CHELTENHAM DRIVE - WISONSIN AVENUE TO PEARL STREET BIKEWAY FEASIBILITY STUDY

BETHESDA, MONTGOMERY COUNTY; MD

EXISTING CONDITIONS REPORT

FEBRUARY 2021

KITTELSON & ASSOCIATES

MCDOT
Montgomery County Department of Transportation

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Cheltenham Drive – Wisconsin Avenue to Pearl Street Bikeway Feasibility Study

Bethesda, Montgomery County; MD

Existing Conditions Report

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Prepared for:

Montgomery County Department of Transportation (MCDOT)

100 Edison Park Drive,
4th Floor,
Gaithersburg, MD 20878

Prepared by:

Kittelson and Associates, Inc.

100 M Street SE,
Suite 910,
Washington, DC 20003

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INTRODUCTION

Montgomery County Department of Transportation (MCDOT), in partnership with the Maryland-National Capital Park and Planning Commission (M-NCPPC), has been planning and implementing bicycle facility projects in Bethesda over the last several years. MCDOT is advancing bikeway projects to implement the bicycle network recommended in the 2017 Bethesda Downtown Sector Plan.

This project will conduct a planning and concept design feasibility study to finalize bikeway routes and identify bicycle facility types, west of Wisconsin Avenue (MD 355) as part of the Bethesda Loop. The Bethesda Loop is a planned network of low-stress bicycle facilities in and near Downtown Bethesda. This planned network will create a low-stress bikeway loop, running along Woodmont Avenue, Montgomery Lane/Montgomery Avenue, Pearl Street, and Cheltenham Drive. **Figure 1** shows the study area in the context of existing and planned transportation projects. Some of the major planned projects near the study area include the Purple Line, Georgetown Branch Trail/Capital Crescent Trail, and the Bethesda Bike Loop. Apart from the Bethesda Loop, several other bikeway projects have been planned in and around the study area as per the 2018 Montgomery County Bicycle Master Plan.

This feasibility study will focus on the following topics:

- Address discrepancies between bikeway route alignments proposed in the 2017 Bethesda Downtown Sector Plan and the 2018 Montgomery County Bicycle Master Plan.
- Identify route alignment alternatives and bike facility type alternatives to complete the Bethesda Loop, west of Wisconsin Avenue.
- Develop a planning-level qualitative assessment for route and bike facility type alternatives.
- Engage major stakeholders and the community members to identify issues, opportunities and solicit feedback on alternatives.

Project Background

Several projects that form the Bethesda Loop, including the two-way separated bicycle lanes on Woodmont Avenue and Montgomery Lane/Montgomery Avenue, are in various stages of engineering design and implementation. However, exact route and bicycle facility types have not yet been finalized for part of the loop along Pearl Street and Cheltenham Drive, west of Wisconsin Avenue. This project will build on the previous planning efforts and advance bikeway projects to complete the Bethesda Loop. **Figure 2** displays the study segments within the scope of this project, including segments of Chase Avenue, Harling Lane, Cheltenham Drive, Tilbury Street, and Sleaford Road.

Although Pearl Street and Cheltenham Drive were identified as proposed routes in the 2017 Bethesda Downtown Sector Plan, several feasibility factors need to be addressed to advance these projects to engineering design. There are inconsistencies in the exact alignments and the bike facility types recommended in the 2017 Bethesda Downtown Sector Plan and the 2018 Montgomery County Bicycle Master Plan. Several bike facilities that are recommended in both these plans may result in utility and ROW impacts. Cheltenham Drive, east of Tilbury Street, is a one-way west-bound residential street with on-street parking that may not be able to accommodate two-way bicycle traffic. Other parallel routes may need to be added to create a complete network. Finally, additional public outreach and stakeholder engagement is necessary to reach an informed community consensus on routes and bike facility types.

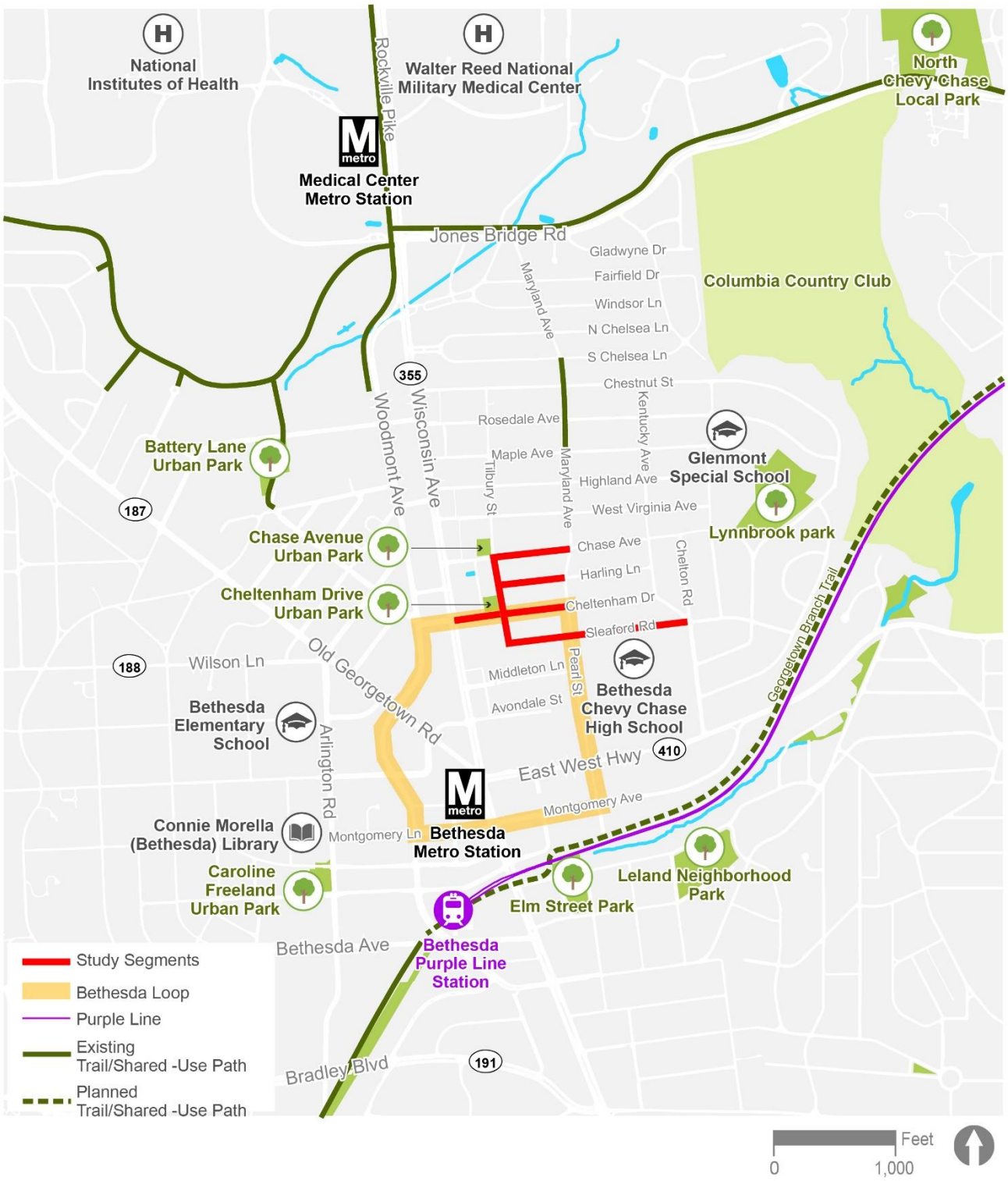


Figure 1: Study Area Context Map

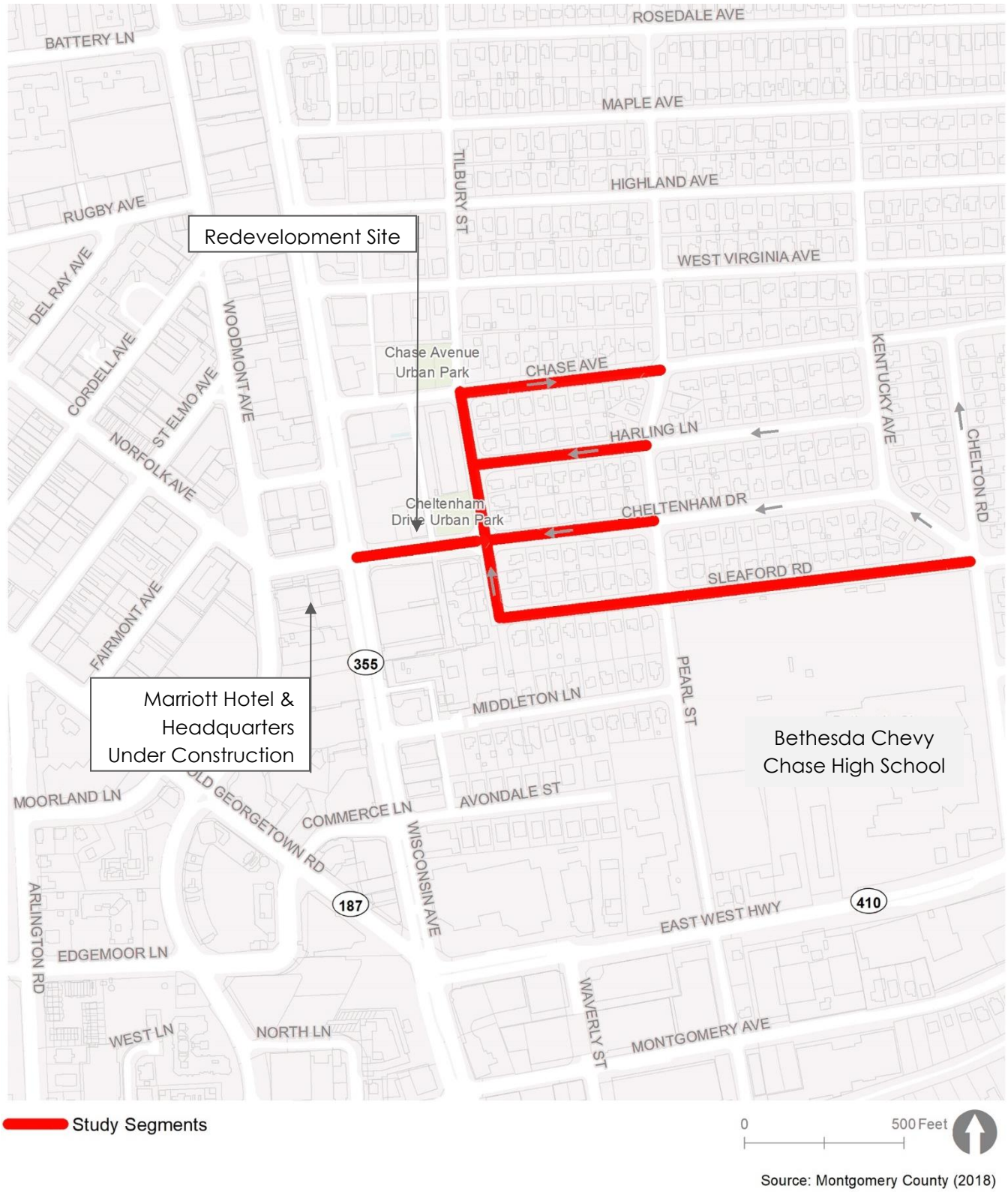


Figure 2: Study Area and Study Segments

Planning Process

The project team developed a streamlined planning process to guide the project through various tasks. The project began with a kick-off meeting held on November 19th, 2020. This feasibility study will develop bike network and facility type alternatives, and further develop concept plans for a preferred alternative. The preferred network and bike facility type alternative will be selected based on the public and stakeholder feedback as well as planning-level qualitative assessment. The overall planning process is shown in **Figure 3**.

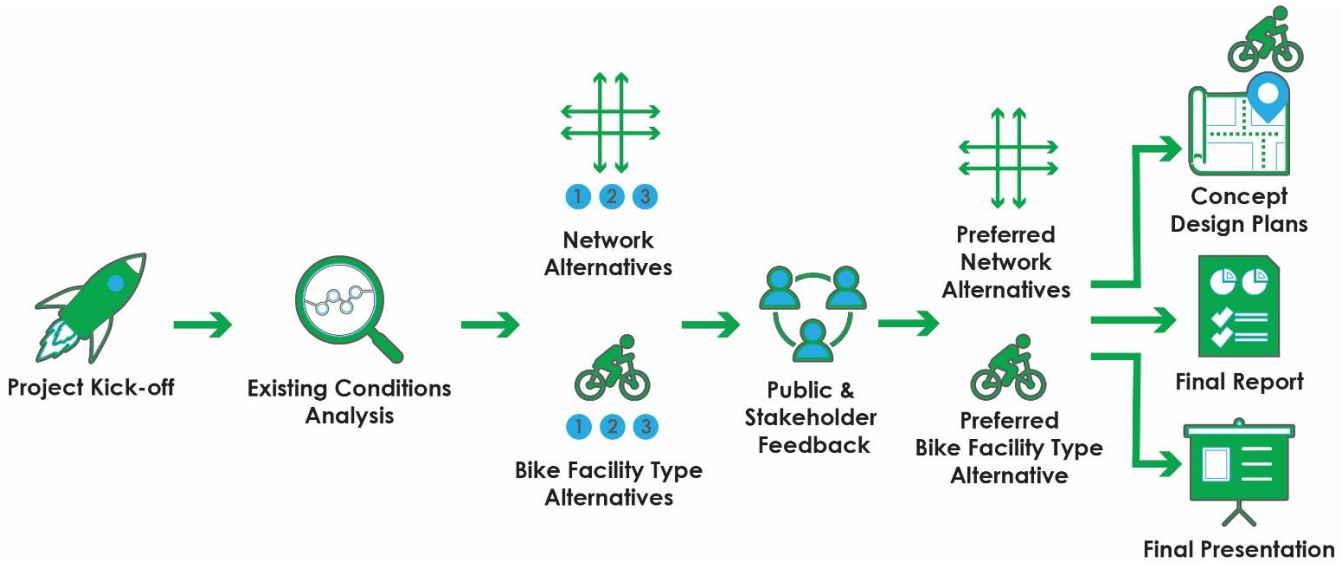


Figure 3: Planning Process Diagram

Cheltenham Drive – Looking North from Tilbury Street intersection

PROJECT GOALS AND EVALUATION MEASURES

The following goals were identified to help guide this project:

- **Evaluate cross-section alternatives to identify a preferred low-stress bikeway facility for Cheltenham Drive.**
- **Evaluate network alternatives to identify preferred bike network between Tilbury Street and Pearl Street.**
- **Engage major stakeholders and community members to gather feedback as part of identifying the preferred alternative.**
- **Develop conceptual design plans for the preferred bikeway facility for the study area.**

This report is organized to describe the study area's existing conditions and assess relevant recommendations of previous plans and concept designs that affect the area. This report summarizes findings for the following existing conditions topic areas:

- Land use
- Existing and proposed pedestrian facilities
- Existing and proposed bicycle facilities
- Crash history
- Roadway characteristics

The project team collected data from open-source databases and other agency sources such as:

- Montgomery County Department of Transportation (MCDOT)
- GIS Open Data portal for Montgomery County
- Maryland- National Capital Parks and Planning Commission (M-NCPPC)
- Maryland Department of Transportation (MDOT) – State Highway Administration (SHA)

Evaluation Measures

A preferred alternative will be selected for each study segment. The preferred design alternative will be selected based on public input and qualitative assessment based on the following measures:

- **Bicycle Safety & Comfort**
- **Public & Stakeholder Input**
- **Estimated Cost**
- **Right-of-Way Impacts**
- **Parking & Property Access Impacts**
- **Drainage & Utility Impacts**

EXISTING CONDITIONS ANALYSIS

An existing conditions analysis is the first step in evaluating and understanding the study area's challenges and opportunities. This analysis involved mapping and analyzing land use and multi-modal transportation infrastructure as well as roadway characteristics and crash history. The data collected and analyzed will also be utilized in the next project phase to develop and assess conceptual alternatives to help identify bicycle facility type and the overall bike network. The findings from the existing conditions analysis are summarized below.

Existing Land Use

The study area consists of a mix of commercial, office, and residential land uses, as shown in **Figure 4**. Wisconsin Avenue and the area west of Wisconsin Avenue are characterized by commercial retail, and office land uses as well as medium to high-density multi-family residential development. Wisconsin Avenue is a major roadway with many everyday destinations such as restaurants, convenience stores, gas stations, banks, car rental facilities, and hotels. East of Wisconsin Avenue, the study area, has smaller, slower, and narrower streets that service mostly residential uses. There are some multi-family housing units mixed in with the office, and commercial land uses east of Wisconsin Avenue.

The study area contains mostly detached single-family residential land uses east of Tilbury Street. There are two small neighborhood urban parks located within the study area. Cheltenham Drive Urban Park is located at the intersection of Cheltenham Drive and Tilbury Street. Chase Avenue Urban Park is located at the intersection of Chase Avenue and Tilbury Street. The Bethesda Chevy Chase High School, Our Lady of Lourdes Church, and MedStar Georgetown University Hospital are some of the major institutional land use located along Pearl Street, just south of the study area.

Commercial land uses fronting Cheltenham Drive between Wisconsin Avenue and Tilbury Street.

Single-family detached residential land uses fronting Cheltenham Drive, east of Tilbury Street.

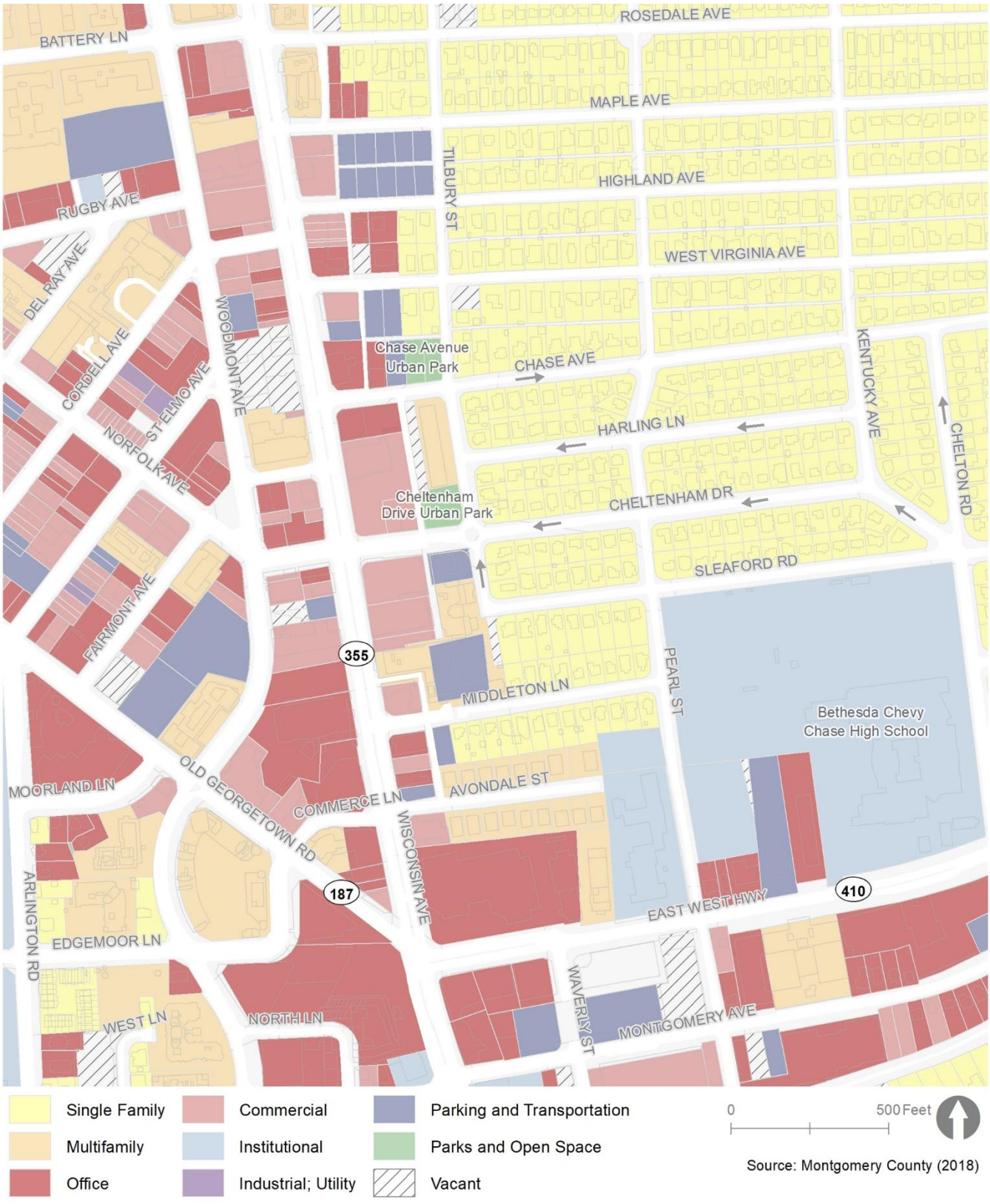


Figure 4: Existing Land Use Map

Pedestrian Facilities

Existing and planned pedestrian facilities were mapped to understand the current and proposed infrastructure and gaps in the system. In many areas where there are no dedicated bicycle facilities, pedestrian facilities like sidewalks function as bicycle facilities. Depending on the width, pedestrian volumes, and the surrounding land use context, a 10'wide or wider pedestrian facility can effectively function as a shared-use path that is used by both, pedestrians and bicyclists.

Most study segments, except Cheltenham Drive between Wisconsin Avenue and Tilbury Street, have narrow 4' to 5' wide sidewalks on one side of the street. Wide sidewalks with street furniture (street trees, landscaping, planters, benches) are provided along Wisconsin Avenue and Cheltenham, Drive between Wisconsin Avenue and Tilbury Street. Many curb cuts and driveway entrances to the CVS, Cheltenham Parking garage, and Midas auto repair shop create conflict points for people using the sidewalk along Cheltenham Drive near Wisconsin Avenue.

Additionally, opportunities for pedestrians to cross Cheltenham Drive exist at the signalized crosswalk at Wisconsin Avenue and at the unmarked crosswalk at the mini traffic circle at Tilbury Street. The unmarked pedestrian crosswalk on the westbound leg of the approach is lacking an ADA ramp to accommodate people crossing Cheltenham Drive. **Figure 5** maps existing pedestrian facilities.

Most residential study segments have narrow 4' wide sidewalk on one side of the street.

Sidewalks on Cheltenham Drive between Wisconsin Avenue and Tilbury Street are 10' wide with additional 5' of; tree lined landscape buffer but are frequently interrupted by driveways.

Bicycle Facilities

Limited bicycle facilities exist in and around the study area. Cheltenham Drive, from Wisconsin Avenue to Tilbury Street; Tilbury Street, south of Cheltenham Drive; and Sleaford Road are marked Bike Routes with way-finding signs. Pearl Street is also an assigned Bike Route with signs and sharrow markings. These on-street bicycle facilities connect people to the Georgetown Branch Trail, located just south and east of the study area.

Figure 6 displays the study area's existing Bicycle Level of Traffic Stress (LTS), which is calculated based on a variety of street characteristics, such as width, speed, traffic volumes, and type of bicycle facility. Bicycle LTS provides an indication of which streets feel comfortable (lowest stress – LTS 1) and which streets feel uncomfortable or unsafe for people biking (highest stress – LTS 4). **Figure 6** depicts the existing LTS of each street surrounding the study area from low stress (LTS 1) to high stress (LTS 4). As shown, Wisconsin Avenue is uncomfortable for most cyclists. Alternatively, the local neighborhood streets, such as Cheltenham Drive, Chase Avenue, Pearl Street, and Sleaford Road, are more comfortable for most people biking. This is likely due to the lower speeds and lower vehicle volumes traveling on these local streets.

Figure 7 displays the proposed bicycle facility improvements recommended in the Montgomery County Bicycle Master Plan. The Master Plan provides a range of bicycle facility recommendations throughout the study area. Separated bike lanes are recommended for Cheltenham Drive between Wisconsin Avenue and Tilbury Street. Neighborhood greenways (Marked shared roadways with way-finding signs) are recommended for Tilbury Street, Chase Avenue, Sleaford Road. Two-way separated bicycle facilities are currently being constructed on Woodmont Avenue and Montgomery Avenue/Montgomery Lane.

Bike Route sign on Cheltenham Drive.

Bike Route sign on Tilbury Street.

Figure 5: Existing Pedestrian and Bicycle Facilities

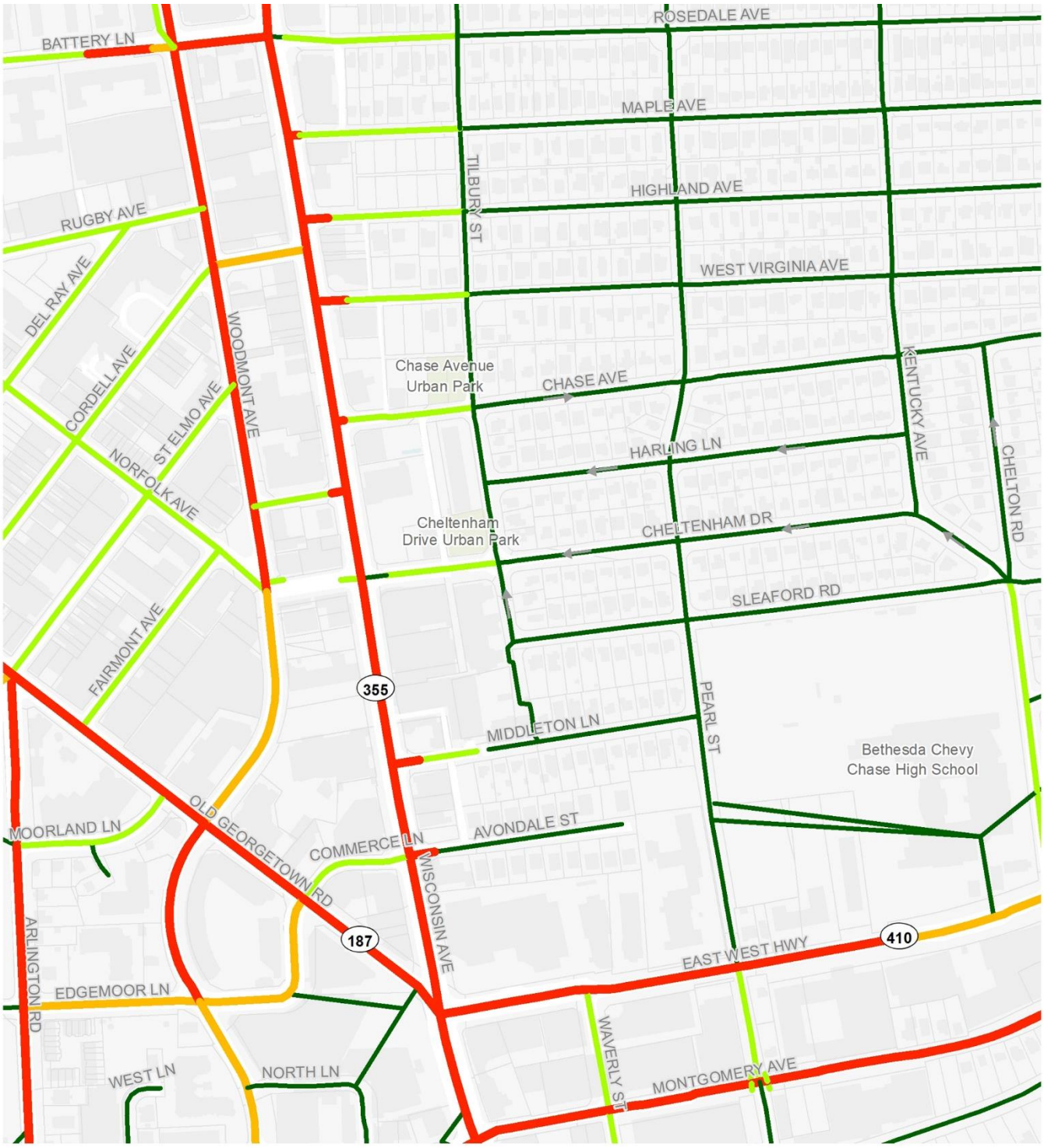


Figure 6: Existing Bicycle Level of Traffic Stress

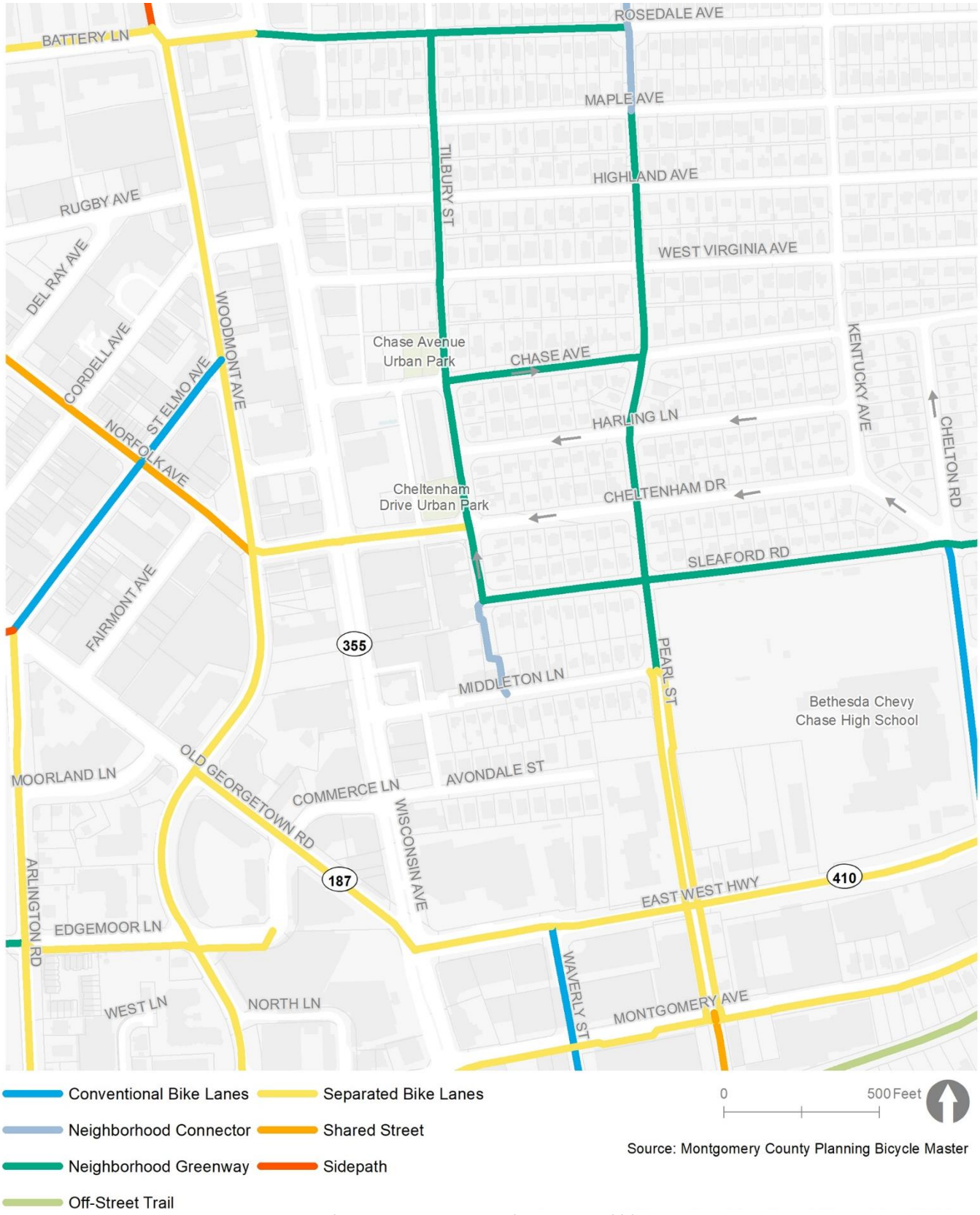


Figure 7: Proposed Bicycle Facilities


BIKE ROUTE

Transit Facilities

Almost all transit trips start and end as a pedestrian and/or bicycle trip. This phenomenon is often referred to as the concept of first and last mile connectivity. Transit stops that are well connected to the surrounding areas by comfortable and safe bicycle and pedestrian facilities not only address the needs of existing transit users but may induce more residents to ride transit.

Figure 8 displays the study area's existing transit facilities. Both WMATA and Ride On bus services provide transit service to and from the study area. WMATA bus J2 runs north and south along Wisconsin Avenue, connecting Silver Spring and Bethesda. Additionally, the Bethesda Red Line Metro Rail station and the planned Purple Line are located just south of the study area. Medical Center Metro Rail Station is located a little under one mile north of the study area.

MCDOT's bus-based transit service - Ride On, services the study area along Old Georgetown Road. Ride On routes 29, 30, 32, 34, 47, and 70 provide transit services along Old Georgetown Road. There is no transit service running along any of the study segments.

Bethesda Metro Station on WMATA Metro Rail's Red Line is located a little over quarter mile south of the study area.

Source: McEnearney Associates

Medical Center Metro Station on WMATA Metro Rail's Red Line is located a little under one mile north of the study area.

Source: NIH

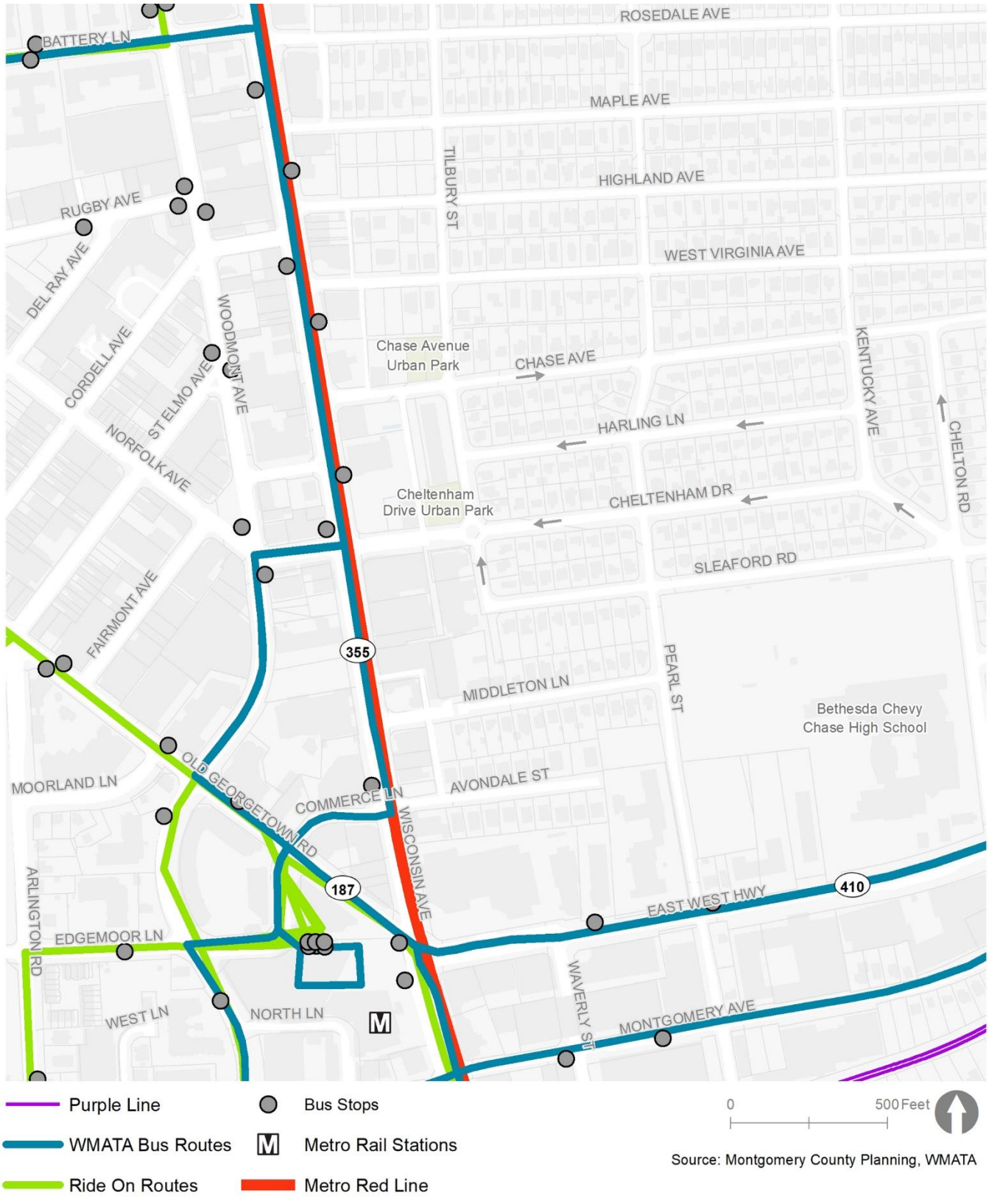


Figure 8: Existing Transit Facilities

Crash Analysis

Crash data was collected through Montgomery County's open data platform. The crash data provides general information collected from all traffic collisions within Montgomery County, collected through the Automated Crash Reporting System of the Maryland State Police. Reported crashes are presented from the last five years (January 2015 through December 24, 2020).

Figure 9 displays crashes categorized by severity. As shown, there are no reported fatal crashes within the study area. Most crashes are clustered along Wisconsin Avenue and Old Georgetown Road. There are fifteen reported crashes within or directly adjacent to the study segment areas. Table 1 summarizes the reported crashes located along the study segments.

Table 1: Crash Details

Year	Property Damage	Injury	Collision Type	Bicycle/Pedestrians Involved
2015	3	1	3 Sideswipe 1 Same Direction Right Turn	1 Bicyclist
2016	2	0	2 Rear End	1 Pedestrian
2017	1	2	1 Same Direction Rear End Straight Movement Angle	1 Bicyclist
2018	1	0	Hit Fixed Object	None
2019	2	3	2 Head on Left Turn 2 Angle Other	None
2020	0	0	None	None

Pedestrian and Bicycle Crash History

Figure 10 summarizes the bicycle and pedestrian crashes within the study area. Only three bicycle and/or pedestrian crashes occurred along the study segments. All three crashes occurred along Cheltenham Drive, near Wisconsin Avenue. A summary of each bicycle and pedestrian crash is provided below:

- One bicycle sideswipe occurred in 2015 near the Cheltenham Parking Garage. The crash took place at night and no injuries were reported.
- One pedestrian same direction rear end crash occurred in 2016 at the south leg of the intersection of Cheltenham Drive and Wisconsin Avenue. The crash occurred in the daytime and no injuries were reported.
- One bicycle straight movement angle crash occurred in 2017. The crash occurred at the westbound intersection leg of Cheltenham Drive and Wisconsin Avenue, with an injury reported.

Figure 9: Crash Map (2015-2020)

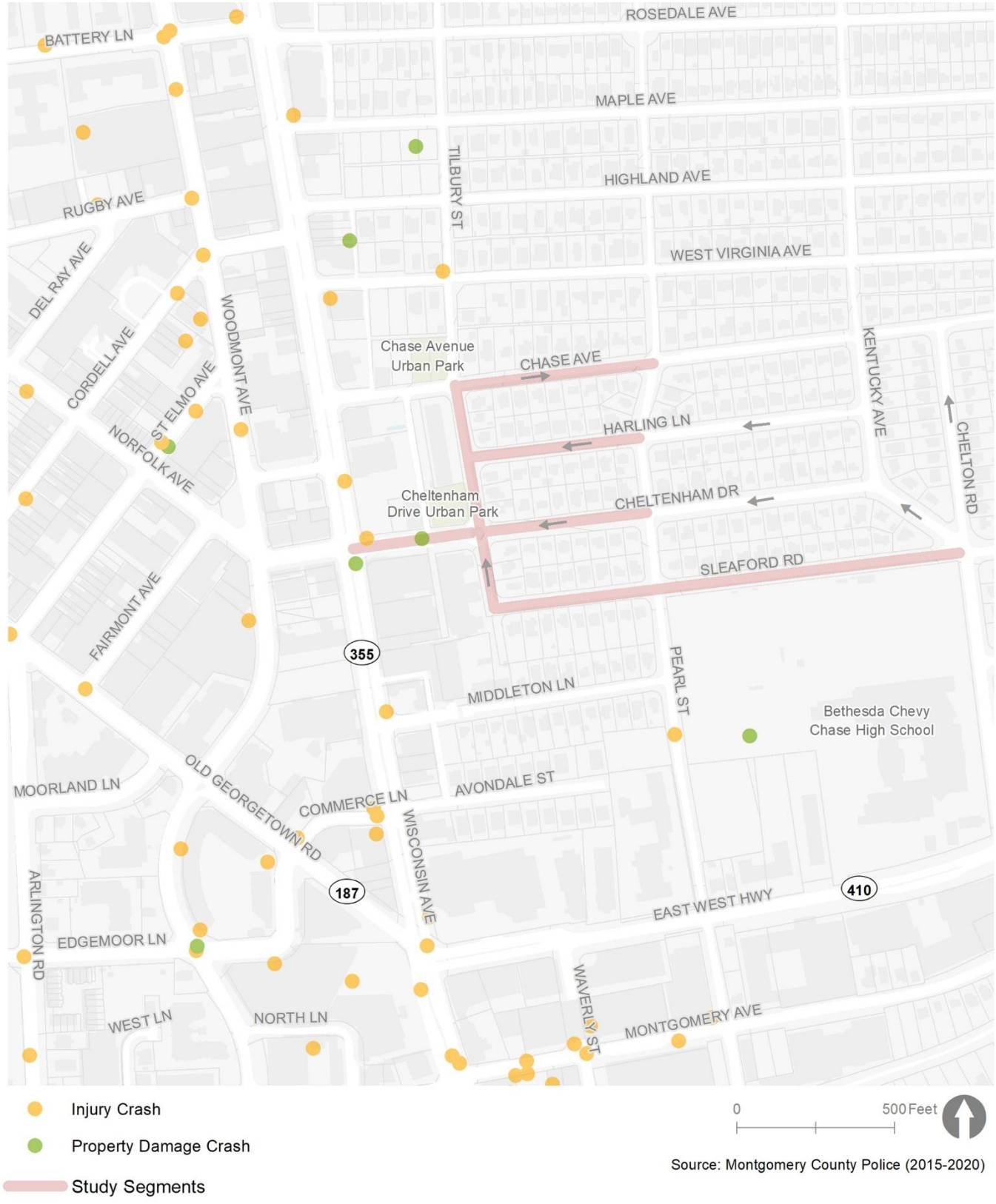


Figure 10: Pedestrian and Bicycle Crash Map (2015-2020)

Roadway Characteristics

Existing roadway characteristics such as functional classification, traffic volumes, traffic speeds, parking, Right-Of-Way (ROW), pavement widths, and number of lanes were documented through maps and street cross-sections. These roadway characteristics will help establish baseline existing conditions and will assist in developing alternatives and assess impacts. Roadway characteristics will also help determine comfortable routes for people on bikes and what type of bicycle facilities can be designed within pavement widths and ROW. The following section summarizes the findings from the existing roadway evaluation.

Speed

Most streets in the study area are local, neighborhood streets. These streets have a posted speed limit of 25 miles per hour, as shown in **Figure 11**. Streets with low speeds result in comfortable riding conditions for bicyclists even while sharing the street with vehicular traffic. Generally, streets with speed limits of 25 miles per hour or under are considered low-speed streets that can be shared comfortably with people on bikes without dedicated bike facilities. Some traffic calming treatments have already been installed in and around the study area. These include speed bumps along Chase Avenue, Harling Lane, Cheltenham Drive, Sleaford Road. Locations of these speed bumps are also shown in **Figure 12**.

Traffic Volume and Functional Classification

Figure 13 displays both, average annual daily volumes (AADT) and functional classification for the non-local streets in the study area. Wisconsin Avenue, Old Georgetown Road, and East West Highway serve as the study area's principal arterials. These streets carry most of the vehicle throughput and transport vehicles to, from, and through the study area. Woodmont Avenue serves as a major collector and provides an alternate route to Wisconsin Avenue. The rest of the streets in the study area local roads. All the study segments are local streets. Based on the traffic volumes, number of lanes, and functional classification, Wisconsin Avenue acts as a barrier for low traffic stress east-west bicycle connectivity along Norfolk Avenue and Cheltenham Drive. The intersection of Wisconsin Avenue and Cheltenham Drive/Norfolk Avenue may need to be redesigned to create a comfortable east-west bicycle connection between the two-way separated bike lanes on Woodmont Avenue and Pearl Street Bike Route. The redesign of this intersection is not within the scope of this study.

Parking

On-street parking along streets with limited pavement widths presents challenges when designing dedicated bicycle facilities without major impacts to curbs, drainage, and utilities. On-street and off-street public parking facilities are summarized in **Figure 14**. On-street parking is provided on most of the local streets in the study area, excluding Pearl Street and Tilbury Street. In addition to on-street parking, **Figure 14** displays off-street parking garages and parking lots. Cheltenham Parking Garage is a public garage located at the intersection of Tilbury street and Cheltenham Drive. There are additional parking garages that are part of the commercial and residential complexes, including the Chevy Chase Acura parking garage, located on the south side of Cheltenham Drive between Tilbury Street and Wisconsin Avenue.

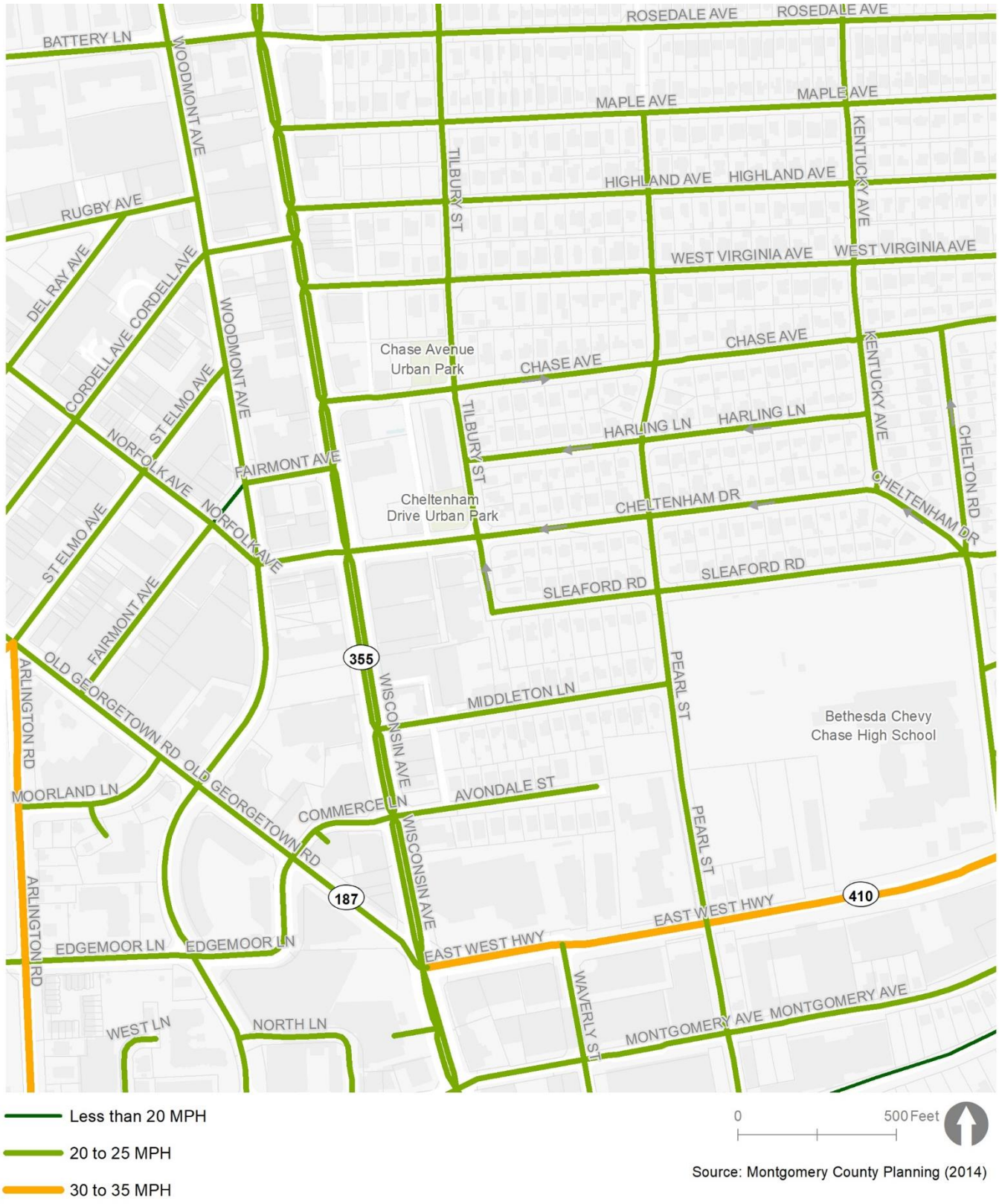


Figure 11: Posted Speeds

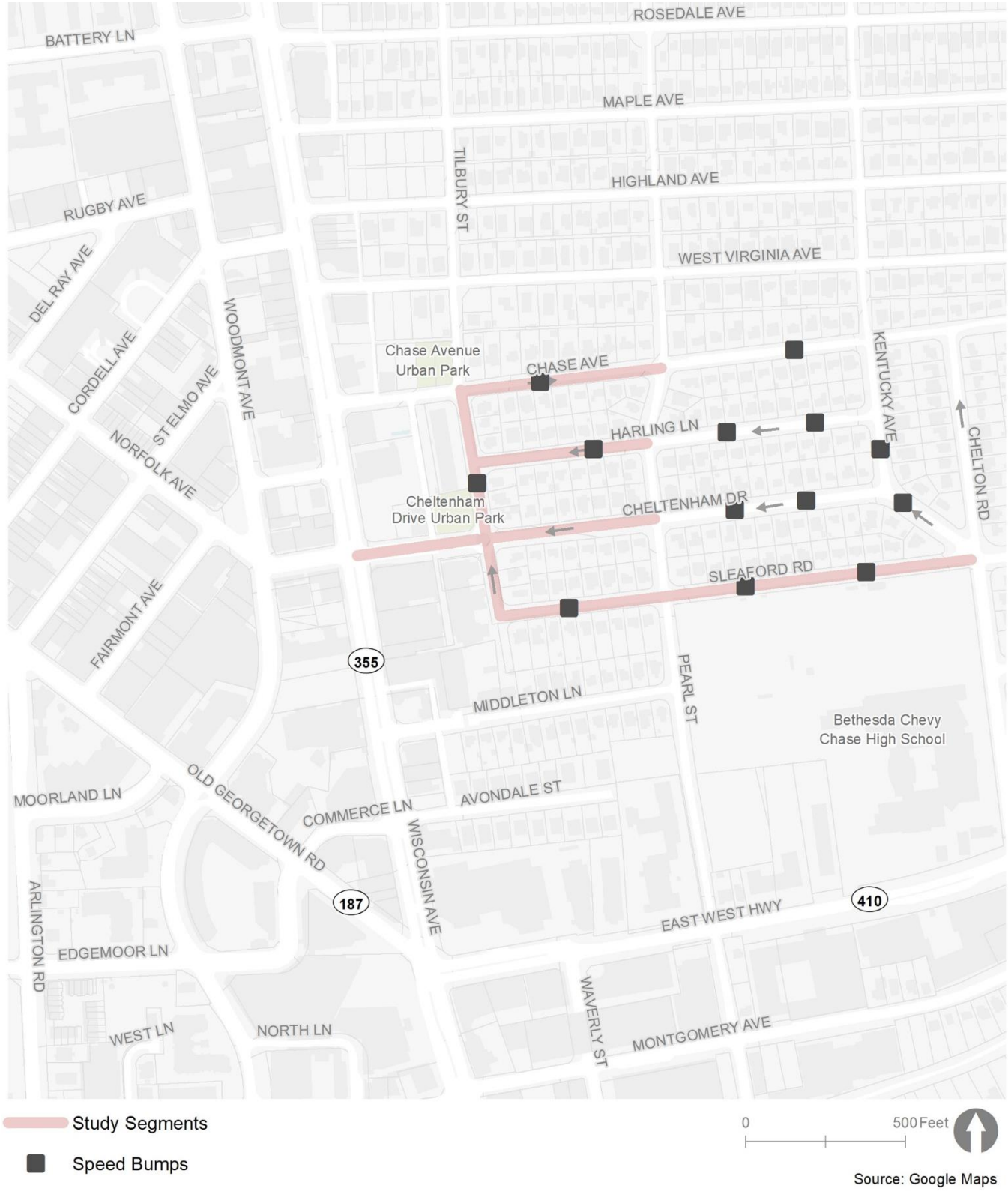


Figure 12: Traffic Calming Treatments

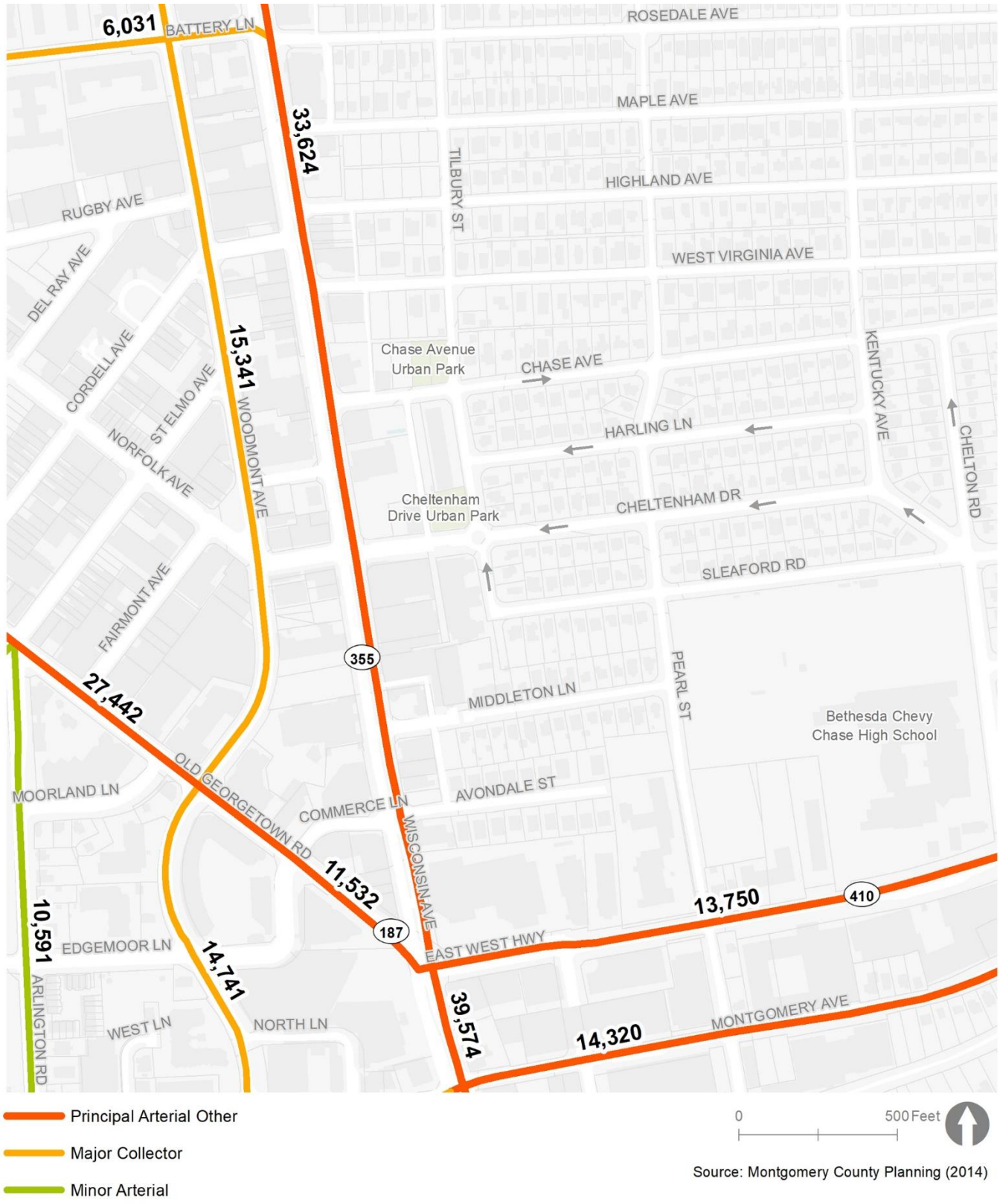


Figure 13: Functional Classification and Average Annual Daily Traffic

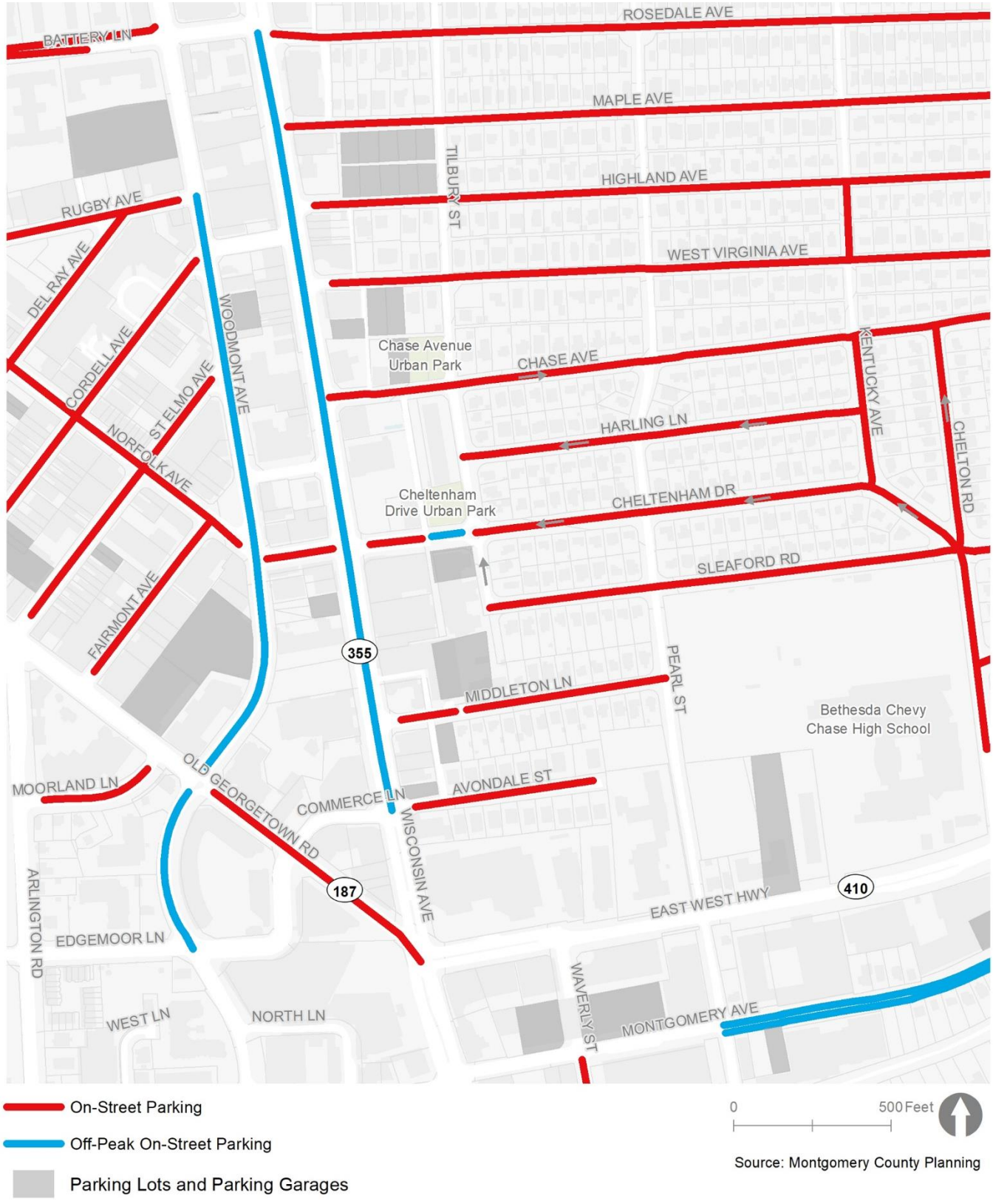


Figure 14: Existing On-Street and Off-Street Parking Locations

Existing Cross-Sections

The existing conditions analysis includes a review of the existing typical cross-sections of the study segments. The following pages present the existing typical cross-sections for the following six study segments:

1. **Cheltenham Drive**
   - **From Wisconsin Avenue to the alley (Figure 15)**
   - **From the alley to Tilbury Street (Figure 16)**
   - **From Tilbury Street to Pearl Street (Figure 17)**
2. **Chase Avenue**
   - **From Tilbury Street to Pearl Street (Figure 18)**
3. **Harling Lane**
   - **From Tilbury Street to Pearl Street (Figure 19)**
4. **Sleaford Road**
   - **From Tilbury Street to Pearl Street (Figure 20)**
5. **Pearl Street**
   - **From Sleaford Road to Chase Street (Figure 21)**
6. **Tilbury Street**
   - **From Sleaford Road to Cheltenham Drive (Figure 22)**
   - **From Cheltenham Drive to Chase Avenue (Figure 23)**

Cheltenham Drive

The Cheltenham Drive cross-section varies from Wisconsin Avenue to Pearl Street. **Figure 15** displays Cheltenham Drive from Wisconsin Avenue to the alley, just west of Tilbury Street. This cross-section includes a single lane of travel in both directions, a westbound left turn lane onto southbound Wisconsin Avenue, and on-street parking. The on-street parking along this segment is metered and allows for one-hour parking on the north side and two-hour parking on the south side of Cheltenham Drive. Wide sidewalks with landscape buffers and trees are provided on both sides of the street. This segment is a marked Bike Route.

Figure 15: Cheltenham Drive - Wisconsin Avenue to Alley (Looking East)

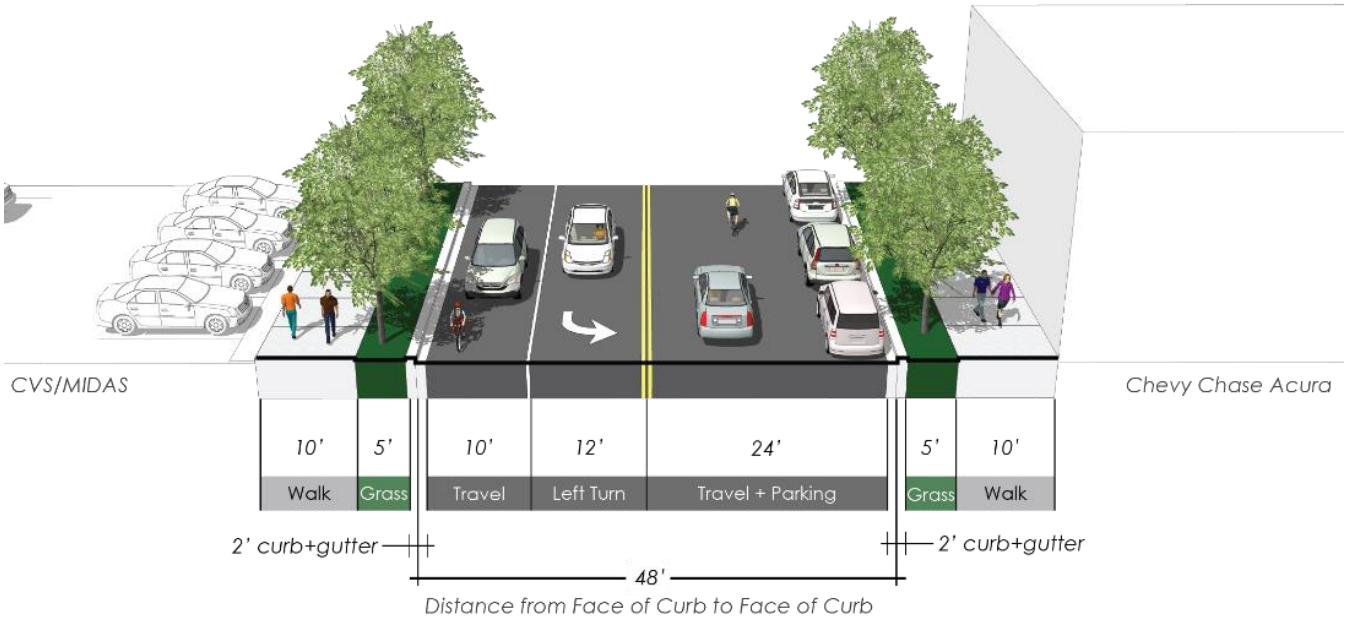


Figure 16 displays Cheltenham Drive from the alley to the neighborhood traffic circle at Tilbury Street. This segment cross-section includes on-street parking with AM/PM peak hour restrictions on the north side of the street. Sidewalks are provided on both sides of the street. This segment is a marked Bike Route.

Figure 16: Cheltenham Drive – Alley to Tilbury Street (Looking East)

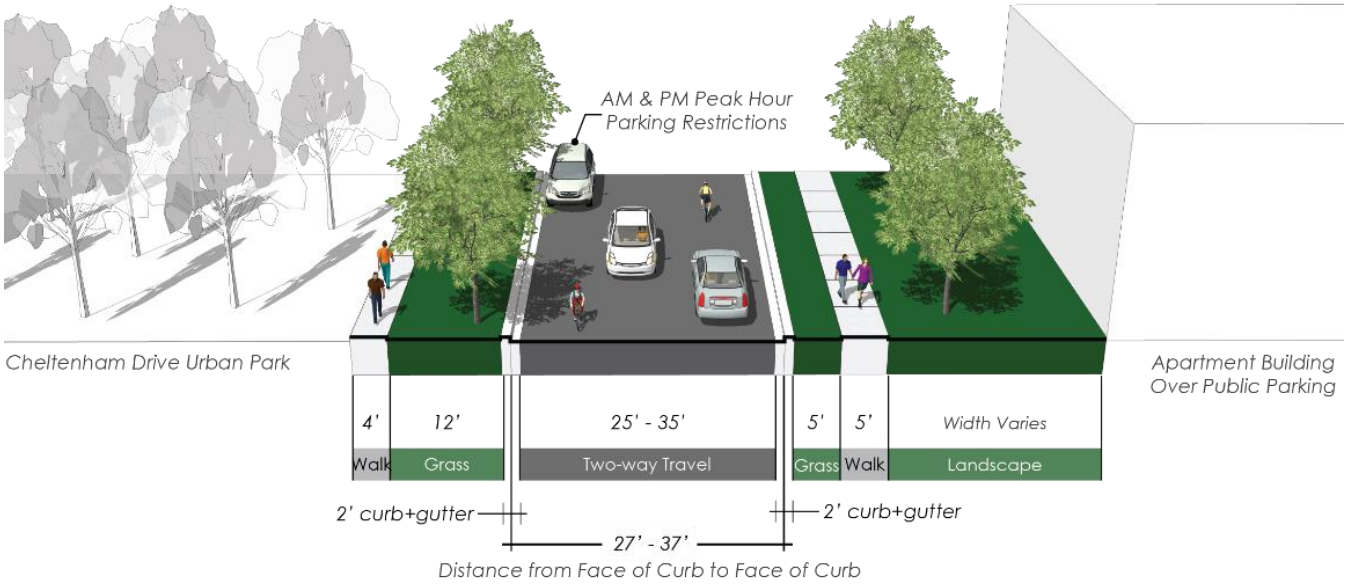
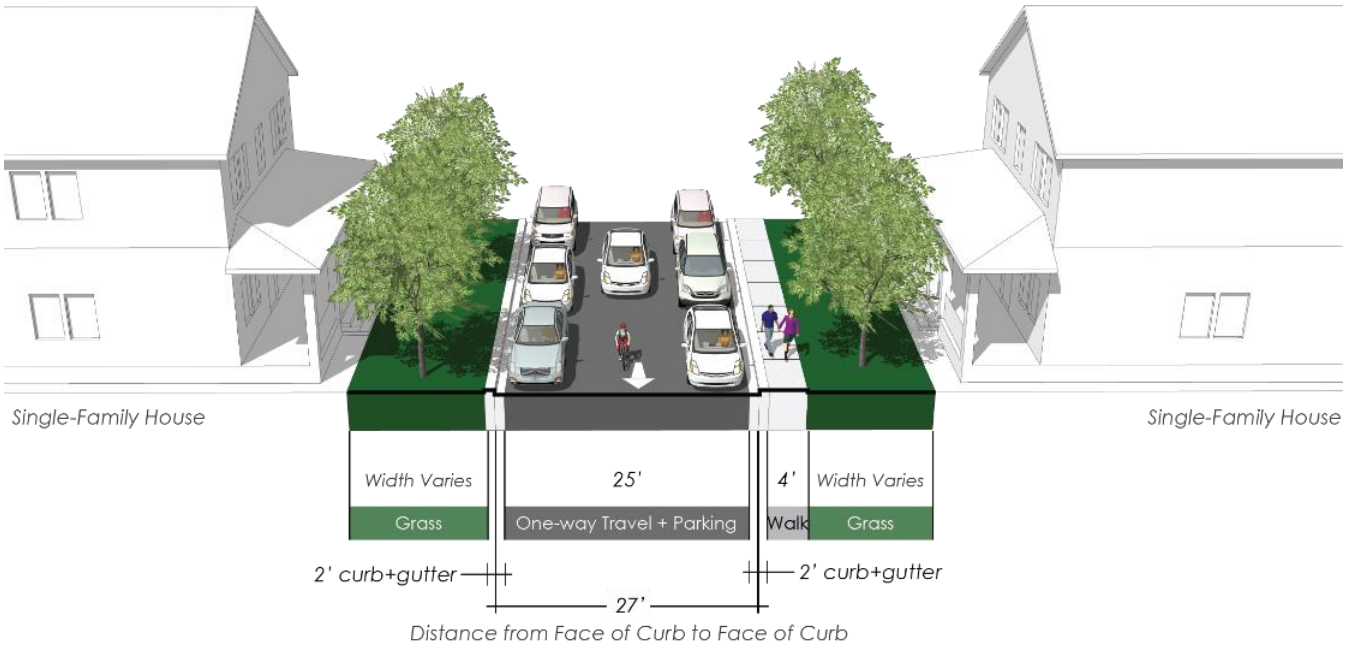


Figure 17 shows the Cheltenham Drive cross-section east of Tilbury Street to Pearl Street. Cheltenham Drive is a westbound one-way street for this segment. The cross-section along this segment of Cheltenham Drive includes a single westbound travel lane and on-street parking on both sides of the street. A sidewalk exists on the south side of the street.

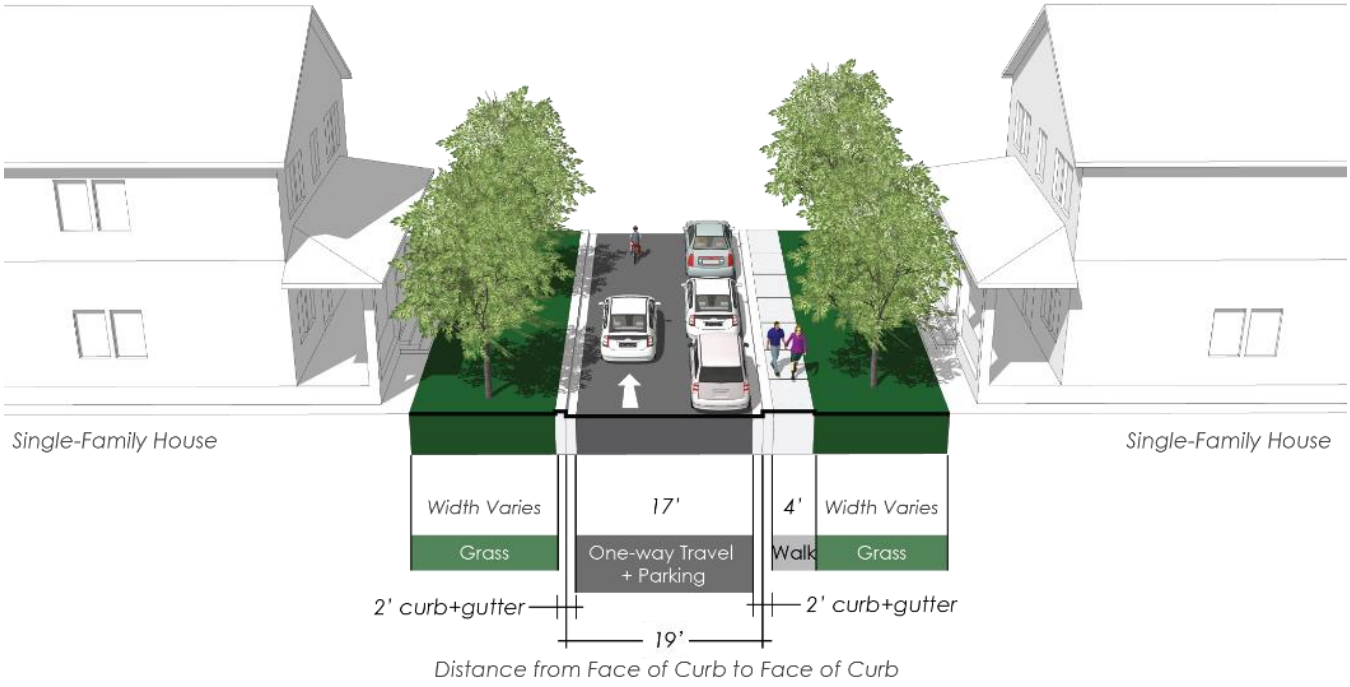
Figure 17: Cheltenham Drive – Tilbury Street to Pearl Street (Looking East)



Chase Avenue

Chase Avenue has a consistent cross-section from Tilbury Street to Pearl Street. **Figure 18** shows the existing cross-section, which includes a single eastbound travel lane and on-street parking on the south side of the street. A sidewalk is provided on the south side of Chase Street.

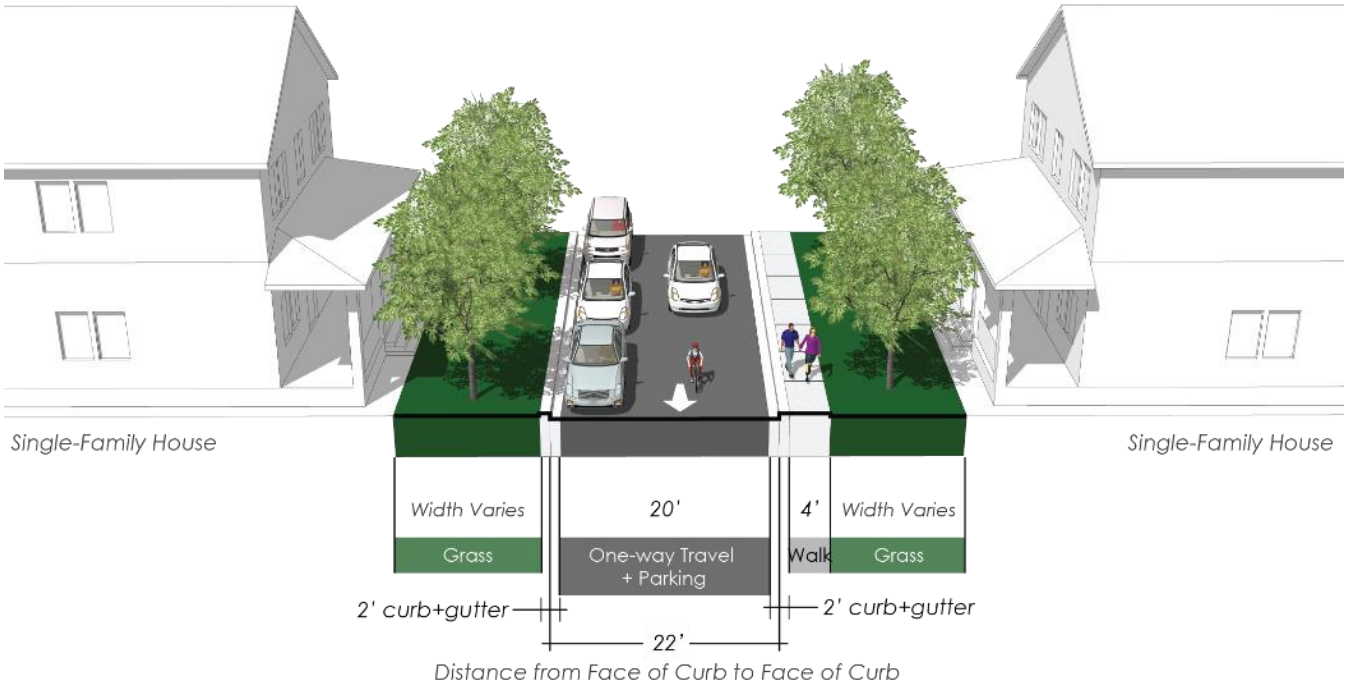
Figure 18: Chase Avenue – Tilbury Street to Pearl Street (Looking East)



Harling Lane

Harling Lane has a consistent cross-section from Tilbury Street to Pearl Street. **Figure 19** shows the existing cross-section, which includes a single westbound travel lane and on-street parking on the north side of the street. A sidewalk is provided on the south side of Harling Lane.

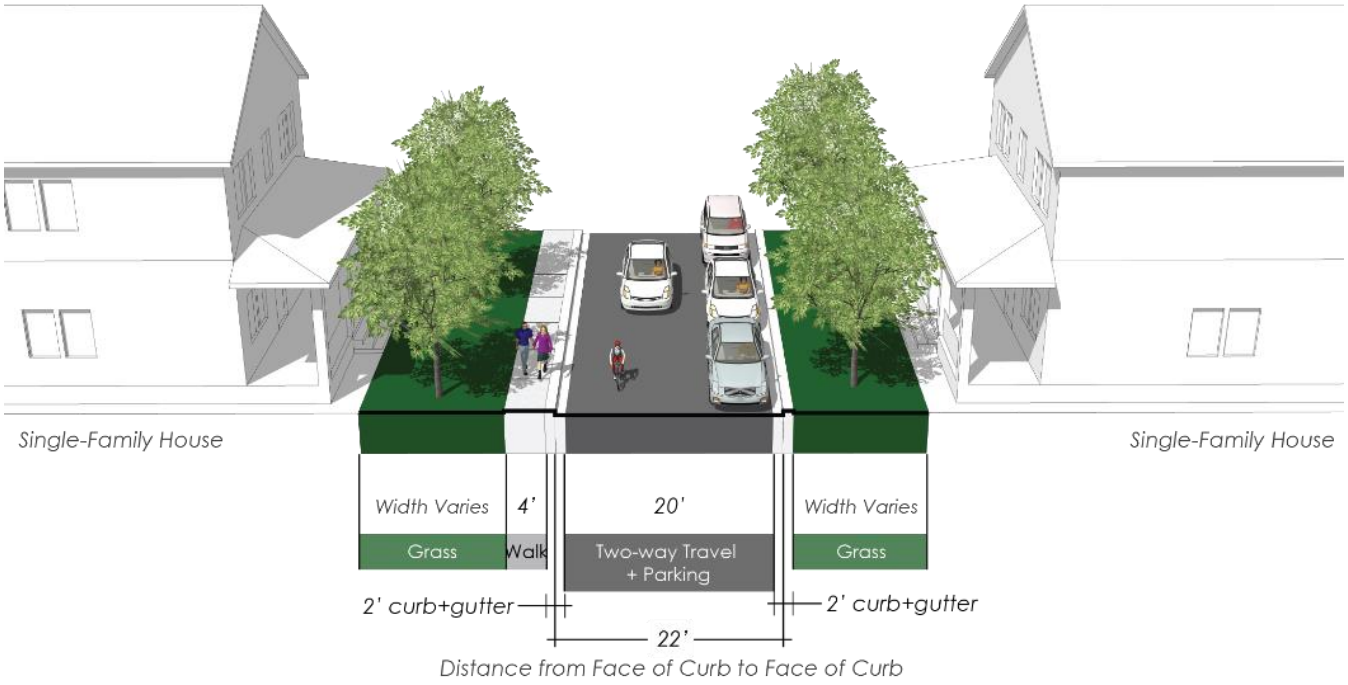
Figure 19: Harling Lane – Tilbury Street to Pearl Street (Looking East)



Sleaford Road

Figure 20 shows the existing cross-section for Sleaford Road from Tilbury Street to Pearl Street. Sleaford Road is a two-way narrow yield street and includes a parking lane on the south side. A sidewalk exists on the north side of the street. This segment is also a marked Bike Route.

Figure 20: Sleaford Road – Tilbury Street to Pearl Street (Looking East)



Pearl Street

Pearl Street's cross-section from Sleaford Road to Chase Street is shown in **Figure 21**. Pearl Street is a marked Bike route with Sharrow marking. Parking is restricted on both sides. Pearl Street is a two-way street and includes a sidewalk on the west side of the street.

Figure 21: Pearl Street –Sleaford Road to Chase Street (Looking North)

Tilbury Street

The typical cross-section for Tilbury Street changes at the traffic circle on Cheltenham Drive. **Figure 22** shows the existing cross-section for Tilbury Street from Sleaford Road to Cheltenham Drive. The cross-section along this segment includes a single northbound travel lane. A sidewalk, buffered by a tree-lined landscape buffer, exists on the west side of the street. No on-street parking is allowed along this segment of Tilbury Street. This segment is also a marked Bike Route. However, bike wayfinding signs invite bicyclists to use the sidewalk for contra-flow southbound travel.

Figure 22: Tilbury Street – Sleaford Road to Cheltenham Drive (Looking North)

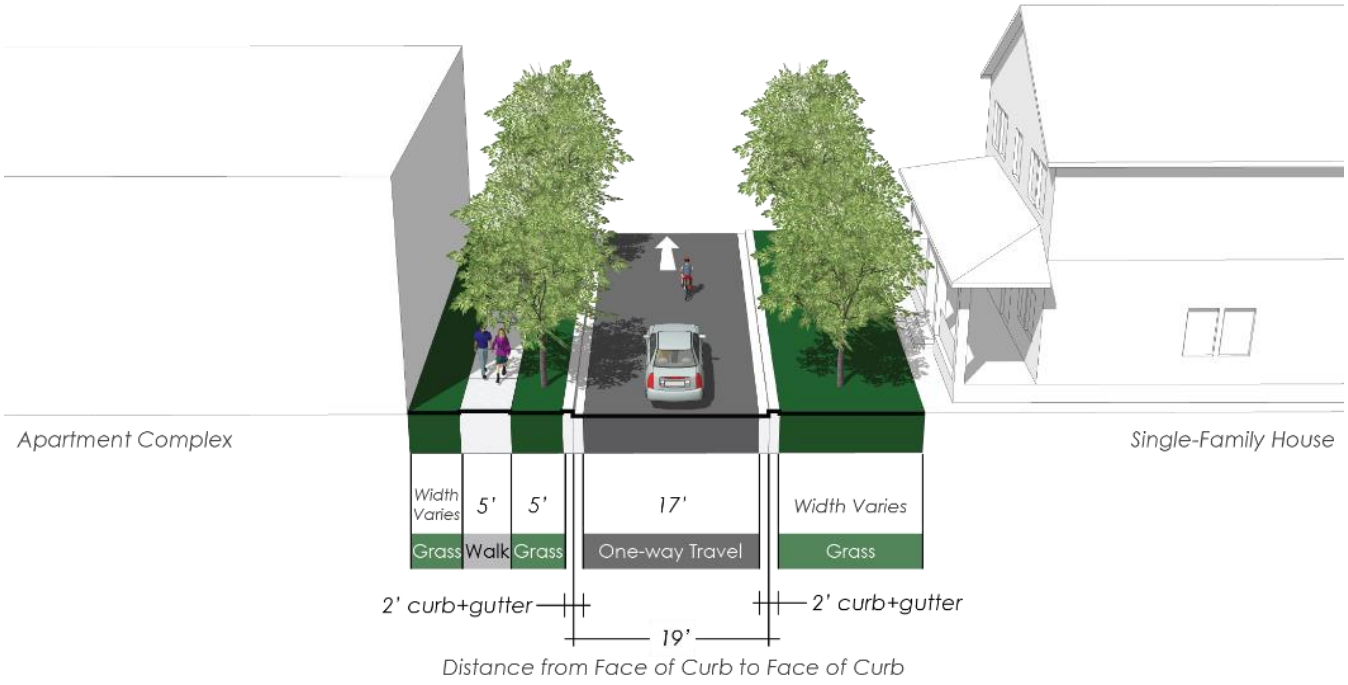


Figure 23 shows the existing cross-section of Tilbury Street from Cheltenham Drive to Chase Avenue. Tilbury Street is a two-way street, north of Cheltenham Drive, and includes a sidewalk on the east side of the street. No on-street parking is allowed, however, there is residential perpendicular, off-street parking on the west side of the street.

Figure 23: Tilbury Street – Cheltenham Drive to Chase Avenue (Looking North)

ISSUES AND OPPORTUNITIES

The existing conditions analysis is synthesized to identify the following issues and opportunities. **Figure 24** illustrates these issues and opportunities. This synthesis will guide the development and evaluation of various alternatives.

- Cheltenham Drive has two distinct land use context zones that can be divided into two sub-segments:
  - Wisconsin Avenue to Tilbury Street: Wider segment commercial/retail mixed-use land uses.
  - Tilbury Street to Pearl Street: Narrower segment with detached single-family residential land use.
- Traffic circle at Cheltenham Drive and Tilbury Street marks the change in the land use and transportation context.
- Cheltenham Drive segment from Wisconsin Avenue to Tilbury Street is a two-way street.
- Cheltenham Drive, Harling Street, and Sleaford Road segments east of Tilbury Street are all west-bound one-way streets.
- Tilbury Street, south of Cheltenham Drive, is a north-bound one-way street.
- Chase Avenue is an east-bound one-way street. It is the only east-bound street within the study area, east of Tilbury Street.
- There are many destinations for bicycle trips that need to be connected in and near the study area:
  - Cheltenham Drive Urban Park
  - Bethesda Chevy Chase High School
  - Georgetown Branch Trail
  - Chase Avenue Urban Park
- Multiple off-street parking lots and garages exist along Cheltenham Drive between Wisconsin Avenue and Tilbury Street.
- Bicycle facility and the street cross-section for Cheltenham Drive will likely need to continue along Norfolk Avenue, west of Wisconsin Avenue, to connect to Woodmont avenue. A two-way separated bicycle facility is currently under construction on the west side of Woodmont Avenue.
- Signalized intersection of Wisconsin Avenue and Cheltenham Drive is a major intersection that may need to be redesigned to accommodate safe and comfortable bike crossings.

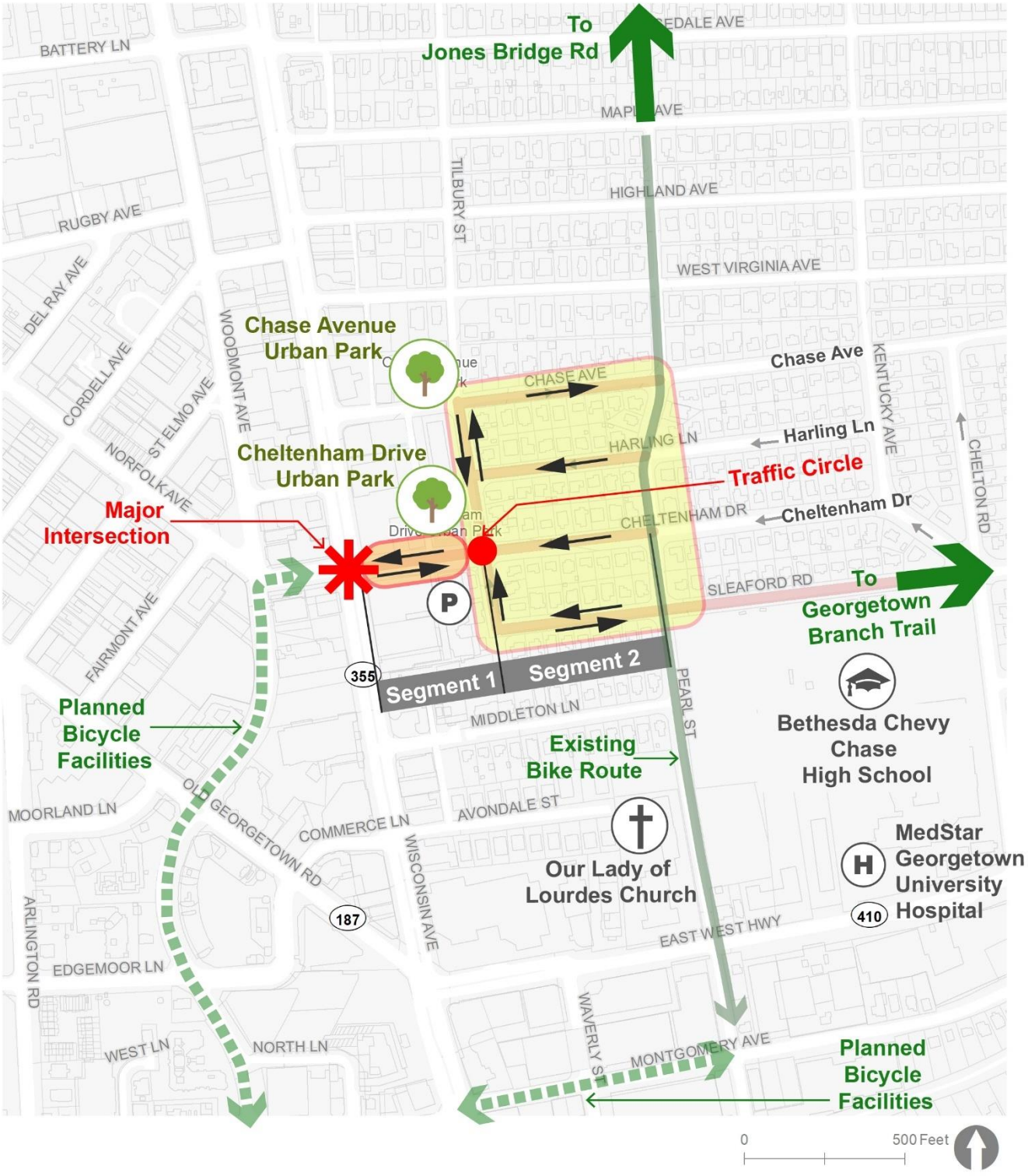


Figure 24: Issues & Opportunities

NEXT STEPS

The next steps in this feasibility study are summarized below:

Based on the existing conditions analysis, the project team will develop bicycle route and facility alternatives for the study area. The development of alternatives will include:

- Developing and presenting bicycle facility alternatives in a series of maps and cross-sections.
- Developing intersection plan diagrams to highlight transitions between bicycle facilities.
- Comparing alternatives based on feasibility factors in terms of access, parking, utilities, and right-of-way impacts.

As part of developing alternatives, the project team will conduct public outreach and stakeholder engagement. Public outreach efforts will serve to accomplish the following:

- Introduce the project and inform the community members of the overall planning process, schedule, and scope.
- Present existing conditions data collection, mapping, and analysis.
- Seek feedback on various network alternatives and corresponding bicycle facility types.
- Determine bicycle facility types along the preferred route.

Each of these next steps will build the project's final report and concept-level design plans. The final step in the project will be to document the planning process in a visually engaging final report. The final report will be accompanied by a concept-level design plan set for the preferred alternative.


BIKE ROUTE
Georgetown
Branch Trail
Detour
Bethesda
Cheltenham Drive Park
M-NCPPC Montgomery County
4701 Cheltenham Drive

Montgomery County Department of Transportation

100 Edison Park Drive
4th Floor
Gaithersburg, MD 20878

KITTELSON & ASSOCIATES

100 M St SE
Suite 910
Washington, DC 20003