Score, BLOS	4.19
Bicycle LOS	D

Notes:
1. Note that the adjustment factor for level terrain is 1.00, as level terrain is one of the base conditions. For the purpose of grade adjustment, specific dewngrade segments are treated as level terrain.
2. If vi (vd or vo) >= 1,700 pc/h, terminate analysis-the LOS is F.
3. For the analysis direction only and for v>200 veh/h.
4. For the analysis direction only.
5. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.

Phone: Fax:
E-Mail:

Directional Two-Lane Highway Segment Analysis

Analyst	CFB
Agency/Co.	VHB
Date Performed	11/13/2017
Analysis Time Period	PM
Highway	NC 54
From/To	Dodsons Cross/Bethel Hickory
Jurisdiction	Orange County
Analysis Year	2045
Description	Capacity Analysis - NC 54 (WB)

Input Data

Highway class	Class 1		Peak hour factor, PHF	0.90	
Shoulder width	4.0	ft	% Trucks and buses	2	%
Lane width	12.0	ft	% Trucks crawling	0.0	%
Segment length	1.8	mi	Truck crawl speed	0.0	mi/hr
Terrain type	Rolling		% Recreational vehicles	0	%
Grade: Length	-	mi	% No-passing zones	70	%
Up/down	-	%	Access point density	16	/mi

Analysis direction volume, Vd	1592	veh/h
Opposing direction volume, Vo	530	veh/h

Average Travel Speed

Direction	Analysis(d)		Opposing (o)	
PCE for trucks, ET	1.3		1.7	
PCE for RVs, ER	1.1		1.1	
Heavy-vehicle adj. factor,(note-5) fHV	0.994		0.986	
Grade adj. factor,(note-1) fg	1.00		0.97	
Directional flow rate,(note-2) vi	1780	pc/h	616	pc/h

Free-Flow Speed from Field Measurement:		
Field measured speed,(note-3) S FM	-	mi/h
Observed total demand,(note-3) V	-	veh/h
Estimated Free-Flow Speed:		
Base free-flow speed,(note-3) BFFS	60.0	mi/h
Adj. for lane and shoulder width,(note-3) fLS	1.3	mi/h
Adj. for access point density,(note-3) fA	4.0	mi/h
Free-flow speed, FFSd	54.7	mi/h
Adjustment for no-passing zones, fnp	1.6	mi/h
Average travel speed, ATSd	34.5	mi/h
Percent Free Flow Speed, PFFS	63.0	%

Percent Time-Spent-Following

Direction	Analysis(d)	Opposing (o)
PCE for trucks, ET	1.0	1.2
PCE for RVs, ER	1.0	1.0
Heavy-vehicle adjustment factor, fHV	1.000	0.996
Grade adjustment factor,(note-1) fg	1.00	0.97
Directional flow rate,(note-2) vi	1769 pc/h	610 pc/h
Base percent time-spent-following,(note-4) BPTSFd	89.4 %	
Adjustment for no-passing zones, fnp	11.9	
Percent time-spent-following, PTSFd	98.2 %	

Level of Service and Other Performance Measures

Level of service, LOS	F	
Volume to capacity ratio, v/c	1.05	
Peak 15-min vehicle-miles of travel, VMT15	796	veh-mi
Peak-hour vehicle-miles of travel, VMT60	2866	veh-mi
Peak 15-min total travel time, TT15	23.1	veh-h
Capacity from ATS, CdATS	1690	veh/h
Capacity from PTSF, CdPTSF	1700	veh/h
Directional Capacity	1690	veh/h

Passing Lane Analysis

Total length of analysis segment, Lt	1.8	mi
Length of two-lane highway upstream of the passing lane, Lu	-	mi
Length of passing lane including tapers, Lpl	-	mi
Average travel speed, ATSd (from above)	34.5	mi/h
Percent time-spent-following, PTSFd (from above)	98.2	
Level of service, LOSd (from above)	F	

Average Travel Speed with Passing Lane

Downstream length of two-lane highway within effective length of passing lane for average travel speed, Lde	-	mi
Length of two-lane highway downstream of effective length of the passing lane for average travel speed, Ld	-	mi
Adj. factor for the effect of passing lane on average speed, fpl	-	
Average travel speed including passing lane, ATSpl	-	
Percent free flow speed including passing lane, PFFSpl	0.0	%

Percent Time-Spent-Following with Passing Lane

Downstream length of two-lane highway within effective length of passing lane for percent time-spent-following, Lde	-	mi
Length of two-lane highway downstream of effective length of the passing lane for percent time-spent-following, Ld	-	mi
Adj. factor for the effect of passing lane on percent time-spent-following, fpl	-	
Percent time-spent-following including passing lane, PTSFpl	-	%

Level of Service and Other Performance Measures with Passing Lane

Level of service including passing lane, LOSpl	E	
Peak 15-min total travel time, TT15	-	veh-h

Bicycle Level of Service

Posted speed limit, Sp	55
Percent of segment with occupied on-highway parking	0
Pavement rating, P	3
Flow rate in outside lane, vOL	1768.9
Effective width of outside lane, We	16.00
Effective speed factor, St	4.79
Bicycle LOS Score, BLOS	4.75
Bicycle LOS	E

Notes:
1. Note that the adjustment factor for level terrain is 1.00, as level terrain is one of the base conditions. For the purpose of grade adjustment, specific dewngrade segments are treated as level terrain.
2. If vi (vd or vo) >= 1,700 pc/h, terminate analysis-the LOS is F.
3. For the analysis direction only and for v>200 veh/h.
4. For the analysis direction only.
5. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.

Phone: Fax:
E-Mail:

Directional Two-Lane Highway Segment Analysis

Analyst	CFB
Agency/Co.	VHB
Date Performed	11/13/2017
Analysis Time Period	AM
Highway	NC 54
From/To	Mebane Oaks Rd/Orange Grove Rd
Jurisdiction	Orange County
Analysis Year	2045
Description	Capacity Analysis - NC 54 (EB)

Input Data

Highway class	Class 1		Peak hour factor, PHF	0.90	
Shoulder width	4.0	ft	% Trucks and buses	2	%
Lane width	12.0	ft	% Trucks crawling	0.0	%
Segment length	3.6	mi	Truck crawl speed	0.0	mi/hr
Terrain type	Rolling		% Recreational vehicles	0	%
Grade: Length	-	mi	% No-passing zones	68	%
Up/down	-	%	Access point density	16	/mi

Analysis direction volume, Vd	1341	veh/h
Opposing direction volume, Vo	442	veh/h

Average Travel Speed

Direction	Analysis(d)		Opposing (o)	
PCE for trucks, ET	1.3		1.8	
PCE for RVs, ER	1.1		1.1	
Heavy-vehicle adj. factor,(note-5) fHV	0.994		0.984	
Grade adj. factor,(note-1) fg	1.00		0.95	
Directional flow rate,(note-2) vi	1499	pc/h	525	pc/h

Free-Flow Speed from Field Measurement:

Field measured speed,(note-3) S FM	-	mi/h
Observed total demand,(note-3) V	-	veh/h

Estimated Free-Flow Speed:

Base free-flow speed,(note-3) BFFS	60.0	mi/h
Adj. for lane and shoulder width,(note-3) fLS	1.3	mi/h
Adj. for access point density,(note-3) fA	4.0	mi/h
Free-flow speed, FFSd	54.7	mi/h
Adjustment for no-passing zones, fnp	2.0	mi/h
Average travel speed, ATSd	37.0	mi/h
Percent Free Flow Speed, PFFS	67.7	%

Percent Time-Spent-Following

Direction	Analysis(d)	Opposing (o)
PCE for trucks, ET	1.0	1.4
PCE for RVs, ER	1.0	1.0
Heavy-vehicle adjustment factor, fHV	1.000	0.992
Grade adjustment factor,(note-1) fg	1.00	0.95
Directional flow rate,(note-2) vi	1490 pc/h	521 pc/h
Base percent time-spent-following,(note-4) BPTSFd	85.8 %	
Adjustment for no-passing zones, fnp	11.8	
Percent time-spent-following, PTSFd	94.5 %	

Level of Service and Other Performance Measures

Level of service, LOS	E	
Volume to capacity ratio, v/c	0.88	
Peak 15-min vehicle-miles of travel, VMT15	1341	veh-mi
Peak-hour vehicle-miles of travel, VMT60	4828	veh-mi
Peak 15-min total travel time, TT15	36.2	veh-h
Capacity from ATS, CdATS	1690	veh/h
Capacity from PTSF, CdPTSF	1700	veh/h
Directional Capacity	1690	veh/h

Passing Lane Analysis

Total length of analysis segment, Lt	3.6	mi
Length of two-lane highway upstream of the passing lane, Lu	-	mi
Length of passing lane including tapers, Lpl	-	mi
Average travel speed, ATSd (from above)	37.0	mi/h
Percent time-spent-following, PTSFd (from above)	94.5	
Level of service, LOSd (from above)	E	

Average Travel Speed with Passing Lane

Downstream length of two-lane highway within effective length of passing lane for average travel speed, Lde	-	mi
Length of two-lane highway downstream of effective length of the passing lane for average travel speed, Ld	-	mi
Adj. factor for the effect of passing lane on average speed, fpl	-	
Average travel speed including passing lane, ATSpl	-	
Percent free flow speed including passing lane, PFFSpl	0.0	%

Percent Time-Spent-Following with Passing Lane

Downstream length of two-lane highway within effective length of passing lane for percent time-spent-following, Lde	-	mi
Length of two-lane highway downstream of effective length of the passing lane for percent time-spent-following, Ld	-	mi
Adj. factor for the effect of passing lane on percent time-spent-following, fpl	-	
Percent time-spent-following including passing lane, PTSFpl	-	%

Level of Service and Other Performance Measures with Passing Lane

Level of service including passing lane, LOSpl	E	
Peak 15-min total travel time, TT15	-	veh-h

Bicycle Level of Service

Posted speed limit, Sp	55
Percent of segment with occupied on-highway parking	0
Pavement rating, P	3
Flow rate in outside lane, vOL	1490.0
Effective width of outside lane, We	16.00
Effective speed factor, St	4.79
Bicycle LOS Score, BLOS	4.66
Bicycle LOS	E

Notes:
1. Note that the adjustment factor for level terrain is 1.00, as level terrain is one of the base conditions. For the purpose of grade adjustment, specific dewngrade segments are treated as level terrain.
2. If vi (vd or vo) >= 1,700 pc/h, terminate analysis-the LOS is F.
3. For the analysis direction only and for v>200 veh/h.
4. For the analysis direction only.
5. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.

Phone: Fax:
E-Mail:

Directional Two-Lane Highway Segment Analysis

Analyst	CFB
Agency/Co.	VHB
Date Performed	11/13/2017
Analysis Time Period	AM
Highway	NC 54
From/To	Mebane Oaks Rd/Orange Grove Rd
Jurisdiction	Orange County
Analysis Year	2045
Description	Capacity Analysis - NC 54 (WB)

Input Data

Highway class	Class 1		Peak hour factor, PHF	0.90	
Shoulder width	4.0	ft	% Trucks and buses	2	%
Lane width	12.0	ft	% Trucks crawling	0.0	%
Segment length	3.6	mi	Truck crawl speed	0.0	mi/hr
Terrain type	Rolling		% Recreational vehicles	0	%
Grade: Length	-	mi	% No-passing zones	69	%
Up/down	-	%	Access point density	16	/mi

Analysis direction volume, Vd	442	veh/h
Opposing direction volume, Vo	1341	veh/h

Average Travel Speed

Direction	Analysis(d)		Opposing (o)	
PCE for trucks, ET	1.8		1.3	
PCE for RVs, ER	1.1		1.1	
Heavy-vehicle adj. factor,(note-5) fHV	0.984		0.994	
Grade adj. factor,(note-1) fg	0.95		1.00	
Directional flow rate,(note-2) vi	525	pc/h	1499	pc/h

Free-Flow Speed from Field Measurement:		
Field measured speed,(note-3) S FM	-	mi/h
Observed total demand,(note-3) V	-	veh/h
Estimated Free-Flow Speed:		
Base free-flow speed,(note-3) BFFS	60.0	mi/h
Adj. for lane and shoulder width,(note-3) fLS	1.3	mi/h
Adj. for access point density,(note-3) fA	4.0	mi/h
Free-flow speed, FFSd	54.7	mi/h
Adjustment for no-passing zones, fnp	0.6	mi/h
Average travel speed, ATSd	38.3	mi/h
Percent Free Flow Speed, PFFS	70.1	%

Percent Time-Spent-Following

Direction	Analysis(d)	Opposing (o)
PCE for trucks, ET	1.4	1.0
PCE for RVs, ER	1.0	1.0
Heavy-vehicle adjustment factor, fHV	0.992	1.000
Grade adjustment factor,(note-1) fg	0.95	1.00
Directional flow rate,(note-2) vi	521 pc/h	1490 pc/h
Base percent time-spent-following,(note-4) BPTSFd	63.5 %	
Adjustment for no-passing zones, fnp	11.9	
Percent time-spent-following, PTSFd	66.6 %	

Level of Service and Other Performance Measures

Level of service, LOS	E	
Volume to capacity ratio, v/c	0.53	
Peak 15-min vehicle-miles of travel, VMT15	442	veh-mi
Peak-hour vehicle-miles of travel, VMT60	1591	veh-mi
Peak 15-min total travel time, TT15	11.5	veh-h
Capacity from ATS, CdATS	1690	veh/h
Capacity from PTSF, CdPTSF	1700	veh/h
Directional Capacity	1690	veh/h

Passing Lane Analysis

Total length of analysis segment, Lt	3.6	mi
Length of two-lane highway upstream of the passing lane, Lu	-	mi
Length of passing lane including tapers, Lpl	-	mi
Average travel speed, ATSd (from above)	38.3	mi/h
Percent time-spent-following, PTSFd (from above)	66.6	
Level of service, LOSd (from above)	E	

Average Travel Speed with Passing Lane

Downstream length of two-lane highway within effective length of passing lane for average travel speed, Lde	-	mi
Length of two-lane highway downstream of effective length of the passing lane for average travel speed, Ld	-	mi
Adj. factor for the effect of passing lane on average speed, fpl	-	
Average travel speed including passing lane, ATSpl	-	
Percent free flow speed including passing lane, PFFSpl	0.0	%

Percent Time-Spent-Following with Passing Lane

Downstream length of two-lane highway within effective length of passing lane for percent time-spent-following, Lde	-	mi
Length of two-lane highway downstream of effective length of the passing lane for percent time-spent-following, Ld	-	mi
Adj. factor for the effect of passing lane on percent time-spent-following, fpl	-	
Percent time-spent-following including passing lane, PTSFpl	-	%

Level of Service and Other Performance Measures with Passing Lane

Level of service including passing lane, LOSpl	E	
Peak 15-min total travel time, TT15	-	veh-h

Bicycle Level of Service

Posted speed limit, Sp	55
Percent of segment with occupied on-highway parking	0
Pavement rating, P	3
Flow rate in outside lane, vOL	491.1
Effective width of outside lane, We	16.00
Effective speed factor, St	4.79
Bicycle LOS Score, BLOS	4.10
Bicycle LOS	D

Notes:
1. Note that the adjustment factor for level terrain is 1.00, as level terrain is one of the base conditions. For the purpose of grade adjustment, specific dewngrade segments are treated as level terrain.
2. If vi (vd or vo) >= 1,700 pc/h, terminate analysis-the LOS is F.
3. For the analysis direction only and for v>200 veh/h.
4. For the analysis direction only.
5. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.

Phone: Fax:
E-Mail:

Directional Two-Lane Highway Segment Analysis

Analyst	CFB
Agency/Co.	VHB
Date Performed	11/13/2017
Analysis Time Period	PM
Highway	NC 54
From/To	Mebane Oaks Rd/Orange Grove Rd
Jurisdiction	Orange County
Analysis Year	2045
Description	Capacity Analysis - NC 54 (EB)

Input Data

Highway class	Class 1		Peak hour factor, PHF	0.90	
Shoulder width	4.0	ft	% Trucks and buses	2	%
Lane width	12.0	ft	% Trucks crawling	0.0	%
Segment length	3.6	mi	Truck crawl speed	0.0	mi/hr
Terrain type	Rolling		% Recreational vehicles	0	%
Grade: Length	-	mi	% No-passing zones	68	%
Up/down	-	%	Access point density	16	/mi

Analysis direction volume, Vd	422	veh/h
Opposing direction volume, Vo	1338	veh/h

Average Travel Speed

Direction	Analysis(d)		Opposing (o)	
PCE for trucks, ET	1.9		1.3	
PCE for RVs, ER	1.1		1.1	
Heavy-vehicle adj. factor,(note-5) fHV	0.982		0.994	
Grade adj. factor,(note-1) fg	0.93		1.00	
Directional flow rate,(note-2) vi	513	pc/h	1496	pc/h

Free-Flow Speed from Field Measurement:		
Field measured speed,(note-3) S FM	-	mi/h
Observed total demand,(note-3) V	-	veh/h
Estimated Free-Flow Speed:		
Base free-flow speed,(note-3) BFFS	60.0	mi/h
Adj. for lane and shoulder width,(note-3) fLS	1.3	mi/h
Adj. for access point density,(note-3) fA	4.0	mi/h
Free-flow speed, FFSd	54.7	mi/h
Adjustment for no-passing zones, fnp	0.6	mi/h
Average travel speed, ATSd	38.5	mi/h
Percent Free Flow Speed, PFFS	70.3	%

Percent Time-Spent-Following

Direction	Analysis(d)		Opposing (o)	
PCE for trucks, ET	1.4		1.0	
PCE for RVs, ER	1.0		1.0	
Heavy-vehicle adjustment factor, fHV	0.992		1.000	
Grade adjustment factor,(note-1) fg	0.94		1.00	
Directional flow rate,(note-2) vi	503	pc/h	1487	pc/h
Base percent time-spent-following,(note-4) BPTSFd	62.4	%		
Adjustment for no-passing zones, fnp	11.7			
Percent time-spent-following, PTSFd	65.4	%		

Level of Service and Other Performance Measures

Level of service, LOS	E	
Volume to capacity ratio, v/c	0.53	
Peak 15-min vehicle-miles of travel, VMT15	422	veh-mi
Peak-hour vehicle-miles of travel, VMT60	1519	veh-mi
Peak 15-min total travel time, TT15	11.0	veh-h
Capacity from ATS, CdATS	1690	veh/h
Capacity from PTSF, CdPTSF	1700	veh/h
Directional Capacity	1690	veh/h

Passing Lane Analysis

Total length of analysis segment, Lt	3.6	mi
Length of two-lane highway upstream of the passing lane, Lu	-	mi
Length of passing lane including tapers, Lpl	-	mi
Average travel speed, ATSd (from above)	38.5	mi/h
Percent time-spent-following, PTSFd (from above)	65.4	
Level of service, LOSd (from above)	E	

Average Travel Speed with Passing Lane

Downstream length of two-lane highway within effective length of passing lane for average travel speed, Lde	-	mi
Length of two-lane highway downstream of effective length of the passing lane for average travel speed, Ld	-	mi
Adj. factor for the effect of passing lane on average speed, fpl	-	
Average travel speed including passing lane, ATSpl	-	
Percent free flow speed including passing lane, PFFSpl	0.0	%

Percent Time-Spent-Following with Passing Lane

Downstream length of two-lane highway within effective length of passing lane for percent time-spent-following, Lde	-	mi
Length of two-lane highway downstream of effective length of the passing lane for percent time-spent-following, Ld	-	mi
Adj. factor for the effect of passing lane on percent time-spent-following, fpl	-	
Percent time-spent-following including passing lane, PTSFpl	-	%

Level of Service and Other Performance Measures with Passing Lane

Level of service including passing lane, LOSpl	E	
Peak 15-min total travel time, TT15	-	veh-h

Bicycle Level of Service

Posted speed limit, Sp	55
Percent of segment with occupied on-highway parking	0
Pavement rating, P	3
Flow rate in outside lane, vOL	468.9
Effective width of outside lane, We	16.00
Effective speed factor, St	4.79
Bicycle LOS Score, BLOS	4.08
Bicycle LOS	D

Notes:
1. Note that the adjustment factor for level terrain is 1.00, as level terrain is one of the base conditions. For the purpose of grade adjustment, specific dewngrade segments are treated as level terrain.
2. If vi (vd or vo) >= 1,700 pc/h, terminate analysis-the LOS is F.
3. For the analysis direction only and for v>200 veh/h.
4. For the analysis direction only.
5. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.

Phone: Fax:
E-Mail:

Directional Two-Lane Highway Segment Analysis

Analyst	CFB
Agency/Co.	VHB
Date Performed	11/13/2017
Analysis Time Period	PM
Highway	NC 54
From/To	Mebane Oaks Rd/Orange Grove Rd
Jurisdiction	Orange County
Analysis Year	2045
Description	Capacity Analysis - NC 54 (WB)

Input Data

Highway class	Class 1		Peak hour factor, PHF	0.90	
Shoulder width	4.0	ft	% Trucks and buses	2	%
Lane width	12.0	ft	% Trucks crawling	0.0	%
Segment length	3.6	mi	Truck crawl speed	0.0	mi/hr
Terrain type	Rolling		% Recreational vehicles	0	%
Grade: Length	-	mi	% No-passing zones	69	%
Up/down	-	%	Access point density	16	/mi

Analysis direction volume, Vd	1338	veh/h
Opposing direction volume, Vo	422	veh/h

Average Travel Speed

Direction	Analysis(d)		Opposing (o)	
PCE for trucks, ET	1.3		1.9	
PCE for RVs, ER	1.1		1.1	
Heavy-vehicle adj. factor,(note-5) fHV	0.994		0.982	
Grade adj. factor,(note-1) fg	1.00		0.93	
Directional flow rate,(note-2) vi	1496	pc/h	513	pc/h

Free-Flow Speed from Field Measurement:

Field measured speed,(note-3) S FM	-	mi/h
Observed total demand,(note-3) V	-	veh/h

Estimated Free-Flow Speed:

Base free-flow speed,(note-3) BFFS	60.0	mi/h
Adj. for lane and shoulder width,(note-3) fLS	1.3	mi/h
Adj. for access point density,(note-3) fA	4.0	mi/h
Free-flow speed, FFSd	54.7	mi/h
Adjustment for no-passing zones, fnp	2.0	mi/h
Average travel speed, ATSd	37.1	mi/h
Percent Free Flow Speed, PFFS	67.8	%

Percent Time-Spent-Following

Direction	Analysis(d)	Opposing (o)
PCE for trucks, ET	1.0	1.4
PCE for RVs, ER	1.0	1.0
Heavy-vehicle adjustment factor, fHV	1.000	0.992
Grade adjustment factor,(note-1) fg	1.00	0.94
Directional flow rate,(note-2) vi	1487 pc/h	503 pc/h
Base percent time-spent-following,(note-4) BPTSFd	85.7 %	
Adjustment for no-passing zones, fnp	11.7	
Percent time-spent-following, PTSFd	94.4 %	

Level of Service and Other Performance Measures

Level of service, LOS	E	
Volume to capacity ratio, v/c	0.88	
Peak 15-min vehicle-miles of travel, VMT15	1338	veh-mi
Peak-hour vehicle-miles of travel, VMT60	4817	veh-mi
Peak 15-min total travel time, TT15	36.1	veh-h
Capacity from ATS, CdATS	1690	veh/h
Capacity from PTSF, CdPTSF	1700	veh/h
Directional Capacity	1690	veh/h

Passing Lane Analysis

Total length of analysis segment, Lt	3.6	mi
Length of two-lane highway upstream of the passing lane, Lu	-	mi
Length of passing lane including tapers, Lpl	-	mi
Average travel speed, ATSd (from above)	37.1	mi/h
Percent time-spent-following, PTSFd (from above)	94.4	
Level of service, LOSd (from above)	E	

Average Travel Speed with Passing Lane

Downstream length of two-lane highway within effective length of passing lane for average travel speed, Lde	-	mi
Length of two-lane highway downstream of effective length of the passing lane for average travel speed, Ld	-	mi
Adj. factor for the effect of passing lane on average speed, fpl	-	
Average travel speed including passing lane, ATSpl	-	
Percent free flow speed including passing lane, PFFSpl	0.0	%

Percent Time-Spent-Following with Passing Lane

Downstream length of two-lane highway within effective length of passing lane for percent time-spent-following, Lde	-	mi
Length of two-lane highway downstream of effective length of the passing lane for percent time-spent-following, Ld	-	mi
Adj. factor for the effect of passing lane on percent time-spent-following, fpl	-	
Percent time-spent-following including passing lane, PTSFpl	-	%

Level of Service and Other Performance Measures with Passing Lane

Level of service including passing lane, LOSpl	E	
Peak 15-min total travel time, TT15	-	veh-h

Bicycle Level of Service

Posted speed limit, Sp	55
Percent of segment with occupied on-highway parking	0
Pavement rating, P	3
Flow rate in outside lane, vOL	1486.7
Effective width of outside lane, We	16.00
Effective speed factor, St	4.79
Bicycle LOS Score, BLOS	4.66
Bicycle LOS	E

Notes:
1. Note that the adjustment factor for level terrain is 1.00, as level terrain is one of the base conditions. For the purpose of grade adjustment, specific dewngrade segments are treated as level terrain.
2. If vi (vd or vo) >= 1,700 pc/h, terminate analysis-the LOS is F.
3. For the analysis direction only and for v>200 veh/h.
4. For the analysis direction only.
5. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.

Phone: Fax:
E-Mail:

Directional Two-Lane Highway Segment Analysis

Analyst	CFB
Agency/Co.	VHB
Date Performed	11/13/2017
Analysis Time Period	AM
Highway	NC 54
From/To	Mt Willen Rd/Mebane Oaks Rd
Jurisdiction	Alamance County/Orange County
Analysis Year	2045
Description	Capacity Analysis - NC 54 (EB)

Input Data

Highway class	Class 1		Peak hour factor, PHF	0.90	
Shoulder width	4.0	ft	% Trucks and buses	2	%
Lane width	12.0	ft	% Trucks crawling	0.0	%
Segment length	3.3	mi	Truck crawl speed	0.0	mi/hr
Terrain type	Rolling		% Recreational vehicles	0	%
Grade: Length	-	mi	% No-passing zones	59	%
Up/down	-	%	Access point density	16	/mi

Analysis direction volume, Vd 859 veh/h
Opposing direction volume, Vo 533 veh/h

Average Travel Speed

Direction	Analysis(d)		Opposing (o)	
PCE for trucks, ET	1.3		1.7	
PCE for RVs, ER	1.1		1.1	
Heavy-vehicle adj. factor,(note-5) fHV	0.994		0.986	
Grade adj. factor,(note-1) fg	1.00		0.97	
Directional flow rate,(note-2) vi	960	pc/h	619	pc/h

Free-Flow Speed from Field Measurement:

Field measured speed,(note-3) S FM	-	mi/h
Observed total demand,(note-3) V	-	veh/h

Estimated Free-Flow Speed:

Base free-flow speed,(note-3) BFFS	60.0	mi/h
Adj. for lane and shoulder width,(note-3) fLS	1.3	mi/h
Adj. for access point density,(note-3) fA	4.0	mi/h
Free-flow speed, FFSd	54.7	mi/h
Adjustment for no-passing zones, fnp	1.5	mi/h
Average travel speed, ATSd	40.9	mi/h
Percent Free Flow Speed, PFFS	74.8	%

Percent Time-Spent-Following

Direction	Analysis(d)	Opposing (o)
PCE for trucks, ET	1.0	1.2
PCE for RVs, ER	1.0	1.0
Heavy-vehicle adjustment factor, fHV	1.000	0.996
Grade adjustment factor,(note-1) fg	1.00	0.97
Directional flow rate,(note-2) vi	954 pc/h	613 pc/h
Base percent time-spent-following,(note-4) BPTSFd	73.1 %	
Adjustment for no-passing zones, fnp	22.0	
Percent time-spent-following, PTSFd	86.5 %	

Level of Service and Other Performance Measures

Level of service, LOS	E	
Volume to capacity ratio, v/c	0.56	
Peak 15-min vehicle-miles of travel, VMT15	787	veh-mi
Peak-hour vehicle-miles of travel, VMT60	2835	veh-mi
Peak 15-min total travel time, TT15	19.2	veh-h
Capacity from ATS, CdATS	1690	veh/h
Capacity from PTSF, CdPTSF	1700	veh/h
Directional Capacity	1690	veh/h

Passing Lane Analysis

Total length of analysis segment, Lt	3.3	mi
Length of two-lane highway upstream of the passing lane, Lu	-	mi
Length of passing lane including tapers, Lpl	-	mi
Average travel speed, ATSd (from above)	40.9	mi/h
Percent time-spent-following, PTSFd (from above)	86.5	
Level of service, LOSd (from above)	E	

Average Travel Speed with Passing Lane

Downstream length of two-lane highway within effective length of passing lane for average travel speed, Lde	-	mi
Length of two-lane highway downstream of effective length of the passing lane for average travel speed, Ld	-	mi
Adj. factor for the effect of passing lane on average speed, fpl	-	
Average travel speed including passing lane, ATSpl	-	
Percent free flow speed including passing lane, PFFSpl	0.0	%

Percent Time-Spent-Following with Passing Lane

Downstream length of two-lane highway within effective length of passing lane for percent time-spent-following, Lde	-	mi
Length of two-lane highway downstream of effective length of the passing lane for percent time-spent-following, Ld	-	mi
Adj. factor for the effect of passing lane on percent time-spent-following, fpl	-	
Percent time-spent-following including passing lane, PTSFpl	-	%

Level of Service and Other Performance Measures with Passing Lane

Level of service including passing lane, LOSpl	E	
Peak 15-min total travel time, TT15	-	veh-h

Bicycle Level of Service

Posted speed limit, Sp	55
Percent of segment with occupied on-highway parking	0
Pavement rating, P	3
Flow rate in outside lane, vOL	954.4
Effective width of outside lane, We	16.00
Effective speed factor, St	4.79
Bicycle LOS Score, BLOS	4.44
Bicycle LOS	D

Notes:
1. Note that the adjustment factor for level terrain is 1.00, as level terrain is one of the base conditions. For the purpose of grade adjustment, specific dewngrade segments are treated as level terrain.
2. If vi (vd or vo) >= 1,700 pc/h, terminate analysis-the LOS is F.
3. For the analysis direction only and for v>200 veh/h.
4. For the analysis direction only.
5. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.

Phone: Fax:
E-Mail:

Directional Two-Lane Highway Segment Analysis

Analyst	CFB
Agency/Co.	VHB
Date Performed	11/13/2017
Analysis Time Period	AM
Highway	NC 54
From/To	Mt Willen Rd/Mebane Oaks Rd
Jurisdiction	Alamance County/Orange County
Analysis Year	2045
Description	Capacity Analysis - NC 54 (WB)

Input Data

Highway class	Class 1		Peak hour factor, PHF	0.90	
Shoulder width	4.0	ft	% Trucks and buses	2	%
Lane width	12.0	ft	% Trucks crawling	0.0	%
Segment length	3.3	mi	Truck crawl speed	0.0	mi/hr
Terrain type	Rolling		% Recreational vehicles	0	%
Grade: Length	-	mi	% No-passing zones	58	%
Up/down	-	%	Access point density	16	/mi

Analysis direction volume, Vd	533	veh/h
Opposing direction volume, Vo	859	veh/h

Average Travel Speed

Direction	Analysis(d)		Opposing (o)	
PCE for trucks, ET	1.7		1.3	
PCE for RVs, ER	1.1		1.1	
Heavy-vehicle adj. factor,(note-5) fHV	0.986		0.994	
Grade adj. factor,(note-1) fg	0.97		1.00	
Directional flow rate,(note-2) vi	619	pc/h	960	pc/h

Free-Flow Speed from Field Measurement:		
Field measured speed,(note-3) S FM	-	mi/h
Observed total demand,(note-3) V	-	veh/h
Estimated Free-Flow Speed:		
Base free-flow speed,(note-3) BFFS	60.0	mi/h
Adj. for lane and shoulder width,(note-3) fLS	1.3	mi/h
Adj. for access point density,(note-3) fA	4.0	mi/h
Free-flow speed, FFSd	54.7	mi/h
Adjustment for no-passing zones, fnp	0.8	mi/h
Average travel speed, ATSd	41.6	mi/h
Percent Free Flow Speed, PFFS	76.1	%

Percent Time-Spent-Following

Direction	Analysis(d)	Opposing (o)
PCE for trucks, ET	1.2	1.0
PCE for RVs, ER	1.0	1.0
Heavy-vehicle adjustment factor, fHV	0.996	1.000
Grade adjustment factor,(note-1) fg	0.97	1.00
Directional flow rate,(note-2) vi	613 pc/h	954 pc/h
Base percent time-spent-following,(note-4) BPTSFd	62.8 %	
Adjustment for no-passing zones, fnp	21.8	
Percent time-spent-following, PTSFd	71.3 %	

Level of Service and Other Performance Measures

Level of service, LOS	D	
Volume to capacity ratio, v/c	0.53	
Peak 15-min vehicle-miles of travel, VMT15	489	veh-mi
Peak-hour vehicle-miles of travel, VMT60	1759	veh-mi
Peak 15-min total travel time, TT15	11.7	veh-h
Capacity from ATS, CdATS	1690	veh/h
Capacity from PTSF, CdPTSF	1700	veh/h
Directional Capacity	1690	veh/h

Passing Lane Analysis

Total length of analysis segment, Lt	3.3	mi
Length of two-lane highway upstream of the passing lane, Lu	-	mi
Length of passing lane including tapers, Lpl	-	mi
Average travel speed, ATSd (from above)	41.6	mi/h
Percent time-spent-following, PTSFd (from above)	71.3	
Level of service, LOSd (from above)	D	

Average Travel Speed with Passing Lane

Downstream length of two-lane highway within effective length of passing lane for average travel speed, Lde	-	mi
Length of two-lane highway downstream of effective length of the passing lane for average travel speed, Ld	-	mi
Adj. factor for the effect of passing lane on average speed, fpl	-	
Average travel speed including passing lane, ATSpl	-	
Percent free flow speed including passing lane, PFFSpl	0.0	%

Percent Time-Spent-Following with Passing Lane

Downstream length of two-lane highway within effective length of passing lane for percent time-spent-following, Lde	-	mi
Length of two-lane highway downstream of effective length of the passing lane for percent time-spent-following, Ld	-	mi
Adj. factor for the effect of passing lane on percent time-spent-following, fpl	-	
Percent time-spent-following including passing lane, PTSFpl	-	%

Level of Service and Other Performance Measures with Passing Lane

Level of service including passing lane, LOSpl	E	
Peak 15-min total travel time, TT15	-	veh-h

Bicycle Level of Service

Posted speed limit, Sp	55
Percent of segment with occupied on-highway parking	0
Pavement rating, P	3
Flow rate in outside lane, vOL	592.2
Effective width of outside lane, We	16.00
Effective speed factor, St	4.79
Bicycle LOS Score, BLOS	4.20
Bicycle LOS	D

Notes:
1. Note that the adjustment factor for level terrain is 1.00, as level terrain is one of the base conditions. For the purpose of grade adjustment, specific dewngrade segments are treated as level terrain.
2. If vi (vd or vo) >= 1,700 pc/h, terminate analysis-the LOS is F.
3. For the analysis direction only and for v>200 veh/h.
4. For the analysis direction only.
5. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.

Phone: Fax:
E-Mail:

Directional Two-Lane Highway Segment Analysis

Analyst	CFB
Agency/Co.	VHB
Date Performed	11/13/2017
Analysis Time Period	PM
Highway	NC 54
From/To	Mt Willen Rd/Mebane Oaks Rd
Jurisdiction	Alamance County/Orange County
Analysis Year	2045
Description	Capacity Analysis - NC 54 (EB)

Input Data

Highway class	Class 1		Peak hour factor, PHF	0.90	
Shoulder width	4.0	ft	% Trucks and buses	2	%
Lane width	12.0	ft	% Trucks crawling	0.0	%
Segment length	3.3	mi	Truck crawl speed	0.0	mi/hr
Terrain type	Rolling		% Recreational vehicles	0	%
Grade: Length	-	mi	% No-passing zones	59	%
Up/down	-	%	Access point density	16	/mi

Analysis direction volume, Vd	410	veh/h
Opposing direction volume, Vo	976	veh/h

Average Travel Speed

Direction	Analysis(d)		Opposing (o)	
PCE for trucks, ET	1.9		1.3	
PCE for RVs, ER	1.1		1.1	
Heavy-vehicle adj. factor,(note-5) fHV	0.982		0.994	
Grade adj. factor,(note-1) fg	0.93		1.00	
Directional flow rate,(note-2) vi	499	pc/h	1091	pc/h

Free-Flow Speed from Field Measurement:		
Field measured speed,(note-3) S FM	-	mi/h
Observed total demand,(note-3) V	-	veh/h
Estimated Free-Flow Speed:		
Base free-flow speed,(note-3) BFFS	60.0	mi/h
Adj. for lane and shoulder width,(note-3) fLS	1.3	mi/h
Adj. for access point density,(note-3) fA	4.0	mi/h
Free-flow speed, FFSd	54.7	mi/h
Adjustment for no-passing zones, fnp	0.7	mi/h
Average travel speed, ATSd	41.6	mi/h
Percent Free Flow Speed, PFFS	76.1	%

Percent Time-Spent-Following

Direction	Analysis(d)	Opposing (o)
PCE for trucks, ET	1.4	1.0
PCE for RVs, ER	1.0	1.0
Heavy-vehicle adjustment factor, fHV	0.992	1.000
Grade adjustment factor,(note-1) fg	0.93	1.00
Directional flow rate,(note-2) vi	494 pc/h	1084 pc/h
Base percent time-spent-following,(note-4) BPTSFd	57.7 %	
Adjustment for no-passing zones, fnp	18.3	
Percent time-spent-following, PTSFd	63.4 %	

Level of Service and Other Performance Measures

Level of service, LOS	D	
Volume to capacity ratio, v/c	0.53	
Peak 15-min vehicle-miles of travel, VMT15	376	veh-mi
Peak-hour vehicle-miles of travel, VMT60	1353	veh-mi
Peak 15-min total travel time, TT15	9.0	veh-h
Capacity from ATS, CdATS	1690	veh/h
Capacity from PTSF, CdPTSF	1700	veh/h
Directional Capacity	1690	veh/h

Passing Lane Analysis

Total length of analysis segment, Lt	3.3	mi
Length of two-lane highway upstream of the passing lane, Lu	-	mi
Length of passing lane including tapers, Lpl	-	mi
Average travel speed, ATSd (from above)	41.6	mi/h
Percent time-spent-following, PTSFd (from above)	63.4	
Level of service, LOSd (from above)	D	

Average Travel Speed with Passing Lane

Downstream length of two-lane highway within effective length of passing lane for average travel speed, Lde	-	mi
Length of two-lane highway downstream of effective length of the passing lane for average travel speed, Ld	-	mi
Adj. factor for the effect of passing lane on average speed, fpl	-	
Average travel speed including passing lane, ATSpl	-	
Percent free flow speed including passing lane, PFFSpl	0.0	%

Percent Time-Spent-Following with Passing Lane

Downstream length of two-lane highway within effective length of passing lane for percent time-spent-following, Lde	-	mi
Length of two-lane highway downstream of effective length of the passing lane for percent time-spent-following, Ld	-	mi
Adj. factor for the effect of passing lane on percent time-spent-following, fpl	-	
Percent time-spent-following including passing lane, PTSFpl	-	%

Level of Service and Other Performance Measures with Passing Lane

Level of service including passing lane, LOSpl	E	
Peak 15-min total travel time, TT15	-	veh-h

Bicycle Level of Service

Posted speed limit, Sp	55
Percent of segment with occupied on-highway parking	0
Pavement rating, P	3
Flow rate in outside lane, vOL	455.6
Effective width of outside lane, We	16.00
Effective speed factor, St	4.79
Bicycle LOS Score, BLOS	4.06
Bicycle LOS	D

Notes:
1. Note that the adjustment factor for level terrain is 1.00, as level terrain is one of the base conditions. For the purpose of grade adjustment, specific dewngrade segments are treated as level terrain.
2. If vi (vd or vo) >= 1,700 pc/h, terminate analysis-the LOS is F.
3. For the analysis direction only and for v>200 veh/h.
4. For the analysis direction only.
5. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.

Phone: Fax:
E-Mail:

Directional Two-Lane Highway Segment Analysis

Analyst	CFB
Agency/Co.	VHB
Date Performed	11/13/2017
Analysis Time Period	PM
Highway	NC 54
From/To	Mt Willen Rd/Mebane Oaks Rd
Jurisdiction	Alamance County/Orange County
Analysis Year	2045
Description	Capacity Analysis - NC 54 (WB)

Input Data

Highway class	Class 1		Peak hour factor, PHF	0.90	
Shoulder width	4.0	ft	% Trucks and buses	2	%
Lane width	12.0	ft	% Trucks crawling	0.0	%
Segment length	3.3	mi	Truck crawl speed	0.0	mi/hr
Terrain type	Rolling		% Recreational vehicles	0	%
Grade: Length	-	mi	% No-passing zones	58	%
Up/down	-	%	Access point density	16	/mi

Analysis direction volume, Vd 976 veh/h
Opposing direction volume, Vo 410 veh/h

Average Travel Speed

Direction	Analysis(d)		Opposing (o)	
PCE for trucks, ET	1.3		1.9	
PCE for RVs, ER	1.1		1.1	
Heavy-vehicle adj. factor,(note-5) fHV	0.994		0.982	
Grade adj. factor,(note-1) fg	1.00		0.93	
Directional flow rate,(note-2) vi	1091	pc/h	499	pc/h

Free-Flow Speed from Field Measurement:

Field measured speed,(note-3) S FM	-	mi/h
Observed total demand,(note-3) V	-	veh/h

Estimated Free-Flow Speed:

Base free-flow speed,(note-3) BFFS	60.0	mi/h
Adj. for lane and shoulder width,(note-3) fLS	1.3	mi/h
Adj. for access point density,(note-3) fA	4.0	mi/h
Free-flow speed, FFSd	54.7	mi/h
Adjustment for no-passing zones, fnp	1.9	mi/h
Average travel speed, ATSd	40.4	mi/h
Percent Free Flow Speed, PFFS	73.9	%

Percent Time-Spent-Following

Direction	Analysis(d)	Opposing (o)
PCE for trucks, ET	1.0	1.4
PCE for RVs, ER	1.0	1.0
Heavy-vehicle adjustment factor, fHV	1.000	0.992
Grade adjustment factor,(note-1) fg	1.00	0.93
Directional flow rate,(note-2) vi	1084 pc/h	494 pc/h
Base percent time-spent-following,(note-4) BPTSFd	76.2 %	
Adjustment for no-passing zones, fnp	18.1	
Percent time-spent-following, PTSFd	88.6 %	

Level of Service and Other Performance Measures

Level of service, LOS	E	
Volume to capacity ratio, v/c	0.64	
Peak 15-min vehicle-miles of travel, VMT15	895	veh-mi
Peak-hour vehicle-miles of travel, VMT60	3221	veh-mi
Peak 15-min total travel time, TT15	22.1	veh-h
Capacity from ATS, CdATS	1690	veh/h
Capacity from PTSF, CdPTSF	1700	veh/h
Directional Capacity	1690	veh/h

Passing Lane Analysis

Total length of analysis segment, Lt	3.3	mi
Length of two-lane highway upstream of the passing lane, Lu	-	mi
Length of passing lane including tapers, Lpl	-	mi
Average travel speed, ATSd (from above)	40.4	mi/h
Percent time-spent-following, PTSFd (from above)	88.6	
Level of service, LOSd (from above)	E	

Average Travel Speed with Passing Lane

Downstream length of two-lane highway within effective length of passing lane for average travel speed, Lde	-	mi
Length of two-lane highway downstream of effective length of the passing lane for average travel speed, Ld	-	mi
Adj. factor for the effect of passing lane on average speed, fpl	-	
Average travel speed including passing lane, ATSpl	-	
Percent free flow speed including passing lane, PFFSpl	0.0	%

Percent Time-Spent-Following with Passing Lane

Downstream length of two-lane highway within effective length of passing lane for percent time-spent-following, Lde	-	mi
Length of two-lane highway downstream of effective length of the passing lane for percent time-spent-following, Ld	-	mi
Adj. factor for the effect of passing lane on percent time-spent-following, fpl	-	
Percent time-spent-following including passing lane, PTSFpl	-	%

Level of Service and Other Performance Measures with Passing Lane

Level of service including passing lane, LOSpl	E	
Peak 15-min total travel time, TT15	-	veh-h

Bicycle Level of Service

Posted speed limit, Sp	55
Percent of segment with occupied on-highway parking	0
Pavement rating, P	3
Flow rate in outside lane, vOL	1084.4
Effective width of outside lane, We	16.00
Effective speed factor, St	4.79
Bicycle LOS Score, BLOS	4.50
Bicycle LOS	E

Notes:
1. Note that the adjustment factor for level terrain is 1.00, as level terrain is one of the base conditions. For the purpose of grade adjustment, specific dewngrade segments are treated as level terrain.
2. If vi (vd or vo) >= 1,700 pc/h, terminate analysis-the LOS is F.
3. For the analysis direction only and for v>200 veh/h.
4. For the analysis direction only.
5. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.

Phone: Fax:
E-Mail:

Directional Two-Lane Highway Segment Analysis

Analyst	CFB
Agency/Co.	VHB
Date Performed	11/13/2017
Analysis Time Period	AM
Highway	NC 54
From/To	NC 119/Mt Willen Road
Jurisdiction	Alamance County
Analysis Year	2045
Description	Capacity Analysis - NC 54 (EB)

Input Data

Highway class	Class 1		Peak hour factor, PHF	0.90	
Shoulder width	4.0	ft	% Trucks and buses	2	%
Lane width	12.0	ft	% Trucks crawling	0.0	%
Segment length	4.1	mi	Truck crawl speed	0.0	mi/hr
Terrain type	Rolling		% Recreational vehicles	0	%
Grade: Length	-	mi	% No-passing zones	79	%
Up/down	-	%	Access point density	16	/mi

Analysis direction volume, Vd 922 veh/h
Opposing direction volume, Vo 798 veh/h

Average Travel Speed

Direction	Analysis(d)		Opposing (o)	
PCE for trucks, ET	1.3		1.3	
PCE for RVs, ER	1.1		1.1	
Heavy-vehicle adj. factor,(note-5) fHV	0.994		0.994	
Grade adj. factor,(note-1) fg	1.00		1.00	
Directional flow rate,(note-2) vi	1031	pc/h	892	pc/h

Free-Flow Speed from Field Measurement:

Field measured speed,(note-3) S FM	-	mi/h
Observed total demand,(note-3) V	-	veh/h

Estimated Free-Flow Speed:

Base free-flow speed,(note-3) BFFS	60.0	mi/h
Adj. for lane and shoulder width,(note-3) fLS	1.3	mi/h
Adj. for access point density,(note-3) fA	4.0	mi/h
Free-flow speed, FFSd	54.7	mi/h
Adjustment for no-passing zones, fnp	1.1	mi/h
Average travel speed, ATSd	38.7	mi/h
Percent Free Flow Speed, PFFS	70.8	%

Percent Time-Spent-Following

Direction	Analysis(d)		Opposing (o)	
PCE for trucks, ET	1.0		1.0	
PCE for RVs, ER	1.0		1.0	
Heavy-vehicle adjustment factor, fHV	1.000		1.000	
Grade adjustment factor,(note-1) fg	1.00		1.00	
Directional flow rate,(note-2) vi	1024	pc/h	887	pc/h
Base percent time-spent-following,(note-4) BPTSFd	77.5	%		
Adjustment for no-passing zones, fnp	19.0			
Percent time-spent-following, PTSFd	87.7	%		

Level of Service and Other Performance Measures

Level of service, LOS	E	
Volume to capacity ratio, v/c	0.61	
Peak 15-min vehicle-miles of travel, VMT15	1050	veh-mi
Peak-hour vehicle-miles of travel, VMT60	3780	veh-mi
Peak 15-min total travel time, TT15	27.1	veh-h
Capacity from ATS, CdATS	1690	veh/h
Capacity from PTSF, CdPTSF	1700	veh/h
Directional Capacity	1690	veh/h

Passing Lane Analysis

Total length of analysis segment, Lt	4.1	mi
Length of two-lane highway upstream of the passing lane, Lu	-	mi
Length of passing lane including tapers, Lpl	-	mi
Average travel speed, ATSd (from above)	38.7	mi/h
Percent time-spent-following, PTSFd (from above)	87.7	
Level of service, LOSd (from above)	E	

Average Travel Speed with Passing Lane

Downstream length of two-lane highway within effective length of passing lane for average travel speed, Lde	-	mi
Length of two-lane highway downstream of effective length of the passing lane for average travel speed, Ld	-	mi
Adj. factor for the effect of passing lane on average speed, fpl	-	
Average travel speed including passing lane, ATSpl	-	
Percent free flow speed including passing lane, PFFSpl	0.0	%

Percent Time-Spent-Following with Passing Lane

Downstream length of two-lane highway within effective length of passing lane for percent time-spent-following, Lde	-	mi
Length of two-lane highway downstream of effective length of the passing lane for percent time-spent-following, Ld	-	mi
Adj. factor for the effect of passing lane on percent time-spent-following, fpl	-	
Percent time-spent-following including passing lane, PTSFpl	-	%

Level of Service and Other Performance Measures with Passing Lane

Level of service including passing lane, LOSpl	E	
Peak 15-min total travel time, TT15	-	veh-h

Bicycle Level of Service

Posted speed limit, Sp	55
Percent of segment with occupied on-highway parking	0
Pavement rating, P	3
Flow rate in outside lane, vOL	1024.4
Effective width of outside lane, We	16.00
Effective speed factor, St	4.79
Bicycle LOS Score, BLOS	4.47
Bicycle LOS	D

Notes:
1. Note that the adjustment factor for level terrain is 1.00, as level terrain is one of the base conditions. For the purpose of grade adjustment, specific dewngrade segments are treated as level terrain.
2. If vi (vd or vo) >= 1,700 pc/h, terminate analysis-the LOS is F.
3. For the analysis direction only and for v>200 veh/h.
4. For the analysis direction only.
5. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.

Phone: Fax:
E-Mail:

Directional Two-Lane Highway Segment Analysis

Analyst	CFB
Agency/Co.	VHB
Date Performed	11/13/2017
Analysis Time Period	AM
Highway	NC 54
From/To	NC 119/Mt Willen Road
Jurisdiction	Alamance County
Analysis Year	2045
Description	Capacity Analysis - NC 54 (WB)

Input Data

Highway class	Class 1		Peak hour factor, PHF	0.90	
Shoulder width	4.0	ft	% Trucks and buses	2	%
Lane width	12.0	ft	% Trucks crawling	0.0	%
Segment length	4.1	mi	Truck crawl speed	0.0	mi/hr
Terrain type	Rolling		% Recreational vehicles	0	%
Grade: Length	-	mi	% No-passing zones	79	%
Up/down	-	%	Access point density	16	/mi

Analysis direction volume, Vd	798	veh/h
Opposing direction volume, Vo	922	veh/h

Average Travel Speed

Direction	Analysis(d)		Opposing (o)	
PCE for trucks, ET	1.3		1.3	
PCE for RVs, ER	1.1		1.1	
Heavy-vehicle adj. factor,(note-5) fHV	0.994		0.994	
Grade adj. factor,(note-1) fg	1.00		1.00	
Directional flow rate,(note-2) vi	892	pc/h	1031	pc/h

Free-Flow Speed from Field Measurement:		
Field measured speed,(note-3) S FM	-	mi/h
Observed total demand,(note-3) V	-	veh/h
Estimated Free-Flow Speed:		
Base free-flow speed,(note-3) BFFS	60.0	mi/h
Adj. for lane and shoulder width,(note-3) fLS	1.3	mi/h
Adj. for access point density,(note-3) fA	4.0	mi/h
Free-flow speed, FFSd	54.7	mi/h
Adjustment for no-passing zones, fnp	0.9	mi/h
Average travel speed, ATSd	38.9	mi/h
Percent Free Flow Speed, PFFS	71.1	%

Percent Time-Spent-Following

Direction	Analysis(d)		Opposing (o)	
PCE for trucks, ET	1.0		1.0	
PCE for RVs, ER	1.0		1.0	
Heavy-vehicle adjustment factor, fHV	1.000		1.000	
Grade adjustment factor,(note-1) fg	1.00		1.00	
Directional flow rate,(note-2) vi	887	pc/h	1024	pc/h
Base percent time-spent-following,(note-4) BPTSFd	75.1	%		
Adjustment for no-passing zones, fnp	19.0			
Percent time-spent-following, PTSFd	83.9	%		

Level of Service and Other Performance Measures

Level of service, LOS	E	
Volume to capacity ratio, v/c	0.53	
Peak 15-min vehicle-miles of travel, VMT15	909	veh-mi
Peak-hour vehicle-miles of travel, VMT60	3272	veh-mi
Peak 15-min total travel time, TT15	23.4	veh-h
Capacity from ATS, CdATS	1690	veh/h
Capacity from PTSF, CdPTSF	1700	veh/h
Directional Capacity	1690	veh/h

Passing Lane Analysis

Total length of analysis segment, Lt	4.1	mi
Length of two-lane highway upstream of the passing lane, Lu	-	mi
Length of passing lane including tapers, Lpl	-	mi
Average travel speed, ATSd (from above)	38.9	mi/h
Percent time-spent-following, PTSFd (from above)	83.9	
Level of service, LOSd (from above)	E	

Average Travel Speed with Passing Lane

Downstream length of two-lane highway within effective length of passing lane for average travel speed, Lde	-	mi
Length of two-lane highway downstream of effective length of the passing lane for average travel speed, Ld	-	mi
Adj. factor for the effect of passing lane on average speed, fpl	-	
Average travel speed including passing lane, ATSpl	-	
Percent free flow speed including passing lane, PFFSpl	0.0	%

Percent Time-Spent-Following with Passing Lane

Downstream length of two-lane highway within effective length of passing lane for percent time-spent-following, Lde	-	mi
Length of two-lane highway downstream of effective length of the passing lane for percent time-spent-following, Ld	-	mi
Adj. factor for the effect of passing lane on percent time-spent-following, fpl	-	
Percent time-spent-following including passing lane, PTSFpl	-	%

Level of Service and Other Performance Measures with Passing Lane

Level of service including passing lane, LOSpl	E	
Peak 15-min total travel time, TT15	-	veh-h

Bicycle Level of Service

Posted speed limit, Sp	55
Percent of segment with occupied on-highway parking	0
Pavement rating, P	3
Flow rate in outside lane, vOL	886.7
Effective width of outside lane, We	16.00
Effective speed factor, St	4.79
Bicycle LOS Score, BLOS	4.40
Bicycle LOS	D

Notes:
1. Note that the adjustment factor for level terrain is 1.00, as level terrain is one of the base conditions. For the purpose of grade adjustment, specific dewngrade segments are treated as level terrain.
2. If vi (vd or vo) >= 1,700 pc/h, terminate analysis-the LOS is F.
3. For the analysis direction only and for v>200 veh/h.
4. For the analysis direction only.
5. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.

Phone: Fax:
E-Mail:

Directional Two-Lane Highway Segment Analysis

Analyst	CFB
Agency/Co.	VHB
Date Performed	11/13/2017
Analysis Time Period	PM
Highway	NC 54
From/To	NC 119/Mt Willen Road
Jurisdiction	Alamance County
Analysis Year	2045
Description	Capacity Analysis - NC 54 (EB)

Input Data

Highway class	Class 1		Peak hour factor, PHF	0.90	
Shoulder width	4.0	ft	% Trucks and buses	2	%
Lane width	12.0	ft	% Trucks crawling	0.0	%
Segment length	4.1	mi	Truck crawl speed	0.0	mi/hr
Terrain type	Rolling		% Recreational vehicles	0	%
Grade: Length	-	mi	% No-passing zones	79	%
Up/down	-	%	Access point density	16	/mi

Analysis direction volume, Vd 684 veh/h
Opposing direction volume, Vo 1050 veh/h

Average Travel Speed

Direction	Analysis(d)		Opposing (o)	
PCE for trucks, ET	1.5		1.3	
PCE for RVs, ER	1.1		1.1	
Heavy-vehicle adj. factor,(note-5) fHV	0.990		0.994	
Grade adj. factor,(note-1) fg	0.99		1.00	
Directional flow rate,(note-2) vi	775	pc/h	1174	pc/h

Free-Flow Speed from Field Measurement:

Field measured speed,(note-3) S FM	-	mi/h
Observed total demand,(note-3) V	-	veh/h

Estimated Free-Flow Speed:

Base free-flow speed,(note-3) BFFS	60.0	mi/h
Adj. for lane and shoulder width,(note-3) fLS	1.3	mi/h
Adj. for access point density,(note-3) fA	4.0	mi/h
Free-flow speed, FFSd	54.7	mi/h
Adjustment for no-passing zones, fnp	0.9	mi/h
Average travel speed, ATSd	38.7	mi/h
Percent Free Flow Speed, PFFS	70.7	%

Percent Time-Spent-Following

Direction	Analysis(d)	Opposing (o)
PCE for trucks, ET	1.0	1.0
PCE for RVs, ER	1.0	1.0
Heavy-vehicle adjustment factor, fHV	1.000	1.000
Grade adjustment factor,(note-1) fg	1.00	1.00
Directional flow rate,(note-2) vi	760 pc/h	1167 pc/h
Base percent time-spent-following,(note-4) BPTSFd	71.9 %	
Adjustment for no-passing zones, fnp	17.8	
Percent time-spent-following, PTSFd	78.9 %	

Level of Service and Other Performance Measures

Level of service, LOS	E	
Volume to capacity ratio, v/c	0.53	
Peak 15-min vehicle-miles of travel, VMT15	779	veh-mi
Peak-hour vehicle-miles of travel, VMT60	2804	veh-mi
Peak 15-min total travel time, TT15	20.1	veh-h
Capacity from ATS, CdATS	1690	veh/h
Capacity from PTSF, CdPTSF	1700	veh/h
Directional Capacity	1690	veh/h

Passing Lane Analysis

Total length of analysis segment, Lt	4.1	mi
Length of two-lane highway upstream of the passing lane, Lu	-	mi
Length of passing lane including tapers, Lpl	-	mi
Average travel speed, ATSd (from above)	38.7	mi/h
Percent time-spent-following, PTSFd (from above)	78.9	
Level of service, LOSd (from above)	E	

Average Travel Speed with Passing Lane

Downstream length of two-lane highway within effective length of passing lane for average travel speed, Lde	-	mi
Length of two-lane highway downstream of effective length of the passing lane for average travel speed, Ld	-	mi
Adj. factor for the effect of passing lane on average speed, fpl	-	
Average travel speed including passing lane, ATSpl	-	
Percent free flow speed including passing lane, PFFSpl	0.0	%

Percent Time-Spent-Following with Passing Lane

Downstream length of two-lane highway within effective length of passing lane for percent time-spent-following, Lde	-	mi
Length of two-lane highway downstream of effective length of the passing lane for percent time-spent-following, Ld	-	mi
Adj. factor for the effect of passing lane on percent time-spent-following, fpl	-	
Percent time-spent-following including passing lane, PTSFpl	-	%

Level of Service and Other Performance Measures with Passing Lane

Level of service including passing lane, LOSpl	E	
Peak 15-min total travel time, TT15	-	veh-h

Bicycle Level of Service

Posted speed limit, Sp	55
Percent of segment with occupied on-highway parking	0
Pavement rating, P	3
Flow rate in outside lane, vOL	760.0
Effective width of outside lane, We	16.00
Effective speed factor, St	4.79
Bicycle LOS Score, BLOS	4.32
Bicycle LOS	D

Notes:
1. Note that the adjustment factor for level terrain is 1.00, as level terrain is one of the base conditions. For the purpose of grade adjustment, specific dewngrade segments are treated as level terrain.
2. If vi (vd or vo) >= 1,700 pc/h, terminate analysis-the LOS is F.
3. For the analysis direction only and for v>200 veh/h.
4. For the analysis direction only.
5. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.

Phone: Fax:
E-Mail:

Directional Two-Lane Highway Segment Analysis

Analyst	CFB
Agency/Co.	VHB
Date Performed	11/13/2017
Analysis Time Period	PM
Highway	NC 54
From/To	NC 119/Mt Willen Road
Jurisdiction	Alamance County
Analysis Year	2045
Description	Capacity Analysis - NC 54 (WB)

Input Data

Highway class	Class 1		Peak hour factor, PHF	0.90	
Shoulder width	4.0	ft	% Trucks and buses	2	%
Lane width	12.0	ft	% Trucks crawling	0.0	%
Segment length	4.1	mi	Truck crawl speed	0.0	mi/hr
Terrain type	Rolling		% Recreational vehicles	0	%
Grade: Length	-	mi	% No-passing zones	80	%
Up/down	-	%	Access point density	16	/mi

Analysis direction volume, Vd	1050	veh/h
Opposing direction volume, Vo	684	veh/h

Average Travel Speed

Direction	Analysis(d)		Opposing (o)	
PCE for trucks, ET	1.3		1.5	
PCE for RVs, ER	1.1		1.1	
Heavy-vehicle adj. factor,(note-5) fHV	0.994		0.990	
Grade adj. factor,(note-1) fg	1.00		0.99	
Directional flow rate,(note-2) vi	1174	pc/h	775	pc/h

Free-Flow Speed from Field Measurement:

Field measured speed,(note-3) S FM	-	mi/h
Observed total demand,(note-3) V	-	veh/h

Estimated Free-Flow Speed:

Base free-flow speed,(note-3) BFFS	60.0	mi/h
Adj. for lane and shoulder width,(note-3) fLS	1.3	mi/h
Adj. for access point density,(note-3) fA	4.0	mi/h
Free-flow speed, FFSd	54.7	mi/h
Adjustment for no-passing zones, fnp	1.3	mi/h
Average travel speed, ATSd	38.3	mi/h
Percent Free Flow Speed, PFFS	70.0	%

Percent Time-Spent-Following

Direction	Analysis(d)	Opposing (o)
PCE for trucks, ET	1.0	1.0
PCE for RVs, ER	1.0	1.0
Heavy-vehicle adjustment factor, fHV	1.000	1.000
Grade adjustment factor,(note-1) fg	1.00	1.00
Directional flow rate,(note-2) vi	1167 pc/h	760 pc/h
Base percent time-spent-following,(note-4) BPTSFd	80.2 %	
Adjustment for no-passing zones, fnp	17.8	
Percent time-spent-following, PTSFd	91.0 %	

Level of Service and Other Performance Measures

Level of service, LOS	E	
Volume to capacity ratio, v/c	0.69	
Peak 15-min vehicle-miles of travel, VMT15	1196	veh-mi
Peak-hour vehicle-miles of travel, VMT60	4305	veh-mi
Peak 15-min total travel time, TT15	31.2	veh-h
Capacity from ATS, CdATS	1690	veh/h
Capacity from PTSF, CdPTSF	1700	veh/h
Directional Capacity	1690	veh/h

Passing Lane Analysis

Total length of analysis segment, Lt	4.1	mi
Length of two-lane highway upstream of the passing lane, Lu	-	mi
Length of passing lane including tapers, Lpl	-	mi
Average travel speed, ATSd (from above)	38.3	mi/h
Percent time-spent-following, PTSFd (from above)	91.0	
Level of service, LOSd (from above)	E	

Average Travel Speed with Passing Lane

Downstream length of two-lane highway within effective length of passing lane for average travel speed, Lde	-	mi
Length of two-lane highway downstream of effective length of the passing lane for average travel speed, Ld	-	mi
Adj. factor for the effect of passing lane on average speed, fpl	-	
Average travel speed including passing lane, ATSpl	-	
Percent free flow speed including passing lane, PFFSpl	0.0	%

Percent Time-Spent-Following with Passing Lane

Downstream length of two-lane highway within effective length of passing lane for percent time-spent-following, Lde	-	mi
Length of two-lane highway downstream of effective length of the passing lane for percent time-spent-following, Ld	-	mi
Adj. factor for the effect of passing lane on percent time-spent-following, fpl	-	
Percent time-spent-following including passing lane, PTSFpl	-	%

Level of Service and Other Performance Measures with Passing Lane

Level of service including passing lane, LOSpl	E	
Peak 15-min total travel time, TT15	-	veh-h

Bicycle Level of Service

Posted speed limit, Sp	55
Percent of segment with occupied on-highway parking	0
Pavement rating, P	3
Flow rate in outside lane, vOL	1166.7
Effective width of outside lane, We	16.00
Effective speed factor, St	4.79
Bicycle LOS Score, BLOS	4.54
Bicycle LOS	E

Notes:
1. Note that the adjustment factor for level terrain is 1.00, as level terrain is one of the base conditions. For the purpose of grade adjustment, specific dewngrade segments are treated as level terrain.
2. If vi (vd or vo) >= 1,700 pc/h, terminate analysis-the LOS is F.
3. For the analysis direction only and for v>200 veh/h.
4. For the analysis direction only.
5. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.

Phone: Fax:
E-Mail:

Directional Two-Lane Highway Segment Analysis

Analyst	CFB
Agency/Co.	VHB
Date Performed	11/13/2017
Analysis Time Period	AM
Highway	NC 54
From/To	Orange Grove Rd/Dodsons Cross
Jurisdiction	Orange County
Analysis Year	2045
Description	Capacity Analysis - NC 54 (EB)

Input Data

Highway class	Class 1		Peak hour factor, PHF	0.90	
Shoulder width	4.0	ft	% Trucks and buses	2	%
Lane width	12.0	ft	% Trucks crawling	0.0	%
Segment length	1.6	mi	Truck crawl speed	0.0	mi/hr
Terrain type	Rolling		% Recreational vehicles	0	%
Grade: Length	-	mi	% No-passing zones	71	%
Up/down	-	%	Access point density	16	/mi

Analysis direction volume, Vd	1450	veh/h
Opposing direction volume, Vo	470	veh/h

Average Travel Speed

Direction	Analysis(d)		Opposing (o)	
PCE for trucks, ET	1.3		1.8	
PCE for RVs, ER	1.1		1.1	
Heavy-vehicle adj. factor,(note-5) fHV	0.994		0.984	
Grade adj. factor,(note-1) fg	1.00		0.95	
Directional flow rate,(note-2) vi	1621	pc/h	559	pc/h

Free-Flow Speed from Field Measurement:

Field measured speed,(note-3) S FM	-	mi/h
Observed total demand,(note-3) V	-	veh/h

Estimated Free-Flow Speed:

Base free-flow speed,(note-3) BFFS	60.0	mi/h
Adj. for lane and shoulder width,(note-3) fLS	1.3	mi/h
Adj. for access point density,(note-3) fA	4.0	mi/h
Free-flow speed, FFSd	54.7	mi/h
Adjustment for no-passing zones, fnp	1.9	mi/h
Average travel speed, ATSd	35.9	mi/h
Percent Free Flow Speed, PFFS	65.6	%

Percent Time-Spent-Following

Direction	Analysis(d)	Opposing (o)
PCE for trucks, ET	1.0	1.2
PCE for RVs, ER	1.0	1.0
Heavy-vehicle adjustment factor, fHV	1.000	0.996
Grade adjustment factor,(note-1) fg	1.00	0.96
Directional flow rate,(note-2) vi	1611 pc/h	546 pc/h
Base percent time-spent-following,(note-4) BPTSFd	87.2 %	
Adjustment for no-passing zones, fnp	11.8	
Percent time-spent-following, PTSFd	96.0 %	

Level of Service and Other Performance Measures

Level of service, LOS	E	
Volume to capacity ratio, v/c	0.95	
Peak 15-min vehicle-miles of travel, VMT15	644	veh-mi
Peak-hour vehicle-miles of travel, VMT60	2320	veh-mi
Peak 15-min total travel time, TT15	17.9	veh-h
Capacity from ATS, CdATS	1690	veh/h
Capacity from PTSF, CdPTSF	1700	veh/h
Directional Capacity	1690	veh/h

Passing Lane Analysis

Total length of analysis segment, Lt	1.6	mi
Length of two-lane highway upstream of the passing lane, Lu	-	mi
Length of passing lane including tapers, Lpl	-	mi
Average travel speed, ATSd (from above)	35.9	mi/h
Percent time-spent-following, PTSFd (from above)	96.0	
Level of service, LOSd (from above)	E	

Average Travel Speed with Passing Lane

Downstream length of two-lane highway within effective length of passing lane for average travel speed, Lde	-	mi
Length of two-lane highway downstream of effective length of the passing lane for average travel speed, Ld	-	mi
Adj. factor for the effect of passing lane on average speed, fpl	-	
Average travel speed including passing lane, ATSpl	-	
Percent free flow speed including passing lane, PFFSpl	0.0	%

Percent Time-Spent-Following with Passing Lane

Downstream length of two-lane highway within effective length of passing lane for percent time-spent-following, Lde	-	mi
Length of two-lane highway downstream of effective length of the passing lane for percent time-spent-following, Ld	-	mi
Adj. factor for the effect of passing lane on percent time-spent-following, fpl	-	
Percent time-spent-following including passing lane, PTSFpl	-	%

Level of Service and Other Performance Measures with Passing Lane

Level of service including passing lane, LOSpl	E	
Peak 15-min total travel time, TT15	-	veh-h

Bicycle Level of Service

Posted speed limit, Sp	55
Percent of segment with occupied on-highway parking	0
Pavement rating, P	3
Flow rate in outside lane, vOL	1611.1
Effective width of outside lane, We	16.00
Effective speed factor, St	4.79
Bicycle LOS Score, BLOS	4.70
Bicycle LOS	E

Notes:
1. Note that the adjustment factor for level terrain is 1.00, as level terrain is one of the base conditions. For the purpose of grade adjustment, specific dewngrade segments are treated as level terrain.
2. If vi (vd or vo) >= 1,700 pc/h, terminate analysis-the LOS is F.
3. For the analysis direction only and for v>200 veh/h.
4. For the analysis direction only.
5. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.

Phone: Fax:
E-Mail:

Directional Two-Lane Highway Segment Analysis

Analyst	CFB
Agency/Co.	VHB
Date Performed	11/13/2017
Analysis Time Period	AM
Highway	NC 54
From/To	Orange Grove Rd/Dodsons Cross
Jurisdiction	Orange County
Analysis Year	2045
Description	Capacity Analysis - NC 54 (WB)

Input Data

Highway class	Class 1		Peak hour factor, PHF	0.90	
Shoulder width	4.0	ft	% Trucks and buses	2	%
Lane width	12.0	ft	% Trucks crawling	0.0	%
Segment length	1.6	mi	Truck crawl speed	0.0	mi/hr
Terrain type	Rolling		% Recreational vehicles	0	%
Grade: Length	-	mi	% No-passing zones	73	%
Up/down	-	%	Access point density	16	/mi

Analysis direction volume, Vd	470	veh/h
Opposing direction volume, Vo	1604	veh/h

Average Travel Speed

Direction	Analysis(d)		Opposing (o)	
PCE for trucks, ET	1.8		1.3	
PCE for RVs, ER	1.1		1.1	
Heavy-vehicle adj. factor,(note-5) fHV	0.984		0.994	
Grade adj. factor,(note-1) fg	0.95		1.00	
Directional flow rate,(note-2) vi	559	pc/h	1793	pc/h

Free-Flow Speed from Field Measurement:		
Field measured speed,(note-3) S FM	-	mi/h
Observed total demand,(note-3) V	-	veh/h
Estimated Free-Flow Speed:		
Base free-flow speed,(note-3) BFFS	60.0	mi/h
Adj. for lane and shoulder width,(note-3) fLS	1.3	mi/h
Adj. for access point density,(note-3) fA	4.0	mi/h
Free-flow speed, FFSd	54.7	mi/h
Adjustment for no-passing zones, fnp	0.6	mi/h
Average travel speed, ATSd	35.9	mi/h
Percent Free Flow Speed, PFFS	65.5	%

Percent Time-Spent-Following

Direction	Analysis(d)	Opposing (o)
PCE for trucks, ET	1.2	1.0
PCE for RVs, ER	1.0	1.0
Heavy-vehicle adjustment factor, fHV	0.996	1.000
Grade adjustment factor,(note-1) fg	0.96	1.00
Directional flow rate,(note-2) vi	546 pc/h	1782 pc/h
Base percent time-spent-following,(note-4) BPTSFd	65.6 %	
Adjustment for no-passing zones, fnp	11.2	
Percent time-spent-following, PTSFd	68.2 %	

Level of Service and Other Performance Measures

Level of service, LOS	F	
Volume to capacity ratio, v/c	0.53	
Peak 15-min vehicle-miles of travel, VMT15	209	veh-mi
Peak-hour vehicle-miles of travel, VMT60	752	veh-mi
Peak 15-min total travel time, TT15	5.8	veh-h
Capacity from ATS, CdATS	1690	veh/h
Capacity from PTSF, CdPTSF	1700	veh/h
Directional Capacity	1690	veh/h

Passing Lane Analysis

Total length of analysis segment, Lt	1.6	mi
Length of two-lane highway upstream of the passing lane, Lu	-	mi
Length of passing lane including tapers, Lpl	-	mi
Average travel speed, ATSd (from above)	35.9	mi/h
Percent time-spent-following, PTSFd (from above)	68.2	
Level of service, LOSd (from above)	F	

Average Travel Speed with Passing Lane

Downstream length of two-lane highway within effective length of passing lane for average travel speed, Lde	-	mi
Length of two-lane highway downstream of effective length of the passing lane for average travel speed, Ld	-	mi
Adj. factor for the effect of passing lane on average speed, fpl	-	
Average travel speed including passing lane, ATSpl	-	
Percent free flow speed including passing lane, PFFSpl	0.0	%

Percent Time-Spent-Following with Passing Lane

Downstream length of two-lane highway within effective length of passing lane for percent time-spent-following, Lde	-	mi
Length of two-lane highway downstream of effective length of the passing lane for percent time-spent-following, Ld	-	mi
Adj. factor for the effect of passing lane on percent time-spent-following, fpl	-	
Percent time-spent-following including passing lane, PTSFpl	-	%

Level of Service and Other Performance Measures with Passing Lane

Level of service including passing lane, LOSpl	E	
Peak 15-min total travel time, TT15	-	veh-h

Bicycle Level of Service

Posted speed limit, Sp	55
Percent of segment with occupied on-highway parking	0
Pavement rating, P	3
Flow rate in outside lane, vOL	522.2
Effective width of outside lane, We	16.00
Effective speed factor, St	4.79
Bicycle LOS Score, BLOS	4.13
Bicycle LOS	D

Notes:
1. Note that the adjustment factor for level terrain is 1.00, as level terrain is one of the base conditions. For the purpose of grade adjustment, specific dewngrade segments are treated as level terrain.
2. If vi (vd or vo) >= 1,700 pc/h, terminate analysis-the LOS is F.
3. For the analysis direction only and for v>200 veh/h.
4. For the analysis direction only.
5. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.

Phone: Fax:
E-Mail:

Directional Two-Lane Highway Segment Analysis

Analyst	CFB
Agency/Co.	VHB
Date Performed	11/13/2017
Analysis Time Period	PM
Highway	NC 54
From/To	Orange Grove Rd/Dodsons Cross
Jurisdiction	Orange County
Analysis Year	2045
Description	Capacity Analysis - NC 54 (EB)

Input Data

Highway class	Class 1		Peak hour factor, PHF	0.90	
Shoulder width	4.0	ft	% Trucks and buses	2	%
Lane width	12.0	ft	% Trucks crawling	0.0	%
Segment length	1.6	mi	Truck crawl speed	0.0	mi/hr
Terrain type	Rolling		% Recreational vehicles	0	%
Grade: Length	-	mi	% No-passing zones	71	%
Up/down	-	%	Access point density	16	/mi

Analysis direction volume, Vd	440	veh/h
Opposing direction volume, Vo	1501	veh/h

Average Travel Speed

Direction	Analysis(d)		Opposing (o)	
PCE for trucks, ET	1.8		1.3	
PCE for RVs, ER	1.1		1.1	
Heavy-vehicle adj. factor,(note-5) fHV	0.984		0.994	
Grade adj. factor,(note-1) fg	0.94		1.00	
Directional flow rate,(note-2) vi	529	pc/h	1678	pc/h

Free-Flow Speed from Field Measurement:		
Field measured speed,(note-3) S FM	-	mi/h
Observed total demand,(note-3) V	-	veh/h
Estimated Free-Flow Speed:		
Base free-flow speed,(note-3) BFFS	60.0	mi/h
Adj. for lane and shoulder width,(note-3) fLS	1.3	mi/h
Adj. for access point density,(note-3) fA	4.0	mi/h
Free-flow speed, FFSd	54.7	mi/h
Adjustment for no-passing zones, fnp	0.6	mi/h
Average travel speed, ATSd	37.0	mi/h
Percent Free Flow Speed, PFFS	67.6	%

Percent Time-Spent-Following

Direction	Analysis(d)	Opposing (o)
PCE for trucks, ET	1.4	1.0
PCE for RVs, ER	1.0	1.0
Heavy-vehicle adjustment factor, fHV	0.992	1.000
Grade adjustment factor,(note-1) fg	0.95	1.00
Directional flow rate,(note-2) vi	519 pc/h	1668 pc/h
Base percent time-spent-following,(note-4) BPTSFd	64.1 %	
Adjustment for no-passing zones, fnp	11.2	
Percent time-spent-following, PTSFd	66.8 %	

Level of Service and Other Performance Measures

Level of service, LOS	E	
Volume to capacity ratio, v/c	0.53	
Peak 15-min vehicle-miles of travel, VMT15	196	veh-mi
Peak-hour vehicle-miles of travel, VMT60	704	veh-mi
Peak 15-min total travel time, TT15	5.3	veh-h
Capacity from ATS, CdATS	1690	veh/h
Capacity from PTSF, CdPTSF	1700	veh/h
Directional Capacity	1690	veh/h

Passing Lane Analysis

Total length of analysis segment, Lt	1.6	mi
Length of two-lane highway upstream of the passing lane, Lu	-	mi
Length of passing lane including tapers, Lpl	-	mi
Average travel speed, ATSd (from above)	37.0	mi/h
Percent time-spent-following, PTSFd (from above)	66.8	
Level of service, LOSd (from above)	E	

Average Travel Speed with Passing Lane

Downstream length of two-lane highway within effective length of passing lane for average travel speed, Lde	-	mi
Length of two-lane highway downstream of effective length of the passing lane for average travel speed, Ld	-	mi
Adj. factor for the effect of passing lane on average speed, fpl	-	
Average travel speed including passing lane, ATSpl	-	
Percent free flow speed including passing lane, PFFSpl	0.0	%

Percent Time-Spent-Following with Passing Lane

Downstream length of two-lane highway within effective length of passing lane for percent time-spent-following, Lde	-	mi
Length of two-lane highway downstream of effective length of the passing lane for percent time-spent-following, Ld	-	mi
Adj. factor for the effect of passing lane on percent time-spent-following, fpl	-	
Percent time-spent-following including passing lane, PTSFpl	-	%

Level of Service and Other Performance Measures with Passing Lane

Level of service including passing lane, LOSpl	E	
Peak 15-min total travel time, TT15	-	veh-h

Bicycle Level of Service

Posted speed limit, Sp	55
Percent of segment with occupied on-highway parking	0
Pavement rating, P	3
Flow rate in outside lane, vOL	488.9
Effective width of outside lane, We	16.00
Effective speed factor, St	4.79
Bicycle LOS Score, BLOS	4.10
Bicycle LOS	D

Notes:
1. Note that the adjustment factor for level terrain is 1.00, as level terrain is one of the base conditions. For the purpose of grade adjustment, specific dewngrade segments are treated as level terrain.
2. If vi (vd or vo) >= 1,700 pc/h, terminate analysis-the LOS is F.
3. For the analysis direction only and for v>200 veh/h.
4. For the analysis direction only.
5. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.

Phone: Fax:
E-Mail:

Directional Two-Lane Highway Segment Analysis

Analyst	CFB
Agency/Co.	VHB
Date Performed	11/13/2017
Analysis Time Period	PM
Highway	NC 54
From/To	Orange Grove Rd/Dodsons Cross
Jurisdiction	Orange County
Analysis Year	2045
Description	Capacity Analysis - NC 54 (WB)

Input Data

Highway class	Class 1		Peak hour factor, PHF	0.90	
Shoulder width	4.0	ft	% Trucks and buses	2	%
Lane width	12.0	ft	% Trucks crawling	0.0	%
Segment length	1.6	mi	Truck crawl speed	0.0	mi/hr
Terrain type	Rolling		% Recreational vehicles	0	%
Grade: Length	-	mi	% No-passing zones	73	%
Up/down	-	%	Access point density	16	/mi

Analysis direction volume, Vd	1501	veh/h
Opposing direction volume, Vo	440	veh/h

Average Travel Speed

Direction	Analysis(d)		Opposing (o)	
PCE for trucks, ET	1.3		1.8	
PCE for RVs, ER	1.1		1.1	
Heavy-vehicle adj. factor,(note-5) fHV	0.994		0.984	
Grade adj. factor,(note-1) fg	1.00		0.94	
Directional flow rate,(note-2) vi	1678	pc/h	529	pc/h

Free-Flow Speed from Field Measurement:		
Field measured speed,(note-3) S FM	-	mi/h
Observed total demand,(note-3) V	-	veh/h
Estimated Free-Flow Speed:		
Base free-flow speed,(note-3) BFFS	60.0	mi/h
Adj. for lane and shoulder width,(note-3) fLS	1.3	mi/h
Adj. for access point density,(note-3) fA	4.0	mi/h
Free-flow speed, FFSd	54.7	mi/h
Adjustment for no-passing zones, fnp	2.0	mi/h
Average travel speed, ATSd	35.5	mi/h
Percent Free Flow Speed, PFFS	65.0	%

Percent Time-Spent-Following

Direction	Analysis(d)	Opposing (o)
PCE for trucks, ET	1.0	1.4
PCE for RVs, ER	1.0	1.0
Heavy-vehicle adjustment factor, fHV	1.000	0.992
Grade adjustment factor,(note-1) fg	1.00	0.95
Directional flow rate,(note-2) vi	1668 pc/h	519 pc/h
Base percent time-spent-following,(note-4) BPTSFd	88.4 %	
Adjustment for no-passing zones, fnp	11.2	
Percent time-spent-following, PTSFd	96.9 %	

Level of Service and Other Performance Measures

Level of service, LOS	E	
Volume to capacity ratio, v/c	0.99	
Peak 15-min vehicle-miles of travel, VMT15	667	veh-mi
Peak-hour vehicle-miles of travel, VMT60	2402	veh-mi
Peak 15-min total travel time, TT15	18.8	veh-h
Capacity from ATS, CdATS	1690	veh/h
Capacity from PTSF, CdPTSF	1700	veh/h
Directional Capacity	1690	veh/h

Passing Lane Analysis

Total length of analysis segment, Lt	1.6	mi
Length of two-lane highway upstream of the passing lane, Lu	-	mi
Length of passing lane including tapers, Lpl	-	mi
Average travel speed, ATSd (from above)	35.5	mi/h
Percent time-spent-following, PTSFd (from above)	96.9	
Level of service, LOSd (from above)	E	

Average Travel Speed with Passing Lane

Downstream length of two-lane highway within effective length of passing lane for average travel speed, Lde	-	mi
Length of two-lane highway downstream of effective length of the passing lane for average travel speed, Ld	-	mi
Adj. factor for the effect of passing lane on average speed, fpl	-	
Average travel speed including passing lane, ATSpl	-	
Percent free flow speed including passing lane, PFFSpl	0.0	%

Percent Time-Spent-Following with Passing Lane

Downstream length of two-lane highway within effective length of passing lane for percent time-spent-following, Lde	-	mi
Length of two-lane highway downstream of effective length of the passing lane for percent time-spent-following, Ld	-	mi
Adj. factor for the effect of passing lane on percent time-spent-following, fpl	-	
Percent time-spent-following including passing lane, PTSFpl	-	%

Level of Service and Other Performance Measures with Passing Lane

Level of service including passing lane, LOSpl	E	
Peak 15-min total travel time, TT15	-	veh-h

Bicycle Level of Service

Posted speed limit, Sp	55
Percent of segment with occupied on-highway parking	0
Pavement rating, P	3
Flow rate in outside lane, vOL	1667.8
Effective width of outside lane, We	16.00
Effective speed factor, St	4.79
Bicycle LOS Score, BLOS	4.72
Bicycle LOS	E

Notes:
1. Note that the adjustment factor for level terrain is 1.00, as level terrain is one of the base conditions. For the purpose of grade adjustment, specific dewngrade segments are treated as level terrain.
2. If vi (vd or vo) >= 1,700 pc/h, terminate analysis-the LOS is F.
3. For the analysis direction only and for v>200 veh/h.
4. For the analysis direction only.
5. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.

Phone: Fax:
E-mail:

OPERATIONAL ANALYSIS

Analyst:	CFB
Agency/Co:	VHB
Date:	11/13/2017
Analysis Period:	AM
Highway:	NC 54
From/To:	Woody Dr/NC 119
Jurisdiction:	Alamance County
Analysis Year:	2045
Project ID:	Capacity Analysis for NC 54 between Woody Drive and NC 119

FREE-FLOW SPEED

Direction	1		2	
Lane width	12.0	ft	12.0	ft
Lateral clearance:				
Right edge	6.0	ft	6.0	ft
Left edge	6.0	ft	6.0	ft
Total lateral clearance	12.0	ft	12.0	ft
Access points per mile	16		16	
Median type	Divided		Divided	
Free-flow speed:	Base		Base	
FFS or BFFS	50.0	mph	50.0	mph
Lane width adjustment, FLW	0.0	mph	0.0	mph
Lateral clearance adjustment, FLC	0.0	mph	0.0	mph
Median type adjustment, FM	0.0	mph	0.0	mph
Access points adjustment, FA	4.0	mph	4.0	mph
Free-flow speed	46.0	mph	46.0	mph

VOLUME

Direction	1		2	
Volume, V	1261	vph	1353	vph
Peak-hour factor, PHF	0.90		0.90	
Peak 15-minute volume, v15	350		376	
Trucks and buses	2	%	2	%
Recreational vehicles	0	%	0	%
Terrain type	Rolling		Rolling	
Grade	0.00	%	0.00	%
Segment length	0.00	mi	0.00	mi
Number of lanes	2		2	
Driver population adjustment, fP	1.00		1.00	
Trucks and buses PCE, ET	2.5		2.5	
Recreational vehicles PCE, ER	2.0		2.0	
Heavy vehicle adjustment, fHV	0.971		0.971	
Flow rate, vp	721	pcphpl	774	pcphpl

RESULTS

Direction	1		2	
Flow rate, vp	721	pcphpl	774	pcphpl
Free-flow speed, FFS	46.0	mph	46.0	mph
Avg. passenger-car travel speed, S	45.0	mph	45.0	mph
Level of service, LOS	B		B	
Density, D	16.0	pc/mi/ln	17.2	pc/mi/ln

Bicycle Level of Service

Posted speed limit, Sp	40	40
Percent of segment with occupied on-highway parking	0	0
Pavement rating, P	3	3
Flow rate in outside lane, vOL	700.6	751.7
Effective width of outside lane, We	24.00	24.00
Effective speed factor, St	4.17	4.17
Bicycle LOS Score, BLOS	2.50	2.53
Bicycle LOS	B	C

Overall results are not computed when free-flow speed is less than 45 mph.

Phone: Fax:
E-mail:

OPERATIONAL ANALYSIS

Analyst:	CFB
Agency/Co:	VHB
Date:	11/13/2017
Analysis Period:	PM
Highway:	NC 54
From/To:	Woody Dr/NC 119
Jurisdiction:	Alamance County
Analysis Year:	2045
Project ID:	Capacity Analysis for NC 54 between Woody Drive and NC 119

FREE-FLOW SPEED

Direction	1		2	
Lane width	12.0	ft	12.0	ft
Lateral clearance:				
Right edge	6.0	ft	6.0	ft
Left edge	6.0	ft	6.0	ft
Total lateral clearance	12.0	ft	12.0	ft
Access points per mile	16		16	
Median type	Divided		Divided	
Free-flow speed:	Base		Base	
FFS or BFFS	50.0	mph	50.0	mph
Lane width adjustment, FLW	0.0	mph	0.0	mph
Lateral clearance adjustment, FLC	0.0	mph	0.0	mph
Median type adjustment, FM	0.0	mph	0.0	mph
Access points adjustment, FA	4.0	mph	4.0	mph
Free-flow speed	46.0	mph	46.0	mph

VOLUME

Direction	1		2	
Volume, V	1391	vph	1217	vph
Peak-hour factor, PHF	0.90		0.90	
Peak 15-minute volume, v15	386		338	
Trucks and buses	2	%	2	%
Recreational vehicles	0	%	0	%
Terrain type	Rolling		Rolling	
Grade	0.00	%	0.00	%
Segment length	0.00	mi	0.00	mi
Number of lanes	2		2	
Driver population adjustment, fP	1.00		1.00	
Trucks and buses PCE, ET	2.5		2.5	
Recreational vehicles PCE, ER	2.0		2.0	
Heavy vehicle adjustment, fHV	0.971		0.971	
Flow rate, vp	795	pcphpl	696	pcphpl

RESULTS

Direction	1		2	
Flow rate, vp	795	pcphpl	696	pcphpl
Free-flow speed, FFS	46.0	mph	46.0	mph
Avg. passenger-car travel speed, S	45.0	mph	45.0	mph
Level of service, LOS	B		B	
Density, D	17.7	pc/mi/ln	15.5	pc/mi/ln

Bicycle Level of Service

Posted speed limit, Sp	45	45
Percent of segment with occupied on-highway parking	0	0
Pavement rating, P	3	3
Flow rate in outside lane, vOL	772.8	676.1
Effective width of outside lane, We	24.00	24.00
Effective speed factor, St	4.42	4.42
Bicycle LOS Score, BLOS	2.62	2.55
Bicycle LOS	C	C

Overall results are not computed when free-flow speed is less than 45 mph.

Phone: Fax:
E-mail:

OPERATIONAL ANALYSIS

Analyst:	CEB
Agency/Co:	VHB
Date:	4/3/2018
Analysis Period:	AM
Highway:	NC 54
From/To:	Bethel Hickory/Old Fayettevill
Jurisdiction:	Orange County
Analysis Year:	2017
Project ID:	Capacity Analysis - NC 54 (East of Bethel Hickory)

FREE-FLOW SPEED

Direction	1		2	
Lane width	12.0	ft	12.0	ft
Lateral clearance:				
Right edge	6.0	ft	6.0	ft
Left edge	6.0	ft	6.0	ft
Total lateral clearance	12.0	ft	12.0	ft
Access points per mile	16		16	
Median type	Divided		Divided	
Free-flow speed:	Base		Base	
FFS or BFFS	60.0	mph	60.0	mph
Lane width adjustment, FLW	0.0	mph	0.0	mph
Lateral clearance adjustment, FLC	0.0	mph	0.0	mph
Median type adjustment, FM	0.0	mph	0.0	mph
Access points adjustment, FA	4.0	mph	4.0	mph
Free-flow speed	56.0	mph	56.0	mph

VOLUME

Direction	1		2	
Volume, V	1494	vph	479	vph
Peak-hour factor, PHF	0.90		0.90	
Peak 15-minute volume, v15	415		133	
Trucks and buses	2	%	2	%
Recreational vehicles	0	%	0	%
Terrain type	Rolling		Rolling	
Grade	0.00	%	0.00	%
Segment length	0.00	mi	0.00	mi
Number of lanes	2		2	
Driver population adjustment, fP	1.00		1.00	
Trucks and buses PCE, ET	2.5		2.5	
Recreational vehicles PCE, ER	2.0		2.0	
Heavy vehicle adjustment, fHV	0.971		0.971	
Flow rate, vp	854	pcphpl	274	pcphpl

RESULTS

Direction	1		2	
Flow rate, vp	854	pcphpl	274	pcphpl
Free-flow speed, FFS	56.0	mph	56.0	mph
Avg. passenger-car travel speed, S	55.0	mph	55.0	mph
Level of service, LOS	B		A	
Density, D	15.5	pc/mi/ln	5.0	pc/mi/ln

Bicycle Level of Service

Posted speed limit, Sp	55	55
Percent of segment with occupied on-highway parking	0	0
Pavement rating, P	3	3
Flow rate in outside lane, vOL	830.0	266.1
Effective width of outside lane, We	24.00	24.00
Effective speed factor, St	4.79	4.79
Bicycle LOS Score, BLOS	2.77	2.19
Bicycle LOS	C	B

Overall results are not computed when free-flow speed is less than 45 mph.

Phone: Fax:
E-mail:

OPERATIONAL ANALYSIS

Analyst:	CEB
Agency/Co:	VHB
Date:	4/9/2018
Analysis Period:	PM
Highway:	NC 54
From/To:	Bethel Hickory/Old Fayettevill
Jurisdiction:	Orange County
Analysis Year:	2045
Project ID:	Capacity Analysis - NC 54 (East of Bethel Hickory)

FREE-FLOW SPEED

Direction	1		2	
Lane width	12.0	ft	12.0	ft
Lateral clearance:				
Right edge	6.0	ft	6.0	ft
Left edge	6.0	ft	6.0	ft
Total lateral clearance	12.0	ft	12.0	ft
Access points per mile	16		16	
Median type	Divided		Divided	
Free-flow speed:	Base		Base	
FFS or BFFS	60.0	mph	60.0	mph
Lane width adjustment, FLW	0.0	mph	0.0	mph
Lateral clearance adjustment, FLC	0.0	mph	0.0	mph
Median type adjustment, FM	0.0	mph	0.0	mph
Access points adjustment, FA	4.0	mph	4.0	mph
Free-flow speed	56.0	mph	56.0	mph

VOLUME

Direction	1		2	
Volume, V	495	vph	1510	vph
Peak-hour factor, PHF	0.90		0.90	
Peak 15-minute volume, v15	138		419	
Trucks and buses	2	%	2	%
Recreational vehicles	0	%	0	%
Terrain type	Rolling		Rolling	
Grade	0.00	%	0.00	%
Segment length	0.00	mi	0.00	mi
Number of lanes	2		2	
Driver population adjustment, fP	1.00		1.00	
Trucks and buses PCE, ET	2.5		2.5	
Recreational vehicles PCE, ER	2.0		2.0	
Heavy vehicle adjustment, fHV	0.971		0.971	
Flow rate, vp	283	pcphpl	864	pcphpl

RESULTS

Direction	1		2	
Flow rate, vp	283	pcphpl	864	pcphpl
Free-flow speed, FFS	56.0	mph	56.0	mph
Avg. passenger-car travel speed, S	55.0	mph	55.0	mph
Level of service, LOS	A		B	
Density, D	5.1	pc/mi/ln	15.7	pc/mi/ln

Bicycle Level of Service

Posted speed limit, Sp	55	55
Percent of segment with occupied on-highway parking	0	0
Pavement rating, P	3	3
Flow rate in outside lane, vOL	275.0	838.9
Effective width of outside lane, We	24.00	24.00
Effective speed factor, St	4.79	4.79
Bicycle LOS Score, BLOS	2.21	2.77
Bicycle LOS	B	C

Overall results are not computed when free-flow speed is less than 45 mph.

Phone: Fax:
E-mail:

OPERATIONAL ANALYSIS

Analyst:	CEB
Agency/Co:	VHB
Date:	4/9/2018
Analysis Period:	AM
Highway:	NC 54
From/To:	Dodsons Cross/Bethel Hickory
Jurisdiction:	Orange County
Analysis Year:	2045
Project ID:	Capacity Analysis - NC 54 (West of Bethel Hickory)

FREE-FLOW SPEED

Direction	1		2	
Lane width	12.0	ft	12.0	ft
Lateral clearance:				
Right edge	6.0	ft	6.0	ft
Left edge	6.0	ft	6.0	ft
Total lateral clearance	12.0	ft	12.0	ft
Access points per mile	16		16	
Median type	Divided		Divided	
Free-flow speed:	Base		Base	
FFS or BFFS	60.0	mph	60.0	mph
Lane width adjustment, FLW	0.0	mph	0.0	mph
Lateral clearance adjustment, FLC	0.0	mph	0.0	mph
Median type adjustment, FM	0.0	mph	0.0	mph
Access points adjustment, FA	4.0	mph	4.0	mph
Free-flow speed	56.0	mph	56.0	mph

VOLUME

Direction	1		2	
Volume, V	1640	vph	469	vph
Peak-hour factor, PHF	0.90		0.90	
Peak 15-minute volume, v15	456		130	
Trucks and buses	2	%	2	%
Recreational vehicles	0	%	0	%
Terrain type	Rolling		Rolling	
Grade	0.00	%	0.00	%
Segment length	0.00	mi	0.00	mi
Number of lanes	2		2	
Driver population adjustment, fP	1.00		1.00	
Trucks and buses PCE, ET	2.5		2.5	
Recreational vehicles PCE, ER	2.0		2.0	
Heavy vehicle adjustment, fHV	0.971		0.971	
Flow rate, vp	938	pcphpl	268	pcphpl

RESULTS

Direction	1		2	
Flow rate, vp	938	pcphpl	268	pcphpl
Free-flow speed, FFS	56.0	mph	56.0	mph
Avg. passenger-car travel speed, S	55.0	mph	55.0	mph
Level of service, LOS	B		A	
Density, D	17.1	pc/mi/ln	4.9	pc/mi/ln

Bicycle Level of Service

Posted speed limit, Sp	55	55
Percent of segment with occupied on-highway parking	0	0
Pavement rating, P	3	3
Flow rate in outside lane, vOL	911.1	260.6
Effective width of outside lane, We	24.00	24.00
Effective speed factor, St	4.79	4.79
Bicycle LOS Score, BLOS	2.81	2.18
Bicycle LOS	C	B

Overall results are not computed when free-flow speed is less than 45 mph.

Phone: Fax:
E-mail:

OPERATIONAL ANALYSIS

Analyst:	CEB
Agency/Co:	VHB
Date:	4/9/2018
Analysis Period:	PM
Highway:	NC 54
From/To:	Dodsons Cross/Bethel Hickory
Jurisdiction:	Orange County
Analysis Year:	2045
Project ID:	Capacity Analysis - NC 54 (West of Bethel Hickory)

FREE-FLOW SPEED

Direction	1		2	
Lane width	12.0	ft	12.0	ft
Lateral clearance:				
Right edge	6.0	ft	6.0	ft
Left edge	6.0	ft	6.0	ft
Total lateral clearance	12.0	ft	12.0	ft
Access points per mile	16		16	
Median type	Divided		Divided	
Free-flow speed:	Base		Base	
FFS or BFFS	60.0	mph	60.0	mph
Lane width adjustment, FLW	0.0	mph	0.0	mph
Lateral clearance adjustment, FLC	0.0	mph	0.0	mph
Median type adjustment, FM	0.0	mph	0.0	mph
Access points adjustment, FA	4.0	mph	4.0	mph
Free-flow speed	56.0	mph	56.0	mph

VOLUME

Direction	1		2	
Volume, V	530	vph	1592	vph
Peak-hour factor, PHF	0.90		0.90	
Peak 15-minute volume, v15	147		442	
Trucks and buses	2	%	2	%
Recreational vehicles	0	%	0	%
Terrain type	Rolling		Rolling	
Grade	0.00	%	0.00	%
Segment length	0.00	mi	0.00	mi
Number of lanes	2		2	
Driver population adjustment, fP	1.00		1.00	
Trucks and buses PCE, ET	2.5		2.5	
Recreational vehicles PCE, ER	2.0		2.0	
Heavy vehicle adjustment, fHV	0.971		0.971	
Flow rate, vp	303	pcphpl	910	pcphpl

RESULTS

Direction	1		2	
Flow rate, vp	303	pcphpl	910	pcphpl
Free-flow speed, FFS	56.0	mph	56.0	mph
Avg. passenger-car travel speed, S	55.0	mph	55.0	mph
Level of service, LOS	A		B	
Density, D	5.5	pc/mi/ln	16.5	pc/mi/ln

Bicycle Level of Service

Posted speed limit, Sp	55	55
Percent of segment with occupied on-highway parking	0	0
Pavement rating, P	3	3
Flow rate in outside lane, vOL	294.4	884.4
Effective width of outside lane, We	24.00	24.00
Effective speed factor, St	4.79	4.79
Bicycle LOS Score, BLOS	2.24	2.80
Bicycle LOS	B	C

Overall results are not computed when free-flow speed is less than 45 mph.

Phone: Fax:
E-mail:

OPERATIONAL ANALYSIS

Analyst: CEB
Agency/Co: VHB
Date: 4/9/2018
Analysis Period: AM
Highway: NC 54
From/To: Dodsons Cross/Bethel Hickory
Jurisdiction: Orange County
Analysis Year: 2045
Project ID: Capacity Analysis - NC 54 (East of Dodsons Crossing)

FREE-FLOW SPEED

Direction	1		2	
Lane width	12.0	ft	12.0	ft
Lateral clearance:				
Right edge	6.0	ft	6.0	ft
Left edge	6.0	ft	6.0	ft
Total lateral clearance	12.0	ft	12.0	ft
Access points per mile	16		16	
Median type	Divided		Divided	
Free-flow speed:	Base		Base	
FFS or BFFS	60.0	mph	60.0	mph
Lane width adjustment, FLW	0.0	mph	0.0	mph
Lateral clearance adjustment, FLC	0.0	mph	0.0	mph
Median type adjustment, FM	0.0	mph	0.0	mph
Access points adjustment, FA	4.0	mph	4.0	mph
Free-flow speed	56.0	mph	56.0	mph

VOLUME

Direction	1		2	
Volume, V	1584	vph	476	vph
Peak-hour factor, PHF	0.90		0.90	
Peak 15-minute volume, v15	440		132	
Trucks and buses	2	%	2	%
Recreational vehicles	0	%	0	%
Terrain type	Rolling		Rolling	
Grade	0.00	%	0.00	%
Segment length	0.00	mi	0.00	mi
Number of lanes	2		2	
Driver population adjustment, fP	1.00		1.00	
Trucks and buses PCE, ET	2.5		2.5	
Recreational vehicles PCE, ER	2.0		2.0	
Heavy vehicle adjustment, fHV	0.971		0.971	
Flow rate, vp	906	pcphpl	272	pcphpl

RESULTS

Direction	1		2	
Flow rate, vp	906	pcphpl	272	pcphpl
Free-flow speed, FFS	56.0	mph	56.0	mph
Avg. passenger-car travel speed, S	55.0	mph	55.0	mph
Level of service, LOS	B		A	
Density, D	16.5	pc/mi/ln	4.9	pc/mi/ln

Bicycle Level of Service

Posted speed limit, Sp	55	55
Percent of segment with occupied on-highway parking	0	0
Pavement rating, P	3	3
Flow rate in outside lane, vOL	880.0	264.4
Effective width of outside lane, We	24.00	24.00
Effective speed factor, St	4.79	4.79
Bicycle LOS Score, BLOS	2.80	2.19
Bicycle LOS	C	B

Overall results are not computed when free-flow speed is less than 45 mph.

Phone: Fax:
E-mail:

OPERATIONAL ANALYSIS

Analyst:	CEB
Agency/Co:	VHB
Date:	4/9/2018
Analysis Period:	PM
Highway:	NC 54
From/To:	Dodsons Cross/Bethel Hickory
Jurisdiction:	Orange County
Analysis Year:	2045
Project ID:	Capacity Analysis - NC 54 (East of Dodsons Crossing)

FREE-FLOW SPEED

Direction	1		2	
Lane width	12.0	ft	12.0	ft
Lateral clearance:				
Right edge	6.0	ft	6.0	ft
Left edge	6.0	ft	6.0	ft
Total lateral clearance	12.0	ft	12.0	ft
Access points per mile	16		16	
Median type	Divided		Divided	
Free-flow speed:	Base		Base	
FFS or BFFS	60.0	mph	60.0	mph
Lane width adjustment, FLW	0.0	mph	0.0	mph
Lateral clearance adjustment, FLC	0.0	mph	0.0	mph
Median type adjustment, FM	0.0	mph	0.0	mph
Access points adjustment, FA	4.0	mph	4.0	mph
Free-flow speed	56.0	mph	56.0	mph

VOLUME

Direction	1		2	
Volume, V	470	vph	1604	vph
Peak-hour factor, PHF	0.90		0.90	
Peak 15-minute volume, v15	131		446	
Trucks and buses	2	%	2	%
Recreational vehicles	0	%	0	%
Terrain type	Rolling		Rolling	
Grade	0.00	%	0.00	%
Segment length	0.00	mi	0.00	mi
Number of lanes	2		2	
Driver population adjustment, fP	1.00		1.00	
Trucks and buses PCE, ET	2.5		2.5	
Recreational vehicles PCE, ER	2.0		2.0	
Heavy vehicle adjustment, fHV	0.971		0.971	
Flow rate, vp	268	pcphpl	917	pcphpl

RESULTS

Direction	1		2	
Flow rate, vp	268	pcphpl	917	pcphpl
Free-flow speed, FFS	56.0	mph	56.0	mph
Avg. passenger-car travel speed, S	55.0	mph	55.0	mph
Level of service, LOS	A		B	
Density, D	4.9	pc/mi/ln	16.7	pc/mi/ln

Bicycle Level of Service

Posted speed limit, Sp	55	55
Percent of segment with occupied on-highway parking	0	0
Pavement rating, P	3	3
Flow rate in outside lane, vOL	261.1	891.1
Effective width of outside lane, We	24.00	24.00
Effective speed factor, St	4.79	4.79
Bicycle LOS Score, BLOS	2.18	2.80
Bicycle LOS	B	C

Overall results are not computed when free-flow speed is less than 45 mph.

Phone: Fax:
E-mail:

OPERATIONAL ANALYSIS

Analyst:	CEB
Agency/Co:	VHB
Date:	4/9/2018
Analysis Period:	AM
Highway:	NC 54
From/To:	Orange Grove Rd/Dodsons Cross
Jurisdiction:	Orange County
Analysis Year:	2045
Project ID:	Capacity Analysis - NC 54 (West of Dodsons Crossing)

FREE-FLOW SPEED

Direction	1		2	
Lane width	12.0	ft	12.0	ft
Lateral clearance:				
Right edge	6.0	ft	6.0	ft
Left edge	6.0	ft	6.0	ft
Total lateral clearance	12.0	ft	12.0	ft
Access points per mile	16		16	
Median type	Divided		Divided	
Free-flow speed:	Base		Base	
FFS or BFFS	60.0	mph	60.0	mph
Lane width adjustment, FLW	0.0	mph	0.0	mph
Lateral clearance adjustment, FLC	0.0	mph	0.0	mph
Median type adjustment, FM	0.0	mph	0.0	mph
Access points adjustment, FA	4.0	mph	4.0	mph
Free-flow speed	56.0	mph	56.0	mph

VOLUME

Direction	1		2	
Volume, V	1450	vph	470	vph
Peak-hour factor, PHF	0.90		0.90	
Peak 15-minute volume, v15	403		131	
Trucks and buses	2	%	2	%
Recreational vehicles	0	%	0	%
Terrain type	Rolling		Rolling	
Grade	0.00	%	0.00	%
Segment length	0.00	mi	0.00	mi
Number of lanes	2		2	
Driver population adjustment, fP	1.00		1.00	
Trucks and buses PCE, ET	2.5		2.5	
Recreational vehicles PCE, ER	2.0		2.0	
Heavy vehicle adjustment, fHV	0.971		0.971	
Flow rate, vp	829	pcphpl	268	pcphpl

RESULTS

Direction	1		2	
Flow rate, vp	829	pcphpl	268	pcphpl
Free-flow speed, FFS	56.0	mph	56.0	mph
Avg. passenger-car travel speed, S	55.0	mph	55.0	mph
Level of service, LOS	B		A	
Density, D	15.1	pc/mi/ln	4.9	pc/mi/ln

Bicycle Level of Service

Posted speed limit, Sp	55	55
Percent of segment with occupied on-highway parking	0	0
Pavement rating, P	3	3
Flow rate in outside lane, vOL	805.6	261.1
Effective width of outside lane, We	24.00	24.00
Effective speed factor, St	4.79	4.79
Bicycle LOS Score, BLOS	2.75	2.18
Bicycle LOS	C	B

Overall results are not computed when free-flow speed is less than 45 mph.

Phone: Fax:
E-mail:

OPERATIONAL ANALYSIS

Analyst:	CEB
Agency/Co:	VHB
Date:	4/9/2018
Analysis Period:	PM
Highway:	NC 54
From/To:	Orange Grove Rd/Dodsons Cross
Jurisdiction:	Orange County
Analysis Year:	2045
Project ID:	Capacity Analysis - NC 54 (West of Dodsons Crossing)

FREE-FLOW SPEED

Direction	1		2	
Lane width	12.0	ft	12.0	ft
Lateral clearance:				
Right edge	6.0	ft	6.0	ft
Left edge	6.0	ft	6.0	ft
Total lateral clearance	12.0	ft	12.0	ft
Access points per mile	16		16	
Median type	Divided		Divided	
Free-flow speed:	Base		Base	
FFS or BFFS	60.0	mph	60.0	mph
Lane width adjustment, FLW	0.0	mph	0.0	mph
Lateral clearance adjustment, FLC	0.0	mph	0.0	mph
Median type adjustment, FM	0.0	mph	0.0	mph
Access points adjustment, FA	4.0	mph	4.0	mph
Free-flow speed	56.0	mph	56.0	mph

VOLUME

Direction	1		2	
Volume, V	440	vph	1501	vph
Peak-hour factor, PHF	0.90		0.90	
Peak 15-minute volume, v15	122		417	
Trucks and buses	2	%	2	%
Recreational vehicles	0	%	0	%
Terrain type	Rolling		Rolling	
Grade	0.00	%	0.00	%
Segment length	0.00	mi	0.00	mi
Number of lanes	2		2	
Driver population adjustment, fP	1.00		1.00	
Trucks and buses PCE, ET	2.5		2.5	
Recreational vehicles PCE, ER	2.0		2.0	
Heavy vehicle adjustment, fHV	0.971		0.971	
Flow rate, vp	251	pcphpl	858	pcphpl

RESULTS

Direction	1		2	
Flow rate, vp	251	pcphpl	858	pcphpl
Free-flow speed, FFS	56.0	mph	56.0	mph
Avg. passenger-car travel speed, S	55.0	mph	55.0	mph
Level of service, LOS	A		B	
Density, D	4.6	pc/mi/ln	15.6	pc/mi/ln

Bicycle Level of Service

Posted speed limit, Sp	55	55
Percent of segment with occupied on-highway parking	0	0
Pavement rating, P	3	3
Flow rate in outside lane, vOL	244.4	833.9
Effective width of outside lane, We	24.00	24.00
Effective speed factor, St	4.79	4.79
Bicycle LOS Score, BLOS	2.15	2.77
Bicycle LOS	B	C

Overall results are not computed when free-flow speed is less than 45 mph.

Phone: Fax:
E-mail:

OPERATIONAL ANALYSIS

Analyst:	CEB
Agency/Co:	VHB
Date:	4/9/2018
Analysis Period:	AM
Highway:	NC 54
From/To:	Mebane Oaks Rd/Orange Grove Rd
Jurisdiction:	Orange County
Analysis Year:	2045
Project ID:	Capacity Analysis - NC 54 (East of Mebane Oaks) (2EB,1WB)

FREE-FLOW SPEED

Direction	1		2	
Lane width	12.0	ft	12.0	ft
Lateral clearance:				
Right edge	6.0	ft	6.0	ft
Left edge	6.0	ft	6.0	ft
Total lateral clearance	12.0	ft	12.0	ft
Access points per mile	16		16	
Median type	Divided		Divided	
Free-flow speed:	Base		Base	
FFS or BFFS	60.0	mph	60.0	mph
Lane width adjustment, FLW	0.0	mph	0.0	mph
Lateral clearance adjustment, FLC	0.0	mph	0.0	mph
Median type adjustment, FM	0.0	mph	0.0	mph
Access points adjustment, FA	4.0	mph	4.0	mph
Free-flow speed	56.0	mph	56.0	mph

VOLUME

Direction	1		2	
Volume, V	1212	vph	896	vph
Peak-hour factor, PHF	0.90		0.90	
Peak 15-minute volume, v15	337		249	
Trucks and buses	2	%	2	%
Recreational vehicles	0	%	0	%
Terrain type	Rolling		Rolling	
Grade	0.00	%	0.00	%
Segment length	0.00	mi	0.00	mi
Number of lanes	2		2	
Driver population adjustment, fP	1.00		1.00	
Trucks and buses PCE, ET	2.5		2.5	
Recreational vehicles PCE, ER	2.0		2.0	
Heavy vehicle adjustment, fHV	0.971		0.971	
Flow rate, vp	693	pcphpl	512	pcphpl

RESULTS

Direction	1		2	
Flow rate, vp	693	pcphpl	512	pcphpl
Free-flow speed, FFS	56.0	mph	56.0	mph
Avg. passenger-car travel speed, S	55.0	mph	55.0	mph
Level of service, LOS	B		A	
Density, D	12.6	pc/mi/ln	9.3	pc/mi/ln

Bicycle Level of Service

Posted speed limit, Sp	55	55
Percent of segment with occupied on-highway parking	0	0
Pavement rating, P	3	3
Flow rate in outside lane, vOL	673.3	497.8
Effective width of outside lane, We	24.00	24.00
Effective speed factor, St	4.79	4.79
Bicycle LOS Score, BLOS	2.66	2.51
Bicycle LOS	C	C

Overall results are not computed when free-flow speed is less than 45 mph.

Phone: Fax:
E-mail:

OPERATIONAL ANALYSIS

Analyst:	CEB
Agency/Co:	VHB
Date:	4/9/2018
Analysis Period:	PM
Highway:	NC 54
From/To:	Mebane Oaks Rd/Orange Grove Rd
Jurisdiction:	Orange County
Analysis Year:	2045
Project ID:	Capacity Analysis - NC 54 (East of Mebane Oaks) (2EB,1WB)

FREE-FLOW SPEED

Direction	1		2	
Lane width	12.0	ft	12.0	ft
Lateral clearance:				
Right edge	6.0	ft	6.0	ft
Left edge	6.0	ft	6.0	ft
Total lateral clearance	12.0	ft	12.0	ft
Access points per mile	16		16	
Median type	Divided		Divided	
Free-flow speed:	Base		Base	
FFS or BFFS	60.0	mph	60.0	mph
Lane width adjustment, FLW	0.0	mph	0.0	mph
Lateral clearance adjustment, FLC	0.0	mph	0.0	mph
Median type adjustment, FM	0.0	mph	0.0	mph
Access points adjustment, FA	4.0	mph	4.0	mph
Free-flow speed	56.0	mph	56.0	mph

VOLUME

Direction	1		2	
Volume, V	396	vph	2556	vph
Peak-hour factor, PHF	0.90		0.90	
Peak 15-minute volume, v15	110		710	
Trucks and buses	2	%	2	%
Recreational vehicles	0	%	0	%
Terrain type	Rolling		Rolling	
Grade	0.00	%	0.00	%
Segment length	0.00	mi	0.00	mi
Number of lanes	2		2	
Driver population adjustment, fP	1.00		1.00	
Trucks and buses PCE, ET	2.5		2.5	
Recreational vehicles PCE, ER	2.0		2.0	
Heavy vehicle adjustment, fHV	0.971		0.971	
Flow rate, vp	226	pcphpl	1462	pcphpl

RESULTS

Direction	1		2	
Flow rate, vp	226	pcphpl	1462	pcphpl
Free-flow speed, FFS	56.0	mph	56.0	mph
Avg. passenger-car travel speed, S	55.0	mph	54.8	mph
Level of service, LOS	A		D	
Density, D	4.1	pc/mi/ln	26.7	pc/mi/ln

Bicycle Level of Service

Posted speed limit, Sp	55	55
Percent of segment with occupied on-highway parking	0	0
Pavement rating, P	3	3
Flow rate in outside lane, vOL	220.0	1420.0
Effective width of outside lane, We	24.00	24.00
Effective speed factor, St	4.79	4.79
Bicycle LOS Score, BLOS	2.09	3.04
Bicycle LOS	B	C

Overall results are not computed when free-flow speed is less than 45 mph.

Phone: Fax:
E-mail:

OPERATIONAL ANALYSIS

Analyst: CEB
Agency/Co: VHB
Date: 4/9/2018
Analysis Period: AM
Highway: NC 54
From/To: Mt Willen Rd/Mebane Oaks Rd
Jurisdiction: Orange County
Analysis Year: 2045
Project ID: Capacity Analysis - NC 54 (West of Mebane Oaks) (2EB,1WB)

FREE-FLOW SPEED

Direction	1		2	
Lane width	12.0	ft	12.0	ft
Lateral clearance:				
Right edge	6.0	ft	6.0	ft
Left edge	6.0	ft	6.0	ft
Total lateral clearance	12.0	ft	12.0	ft
Access points per mile	16		16	
Median type	Divided		Divided	
Free-flow speed:	Base		Base	
FFS or BFFS	60.0	mph	60.0	mph
Lane width adjustment, FLW	0.0	mph	0.0	mph
Lateral clearance adjustment, FLC	0.0	mph	0.0	mph
Median type adjustment, FM	0.0	mph	0.0	mph
Access points adjustment, FA	4.0	mph	4.0	mph
Free-flow speed	56.0	mph	56.0	mph

VOLUME

Direction	1		2	
Volume, V	819	vph	738	vph
Peak-hour factor, PHF	0.90		0.90	
Peak 15-minute volume, v15	228		205	
Trucks and buses	2	%	2	%
Recreational vehicles	0	%	0	%
Terrain type	Rolling		Rolling	
Grade	0.00	%	0.00	%
Segment length	0.00	mi	0.00	mi
Number of lanes	2		2	
Driver population adjustment, fP	1.00		1.00	
Trucks and buses PCE, ET	2.5		2.5	
Recreational vehicles PCE, ER	2.0		2.0	
Heavy vehicle adjustment, fHV	0.971		0.971	
Flow rate, vp	468	pcphpl	422	pcphpl

RESULTS

Direction	1		2	
Flow rate, vp	468	pcphpl	422	pcphpl
Free-flow speed, FFS	56.0	mph	56.0	mph
Avg. passenger-car travel speed, S	55.0	mph	55.0	mph
Level of service, LOS	A		A	
Density, D	8.5	pc/mi/ln	7.7	pc/mi/ln

Bicycle Level of Service

Posted speed limit, Sp	55	55
Percent of segment with occupied on-highway parking	0	0
Pavement rating, P	3	3
Flow rate in outside lane, vOL	455.0	410.0
Effective width of outside lane, We	24.00	24.00
Effective speed factor, St	4.79	4.79
Bicycle LOS Score, BLOS	2.46	2.41
Bicycle LOS	B	B

Overall results are not computed when free-flow speed is less than 45 mph.

Phone: Fax:
E-mail:

OPERATIONAL ANALYSIS

Analyst:	CEB
Agency/Co:	VHB
Date:	4/9/2018
Analysis Period:	AM
Highway:	NC 54
From/To:	Mt Willen Rd/Mebane Oaks Rd
Jurisdiction:	Orange County
Analysis Year:	2045
Project ID:	Capacity Analysis - NC 54 (West of Mebane Oaks) (2WB,1EB)

FREE-FLOW SPEED

Direction	1		2	
Lane width	12.0	ft	12.0	ft
Lateral clearance:				
Right edge	6.0	ft	6.0	ft
Left edge	6.0	ft	6.0	ft
Total lateral clearance	12.0	ft	12.0	ft
Access points per mile	16		16	
Median type	Divided		Divided	
Free-flow speed:	Base		Base	
FFS or BFFS	60.0	mph	60.0	mph
Lane width adjustment, FLW	0.0	mph	0.0	mph
Lateral clearance adjustment, FLC	0.0	mph	0.0	mph
Median type adjustment, FM	0.0	mph	0.0	mph
Access points adjustment, FA	4.0	mph	4.0	mph
Free-flow speed	56.0	mph	56.0	mph

VOLUME

Direction	1		2	
Volume, V	1638	vph	369	vph
Peak-hour factor, PHF	0.90		0.90	
Peak 15-minute volume, v15	455		103	
Trucks and buses	2	%	2	%
Recreational vehicles	0	%	0	%
Terrain type	Rolling		Rolling	
Grade	0.00	%	0.00	%
Segment length	0.00	mi	0.00	mi
Number of lanes	2		2	
Driver population adjustment, fP	1.00		1.00	
Trucks and buses PCE, ET	2.5		2.5	
Recreational vehicles PCE, ER	2.0		2.0	
Heavy vehicle adjustment, fHV	0.971		0.971	
Flow rate, vp	937	pcphpl	211	pcphpl

RESULTS

Direction	1		2	
Flow rate, vp	937	pcphpl	211	pcphpl
Free-flow speed, FFS	56.0	mph	56.0	mph
Avg. passenger-car travel speed, S	55.0	mph	55.0	mph
Level of service, LOS	B		A	
Density, D	17.0	pc/mi/ln	3.8	pc/mi/ln

Bicycle Level of Service

Posted speed limit, Sp	55	55
Percent of segment with occupied on-highway parking	0	0
Pavement rating, P	3	3
Flow rate in outside lane, vOL	910.0	205.0
Effective width of outside lane, We	24.00	24.00
Effective speed factor, St	4.79	4.79
Bicycle LOS Score, BLOS	2.81	2.06
Bicycle LOS	C	B

Overall results are not computed when free-flow speed is less than 45 mph.

Phone: Fax:
E-mail:

OPERATIONAL ANALYSIS

Analyst:	CEB
Agency/Co:	VHB
Date:	4/9/2018
Analysis Period:	PM
Highway:	NC 54
From/To:	Mt Willen Rd/Mebane Oaks Rd
Jurisdiction:	Orange County
Analysis Year:	2045
Project ID:	Capacity Analysis - NC 54 (West of Mebane Oaks) (2EB,1WB)

FREE-FLOW SPEED

Direction	1		2	
Lane width	12.0	ft	12.0	ft
Lateral clearance:				
Right edge	6.0	ft	6.0	ft
Left edge	6.0	ft	6.0	ft
Total lateral clearance	12.0	ft	12.0	ft
Access points per mile	16		16	
Median type	Divided		Divided	
Free-flow speed:	Base		Base	
FFS or BFFS	60.0	mph	60.0	mph
Lane width adjustment, FLW	0.0	mph	0.0	mph
Lateral clearance adjustment, FLC	0.0	mph	0.0	mph
Median type adjustment, FM	0.0	mph	0.0	mph
Access points adjustment, FA	4.0	mph	4.0	mph
Free-flow speed	56.0	mph	56.0	mph

VOLUME

Direction	1		2	
Volume, V	273	vph	1788	vph
Peak-hour factor, PHF	0.90		0.90	
Peak 15-minute volume, v15	76		497	
Trucks and buses	2	%	2	%
Recreational vehicles	0	%	0	%
Terrain type	Rolling		Rolling	
Grade	0.00	%	0.00	%
Segment length	0.00	mi	0.00	mi
Number of lanes	2		2	
Driver population adjustment, fP	1.00		1.00	
Trucks and buses PCE, ET	2.5		2.5	
Recreational vehicles PCE, ER	2.0		2.0	
Heavy vehicle adjustment, fHV	0.971		0.971	
Flow rate, vp	156	pcphpl	1023	pcphpl

RESULTS

Direction	1		2	
Flow rate, vp	156	pcphpl	1023	pcphpl
Free-flow speed, FFS	56.0	mph	56.0	mph
Avg. passenger-car travel speed, S	55.0	mph	55.0	mph
Level of service, LOS	A		C	
Density, D	2.8	pc/mi/ln	18.6	pc/mi/ln

Bicycle Level of Service

Posted speed limit, Sp	55	55
Percent of segment with occupied on-highway parking	0	0
Pavement rating, P	3	3
Flow rate in outside lane, vOL	151.7	993.3
Effective width of outside lane, We	24.00	24.00
Effective speed factor, St	4.79	4.79
Bicycle LOS Score, BLOS	1.91	2.86
Bicycle LOS	B	C

Overall results are not computed when free-flow speed is less than 45 mph.

Phone: Fax:
E-mail:

OPERATIONAL ANALYSIS

Analyst:	CEB
Agency/Co:	VHB
Date:	4/9/2018
Analysis Period:	PM
Highway:	NC 54
From/To:	Mt Willen Rd/Mebane Oaks Rd
Jurisdiction:	Orange County
Analysis Year:	2045
Project ID:	Capacity Analysis - NC 54 (West of Mebane Oaks) (2WB,1EB)

FREE-FLOW SPEED

Direction	1		2	
Lane width	12.0	ft	12.0	ft
Lateral clearance:				
Right edge	6.0	ft	6.0	ft
Left edge	6.0	ft	6.0	ft
Total lateral clearance	12.0	ft	12.0	ft
Access points per mile	16		16	
Median type	Divided		Divided	
Free-flow speed:	Base		Base	
FFS or BFFS	60.0	mph	60.0	mph
Lane width adjustment, FLW	0.0	mph	0.0	mph
Lateral clearance adjustment, FLC	0.0	mph	0.0	mph
Median type adjustment, FM	0.0	mph	0.0	mph
Access points adjustment, FA	4.0	mph	4.0	mph
Free-flow speed	56.0	mph	56.0	mph

VOLUME

Direction	1		2	
Volume, V	546	vph	894	vph
Peak-hour factor, PHF	0.90		0.90	
Peak 15-minute volume, v15	152		248	
Trucks and buses	2	%	2	%
Recreational vehicles	0	%	0	%
Terrain type	Rolling		Rolling	
Grade	0.00	%	0.00	%
Segment length	0.00	mi	0.00	mi
Number of lanes	2		2	
Driver population adjustment, fP	1.00		1.00	
Trucks and buses PCE, ET	2.5		2.5	
Recreational vehicles PCE, ER	2.0		2.0	
Heavy vehicle adjustment, fHV	0.971		0.971	
Flow rate, vp	312	pcphpl	511	pcphpl

RESULTS

Direction	1		2	
Flow rate, vp	312	pcphpl	511	pcphpl
Free-flow speed, FFS	56.0	mph	56.0	mph
Avg. passenger-car travel speed, S	55.0	mph	55.0	mph
Level of service, LOS	A		A	
Density, D	5.7	pc/mi/ln	9.3	pc/mi/ln

Bicycle Level of Service

Posted speed limit, Sp	55	55
Percent of segment with occupied on-highway parking	0	0
Pavement rating, P	3	3
Flow rate in outside lane, vOL	303.3	496.7
Effective width of outside lane, We	24.00	24.00
Effective speed factor, St	4.79	4.79
Bicycle LOS Score, BLOS	2.26	2.51
Bicycle LOS	B	C

Overall results are not computed when free-flow speed is less than 45 mph.

Phone: Fax:
E-mail:

OPERATIONAL ANALYSIS

Analyst:	CEB
Agency/Co:	VHB
Date:	4/9/2018
Analysis Period:	AM
Highway:	NC 54
From/To:	Mt Willen Rd/Mebane Oaks Rd
Jurisdiction:	Alamance County/Orange County
Analysis Year:	2045
Project ID:	Capacity Analysis - NC 54 (East of Mt Willen)

FREE-FLOW SPEED

Direction	1		2	
Lane width	12.0	ft	12.0	ft
Lateral clearance:				
Right edge	6.0	ft	6.0	ft
Left edge	6.0	ft	6.0	ft
Total lateral clearance	12.0	ft	12.0	ft
Access points per mile	16		16	
Median type	Divided		Divided	
Free-flow speed:	Base		Base	
FFS or BFFS	60.0	mph	60.0	mph
Lane width adjustment, FLW	0.0	mph	0.0	mph
Lateral clearance adjustment, FLC	0.0	mph	0.0	mph
Median type adjustment, FM	0.0	mph	0.0	mph
Access points adjustment, FA	4.0	mph	4.0	mph
Free-flow speed	56.0	mph	56.0	mph

VOLUME

Direction	1		2	
Volume, V	859	vph	533	vph
Peak-hour factor, PHF	0.90		0.90	
Peak 15-minute volume, v15	239		148	
Trucks and buses	2	%	2	%
Recreational vehicles	0	%	0	%
Terrain type	Rolling		Rolling	
Grade	0.00	%	0.00	%
Segment length	0.00	mi	0.00	mi
Number of lanes	2		2	
Driver population adjustment, fP	1.00		1.00	
Trucks and buses PCE, ET	2.5		2.5	
Recreational vehicles PCE, ER	2.0		2.0	
Heavy vehicle adjustment, fHV	0.971		0.971	
Flow rate, vp	491	pcphpl	304	pcphpl

RESULTS

Direction	1		2	
Flow rate, vp	491	pcphpl	304	pcphpl
Free-flow speed, FFS	56.0	mph	56.0	mph
Avg. passenger-car travel speed, S	55.0	mph	55.0	mph
Level of service, LOS	A		A	
Density, D	8.9	pc/mi/ln	5.5	pc/mi/ln

Bicycle Level of Service

Posted speed limit, Sp	55	55
Percent of segment with occupied on-highway parking	0	0
Pavement rating, P	3	3
Flow rate in outside lane, vOL	477.2	296.1
Effective width of outside lane, We	24.00	24.00
Effective speed factor, St	4.79	4.79
Bicycle LOS Score, BLOS	2.49	2.24
Bicycle LOS	B	B

Overall results are not computed when free-flow speed is less than 45 mph.

Phone: Fax:
E-mail:

OPERATIONAL ANALYSIS

Analyst:	CEB
Agency/Co:	VHB
Date:	4/9/2018
Analysis Period:	PM
Highway:	NC 54
From/To:	Mt Willen Rd/Mebane Oaks Rd
Jurisdiction:	Alamance County/Orange County
Analysis Year:	2045
Project ID:	Capacity Analysis - NC 54 (East of Mt Willen)

FREE-FLOW SPEED

Direction	1		2	
Lane width	12.0	ft	12.0	ft
Lateral clearance:				
Right edge	6.0	ft	6.0	ft
Left edge	6.0	ft	6.0	ft
Total lateral clearance	12.0	ft	12.0	ft
Access points per mile	16		16	
Median type	Divided		Divided	
Free-flow speed:	Base		Base	
FFS or BFFS	60.0	mph	60.0	mph
Lane width adjustment, FLW	0.0	mph	0.0	mph
Lateral clearance adjustment, FLC	0.0	mph	0.0	mph
Median type adjustment, FM	0.0	mph	0.0	mph
Access points adjustment, FA	4.0	mph	4.0	mph
Free-flow speed	56.0	mph	56.0	mph

VOLUME

Direction	1		2	
Volume, V	410	vph	976	vph
Peak-hour factor, PHF	0.90		0.90	
Peak 15-minute volume, v15	114		271	
Trucks and buses	2	%	2	%
Recreational vehicles	0	%	0	%
Terrain type	Rolling		Rolling	
Grade	0.00	%	0.00	%
Segment length	0.00	mi	0.00	mi
Number of lanes	2		2	
Driver population adjustment, fP	1.00		1.00	
Trucks and buses PCE, ET	2.5		2.5	
Recreational vehicles PCE, ER	2.0		2.0	
Heavy vehicle adjustment, fHV	0.971		0.971	
Flow rate, vp	234	pcphpl	558	pcphpl

RESULTS

Direction	1		2	
Flow rate, vp	234	pcphpl	558	pcphpl
Free-flow speed, FFS	56.0	mph	56.0	mph
Avg. passenger-car travel speed, S	55.0	mph	55.0	mph
Level of service, LOS	A		A	
Density, D	4.3	pc/mi/ln	10.1	pc/mi/ln

Bicycle Level of Service

Posted speed limit, Sp	55	55
Percent of segment with occupied on-highway parking	0	0
Pavement rating, P	3	3
Flow rate in outside lane, vOL	227.8	542.2
Effective width of outside lane, We	24.00	24.00
Effective speed factor, St	4.79	4.79
Bicycle LOS Score, BLOS	2.11	2.55
Bicycle LOS	B	C

Overall results are not computed when free-flow speed is less than 45 mph.

Phone: Fax:
E-mail:

OPERATIONAL ANALYSIS

Analyst:	CEB
Agency/Co:	VHB
Date:	4/9/2018
Analysis Period:	AM
Highway:	NC 54
From/To:	NC 119/Mt Willen Road
Jurisdiction:	Alamance County
Analysis Year:	2045
Project ID:	Capacity Analysis - NC 54 (West of Mt Willen)

FREE-FLOW SPEED

Direction	1		2	
Lane width	12.0	ft	12.0	ft
Lateral clearance:				
Right edge	6.0	ft	6.0	ft
Left edge	6.0	ft	6.0	ft
Total lateral clearance	12.0	ft	12.0	ft
Access points per mile	16		16	
Median type	Divided		Divided	
Free-flow speed:	Base		Base	
FFS or BFFS	60.0	mph	60.0	mph
Lane width adjustment, FLW	0.0	mph	0.0	mph
Lateral clearance adjustment, FLC	0.0	mph	0.0	mph
Median type adjustment, FM	0.0	mph	0.0	mph
Access points adjustment, FA	4.0	mph	4.0	mph
Free-flow speed	56.0	mph	56.0	mph

VOLUME

Direction	1		2	
Volume, V	824	vph	657	vph
Peak-hour factor, PHF	0.90		0.90	
Peak 15-minute volume, v15	229		183	
Trucks and buses	2	%	2	%
Recreational vehicles	0	%	0	%
Terrain type	Rolling		Rolling	
Grade	0.00	%	0.00	%
Segment length	0.00	mi	0.00	mi
Number of lanes	2		2	
Driver population adjustment, fP	1.00		1.00	
Trucks and buses PCE, ET	2.5		2.5	
Recreational vehicles PCE, ER	2.0		2.0	
Heavy vehicle adjustment, fHV	0.971		0.971	
Flow rate, vp	471	pcphpl	375	pcphpl

RESULTS

Direction	1		2	
Flow rate, vp	471	pcphpl	375	pcphpl
Free-flow speed, FFS	56.0	mph	56.0	mph
Avg. passenger-car travel speed, S	55.0	mph	55.0	mph
Level of service, LOS	A		A	
Density, D	8.6	pc/mi/ln	6.8	pc/mi/ln

Bicycle Level of Service

Posted speed limit, Sp	55	55
Percent of segment with occupied on-highway parking	0	0
Pavement rating, P	3	3
Flow rate in outside lane, vOL	457.8	365.0
Effective width of outside lane, We	24.00	24.00
Effective speed factor, St	4.79	4.79
Bicycle LOS Score, BLOS	2.47	2.35
Bicycle LOS	B	B

Overall results are not computed when free-flow speed is less than 45 mph.

Phone: Fax:
E-mail:

OPERATIONAL ANALYSIS

Analyst:	CEB
Agency/Co:	VHB
Date:	4/9/2018
Analysis Period:	PM
Highway:	NC 54
From/To:	NC 119/Mt Willen Road
Jurisdiction:	Alamance County
Analysis Year:	2045
Project ID:	Capacity Analysis - NC 54 (West of Mt Willen)

FREE-FLOW SPEED

Direction	1		2	
Lane width	12.0	ft	12.0	ft
Lateral clearance:				
Right edge	6.0	ft	6.0	ft
Left edge	6.0	ft	6.0	ft
Total lateral clearance	12.0	ft	12.0	ft
Access points per mile	16		16	
Median type	Divided		Divided	
Free-flow speed:	Base		Base	
FFS or BFFS	60.0	mph	60.0	mph
Lane width adjustment, FLW	0.0	mph	0.0	mph
Lateral clearance adjustment, FLC	0.0	mph	0.0	mph
Median type adjustment, FM	0.0	mph	0.0	mph
Access points adjustment, FA	4.0	mph	4.0	mph
Free-flow speed	56.0	mph	56.0	mph

VOLUME

Direction	1		2	
Volume, V	496	vph	977	vph
Peak-hour factor, PHF	0.90		0.90	
Peak 15-minute volume, v15	138		271	
Trucks and buses	2	%	2	%
Recreational vehicles	0	%	0	%
Terrain type	Rolling		Rolling	
Grade	0.00	%	0.00	%
Segment length	0.00	mi	0.00	mi
Number of lanes	2		2	
Driver population adjustment, fP	1.00		1.00	
Trucks and buses PCE, ET	2.5		2.5	
Recreational vehicles PCE, ER	2.0		2.0	
Heavy vehicle adjustment, fHV	0.971		0.971	
Flow rate, vp	283	pcphpl	559	pcphpl

RESULTS

Direction	1		2	
Flow rate, vp	283	pcphpl	559	pcphpl
Free-flow speed, FFS	56.0	mph	56.0	mph
Avg. passenger-car travel speed, S	55.0	mph	55.0	mph
Level of service, LOS	A		A	
Density, D	5.1	pc/mi/ln	10.2	pc/mi/ln

Bicycle Level of Service

Posted speed limit, Sp	55	55
Percent of segment with occupied on-highway parking	0	0
Pavement rating, P	3	3
Flow rate in outside lane, vOL	275.6	542.8
Effective width of outside lane, We	24.00	24.00
Effective speed factor, St	4.79	4.79
Bicycle LOS Score, BLOS	2.21	2.55
Bicycle LOS	B	C

Overall results are not computed when free-flow speed is less than 45 mph.

Phone: Fax:
E-mail:

OPERATIONAL ANALYSIS

Analyst:	CEB
Agency/Co:	VHB
Date:	4/9/2018
Analysis Period:	AM
Highway:	NC 54
From/To:	NC 119/Mt Willen Road
Jurisdiction:	Alamance County
Analysis Year:	2045
Project ID:	Capacity Analysis - NC 54 (East of NC 119)

FREE-FLOW SPEED

Direction	1		2	
Lane width	12.0	ft	12.0	ft
Lateral clearance:				
Right edge	6.0	ft	6.0	ft
Left edge	6.0	ft	6.0	ft
Total lateral clearance	12.0	ft	12.0	ft
Access points per mile	16		16	
Median type	Divided		Divided	
Free-flow speed:	Base		Base	
FFS or BFFS	60.0	mph	60.0	mph
Lane width adjustment, FLW	0.0	mph	0.0	mph
Lateral clearance adjustment, FLC	0.0	mph	0.0	mph
Median type adjustment, FM	0.0	mph	0.0	mph
Access points adjustment, FA	4.0	mph	4.0	mph
Free-flow speed	56.0	mph	56.0	mph

VOLUME

Direction	1		2	
Volume, V	922	vph	798	vph
Peak-hour factor, PHF	0.90		0.90	
Peak 15-minute volume, v15	256		222	
Trucks and buses	2	%	2	%
Recreational vehicles	0	%	0	%
Terrain type	Rolling		Rolling	
Grade	0.00	%	0.00	%
Segment length	0.00	mi	0.00	mi
Number of lanes	2		2	
Driver population adjustment, fP	1.00		1.00	
Trucks and buses PCE, ET	2.5		2.5	
Recreational vehicles PCE, ER	2.0		2.0	
Heavy vehicle adjustment, fHV	0.971		0.971	
Flow rate, vp	527	pcphpl	456	pcphpl

RESULTS

Direction	1		2	
Flow rate, vp	527	pcphpl	456	pcphpl
Free-flow speed, FFS	56.0	mph	56.0	mph
Avg. passenger-car travel speed, S	55.0	mph	55.0	mph
Level of service, LOS	A		A	
Density, D	9.6	pc/mi/ln	8.3	pc/mi/ln

Bicycle Level of Service

Posted speed limit, Sp	55	55
Percent of segment with occupied on-highway parking	0	0
Pavement rating, P	3	3
Flow rate in outside lane, vOL	512.2	443.3
Effective width of outside lane, We	24.00	24.00
Effective speed factor, St	4.79	4.79
Bicycle LOS Score, BLOS	2.52	2.45
Bicycle LOS	C	B

Overall results are not computed when free-flow speed is less than 45 mph.

Phone: Fax:
E-mail:

OPERATIONAL ANALYSIS

Analyst:	CEB
Agency/Co:	VHB
Date:	4/9/2018
Analysis Period:	PM
Highway:	NC 54
From/To:	NC 119/Mt Willen Road
Jurisdiction:	Alamance County
Analysis Year:	2045
Project ID:	Capacity Analysis - NC 54 (East of NC 119)

FREE-FLOW SPEED

Direction	1		2	
Lane width	12.0	ft	12.0	ft
Lateral clearance:				
Right edge	6.0	ft	6.0	ft
Left edge	6.0	ft	6.0	ft
Total lateral clearance	12.0	ft	12.0	ft
Access points per mile	16		16	
Median type	Divided		Divided	
Free-flow speed:	Base		Base	
FFS or BFFS	60.0	mph	60.0	mph
Lane width adjustment, FLW	0.0	mph	0.0	mph
Lateral clearance adjustment, FLC	0.0	mph	0.0	mph
Median type adjustment, FM	0.0	mph	0.0	mph
Access points adjustment, FA	4.0	mph	4.0	mph
Free-flow speed	56.0	mph	56.0	mph

VOLUME

Direction	1		2	
Volume, V	684	vph	1050	vph
Peak-hour factor, PHF	0.90		0.90	
Peak 15-minute volume, v15	190		292	
Trucks and buses	2	%	2	%
Recreational vehicles	0	%	0	%
Terrain type	Rolling		Rolling	
Grade	0.00	%	0.00	%
Segment length	0.00	mi	0.00	mi
Number of lanes	2		2	
Driver population adjustment, fP	1.00		1.00	
Trucks and buses PCE, ET	2.5		2.5	
Recreational vehicles PCE, ER	2.0		2.0	
Heavy vehicle adjustment, fHV	0.971		0.971	
Flow rate, vp	391	pcphpl	600	pcphpl

RESULTS

Direction	1		2	
Flow rate, vp	391	pcphpl	600	pcphpl
Free-flow speed, FFS	56.0	mph	56.0	mph
Avg. passenger-car travel speed, S	55.0	mph	55.0	mph
Level of service, LOS	A		A	
Density, D	7.1	pc/mi/ln	10.9	pc/mi/ln

Bicycle Level of Service

Posted speed limit, Sp	55	55
Percent of segment with occupied on-highway parking	0	0
Pavement rating, P	3	3
Flow rate in outside lane, vOL	380.0	583.3
Effective width of outside lane, We	24.00	24.00
Effective speed factor, St	4.79	4.79
Bicycle LOS Score, BLOS	2.37	2.59
Bicycle LOS	B	C

Overall results are not computed when free-flow speed is less than 45 mph.

Phone: Fax:
E-mail:

OPERATIONAL ANALYSIS

Analyst:	CEB
Agency/Co:	VHB
Date:	4/9/2018
Analysis Period:	AM
Highway:	NC 54
From/To:	Woody/ NC 119
Jurisdiction:	Alamance County
Analysis Year:	2045
Project ID:	Capacity Analysis - NC 54 (West of NC 119)

FREE-FLOW SPEED

Direction	1		2	
Lane width	12.0	ft	12.0	ft
Lateral clearance:				
Right edge	6.0	ft	6.0	ft
Left edge	6.0	ft	6.0	ft
Total lateral clearance	12.0	ft	12.0	ft
Access points per mile	16		16	
Median type	Divided		Divided	
Free-flow speed:	Base		Base	
FFS or BFFS	60.0	mph	60.0	mph
Lane width adjustment, FLW	0.0	mph	0.0	mph
Lateral clearance adjustment, FLC	0.0	mph	0.0	mph
Median type adjustment, FM	0.0	mph	0.0	mph
Access points adjustment, FA	4.0	mph	4.0	mph
Free-flow speed	56.0	mph	56.0	mph

VOLUME

Direction	1		2	
Volume, V	1320	vph	1176	vph
Peak-hour factor, PHF	0.90		0.90	
Peak 15-minute volume, v15	367		327	
Trucks and buses	2	%	2	%
Recreational vehicles	0	%	0	%
Terrain type	Rolling		Rolling	
Grade	0.00	%	0.00	%
Segment length	0.00	mi	0.00	mi
Number of lanes	2		2	
Driver population adjustment, fP	1.00		1.00	
Trucks and buses PCE, ET	2.5		2.5	
Recreational vehicles PCE, ER	2.0		2.0	
Heavy vehicle adjustment, fHV	0.971		0.971	
Flow rate, vp	755	pcphpl	672	pcphpl

RESULTS

Direction	1		2	
Flow rate, vp	755	pcphpl	672	pcphpl
Free-flow speed, FFS	56.0	mph	56.0	mph
Avg. passenger-car travel speed, S	55.0	mph	55.0	mph
Level of service, LOS	B		B	
Density, D	13.7	pc/mi/ln	12.2	pc/mi/ln

Bicycle Level of Service

Posted speed limit, Sp	40	40
Percent of segment with occupied on-highway parking	0	0
Pavement rating, P	3	3
Flow rate in outside lane, vOL	733.3	653.3
Effective width of outside lane, We	24.00	24.00
Effective speed factor, St	4.17	4.17
Bicycle LOS Score, BLOS	2.52	2.46
Bicycle LOS	C	B

Overall results are not computed when free-flow speed is less than 45 mph.

Phone: Fax:
E-mail:

OPERATIONAL ANALYSIS

Analyst:	CEB
Agency/Co:	VHB
Date:	4/9/2018
Analysis Period:	PM
Highway:	NC 54
From/To:	Woody/ NC 119
Jurisdiction:	Alamance County
Analysis Year:	2045
Project ID:	Capacity Analysis - NC 54 (West of NC 119)

FREE-FLOW SPEED

Direction	1		2	
Lane width	12.0	ft	12.0	ft
Lateral clearance:				
Right edge	6.0	ft	6.0	ft
Left edge	6.0	ft	6.0	ft
Total lateral clearance	12.0	ft	12.0	ft
Access points per mile	16		16	
Median type	Divided		Divided	
Free-flow speed:	Base		Base	
FFS or BFFS	60.0	mph	60.0	mph
Lane width adjustment, FLW	0.0	mph	0.0	mph
Lateral clearance adjustment, FLC	0.0	mph	0.0	mph
Median type adjustment, FM	0.0	mph	0.0	mph
Access points adjustment, FA	4.0	mph	4.0	mph
Free-flow speed	56.0	mph	56.0	mph

VOLUME

Direction	1		2	
Volume, V	915	vph	1200	vph
Peak-hour factor, PHF	0.90		0.90	
Peak 15-minute volume, v15	254		333	
Trucks and buses	2	%	2	%
Recreational vehicles	0	%	0	%
Terrain type	Rolling		Rolling	
Grade	0.00	%	0.00	%
Segment length	0.00	mi	0.00	mi
Number of lanes	2		2	
Driver population adjustment, fP	1.00		1.00	
Trucks and buses PCE, ET	2.5		2.5	
Recreational vehicles PCE, ER	2.0		2.0	
Heavy vehicle adjustment, fHV	0.971		0.971	
Flow rate, vp	523	pcphpl	686	pcphpl

RESULTS

Direction	1		2	
Flow rate, vp	523	pcphpl	686	pcphpl
Free-flow speed, FFS	56.0	mph	56.0	mph
Avg. passenger-car travel speed, S	55.0	mph	55.0	mph
Level of service, LOS	A		B	
Density, D	9.5	pc/mi/ln	12.5	pc/mi/ln

Bicycle Level of Service

Posted speed limit, Sp	40	40
Percent of segment with occupied on-highway parking	0	0
Pavement rating, P	3	3
Flow rate in outside lane, vOL	508.3	666.7
Effective width of outside lane, We	24.00	24.00
Effective speed factor, St	4.17	4.17
Bicycle LOS Score, BLOS	2.34	2.47
Bicycle LOS	B	B

Overall results are not computed when free-flow speed is less than 45 mph.

Phone: Fax:
E-mail:

OPERATIONAL ANALYSIS

Analyst: CEB
Agency/Co: VHB
Date: 4/9/2018
Analysis Period: AM
Highway: NC 54
From/To: Bethel Hickory/Old Fayettevill
Jurisdiction: Orange County
Analysis Year: 2045
Project ID: Capacity Analysis - NC 54 (West of Old Fayetteville)

FREE-FLOW SPEED

Direction	1		2	
Lane width	12.0	ft	12.0	ft
Lateral clearance:				
Right edge	6.0	ft	6.0	ft
Left edge	6.0	ft	6.0	ft
Total lateral clearance	12.0	ft	12.0	ft
Access points per mile	16		16	
Median type	Divided		Divided	
Free-flow speed:	Base		Base	
FFS or BFFS	60.0	mph	60.0	mph
Lane width adjustment, FLW	0.0	mph	0.0	mph
Lateral clearance adjustment, FLC	0.0	mph	0.0	mph
Median type adjustment, FM	0.0	mph	0.0	mph
Access points adjustment, FA	4.0	mph	4.0	mph
Free-flow speed	56.0	mph	56.0	mph

VOLUME

Direction	1		2	
Volume, V	1769	vph	558	vph
Peak-hour factor, PHF	0.90		0.90	
Peak 15-minute volume, v15	491		155	
Trucks and buses	2	%	2	%
Recreational vehicles	0	%	0	%
Terrain type	Rolling		Rolling	
Grade	0.00	%	0.00	%
Segment length	0.00	mi	0.00	mi
Number of lanes	2		2	
Driver population adjustment, fP	1.00		1.00	
Trucks and buses PCE, ET	2.5		2.5	
Recreational vehicles PCE, ER	2.0		2.0	
Heavy vehicle adjustment, fHV	0.971		0.971	
Flow rate, vp	1012	pcphpl	319	pcphpl

RESULTS

Direction	1		2	
Flow rate, vp	1012	pcphpl	319	pcphpl
Free-flow speed, FFS	56.0	mph	56.0	mph
Avg. passenger-car travel speed, S	55.0	mph	55.0	mph
Level of service, LOS	C		A	
Density, D	18.4	pc/mi/ln	5.8	pc/mi/ln

Bicycle Level of Service

Posted speed limit, Sp	55	55
Percent of segment with occupied on-highway parking	0	0
Pavement rating, P	3	3
Flow rate in outside lane, vOL	982.8	310.0
Effective width of outside lane, We	24.00	24.00
Effective speed factor, St	4.79	4.79
Bicycle LOS Score, BLOS	2.85	2.27
Bicycle LOS	C	B

Overall results are not computed when free-flow speed is less than 45 mph.

Phone: Fax:
E-mail:

OPERATIONAL ANALYSIS

Analyst:	CEB
Agency/Co:	VHB
Date:	4/9/2018
Analysis Period:	PM
Highway:	NC 54
From/To:	Bethel Hickory/Old Fayettevill
Jurisdiction:	Orange County
Analysis Year:	2045
Project ID:	Capacity Analysis - NC 54 (West of Old Fayetteville)

FREE-FLOW SPEED

Direction	1		2	
Lane width	12.0	ft	12.0	ft
Lateral clearance:				
Right edge	6.0	ft	6.0	ft
Left edge	6.0	ft	6.0	ft
Total lateral clearance	12.0	ft	12.0	ft
Access points per mile	16		16	
Median type	Divided		Divided	
Free-flow speed:	Base		Base	
FFS or BFFS	60.0	mph	60.0	mph
Lane width adjustment, FLW	0.0	mph	0.0	mph
Lateral clearance adjustment, FLC	0.0	mph	0.0	mph
Median type adjustment, FM	0.0	mph	0.0	mph
Access points adjustment, FA	4.0	mph	4.0	mph
Free-flow speed	56.0	mph	56.0	mph

VOLUME

Direction	1		2	
Volume, V	639	vph	1754	vph
Peak-hour factor, PHF	0.90		0.90	
Peak 15-minute volume, v15	178		487	
Trucks and buses	2	%	2	%
Recreational vehicles	0	%	0	%
Terrain type	Rolling		Rolling	
Grade	0.00	%	0.00	%
Segment length	0.00	mi	0.00	mi
Number of lanes	2		2	
Driver population adjustment, fP	1.00		1.00	
Trucks and buses PCE, ET	2.5		2.5	
Recreational vehicles PCE, ER	2.0		2.0	
Heavy vehicle adjustment, fHV	0.971		0.971	
Flow rate, vp	365	pcphpl	1003	pcphpl

RESULTS

Direction	1		2	
Flow rate, vp	365	pcphpl	1003	pcphpl
Free-flow speed, FFS	56.0	mph	56.0	mph
Avg. passenger-car travel speed, S	55.0	mph	55.0	mph
Level of service, LOS	A		C	
Density, D	6.6	pc/mi/ln	18.2	pc/mi/ln

Bicycle Level of Service

Posted speed limit, Sp	55	55
Percent of segment with occupied on-highway parking	0	0
Pavement rating, P	3	3
Flow rate in outside lane, vOL	355.0	974.4
Effective width of outside lane, We	24.00	24.00
Effective speed factor, St	4.79	4.79
Bicycle LOS Score, BLOS	2.34	2.85
Bicycle LOS	B	C

Overall results are not computed when free-flow speed is less than 45 mph.

Phone: Fax:
E-mail:

OPERATIONAL ANALYSIS

Analyst:	CEB
Agency/Co:	VHB
Date:	4/9/2018
Analysis Period:	AM
Highway:	NC 54
From/To:	Orange Grove Rd/Dodsons Cross
Jurisdiction:	Orange County
Analysis Year:	2045
Project ID:	Capacity Analysis - NC 54 (East of Orange Grove)

FREE-FLOW SPEED

Direction	1		2	
Lane width	12.0	ft	12.0	ft
Lateral clearance:				
Right edge	6.0	ft	6.0	ft
Left edge	6.0	ft	6.0	ft
Total lateral clearance	12.0	ft	12.0	ft
Access points per mile	16		16	
Median type	Divided		Divided	
Free-flow speed:	Base		Base	
FFS or BFFS	60.0	mph	60.0	mph
Lane width adjustment, FLW	0.0	mph	0.0	mph
Lateral clearance adjustment, FLC	0.0	mph	0.0	mph
Median type adjustment, FM	0.0	mph	0.0	mph
Access points adjustment, FA	4.0	mph	4.0	mph
Free-flow speed	56.0	mph	56.0	mph

VOLUME

Direction	1		2	
Volume, V	1353	vph	472	vph
Peak-hour factor, PHF	0.90		0.90	
Peak 15-minute volume, v15	376		131	
Trucks and buses	2	%	2	%
Recreational vehicles	0	%	0	%
Terrain type	Rolling		Rolling	
Grade	0.00	%	0.00	%
Segment length	0.00	mi	0.00	mi
Number of lanes	2		2	
Driver population adjustment, fP	1.00		1.00	
Trucks and buses PCE, ET	2.5		2.5	
Recreational vehicles PCE, ER	2.0		2.0	
Heavy vehicle adjustment, fHV	0.971		0.971	
Flow rate, vp	774	pcphpl	270	pcphpl

RESULTS

Direction	1		2	
Flow rate, vp	774	pcphpl	270	pcphpl
Free-flow speed, FFS	56.0	mph	56.0	mph
Avg. passenger-car travel speed, S	55.0	mph	55.0	mph
Level of service, LOS	B		A	
Density, D	14.1	pc/mi/ln	4.9	pc/mi/ln

Bicycle Level of Service

Posted speed limit, Sp	55	55
Percent of segment with occupied on-highway parking	0	0
Pavement rating, P	3	3
Flow rate in outside lane, vOL	751.7	262.2
Effective width of outside lane, We	24.00	24.00
Effective speed factor, St	4.79	4.79
Bicycle LOS Score, BLOS	2.72	2.18
Bicycle LOS	C	B

Overall results are not computed when free-flow speed is less than 45 mph.

Phone: Fax:
E-mail:

OPERATIONAL ANALYSIS

Analyst:	CEB
Agency/Co:	VHB
Date:	4/9/2018
Analysis Period:	AM
Highway:	NC 54
From/To:	Orange Grove Rd/Dodsons Cross
Jurisdiction:	Orange County
Analysis Year:	2045
Project ID:	Capacity Analysis - NC 54 (East of Orange Grove)

FREE-FLOW SPEED

Direction	1		2	
Lane width	12.0	ft	12.0	ft
Lateral clearance:				
Right edge	6.0	ft	6.0	ft
Left edge	6.0	ft	6.0	ft
Total lateral clearance	12.0	ft	12.0	ft
Access points per mile	16		16	
Median type	Divided		Divided	
Free-flow speed:	Base		Base	
FFS or BFFS	60.0	mph	60.0	mph
Lane width adjustment, FLW	0.0	mph	0.0	mph
Lateral clearance adjustment, FLC	0.0	mph	0.0	mph
Median type adjustment, FM	0.0	mph	0.0	mph
Access points adjustment, FA	4.0	mph	4.0	mph
Free-flow speed	56.0	mph	56.0	mph

VOLUME

Direction	1		2	
Volume, V	437	vph	1349	vph
Peak-hour factor, PHF	0.90		0.90	
Peak 15-minute volume, v15	121		375	
Trucks and buses	2	%	2	%
Recreational vehicles	0	%	0	%
Terrain type	Rolling		Rolling	
Grade	0.00	%	0.00	%
Segment length	0.00	mi	0.00	mi
Number of lanes	2		2	
Driver population adjustment, fP	1.00		1.00	
Trucks and buses PCE, ET	2.5		2.5	
Recreational vehicles PCE, ER	2.0		2.0	
Heavy vehicle adjustment, fHV	0.971		0.971	
Flow rate, vp	250	pcphpl	771	pcphpl

RESULTS

Direction	1		2	
Flow rate, vp	250	pcphpl	771	pcphpl
Free-flow speed, FFS	56.0	mph	56.0	mph
Avg. passenger-car travel speed, S	55.0	mph	55.0	mph
Level of service, LOS	A		B	
Density, D	4.5	pc/mi/ln	14.0	pc/mi/ln

Bicycle Level of Service

Posted speed limit, Sp	55	55
Percent of segment with occupied on-highway parking	0	0
Pavement rating, P	3	3
Flow rate in outside lane, vOL	242.8	749.4
Effective width of outside lane, We	24.00	24.00
Effective speed factor, St	4.79	4.79
Bicycle LOS Score, BLOS	2.14	2.71
Bicycle LOS	B	C

Overall results are not computed when free-flow speed is less than 45 mph.

Phone: Fax:
E-mail:

OPERATIONAL ANALYSIS

Analyst:	CEB
Agency/Co:	VHB
Date:	4/9/2018
Analysis Period:	AM
Highway:	NC 54
From/To:	Mebane Oaks Rd/Orange Grove Rd
Jurisdiction:	Orange County
Analysis Year:	2045
Project ID:	Capacity Analysis - NC 54 (West of Orange Grove)

FREE-FLOW SPEED

Direction	1		2	
Lane width	12.0	ft	12.0	ft
Lateral clearance:				
Right edge	6.0	ft	6.0	ft
Left edge	6.0	ft	6.0	ft
Total lateral clearance	12.0	ft	12.0	ft
Access points per mile	16		16	
Median type	Divided		Divided	
Free-flow speed:	Base		Base	
FFS or BFFS	60.0	mph	60.0	mph
Lane width adjustment, FLW	0.0	mph	0.0	mph
Lateral clearance adjustment, FLC	0.0	mph	0.0	mph
Median type adjustment, FM	0.0	mph	0.0	mph
Access points adjustment, FA	4.0	mph	4.0	mph
Free-flow speed	56.0	mph	56.0	mph

VOLUME

Direction	1		2	
Volume, V	1341	vph	442	vph
Peak-hour factor, PHF	0.90		0.90	
Peak 15-minute volume, v15	373		123	
Trucks and buses	2	%	2	%
Recreational vehicles	0	%	0	%
Terrain type	Rolling		Rolling	
Grade	0.00	%	0.00	%
Segment length	0.00	mi	0.00	mi
Number of lanes	2		2	
Driver population adjustment, fP	1.00		1.00	
Trucks and buses PCE, ET	2.5		2.5	
Recreational vehicles PCE, ER	2.0		2.0	
Heavy vehicle adjustment, fHV	0.971		0.971	
Flow rate, vp	767	pcphpl	252	pcphpl

RESULTS

Direction	1		2	
Flow rate, vp	767	pcphpl	252	pcphpl
Free-flow speed, FFS	56.0	mph	56.0	mph
Avg. passenger-car travel speed, S	55.0	mph	55.0	mph
Level of service, LOS	B		A	
Density, D	13.9	pc/mi/ln	4.6	pc/mi/ln

Bicycle Level of Service

Posted speed limit, Sp	55	55
Percent of segment with occupied on-highway parking	0	0
Pavement rating, P	3	3
Flow rate in outside lane, vOL	745.0	245.6
Effective width of outside lane, We	24.00	24.00
Effective speed factor, St	4.79	4.79
Bicycle LOS Score, BLOS	2.71	2.15
Bicycle LOS	C	B

Overall results are not computed when free-flow speed is less than 45 mph.

Phone: Fax:
E-mail:

OPERATIONAL ANALYSIS

Analyst:	CEB
Agency/Co:	VHB
Date:	4/9/2018
Analysis Period:	PM
Highway:	NC 54
From/To:	Mebane Oaks Rd/Orange Grove Rd
Jurisdiction:	Orange County
Analysis Year:	2045
Project ID:	Capacity Analysis - NC 54 (West of Orange Grove)

FREE-FLOW SPEED

Direction	1		2	
Lane width	12.0	ft	12.0	ft
Lateral clearance:				
Right edge	6.0	ft	6.0	ft
Left edge	6.0	ft	6.0	ft
Total lateral clearance	12.0	ft	12.0	ft
Access points per mile	16		16	
Median type	Divided		Divided	
Free-flow speed:	Base		Base	
FFS or BFFS	60.0	mph	60.0	mph
Lane width adjustment, FLW	0.0	mph	0.0	mph
Lateral clearance adjustment, FLC	0.0	mph	0.0	mph
Median type adjustment, FM	0.0	mph	0.0	mph
Access points adjustment, FA	4.0	mph	4.0	mph
Free-flow speed	56.0	mph	56.0	mph

VOLUME

Direction	1		2	
Volume, V	422	vph	1338	vph
Peak-hour factor, PHF	0.90		0.90	
Peak 15-minute volume, v15	117		372	
Trucks and buses	2	%	2	%
Recreational vehicles	0	%	0	%
Terrain type	Rolling		Rolling	
Grade	0.00	%	0.00	%
Segment length	0.00	mi	0.00	mi
Number of lanes	2		2	
Driver population adjustment, fP	1.00		1.00	
Trucks and buses PCE, ET	2.5		2.5	
Recreational vehicles PCE, ER	2.0		2.0	
Heavy vehicle adjustment, fHV	0.971		0.971	
Flow rate, vp	241	pcphpl	765	pcphpl

RESULTS

Direction	1		2	
Flow rate, vp	241	pcphpl	765	pcphpl
Free-flow speed, FFS	56.0	mph	56.0	mph
Avg. passenger-car travel speed, S	55.0	mph	55.0	mph
Level of service, LOS	A		B	
Density, D	4.4	pc/mi/ln	13.9	pc/mi/ln

Bicycle Level of Service

Posted speed limit, Sp	55	55
Percent of segment with occupied on-highway parking	0	0
Pavement rating, P	3	3
Flow rate in outside lane, vOL	234.4	743.3
Effective width of outside lane, We	24.00	24.00
Effective speed factor, St	4.79	4.79
Bicycle LOS Score, BLOS	2.12	2.71
Bicycle LOS	B	C

Overall results are not computed when free-flow speed is less than 45 mph.

Phone: Fax:
E-mail:

OPERATIONAL ANALYSIS

Analyst:	CEB
Agency/Co:	VHB
Date:	4/9/2018
Analysis Period:	AM
Highway:	NC 54
From/To:	Woody/ NC 119
Jurisdiction:	Alamance County
Analysis Year:	2045
Project ID:	Capacity Analysis - NC 54 (East of Woody)

FREE-FLOW SPEED

Direction	1		2	
Lane width	12.0	ft	12.0	ft
Lateral clearance:				
Right edge	6.0	ft	6.0	ft
Left edge	6.0	ft	6.0	ft
Total lateral clearance	12.0	ft	12.0	ft
Access points per mile	16		16	
Median type	Divided		Divided	
Free-flow speed:	Base		Base	
FFS or BFFS	60.0	mph	60.0	mph
Lane width adjustment, FLW	0.0	mph	0.0	mph
Lateral clearance adjustment, FLC	0.0	mph	0.0	mph
Median type adjustment, FM	0.0	mph	0.0	mph
Access points adjustment, FA	4.0	mph	4.0	mph
Free-flow speed	56.0	mph	56.0	mph

VOLUME

Direction	1		2	
Volume, V	1261	vph	1353	vph
Peak-hour factor, PHF	0.90		0.90	
Peak 15-minute volume, v15	350		376	
Trucks and buses	2	%	2	%
Recreational vehicles	0	%	0	%
Terrain type	Rolling		Rolling	
Grade	0.00	%	0.00	%
Segment length	0.00	mi	0.00	mi
Number of lanes	2		2	
Driver population adjustment, fP	1.00		1.00	
Trucks and buses PCE, ET	2.5		2.5	
Recreational vehicles PCE, ER	2.0		2.0	
Heavy vehicle adjustment, fHV	0.971		0.971	
Flow rate, vp	721	pcphpl	774	pcphpl

RESULTS

Direction	1		2	
Flow rate, vp	721	pcphpl	774	pcphpl
Free-flow speed, FFS	56.0	mph	56.0	mph
Avg. passenger-car travel speed, S	55.0	mph	55.0	mph
Level of service, LOS	B		B	
Density, D	13.1	pc/mi/ln	14.1	pc/mi/ln

Bicycle Level of Service

Posted speed limit, Sp	40	40
Percent of segment with occupied on-highway parking	0	0
Pavement rating, P	3	3
Flow rate in outside lane, vOL	700.6	751.7
Effective width of outside lane, We	24.00	24.00
Effective speed factor, St	4.17	4.17
Bicycle LOS Score, BLOS	2.50	2.53
Bicycle LOS	B	C

Overall results are not computed when free-flow speed is less than 45 mph.

Phone: Fax:
E-mail:

OPERATIONAL ANALYSIS

Analyst: CEB
Agency/Co: VHB
Date: 4/9/2018
Analysis Period: PM
Highway: NC 54
From/To: Woody/ NC 119
Jurisdiction: Alamance County
Analysis Year: 2045
Project ID: Capacity Analysis - NC 54 (East of Woody)

FREE-FLOW SPEED

Direction	1		2	
Lane width	12.0	ft	12.0	ft
Lateral clearance:				
Right edge	6.0	ft	6.0	ft
Left edge	6.0	ft	6.0	ft
Total lateral clearance	12.0	ft	12.0	ft
Access points per mile	16		16	
Median type	Divided		Divided	
Free-flow speed:	Base		Base	
FFS or BFFS	60.0	mph	60.0	mph
Lane width adjustment, FLW	0.0	mph	0.0	mph
Lateral clearance adjustment, FLC	0.0	mph	0.0	mph
Median type adjustment, FM	0.0	mph	0.0	mph
Access points adjustment, FA	4.0	mph	4.0	mph
Free-flow speed	56.0	mph	56.0	mph

VOLUME

Direction	1		2	
Volume, V	1391	vph	1217	vph
Peak-hour factor, PHF	0.90		0.90	
Peak 15-minute volume, v15	386		338	
Trucks and buses	2	%	2	%
Recreational vehicles	0	%	0	%
Terrain type	Rolling		Rolling	
Grade	0.00	%	0.00	%
Segment length	0.00	mi	0.00	mi
Number of lanes	2		2	
Driver population adjustment, fP	1.00		1.00	
Trucks and buses PCE, ET	2.5		2.5	
Recreational vehicles PCE, ER	2.0		2.0	
Heavy vehicle adjustment, fHV	0.971		0.971	
Flow rate, vp	795	pcphpl	696	pcphpl

RESULTS

Direction	1		2	
Flow rate, vp	795	pcphpl	696	pcphpl
Free-flow speed, FFS	56.0	mph	56.0	mph
Avg. passenger-car travel speed, S	55.0	mph	55.0	mph
Level of service, LOS	B		B	
Density, D	14.5	pc/mi/ln	12.7	pc/mi/ln

Bicycle Level of Service

Posted speed limit, Sp	40	40
Percent of segment with occupied on-highway parking	0	0
Pavement rating, P	3	3
Flow rate in outside lane, vOL	772.8	676.1
Effective width of outside lane, We	24.00	24.00
Effective speed factor, St	4.17	4.17
Bicycle LOS Score, BLOS	2.55	2.48
Bicycle LOS	C	B

Overall results are not computed when free-flow speed is less than 45 mph.

To: DCHC MPO Date: October 1, 2019

Project #: 38587.01

From: Don Bryson Re: NC 54 Supplement

INTRODUCTION

In response to the findings of the *NC 54 West Corridor Study*, the analyses summarized in this memorandum were requested to better understand and explain traffic patterns associated with the portion of NC 54 between I-40 in Graham and Old Fayetteville Road in Carrboro. Although the focus of the additional analyses is the eastern (Orange County) end of the corridor, the study area was expanded to provide more regional context, and to more directly address West Main Street and the NC 54 Bypass to the east.

The analyses in this memorandum address specific questions, supplementing the *NC 54 Corridor Study*. The *NC 54 Corridor Study* provides more detailed documentation of underlying assumptions, traffic data, analytical methodology, and findings related to existing conditions, demand forecasts, and evaluation of alternatives.

Some of the major issues addressed in this memorandum include:

- Origins and destinations of traffic using this portion of NC 54
- Traffic forecasts
- Traffic impacts of the proposed widening on other roads
- Transit options, including:
    - Park-and-ride lots
    - Potential options for UNC-CH and hospital employees

CORRIDOR TRIP ORIGINS AND DESTINATIONS

According to the latest data (2017) available from the NCDOT traffic count program, average annual daily traffic (AADT) on NC 54 ranged from a high of 23,000 veh/day at the western end of the study area (just east of I-40 in Graham) to a low of 6,400 veh/day near the county line (just west of Mebane Oaks Road/ Saxapahaw Road). From that point eastward AADTs increase to a high of 15,000 just west of Old Fayetteville Road, the eastern end of the study. This pattern indicates that only a portion of the NC 54 traffic at Old Fayetteville Road consists of "through" trips *(defined as vehicles travelling the entire length of the corridor from I-40 to Old Fayetteville Road)*. Even if all 6,400 veh/day at the county line were through trips, only 43% of the traffic approaching Old Fayetteville Road could be defined as trips traveling the entire length of the corridor. Analysis of travel patterns suggests a much lower percentage; many of these 6,400 trips having origins or destinations along the corridor or intersecting roadways such as NC 119, Mebane Oaks Road, Orange Grove Road, and Bethel Hickory Grove Church Road. NC 54 collects and connects traffic between these dispersed trips ends.

The following sections summarize analyses performed to help identify sources of traffic on this portion of NC 54.

NC 54 Travelsheds

Figure 1 represents the approximate extent of the "travelshed" for trips to/from the center of Chapel Hill via the NC 54 West corridor. Trips beginning/ending within the shaded area are more likely to use NC 54 than alternate routes (especially I-40) for trips to/from downtown Chapel Hill, based on historically-determined relative travel times for routes provided by Google Maps. For example, a traveler starting near the northern edge of the shaded area could drive to downtown Chapel Hill via NC 54 or I-40 in about the same time. Figure 2 demonstrates the impact of shifting the destination slightly south, to Southern Village. The added time required to drive all the way through Chapel Hill results in NC 54 being a shorter route for trips from the northwest (Burlington/Graham). There is a dividing line for somewhere around the NC 54 Bypass. Figure 3 is a comparable representation for trips to Burlington/Graham. Note that the relative volume of trips in each of these cases varies, and will change over time.

The key to defining these travelsheds is the difference in relative travel times among alternative routes. Increasing congestion along I-40 or NC 86 would be expected to shift this boundary northward and eastward, while more congestion along NC 54 would constrict the shaded area. Conversely, improvements that reduce relative travel times would expand a road's travelshed.

Observations

Comparing the travelsheds for the two major locations considered reveals several interesting observations:

- For central Chapel Hill trips, while the travelshed spreads farther north and east, it does not extend beyond the ends of the corridor.
- A minor shift south to Southern Village yields a travelshed that extends west and north of the Graham end of the corridor. This helps demonstrate the complex combination of origins and destinations served by the NC 54 west corridor. Although Chapel Hill is a major destination for trips using the NC 54 Study Area Corridor, there are dozens of significant trip-end pairs using portions of the corridor, and the relative volumes of these trips can shift over time in response to local and regional growth and development, congestion, and roadway improvements.
- For the centralized Burlington/Graham location, while the travelshed is narrower on the northern side, it extends well beyond the eastern end of the corridor, widening greatly to the south to include portions of northern Chatham County. This travelshed also applies to destinations north and west of the indicated location. Growth outside the corridor is a more significant factor in traffic increases in this travel market than for the downtown Chapel Hill travel market.
- Trips between western Orange County and points east of Chapel Hill (such as Durham and RTP) use this portion of NC 54 and the Bypass; however, I-40 is a more attractive option for trips originating farther west, or even a slight distance north of NC 54 through the study area.

Although this analysis does provide some insights about who is using this portion of NC 54, it has limitations. It does not reflect route selections of actual travelers, only the estimated minimum travel-time routes based on historical averages. These travel times are derived from samplings of signals from location-based services, which are subject to

variation. Furthermore, travelers do not always base their route choices on minimum travel times, even if they have accurate real-time information and reliable short-range predictions (which is not typically the case). Some drivers prefer to avoid freeways; others are less comfortable on rural two-lane roads that may require passing. If travel-time reliability is critical, routes with longer (but more consistent and predictable) travel times may be preferred to the risk of a long delay. Also, this analysis considers only three very specific—though important—locations. There are countless other potential locations that would generate different travelsheds.

StreetLight Data

To better understand the origin/destination patterns of traffic on NC 54 west of Carrboro, an analysis was performed using a StreetLight dataset provided by DCHC. This dataset is comprised of anonymized location information obtained from personal electronic devices during weekdays (Monday through Thursday) in April, May, September, and October of 2016-18. The results summarized here are based on a sample of approximately 8,000 devices, representing about 29,000 individual trips. The StreetLight Index sample represents about 23% of the averaged 2016-2018 AADT on NC 54, based on Index-to-AADT ratios.

The available StreetLight dataset did not include the entire NC 54 West study area (see Figure 4); only the portion of the corridor east of Orange Grove Road could be analyzed. Figure 5 depicts the associated portion of the corridor in more detail.

The goal of this analysis was to determine the major origins and destinations of traffic using this segment of NC 54. In particular, what portion of traffic is passing through the corridor, which intersecting roads contribute the most traffic, and what traffic is using the NC 54 Bypass versus West Main Street? This analysis can help quantify and evaluate potential markets for alternative travel options, as well as validating forecast assumptions and confirming the Triangle Regional Model's accuracy in representing traffic patterns.

It must be emphasized that in the following analyses, percentage drops in traffic refer only to the distribution of trips passing the defined reference point (indicated by the "100%" label). This does not indicate a reduction in total traffic (AADT) on NC 54. The exercise traces the destinations of vehicles captured at the reference point as we move east or west along the corridor away from the reference point. It indicates where these vehicles leave NC 54 and what portion remain on NC 54 at the end of the analyzed segment. This is not an analysis of traffic passing through the entire length of the corridor, nor of AADTs.

<u>Eastward Trip Distribution</u>

Figure 6 depicts the eastward distribution of daily vehicle-trips on NC 54 to/from a point just east of Orange Grove Road. **Note that the "100%" label in the figure represents only traffic passing that point on NC 54, in both directions.** This analysis traces the destinations of these trips along the corridor. For simplicity and clarity, we will discuss eastbound trips; westbound trips are the mirror image of these. The diagram indicates that 83% of these trips are still on NC 54 just west of Old Fayetteville Road. This 17% drop in volume works out to nearly 2,000 veh/day out of the original 2017 AADT of 11,000 veh/day east of Orange Grove Road. Most of the trips that have

left the corridor by this point used White Cross Road (7%) and Bethel-Hickory Grove Church Road (4%). The remaining 6% departed via Dodsons Crossroads, Butler Road, Neville Road, Hatch Road, and various smaller roads and driveways. (Due to rounding, percentages may not add up precisely.)

Ten percent of traffic drops off at Old Fayetteville Road (8% northbound and 2% southbound), leaving 73% of the original traffic on NC 54. Another 7% of trips are destined for development in the immediate vicinity of Carrboro Plaza. The remaining 66% divides between West Main Street (12%) and NC 54 Bypass (54%). This represents an 82%/18% (or 4.5 to 1) split of this traffic between NC 54 Bypass and West Main Street.

For comparison, the analysis was repeated for only the period between 6:00 and 10:00 AM, which includes the critical AM peak. These results are summarized in Figure 7. The most significant differences are that a higher proportion of traffic is still on NC 54 just west of Old Fayetteville Road (91% versus 83%), and that most of this increase continues onto NC 54 Bypass (63% of origin traffic, as opposed to 54% on a daily basis). This results in an increased share relative to West Main Street (85%/15%, or 5.7 to 1). These differences are consistent with a higher proportion of commuter traffic to UNC in the morning peak.

Westward Trip Distribution

Similar analyses were performed to estimate the westward distribution of NC 54 traffic to/from West Main Street, and to/from NC 54 Bypass. **Note that the "100%" label in these figures represents only traffic passing those points (on West Main Street or NC 54 Bypass), in both directions.** For simplicity and clarity, we will discuss westbound trips; eastbound trips are the mirror image of these. Figure 8 depicts the findings of this analysis for traffic on West Main Street immediately east of NC 54, where the 2017 AADT is 6,400 veh/day. About 44% of this traffic is associated with destinations in the immediate vicinity of Carrboro Plaza. Another 26% heads east on NC 54 Bypass. Old Fayetteville Road attracts 6% to the north, and 2% to the south, leaving 22% of the original traffic on NC 54 immediately west of Old Fayetteville Road. Another 9% disperses before Dodsons Crossroads, mainly via Neville Road (2%) and Bethel-Hickory Grove Church Road (2%). Another 2% each turn off on Dodsons' Crossroads and White Cross Road, with 10% of the traffic from West Main Street remaining on NC 54 just east of Orange Grove Road. This translates to a drop of nearly 800 vehicles between Old Fayetteville and Orange Grove Roads.

Figure 9 summarizes the results of a similar analysis for NC 54 Bypass south of West Main Street, where the 2017 AADT is 25,000 veh/day. Ten percent of this traffic diverts east onto West Main Street, and another 30% heads for destinations in the vicinity of Carrboro Plaza. A substantial 21% heads north via Old Fayetteville Road, with 1% going south, leaving 38% of the original traffic on NC 54 to the west. Intervening roads and driveways attract another 7% between Old Fayetteville Road and Dodsons Crossroads. White Cross Road (2.5%) and Dodsons Crossroads (1.5%) account for most of the remaining reduction, leaving 27% of the original NC 54 Bypass traffic on NC 54 just east of Orange Grove Road. This represents a decrease of nearly 2,800 vehicles between Old Fayetteville and Orange Grove Roads.

Observations

- About 17% of daily traffic on NC 54 just east of Orange Grove Road enters/exits NC 54 between this location and just west of Old Fayetteville Road.
- During the AM peak, only 9% of traffic on NC 54 just east of Orange Grove Road enters/exits NC 54 between this location and just west of Old Fayetteville Road. This is consistent with a higher proportion of longer commuter trips.
- For West Main Street daily traffic, about 12% of traffic enters/exits NC 54 between this just west of Old Fayetteville Road and just east of Orange Grove Road. For NC 54 Bypass traffic, this figure is about 11%.
- Trips using West Main Street tend to be more local that trips using NC 54 Bypass.

Travel Demand Models

The NC 54 West corridor study area spans two regional travel demand models. The portion west of the Alamance County line is represented in the Piedmont Triad Regional Model (PTRM), while the Orange County portion to the east is part of the Triangle Regional model (TRM v6).

Growth Forecasts

Traffic growth in both models is derived from forecasts of population and employment growth and characteristics, geographically distributed by traffic analysis zone. Figures 10a-10c and 11a-11c depict TRM and PTRM assumptions about the distribution and growth of population and employment relative to the NC 54 West study area and the three travelsheds presented previously.

Because population and employment data available for the two models have different base and design years, values were extrapolated to obtain consistent values for 2017 and 2045. Also, dot-density plots were used to more effectively represent the density, magnitude, and distribution of population and employment among traffic analysis zones (TAZs). Note that each dot represents a number of data points (100 persons; 50 jobs). Dots are randomly located within each TAZ, and do not represent specific locations.

The socio-economic forecasts in both models were approved and adopted by relevant MPOs and RPOs for use in transportation planning. Consultation with Alamance and Orange County planning staff did not identify any problems with the growth assumed in either the TRM and PTRM.

Observations

- Development remains sparse along the middle segment of the corridor, due in large part to environmental constraints.
- Relative growth is greatest in the western portion of the corridor, both in Alamance County and Mebane, especially along and west of NC 119. Development includes residential, industrial, and commercial, as well as newly-approved high school at the corner of NC 54 and NC 119.

- Growth in the east is concentrated in Chapel Hill, primarily in nodes along NC 86 and US 15/501. Particularly relevant to this study is the Lloyd Farm development in the northeast quadrant of the NC 54/Old Fayetteville Road intersection.

TRM Comparison to StreetLight InSight Analysis

A select-link analysis was performed using the Triangle Regional model (TRM v6) to provide a comparison against the StreetLight analysis described previously for the eastward distribution of trips to/from a point on NC 54 just east of Orange Grove Road. Because of minor anomalies in the Base Year network loading at the western end of the corridor, some manual adjustments were necessary, and comparative runs for 2045 Build and No-Build scenarios were also conducted. The results are summarized in Figure 12. The major differences between the TRM the StreetLight trip distributions occur at the eastern end of the corridor. Just east of Old Fayetteville Road, both analyses estimate between 82% and 83% of eastbound trips from just east of Orange Grove Road are still on NC 54. But the TRM distributes 5% fewer trips north on Old Fayetteville Road, and loses none at Carrboro Plaza. This leaves 77% of the original trips, as opposed to 66% according to StreetLight. More importantly, TRM assigns a far higher proportion of these trips to West Main Street. TRM has 25% of the initial traffic turning on West Main Street (versus 12% according to StreetLight), and 52% continuing down NC 54 Bypass (versus 54%). This works out to a 68%/32% (or 2.1 to 1) split between n NC 54 Bypass and West Main Street. The Streetlight analysis yielded a split of 82%/18% (or 4.5 to 1).

This difference is probably attributable to the fact that regional travel demand models like TRM tend to under-estimate intersection delay as congestion increases, especially through denser downtown areas. It also appears that trips to Carrboro Plaza and up Old Fayetteville Road (including McDougal Middle School) are either under-represented or inaccurately routed.

TRM Comparison of Build (Widen NC 54) and No-Build Scenarios

To estimate the traffic impacts of the proposed widening of NC 54 on traffic patterns, two 2045 TRM networks were compared. Both have identical socio-economic data and include all transportation improvement projects assumed in the latest DCHC Metropolitan Transportation Plan (MTP). The only difference is that the Widen NC 54 (Build) Scenario, a 45-mph 4-lane divided cross-section is assumed for NC 54 between I-40 in Graham and Old Fayetteville Road in Carrboro. The No-Build Scenario assumes the existing cross-section is maintained.

After trips were distributed and assigned to the two networks, daily volumes in the No-Build network were subtracted from the corresponding link volumes in the Build (widen NC 54) network. Results are summarized in Figure 13. Where traffic volumes are higher in the Build scenario (due to diversion from other routes), links are shaded red and given bandwidths corresponding to the magnitude of the increase. Where traffic volumes are lower in the Build scenario, links are shaded blue and assigned bandwidths corresponding to the magnitude of the decrease. Changes in daily traffic volumes are indicated on representative links. Changes of less than 100 vehicles/day are not represented. Volumes for West Main Street and NC 54 Bypass were adjusted to compensate for

the model's over-assignment of traffic to West Main Street (discussed above). An 80%/20% (4:1) split between NC 54 Bypass and West Main Street was assumed.

A comparison of the daily volumes from the 2045 Build and No-Build scenarios west of Old Fayetteville Road is shown in Figure 14 to illustrate the shifts in network traffic assignments associated with the widening, according to the TRM. Historical volumes and 1% and 1.5% annual volume growth rates are displayed, and the typical capacities of a 2-lane roadway and a 4-lane divided roadway are indicated to provide context for the road's current and anticipated performance.

Observations

Volume Increases

- The most significant volume increases are on NC 54. The 2,000 veh/day added between Dodson's Crossroads and Old Fayetteville Road represent about a 10% increase over the No-Build scenario. The resulting volume is well within the capacity of the proposed 4-lane divided cross section. Assuming 10% of traffic occurs in the peak hour, with a 60/40 directional split, this translates into about 200 additional vehicles in the peak hour, with 120 vehicles (two/minute) added in the peak direction.
- Volumes added to NC 54 decrease to the west, both on an absolute and percentage basis. To the east, about 200 vehicles/day are added to West Main Street, and 1000 to the NC 54 Bypass. About one-third of these are added to South Columbia Street traffic, half continue on the Bypass, and the remainder are oriented southward.
- Orange Grove Road and Mebane Oaks Road experience smaller increases from traffic that would have headed north to I-40 or used rural roads (such as Arthur-Minnis and Bradshaw Quarry) for east-west trips. Some of these trips appear to be shifted from Old NC 86/Hillsborough Road, Union Grove Church Road, and even M.L.K. Jr Boulevard. Minor traffic increases occur on segments of Eubanks, Bethel-Hickory Grove Church, Butler, and White Cross Roads.
- Both the Build and No-Build scenarios exceed the capacity of the 2-lane existing roadway across a range of growth rate estimates.

Volume Reductions

- Overall, traffic reductions resulting from the proposed NC 54 widening are more dispersed than the traffic increases. There is a noticeable reduction in east-west traffic along Arthur-Minnis, Bradshaw Quarry, and New Hope Church Roads. North-south traffic on Old NC 86/Hillsborough Road and Old Fayetteville Road also decreases. The most significant decrease is 800 vehicles/day along the segment of Old NC 86 between Dairyland/Homestead Roads and Old Fayetteville Road. Minor reductions occur on portions of Old Greensboro, Dairyland, Albert, and Union Grove Church Roads, as well as M.L.K. Jr Boulevard. Reductions to I-40 traffic, although larger in absolute terms, represent less than 1% of average daily traffic.

Other

- Some feedback questioned whether volumes on rural roads such as Arthur-Minnis and Bradshaw Quarry would actually increase in response to increased congestion on NC 54, given the nature of these roads. While there is no way to be absolutely certain, these are the findings based on the Triangle Regional Model, developed and approved by NCDOT and local agencies for use in transportation planning. These findings appear reasonable in light of relative travel times and distances. However, if future traffic does not divert to these roads, most of it would remain on NC 54, with a portion shifting to I-40. In that case, traffic volumes on NC 54 would be even higher in the No-Build scenario than in our analysis, while volumes in the Build scenario would be the same. The end result would be a smaller difference in volumes between the Build and No-Build scenarios.

HISTORICAL TRENDS

Historical trend analysis is not especially useful in forecasting traffic volumes along this segment of NC 54. Attempts were made to correlate changes in annual average daily traffic (AADT) along the Orange County portion of NC 54 to population changes in the vicinity of the corridor. The only consistent population estimates available are for counties, municipalities, and townships from 2009 through 2017.

Figure 15 shows the jurisdictions used for population estimates. These areas are generally too large for the purposes of this type of analysis, and neither the estimates nor the AADTs appear to be precise enough. Lagged correlations did not perform significantly better. In aggregate, however, populations and AADTs were generally consistent, with population growing by 16% and AADTs by 15% between 2009 and 2017 (see Figure 16). Based on TRM and PTRM forecasts (and consistent with NC OSBM forecasts), populations in these jurisdictions are estimated to increase by 42% between 2017 and 2045. This study forecasts a corresponding 40% increase in traffic on the Orange County portion of the NC 54 West study corridor (see Figure 17).

Observations

- Although population and traffic volume trends could not be strongly correlated on an annual or time-series basis, overall growth rate trends are reasonably consistent.

TRANSIT

There is currently no fixed-route transit service along NC 54 west of Old Fayetteville Road. To gain a better understanding of historical transit service, future transit plans, and anticipated effects of emerging transportation technologies, interviews were conducted with four transit agencies in the region, with emphasis on fixed-route service, versus paratransit:

- Piedmont Authority for Regional Transportation (PART)
- Link Transit (Burlington/Alamance County)

- Chapel Hill Transit (CHT)
- GoTriangle

Because of the significant role UNC-CH and UNC Hospitals play in local and regional transit (as well as traffic and parking), representatives from these institutions were also consulted. Figure 18 depicts transit routes by agency in the region, as well as locations of relevant existing and proposed park-and-ride lots.

PART

The Piedmont Authority for Regional Transportation (PART), offers service on the Alamance Burlington Express (Route 4) between Alamance County and UNC Hospitals. Route 4 is one of PART's most popular routes due in part to UNC GoPass holders commuting to campus. This route used to run along NC 54 until late 2013, but the routing switched to I-40 due to congestion along NC 54 impacting travel-time reliability and the addition of the Mebane Park & Ride Lot. One of the determinants PART uses in its route selection is congestion along the proposed corridor. Congestion along a route can affect travel time reliability and schedule adherence. This is especially critical when connecting to other transit routes; Route 4 provides a transfer to GoTriangle's ODX route. Another reason for PART's decision to use I-40 is to serve Alamance Community College and Mebane Cone Health.

Route 4 continues to grow in ridership, with standing room only during some peak periods runs. Every two years, PART undertakes a system wide analysis and examines its routes and potential adjustments. PART would like to increase frequency along Route 4, but would need additional funding or partnerships with other transit agencies.

LINK

While Link Transit does not provide transit service to UNC, it does operate fixed-route service in the northern portion of the study area. The Orange Route services Graham and crosses the north-western portion of the corridor on I-40. The two stops in the corridor's vicinity are a park-and-ride lot (located at Hwy 87 and Crescent Square Drive) and Alamance Community College. The Orange Route has been one of Link Transit's most productive routes with the top five stops for the system occurring in Graham. Link Transit would like to expand service further into Graham and Mebane, but needs additional funding or partnerships to implement expanded service. The northern portion of the NC 54 corridor has potential to support fixed-route transit with continued increases in residential density and employment centers, like the Honda Manufacturing plant.

Chapel Hill Transit and UNC

The NC 54 West corridor serves east-west travel to and from UNC Chapel Hill and UNC Hospitals. Figures 19 and 20 show residence locations for UNC-CH and UNC Hospital employees, based on the *UNC-CH Development Plan, 2017 TIA Update*. (Locations are not precise, but representational.) Figure 21 (also from the *UNC-CH Development Plan, 2017 TIA Update*) indicates that just under 2,000 employees (or 12.4% of total employment) are in the sector assigned to the NC 54 West corridor. This number is a rough estimate, however. The travelshed analysis described above suggest that many of these employees actually use I-40, and that some use NC 87. Between 750 and 1450 employee residences are estimated to fall within the travelshed depicted in Figure 1, with most the uncertainty

concentrated in the easternmost end of the travelshed. The potential market for a UNC-oriented transit service along the NC 54 west corridor falls somewhere in this range.

Park-and-ride lots serving UNC Chapel Hill have long helped reduce demand for on-campus parking, as well as providing an alternative to reduce personal vehicle use. To help support their fare-free transit system, Chapel Hill Transit began charging for the use of their park-and-ride lots in 2013. Chapel Hill Transit Park-and-Ride Permits are available at a daily rate of $2, a monthly rate of $21, or an annual rate of $250. Chapel Hill Transit operates four park-and-ride locations serving commuters coming from the western portion of the region to campus. Table 1 (below) details the Chapel Hill Transit Park-and-Ride lots, which are also depicted in Figure 18.

While parking demand has fallen for the westernmost park-and-ride lots (Jones Ferry and Carrboro Plaza), demand has risen for the northern park-and-ride along NC 86 (Eubanks Road) and the southern park-and-ride lot along US 15-501 (Southern Village). While the percent of commuters within each respective corridor is similar, utilization is not. One key reason appears to be the enhanced service level provided by the NS route compared to those routes serving the Jones Ferry and Carrboro Plaza. The NS Route operates all day with headways as little as ten minutes during the peak. This level of service frees commuters from having to plan their journey around a bus schedule. Commuters have the flexibility to arrive at a park-and-ride at a time of their choosing, knowing the next bus will be coming shortly. This pattern suggests commuters coming from the west pass by the Carrboro Plaza and Jones Ferry Park-and-Ride lots in favor of the Southern Village Park-and-Ride (and to a lesser extent, the Eubanks Park-and-Ride) to take advantage of enhanced transit service.

Table 1: Chapel Hill Transit Park and Ride (data from UNC Chapel Hill Development Plan – TIA Update)

Park-and-Ride Lot	Routes Served	Number of Spaces	Fall 2013 Utilization	Fall 2015 Utilization	Fall 2017 Utilization	% of Total Commuters in Corridor
Eubanks Road	NS, CRX (GoTriangle)	400	185	188	216	12.1%
Jones Ferry	CM, CW and JFX	443	132	102	86	11.4%
Carrboro Plaza	CPX and CW	145	52	30	24	
Southern Village	NS and V	400	272	260	325	11.7%

The Town of Chapel Hill is in the process of designing the North-South Bus Rapid Transit. This system will run between the Eubanks Road Park-and-Ride and the Southern Village Park-and-Ride, providing frequent all-day service to downtown Chapel Hill and UNC Hospitals. Bus rapid transit (BRT) elements such as dedicated lanes, traffic signal

priority, and high capacity transit vehicles, will further increase level of service and convenience for those choosing to park-and-ride from Southern Village or Eubanks to ride the North-South BRT. These enhancements will increase the appeal for those previously using Carrboro Park-and-Ride or the Jones Ferry Park-and-Ride to reroute their trip to one of the BRT stations for the premium transit service provided by BRT.

The *Draft Chapel Hill Transit: Short Range Transit Plan* provides short-term recommendations to improve bus routing and frequency on key routes, while remaining cost neutral. The Plan also lays out a set of unfunded improvements. Several desirable service upgrades were identified that could not be achieved within the existing budget. One such improvement was the West NC 54 Route, which would provide new weekday peak-only service from White Cross along the NC 54 corridor to UNC Chapel Hill. This route adds approximately ten route-miles per trip, and is proposed to run at 70-minute headways during peak periods only, Monday through Friday, at an additional annual operating cost of $154,000.

One alternative suggested for a park-and-ride at White Cross could be the Henry Anderson III Community Park in Carrboro. However, a park-and-ride lot does not appear to be compatible with park operations, given current parking demands.

Emerging Technologies

Emerging technologies continue to redefine transit and the micro-mobility industry while providing alternatives to traditional fixed route transit service. Transit companies in the region continue to explore the possibilities of on-demand service and its potential to best meet the agencies goals at a reduced cost compared to fixed route service. Beginning in August, GoTriangle is partnering with Uber and Lyft to subsidize Ride Sharing trips up to ten dollars if it connects with one of the GoTriangle bus routes within the Research Triangle Park. GoDurham's long term transit vision also includes "on-demand zones" where GoDurham will subsidize ride sharing trips connecting to their transit service. The on-demand type trips are viewed as being most effective where traditional fixed route service may not be efficient as well as when the on-demand trip connects with high frequency transit. PART has also tested on-demand shuttles around Piedmont Triad International Airport but reverted to fixed route shuttles when on-demand ridership did not meet expectations. On-demand style shuttles are best used when looking to replace a costly, low-ridership, inefficient route to soften the financial burden while still providing service coverage to an area.

Transit agencies continue to face a constrained funding environment and must make tough decisions on trade-offs. Extending transit service along NC 54 would provide additional coverage to an area previously unserved and thus would create the possibility for new trips. However, given limited resources, extending service further west from Carrboro limits other opportunities, such as providing more frequent service on core routes with higher ridership.

<u>Observations</u>

- As indicated in Table 1, the current supply of park-and-ride spaces serving traffic from the west (including the NC 54 West corridor) is underutilized.

- Convenience and frequency of service seem to be significant factors in attracting park-and-ride patrons, favoring park-and-ride lots along the planned BRT route. This limits traffic reduction benefits along NC 54 west.
- UNC and Chapel Hill Transit support park-and-ride and other transit options in the NC 54 west corridor. However, low ridership potential and long routes limit the cost-effectiveness of this service relative to other transit investments.
- Focusing on improvements to higher-demand transit corridors—including BRT—could be a more productive and cost-effective overall strategy than shifting limited resources to the NC 54 West corridor, given its lower densities, smaller market, and longer route lengths.
- UNC-CH and UNC Hospital are not planning substantial increases in parking capacity. Travel demand management (TDM) policies are being implemented to encourage and support a mode shift away from single-occupant vehicles and towards to transit, biking, walking, and ridesharing. These efforts will be most productive—and cost-effective—in denser corridors with efficient transit service and/or shorter trip distances. Limited impacts can be expected in the NC 54 west corridor, given the relatively lower concentration of trip ends and longer travel distances. Ridesharing and park-and-ride appear to be the most promising options in this corridor.
- As an important public institution serving the State of North Carolina (and beyond), UNC Hospital must be accessible to a broad range of patients, visitors, and others. A balance of convenient access by both transit and automobile must be maintained.
- Although UNC-CH and UNC Hospital are significant contributors to traffic using the NC 54 West corridor, these trips are only part of the volumes on NC 54. As the region grows, these trips will represent a shrinking share of NC 54 West traffic. The biggest sources of new traffic on NC 54 West appear to be growth in Alamance and Chatham Counties, along with overall growth in Orange County.

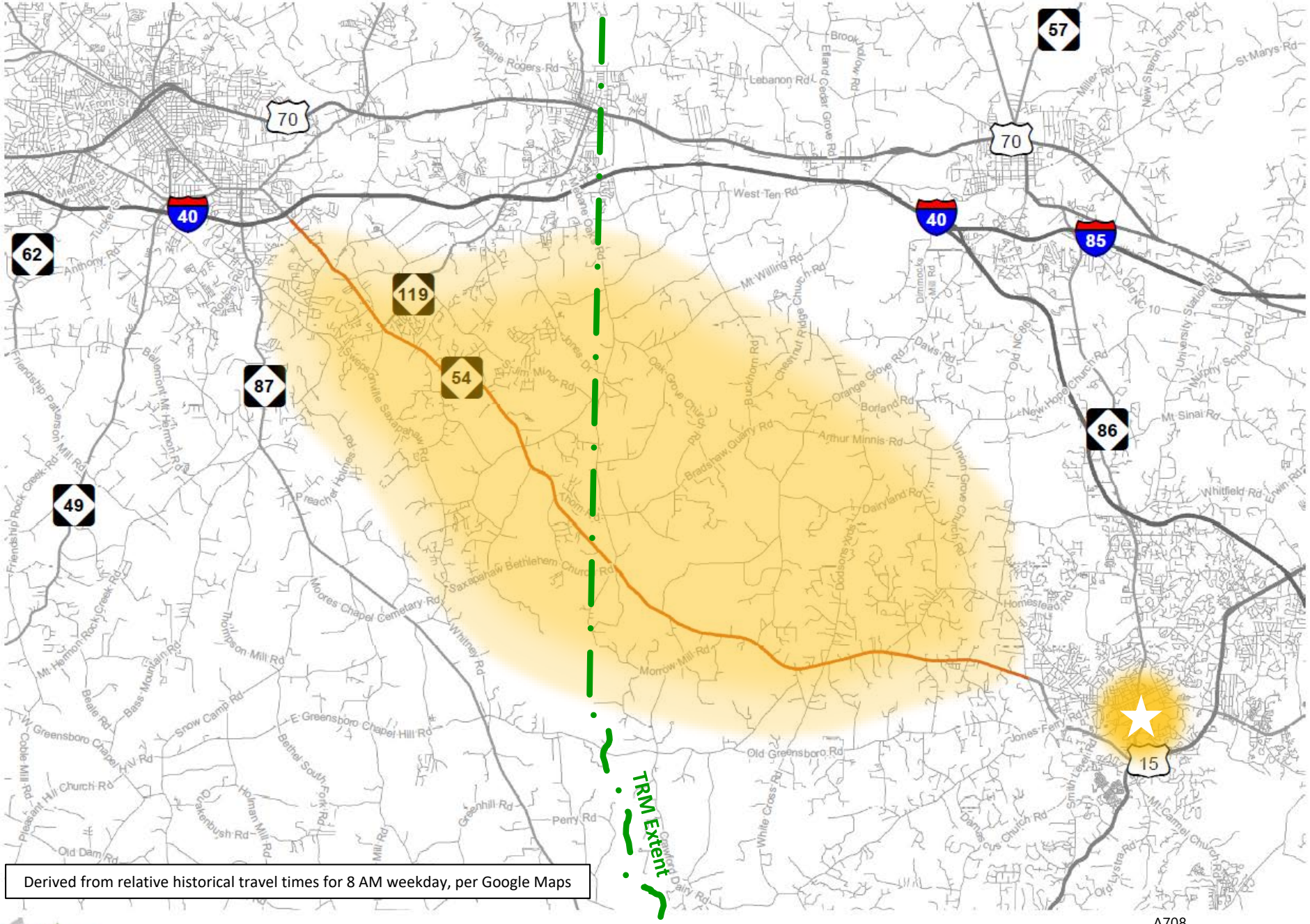


Figure 1: Estimated NC 54 Travelshed for Trips to Chapel Hill

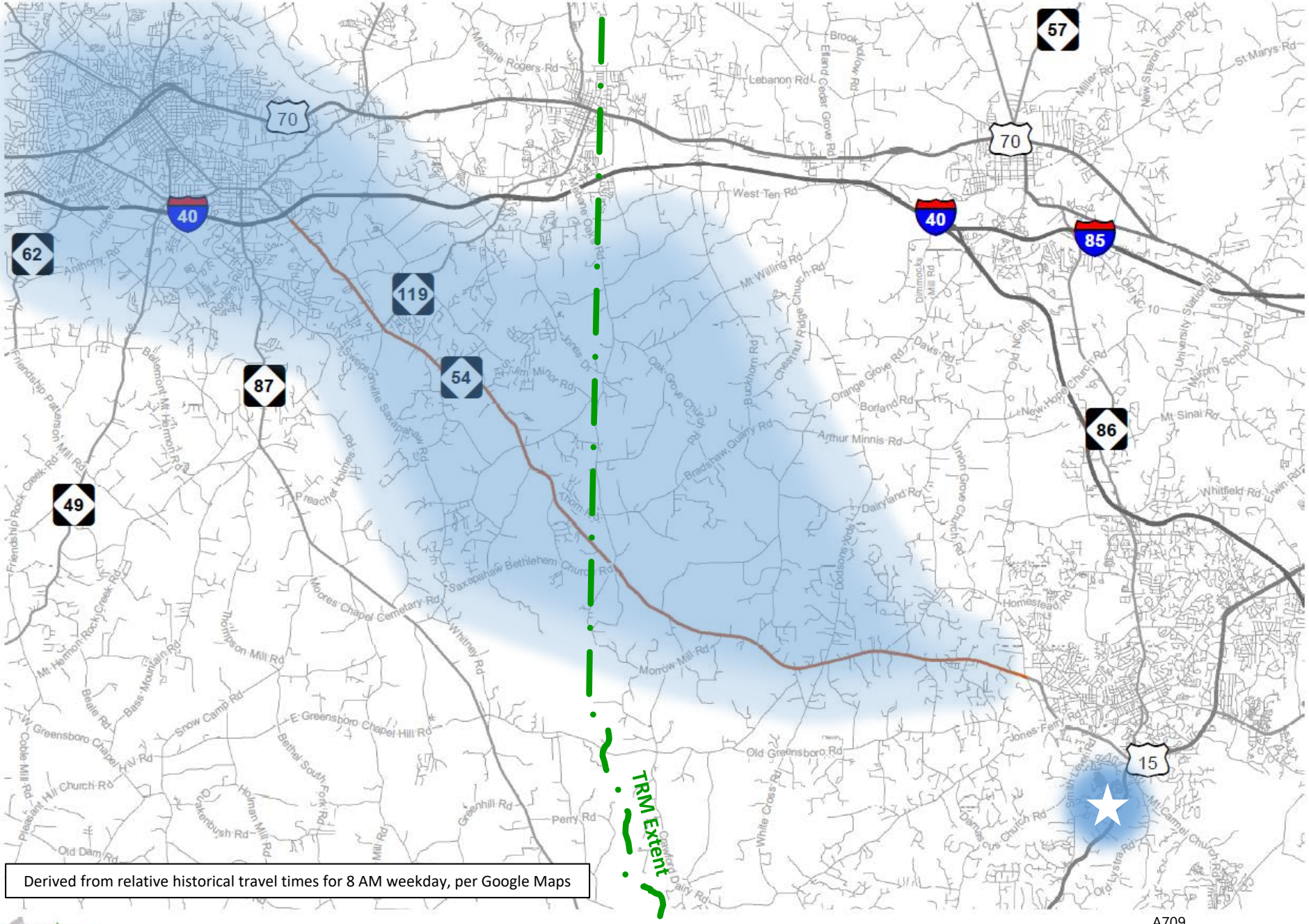


Figure 2: Estimated NC 54 Travelshed for Trips to Southern Village

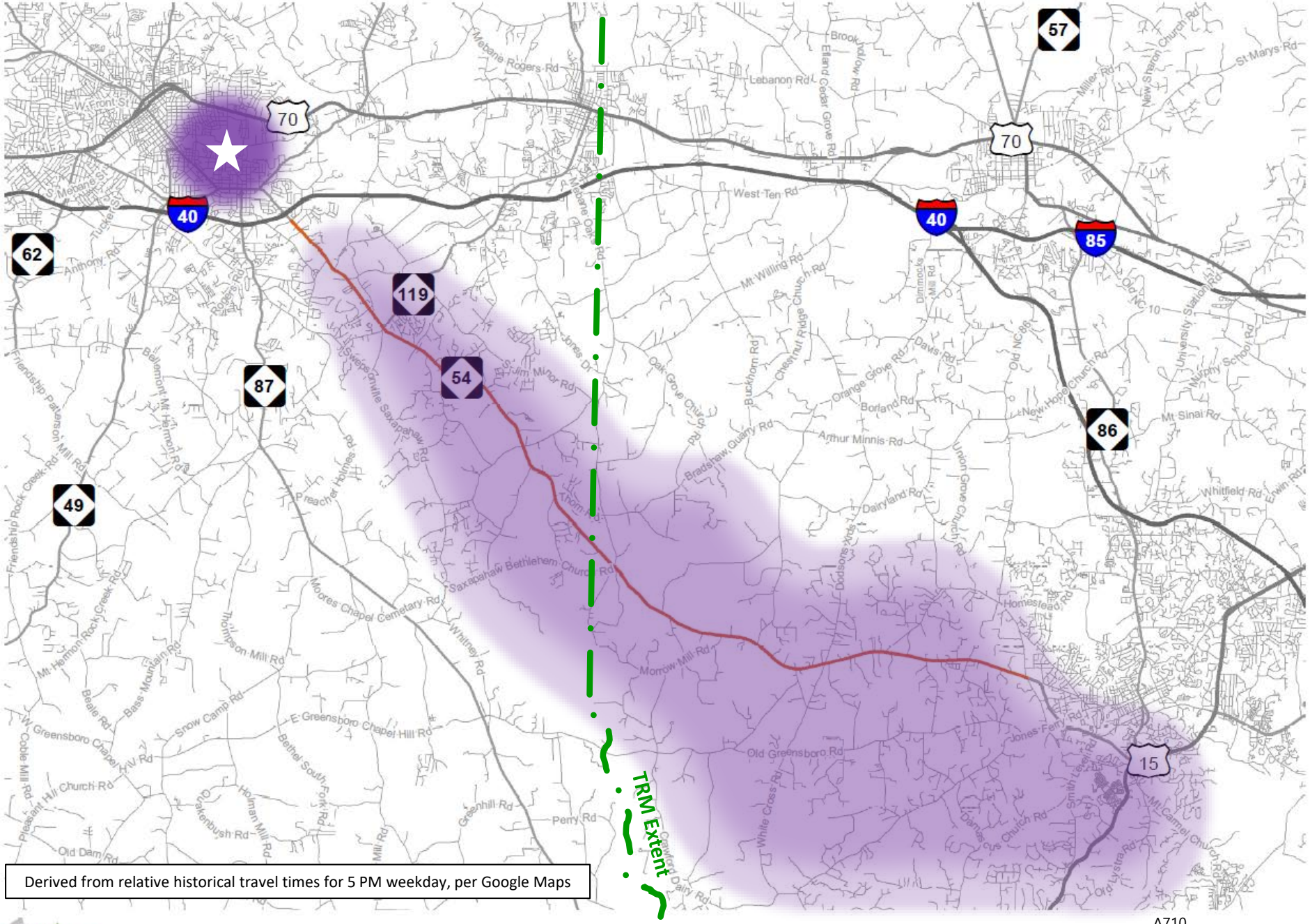
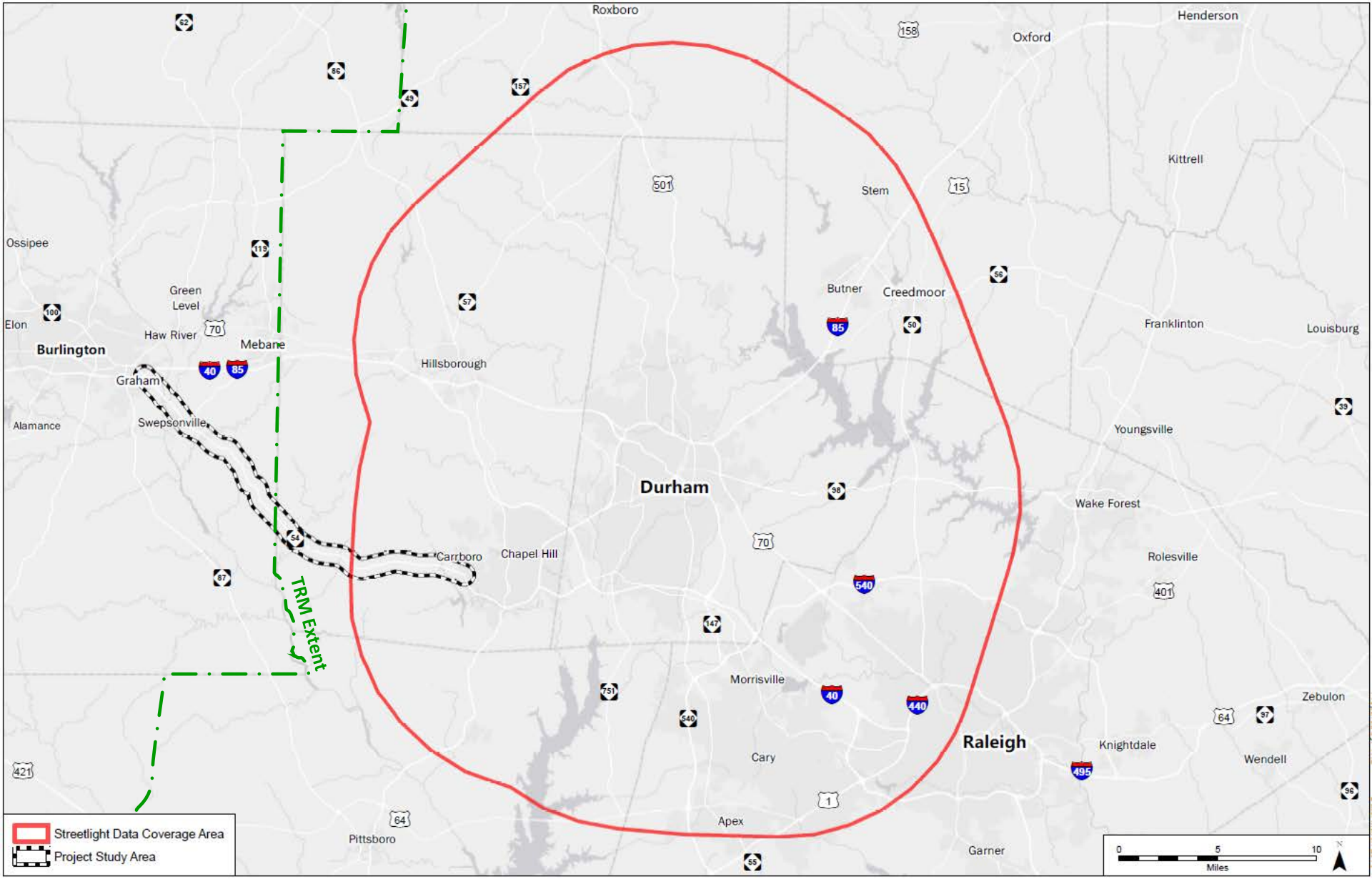


Figure 3: Estimated NC 54 Travelshed for Trips to Burlington



A711

Figure 4: StreetLight InSight Dataset Coverage

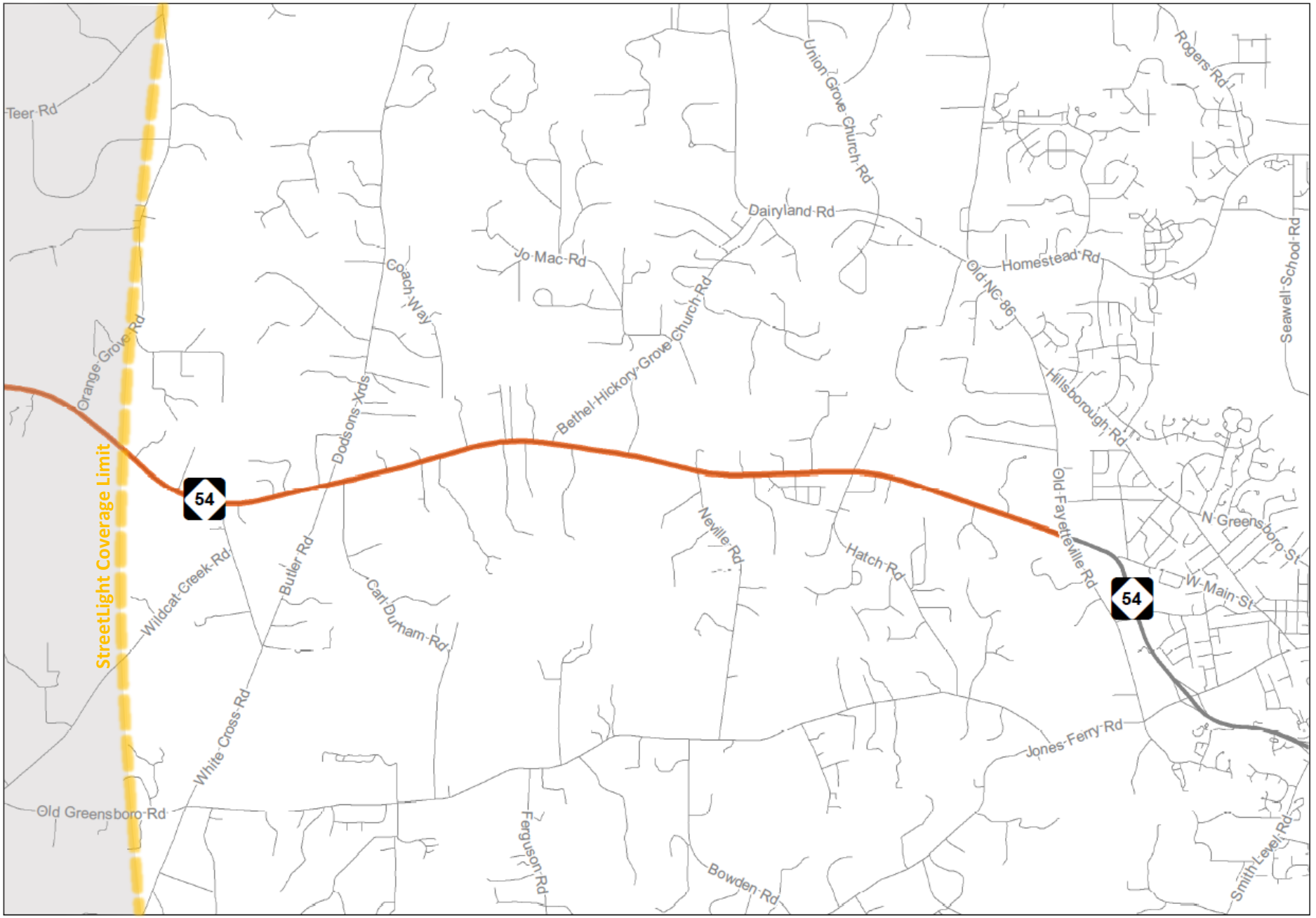


Figure 5: NC 54 Corridor Segment for StreetLight Origin-Destination Analysis

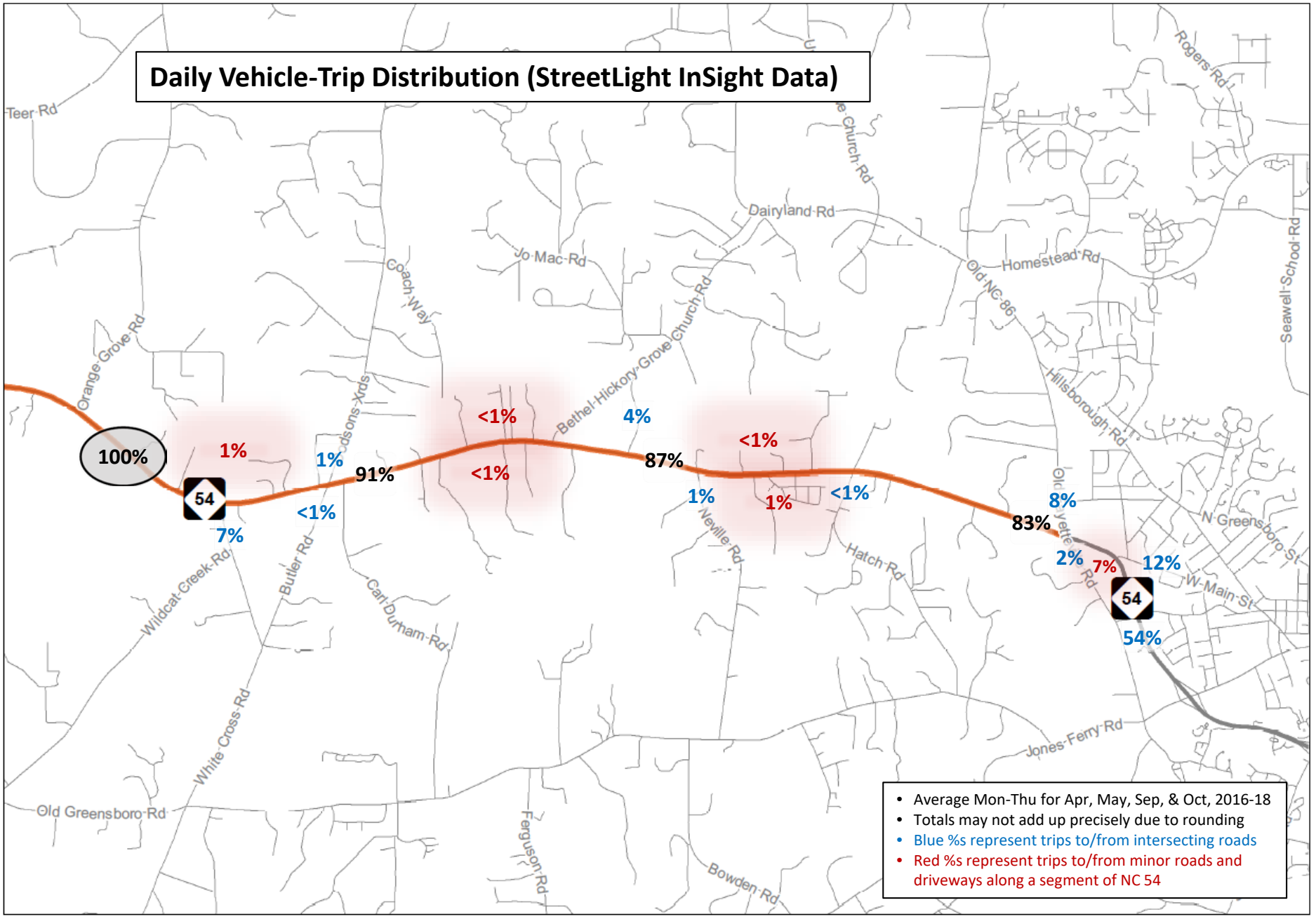


Figure 6: Origin-Destination Analysis – NC 54 East of Orange Grove Road

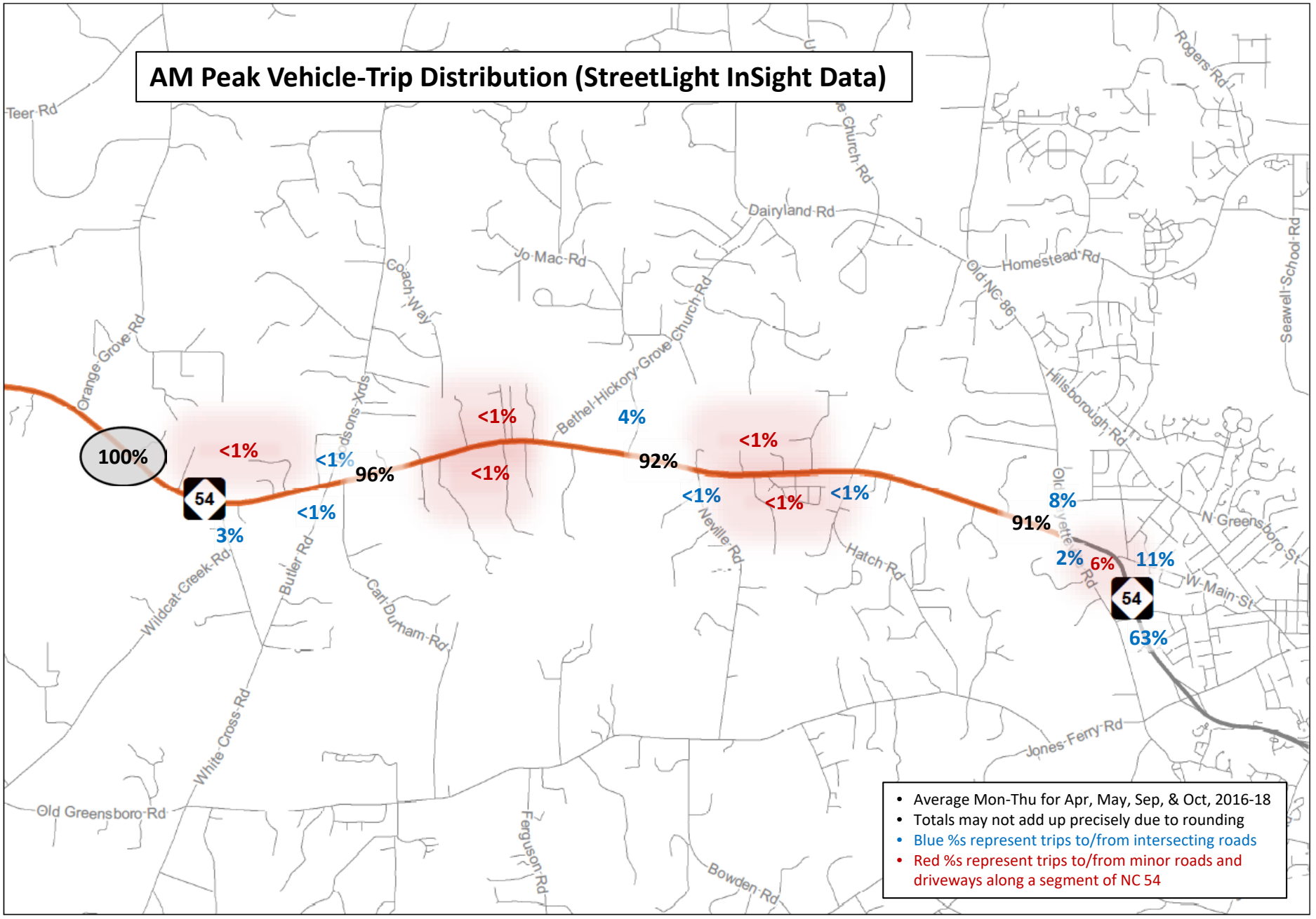


Figure 7: Origin-Destination Analysis – NC 54 East of Orange Grove Road

A714

0 0.3 0.6 1.2 Miles

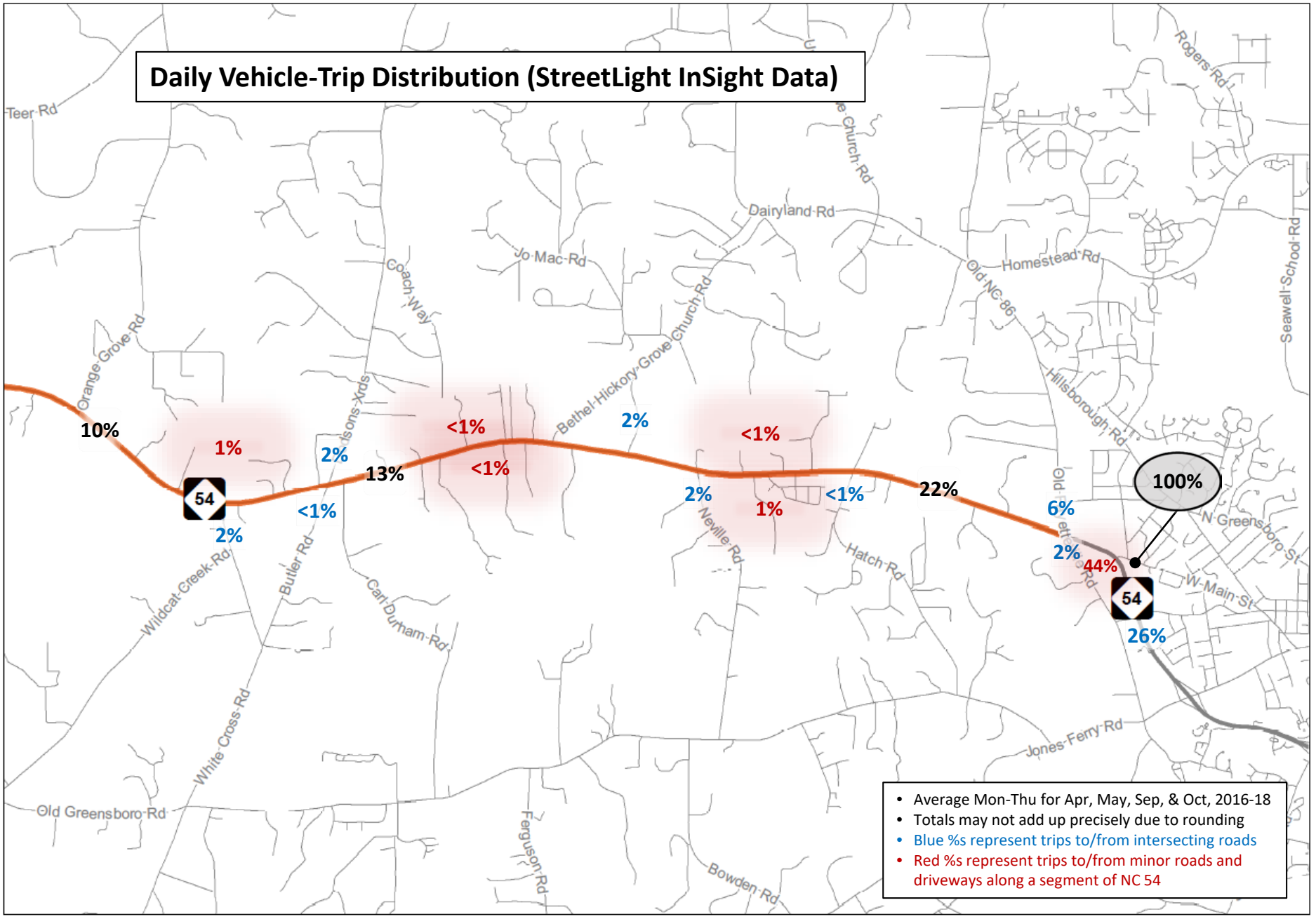


Figure 8: Origin-Destination Analysis – West Main St East of NC 54 Bypass

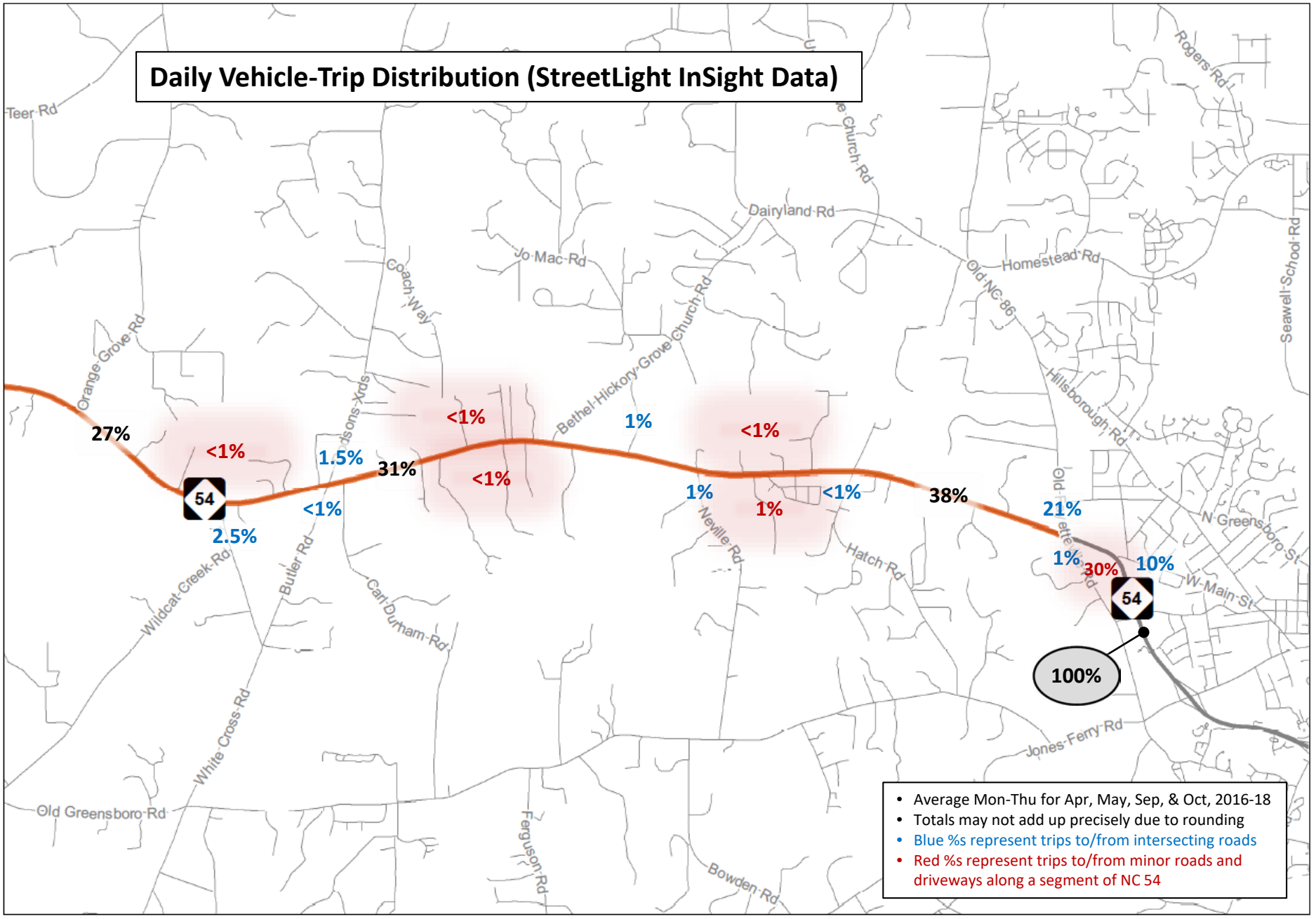


Figure 9: Origin-Destination Analysis –NC 54 Bypass South of West Main St

Figure 10a: TRM & PTRM Population Growth (2013 – 2045)

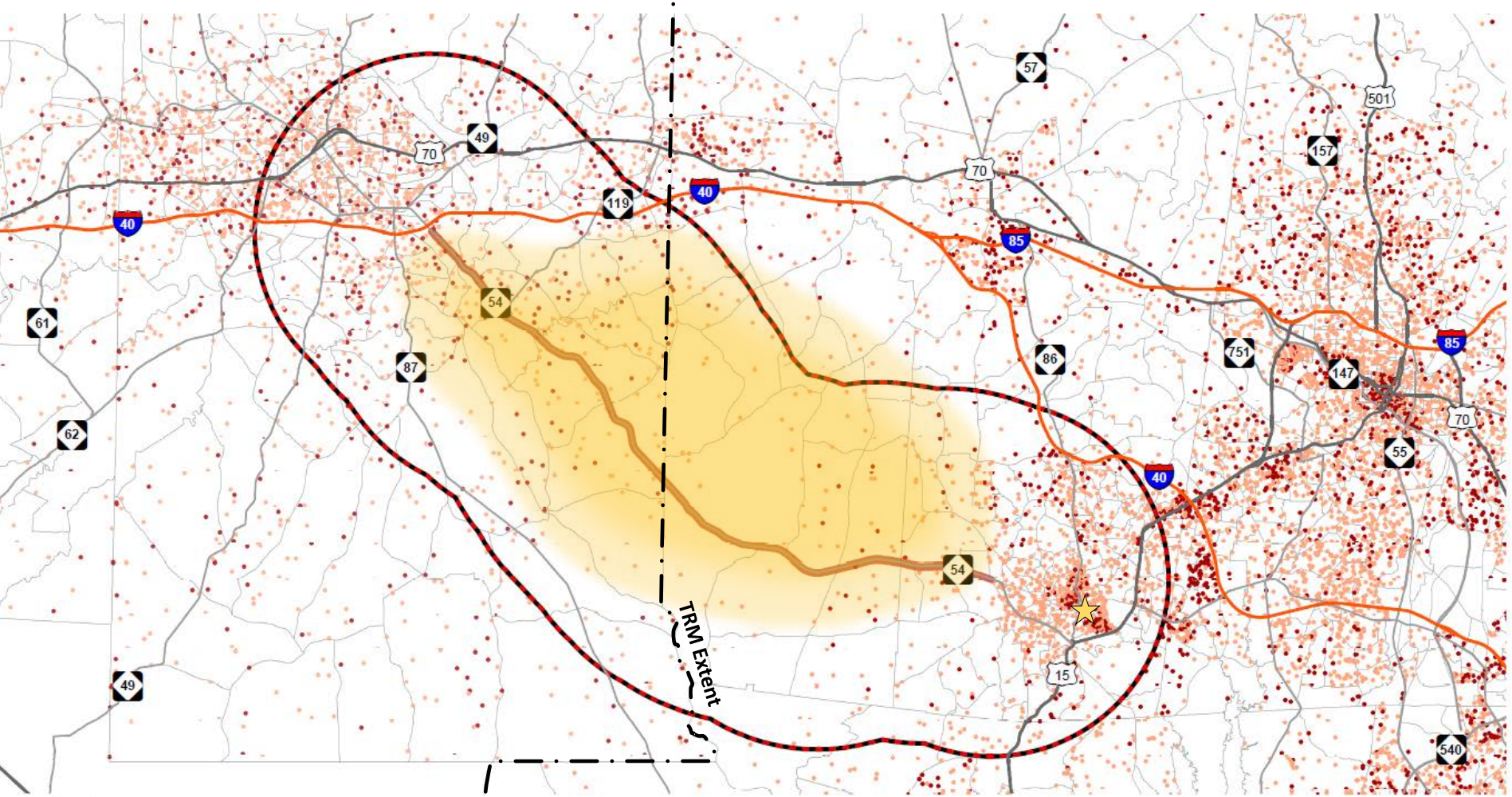


Figure 10b: TRM & PTRM Population Growth (2013 – 2045)

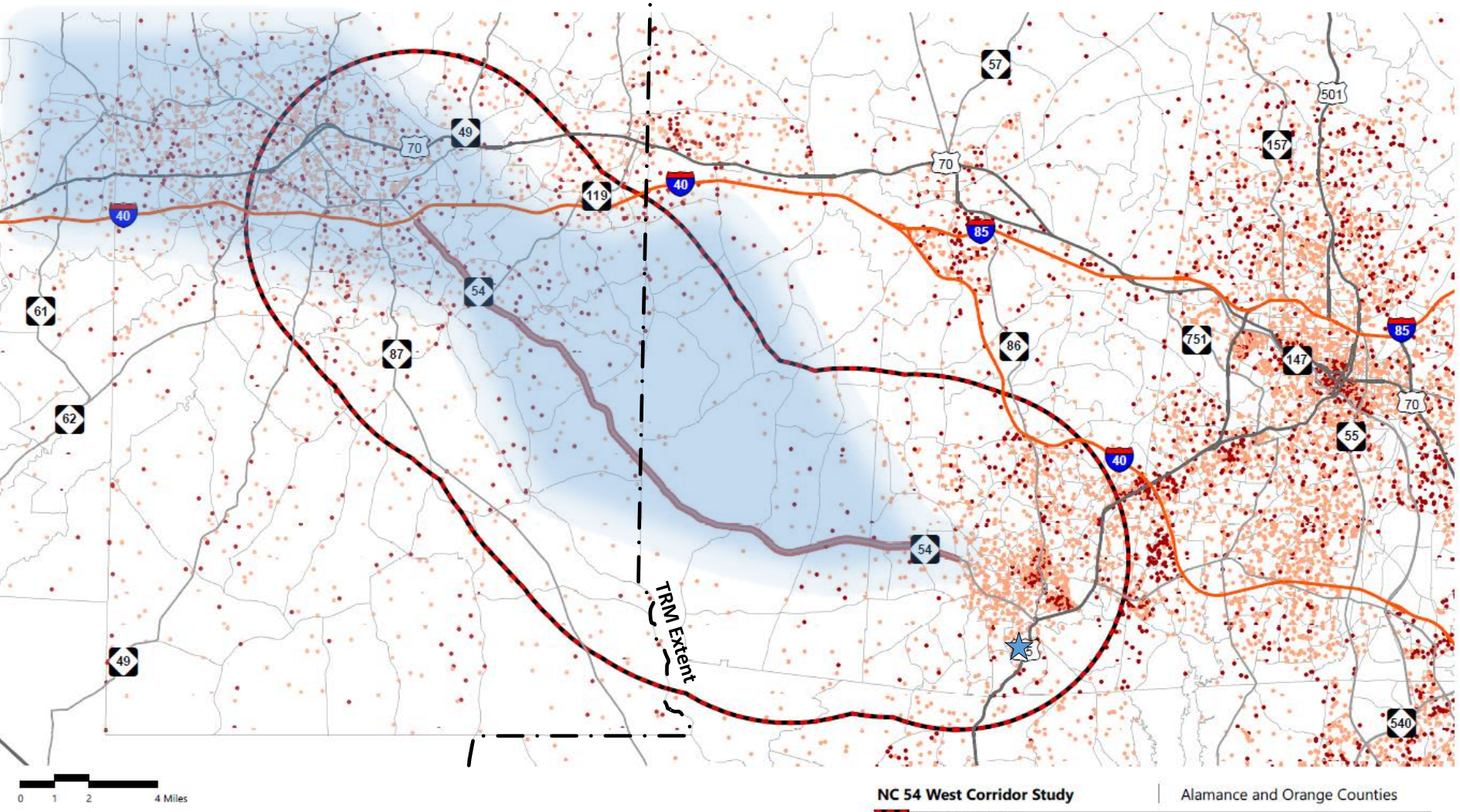


Figure 10c: TRM & PTRM Population Growth (2013 – 2045)

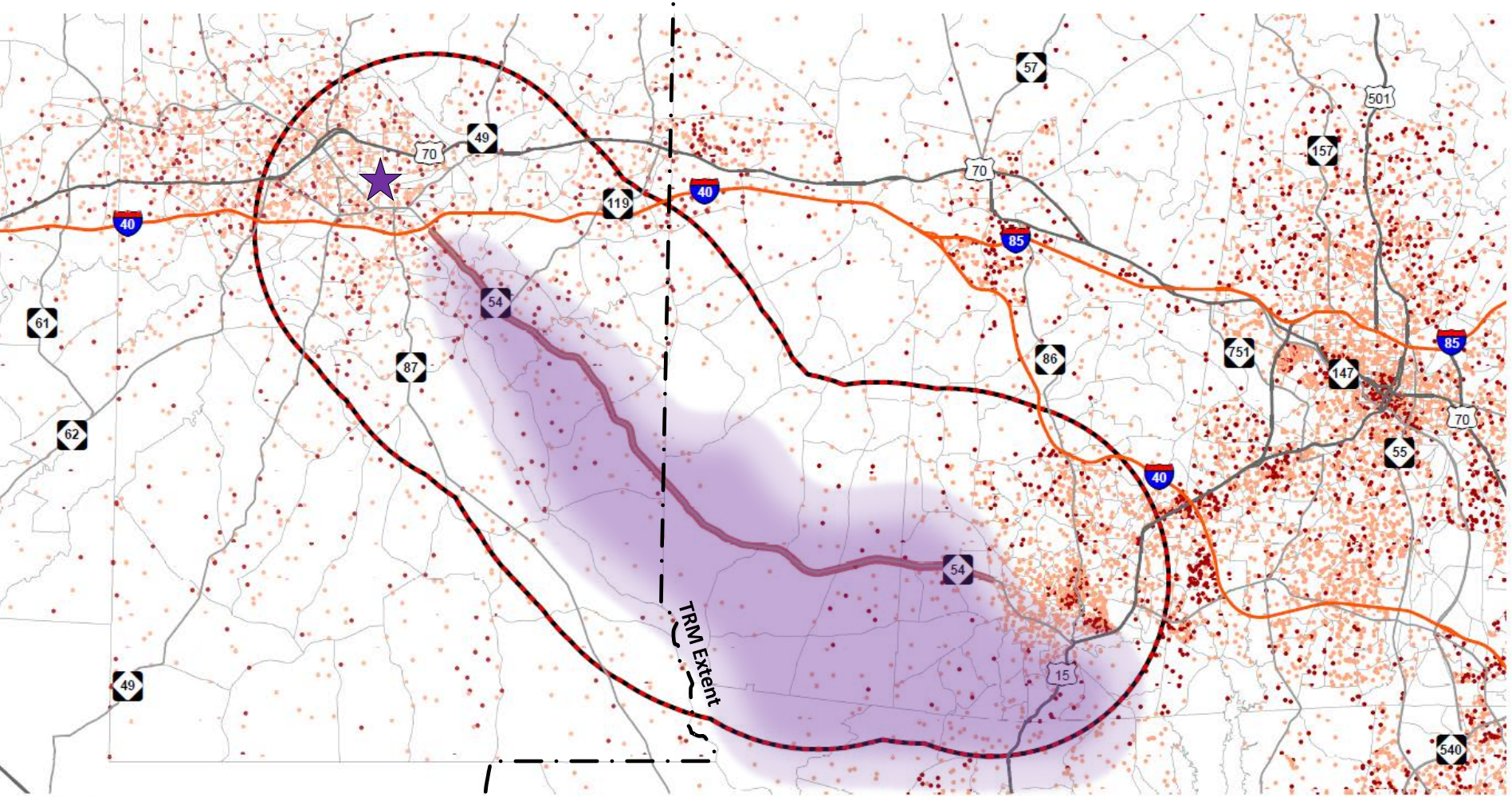


Figure 11a: TRM & PTRM Employment Growth (2013 – 2045)

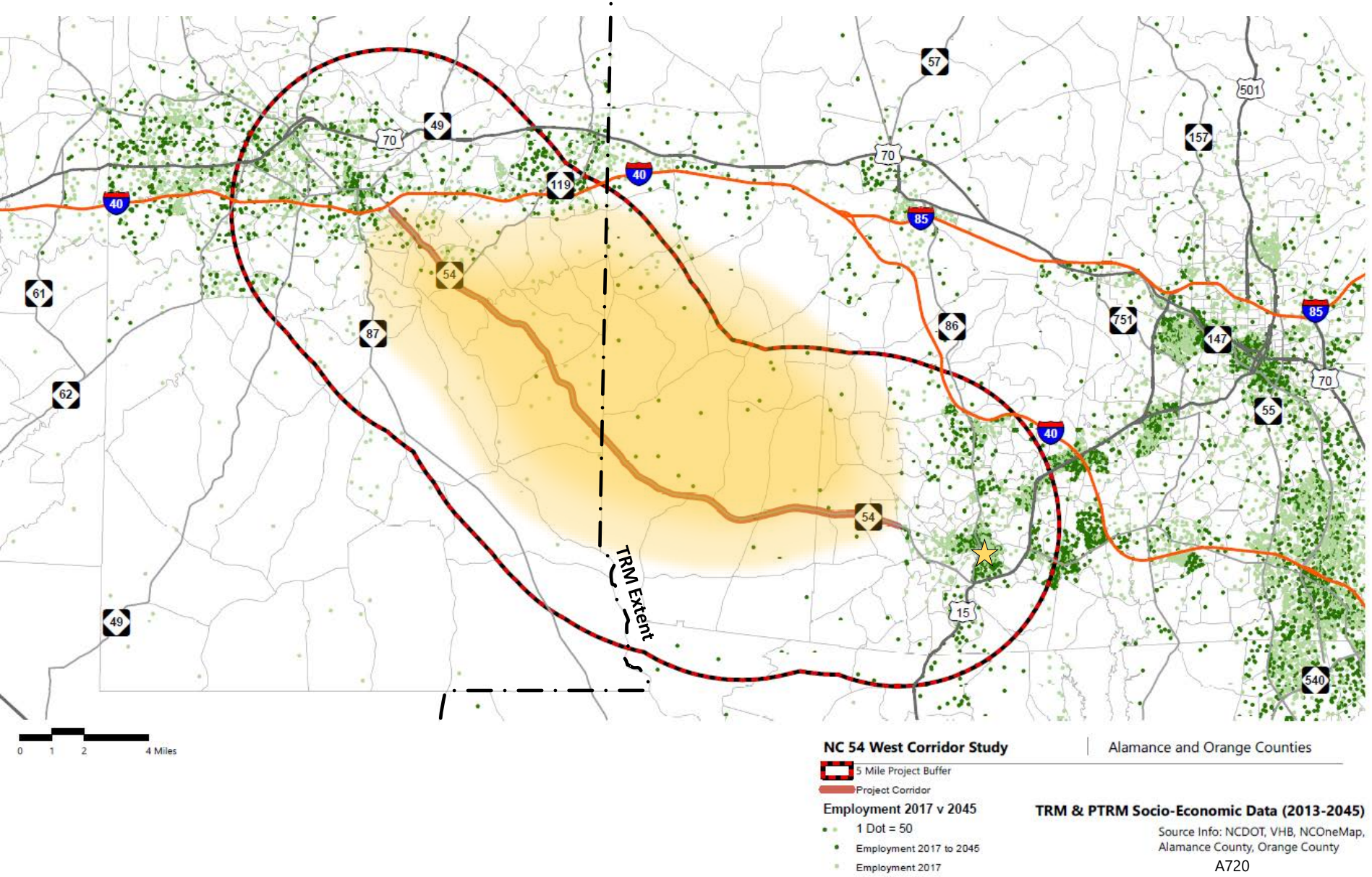


Figure 11b: TRM & PTRM Employment Growth (2013 – 2045)

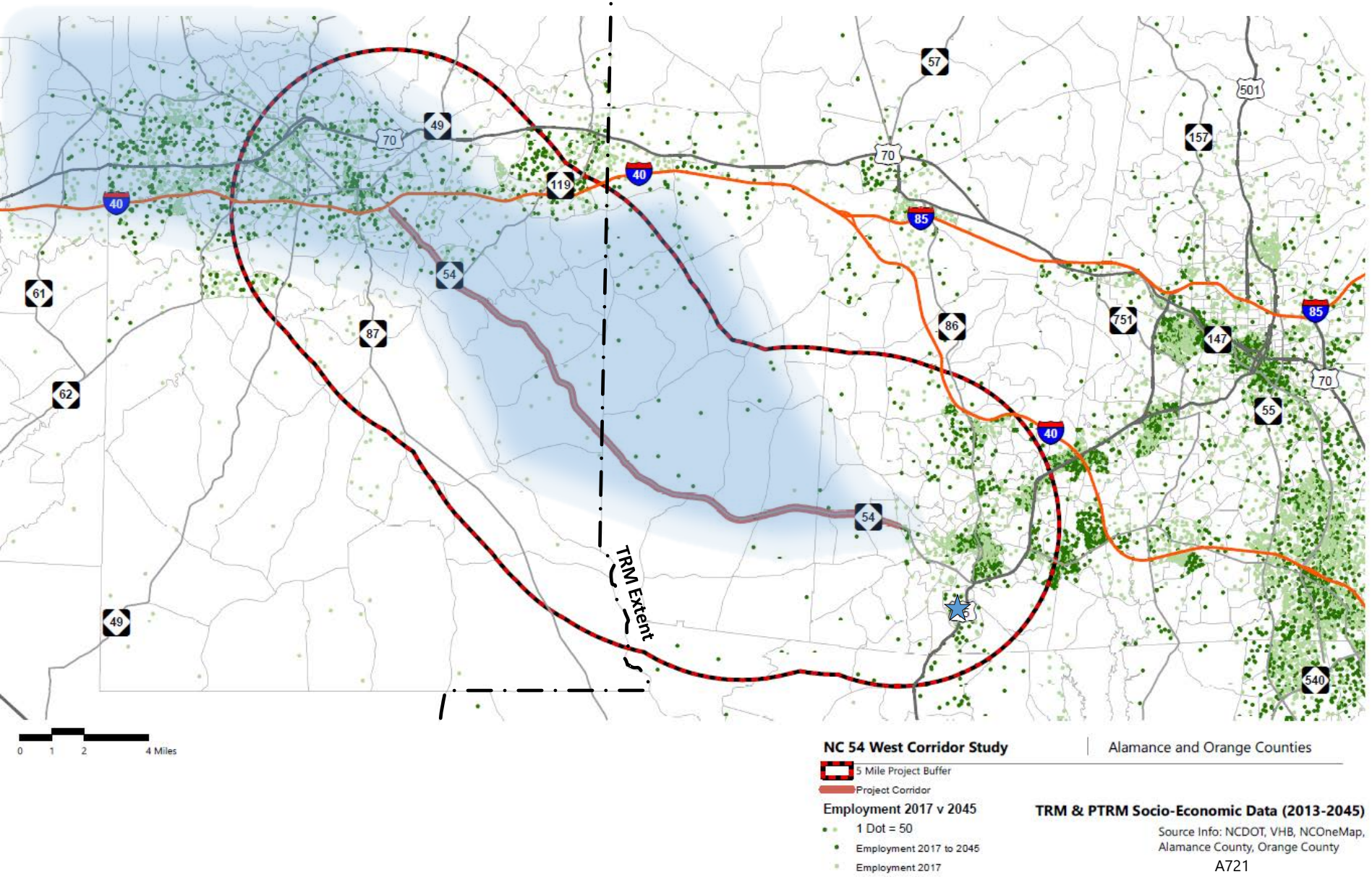
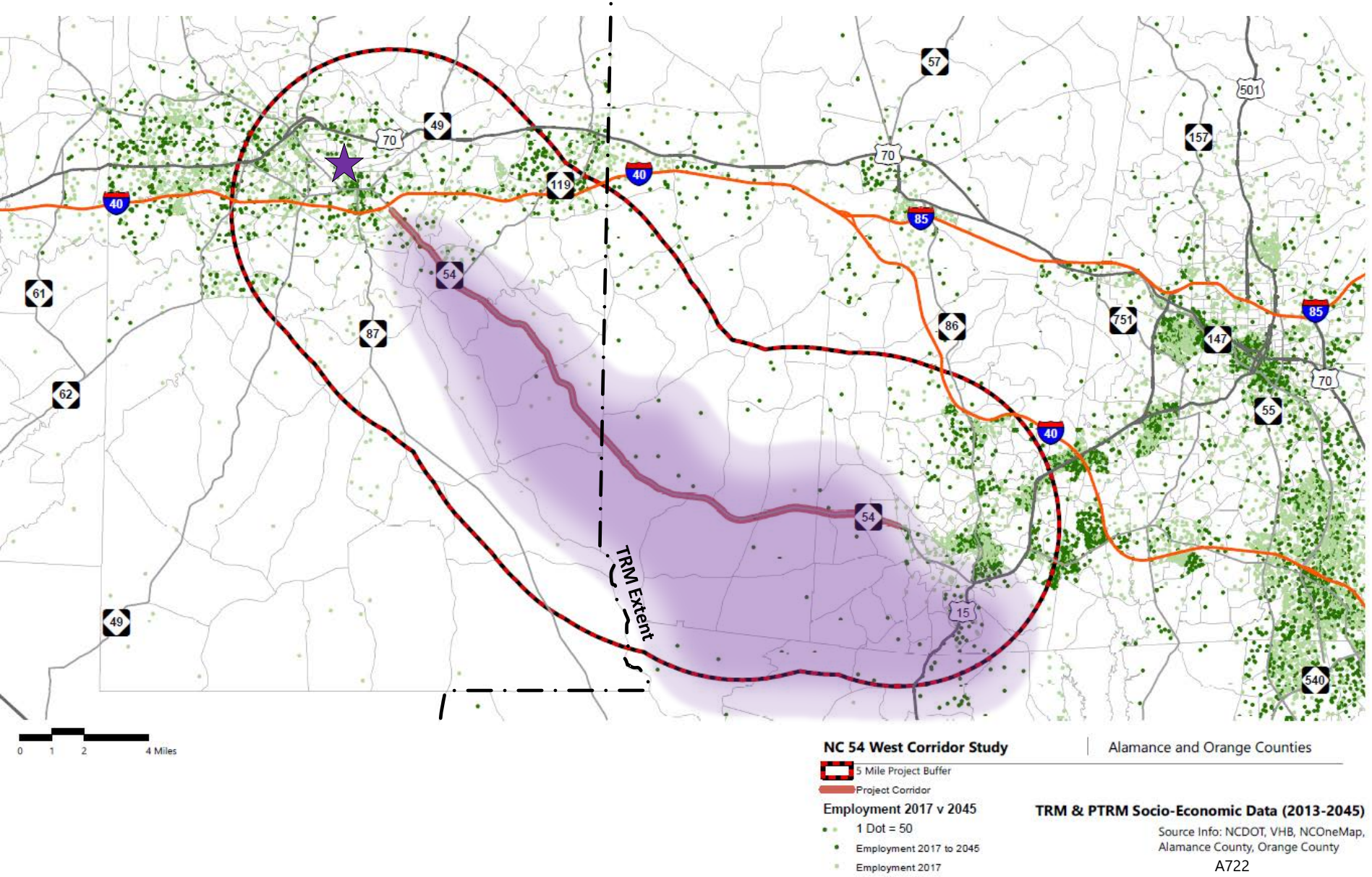


Figure 11c: TRM & PTRM Employment Growth (2013 – 2045)



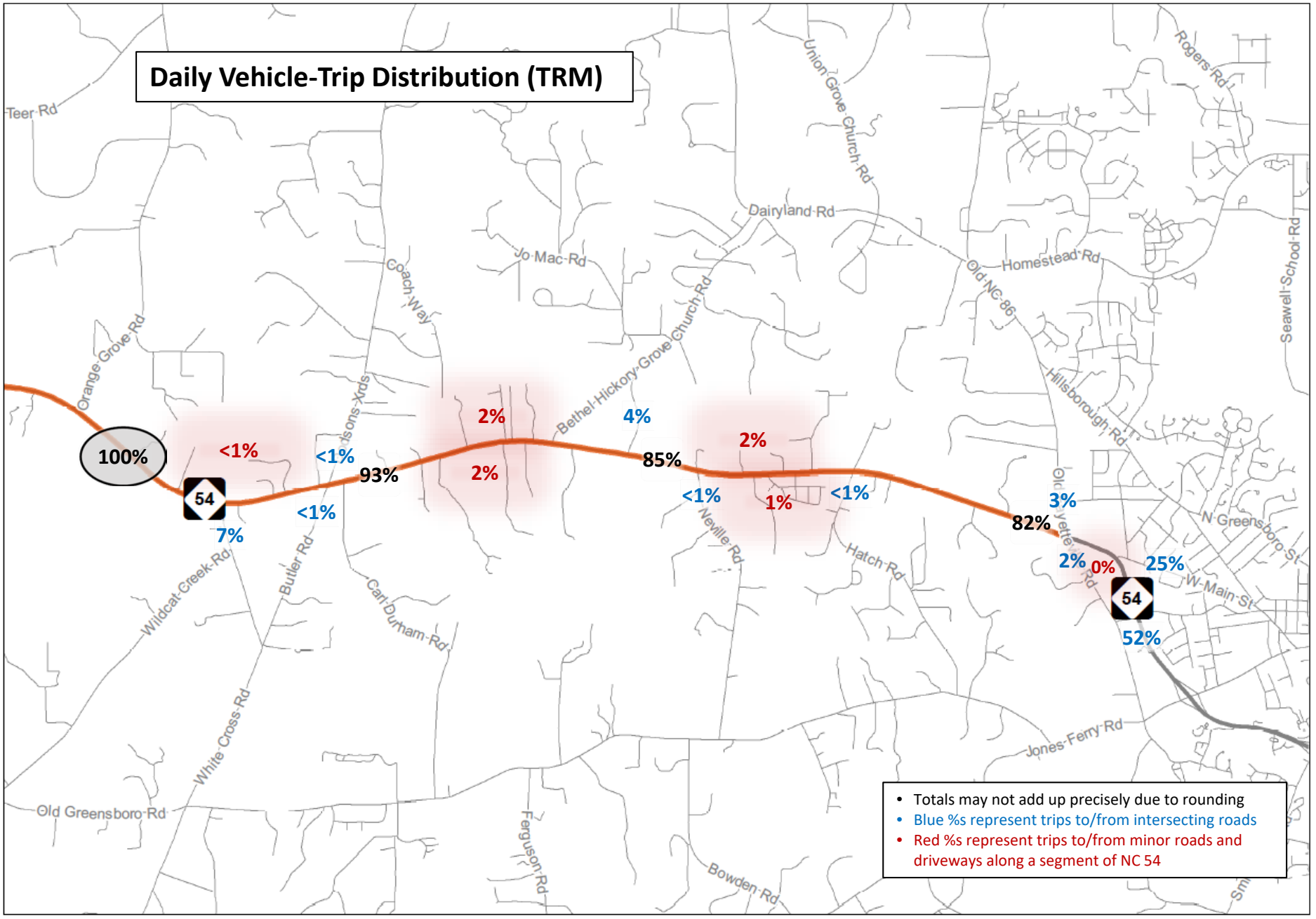
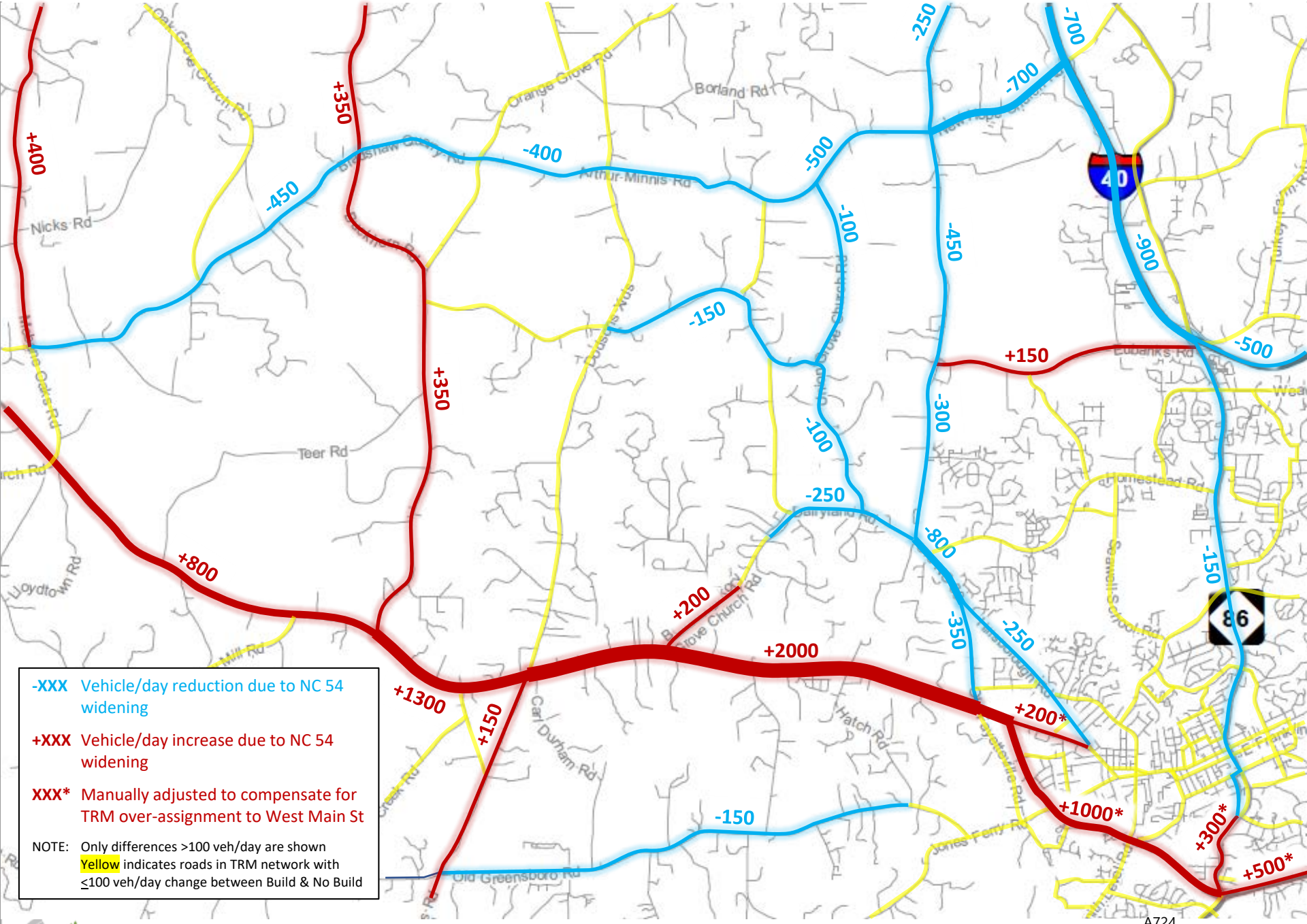


Figure 12: TRM Select Link Analysis – NC 54 East of Orange Grove Road

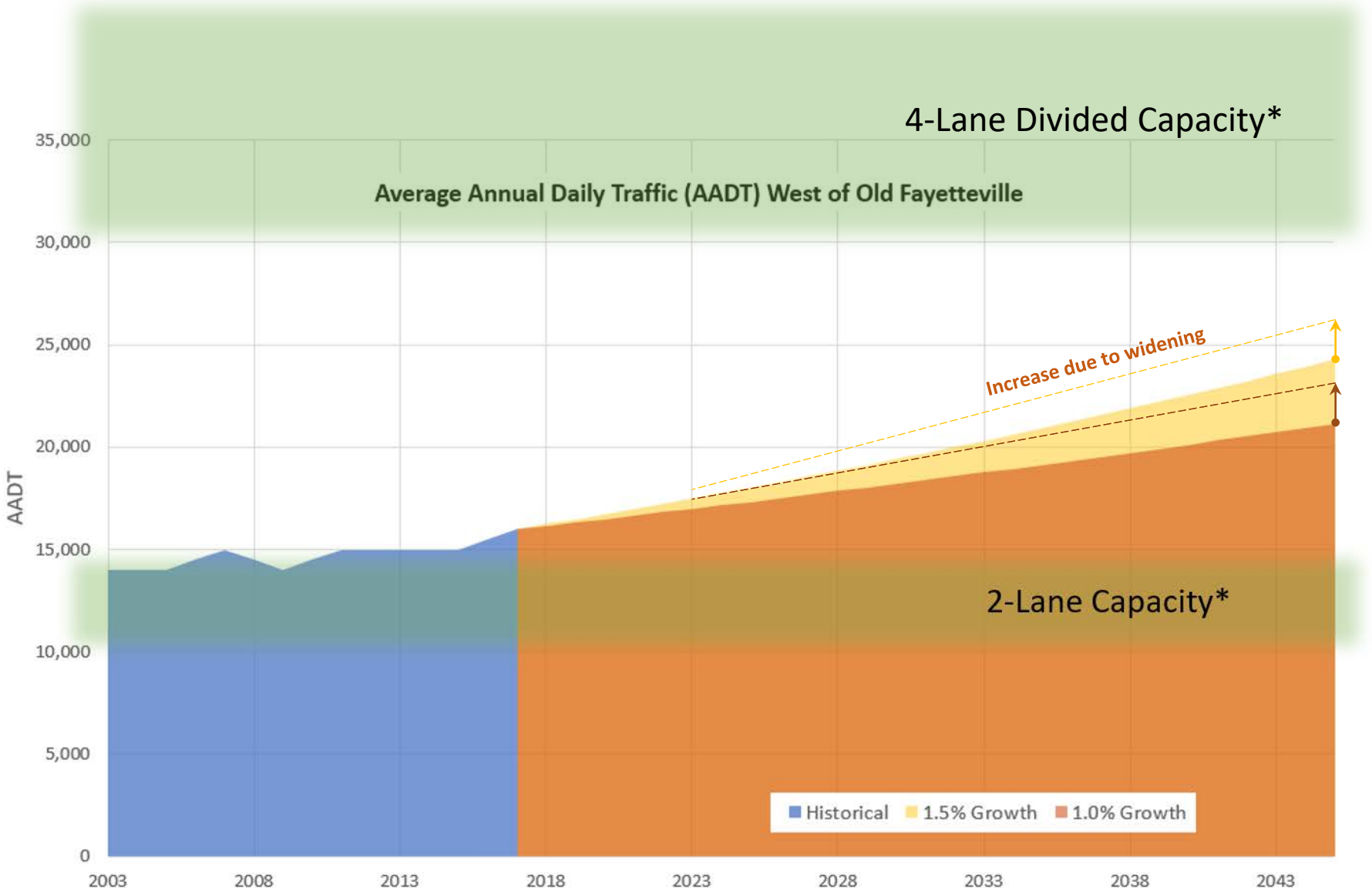
A723

0 0.3 0.6 1.2 Miles



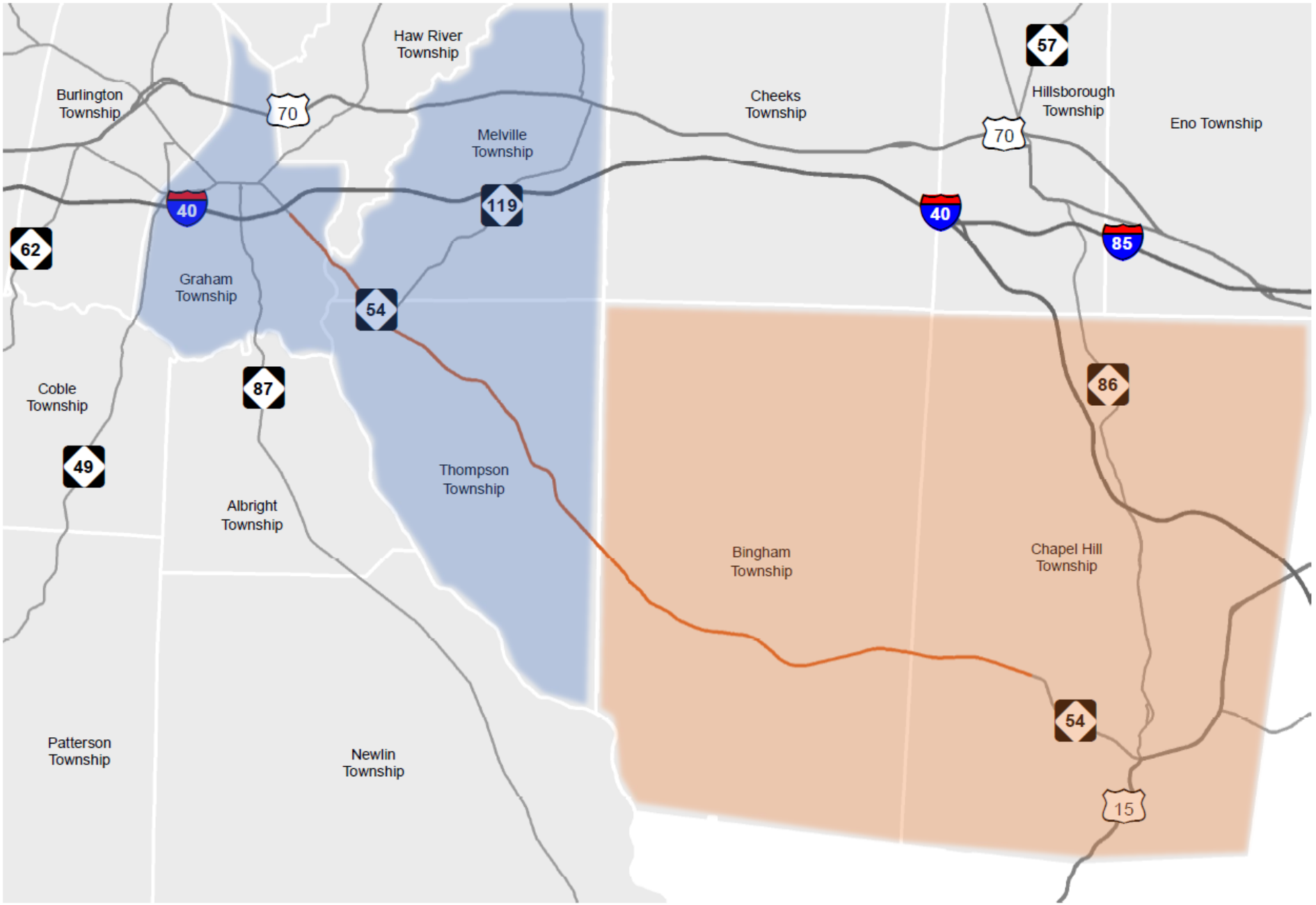
A724

Figure 13: TRM – Daily Traffic Differences between 2045 NC 54 Widened and No-Build Scenarios



A725

Figure 14: Relative Impacts of Traffic Shifts due to NC 54 Widening



A726

Figure 15: Areas Included in Population-AADT Correlation Analysis

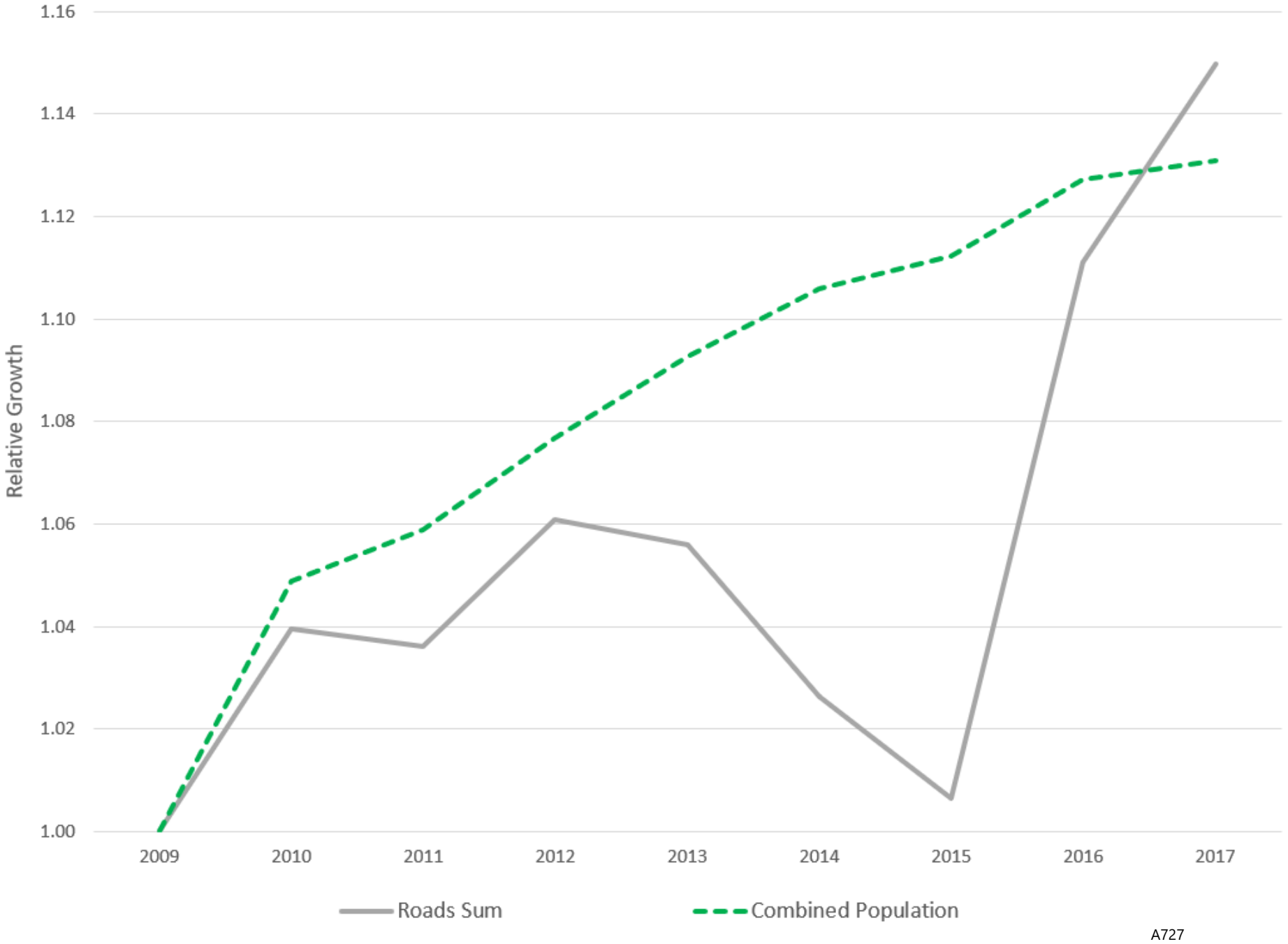
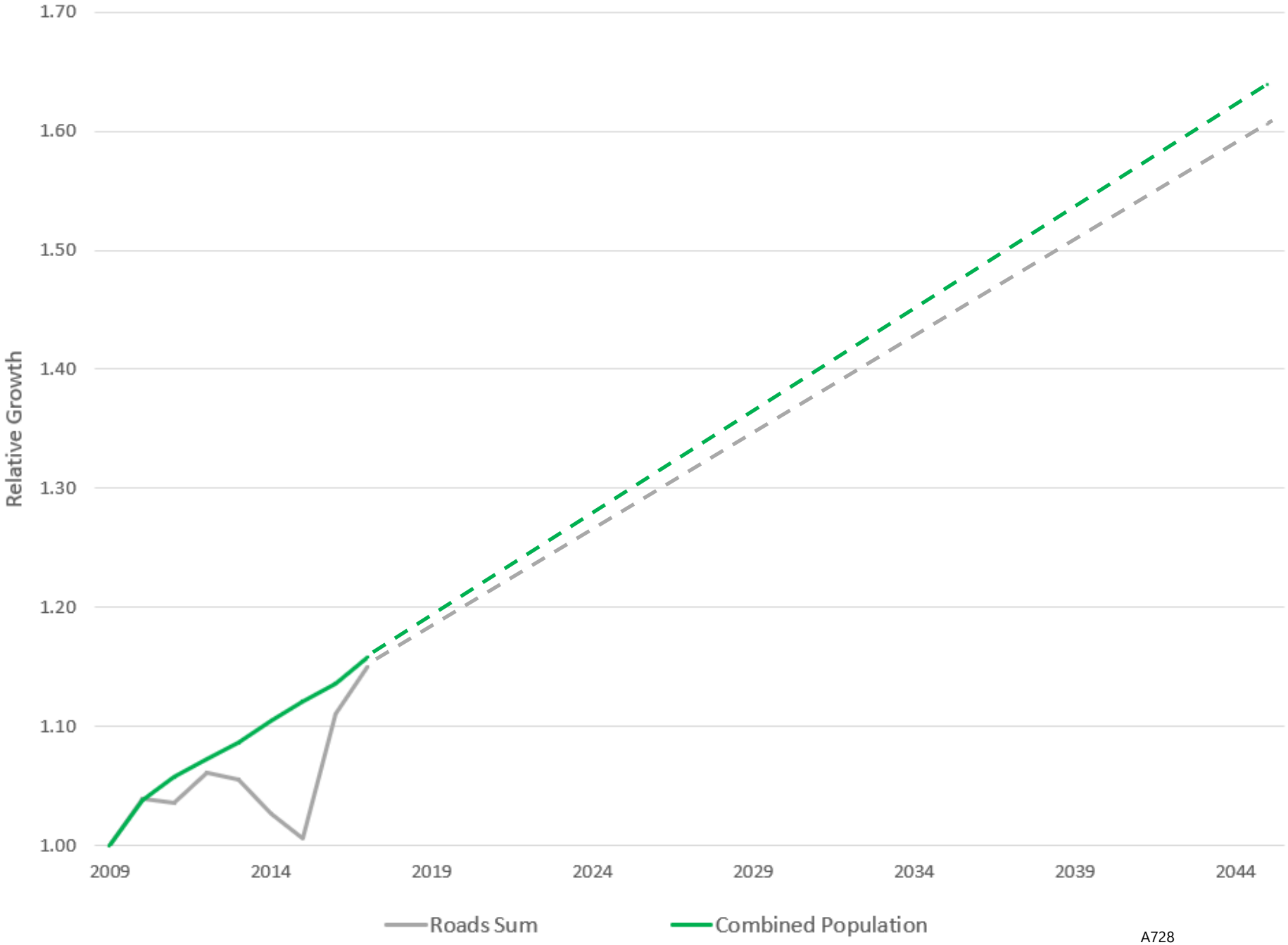


Figure 16: Comparison of Historical Population and AADT Aggregations



A728

Figure 17: Comparison of Aggregated Population and AADT Forecasts

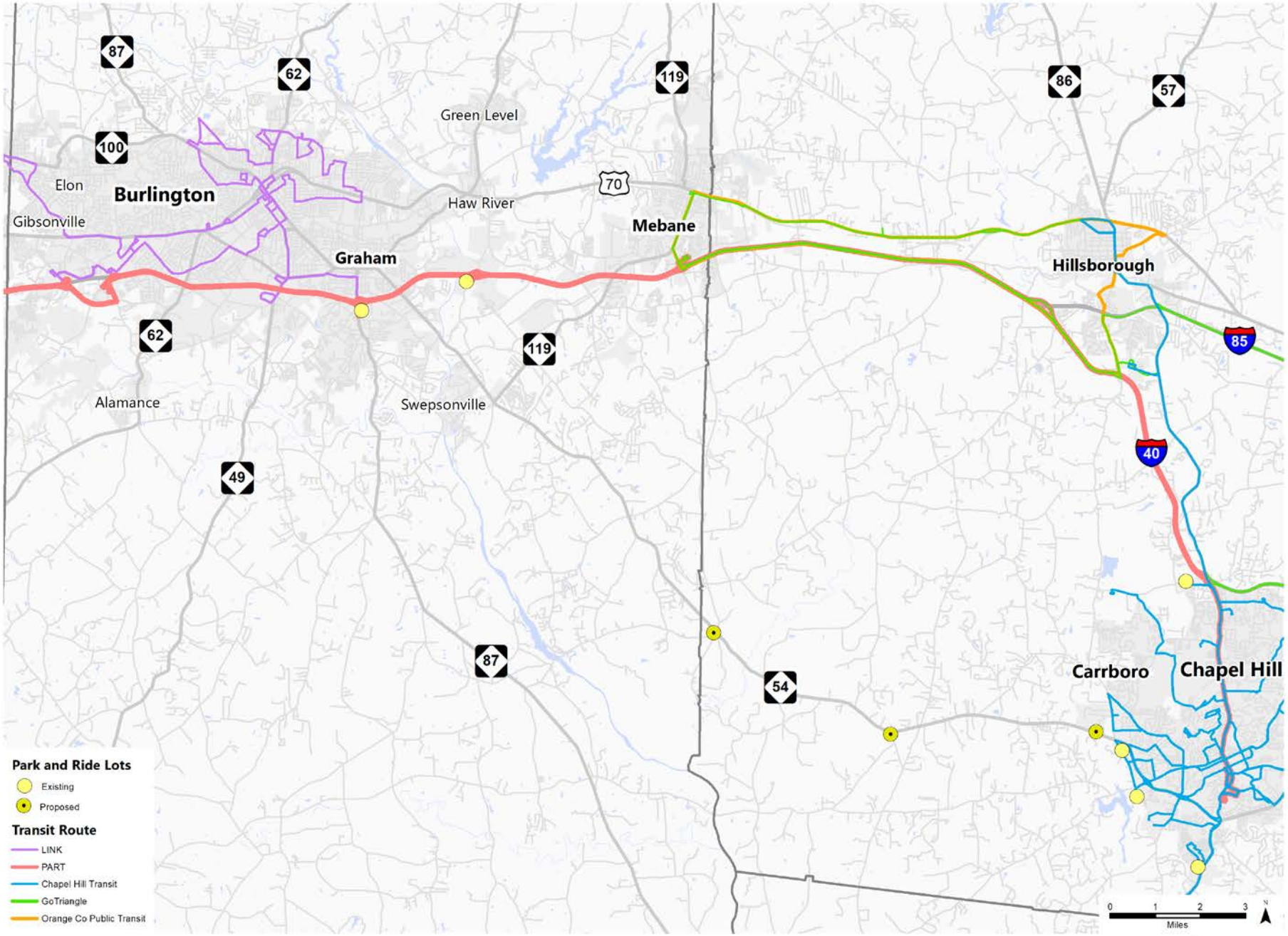
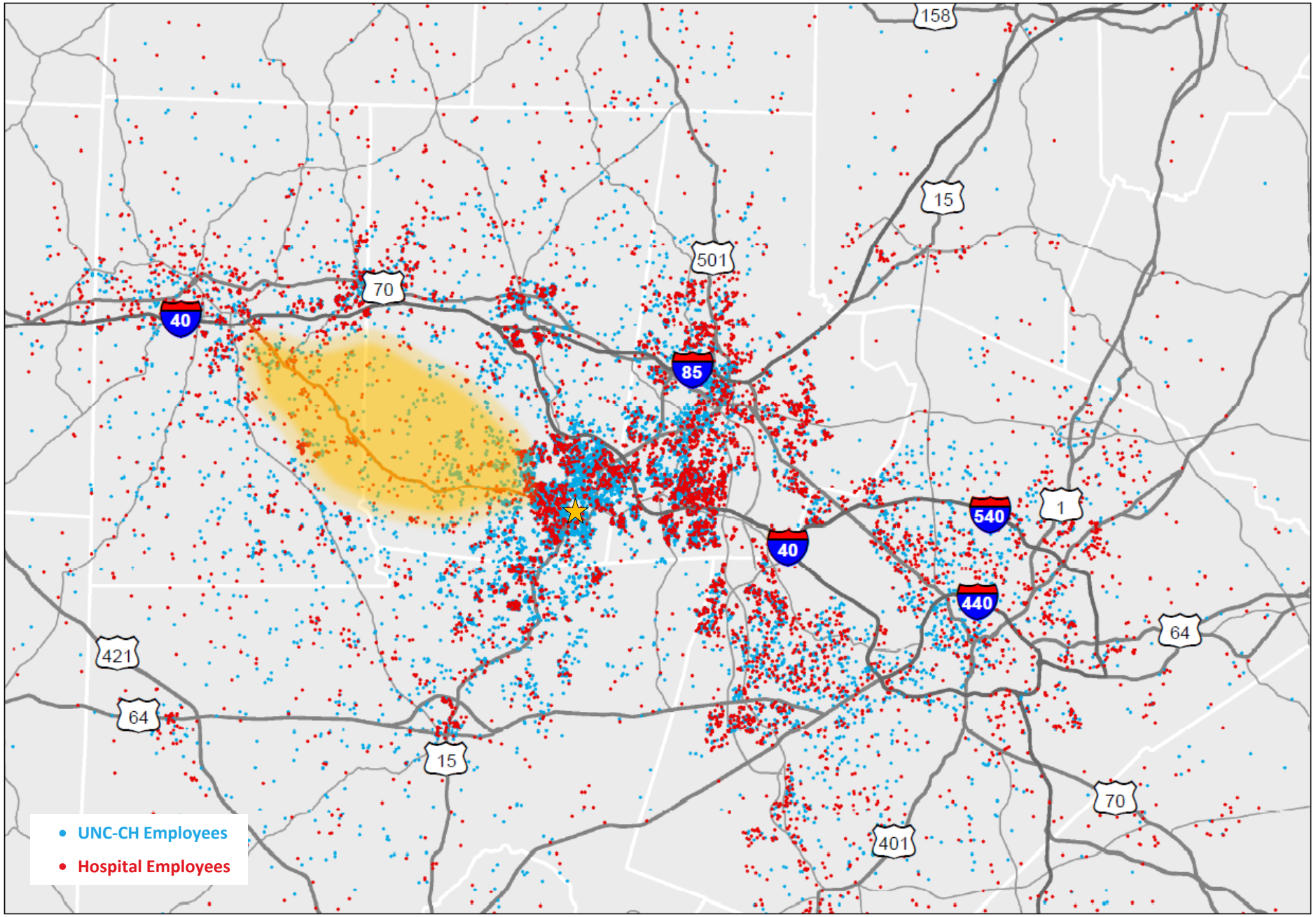
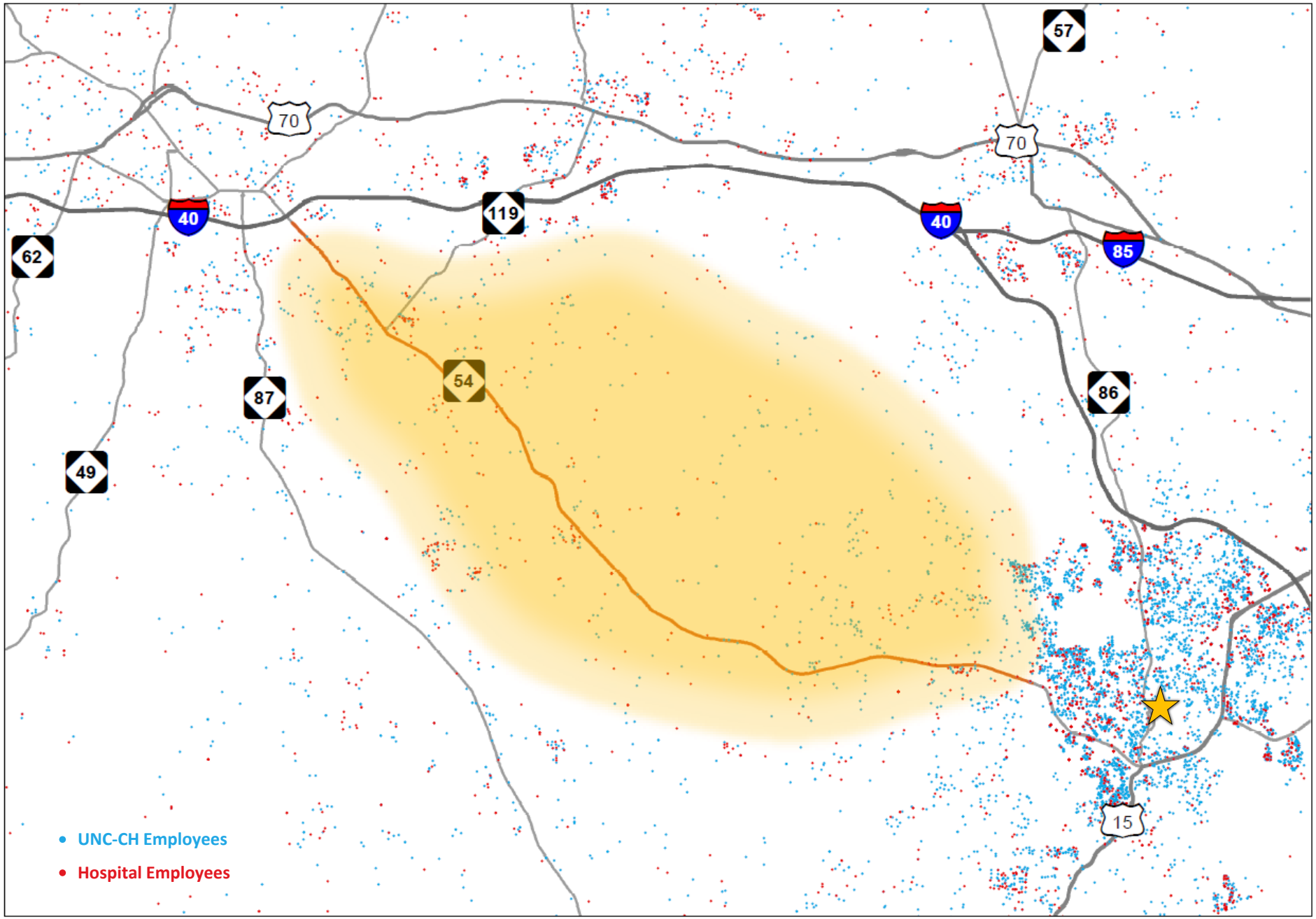


Figure 18: Transit Routes and Park-&-Ride Lots



Source: UNC-CH Development Plan, 2017 TIA Update

Figure 19: Regional Distribution of UNC-CH and Hospital Employee Residences (2017)



Source: UNC-CH Development Plan, 2017 TIA Update

Figure 20: Study Area Distribution of UNC-CH and Hospital Employee Residences (2017)

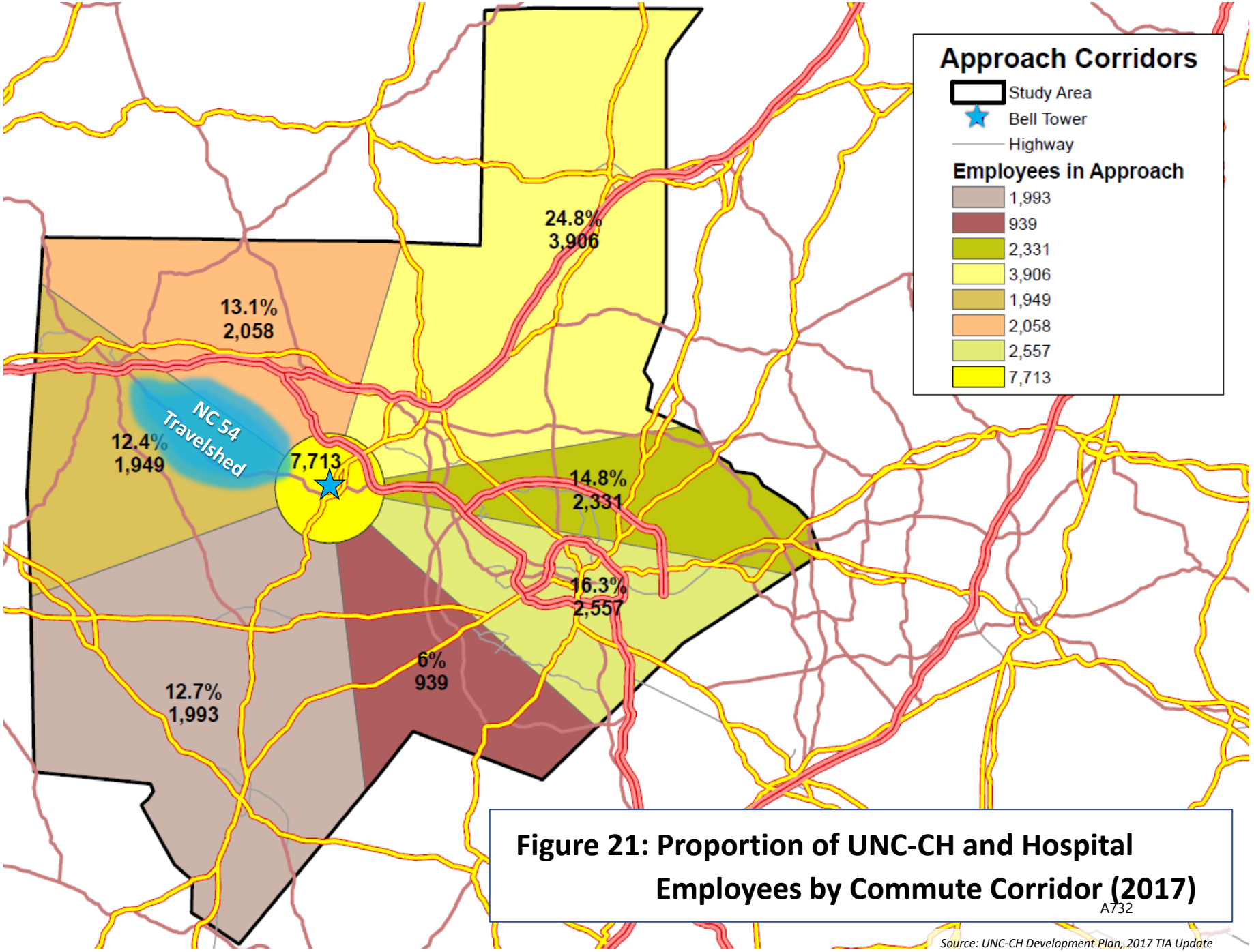


Figure 21: Proportion of UNC-CH and Hospital Employees by Commute Corridor (2017)

Source: UNC-CH Development Plan, 2017 TIA Update