

Traffic Data Review & Findings | May 1, 2019

An overview of available traffic data in Chapel Hill and preliminary findings



Presentation Outline

I. Why we're here: *2018 Community Survey*

II. Town data: *Longer travel time at peak times
Minimal traffic change over time*

III. Regional data: *Increasing regional traffic*

IV. Upcoming projects: *Options for paths forward*

Town Data Review

Expectations for tonight

1. Informational presentation; no Council action necessary
2. This data will be integrated into next steps with the Council's Town-wide Traffic Model
3. Town traffic data results may not match resident perceptions; Town staff will take the data out to residents for feedback

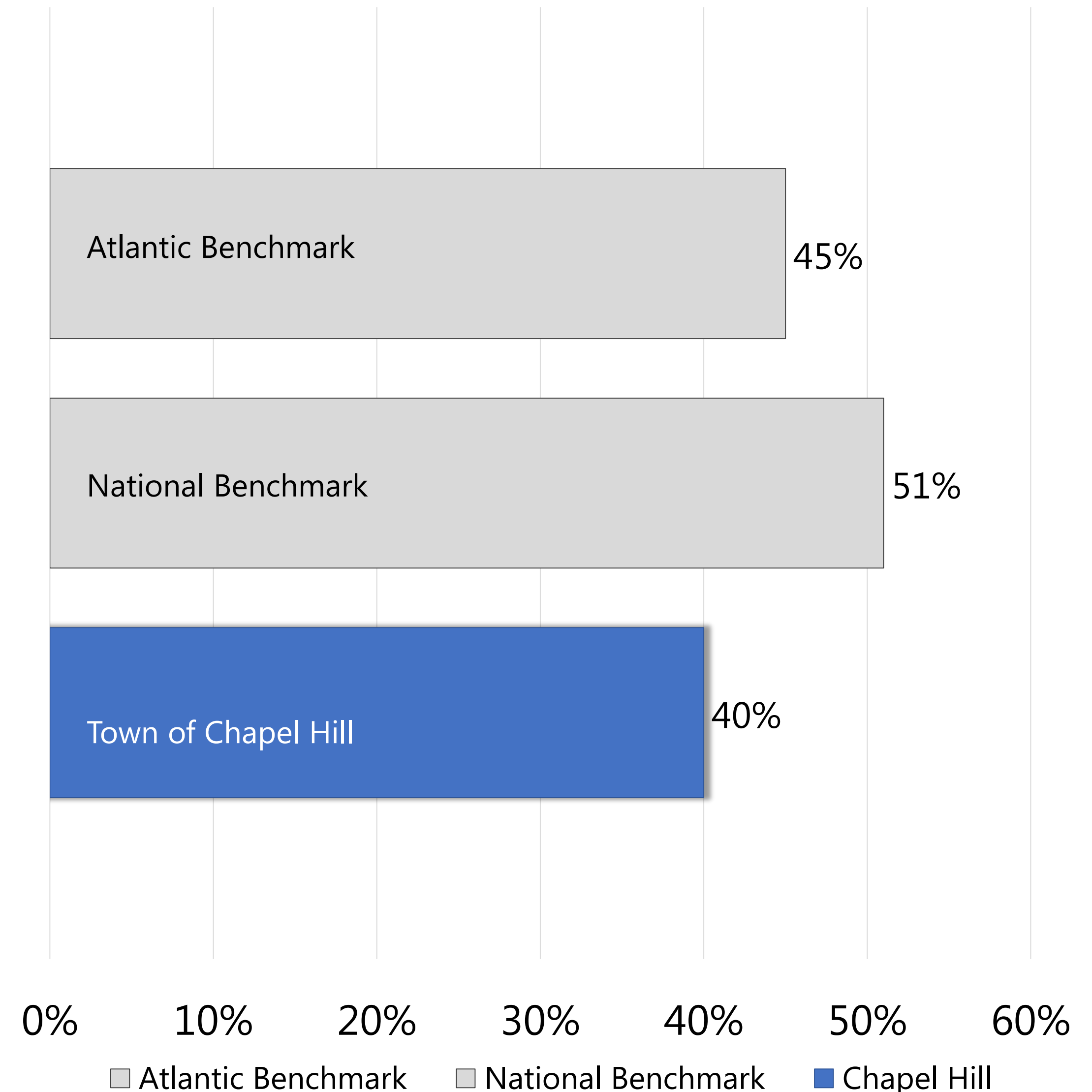
Background & Context

2018 Community Survey Results on Traffic

- Residents identified the 'Overall Management of Traffic Flow' as a top priority for the Town.
- The Town performed 11% lower than the national average
- No statistical relationship found between a resident's address and their survey responses on traffic.

Percent of Community Satisfied with Overall Management of Traffic Flow

2018 Community Survey Results



Responding to the 2018 Community Survey

Actions taken since the 2018 Community Survey results by the Town

- Town Council charged staff to:
 - evaluate Town traffic data, and
 - analyze 2018 Community Survey results in the priority area of traffic
- In response, Town Leadership mobilized a cross-departmental team:
 - Led by Connected Community Goal Champions, Bergen Watterson and Donnie Rhoads
 - Supported by:
 - Traffic Management staff
 - Planning & Development Services staff
 - Analytics Team (GIS, Budget, & Technology Solutions staff)

+ *Town Data*

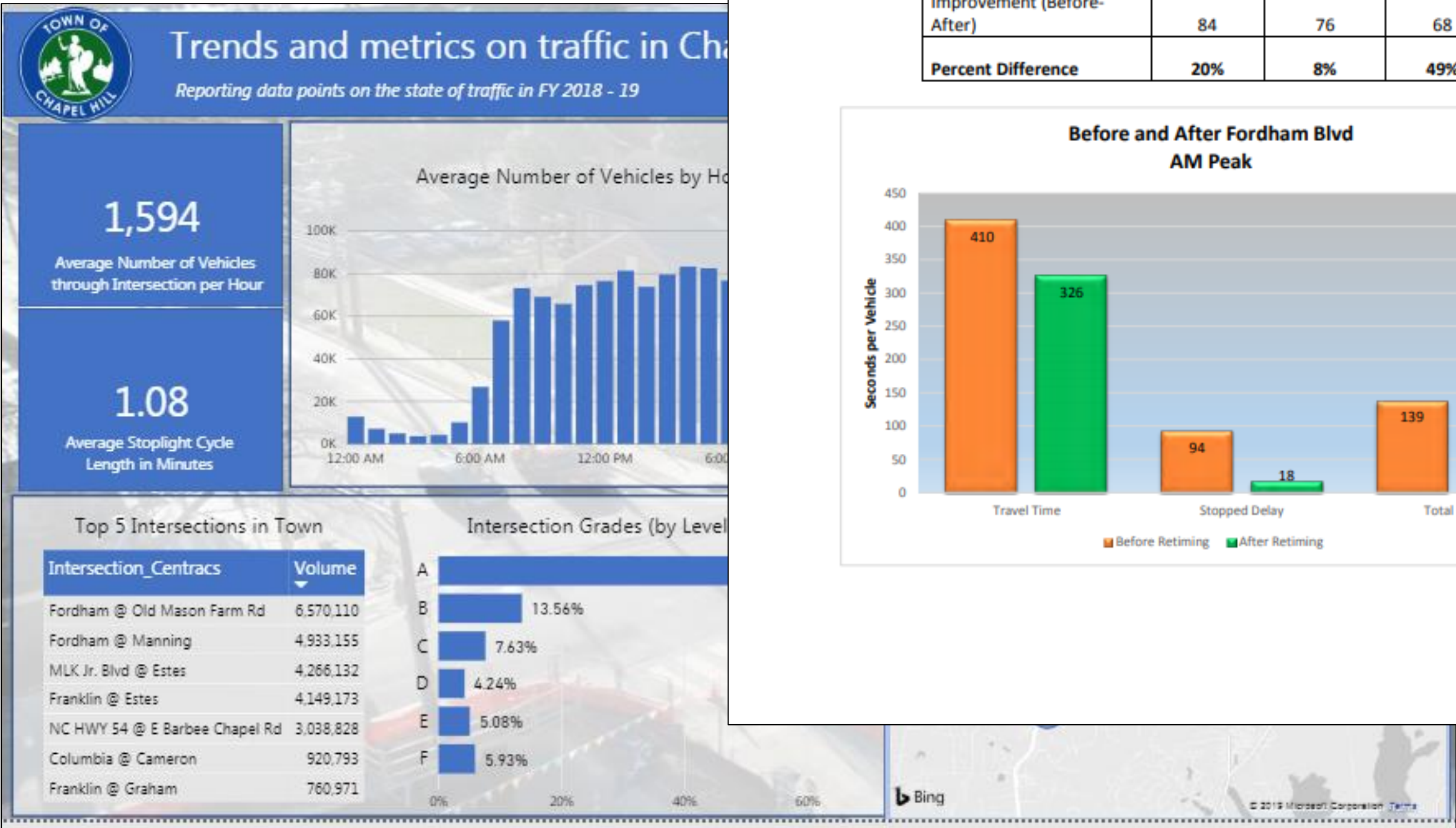
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- Peak hour and travel time data
 - North Carolina Department of Transportation (NCDOT) data
 - Commuting patterns data

02

Town Data

Traffic Data Types

- Point-in-Time Data & Reports
- Real-Time Data



Appendix A

Fordham Blvd Before and After Signal Timing Study AM Peak Data Analysis

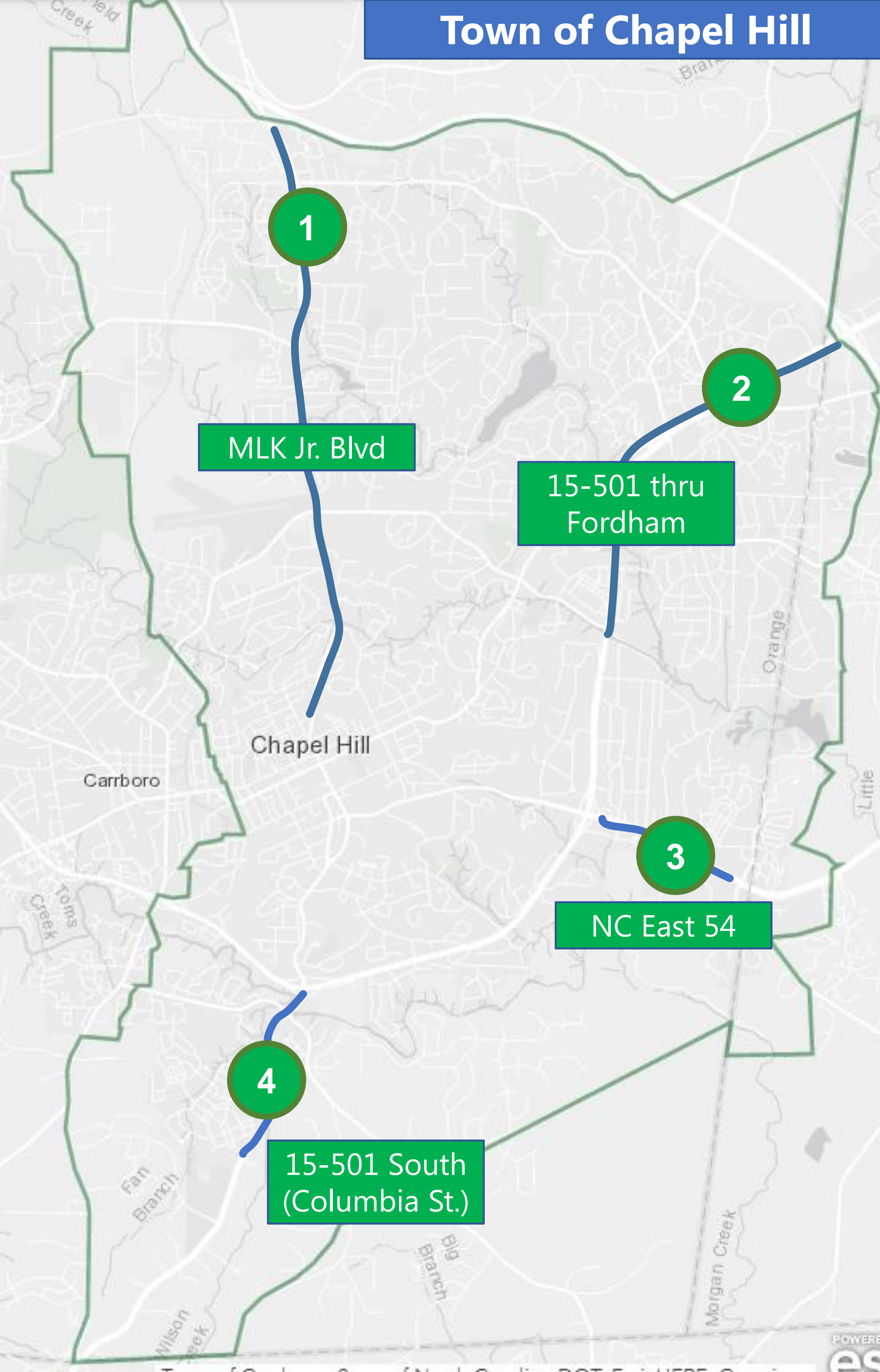
Before and After Fordham Blvd. – AM Peak Hour (7AM – 9AM) Travel Time & Delay			
	Travel Time (seconds)	Stopped Delay (seconds)	Total Delay (seconds)
Before Retiming	410	94	139
After Retiming	326	18	71
Improvement (Before- After)	84	76	68
Percent Difference	20%	8%	49%

Town Data Review

Preliminary Findings

1. Peak hour traffic is increasing in major regional corridors
 - E.g. East 54, 15-501
2. Average annual daily traffic (AADT) is not increasing or decreasing significantly within Town limits
3. Some pass-through traffic from Chatham County, though other regional routes also experiencing traffic increase
4. The number of Chapel Hill residents biking, walking, or using public transit to get to work is increasing over time





Town Data

Peak hour and travel time data

Route	2016 PM Peak Travel Time (in minutes)	2018 PM Peak Travel Time (in minutes)	Change in Seconds	Percent Change
1. Martin Luther King Jr. Blvd	7 minutes, 5 seconds	8 minutes, 33 seconds	+88	21%
2. 15-501 thru Fordham Blvd	8 minutes, 29 seconds	8 minutes, 58 seconds	+29	6%
3. NC East 54	2 minutes, 11 seconds	2 minutes, 43 seconds	+32	24%
4. 15-501 S (Columbia St.)	n/a	3 minutes, 9 seconds	n/a	n/a

Preliminary Finding 1

- Peak hour traffic is increasing in major regional corridors
 - E.g. East 54, 15-501

Source: Town of Chapel Hill Traffic Signal System Reports

Town Data

NCDOT Sensor Data in Chapel Hill (2003 – 2017)

	2003 AADT Volume	2017 AADT Volume	Percent Change
Town of Chapel Hill (All Sensors within Town Limits)	1,330,050	1,269,910	- 4%

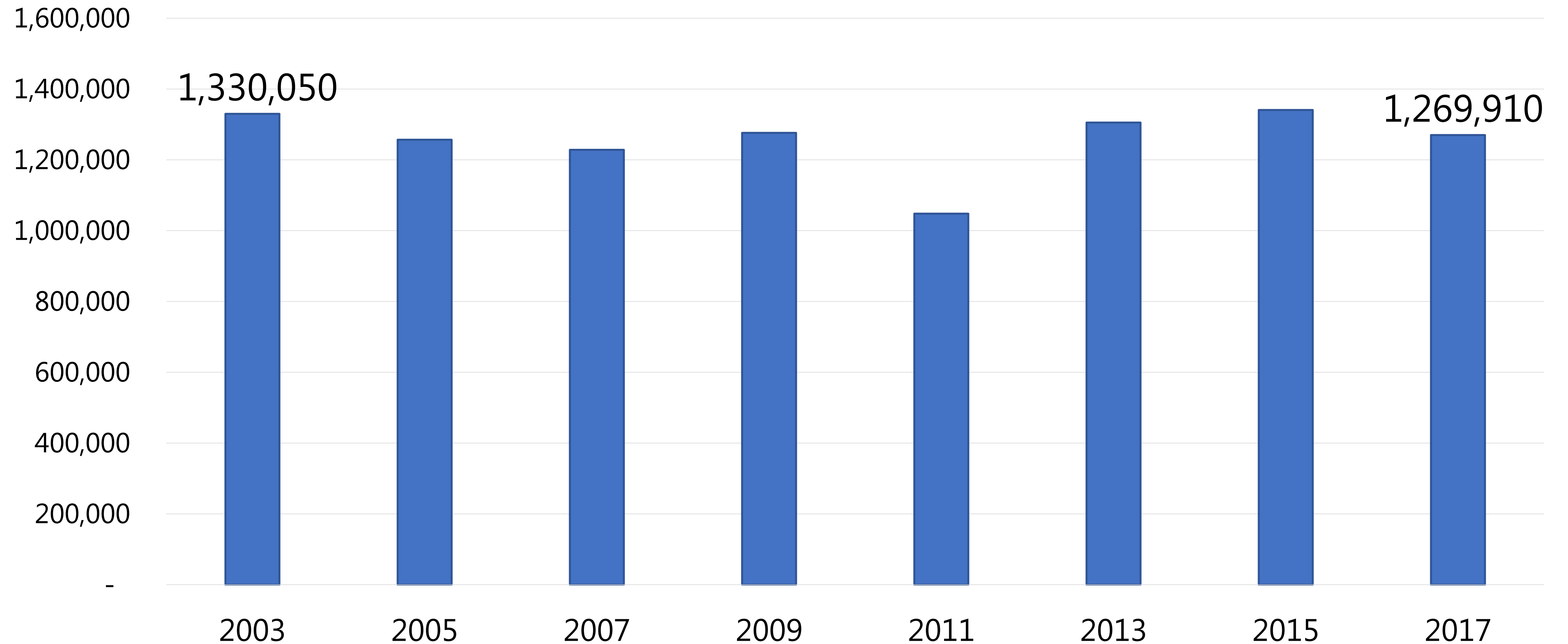
Preliminary Finding 2

- Average annual daily traffic (AADT) is not increasing or decreasing significantly within Town limits
 - The average rate of change for all streets in Town is -4%
 - This rate of change is not consistent across all intersections in Town

Source: NCDOT Sensors

Town Data

NCDOT Sensor Data in Chapel Hill (2003 – 2017)



Town Data related to Public Safety

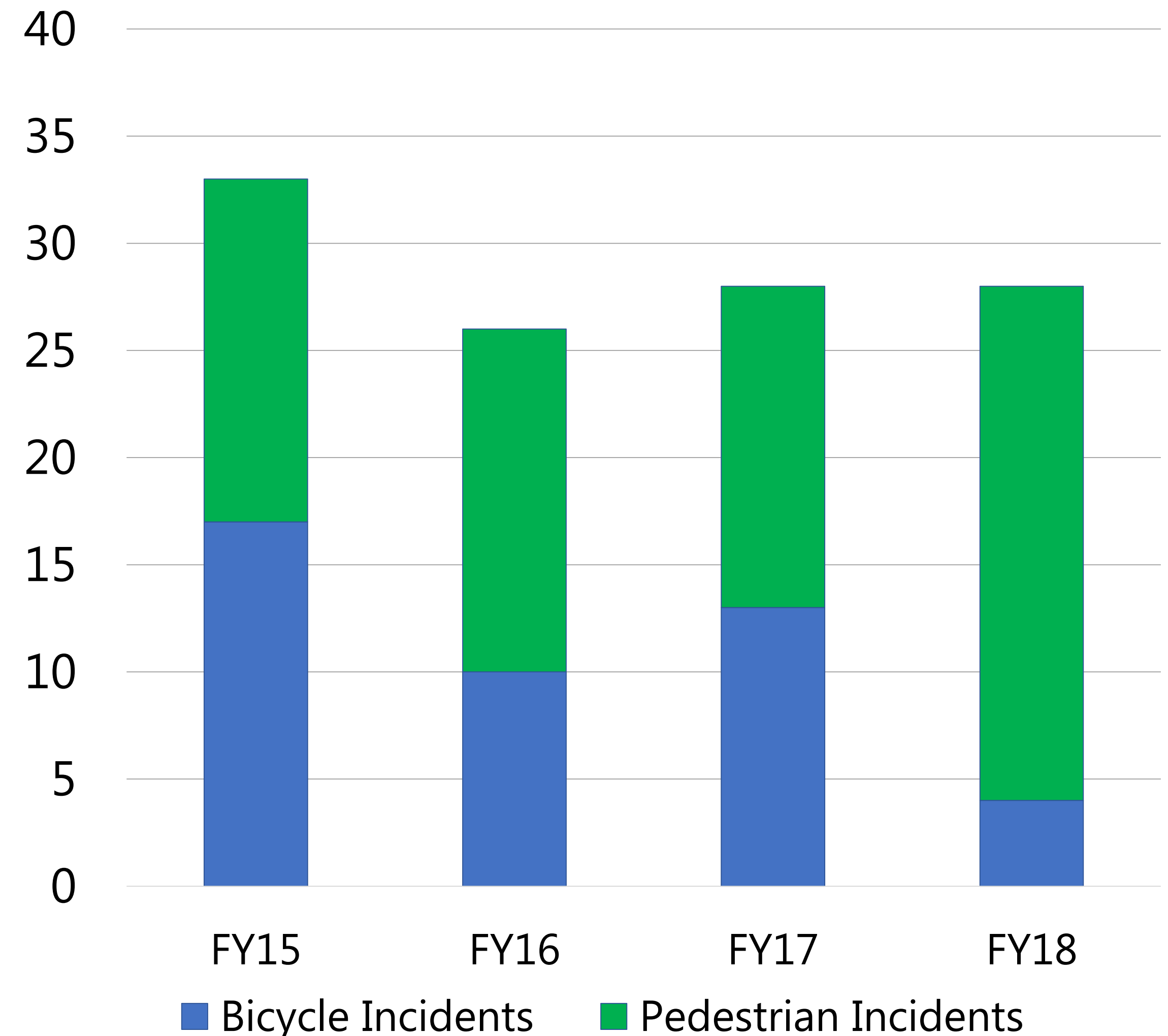
Crash Data over Time

- Town data shows no significant increase in crashes involving bike/pedestrians since previous community survey
- NCDOT data shows no notable increases in crashes or potentially hazardous section locations since 2010

Source: Town data and NCDOT data

Bicycle & Pedestrian Crashes

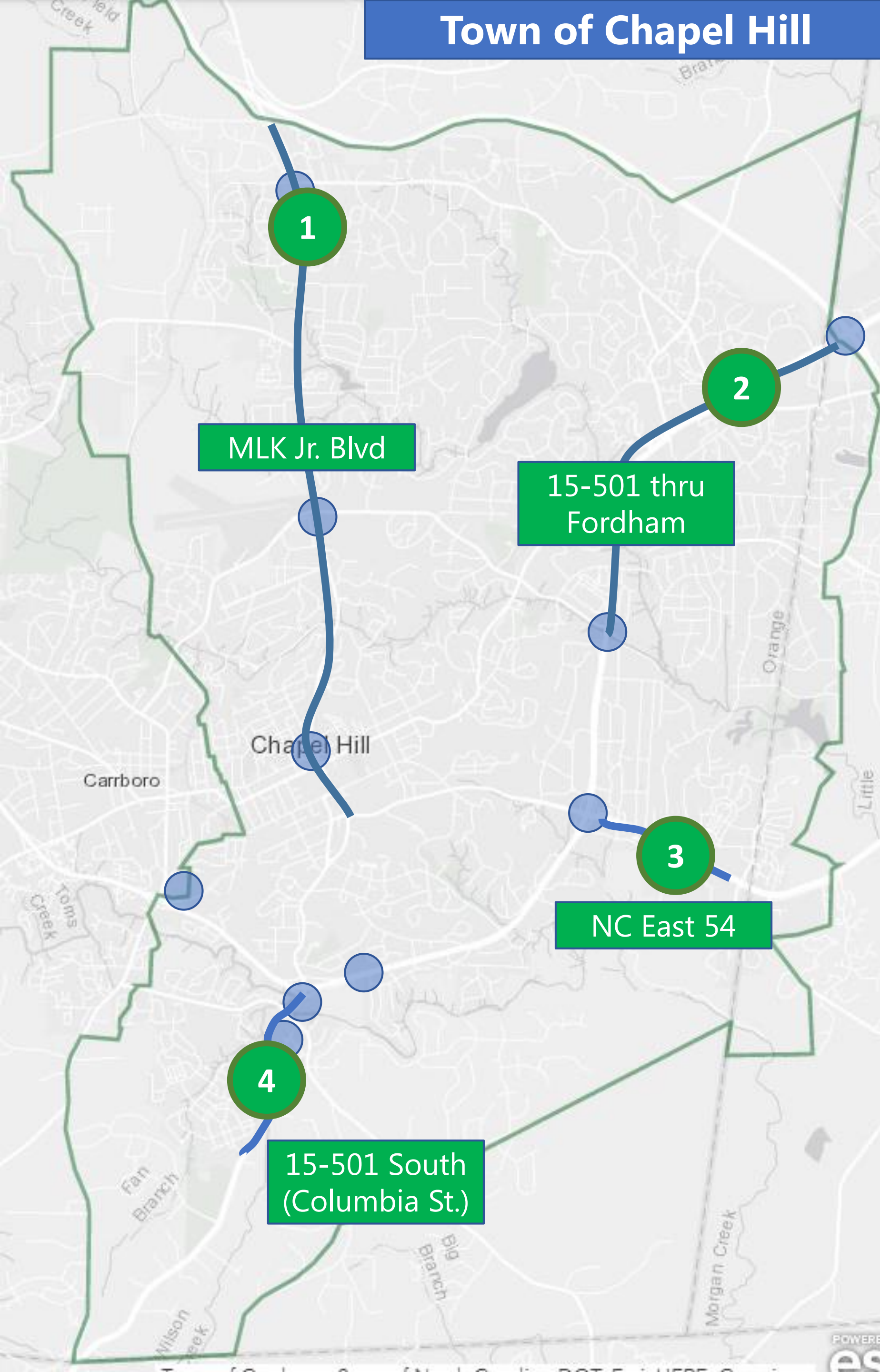
FY15 – FY18

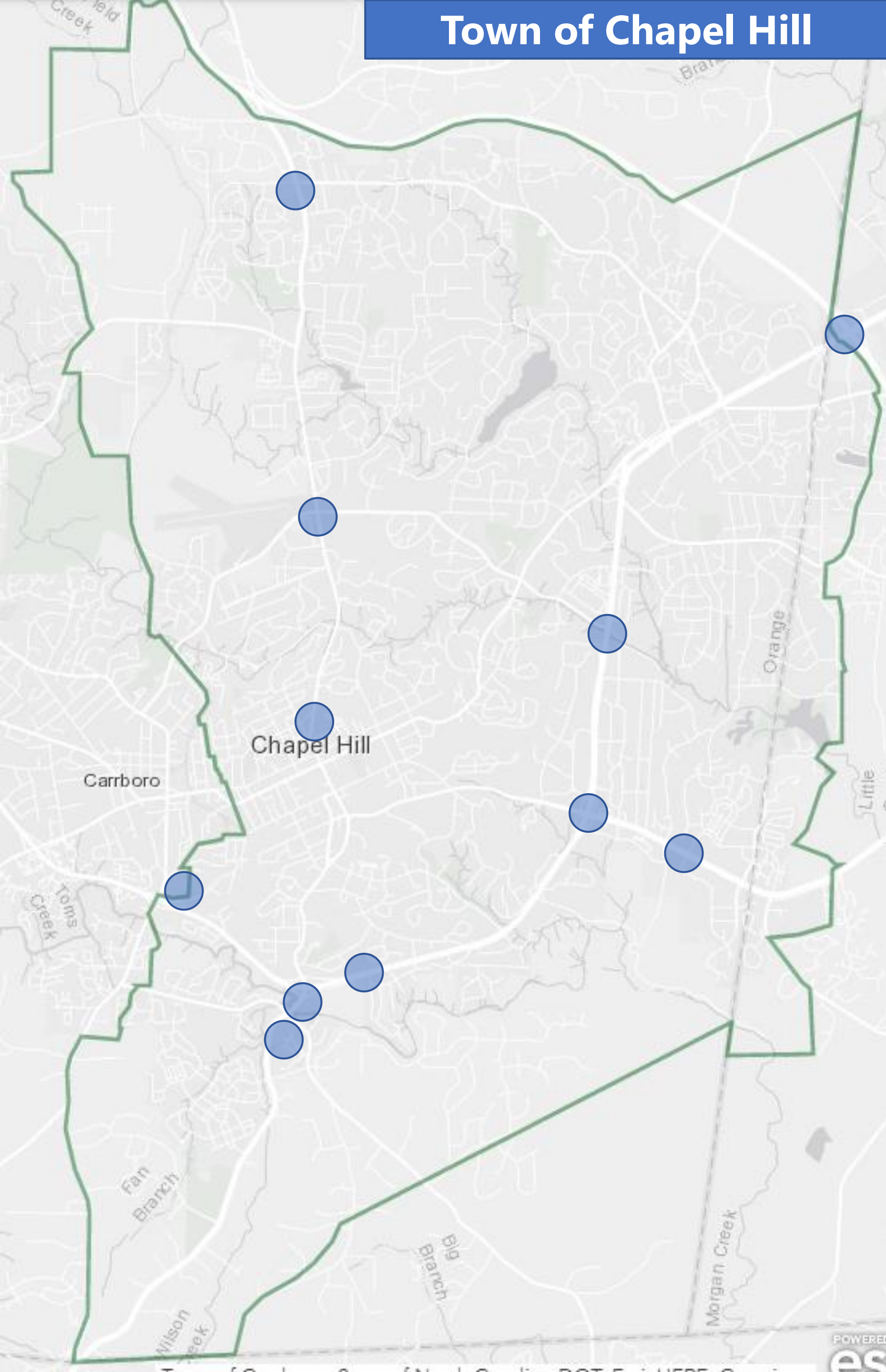


Town Data

Targeted Routes/Intersections

- **Route 1:** Martin Luther King Jr. Blvd
- **Route 2:** 15-501 thru Fordham Blvd
- **Route 3:** NC East 54
- **Route 4:** 15-501 South (Columbia St.)

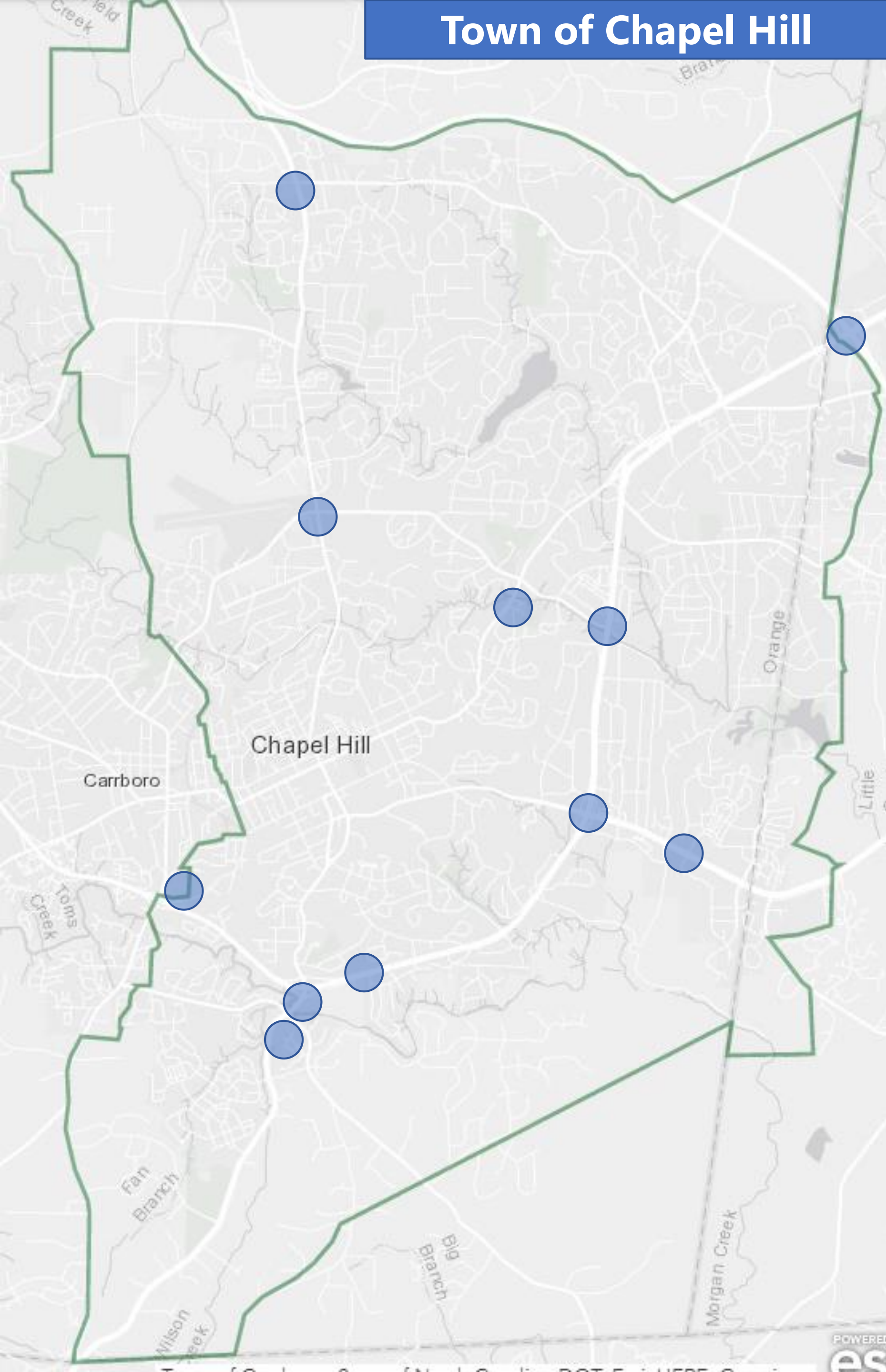




Route 1: Martin Luther King Jr. Blvd

Intersection	2003 AADT Volume	2017 AADT Volume	Percent Change
N. Columbia St and Franklin St	18,000	15,000	-17%
MLK Jr Blvd and Estes Dr.	23,000	20,000	-15%
MLK Jr Blvd and Weaver Dairy Rd	26,000	28,000	7%

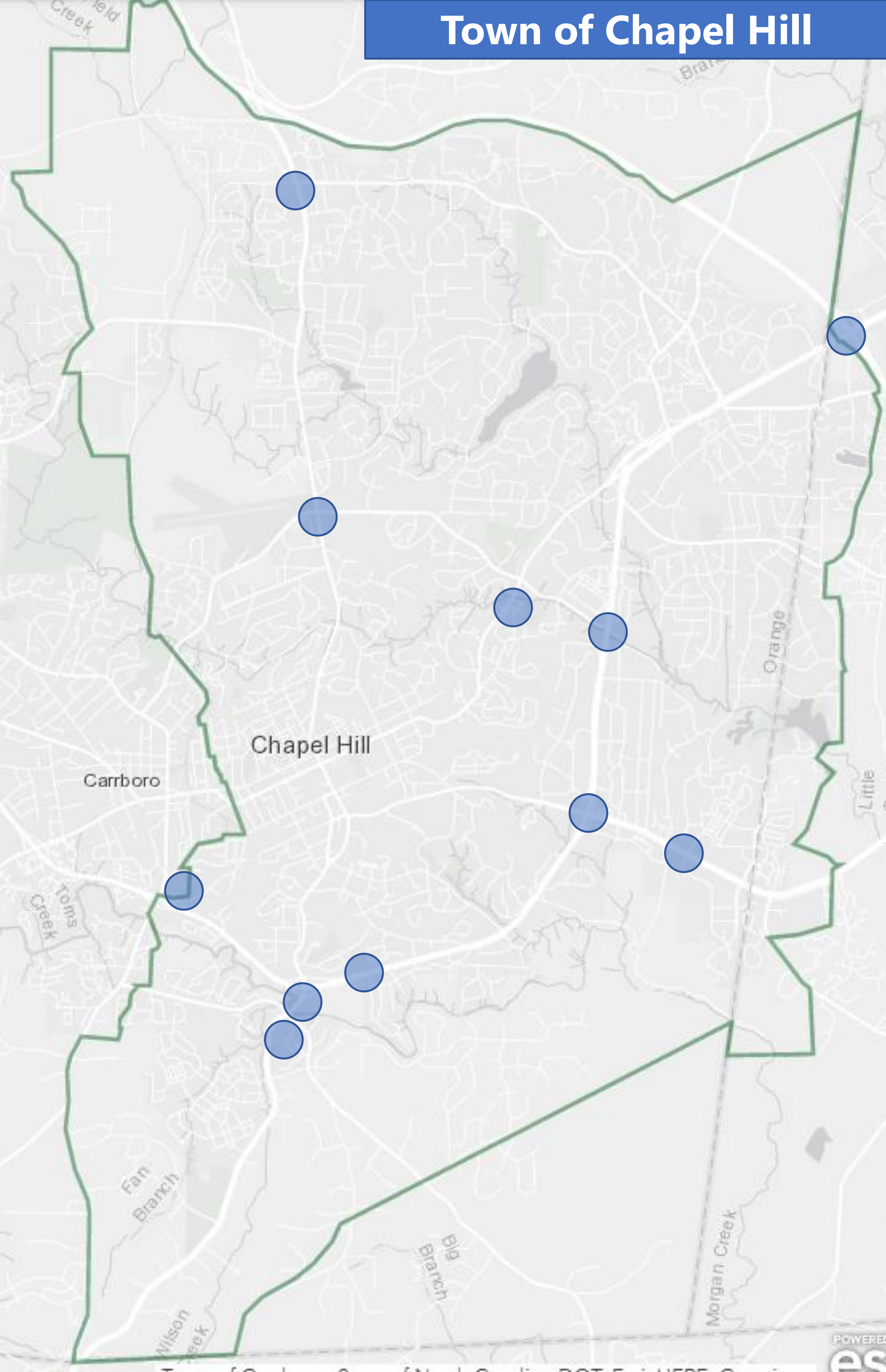
Source: NCDOT Sensors



Route 2: 15-501 thru Fordham Blvd

Intersection	2003 AADT Volume	2017 AADT Volume	Percent Change
15-501 and I-40	44,000	45,000	2%
15-501 / Fordham S of Estes Dr.	37,000	38,000	3%
Fordham Blvd and Raleigh Rd	50,000	54,000	7%
Fordham Blvd, near Morgan Creek	40,000	45,000	11%
Merritt Mill Rd and East 54	12,000	12,000	0%

Source: NCDOT Sensors



Route 3: NC East 54

Intersection	2003 AADT Volume	2017 AADT Volume	Percent Change
Raleigh Rd and Barbee Chapel Rd	37,000	49,000	24%
Fordham Blvd and Raleigh Rd	50,000	54,000	7%
Fordham Blvd, near Morgan Creek	40,000	45,000	11%
15-501 and East 54	30,000	36,000	17%
15-501 and Mt Carmel Rd.	20,000	25,000	20%

Source: NCDOT Sensors

Route 4: 15-501 S and various Chatham County Intersections

Intersection	2003 AADT Volume	2017 AADT Volume	Percent Change
Raleigh Rd and Barbee Chapel Rd	37,000	49,000	24%
Fordham Blvd and Raleigh Rd	50,000	54,000	7%
Fordham Blvd, near Morgan Creek	40,000	45,000	11%
15-501 and East 54	30,000	36,000	17%
15-501 and Mt Carmel Rd.	20,000	25,000	20%
Mt. Carmel Rd and Old Farrington Point Rd	5,000	6,700	25%
Lystra Rd and Farrington Point Rd	4,800	6,300	24%

Preliminary Finding 3

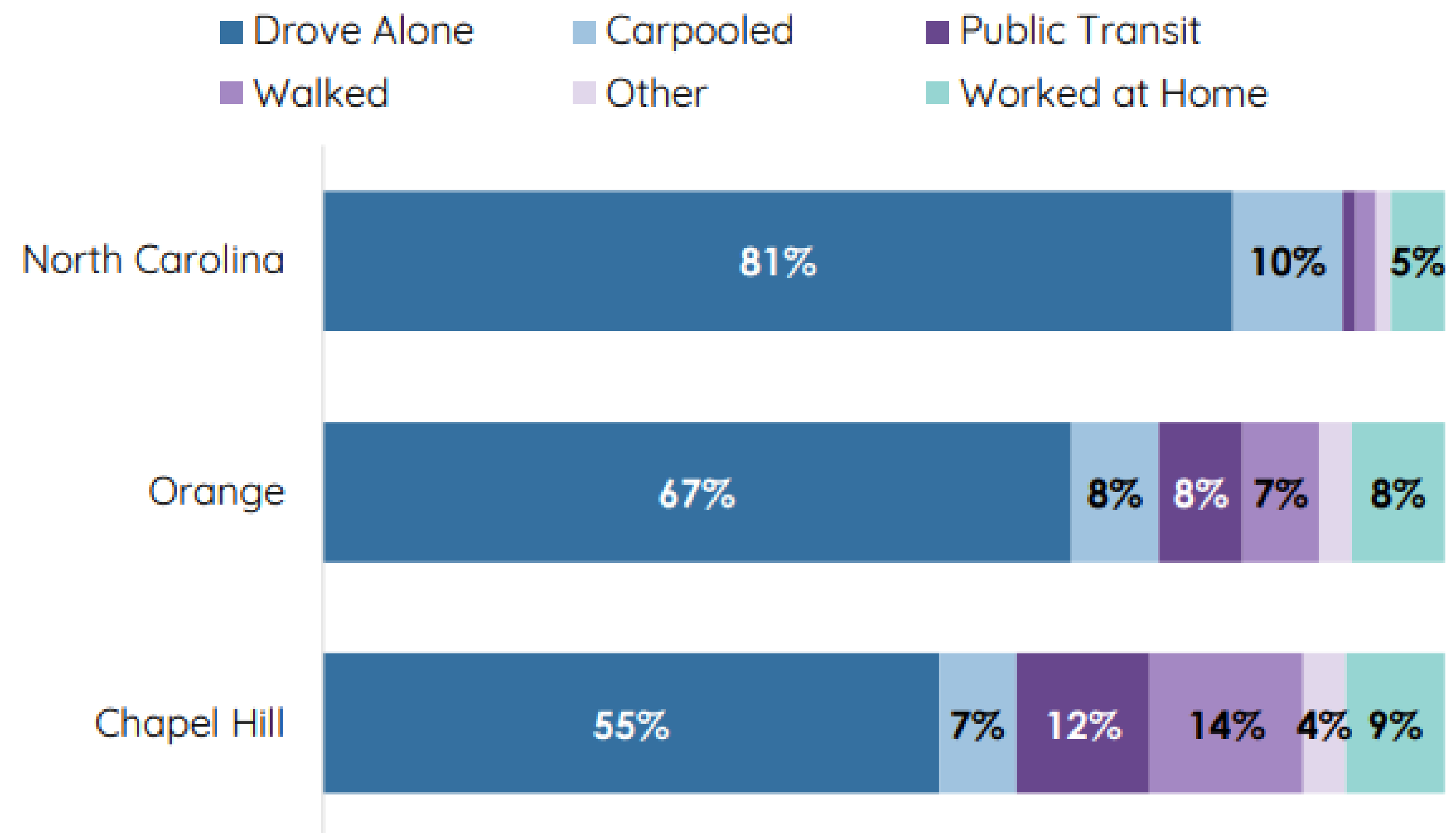
- Some pass-through traffic from Chatham County, though other regional routes also experiencing traffic increase

Source: NCDOT Sensors

Town Data

Commuting Pattern Data

Means of transportation to work, Chapel Hill vs. Orange and NC, 2016



Preliminary Finding 4

- Chapel Hill residents more likely to walk, bike, or use public transit to get to work than regional peers
 - The number of Chapel Hill residents biking, walking, or using public transit to get to work is increasing over time

Data Source: U.S. Census Bureau 2016 5-Year ACS; values less than 3% not labeled

Town Data Recap

Preliminary Findings

1. Peak hour traffic is increasing in major regional corridors
 - E.g. East 54, 15-501
2. Average annual daily traffic (AADT) is not increasing or decreasing significantly within Town limits
3. Some pass-through traffic from Chatham County, though other regional routes also experiencing traffic increase
4. Chapel Hill residents more likely to walk, bike, or use public transit to get to work than regional peers



+ *Regional Data*

-
- NCDOT sensor data
 - Upcoming traffic-related capital projects

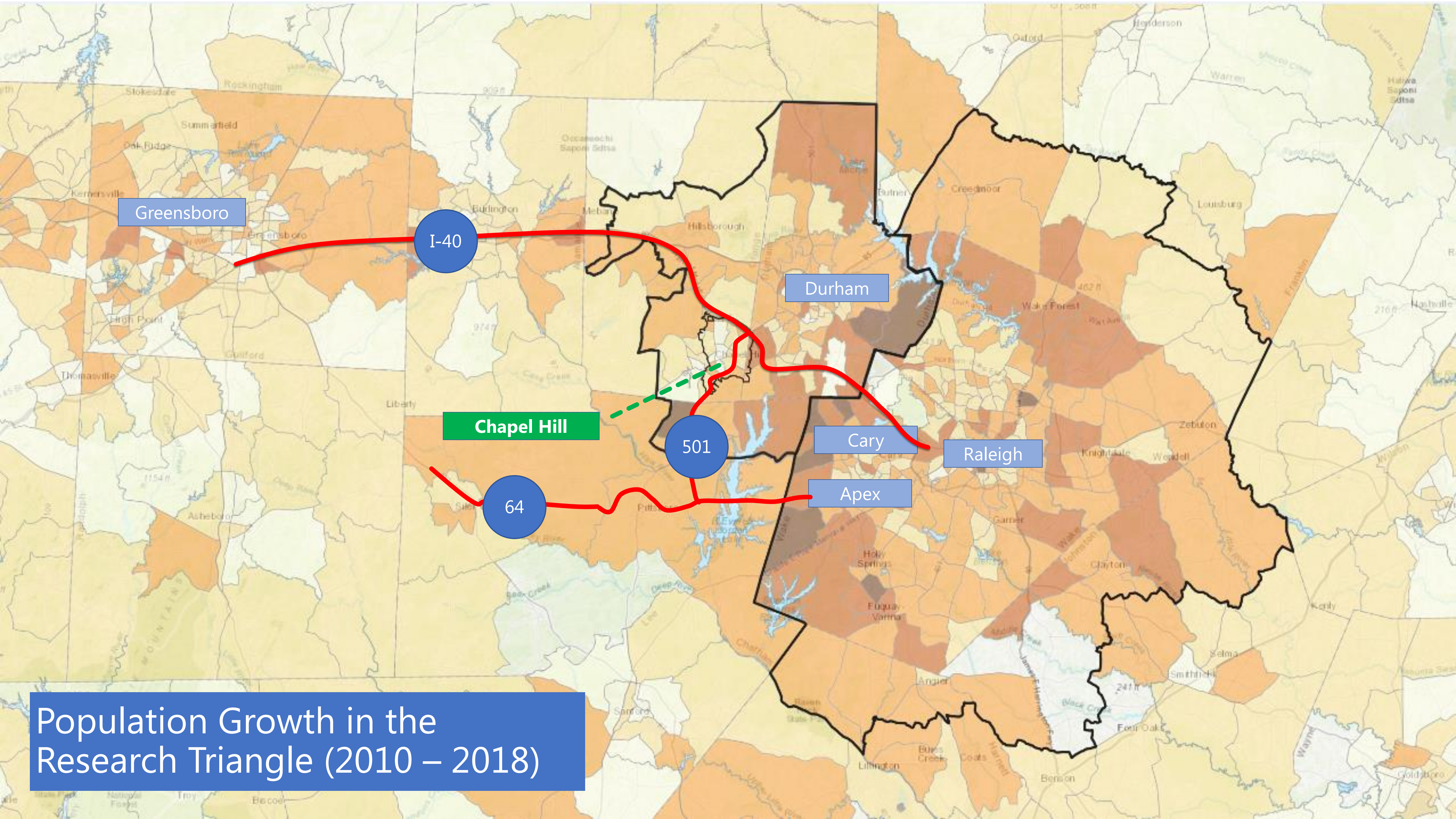
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Regional Data Review

Preliminary Findings

1. Traffic has increased significantly in the region compared to Chapel Hill
2. More traffic on major regional corridors at peak times
 - e.g. I-40, NC 54, 15-501





Greensboro

I-40

Durham

Chapel Hill

501

Cary

Raleigh

Apex

64

Population Growth in the Research Triangle (2010 – 2018)

Regional Data

Increasing Regional Traffic

- More traffic on major regional corridors at peak times

- population growth
- commuter' mobility
 - e.g. NC 54, 15-501, I-40

Source: NCDOT sensor data



Regional Data Recap

Preliminary Findings

1. Traffic has increased significantly in the region compared to Chapel Hill
2. More traffic on major regional corridors at peak times
 - e.g. I-40, NC 54, 15-501



Total Recap

Preliminary Findings (Town Data)

1. Peak hour traffic is increasing in major regional corridors
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4. Chapel Hill residents more likely to walk, bike, or use public transit to get to work than regional peers



Preliminary Findings (Regional Data)

1. Traffic has increased significantly in the region
2. More traffic on major regional corridors at peak times
 - e.g. I-40, NC 54, 15-501

+ *Upcoming Projects*

-
- Traffic Signal System Dashboard
 - Upcoming traffic-related capital projects

04

Tools to monitor congestion

Dashboard on the State of Traffic in Chapel Hill

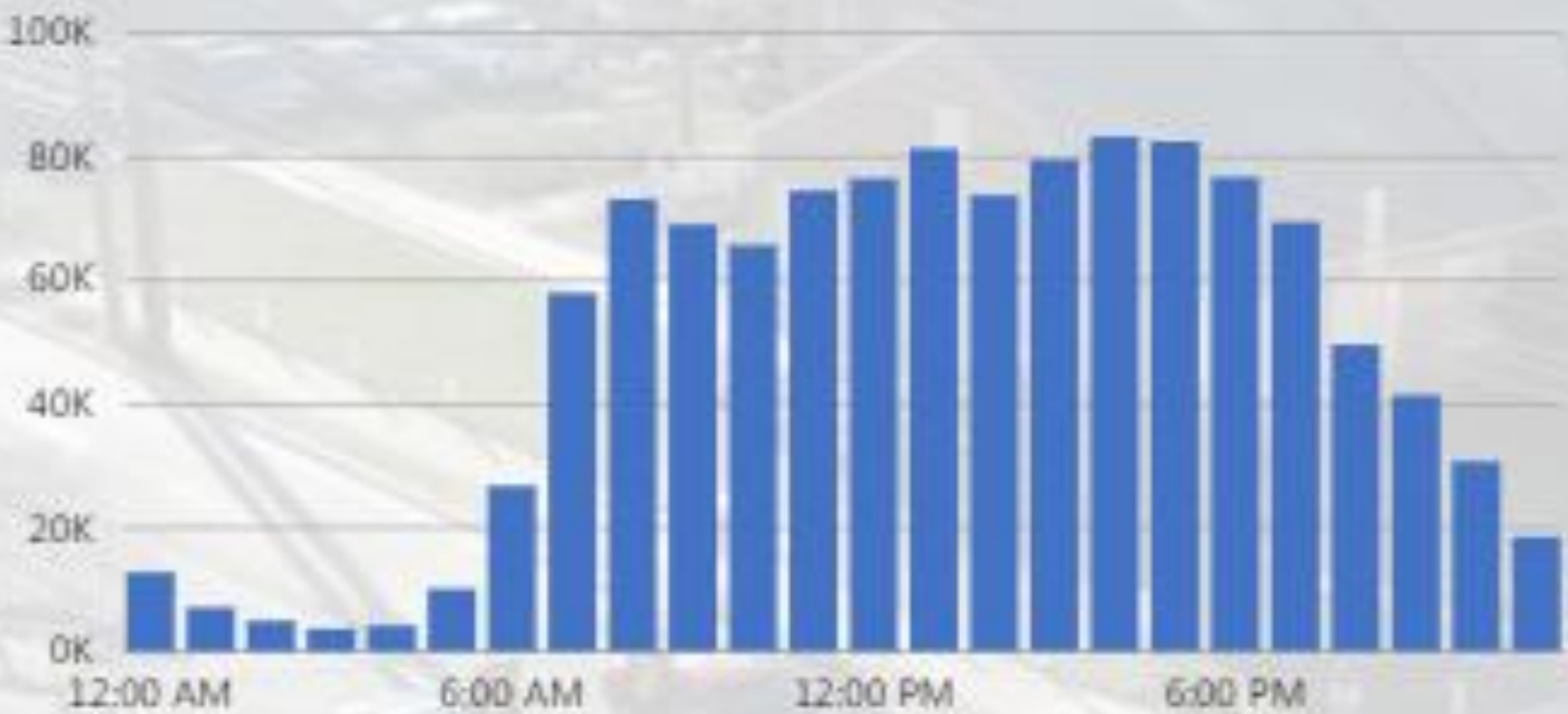
1,594

Average Number of Vehicles
through Intersection per Hour

1.08

Average Stoplight Cycle
Length in Minutes

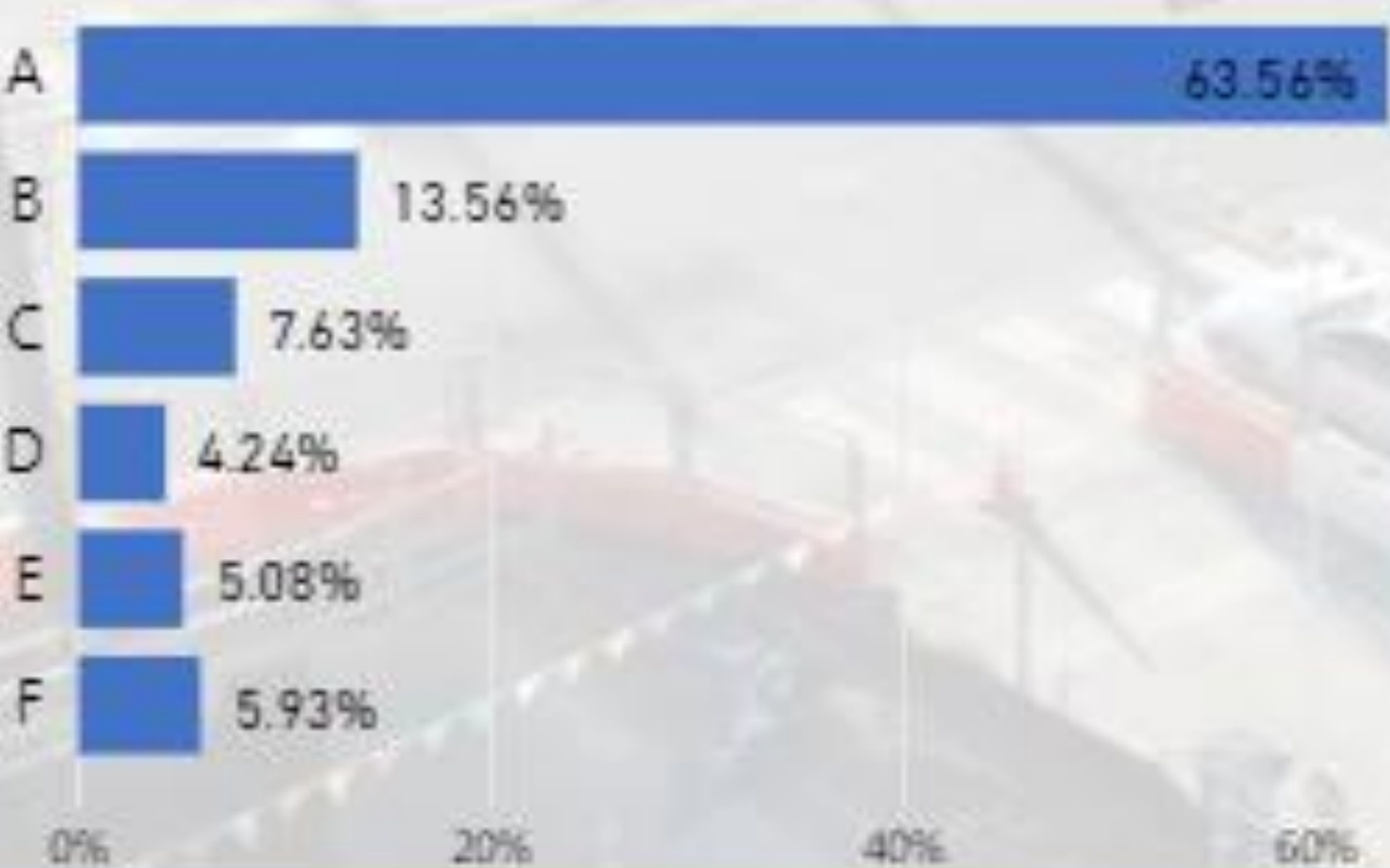
Average Number of Vehicles by Hour



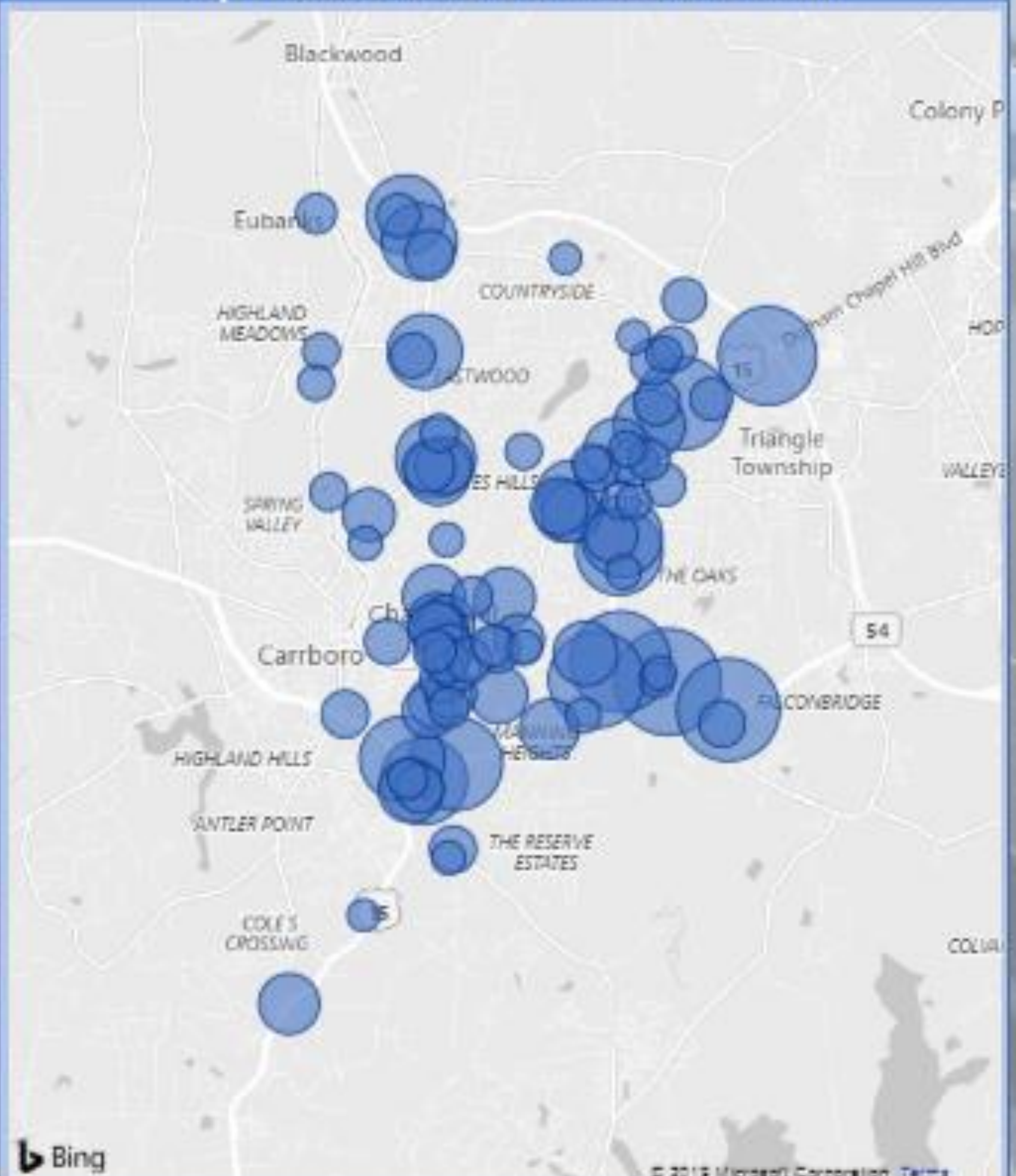
Top 5 Intersections in Town

Intersection_Centracs	Volume
Fordham @ Old Mason Farm Rd	6,570,110
Fordham @ Manning	4,933,155
MLK Jr. Blvd @ Estes	4,266,132
Franklin @ Estes	4,149,173
NC HWY 54 @ E Barbee Chapel Rd	3,038,828
Columbia @ Cameron	920,793
Franklin @ Graham	760,971

Intersection Grades (by Level of Service)



Top Problem Areas/ Intersections in Town



Town-wide Traffic Model

- Developed Traffic Model (TransModeler) for Blue Hill District
- TransModeler Software:
 - Multi-Modal Analysis; Complete Traffic Impact Study
 - 3-D Visualization; Traffic Signal Operations on Coordinated Arterials or at Isolated Intersections
 - Demo of Blue Hill District Model is scheduled for May 1 at 10 am
- Town-wide Traffic Model Development
 - Grant funding may be available (MPO and Town Funds)
 - Start and Complete in FY 2020

Managing Congestion

Upcoming Projects

1. Town-wide traffic model (2020-2021)
2. I-40 widening & NC 86 interchange (2019)
3. NC 54 improvements (2025)
4. US 15-501 improvements (TBD)
5. Bus-Rapid Transit (2023)
6. Elliott Road Extension (2020)

Ongoing Efforts

1. Investments in bike and pedestrian facilities
2. Investments in public transit
3. Traffic Impact Analysis Evaluation (2020-2021)
4. Biennial Signal Timing Evaluation (2019)
5. Variable Message Signs (2019-2020)

Proposed Next Steps

1. Staff will share data with Transportation and Connectivity Board
2. Engage the public to learn how users of the system understand the town and regional data
3. Further refine analysis based on feedback

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An overview on traffic in Chapel Hill and tools the Town has to manage congestion

