Chatham County Comprehensive Plan

Transportation Existing Conditions

September 2016
# Table of Contents

Introduction ........................................................................................................................................... 1  
Roadways ............................................................................................................................................... 4  
  Infrastructure ....................................................................................................................................... 4  
  Commuting ......................................................................................................................................... 5  
  Traffic ............................................................................................................................................... 7  
  Safety ............................................................................................................................................... 10  
US 15-501 Traffic Conditions ................................................................................................................ 11  
Travel Demand Modeling ...................................................................................................................... 13  
Bicycling Conditions ............................................................................................................................ 14  
Pedestrian Conditions ........................................................................................................................... 16  
Transit .................................................................................................................................................. 19  
Freight and Rail .................................................................................................................................... 21  
Summary ............................................................................................................................................. 23
List of Figures

Figure 1: Area MPO and RPO Boundaries ........................................................................................................ 2
Figure 2: 2012 NCDOT Pavement Condition Assessment ............................................................................. 5
Figure 3: Zero Vehicle Households ................................................................................................................ 6
Figure 4: In and Out Commuting in Chatham County ...................................................................................... 7
Figure 5: Chatham County Average Annual Daily Traffic (AADT) Volumes .................................................. 8
Figure 6: Corridor-Level Average Annual Daily Traffic (AADT) Volumes in Chatham County ................. 8
Figure 7: Change in Average Annual Daily Traffic (AADT) Volumes in Chatham County, 2002/3 to 2013/4 ... 9
Figure 8: Chatham County Crash Locations (2007-11) ............................................................................ 11
Figure 9: US 15-501 Traffic and Safety ........................................................................................................... 12
Figure 10: Bicycle Facilities ............................................................................................................................ 15
Figure 11: Chatham Recreational Bike Loops Map ......................................................................................... 15
Figure 12: Pedestrian Facilities ....................................................................................................................... 17
Figure 13: Pedestrian and Bicycle Crashes ..................................................................................................... 18
Figure 14: Chatham County Freight Infrastructure ......................................................................................... 22

List of Tables

Table 1: Journey to Work Statistics .................................................................................................................. 5
Table 2: Top Out-of-County Commuting Destinations .................................................................................... 7
Table 3: Chatham County Crash Rates ........................................................................................................... 10
Table 4: Intersections with the Most Crashes (2007-2011) ......................................................................... 11
Table 5: Pedestrian Crashes ............................................................................................................................ 17
Table 6: Chatham Transit Network In-County Fee Structure ......................................................................... 19
Table 7: Chatham Transit Network Ridership FY 2013 - FY 2016 ................................................................. 19
Table 8: Public At-Grade Rail Crossing - Principal Warning Device ............................................................. 21
Introduction

In North Carolina, transportation networks are constructed and maintained by private associations, local governments, and the North Carolina Department of Transportation. Long range transportation plans in Chatham County, are most commonly coordinated with two regional planning organizations: the Durham Chapel Hill-Carrboro Metropolitan Planning Organization (DCHC MPO) and Triangle Area Rural Planning Organization (TARPO). The area of the county within the DCHC MPO boundary is the North East corner, approximately bounded by the Chatham County / Wake County boundary to the east, Mann’s Chapel Road (NC Rte 1532) and Poythress Rd (NC Rte 1534) to the west and Martha’s Chapel Road (NC Rte 1752) to the south. The boundary for DCHC MPO’s regional travel demand model (a tool to examine regional transportation conditions) extends a little beyond the MPO boundaries to cover roughly half of Chatham County.

Regional plans and studies developed by the DCHC MPO or TARPO and referenced in this report are listed below:

- Durham Chapel Hill Carrboro Metropolitan Planning Organization (DCHC MPO) 2040 Metropolitan Transportation Plan (2013, update in progress): identifies the priority highway, transit, bicycle and pedestrian projects to be implemented in the MPO through 2040.
- TARPO Regional Bicycle and Pedestrian Planning Framework (2013): assembled data from all current bicycle and pedestrian facility inventories and plans in the RPO region; identified key policies for project implementation.
- Farrington Road Corridor Study (2008): studied the Farrington Road corridor in Chatham County to identify transportation improvements and strategies for working in sensitive natural resource areas.

In general, Chatham County’s transportation infrastructure is mostly roadways. There are several major US routes and important statewide and regional routes designated as NC routes. Most of the roads outside of the cities are a rural design, often with undivided lanes and little to no shoulders, and typically lacking more urban amenities like curb and gutter, lighting, and sidewalks. Pedestrian facilities are mostly only present in Pittsboro, Siler City, Goldston, and sometimes private facilities in the newer subdivisions such as The Legacy at Jordan Lake. Most roads lack formal bike infrastructure although the County is a popular recreational bicycling destination and the county recently adopted a recreational bike loops map. The Chatham Transit Network provides demand-responsive transit service and two fixed routes, one between Pittsboro and Siler City and one between Pittsboro and Chapel Hill. There are three main rail lines in the county, a north-south line in the western half of the county, and two east-west lines in the southern portion.

Chatham County is one of the fastest growing counties in North Carolina, growing 28% between 2000 and 2010. The accelerated growth rate is expected to continue; according to the North Carolina Office of State Budget and Management, Chatham County’s population is projected to increase by nearly 50% between 2010 and 2035, one of the highest expected growth rates in the state. Development pressure is primarily being felt in the eastern part of the county where growth in the Triangle is leading to new housing and commercial development. The growth pressures in the northeastern portion of the county were a precipitating factor in the
US 15-501 Corridor Study, examining future traffic conditions along US 15-501 between Pittsboro and Chapel Hill. The portions of the county further from the more urbanized Wake, Durham, and Orange Counties remain more rural. These parts of the county have more active agricultural operations and some significant industrial uses. Chatham County's transportation network, similarly, must meet the different needs and demands of the different parts of the county.

Figure 1: Area MPO and RPO Boundaries

Existing Transportation Plans

The towns and cities with planning jurisdiction in Chatham County have, in some cases, developed local transportation plans. Those plans referenced or consulted in this report include the following:

- Chatham County Parks and Recreation Master Plan (2009): a comprehensive plan for public parks and recreation services in the county including prioritized park and trail improvements, greenway projects, and land acquisition needs.
- Chatham County Bicycle Plan ( Adopted 2011): a county-wide plan for on-road and off-road bicycle facilities and community programs to encourage safe cycling
Chatham County Comprehensive Plan

- Pittsboro Pedestrian Transportation Plan (Adopted 2009): a comprehensive pedestrian plan including proposed network and safety improvements, as well as public education and policy recommendations.
- Siler City Pedestrian Master Plan (Adopted 2013): a comprehensive pedestrian plan for the city, including conceptual visualization and cost estimates for priority projects.
- Chatham County Comprehensive Transportation Plan (draft as of June 2016): This plan proposes roadway, bicycle, pedestrian, and transit improvements within Chatham County.
- The US 15-501 Corridor Study (2013): a scenario analysis of future operational conditions on US 15-501 between US 64 and NC 54 with various sets of improvements; identified a number of operational, geometric, and signal timing upgrades needed to preserve functionality in the medium-term future (10-15 years) with the goal of transitioning to synchronized street designs by 2040.
- US 64 Corridor Study (2011): This plan examines conditions on US 64 between Pittsboro and Cary and proposes interim and long-term mobility and safety improvements.
Roadways

Chatham County has roughly 1,700 centerline miles of roadway within the county. The major transportation corridors are the US routes in the county - US 421, US 15-501, US 1 and US 64. The NC routes also provide important connections and have higher traffic volumes – NC 751, NC 87, NC 42, and NC 902.

Infrastructure

The predominant road type in Chatham County is a two-lane roads without shoulders, a road type which matches Chatham’s rural heritage. Major routes, like the US routes in the county, typically have shoulders. Chatham County has about 1,700 miles of roadway total, with about 1,200 miles being state maintained (the rest are municipal or private); the county does not maintain any roadways. About 10% of the road mileage is on 4-lane roads and the remaining 90% are smaller than 4-lanes. The county has a number of unpaved roads in more rural parts of the county. Roadways are used by agricultural equipment, particularly in the western half of the county, and since many roadways lack formal pedestrian and bicycle infrastructure, walkers and bikers must use roadways or right of ways. Lack of shoulders can therefore be an issue on some routes.

Chatham County has 147 bridges that are monitored and maintained by NCDOT. Of these, 7 are rated as structurally deficient and 28 are rated as functionally obsolete. All seven of the structurally deficient bridges are also rated as functionally obsolete. In this context, structurally deficient means the bridge has load carrying components in poor condition; the bridges are safe, but require significant maintenance. Functionally obsolete bridges do not meet demands of the traffic using them; these bridges are safe but do not meet current design criteria, which could be due to narrow lanes, low height clearances, or weight limits. The average construction date for the 147 bridges in Chatham County is 1980. Twenty-five bridges are older than 50 years old, and even five bridges were constructed in 1921.

Roadway condition is generally adequate throughout much of the county, however there are a number of roads that are rated in poor condition. NCDOT evaluates pavement quality on NCDOT-maintained roads, assigning a rating of poor, fair, or good. The most recent data is from a 2012 pavement survey which shows clusters of secondary roads around Siler City, Goldston, and north of Pittsboro with poor ratings. In general, major roads had fair to good ratings. The resurfacing process depends on factors beyond just pavement condition assessments, and resurfacing treatments may vary for a variety of reasons. NCDOT works with local governments to coordinate resurfacing schedules and target maintenance efforts to key areas. In Figure 2, red denotes poor condition, yellow is fair condition, and green is good condition.
Commuting

Chatham County residents typically use cars to commute to work with 76 percent driving alone and another 11 percent carpooling. These numbers are roughly in line with both state and national averages. About eight percent of Chatham residents work from home, which is roughly twice the state and national averages. The average commute time for Chatham residents is 27.1 minutes, slightly higher than state and national averages. About 5.4 percent of households do not have access to a vehicle, which is slightly higher than state and national averages; vehicle ownership is shown in Figure 3.

<table>
<thead>
<tr>
<th>Category</th>
<th>Chatham County</th>
<th>North Carolina</th>
<th>United States</th>
</tr>
</thead>
<tbody>
<tr>
<td>Drive Alone</td>
<td>76%</td>
<td>81%</td>
<td>77%</td>
</tr>
<tr>
<td>Carpool</td>
<td>11%</td>
<td>10%</td>
<td>10%</td>
</tr>
<tr>
<td>Work From Home</td>
<td>8%</td>
<td>5%</td>
<td>4%</td>
</tr>
<tr>
<td>Average Commute Time (minutes)</td>
<td>27.1</td>
<td>23.7</td>
<td>25.7</td>
</tr>
<tr>
<td>Zero Vehicle Households</td>
<td>5.4%</td>
<td>2.5%</td>
<td>4.5%</td>
</tr>
</tbody>
</table>
The most striking aspect of Chatham residents' journey to work is how many residents leave the county for jobs. Almost 21,000 people leave the county each day for jobs, whereas only 5,000 residents both live and work in Chatham and only 9,000 people come to work in Chatham from outside the county. The biggest draw are the Triangle cities (Durham, Chapel Hill, Raleigh, Cary, etc.), but Sanford, Greensboro, Asheboro, and even Charlotte draw many commuters. In and out commuting is shown in Figure 4 and Table 2 shows the top 5 city and town destinations for out-of-county commuting.
Traffic

Traffic volumes are relatively low in most of Chatham County. Average Annual Daily Traffic (AADT) data shows relatively low volumes throughout the county. There are elevated AADT counts in Siler City, Pittsboro, and along US 15-501 north of Pittsboro. The images below are visualizations of the AADT in Chatham County based on the most recent traffic count data available from NCDOT (generally 2013 or 2014). Figure 5 is a visualization of count locations with larger, redder clusters representing higher volumes of traffic. Smaller and bluer locations have lower volumes of traffic. Figure 6 has similar symbology but is based on corridor-level assessments of traffic volumes.
Figure 5: Chatham County Average Annual Daily Traffic (AADT) Volumes

Figure 6: Corridor-Level Average Annual Daily Traffic (AADT) Volumes in Chatham County
The two images show higher traffic levels in Pittsboro and Siler City, and along the main US routes – US 15-501, US 64, US 421, and US 1. The eastern portion of the county also generally has higher volumes of traffic than the western portion. Also visible in the maps is the high levels of traffic in Durham, Orange, and Wake Counties, particularly I-40 which is just visible in the upper-right hand corner of each map. Sanford, just south of Chatham County, also has elevated traffic volumes. These neighboring areas show that although there are spots of higher traffic volumes in Chatham County, overall traffic volumes remain lower than in neighboring areas.

Another traffic volume visualization is the change in traffic volumes over the past decade, shown in Figure 7. The difference is compared between 2002/2003 and 2013/2014, depending on data availability at each count location. The blue areas represent decreases in traffic volumes in the past decade, and red areas represent areas where traffic volumes have increased. In both cases, the deeper and darker colors represent larger changes.

*Figure 7: Change in Average Annual Daily Traffic (AADT) Volumes in Chatham County, 2002/3 to 2013/4*

Overall, traffic volumes have dropped in the Western portion of the County, particularly along the US 421 corridor. Volumes have increased in and around Pittsboro, along US 15-501 north of Pittsboro, along US 1, and
in the eastern and northeastern portions of Chatham County. These are the areas that have seen the highest levels of new development over the past decade, which comes with a corresponding increase in traffic volumes. In neighboring areas, traffic has dropped significantly in and around Sanford, but grown significantly in southwestern Orange County, southern Durham County, and western Wake County.

Both nationally and statewide, rates of traffic growth have generally fallen over the last decade. In many locations, volumes have remained flat, or even dropped. Although the economic downturn of 2008 contributed to this phenomenon, other broader social, demographic, economic, and technological changes underlie it. The lack of traffic growth in the western part of the county is consistent with this overall trend; continuing growth in the east is attributable to new development generating sufficient traffic to overwhelm the broader trend. Decreases in traffic volumes in the eastern portion of the county typically result from the completion of new roadway projects that divert traffic from pre-existing facilities.

It is important to note that even in light of indications of traffic volume increases over the last two years, vehicle-miles of travel (VMT) have generally not increased significantly on either a per capita or per household basis. The recent uptick in VMT and traffic volumes can be explained by lower gas prices, economic recovery, and population growth. The magnitude and persistence of this trend remains to be seen. Technological advances (such as alternative fuels and autonomous vehicles), combine with demographic shifts and economic uncertainty to suggest that a return to previous long-term growth trends is unlikely. The resulting instability shapes a future that is far less predictable than encountered in earlier planning efforts.

Safety

Chatham County crash statistics show the county performing roughly in line with statewide averages across several key measures. The crash rate for Chatham County is lower than the statewide average, but the fatality rate is slightly higher. The non-fatal injury crash rate is about 40 percent below the statewide average, while the percent of crashes with alcohol involved is roughly the same as the statewide average. Table 3 compares the Chatham County crash rates to the statewide average.

<table>
<thead>
<tr>
<th></th>
<th>Chatham County</th>
<th>North Carolina</th>
</tr>
</thead>
<tbody>
<tr>
<td>Crash Rate*</td>
<td>224.33</td>
<td>281.71</td>
</tr>
<tr>
<td>Fatal Crash Rate*</td>
<td>1.36</td>
<td>1.15</td>
</tr>
<tr>
<td>Non-Fatal Injury Crash Rate*</td>
<td>43.26</td>
<td>70.14</td>
</tr>
<tr>
<td>Percent Alcohol Related Crashes</td>
<td>4.4%</td>
<td>4.2%</td>
</tr>
</tbody>
</table>

*Rates are incidents per 100 million vehicle miles travelled

Crashes are primarily distributed along major roadways and clustered around Siler City and Pittsboro. This is expected based on volumes of traffic. The highest crash locations are the stretch of US 421 near Siler City, US 15-501 near the Orange County boundary, and US 1 through the southern part of the county. Crashes for years 2007 to 2011 are shown below in Figure 8.

The top intersections for crashes are shown in Table 4. These locations tend to be higher volume areas.
Table 4: Intersections with the Most Crashes (2007-2011)

<table>
<thead>
<tr>
<th>Location</th>
<th>Crash Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>US 15-501 and Mann’s Chapel Rd</td>
<td>53</td>
</tr>
<tr>
<td>US 64 and NC 751</td>
<td>46</td>
</tr>
<tr>
<td>US 64 and Raleigh St in Siler City</td>
<td>41</td>
</tr>
<tr>
<td>Interchange of US 64 and US 421 in Siler City</td>
<td>32</td>
</tr>
</tbody>
</table>

Figure 8 Chatham County Crash Locations (2007-11)

US 15-501 Traffic Conditions

The US 15-501 corridor between Pittsboro and the Orange County boundary is an important local and regional route that is experiencing increasing levels of development and growing traffic concerns. This is one of the highest volume routes in the county, with about 13,000 to 26,000 vehicles per day. The current facility is a four-lane median-divided thoroughfare with speed limits between 45 and 55 miles per hour.
US 15-501 includes several of the higher crash locations in the county, but these are located at the far northern part of US 15-501 in Chatham County, a section with considerably higher traffic volumes than areas of US 15-501 closer to Pittsboro. Crash locations and average annual daily traffic (AADT) for US 15-501 and surrounding areas is shown in Figure 9.

**Figure 9: US 15-501 Traffic and Safety**

US 15-501 has been studied a number of times recently to analyze the sufficiency of the road to handle future traffic demands. The Chatham County Comprehensive Transportation Plan and the DCHC MPO Comprehensive Transportation Plan both use regional modeling to analyze 2040 expected traffic volumes on US 15-501 and compare to estimates of road capacity. Both of these studies found that anticipated future volumes are generally expected to be within acceptable capacity ranges.

The US 15-501 corridor study was a more detailed analysis of traffic conditions using peak hour, intersection-level analysis. This study found that most future traffic concerns will affect US 15-501 north of the Chatham County line. However, the study did identify that while US 15-501 generally had acceptable levels of service under future conditions, side streets often experienced long delays. This study, therefore, recommended mid-term improvements to key intersections, signal timing enhancements, and geometric improvements. Long-
term, the study recommends moving to a superstreet or synchronized street design, which will limit left turns at many small side streets and driveways, requiring drivers to make right turns into and out of these driveways and side streets. This design would still include full movements at major intersections.

US 15-501 is also transitioning from being primarily an auto-oriented road to a more complete street as land uses change along and near the road. There is now fixed-route transit service operating on US 15-501 between Pittsboro and Chapel Hill; this service is express service now, but could be transitioned to more traditional local service in the future as need arises. Sidewalks have recently been constructed on the section between North Chatham Village and the Walmart on the Orange County line. Continued pedestrian improvements will be needed as development occurs. Bike facilities are provided in the form of wide shoulders in locations; these are adequate for more experienced bikers, but less experienced bikers are encouraged to use alternate routes due to high volumes of vehicular traffic and speeds of 45 or 55 miles per hour on US 15-501.

Travel Demand Modeling

Almost all of Chatham County is located within the planning jurisdiction of the Triangle Area Rural Planning Organization (TARPO). A small portion of the northeastern part of the County is located within the Durham Chapel-Hill Carrboro Metropolitan Planning Organization (DCHCMPO). Together with the Capital Area Metropolitan Planning Organization (CAMPO), the DCHCMPO handles long-range transportation planning for the Triangle region, in part through modeling current and future conditions with the Triangle Regional Travel Demand Model (TRM).

The TRM is a model of transportation conditions for the triangle region, based on current and projected population, demographic, and employment data. The geographic area for the TRM extends a little beyond the DCHCMPO and CAMPO boundaries and covers around 55 percent of Chatham County, whereas the DCHCMPO boundary covers about 9 percent of Chatham County. The TRM was used to analyze capacities and volumes of traffic on major roads in the half of the county that is included in the model area. The model analysis is included in a separate memo that provides more detailed analysis of modeling and the TRM, but the data in the TRM supports this section's analysis of traffic and driving trends.
Bicycling Conditions

Chatham County is known for its scenic rural landscapes and is easily accessible to the larger Triangle region’s population; so, Chatham County roadways have become increasingly popular with recreational road cyclists. However, roadway characteristics in rural Chatham County have remained largely unchanged since they were first paved in the mid-20th Century, and increased traffic presents challenging conditions for cycling in the county.

Rural roads in the county are typical for North Carolina: narrow undivided lanes with little or no paved shoulders. Chatham County does not currently have any striped bike lanes, but the major highways in the county often include a four-foot wide (or greater) shoulder or a wide outside lane.

Hundreds of miles of signed bike routes of national, state, and regional significance cross Chatham County. US Bicycle Route 1, part of the US Bicycle Route System, follows parts of Old US Highway 1 through eastern Chatham County. NCDOT State Bicycle Route 1 follows the same route as US Bike Route 1 in Chatham County, connecting Apex and Sanford. NCDOT State Bicycle Route 6 passes through the most northwestern corner of the county, connecting the rural community of Snow Camp to Staley. State Bike Route 2, the Mountains to Sea bike trail, follows Mount Carmel Church Road and Farrington Road through the eastern area of the county, connecting Chapel Hill to Cary. The Mountains to Sea bike trail is a particularly important route, stretching over 700 miles across North Carolina and serving as the main artery of the NC bike route system. The American Tobacco Trail (ATT) is also a popular cycling path, extending from Durham to Jordan Lake with a four-mile section in Chatham County. More detail on the ATT is included in the following section on pedestrians.

Chatham County has identified additional on-road cycling loops that are marketed by the county’s visitor’s bureau, shown in Figure 11. These routes link 185 miles of rural roadways to most major towns and recreation centers in the county. While these are popular routes with cyclists, at this time they don’t include any special bicycle accommodations such as wider shoulders or separated bicycle facilities.
Figure 10: Bicycle Facilities

Figure 11: Chatham Recreational Bike Loops Map
Pedestrian Conditions

Designated pedestrian facilities, such as sidewalks, are limited to the central areas of Pittsboro, Siler City and Goldston. Some rural subdivisions and newer development in Siler City and Pittsboro include sidewalks per local ordinance or zoning approval requirements. New sidewalks have been constructed on US 15-501 between Walmart and North Chatham Village. There are a few fitness and neighborhood (unpaved) trails in Pittsboro and rural subdivisions near Jordan Lake. A phase of the Love’s Creek Greenway was recently completed in Siler City.

The American Tobacco Trail (ATT) is a 22 mile rail-trail (a former railway line that was abandoned and leased by NCDOT to local counties for interim trail use). The ATT extends from downtown Durham, through northeastern Chatham County, and southward to a trailhead near New Hill-Olive Chapel Road in Wake County. The four miles of the trail passing through Chatham County is composed of dual surface of asphalt and compacted screenings. The trail is open for foot, bike and equestrian use. The trail crosses Northeast Creek and O’Kelly Chapel Road, past the Old Chatham Golf Course. It also traverses the end of Pittard Sears Road, Panther Creek, and continues past New Hope Church Road. Most street crossings allow on-road parking.

The ATT is primarily a recreational facility with significant weekend use. The 2014-2015 pilot phase of the North Carolina Non-Motorized Volume Data Program collected counts over a 12-month on the trail (at a location in Durham County). Pedestrian volumes averaged 250-300 pedestrians on weekdays, and over 500 pedestrians per weekend day.

A second source of ATT user counts is a recently completed bicycle signage study. This study took weekday and weekend trail user counts where the ATT crosses O’Kelly Chapel Road. These counts showed much higher weekend use, consistent with the recreational nature of the trail. During the weekday morning peak period (6:00 am to 9:00 am) 15 trail users were counted. During the weekday afternoon peak period (4:00 pm to 7:00 pm) 133 users were counted. Midday counts were taken on Saturday and Sunday, both 10:00 am to 2:00 pm; on Saturday 347 users were counted and on Sunday 517 users were counted.

There are new pedestrian facilities in some locations in Chatham County proposed through existing planning documents. Primarily, these proposed new sidewalks are planned to be implemented as part of roadway improvements or construction. Figure 12 shows existing and proposed pedestrian facilities in the county.
Pedestrian crashes in Chatham County, between 2007 and 2013, were more prevalent along rural roadways. However, the highest density of pedestrian crashes occurred in commercial areas in Siler City.

**Table 5: Pedestrian Crashes**

<table>
<thead>
<tr>
<th>Pedestrian Crash Year</th>
<th>2007</th>
<th>2008</th>
<th>2009</th>
<th>2010</th>
<th>2011</th>
<th>2012</th>
<th>2013</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rural</td>
<td>5</td>
<td>11</td>
<td>6</td>
<td>6</td>
<td>6</td>
<td>6</td>
<td>5</td>
<td>45</td>
</tr>
<tr>
<td>Urban</td>
<td>6</td>
<td>4</td>
<td>4</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>3</td>
<td>29</td>
</tr>
<tr>
<td>Total</td>
<td>11</td>
<td>15</td>
<td>10</td>
<td>9</td>
<td>10</td>
<td>11</td>
<td>8</td>
<td>74</td>
</tr>
</tbody>
</table>
Figure 13: Pedestrian and Bicycle Crashes
Transit

Chatham Transit Network (CTN) provides fixed-route and demand-response transit services in Chatham County. CTN has a staff of seven administrative personnel and has a fleet of 24 vehicles, 23 of which were ADA accessible. CTN’s two fixed-route services are a US 64 Route between Siler City and Pittsboro and a Pittsboro Express Route between Pittsboro and UNC Chapel Hill. The Pittsboro Express has seven trips daily, Monday to Friday, and charges $3.00 each way. The Pittsboro Express route begins service at 6:00 am. The 64 Route also charges $3.00 each way and operates Monday to Friday; operations begin at 7:00 am.

CTN’s demand responsive services take two main forms – in-county service and project health rides. CTN’s in-county service operates Monday to Friday from 8:00 to 4:30 pm. Reservations are required 48 hours in advance of the requested trip. Fares are structured as a distance-based fee shown in the following schedule:

<table>
<thead>
<tr>
<th>Distance</th>
<th>Fare</th>
</tr>
</thead>
<tbody>
<tr>
<td>0 to 5 miles</td>
<td>$2.00</td>
</tr>
<tr>
<td>5 to 10 miles</td>
<td>$4.00</td>
</tr>
<tr>
<td>10 to 20 miles</td>
<td>$7.00</td>
</tr>
<tr>
<td>20 or more miles</td>
<td>$3.00 for each 10-mile increment</td>
</tr>
</tbody>
</table>

Project Health Rides offers medical transportation for residents over 60 or residents over 18 who have a disability. Fares are typically provided by sponsoring agencies who request rides for patients. Reservations must be made 48 hours in advance of the requested trip.

Ridership has been increasing significantly for CTN over the past four years. Systemwide ridership increased 38 percent between FY 2013 and FY 2016. The PX Route and 64 Route have seen increases of 811 percent and 310 percent, respectively, over the same period. The big increases in ridership on the PX Route in FY 2016 is partially related to CTN taking over full control of the route from Chapel Hill Transit in FY 2016. The demand-responsive service ridership has grown 18 percent. Table 7 shows ridership over time for CTN.

<table>
<thead>
<tr>
<th>Year</th>
<th>System Total</th>
<th>Demand-Response</th>
<th>PX Route</th>
<th>64 Route</th>
</tr>
</thead>
<tbody>
<tr>
<td>FY 2013</td>
<td>63,672</td>
<td>61,814</td>
<td>1,491</td>
<td>367</td>
</tr>
<tr>
<td>FY 2014</td>
<td>68,881</td>
<td>66,372</td>
<td>2,134</td>
<td>375</td>
</tr>
<tr>
<td>FY 2015</td>
<td>71,882</td>
<td>69,547</td>
<td>1,991</td>
<td>344</td>
</tr>
<tr>
<td>FY 2016</td>
<td>88,096</td>
<td>73,001</td>
<td>13,588</td>
<td>1,507</td>
</tr>
</tbody>
</table>

Chatham Transit Network has expansion plans for the PX and 64 Routes. CTN plans to add stops and provide service at more times throughout the day. These enhancements are anticipated to begin January 3, 2017. CTN is also working with Briar Chapel to add a park-and-ride location within the Briar Chapel development.
Conversations are also taking place with Chatham Park on park-and-ride and fixed-route service within the Chatham Park development in the future.

Chapel Hill Transit also provides service to the Chatham Park-and-Ride lot, just south of the Orange County border on US 15-501. The CCX route operates from 6:00 am to 8:00 pm, Monday to Friday, with express service between the Chatham Park-and-Ride lot and the UNC Campus. The Chatham Park-and-Ride lot is only available to people connected with UNC (faculty, staff, students). The Southern Village Park-and-Ride lot, just north of the Orange County boundary, is open to the public; there is a $21 monthly or $250 annual fee for parking in this Park-and-Ride lot. Chapel Hill Transit’s NS and V Routes serve the Southern Village Park-and-Ride lot.

Chapel Hill has plans to initiate high capacity Bus Rapid Transit (BRT) service along the north-south corridor extending from the Southern Village Park-and-Ride lot north on US 15-501, South Columbia Street, and Martin Luther King Jr. Boulevard to the Eubanks Park-and-Ride lot. This service would entail dedicated bus lanes throughout much of the corridor, signal preemption technology, larger buses, more frequent service, and high-quality stations. A Tier I study of this service was completed in May 2016, which identified a Locally-Preferred Alternative. The project still needs to complete environmental review, engineering, design, and is not funded at this time.
**Freight and Rail**

**Rail**

There are three main rail lines in Chatham County, a Norfolk Southern line that runs north-south in the western portion of the county, a CSX line that runs east-west in the southern part of the county, and a line owned by the Aberdeen, Carolina, and Western Railroad that connects to the Norfolk Southern line in near the southern Chatham border. On the NCDOT railway system map, both the CSX and Norfolk Southern lines are classified as Class I, the highest classification. The Aberdeen Carolina and Western line is classified as a shortline or Class II line.

The 2015 NCDOT Rail Division Comprehensive State Rail Plan places importance on the CSX line as a major north-south route in the state. The plan identified the CSX route for possible passenger rail improvements, as well as an opportunity for a future automotive terminal. The plan also suggested monitoring opportunities for the NS route to support a major manufacturing industry site in Chatham County, as well as other emerging markets in the region.

The CSX line is also the route for Amtrak’s Silver Star train which runs from New York City, NY to Miami, FL; however, there are no passenger stops in Chatham County. The closest stops are in Cary, NC (about 25 miles from Pittsboro) and Southern Pines, NC (about 40 miles from Siler City).

There are 82 at-grade railroad crossings in Chatham County, of which 41 are public and 41 are private. Of the 41 public crossings, only 1 has no warning devices. Cross bucks, stop signs, and flashing lights provide less warning and control at crossings and are more appropriate at lower volume crossings. Gates are preferable at crossings with higher volumes or a history of incidents. Quiet zones are primarily utilized in urban areas or other places where train horns can be disruptive. Table 8 shows the principal warning devices for the public crossings:

<table>
<thead>
<tr>
<th>Principal Warning Device</th>
<th>None</th>
<th>Cross Bucks</th>
<th>Stop Signs</th>
<th>Flashing Lights</th>
<th>Gates</th>
<th>Quiet Zone</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1</td>
<td>15</td>
<td>2</td>
<td>2</td>
<td>21</td>
<td>0</td>
</tr>
</tbody>
</table>

The three principal rail lines in Chatham County all have relatively low traffic, averaging under 3 trains per day on all lines, according to Federal Railroad Administration crossing inventory reports. Crashes have not been a major problem in Chatham County with only four crashes or incidents reported in the last ten years. However, there was one fatality reported. The rail infrastructure in Chatham County is shown in Figure 14.

**Trucking**

Most of the major US routes in Chatham County are listed on the North Carolina Truck Network as unrestricted truck routes. These routes are US 421, US 64, US 1,
and US 15-501 from the Lee County boundary to Pittsboro. These routes are designated for their capacity to handle truck weights and higher volumes of regional and national truck traffic. The two major industrial megasites (the Chatham-Siler City megasite and the Moncure megasite) are located near both rail facilities and designated truck routes. Many other industrial operations in the county depend on heavy trucking use, as well.

One issue for the county is the appropriate design of roadways, bridges, and intersections to accommodate weight and turning radius needs of trucks. While trucks are encouraged to use designated truck routes because of their ability to handle truck traffic, trucks still need to use other routes, especially around major trip generators like industrial facilities or population centers. Some older, more rural roadway designs do not meet current design criteria, often lacking sufficient shoulders and safe passing zones. The traffic circle reconfiguration in Pittsboro is also an opportunity to design a facility which enhances the downtown area while meeting the needs of the trucks that do need to use the facility.

*Figure 14: Chatham County Freight Infrastructure*
**Summary**

Chatham County is a primarily rural county which is increasingly feeling growth pressures, particularly in the eastern portion of the county. This means the county has a diverse set of transportation needs and demands to address the different parts of the county. The western portion of the county is typically more focused on maintaining high quality roadways and good vehicular levels of service. Parts of the eastern part of the county, and particularly areas around Pittsboro and along US 15-501 are riper for more urban amenities like sidewalks and various types of bike facilities. The differences in needs and resident preferences in the rural, suburban, and urban parts of the county are and will continue to be important drivers of transportation infrastructure and policy in Chatham County. The key challenges for Chatham County in the future will be:

1. Balancing the different needs in the rural, suburban, and urban parts of the county
2. Preserving vehicular, freight, and farm equipment capacity and mobility as growth occurs
3. Providing context-appropriate pedestrian and bicycle accommodations
4. Road maintenance and modernizing roadway designs on some outdated rural cross sections
5. Strategic transit growth in urbanized areas and areas of high demand
6. Balancing mobility needs and environmental concerns

**Review of Existing Conditions**

The roadway network is focused around several major US and NC routes that are regionally significant and contain the highest levels of traffic. Pittsboro and Siler City also experience more traffic as hubs of economic activity and population. Current and projected traffic congestion is generally reasonable, at least in areas which are modeled as part of the Triangle Regional Model. Chatham Park has the potential to alter patterns of travel and add demand for transportation facilities above and beyond what is projected in the TRM. The vast majority of the roads in the county are two-lane roads, typically a rural cross section that often does not meet current design standards.

Most existing pedestrian infrastructure is clustered in the cities of Pittsboro, Siler City, and Goldston. Bicycle infrastructure is generally lacking, but there are recreational loops and statewide NCDOT bike routes which encourage riders to use certain routes; there are plans to implement new bike facilities throughout the county. The ATT is major shared use facility and new shared use facilities are planned and being constructed.

Transit service is primarily a rural demand-response model, but two fixed-routes are provided. Demand-responsive service is and will continue to be critical service, especially for many of Chatham's elderly residents and those with mobility limitations. The fixed-route services are newer, growing, and will continue to be important to link major population centers both within and outside the county.

Safe and efficient freight access—both truck and rail—is critical to the economic vitality of Chatham County. Industrial companies are a key cornerstone of the county’s economic development strategy, both existing businesses and new businesses that may be attracted to the county. The two megasites are actively marketed as prime business locations, and both have access to rail and truck routes. The heavy use of trucking poses some problems that the county must address from pedestrian and bicycle conflicts (particularly on narrower two-lane roads) to road maintenance concerns with the heavier loads.
Future Considerations
As the county moves forward, it will be important to balance the needs of different parts of the county and target improvements to locations where they are needed and desired for all modes. As the county grows, new facilities and improvements will be needed to ensure adequate mobility and safety throughout the county.

For Chatham County, the transition from rural character to suburban (and urban) will present continuing transportation challenges on two fronts:

1. Differences between rural and non-rural transportation needs, services, and facilities
2. Changes over time, as many rural areas become more suburban, or even urban

Typical two-lane rural roads were not designed to modern geometric standards, often lacking adequate shoulders and sufficient safe passing zones. They tend to serve longer trips, often at higher speeds, yet may also carry slow-moving, oversized farm equipment. Truck traffic can also be significant. Combined with a lack of pedestrian facilities, and their appeal to recreational bicyclists, the potential for crashes on these rural roads is a serious concern.

While development density in rural areas makes widespread and convenient fixed-route transit service prohibitively expensive under current paradigms, there is a significant and growing need for demand-responsive or other transit service for those who cannot drive.

Careful planning and design are needed to provide consistent and effective treatment of roads as they transition from rural to more developed areas. Contextual design features should provide cues to drivers that they are entering more congested areas where more frequent pedestrians, bicyclists, and other interruptions require lower speeds and greater attention.

Given the number of subdivisions with private roads not built to NCDOT standards, long-term maintenance responsibility is a significant concern that also extends to privately-developed pedestrian and bicycle facilities. A second maintenance concern is the impact of truck traffic on road quality. A third road maintenance concern is the potential need to provide extra maintenance to areas targeted for pedestrian and bicycle facilities.

The 15-501 corridor is an early example of the challenges that more parts of the county will face as areas transition from rural to suburban and urban. New development along the corridor creates new demand for pedestrian and bicycle accommodations. Transit also increasingly becomes viable as development intensity increases. The new development also can bring new congestion and the need to reconfigure roadway and intersection geometry, update signal timing and phasing, and widen roads to ensure adequate mobility.

A final challenge will be balancing mobility needs within the county with environmentally sensitive areas, critical watersheds, farmland preservation, and sustainability concerns. The current land use patterns make non-vehicular modes of travel difficult to implement, but increasing urbanization makes these modes more feasible. Successfully incorporating infrastructure and policies that encourage using these modes can yield environmental benefits from lower emissions and reduced impacts to natural areas. The county’s increasing urbanization also needs to be balanced with the farming base in the county; the transportation network can help preserve farmland by accommodating farm equipment and providing access to critical markets.