

# Greensboro Department of Transportation 2015-2016 Annual Report



## Moving Our City in the 21st Century



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**City of Greensboro**  
**Department of Transportation**

About one year ago, I was asked to give an overview of the Greensboro Department of Transportation (GDOT) to the Greensboro Kiwanis Club. I used a series of slides that I had previously used at our annual City Academy and UNC School of Government presentations that explain the importance of transportation in the Triad and GDOT's critical role.

At the end of the Kiwanis Club presentation, one of the members lauded the information. He said we need to tell this story to more citizens – and more often. The following annual report is intended to tell that story and to keep you informed about transportation in Greensboro.

Our transportation story begins with the strategic location of the Triad on the East Coast, at the crossroads of four interstates. Our interconnected transportation network provides efficient access to three international airports (within 90 minutes), five major ports (within six hours) and many major mid-Atlantic population centers (within 350 miles, or a one-day drive.)



With a vast freeway system, two Class 1 railroad lines that converge in Greensboro at a major Norfolk Southern intermodal terminal, and the Piedmont Triad International Airport with its FedEx Mid-Atlantic Hub, the Greensboro area is a major logistics hub on the East Coast.

Transporting goods and services has long been vital to the local economy, dating back to the location of the North Carolina railroad through Greensboro in 1851 by Gov. John Motley Morehead. This opened up the gates of commerce in the "Gate City," and spurred the development of textile mills and tobacco warehouses. Maintaining and expanding our interconnected multi-modal transportation system will continue to be a key to our region's future.

Along with our federal and state department of transportation partners, the Greensboro DOT plays an important role in the development, operation, and maintenance of this vast multimodal transportation network. GDOT has a total annual budget of \$34.5 million and is responsible for:

- Traffic management, including the operation and maintenance of 495 traffic signals and traffic control devices that maintain the safe and orderly flow of motorized traffic on more than 1,990 miles of roadways.
- Public transportation. We provide 4.2 million passenger trips per year on 16 fixed bus routes and complimentary paratransit service for people with disabilities.

- Sidewalks. We installed 51 miles of sidewalks since the adoption of the bike and pedestrian plan in 2006, and plan to add more than 100 more miles in the next 10 years.
- Bicycle accommodations. We have installed 12 miles of bike lanes since 2006, and plan to add 75 more miles over the next five years.
- Parking. We operate four parking decks and seven parking lots that provide about 3,000 off-street parking spaces and maintain 1,400 on-street parking spaces for downtown patrons.
- Streetlights. GDOT oversees the installation, operation, and maintenance of about 26,790 street lights through a \$3.3 million annual contract with Duke Energy.
- Local transportation projects. We developed a \$134 million 2008 bond program which supports various local projects, including sidewalks, greenways, streetscapes, intersection improvements and roadway enhancements.
- Metropolitan Planning Organization (MPO). We oversee the MPO planning process, where major freeway and roadway improvement projects are built with federal, state and local funding. Some \$1 billion in freeway and roadway improvements are underway or will be implemented over the next five years.

Over the past fiscal year, GDOT has advanced numerous transportation initiatives, completed or updated transportation and traffic studies and plans, and conducted various maintenance activities

to address community concerns. GDOT's staff of more than 200 full-time and contract employees is committed to providing a safe and efficient multi-modal transportation system that meets the needs and expectations of our residents, the business community and our visitors.

The following report highlights some of the major transportation milestones and accomplishments that GDOT has facilitated in partnership with City Council and other City departments, state and federal agencies and the citizens and businesses of Greensboro.



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GREENSBORO  
TRANSPORTATION



**\$35 million budget**



**81 City Employees**

*All figures are for the 2015-2016 fiscal year, unless otherwise noted.*



## INFRASTRUCTURE



### Roads

- 1,990 miles of road for which GDOT is responsible
- 6 million vehicle miles traveled in Greensboro daily
- 305,000 vehicle hours on the streets daily
- 451 miles of pavement markings installed



### Sidewalks

- 487 miles of sidewalk



### Traffic lights

- 495 traffic signals GDOT operates and maintains
- 140 miles of fiber optic signal cable
- 55 traffic cameras
- 8 new traffic signals installed
- 785 preventative maintenance activities performed



### Streetlights

- \$3.3 million budget
- 26,790 streetlights
- 5,450 major corridors street lights inspected



### Street Signs

- 43,000 street signs
- 2,478 signs replaced



### Parking

- \$2.8 million budget (does not include ticket revenue)
- 4 parking decks
- 6 parking lots
- 3,209 off-street parking spaces downtown
- 1,422 on-street parking spaces downtown
- 33,728 parking tickets issued
- 4,072 warning tickets issued
- 3,201 parking ticket appeals



## PLANNING

- \$1 billion transportation infrastructure investment planned in the next 5 years
- 899 plans reviewed
- 12 traffic impact studies reviewed



## PUBLIC OUTREACH

- 4,175 resident requests for transportation services received
- 98 neighborhood traffic concerns addressed
- 24 public meetings conducted



## ACCIDENTS

- 7,920 traffic accidents
- 121 pedestrian accidents
- 21 fatal traffic accidents
- 5 fatal pedestrian accidents



## GREENSBORO TRANSIT AUTHORITY

- \$22.8 million budget
- 205 contracted employees
- 16 bus routes
- 56 buses
- 48 paratransit vehicles
- 4.2 million public transportation trips
- 233,915 paratransit trips

## State Approves, Accelerates Funds for Local Projects

GDOT and the Greensboro Urban Area Planning Organization have been working diligently and strategically with the North Carolina Department of Transportation on the planning, development, and funding of several major transportation improvement projects in the metropolitan area.

The state added or accelerated the schedules for 10 area transportation projects in the most recent revision of the Transportation Improvement Program (TIP), a 10-year funding priority list, adopted in July 2015. Thanks to additional revenues dedicated to transportation by the General Assembly, another six projects were added for funding in January 2016

All told, some \$896.5 million worth of projects are provided for between now and 2025 within the Greensboro Urban Area Metropolitan Planning Organization (MPO) district, which includes the City, five local towns and parts of Guilford County. These projects are slated to receive state or federal funding between now and 2025.

The projects along with other major projects already underway – such as new portions of the Urban Loop and US 220, as well as the widening of Gate City Boulevard – will bring more than \$1 billion of roadway improvements to the Greensboro urban area over the next five years.

Road, rail, bike, pedestrian and aviation projects across the state are funded based on a system called Prioritization 4.0, which gives a project points based on congestion, safety, future needs, and local priorities, as determined by metropolitan and rural planning organizations and state transportation officials.

Local leaders have to be strategic and make tough choices when considering which projects to support. Not every project will have a high enough score to be able to compete for funding against the many other projects proposed for funding across the state, region, and division. In addition to funds directed through Prioritization 4.0, the TIP also accounts for federal funding directed by the MPO to area project priorities including pedestrian, bicycle, and transit projects.

Some \$685 million of the funds were allocated to roadway investments. Seventy-two percent of this funding will be spent on widening, building, or rehabilitating interstates, including the remaining portions of the Urban Loop. Of the money allocated for non-interstate projects, 45 percent was allocated for road-widening, 33 percent will be spent on bridges and 19 percent will be spent on pedestrian and bicycle projects. Most of the pedestrian and bicycle projects are funded with MPO-directed money rather than Prioritization 4.0 funding.

Currently, the Greensboro MPO is working to complete NCDOT's latest Prioritization Process. NCDOT will use the results of this process to select projects for funding in years 2018-2027. NCDOT expects to release the draft 2018-2027 Statewide Transportation Improvement Program in January 2017. The program may include projects like improvements to the Piedmont Triad International Airport and to the Randleman Road exit of I-40.



## City of Greensboro Projects

The following City of Greensboro projects are made possible by voter approved transportation bonds. Projects that have been selected for federal funding by the NCDOT and the Metropolitan Planning Organization are

noted with an asterisk.

1. Market Street / College Road / Guilford College Road: intersection improvements\*
2. Battleground Avenue & Brassfield Road: intersection improvement\*

3. Fleming Road-Isaacson Boulevard: connector construction\*
4. Gate City Boulevard: streetscape construction
5. Cone Boulevard-Nealtown Road: connector construction
6. Downtown Greenway: new segment construction\*
7. Battleground Avenue & New Garden Road: intersection improvement\*
8. Horse Pen Creek Road: widen from New Garden Road to Battleground Avenue

## Projects Scheduled for Construction by NCDOT

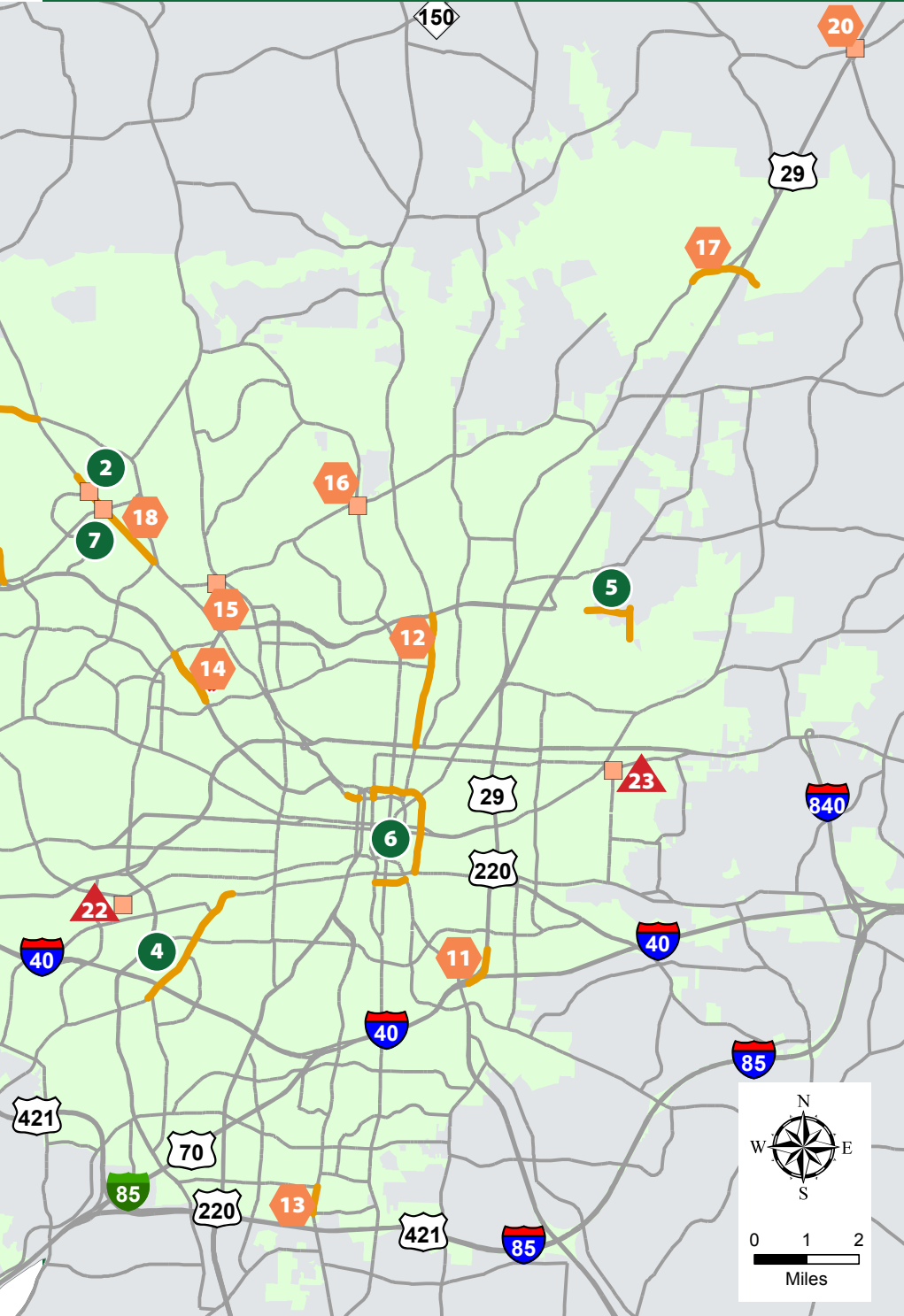
The following federally- and state-funded projects to be constructed by NCDOT were approved under the 2016-2026 Transportation Improvement Program. Local money provides partial funding for some of the projects, as noted with a double asterisk.









9. Sandy Ridge Road: I-40 interchange improvements
10. NC 68 & NC 150: intersection improvements
11. US 29 / I-40 / I-85: ramp improvements
12. Church Street: widening from Wendover Avenue to Cone Boulevard
13. Randleman Road: widening from Glendale Drive to Elmsley Drive
14. Benjamin Parkway / Bryan Boulevard: widening from Northhampton Drive to Holden Road
15. Lawndale Drive / Pisgah Church Road / Martinsville Road: intersection improvements\*\*
16. Elm Street & Pisgah Church: intersection improvements\*\*
17. US 29 & Summit Avenue: modify interchange and improve Bryan Park Road and Reedy Form Parkway
18. US 220: widen from Westridge Road to Cotswold Avenue
19. NC 68: widen from Market Street to I-73
20. US 29: NC 150 interchange improvement

## Area Projects Scheduled for Construction by Other Groups

The following federally- and state-funded projects to be constructed by others are included in the approved 2016-2026 Transportation Improvement Program.

21. Piedmont Triad International Airport: relocate and upgrade airport surveillance radar from current location to site outside future airport expansion area
22. Norfolk Southern Roadhouse property: add intermodal container parking
23. Norfolk Southern H Line: construct grade separation at Franklin Boulevard crossing and close O'Ferrell Street



 Intersection Improvement	 City of Greensboro	 NCDOT Construction Projects
 Transportation Projects	 Greensboro MPO	 Construction by Other Groups
 Major Roads	 City of Greensboro Projects	

## Key 2008 Transportation Bond Projects are Underway Across the City

### Completed Projects

#### ***Battleground Avenue-Brassfield Road Intersection Improvement***

The City has completed the Battleground Avenue-Brassfield Road intersection improvement project. The project included widening to accommodate dual left turn lanes, a through lane, and an exclusive right turn lane eastbound along Brassfield Road in order to improve intersection efficiency. Improvements also included adding an exclusive right turn lane along Battleground Avenue southbound. The project was completed in July 2014.

#### ***Fleming Road-Isaacson Boulevard Connector***

In 2015, the City opened the new Fleming Road-Isaacson Boulevard Connector, improving east-west access to Northwest Greensboro connecting Fleming Road to Horse Pen Creek Road. Isaacson Boulevard was extended to the west and connected to Fleming Road at a realigned intersection. The project also included construction of a new culvert over Horse Pen Creek.

### Construction Underway

#### ***Gate City Boulevard Streetscape***

The Gate City Boulevard streetscape project began in March 2015. Crews are widening sidewalks and lanes for bicyclists, adding new bus shelters, improving corner treatments and traffic signals, installing new landscaping and medians, and improving drainage systems.

Construction is expected to be completed November 2016.

#### ***Cone Boulevard-Nealtown Road Connector***

In October 2015, the City began building the Cone Boulevard-Nealtown Connector which is a thoroughfare project that will provide a much-needed street connection in east Greensboro and more convenient access to commercial properties at the end of Sixteenth Street.

The improvements include extending East Cone Boulevard as a two-lane road to the east and extending Nealtown Road as a two-lane road to the north. The new road will feature curb and gutter, sidewalks on both sides of the road, and a new bridge over Buffalo Creek.

Construction is expected to be completed in fall 2017.

#### ***Downtown Greenway***

The planned Downtown Greenway is a \$30 million, four-mile multi-use greenway for walking and bicycling that will loop around the center city.

In 2016, the City will begin construction on several new sections of the loop:

- The Fisher Avenue section, between Greene and Eugene streets.
- The Eugene Street section between, Fisher Avenue and Smith Street.
- The Smith Street section, between Spring Street and just west of Prescott Street.
- The Fisher Avenue and Murrow Boulevard section, from Greene Street to Gate City Boulevard.
- The Bragg Street section, from Eugene Street to Martin Luther King Jr. Drive.



*Gate City Boulevard enhancements are expected to be complete by the end of 2016.*



*The Cone Boulevard-Nealtown Road connector project will provide key access from Northeast Greensboro to shopping off Route 29.*



This year, the City has also begun the planning study for the portion of the greenway that runs along the railroad line between Smith and Spring Garden streets.

### **Battleground Avenue- New Garden Road Intersection Improvement**

Construction is scheduled to begin this year on the Battleground Avenue-New Garden Road intersection improvement project. The construction consists of adding a southbound right turn lane on Battleground Avenue; widening to accommodate dual eastbound left turn lanes on New Garden Road; and installing a concrete median on New Garden Road. These improvements will enhance the safety and capacity of the intersection as well as improving traffic flow on Battleground Avenue.

### **Projects In Process**

#### **Horse Pen Creek Road Widening**

Horse Pen Creek Road will be widened between New Garden Road and Battleground Avenue. The project will increase the number of lanes to four and add landscaped medians, curbs and gutters, sidewalks, and bike lanes.

The City is currently buying land for the expansion. Construction is expected to begin in late 2016. At almost \$30 Million, the Horse Pen Creek Road widening project will



be the largest City transportation improvement project ever implemented.

#### **Market Street-College Road Intersection Improvement**

Late this year, the City is slated to begin improving the Market Street intersection with College and Guilford College roads. The project includes widening to add right-turn and dual left turn lanes, and monolithic islands and sidewalks for pedestrian safety. Construction is scheduled to begin in fall 2016.

*Story continued on Page 9*



## **New Equipment Keeps Street Lines Fresh**

City traffic striping will get spruced up more often, thanks to the Department of Transportation's new paint truck.

The City's former paint truck was a 1998 model, and which was getting more expensive to operate the older it got.

The new truck is equipped with paint heaters, laser guidance system, message board, Peterbilt cab, six paint guns, six bead guns, and a climate-controlled, enclosed rear area to protect operator from the elements as well as tree limbs and breathing issues.

The paint truck should shorten the time it takes to paint all the long lines in the city by 3-6 months, down from the current 18-month cycle.



*The City's old paint truck left the operator exposed to the elements.*



## GTA's First Smart Card: The GO pass

GTA has introduced a new bus smart card that allows riders to more easily pay for fares – and save while they do it.

The GTA GO pass allows users to load any dollar amount on the card they wish. When they board the bus, they merely tap the top of the farebox with their GO pass and the proper fare is deducted from the stored amount. The same card can be used to pay multiple fares at a time. Riders who use the card also get a 20 percent discount per trip.

Riders can purchase a GO pass or add more money onto it at the Depot Customer Service window or the GTA Administrative Offices. GO passes can also be purchased at public libraries.



Go pass card

*Story continued from Page 8*

### **Battleground / Benjamin / Cone Intersection Improvement**

The City is scheduled to begin making improvements to the Battleground Avenue-Benjamin Parkway-Cone Boulevard intersection in summer 2016. The project includes adding a northbound right turn lane on Battleground Avenue, a westbound left turn on Cone Boulevard, removing the southbound right turn slip lane, and adding a traditional southbound right turn lane on Battleground Avenue. The improvements will enhance the safety and capacity of this intersection as well as improving traffic flow along Battleground Avenue.

### **Battleground Avenue-Westridge Road Intersection Improvement**

Construction is scheduled to begin in summer 2017 for the Battleground Avenue-Westridge Road intersection improvement project. The project includes widening Battleground Avenue to provide an additional northbound and southbound lane; widening to provide dual northbound left turn lanes on Battleground Avenue; installation of concrete and landscaped medians on Battleground Avenue and Westridge Road; and installation of a new traffic signal at Battleground Avenue and the northern most entrance to Westridge Square Shopping Center. Sidewalks are also included with this improvement in all areas where widening is to take place. The improvements will enhance the safety and capacity of this intersection as well as improving traffic flow along Battleground Avenue.

### **East Vandalia Road Widening**

The City is designing plans for the proposed widening of East Vandalia Road between South Elm-Eugene Street and Pleasant Garden Road. The project will include widening a two-lane shoulder section to a three-lane section with a center turn lane and adding curbs, gutters, sidewalks, and bike lanes. Construction is expected to begin in fall 2018.

### **Alamance Church Road Widening**

The City is currently designing the proposed Alamance Church Road widening, between Martin Luther King Jr. Drive and the city limits. The recommended improvements include widening a two-lane shoulder section to a three-lane section with a center turn lane and adding curbs, gutters, sidewalks, and bike lanes. Construction is expected to begin in fall 2019.

### **Summit Avenue Streetscape**

The city plans to improve Summit Avenue from Murrow Boulevard to Bessemer Avenue. The following streetscape elements are being considered: landscaped medians, bike lanes, enhanced pedestrian cross-walks, and improved street lighting.

## Modern Fiber Optic Network Keeps City Intersections Running Smoothly

The City of Greensboro Department of Transportation (GDOT) operates and maintains traffic signals at nearly 500 intersections – and most are managed by a state-of-the-art fiber optic cable network and central computer system.

The \$24 million upgrade took four-and-half years to complete. The thoroughly modern system is more reliable and has more advanced traffic control features than the old infrastructure, and can be expanded to handle more than 1,000 signalized intersections.

When the renovation began, it was the largest signal system project ever undertaken in North Carolina.

Under the old system, a central computer communicated with traffic lights via twisted copper wire cable that was difficult to maintain. Portions of the copper cable dated back to 1972. The system was prone to damage from lightning strikes that would travel along the copper cables or from temperature changes that would cause the wire to not properly transmit data.

**“The thoroughly modern system is more reliable and has more advanced traffic control features than the old infrastructure.”**

The copper cable also had limits to how far it could stretch before the signal would be lost. Data transmission was not possible beyond a distance of about 10 miles – a significant problem in a city with 1,100 miles of streets. This limitation meant the City was unable to centrally monitor and control some outlying intersections, such as the NC 68 corridor.

The City replaced the copper wires with 150 miles of more reliable and resilient fiber optic cable, which withstands temperature changes better and doesn't conduct electricity.

The optical fibers don't have the data loss problems of the copper wire, so now NC 68 is online with the



*The new fiber optic signal control system upgrade also included the installation of 54 new traffic cameras, which can be used to remotely monitor critical intersections.*

new system. The central computer is now able to communicate with every signal maintained by GDOT.

The upgraded system also includes new control units, placed at each intersection, that allow for more complex signal phasing patterns than were previously available. The units can also control school zone sign flashers and e-mail a technician to report a malfunction. The project also added 54 video cameras to monitor traffic conditions at critical intersections.

During the project, GDOT partnered with the Information Technology Department (IT) to install an additional 29 miles of fiber optic cable to the system beyond what was needed for the signal upgrades. This extra capacity allowed IT to connect to several City facilities that had previously been outside the City's IT network.



*A controller system, located at each intersection, manages the traffic signal.*

## GTA Round Up

### GTA to Debut Real-Time Tracking this Fall

Greensboro Transit Authority riders will soon gain an exciting new tool to alleviate the headaches of predicting bus arrivals. GTA will offer real-time bus tracking beginning in the fall of 2016.

Passengers will be able to access the information by way of a free, downloadable app or in any Web browser. Users will be able to view the location of each bus



*Greensboro supported the Carolina Panthers' 2016 Superbowl bid with a team bus wrap.*

and an estimate of how many minutes until it arrives at a given stop. Users will also have the option within the app to set alarms alerting them when the bus is a specific number of minutes away from a stop.

Riders without smart phones can text the bus stop number to receive arrival information. The technology will be provided by Transloc, a Durham-based company. To see a demo of the tracking system, visit [fast.transloc.com](http://fast.transloc.com).

### New Leadership

Bruce Adams became the new public transit manager in May 2016.



*Bruce Adams*

Adams, a former Army captain who has worked for GTA since 2001, most recently served as a senior transit planner. In his new role, he oversees all administrative and managerial functions of the Public Transportation Division, including managing a \$20 million budget and professional staff of seven, and monitoring the efficiency and effectiveness of contractor-provided transit services.

## BiPed Plan Calls for Hundreds of Miles of New Sidewalk, Bike Lanes

In May, City Council approved the Greensboro Urban Area Bicycle, Pedestrian, and Greenways Plan Update, a 300-page analysis of existing pedestrian and non-motorized vehicle accessibility in the area surrounding the city. The plan also provides a vision for the future.

The Metropolitan Planning Organization (MPO) plan, called the BiPed Plan for short, was two years in the making and involved extensive public outreach and analysis. It shows that there has been a substantial expansion of sidewalks, greenways, bike facilities and trails in the last decade. Since adoption of the first BiPed plan in 2006, the City added 133 miles of sidewalks – an increase of 36 percent – along with seven miles of greenways, and 12 miles of bicycle lanes.

The 2015 plan prioritizes future infrastructure improvements in light of current community priorities and needs. It accounts for changes in demographics and socioeconomic factors and incorporates new data



*The City's 2015 BiPed Update recommends 13.3 miles of greenways and trails be built in the next five to seven years, including the final phases of the Downtown Greenway.*

and analytical tools. The plan also recommends policies to help improve walking and bicycling conditions throughout the region.

But perhaps most importantly for residents, the BiPed Plan recommends a prioritized list of future improvements. Recommendations include more than

## A Legacy of Service

GTA's long-serving Transportation Manager Elizabeth "Libby" James retired in August 2015, after 25 years serving the bus system.



Libby James

James was hired when GTA was created to transition the City from a Duke Power-run system to a municipal system. She was GTA's first transit administrator.

James guided GTA through the renovation of the historic Southern Railway Depot into a transportation multimodal center, the procurement of fuel-efficient hybrid buses, the launch of the High Education Area Transit service and the construction of the GTA Operations and Maintenance Facility and Administrative Offices, which are Leadership in Energy and Environmental Design gold-certified. Her commitment to maintain accurate financial records for the agency helped ensure GTA received the maximum state and federal financial and logistical support.

## GTA Operators Bring Home Top Honors

Three GTA drivers took home prizes at the 2016 State Bus "Roadeo," hosted by the North Carolina Public Transportation Association and North Carolina Department of Transportation in June.

Drivers tried their luck at a series of skills assessments on the closed competition course, navigating cones and other obstacles to finish in the fastest time with the fewest penalties. The Roadeo also includes vehicle pre-checks and a uniform inspection.

GTA Operator Nate Love earned second place over in the state for fixed route buses. Specialized Community Area Transit (SCAT) Operator Robin Dillon took second place in the van category. GTA Operator Cornell Starks earned second place in the light transit vehicle division.

100 miles of sidewalks, 75 miles of bike lanes, and 13 miles of trails and greenways proposed for construction in the next five to seven years. Many more are recommended in later years.

The recommendations also include improved pedestrian crossings of busy roadways, expanded sidewalk maintenance, and a list of repair and modernization needs to existing greenways.

The BiPed Plan identifies projects like the Downtown Greenway and the Atlantic & Yadkin Greenway as well as construction of sidewalk improvements on Pisgah Church Road, Gate City Boulevard, Yanceyville Street and along many other major roadways as high priorities.

## BiPed UPDATE

### Sidewalks

NEW SINCE 2006

5-7 YEAR PLAN

133.3 miles

> 100 miles

### Trails and Greenways

NEW SINCE 2006

5-7 YEAR PLAN

23 miles 13.3 miles

### Bike Lanes

5 YEAR GOAL

75 miles

## GDOT Pitches in to Make Sure the National Folk Festival Rocks

The City of Greensboro was chosen from a field of 32 cities to host the National Folk Festival for three years, beginning in 2015. Greensboro Department of Transportation staff members played a critical role in the months of preparations as well as the execution of the event.

Here are just a few of the ways GDOT helped make the three-day festival a success.

### Folk Festival Signage

GDOT created and installed community festival signage around Greensboro to raise awareness about the upcoming event. We also coordinated with NCDOT to facilitate installation of signs along the interstate system.

### Welcome Signs

To make downtown a more recognizable and welcoming place, GDOT installed “Welcome to Downtown Greensboro” signs near major entry ways into the central business district. These large signs were made on custom-cut metal and installed on decorative sign posts. The Field Operations Department completed the welcoming feeling by adding planter boxes.

### Event Traffic Control

GDOT worked closely with Greensboro police and other departments to coordinate various event activities and street closures to ensure that festival attendees were able to get to the festival safely and with minimal delay. This included coordinating and assisting police with traffic control and coordinating with the state for interstate message signs.

### Parking

GDOT staff worked at parking decks and lots throughout the weekend and parked more than 2,400 cars. The staff also worked with monthly parkers to relocate vehicles to make more parking available in the decks for the festival. GDOT also replaced the meters along Commerce Place with pay stations to significantly improve the appearance and functionality of that area.

### Free Shuttles and Public Transportation

To encourage festival attendees to leave their vehicles at home, the City offered free transit service on all routes throughout the weekend. Over the weekend, GTA saw an increase of more than 10,000 passenger trips due to the free transit service. GTA also helped coordinate and staff shuttle routes that allowed folks to park their cars at remote parking lots and take shuttles to the festival area.

### Cleanup and Preventative Maintenance

GDOT staff did an extensive sweep of downtown and the festival area to identify assets that were faded, damaged or otherwise in need of maintenance or replacement.

### Street Light Upgrades

Months in advance of the festival, the staff worked with Duke Energy to arrange for approximately 250 street light poles to be painted and LED fixtures installed in downtown. GDOT also painted another 50 City-owned



*Downtown got new placemaking signs.*



*GDOT installed decorative lighting to make Lewis Street more appealing.*

poles and other items in the right-of-ways. The newly painted poles blend in better with downtown and improve the visibility and cleanliness. The LED fixtures give off a bright white light, improving public safety in the area.

### Recoating Decorative Crosswalks

Many of the decorative crosswalks in the Central Business District were in dire need of recoating and replacement. GDOT hired a contractor to refresh these crosswalks. In addition, GDOT staff refreshed surrounding crosswalk lines and adjacent stop bars to give a new fresh look to our central business district.

### Decorative Lighting

GDOT coordinated the installation and programming of decorative lighting on the Greene Street parking deck and along Lewis Street. Both sets of lights are fully programmable and have served to make the areas more interesting and visually striking. Since the festival, the lights have been programmed for other events.



*Downtown hosted more than 100,000 over three days for the National Folk Festival in September 2015.*

## Transportation Plans for New Downtown Parking Deck

The availability of convenient parking is an often overlooked component of economic development. As Greensboro's economy continues to recover and development is again increasing downtown, the City's Department of Transportation staff has begun planning to build a new parking structure.

Greensboro owns and operates four parking decks and six surface lots in downtown, providing nearly 3,200 off-street parking spaces. As of May 2016, the parking decks were filled to 70 percent capacity with monthly parkers, drivers who pay by the month for a parking space. That leaves about 30 percent of the deck space, or about 800 parking spots, available for hourly parkers.

The Bellemeade deck is the most popular, with 85 percent of its capacity filled by monthly parkers. This is the primary location for Guilford County juror parking, which limits the number of monthly spaces the City can rent in this deck.

The City also offers monthly parking in four surface lots and on Commerce Street. All of these spaces are rented and the GDOT staff regularly receives requests for additional monthly parking spaces.

In an effort to respond to the demand for more parking, Transportation staff is studying options to build a new 800 to 1,200-space parking deck in downtown. Various locations are being considered. Any new deck would likely include ground-level retail space, as well as office or workshop space for City Parking Maintenance staff.

The addition of the new deck would position the City to accommodate parking needs of downtown businesses and visitors into the foreseeable future.

Parking Decks	Total Spaces (Monthly/ Hourly)	Monthly Customers	% Monthly Rentals
Davie Street Deck	415	233	56%
Greene Street Deck	706	325	46%
Church Street Deck	417	336	81%
Bellemeade Street Deck	1,276	1,079	85%
<b>TOTAL</b>	<b>2,814</b>	<b>1,973</b>	<b>70%</b>

## City Rolls Out Tech Solutions for Parking Payments and More

In the last year, the City's Parking Division has adapted technology that provides new options for downtown drivers.

### Going Mobile

In September, the Parking Division rolled out Parkmobile, a mobile phone application that allows drivers to use a smart phone to pay for parking and provides them an opportunity to use a credit card in lots where pay stations are not currently installed.

Parkmobile also sends the driver a notification when parking time is about to expire, offering the user the opportunity to extend the time in the lot. The user is charged a 35 cent fee on top of the normal parking rates.

The app is available to pay for parking in the City-County Lot, at the corner of Washington and Eugene streets, the Federal Place-Washington Street and Elm Street-McGee Street lots. The Parking Division hopes to begin rolling the app out to other locations in fiscal year 2016-2017.

In 2015, the City also added pay stations on Commerce Street. The new pay stations allowed staff to remove of parking meters from the median and provided the option of paying with credit cards on that street.



*Drivers can now pay to park via mobile phone in some locations.*

### Going Green

Looking to keep the "green" in Greensboro, the Parking Division installed the second public electric vehicle charging station in downtown in July 2015.

Through a partnership with Piedmont Authority for Regional Transportation, a charging station was installed in the Greene Street Parking Deck, 211 S. Greene St. The charging station was made possible through a Clean Fuel Advanced Technology Project Grant funded by the NC Department of Transportation. The City also has a DC Fast Charger available for use in the Elm Street-Greene Street parking lot.

In addition to the charging stations, the Parking Division continued also purchased two electric Raptors, three-wheeled personal patrol vehicles used for parking enforcement. These completely electric vehicles are similar to the T3 Motion vehicles the department has been using for several years and will be used to replace the aging vehicles.

*Parking Enforcement Specialist Amanda Reed shows off the new, all electric Raptor.*





## Greensboro Takes the 'Smart City Challenge'

The City of Greensboro competed with 77 other cities for a \$40 million US Department of Transportation grant to install innovative transportation technologies.

The Smart City Challenge was developed to address questions raised by US DOT Secretary Anthony Foxx's "Beyond Traffic 2045" report, which explored trends in safety, mobility, sustainability, economic vitality, and climate change that will reshape the future of transportation. In December 2015, The US DOT pledged \$40 million to one city to integrate new technologies, such as self-driving cars, connected vehicles, and smart sensors, into its transportation network.

Greensboro's application was developed by the GDOT staff in partnership with the Information Technology and Planning Departments.

To Greensboro, a "Smart City" is one that increases access to economic opportunity, connects underserved communities, improves safety for all transportation users, and protects the environment, according to the City's grant application.

Greensboro proposed to:

- Expand the 150-mile state-of-the-art fiber optic network that runs the traffic signal system to serve as the communication backbone for our "Smart City."
- Install advanced sensors with secure, wireless communication equipment along five major "smart corridors" to allow vehicle-to-infrastructure communication. These corridors would serve as test-beds for manufacturers and other third-party application developers to test connected and automated vehicle technologies.
- Test and demonstrate concepts of operations of unmanned aerial vehicles, also called drones, to enhance Emergency Management Services and Public Safety responses to emergencies.



- Upgrade the City transit fleet to electric buses that can be charged en-route. Buses would be connected and responsive to road infrastructure, and possibly automated.
- Use the advanced sensors and the data collected by them to improve the safety and comfort of the transportation system for pedestrians, cyclists, senior citizens and people who are disabled.

Although Greensboro was not chosen as one of the finalists for the grant, the city is considering other opportunities and strategies to implement elements of the smart city application. For instance, the Greensboro Transit Authority has applied for a grant that would support the purchase of the proposed electric buses.

## Transportation Matters To Development/ Development Matters to Transportation

Every day, hundreds of thousands of motorists use Greensboro’s roadways. They rack up 13 million vehicle miles and 305,000 vehicle hours of travel each day.

High travel corridors such as Wendover Avenue, Battleground Avenue, Cone Boulevard, South Elm-Eugene Street, and Randleman Road provide critical mobility as well as access to commercial, office, institutional, and residential properties. Land developers often target these high volume corridors as tens of thousands of potential customers pass by their properties each and every day.

Development or redevelopment of a property along a major travel corridor poses challenges as new development creates new traffic concerns. Due to growing concerns about the traffic impacts that new developments were causing to surrounding neighborhoods and along major travel corridors, City Council adopted the Traffic Impact Study Ordinance in 1999. The ordinance requires that a traffic impact study be performed for all new developments that are projected to generate 100 peak-hour trips or 1,000 daily trips. The traffic impact study identifies the impacts that new development sites will have on the surrounding street network and develops recommendations to mitigate the new traffic impacts.

The Greensboro Department of Transportation reviews traffic impact studies in accordance with professional engineering standards and practice, reviews and approves site plans, and issues driveway permits for new sites based on the findings of each study.

Each vehicle pulling into or out of a new driveway creates 16 new “conflict points,” or potential collision points, with vehicles and pedestrians that are already utilizing the corridor. So a new site that generates 1,000 trips per day creates 16,000 new conflict points. It’s often necessary to carefully consider controlling new access points with turn restrictions and medians to reduce the number of conflict points. Reducing those conflict points decreases the potential for traffic accidents and preserves the traffic carrying capacity of the corridor.

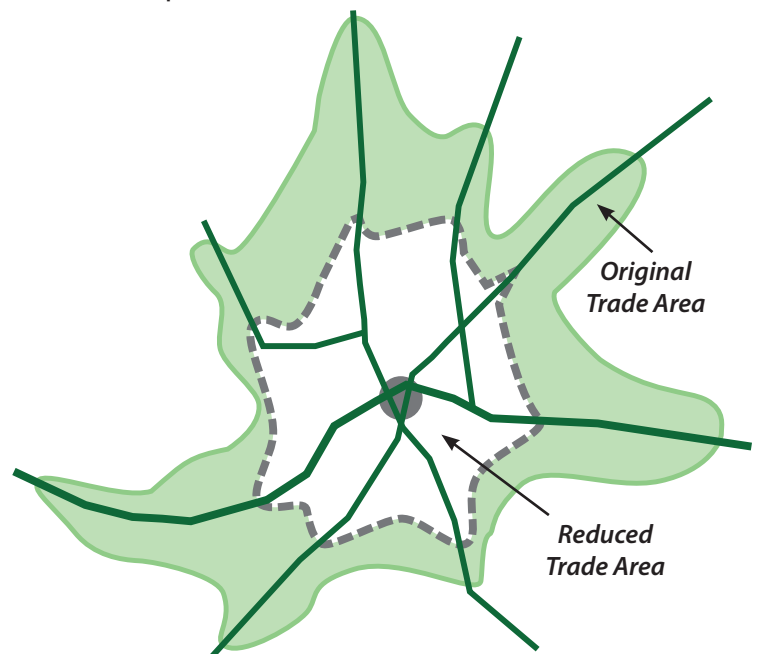
Studies have shown that corridors with good access control, like medians, reduce accident rates by up to 25 percent and can reduce travel times by up to 50 percent.

That’s important – and not just because it makes the City’s roads safer.

Longer travel times on a roadway reduce the market area for the corridor and the number of potential customers. So even though some controls of access for new development sites may not be as convenient, the management of these new access points is necessary for safe and efficient travel.

Safe and efficient travel benefits all who travel these corridors, as well as land owners who benefit from an expanded market area and a safer travel environment for their customers.

Reduction in Average Speed	Market Area Relative to Previous Size
0%	100%
10%	81%
20%	65%
30%	45%
40%	36%
50%	25%



Poor traffic management causes increased travel delays. Those delays cause a decrease in the area that can be served by businesses, as shown in this illustration from the Transportation Research Board’s Access Management Manual, published in 2003.

## GDOT Hosts 2016 NCAMPO Conference

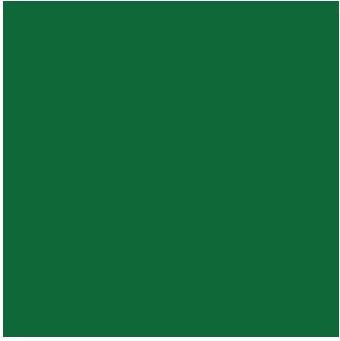
GDOT hosted the 2016 North Carolina Association of Metropolitan Planning Organizations (NCAMPO) annual conference in Greensboro May 11-13.

More than 370 transportation professionals from across the state attended, representing metropolitan planning organizations, rural planning organizations, the NC Department of Transportation (NCDOT), the Federal Highway Administration (FHWA), the consultant community, transit agencies and other organizations. While many transportation planners, engineers, and consultants were in attendance, the conference was also well attended by elected officials, transit administrators, land-use planners, and students who convened to learn more about a variety of transportation topics.

The conference featured 54 high quality technical sessions with a focus on “innovations in transportation, timely updates from FHWA and NCDOT officials, and guest speakers Nick Tennyson, the state transportation secretary, and Bennett Pierce, a senior market manager at Battelle, the world’s largest nonprofit research and development organization. Conference attendees also took tours that highlighted transportation achievements in Greensboro.

GDOT Planning Manager and NCAMPO President Tyler Meyer, the GDOT planning staff and other GDOT divisions did much of the work to put on the conference. Congratulations to Tyler and the many other GDOT staff who made the 2016 NCAMPO Conference a huge success.





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2015-2016 Annual Report