

# MOBILITY REPORT CARD



## EXECUTIVE SUMMARY

APRIL 2015

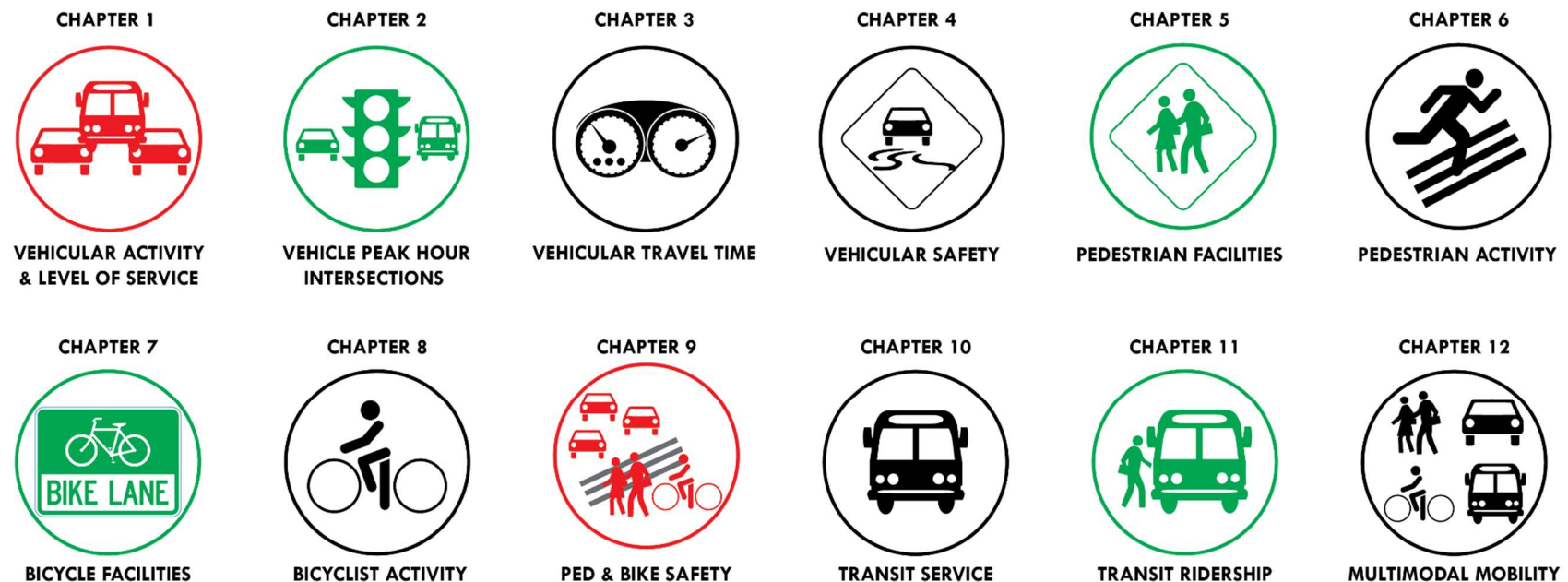
DURHAM-CHAPEL HILL-CARRBORO METROPOLITAN PLANNING ORGANIZATION

Cover photographs by Renaissance Planning Group.

## REPORT SNAPSHOT

This document, the DCHC MPO's first-ever Mobility Report Card, is a multimodal transportation evaluation, examining in equal measure vehicular, transit, bicyclist, and pedestrian travel. The report looks at the state of the region in 2012 and compares it to previous years.

**Twelve key indicators have been evaluated** in this Report Card, each with its own chapter of the report. The findings are summarized by the icons associated with each indicator. Those shown in green have improved over time, those in red have degraded, and those in black are unchanged (or unknown). In sum, **they point to increased travel activity throughout the region and changes in infrastructure and travel safety that suggest an increasingly multimodal region.** However, historical data are limited or unavailable for several key indicators, meaning that continued – and even more robust – data collection will be needed in coming years to shed further light on regional mobility.



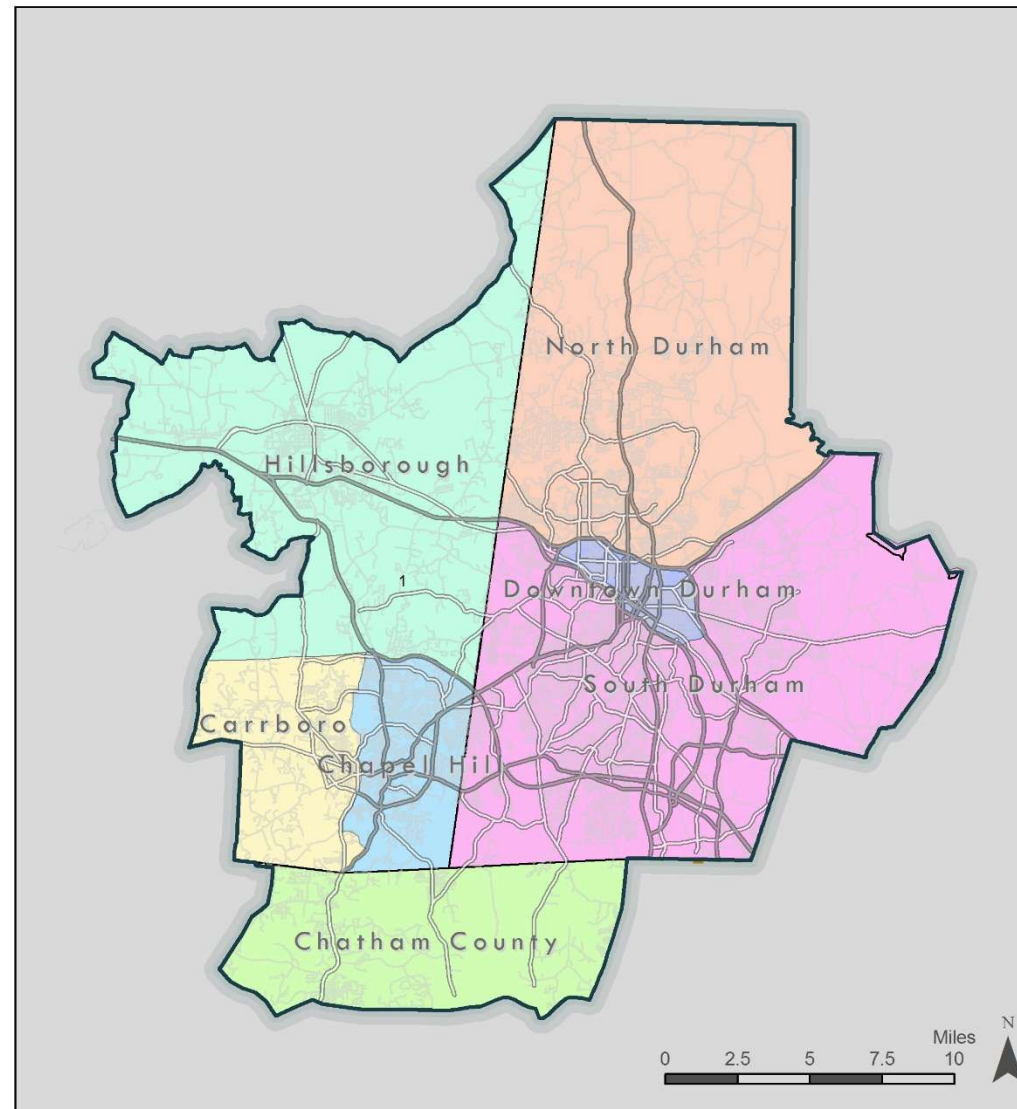
The remainder of this Mobility Report Card discusses in more detail the findings summarized here.

The **Executive Summary** is a stand-alone document that provides, for each indicator, a basic definition, key data findings, and a summarized report card. **Chapters 1-12** provide in-depth information on each indicator, including the methodologies used in acquiring and analyzing relevant data, the findings of those analyses, and the ramifications of those findings when possible.



The findings in this report are analyzed at the regional level, the county level, the municipal level and at the subarea level defined by the boundaries in the adjacent map.

Subarea Map



## OUR REGION AND THE MOBILITY REPORT CARD

### ABOUT OUR REGION

#### Regional Context

The Research Triangle region is a burgeoning Sunbelt metropolitan region. The region has experienced a rapid growth in population and jobs. Population in the region is one of the fastest growing in the country. Population of the region is forecasted to increase 81% between 2010 and 2040. The number of households is projected to increase 79%, and number of jobs is forecasted to increase 61% during the same period. As our region has grown so has traffic congestion. The main reason for the increase in congestion within the DCHC MPO area and the region is the increase in population, but it is also attributable to a significant increase in Single Occupant Vehicles (SOV), or drive-alone trips, and a relative increase in longer trips. Over the past two decades, auto occupancy in the triangle region has been decreasing consistent with the national trend. This general decrease in auto occupancy has been accompanied by an increase in auto registration and a relative increase in vehicle miles of travel. Along with this trend, the U.S. Census data shows the average household size is declining while the number of trips per household and the average travel time per vehicle is increasing. The result is the intensification of congestion within the DCHC urban area and as well as in the Triangle Region.

#### People

The MPO region is home to 400,000 people and 260,000 jobs, representing about a quarter of the Triangle Region's 1.6 million people and a third of its 850,000 jobs. Migration has been the driving force behind the Triangle's growth for more than a generation. The region's dynamic economy, top notch educational institutions, and reputation for offering a high quality of life are factors that attract people from near and far. In recent years, about 6,000 more people have arrived in the Durham- Chapel Hill metropolitan area each year than have left. This number, called net migration, accounted for 60 percent of the area's population growth between 2010 and 2012. The newcomers are split almost evenly between people arriving from other states and those coming from other countries. They are also a driving force behind the region's increasing racial, ethnic, and social diversity.

Many of the new arrivals are college-age students or retirees, which keeps the average household size relatively small. As of 2010, about 60 percent of households in the region included only one or two people. The MPO recognizes that the region's growth, and its changing demographics, calls for more transportation choices. Simply building more and more highways will not be sufficient to meet the future needs of a growing and changing population.

#### Places/Communities

The MPO area includes Durham, Chapel Hill, Carrboro, Hillsborough, and unincorporated portions of Durham, Chatham, and Orange Counties. More than three quarters of the MPO area's population is concentrated in Durham, Chapel Hill, and along the roads that connect them. The MPO is focused on improving multimodal access between Durham and Chapel Hill, and mobility along the major routes throughout the region, US 15/501, NC 54, and NC 751.

## Jobs and Economy

The MPO region is home to about 260,000 jobs in a wide array of manufacturing, educational, scientific, and health care professions. The MPO region is also home to Research Triangle Park, the largest research park in the United States, housing more than 170 companies employing about 40,000 people. However, until recently, the Park has had no options for living. The Park now has a new plan that calls for adding more housing and services. The MPO encourages this type of development, because it allows more people to live near their jobs, which eases demand on the region's highways, supports the environment, and improves public health.

## Land-use and Development

The region's local governments have permitted thousands of new houses, apartments, townhomes, and condominiums in recent years to keep pace with the demand for housing. The MPO region added nearly 8,700 housing units between 2010 and 2013. The entire Triangle region added nearly 38,000. This is remarkable growth during a period in which much of the United States saw slow residential development.

## ABOUT THIS REPORT CARD

### Regulatory Basis

The DCHC MPO Mobility Report Card (MRC) is in response to federal regulations regarding performance management and congestion management process. Congestion Management Process (CMP) provides a systematic and continuous way for transportation planning in the DCHCMPO area to identify and manage congestion in a multi-modal manner. As stipulated by federal regulations, the MPO CMP must include a data collection and monitoring system, a range of strategies for addressing congestion, performance measures or criteria for identifying when action is needed, and a system for prioritizing which congestion management strategies would be most effective. The goal of a CMP is to have a systematic, transparent way for transportation planning agencies to identify and manage congestion and utilize performance measures to direct funding toward projects and strategies that are most effective for addressing congestion. The use of performance measures is the cornerstone of the federal CMP requirement. As noted in the most recent federal regulations, the metropolitan transportation planning process must provide for the establishment and use of a performance-based approach to transportation decision making to support the national goals of safety, infrastructure condition, congestion reduction, system reliability, freight movement and economic vitality, environmental sustainability, and reduced project delivery delays. Also, the MPO is required establish performance targets that address performance measures for use in tracking system performance.

### Purpose of this Report/How will it be Used?

The bi-annual DCHCMPO Mobility Report Card highlights measures of system performance for which data collected on an annual basis is used to index overall performance of the transportation system from year to year. Data reported include average daily traffic trends, volume-to-capacity ratio, level of service, pedestrian counts, bicycle counts, safety, congestion, etc. The MRC will be used to:

1. Provide a framework for responding to congestion in a consistent and coordinated manner.
2. Measure multi-modal transportation system performance with data collected on an annual basis.
3. Identify congestion problem locations.

4. Determine the causes of congestion.
5. Develop and evaluate alternative strategies to mitigate congestion.
6. Implement cost effective actions.
7. Measure the progress of implemented strategies in reducing congestion.
8. Identify low cost strategies that complement major MTP capital recommendations.
9. Inform and receive information from other elements of the MPO transportation process, including the Metropolitan Transportation Plan (MTP) and the Transportation Improvement Program (TIP).
10. Support the re-evaluation of the MTP goals, objectives and performance targets.
11. Assist in monitoring of the MTP performance targets.
12. Support the incorporation of the CMP into NEPA Concurrency 1: Purpose and Need.
13. Feed into the development of CTP and MTP Purpose and Needs statement.
14. Provide a framework for the integration of operations into the planning process.
15. Provide a guide and information for consideration by traffic and division engineers when considering low cost strategies (low-hanging fruits solutions).



## VEHICULAR ACTIVITY AND ARTERIAL LEVEL OF SERVICE

### What Is It?

Traffic congestion is a common problem in metropolitan areas across the country. The MPO tracks the level of traffic congestion on a road, so as to identify how roadways are being used and to help identify those in need of improvement. Primary metrics for roadway activity and congestion include daily traffic volumes and roadway “level of service” (LOS). The LOS grade summarizes a road’s volume to capacity ratio, which shows how effectively a roadway can handle the busiest daily traffic demands. To calculate the LOS, both the MPO and NC DOT record the number of automobiles passing a specific point over a 24- or 48-hour period. These counts are combined into one figure, called either average daily traffic (ADT) or annual average daily traffic (AADT).

The LOS grade ranges from A to F; a LOS A indicates that capacity exceeds volume, and drivers may move almost completely unimpeded. A LOS F implies that traffic volume exceeds a road’s capacity, and drivers travel significantly slower than the speed limit. While it may be natural to assume that all roads should operate at LOS A, this may also indicate that there is excess roadway supply, and roadways are underutilized. Conversely, a LOS E or F on downtown streets may be the result of an effective, multimodal network that is safe for pedestrians and bicycles. As a result, change in LOS over time is a more important measure than a grade at any point in time.

### Why Does It Matter?

Volume and LOS are important because roads have limited capacity to handle traffic. In order to keep traffic flowing, the region must either expand roadway capacity for vehicles or reduce the demand on congested corridors. The MPO uses the data summarized in this section to set priorities about which segments are in the greatest need of improvement.

#### SUMMARY:

#### CONDITIONS WORSENING



#### KEY FINDINGS

##### Daily Traffic Volume (2005 vs 2013)

- Traffic Volume up 9.69%
- 37% of all roadways had 10%+ increase in daily traffic volume
- 42% no change or decreased volume

##### Level of Service on DCHC Roadways (1,222 Total)

- 78.4% - LOS A
- 90.7% - LOS C or Better
- 3.6% - LOS F
- 42 segments – LOS E or F (2005)
- 59 segments – LOS E or F (2013)

##### Congested Corridors

- Major Highways (I-40, US-70, US-15/501, NC-54)
- Arterials near employment hubs (Duke, UNC, NCCU, Hospitals)
- Primary Downtown Streets



## Results

Overall, traffic volumes have increased throughout the MPO. On road segments which were counted in both 2005 and 2013, traffic volume rose by 9.69%. While there are no nationwide measures of traffic volume or LOS, the Federal Highway Administration estimates that vehicle miles traveled (VMT) decreased 0.57% between 2005 and 2013.<sup>1</sup> VMT is not directly comparable to ADT figures, because VMT is affected by both the number of trips and their length - for example, taking shorter trips can result in decreasing VMT while maintaining a constant ADT volume. Nevertheless, the increase in the region's traffic volumes relative to national VMT is noteworthy.

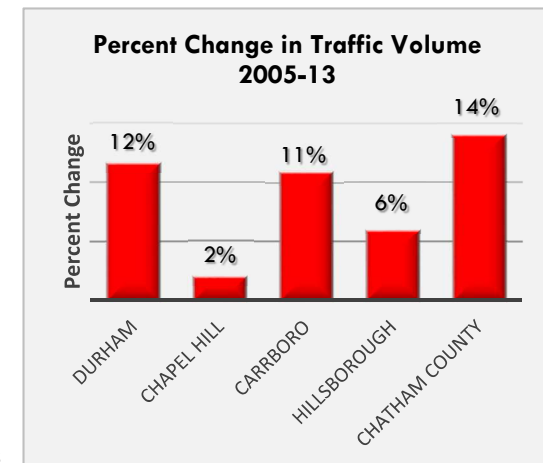
The **MPO's most congested corridors are those that provide access to the region's major employment centers**, including Research Triangle Park, Downtown Durham, Duke University, and UNC. Examples include:

- Interstate 40 near Interstate 540, which is a key junction in the larger Triangle region.
- US 15-501, which is a critical highway connecting Durham and Chapel Hill, UNC, Duke, and the universities respective hospitals.
- NC 54, which connects North Chatham County and Chapel Hill to I- 40, and also connects fast-growing neighborhoods and the Research Triangle Park in southern Durham County.
- US 70 on the east side of Durham, which is an alternate to I-40 between downtown Durham and fast-growing neighborhoods to the east, such as Brier Creek in Raleigh.
- Hillandale Road and Roxboro Street, which connect downtown Durham and Duke University to I-85 and residential neighborhoods in North Durham.
- Alston Avenue near the Durham Freeway, which connects fast-growing areas in southern Durham County with downtown and NC Central University's campus.
- Columbia Street south of Mason Farm Road, which connects US 15-501 and NC 54 to UNC's campus.

Other corridors experience congestion because they serve **popular downtown areas with significant pedestrian and bicycle traffic**. The most congested corridors include:

- Main Street and Greensboro Street in downtown Carrboro.
- Churton Street in downtown Hillsborough.
- Cameron Avenue west of Columbia Street in downtown Chapel Hill.

Although some areas experience severe congestion, more than three-quarters of the region's roads are operating at LOS A, and 90% of roads perform better than LOS E. Additionally, LOS grades should be interpreted in a roadway's operating context. Frequently, segments with a LOS E or F are roads that connect to large employment centers or downtown areas that are adequately served by a multimodal transportation system.



<sup>1</sup> Federal Highway Administration. Traffic Volume Trends. [http://www.fhwa.dot.gov/policyinformation/travel\\_monitoring/tvt.cfm](http://www.fhwa.dot.gov/policyinformation/travel_monitoring/tvt.cfm).

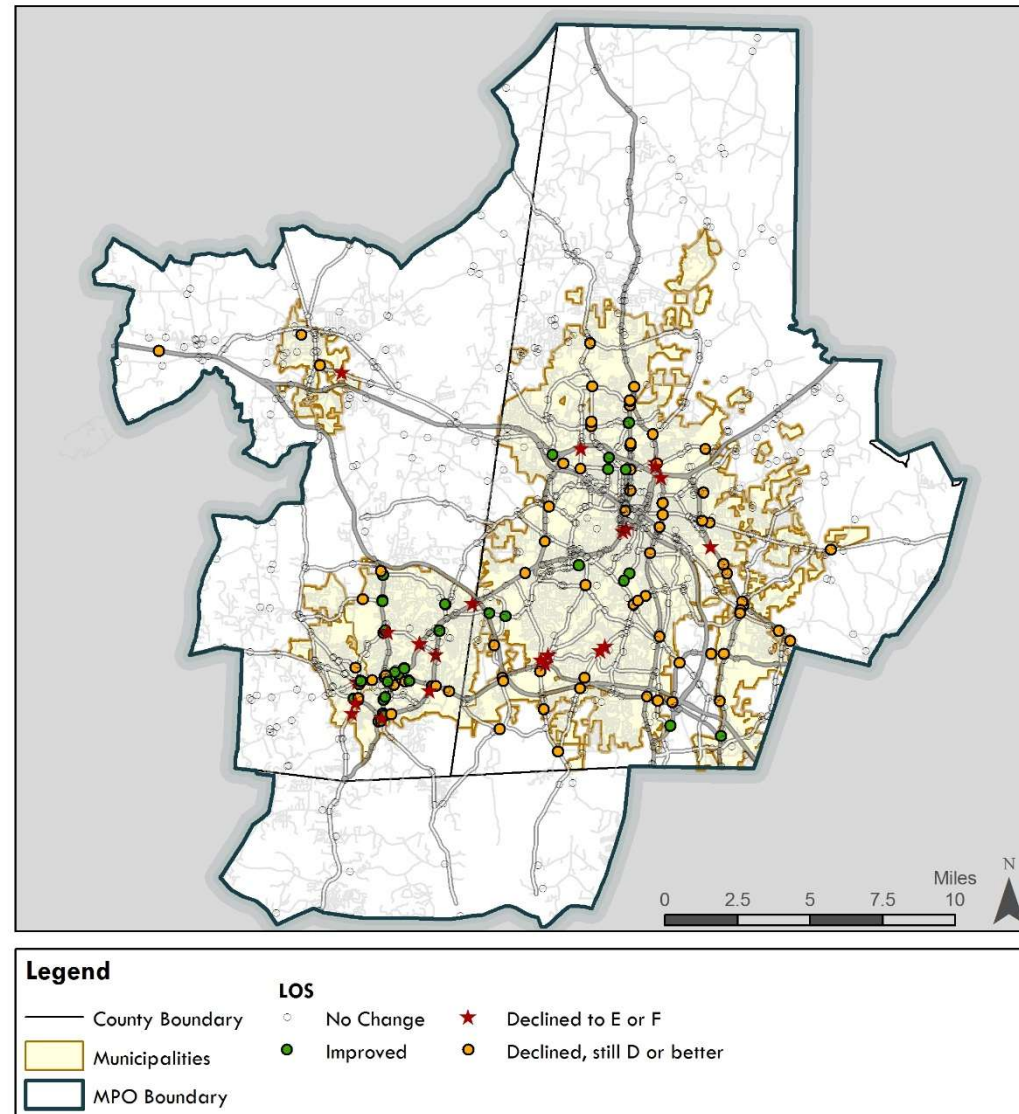
## DCHC MPO MOBILITY REPORT CARD

## EXECUTIVE SUMMARY

Top 20 ADT Volumes (2011)

Jurisdiction	Route	Location	2013 Volume	LOS
Downtown Durham	US 70 BYP	N OF NC 98	54,000	B
Chapel Hill	NC 54	E OF US 15-501	50,000	C
Chapel Hill	NC 54	E OF FINLEY GOLF COURSE RD	48,000	B
South Durham	US 70	N OF EAST END AVE	47,000	F
South Durham	US 70	S OF SR 1921	45,000	D
South Durham	NC 54	S OF SR 1110	45,000	F
Chapel Hill	NC 54	N OF SR 1110	43,000	F
Chapel Hill	NC 54	W OF HAMILTON	41,388	B
Chapel Hill	NC 54	BTWN FARRINGTON RD AND I-40	40,816	F
Downtown Durham	US 70 BYP	S OF NC 98	40,000	A
South Durham	US 70	S OF SR 1815	40,000	C
Chapel Hill	NC 54	E OF EAST BARBEE CHAPEL	39,967	F
North Durham	DUKE ST	N OF RUBY ST	38,431	E
North Durham	ROXBORO ST	S OF DAVIDSON AVE	37,000	F
South Durham	US 70	W OF SR 1906	37,000	C
South Durham	US 70	E OF SR 1811	36,000	B
North Durham	ROXBORO ST	N OF US 501 BUS	35,000	D
South Durham	NC 55	N OF NC 54	34,453	B
North Durham	DUKE ST	N OF LORAIN AVE	34,000	D
South Durham	FAYETTEVILLE RD	N OF SR 1105	34,000	C

Corridors with LOS Changes (2005 – 2011)



## REPORT CARD - VEHICULAR ACTIVITY AND ARTERIAL LEVEL OF SERVICE

The table below summarizes the findings of key performance measures on vehicular activity and LOS. Where possible, changes over time have been noted: cells marked in red indicate deteriorating conditions, cells in green show improving conditions, and cells in white are unchanged, unknown, or not applicable.

	North Durham	Downtown Durham	South Durham	Durham Total	Chapel Hill	Carrboro	Hillsborough	Chatham County
<b>Percent Change in Traffic Volume (2005-2013)*</b>	9.51%	12.37%	8.26%	11.61%	2.01%	10.86%	5.96%	14.00%
<b>Total Number of Segments With Volume Counts</b>	186	188	401	775	183	110	141	15
<b>Segments with declining LOS (2005-2013)</b>	16 (8.60%)	24 (12.77%)	52 (12.97%)	92 (11.87%)	23 (12.57%)	7 (6.36%)	3 (2.13%)	0 (0%)
<b>Segments with improving LOS (2005-2013)</b>	1 (0.54%)	5 (2.66%)	7 (1.75%)	13 (1.68%)	24 (13.11%)	6 (5.45%)	1 (0.71%)	0 (0%)
<b>Net Change in Segment LOS 2005 – 2013</b>	-15	-19	-45	-79	1	-1	-2	No changes
<b>Percent of segments with LOS E-F in 2005</b>	0.54%	2.13%	3.74%	2.58%	8.74%	3.64%	1.42%	0%
<b>Percent of segments with LOS E-F in 2013</b>	2.15%	5.85%	6.23%	5.16%	7.65%	0.91%	2.84%	0%
<b>Increase in Percent of LOS E-F Segments 2005-2013</b>	+1.61%	+3.72%	+2.49%	+2.58%	-1.09%	-2.73%	+1.42%	No change

In general, increases in traffic volume and declines in level of service were found throughout most of the region. Volume increased 10 % or more in Durham, Carrboro and Chatham County. While all areas but Chatham County had at least one roadway segment with an improved LOS from 2005 to 2013, Durham, Hillsborough and Carrboro had more declines than improvements. The number of LOS E or F segments increased everywhere except Carrboro and Chapel Hill.



## What Is It?

Similarly to highway or street segments, the operational performance of intersections can also be described by level of service (LOS), but delay, rather than traffic volume, is the most important factor in determining intersection LOS. The MPO collected data and calculated LOS for 252 intersections in 2011, 2012 and 2013. Intersection LOS is reported for the three busiest travel periods – the morning commute, evening commute, and lunchtime.

## Why Does It Matter?

The MPO uses intersection level of service to identify locations that need improvement. The improvement may be as simple as adjusting traffic signal timing or could require more complex projects that add lanes or even separate two roads with an interchange.

## Results

The overwhelming majority of intersections provide an acceptable level of service.

- The average control delay for signalized intersections in the MPO is 35 seconds or less, which corresponds to an intersection LOS C.
- 20% of intersections have LOS D or worse in the PM peak period (corresponding to intersection delay of at least 35, seconds) as compared with 16% in AM peak period. This reflects the narrower range of times that commuters leave work than arrive and is consistent with national travel patterns.

### SUMMARY:

CONDITIONS IMPROVING



### KEY FINDINGS

The MPO-wide average intersection LOS is C.

Average control delay for signalized intersections in the DCHC MPO is **35 seconds/vehicle or less**.

In locations with 2013 and 2005 data, conditions have routinely improved, likely through intervention (timing improvements, infrastructure upgrades, etc.).

The worst intersection delays in the region are on highways with commercial development (US 15-501 and NC 54).

Number of Unstable or Failing Intersections (LOS E or F in one or more peak periods):

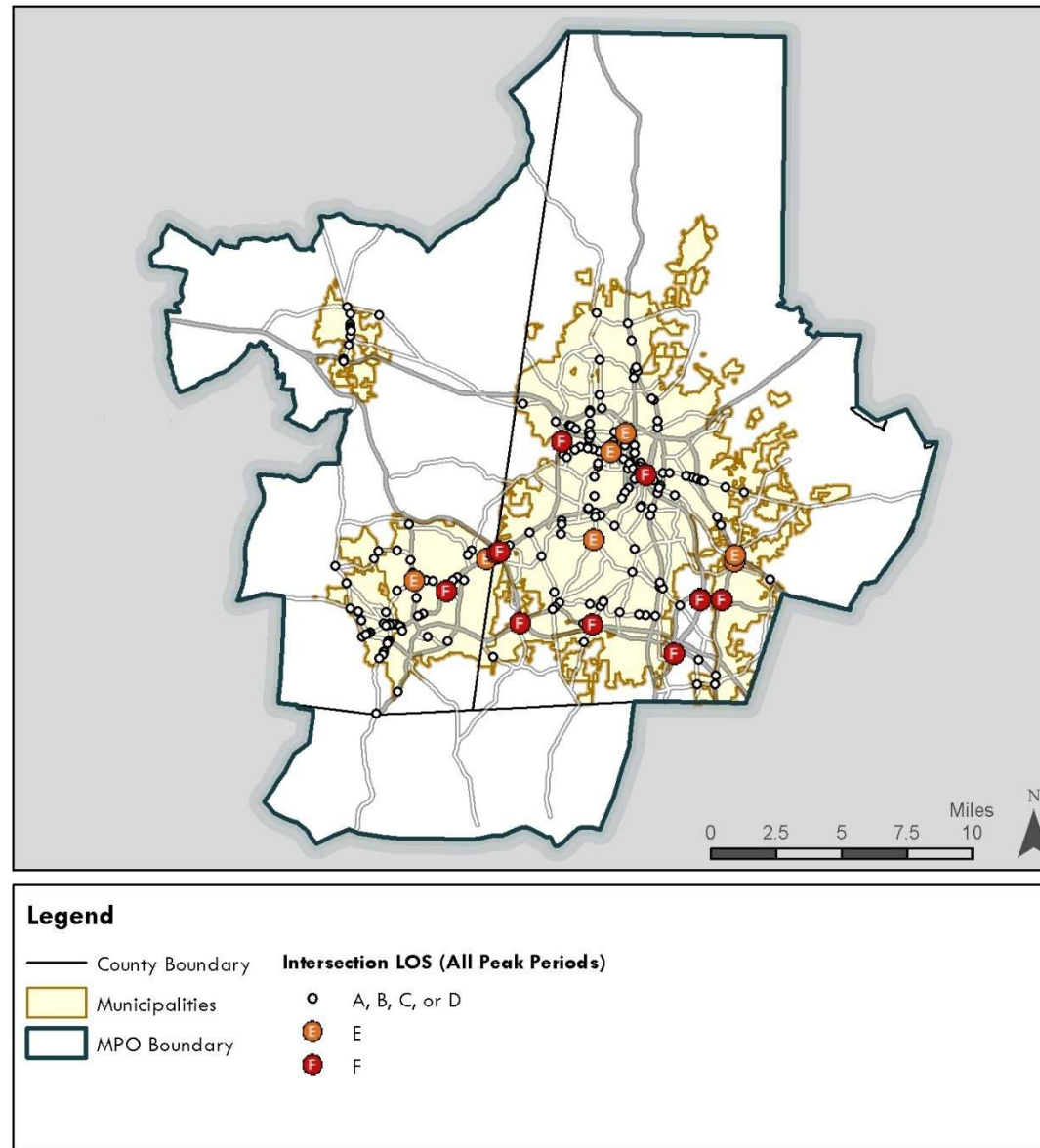
- Durham: 6
- Chapel Hill: 14
- Carrboro: 1
- Hillsborough: 0

- The worst intersection delays in the region are on **major, high-volume highways with substantial commercial development** that requires direct access, such as US 15-501 and NC 54.
- Intersections in downtown areas are functioning relatively well. Downtowns often have a grid pattern of streets that allows people to use several different routes between two places.
- Intersections in the region with the most delay include:
  - **Durham:**
    - TW Alexander Drive at Miami Blvd
    - Fayetteville Street at NC 54
    - Roxboro Street at Horton Road
    - Roxboro Road at Latta Rd
    - US-70 at Miami Blvd
  - **Chapel Hill:**
    - Estes Drive at Franklin Street
    - Martin Luther King Jr. Boulevard at Eubanks Road
    - US 15-501 at Lakeview Drive
    - Fordham Blvd at Manning Drive
    - Fordham Blvd at Old Mason Farm Road
    - Fordham Blvd at Ephesus Church Road
    - Columbia Street at Cameron Avenue
  - **Carrboro:**
    - Greensboro Street at Merritt Mill Road

MPO-Wide LOS Grades by Peak Period

LOS	Peak Periods		
	AM	Noon	PM
A	33%	29%	23%
B	30%	31%	33%
C	20%	17%	24%
D	11%	12%	12%
E	2%	10%	5%
F	3%	1%	3%



*Failing Intersections*

## REPORT CARD – VEHICLE PEAK HOUR INTERSECTION OPERATION

The table below summarizes the findings of key performance measures on intersection operation. Historical data on intersection operation were only available for Chapel Hill and Carrboro, limiting what is known about the degree of change occurring at intersections.

	Durham	Chapel Hill	Carrboro	Hillsborough	Chatham County
<b>Number of Intersections Counted</b>	130	86	24	5	0
<b>Intersections with LOS E-F for AM peak</b>	1 (0.8%)	10 (11.6%)	1 (4.2%)	0 (0%)	n/a
<b>Intersections with LOS E-F for Noon peak</b>	n/a	9 (10.5%)	0 (0%)	n/a	n/a
<b>Intersections with LOS E-F for PM peak</b>	6 (4.6%)	11 (12.8%)	0 (0%)	0 (0%)	n/a
<b>Intersections with declining LOS</b>	n/a	32 (37.2%)	13 (54.2%)	n/a	n/a
<b>Average Control Delay Time (seconds per vehicle)</b>	35	35	35	n/a	n/a

Note: Any intersection that improved LOS for AM, noon, or PM peaks was counted as an intersection with improving LOS. Any intersection that declined in LOS for AM, noon, or PM peaks was counted as an intersection with declining LOS. Because some intersections improved LOS during one peak period but declined in LOS for a second peak period, these metrics are not mutually exclusive. Data available at the municipal and county level only.

In general, intersections across the region are operating well. An average control delay time of 35 seconds or less suggests that intersections are providing adequate service.

Chapel Hill had notably more failing intersections than Durham or Carrboro. However, the percentage of failing intersections is still low. Carrboro saw declining LOS at more than half of the Town's intersections, but those declines did not result in any intersection failures.



## VEHICULAR TRAVEL TIME

### What Is It?

Level of service (LOS) is useful for telling us how well a specific segment of road or intersection accommodates demand, but LOS cannot tell us how long it takes to get from point A to point B. Travel time is an easy-to-understand measure that describes the travel experience between points, capturing the effects of both volume and intersection delays.

The MPO monitors travel time and average speed on regionally significant corridors. As with most travel-related measures, the MPO collects data on Tuesday, Wednesday, and Thursday to get an accurate understanding of typical weekday trends. The MPO compares average travel speed to the posted speed limit to calculate a Travel Time Index (TTI). TTI is the ratio of travel time in congested conditions compared to the travel time in free flowing conditions. A TTI greater than 1 indicates congestion. It is noted that the posted speed limit in this report was applied as a surrogate for free flowing conditions rather than observed free flowing conditions.

### Why Does It Matter?

MPOs and DOTs can use the TTI to identify congested corridors. However, TTI only tells one part of a complex story. The MPO uses TTI in combination with LOS and several other measures presented in this report to paint a complete picture of congestion and identify hot spots that need attention.

### Results

The U.S Census Bureau's American Community Survey 1-year estimates found that average commute time for the Durham-Chapel Hill Metropolitan Area was 22.8 minutes, nearly three minutes less than the nationwide average of 25.5 minutes. To supplement national data, travel times were

#### SUMMARY:

CONDITION CHANGE UNKNOWN



#### KEY FINDINGS

92.2% of corridors had slower travel times in peak periods than under free-flow conditions, suggesting there is at least a little peak travel time delay on nearly all corridors.

Corridors approaching congested status are:

- Durham County
  - Anderson / 15<sup>th</sup> St
  - E Main St
  - Downtown Loop
  - S Alston Ave
- Orange County
  - US 15-501 / Columbia St

Shorter segments of downtown Durham and Chapel Hill are congested during at least one peak period (AM, noon, or PM)

collected on 89 Congestion Management Plan (CMP) corridors throughout the DCHC MPO. A TTI was calculated, defined as the posted speed limit divided by the actual speed. The further actual speeds drift below posted speeds, the higher the TTI rises. Higher TTIs suggest a corridor is congested or approaching congestion.

TTI data are available at the corridor level and segment level but from different sources.

In the corridor-long data, **no full corridors were identified as congested** (as defined by a TTI of 2.5 or greater). However, several corridors had TTIs approaching congestion levels, including:

**Orange:** US 15/501 and Columbia Street from Smith Level Road to Franklin Street.

**Durham:** Anderson Street from Duke University Road to Hillsborough Road.

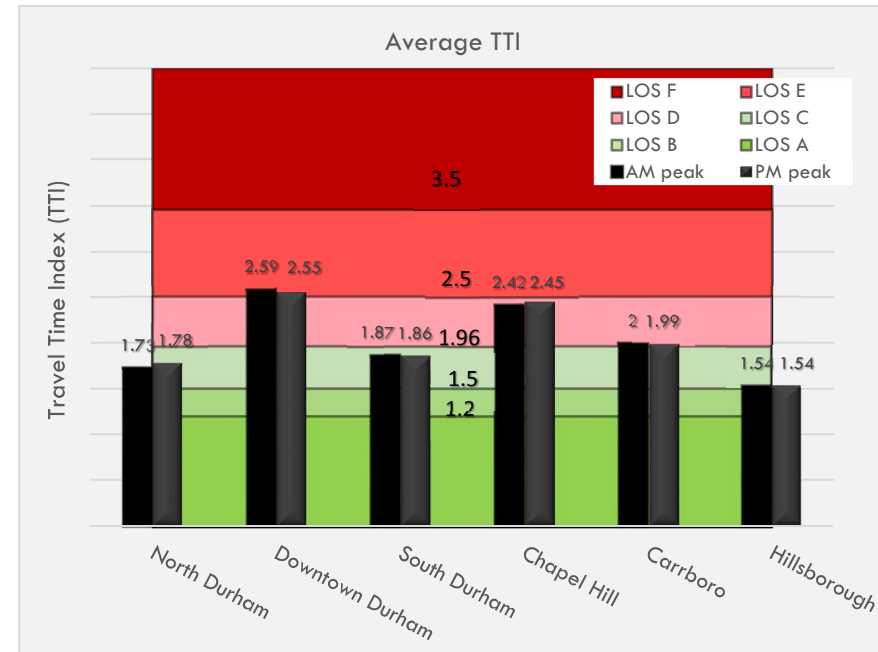
**Durham:** E Main St from Alston Avenue to N Buchanan Boulevard

**Durham:** Downtown Loop

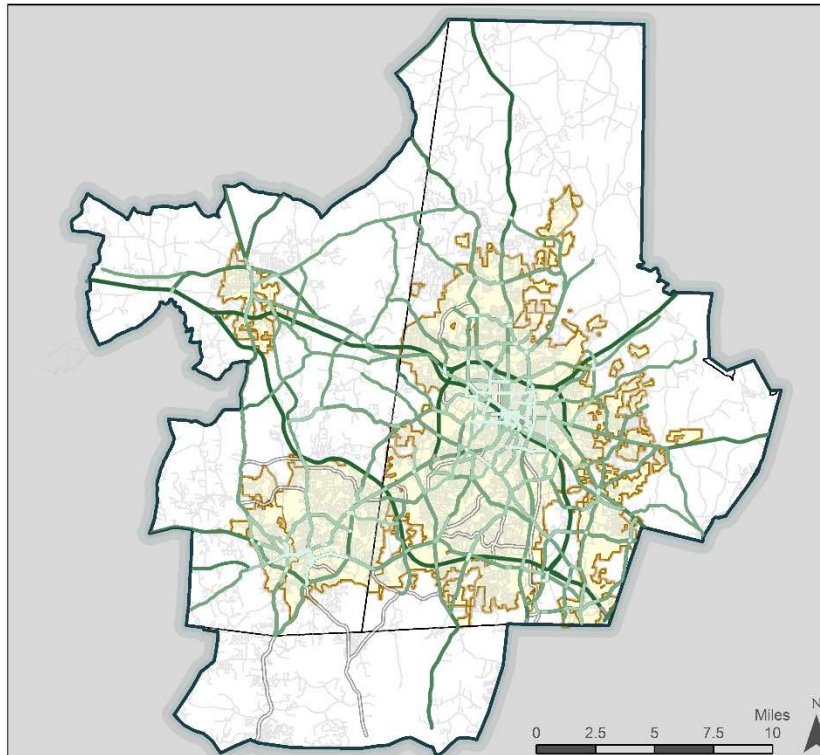
**Durham:** S Alston Avenue from the Wake County Line to NC 55

The lack of corridor level congestion reflects the significant lengths of the corridors, which range from 0.45 miles to 30 miles. Shorter segments of congestion or delay can be washed out by free-flow conditions elsewhere on the corridor, resulting in generally better LOS grades here than found in Chapter 1.

In order to identify smaller stretches of congestion, shorter segments on the 89 CMP corridors were also evaluated. The map below shows **that many short segments exhibit slower speeds and increased congestion at least once during the average day**. Note, however, that this is a different data source, so there are some inconsistencies between the two data sets. Future mobility reports will help clarify congestion and travel time findings.

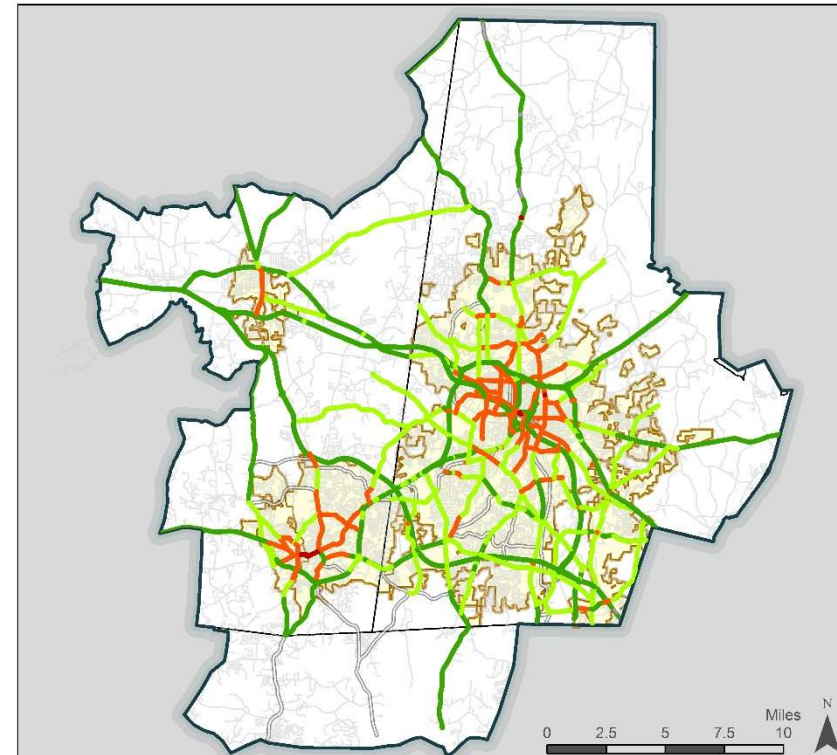


Average All-Day Speeds

**Legend**

- |                   |                                |         |
|-------------------|--------------------------------|---------|
| — County Boundary | <b>Average Speed (All Day)</b> |         |
| ■ Municipalities  | 0 - 25                         | 45 - 55 |
| ■ MPO Boundary    | 25 - 35                        | 55 - 70 |
|                   | 35 - 45                        |         |

Worst Peak Period Level of Service Grade

**Legend**

- |                   |                                  |                          |
|-------------------|----------------------------------|--------------------------|
| — County Boundary | <b>Travel Time (All Periods)</b> |                          |
| ■ Municipalities  | A or B (TTI < 1.5)               | D or E (TTI 1.96 - 3.46) |
| ■ MPO Boundary    | C (TTI 1.5 - 1.96)               | F (TTI > 3.46)           |



## REPORT CARD – VEHICULAR TRAVEL TIME

The table below summarizes the findings of key performance measures on vehicular travel time. Historical data on speed and travel time is not available, so no changes are noted.

	North Durham	Downtown Durham	South Durham	Durham Total	Chapel Hill	Carrboro	Hillsborough	Chatham County
<b>Number of Segments Counted*</b>	1084	1018	3017	5119	523	457	1146	0
<b>Segments receiving E or F LOS (AM peak)</b>	54 (4.98%)	587 (57.66%)	254 (8.42%)	895 (17.48%)	194 (37.09%)	86 (18.82%)	21 (1.83%)	n/a
<b>Segments receiving E or F LOS (PM peak)</b>	65 (6.00%)	519 (50.98%)	127 (4.21%)	711 (13.89%)	180 (34.42%)	77 (16.85%)	29 (2.53%)	n/a
<b>Average Travel Time Index (AM peak)</b>	1.73 (C)	2.59 (E)	1.87 (C)	n/a	2.42 (D)	2.00 (D)	1.54 (C)	n/a
<b>Average Travel Time Index (PM peak)</b>	1.78 (C)	2.55 (E)	1.86 (C)	n/a	2.45 (D)	1.99 (D)	1.54 (C)	n/a

\*On two-way roadway segments, each direction is counted separately.

The report card findings show that Downtown Durham and Chapel Hill exhibit significant levels of congestion at peak travel times. More than half of all roadway segments in Downtown Durham fail at peak hours, and more than one-third fail in Chapel Hill. Average TTIs in Chapel Hill and Downtown Durham are graded as LOS D and E, respectively. Carrboro also exhibits LOS D in peak hours, despite many fewer failing segments. All other regions operate at LOS C, with less than 10% of segments receiving failing LOS grades.

These data will be particularly useful as a benchmark against future travel time indices.



## What Is It?

Transportation policy in the United States places a strong emphasis on vehicular safety. The MPO tracks fatalities, injuries, and property damage resulting from vehicle collisions on the 95 regionally-significant corridors included in the MPO's Congestion Management Plan (CMP). These data are collected by the North Carolina DOT through its Traffic Engineering Accident Analysis System (TEAAS). The data presented in this section cover a five year period from January 2008 through December 2012

## Why Does It Matter?

Motor vehicle accidents are the **10<sup>th</sup> leading cause of death in North Carolina**, claiming more than 1,300 lives in 2012. They are the leading cause of death for people between ages 1 and 18.<sup>2</sup> The MPO can reduce crashes, injuries, and fatalities by improving areas with a high crash rate.

## Results

There were 36,926 collisions reported along the MPO's CMP corridors between 2008 and 2012, with collision totals increasing each year from 2009-2012. Nearly 80% of all collisions occurred in Durham County, though this is partly a function of the larger number of road miles in the County relative to Orange and Chatham Counties. There were 105 reported fatalities, an average of 17 per year. This is far below the national average of 10.63 fatalities per 100,000 population<sup>3</sup>, but the CMP corridors

### SUMMARY:

CONDITIONS UNCHANGED



### KEY FINDINGS

Crash data analyzed for 95 primary corridors only

The number of collisions in the region increased each year between 2009 and 2012, but there have been no clear trends in the number of injuries or fatalities.

37,000 collisions with 70,000 vehicles from 2008-2012

105 total fatalities (0.3% of all collisions), and about 2,750 injuries per year

4 times as many collisions in Durham County as Orange and Chatham Counties combined.

- Many more CMP corridors in Durham County

About 75% of all collisions only caused property damage.

<sup>2</sup> North Carolina State Center for Health Statistics.

<sup>3</sup> NHTSA Traffic Safety Facts 2010. <http://www-nrd.nhtsa.dot.gov/Pubs/811659.pdf>

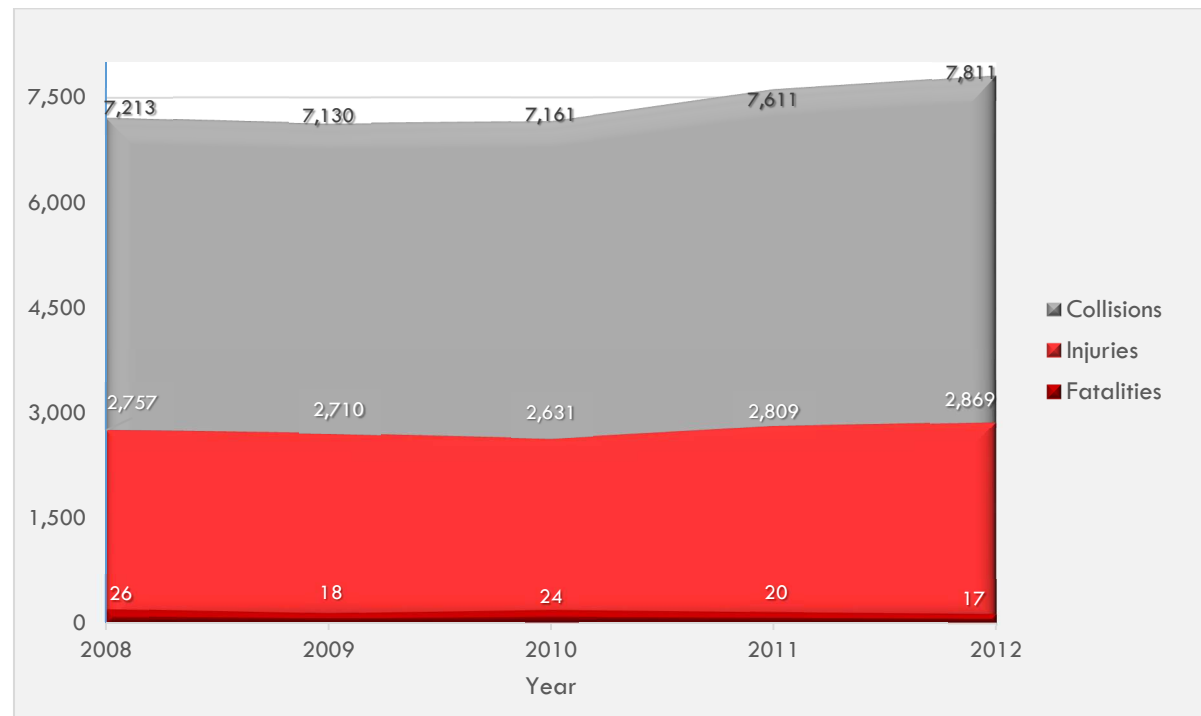
make up only a fraction of total roadways, so additional fatalities are not reported here.

In the region, about 2,750 people are injured annually, while about 14,000 vehicles are damaged in collisions per year.

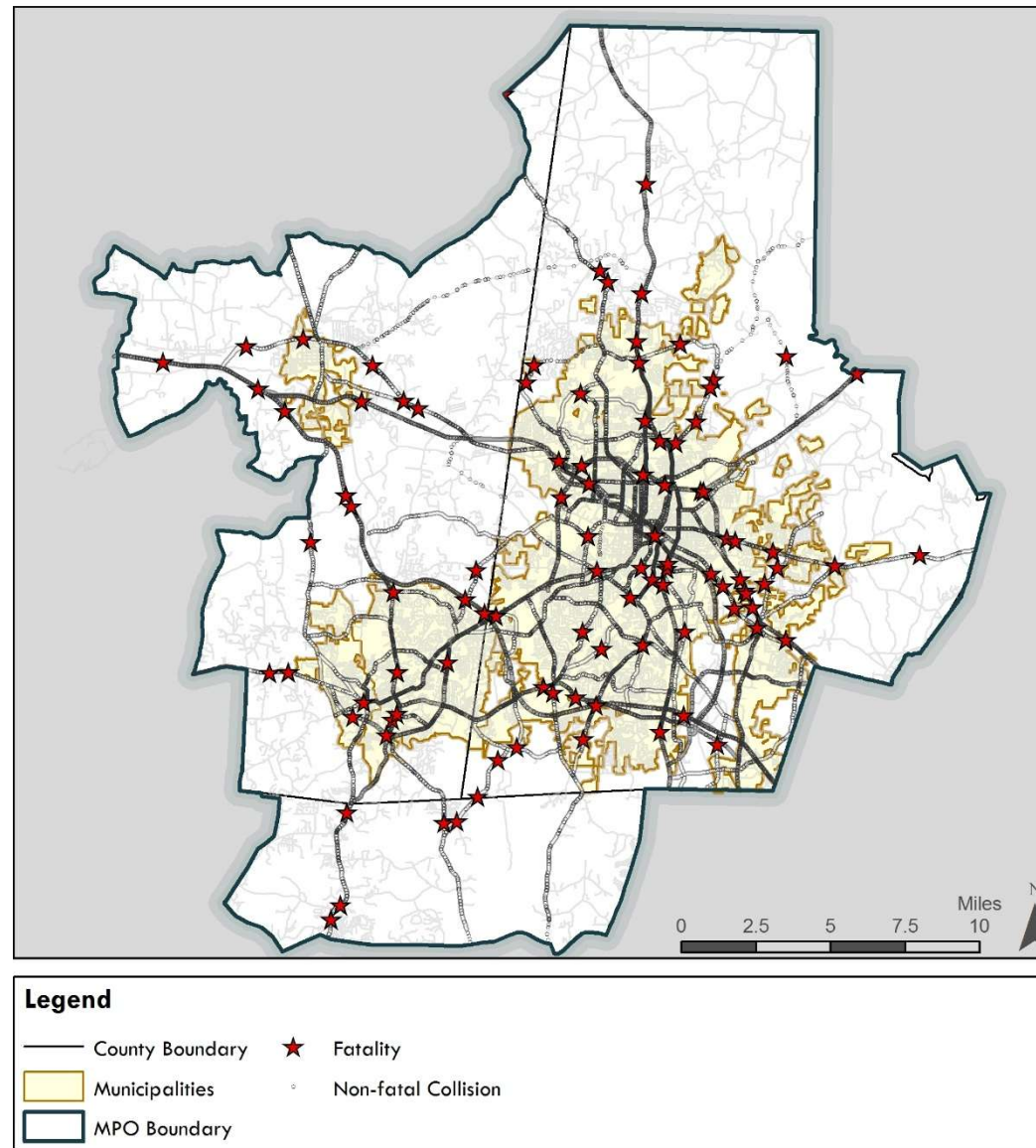
It is estimated that the collision cost over this five year period was \$159.4 million.

It is not clear how much of the increase in collisions has been caused by increases in traffic.

*Auto Collisions, Injuries, and Fatalities - DCHC MPO*



*Collision Locations*



## REPORT CARD – VEHICLE SAFETY

The table below summarizes the findings of key performance measures on vehicle safety. Historical data on vehicle collisions is not available, so no changes are noted.

	North Durham	Downtown Durham	South Durham	Durham Total	Chapel Hill*	Carrboro*	Hillsborough*	Unincorporated Orange County	Chatham County
<b>Total Number of Collisions</b>	4,391	11,522	13,287	29,200	3,019	482	140	3,569	516
<b>Number of Property Damage Only Collisions</b>	3,175	8,641	10,186	22,002 75.35%	2,152 71.28%	299 62.03%	112 80.00%	2,783 77.98%	394 76.36%
<b>Number of Injuries</b>	1,910	4,456	4,630	10,996	1,204	234	35	1,124	183
<b>Number of Fatalities</b>	23	14	35	72	6	2	1	19	5
<b>Total Number of Vehicles Involved</b>	8,106	22,604	25,916	56,626	6,137	948	273	5,668	792
<b>Estimated Cost of all Collisions</b>	\$18,527,988	\$48,888,007	\$57,006,247	\$124,422,242	\$15,091,289	\$1,672,587	\$521,620	\$15,390,208	\$2,259,385

Because data were collected only on 95 corridors, the majority of which are within Durham County, the number of collisions (and subsequent damage) is considerably higher in Durham than for the other parts of the region. However, without comparison data, it is difficult to make any determinations about these findings.

These data will be particularly useful as a benchmark against future safety data.





## What Is It?

Pedestrian facilities describe infrastructure such as sidewalks, trails, and crosswalks that allow people to travel from place to place without using a vehicle. Pedestrian facilities are typically thought of as only serving walkers, but they also provide critical access for people with disabilities. Pedestrian facilities also support other modes of transportation by providing access to bus stops or safe and clear routes from parking spaces to destinations such as stores, offices, schools, or homes.

The MPO collects data for sidewalk coverage and construction from each city and town in the region. It uses these data to track the miles of sidewalk added in each municipality since 2005.

## Why Does It Matter?

Pedestrian facilities provide a basic level of access that, if properly designed, nearly anyone can use. Communities across the country are also coming to realize that pedestrian facilities are in high demand. More people are desiring a walkable neighborhood, and improvements to pedestrian facilities have played a big role in the revitalization of many downtowns and neighborhoods. During much of the 20<sup>th</sup> century, federal transportation policy emphasized mobility for vehicles, and infrastructure such as sidewalks or trails was an afterthought. However, for the last two decades, new federal programs have provided funds for pedestrian infrastructure and supported programs that make it easier to walk to school. In order to support the public's desire to walk more, MPOs must collect data and study where new infrastructure is needed.

### SUMMARY:

#### CONDITIONS IMPROVED



#### KEY FINDINGS

The DCHC region contains over 700 miles of sidewalk.

Miles of sidewalk increased 11% from 2005 to 2012.

Historic downtown areas and older neighborhoods currently have denser sidewalk networks than do more suburban and rural areas.

Durham has nearly 4 times more sidewalk mileage than any other municipality.

Chapel Hill and Carrboro have a higher density of sidewalk miles than Durham or Hillsborough.

## Results

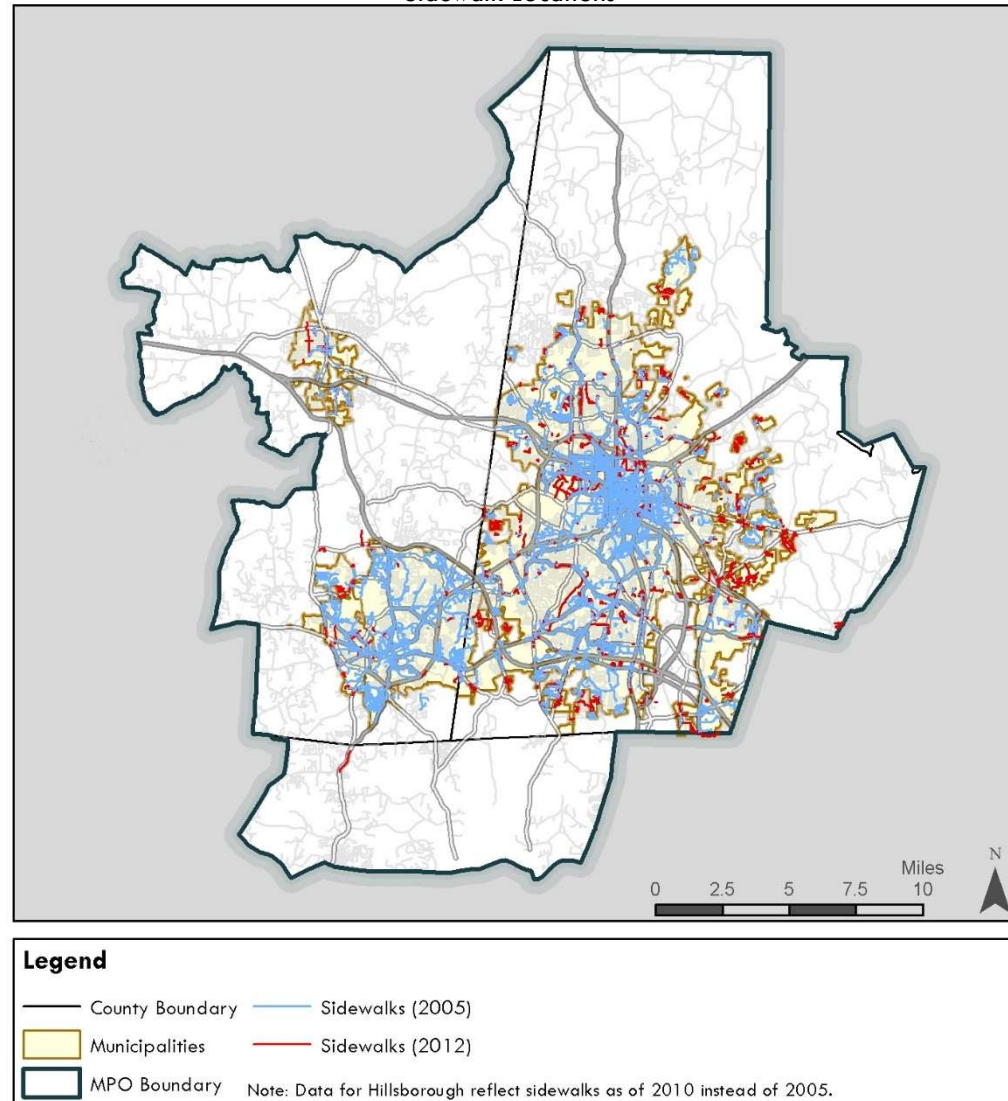
The region's cities and towns have about 715 miles of sidewalk, covering large stretches of the region. As the map to the right shows, downtowns and older neighborhoods within the four municipalities of Durham, Chapel Hill, Carrboro, and Hillsborough routinely have sidewalks, while sidewalks are less common on the outskirts of town.

**Durham provides 74% of the total sidewalk mileage in the region**, and Chapel Hill provides another 19%. However, **sidewalk density is higher in Chapel Hill and Carrboro** than in Durham.

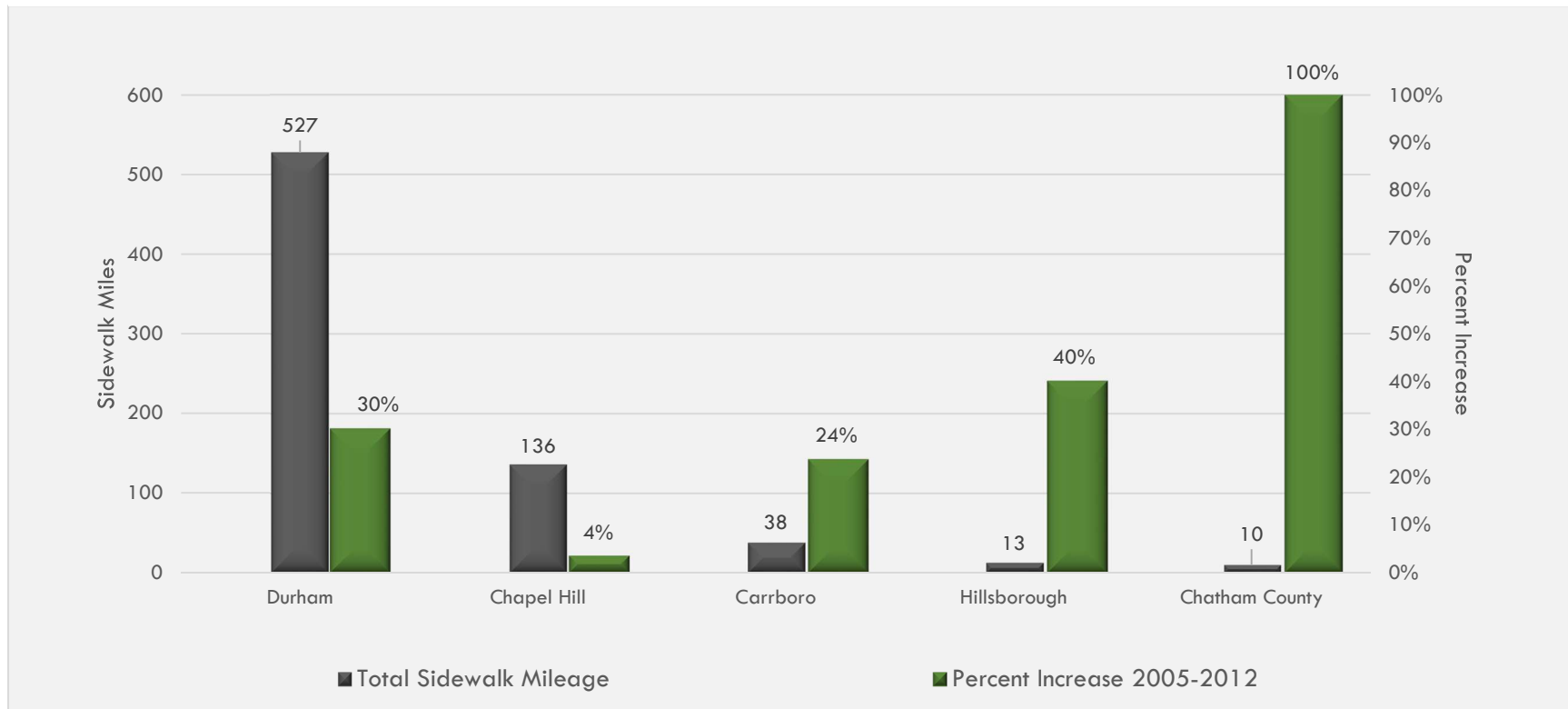
Total sidewalk mileage **increased 11.42%** from 2005 to 2012. Carrboro and Hillsborough had the highest rates of new sidewalk additions during that time, with a clear emphasis on improving connections between previously disconnected areas of sidewalk.

Note that these inventories were strictly for municipalities themselves and may not include sidewalks added outside their limits. Where fine-scale additions of sidewalk mileage should be made are beyond the scope of this report.

*Sidewalk Locations*



*Sidewalk Mileage and Percent Increase Since 2005*



Note: Data from Hillsborough only goes back to 2010

## REPORT CARD – PEDESTRIAN FACILITIES

The table below summarizes the findings of key performance measures on pedestrian facilities. Where possible, changes over time have been noted: cells marked in red indicate deteriorating conditions, cells in green show improving conditions, and cells in white are unchanged, unknown, or not applicable.

	<b>Durham</b>	<b>Chapel Hill</b>	<b>Carrboro</b>	<b>Hillsborough</b>	<b>Chatham County</b>
<b>Total Sidewalk Miles as of 2005</b>	404.3	131.5	30.6	9.1	n/a
<b>Sidewalk Mileage as of 2012</b>	527.4	136.3	37.9	12.7	0.8
<b>Sidewalk Mileage Per Square Mile of Land</b>	4.98	6.45	5.87	2.38	.01
<b>Mileage of New Sidewalks Constructed</b>	123.1	4.8	7.4	3.7	0.8
<b>Percent Increase in Sidewalk Mileage</b>	30.45%	3.66%	24.06%	40.38%	100

Data available at the municipal and county level only. Data for Hillsborough reflect 2010 data instead of 2005.

In general, sidewalk mileage increased everywhere in the MPO. Carrboro and Hillsborough had the largest percentage increases of the four municipalities, though that is in part a result of much more robust existing sidewalk networks in Durham and Chapel Hill. Despite the large difference in total mileage between Durham and all other municipalities, Chapel Hill and Carrboro have more sidewalk mileage per square mile of land, and are thus more densely covered in pedestrian facilities.



## PEDESTRIAN ACTIVITY

### What Is It?

The location of a pedestrian facility greatly influences its use. Sidewalks near markets, shops, housing communities, transit stops, and parking facilities can be a surprising stimulus to all modes of transportation, as well as to the economy and individual health. If pedestrian facilities are properly designed and maintained, their design will encourage more use, and people will want to walk more. When land use or other transportation facilities are maintained to the same level, an all-around benefit can be observed. For instance, more, better-designed sidewalks to a parking garage just outside of a downtown area may relieve automobile congestion within downtown; more pedestrian activity downtown may benefit local businesses and promote exercise; less automobile congestion may encourage more bicyclist activity; sidewalks to transit stops will encourage higher transit ridership, and so on. The easiest way to assess how current DCHC MPO pedestrian facilities are performing is to record pedestrian activity.

The MPO counted pedestrians at 274 locations in 2011 and 2012. Unlike vehicle traffic counts, pedestrian counts are labor intensive, requiring a person to manually observe a location for several hours. The MPO reported pedestrian volume at each location for the morning peak travel period (7:00 to 9:00 AM), midday (11:00 AM to 1:00 PM), and the evening peak travel period (4:00 to 6:00 PM).

### Why Does It Matter?

Tracking pedestrian volumes over time recognizes the importance of pedestrian facilities and allows the MPO to quantify changes in use over time. The data also help the MPO evaluate and compare potential investments in pedestrian facilities. Moreover, the MPO can use the data to learn how facility design and land use affect pedestrian activity.

#### SUMMARY:

CHANGES UNKNOWN, BUT  
CONDITIONS LIKELY IMPROVING



#### KEY FINDINGS

2.6% of all travel on the region's 95 primary corridors was done on foot.

Pedestrian counts in the region are affected by the presence of pedestrian facilities and density of the surrounding land uses.

The areas with the most pedestrian activity are in or around UNC, Duke Hospital, NCCU, and the region's downtown cores.

Highest pedestrian count in 2011/2012: 6,986 (South Rd and Stadium Dr, Chapel Hill).

Only sixteen locations (5.8%) recorded pedestrian volumes over 1,000.

Many high-volume locations identified in 2005 were not re-counted in 2011/2012.

More count locations are needed in the future to get a better picture of pedestrian activity throughout the region.



## Results

Pedestrians were tracked on the region's CMP corridors, as well as through in-person counts. Walking comprised 2.6% of all travel on CMP corridors, nearly the same as the 2011 national estimate of 2.8%<sup>4</sup>. However, the US Census 2012 American Community Survey estimate for the Durham-Chapel Hill Metro Area estimated walking as 3.1% of commuting trips, higher than the average on CMP corridors. The counts taken in 2011 and early 2012 make it clear that the presence of pedestrian facilities and density of the surrounding land uses affect the pedestrian counts, but more counts are needed at more locations to more accurately portray pedestrian activity in the DCHC MPO. Of the 274 counts performed during 2011 and 2012, pedestrian activity ranged from 6,986 (South Rd and Stadium Drive, Chapel Hill) to zero. Less than one-sixth of observed locations recorded a daily pedestrian volume over 250. Four counts (1.5%) exceed 1,000 pedestrians; all such counts were in downtown Durham and Chapel Hill or near Duke and UNC hospitals.

The twenty counts with the highest daily pedestrian activity were sprinkled around the DCHC MPO, with most occurring around UNC, NCCU, Duke Hospital, and the downtown cores of Durham, Chapel Hill, and Carrboro.

Most of the 135 counts included from 2005 (and earlier) were performed in and around UNC and the Town of Carrboro—and many of these locations **were not** revisited for data collection during 2011 or 2012. Among those counts, pedestrian activity ranged from 19,165 (South Rd at the Bell Tower) to eight (Homestead Rd E of Weaver Dairy Rd). Because of a lack of repeat data for many of these locations, pedestrian changes over time are hard to assess, though the location and amount of new facility mileage suggests that activity likely increased. **More counts are needed to provide a better idea of pedestrian activity in the DCHC MPO.**

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<sup>4</sup> 2011 American Community Survey 1-year estimate.

## DCHC MPO MOBILITY REPORT CARD

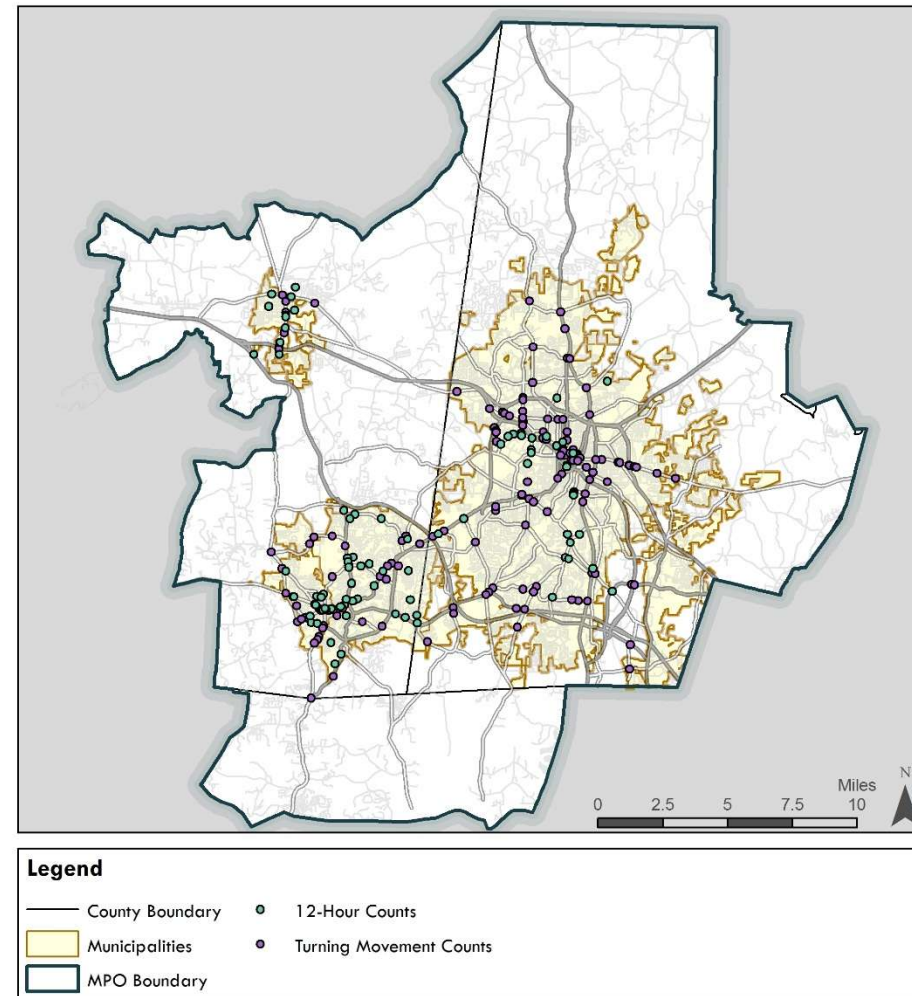
## EXECUTIVE SUMMARY

## Top 20 Six-Peakhour Period Pedestrian Volume – DCHC MPO

Jurisdiction	Count Location	Pedestrian Volume
Chapel Hill	SOUTH RD AND STADIUM DR	6,986
Chapel Hill	FRANKLIN ST AND COLUMBIA ST	1,605
Chapel Hill	COLUMBIA ST AND FRATERNITY COURT	1,426
Chapel Hill	FRANKLIN ST AND OLD FRATERNITY ROW	1,327
Chapel Hill	FRANKLIN ST AND HENDERSON ST	1,240
Chapel Hill	SOUTH RD AND RALEIGH ST	1,083
Chapel Hill	MANNING DR AND RIDGE RD	856
Chapel Hill	MANNING DR AND PAUL HARDIN DR	811
Chapel Hill	COLUMBIA ST AND SOUTH RD	799
Durham	ERWIN RD AND FULTON RD	796
Chapel Hill	CAMERON AVE AND PITTSBORO ST	795
Chapel Hill	PITTSBORO ST AND MCCAULEY ST	778
Durham	MAIN ST BTWN ROXBORO AND CHURCH	710
Durham	ERWIN RD AND RESEARCH DR	710
Durham	BROAD ST AND PERRY ST	700
Chapel Hill	FRANKLIN ST AND HILLSBOROUGH RD	673
Chapel Hill	ROSEMARY ST AND HENDERSON ST	607
Carrboro	MAIN ST BTWN GREENSBORO ST AND WEAVER ST	564
Durham	FAYETTEVILLE RD AND BRANT ST	543

Represents six-hour volume data for pedestrians during three peak periods (AM [7:00 to 9:00], noon [11:00 AM to 1:00 PM] and PM [4:00 to 6:00]).

## Pedestrian Count Locations



## REPORT CARD – PEDESTRIAN ACTIVITY

The table below summarizes the findings of key performance measures pedestrian activity. Historical data on pedestrian activity were not directly applicable to the data collection undertaken as part of this report, so no changes over time were noted.

	Durham	Chapel Hill	Carrboro	Hillsborough	Chatham County
<b>Total Pedestrian Count Locations</b>	146	70**	39	19	n/a
<b>Highest pedestrian count* (people)</b>	2,135	6,986	799	345	n/a
<b>Locations with Over 500 pedestrians</b>	11 (7.5%)	16 (22.9%)	2 (5.1%)	0 (0%)	n/a
<b>Locations with over 100 pedestrians</b>	54 (37.0%)	40 (57.1%)	21 (53.8%)	1 (5.3%)	n/a

Data available at the municipal and county level only.

\* Six-peakhour period pedestrian volume.

\*\* Including 15 UNC-CH counts.-

In general, a fairly consistent level of pedestrian activity was found in Durham, Chapel Hill, and Carrboro, though Hillsborough had notably less pedestrian traffic at its count locations. At least one-third of all count locations in the three biggest municipalities noted 100 or more pedestrians, while less than 10 percent of locations in any municipality had over 500 pedestrians.

These data will be particularly useful as a benchmark against future pedestrian activity data.



## What Is It?

Bicycle facilities are infrastructure that enable people to ride bikes for commuting, exercise, or recreation. Well-designed and maintained bicycle facilities are known to attract bicyclists. Bike lanes and multi-use paths, such as the American Tobacco Trail in Durham, are examples of bicycle facilities that are found in the region.

## Why Does It Matter?

As with pedestrian facilities, communities across the nation are realizing that bicycle facilities are desirable features that can make a neighborhood more attractive, give people options other than driving, provide opportunities for exercise, and support stronger economies. The MPO measures bicycle facilities in order to track expansion over time and progress towards expanding bicycle networks and closing gaps.

## Results

The region increased its bicycle lane mileage by over 84 percent between 2005 and 2012. Additionally, multi-use path mileage was increased by 19 percent in that same time.

All together, the region had about 64 miles of bicycle lanes and 67 miles of multi-use paths in 2012.

### SUMMARY:

CONDITIONS IMPROVED



### KEY FINDINGS

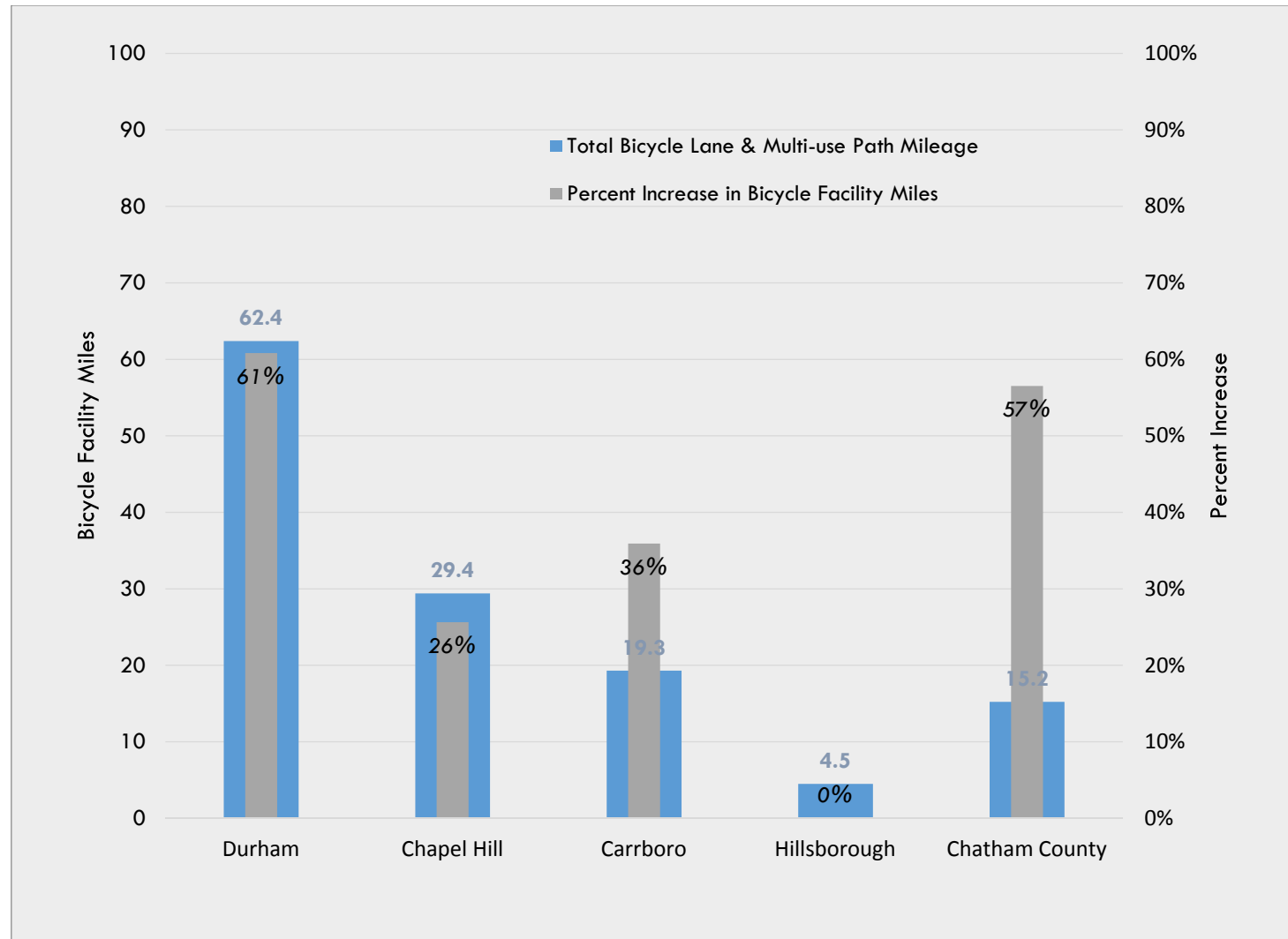
The DCHC region had about 61 miles of bicycle lanes and 67 miles of multi-use paths in 2012.

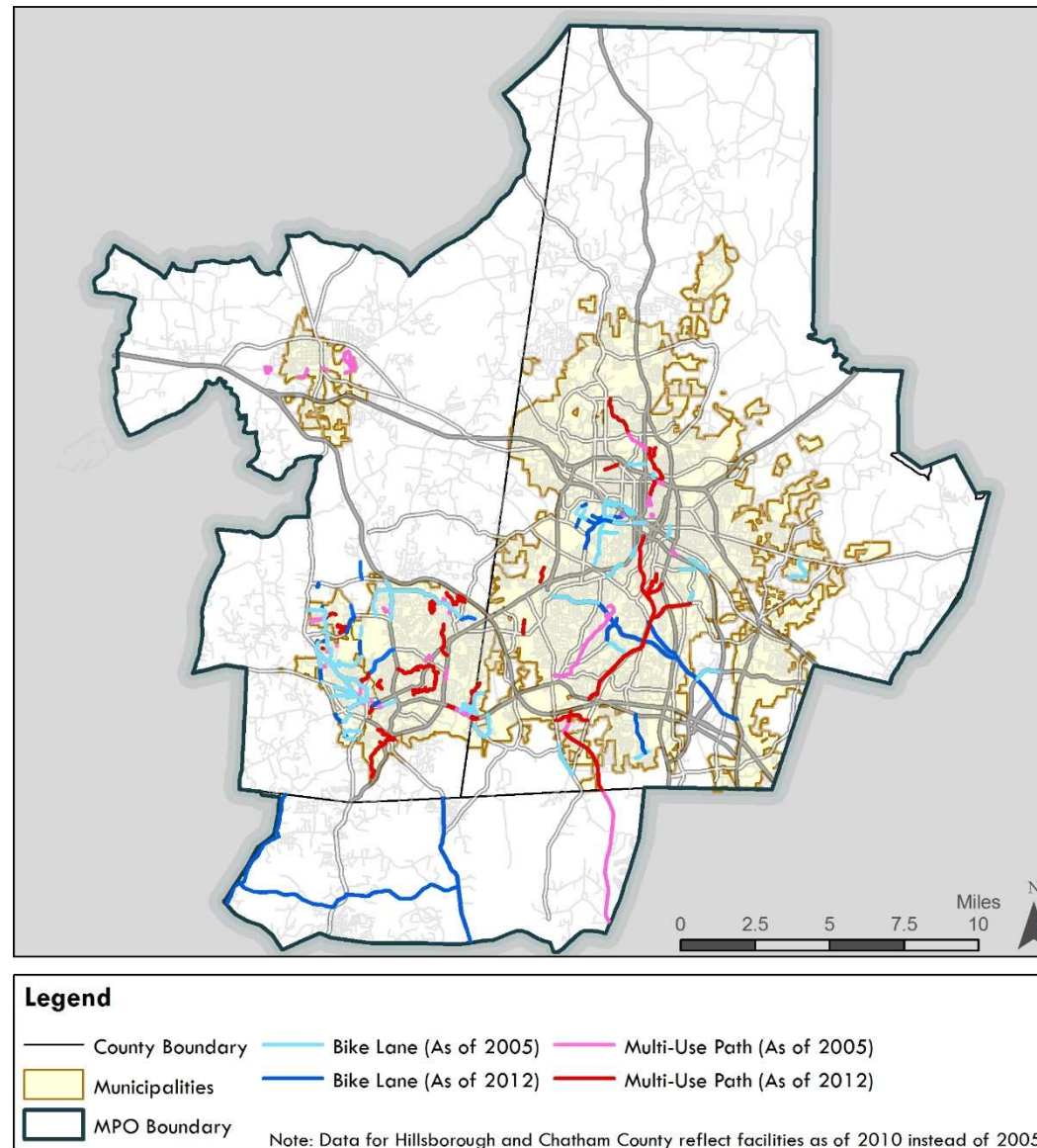
Bicycle lane mileage nearly doubled between 2005 and 2012; multi-use path mileage increased by 14%.

Durham, Chapel Hill, Carrboro, and Chatham County all added at least 4 miles of new bicycle facilities since 2005.

Hillsborough did not report any new bicycle facilities.

Total Bicycle Facility Mileage and Percent Increase Since 2005



*Bicycle Facilities*



## REPORT CARD – BICYCLE FACILITIES

The table below summarizes the findings of key performance measures on bicycle facilities. Where possible, changes over time have been noted: cells marked in red indicate deteriorating conditions, cells in green show improving conditions, and cells in white are unchanged, unknown, or not applicable.

		Durham	Chapel Hill	Carrboro	Hillsborough	Chatham County
<b>Bicycle Lanes</b>	Miles of Bicycle Lanes in 2005	13.4	8.9	12.5	n/a	n/a
	Miles of Bicycle Lanes as of 2012	31.1	12.1	15.5	n/a	5.5
	Increase in Bicycle Lane Mileage	17.7	3.2	3.0	n/a	n/a
	Percentage Change in Bicycle Lane Mileage	132%	36%	24%	n/a	n/a
<b>Multi-Use Paths</b>	Mileage of Multi-use Paths in 2005	25.4	14.5	1.7	4.5	9.7
	Mileage of Multi-use Paths as of 2012	31.3	17.3	3.8	4.5	9.7
	Increase in Mileage of Multi-use Paths	5.9	2.8	2.1	0	0
	Percentage Change in Mileage of Multi-use Paths	23%	19%	124%	0%	0%
<b>Total</b>	Facility Mileage Per Square Mile of Land	0.58	1.39	2.99	0.84	0.25

Note: Hillsborough data only goes back to 2010. Data available at the municipal and county level only.

Bicycle facilities increased across the region, with only Hillsborough not adding facility mileage. Increases were uniformly over 10 percent, with increases of 50% or more in Carrboro multi-use paths and Durham bicycle lanes. Similarly to sidewalks, Chapel Hill and Carrboro had the densest bicycle facility network. Clearly, increasing bicycle facility availability was a priority for the MPO's municipalities and counties in recent years.



## BICYCLIST ACTIVITY

### What is it?

As is true for pedestrian facilities, the location of bicyclist facilities greatly influences their use. The MPO counts bicyclists to assess how well existing facilities are performing, while also providing valuable data that can be used to evaluate future bicycle projects. The MPO conducted bicyclist counts for a 12-hour period on a Tuesday, Wednesday, or Thursday. In order to supplement these counts, the MPO also collected data on bicyclists during turning movement counts at intersections. In sum, the MPO counted bicyclists at 274 locations between September 2011 and June 2012.

### Why does it matter?

Collecting activity data along a facility can garner some understanding of popular facilities, time-of-day changes, and necessary improvements. Generally, there are three factors necessary to promote bicyclist activity: presence of facilities, design of facilities, and land use. Bicycle lanes on roads with fewer fast-moving automobiles, multi-use paths near or between parks, facilities situated or designed for commuting, and multi-use paths in rural areas can be stimuli to increase the use of bicycles, which could be a benefit to the local economy and, certainly, to individual health.

Moreover, if bicycle facilities are properly designed and maintained, this will encourage more use, and people will want to ride more. When automobile and transit facilities are managed to encourage bicyclist activity, an all-around benefit can be observed.

### Results

Bicycle use was tracked on the region's CMP corridors, as well as through in-person counts. Bicycle use comprised 0.5% of all travel on CMP corridors, nearly the same as the 2011 national census estimate of 0.6%. However, the US Census 2012 American Community

#### SUMMARY:

CHANGE UNKNOWN



#### KEY FINDINGS

0.5% of all travel on the region's 95 primary corridors was done by bicycle.

10 highest bicycle counts are in Chapel Hill and Carrboro.

Highest Counts per City:

- **Carrboro:** 816 (Merritt Mill & Cameron Rd)
- **Chapel Hill:** 402 (Cameron & Pittsboro)
- **Durham:** 192 (Erwin & Anderson)
- **Hillsborough:** 10 (Churton & Corbin)

Many high-volume bicycle routes connect universities and downtowns to dense residential areas.

No 2005 data were available, so activity change is difficult to measure. Large increase in facilities points to possible activity increases.

More count locations are needed in the future to better understand regional bicyclist activity.

Survey estimate for the Durham-Chapel Hill Metro Area estimated walking as 3.1% of commuting trips, and biking, motorcycling, and taxi trips as another 2.7% of trips, much higher than the average on CMP corridors.

Two hundred seventy-four counts were done to monitor bicyclist activity within the DCHC MPO. Most of those counts (90.5%) recorded **fewer than 100 bicyclists**, and only eight (2.9%) recorded a six-peakhour activity of over 250 bicyclists (five locations in Chapel Hill and three in Carrboro).

Activity ranged from 816 cyclists at Merritt Mill Rd and Cameron Ave to zero cyclists at 45 count locations (16.4%). The 20 highest numbers from these counts were scattered around the DCHC MPO, with most occurring around the Town of Carrboro, the American Tobacco Trail and the Town of Chapel Hill (Table 8-1). Carrboro and Durham had the most mid-range counts of bicyclist activity, between 100 and 250. No count in Hillsborough recorded more than 10 bicyclists.

Most of the 135 counts included from 2005 (and earlier) were performed in and around UNC and the Town of Carrboro—and many of these locations were not revisited for data collection during 2011 or 2012. Among those historical counts, bicyclist activity ranged from 690 (Weaver St between Oak St and Lindsey St in 2005) to zero (Ephesus Church Rd and Pope Rd in 2005). Because of a lack of repeat data for many of these locations, direct comparisons are not available.

## DCHC MPO MOBILITY REPORT CARD

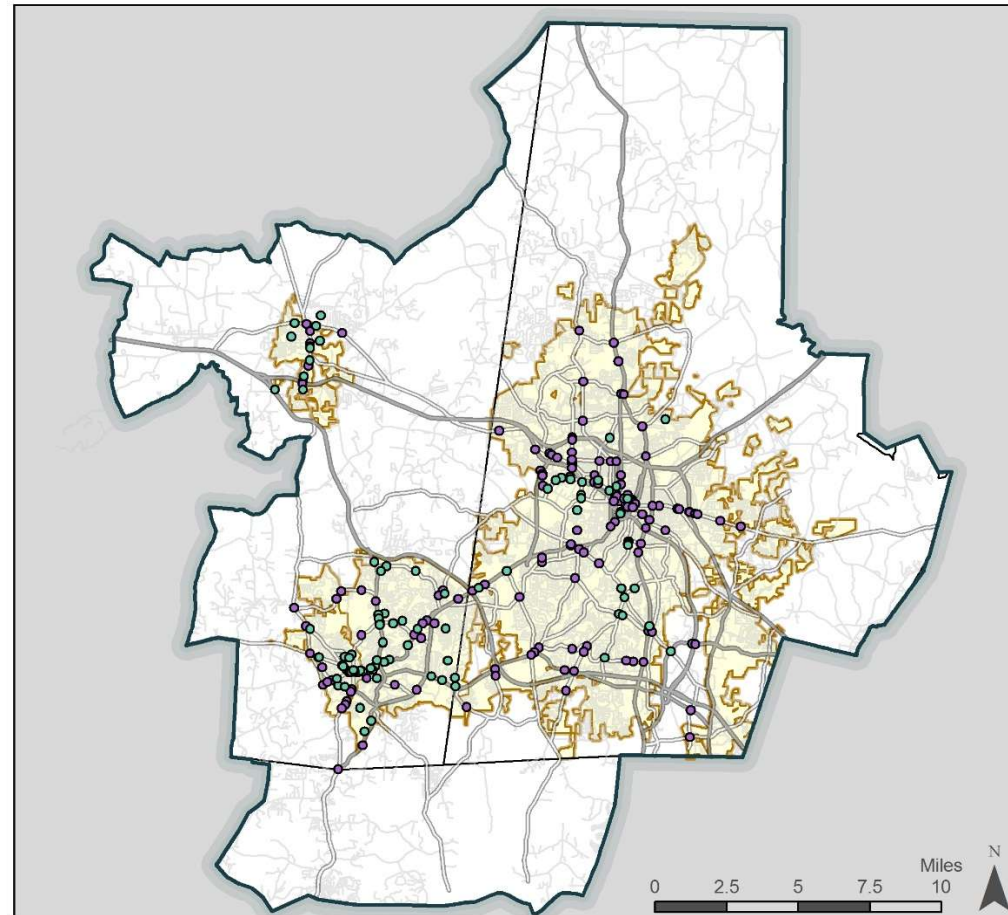
## EXECUTIVE SUMMARY

## Top 20 Six-Peakhour Period Bicyclists Volumes

Jurisdiction	Count Location	Bicyclist Volume
Carrboro	MERRITT MILL RD AND CAMERON RD	816
Chapel Hill	CAMERON AVE AND PITTSBORO ST	402
Carrboro	LIBBA COTTON BIKE PATH AND ROBERSON ST	340
Chapel Hill	MCCAULEY ST AND RANSOM ST	326
Chapel Hill	SOUTH RD AND RALEIGH ST	322
Chapel Hill	PITTSBORO ST AND MCCAULEY ST	298
Chapel Hill	FRANKLIN ST AND COLUMBIA ST	297
Carrboro	MAIN ST AND JONES FERRY RD	259
Chapel Hill	COLUMBIA ST AND SOUTH RD	241
Carrboro	MAIN ST AND LLOYD ST	240
Carrboro	MAIN ST AND GREENSBORO ST	228
Carrboro	MAIN ST AND WEAVER ST	196
Chapel Hill	COLUMBIA ST AND FRATERNITY COURT	194
Durham	ERWIN RD AND ANDERSON ST	192
Durham	FAYETTEVILLE ST AND COOK RD	192
Chapel Hill	MANNING DR AND RIDGE RD	183
Chapel Hill	FRANKLIN ST AND HENDERSON ST	177
Carrboro	GREENSBORO ST AND WEAVER ST	154
Chapel Hill	SOUTH RD AND STADIUM DR	153
Carrboro	ESTES DR AND GREENSBORO ST	147

These data represent six-hour volume data for bicyclists during three peak periods (AM [7:00 to 9:00], noon [11:00 to 13:00] and PM [16:00 to 18:00])

## Bicyclist Activity



## Legend

- County Boundary
- Municipalities
- MPO Boundary
- 12-Hour Counts
- Turning Movement Counts

## REPORT CARD – BICYCLIST ACTIVITY

The table below summarizes the findings of key performance measures on bicyclist activity. Historical data on bicyclist activity were not directly applicable to the data collection undertaken as part of this report, so no changes over time are noted.

	<b>Durham</b>	<b>Chapel Hill</b>	<b>Carrboro</b>	<b>Hillsborough</b>	<b>Chatham County</b>
<b>Total Number of Bicyclist Count Locations</b>	146	70**	39	19	n/a
<b>Highest Bicyclist Count*</b>	192	402	816	10	n/a
<b>Number of Locations with Over 100 Bicyclists</b>	5 (3.4)	13 (18.6%)	8 (20.5%)	0 (0%)	n/a
<b>Number of Locations with Over 25 Bicyclists</b>	46 (31.5%)	36 (51.4%)	22 (56.4%)	0 (0%)	n/a

Data available at the municipal and county level only.

\* Six-peakhour period bicyclist volume.

\*\* Including 15 UNC-CH counts.-

Bicyclist activity was notably lower than any other transportation mode, consistent with nationwide mode shares. Activity was high in the vicinity of UNC-CH and in Carrboro.

These data will be particularly useful as a benchmark against future bicyclist activity data.



## What Is It?

The MPO tracks fatalities and injuries from collisions between vehicles and pedestrians or bicyclists on the 95 regionally-significant corridors included in the MPO's Congestion Management Plan (CMP). The data cover the five-year period from January 1, 2008 through December 31, 2012.

## Why Does It Matter?

The MPO can reduce crashes, injuries, and fatalities by improving areas with a high crash rate. Therefore, the MPO collects data to identify locations in need of safety improvements, ascertain locations for new pedestrian and bicycle facilities, and assure citizens that facilities are safe.

## Results

In the five year period ending 2012, 513 pedestrian or bicyclist collisions were recorded. Of these, 346 (67.4%) involved pedestrians, with **21 resulting in a fatality**. The remaining 167 collisions (32.6%) involving bicyclists and resulted in **2 fatalities**. This number of fatalities (4.4 per year) is far below previous national findings of 2 yearly pedestrian fatalities per 100,000 population<sup>5</sup>, though the CMP corridors make up only a fraction of the region's total roadway miles.

Injuries were reported in 91.8% of all collisions (93% of pedestrians, 90% of bicyclists).

Fatalities were highest in 2008, but have been increasing every year from 2010-2012. Pedestrian injuries have also increased during the same period. However, injuries involving bicyclists remain fairly consistent and are lower than those for pedestrians.

<sup>5</sup> National Pedestrian Crash Report, NHTS (2008). <http://www-nrd.nhtsa.dot.gov/Pubs/810968.pdf>

### SUMMARY:

CONDITIONS WORSENERD



### KEY FINDINGS

Collision data collected on 95 regionally-significant corridors.

513 crashes involving bicycles or pedestrians occurred on those corridors during the five-year period.

- 346 pedestrian collisions
  - 93% of collisions reported injury
  - 21 pedestrian fatalities
- 167 bicycle collisions
  - 90% of collisions reported injury
  - 2 bicyclist fatalities

42% of reported crashes were in Downtown Durham, though more fatalities were recorded on South Durham roadways.

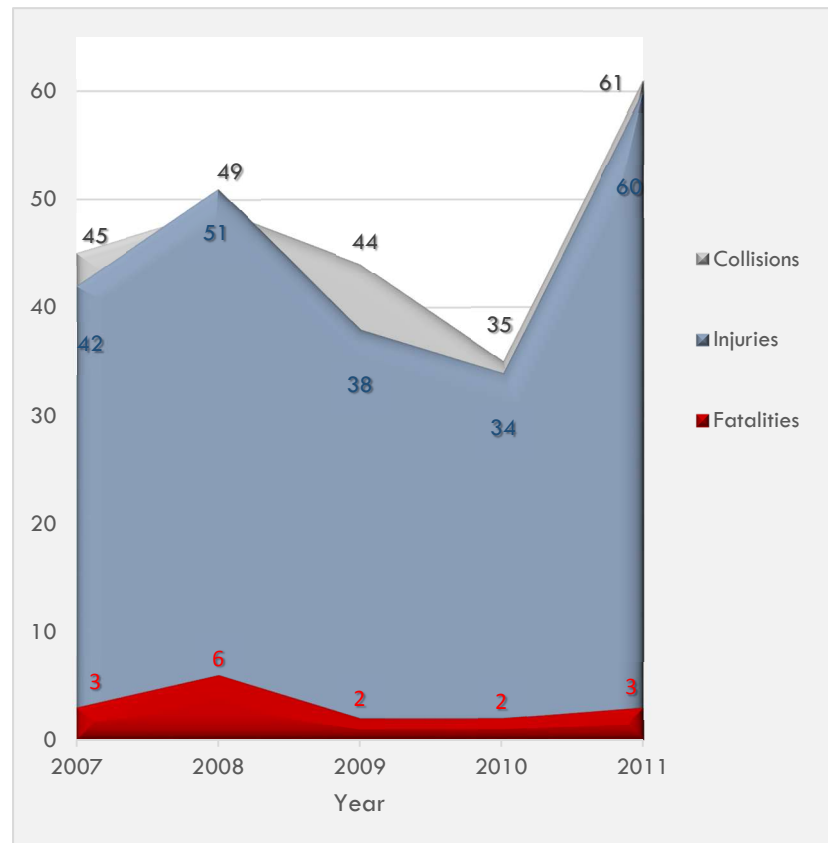
There are no clear trends in crashes, injuries, or fatalities over the five-year period.



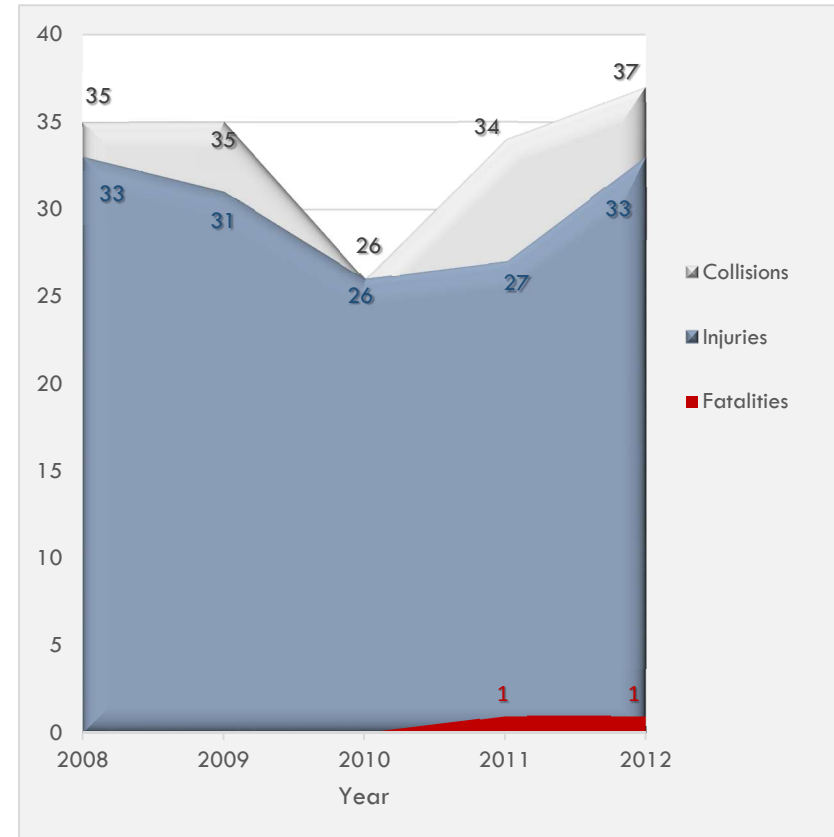
Regionally, South Durham had the highest number of fatalities, followed by Chapel Hill. The highest number of total injuries were recorded in Downtown Durham. This trend followed for injuries to bicyclists and pedestrians.

As data were collected on 95 CMP corridors, system-level trends were able to be highlighted, but because many of the region's bicyclist and pedestrian collisions occur elsewhere, a more refined picture of pedestrian and bicyclist safety could not be determined from the data available.

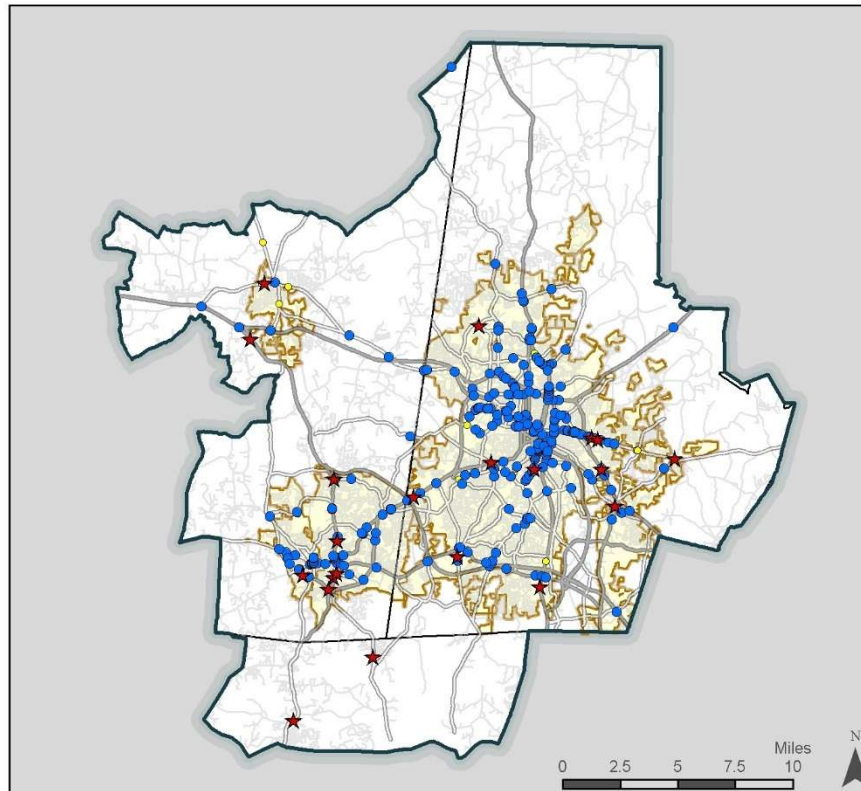
*Pedestrian Collisions, Injuries, and Fatalities on CMP Corridors*



*Bicyclist Collisions, Injuries, and Fatalities on CMP Corridors*

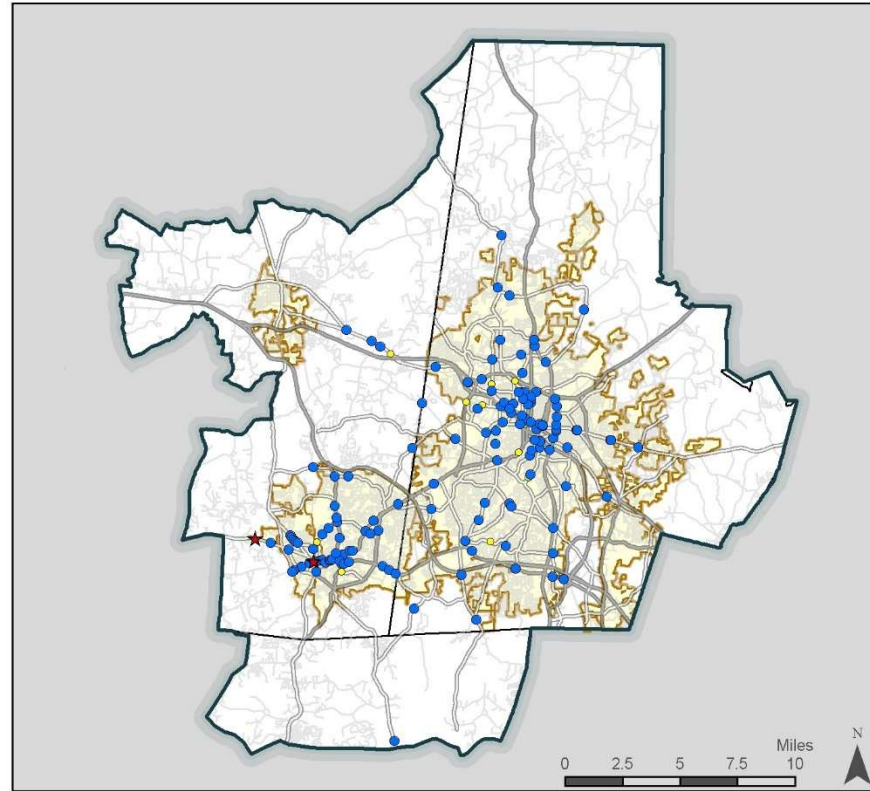


Pedestrian Collision Map 2008-2012

**Legend**

- |                   |                           |
|-------------------|---------------------------|
| — County Boundary | ★ Pedestrian - Fatality   |
| ■ Municipalities  | ● Pedestrian - Injury     |
| ▭ MPO Boundary    | ● Pedestrian - Non-injury |

Bicyclist Collision Map 2008-2012

**Legend**

- |                   |                    |
|-------------------|--------------------|
| — County Boundary | ★ Bike - Fatality  |
| ■ Municipalities  | ● Bike - Injury    |
| ▭ MPO Boundary    | ● Bike - Noninjury |

## REPORT CARD – PEDESTRIAN AND BICYCLIST SAFETY

The table below summarizes the findings of key performance measures on pedestrian and bicyclist safety. Historical data on collisions with pedestrians and bicyclists are not available, so no changes are noted.

		North Durham	Downtown Durham	South Durham	Durham Total	Chapel Hill	Carrboro	Hills- borough	Orange County (Unincor- porated)	Chatham County
<b>Pedestrians</b>	Total Number Of Collisions	34	155	72	261	44	23	3	16	2
	Total Number of Injuries	32	155	70	117	42	22	0	22	1
	Total Number of Fatalities	1	2	8	11	5	1	1	2	2
	Estimated Cost Of All Collisions	\$19,400	\$112,451	\$59,580	\$191,431	\$30,750	\$8,076	\$2,500	\$63,600	\$7,500
<b>Bicyclists</b>	Total Number Of Collisions	14	60	29	103	36	19	0	8	1
	Total Number of Injuries	13	49	29	91	35	16	0	6	2
	Total Number of Fatalities	0	0	0	0	0	1	0	1	0
	Estimated Cost Of All Collisions	\$8,600	\$30,425	\$371,450	\$410,475	\$12,850	\$6,101	\$0	\$3,600	\$100

Because data were collected only on 95 corridors, the majority of which are within Durham County, the number of collisions, and subsequent injuries, is considerably higher in Durham than for other municipalities. However, without historical comparison data, it is difficult to make any determinations about these findings.

These data will be particularly useful as a benchmark against future safety data.



## TRANSIT SERVICE

### What Is It?

The MPO region has five fixed route transit service providers: Durham Area Transit Authority (DATA), Chapel Hill Transit (CHT), Duke University Transit, Orange Public Transportation (OPT), and the Triangle Transit Authority (TTA). Transit services can follow a fixed route and schedule, or they can operate on an as-needed basis. The latter type of service is known as demand-response or paratransit, and is provided for people with disabilities.

### Why Does It Matter?

Many people in the DCHC region rely on transit to access their daily needs. The location of routes, service frequency, and the hours of service are all important factors that influence transit mobility and transportation equity for the region.

### Results

The region has 92 fixed bus routes with a little more than 2,300 stops. Most agencies within the DCHC MPO cover a large area and provide services to at least two municipalities. Stops for each agency are frequently placed and easily accessible. Each year, the 252 buses that serve these routes and stops travel about 7.4 million miles. The region also has 86 paratransit buses in operation to travel less than 2.4 million miles.

Fares for DATA and TTA (one-way) are at or below national averages, and CHT, OPT and Duke University transit are free (except PX on CHT and Mid-Day Shuttle on OPT). Weekday transit service began by 6:00am and ended before midnight for most transit agencies; Duke Transit services began around 7:00am and continued to the early-morning hours. For more information on schedules and fares for each agency please visit [www.gotriangle.org](http://www.gotriangle.org) and the Duke University parking and transportation website.

#### SUMMARY:

CONDITION CHANGE UNKNOWN



#### KEY FINDINGS

The region has 92 fixed bus routes with a little more than 2,300 stops.

Each year the 252 buses that serve these routes and stops travel about 7.4 million miles.

The region also has 86 buses that provide less than 2.4 million miles paratransit services.

Duke University Transit and Chapel Hill Transit are both fare-free.

No data were collected for 2005, so changes in transit service provision are unknown.

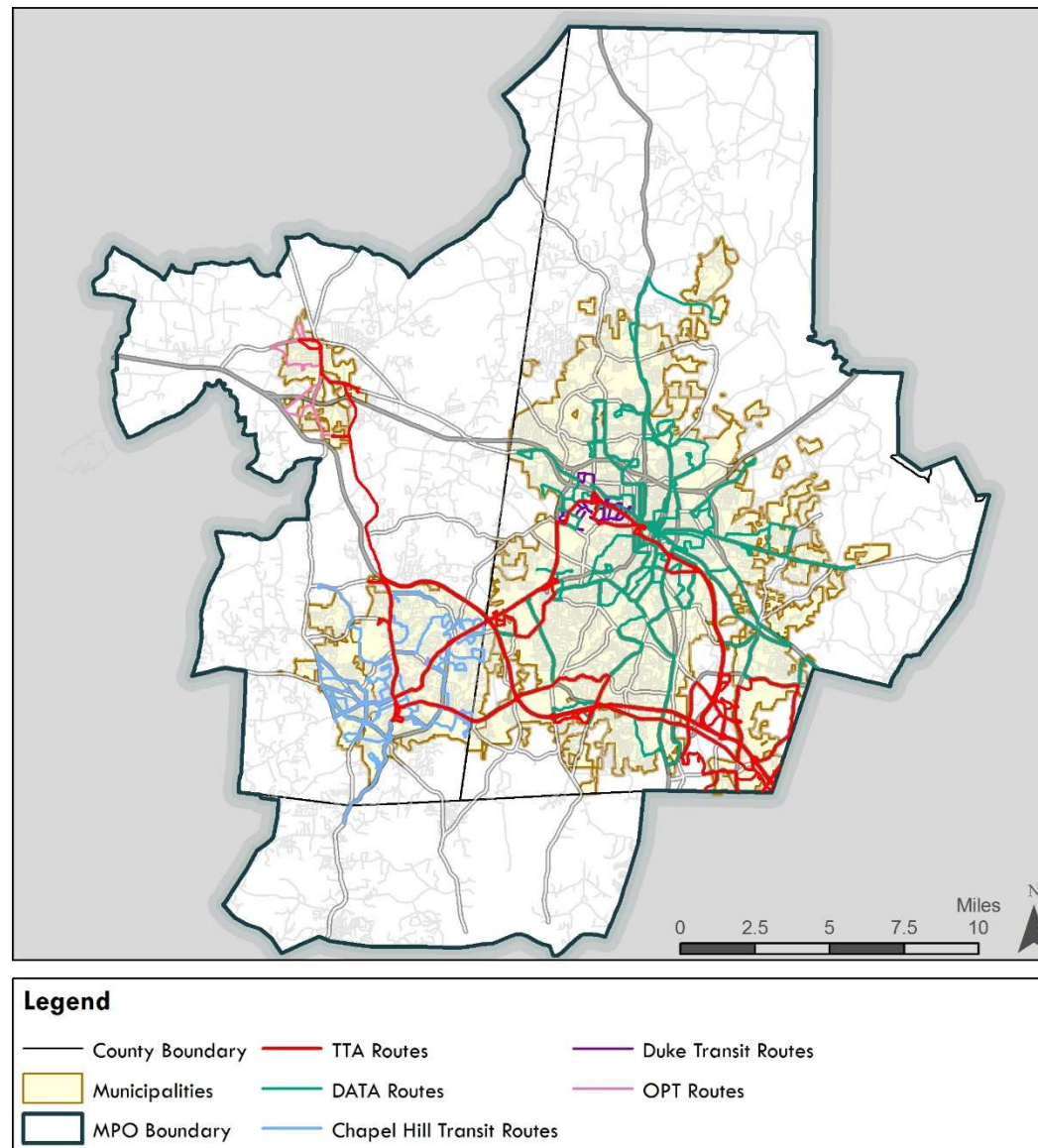
*Transit Service Hours of Operation and Fares, by Agency*

Agency	Weekday		Saturday		Sunday		Fares
	Begin	End	Begin	End	Begin	End	
Durham Area Transit Authority (DATA)	5:30	0:30	5:30	0:30	6:30	19:30	\$1.00
Duke Transit*	7:00	4:00	8:00	4:00	8:00	1:00	FREE
Chapel Hill Transit	5:15	02:33	8:05	02:33	10:30	23:32	FREE
Orange Public Transportation (OPT)	8:00	17:00	-	-	-	-	FREE
Triangle Transit Authority (TTA)	6:00	22:20	7:00	18:00	n/a	n/a	\$2.00

\*Hours vary by route

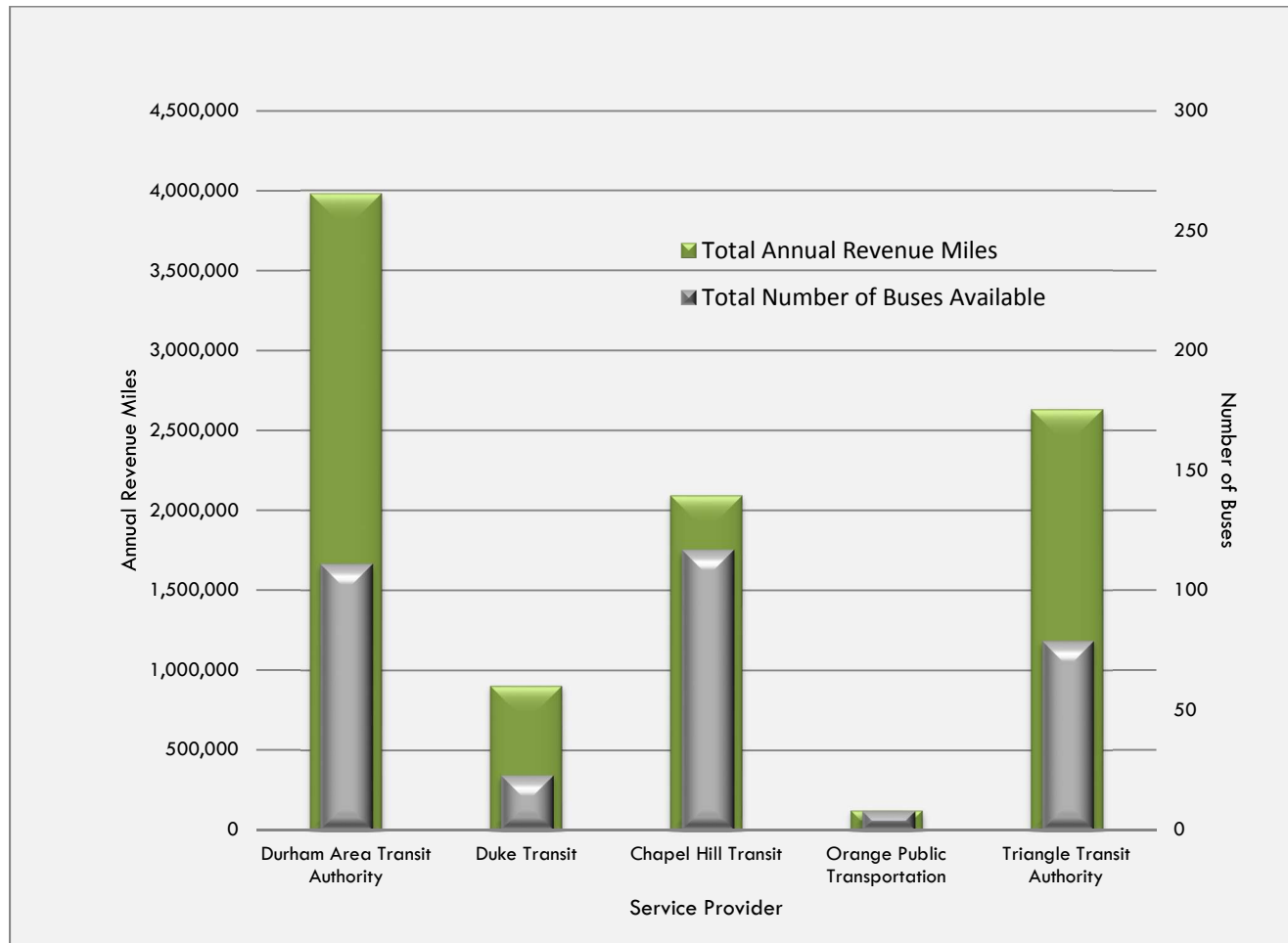
DATA provided the most service miles and service hours (including paratransit hours) in the DCHC MPO, followed closely by CHT and TTA. CHT provided the most fixed-route buses, while DATA operated the most paratransit buses (48 buses).

*Fixed Route Transit Map*





*Annual Service Miles and Total Number of Buses*



## REPORT CARD – TRANSIT SERVICE

The table below summarizes the findings of key performance measures on transit service. Historical data on transit service are not available, so no changes are noted.

	<b>Durham Area Transit Authority</b>	<b>Duke Transit*</b>	<b>Chapel Hill Transit</b>	<b>Orange Public Transportation**</b>	<b>Triangle Transit Authority***</b>
Total Number of Stops	1,062	109	585	45	523
Number of Fixed Routes	28	11	32	2	19
Annual Service Miles	3,980,475	911,992	2,098,326	125,832	2,635,470
Annual Service Hours	274,975	88,772	181,403	6,238	126,776
Number of Fixed Route Buses	63	21	98	2	64
Number of Paratransit Buses	48	2	19	6	15

\*FY2012 data

\*\*Services within Durham Urbanized Area (UZA)

\*\*\*Include all of TTA service area, not just MPO

DATA is the region's largest transit system, serving nearly as many annual service miles as Chapel Hill Transit and TTA combined. It is also the most robust demand-response service provider. However, the service hours relative to service miles operated by Chapel Hill Transit and Duke Transit emphasize their extensive hours of operation.



## What Is It?

Ridership measures the number of times a trip is made using public transit. It is transit's version of traffic volume. As such, it is one of the most important measures that transit agencies track.

## Why Does It Matter?

Transportation planners use these data for each route or bus stop to make service improvements. The ridership for a route may determine what type of equipment the agency uses. For example, high ridership may cause an agency to add buses, use larger buses, or even upgrade the route to an entirely different type of transit, such as light rail. Ridership data also help planners identify new or alternate routes in order to better serve a community's transit needs.

## Results

In 2013, the region's five transit agencies carried about **18 million riders on fixed-route** services and about **300,000 passengers on paratransit**. Transit accounted for **3.6% of all trips** on CMP corridors, below the national average of 5.0%.<sup>6</sup>

Transit plays a key role in the region in helping people access the Duke and UNC campuses.

- The Duke University bus between the East and West campuses had the highest ridership of any route in the region, with about 1.3 million riders per year. The campuses are among the densest centers of activity in the region.
- Chapel Hill Transit's J route had the highest ridership in the system. It connects Carrboro with the UNC campus.

Chapel Hill Transit had the highest ridership with 6.96 million riders. This amounted to 38 percent of the region's riders, yet CHT provides only 22 percent of the region's service miles. This is likely

### SUMMARY:

CONDITIONS IMPROVED



### KEY FINDINGS

The regions' five transit agencies carried about 18 million riders in 2013.

Paratransit handled about 300,000 passengers

Ridership increased between 2012 and 2013:

- DATA ridership increased by 2%
- TTA ridership increased by 24%
- Chapel Hill Transit ridership had little change

Chapel Hill Transit had the highest ridership with 6.9 million riders.

The Duke University bus between East and West campus was the highest-ridership route, at 1.3 million riders.

<sup>6</sup> 2011 American Community Survey 1-year estimate

## DCHC MPO MOBILITY REPORT CARD

## EXECUTIVE SUMMARY

because CHT is fare-free for all users, and service can be consolidated around a limited number of high-traffic destinations, such as downtown and UNC's campus.

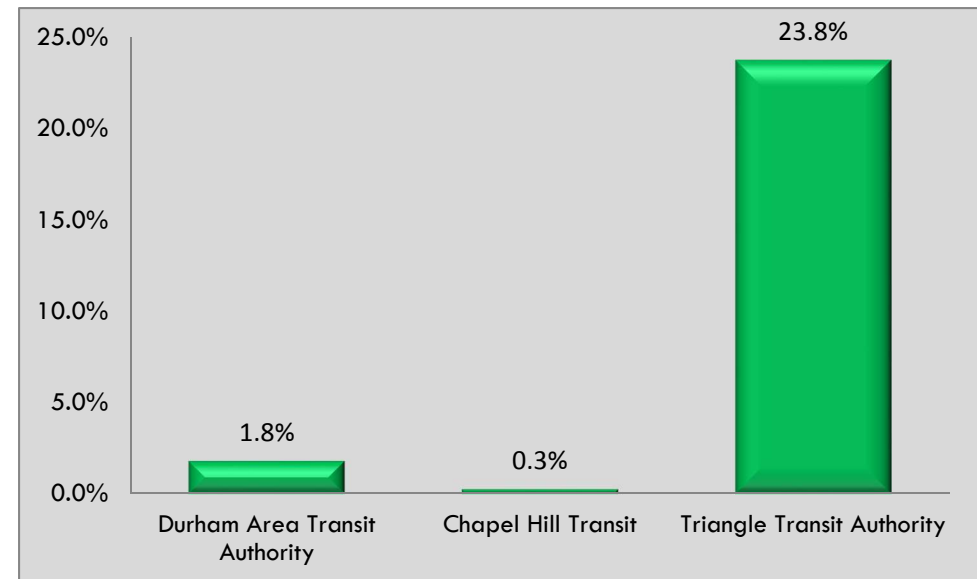
Ridership data were collected for FY 2012 and 2013. DATA ridership increased by 2 percent, and TTA ridership increased by more than 24 percent between 2012 and 2013. Chapel Hill Transit ridership had a slight increase, though it retained the highest ridership in the region.

FY 2013 Transit Ridership by Transit Agency

Agency	Fixed-Route Ridership	Demand Ridership	Annual Ridership
Durham Area Transit Authority (DATA)	6,356,458	183,820	6,540,278
Duke Transit	3,004,177	2,314	3,006,491
Chapel Hill Transit	6,895,848	65,566	6,961,414
Triangle Transit Authority (TTA)	1,769,200	28,326	1,797,526
OPT*	15,806	14,186	29,992
<b>Totals</b>	<b>18,041,489</b>	<b>294,212</b>	<b>18,335,701</b>

\* Ridership within Durham Urbanized Area (UZA)

Ridership Changes 2012-2013



## REPORT CARD – TRANSIT RIDERSHIP

The table below summarizes the findings of key performance measures on transit ridership. Where possible, changes over time have been noted: cells marked in red indicate deteriorating conditions, cells in green show improving conditions, and cells in white are unchanged, unknown, or not applicable.

	<b>Durham Area Transit Authority</b>	<b>Duke Transit</b>	<b>Chapel Hill Transit</b>	<b>Triangle Transit Authority</b>	<b>Orange Public Transportation</b>
Number of Riders on Fixed-Route Service	6,356,458	3,004,177	6,895,848	1,769,200	15,806
Number of On-demand Riders	183,820	2,314	65,566	28,326	14,186
Total Annual Ridership	6,540,278	3,006,491	6,961,414	1,797,526	29,992
Change in Annual Ridership from 2012- 2013	113,188 (1.80%)	n/a	17,348 (0.25%)	345,111 (23.76%)	n/a

Transit ridership increased dramatically for DATA and TTA, but had a small increase on Chapel Hill Transit. Chapel Hill Transit remains the service with the highest ridership, despite these changes. Overall, there is clearly an increased emphasis on transit use by the region's residents.



## MULTI-MODAL MOBILITY AND THROUGHPUT

### What Is It?

The measures presented to this point each focus on a particular mode (vehicles, pedestrians, bicycles, and transit). In order to gain a better understanding of how people are traveling through the region's key corridors, the MPO estimated the number of people using each mode based on the counts described in the preceding sections.

### Why Does It Matter?

Transportation is evolving from a past in which planners focused on mobility for automobiles to a future in which planners are focused on mobility for people. By studying multi-modal mobility, the MPO is recognizing the importance of all modes and collecting data that can help the MPO prioritize projects that make corridors better for all users. For example, poor vehicular level of service may suggest the need for roadway improvements if nothing else is known about a corridor. But if that corridor also has significant bicycle or pedestrian volumes, then this level of service may not need to be improved. The fuller the picture obtained of transportation corridors in the region, the better equipped DCHC is to accurately identify and address transportation needs.

### Results

Despite growth in transit, bicycle, and pedestrian travel in the region, people in automobiles represented about 93 percent of travelers on the region's busiest corridors. Chapel Hill had the best balance among modes; only 85 percent of people were traveling in automobiles. Corridors near the region's major universities tend to have a greater balance between modes, but automobiles still carry the majority of users on nearly every corridor.

Four corridors in the region had more than 25% of travelers using non-auto modes, as shown below. Conversely, 25 corridors were used exclusively by automobiles, with at least one such corridor in every county.

#### SUMMARY:

CHANGE UNKNOWN



#### KEY FINDINGS

Automobiles account for 93 percent of travelers on the region's CMP corridors:

- Orange County: 90% automobile, 6% transit, 3% walk, <1% bike
- Durham: 94% automobile, 2% transit, 3% walk, <1% bike
- Chatham County: 99% automobile, 1% transit

Some corridors were much less auto-dependent:

- E Main St (Durham): 51% auto
- Erwin Rd (Durham): 56% auto
- Manning Dr (Chapel Hill) 73% auto
- Main St (Carrboro): 57% auto

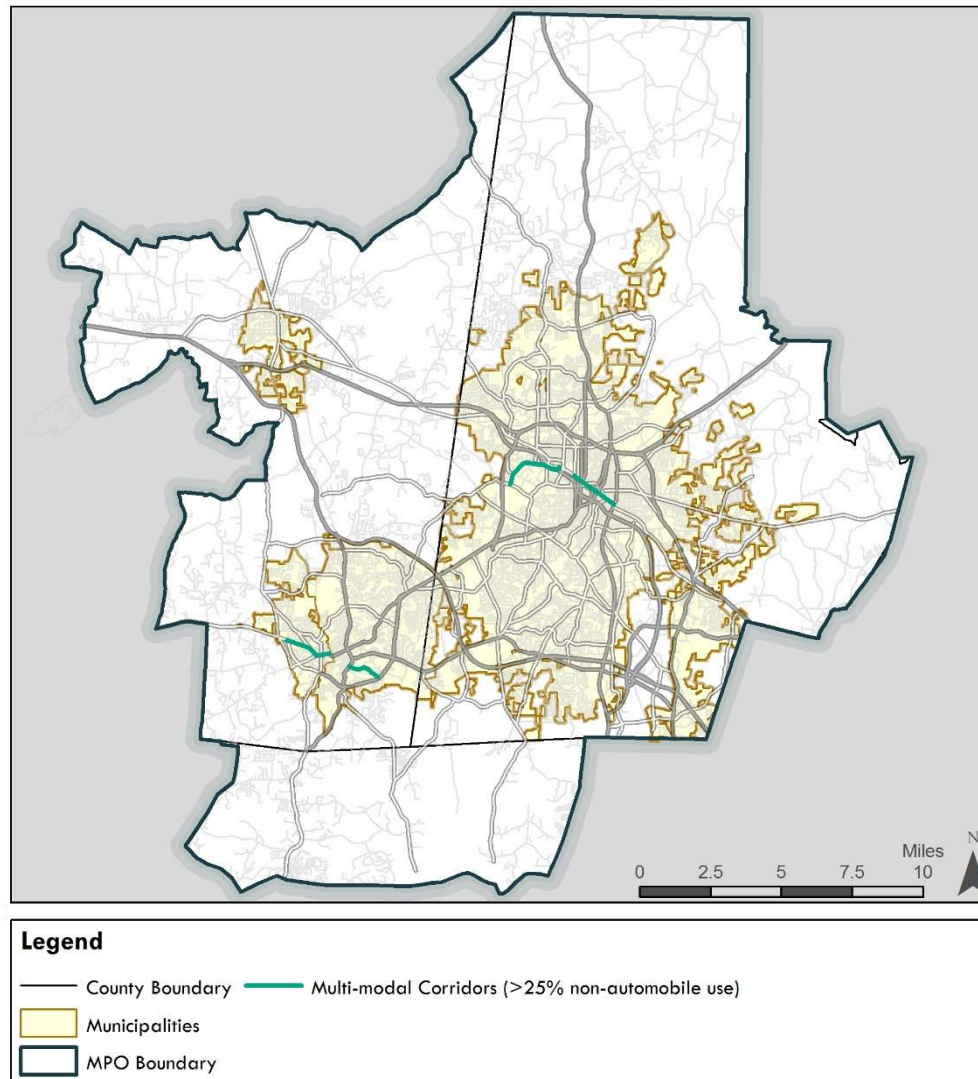


*Multimodal Corridors*

Municipality	Corridor	Endpoints	Total Users	Auto		Transit		Pedestrian		Bicycle	
				Users	% Total	Users	% Total	Users	% Total	Users	% Total
<b>Durham</b>	Erwin Rd / Cameron Blvd	W Main St to US 15-501 Bypass	24,196	13,601	56%	1,021	4%	8,898	37%	676	3%
<b>Durham</b>	E Main St	N Buchanan Blvd to NC 55 / Alston Ave	13,114	6,633	51%	2,635	20%	3,617	28%	229	2%
<b>Chapel Hill</b>	Manning Dr	S Columbia St to Fordham Blvd	19,402	14,112	73%	3,821	20%	1,426	7%	43	0%
<b>Carrboro</b>	Main St	NC 54 to Merritt Mill Rd	14,665	8,328	57%	953	6%	3,909	27%	1,475	10%

Excluding major, uninterrupted facilities (interstates, US 15-501, etc.), the corridors with the 5-highest total users were very similar to the corridors with the 5-highest numbers of automobile users.

Results from this chapter underscore the importance of a multimodal approach to transportation engineering and planning. While, for all counties, corridor use was nearly entirely by automobile (90 to 99%), finer-scale differences—among municipalities in Orange County, for instance—uncover large differences in user needs.

*Multimodal Corridors*

## REPORT CARD – MULTI-MODAL MOBILITY AND THROUGHPUT

The table below summarizes the findings of key performance measures of multi-modal mobility and throughput. Historical data on multi-modal mobility were not available, so no changes over time are noted.

	North Durham	Downtown Durham	South Durham	<b>Durham Total</b>	<b>Chapel Hill</b>	<b>Carrboro</b>	<b>Hillsborough</b>	<b>Chatham County</b>
Total Number of Transportation Users	n/a	n/a	n/a	848,092	204,936	97,640	45,776	35,022
Number (%) Automobile Users	n/a	n/a	n/a	790,069 (93.2%)	176,788 (86.3%)	82,572 (84.6%)	44,755 (97.8%)	34,550 (98.7%)
Number (%) Transit Users	n/a	n/a	n/a	26,493 (2.39%)	19,079 (2.2%)	4,119 (4.2%)	65 (0.1%)	434 (1.2%)
Number (%) Pedestrians	n/a	n/a	n/a	34,085 (4.0%)	5,557 (2.7%)	7,437 (7.6%)	908 (2.0%)	32 (0.1%)
Number (%) Bicyclists	n/a	n/a	n/a	4,859 (0.6%)	931 (0.5%)	3,512 (3.6%)	48 (0.1%)	6 (0.02%)
Number of Multimodal Corridors (25%+ non-auto travel)				2	1	1	0	0

Note: Table does not include I-40 or I-85.

The DCHC MPO region is still dominated by vehicular travel, though that is slightly less the case in smaller, compact areas like Chapel Hill and Carrboro, and, likely, Downtown Durham. There are still very few multimodal corridors, where more than 25% of travelers use transit, bicycles, or walk. Hillsborough and Chatham County have no such corridors.

In general, these data will be most useful as a benchmark against future data findings.

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