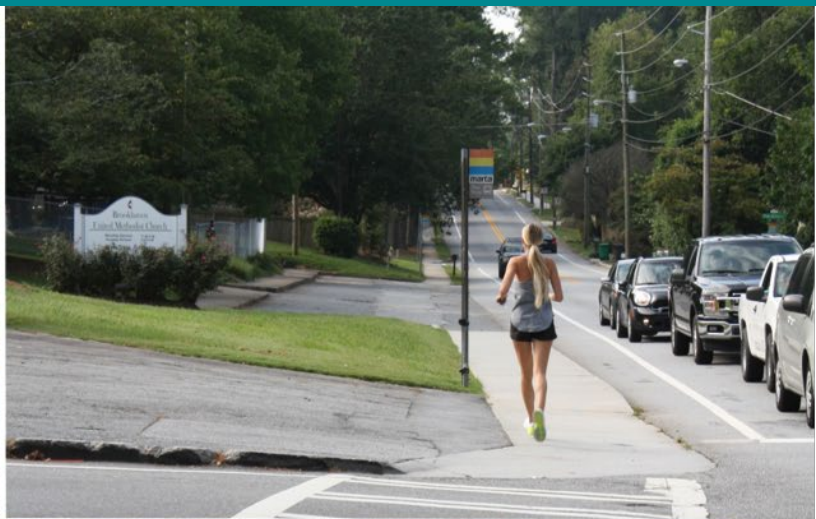


North Druid Hills Road Corridor Study



Visioning Report

FINAL REPORT | APRIL 2019

This document is the **final** report as approved and adopted by the City of Brookhaven Mayor and City County on April 23, 2019.





North Druid Hills Road Corridor Study

Visioning Report

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Chapter 1: Introduction

North Druid Hills Road connects the heart of the City of Brookhaven to Interstate 85 (I-85) and points southward in DeKalb County. The road begins at SR 141/Peachtree Road and extends almost seven miles to the Stone Mountain Freeway just past North DeKalb Mall. Approximately 2.6 miles of this road are within the City limits of Brookhaven. The road started out similar to others in the area as a county road that increasingly became more important as suburban neighborhoods were constructed in the mid- to late-20th century. The opening of numerous strip mall shopping centers, the Lenox Park office complex, the Brookhaven-Oglethorpe University MARTA station in 1984, and community amenities has made this a popular route for people to reach their destinations. Figure 1 below shows the location and extent of the study corridor in the City of Brookhaven.

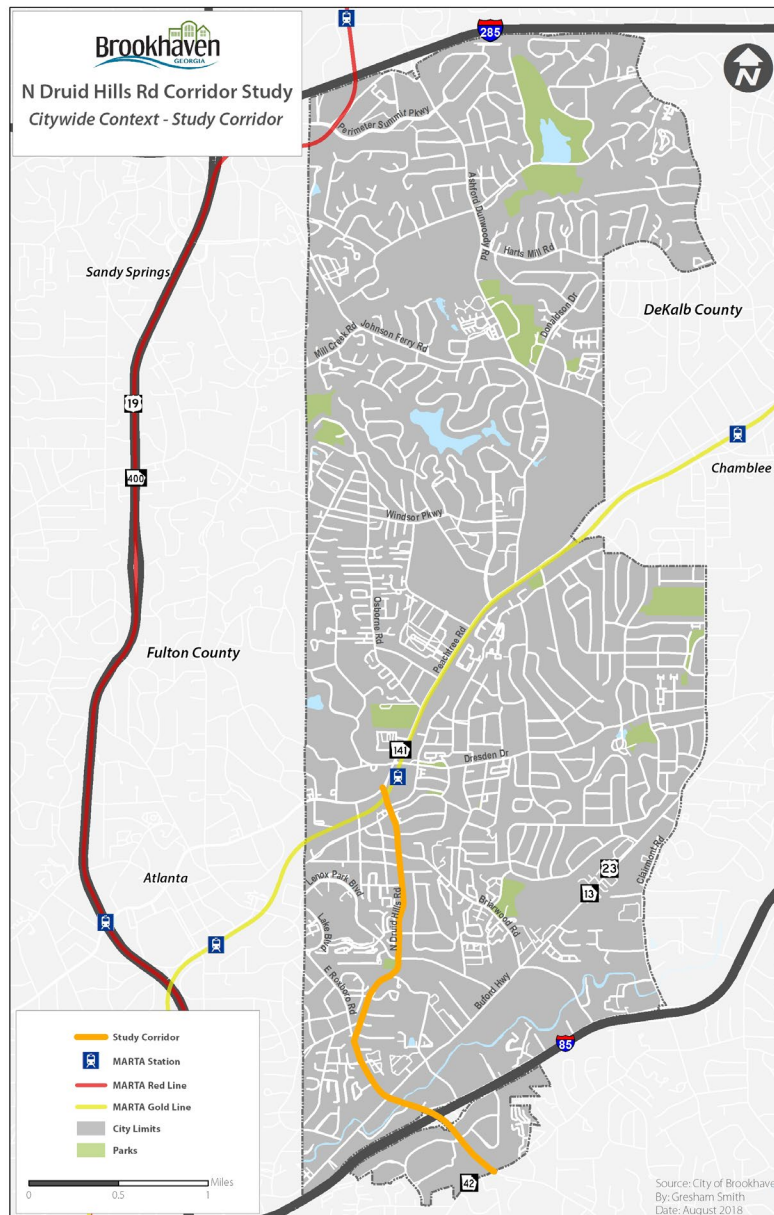


FIGURE 1. CITYWIDE CONTEXT OF THE STUDY CORRIDOR

As the primary north-south artery in the southern part of the City, North Druid Hills Road is one of the most important streets in Brookhaven. Within the City limits, North Druid Hills Road is considered a major thoroughfare. It connects a MARTA station, the Brookhaven Branch Library, Fernwood Park, Lenox Park office development, two schools, houses of worship, and numerous single and multi-family residential developments. As development proliferates near I-85, along SR 141/Peachtree Road, and in nearby Buckhead, among other places, it is important to ensure that the corridor can accommodate future growth while remaining efficient and comfortable for all roadway users.



FIGURE 2. MARTA BUS STOP ALONG NORTH DRUID HILLS ROAD

In recent years, population and employment in the City of Brookhaven, Perimeter Center business district, the Buckhead community, and adjacent municipalities such as the City of Atlanta have grown steadily and are projected to continue to grow over the next 15 to 20 years. As one of two primary roads connecting SR 141/Peachtree Road to I-85, North Druid Hills Road plays a major role in carrying traffic to and from the highway. At the same time, North Druid Hills Road is also flanked by residential neighborhoods throughout much of its length north of SR 13/Buford Highway. The vast majority of the property along North Druid Hills Road north of Childers Road is zoned residential. While the City seeks strategies to improve automobile traffic operations and efficiency, it is also interested in expanding or increasing infrastructure to accommodate people walking, biking, and using transit, such as that seen in Figure 2. Making it more comfortable and convenient to bike, walk, and use transit will not only provide more options for active forms of transportation and healthy choices, but it will also increase the likelihood that people will choose to use these modes of travel, helping to reduce pressure on area roadways.

The remainder of this chapter introduces the North Druid Hills Road Corridor Study. It summarizes the needs for such a study, the purpose and objectives of the study, and provides an overview of the planning process.

1.1 Study Overview and Relationship to Other Planning Initiatives

This corridor study aims to establish a vision for the future of North Druid Hills Road and to identify a series of projects that will improve operations and efficiency along the corridor given projected future development, population growth, changes in commute patterns, and forecasted traffic, while also providing facilities for people biking, walking, and using transit.

The limits of the study area extend from the City limits at SR 42/Briarcliff Road on the south to SR 141/Peachtree Road on the north, as shown in Figure 3. While the entire length of the corridor will be considered throughout the course of the study, emphasis will be on the City street portion of the corridor, north of SR 13/Buford Highway, with attention to key intersections along the road. This portion of the corridor is approximately two miles long.

According to the United States Census Bureau, the City of Brookhaven experienced approximately an eight percent population increase from 2010 to 2017.¹ Furthermore, the Atlanta Regional Commission projects that DeKalb County's population will grow by 22% between 2015 and 2040.² In completing this study, the City of Brookhaven seeks to not only accommodate anticipated future growth in traffic through operational and efficiency improvements, but also to follow through on recommendations from prior plans approved by the City to help make Brookhaven a more bikeable and walkable place.

The North Druid Hills Road Corridor Study builds upon previous plans completed by the City of Brookhaven, including the Comprehensive Transportation Plan (CTP) completed in 2014 and the Bicycle, Pedestrian & Trail Plan (BPTP) completed in 2016. The CTP identifies North Druid Hills Road as a "priority corridor" for its significance to local and regional traffic, connection to adjacent communities, and mix of residential and commercial use, along with the presence of schools, parks, places of worship, and other community facilities. The CTP recommended a visioning/scoping study for the corridor and the development of projects to address future needs. This report is the resulting study recommended by the CTP.

The BPTP identifies that there is a demand for walking and bicycling along North Druid Hills Road, but low to moderate suitability for these activities with existing bicycle and pedestrian infrastructure along most of the corridor. The plan recommends projects to develop a continuous network of sidewalk along the west side of North Druid Hills Road and a multi-use path (MUP) along the east side of the road. Several projects are also recommended for side streets and roads that intersect North Druid Hills Road.

¹ U.S. Census Bureau QuickFacts: Brookhaven city, Georgia,
<https://www.census.gov/quickfacts/fact/table/brookhavencitygeorgia/PST045217>

² Atlanta Regional Commission. Forecast 2040: DeKalb County.
<http://documents.atlantaregional.com/The-Atlanta-Region-s-Plan/pop-employment-forecasts/dekalb-forecast.pdf>



FIGURE 3. KEY STUDY CORRIDOR SEGMENTS AND INTERSECTIONS

Further, this study is being done at the same time as multiple Georgia Department of Transportation (GDOT) projects, which will ultimately result in recommendations for the State Route portion of North Druid Hills Road within the City limits, from SR 13/Buford Highway to SR 42/Briarcliff Road. GDOT PI#0016054 (I-85 at North Druid Hills Road) aims to identify, design, and construct improvements to enhance safety, capacity, and operations at the I-85 interchange with North Druid Hills Road (Exit 89). Other projects adjacent to the corridor study include SR 141/Peachtree Road from North Druid Hills Road to Ashford-Dunwoody Road (GDOT PI#0010326), the Children's Healthcare of Atlanta Development of Regional Impact (DRI), and the Peachtree Creek Greenway Trailhead near the Salvation Army shown in Figure 4. Additionally, Emory University has plans for a mix of office, residential, and retail uses on a 60-acre property in the Executive Park area which was purchased in 2016. These projects are important considerations when assessing the future of North Druid Hills Road. Additional detail on these and other projects are discussed in the Existing Conditions section of this report as well as the Technical Memorandum in Appendix B.



FIGURE 4. LOOKING SOUTH FROM BRIDGE OVER NORTH FORK PEACHTREE CREEK

DeKalb County Schools is undertaking a redistricting process that will relocate Cross Keys High School to another facility and repurpose the current high school site with a middle school. This study takes into consideration the potential effects of these changes over the next few years and offers recommendations to address some of the likely changes in traffic patterns with flexibility to make revisions based on additional information that may become available as the redistricting process advances. Additional information on coordination with DeKalb County Schools is discussed further in the Public and Stakeholder Involvement chapter of this report.

VISION STATEMENT

“Enhance the City of Brookhaven by connecting people and places along and across North Druid Hills Road via a range of safer and more convenient multimodal travel options.”

1.2 Purpose, Need, and Vision

PROJECT PURPOSE

Following the recommendation in the City's CTP, Brookhaven sought to conduct a study to develop a vision for the corridor that will serve projected future traffic and provide facilities for people walking, biking, and using transit. The primary objectives of the study, as described in the City's Request for Proposals, are to:

- Evaluate existing traffic conditions and expected future growth along the corridor and at key intersections along the corridor;
- Develop a corridor vision, including typical sections and lane use configurations; and
- Develop recommendations for bicycle, pedestrian, and transit accommodations in the corridor.

PROJECT VISION STATEMENT

Building upon the stated purpose of the study, and in recognition of the various needs identified along the study corridor, the project team worked closely with City staff to develop an overall vision for the study. Through a process of examining existing conditions, identifying needs and opportunities, and building upon the City's study objectives, an overarching vision for the North Druid Hills Road corridor was developed. The vision reflects the City's commitment to accommodating all corridor users, accommodating shifting development patterns and projected future traffic, and improving safety and operations. The Vision Statement serves as a guide for the development of the North Druid Hills Road Corridor Study. It reads as follows:

"Enhance the City of Brookhaven by connecting people and places along and across North Druid Hills Road via a range of safer and more convenient multimodal travel options."

OBJECTIVES

Drilling down from the overarching vision for the corridor study and building upon identified needs and opportunities, the project team, in consultation with City staff, identified several specific objectives that would serve as the foundation for recommendations, setting the stage for incremental improvements at some locations, like Apple Valley Road, shown in Figure 5, as well as for broader and more transformative improvements in other areas. The study's objectives are primarily to improve operations and efficiency along the corridor, including movements along and across North Druid Hills Road, as well as at key intersections, for all roadway users. The objectives are as follows:

- **Improve connectivity** between the eastern and western parts of the City and facilitate north-south travel
- Improve **biking and walking conditions** along the corridor
- **Enhance access** to key destinations and **expand options** for how to reach those locations, including on foot, by bike, and by transit, as well as by car
- **Improve the efficiency of traveling** while accommodating anticipated future traffic levels
- **Improve traffic operations** at key intersections along the corridor
- **Accommodate changes in traffic patterns** from DeKalb County School redistricting



FIGURE 5. INTERSECTION WITH APPLE VALLEY ROAD IN NORTHERN SECTION OF STUDY CORRIDOR

CORRIDOR VISION

As described in the purpose and objectives of this corridor study, the City sought to develop a corridor vision, including typical sections and lane use configurations, as well as accommodations for people biking, walking, and using transit. The overarching vision for the future of North Druid Hills Road is one that improves efficiency and operations and provides a continuous and connected multi-modal network for people driving, walking, biking, and taking transit. It has several main components, which are reflected throughout study recommendations:

- A near-continuous two-way center left-turn lane to serve current and projected future traffic
- Improvements at key intersections such as new turn lanes, improved turning radii, and a proposed roundabout at East Roxboro Road to improve operations
- Continuous sidewalk along the west side of North Druid Hills Road and continuous multi-use path (MUP) for people walking and bicycling along the east side of North Druid Hills Road
- Tie-ins to planned and proposed biking and walking facilities on streets adjacent to North Druid Hills Road, such as at Goodwin Road, Briarwood Road, and Apple Valley Road, among others
- Improved pedestrian crossings at key intersections and new mid-block crosswalks
- Streamlined and consolidated MARTA bus stops to improve transit operations and better align with facilities for biking and walking and where there is the most bus usage
- Enhanced streetscape in accordance with the City's Streetscape Design Standards

The purpose, objectives, and corridor vision were used to help guide development of the corridor study and serve as a foundation for recommendations and proposed improvements.

1.3 Process Overview

The City of Brookhaven issued a request for proposals in May 2018, seeking consultants to lead a corridor study for North Druid Hills Road. Multiple firms submitted proposals, and the City eventually selected Gresham Smith to conduct the study. The contract was approved by Brookhaven City Council on June 20, 2018. The study process began in July 2018 and is anticipated to wrap up in April 2019. The process was generally split into five phases including an existing conditions assessment, traffic study, preliminary recommendations, final recommendations, and City Council approval and adoption, as shown in Figure 6. Stakeholder coordination was ongoing throughout

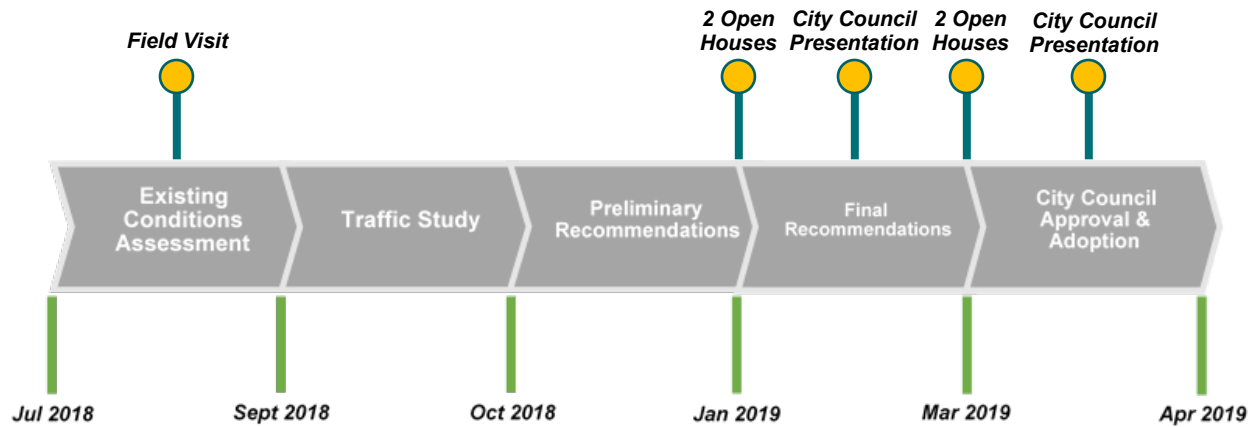


FIGURE 6. NORTH DRUID HILLS ROAD CORRIDOR STUDY TIMELINE

the course of the study and multiple public information open houses were held to engage the broader community.

Over the course of the study, the project team analyzed and documented existing conditions and reviewed prior plans and studies done for and by the City of Brookhaven, DeKalb County, the Atlanta Regional Commission, and MARTA, among others. The review of existing conditions consisted of data collection, mapping, and a field visit, during which the team was able to document issues and opportunities, such as obstructions in sidewalk, as shown in Figure 7. This phase of the study also included an environmental screening to document potential historic, archaeological, and ecological resources along the study corridor.



FIGURE 7. EXISTING SIDEWALK OBSTRUCTED BY TREE ROOTS NEAR CHILDERS ROAD OBSERVED DURING FIELD VISIT

The team also conducted an analysis of current and projected future traffic volumes along the corridor and at 24 key intersections, collecting new traffic counts where recent data was not already available from the City of Brookhaven, the Regional Traffic Operations Program (RTOP), and recently completed traffic studies. The team also gathered and assessed GDOT crash data for the most recent five-year period.

Following the inventory of existing conditions and traffic study, the team began identifying needs and opportunities for the corridor. The study corridor was divided into segments, based upon traffic volumes, roadway classification, and surrounding context and character. Ultimately, a typical section was developed for each of these areas, based upon the characteristics of each areas, current and projected future traffic, and other factors. The team developed a set of potential preliminary recommendations and options for the four segments as well as for key intersection along the corridor, which were reviewed and discussed with City staff.

Working with feedback from City staff, the project team developed preliminary recommendations for each of the four corridor segments and seven key intersections. These were presented to the community during two public open houses held in January 2019. Following the first round of open houses, the team revised recommendations based upon feedback and comments from attendees and City officials and staff. Revised preliminary recommendations were presented to City Council during a work session on February 12, 2019. Further refinements to the preliminary recommendations were made based upon input from the Mayor and City Council following the work session, in preparation for a final round of public open houses, held in March 2019, to present draft final recommendations and solicit feedback. Comments from attendees helped further refine the recommendations, which will be presented to Mayor and Council in April 2019. A copy of the draft and final report will be made available on the City's website, with anticipated approval in the Spring of 2019.

Chapter 2: Existing Conditions

This chapter provides a high-level summary of existing conditions along and around the North Druid Hills Road corridor. As part of this study, the project team prepared a Technical Memorandum to document and summarize existing conditions along the corridor and to summarize previous plans and studies that are applicable to the corridor. The Technical Memorandum considers data from the City of Brookhaven, the Atlanta Regional Commission (ARC), the Georgia Department of Transportation (GDOT), and other local and regional agencies relevant to the City of Brookhaven. Field visits, online mapping, and plan reviews are also incorporated into this Technical Memorandum. Part 1 of the Technical Memorandum provides details regarding existing conditions along the North Druid Hills Road study corridor. These existing conditions are organized topically and include demographics, land use, zoning, and character areas, pending and planned development, existing infrastructure including pedestrian and bicycle facilities, roadway characteristics and conditions, sidewalks and crosswalks, rights-of-way, transit access, current traffic volumes and movements, a summary of crash data over the most recent five years with available data (2013 to 2017), environmental screening, and a review of school carpool traffic associated with Woodward Elementary School and Cross Keys High School. The Existing Conditions Technical Memorandum can be found in Appendix B.

2.1 General Characteristics

The City of Brookhaven is located in northwestern DeKalb County, situated northeast of the City of Atlanta and the Buckhead community within Atlanta. Brookhaven is primarily suburban in character with a variety of housing types and commercial development concentrated along major corridors. North Druid Hills Road is located on the south side of the City of Brookhaven, stretching between SR 141/Peachtree Road and SR 42/Briarcliff Road within the City limits. South of SR 42/Briarcliff Road, it continues into unincorporated DeKalb County. The corridor is one of the most important north-south arterial streets in DeKalb County and is classified as a major thoroughfare by the City of Brookhaven.

The North Druid Hills Road corridor serves a variety of users, including people on foot, bicycle, and in cars, who use it for local travel as well as commuting to and from other areas, as well as for access to I-85. The study corridor extends 2.6 miles between SR 42/Briarcliff Road and SR 141/Peachtree Road as shown in Figure 8 on the following page.

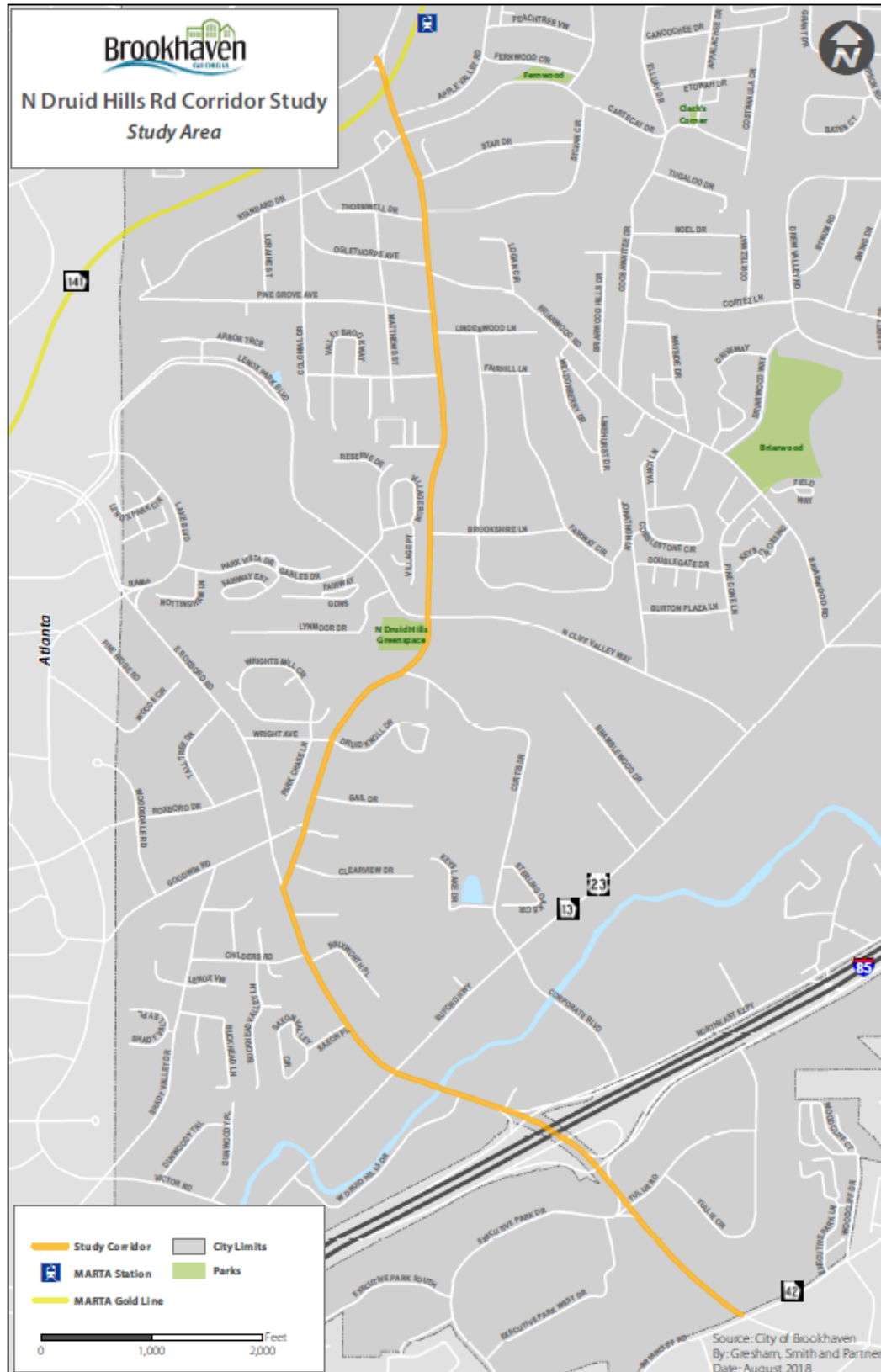


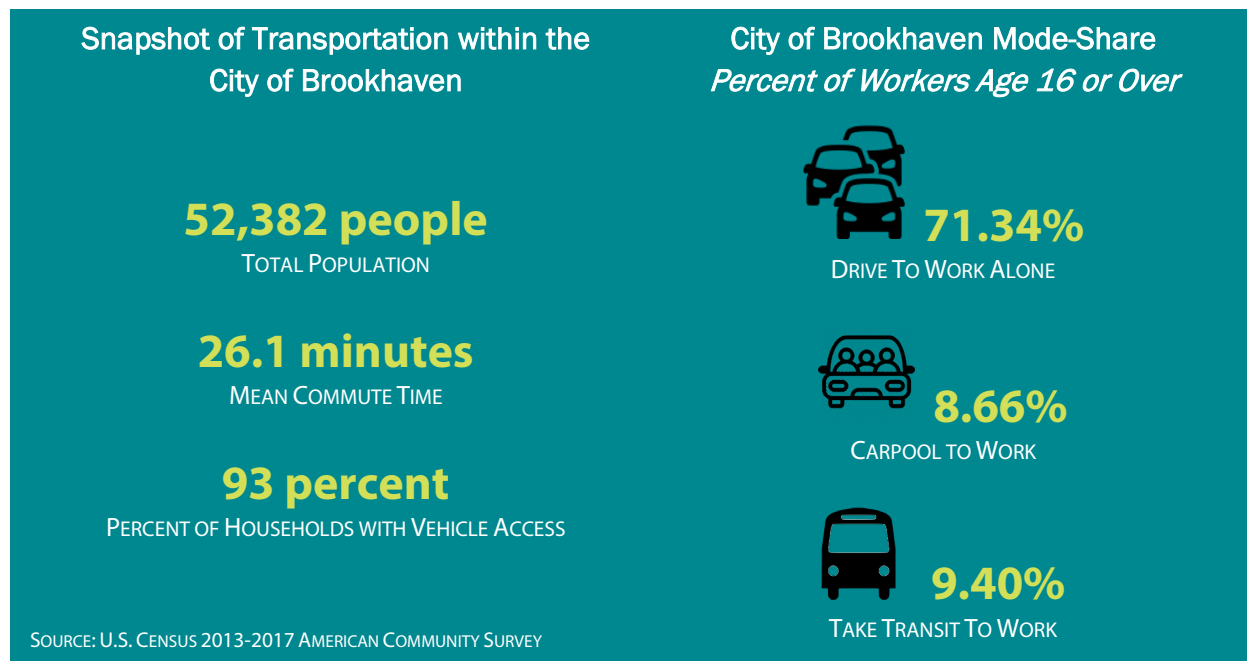
FIGURE 8. CORRIDOR STUDY AREA

The area adjacent to and immediately surrounding North Druid Hills Road is largely residential in nature, with some commercial, recreational, religious, and educational uses interspersed throughout the corridor. Single-family homes front North Druid Hills Road in the northern portion of the corridor, roughly from Childers Drive to Sylvan Circle/Standard Drive. In addition to single-family homes and subdivisions, there are also a number of townhomes, apartments and condominiums along the corridor. Residential neighborhoods along the corridor include Pine Hills, Childers Crossing, Ashton Bluff, Lenox Woods, Roxboro Forest, Druid Knoll, Devereaux Commons, Hillsdale, Brookhaven Fields, and Brookhaven Heights.³ Activity nodes are numerous along the corridor with multiple shopping centers home to chain and local retail and businesses, the Brookhaven-Oglethorpe MARTA station, the Brookhaven Branch of the DeKalb County Public Library, two schools, churches, hotels, and Children's Healthcare of Atlanta, among others.

Geographically, the study corridor traverses two City Council Districts – District 4 in the southern end of the corridor and District 3 in the northern end of the corridor with the dividing line located near Druid Knoll Drive. There is also an east-west divide between Districts 3 and 4 from the Congregation Or VeShalom synagogue near Curtis Drive (1681 North Druid Hills Road) to Briarwood Road. Along this extent of the corridor, the west side of the corridor is served by District 3 while the east side of the corridor is served by District 4. The study corridor straddles several character areas including the Peachtree Corridor Overlay District, Brookhaven Heights-Brookhaven Fields, Lenox Park, Roxboro, and the Buford Highway Corridor. The two ends of the study corridor are predominantly commercial and retail in character, while the middle of the corridor is mostly residential. The zoning classifications for parcels along the study corridor are generally consistent with these character areas, with residential zoned as either single- or multi-family, businesses zoned as local and general commercial, industrial, and mixed-use parcels. The property where Woodward Elementary School sits, just off of North Druid Hills Road along Curtis Drive, is zoned multi-family residential and the Cross Keys High School property, located near the intersection of North Cliff Valley Way, is zoned single-family residential as depicted in Figure 9.

³ City of Brookhaven, <http://gis.brookhavenga.gov/citymap/>





Demographics considered in the Technical Memorandum include racial composition, income and earnings, commuting patterns, and environmental justice populations. The City of Brookhaven has a population of 52,382 people, as of 2017, and has a high proportion of both white residents (71%) and Hispanic/Latino residents (24%) compared to DeKalb County as a whole. The City has both lower poverty levels and higher median annual household incomes than DeKalb County and the greater Metro Atlanta area. A majority of workers in the City of Brookhaven drive to work alone (71%) and seven percent of all households within the City do not have access to a vehicle. Compared with the Atlanta-Sandy Springs-Roswell Metro Area, fewer workers in Brookhaven drive alone to work; however, fewer Brookhaven workers also carpool to work, while more Brookhaven workers use public transportation to get to work.⁴

2.2 Roadway Classification

North Druid Hills Road has multiple road classifications along the extent of the study corridor. It is classified as a principal arterial by GDOT and ARC from SR 42/Briarcliff Road to SR 13/Buford Highway, where it is also SR 42. North of SR 13/Buford Highway, North Druid Hills Road is considered a minor arterial (see Figure 10). The City of Brookhaven has its own street classification system, which is contained within the City's Code of Ordinances (Chapter 14, Sec. 14-353) to enforce street construction standards and requirements for re-zonings and land disturbance permits. According to the City's classification system, North Druid Hills Road is considered a Major Thoroughfare, as shown in the map in Figure 11. Each type of road or street has specifications for in the City's design standards, as codified in the City's Code of Ordinances (Chapter 14 Article III, section 14-353).

⁴ Based on U.S. Census American Community Survey 2013-2017 5-Year Estimates

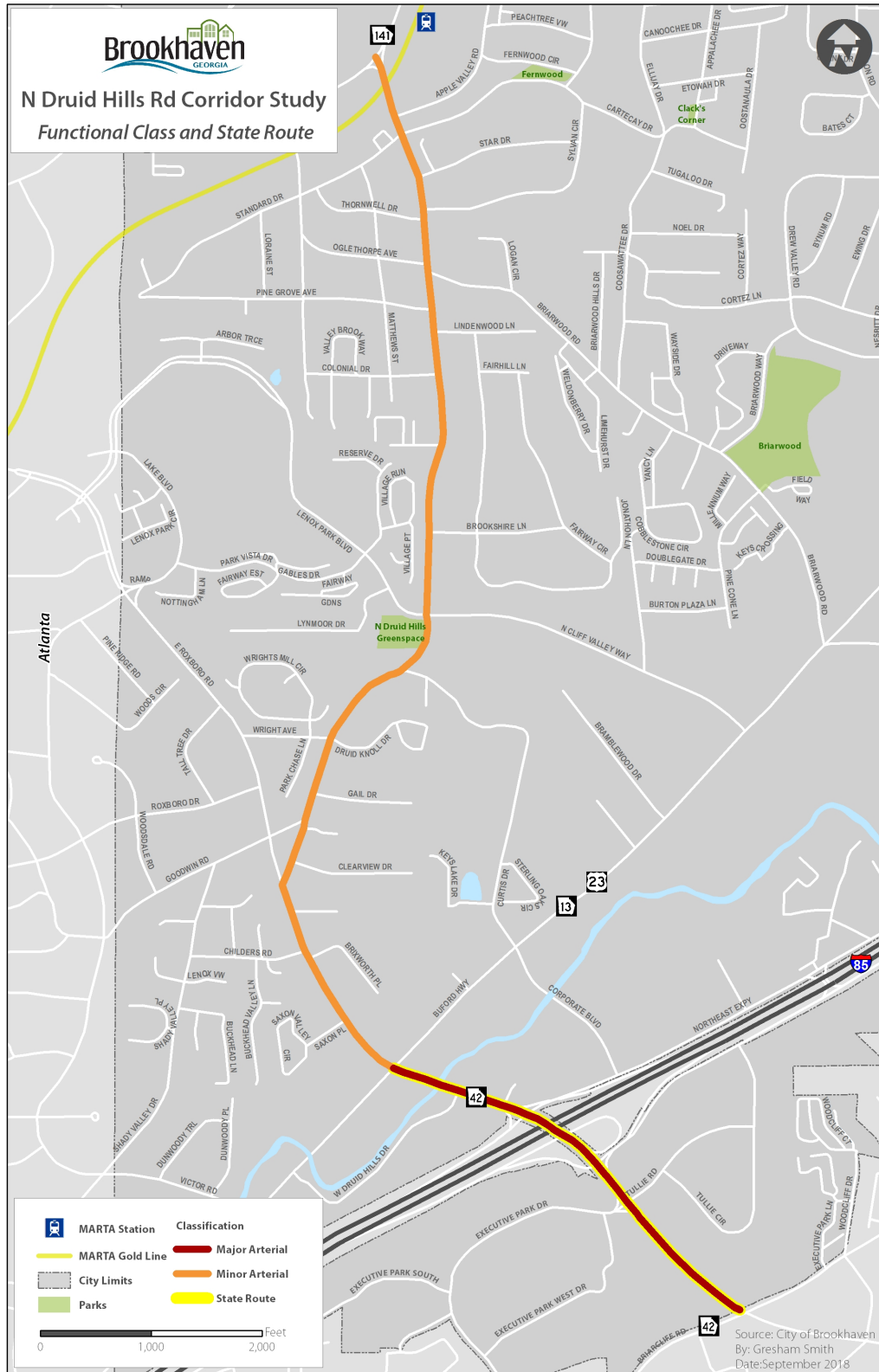


FIGURE 10. GDOT FUNCTIONAL CLASSIFICATIONS ALONG THE STUDY CORRIDOR



2.3 Lane Configuration and Intersections

Lane configuration and traffic control vary along the corridor within the focus area for this study. From SR 13/Buford Highway to East Roxboro Road, North Druid Hills Road is a five-lane road with a two-way center left-turn lane. Between East Roxboro Road and SR 141/Peachtree Road, North Druid Hills Road is primarily a two-lane road with right-turn and left-turn lanes in some locations. Additional detail on lane configuration is provided in Chapter 3: Traffic Analysis.

The width of travel lanes along North Druid Hills Road varies considerably according to data obtained from GDOT and project team observations. Widths along the state route portion of North Druid Hills Road range from 12 to 18 feet wide, while lane widths along the city street portion vary from 10 to 20 feet wide. Most segments of existing lanes are in the 12 to 15 feet range. The width of existing right-of-way along the study corridor also vary significantly, ranging from 50 or 60 feet in some sections to 80 or 100 feet in other sections. The City's Street classification and right-of-way (ROW) width, contained within the Code of Ordinances (Sec. 14-353), requires 100 feet of ROW for roads classified as Major Thoroughfares.

Figure 21 and Figure 22 (in Chapter 3: Traffic Analysis) show the lane use configuration and traffic control along the study corridor. Most intersections along the corridor are not four-way and are instead three-way, or T-shaped, intersections. Signalized intersections are primarily located in the southern half of the corridor. On North Druid Hills Road, there are 12 signals within the City of Brookhaven. Of those, six are owned and operated by the State. These include traffic signals along the state routes (SR 141 and SR 42). Additionally, the Regional Traffic Operations Program (RTOP) operates local signals within close proximity of state routes, including the signals at the intersections of Apple Valley Road and North Druid Hills Road and at Apple Valley Road and Dresden Drive. All traffic signals along the study corridor except East Roxboro Road and Goodwin Road have pedestrian signalization for at least one leg of the intersection. Intersections along the study corridor are listed in Table 1 and signalized intersections are shown in Figure 12 of Appendix B. Further discussion of signalized intersections is provided in the Technical Memorandum in Appendix B.

TABLE 1. INTERSECTIONS ALONG THE STUDY CORRIDOR

Cross Street	Traffic Signal?	Configuration	Crosswalk Present?
SR 42/Briarcliff Rd* ⁵	Yes	4-way	Yes
Executive Park Dr / Tullie Rd ⁵	Yes	4-way	Yes
I-85 NB Ramp / I-85 Frontage Rd NB ⁵	Yes	4-way	Yes
I-85 SB Ramp / I-85 Frontage Rd SB ⁵	Yes	4-way	Yes
West Druid Hills Rd / Salvation Army ⁵	Yes	4-way (includes driveway)	Yes
SR 13 / Buford Hwy ⁵	Yes	4-way	Yes
Saxon Pl	No	3-way from west	Yes
Childers Rd / Brixworth Pl	No	Offset roads - not a single intersection	Yes
Ashton Bluff	No	3-way from east (private road)	Yes
East Roxboro Rd ⁶	Yes	3-way from west	No
Clearview Dr	No	3-way from east	Yes
Goodwin Rd / Goodwin Pl ⁶	Yes	Offset roads - not a single intersection	No
Gail Dr	No	3-way from east	Yes
Druid Knoll Dr / Wright Ave	No	4-way	Yes
Curtis Dr ⁶	Yes	3-way from east	Yes
N Cliff Valley Way / Lenox Park Blvd ⁶	Yes	4-way	Yes
Brookshire Ln	No	3-way from east	Yes
Arrington Ln	No	3-way from west	Yes
Colonial Dr	No	3-way from west	Yes
Lindenwood Ln	No	3-way from east	Yes
Pine Grove Ave	No	3-way from west	Yes
Briarwood Rd ⁶	Yes	3-way from east	Yes
Oglethorpe Ave	No	3-way from west	Yes
Thornwell Dr	No	3-way from west	Yes
Sylvan Cir	No	3-way from east	Yes
Star Dr	No	3-way from east	Yes
Standard Dr / Sylvan Cir	No	4-way	Yes
Apple Valley Rd ⁷	Yes	3-way from east	Yes
SR 141/Peachtree Rd ⁵	Yes	3-way from south	Yes

*Within DeKalb County

⁵ Owned and operated by GDOT.⁶ Owned and operated by Brookhaven.⁷ Owned by Brookhaven, operated by GDOT.

2.4 Speed Limit and Daily Traffic Volumes/Patterns

The posted speed limit along North Druid Hills Road ranges from 35 MPH in residential areas to 45 MPH in the extent between Childers Road and SR 13/Buford Highway. One school zone with a posted speed limit of 25 MPH is located near Cross Keys High School. The dimensions of public right-of-way (ROW) fluctuates along the study corridor. In some areas, the public ROW is as narrow as 50 feet while in others it is as wide as 140 feet. Additional information regarding estimation of public ROW is provided on pages 28 and 29 of the Technical Memorandum in Appendix B.

Traffic volume along the study corridor varies widely, depending upon the location, cross streets, and proximity to the I-85 interchange. Annual Average Daily Traffic (AADT) actual counts range from 15,400 near Brookshire Lane, 35,200 near Buford Hwy and to over 57,100 at the I-85 junction.⁸ Truck traffic comprised about two percent of the overall total AADT.

Traffic volumes on nearby and adjacent roadways also vary considerably. On SR 42/Briarcliff Road south of North Druid Hills Road near Citadel Drive, daily traffic volumes were approximately 21,300, while north of North Druid Hills Road, near Cliff Valley Way, they were closer to 13,000. SR 13/Buford Highway carries about 24,000 to 25,000 vehicles on either side of North Druid Hills Road. On East Roxboro Road, traffic volume increases as it heads northward toward Lenox Square Mall and SR 141/Peachtree Road, from approximately 17,000 vehicles north of Wright Avenue to more than 20,000 north of Paces Ferry Road. SR 141/Peachtree Road carries upwards of 35,000 vehicles, with volumes increasing as it heads south from North Druid Hills Road toward Buckhead and Lenox Square Mall, ranging from 35,000 near Colonial Drive to 45,900 south of Wieuca Road.

About Annual Average Daily Traffic

Annual Average Daily Traffic (AADT) is a measure of average 24-hour traffic volumes, calculated by using automated devices to count vehicles for a year and dividing the results by 365. Generally used in transportation planning activities, AADT is a useful and simple representation of how busy a road is and helps justification for proposed expenditures. However, for detailed engineering analysis as included in this study, AADT volumes are supplemented by peak volumes during AM and PM rush hours to design specific roadway improvements.

In general, traffic volumes tend to be higher at the two ends of the study corridor, and at the southern end, in particular. Motorists are often traveling in the direction of key corridors such as SR 42/Briarcliff Road, SR 13/Buford Highway, and I-85 at the southern end of the corridor and SR 141/Peachtree Road at the northern end of the corridor. These roads provide critical access to key destinations including, but not limited to commercial shopping centers, Children's Healthcare of Atlanta, and Executive Park to the south and places such as Buckhead, Lenox Square Mall, and Phipps Plaza along SR 141/Peachtree Road to the north.

Commute trips tend to follow directional patterns, with commuters traveling to office parks in either Buckhead or Atlanta during the morning peak periods and traveling into more residential areas during the evening peak periods. In the northern portion of the study corridor, there tends to be somewhat higher volumes of southbound traffic in the mornings and northbound traffic in the evenings as motorists head toward residential areas or SR 141/Peachtree Road for evening activities. Similar patterns are seen in the southern part of the study corridor, with some variation in the area around SR 13/Buford Highway and East Roxboro Road, as motorists travel to and from I-85 and Buckhead.

To get a better understanding of school carpool traffic patterns, the project team conducted brief in-person surveys of parents and guardians picking up students and spoke with staff who supervise carpool at Woodward Elementary School. The team also spoke by phone with campus supervisor at Cross Keys High School who

⁸ Georgia Department of Transportation (GDOT). 2017 AADT Counts. <https://gdottrafficdata.drakewell.com/publicmultinodemap.asp>

manage morning and afternoon carpool operations to learn more about busing and carpool traffic at the high school. Major findings from these efforts include that most students walk to and from school, traffic congestion along Curtis Drive occurs mainly during morning drop-off, and that most carpool vehicles typically arrive at the elementary school from North Druid Hills Road. In terms of high school pick-up and drop-off, staff relayed that there is substantial traffic congestion along North Cliff Valley Way, sometimes backing up all the way to SR 13/Buford Highway, typically between 8:00 and 9:30 AM. Additional details are discussed in the Public and Stakeholder Involvement Chapter, with further details available in Appendix B.

2.5 Transit Service



FIGURE 12. A BUS SHELTER AND WAITING AREA IN FRONT OF CROSS KEYS HIGH SCHOOL.

The City of Brookhaven and the study corridor are served by the Metropolitan Atlanta Rapid Transit Authority's (MARTA) Gold Line rail service at the Brookhaven-Oglethorpe University station. The station is located at the northern terminus of the study corridor at SR 141/Peachtree Road. Two MARTA bus routes operate along the corridor. Route 8 traverses the entire study corridor between Brookhaven and Kensington MARTA rail stations and Route 47 operates between Brookhaven and Chamblee MARTA rail stations and uses the portion of the study corridor between SR 141/Peachtree Road and Briarwood Road. A bus shelter is located outside on the east side of North Druid Hills Road, just south of North Cliff Valley Way, as shown in Figure 12.

Four MARTA bus routes cross the study corridor including Route 25 (operates between Brookhaven and Doraville MARTA rail stations), Route 30 (operates between Lindbergh MARTA rail station and Northlake Mall in Tucker), Route 39 (route with MARTA's highest ridership

and operates along SR 13/Buford Highway), and Route 110 (operates between Arts Center, Buckhead, and Brookhaven MARTA rail stations). The Technical Memorandum also includes data on boarding and alighting for bus stops along the study corridor. Figure 13 on the following page shows the location of MARTA bus stations for routes that traverse either the entire study corridor or portions of the study corridor.

The highest number of boardings and alightings occurred at the southbound bus stop along Route 39 at the intersection of North Druid Hills Road and Buford Highway.⁹ This route is among MARTA's highest ridership routes. Other stops with frequent use are depicted in Figure 14.

⁹ MARTA bus stop data are weekday averages spanning from August 5, 2017 to December 8, 2017.

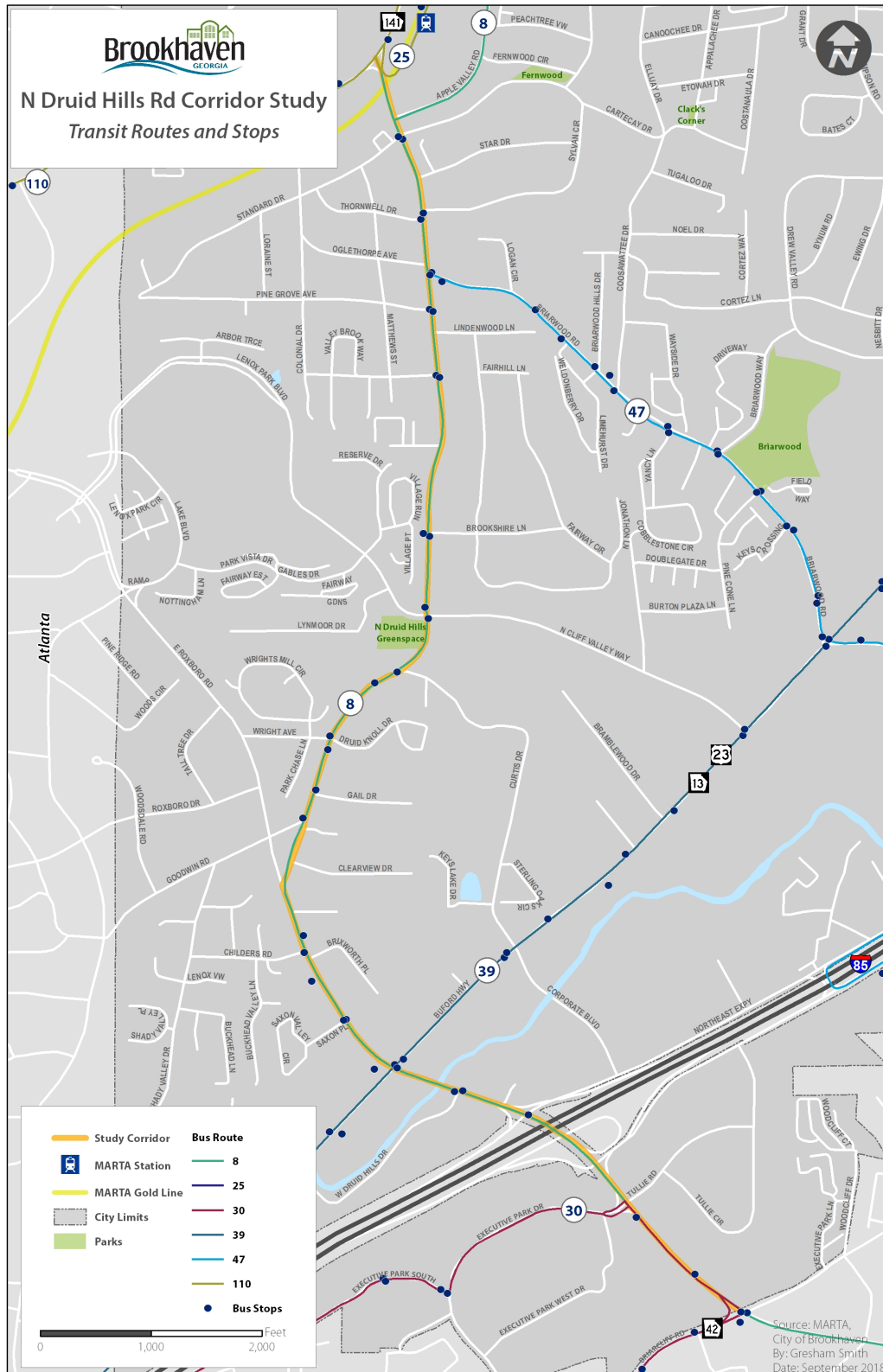


FIGURE 13. TRANSIT ROUTES AND STOPS

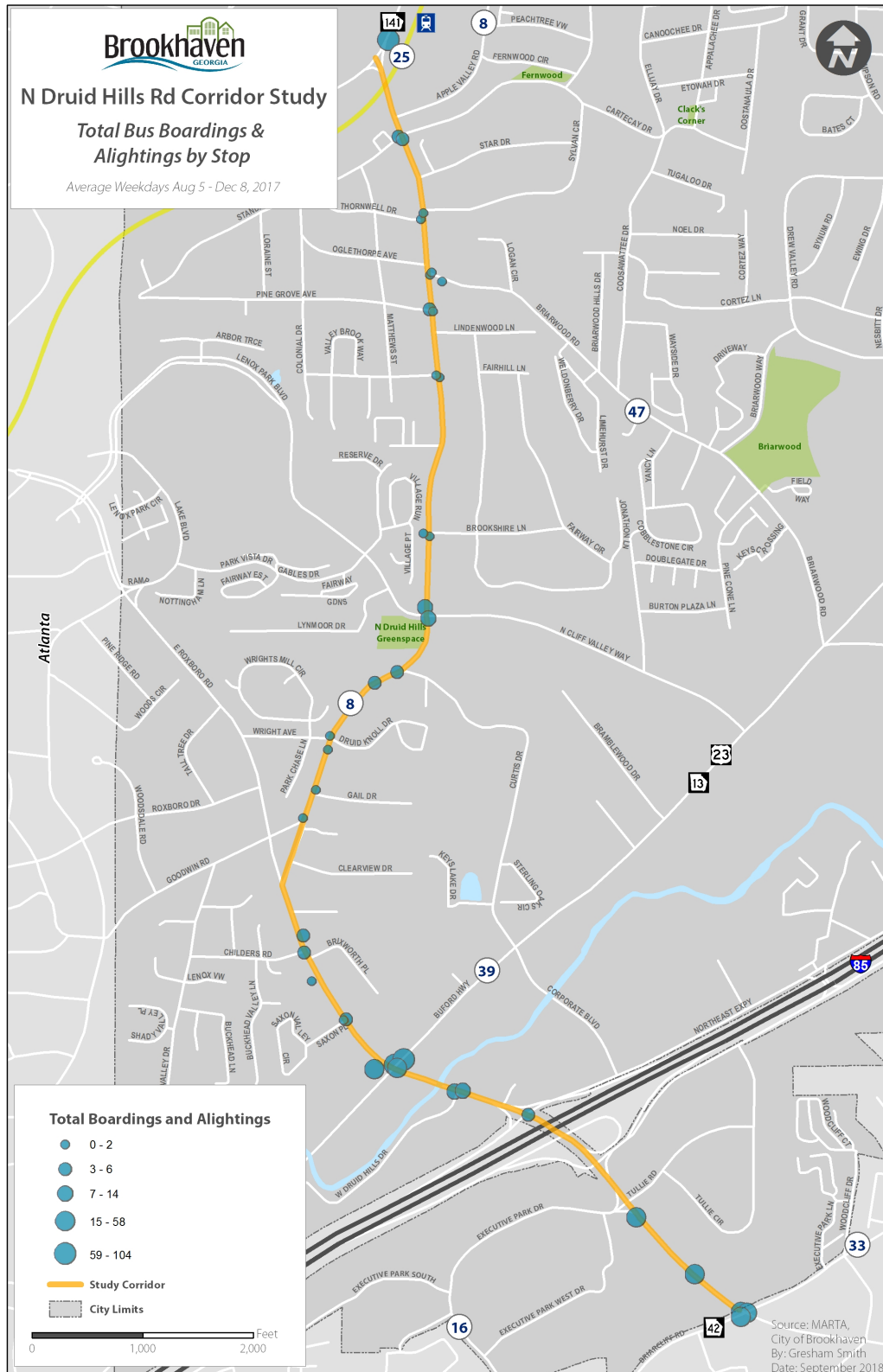


FIGURE 14. BUS BOARDINGS AND ALIGHTINGS BY STOP

As part of this study, City staff and the project team met with MARTA Service Planners and Bus Stop Planners to conduct a field visit (in December 2018) to look at opportunities to help improve efficiency of transit service and operations along North Druid Hills Road. The team looked specifically at the bus exit from the MARTA rail station at North Druid Hills Road, just south of SR 141/Peachtree Road as well as at the intersection of Briarwood Road and North Druid Hills Road, where some buses turn to and from Briarwood Road. The team also looked at the placement and location of bus stops along the corridor, with an eye toward consolidating stops that are not well used and possible future relocation of stops to align with marked crosswalks.

During the field visit, the team observed that several stops are spaced fairly close together and have relatively low levels of usage, such as between Saxon Place and Childers Road and near Colonial Drive and Brookshire Lane. These were identified as candidate locations for possible consolidation of stops. The overall goal is to strike a balance between walking access and efficient operations; MARTA strives to maintain adequate spacing for people walking to have convenient access to bus stops while simultaneously spacing stops such that buses are not stopping too frequently, disrupting or slowing down service.

In terms of stop placement, the goal is to ensure that bus stops are positioned near marked crosswalks and/or signalized intersections so as provide riders with safer opportunities to cross from one side of the road to the other. It is also important that people riding transit have access to sidewalk or multi-use paths to facilitate travel to or from bus stops.

From this field visit, it was determined that in coordination with this study, there could be a reduction of up to three or four stops along the corridor and relocation of two or three stops, based upon the recommendations for pedestrian crossings. The exact location of relocated stops will be determined in the future, after the City has implemented recommendations for new pedestrian crossings.

2.6 Bicycle and Pedestrian Facilities

No dedicated bicycle facilities currently exist along North Druid Hills Road within the study corridor's boundaries. Bicyclists sometimes ride in the roadway, as shown in Figure 15. Pedestrian facilities do exist along the corridor with 4.12 total miles of sidewalk on both sides of the road along most of the study corridor. Most of the older sidewalk infrastructure is four feet wide while newer sidewalks conform to the City's current width standard of five feet. The sidewalk on the east side of the corridor is nearly continuous while the west side contains several short gaps. These exist between East Roxboro Road and Goodwin Road on the west side of North Druid Hills Road, between Colonial Drive and Oglethorpe Avenue on the west side of the road, and again on the west side between Thornwell Drive and north of Star Drive, the latter of which is depicted in Figure 16. Existing sidewalks throughout the span of the study corridor are shown in the map on Figure 17. Some sidewalks contain buffer strips, separating the sidewalk from the vehicular travel lanes, while others do not. Crosswalks are present on at least one leg of all but two signalized intersections (East Roxboro Road and Goodwin Road) and no crosswalks exist mid-block or outside of major, signalized intersections. The Technical Memorandum includes specific information on individual crosswalk conditions and curb ramps.



FIGURE 15. CYCLIST ON NORTH DRUID HILLS RD DURING AN AUGUST 28, 2018 FIELD VISIT, NEAR ARRINGTON LANE

Woodward Elementary School published a Safe Routes to School (SRTS) Travel Plan in February 2012.¹⁰ This SRTS plan discusses student travel patterns, arrival and dismissal procedures for students, existing conditions and barriers, key walking routes, and strategies pertaining to the five E's of the SRTS program (Engineering, Education, Enforcement, Encouragement, and Evaluation). Recommendations from the SRTS plan are touched upon in this corridor study, including pedestrian crossings on North Druid Hills Road and Cliff Valley Way to accommodate students walking to school.



FIGURE 16. ABSENT SIDEWALK NEAR STAR DRIVE

¹⁰ GDOT. Woodward Elementary School SRTS Plan. http://www.saferoutesga.org/sites/default/files/travel_plans/2012-02-27_5236_WoodwardPlanFINAL.pdf

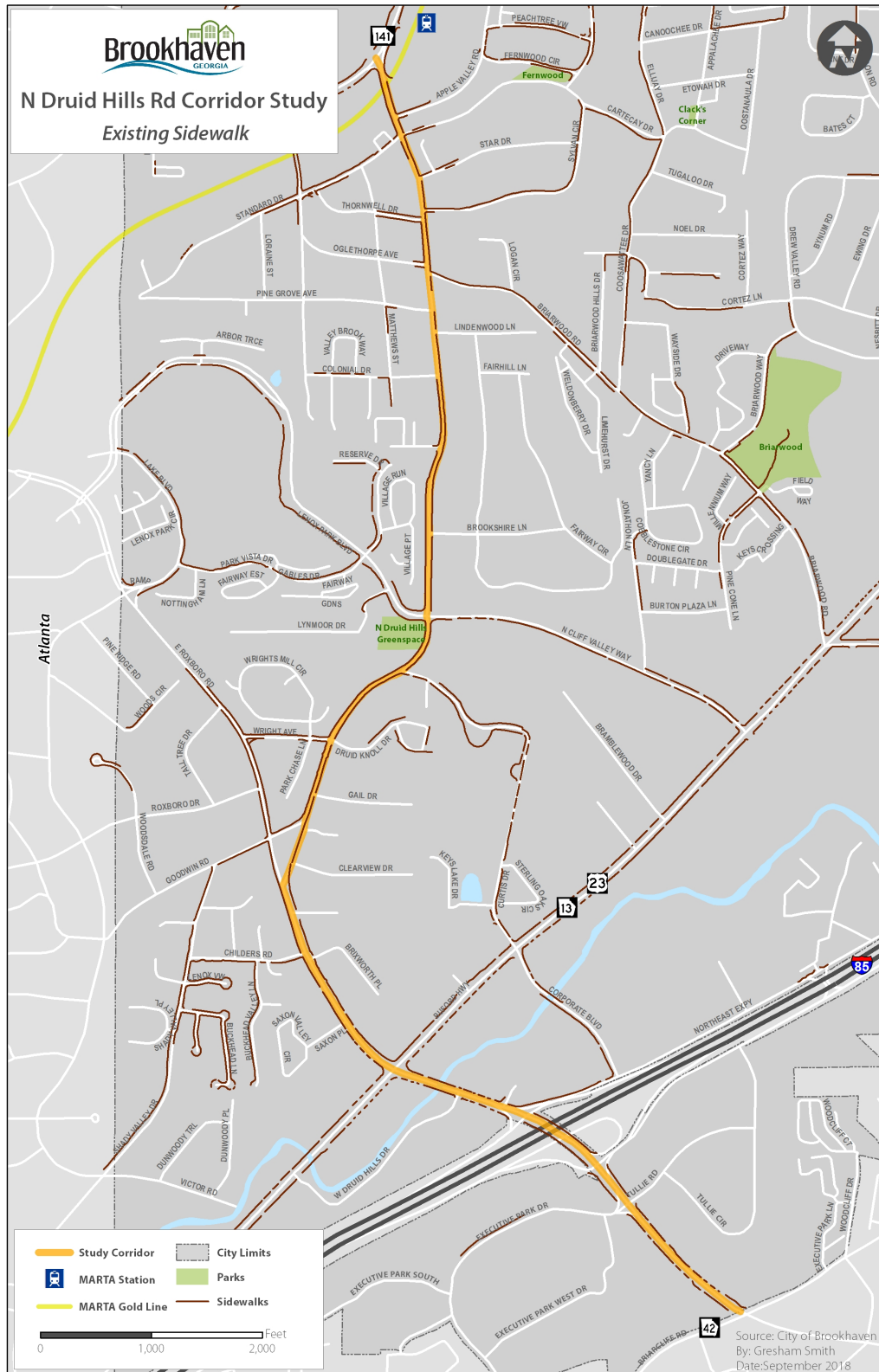


FIGURE 17. EXISTING SIDEWALK COVERAGE

DISTANCE BETWEEN CROSSINGS

Currently, there are only ten locations with pedestrian crossing infrastructure across North Druid Hills Road over the span of the 2.6-mile study corridor. From south to north, they are located at SR 42/Briarcliff Road, Executive Park Drive/Tullie Road, I-85 Northbound ramp, I-85 Southbound ramp, West Druid Hills Drive, SR 13/Buford Highway, Curtis Drive, Lenox Park Boulevard/North Cliff Valley Way, Apple Valley Road, and SR 141/Peachtree Road. Six of these marked crosswalks are south of SR 13/Buford Highway in the section of the corridor that is designated as SR 42. The remaining four crossings are not evenly distributed throughout the corridor: two are in the middle and two are at the north end. Table 2 lists these segments and the approximate distance between crossings.

TABLE 2. SEGMENT LENGTH BETWEEN EXISTING PEDESTRIAN CROSSINGS

Segment	Distance Between Crossings (feet)
SR 42/Briarcliff Rd to Executive Park Dr / Tullie Rd	1320 ft
Executive Park Dr / Tullie Rd to I-85 NB Ramp / I-85 Frontage Rd NB	570 ft
I-85 NB Ramp / I-85 Frontage Rd NB to I-85 SB Ramp / I-85 Frontage Rd SB	770 ft
I-85 SB Ramp / I-85 Frontage Rd SB to West Druid Hills Rd / Salvation Army	645 ft
West Druid Hills Rd / Salvation Army to SR 13 / Buford Hwy	575 ft
SR 13 / Buford Hwy to Curtis Dr	4200 ft
Curtis Dr to Lenox Park Blvd / N Cliff Valley Way	595 ft
Lenox Park Blvd / N Cliff Valley Way to Apple Valley Rd	4540 ft
Apple Valley Rd to SR 141 / Peachtree Rd	480 ft

These distances range from approximately 480 feet between Apple Valley Road and SR 141/Peachtree Road to nearly one mile (4,540 feet) between Lenox Park Boulevard/North Cliff Valley Way and Apple Valley Road. This lack of opportunity for pedestrians to cross North Druid Hills Road is a challenge for the corridor, and the recommendations stemming from this study seek to improve the distance between crosswalks. The long distances between marked crosswalks indicate a need for safety measures to facilitate safer crossings along the study corridor, particularly in the focus area north of SR 13/Buford Highway and between Lenox Park Boulevard/North Cliff Valley Way and Apple Valley Road. More frequent marked crosswalks will improve safety for people walking between neighborhoods, to and from schools, as well as to and from bus stops. Recommendations consider strategic placement of crossings at nodes of activity and these locations where there is currently a long distance between existing crosswalks.

2.7 Adjacent Ongoing and Planned Projects

KEY TRANSPORTATION PROJECTS

At the time the Technical Memorandum was researched and compiled, multiple transportation projects were taking shape – mostly at the southern end of the corridor. These include sidewalk replacements and streetscaping along 1.38 miles of SR 141/Peachtree Road between North Druid Hills Road and Ashford-Dunwoody Road (GDOT PI #0010326), interchange improvements at I-85 and North Druid Hills Road (GDOT PI #0016054), operational improvements along I-85 between SR 42/North Druid Hills Road and SR 155/Clairmont Road (GDOT PI #0015919), trailhead construction on the Peachtree Creek Greenway adjacent to the Salvation Army store on North Druid Hills Road, and intersection modifications at Briarwood Road associated with the Halstead development.

GDOT PI #0010326: SR 141 From North Druid Hills Road to Ashford Dunwoody Road – LCI

This project consists of approximately 1.38 miles of concrete sidewalk including curb cut ramps, Americans with Disabilities Act (ADA)-compliant driveways, and crosswalks along the SR 141/Peachtree Road corridor from North Druid Hills Road to Ashford Dunwoody Road. Additional improvements along the project corridor includes landscaping strips, decorative brick paver strips, benches, trash receptacles, bus shelters, and pedestrian/street lighting.

GDOT PI #0016054: I-85 At SR 42

GDOT has programmed a construction project to implement improvements at the interchange at I-85 and North Druid Hills Road. GDOT is currently conducting an Interchange Modification Report (IMR), which is expected to take into consideration the recommendations made as part of the Children’s Healthcare of Atlanta DRI project and make recommendations for other intersections in the vicinity including SR 13/Buford Highway, at West Druid Hills Drive, and at Executive Park Drive/Tullie Road.

This project is a high priority for the Department, which has allocated more than \$24 million for design, right-of-way, utilities, and construction of the project. As of March 2019, GDOT anticipates that preliminary engineering will begin later this year and construction will get underway by 2023. Based on ongoing conversations with stakeholders, Brookhaven will have input into the design process as it moves forward. There will also be opportunities for community members to provide input through the State’s public involvement process.

GDOT PI #0015919: I-85 Northbound from SR 42 To SR 155

There is a programmed operational improvement project to address weaving along the frontage road near the northbound exit ramp for the interchange of I-85 and SR 155/Clairmont Road, just north of North Druid Hills Road. This project is currently in the preliminary engineering phase.

Peachtree Creek Greenway and Trailhead



FIGURE 18. VIEW OF FUTURE NORTH FORK PEACHTREE CREEK TRAILHEAD

As part of the Peachtree Creek Greenway project, a trailhead is proposed at a site just south of the creek, adjacent to the Salvation Army on the north/east side of North Druid Hills Road. The future trailhead, as seen in August 2018, is shown in Figure 18. The existing loop driveway for the Salvation Army is being abandoned to make room for the driveway to the trailhead. The driveway will feature one entrance lane and two exit lanes. The exit lanes will be left-turn only onto southbound North Druid Hills Road and a right/through lane for access to northbound North Druid Hills Road and West Druid Hills Drive. The proposed design includes 23 parking spaces, planting beds, a trailhead plaza, wall and guardrail at the rear of the site. It will be accessible via the driveway and a

stairwell from North Druid Hills Road, at the south end of the bridge. In addition, the project will include restriping the existing crosswalk across North Druid Hill Road and installing a new crosswalk across the south leg of the intersection, along with upgrades to pedestrian signals, signs, and associated improvements.

Briarwood Road at North Druid Hills Road

The redevelopment project at the site of the former Boys & Girls Club at 1330 North Druid Hills Road is proposed to be called Halstead and is being developed by Ashton Woods. In conjunction with this project, the developer will be making some modifications to the intersection of North Druid Hills Road at Briarwood Road. In terms of pedestrian elements, the project will include a five-foot sidewalk on the north/east side of Briarwood Road, and it will construct the recommended ten-foot MUP along the east side of North Druid Hills Road from the Brookhaven Bicycle, Pedestrian, and Trail Plan along the frontage of the Halstead development.

KEY DEVELOPMENT PROJECTS

Pending and planned single-family attached residential, commercial, and office real estate developments are generally concentrated at the southern end of concentrated at various points along the corridor and include Halstead (1330 North Druid Hills Road), the Park Chase neighborhood, and a master-planned campus of Children's Healthcare of Atlanta near the I-85 junction.

Halstead (1330 North Druid Hills Road)

The project known as Halstead, located at the site of the former Boys & Girls Club, is planned as a gated townhome development with 54 units, including townhomes, eight detached single-family lots, and one "manor house" on 6.2 acres. The "manor house" is a ten-unit condominium building with residences ranging from 900 to 1,400 square feet, in an effort to provide more affordable housing. The main entrance of this development will be off of Briarwood Road, with fire access provided along Sylvan Road. It also will include a publicly accessible pocket park.

Children's Healthcare of Atlanta

Children's Healthcare of Atlanta is building a 72-acre master-planned campus at North Druid Hills Road near I-85, and Tullie Circle, proposed to replace the existing facility at Egleston on Clifton Road and the previously on-site administrative offices. The project proposes access off of several roads, including North Druid Hills Road (also SR 42 in this area), Briarcliff Rd (also SR 42 south of North Druid Hills Road), and the I-85 Access Road also proposes to include sidewalk or walkways on both sides of the roads where feasible within the site and sidewalk will be provided along North Druid Hills Road. The site will include several outparcel developments, gardens and greenspace, as well as a plaza.

Park Chase

Park Chase is a 6.25-acre single-family residential neighborhood currently in the final phases of construction. Approved in 2014, the development project features 26 single-family homes located between North Druid Hills Road, Wright Avenue, East Roxboro Road, and Goodwin Road.

Emory Executive Park (forthcoming)

The Emory Clinic at Executive Park is a member of the Emory Healthcare Network that provides a variety of medical services and is located off the southern portion study corridor on Executive Park Drive. It consists of approximately 60 70 acres and will be a mixed-use development that includes up to 950,000 square feet of new office space, 786,625 square feet of residential development, 337,875 square feet of retail, and 190,860 square feet for a hotel.

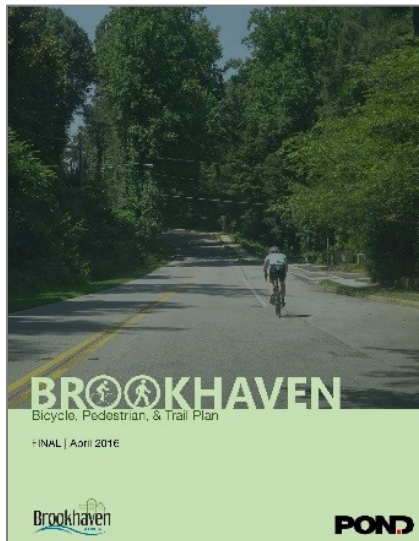
2.8 DeKalb County Schools Redistricting

The DeKalb County School District oversees public primary and secondary education within the City of Brookhaven and currently operates Woodward Elementary School and Cross Keys High School along the study corridor. The school system was in the process of redistricting the Cross Keys Cluster at the time of this study. The project team and the City of Brookhaven conducted intercept studies with parents and staff at the schools and communicated with DeKalb County Schools to gain a better understanding of the existing traffic flow patterns

and challenges in the vicinity of the schools and to understand redistricting process for schools along North Druid Hills Road and a proposed timeframe for relocation of schools. This redistricting is expected to continue into the 2019-2020 school year with the opening of John Lewis Elementary School to relieve overcrowding from Woodward and Montclair Elementary Schools. Redistricting will culminate with the new Cross Keys High School opening in Fall 2021. The current high school facility will become Cross Keys Middle School and the school system anticipates the removal of temporary classroom structures and reduced parking demand at the new middle school.

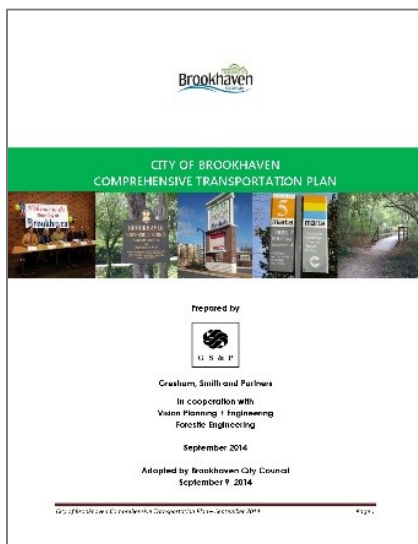
2.9 Prior Plans and Studies

Part 2 of the Technical Memorandum provides a summary of prior plans and studies that reference the North Druid Hills Road study corridor and name potential improvements to traffic flow and safety. The review considered plans adopted and implemented in the last ten years and is extensive. The two most applicable plans are the City of Brookhaven's Comprehensive Transportation Plan (CTP) adopted by the City Council in 2014 and the City of Brookhaven's Bicycle, Pedestrian & Trail Plan adopted in 2016.



COMPREHENSIVE TRANSPORTATION PLAN

The City's first Comprehensive Transportation Plan (CTP) established a long-term, multimodal transportation vision for the City and includes key issues and recommendations pertaining to the North Druid Hills Road corridor. These pertain to intersection and safety concerns along with congestion and roadway level of service (LOS) during peak commute times. The CTP recommends a Vision/Scoping study for North Druid Hills Road, and this corridor study is fulfilling this recommendation.



BICYCLE, PEDESTRIAN & TRAIL PLAN

The City of Brookhaven's Bicycle, Pedestrian & Trail Plan (BPTP) was adopted by City Council in April 2016. It aims to create a more balanced transportation network by increasing access to pedestrian and bicycle facilities. The long-term intent is to develop a vision for a future bicycle and pedestrian trail network throughout the City for residents and visitors. The BPTP includes an attractions analysis and a list of short-, mid-, and long-term recommended projects for the North Druid Hills Corridor such as filling sidewalk gaps and constructing a multi-use path along the east side of the road.

ADDITIONAL PLANS AND STUDIES

Other relevant plans to this study that were reviewed as part of the planning process include the following. Additional details about each of these studies is provided in the Summary of Prior Plans and Studies that is part of the Existing Conditions Technical Memorandum, found in Appendix B.

- **North Druid Hills Livable Centers Initiative (LCI) (2009)** – Commissioned by DeKalb County and ARC to improve quality of life along the North Druid Hills corridor and to foster development by connecting transportation improvements and land use recommendations. This was completed prior to the incorporation of the City of Brookhaven in 2012 and aimed to make North Druid Hills Road more pedestrian friendly and enhance the visual quality and character of the corridor with a median, streetscape, and signalization improvements.
- **Buford Highway Improvement Plan and Economic Development Strategy (2014)** – A study prepared for the City of Brookhaven which identified public projects and civic infrastructure needed to promote and stimulate redevelopment and provides guidelines for development characteristics. Several specific groupings of parcels were identified as having potential for redevelopment at the intersection with North Druid Hills Road.
- **City of Brookhaven Comprehensive Parks and Recreation Master Plan (2014)** – This plan was adopted by City Council and contains a community profile, summary of demographics, and an assessment and recommendations for programming as well as for individual facilities and citywide greenway development. The Plan also includes site-specific park master plans, including plans for Briarwood Park and Fernwood Park, the two parks closest to North Druid Hills Road.
- **DeKalb County Comprehensive Transportation Plan (2014)** – Adopted by DeKalb County Board of Commissioners to identify transportation investment priorities for the next 25 years, including some for the North Druid Hills Road corridor.
- **Peachtree Creek Greenway Master Plan & Pending Projects (2016)** – This study “coalesces the desires of Brookhaven residents, City and DeKalb County officials, local businesses and non-profits to realize the development of a multi-purpose linear park along the North Fork of Peachtree Creek.” The project will include the re-purposing of turn lanes around the intersections with SR 13/Buford Highway and West Druid Hills Drive.
- **Brookhaven-Peachtree LCI Study & Action Plan Update (2016)** – This document is a ten-year implementation strategy update that envisions the study area’s future as a mixed-use and pedestrian-oriented center and provides recommendations for economic development, redevelopment opportunities, and quality of life improvements. Some projects listed in this LCI study are already complete while others are either in or awaiting development.
- **MARTA Comprehensive Operational Analysis (2016)** – This is a study completed by MARTA to determine the efficiency and effectiveness of its bus service, including routings and stop placement.
- **Traffic Calming Plan for Brookhaven Fields-Brookhaven Heights (2016)** – This document addressed neighborhood cut-through traffic in Brookhaven Heights and Brookhaven Fields along the study corridor by recommending the installation of speed humps, bump outs, and turn restrictions during peak commute hours. The plan was unanimously approved by the City Council in August 2016.
- **City of Brookhaven Comprehensive Plan 2034: Community Work Program 2018-2022 (2016)** - The Brookhaven Comprehensive Plan was adopted by the City Council in June 2016 and serves to document and guide the long-term vision for the City’s future. It includes an overall set of goals, identifies needs and opportunities, and recommendations for plan implementation. The North Druid Hills Road corridor falls within several character areas established by the City.

- **The Atlanta’s Region Plan (2017)** - The Atlanta Region’s Plan was developed by the ARC for the 20-county Atlanta Metro area and includes a Regional Transportation Plan (RTP) project list. The plan, approved in September 2018, serves to guide growth and development for the region. It is considered a long-range blueprint spelling out the investments that will be made over the next 20 years to ensure metro Atlanta’s future success and improve quality of life. Projects along and near the North Druid Hills Road corridor are listed in the document.
- **Transportation and Streetscape Improvements Traffic Engineering Study (2017)** - In 2017, the City of Brookhaven commissioned a traffic study that focuses on using existing conditions (as of 2016) and future traffic data (scenarios in 2022 and 2042) to determine appropriate transportation improvements along several segments of roadway and key intersections, including improvements to sidewalks and crosswalks. The limits of the study include North Druid Hills Road from Buford Highway to Peachtree Road, including seven intersections at Buford Highway, East Roxboro Road, Curtis Drive, North Cliff Valley Way, Colonial Drive, Briarwood Road, and Apple Valley Road.
- **Children’s Healthcare of Atlanta Development of Regional Impact (DRI) Review (2018)** - The Children’s Healthcare of Atlanta (CHOA) Master Plan for its 72-acre campus at North Druid Hills Road near I-85 is a DRI due to its likeliness to impact neighboring jurisdictions. The project proposes access off several roads, including North Druid Hills Road (also SR 42 in this area), Briarcliff Road (also SR 42 south of North Druid Hills Road), and the I-85 Access Road. The DRI also makes recommendations for each intersection along North Druid Hills Road from SR 42/Briarcliff Road to SR 13/Buford Highway.
- **Adopted Future Sidewalk List (2018)** - The City of Brookhaven Mayor and Council adopted lists of planned future sidewalk and multi-use path projects within the public right-of-way on June 28, 2018. This includes projects along the North Druid Hills Road corridor and is shaped by the City’s Bicycle, Pedestrian & Trail Plan adopted in April 2016.

2.10 Crash History and Analysis

Data obtained from the GDOT crash database revealed that between January 1, 2013 and December 31, 2017, 2,479 crashes occurred along North Druid Hills Road and at the intersections along the study corridor minus I-85 access ramps.¹¹ A further breakdown of crash history along the corridor is provided between pages 30 and 40 of Appendix B. A brief summary of findings is provided below.

BY TYPE

Nearly half of all crashes (43%) were rear end collisions, while slightly more than one-third were angle collisions (39%). Sideswipe crashes between vehicles traveling in the same direction represented about 13% of all collisions, with the remaining six or seven percent being a combination of head-on collisions, sideswipes between vehicles traveling in opposite directions and other types of crashes. Table 3 shows crashes by type along the corridor between 2013 and 2017.

¹¹ Due to the extremely high volume of crashes along and at the I-85 interchange and based on the quality of the data, it was difficult to separate crashes at the intersections with North Druid Hills Road from those farther back on the ramps and at the bottom of each ramp. In total, there appears to have been more than 1800 crashes at the I-85 Interchange at North Druid Hills Road during the five-year period analyzed.

TABLE 3. 2013 – 2017 CRASHES BY TYPE

Year	Angle	Head On	Rear End	Sideswipe-Same Direction	Sideswipe-Opposite Direction	Not a Collision with a Motor Vehicle	Not Specified	Total
2013	191	13	207	71	8	18	2	510
2014	182	10	202	61	6	11	0	472
2015	213	5	227	56	2	13	0	516
2016	186	10	239	58	1	17	1	512
2017	183	5	192	70	3	12	4	469
Total	955	43	1067	316	20	71	7	2479
<i>Percent of Total</i>	38.5%	1.7%	43.1%	12.7%	0.8%	2.9%	0.3%	100%

BY SEVERITY

Most crashes along the study corridor resulted in property damage only (78%); however, 22% of crashes resulted in injuries, and two crashes were fatal. Following too close was a factor in 941 crashes (38%), while failing to yield was a factor in 600 crashes (24%). Other somewhat common factors include changing lanes improperly (12%) and improper turning (5%). Less common factors also noted in the crash database include driver distraction, disregard for stop signs or signals, and drivers under the influence. Between 2013 and 2017, two fatalities occurred along the study corridor with the first occurring in 2015 near Executive Park Drive in the early morning in dark, dry roadway conditions while the second occurred in 2016 near Curtis Drive in the early morning in dark, wet roadway conditions. All crashes which resulted in injuries and fatalities are shown in Figure 19 below.

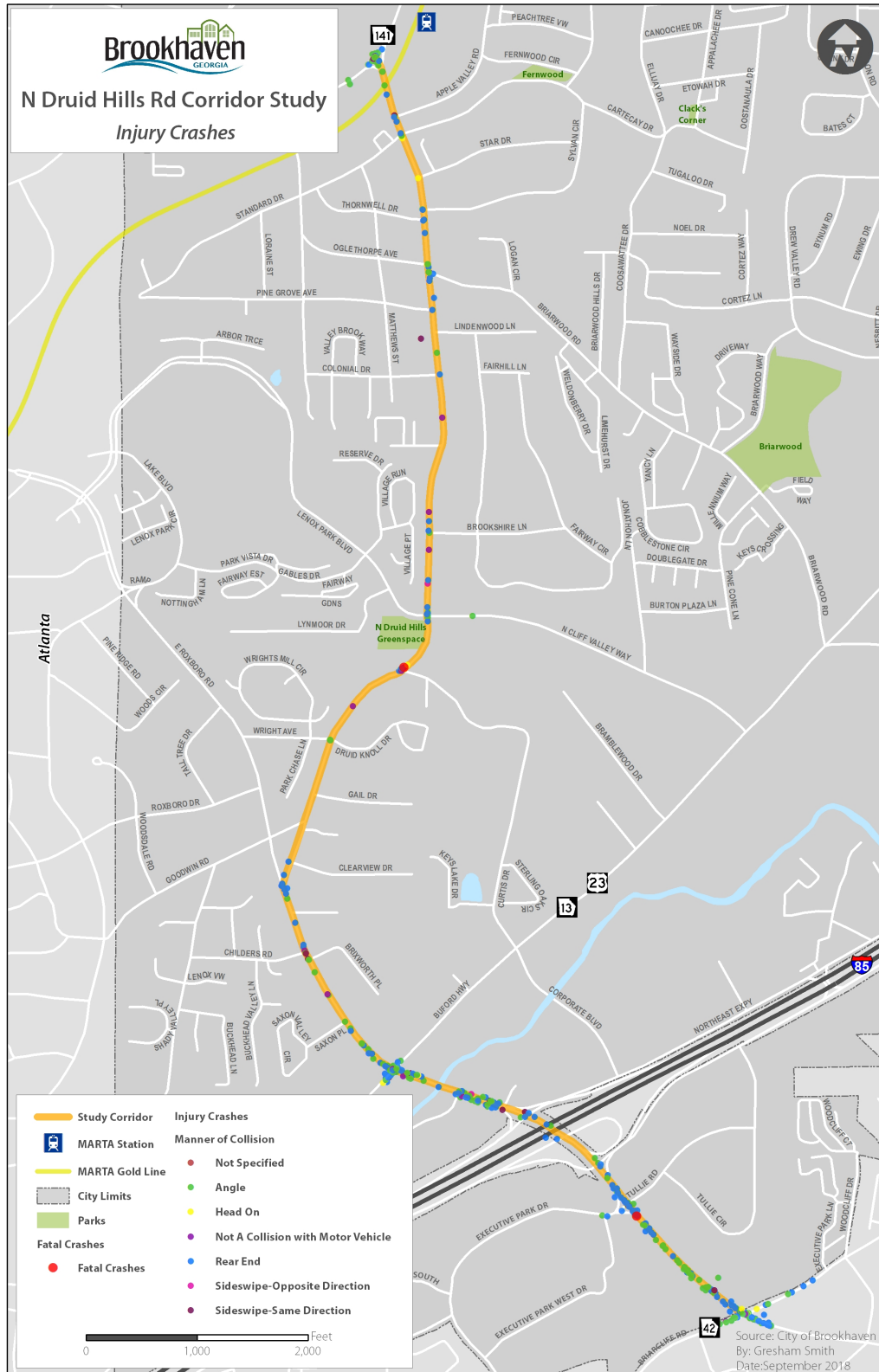


FIGURE 19. INJURY AND FATALITY CRASHES ALONG THE STUDY CORRIDOR (2013-2017)

CRASH RATES BY CORRIDOR SEGMENT

Crash rates by severity were calculated for three segments of the study corridor and compared to the statewide average crash rates for roads of the same functional classification. The state route portion of the corridor, from SR 42/Briarcliff Road to SR 13/Buford Highway is classified as an urban principal arterial (length of 0.80 miles), while the portion north of SR 13/Buford Highway (segment length of 1.90 miles) is classified as an urban minor arterial. Furthermore, this segment experiences a dramatic increase in traffic volumes south of East Roxboro Road, therefore the urban minor arterial segment can be divided into two segments to more accurately compare crash rates based on roadway characteristics throughout the corridor: one from SR 13/Buford Highway to East Roxboro Road and another from East Roxboro Road to SR 141/Peachtree Road. Below are tables comparing crash rates for each of these three segments to the statewide averages, moving from the southern end of the corridor to the northern end.

For the portion of the study corridor that is an urban principal arterial (see Table 4 below), from SR 42/Briarcliff Road to SR 13/Buford Highway, the overall crash rate is considerably higher than that of the statewide average for the same type of roadway – 2174 crashes per 100 Million Vehicles Miles (MVM) along the study corridor, compared to 605 crashes per 100 MVM for the statewide average. The injury crash rate for this segment is also higher than the statewide average; however, the fatal crash rate for this segment is lower than the statewide average over the past five years.

TABLE 4. CRASH RATES FOR THE URBAN PRINCIPAL ARTERIAL SEGMENT FROM SR 42/BRIARCLIFF ROAD TO SR 13/BUFORD HIGHWAY

Year	Crashes			Crashes per 100 Million Vehicle Miles ¹²		
	Total	Injury	Fatal	Total	Injury	Fatal
2013	305	49	0	2085 (608)	335 (141)	0.00 (1.18)
2014	322	56	0	2201 (589)	383 (134)	0.00 (1.15)
2015	340	82	1	2324 (583)	561 (138)	6.84 (1.24)
2016	341	93	0	2331 (628)	636 (145)	0.00 (1.47)
2017	284	54	0	1941 (615)	369 (149)	0.00 (1.24)
Total	1592	334	1			
Average	318	67	0	2174 (605)	458 (141)	0.00 (1.26)

The overall crash rate on the urban minor arterial portion of the corridor (north of SR 13/Buford Highway) is higher than the statewide average, as is the rate of injury crashes; however, the fatal crash rate for this portion of the corridor is lower than the statewide average. Table 5 and Table 6 show how the crash rates for these two North Druid Hills Road segments compare to the statewide average for these roadway types.

¹² The number in parentheses represents the statewide average crash rates for urban principal arterials.

TABLE 5. CRASH RATES FOR THE URBAN MINOR ARTERIAL SEGMENT FROM SR 13/BUFORD HIGHWAY TO EAST ROXBORO ROAD

	Crashes			Crashes per 100 Million VMT		
Year	Total	Injury	Fatal	Total	Injury	Fatal
2013	100	19	0	1946 (543)	370 (130)	0.00 (1.17)
2014	68	13	0	1323 (601)	253 (145)	0.00 (1.21)
2015	56	13	0	1090 (637)	253 (156)	0.00 (1.68)
2016	60	13	0	1167 (655)	253 (156)	0.00 (1.53)
2017	73	13	0	1420 (623)	253 (156)	0.00 (1.35)
Total	357	71	0			
Average	71	14	0	1382 (612)	272 (148)	0.00 (1.39)

TABLE 6. CRASH RATES FOR THE URBAN MINOR ARTERIAL SEGMENT NORTH OF EAST ROXBORO ROAD

	Crashes			Crashes per 100 Million VMT		
Year	Total	Injury	Fatal	Total	Injury	Fatal
2013	105	31	0	1245 (543)	368 (130)	0.00 (1.17)
2014	82	22	0	973 (601)	261 (145)	0.00 (1.21)
2015	120	30	0	1423 (637)	356 (156)	0.00 (1.68)
2016	111	28	1	1316 (655)	332 (156)	11.86 (1.53)
2017	112	24	0	1328 (623)	285 (153)	0.00 (1.35)
Total	530	135	1			
Average	106	27	0	1257 (612)	320 (148)	0.00 (1.39)

BICYCLE AND PEDESTRIAN CRASHES

Over the five-year period from 2013 to 2017, six crashes occurred which involved people biking and/or walking and one of these was fatal. Locations of these crashes are depicted in Figure 20. Most crashes involving people biking or walking along the corridor occurred at or near major intersections, primarily in the southern part of the study area, on the state route portion of North Druid Hills Road. The fatal pedestrian crash occurred in 2015 near Executive Park Drive in the early morning in dark, dry roadway conditions.

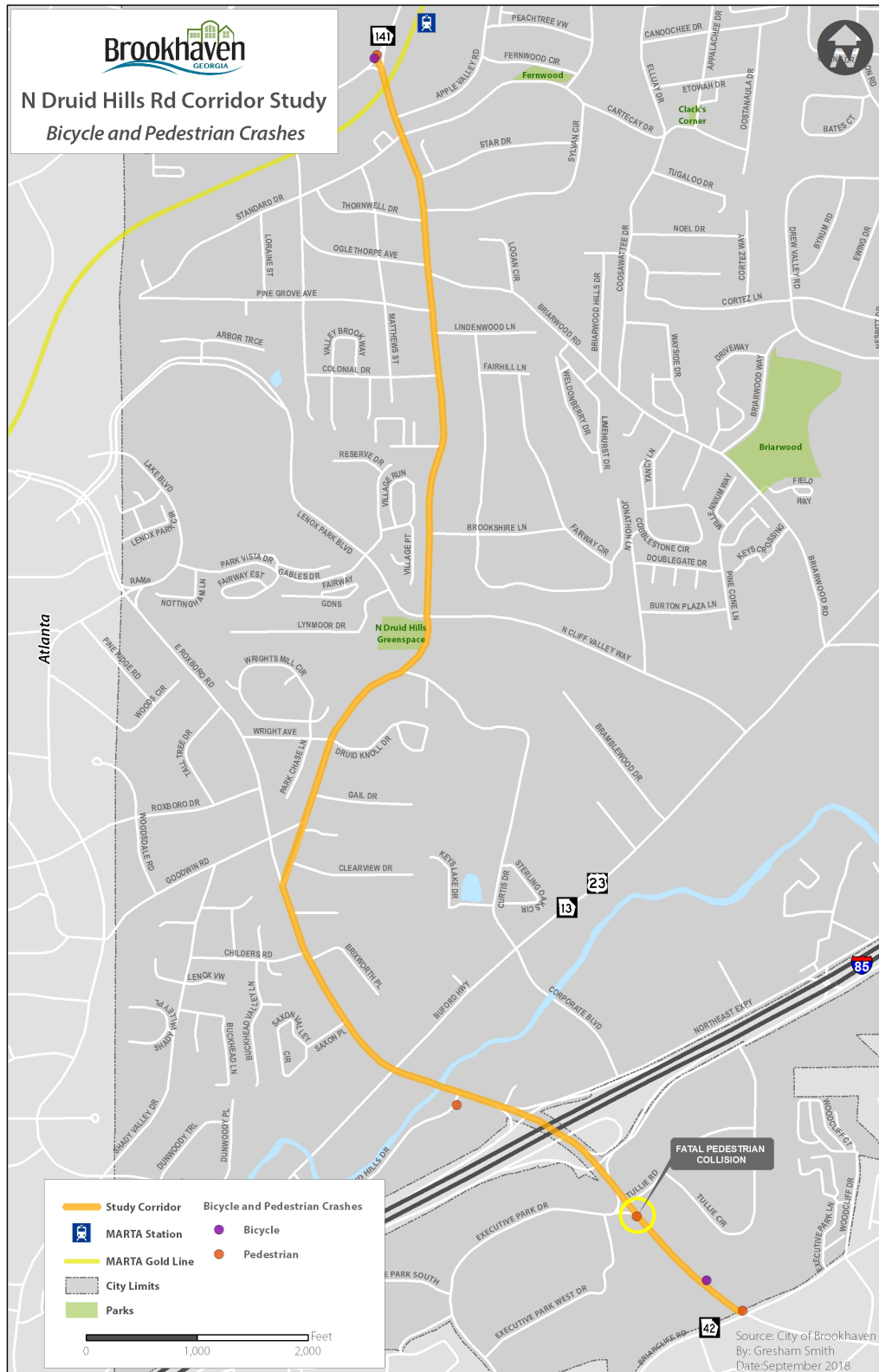


FIGURE 20. BICYCLE AND PEDESTRIAN CRASHES (2013-2017)

2.11 Environmental Screening

A planning-level environmental screening of the corridor was completed by Edwards-Pitman Environmental, Inc. to identify and locate potential archaeological, historical, and ecological resources that may be present along the study corridor and which could potentially impact future projects. A summary of the findings from this screening is provided below. Additional details are provided in the Existing Conditions Technical Memorandum, found in Appendix B.

ECOLOGY

One jurisdictional perennial stream (North Fork Peachtree Creek) and one jurisdictional intermittent stream (short, impaired stream adjacent to the study corridor on the east side of North Druid Hills Road, north of Brixworth Place) were identified. According to U.S. Fish and Wildlife Service, three protected species exist within DeKalb County, and there is no Critical Habitat designated within DeKalb County. These protected species are not present along the study corridor.

HISTORY

Property records were reviewed for properties along the corridor and within a 100-foot buffer of the study corridor to identify known historic properties (defined as those 50 years old and older) and properties that may potentially be eligible for listing on the National Register of Historic Places. A screening does not make any assumptions on eligibility of any identified resource – that would require a full Historic Resources Survey. In finding several properties that qualify as historic and which therefore may be eligible for listing on the National Register, the team expanded the buffer to look at the potential for an area that may qualify as an historic district, if such designation were to be pursued. The history screening did not reveal any sites listed on the National Register of Historic Places nor on the Georgia Department of Natural Resources Archaeological and Historical Resources GIS database (GNARHGIS) or the ARC Historic District database. However, fifty historic resources were identified based upon information from DeKalb County tax assessor records, and these are listed on page 49 of Appendix B. Five gas stations were identified along the study corridor and four other sites were noted that indicate the possibility of underground storage tanks, including the Brookhaven-Oglethorpe University MARTA rail station.

ARCHAEOLOGY

A scan of previously recorded archaeological sites and surveys within the Georgia Archaeological Site File was conducted and it did not reveal any recorded sites along the study corridor but did reveal one within a one-kilometer buffer of the study corridor. The previously recorded archaeological site is located approximately 70 meters east of the southern terminus of the corridor study area.

2.12 General Summary of Needs and Opportunities along Corridor

Based upon the findings summarized here and contained within the Technical Memorandum, several key themes emerge as needs to improve conditions for all users along the corridor and possible ways to improve operations and efficiency while accommodating future growth and traffic. Throughout Brookhaven and the rest of Metro Atlanta, there is growing interest in biking and walking as not only forms of recreation and exercise, but also as a means of transportation. Projects such as PATH 400 and Peachtree Creek Greenway, not to mention the Atlanta BeltLine, are examples of the enthusiasm and commitment in expanding infrastructure for people biking and walking. With several schools, the library, a MARTA rail station, and other popular destinations along North Druid Hills Road and the proximity of homes and neighborhoods to these destinations, it is possible for many residents along North Druid Hills to make short trips to these on foot or by bike. Furthermore, if safer and more comfortable options were available, it is likely that even more people would do so. The City is also following through on recommendations made in the adopted Bicycle, Pedestrian & Trail Plan, including for sidewalk and a multi-use

path along North Druid Hills Road by incorporating those recommendations into this study and setting the stage for implementation of future projects also recommended by that plan for adjacent streets.

Given the near-term (within the next three years or so) redistricting of the Cross Keys Cluster of the DeKalb County School District, it is important that the City of Brookhaven coordinate with District staff to anticipate and accommodate likely changes to traffic patterns at and near Cross Keys High School. The transition from a high school to a middle school likely means that there will be more parents picking up and dropping off students at the site in the future. Furthermore, with the relocation of the high school south of the study corridor, it is anticipated that additional traffic will travel southbound along North Druid Hills Road to get to the school in the mornings and northbound coming from the school in the afternoons.

General population growth in the area and the increase in development activity at either end of the study corridor, as well as in Buckhead are likely to generate additional activity in these areas. City staff have reported an increase in traffic between I-85 and Buckhead, along North Druid Hills Road and East Roxboro Road. The completion of Children's Healthcare of Atlanta and the anticipated Emory Healthcare at Executive Park developments are likely to generate additional traffic and demand for transit as well as walking. Similarly, the likely increase in development activity along SR 141/Peachtree Road and the potential for transit-oriented development around the Brookhaven-Oglethorpe University MARTA rail station are also likely to increase traffic and demand for biking, walking, and access to transit.

Chapter 3: Traffic Analysis

3.1 Existing Conditions

To establish the existing capacity and operations along the corridor, the project team performed traffic analyses at the study corridor intersections, including those at the northern and southern limits of the study area, SR 141/Peachtree Road and SR 42/Briarcliff Road, as well as the East Roxboro Road and Goodwin Road intersection. Traffic data, including existing AM and PM peak hour turning movement counts and traffic signal timings, were obtained from National Data and Surveying Services, the Regional Traffic Operations Program (RTOP), as well as recently completed plans and studies. The raw turning movement counts are provided in Appendix C-1. The Existing Year (2018) AM and PM peak hour volumes are provided in Appendix C-2.

Based on the Existing Year (2018) traffic volumes, and the existing traffic control and lane configurations presented in Figure 21 and Figure 22, AM and PM peak hour traffic operations were analyzed at the study intersections using the methodologies outlined in the Highway Capacity Manual (HCM) and the Synchro software program. According to the HCM, there are six levels of service (LOS) by which the operational performance of an intersection may be described. These levels of service range between LOS A, which indicates a relatively free-flowing condition, and LOS F, which indicates operational breakdown.

For signalized intersections, LOS is defined in terms of a weighted average control delay for all traffic movements at the intersection. Control delay is a complex measure that quantifies the increase in travel time that a vehicle experiences due to the traffic signal control, which is based on multiple variables, including signal phasing and coordination (i.e., progression of movements through the intersection and along the corridor), signal cycle length, and traffic volumes with respect to intersection capacity and resulting queues. Signalized intersection LOS is stated in terms of average control delay per vehicle (in seconds) during a specified time period (e.g., weekday PM peak hour). Table 7 summarizes the LOS criteria for signalized intersections, as described in the HCM.

TABLE 7. LEVEL OF SERVICE CRITERIA FOR SIGNALIZED INTERSECTIONS

Level of Service	Control Delay (sec/veh)	General Description
A	≤ 10 seconds	Free Flow
B	> 10 seconds and ≤ 20 seconds	Stable Flow (slight delays)
C	> 20 seconds and ≤ 35 seconds	Stable flow (acceptable delays)
D	> 35 seconds and ≤ 55 seconds	Approaching unstable flow
E	> 55 seconds and ≤ 80 seconds	Approaching intersection capacity unstable flow, unfavorable progression
F¹	> 80 seconds	Forced flow, poor progression

Source: Highway Capacity Manual

¹If the volume-to-capacity (v/c) ratio exceeds 1.0, LOS F is assigned.

For unsignalized intersections (i.e. minor street stop-controlled intersections), LOS criteria is defined in terms of the average control delay for each minor-street movement as well as major-street left-turns. Major-street through vehicles are assumed to experience zero delay, because of minimal conflicts in operation. Several factors affect the control delay for unsignalized intersections, such as availability and distribution of gaps in the conflicting traffic stream. LOS A indicates excellent operations with minimal delay to motorists, while LOS F indicates insufficient gaps of acceptable size to allow vehicles on the minor street to cross safely, resulting in long delays and long queues. Table 8 shows LOS criteria for unsignalized intersections.

TABLE 8. LEVEL OF SERVICE CRITERIA FOR UNSIGNALIZED INTERSECTIONS

Level of Service	Control Delay (sec/veh)	General Description
A	≤ 10 seconds	Minimal Delay
B	> 10 seconds and ≤ 15 seconds	Occasional Delay
C	> 15 seconds and ≤ 25 seconds	Moderate Delay
D	> 25 seconds and ≤ 35 seconds	Noticeable Delay
E	> 35 seconds and ≤ 50 seconds	Delay approaching tolerance
F¹	> 50 seconds	Delay exceeding tolerance

Source: Highway Capacity Manual

¹If the volume-to-capacity (v/c) ratio exceeds, 1.0 LOS F is assigned.

The results of the intersection LOS and delay analysis for the Existing Year (2018) conditions are summarized in Table 9. As shown, all study area intersections operate at LOS D or better in the AM and PM peak hours with the exception of one intersection during the AM peak and four intersections during the PM peak, which are listed below. Detailed HCM analyses, including capacity analysis worksheets, can be found in Appendix C-3.

- North Druid Hills Road **at I-85 Frontage Road/Northbound Ramps** – AM: LOS E (58.5 second delay)
- North Druid Hills Road **at Standard Drive/Sylvan Circle** – PM: LOS E (41.8 second delay)
- North Druid Hills Road **at Sylvan Circle** – PM: LOS E (37.5 second delay)
- North Druid Hills Road **at Wright Avenue/Druid Knoll Drive** – PM: LOS E (49.3 second delay)
- North Druid Hills Road **at SR 13/Buford Highway** – PM: LOS E (55.3 second delay)

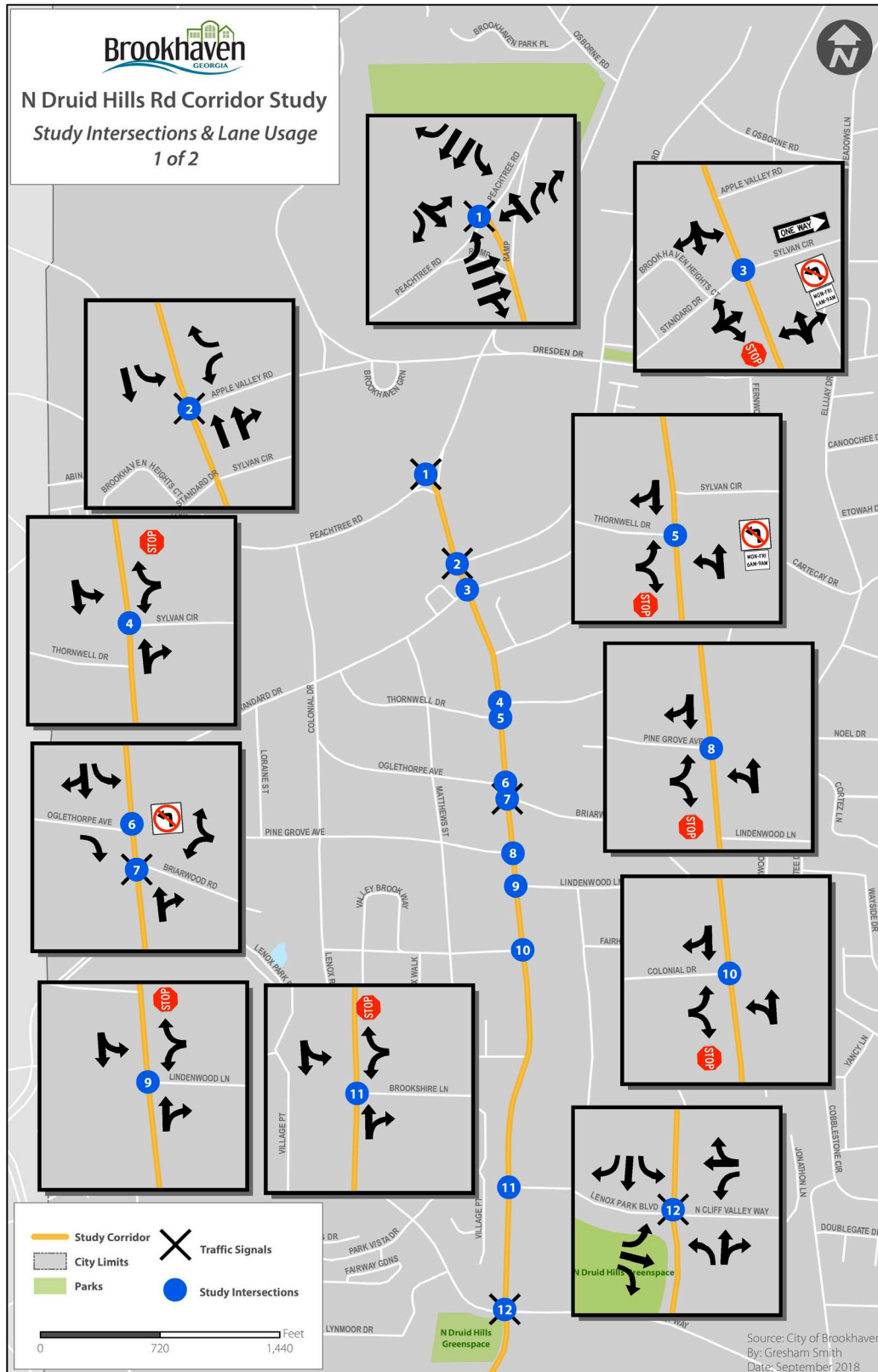


FIGURE 21. EXISTING LANE CONFIGURATION AND TRAFFIC CONTROL ON THE NORTHERN PORTION OF THE STUDY CORRIDOR

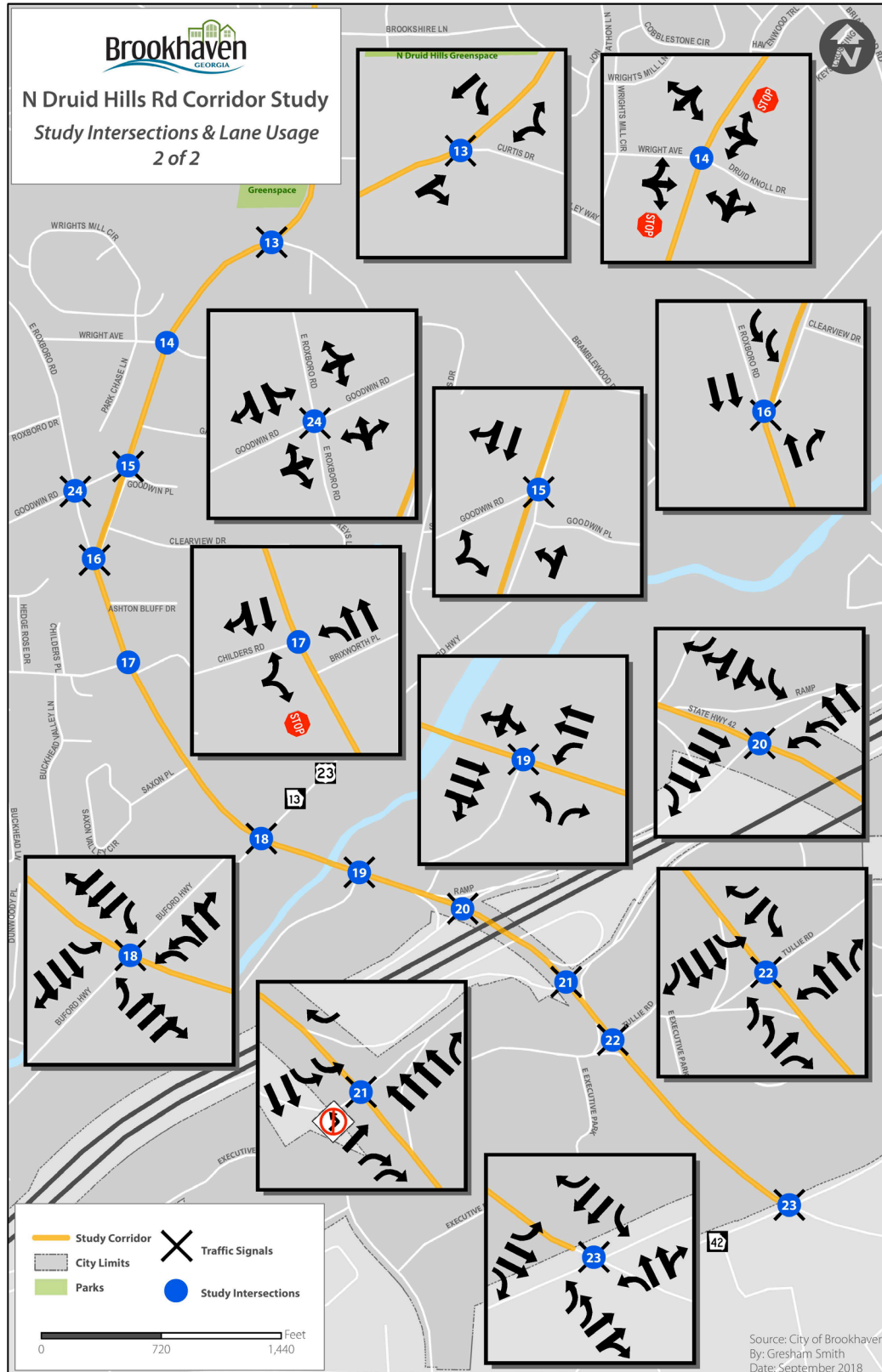


FIGURE 22. EXISTING LANE USE CONFIGURATION AND TRAFFIC CONTROL ON THE SOUTHERN PORTION OF THE STUDY CORRIDOR

TABLE 9. EXISTING YEAR (2018) LEVELS OF SERVICE

Study Area Intersection	Intersection Control Type	Existing 2018	
		AM LOS Delay (s)	PM LOS Delay (s)
North Druid Hills Rd @ SR 141/Peachtree Rd	Signal	C 31.7	D 40.3
North Druid Hills Rd @ Apple Valley Rd	Signal	C 24.3	B 10.7
North Druid Hills Rd @ Standard Dr/Sylvan Cir	Minor Stop	C 23.3	E 41.8
North Druid Hills Rd @ Sylvan Cir	Minor Stop	D 32.9	E 37.5
North Druid Hills Rd @ Thornwell Dr	Minor Stop	C 19.7	C 23.1
North Druid Hills Rd @ Oglethorpe Ave	Minor Stop	C 15.6	C 18.0
North Druid Hills Rd @ Briarwood Rd	Signal	D 35.9	D 35.1
North Druid Hills Rd @ Pine Grove Ave	Minor Stop	C 19.1	C 18.1
North Druid Hills Rd @ Lindenwood Ln	Minor Stop	C 15.2	C 19.4
North Druid Hills Rd @ Colonial Dr	Minor Stop	C 16.5	B 13.4
North Druid Hills Rd @ Brookshire Ln	Minor Stop	B 14.3	C 19.7
North Druid Hills Rd @ Lenox Park Blvd/N Cliff Valley Way	Signal	D 35.5	C 34.3
North Druid Hills Rd @ Curtis Dr	Signal	B 14.3	A 8.4
North Druid Hills Rd @ Wright Ave/Druid Knoll Dr	Minor Stop	D 26.8	E 49.3
North Druid Hills Rd @ Goodwin Rd	Signal	A 2.2	A 3.1
North Druid Hills Rd @ East Roxboro Rd	Signal	C 21.5	B 15.1
North Druid Hills Rd @ Childers Rd	Minor Stop	C 17.6	C 23.5
North Druid Hills Rd @ SR 13/Buford Hwy	Signal	C 33.8	E 55.3
North Druid Hills Rd @ W Druid Hills Dr	Signal	A 4.1	A 4.5
North Druid Hills Rd @ I-85 Frontage Rd (Southbound ramps)	Signal	D 35.4	D 36.5
North Druid Hills Rd @ I-85 Frontage Rd (Northbound ramps)	Signal	E 58.5	D 37.8
North Druid Hills Rd @ Executive Park Dr/Tullie Rd	Signal	A 9.8	C 20.3
North Druid Hills Rd @ Briarcliff Rd	Signal	D 52.6	D 42.6
East Roxboro Rd @ Goodwin Rd	Signal	A 7.3	A 4.5

*Unsignalized intersections show results for worst movement

3.2 Future Conditions

To determine the appropriate roadway improvements along North Druid Hills Road, the project team performed future traffic analysis at each of the study corridor intersections. To perform the future analysis, anticipated future traffic volumes were developed at each of the study intersections for both no build and build conditions. The future **no build** conditions are defined as the existing condition, plus the anticipated background growth in traffic along the corridor, plus any anticipated traffic due to major developments without any proposed improvements to the corridor. Hence, the following formula was used to calculate the future condition traffic volumes.

$$F = P (1 + r) ^ n + \text{Development Traffic}$$

Where:

F = future projected traffic volume (vehicles per hour)

P = existing traffic volume (vehicles per hour)

r = annual growth rate

n = number of projection years = future projection year – existing year

The anticipated annual growth rate was based on historical traffic trends, as well as future population and traffic predictions in the study area. The historical growth rate was calculated based on historical traffic count data obtained from the Georgia Department of Transportation (GDOT) at multiple count stations in the vicinity of the study area. For the purposes of this study, the following four count stations were identified to determine the historical traffic growth.

- Station # 089-3656 – North Druid Hills Road north of Lenox Park Boulevard
- Station # 089-3658 – North Druid Hills Road south of East Roxboro Road
- Station # 089-3138 – North Druid Hills Road between the I-85 ramps
- Station # 089-3136 – North Druid Hills Road north of Briarcliff Road

The future population and traffic predictions for the study area were obtained from the Atlanta Regional Commission (ARC). The projected growth in traffic was calculated based on traffic assignments from the ARC's Travel Demand Model over several roadway links in the study area. Projected population growth was also calculated for DeKalb County as well as the Chamblee and Northwest DeKalb superdistricts. Based on the results of the growth rate analyses, a 0.5% average annual growth rate was determined to be representative of the future background growth in traffic along the North Druid Hills Road corridor and other roadways within the study area.

As previously described in the Existing Conditions section of this report, the following development projects are planned and/or underway along the North Druid Hills Road corridor. Information for each development, including traffic studies, were obtained from the Atlanta Regional Commission (ARC) and the City of Brookhaven. Anticipated net trips generated by each development were added to the study intersections, according to the information provided.

- Brookhaven-Oglethorpe MARTA Station TOD (DRI# 2604)
- Halstead (1330 North Druid Hills Road) Development
- Arrington Place Development
- Park Chase Development
- Children's Healthcare of Atlanta (DRI# 2789)

The future **build** conditions are defined as the same future conditions, but under the proposed improvements to the project corridor. The proposed improvements will be implemented in phases, corresponding to Short-Term, Mid-Term, and Long-Term timeframes, as described in the Recommendations section of this report. For the purposes of the traffic analysis, the Short-Term analysis year is considered to be 2025, the Mid-Term analysis year is considered to be 2035, and the Long-Term analysis year is considered to be 2045.

GDOT is currently developing a project that will make improvement recommendations along North Druid Hills Road south of SR 13/Buford Highway (GDOT PI #0016054). Therefore, while the entire length of the corridor was considered as part of the study, the proposed improvements focus on the portion of the corridor north of SR 13/Buford Highway.

SHORT-TERM FUTURE ANALYSIS (2025)

Based on the Short-Term Year (2025) no build traffic volumes, and the existing traffic control and lane configurations presented in Figure 21 and Figure 22, AM and PM peak hour traffic operations were analyzed at the study intersections. The results of the intersection LOS and delay analysis for the Short-Term Year (2025) **no build** conditions are summarized in Table 10. As shown, all study area intersections operate at LOS D or better in the AM and PM peak hours with the exception of two intersections during the AM peak and five intersections during the PM peak, which are listed below. The Short-Term Year (2025) AM and PM peak hour no build volumes are provided in Appendix C-2. Detailed HCM analyses for the no build conditions, including capacity analysis worksheets, can be found in Appendix C-3.

- North Druid Hills Road **at SR 141/Peachtree Road** –PM: LOS E (60.3 second delay)
- North Druid Hills Road **at Standard Drive/Sylvan Circle** –PM: LOS F (79.7 second delay)
- North Druid Hills Road **at Sylvan Circle** – AM: LOS E (46.2 second delay), PM: LOS F (58.7 second delay)
- North Druid Hills Road **at Wright Avenue/Druid Knoll Drive** – AM: LOS E (39.6 second delay), PM: LOS F (144.1 second delay)
- North Druid Hills Road **at SR 13/Buford Highway** – PM: LOS E (58.0 second delay)

The following is a list of intersection control and lane configuration changes, which would be implemented under the proposed improvements by the Short-Term Year (2025). In addition to these changes, intersection signal timing and phasing were optimized as appropriate.

- North Druid Hills Road **at Apple Valley Road**
 - Northbound yield controlled channelized right turn added on North Druid Hills Road
- North Druid Hills Road **at Oglethorpe Avenue**
 - Intersection converted to right-in only by restricting eastbound movements and northbound left movements
- North Druid Hills Road **at Briarwood Road**
 - Westbound signal controlled channelized right-turn lane added on Briarwood Road¹³
 - Northbound yield controlled channelized right-turn lane added on North Druid Hills Road

¹³ Improvement recommended as part of a Halstead Development and also included in no build condition analysis.

- North Druid Hills Road **at SR 13/Buford Highway**
 - Convert southbound left signal phasing to protected only
 - No right turn on red restriction added for westbound right turn
 - Westbound right-turn lane added on SR 13/Buford Highway¹⁴
 - Westbound left-turn lane added on SR 13/Buford Highway¹⁴
 - Exclusive northbound channelized right turn added on North Druid Hills Road¹⁴
 - Westbound right-turn lane added on SR 13/Buford Highway¹⁴
 - Westbound left-turn lane added on SR 13/Buford Highway¹⁴

The future build condition traffic volumes are the same as the future no build condition traffic volumes. However, due to the changes proposed at the North Druid Hills Road at Oglethorpe Avenue intersection, the following minor diversions were included in the build condition analysis.

- Traffic traveling eastbound on Oglethorpe Avenue at North Druid Hills Road or making a northbound left onto Oglethorpe Avenue was rerouted to Pine Grove Avenue.

Based on the Short-Term Year (2025) **build** traffic volumes, traffic control, and lane configurations, AM and PM peak hour traffic operations were analyzed at study intersections where improvements are proposed. The results of the intersection LOS and delay analysis for the Short-Term Year (2025) build conditions are also summarized in Table 10. As shown, all study intersections show the same LOS or better from the no build to the build condition, accounting for geometry and lane configuration improvements, as well as signal timing and phasing optimization where applicable. Detailed HCM analyses for the build conditions, including capacity analysis worksheets, can also be found in Appendix C-3.

¹⁴ Improvements recommended as part of Children's Healthcare of Atlanta DRI

TABLE 10. SHORT-TERM YEAR (2025) BUILD LEVELS OF SERVICE

Study Area Intersection	Existing Intersection Control Type	No Build 2025		Proposed Intersection Control Type	Build 2025	
		AM LOS Delay (s)	PM LOS Delay (s)		AM LOS Delay (s)	PM LOS Delay (s)
North Druid Hills Rd @ SR 141/Peachtree Rd	Signal	D 39.3	E 60.3	Signal	D 39.3	E 60.3
North Druid Hills Rd @ Apple Valley Rd	Signal	C 21.8	B 15.0	Signal	C 20.9	A 9.7
North Druid Hills Rd @ Standard Dr/Sylvan Cir	Minor Stop	D 29.4	F 79.7	Minor Stop	D 29.4	F 79.7
North Druid Hills Rd @ Sylvan Cir	Minor Stop	E 46.2	F 58.7	Minor Stop	E 46.2	F 58.7
North Druid Hills Rd @ Thornwell Dr	Minor Stop	C 23.1	D 31.4	Minor Stop	C 23.1	D 31.4
North Druid Hills Rd @ Oglethorpe Ave	Minor Stop	C 17.3	C 21.0	Right In Only	---	---
North Druid Hills Rd @ Briarwood Rd	Signal	B 18.4	C 33.8	Signal	B 16.5	B 19.3
North Druid Hills Rd @ Pine Grove Ave	Minor Stop	C 23.3	C 23.0	Minor Stop	C 22.8	C 19.1
North Druid Hills Rd @ Lindenwood Ln	Minor Stop	C 17.4	D 25.2	Minor Stop	C 17.4	D 25.2
North Druid Hills Rd @ Colonial Dr	Minor Stop	C 19.3	C 15.2	Minor Stop	C 19.3	C 15.2
North Druid Hills Rd @ Brookshire Ln	Minor Stop	C 16.3	C 24.7	Minor Stop	C 16.3	C 24.7
North Druid Hills Rd @ Lenox Park Blvd/N Cliff Valley Way	Signal	D 39.3	C 34.1	Signal	D 39.3	C 34.1
North Druid Hills Rd @ Curtis Dr	Signal	B 19.2	B 14.9	Signal	B 19.2	B 14.3
North Druid Hills Rd @ Wright Ave/Druid Knoll Dr	Minor Stop	E 39.6	F 144.1	Minor Stop	E 39.6	F 144.1
North Druid Hills Rd @ Goodwin Rd	Signal	A 2.2	A 3.1	Signal	A 2.2	A 3.1
North Druid Hills Rd @ East Roxboro Rd	Signal	C 23.6	B 15.7	Signal	C 24.9	B 15.2
North Druid Hills Rd @ Childers Rd	Minor Stop	C 19.9	D 27.0	Minor Stop	C 19.9	D 27.0
North Druid Hills Rd @ SR 13/Buford Hwy	Signal	D 40.9	E 58.0	Signal	D 43.6	E 61.5
East Roxboro Rd @ Goodwin Rd	Signal	A 7.1	A 4.3	Signal	A 7.1	A 4.3

*Unsignalized intersections show results for worst movement

MID-TERM FUTURE ANALYSIS (2035)

Based on the Mid-Term Year (2035) no build traffic volumes, and the existing traffic control and lane configurations presented in Figure 21 and Figure 22, AM and PM peak hour traffic operations were analyzed at the study intersections. The results of the intersection LOS and delay analysis for the Mid-Term Year (2035) **no build** conditions are summarized in Table 11. As shown, all study area intersections operate at LOS D or better in the AM and PM peak hours with the exception of two intersections during the AM peak and five intersections during the PM peak, which are listed below. The Mid-Term Year (2035) AM and PM peak hour no build volumes are provided in Appendix C-2. Detailed HCM analyses for the no build conditions, including capacity analysis worksheets, can be found in Appendix C-3.

- North Druid Hills Road **at SR 141/Peachtree Road** –PM: LOS E (68.0 second delay)
- North Druid Hills Road **at Standard Drive/Sylvan Circle** –PM: LOS F (105.5 second delay)
- North Druid Hills Road **at Sylvan Circle** – AM: LOS E (51.9 second delay), PM: LOS F (69.0 second delay)
- North Druid Hills Road **at Wright Avenue/Druid Knoll Drive** – AM: LOS E (43.6 second delay), PM: LOS F (200.0 second delay)
- North Druid Hills Road **at SR 13/Buford Highway** – PM: LOS E (60.5 second delay)

The following is a list of intersection control and lane configuration changes, which would be implemented under the proposed improvements by the Mid-Term Year (2035), in addition to the Short-Term improvements listed previously. In addition to these changes, intersection signal timing and phasing were optimized as appropriate.

- North Druid Hills Road **at Standard Drive/Sylvan Circle**
 - Southbound left-turn lane added on North Druid Hills Road
 - Northbound left-turn lane added as part of two-way center left-turn lane on North Druid Hills Road
- North Druid Hills Road **Sylvan Circle**
 - Southbound left-turn lane added as part of two-way center left-turn lane on North Druid Hills Road
- North Druid Hills Road **Thornwell Drive**
 - Northbound left-turn lane added on North Druid Hills Road
- North Druid Hills Road **Pine Grove Avenue**
 - Northbound left-turn lane added on North Druid Hills Road
- North Druid Hills Road **at Lindenwood Lane**
 - Southbound left-turn lane added as part of two-way center left-turn lane on North Druid Hills Road
- North Druid Hills Road **at Colonial Drive**
 - Northbound left-turn lane added as part of two-way center left-turn lane on North Druid Hills Road
- North Druid Hills Road **at Brookshire Lane**
 - Southbound through turn lane removed on North Druid Hills Road
 - Southbound through-left lane converted to dedicated left-turn lane as part of two-way center left-turn lane on North Druid Hills Road

- North Druid Hills Road at **Lenox Park Boulevard/North Cliff Valley Way**
 - Eastbound through lane added on Lenox Park Boulevard
 - Westbound through lane added on North Cliff Valley Way
- North Druid Hills Road **at Curtis Drive**
 - Crosswalk on North Druid Hills Road moved north of Curtis Drive
 - Optimized signal phasing
- North Druid Hills Road **at Wright Avenue/Druid Knoll Drive**
 - Northbound left-turn lane added as part of two-way center left-turn lane on North Druid Hills Road
 - Southbound left-turn lane added as part of two-way center left-turn lane on North Druid Hills Road

The future build condition traffic volumes are the same as the future no build condition traffic volumes. However, due to the changes previously proposed under the Short-Term improvements at the North Druid Hills Road at Oglethorpe Avenue intersection, the same minor diversions were included in the build condition analysis as the Short-Term Year (2025) analysis.

Based on the Mid-Term Year (2035) **build** traffic volumes, traffic control, and lane configurations, AM and PM peak hour traffic operations were analyzed at study intersections where improvements are proposed. The results of the intersection LOS and delay analysis for the Mid-Term Year (2035) build conditions are also summarized in Table 11. As shown, all study intersections show the same LOS or better from the no build to the build condition, accounting for geometry and lane configuration improvements, as well as signal timing and phasing optimization where applicable. Detailed HCM analyses for the build conditions, including capacity analysis worksheets, can also be found in Appendix C-3.

TABLE 11. MID-TERM YEAR (2035) BUILD LEVELS OF SERVICE

Study Area Intersection	Existing Intersection Control Type	No Build 2035		Proposed Intersection Control Type	Build 2035	
		AM LOS Delay (s)	PM LOS Delay (s)		AM LOS Delay (s)	PM LOS Delay (s)
North Druid Hills Rd @ SR 141/Peachtree Rd	Signal	D 45.3	E 68.0	Signal	D 45.3	E 68.0
North Druid Hills Rd @ Apple Valley Rd	Signal	C 22.8	B 15.4	Signal	C 21.7	B 13.1
North Druid Hills Rd @ Standard Dr/Sylvan Cir	Minor Stop	D 32.2	F 105.5	Minor Stop	D 31.2	F 85.0
North Druid Hills Rd @ Sylvan Cir	Minor Stop	F 51.9	F 69.0	Minor Stop	C 22.0	D 25.6
North Druid Hills Rd @ Thornwell Dr	Minor Stop	C 24.7	D 36.0	Minor Stop	C 19.0	D 26.7
North Druid Hills Rd @ Oglethorpe Ave	Minor Stop	C 18.1	C 22.7	Right In Only	---	---
North Druid Hills Rd @ Briarwood Rd	Signal	B 19.8	D 46.6	Signal	B 18.0	C 22.9
North Druid Hills Rd @ Pine Grove Ave	Minor Stop	C 24.6	C 24.8	Minor Stop	C 23.9	C 19.7
North Druid Hills Rd @ Lindenwood Ln	Minor Stop	C 17.8	D 27.2	Minor Stop	B 13.8	C 19.1
North Druid Hills Rd @ Colonial Dr	Minor Stop	C 19.8	C 15.7	Minor Stop	C 17.4	C 15.7
North Druid Hills Rd @ Brookshire Ln	Minor Stop	C 16.6	D 25.7	Minor Stop	C 19.7	C 22.8
North Druid Hills Rd @ Lenox Park Blvd/N Cliff Valley Way	Signal	D 44.2	D 35.1	Signal	C 31.1	C 26.1
North Druid Hills Rd @ Curtis Dr	Signal	C 20.1	C 21.7	Signal	A 9.0	A 9.1
North Druid Hills Rd @ Wright Ave/Druid Knoll Dr	Minor Stop	E 43.6	F 200.0	Minor Stop	C 21.7	D 34.3
North Druid Hills Rd @ Goodwin Rd	Signal	A 2.1	A 3.4	Signal	A 2.8	A 3.9
North Druid Hills Rd @ East Roxboro Rd	Signal	C 24.1	B 16.4	Signal	C 23.2	B 17.7
North Druid Hills Rd @ Childers Rd	Minor Stop	C 21.1	D 29.7	Minor Stop	C 21.1	D 29.7
North Druid Hills Rd @ SR 13/Buford Hwy	Signal	D 44.9	E 60.5	Signal	D 46.9	E 63.0
East Roxboro Rd @ Goodwin Rd	Signal	A 6.9	A 4.3	Signal	A 6.9	A 4.3

*Unsignalized intersections show results for worst movement

LONG-TERM FUTURE ANALYSIS (2045)

Based on the Long-Term Year (2045) no build traffic volumes, and the existing traffic control and lane configurations presented in Figure 21 and Figure 22, AM and PM peak hour traffic operations were analyzed at the study intersections. The results of the intersection LOS and delay analysis for the Long-Term Year (2045) **no build** conditions are summarized in Table 12. As shown, all study area intersections operate at LOS D or better in the AM and PM peak hours with the exception of four intersections during the AM peak and seven intersections during the PM peak, which are listed below. The Long-Term Year (2045) AM and PM peak hour no build volumes are provided in Appendix C-2. Detailed HCM analyses for the no build conditions, including capacity analysis worksheets, can be found in Appendix C-3.

- North Druid Hills Road **at SR 141/Peachtree Road** – AM: LOS E (55.7 second delay), PM: LOS E (75.1 second delay)
- North Druid Hills Road **at Standard Drive/Sylvan Circle** – AM: LOS E (35.7 second delay), PM: LOS F (165.3 second delay)
- North Druid Hills Road **at Sylvan Circle** – AM: LOS F (66.5 second delay), PM: LOS F (80.7 second delay)
- North Druid Hills Road **at Thornwell Drive** – PM: LOS E (43.6 second delay)
- North Druid Hills Road **at Briarwood Road** – PM: LOS E (58.9 second delay)
- North Druid Hills Road **at Wright Avenue/Druid Knoll Drive** – AM: LOS E (48.0 second delay), PM: LOS F (255.3 second delay)
- North Druid Hills Road **at SR 13/Buford Highway** – PM: LOS E (63.2 second delay)

The following is a list of intersection control and lane configuration changes, which would be implemented under the proposed improvements by the Long-Term Year (2045), in addition to the Short-Term and Mid-Term improvements listed previously. The lane configurations for all build conditions are shown in Figure 23 and Figure 24. In addition to these changes, intersection signal timing and phasing were optimized as appropriate.

- North Druid Hills Road **at Goodwin Road**
 - Traffic signal removed
 - Access closed to Goodwin Road
- North Druid Hills Road **at East Roxboro Road**
 - Intersection converted to a roundabout
 - Traffic signal removed
- East Roxboro Road **at Goodwin Road**
 - Traffic signal removed
 - Access closed to Goodwin Road west of East Roxboro Road
 - Eastbound left-turns prohibited from East Roxboro Road

The future build condition traffic volumes are the same as the future no build condition traffic volumes. However, due to the changes previously proposed under the Short-Term improvements at the North Druid Hills Road at Oglethorpe Avenue intersection, and the changes proposed at the North Druid Hills Road at Goodwin Road and East Roxboro Road at Goodwin Road intersections, the following minor diversions were included in the build condition analysis, in addition to those listed for the Short-Term Year (2025) analysis.

- Traffic traveling on Goodwin Road between East Roxboro Road and North Druid Hills Road was rerouted through the proposed roundabout at North Druid Hills Road and East Roxboro Road.
- Traffic making the eastbound left movement from Goodwin Road onto East Roxboro Road was rerouted as a U-turn at the proposed roundabout at North Druid Hills Road.

Based on the Long-Term Year (2045) **build** traffic volumes, traffic control, and lane configurations presented in Figure 23 and Figure 24, AM and PM peak hour traffic operations were analyzed at study intersections where improvements are proposed. The results of the intersection LOS and delay analysis for the Long-Term Year (2045) build conditions are also summarized in Table 12. As shown, all study area intersections where improvements are proposed operate at LOS D or better in the AM and PM peak hours with the exception of two intersections during the PM peak, which are listed below.

- North Druid Hills Road **at Standard Drive/Sylvan Circle** – PM: LOS F (117.0 second delay)
- North Druid Hills Road **at Wright Avenue/Druid Knoll Drive** – PM: LOS E (37.1 second delay)
- North Druid Hills Road **at SR 13/Buford Highway** – PM: LOS E (57.0 second delay)

While these intersections operate at LOS E or worse, the North Druid Hills Road at Standard Drive/Sylvan Circle intersection operates with a 48.3 second improvement in control delay. With the worst movement still operating at a LOS F, signalization was not considered for the North Druid Hills Road at Standard Drive/Sylvan Circle intersection, since warrants are not met. Further, the North Druid Hills Road at Wright Avenue/Druid Knoll Drive operates with a 218.2 second improvement in control delay, bringing the intersection from a LOS F to LOS E, and the North Druid Hills Road at SR 13/Buford Highway operates with a 12.5 second improvement in control delay. Additionally, all study intersections show the same LOS or better from the no build to the build condition, accounting for geometry and lane configuration improvements, as well as signal timing and phasing optimization where applicable. Detailed HCM analyses for the build conditions, including capacity analysis worksheets, can also be found in Appendix C-3. Roundabout analysis can be found in Appendix C-4.

Queue lengths were also analyzed for all intersections where exclusive left- or right-turn lanes are proposed based on the Long-Term Year (2045) build conditions. Queue lengths, as well as the recommended storage and taper lengths, for each turn lane are provided in Table 13. The recommended storage and taper lengths provided not only consider queue lengths, but also account for minimization of right of way impacts along the corridor.

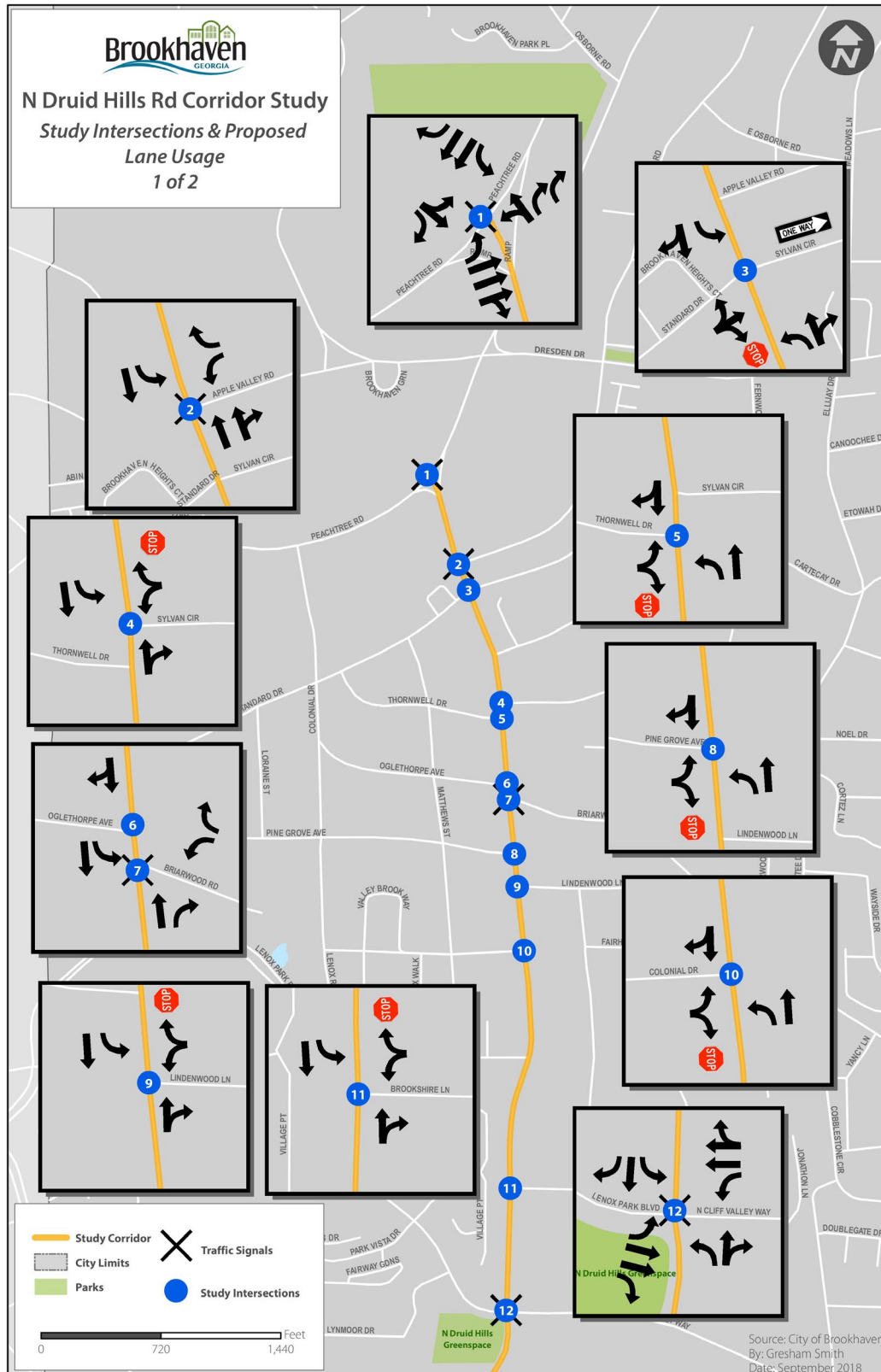


FIGURE 23. PROPOSED LANE USE CONFIGURATION ON THE NORTHERN PORTION OF THE STUDY CORRIDOR

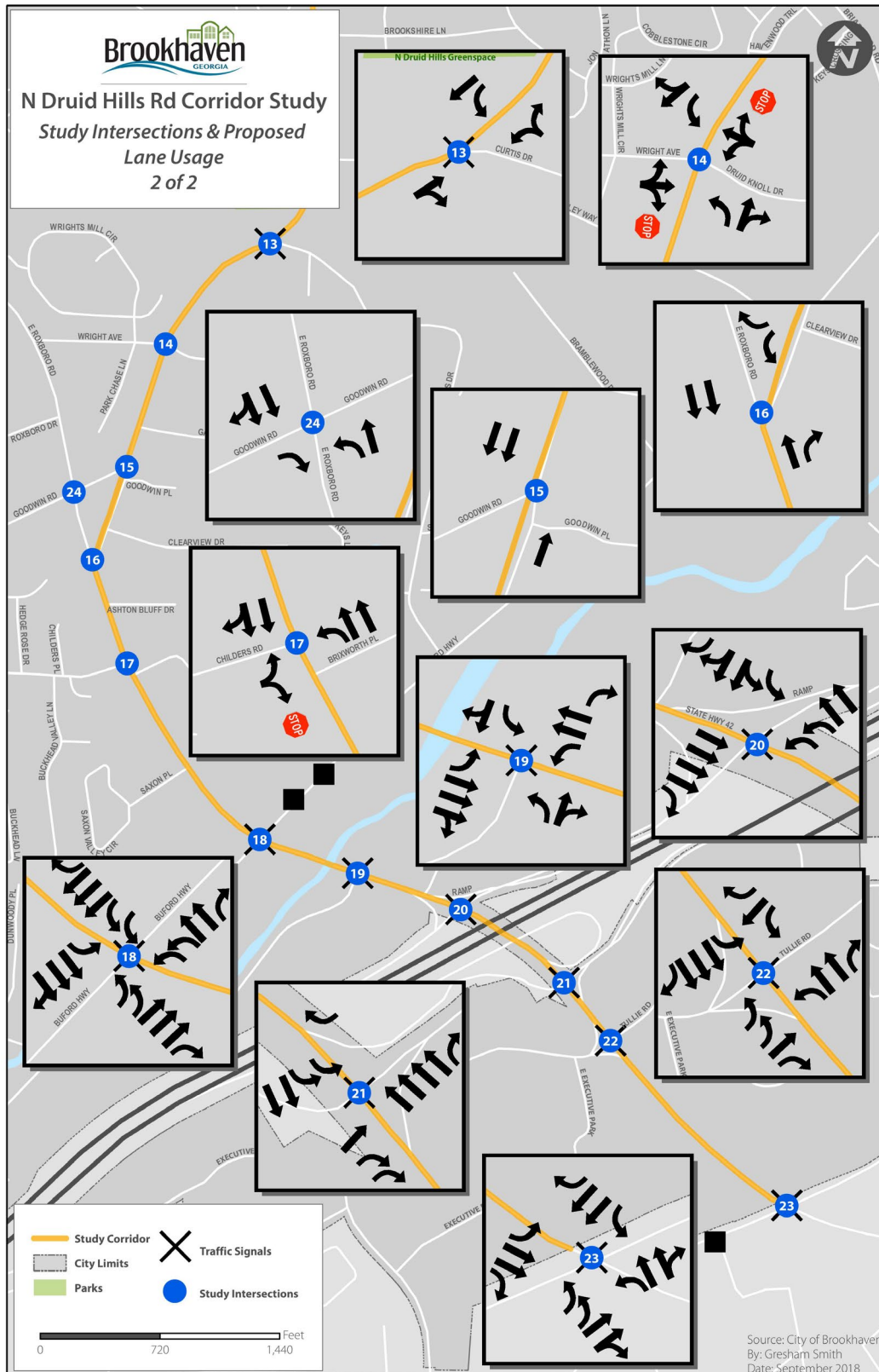


FIGURE 24. PROPOSED LANE USE CONFIGURATION ON THE SOUTHERN PORTION OF THE STUDY CORRIDOR

TABLE 12. LONG-TERM YEAR (2045) LEVELS OF SERVICE

Study Area Intersection	Existing Intersection Control Type	No Build 2045		Proposed Intersection Control Type	Build 2045	
		AM LOS Delay (s)	PM LOS Delay (s)		AM LOS Delay (s)	PM LOS Delay (s)
North Druid Hills Rd @ SR 141/Peachtree Rd	Signal	E 55.7	E 75.1	Signal	E 55.7	E 75.1
North Druid Hills Rd @ Apple Valley Rd	Signal	C 23.7	B 15.8	Signal	C 22.4	B 13.1
North Druid Hills Rd @ Standard Dr/Sylvan Cir	Minor Stop	E 35.7	F 165.3	Minor Stop	D 34.4	F 117.0
North Druid Hills Rd @ Sylvan Cir	Minor Stop	F 66.5	F 80.7	Minor Stop	C 23.8	D 27.3
North Druid Hills Rd @ Thornwell Dr	Minor Stop	D 26.5	E 43.6	Minor Stop	C 20.0	D 29.8
North Druid Hills Rd @ Oglethorpe Ave	Minor Stop	C 18.9	C 24.1	Right In Only	---	---
North Druid Hills Rd @ Briarwood Rd	Signal	C 21.7	E 58.9	Signal	C 20.1	C 32.6
North Druid Hills Rd @ Pine Grove Ave	Minor Stop	D 26.7	D 26.6	Minor Stop	D 25.9	C 20.8
North Druid Hills Rd @ Lindenwood Ln	Minor Stop	C 19.1	D 29.4	Minor Stop	B 14.2	C 20.0
North Druid Hills Rd @ Colonial Dr	Minor Stop	C 21.0	C 16.3	Minor Stop	C 18.1	C 16.3
North Druid Hills Rd @ Brookshire Ln	Minor Stop	C 17.7	C 28.3	Minor Stop	C 21.1	C 24.2
North Druid Hills Rd @ Lenox Park Blvd/N Cliff Valley Way	Signal	D 50.7	D 36.1	Signal	C 35.3	C 27.0
North Druid Hills Rd @ Curtis Dr	Signal	C 20.8	C 29.5	Signal	A 9.3	B 10.4
North Druid Hills Rd @ Wright Ave/Druid Knoll Dr	Minor Stop	E 48.0	F 255.3	Minor Stop	C 22.6	E 37.1
North Druid Hills Rd @ Goodwin Rd	Signal	A 2.2	A 3.5	Close Access	---	---
North Druid Hills Rd @ East Roxboro Rd	Signal	C 25.0	B 17.2	Roundabout**	B (C) 10.9 (20.3)	A (C) 3.0 (15.5)
North Druid Hills Rd @ Childers Rd	Minor Stop	C 22.2	D 32.3	Minor Stop	C 22.2	D 32.3
North Druid Hills Rd @ SR 13/Buford Hwy	Signal	D 48.0	E 63.2	Signal	D 49.5	E 50.7
East Roxboro Rd @ Goodwin Rd	Signal	A 7.4	A 4.9	Minor Stop w/ No Lefts Out	B 11.0	C 16.4

*Unsignalized intersections show results for worst movement

**Roundabout analysis was performed using the SIDRA software as well as the GDOT Roundabout Tool. Analysis from the GDOT Roundabout Tool is noted in parenthesis.

TABLE 13. LONG-TERM YEAR (2045) QUEUE & STORAGE LENGTHS

Study Area Intersection	Storage Lane	Queue Length*	Storage Length
North Druid Hills @ Standard Dr/Sylvan Cir	SB Left	55'	30' + 60' taper
North Druid Hills @ Thornwell Dr	NB Left	< 25'	50' + 100' taper
North Druid Hills @ Briarwood Rd	SB Left	600'	300' + 100' taper
	NB Right	< 25'	50' + 100' taper
North Druid Hills @ Colonial Dr	NB Left	< 25'	50' + 100' taper
North Druid Hills @ Brookshire Ln	SB Left	< 25'	50' + 100' taper
North Druid Hills @ Lenox Park Blvd & N Cliff Valley	SB Left	50'	500' + 100' taper
	SB Right	215'	300' + 180' taper
	WB Left	90'	200' + 180' taper
	NB Left	225'	160' + 100' taper
	EB Left	145'	250' + 100' taper
	EB Right	350'	175' + 100' taper
North Druid Hills @ Curtis Dr	SB Left	195'	150' + 100' taper
North Druid Hills @ Wright Ave & Druid Knoll Dr	SB Left	< 25'	50' + 100' taper
	NB Left	< 25'	50' + 100' taper
North Druid Hills @ Roxboro Rd**	SB Left	180' (220')	440' + 50' taper
	WB Left	320' (280')	450' + 100' taper
North Druid Hills @ Buford Hwy	SB Left	155'	200' + 180' taper

*95th percentile queue length; maximum between AM and PM peak listed.

**Roundabout analysis was performed using the SIDRA software as well as the GDOT Roundabout Tool. Analysis from the GDOT Roundabout Tool is noted in parenthesis.

Chapter 4: Public and Stakeholder Involvement

Throughout the course of the study, several mechanisms were used to inform and engage the community, with an emphasis on opportunities to review and comment upon preliminary recommendations and draft final recommendations at two public open house sessions, presentations to the Mayor and City Council, and in-person intercept surveys to gather information about carpool traffic patterns. Summaries and comments for each Public Information Open House (PIOH) are provided in Appendices D-1 and D-2 for the January 2019 and March 2019 rounds, respectively.

The project team and the City also coordinated directly with DeKalb County School District (DCSD) staff regarding carpool and busing operations as well as redistricting plans for the Cross Keys Cluster, and with MARTA regarding transit service along the corridor. This chapter summarizes public and stakeholder involvement efforts.

The City of Brookhaven maintained a project website (<https://www.brookhavenga.gov/ndruidhills>) over the course of the study to provide a virtual forum for interested community members and stakeholders to learn about the project and submit feedback to City staff and consultants. A snapshot of this website is shown in Figure 26. The City also established and maintained a dedicated project email address (NDruidHills@BrookhavenGa.gov) towards which community members could submit comments and questions regarding the study. The project team and City staff collaborated to develop responses to email messages received at this address as appropriate. Social media posts were published regularly and in increased frequency during the week leading up to the PIOHs. These posts along with press releases, postcards, and other outreach materials are included in Appendix E.



FIGURE 25. PROJECT CONSULTANTS DISCUSS PROPOSED RECOMMENDATIONS AT THE JANUARY 16, 2019 PIOH

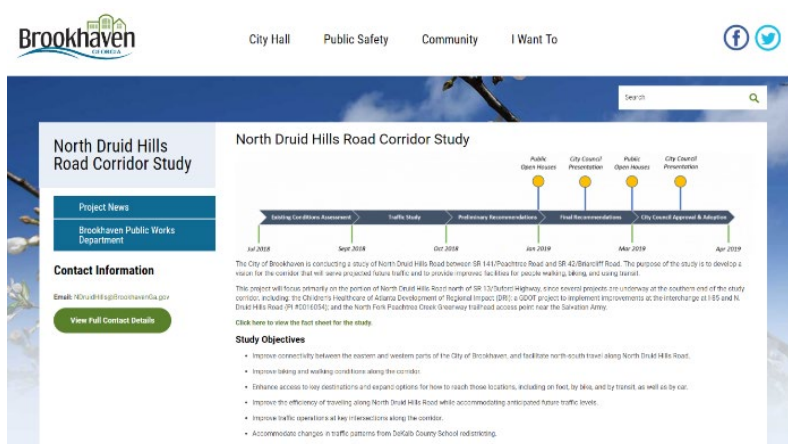


FIGURE 26. NORTH DRUID HILLS ROAD CORRIDOR STUDY PROJECT WEBPAGE MAINTAINED BY THE CITY OF BROOKHAVEN

4.1 School Outreach

As part of the public and stakeholder engagement for this study, the project team conducted outreach at two schools located adjacent to the study corridor: Woodward Elementary School and Cross Keys High School. The intent of this outreach was to determine whether people experience congestion or other issues along the corridor at/near the schools and identify whether these issues can be attributed to operational deficiencies along North Druid Hills Road or are directly related to potential circulation issues on school property.

The school outreach was comprised of two components:

- **Carpool Intercept Surveys:** The project team conducted an in-person oral survey of parents/guardians during the afternoon carpool at Woodward Elementary School, to determine whether they experience traffic issues along North Druid Hills Road in the vicinity of the school, near Curtis Drive or North Cliff Valley Way/Lenox Park Boulevard. Because Cross Keys High School has very few students who arrive or depart by carpool, no intercept surveys were conducted at the high school.
- **Staff Interviews:** The project team spoke with staff at Cross Keys High School who supervise morning and afternoon carpool and gathered information on traffic congestion or other operational deficiencies they observe. The project team also spoke with staff at Woodward Elementary School who supervise morning carpool, regarding traffic congestion and other concerns noted while students are arriving at school.

CARPOOL INTERCEPT SURVEY

To gain a better understanding of the carpool traffic patterns and potential implications for this corridor study, the project team conducted brief in-person intercept surveys with parents and guardians of students at Woodward Elementary School.

Questions were designed to determine whether people experience congestion or other issues along North Druid Hills Road at or near the school and whether such issues can be attributed to operational deficiencies along the study corridor or are more directly related to circulation and traffic patterns on school property. The goal was to determine whether there are potential projects or strategies the City of Brookhaven can do to address observed issues or whether carpool traffic issues are better addressed by the individual schools or DCSD.

The survey was conducted in English and in Spanish during the afternoon carpool period from approximately 2:00 PM to 2:30 PM on Wednesday, October 3, 2018. It was observed that most vehicles arrived from North Druid Hills Road with a smaller number of vehicles arriving from SR 13/Buford Highway. Most cars queued and fit in the school driveway, but at the peak pick-up time, some vehicles lined up along Curtis Drive for a short period of time.

Based on the responses received, traffic delays during morning drop-off present a greater issue compared to traffic delays during afternoon pick-up. These were mostly re-occurring events that were not delays in response to



FIGURE 27. PROJECT CONSULTANT CONDUCTING A CARPOOL INTERCEPT SURVEY AT WOODWARD ELEMENTARY SCHOOL

crashes and other unanticipated events. Most congestion occurs between Curtis Drive and North Cliff Valley Way/Lenox Park Boulevard. Additional concerns which were voiced during the survey include speeding along Curtis Drive, aggressive driving, traffic congestion outside of the study area along Buford Highway between 5:00 and 6:00 PM, and school buses sometimes blocking traffic along Buford Highway.

STAFF INTERVIEWS

A faculty member at Woodward Elementary who oversees morning carpool operations said that traffic at the school does not tend to impact North Druid Hills Road and traffic along the road generally does not impact the school. Two campus supervisors from Cross Keys High School who oversee morning and afternoon carpool operations described congestion along North Cliff Valley Way between North Druid Hills and Buford Highway that is attributed to traffic signal timing at North Cliff Valley Way's intersection with North Druid Hills Road. The supervisors also cited traffic congestion along Curtis Drive in the morning, due in part, to the fact that no right turn is allowed from Curtis Drive during the red-phase of the traffic signal at North Druid Hills Road (prohibited because of sight distance issues and roadway geometry). They also suggested that the school zone speed limit on Curtis Drive be reduced and that the school zone signage should be enhanced with more flashing lights and radar to display speed. Additional survey results are summarized in the Technical Memorandum in Appendix B.

DEKALB COUNTY SCHOOL DISTRICT REDISTRICTING

The DeKalb County School District (DCSD) oversees public primary and secondary education within the City of Brookhaven and operates Woodward Elementary School and Cross Keys High School along the study corridor. At the time of this study, the District was in the process of redistricting several schools, including within the Cross Keys Cluster. The project team and the City of Brookhaven communicated with DCSD staff to gain a better understanding of the redistricting process and the timing and implications for schools along North Druid Hills Road. A significant portion of this communication occurred via telephone on November 6, 2018 with additional follow-up conversations following the first round of PIOHs.

The redistricting process will involve the relocation of some schools, changes to the attendance area boundaries for some schools, opening of new buildings, and repurposing of other buildings. A new school, John Lewis Elementary School, will open in August 2019 within the Brookhaven city limits, off of Dresden and Skyland Drive with the intent of relieving overcrowding at Woodward and Montclair Elementary Schools. The attendance area for Woodward will be reduced, as will the total number of students, likely resulting in reduced traffic during morning drop-off and afternoon pick-up and reduced need for teacher parking and portable classrooms. These attendance draws are depicted in Figure 28 (provided by DCSD in February 2019) and approximately 40 students are expected to be moved from Woodward Elementary to the new John Lewis Elementary.

Additionally, a new high school is scheduled to open in Fall 2021 to replace the current Cross Keys High School. The new building is outside of the Brookhaven city limits in unincorporated DeKalb County. The current Cross Keys campus will become a middle school. Students graduating from several local elementary schools, including Ashford Park, Montclair, Woodward, Dresden, and John Lewis Elementary, will attend this new middle school.

Also of interest to the project team is the fact that configuration of busing areas and driveways must consider that buses perform right-side drop-offs to the school building. This means that the configuration of driveways and access points must be such that buses can pull up with the school building on the right side of the bus, to preclude students from crossing in front of the bus to access the building once they get off the bus.

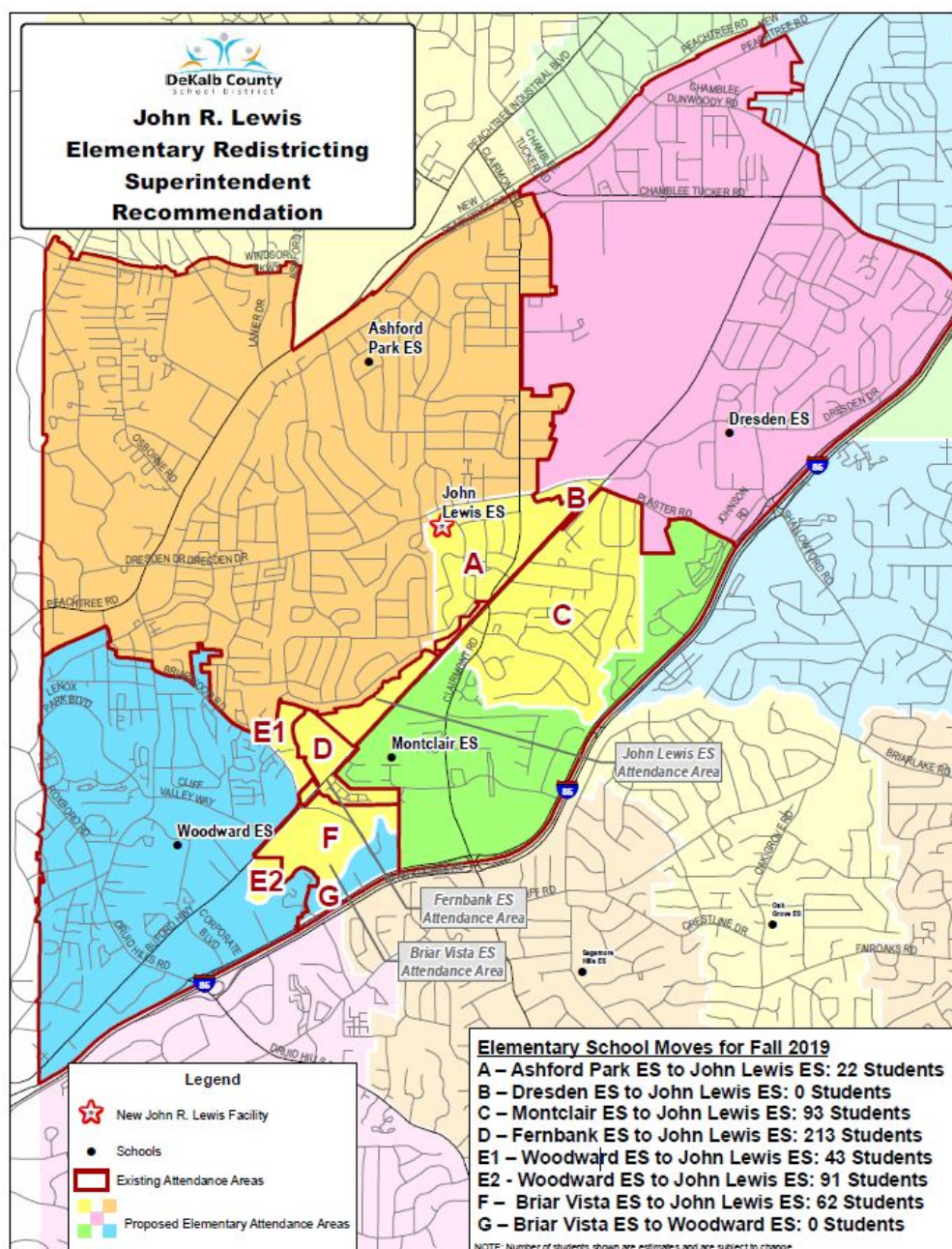


FIGURE 28. JOHN LEWIS ELEMENTARY REDISTRICTING MAP

It was determined that the John Lewis Elementary School redistricting should not have significant impact on North Druid Hills Road, as it will reduce the number of students at Woodward Elementary School. It is not expected to have a significant impact on the intersections with North Cliff Valley Way and Curtis Drive. The most likely impact of this would be to reduce traffic during morning drop-off and afternoon pick-up periods. It will have little to no impact on Cross Keys High School as fewer than 20 students are expected to be impacted and few are expected to attend Cross Keys High School in the future.

The most significant impact to North Druid Hills Road is expected to occur in Fall 2020 and take effect in Fall 2021 with the redistricting of the middle and high schools. These changes will likely increase afternoon traffic on North Druid Hills Road, particularly in the southbound direction. More traffic is expected to cross I-85 to get to the new high school. Several possible options for potential improvements to school access points were discussed, including the proposed reconfiguration of the intersection at North Druid Hills Road and Curtis Drive, to reduce the skew. More exact changes can be forecasted once the school system determines the new middle and high school attendance areas in Fall 2020.

This arrangement will likely affect parking demand, as a middle school typically requires less parking than a high school. Similarly, it is anticipated that there will be more morning and afternoon carpool traffic at the new middle school, since parents and guardians are more likely to drive students of this age group. It is expected that more students will travel southbound along North Druid Hills Road due to this redistricting process, and likewise that high school students from neighborhoods along North Druid Hills Road will travel further south along the corridor to reach the new high school.

The school system expressed cooperation in addressing future changes and facilitating improvements that will improve traffic flow along North Druid Hills Road. The City of Brookhaven and DCSD will continue to coordinate as the both the corridor study (and any future implementation projects) and the redistricting process move forward.

4.2 MARTA Coordination



FIGURE 29. MARTA BUS TRAVELING SOUTH TOWARDS SR 13/BUFORD HIGHWAY

One of the objectives of this study is to provide accommodations for people using transit. Several buses already operate along North Druid Hills Road and other buses cross the corridor along key intersecting roads. To help ensure efficient operations of bus service along the corridor, City staff and members of the project team spoke by phone and conducted a field visit with MARTA staff. The coordination was intended to identify needs and concerns of MARTA staff and bus operators as well to identify any opportunities for infrastructure or other improvements that the City could potentially undertake to support continued transit operations.

During the field visit, the team began by looking at the bus exit from the MARTA rail station on North Druid Hills Road, underneath the railroad bridges, just south of SR 141/Peachtree Road. From there, the team proceeded south, stopping at key locations to evaluate bus stop placement and spacing according to recent boarding and alighting data. The team considered placement and location of bus stops along the corridor, with an eye toward consolidating stops that are not well used and possible future relocation of stops to align with marked crosswalks.

One of the biggest impediments to efficient bus service in the study corridor is the challenges bus drivers face when trying to make a left turn onto southbound North Druid Hills Road. Due to the challenges presented by the configuration of the roadway and intersections between Apple Valley Road and SR 141/Peachtree Road, and the queuing of vehicles along North Druid Hills Road at the traffic signal at SR 141/Peachtree Road, buses are not typically able to make that key maneuver. As a result, drivers of buses that need to travel southbound on North

Druid Hills Road are directed by MARTA to make a right out of the MARTA station on North Druid Hills Road, followed by a right on SR 141/Peachtree Road, a right on Dresden Drive, and another right on Apple Valley Road to access southbound North Druid Hills Road. This adds several minutes to each trip. It was suggested that the City could consider measures to prevent motorists from blocking the exit driveway from the MARTA station in order to facilitate easier turning movements for buses.

Another topic discussed during the field visit is the placement and spacing of bus stops along North Druid Hills Road. It was noted that there are several stops spaced somewhat close together that have low levels of usage or activity. The group discussed that some of these low-use stops could be removed without negatively impacting access for riders. This could also help improve operations by reducing the number of potential stops along the corridor. The overall goal is to strike a balance between walking access and efficient operations; MARTA strives to maintain adequate spacing for people walking to have convenient access to bus stops while simultaneously spacing stops such that buses are not stopping too frequently, disrupting or slowing down service. Following the completion of this study, MARTA staff would re-evaluate the placement of bus stops, seeking to potentially relocate stops to be as close to marked crosswalks and signalized intersections as possible, to provide riders with convenient and safer opportunities to cross from one side of the road to the other and ensure they have access to sidewalk or the multi-use path on the other side of the road.

4.3 First Round Public Open Houses (January 2019)

OVERVIEW

The first round of public open houses occurred in January 2019 and consisted of two separate open house events. The first open house in this round occurred on Monday, January 14, 2019 from 6:00 to 8:00 PM at the Brookhaven City Hall while the second meeting occurred on Wednesday, January 16, 2019 from 6:00 to 8:00 PM at the Briarwood Recreation Center. This round of public meetings was the forum where the project team presented preliminary recommendations for improvements at key intersections and typical corridor sections with lane configurations and enhanced bicycle and pedestrian facilities. The meetings were flexible, open-house style sessions so that attendees could attend at their convenience within the designated timeframe and review displays at their own pace. Representatives from the City and the study team were present at each open house to answer questions and discuss comments with attendees, including City staff from the Transportation & Public Works and Communications departments, Mayor John Ernst and Councilmember Joe Gebbia.

OUTREACH

The meetings were advertised to the community in advance through the City's e-newsletter, targeted postcard mailings, and postings on the City's website and social media accounts. Flyers were also made available at City Hall. Portable changeable message signs (PCMS) were used by the City to advertise this round of public open houses. The open house sites were set up with a series of display boards that included an overview of the project, need for the project, and preliminary recommendations for typical cross-sections and intersection improvements at seven key intersections. A total of 54 people signed in at the Monday open house, and 50 people signed in at the Wednesday open house.

SUMMARY OF COMMENTS/FEEDBACK

Comment cards were available for attendees to provide input on the preliminary recommendations. Comments were accepted both at the meetings and electronically through Friday, January 25, 2019. From this round of meetings, a total of 99 comments were submitted: 22 comment cards completed at the meeting and 77 comments submitted through the project email address following the meeting.

Comments expressed both praise and concern for the preliminary recommendations for the North Druid Hills corridor. They can be grouped by topic, such as comments addressing typical sections of the roadway, landscaping and aesthetics, bicycle and pedestrian facilities, the roundabout at the intersection with East Roxboro Road, the removal of the existing traffic signal at Goodwin Road, placement and length of turn lanes, transit's role on the corridor, concern about property impacts, lack of emphasis on the corridor south of Buford Highway, sight distance concerns, and funding and implementation. There was general support for proposed typical sections, bicycle and pedestrian facilities, and streetscape improvements with emphasis on the need to save and replant trees and vegetation where feasible and necessary. There were concerns about drivers' ability to maneuver through the proposed roundabout intersection at East Roxboro Road along with property impact to front yards and buffers in front of neighborhoods.



FIGURE 30. PROJECT TEAM MEMBER PROVIDES OVERVIEW OF STUDY CORRIDOR AND PROJECT RECOMMENDATIONS

4.4 City Council Presentation - Preliminary Draft Recommendations

The first presentation to the Brookhaven City Council occurred during the February 12, 2019 City Council Work Session at Brookhaven City Hall. At this meeting, the project team presented to the preliminary draft recommendations and sought feedback regarding next steps to prepare for the second round of public open houses in March 2019 and the final recommendations. The presentation provided background information on the study and why it was needed – including the 8.5% growth in population from 2010 to 2017, changes in land use and commute patterns, increased interest in biking and walking, and the DCSD redistricting. It also outlined themes from the first round of public open houses along with preliminary recommendations for the study corridor such as the addition of a two-way center left-turn lane along the entire corridor, improvements at key intersections, a multi-use path along the east side of the corridor, new mid-block crossings, and enhanced streetscape elements per the City of Brookhaven's Streetscape Design Standards. Potential transit-supportive strategies were presented, including Don't Block the Box pavement markings and signage in front of the bus driveway at the MARTA station, consolidating stops with lower activity and relocating stops to generate opportunities for mid-block crossings. Consistency with the City's Streetscape Design Standards and possible incorporation of public art were also discussed.



FIGURE 31. PROJECT CONSULTANT DISCUSSES IDEAS WITH BROOKHAVEN MAYOR JOHN ERNST

Refinements made to the preliminary recommendations from the January open houses presented include switching the location of a sidewalk and multi-use path on North Cliff Valley Way, so that the sidewalk is proposed to be on the north and the multi-use path on the south. The roundabout design at East Roxboro Road was also modified to improve operations mainly by adding a barrier-separated lane for continuous movement along northbound North Druid Hills Road. The traffic signal at Goodwin Road and East Roxboro Road was recommended for removal to support operations of the roundabout and a pedestrian-actuated crossing signal was recommended to facilitate people on foot crossing from the west side of East Roxboro Road to the east side. Based on feedback from the City Council and the Mayor, these recommendations were further refined for presentation at a second round of Public Open Houses in March 2019.

4.5 Second Round Public Open Houses (March 2019)

OVERVIEW

The second round of public open houses occurred in March 2019 and consisted of two separate yet identical events. The first open house in this round was held on Monday, March 11, 2019 from 6:00 to 8:00 PM at the Brookhaven City Hall while the second meeting occurred on Thursday, March 14, 2019 from 6:00 to 8:00 PM at the Briarwood Recreation Center. This round of public meetings was the forum where the project team presented refinements of preliminary recommendations based upon comments received during the first round of open houses and from City staff, Mayor, and Council. The meetings were flexible, open-house style sessions so that attendees could attend at their convenience within the designated timeframe and review displays at their own pace. Representatives from the City and the study team were present at each open house to answer questions and discuss comments with attendees regarding the draft final recommendations.

OUTREACH EFFORTS

The meetings were advertised to the community in advance through the City's e-newsletter, targeted postcard mailings, and postings on the City's website and social media accounts. Flyers were also made available at City Hall. Portable changeable message signs (PCMS) were used by the City to advertise this round of public open houses. The open house sites were set up with a series of 15 display boards that included an overview of the project, need for the project, changes made since the January 2019 round of open houses, and draft final recommendations for typical cross-sections and intersection improvements at seven key intersections. Examples of outreach materials can be seen in Appendix E.

SUMMARY OF COMMENTS/FEEDBACK

Comment cards were available for attendees to provide input on the preliminary recommendations. Comments were accepted both at the meetings and electronically through Friday, March 22, 2019. From this round of meetings, a total of 55 comments were submitted: 28 comment cards completed at the meeting and 27 comments submitted through the project email address following the meeting.

Comments expressed both praise and concern for the draft final recommendations for the North Druid Hills corridor. They can be grouped by topic, such as comments addressing typical sections of the roadway, landscaping and aesthetics, bicycle and pedestrian facilities, the roundabout at East Roxboro Road, the proposed removal of the traffic signals and closure of Goodwin Road between East Roxboro and North Druid Hills Roads, the placement and length of turn lanes, property impacts, traffic circulation and flow, crosswalk design, and intersection improvements.

The most concern at this round of open houses centered on the proposed long-term roundabout at East Roxboro Road and the closure of Goodwin Road. Some attendees expressed reservations and concerns about motorists' ability to safely maneuver through the intersection, as well as the capacity of the roundabout to handle the projected volume of traffic through the area without causing backups or delays, the rate of traffic flowing into the roundabout, and access to adjacent streets and neighborhoods. There were concerns about drivers' ability to maneuver through the proposed roundabout intersection at East Roxboro Road, especially when exiting the Pine Hills neighborhood from Goodwin Road to travel northbound on East Roxboro Road or North Druid Hills Road. Other concerning factors included limited sight-distance for vehicles turning right from Goodwin Road onto East Roxboro Road as they enter the proposed roundabout, challenges with crossing southbound traffic when turning into the inside lane of the roundabout from Goodwin Road in order to continue northbound on North Druid Hills Road or East Roxboro Road; and the potential for additional cut-through traffic in adjacent neighborhoods. Some residents were not opposed to the roundabout itself but rather the closure of Goodwin Road and the effects it could have on traffic circulation. Several potential design considerations and ideas were discussed at the open houses that could be further explored at a time when the City decides to pursue the design phase including maintaining the traffic signal at East Roxboro Road and Goodwin Road to meter traffic entering the roundabout.

There was general support for proposed typical sections, bicycle and pedestrian facilities, and streetscape improvements with emphasis on the need to save and replant trees and vegetation where feasible and necessary. Concern was expressed regarding the impact that the proposed MUP would have on residential property including front yards and buffers in front of neighborhoods. Funding for these improvements and traffic signal synchronization were other issues raised by those who submitted comments.

4.6 City Council Presentation - Draft Final Recommendations / Report

After review and approval of a draft report by City staff in March 2019, the final draft report was made available on the City's website. The project team made a final presentation to City Council on April 9, 2019. The presentation summarized the purpose of the study, the planning process, draft final recommendations, and revisions made to recommendations subsequent to the first City Council presentation and based upon feedback from the second round of public open houses. The final report and recommendations are expected to be presented again for consideration for adoption following this first presentation.

Chapter 5: Summary of Best Practices

The project consultants and the City of Brookhaven identified several best practices regarding proposed recommendations for this study. The best practices are from documents and manuals published by the American Association of State Highway and Transportation Officials (AASHTO), Federal Highway Administration (FHWA), and the National Cooperative Highway Research Program (NCHRP) unit of the Transportation Research Board (TRB). These best practices and recent publications informed development of recommendations and design of proposed improvements and facilities.

5.1 Guide for the Development of Bicycle Facilities¹⁵

This is the 4th Edition of the foundational guide for bicycle facility design from the American Association of State Highway and Transportation Officials (AASHTO), published in 2012. It is in the process of being updated and the 5th edition will be released later in 2019. The guide is considered an essential manual in the design and development of bicycle facilities along public rights-of-way. It includes content regarding the bicycle planning process, bicycle operation and safety, design of on-road facilities, bicycle parking facilities, and maintenance and operations. Chapter 5 in this Guide is devoted to design elements, safety considerations, and signage for multi-use paths. Proposed improvements for North Druid Hills Road are in line with the guidance included in this document. The minimum width for a paved two-directional shared-use (multi-use) path is 10 feet. A path width may be reduced to eight feet in rare circumstances where physical constraints are present. The recommended distance between a path alongside a roadway and the roadway curb is five feet. Where the separation is less than five feet, a physical barrier or railing should be provided between the path and the roadway.

5.2 Making Our Roads Safer One Countermeasure at a Time¹⁶

Making Our Roads Safer One Countermeasure at a Time: 20 Proven Safety Countermeasures that Offer Significant and Measurable Impacts to Improving Safety is a 2018 FHWA publication that describes proven countermeasures in four categories to improve safety on roadways. Included among the proven countermeasures are several strategies considered among the options for North Druid Hills Road: roundabouts, medians and pedestrian crossing islands, and pedestrian hybrid beacons.

ROUNDAABOUTS

Roundabouts are circular, channelized intersections that efficiently move traffic through an intersection with less delay than a typical signalized intersection. Incoming traffic yields to vehicles already circulating through the intersection. Channelized approaches and the circular design results in lower travel speeds and fewer conflict points than typical intersections, reducing the potential for severe crashes. Roundabouts provide significant safety and operational benefits compared to other intersection types. The FHWA encourages agencies to consider roundabouts during new construction and reconstruction projects as well as for existing intersections where safety or operational improvements are needed. Research shows that converting a signalized intersection to a roundabout may result in up to a 78% reduction in severe crashes (page 12).

RAISED MEDIANS AND PEDESTRIAN CROSSING ISLANDS

Raised medians and pedestrian crossing islands aim to reduce pedestrian crashes along busy corridors that vary in lane width, especially at locations not near an intersection. When crossing a roadway, pedestrians have to try to gauge vehicle speed, look for gaps in traffic, and predict vehicle movements. A raised median in the center of the

¹⁵ American Association of State Highway and Transportation Officials (2012). *Guide for the Development of Bicycle Facilities*, 4th Edition.

¹⁶ Federal Highway Administration (2018). *Making Our Roads Safer One Countermeasure at a Time: 20 Proven Safety Countermeasures that offer significant and measurable impacts to improving safety*. <https://safety.fhwa.dot.gov/provencountermeasures/fhwasa18068/FHWA-SA-18-068.pdf>

roadway allows people walking to simplify this effort by focusing on one direction of traffic at a time. Raised medians can reduce pedestrian crashes by 46% while pedestrian crossing islands can reduce pedestrian crashes by 56%. Transportation agencies are encouraged to consider medians or pedestrian islands in areas with a mix of pedestrian and vehicle traffic and intermediate or high travel speeds. Areas that may benefit from raised median crossing islands include mid-block locations, approaches to multi-lane intersections, and areas near transit stops and other pedestrian destinations.

PEDESTRIAN HYBRID BEACONS

Pedestrian hybrid beacons (PHB) are traffic control devices designed to help pedestrians safely cross busy or high-speed roadways at midblock locations and uncontrolled intersections. They are pedestrian-actuated, meaning that they do not activate until a person wishing to cross the street pushes the button to activate the beacon. The signal consists of an initial yellow signal followed by a solid red signal directing motorists to slow and come to a stop. PHBs are an intermediate option between flashing beacons and a full pedestrian signal because it provides full stop control for vehicles. PHBs significantly reduce the risk of pedestrian crashes as well as in serious injury and fatal crashes – by up to 69% overall and by 15% in serious injury and fatal crashes. The FHWA’s Manual on Uniform Traffic Control Devices (MUTCD) provides guidance about the application of PHBs and the agency’s Guide for Improving Pedestrian Safety at Uncontrolled Crossing Locations also provides guidance about the selection of countermeasures, such as RRFBs and PHBs, based upon roadway characteristics.

5.3 Guide for Improving Pedestrian Safety at Uncontrolled Crossing Locations¹⁷

This publication was updated in July 2018 to include the Rectangular Rapid-Flashing Beacon (RRFB), for which FHWA issued a new Interim Approval (IA-21) for the optional use of RRFBs in March 2018. The guide includes material on six effective and lower-cost countermeasures for uncontrolled crossing locations including crosswalk visibility enhancements, raised crosswalks, pedestrian refuge islands, pedestrian hybrid beacons (PHB), road diets, and rectangular rapid-flashing beacons (RRFBs). Each of these treatments depends on roadway characteristics including number of travel lanes for each approach, traffic volumes, center turn lanes, and speed limits. RRFBs and their discussion in this document are extremely relevant for the North Druid Hills Road corridor, particularly in three-lane segments in close proximity to pedestrian destinations, such as schools.

For multi-lane roadway crossings with AADTs over 10,000 vehicles, a marked crosswalk alone is typically not sufficient and more substantial crossing treatments are also needed to reduce the risk of pedestrian crashes. Each of the recommended countermeasures address specific safety issues. Refuge islands help address conflicts at crossing locations, excessive vehicle speed, inadequate visibility, and insufficient separation from vehicular traffic. PHBs also can address conflicts at crossing locations, excessive speeds, and inadequate visibility, as well as drivers not yielding to people in crosswalks. RRFBs can help address conflicts at crossing locations, inadequate visibility, drivers not yielding, and insufficient separation from vehicular traffic. Guidance is provided regarding the application of countermeasures based upon roadway characteristics. On a 35 MPH roadway with three lanes and AADT of 15,000 or more, PHBs are always recommended for consideration, along with Yield Here To/Stop Here For Pedestrian signs and yield or stop lines on the roadway. Pedestrian refuge islands are also considered candidate treatments at uncontrolled crossing locations on roadways with these characteristics, which are shown in Figure 32 below.

¹⁷ Federal Highway Administration (2018). *Guide for Improving Pedestrian Safety at Uncontrolled Crossing Locations*. FHWA-SA-17-072 https://www.fhwa.dot.gov/innovation/everydaycounts/edc_5/docs/STEP-guide-improving-ped-safety.pdf

Roadway Configuration	Posted Speed Limit and AADT								
	Vehicle AADT <9,000			Vehicle AADT 9,000–15,000			Vehicle AADT >15,000		
	≤30 mph	35 mph	≥40 mph	≤30 mph	35 mph	≥40 mph	≤30 mph	35 mph	≥40 mph
2 lanes (1 lane in each direction)	① 2 4 5 6	① 5 6 7 9	① 5 6 ⑦ ⑨	① 4 5 6	① 5 6 7 9	① 5 6 ⑦ ⑨	① 4 5 6 7 9	① 5 6 7 9	① 5 6 ⑨
3 lanes with raised median (1 lane in each direction)	① 2 3 4 5	① ③ 5 7 9	① ③ 5 ⑦ ⑨	① 3 4 5 7 9	① ③ 5 ⑦ ⑨	① ③ 5 ⑦ ⑨	① ③ 4 5 7 9	① ③ 5 ⑦ ⑨	① ③ 5 ⑨
3 lanes w/o raised median (1 lane in each direction with a two-way left-turn lane)	① 2 3 4 5 6 7 9	① ③ 5 6 7 9	① ③ 5 6 ⑨	① 3 4 5 6 7 9	① ③ 5 6 ⑦ ⑨	① ③ 5 6 ⑨	① ③ 4 5 6 7 9	① ③ 5 6 ⑨	① ③ 5 6 ⑨
4+ lanes with raised median (2 or more lanes in each direction)	① ③ 5 7 8 9	① ③ 5 7 8 9	① ③ 5 8 ⑨	① ③ 5 7 8 9	① ③ 5 ⑦ 8 ⑨	① ③ 5 8 ⑨	① ③ 5 ⑦ 8 ⑨	① ③ 5 8 ⑨	① ③ 5 8 ⑨
4+ lanes w/o raised median (2 or more lanes in each direction)	① ③ 5 6 7 8 9	① ③ 5 ⑥ 7 8 9	① ③ 5 ⑥ 8 ⑨	① ③ 5 ⑥ 7 8 9	① ③ 5 ⑥ ⑦ 8 ⑨	① ③ 5 ⑥ 8 ⑨	① ③ 5 ⑥ ⑦ 8 ⑨	① ③ 5 ⑥ 8 ⑨	① ③ 5 ⑥ 8 ⑨

Given the set of conditions in a cell,

- # Signifies that the countermeasure is a candidate treatment at a marked uncontrolled crossing location.
- Signifies that the countermeasure should always be considered, but not mandated or required, based upon engineering judgment at a marked uncontrolled crossing location.
- Signifies that crosswalk visibility enhancements should always occur in conjunction with other identified countermeasures.*

The absence of a number signifies that the countermeasure is generally not an appropriate treatment, but exceptions may be considered following engineering judgment.

- 1 High-visibility crosswalk markings, parking restrictions on crosswalk approach, adequate nighttime lighting levels, and crossing warning signs
- 2 Raised crosswalk
- 3 Advance Yield Here To (Stop Here For) Pedestrians sign and yield (stop) line
- 4 In-Street Pedestrian Crossing sign
- 5 Curb extension
- 6 Pedestrian refuge island
- 7 Rectangular Rapid-Flashing Beacon (RRFB)**
- 8 Road Diet
- 9 Pedestrian Hybrid Beacon (PHB)**

FIGURE 32. PEDESTRIAN COUNTERMEASURES BY ROADWAY FEATURE

5.4 Rectangular Rapid-Flashing Beacon - Safe Transportation for Every Pedestrian: Countermeasure Tech Sheet¹⁸

This fact sheet from FHWA outlines the numerous safety benefits of Rectangular Rapid-Flashing Beacon (RRFB) installation at established pedestrian crossings along multi-lane corridors, such as North Druid Hills Road. RRFBs are flashing beacons that can be used to supplement marked crosswalks and enhance conspicuity. They are typically placed at both ends of the crosswalk and where medians are used, the RRFB should be placed to the right of the crosswalk and on the median, facing traffic approaching the crosswalk. An example of an RRFB in Atlanta is shown in Figure 33.

¹⁸ Federal Highway Administration (2018). *Rectangular Rapid-Flashing Beacon (RRFB). Safe Transportation for Every Pedestrian: Countermeasure Tech Sheet*. (FHWA-SA-18-065) https://safety.fhwa.dot.gov/ped_bike/step/docs/techSheet_RRFB_2018.pdf

According to research, RRFBs, when accompanied with appropriate stop and yield signage, result in motorist yielding rates as high as 98% at marked crosswalks and can reduce pedestrian crashes by up to 47%. RRFBs have been proven to be particularly effective at multi-lane crossings with speed limits less than 40 MPH. FHWA issued an interim approval (IA-21) for the use of RRFBs. State and local agencies must request and receive permission to use this interim approval. Guidance on the application of RRFBs is provided in other FHWA documents, including the Guide for Improving Pedestrian Safety at Uncontrolled Crossing Locations. RRFBs Installation costs for RRFBs range from \$4,500 to \$52,000 each, with an average of \$22,250 per crossing.



FIGURE 33. RRFB ON DECATUR STREET IN ATLANTA, IN FRONT OF THE KING MEMORIAL MARTA STATION

5.5 Safety Evaluation of Installing Center Two-Way Left-Turn Lanes on Two-Lane Roads¹⁹

This FHWA publication discusses the safety implications of installing two-way left-turn lanes (TWLTLs) on two-lane roads. This is a cost-effective measure which is proposed for North Druid Hills Road for the portions of the road which are currently two lanes (one lane in each direction). The research included in this publication shows statistical significance in the reduction of total, injury, and rear-end crashes along two-lane roadways after the addition of TWLTLs. TWLTLs are particularly effective at reducing the likelihood of rear-end collisions, which represent about 43% of all crashes between 2013 and 2017 along North Druid Hills Road. The report provides case studies and corresponding data from applications in Arkansas, California, Illinois, and North Carolina.

5.6 NCHRP 672 - Roundabouts: An Informational Guide²⁰

This is the second edition of a report by the National Cooperative Highway Research Program (NCHRP), which is administered by the Transportation Research Board (TRB). Published in 2010, it is considered a go-to for technical information relating to roundabouts and their effect on traffic and safety operations in a variety of settings, including suburban corridors like North Druid Hills Road. It discusses topics such as traffic controls, pavement markings, landscaping, pedestrian and bicycle accommodations, and illumination/lighting. Roundabouts have been proven to be safer than other forms of at-grade intersections, particularly when it comes to fatal and injury crashes. Safety performance of roundabouts are the product of design and geometry. In roundabouts, vehicles travel in the same direction, eliminating right-angle and left-turn conflicts associated with conventional intersections. In addition, the inherent design of a roundabout requires lower vehicular speeds, which can: provide more time for drivers entering a roundabout to gauge gaps and merge accordingly, increase the likelihood of drivers yielding to pedestrians (compared to uncontrolled crossings), provide more time for all users to adjust and correct mistakes, and reduce the frequency and severity of crashes, including those with bicyclists and pedestrians. Roundabouts also allow pedestrians to cross one direction of traffic at a time, which is simpler and safer than crossing two-way traffic.

In addition, the design of roundabouts facilitates slower travel speeds, therefore making it easier for drivers to identify and accept gaps in circulating traffic. Roundabouts typically operate with lower vehicle delays than other

¹⁹ Federal Highway Administration (2008). *Safety Evaluation of Installing Center Two-Way Left-Turn Lanes on Two-Lane Roads*. (FHWA-HRT-08-042) <https://www.fhwa.dot.gov/publications/research/safety/08042/08042.pdf>

²⁰ National Cooperative Highway Research Program (2010). *NCHRP 672 - Roundabouts: An Informational Guide*. <https://nacto.org/docs/usdg/nchrprpt672.pdf>

intersection types, because it is unnecessary for traffic to come to a complete stop when no conflicts are present. Plus, when there are queues on one or more approaches, traffic within the queues usually continues to move at a slow and steady pace, which is more tolerable to drivers than stopping.

These and other design factors were carefully considered in development of the preliminary conceptual recommendations for North Druid Hills Road.

5.7 NCHRP 834 - Crossing Solutions at Roundabouts and Channelized Turn Lanes for Pedestrians with Vision Disabilities: A Guidebook²¹

This 2017 report from NCHRP and TRB builds upon previous roundabout research and focuses on pedestrian crossing ease and amenities at roundabouts and channelized turn lanes. Details on the design process, general principles, and assessment methodologies are included. Chapter 3 discusses principles regarding pedestrian wayfinding and crossing while Chapter 4 discusses geometric design of roundabouts and traffic control devices relating to pedestrian access of roundabouts. The guidance is consistent with existing guidance on accessible design of pedestrian facilities and public rights of way. It also summarizes guidance regarding the U.S. Access Board Notice of Proposed Rulemaking for Accessibility Guidelines for Pedestrian Facilities in the Public Right-of-Way (PROWAG) from July 2011, which outlines requirements for crosswalks and intersections within the public right-of-way compliant with ADA, requiring that pedestrian-activated accessible pedestrian signals be provided for each multi-lane segment of a pedestrian crossing, including roundabouts, or that some equivalent design, product, or technology be used to facilitate ADA compliant crossings.

²¹ National Cooperative Highway Research Program (2017). *NCHRP 834 Crossing Solutions at Roundabouts and Channelized Turn Lanes for Pedestrians with Vision Disabilities: A Guidebook*. <https://www.nap.edu/catalog/24678/crossing-solutions-at-roundabouts-and-channelized-turn-lanes-for-pedestrians-with-vision-disabilities-a-guidebook>

Chapter 6: Recommendations

The North Druid Hills Road Corridor Study proposes a series of recommendations based upon the findings and analysis of existing conditions, current and projected traffic volumes, technical best practices, and input from the City and community members. This study focuses on the city-controlled portion of North Druid Hills Road from SR 13/Buford Highway to SR 141/Peachtree Road. The portion between SR 42/Briarcliff Road and SR 13/Buford Highway is a State Route and controlled by GDOT. Several projects are underway in this segment, including Children’s Healthcare of Atlanta, a programmed GDOT project to redesign the interchange at I-85 (GDOT PI #0016054), and the North Fork Peachtree Creek Greenway trailhead near the Salvation Army. The area north of Apple Valley Road, near SR 141/Peachtree Road is subject to the requirements of the Peachtree Road Overlay District. Any future developments in this area should fulfill the requirements of the overlay district as well as future transportation needs of adjacent intersections related to those developments. These may include, but are not limited to, intersection improvements at North Druid Hills Road at SR 141/Peachtree Road, North Druid Hills Road at Apple Valley Road, and the replacement of the freight and MARTA rail bridges over North Druid Hills Road.

As a visioning study, the report sets forth a long-term vision for the North Druid Hills Road Corridor, including typical sections for proposed segments, intersection improvements, and facilities for people biking, walking, and using transit. This study does not provide detailed concept layout plans or concept reports for recommended projects – these will be developed as part of future project development and engineering design for projects identified in this report.

The Corridor Vision Report offers a series of recommended projects and overall strategies to address identified issues and achieve the vision established through this process for the North Druid Hills Road corridor. Study recommendations include the following elements:

- General or overarching recommendations
- Typical cross-sections for segments of the corridor
- Intersection improvement projects and recommended lane use
- Facilities for people walking, biking, and using transit
- A phased project list with cost estimates and maps illustrating locations of recommended projects

Recommendations will be prioritized and implemented by the City of Brookhaven in accordance with city priorities based on factors such as completion of other infrastructure or service projects, available funding and resources, and city priorities.

6.1 Corridor Vision

The overarching vision for the North Druid Hills Road Corridor is one that improves efficiency and operations and provides a continuous and connected multi-modal network for people driving, walking, biking, and taking transit. It has several main components:

- A near-continuous two-way center left-turn lane to serve current and projected future traffic
- Improvements at key intersections such as new turn lanes, improved turning radii, and a proposed roundabout at East Roxboro Road to improve operations
- Continuous sidewalk along the west side of North Druid Hills Road and continuous multi-use path for people walking and bicycling along the east side of North Druid Hills Road
- Tie-ins to planned and proposed biking and walking facilities on streets adjacent to North Druid Hills Road, such as at Goodwin Road, Briarwood Road, and Apple Valley Road, among others
- Improved pedestrian crossings at key intersections and new mid-block crosswalks

- Streamlined and consolidated MARTA bus stops to improve transit operations and better align with facilities for biking and walking and where there is the most bus usage
- Enhanced streetscape in accordance with the City's Streetscape Design Standards

Through a process of examining existing conditions, identifying needs and opportunities, and building upon the City's study objectives, an overarching vision for the North Druid Hills Road corridor was developed. The vision reflects the City's commitment to accommodating all corridor users, accommodating shifting development patterns and projected future traffic, and improving safety and operations. The Vision Statement for the North Druid Hills Road Corridor Study is as follows:

"Enhance the City of Brookhaven by connecting people and places along and across North Druid Hills Road via a range of safer and more convenient multimodal travel options."

6.2 Overarching and Corridor-Wide Recommendations

COORDINATE WITH GDOT ON IMPROVEMENTS TO THE STATE ROUTE PORTION OF NORTH DRUID HILLS ROAD

Coordinate with GDOT to implement improvements to the State Route portion of the study corridor (from SR 13/Buford Highway to SR 42/Briarcliff Road). Such improvements may result from projects such as PI #0016054: I-85 at SR 42, in which GDOT is developing recommendations for the interchange at I-85 and from the implementation of recommendations included in the Development of Regional Impact (DRI) traffic study for Children's Healthcare of Atlanta (CHOA).

PROVIDE CONTINUOUS SIDEWALK AND MULTI-USE PATH

Provide a continuous and interconnected multi-modal network to create a comfortable environment for all users, including people biking, walking, and using transit, that will also improve access to nearby trails, parks, schools, the Brookhaven-Oglethorpe MARTA Station and other key destinations. All biking and walking infrastructure should comply with Americans with Disabilities (ADA) standards and follow GDOT's Pedestrian and Streetscape Guide as applicable. Consistent with the City's Bicycle, Pedestrian & Trail Plan (projects 104-MT, 105-MT, and 151-MT), ensure that projects implemented along North Druid Hills Road include a sidewalk on the west side of the road and multi-use path on the east side of the road.

PURSUE CORRIDOR STUDY OF EAST ROXBORO ROAD

The City's Comprehensive Transportation Plan (CTP) recommended a two-phase corridor study for East Roxboro Road between North Druid Hills Road and the City limits. Given the recent and anticipated future growth of areas and destinations north and south of East Roxboro Road within the City of Brookhaven, a corridor study could help document the need for improvements to this segment, and identify potential projects, increasing the likelihood of securing outside funding. The City of Atlanta's infrastructure on East Roxboro Road supports four lanes with a median, which could potentially be extended eastward into the City of Brookhaven. Investing in such improvements would help to better connect major thoroughfares in the region.

IMPROVE PEDESTRIAN CROSSINGS AND CONNECTIVITY

Improve pedestrian crossing and connectivity, by adding new crosswalks at key intersections as well as in midblock locations. The proposed projects include five locations where midblock or unsignalized crossings are recommended. They are spaced strategically between signalized intersections to reduce the distance people walking must travel to get to a market crosswalk, in an effort to provide safer and more convenient opportunities for crossing from one side of North Druid Hills Road to the other. Crosswalks at midblock locations should be designed and constructed with raised concrete refuge islands that allow people walking to cross one direction of

traffic at a time. The type of pedestrian-actuated traffic control should be determined based upon further pedestrian studies and current FHWA guidance: options may include a Rectangular Rapid-Flashing Beacon (RRFB) or Pedestrian Hybrid Beacon (PHB). Locations should be chosen in a way that minimizes conflicts between driveways and side streets as well as to provide adequate sight distance. Locations of existing and proposed crosswalks are shown in Figure 34.

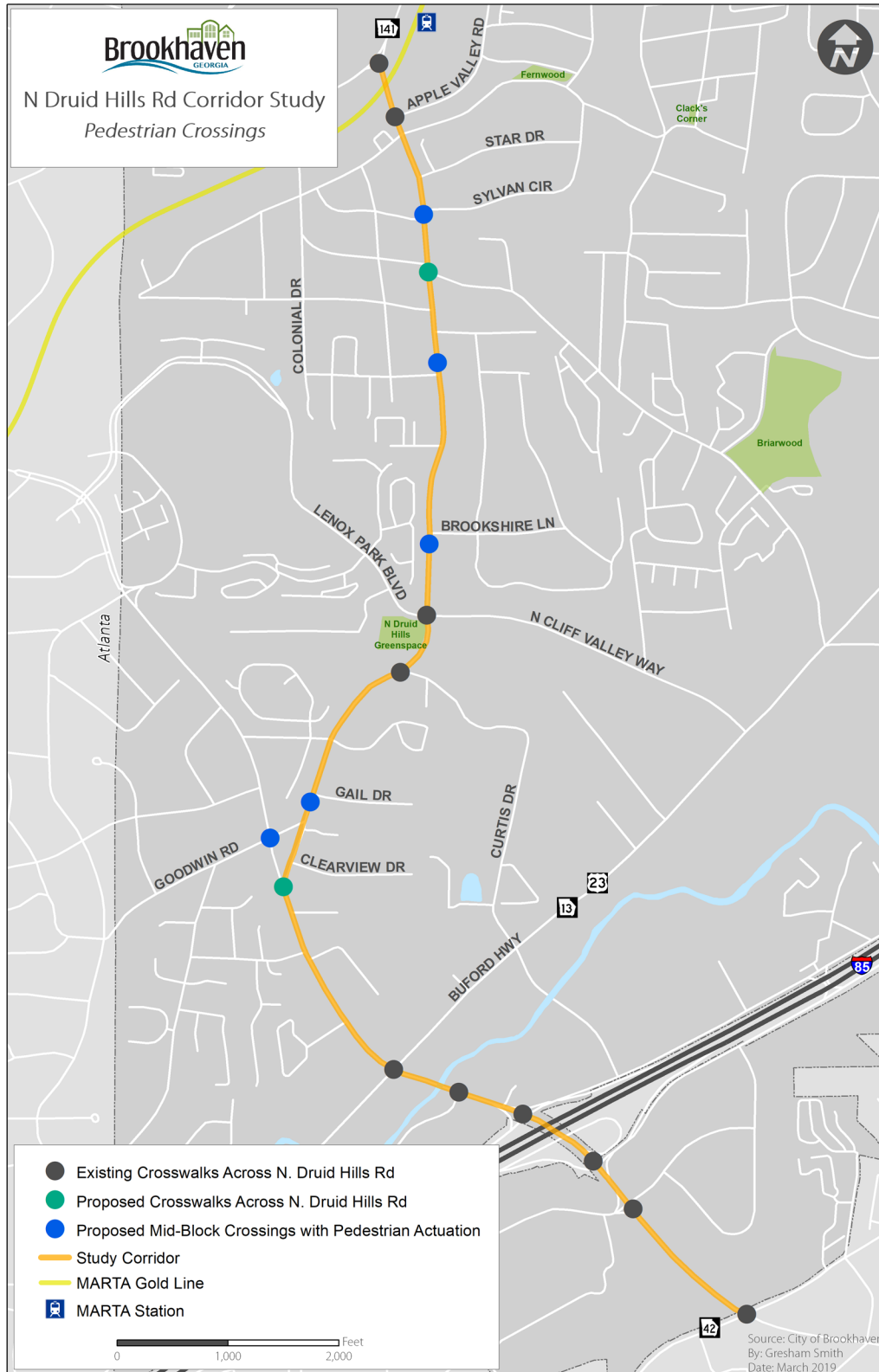


FIGURE 34. EXISTING AND PROPOSED CROSSWALKS ALONG STUDY CORRIDOR

USE AND APPLY CITY STREETSCAPE STANDARDS

As part of each individual infrastructure project, provide and enhance streetscape elements in accordance with the City's Streetscape Design Standards. This may include, but is not limited to: lighting fixtures, granite walls, guard railing systems, benches, trash receptacles, and bike racks.

- **Pedestrian-Scale Lighting:** Include pedestrian-scale lighting with each infrastructure project as appropriate in the utility strip outside the sidewalk and multi-use path, spaced approximately every 80 feet. Fixtures should be in accordance with the Design Standards, which specify fixtures that mix traditional and contemporary forms using decorative cast aluminum.
- **Guard Railing System:** Guard railing systems should consist of hot rolled steel material and a powdercoat finish to separate pedestrians from automobile traffic along the proposed multi-use path. Railings will be inserted at 4-foot intervals with digitally fabricated metal panels. Inset depth, base insert, and assembly should be in accordance with the City's Streetscape Design Standards.
- **Granite Walls:** Granite walls along the corridor shall be Georgia Blue Granite with rough or rubble texture, as denoted by the City's Design Standards. Walls should have Type S mortar along with a full mortar net above the solid grout filled line.
- **Benches:** Pursuant to the City of Brookhaven Zoning Ordinance²², street benches shall be placed at a ratio of one bench per 300 feet of street frontage, or portion thereof, along this corridor. Benches should be constructed at a dimension of 72.6 inches in length, 23.8 inches in width, and 34.1 inches in height with a seat height of 18.6 inches. They should have a dark bronze metallic base color with a hardwood seat/back material.
- **Trash Receptacles:** Pursuant to the City of Brookhaven Zoning Ordinance, trash receptacles shall be placed at a ratio of one receptacle per 300 feet of street frontage, or portion thereof, along this corridor. According to the Design Standards, receptacles should be constructed at a height of 35.2 inches and a length and width of 22.1 inches. They should have a dark bronze metallic base color with a hardwood infill material and a rain protected top.
- **Bike Racks:** Pursuant to the City of Brookhaven Zoning Ordinance, bicycle racks shall be placed at a ratio of one rack per 300 feet of street frontage, or portion thereof, along this corridor. The length of bicycle racks varies and should be based on circumstances and site location. Their color should be dark brown as specified in the Design Standards.

STREET TREES

Include a diverse mix of understory street trees to so as to reduce the risk of tree loss due to threats which may affect any given individual species. Street trees should be planted in the planting strip along the multi-use-path as part of each infrastructure project as appropriate, spaced approximately every 30 feet in accordance with City standards. Work with the City arborist to determine appropriate species, size, and placement for each project. These may include, but are not limited to, American holly, dogwood, redbud or other genus of understory trees indigenous to the city.²³

WORK WITH DEKALB COUNTY SCHOOL DISTRICT TO ACCOMMODATE CHANGES TO TRAFFIC PATTERNS

Collaborate with DeKalb County School District (DCSD) to address any changes to traffic patterns on City streets resulting from school redistricting and changes to traffic patterns at the present site of Cross Keys High School. This should include re-evaluating the design for the intersections of Curtis Drive and Lenox Park Boulevard/North

²² City of Brookhaven Zoning Ordinance (November 27, 2018), page 5-4.

²³ City of Brookhaven Tree Ordinance (Sec. 14-151),
https://library.municode.com/ga/brookhaven/codes/code_of_ordinances?nodeId=PTIICOOR_CH14LADESU_ARTIIITRPRMA

Cliff Valley Way at the time of implementation based upon projected traffic patterns from the new middle school that will replace Cross Keys High School. Middle schools tend to generate more personal vehicle traffic than do high schools; therefore, based upon the latest information available from DCSD at the time, consideration should be given to the need for an additional westbound lane on Curtis Drive and/or side-by-side northbound and southbound left-turn lanes in the segment between the two intersections to accommodate anticipated traffic.

CITYWIDE BRANDING AND WAYFINDING SYSTEM

As part of the City's Streetscape Design Standards, additional standards should be developed to articulate a citywide branded wayfinding system that would guide residents and visitors throughout the City, especially to better connect and direct people to and along planned multi-use paths. The system should include standards for directional and wayfinding signage. This could be done at both the vehicular and the pedestrian scale.

6.3 Transit Supportive Strategies

MARTA is the primary provider of transit service within the City of Brookhaven and along North Druid Hills Road. While the agency makes most decisions regarding its service (such as routing, stop placement, service frequency, and amenities like trash receptacles, benches, and shelters), the City has a collaborative working relationship with MARTA. As part of this Corridor Study, met with MARTA in the field to review bus stop locations and discuss opportunities to make infrastructure improvements that would simultaneously enhance transit service and operations.

The City should continue to coordinate with MARTA to evaluate and adjust spacing of bus stops to improve bus and corridor operations while maintaining accessibility for people taking the bus. This may include consolidation of three to four stops in each direction where ridership is low and relocation of two to three stops in each direction to better accommodate site conditions, including lane configurations and marked crosswalks. In the future, as new crosswalks are added to the corridor, City staff should coordinate with MARTA to encourage relocation of bus stops to better align with marked crosswalks, providing safer options for people using buses to get from one side of the road to the other.

A specific recommendation to improve bus movements at the MARTA station exit on North Druid Hills Road is included in the recommended projects below.

6.4 Typical Sections

Typical cross-sections are depictions of the roadway from a cut-away or cross-section view of the roadway. They illustrate configuration of elements within the public right-of-way including, but not limited to, the roadway and travel lanes, median (where applicable), bicycle and pedestrian facilities, utility and landscape areas, and "clear zone" (unobstructed area designed to enable a driver to stop safely or regain control of a vehicle that has accidentally left the roadway). Typical cross-sections represent a generic view of the typical configuration of these elements between intersections. The ultimate design of a roadway is usually based on the typical cross-section with variations that depend on a number of factors, such as topography, drainage, presence of utilities, unique features of the road, and others.

The following images are representations of the recommended typical conditions along North Druid Hills Road between the extents of the intersection improvement projects. They are all presented in a north-facing direction: thus, the left side of the image is the west side of the road and the right side of the image is the east side of the road. The present high-level visions of what might be seen at a generic or "typical" location between intersections within a given segment of North Druid Hills Road. Accommodations will be made for existing and future conditions, such as turn lanes, driveway, and intersections as appropriate during the engineering design phase of

each project. That phase is also when details regarding the application of recommendations and specific placement or alignment of roadway elements will be worked out.

Throughout the length of the study corridor, a five-foot sidewalk is recommended along the west side of the road and a ten-foot multi-use path is recommended along the east side of the road. The multi-use path is recommended to be separated from the travel lanes by curb and gutter and a five-foot planting strip. Sidewalk is recommended to be separated from travel lanes by curb and gutter and a two-foot planting strip. Where needed, these widths may be narrowed, such as to reduce potential impacts in constrained areas. Along the entire length of the study corridor, travel lanes and the two-way center left-turn lane are recommended to be 11 feet wide.

SEGMENT 1: SR 13/BUFORD HIGHWAY TO EAST ROXBORO ROAD

The vision for the typical section in the southern segment of the corridor, between SR 13/Buford Highway and East Roxboro Road, is recommended to remain largely as-is, with two travel lanes in each direction and a two-way center left-turn lane. In addition, a short-raised median is recommended to be installed in the center left-turn lane to discourage drivers from traveling longer distances in that, thereby reducing the risk of potential conflicts, such as between turning vehicles. Consistent with the overall corridor vision, this segment would also include a sidewalk on the west side of the road and multi-use path on the east side of the road, each separated from the roadway by a planting strip. Streetscape elements such as pedestrian-scale lighting, street trees, trash receptacles, bike racks, and handrails will be identified during the engineering design phase of projects in this segment. The typical section is shown in Figure 35.

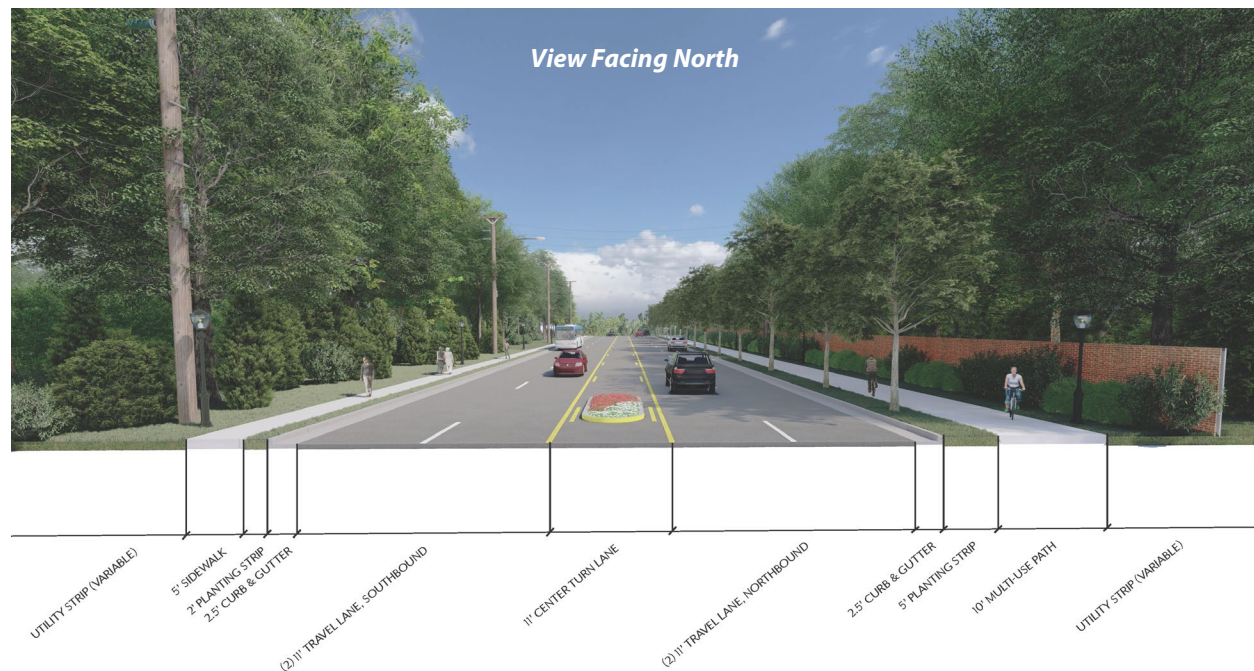


FIGURE 35. RECOMMENDED TYPICAL CROSS-SECTION FOR SEGMENT 1

SEGMENT 2: EAST ROXBORO ROAD TO LENOX PARK BOULEVARD/NORTH CLIFF VALLEY WAY

The vision for the typical section between East Roxboro Road and Lenox Park Boulevard/North Cliff Valley Way includes one northbound travel lane, a two-way center left-turn lane, and a southbound travel lane. Just south the intersection at Curtis Drive, the center left-turn lane will taper down to minimize impacts to adjacent properties and because there is no northbound left-turn movement at the intersection. Throughout this segment, the two-way center left-turn lane will become a dedicated left-turn lane at key intersections. Consistent with the overall corridor vision, this segment would also include a sidewalk on the west side of the road and multi-use path on the east side of the road, each separated from the roadway by a planting strip. Streetscape elements such as pedestrian-scale lighting, street trees, trash receptacles, bike racks, and handrails will be identified during the engineering design phase of projects in this segment, in accordance with the City's Streetscape Design Standards. The typical section for this segment is shown in Figure 36.

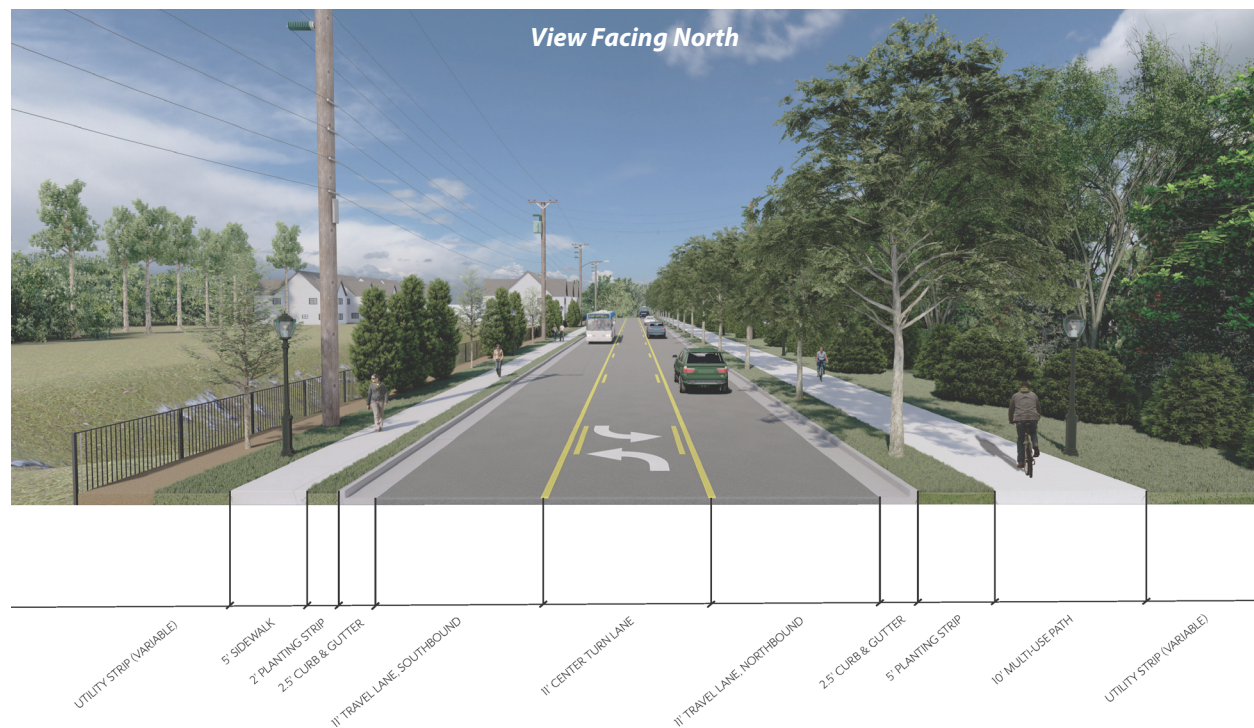


FIGURE 36. RECOMMENDED TYPICAL CROSS-SECTION FOR SEGMENT 2

SEGMENT 3: LENOX PARK BOULEVARD/NORTH CLIFF VALLEY WAY TO BRIARWOOD ROAD

The vision for the typical section between Lenox Park Boulevard/North Cliff Valley Way and Briarwood Road includes one northbound travel lane, a two-way center left-turn lane, and a southbound travel lane. Throughout this segment, the two-way center left-turn lane will become a dedicated left-turn lane at key intersections. Consistent with the overall corridor vision, this segment would also include a sidewalk on the west side of the road and multi-use path on the east side of the road, each separated from the roadway by a planting strip. Streetscape elements such as pedestrian-scale lighting, street trees, trash receptacles, bike racks, and handrails will be identified during the engineering design phase of projects in this segment, in accordance with the City's Streetscape Design Standards. The typical section for this segment is shown in Figure 37.

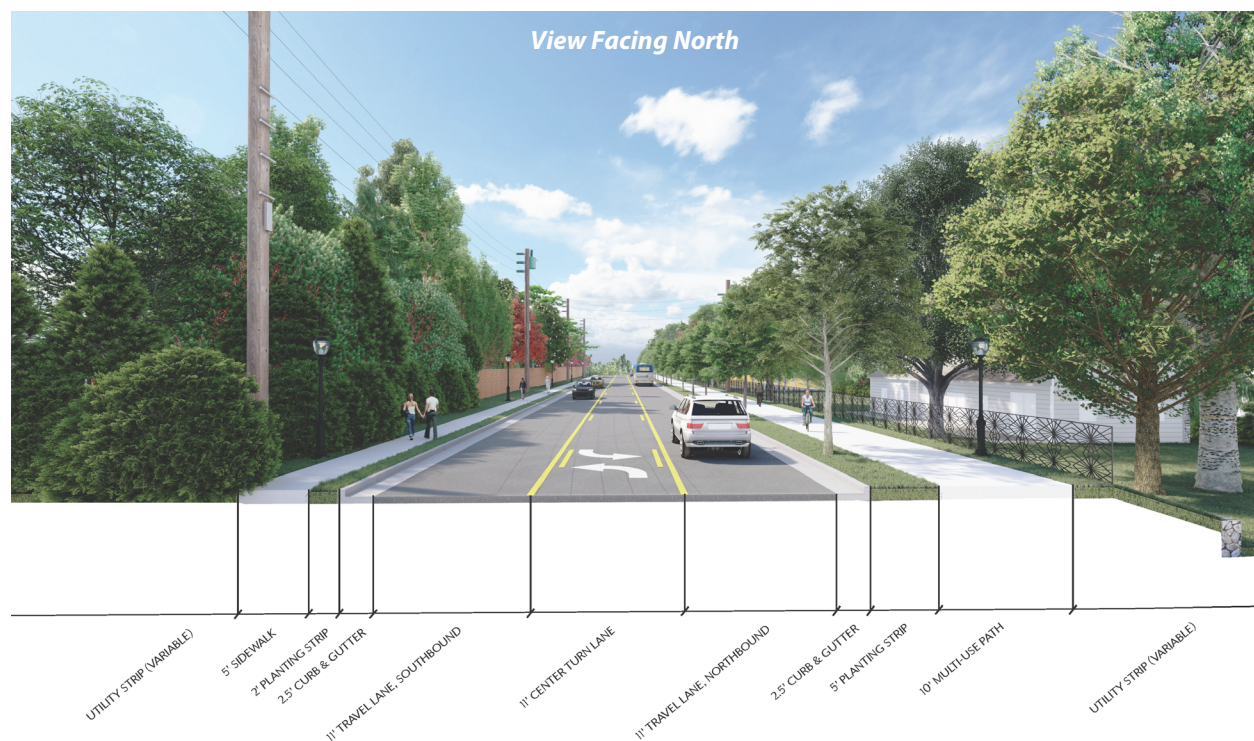


FIGURE 37. RECOMMENDED TYPICAL CROSS-SECTION FOR SEGMENT 3

SEGMENT 4: BRIARWOOD ROAD TO APPLE VALLEY ROAD

The vision for the typical section between Briarwood Road and Apple Valley Road includes one northbound travel lane, a two-way center left-turn lane, and a southbound travel lane. Throughout this segment, the two-way center left-turn lane will become a dedicated left-turn lane at key intersections. Consistent with the overall corridor vision, this segment would also include a sidewalk on the west side of the road and multi-use path on the east side of the road, each separated from the roadway by a planting strip. Streetscape elements such as pedestrian-scale lighting, street trees, trash receptacles, bike racks, and handrails will be identified during the engineering design phase of projects in this segment, in accordance with the City's Streetscape Design Standards. The typical section for this segment is shown in Figure 38.

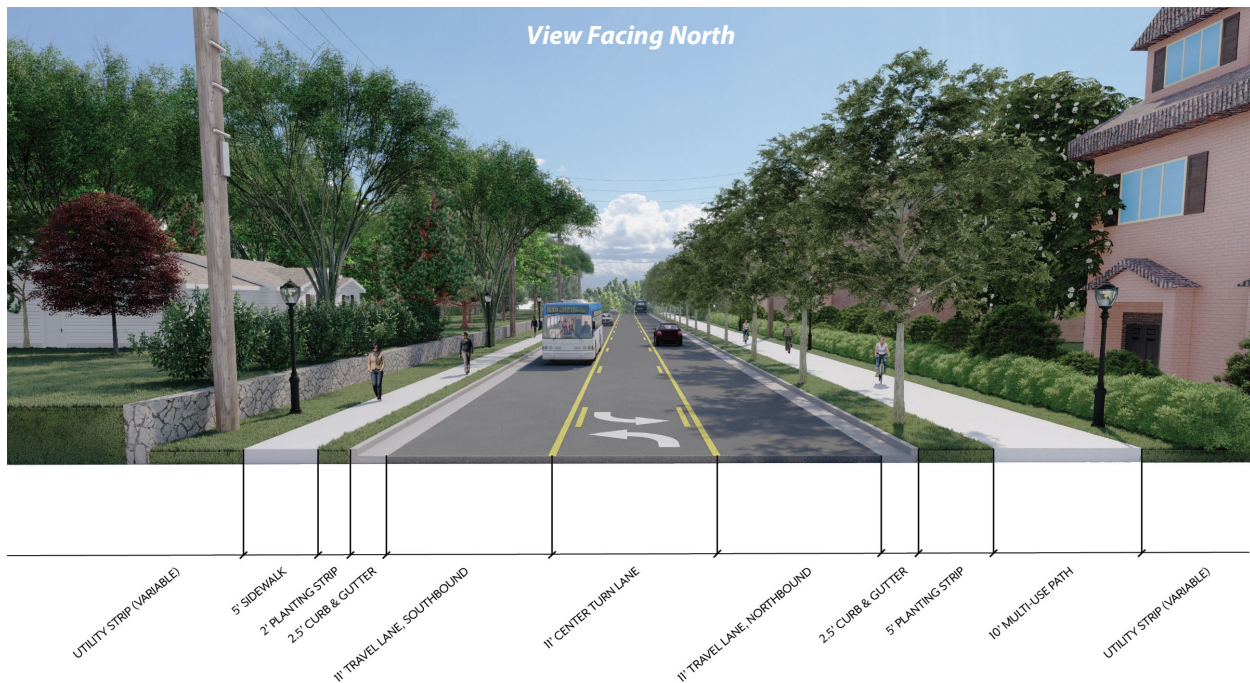


FIGURE 38. RECOMMENDED TYPICAL CROSS-SECTION FOR SEGMENT 4

6.5 Recommended Projects

This section provides general descriptions of potential intersection improvements and other recommendations, along with the components or steps of the recommended projects and their anticipated benefits. Details on recommended projects are provided in the individual project overview sheets included in Appendix A. Such details include estimated cost, study objectives supported, potential challenges, notes to guide implementation, external funding considerations, and potential funding sources.

Recommendations for intersection improvements, facilities for people walking, biking, and using transit, as well as corridor improvement (to implement typical sections) have been organized into discrete projects. This study recommends engineering design and construction of these projects in phases. Projects are grouped according to timeframe: short-term, mid-term, and long-term. They are also categorized by type: intersection improvements, typical sections, transit supportive, signing and marking, ITS, and other. They are briefly described below and shown in Table 14 and in Table 15.

Design and engineering details, including precise alignment or extent of projects will be worked out during the engineering phase of each project, to be implemented over time, according to City priorities and depending upon available resources and opportunities. As each intersection improvement project is designed and constructed, it should incorporate the elements of the recommended typical cross-section for the corresponding segment. Images of the recommended typical cross-sections are provided below for reference. Each project should also include ADA-compliant pedestrian facilities such as curb ramps and marked crosswalks at side streets as appropriate.

The descriptions and illustrations are conceptual representations based upon this planning study. The precise design and specific details of each project will be worked out during the design phase(s).

Projects are listed below, generally in order from the southern end of the corridor to the northern end of the corridor, with some corridor-wide projects and projects with multiple locations included at the end. The project identification numbers do not imply any ranking or prioritization but are merely intended as a means of identifying projects for future reference. The map in Figure 39 shows the locations of recommended projects.

CITY STREET CONSTRUCTION STANDARDS

The City's Code of Ordinances includes a table of street classification and right-of-way width (Sec. 14-353) which specifies street construction standards to be applied cases of applications for rezoning or land disturbance permits. The standards require 100 feet of right-of-way (ROW) for Major Thoroughfares. This means that when applications for rezoning, redevelopment or land disturbance come in, the City's Community Development Department should require dedication of the required ROW, including along North Druid Hills Road.

BURYING UTILITIES

As part of the design and implementation of each individual project, the City should consider, where feasible, the option of relocating overhead utilities underground. This should be considered carefully, as it would not only have substantial cost impacts for the power company and the City, but also to private property owners to connect homes and businesses to the underground lines.

The cost of burying utility lines varies significantly from project to project depending upon the existing location of utility lines and distance between those lines and adjacent structures, among other factors. Any potential costs for such a project in Brookhaven would need to be negotiated between the City and the power company at the appropriate time. Cost estimates would need to be acquired by the City through direct partnership and negotiation based on existing and/or new agreements between the power company and the City for relocations, depending upon the scope of work being performed by the City.

COST ESTIMATING

Cost estimates developed for this report are high-level costs appropriate for a planning study. They are based upon the preliminary conceptual design of recommendations and proposed improvements. They reflect the cost of elements such as pavement and concrete, signing and marking, and walls needed to minimize impacts to adjacent property and support infrastructure, such as the multi-use path. Cost estimates reflect multiple anticipated phases of projects, including Preliminary Engineering (PE), Right-of-Way Acquisition (ROW), Utilities (UTL), and Construction (CST). Costs are provided in the project list broken out by project phase and shown as a range with 20% contingency built in.

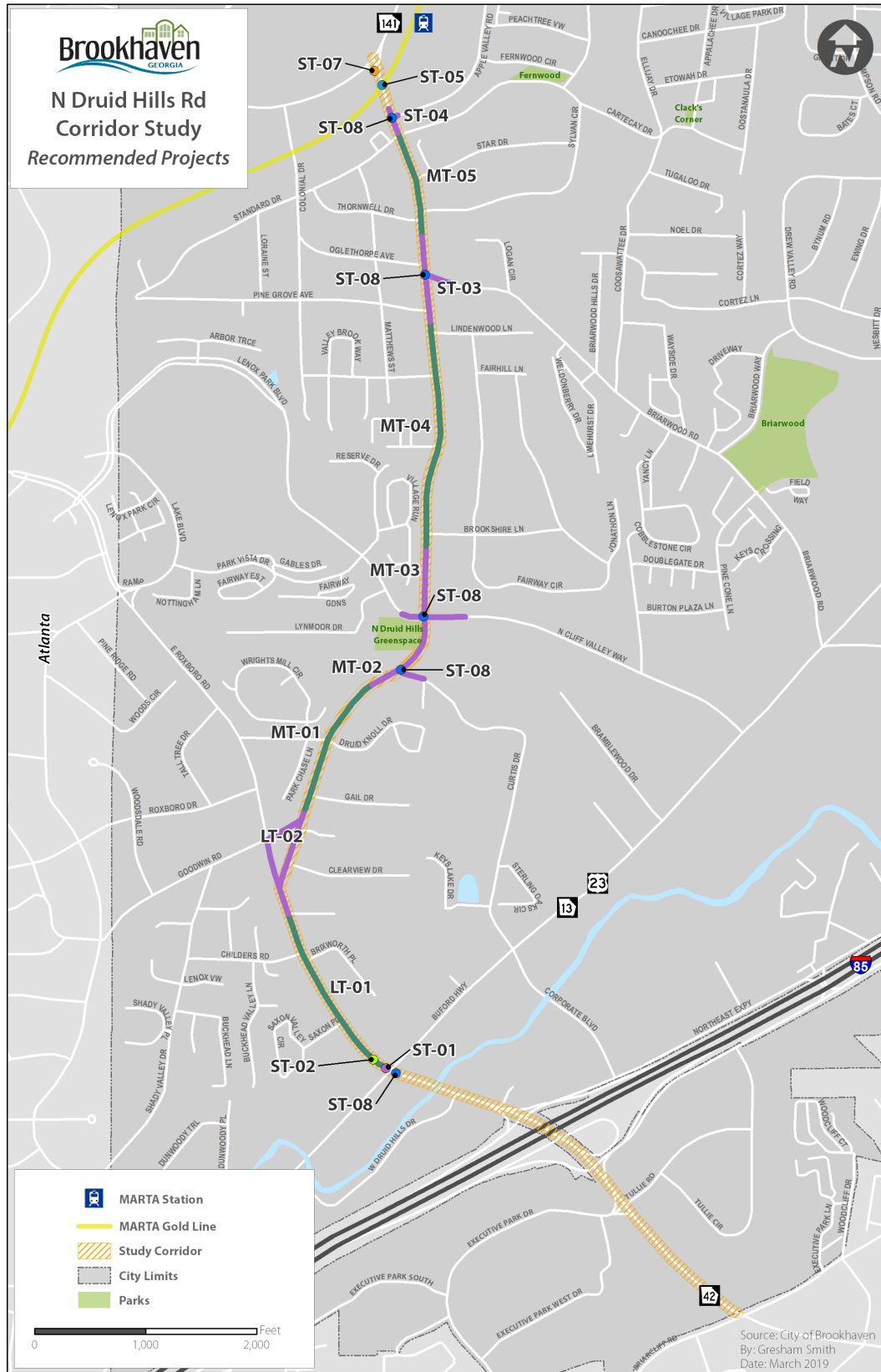


FIGURE 39. RECOMMENDED PROJECTS

INTERSECTION IMPROVEMENT: SR 13/BUFORD HIGHWAY (ST-01)

As an interim project, before projects identified as part of the CHOA DRI and I-85 interchange project (PI # 0016054) are implemented at this intersection, coordinate with GDOT to convert the southbound left-turn from North Druid Hills Road to northbound SR 13/Buford Highway to a protected-only movement and to prohibit right-turns on red from southbound SR 13/Buford Highway to northbound North Druid Hills Road. The prohibition of the right-turns on red should be re-evaluated as part of the implementation of projects recommended by the CHOA DRI and other GDOT projects at this intersection.

Potential Benefits: The proposed improvements at this intersection will improve safety at the intersection by addressing concerns with southbound motorists being able to see oncoming northbound traffic during the permissive left-turn phase. It will also address concerns for southbound drivers on SR 13/Buford Highway being able to see northbound traffic on North Druid Hills Road over the hill when preparing to turn right on red and improve safety for pedestrians crossing North Druid Hills Road on the north side of the intersection, by discouraging motorists from turning right on red, when pedestrians have the Walk signal.

DIRECTIONAL SIGNAGE: SR 13/BUFORD HIGHWAY (ST-02)

This project would design and install route shield pavement markings and overhead signage to guide southbound vehicles to I-85 near the intersection of SR 13/Buford Highway and North Druid Hills Road. This project should also include lane line extension pavement markings along southbound North Druid Hills Road through the SR 13/Buford Highway intersection to better guide vehicles to stay in the appropriate receiving lanes.

Potential Benefits: The addition of directional signage and pavement markings in proximity to the intersection of SR 13/Buford Highway will improve safety and operations along this section of the corridor. It will provide visual cues and guidance for vehicles attempting to access I-85 and nearby points of attraction. The addition of the lane line extensions, or skip markings, will help motorists stay in the appropriate lane and minimize abrupt lane changes as they travel over the hill through the intersection, reducing the potential for sideswipe collisions.

These recommended improvements are visually depicted in Figure 40.

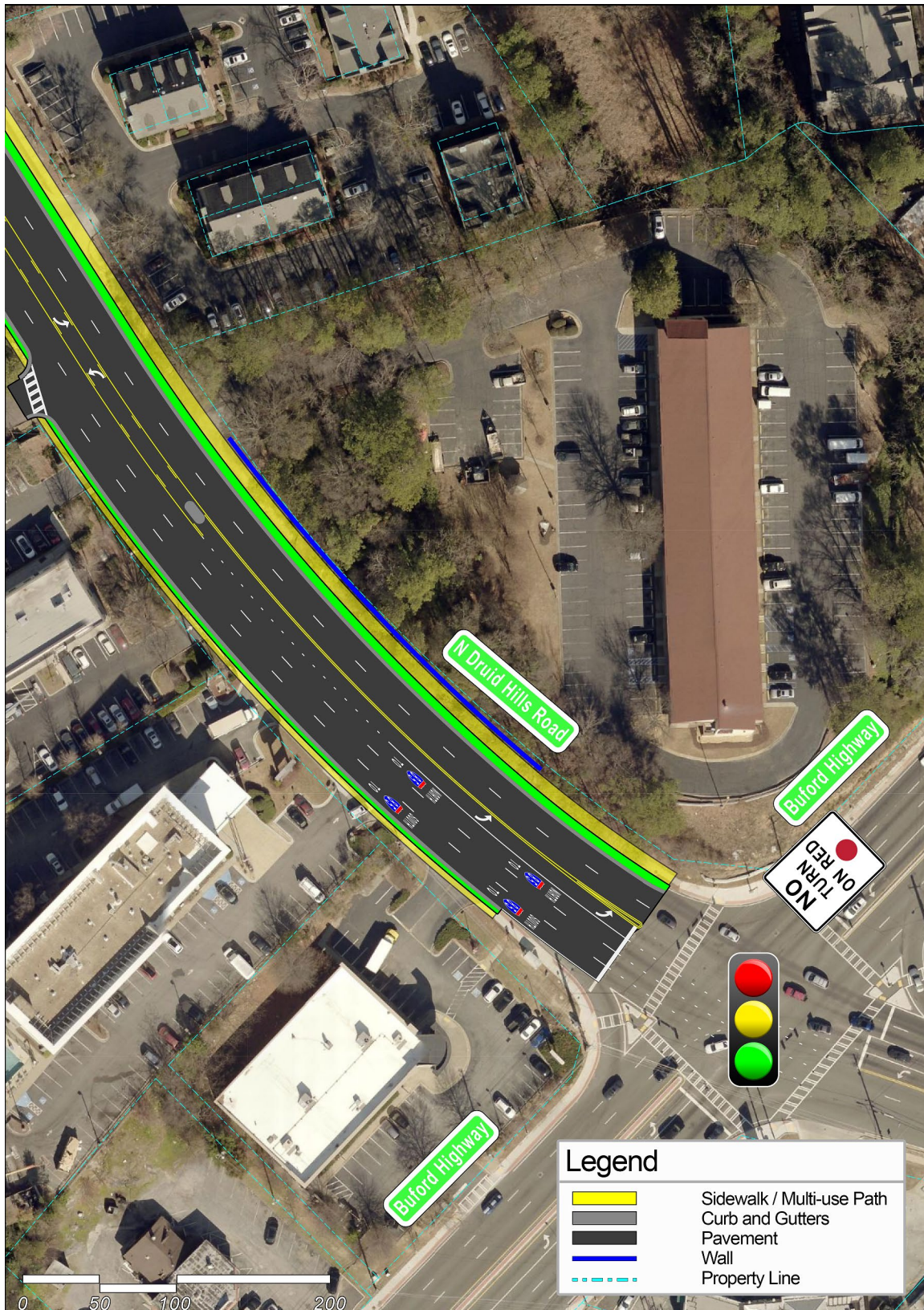


FIGURE 40. RECOMMENDED IMPROVEMENTS AT SR 13/BUFORD HIGHWAY AND NORTH DRUID HILLS ROAD

SEGMENT IMPROVEMENT: SR 13/BUFORD HIGHWAY TO ASHTON BLUFF DRIVE (LT-01)

This project would design and construct improvements along the segment of North Druid Hills Road between SR 13/Buford Highway and Ashton Bluff Drive, which is the southern limit of the next project along the corridor (LT-02). The project is recommended to reflect the typical section for Segment 1: four travel lanes with a two-way center left-turn lane, including sidewalk on the west side of North Druid Hills Road and MUP on the east side, with turn lanes at intersections as needed, such as the existing outside through-right lane along North Druid Hills Road at the SR 13/Buford Highway intersection. Additionally, the project would install a short, raised median in the center turn-lane just south of the Red Roof Inn driveway to break up the two-way center left-turn lane. The dedicated southbound left-turn lane would begin just after this raised median.

Potential Benefits: The proposed improvements along this segment of the corridor will improve safety, capacity, and operations for all users, with wider walkways, more separation between the travel lanes and walkways, and new curb ramps and crosswalks across side streets. This will, in turn, improve safety and access for people for biking, walking, and using transit in this segment. Safety will also be improved by breaking up the two-way center left-turn lane with the short raised median, reducing crash severity and preventing drivers from traveling long distances in the lane meant for turning movements.

INTERSECTION IMPROVEMENT: EAST ROXBORO ROAD (LT-02)

This project would design and construct improvements to the intersection at East Roxboro Road and North Druid Hills Road by realigning the intersection to bring it closer to a 90-degree angle and converting it to a three-legged multi-lane roundabout with central landscaped island. The outside lane on northbound North Druid Hills Road would be channelized, bypassing the roundabout, transitioning to a single lane just south of Goodwin Place, making Clearview Drive right-in/right-out. Traffic signals would be removed at the intersections of North Druid Hills Road at Goodwin Road and at East Roxboro Road at Goodwin Road to facilitate operations of the roundabout. For multi-lane pedestrian crossings at the roundabout, the marked crosswalks should be supplemented with pedestrian-actuated and accessible pedestrian signal (APS) based on the latest federal guidance. The project would also construct appropriate pedestrian and streetscape improvements based on recommended typical section for Segment 1, including sidewalk on the west side of North Druid Hills Road and MUP on the east side. Overhead and directional signage would guide motorists into the appropriate lanes of the roundabout, in accordance with appropriate standards.

The project proposes to close Goodwin Road to vehicular traffic, maintaining it as City-owned greenspace and preserving property access for the residences in the triangle between East Roxboro Road, Goodwin Road, and North Druid Hills Road. The city could also consider negotiating the land in excess after the MUP is constructed to the triangle property to reduce private property loss impacts and resources used by city for the intersection improvement. In addition, the project would include a ten-foot-wide MUP along the north side of Goodwin Road, between East Roxboro Road and North Druid Hills Road, providing a direct connection for people walking and biking between East Roxboro Road and North Druid Hills Road. A marked crosswalk with pedestrian-actuated signal is proposed across the north leg of the intersection of Goodwin Road and East Roxboro Road. The design of the crossing and type pedestrian-actuated traffic control should be evaluated based upon further pedestrian studies and current FHWA guidance at the time of implementation.

In consideration of the long-term possibility that East Roxboro Road could become a four-lane roadway between North Druid Hills Road and the City limits, this project is designed with the flexibility to accommodate potential future changes along East Roxboro Road. To this end, the southbound entry leg to the roundabout along East Roxboro Road is designed with two lanes; however the community expressed concerns about the ability of motorists to make the right-turn from Goodwin Road to East Roxboro Road and get into the inside lane of the

roundabout to travel northbound. In response to these concerns, it is recommended that at the time of design, consideration should be given to two options for the traffic signals at East Roxboro Road and Goodwin Road and at Goodwin Road and North Druid Hills Road:

- Consider leaving the traffic signal at East Roxboro Road and North Druid Hills Road in place to aid traffic turning right from Goodwin Road and to meter southbound traffic along East Roxboro Road approaching the roundabout during peak hours. This could be done using a demand-responsive system with queue detectors.
- Furthermore, consider, as an additional measure to aid traffic, leaving the signal at Goodwin Road and North Druid Hills Road in place to meter southbound traffic approaching the roundabout during peak hours, using a demand-responsive queue detection system.

It should be noted that the recommendations for this intersection are based on anticipated improvements that will result from the ongoing GDOT project at the I-85 at North Druid Hills Road interchange (PI #0016054), which has funding authorized for construction. It is anticipated that the GDOT project will advance more quickly than LT-02. As such, when LT-02 is advanced to the design phase, engineers should consider appropriate refinements to the recommendations in accordance with improvements made at the I-85 interchange and resulting traffic patterns at SR 13/Buford Highway and along North Druid Hills Road.

***Potential Benefits:** The proposed improvements at this intersection will improve safety, capacity, and operations by removing existing traffic signals and replacing them with a three-legged roundabout. Roundabouts have a number of proven safety benefits, including fewer conflict points than conventional intersections and lower travel speeds, reducing the likelihood of crashes and the severity of crashes that may occur. Nationwide, roundabouts are experiencing a significant decrease in severe crashes and similarly, show decreases in the total number of crashes. The yield approaches and slower vehicular speeds provide more time for drivers entering a roundabout to gauge gaps in traffic and merge accordingly.*

Conversion of a conventional intersection to a multi-lane roundabout has been proven to have substantial safety benefits. GDOT's Intersection Control Evaluation (ICE) tool indicates that such a conversion has a Crash Modification Factor (CMF) of 0.74 for property-damage only crashes and 0.29 for fatal and injury crashes. These translate to crash reduction factors of 26% and 71% respectively by converting an intersection from a conventional signalized intersection to a roundabout. This intersection had 45 total crashes from 2013 to 2017, including 39 property damage only crashes and six injury crashes. Applying the CMF values, converting the signalized intersection at East Roxboro Road to a roundabout would reduce the number of property-damage only crashes to 28 over a five-year period and would reduce the number of injury crashes to 1.74 over a five-year period.²⁴

Conversion from a traffic signal to a roundabout will also improve operations and capacity, reducing vehicle idle time and thereby reducing vehicle emissions. Furthermore, because roundabouts do not have traffic signals, they require less regular signal maintenance and replacement of equipment and upgrade in systems than conventional signalized intersections, yielding cost savings for the local jurisdiction. The proposed roundabout in this location will also create a gateway or visual cue for traffic coming from the south that North Druid Hills Road is a multimodal, community-oriented corridor, helping calm northbound traffic. Additionally, the crosswalks in the roundabout will provide people walking in this area with marked crosswalks where none previously existed, and the design of the roundabout allows

²⁴ To assess the potential safety improvements at this location, Crash Modification Factors (CMFs) were obtained from GDOT's Office of Traffic Operations and from the Crash Modification Factors Clearinghouse web site at <http://www.cmfclearinghouse.org/>. A CMF is a multiplicative factor used to compute the expected number of crashes after implementing a given countermeasure at a specific site. CMFs with a value less than 1.0 indicate an expected decrease in crashes. CMFs greater than 1.0 indicate an expected increase in crashes. Alternatively, a countermeasure with a CMF with a lower numerical value is expected to mitigate more crashes. CMFs can affect either specific types of crashes or severity of collisions or can be general for all types of crashes and severity of collisions. The CMFs referenced for conversion of a signalized intersection into a single- or multi-lane roundabout include #4196 and #4195.

people crossing to focus on crossing one direction of traffic at a time, taking refuge in the splitter islands if needed. These changes will improve safety and access for people for biking, walking, and using transit.

The recommended improvements are shown in Figure 41.

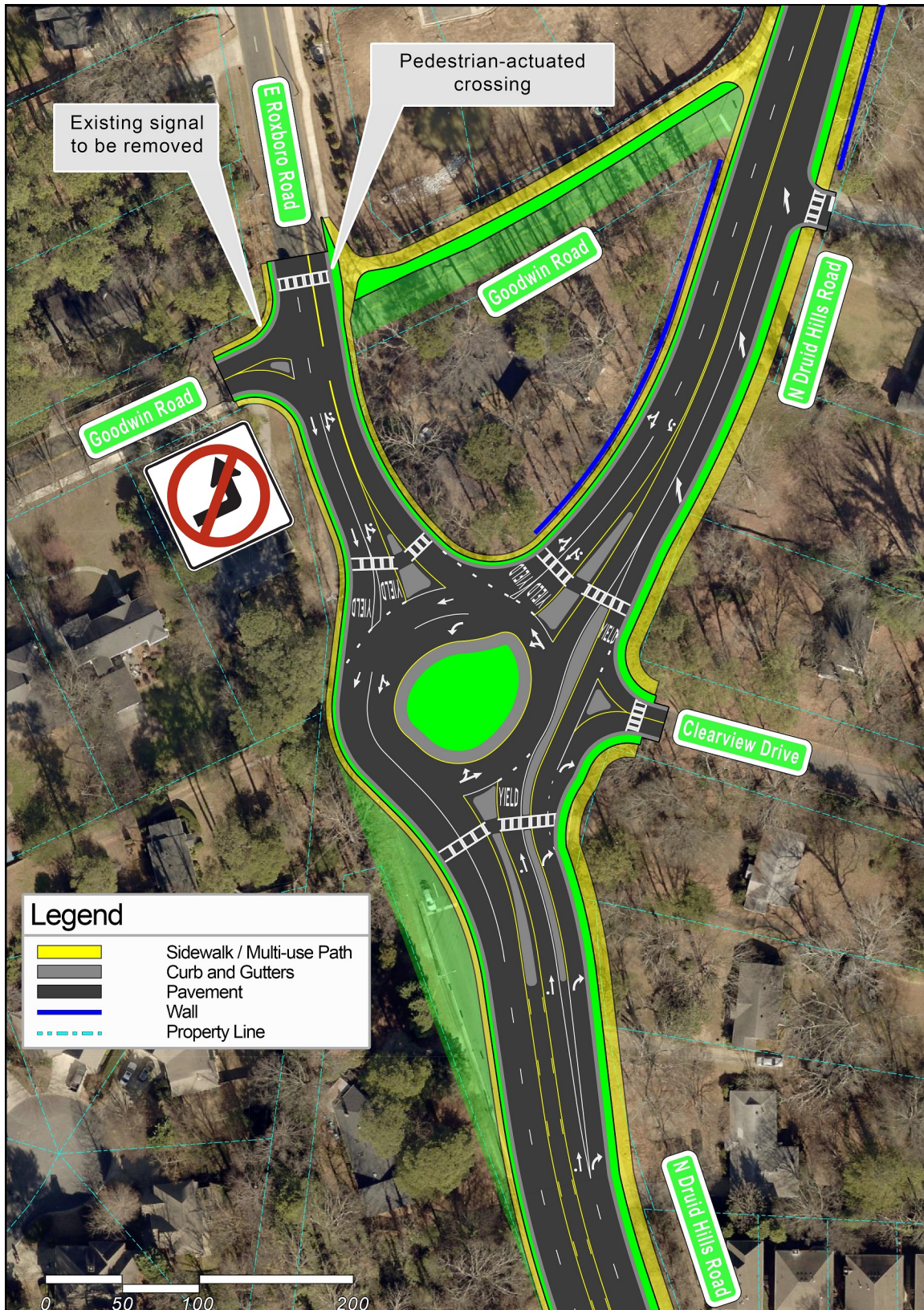


FIGURE 41. RECOMMENDED IMPROVEMENTS AT EAST ROXBORO ROAD AND NORTH DRUID HILLS ROAD

SEGMENT IMPROVEMENT: SOUTH OF GAIL DRIVE TO SOUTH OF CURTIS DRIVE (MT-01)

This project would design and construct improvements along the segment of North Druid Hills Road between just south of Gail Dr, which is the northern limit of the previous project along the corridor (of LT-02) to just south of Curtis Dr, which is the southern limit of the next project along the corridor (MT-02). Improvements would be as shown in the recommended typical section for Segment 2: two travel lanes with a two-way center left-turn lane, including sidewalk on the west side of North Druid Hills Road and MUP on the east side. The project would also design and construct a midblock pedestrian crossing with a raised refuge island and pedestrian actuated beacons just south of Gail Drive (northern limit of project MT-02).

***Potential Benefits:** The proposed improvements along this segment of the corridor will improve safety, capacity, and operations for all users, with wider walkways, more separation between the travel lanes and walkways, and new curb ramps and crosswalks across side streets. The two-way center left-turn lane will reduce the likelihood of potential vehicle conflicts and rear-end crashes, as well as improve traffic operations and reduce congestion. The midblock pedestrian crossing and refuge island will improve safety for people seeking to cross North Druid Hills Road in this area. This will, in turn, improve safety and access for people for biking, walking, and using transit.*

INTERSECTION IMPROVEMENT: CURTIS DRIVE (MT-02)

This project would design and construct improvements to the intersection at Curtis Drive. It would realign the intersection to reduce the skew and bring it closer to a 90-degree-angle, improving the turning radius and creating more room for pedestrians in the southeast corner. As part of the design process, engineers should evaluate intersection sight distances and consider removal of the no right-turn on red for northbound North Druid Hills Road and westbound Curtis Drive, if appropriate. The project would also upgrade the traffic signal to include new mast arms, signal heads, and pedestrian push buttons. It would also install a pole-mounted supplemental signal face for southbound traffic approaching the Curtis Drive intersection and retroreflective chevrons on the outside curve along North Druid Hills Road.

Additionally, the project would also construct appropriate pedestrian and streetscape improvements along North Druid Hills Road from just south of Curtis Drive, which is the northern limit of the previous project along the corridor (MT-01) to south of Lenox Park Boulevard/North Cliff Valley Way, which is the southern limit of the next project along the corridor (MT-03). Improvements would be as shown in the recommended typical section for Segment 2, including sidewalk on the west side of North Druid Hills Road and MUP on the east side, as well as:

- Provide crosswalks and ADA compliant curb ramps along the north and east sides of the intersection;
- Remove the crosswalk along the south side of the intersection (across North Druid Hills Road south of Curtis Drive) and the associated exclusive pedestrian signal phase; and
- Include accommodations for approved project 106-MT (from the City's Bicycle, Pedestrian, & Trail Plan) – an MUP along the north side of Curtis Drive, extending to the school driveway.

As the City prepares to implement this project, staff should coordinate with DCSD staff to discuss any shifts in traffic patterns as a result of the redistricting process. It is anticipated that with a middle school at the site of the current Cross Keys High School, there will be more vehicular traffic in the area than exists today. Consideration should be given to additional reconfigurations of this intersection, if noticeable differences in traffic patterns are observed at that time. These additional improvements may include provisions for: a) side-by-side left-turn lanes on North Druid Hills Road between Curtis Drive and Lenox Park Boulevard/North Cliff Valley Way (southbound left at Curtis Drive and northbound left at Lenox Park Boulevard); and b) a dedicated westbound right-turn lane on Curtis Drive, converting the existing westbound lane to a left-turn only lane.

Potential Benefits: The proposed improvements at this intersection will improve safety, capacity, and operations by improving visibility and sight distance for motorists, as well as improving turning radii, and streamlining turning movements for buses and larger vehicles. Proposed improvements consider the likely increase in school-related traffic and are flexible enough to accommodate additional changes should they be needed at the time of implementation. Improvements to intersection radii and pedestrian and bicycle infrastructure will improve safety and access for people biking, walking, and using transit.

These recommended improvements are depicted in Figure 42.



FIGURE 42. RECOMMENDED IMPROVEMENTS AT CURTIS DRIVE AND NORTH DRUID HILLS ROAD

INTERSECTION IMPROVEMENT: LENOX PARK BOULEVARD/NORTH CLIFF VALLEY WAY (MT-03)

This project would design and construct improvements to the intersection of North Druid Hills Road and Lenox Park Boulevard/North Cliff Valley Way. It would install an additional westbound through-lane on North Cliff Valley Way and an additional eastbound through-lane on Lenox Park Boulevard to continue the divided roadway boulevard-style treatment on Lenox Park Boulevard east of the intersection. The project would also include a second receiving lane along North Cliff Valley Way that would taper and merge into a single lane east of the school driveway, along with a raised median along North Cliff Valley Way for access management at the intersection.

The project would also upgrade the traffic signal to include new mast arms, signal heads, and pedestrian push buttons. It would also design and construct appropriate pedestrian and streetscape improvements along North Druid Hills Road from just south of Lenox Park Boulevard/North Cliff Valley Way, which is the northern limit of the project just south of this location (MT-02) to a location south of Brookshire Lane, which is the southern limit of the next project along the corridor (MT-04). Improvements would be based on recommended typical sections for Segments 2 and 3, including sidewalk on the west side and MUP on the east side. Additionally, this project would install crosswalks and ADA compliant curb ramps along all four sides of the intersection, plus a new sidewalk on the north side of North Cliff Valley Way and MUP on the south side along the length of the school property.

Similarly to project MT-02 at Curtis Drive, as the City prepares to implement this project, staff should consult with DCSD staff to discuss any shifts in traffic patterns as a result of the redistricting process. It is anticipated that with a middle school at the site of the current Cross Keys High School, there will be more vehicular traffic in the area than exists today. Consideration should be given to additional reconfigurations of this intersection, if a traffic study for the middle school recommends additional or longer lanes based on projects. The City and School District should partner to place needed improvements for the school in the direction of the school's property. These additional improvements may include provisions for: a) side-by-side left-turn lanes on North Druid Hills Road between Curtis Drive and Lenox Park Boulevard/North Cliff Valley Way (southbound left at Curtis Drive and northbound left at Lenox Park Boulevard); and b) a dedicated westbound right-turn lane on Curtis Drive, converting the existing westbound lane to a left-turn only lane.

Potential Benefits: The proposed improvements at this intersection will improve safety, capacity, and operations by providing additional lanes, improving turning radii, and managing access at the intersection, reducing congestion along westbound North Cliff Valley Way and eastbound Lenox Park Boulevard. Proposed improvements consider the likely increase in school-related traffic and are flexible enough to accommodate additional changes should they be needed at the time of implementation. Improvements to intersection radii and pedestrian and bicycle infrastructure will improve safety and access for people biking, walking, and using transit.

These recommended improvements are depicted in Figure 43.

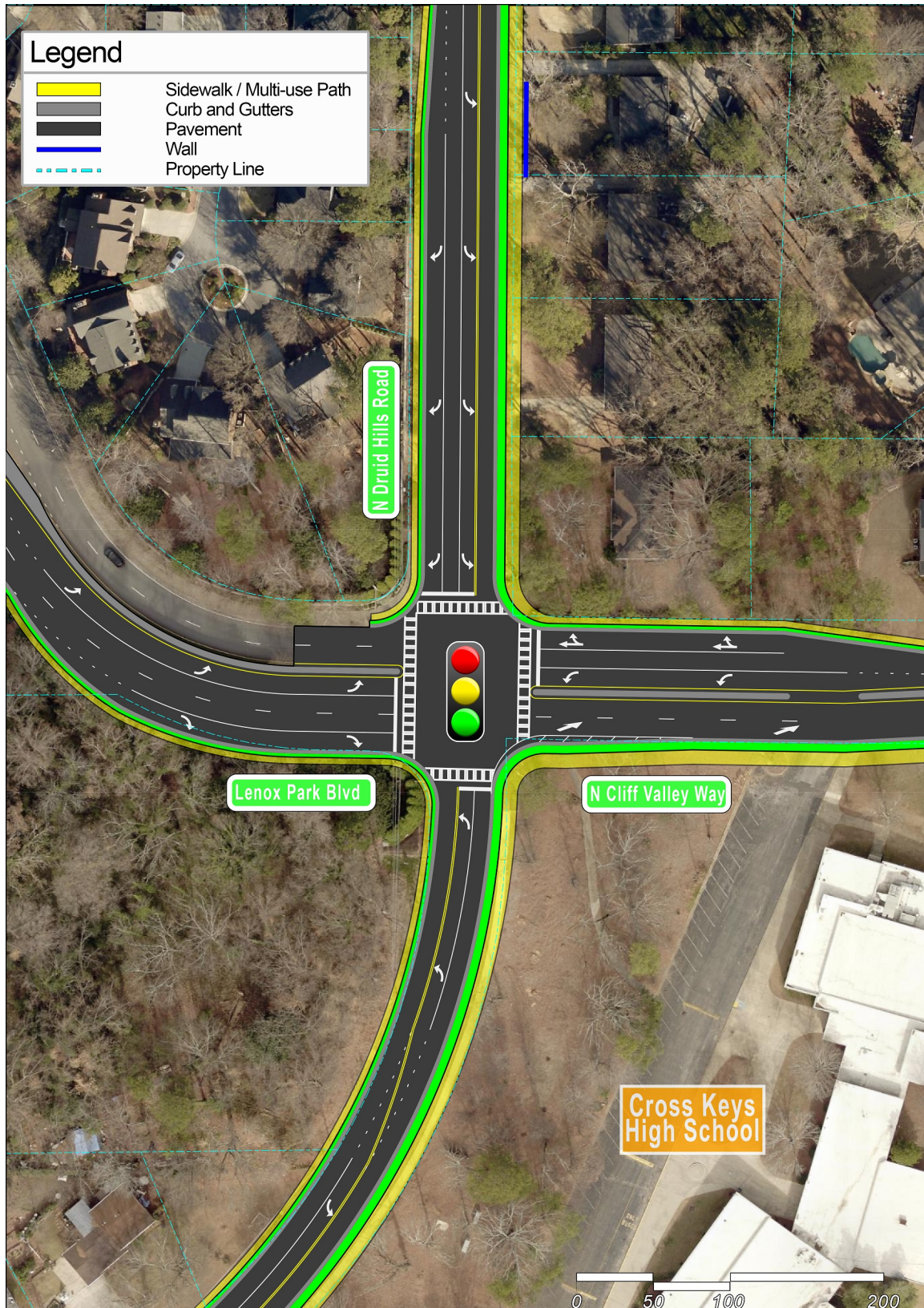


FIGURE 43. RECOMMENDED IMPROVEMENTS AT LENOX PARK BOULEVARD/NORTH CLIFF VALLEY WAY AND NORTH DRUID HILLS ROAD

SEGMENT IMPROVEMENT: NORTH OF LENOX PARK BOULEVARD/NORTH CLIFF VALLEY WAY TO SOUTH OF BRIARWOOD ROAD (MT-04)

This project would design and construct improvements along the segment of North Druid Hills Road from just south of Brookshire Lane, which is the northern limit of the previous project along the corridor (MT-03) to just south of Pine Grove Avenue, which is the southern limit of the next project along the corridor (ST-03).

Improvements would be as shown in the typical section for Segment 3: two travel lanes with a two-way center left-turn lane, including sidewalk on the west side and MUP on the east side. The project would also design and construct two midblock pedestrian crossings with raised refuge islands and pedestrian actuated beacons, one just south of Brookshire Lane (at approximately 1548 North Druid Hills Road), and the other just south of Lindenwood Lane (at approximately 1404 North Druid Hills Road).

***Potential Benefits:** The proposed improvements along this segment of the corridor will improve safety, capacity, and operations for all users, with wider walkways, more separation between the travel lanes and walkways, and new curb ramps and crosswalks across side streets. The two-way center left-turn lane will reduce the likelihood of potential vehicle conflicts and rear-end crashes, as well as improve traffic operations and reduce congestion. The midblock pedestrian crossings and refuge islands will improve safety for people seeking to cross North Druid Hills Road in this area. This will, in turn, improve safety and access for people for biking, walking, and using transit.*

INTERSECTION IMPROVEMENT: BRIARWOOD ROAD AND OGLETHORPE DRIVE (ST-03)

This project would design and construct improvements to the intersections at North Druid Hills Road and Briarwood Road and at North Druid Hills Road and Oglethorpe Avenue. It would realign the intersection at Briarwood Road by reconfiguring the southeast corner to reduce the skew by moving the westbound left-turn lane (on Briarwood Road) to the south, expanding the raised island between the westbound right-turn lane and left-turn lane on Briarwood Rd, adding a northbound channelized right-turn lane from North Druid Hills Road to eastbound Briarwood Road, and extending the length of the southbound left-turn lane from North Druid Hills Road to eastbound Briarwood Road. (Note: these improvements would be made following the modifications proposed as part of the Halstead townhome development and are based upon those plans.) The proposed recommendation for the northbound right-turn lane is intended to benefit safety and intersection operations by separating right-turn vehicles from through vehicles. However, at the time of design, the engineer could choose to increase the length of the right-turn lane (beyond what is recommended for safety benefit, as shown in Table 13), if traffic patterns change and a transportation need is identified.

The project would also reconfigure the intersection of North Druid Hills Road and Oglethorpe Avenue by converting Oglethorpe Avenue to right-in only (for southbound traffic on North Druid Hills Road) and installing a raised bump-out in the southwest corner. The morning No Left Turn from northbound North Druid Hills Road to Thornwell Drive, just to the north of Oglethorpe Avenue, would be maintained.

Additionally, the project would install crosswalks and ADA compliant curb ramps along the east and north legs of the intersection at Briarwood Road. Additionally, it would construct appropriate pedestrian and streetscape improvements along North Druid Hills Road from just south of Pine Grove Ave, which is the northern limit of the previous project on the study corridor (MT-04) to Thornwell Drive, which is the southern limit of the next project (MT-05). These improvements would be based on the recommended typical section for Segment 4, including sidewalk on the west side of North Druid Hills Road and MUP on the east side, except where it will be constructed as part of the Halstead development.

***Potential Benefits:** The proposed improvements at this intersection will improve safety, capacity, and operations by providing channelized turn lanes and accommodating more turning traffic, improving turning radii, and extending the*

length of the southbound left-turn lane. By separating turning vehicles from through traffic with a channelized right-turn lane, the proposed improvements will improve safety and operations; this will provide space for turning vehicles to slow down and make the right turn while through vehicles can continue ahead. Removing the on-street parking is supported by Brookhaven United Methodist Church (UMC) because it will improve safety. The project will improve safety and calm neighborhood traffic by restricting access to Oglethorpe Avenue and separating this intersection somewhat from the one at Briarwood Road. Additional signage will deter traffic on Oglethorpe Avenue from entering North Druid Hills Road, further improving safety. Improvements to pedestrian and bicycle infrastructure will improve safety and access for people biking, walking, and using transit. Brookhaven UMC has expressed support for the MUP.

These recommended improvements are depicted in Figure 44.

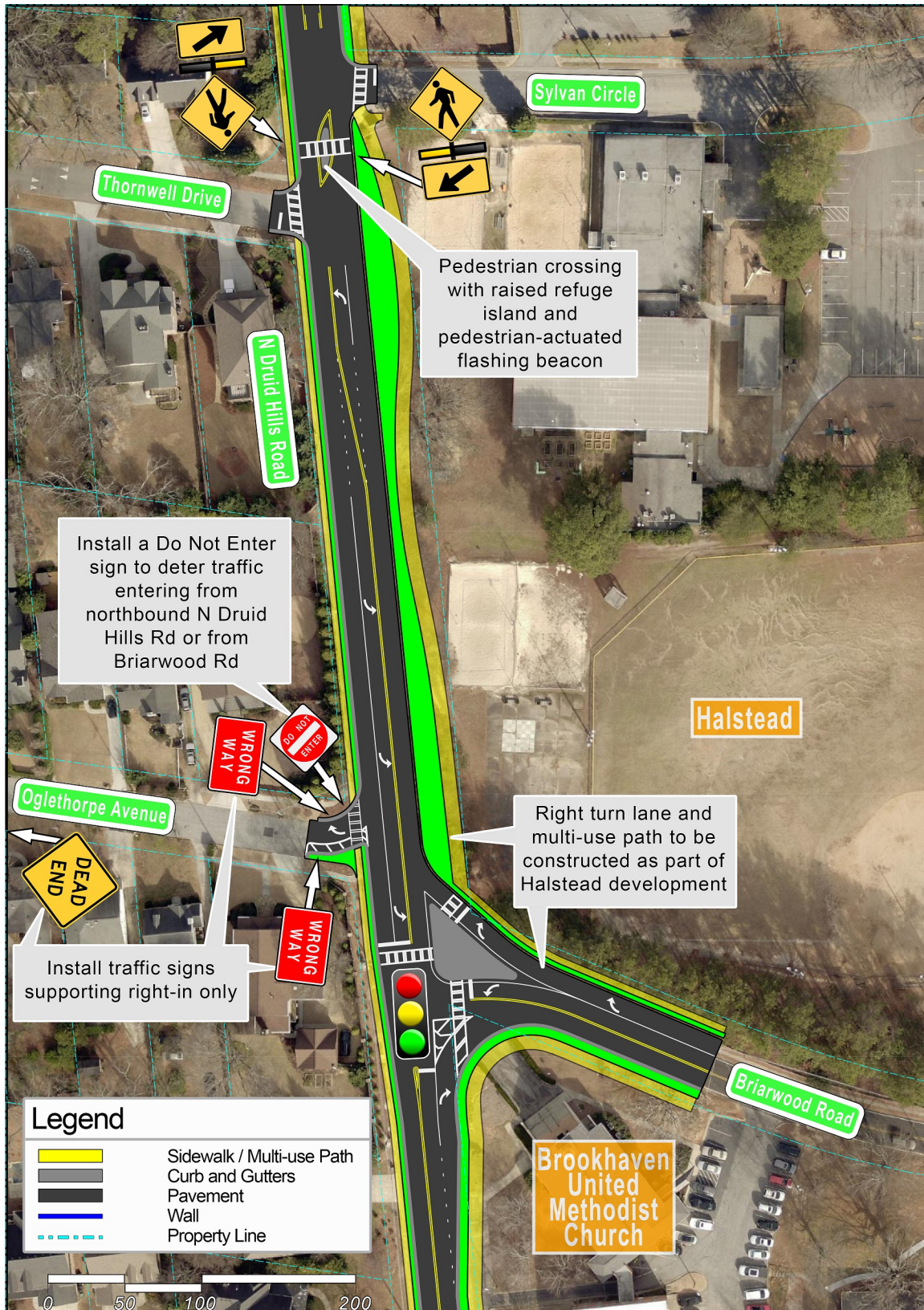


FIGURE 44. RECOMMENDED IMPROVEMENTS AT OGLETHORPE AVENUE AND AT BRIARWOOD ROAD AND NORTH DRUID HILLS ROAD

SEGMENT IMPROVEMENT: SOUTH OF THORNWELL DRIVE TO NORTH OF SYLVAN CIRCLE (NORTH) (MT-05)

This project would design and construct improvements along North Druid Hills Road from just south of Thornwell Drive, which is the northern limit of the previous project along the corridor (ST-03) to just north of Sylvan Circle North, which is the southern limit of the next project (ST-04). Improvements would be as shown in the typical section for Segment 4: two travel lanes with a two-way center left-turn lane, including sidewalk on the west side of North Druid Hills Road and MUP on the east side. The project would also design and construct a midblock pedestrian crossing with a raised refuge island and pedestrian actuated beacons between Thornwell Drive and Sylvan Circle South.

***Potential Benefits:** The proposed improvements along this segment of the corridor will improve safety, capacity, and operations for all users, with wider walkways, more separation between the travel lanes and walkways, and new curb ramps and crosswalks across side streets. The two-way center left-turn lane will reduce the likelihood of potential vehicle conflicts and rear-end crashes, as well as improve traffic operations and reduce congestion. The midblock pedestrian crossing and refuge island will improve safety for people seeking to cross North Druid Hills Road in this area. This will, in turn, improve safety and access for people for biking, walking, and using transit.*

INTERSECTION IMPROVEMENT: APPLE VALLEY ROAD (ST-04)

This project would design and construct improvements to the intersection of North Druid Hills Road and Apple Valley Road. It would reconfigure the intersection to include a channelized right-turn lane from northbound North Druid Hills Road to eastbound Apple Valley Road. The project would also upgrade traffic signal to include new mast arms, signal heads, and pedestrian push buttons. Additionally, it would install crosswalks and ADA compliant curb ramps along the north and east sides of the intersection and construct appropriate pedestrian and streetscape improvements along North Druid Hills Road from just south of Sylvan Circle North, which is the northern limit of the previous project on the corridor (MT-05) to just north of Apple Valley Road. These improvements would be based on the recommended typical section for Segment 4, including sidewalk on the west side of North Druid Hills Road and MUP on the east side. The project would also ensure that pedestrian facilities meet the minimum dimensions required by the Peachtree Road Overlay District (PRO).

***Potential Benefits:** The proposed improvements at this intersection will improve safety, capacity, and operations by providing channelized turn lanes and improving turning radii. Improvements to pedestrian and bicycle infrastructure will improve safety and access for people biking, walking, and using transit. Improvements to pedestrian and bicycle infrastructure will improve safety and access for people biking, walking, and using transit. The project will also ensure compliance with existing overlay district guidelines and set the stage for the recommended MUP project on the north side of Apple Valley Road (project 112-LT from the Bicycle, Pedestrian & Trail Plan).*

These recommended improvements are depicted in Figure 45.



FIGURE 45. RECOMMENDED IMPROVEMENTS AT APPLE VALLEY ROAD AND NORTH DRUID HILLS ROAD

6.6 Other Projects

DON'T BLOCK THE BOX (ST-05)

This project would install “Do Not Block Intersection” pavement markings and signage at the bus exit at the Brookhaven-Oglethorpe MARTA Rail Station on North Druid Hills Road. The purpose is to discourage northbound drivers from blocking driveway when traffic queues at the signal at SR 141/Peachtree Road, encouraging them to leave sufficient room for buses to exit the station. An example of this type of marking is shown in Figure 46.

***Potential Benefits:** This will help facilitate better turning movements for buses seeking to travel along North Druid Hills Road, assisting MARTA to provide more consistent, timely service in the area. The project could reduce headways and improve route reliability, making transit more desirable from the MARTA station.*



FIGURE 46. EXAMPLE DO NOT BLOCK INTERSECTION SIGN AT NORTH DRUID HILLS ROAD AND SAXON PLACE

BUS STOP CONSOLIDATION AND RELOCATION (ST-06)

For this project, the City of Brookhaven would coordinate with MARTA to adjust the spacing of bus stops to improve bus and corridor operations while maintaining accessibility for people taking the bus. As the transit agency that provides service along the corridor, MARTA would be the responsible party for relocating stops. This project may include consolidation of three or four stops in each direction where ridership is low and relocation of two or three stops in each direction to better accommodate site conditions, including lane configurations and marked crosswalks.

MARTA Bus Stop Planners will also work to consolidate stops with low activity (few or no people getting on or off buses) to improve bus service efficiency and to relocate other stops to better align with marked crosswalks, including new midblock crossings, once they are designed and built.

***Potential Benefits:** This will help improve the efficiency of transit service along the study corridor, reducing the number of stops in locations that are already well-served by bus stop while maintaining good walking access for people who live, work, and attend school nearby. The project will also improve safety by aligning the placement of bus stops to better match the location of marked crosswalks so that people riding transit can more safely cross from one side of North Druid Hills Road to the other.*

PUBLIC ART NEAR MARTA STATION (ST-07)

For this project, the City of Brookhaven’s Arts Advisory Committee should consider working with local artists to design a mural to be installed along the retaining wall in the southwest corner of the intersection of North Druid Hills Road at SR 141/Peachtree Road, opposite the Brookhaven-Oglethorpe MARTA rail station. An example illustration of a possible mural is shown in Figure 47.

The north end of North Druid Hills Road, where it meets SR 141/Peachtree Road serves as a ‘gateway’ of sorts for the North Druid Hills Road Corridor. It is a hub of activity with adjacent shopping, restaurants, hotels, and the Brookhaven-Oglethorpe MARTA rail station. While extremely important from a functional standpoint, the two railroad bridges and retaining wall on the west side of North Druid Hills Road are not as visually pleasing as they could be. The presence of the substantial concrete structures do not create a particularly pleasant environment for anyone passing through the area, especially for people walking.

Potential Benefits: The addition of public art such as a mural would be a welcome addition to this focal point. The mural could help celebrate and recognize the City of Brookhaven and local community and would be a relatively low-cost way to add value and help create a sense of identity and a more welcoming environment for people traveling through, as well as serve as a visual cue that people are entering a multi-modal community-oriented corridor.



FIGURE 47. RENDERED EXAMPLE OF POTENTIAL MURAL NEAR BROOKHAVEN MARTA STATION

ITS – NORTH DRUID HILLS ROAD SIGNAL INTERCONNECT (ST-08)

This project would install fiber optic cable in underground conduits to interconnect traffic signals from SR 13/Buford Highway to Apple Valley Road, including the traffic signals at Curtis Drive, Lenox Park Boulevard / North Cliff Valley Way, and Briarwood Road. It would install CCTVs at the five intersections to monitor traffic operations along North Druid Hills Road. Upgrade the cabinets at the intersections to include Gigabit-capable optical transceivers and network switches and the signal controllers to the MaxTime firmware.

TABLE 14. LIST OF RECOMMENDED PROJECTS (ORGANIZED FROM SOUTH TO NORTH)

Project ID	Project Name	From	To	Description	Project Type	Estimated Cost	Timeframe
ST-01	Intersection Improvement: SR 13/Buford Highway	Intersection of SR 13/Buford Hwy at N. Druid Hills Rd	n/a	In the interim, before improvements identified as part of the CHOA DRI are implemented at the SR 13/Buford Hwy at N. Druid Hills Rd intersection, coordinate with GDOT to convert the southbound left-turn from N. Druid Hills Rd to northbound SR 13/Buford Hwy to a protected-only movement; prohibit right-turns on red from southbound SR 13/Buford Hwy to northbound N. Druid Hills Rd.	Intersection Improvement	PE: ~ \$5K ROW: N/A UTL: N/A CST: \$42K - \$50K TOTAL: \$47K - \$55K	Short-Term
ST-02	Directional Signage: SR 13/Buford Highway	Intersection of SR 13/Buford Hwy at N. Druid Hills Rd	n/a	Design and install route shield pavement markings and overhead signage to guide southbound vehicles to I-85 at the SR 13/Buford Hwy at N. Druid Hills Rd intersection. Design and install lane line extension pavement markings along southbound N. Druid Hills Rd through the SR 13/Buford Hwy intersection to better guide vehicles to stay in the appropriate receiving lanes.	Signing and Marking	PE: ~ \$1K ROW: N/A UTL: \$10K - \$12K CST: \$7K - \$8K TOTAL: \$18K - \$21K	Short-Term
LT-01	Segment Improvement: SR 13/Buford Highway to Ashton Bluff Drive	SR 13/Buford Hwy, approximately 1960 N. Druid Hills Rd	Just North of Ashton Bluff Dr, approximately 1118 Ashton Bluff Dr (southern limit of LT-02)	Design and construct improvements along N. Druid Hills Rd from SR 13/Buford Hwy to the north side of Ashton Bluff Dr (southern limit of LT-02) as shown in the typical section for Segment 1: four travel lanes with a two-way center left-turn lane, including sidewalk on the west side and MUP on the east side. Maintain the southbound outside through-right lane at the SR 13/Buford Hwy intersection. Install a short, raised median in the center turn-lane just south of the Red Roof Inn driveway approximately 400 feet north of the stop bar. Stripe the dedicated southbound left-turn lane from this raised median.	Typical Section	PE: ~ \$0.2M ROW: \$0.4M - \$0.5M UTL: \$0.5M - \$0.6M CST: \$1.9M - \$2.3M TOTAL: \$3.0M - \$3.6M	Long-Term
LT-02	Intersection Improvement: East Roxboro Road	Just North of Ashton Bluff Dr, approximately 1118 Ashton Bluff Dr (northern limit of LT-01)	Just South of Gail Dr, approximately 1776 N. Druid Hills Rd (southern limit of MT-01)	<p>Design and construct improvements to the intersection at E. Roxboro Rd by converting it to a three-legged multi-lane roundabout with central landscaped island. Realign the southbound N. Druid Hills Rd leg to reduce the skew and bring it closer to a 90-degree-angle. Provide two approach lanes on all legs of the roundabout. Channelize the outside lane on the northbound approach leg of N. Druid Hills Rd using a raised concrete island bypassing the roundabout and provide a dedicated receiving lane along N. Druid Hills Rd. Merge the outside receiving lane along northbound N. Druid Hills Rd into a single lane just south of Goodwin Pl. Convert Clearview Dr into a right-in-right-out driveway. Install new overhead directional signage to guide motorists to appropriate lanes for travel through the roundabout. Construct appropriate pedestrian and streetscape improvements based on recommended typical section for Segment 1, including sidewalk on the west side and MUP on the east side. Remove existing traffic signals at the intersections of N. Druid Hills Rd and Goodwin Rd, and at E. Roxboro Rd and Goodwin Rd. Close Goodwin Rd to vehicular traffic, maintaining it as City-owned greenspace and preserving property access for the residences in the triangle between E. Roxboro Rd, Goodwin Rd, and N. Druid Hills Rd (1227 Goodwin Road). Install a 10' MUP along the north side of Goodwin Rd from E. Roxboro Rd to N. Druid Hills Rd and extend it along the west side of N. Druid Hills Rd to just south of Gail Dr. Install marked crosswalk with pedestrian-actuated signal across the north leg of the intersection of Goodwin Rd and E. Roxboro Rd.</p> <p>At the time of design, consideration should be given to the option of leaving the signal at E. Roxboro Rd and Goodwin Rd in place to aid traffic turning right from Goodwin Rd and to meter southbound traffic along E. Roxboro Rd entering the roundabout during peak hours. This could be done using a demand-responsive system that includes queue detectors. Furthermore, design engineers should also consider additional measures to aid traffic at the roundabout by leaving the signal at N. Druid Hills Rd and Goodwin Rd in place to meter southbound traffic on N. Druid Hills Rd entering the roundabout during peak hours using a demand-responsive queue detector system.</p>	Intersection Improvement	PE: ~ \$0.3M ROW: \$0.6M - \$0.7M UTL: \$0.3M - \$0.4M CST: \$2.6M - \$3.2M TOTAL: \$3.8M - \$4.6M	Long-Term
MT-01	Segment Improvement: South of Gail Drive to South of Curtis Drive	Just South of Gail Dr, approximately 1776 N. Druid Hills Rd (northern limit of LT-02)	Just South of Curtis Dr, approximately 1668 N. Druid Hills Rd (southern limit of MT-02)	Design and construct improvements along N. Druid Hills Rd from just south of Gail Dr (northern limit of LT-02) to just south of Curtis Dr (southern limit of MT-02) as shown in the typical section for Segment 2: two travel lanes with a two-way center left-turn lane, including sidewalk on the west side and MUP on the east side. Design and construct a midblock pedestrian crossing with a raised refuge island and pedestrian actuated beacons just south of Gail Dr (northern limit of MT-02).	Typical Section	PE: ~ \$0.2M ROW: \$0.3M - \$0.4M UTL: \$0.4M - \$0.5M CST: \$1.9M - \$2.3M TOTAL: \$2.8M - \$3.4M	Mid-Term

TABLE 14: LIST OF RECOMMENDED PROJECTS (CONTINUED)

Project ID	Project Name	From	To	Description	Project Type	Estimated Cost	Timeframe
MT-02	Intersection Improvement: Curtis Drive	Just South of Curtis Dr, approximately 1668 N. Druid Hills Rd (northern limit of MT-01)	Just south of Lenox Park Blvd/N. Cliff Valley Way, approximately 1623 N. Druid Hills Rd (southern limit of MT-03)	Design and construct improvements to the intersection at Curtis Dr. Realign the intersection to reduce the skew and bring it closer to a 90-degree-angle, improving the turning radius and creating more room for pedestrians in the southeast corner. As part of the design process evaluate intersection sight distances and consider removal of the no right-turn on red for northbound N. Druid Hills Rd and westbound Curtis Dr. Upgrade traffic signal to include new mast arms, signal heads, and pedestrian push buttons. Install a pole mounted supplemental signal face for southbound traffic and retroreflective chevrons on the outside curve along N. Druid Hills Rd. Install crosswalks and ADA compliant curb ramps along the north and east sides of the intersection. Remove the crosswalk along the south side of the intersection (across N. Druid Hills Rd south of Curtis Dr) and the associated exclusive pedestrian phase. Include accommodations for approved project 106-MT (from the City’s Bicycle, Pedestrian, & Trail Plan) – an MUP along the north side of Curtis Dr, extending to the school driveway. Construct appropriate pedestrian and streetscape improvements along N. Druid Hills Rd from just south of Curtis Dr (northern limit of MT-01) to south of Lenox Park Blvd (southern limit of MT-03) based on recommended typical section for Segment 2, including sidewalk on the west side and MUP on the east side. See additional information in Section 6.2 of the Report.	Intersection Improvement	PE: ~ \$0.1M ROW: \$0.2M - \$0.3M UTL: \$0.3M - \$0.4M CST: \$1.0M - \$1.2M TOTAL: \$1.6M - \$2.0M	Mid-Term
MT-03	Intersection Improvement: Lenox Park Boulevard/North Cliff Valley Way	Just south of Lenox Park Blvd/N. Cliff Valley Way, approximately 1623 N. Druid Hills Rd (northern limit of MT-02)	Just South of Brookshire Ln, approximately 1548 N. Druid Hills Rd (southern limit of MT-04)	Design and construct improvements to the intersection at Lenox Park Blvd /N. Cliff Valley Way. Install an additional westbound through-lane on N. Cliff Valley Way and an additional eastbound through-lane on Lenox Park Blvd to continue the boulevard-style treatment on Lenox Park Boulevard east of the intersection. Install a second receiving lane along N. Cliff Valley Way and merge into a single lane east of the school driveway. Install a raised median along N. Cliff Valley Way for access management at the intersection. Upgrade traffic signal to include new mast arms, signal heads, and pedestrian push buttons. Install crosswalks and ADA compliant curb ramps along all four sides of the intersection. Install a sidewalk on the north side and MUP on the south side of N. Cliff Valley Way along the length of the school property. Construct appropriate pedestrian and streetscape improvements along N. Druid Hills Rd from just south of Lenox Park Blvd (northern limit of MT-02) to south of Brookshire Ln (southern limit of MT-04) based on recommended typical sections for Segments 2 and 3, including sidewalk on the west side and MUP on the east side.	Intersection Improvement	PE: ~ \$0.2M ROW: \$0.5M - \$0.6M UTL: \$0.3M - \$0.4M CST: \$1.8M - \$2.2M TOTAL: \$2.8M - \$3.4M	Mid-Term
MT-04	Segment Improvement: North of Lenox Park Boulevard/North Cliff Valley Way to South of Briarwood Road	Just South of Brookshire Ln, approximately 1548 N. Druid Hills Rd (northern limit of MT-03)	Just South of Pine Grove Avenue, approximately 1390 N. Druid Hills Rd (southern limit of ST-03)	Design and construct improvements along N. Druid Hills Rd from just south of Brookshire Ln (northern limit of MT-03) to just south of Pine Grove Ave (southern limit of ST-03) as shown in the typical section for Segment 3: two travel lanes with a two-way center left-turn lane, including sidewalk on the west side and MUP on the east side. Design and construct two midblock pedestrian crossings with raised refuge islands and pedestrian actuated beacons, one just south of Brookshire Ln, at approximately 1548 N. Druid Hills Rd, and the other just south of Lindenwood Ln, at approximately 1404 N. Druid Hills Rd.	Typical Section	PE: ~ \$0.3M ROW: \$0.6M - \$0.7M UTL: \$0.6M - \$0.7M CST: \$2.6M - \$3.2M TOTAL: \$4.1M - \$4.9M	Mid-Term
ST-03	Intersection Improvement: Briarwood Road and Oglethorpe Drive	Just South of Pine Grove Ave, approximately 1390 N. Druid Hills Rd (northern limit of MT-04)	Just South of Thornwell Dr, approximately 1333 N. Druid Hills Rd (southern limit of MT-05)	Design and construct improvements to the intersections at Briarwood Rd and Oglethorpe Ave. Realign the intersection at Briarwood Rd by reconfiguring the southeast corner to reduce the skew by moving the westbound left-turn lane (on Briarwood Rd) to the south, expand the raised island between the westbound right-turn lane and left-turn lane on Briarwood Rd, add a northbound channelized right-turn lane from N. Druid Hills Rd to eastbound Briarwood Rd, and extend the length of the southbound left-turn lane from N. Druid Hills Rd to eastbound Briarwood Rd. Install crosswalks and ADA compliant curb ramps along the east and north legs of the intersection with Briarwood Rd. Reconfigure the intersection at Oglethorpe Ave by converting Oglethorpe Ave to right-in only (for southbound traffic on N. Druid Hills Rd), and install a raised bump-out in the southwest corner. Maintain AM No Left Turn for Thornwell Dr. Construct appropriate pedestrian and streetscape improvements along N. Druid Hills Rd from just south of Pine Grove Ave (northern limit of MT-04) to Thornwell Dr (southern limit of MT-05) based on recommended typical section for Segment 4, including sidewalk on the west side and MUP on the east side except where it will be constructed as part of the Halstead development. Install crosswalks and ADA compliant curb ramps along the west side of the intersection with Oglethorpe Ave.	Intersection Improvement	PE: ~ \$0.1M ROW: \$0.2M - \$0.3M UTL: \$0.2M - \$0.3M CST: \$1.0M - \$1.2M TOTAL: \$1.5M - \$1.9M	Short-Term

TABLE 14: LIST OF RECOMMENDED PROJECTS (CONTINUED)

Project ID	Project Name	From	To	Description	Project Type	Estimated Cost	Timeframe
MT-05	Segment Improvement: South of Thornwell Drive to North of Sylvan Circle North	Just South of Thornwell Dr, approximately 1333 N. Druid Hills Rd (northern limit of ST-03)	Just North of Sylvan Cir North, approximately 1242 N. Druid Hills Rd (southern limit of ST-04)	Design and construct improvements along N. Druid Hills Rd from just south of Thornwell Dr (northern limit of ST-03) to just north of Sylvan Cir North (southern limit of ST-04) as shown in the typical section for Segment 4: two travel lanes with a two-way center left-turn lane, including sidewalk on the west side and MUP on the east side. Design and construct a midblock pedestrian crossing with a raised refuge island and pedestrian actuated beacons between Thornwell Dr and Sylvan Cir South.	Typical Section	PE: ~ \$0.1M ROW: \$0.2M - \$0.3M UTL: \$0.4M - \$0.5M CST: \$1.0M - \$1.2M TOTAL: \$1.7M - \$2.1M	Mid-Term
ST-04	Intersection Improvement: Apple Valley Road	Just North of Sylvan Cir North, approximately 1242 N. Druid Hills Rd (northern limit of MT-05)	Just North of Apple Valley Rd	Design and construct improvements to the intersection at Apple Valley Rd. Reconfigure the intersection to include a channelized right-turn lane from northbound N. Druid Hills Rd to eastbound Apple Valley Rd. Upgrade traffic signal to include new mast arms, signal heads, and pedestrian push buttons. Install crosswalks and ADA compliant curb ramps along the north and east sides of the intersection. Construct appropriate pedestrian and streetscape improvements along N. Druid Hills Rd from just south of Sylvan Cir North (northern limit of MT-05) to just north of Apple Valley Rd based on recommended typical section for Segment 4, including sidewalk on the west side and MUP on the east side. Ensure pedestrian facilities meet the minimum dimensions required by the Peachtree Road Overlay District (PRO).	Intersection Improvement	PE: ~ \$60K ROW: \$14K - \$17K UTL: \$190K - \$230K CST: \$510K - \$620K TOTAL: \$774K - \$927K	Short-Term
ST-05	Don't Block the Box	Southern bus driveway at MARTA Station	n/a	Install Do Not Block Intersection pavement markings and "Do Not Block Intersection" signage (R10-7) at the southern bus bay driveway for the Brookhaven-Oglethorpe MARTA Station on North Druid Hills Rd.	Transit Supportive	PE: N/A ROW: N/A UTL: N/A CST: ~ \$1K TOTAL: ~ \$1K	Short-Term
ST-06	Bus Stop Consolidation and Relocation	Corridor Wide	n/a	Coordinate with MARTA to consolidate bus stops with lower activity and relocate stops to better align with opportunities to cross North Druid Hills Rd.	Transit Supportive	N/A	Short-Term
ST-07	Public Art near MARTA Station	Retaining wall on west side of North Druid Hills Rd south of SR 141/Peachtree Rd	n/a	City's Arts Advisory Committee should work with local artists to design a mural to be installed along the retaining wall in the southwest corner of the intersection of N. Druid Hills Rd at SR 141/Peachtree Rd, opposite the Brookhaven-Oglethorpe MARTA rail station.	Other	N/A	Short-Term
ST-08	ITS - North Druid Hills Road Signal Interconnect	Intersection of SR 13/Buford Hwy at N. Druid Hills Rd	Intersection of Apple Valley Rd at N. Druid Hills Rd	Install fiber optic cable in underground conduits to interconnect traffic signals from SR 13/Buford Hwy to Apple Valley Rd including the traffic signals at Curtis Dr, Lenox Park Blvd /North Cliff Valley Way, and Briarwood Rd. Install CCTVs at the five intersections to monitor traffic operations along N. Druid Hills Rd. Upgrade the cabinets at the intersections to include Gigabit-capable optical transceivers and network switches and the signal controllers to the MaxTime firmware.	ITS	PE: ~ \$45K ROW: N/A UTL: N/A CST: \$410K - \$500K TOTAL: \$455K - \$545K	Short-Term

TABLE 15. RECOMMENDED PHASE PROJECTS BY TIMEFRAME: SHORT-TERM TO LONG-TERM (SHORT-TERM)

Project ID	Project Name	From	To	Description	Project Type	Estimated Cost	Timeframe
SHORT-TERM							
ST-01	Intersection Improvement: SR 13/Buford Highway	Intersection of SR 13/Buford Hwy at N. Druid Hills Rd	n/a	In the interim, before improvements identified as part of the CHOA DRI are implemented at the SR 13/Buford Hwy at N. Druid Hills Rd intersection, coordinate with GDOT to convert the southbound left-turn from N. Druid Hills Rd to northbound SR 13/Buford Hwy to a protected-only movement; prohibit right-turns on red from southbound SR 13/Buford Hwy to northbound N. Druid Hills Rd.	Intersection Improvement	PE: ~ \$5K ROW: N/A UTL: N/A CST: \$42K - \$50K TOTAL: \$47K - \$55K	Short-Term
ST-02	Directional Signage: SR 13/Buford Highway	Intersection of SR 13/Buford Hwy at N. Druid Hills Rd	n/a	Design and install route shield pavement markings and overhead signage to guide southbound vehicles to I-85 at the SR 13/Buford Hwy at N. Druid Hills Rd intersection. Design and install lane line extension pavement markings along southbound N. Druid Hills Rd through the SR 13/Buford Hwy intersection to better guide vehicles to stay in the appropriate receiving lanes.	Signing and Marking	PE: ~ \$1K ROW: N/A UTL: \$10K - \$12K CST: \$7K - \$8K TOTAL: \$18K - \$21K	Short-Term
ST-03	Intersection Improvement: Briarwood Road and Oglethorpe Drive	Just South of Pine Grove Ave, approximately 1390 N. Druid Hills Rd (northern limit of MT-04)	Just South of Thornwell Dr, approximately 1333 N. Druid Hills Rd (southern limit of MT-05)	Design and construct improvements to the intersections at Briarwood Rd and Oglethorpe Ave. Realign the intersection at Briarwood Rd by reconfiguring the southeast corner to reduce the skew by moving the westbound left-turn lane (on Briarwood Rd) to the south, expand the raised island between the westbound right-turn lane and left-turn lane on Briarwood Rd, add a northbound channelized right-turn lane from N. Druid Hills Rd to eastbound Briarwood Rd, and extend the length of the southbound left-turn lane from N. Druid Hills Rd to eastbound Briarwood Rd. Install crosswalks and ADA compliant curb ramps along the east and north legs of the intersection with Briarwood Rd. Reconfigure the intersection at Oglethorpe Ave by converting Oglethorpe Ave to right-in only (for southbound traffic on N. Druid Hills Rd), and install a raised bump-out in the southwest corner. Maintain AM No Left Turn for Thornwell Dr. Construct appropriate pedestrian and streetscape improvements along N. Druid Hills Rd from just south of Pine Grove Ave (northern limit of MT-04) to Thornwell Dr (southern limit of MT-05) based on recommended typical section for Segment 4, including sidewalk on the west side and MUP on the east side except where it will be constructed as part of the Halstead development. Install crosswalks and ADA compliant curb ramps along the west side of the intersection with Oglethorpe Ave.	Intersection Improvement	PE: ~ \$0.1M ROW: \$0.2M - \$0.3M UTL: \$0.2M - \$0.3M CST: \$1.0M - \$1.2M TOTAL: \$1.5M - \$1.9M	Short-Term
ST-04	Intersection Improvement: Apple Valley Road	Just North of Sylvan Cir North, approximately 1242 N. Druid Hills Rd (northern limit of MT-05)	Just North of Apple Valley Rd	Design and construct improvements to the intersection at Apple Valley Rd. Reconfigure the intersection to include a channelized right-turn lane from northbound N. Druid Hills Rd to eastbound Apple Valley Rd. Upgrade traffic signal to include new mast arms, signal heads, and pedestrian push buttons. Install crosswalks and ADA compliant curb ramps along the north and east sides of the intersection. Construct appropriate pedestrian and streetscape improvements along N. Druid Hills Rd from just south of Sylvan Cir North (northern limit of MT-05) to just north of Apple Valley Rd based on recommended typical section for Segment 4, including sidewalk on the west side and MUP on the east side. Ensure pedestrian facilities meet the minimum dimensions required by the Peachtree Road Overlay District (PRO).	Intersection Improvement	PE: ~ \$60K ROW: \$14K - \$17K UTL: \$190K - \$230K CST: \$510K - \$620K TOTAL: \$774K - \$927K	Short-Term
ST-05	Don't Block the Box	Southern bus driveway at MARTA Station	n/a	Install Do Not Block Intersection pavement markings and "Do Not Block Intersection" signage (R10-7) at the southern bus bay driveway for the Brookhaven-Oglethorpe MARTA Station on North Druid Hills Rd.	Transit Supportive	PE: N/A ROW: N/A UTL: N/A CST: ~ \$1K TOTAL: ~ \$1K	Short-Term
ST-06	Bus Stop Consolidation and Relocation	Corridor Wide	n/a	Coordinate with MARTA to consolidate bus stops with lower activity and relocate stops to better align with opportunities to cross North Druid Hills Rd.	Transit Supportive	N/A	Short-Term
ST-07	Public Art near MARTA Station	Retaining wall on west side of North Druid Hills Rd south of SR 141/Peachtree Rd	n/a	City's Arts Advisory Committee should work with local artists to design a mural to be installed along the retaining wall in the southwest corner of the intersection of N. Druid Hills Rd at SR 141/Peachtree Rd, opposite the Brookhaven-Oglethorpe MARTA rail station.	Other	N/A	Short-Term
ST-08	ITS - North Druid Hills Road Signal Interconnect	Intersection of SR 13/Buford Hwy at N. Druid Hills Rd	Intersection of Apple Valley Rd at N. Druid Hills Rd	Install fiber optic cable in underground conduits to interconnect traffic signals from SR 13/Buford Hwy to Apple Valley Rd including the traffic signals at Curtis Dr, Lenox Park Blvd /North Cliff Valley Way, and Briarwood Rd. Install CCTVs at the five intersections to monitor traffic operations along N. Druid Hills Rd. Upgrade the cabinets at the intersections to include Gigabit-capable optical transceivers and network switches and the signal controllers to the MaxTime firmware.	ITS	PE: ~ \$45K ROW: N/A UTL: N/A CST: \$410K - \$500K TOTAL: \$455K - \$545K	Short-Term

TABLE 15: RECOMMENDED PHASE PROJECTS BY TIMEFRAME (CONTINUED: MID-TERM)

Project ID	Project Name	From	To	Description	Project Type	Estimated Cost	Timeframe
MID-TERM							
MT-01	Segment Improvement: South of Gail Drive to South of Curtis Drive	Just South of Gail Dr, approximately 1776 N. Druid Hills Rd (northern limit of LT-02)	Just South of Curtis Dr, approximately 1668 N. Druid Hills Rd (southern limit of MT-02)	Design and construct improvements along N. Druid Hills Rd from just south of Gail Dr (northern limit of LT-02) to just south of Curtis Dr (southern limit of MT-02) as shown in the typical section for Segment 2: two travel lanes with a two-way center left-turn lane, including sidewalk on the west side and MUP on the east side. Design and construct a midblock pedestrian crossing with a raised refuge island and pedestrian actuated beacons just south of Gail Dr (northern limit of MT-02).	Typical Section	PE: ~ \$0.2M ROW: \$0.3M - \$0.4M UTL: \$0.4M - \$0.5M CST: \$1.9M - \$2.3M TOTAL: \$2.8M - \$3.4M	Mid-Term
MT-02	Intersection Improvement: Curtis Drive	Just South of Curtis Dr, approximately 1668 N. Druid Hills Rd (northern limit of MT-01)	Just south of Lenox Park Blvd/N. Cliff Valley Way, approximately 1623 N. Druid Hills Rd (southern limit of MT-03)	Design and construct improvements to the intersection at Curtis Dr. Realign the intersection to reduce the skew and bring it closer to a 90-degree-angle, improving the turning radius and creating more room for pedestrians in the southeast corner. As part of the design process evaluate intersection sight distances and consider removal of the no right-turn on red for northbound N. Druid Hills Rd and westbound Curtis Dr. Upgrade traffic signal to include new mast arms, signal heads, and pedestrian push buttons. Install a pole mounted supplemental signal face for southbound traffic and retroreflective chevrons on the outside curve along N. Druid Hills Rd. Install crosswalks and ADA compliant curb ramps along the north and east sides of the intersection. Remove the crosswalk along the south side of the intersection (across N. Druid Hills Rd south of Curtis Dr) and the associated exclusive pedestrian phase. Include accommodations for approved project 106-MT (from the City’s Bicycle, Pedestrian, & Trail Plan) – an MUP along the north side of Curtis Dr, extending to the school driveway. Construct appropriate pedestrian and streetscape improvements along N. Druid Hills Rd from just south of Curtis Dr (northern limit of MT-01) to south of Lenox Park Blvd (southern limit of MT-03) based on recommended typical section for Segment 2, including sidewalk on the west side and MUP on the east side. See additional information in Section 6.2 of the Report.	Intersection Improvement	PE: ~ \$0.1M ROW: \$0.2M - \$0.3M UTL: \$0.3M - \$0.4M CST: \$1.0M - \$1.2M TOTAL: \$1.6M - \$2.0M	Mid-Term
MT-03	Intersection Improvement: Lenox Park Boulevard/North Cliff Valley Way	Just south of Lenox Park Blvd/N. Cliff Valley Way, approximately 1623 N. Druid Hills Rd (northern limit of MT-02)	Just South of Brookshire Ln, approximately 1548 N. Druid Hills Rd (southern limit of MT-04)	Design and construct improvements to the intersection at Lenox Park Blvd /N. Cliff Valley Way. Install an additional westbound through-lane on N. Cliff Valley Way and an additional eastbound through-lane on Lenox Park Blvd to continue the boulevard-style treatment on Lenox Park Boulevard east of the intersection. Install a second receiving lane along N. Cliff Valley Way and merge into a single lane east of the school driveway. Install a raised median along N. Cliff Valley Way for access management at the intersection. Upgrade traffic signal to include new mast arms, signal heads, and pedestrian push buttons. Install crosswalks and ADA compliant curb ramps along all four sides of the intersection. Install a sidewalk on the north side and MUP on the south side of N. Cliff Valley Way along the length of the school property. Construct appropriate pedestrian and streetscape improvements along N. Druid Hills Rd from just south of Lenox Park Blvd (northern limit of MT-02) to south of Brookshire Ln (southern limit of MT-04) based on recommended typical sections for Segments 2 and 3, including sidewalk on the west side and MUP on the east side.	Intersection Improvement	PE: ~ \$0.2M ROW: \$0.5M - \$0.6M UTL: \$0.3M - \$0.4M CST: \$1.8M - \$2.2M TOTAL: \$2.8M - \$3.4M	Mid-Term
MT-04	Segment Improvement: North of Lenox Park Boulevard/North Cliff Valley Way to South of Briarwood Road	Just South of Brookshire Ln, approximately 1548 N. Druid Hills Rd (northern limit of MT-03)	Just South of Pine Grove Avenue, approximately 1390 N. Druid Hills Rd (southern limit of ST-03)	Design and construct improvements along N. Druid Hills Rd from just south of Brookshire Ln (northern limit of MT-03) to just south of Pine Grove Ave (southern limit of ST-03) as shown in the typical section for Segment 3: two travel lanes with a two-way center left-turn lane, including sidewalk on the west side and MUP on the east side. Design and construct two midblock pedestrian crossings with raised refuge islands and pedestrian actuated beacons, one just south of Brookshire Ln, at approximately 1548 N. Druid Hills Rd, and the other just south of Lindenwood Ln, at approximately 1404 N. Druid Hills Rd.	Typical Section	PE: ~ \$0.3M ROW: \$0.6M - \$0.7M UTL: \$0.6M - \$0.7M CST: \$2.6M - \$3.2M TOTAL: \$4.1M - \$4.9M	Mid-Term
MT-05	Segment Improvement: South of Thornwell Drive to North of Sylvan Circle North	Just South of Thornwell Dr, approximately 1333 N. Druid Hills Rd (northern limit of ST-03)	Just North of Sylvan Cir North, approximately 1242 N. Druid Hills Rd (southern limit of ST-04)	Design and construct improvements along N. Druid Hills Rd from just south of Thornwell Dr (northern limit of ST-03) to just north of Sylvan Cir North (southern limit of ST-04) as shown in the typical section for Segment 4: two travel lanes with a two-way center left-turn lane, including sidewalk on the west side and MUP on the east side. Design and construct a midblock pedestrian crossing with a raised refuge island and pedestrian actuated beacons between Thornwell Dr and Sylvan Cir South.	Typical Section	PE: ~ \$0.1M ROW: \$0.2M - \$0.3M UTL: \$0.4M - \$0.5M CST: \$1.0M - \$1.2M TOTAL: \$1.7M - \$2.1M	Mid-Term

TABLE 15: RECOMMENDED PHASE PROJECTS BY TIMEFRAME (CONTINUED: LONG-TERM)

Project ID	Project Name	From	To	Description	Project Type	Estimated Cost	Timeframe
LONG-TERM							
LT-01	Segment Improvement: SR 13/Buford Highway to Ashton Bluff Drive	SR 13/Buford Hwy, approximately 1960 N. Druid Hills Rd	Just North of Ashton Bluff Dr, approximately 1118 Ashton Bluff Dr (southern limit of LT-02)	Design and construct improvements along N. Druid Hills Rd from SR 13/Buford Hwy to the north side of Ashton Bluff Dr (southern limit of LT-02) as shown in the typical section for Segment 1: four travel lanes with a two-way center left-turn lane, including sidewalk on the west side and MUP on the east side. Maintain the southbound outside through-right lane at the SR 13/Buford Hwy intersection. Install a short, raised median in the center turn-lane just south of the Red Roof Inn driveway approximately 400 feet north of the stop bar. Stripe the dedicated southbound left-turn lane from this raised median.	Typical Section	PE: ~ \$0.2M ROW: \$0.4M - \$0.5M UTL: \$0.5M - \$0.6M CST: \$1.9M - \$2.3M TOTAL: \$3.0M - \$3.6M	Long-Term
LT-02	Intersection Improvement: East Roxboro Road	Just North of Ashton Bluff Dr, approximately 1118 Ashton Bluff Dr (northern limit of LT-01)	Just South of Gail Dr, approximately 1776 N. Druid Hills Rd (southern limit of MT-01)	<p>Design and construct improvements to the intersection at E. Roxboro Rd by converting it to a three-legged multi-lane roundabout with central landscaped island. Realign the southbound N. Druid Hills Rd leg to reduce the skew and bring it closer to a 90-degree-angle. Provide two approach lanes on all legs of the roundabout. Channelize the outside lane on the northbound approach leg of N. Druid Hills Rd using a raised concrete island bypassing the roundabout and provide a dedicated receiving lane along N. Druid Hills Rd. Merge the outside receiving lane along northbound N. Druid Hills Rd into a single lane just south of Goodwin Pl. Convert Clearview Dr into a right-in-right-out driveway. Install new overhead directional signage to guide motorists to appropriate lanes for travel through the roundabout. Construct appropriate pedestrian and streetscape improvements based on recommended typical section for Segment 1, including sidewalk on the west side and MUP on the east side. Remove existing traffic signals at the intersections of N. Druid Hills Rd and Goodwin Rd, and at E. Roxboro Rd and Goodwin Rd. Close Goodwin Rd to vehicular traffic, maintaining it as City-owned greenspace and preserving property access for the residences in the triangle between E. Roxboro Rd, Goodwin Rd, and N. Druid Hills Rd (1227 Goodwin Road). Install a 10' MUP along the north side of Goodwin Rd from E. Roxboro Rd to N. Druid Hills Rd and extend it along the west side of N. Druid Hills Rd to just south of Gail Dr. Install marked crosswalk with pedestrian-actuated signal across the north leg of the intersection of Goodwin Rd and E. Roxboro Rd.</p> <p>At the time of design, consideration should be given to the option of leaving the signal at E. Roxboro Rd and Goodwin Rd in place to aid traffic turning right from Goodwin Rd and to meter southbound traffic along E. Roxboro Rd entering the roundabout during peak hours. This could be done using a demand-responsive system that includes queue detectors. Furthermore, design engineers should also consider additional measures to aid traffic at the roundabout by leaving the signal at N. Druid Hills Rd and Goodwin Rd in place to meter southbound traffic on N. Druid Hills Rd entering the roundabout during peak hours using a demand-responsive queue detector system.</p>	Intersection Improvement	PE: ~ \$0.3M ROW: \$0.6M - \$0.7M UTL: \$0.3M - \$0.4M CST: \$2.6M - \$3.2M TOTAL: \$3.8M - \$4.6M	Long-Term