

# TENLEYTOWN-AU STATION ACCESS STUDY PHASE II

## Final Report

Tenleytown-AU Metrorail Station  
District of Columbia  
December 2016



Washington Metropolitan Area Transit Authority

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# TENLEYTOWN-AU

## Station Access Study

### Phase II

Washington Metropolitan Area Transit Authority  
Office of Real Estate and Station Planning

December 2016



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# Introduction



Tenleytown-AU  
Station Access Study  
Phase II

## Section 1

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## 1.0 INTRODUCTION

The Washington Metropolitan Area Transit Authority (WMATA or “Metro”), in coordination with the District Department of Transportation (DDOT) initiated the Tenleytown-AU Station Access Study (“the study”) to identify ways to improve the WMATA and DDOT owned property adjacent to the Tenleytown-AU Metrorail Station eastern station entrance in Northwest, Washington, DC. The current phase is step two in a multi-phased process to redesign the existing facility. This report identifies the findings and conclusions of Phase II of the study.

### 1.1 Project Purpose

The purpose of this study is to continue conceptual design and analysis to improve station access and recommend improvements of the area adjacent to the eastern station entrance to the Tenleytown – AU Metrorail Station, particularly 40th Street and Fort Drive, NW. The study recommendations include enhancements to the public realm, improvements for pedestrian and bicycle safety, accommodations for bicycles and supportive infrastructure, upgrades to the transit user waiting areas and amenities, providing adequate space for bus operations and layovers, and improvements to the intersection geometries and alignments.

### 1.2 Station Overview/ Project Study Area

The Tenleytown – AU Metrorail Station is located along the Metrorail Red Line in Northwest, Washington, DC. The station has two entrances: the eastern entrance on the northeast corner of Wisconsin Avenue and Albemarle Street, NW, and the western entrance on the west side of Wisconsin Avenue just south of River Road, NW (see **Figure 1-1**). The station area is characterized by moderate-density, mixed-use, retail, and institutional buildings. Commercial uses, including offices and street retail, such as restaurants and shops, surround the station on both Wisconsin Avenue and Albemarle Street. The area surrounding the station is either built out or protected, including several churches, green space, schools and many single family homes. Low-density residential areas are located within walking distance from the

station. Additional moderate density, mixed-use development is supported in the District of Columbia’s Comprehensive Future Land Use Plan (2012) in the block directly adjacent to the eastern station entrance. The only ADA compliant elevator access to the station is located at the eastern entrance.

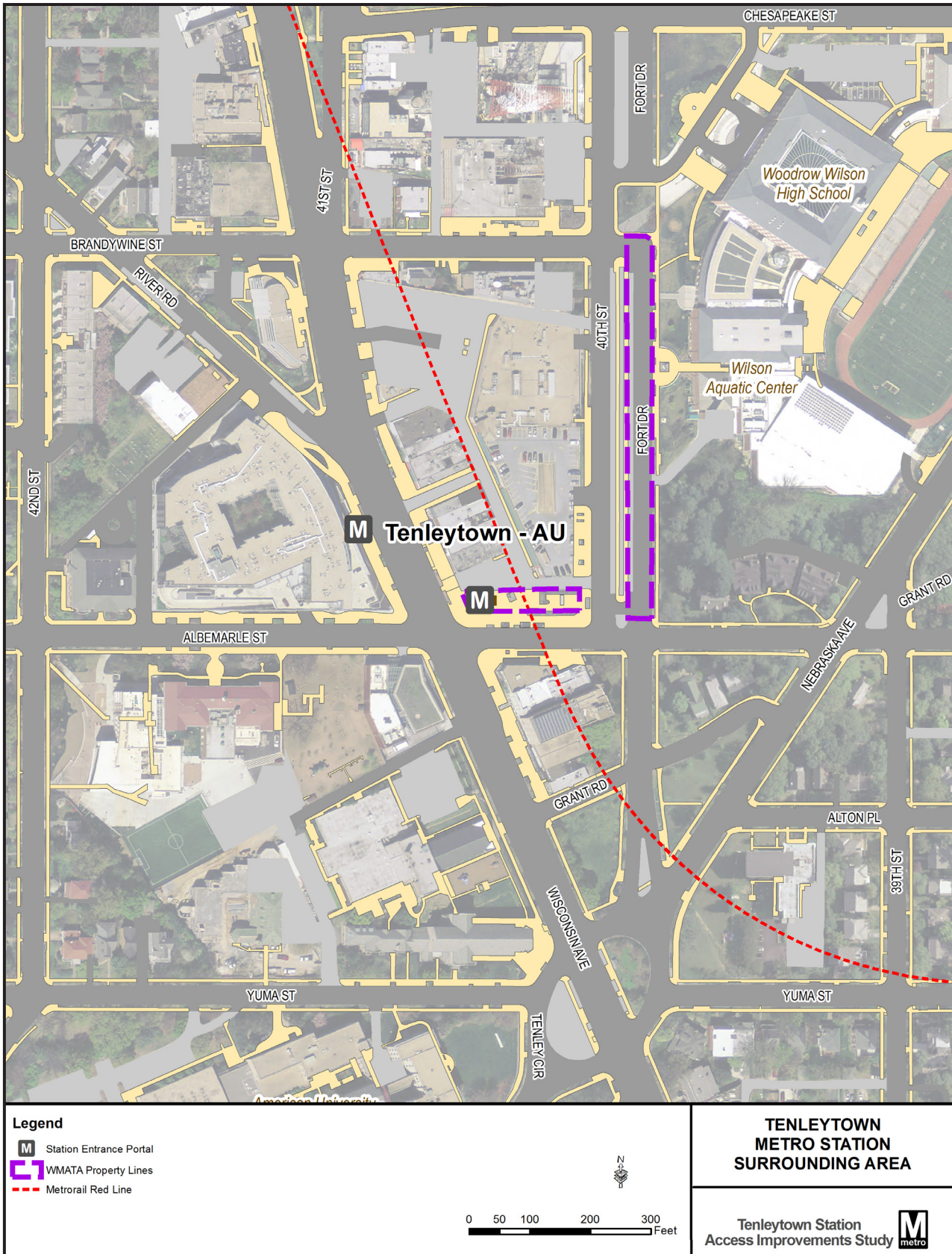
### 1.3 Project Background - Phase I Study Conclusions and Transition to Phase II

The first phase of the Tenleytown Station Access Improvements Study began in 2013. The purpose of Phase I was to analyze current conditions and develop improvement alternatives in the Tenleytown station area to accommodate all modes of access with an emphasis on bus and parking access on WMATA owned property. In collaboration with DDOT, three conceptual design alternatives were developed that reconfigured the bus service loop and Kiss & Ride facilities while improving the pedestrian realm. Ranging from low to high degrees of impact and capital investment, each alternative accommodated the existing and future bus and bicycle demand while providing for improved access for all other modes of transportation in the station area. The Phase I Study was completed in March 2014 and presented three concepts, Concepts A, B, and C (see **Appendix A**) that included the following features:

- Improved pedestrian desire lines;
- Decreased auto-pedestrian conflicts;
- Expanded pedestrian and community spaces;
- Improved bicycle facilities;



Figure 1-1 Tenleytown Metrorail Station Area





- Additional bus shelter and layover areas; and
- Improved intersection geometry.

Phase II continues the design concept refinement from Phase I and conducts additional analysis to understand the impacts of realigning the intersection of Albemarle Street, 40th Street, and Fort Drive, and how to best accommodate pedestrian and bicycle circulation. Realigning this particular intersection was seen as a benefit by the project team and many community members – based on feedback received during Phase I of the study. Concepts B and C, presented in Phase I, both included this realignment. However, changing Brandywine Street into a one-way street, as proposed in Phase I Concept C, was seen by the project team as disruptive to traffic circulation in the area and had the potential of impacting utilities. Both Phase I Concepts A and B did not change the circulation on Brandywine Street. Phase I Concept B was seen by the project team as the alternative that most effectively balanced the benefits and impacts in the study area. The Phase II design alternatives, known as Alternatives 1, 2, and 3, build upon and refine the successful design elements from Concept B from Phase I.

## 1.4 Study Process

In response to the Phase I feedback, the following tasks will contribute to the concept refinement process. These activities include:

- **Parking demand analysis** – A parking demand analysis will examine current parking needs and the utilization of on-street parking spaces to better understand the trade-offs and impacts of the potential redesigned street network.
- **Traffic analysis** – A traffic analysis will study the existing traffic conditions in the immediate study area and compare the impacts with the concept designs.



*Reconfiguring the area along 40th St NW and Fort Drive NW (above) to be more pedestrian friendly and safer for all users is a major goal of this study.*

- **DDOT/DCOP stakeholder coordination** – Continued coordination with DDOT and the District of Columbia Office of Planning (DCOP) to ensure the concept designs conform to District standards and guidelines and other community planning efforts.
- **Public/Stakeholder Engagement** – Conduct a robust public participation plan in order to engage the public and collect feedback on the proposed concept designs.

## 1.5 Report Organization

The final report for the study is organized as follows, which also outlines the study process:

- 2.0** Existing Conditions
- 3.0** Alternatives Refinement
- 4.0** Public/Stakeholder Engagement
- 5.0** Final Alternative
- 6.0** Conclusions/Recommendations and Next Steps

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# Existing Conditions



Tenleytown-AU  
Station Access Study  
Phase II

## Section 2

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## 2.0 EXISTING CONDITIONS

The existing station area is located along a crowded street grid where shuttles, parking, taxi, bus, pick-up and drop-off activities compete for space with local pedestrian, bicycle, vehicular traffic, and commercial deliveries. Traffic volumes, as well as the challenging street configuration, result in congestion and safety issues.

The improvements will focus on the area near the station’s eastern entrance at the northeast corner of Wisconsin Avenue and Albemarle Street, NW. The entrance serves as an important gateway to the Tenleytown neighborhood, the Wisconsin Avenue business district, and American University. Connecting buses and shuttles use nearby 40th Street and Fort Drive, NW to pick up and drop off passengers, helping to bring passengers to and from adjacent neighborhoods with limited Metrorail access. The nearby streets also house waiting areas for taxis, Kiss & Ride, and short term parking. Bicycle routes operate through the area via shared traffic markings and bike lanes, aided by a nearby Capital Bikeshare station along Wisconsin Avenue just south of the station’s eastern entrance. Pedestrians may access nearby bus stops via sidewalks and adjacent walkways.

### 2.1 Current Conditions for Improvement

As described in the Phase I study, the study area faces many challenges that hinder its ability to function as a successful multimodal hub. A general description of the key issues and opportunities by access mode (pedestrian, bicycle, transit, vehicular) identified in Phase I of the study is seen below in the summary table (**Table 2-1**). **Figure 2-1** on the following page shows the general location of the conditions for improvement within the site area.

### Lack of Sense of “Place” and Function

The current pedestrian plaza near the Metrorail station entrance features a wide expanse of pavement with little decoration, no public seating, and minimal “placemaking” features. Most people walk through the plaza as they enter and exit the station; transferring to other modes or traveling to a nearby destination. Repurposing the space to become more functional for pedestrians and passers-by would help to build neighborhood identity and create a sense of place.

**Table 2-1** Issues Identification Summary Table (Phase I)

Mode	Issues and Opportunities
Pedestrian	Public realm enhancements and pedestrian safety improvements are needed at locations surrounding the Tenleytown-AU Metrorail Station.
Transit	Provisions of benches, covered areas, and other transit amenities are needed to accommodate the large numbers of bus transit users.
Bicycle	Provisions of bicycle parking are needed to accommodate existing and planned bicycle mode share to the Tenleytown-AU Station.
Vehicular	Improvements are needed to eliminate awkward vehicular movements and reduce automobile-pedestrian conflicts. Disjointed parking regulations are confusing and difficult to enforce.

**Figure 2-1** Current Conditions for Improvement



### Auto-Pedestrian Conflicts

According to the WMATA 2012 Metrorail Rider Survey, about 60 percent of the passengers access the station by walking. The station area has a high pedestrian activity from many modes of travel, and therefore a high chance of conflicts. Significant pedestrian volumes can also be attributed to the presence of schools in the station vicinity. 40th Street has a break in the median immediately north of the Albemarle Street, to permit U-turns. The median break is beneficial for vehicles allowing them to bypass the intersection but it is potentially unsafe for pedestrians because it directly overlaps with a crosswalk, thereby creating conflict between vehicular and pedestrian traffic.

There are concerns for pedestrian safety at the intersection of Wisconsin Avenue and the Whole Foods Market driveway; pedestrians may be unaware of the driveway. Although the driveway has clear markings

for vehicular traffic, these are not clearly visible to the pedestrians on the sidewalk along Wisconsin Avenue NW because it is not treated like an intersection. As a result pedestrians may not pay attention to exiting vehicles leading to potentially dangerous conflict conditions.

### Lack of Adequate Bicycle Infrastructure

The station area features a minimal amount of bicycle infrastructure. Fort Drive and 40th Street feature dedicated bike lanes, but the lanes are unprotected and share right-of-way with street traffic. Furthermore, there are few bicycle racks at the station, with only a small number of dedicated lockers to handle bicycle storage, and no on-site Capital Bikeshare station. Making the bike lanes more visible, safer, and better connected to the city’s bike network, as well as increasing the local storage capacity for bicycles, could be considered as potential bicycle upgrades.



## Disjointed Parking Policies

The lack of a unified parking policy causes confusion for drivers seeking parking. Currently, the area along Fort Drive and 40th Street is owned by both WMATA and DDOT, respectively, who enforce separate parking rules and regulations. For example, the rules for metered parking along Fort Drive differ from the rules for metered parking along 40th Street. Moreover, a significant amount of signage denoting parking rules and regulations in the area is faded and difficult to read. Creating a uniform parking policy with clear signage could reduce parking confusion and give drivers clearer insight as to where it is legal to park.

## Lack of Transit Passenger Amenities

There is currently a lack of transit passenger amenities throughout the station area. The existing number of shelters along Fort Drive and 40th Street is not adequate in serving the number of passengers waiting for buses and shuttles at the station, leaving many waiting passengers without protection from inclement weather and without seating to provide rest. The only shelter that exists within the station area is a small canopy for passengers waiting for the elevator to the station mezzanine. Basic amenities, such as shelter and seating, are important as a large percentage of passengers using the Tenleytown-AU Metrorail Station access the station by bus. Provision of benches and covered waiting areas would be convenient for riders, particularly for the elderly and the disabled.

## Awkward Vehicular Movements

The intersection of 40th Street and Fort Drive with Albemarle Street is problematic. It is staggered, so that Fort Drive lines up to the north and south. But Fort Drive is two-way south of Albemarle Street and 40th Street terminates at Albemarle Street so there is no 40th Street to the south. Therefore, southbound motorists approaching Albemarle Street do not have a clear line of sight to approaching traffic making it awkward and confusing. As a result, movements through this intersection are both awkward for vehicles passing through and unsafe for pedestrians that are



*Pedestrians frequently use the loading alley to travel from 40th Street to the Metrorail Station entrance, crossing into the right of way of moving vehicles and trucks.*



*The uneven intersection of 40th Street, Fort Drive, and Albemarle Street NW causes awkward vehicular movements for cars and buses alike, putting pedestrians in harms way and increasing the likelihood of accidents.*

at a greater risk of coming into contact with moving vehicles.

## 2.2 Existing Traffic Conditions

To better understand the concept design impacts to local traffic, a traffic analysis of the intersections surrounding the Tenleytown-AU Metrorail Station was performed. The evaluation of the existing queue length, vehicle delay, and level of service (LOS) for six intersections in the study area is summarized in this section and informed the development of final concept designs. The traffic conditions for the final concept design scenarios will be compared to the existing traffic conditions presented here to determine how the new street alignment will affect traffic flow.

Six intersections were studied to understand the existing traffic conditions in the Tenleytown corridor. These intersections are:

1. Wisconsin Avenue NW and the Whole Foods Market Driveway;
2. Wisconsin Avenue NW and Albemarle Street NW;
3. Northbound Fort Drive NW, southbound 40th Street NW, and Albemarle Street NW;
4. Nebraska Avenue NW and Albemarle Street NW,
5. 39th Street NW and Albemarle Street NW; and
6. 39th Street NW and Nebraska Avenue NW.

Both Synchro and SimTraffic were used to model and analyze the delay and queue length at each intersection for the AM and PM Peak hours (8:00 am-9:00 am and 5:15 pm-6:15 pm, respectively). Synchro is a software package used to analyze an individual intersection's delay, queue length, and level of service. It inputs field collected data (such as traffic volumes, truck percentages, speed limits, and signal timing plans) to run the analysis. To verify collected data is 'typical' of the intersection, additional field visits are made to the study area to ensure the collected data is mimicked. SimTraffic is the primary tool for analyzing the traffic impacts in the study area. It reads Synchro files for inputs to analyze each intersection's delay, queue length, and level of service, accounting for traffic impacts from adjacent intersections.

For each intersection, the AM and PM Peak hour traffic volumes, truck percentages, speed limit, and corresponding signal timing plans were coded into two Synchro models for each Peak hour. Multiple visits to the site were made to ensure the existing study area was accurately observed.

### Intersection Level of Service

Of the six intersections observed, only the intersection at 39th Street NW and Albemarle St NW experienced a poor level of service (LOS) during the PM Peak hour. The westbound and northbound approaches to the intersection experience higher delays due to the volumes and signal timing at the intersection of Albemarle Street and Nebraska Avenue. These delays match observed field conditions. During the AM Peak hour, the intersection experiences LOS C with shorter delays and lower congestion.

All of the other intersections experience good LOS during both peak periods. **Figure 2-2** provides a summary of the intersections and their respective AM and PM Peak period LOS.

### Maximum Queues

The intersection at Albemarle Street with Fort Drive, and 40th Street is analyzed as one intersection because of the close proximity of the northbound and southbound street. As seen in **Figure 2-3**, the southbound through approach is offset approximately 30 feet from the rest of the intersection; the approach is not in line with the receiving end. There are four approaches; the northbound and southbound approaches control traffic using stop signs while the eastbound and westbound approaches are free flowing. There is a channelized U-Turn lane in the southbound direction approximately 30 feet north of the intersection. Due to the geometry of the intersection, the following abnormal driving behavior was observed in the field:

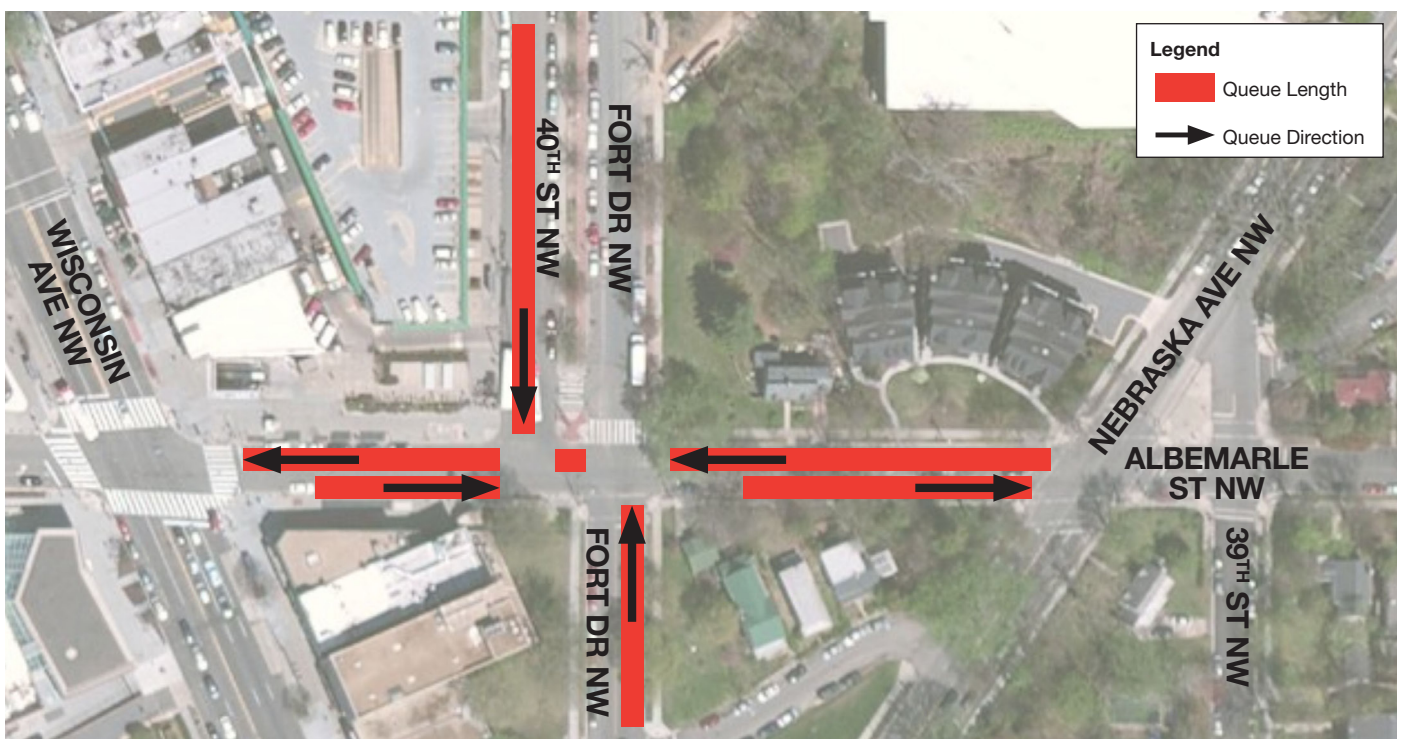
- While technically free flowing, the westbound vehicles act as if there is a yield sign present which allows northbound and southbound vehicles to clear the intersection.



**Figure 2-2** Existing Intersection Levels of Service within Station Area



**Figure 2-3** Existing Intersection Queues within Station Area



- Westbound vehicles often stop in the middle of the intersection, in line with the median while waiting for the queue at the downstream intersection of Wisconsin Avenue and Albemarle Street to clear.
- For westbound vehicles, if in a queue and turning left, occasionally, if within 50 feet of the intersection, the westbound vehicles would drive in the eastbound lane to turn.

While technically one lane, southbound vehicles would naturally form two queues, one for the right turning vehicles and the other for the left turning and through vehicles.

The queue from the westbound approach at the adjacent intersection of Albemarle Street and Wisconsin Avenue stretches to Albemarle Street and Fort Drive; this long queue prevents vehicles attempting to travel to the intersection of Albemarle Street and Wisconsin Avenue from clearing the intersection of Albemarle Street and Fort Drive. The blocked westbound lane increases the delay at the northbound, southbound, and westbound approaches at the intersection of Albemarle Street and Fort Drive. The queue at the westbound approach of Albemarle Street and Fort Drive grows to the upstream intersection of Albemarle Street and Nebraska Avenue. The queue behavior in all directions matches the field observed conditions.



*Cars parked along 40th Street NW (owned by DDOT) and Fort Drive NW (owned by WMATA). The spaces are in high demand both during weekdays and weekends.*

## 2.3 Parking Demand Analysis

A parking demand analysis was conducted to document the current parking needs and utilization of the on-street Kiss & Ride parking spaces, as well as WMATA and DDOT metered parking spaces adjacent to the Tenleytown Station entrance along Albemarle Drive, Fort Drive, and 40th Street. The analysis was also conducted in order to recommend a unified parking policy for the station area.

Specific tasks involved in the demand analysis include:

- Perform a parking space inventory;
- Document the existing on-street parking utilization rates for weekday Peak periods and Saturday mid-day;
- Observe parking behaviors during the weekday Peak periods and Saturday mid-day; and
- Document the supply of other parking spaces within 1/4 mile of the study area.

This section provides a summary of the observations, findings, and results. A full version of the parking demand analysis may be found in **Appendix B**.

### Parking Space Inventory

A parking space inventory was conducted for Fort Drive, 40th Street, and Albemarle Street (see **Figure 2-4**). There are a total of 76 parking spaces; 29 spaces on Fort Drive (WMATA Owned), 36 spaces on 40th Street (DDOT Owned), and 11 on Albemarle Street (DDOT).

Currently, WMATA owned metered parking spaces cost \$1 per hour during weekday parking hours and free to use on weekends. DDOT owned metered parking spaces are \$2 per hour during weekday and Saturday parking hours, and free to use on Sundays.

### Utilization Rates

Parking data and utilization was collected on Saturday, March 21, 2015 – Midday (11:00 am-2:00 pm) and Tuesday, March 24, 2015 – AM Peak (6:30 am–9:30 am), Midday (11:00 am-2:00 pm), and PM Peak (3:30 pm–6:30 pm).



The sections below summarize the observed parking utilization rates during the weekday AM Peak and PM Peak periods. Refer to **Appendix B** for the complete detailed observations, including mid-day and weekend utilization rates.

### Weekday AM Peak Period

Weekday AM Peak period parking utilization rates reach their max at 86 percent along Fort Drive by 9:15 AM, with the rates generally rising through the Peak period along both streets. Observations confirmed that the on-street parking spaces begin to fill in towards the end of the AM Peak period. Overall, the parking on Fort Drive is more utilized than on 40th Street through the morning period. Many parkers were observed coming from/going to the aquatic center during the morning.

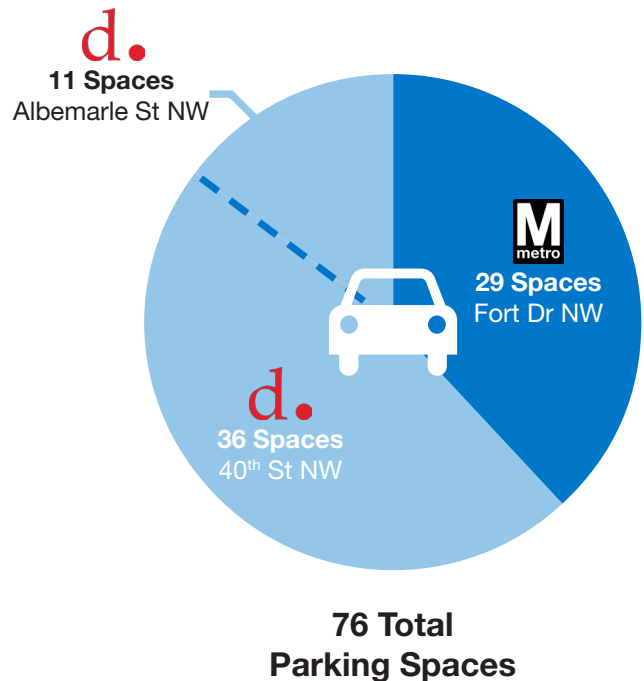
**Figure 2-5** illustrates the parking utilization rates during the Weekday AM Peak period along both Fort Drive and 40th Street.

### Weekday PM Peak Period

The weekday PM Peak period parking utilization reaches its maximum at 107 percent along Fort Drive by 4:30 PM, with rates along both streets rising until this time, then settling around 90 percent through the remainder of the period. Parking utilization is about evenly split between 40th Street and Fort Drive. Observations confirmed the heavy utilization rates of the on-street parking during the PM peak period. Many spaces were observed being used for drop-off/pick-up activities for the Metro as well as Wilson High School and the Wilson Aquatic Center. In addition, many cars were observed illegally parked or waiting along the curb on Fort Drive closest to the high school for pick-up activities.

**Figure 2-6** illustrates the parking utilization rates during the Weekday AM Peak period along both Fort Drive and 40th Street.

**Figure 2-4** Existing Parking Space Inventory

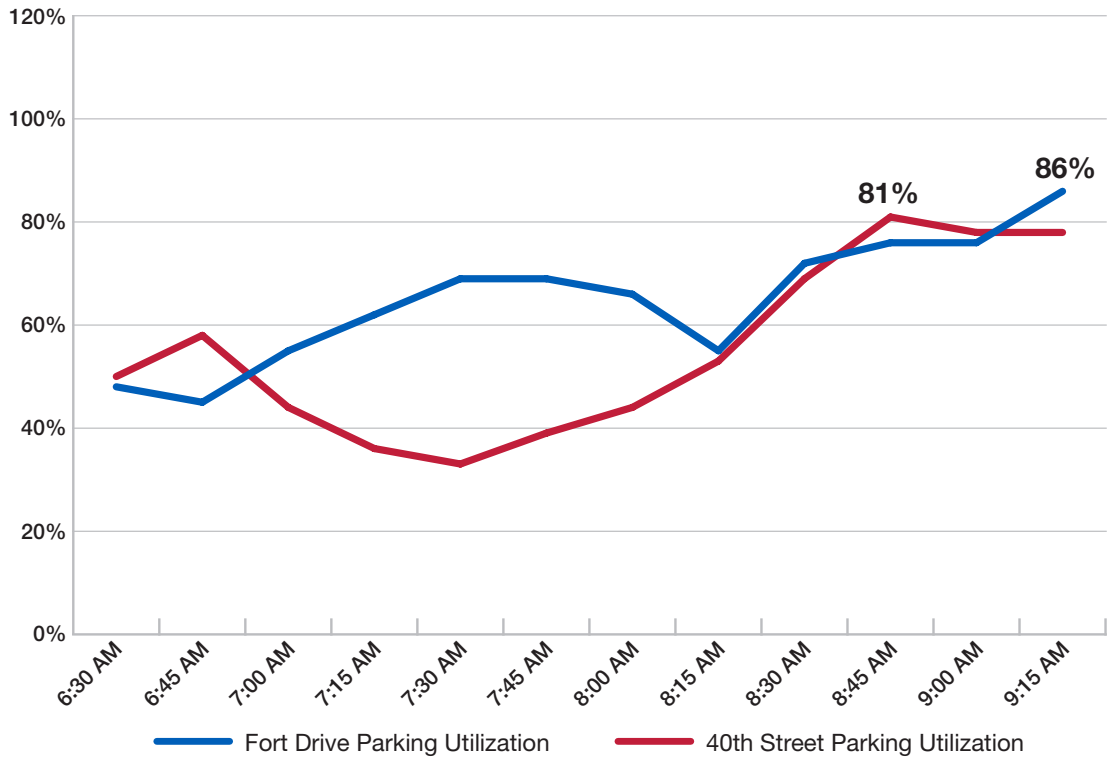


*The existing parking programming includes spaces for Kiss & Ride, metered parking, and carshare services such as Car2Go.*

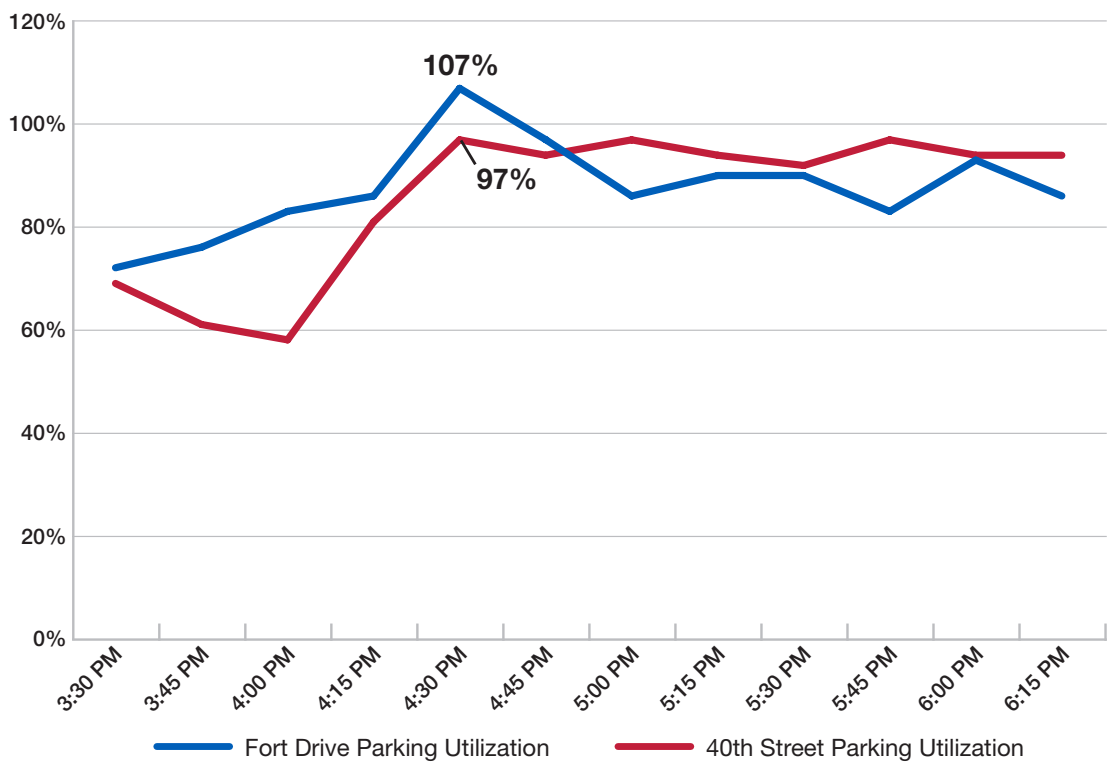




**Figure 2-5** Weekday AM Peak Period Parking Utilization



**Figure 2-6** Weekday PM Peak Period Parking Utilization



## Observations

- Utilization on 40th Street and Fort Drive is high, particularly during the PM Peak period and during weekday mid-day hours.
- Spaces are not strictly enforced, particularly on Albemarle Street during the PM Peak hours when parking is restricted.
- Different parking regulations are not well signed and cause confusion.
- There are approximately 39 parking lots or garages within ¼ mile of the station available for the various retail, institutional, and residential uses in the study area, including a large garage adjacent to the Whole Foods Market and retail strip on Wisconsin Avenue.

## Findings

The Parking Demand Study findings will inform the Alternatives Refinement and Development phase in determining the appropriate level of parking needed at the site, as well as the overall policy for the available spaces, including: time limits, parking rates, and hours of restriction.

Overall, the parking utilization on 40th Street and Fort Drive is high, particularly during the mid-day and PM Peak hours. However, the spaces are not strictly enforced, which has led to illegal parking and curb activities and over-extended parking durations. Many drivers use the specific WMATA parking spaces on Fort Drive as regular on-street parking to access the retail or community facilities adjacent to the study area, as opposed to using the spaces for Metro related activities. Additionally, the different parking regulations between the WMATA and DDOT owned spaces may be confusing to drivers and are not well signed.



*Parking signs in the station area, like the ones above, make street parking difficult and confusing for drivers.*



*Parking rules in the station area site are typically not strictly enforced, with cars sometimes parking awkwardly near meters or not adhering to posted rules and regulations.*

## 2.4 Utilities

Various utilities run through the project study area, including sewer, electric, gas, and water. There are approximately 600 feet of linear overhead utilities, including electrical and telecom lines, along 40th Street NW. The study area also includes a Traction Power Substation (TPSS), owned by WMATA, located directly underneath the existing pedestrian plaza, which is used to provide power to the Metrorail system. A scan of the area utilities, including the location of those within the study area, may be found in **Appendix C**.

The utility scan will be used to identify any constraints and fatal flaws in the concept designs, and to develop order of magnitude cost estimates to underground the overhead utilities.



*Overhead electrical wires and utility poles as seen along 40th Street in the project study area.*





# Alternatives Refinement

Tenleytown-AU  
Station Access Study  
Phase II

## Section 3

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## 3.0 ALTERNATIVES REFINEMENT

This section discusses the refined alternatives for the station area that were initially developed as part of Phase II. The Phase II refined alternatives build off of the final alternative from Phase I, while also addressing the current conditions for improvement and updated traffic and parking data (see **Section 2**).

As part of developing the alternatives, the study defined goals and objectives to achieve in Phase II (see **Section 3.1**), as well as created an updated list of design criteria that needed to be accommodated in the refined alternatives. Alternatives were then developed through cooperation with DDOT and WMATA before being presented to stakeholders and the general public for comment (see **Section 4**).

### 3.1 Goals and Objectives

Based on the conclusions from the Phase I study as well as assessing the site, the following goals and objectives were created as a guide for developing the refined alternatives:

- **Accommodate All Modes of Access** – Make the site accessible for all modes, including pedestrians, bicycles, transit, and cars. There should be clearly defined space for each of these modes within the site. Additionally, the site should meet all requirements and standards as set forth by the Americans with Disabilities Act of 1990 (ADA).
- **Enhance the Public Realm and Pedestrian Environment** – Create a “sense of place” within the site and enhance the pedestrian network and sidewalks with landscaping, greenery, and public space amenities.
- **Reduce Vehicular Conflicts** – Organize awkward intersection geometries to create more streamlined traffic patterns and intersections. Reduce pedestrian-vehicular conflicts and better define spaces within the site for different mode choices (pedestrian, bicycle, transit, and cars).
- **Improve the Transit Customer’s Waiting Experience** – Upgrade existing bus stops with shelters, seating, and real time passenger travel information.

### 3.2 Design Criteria

In developing the refined alternatives, the following criteria were developed as items of importance to include in the designs. These criteria reflected needs both expressed by the conclusions of the Phase I study, WMATA, DDOT, and local stakeholders. The design criteria include:

- Accommodate fully-functioning bus transit facilities, including Bus Bays and Layover spaces for up to 5 buses and passenger amenities (shelters, benches, real time travel information)
- Align 40th Street/Fort Drive/Albemarle Street Intersection
- Retain as much parking as possible; unify parking hours, rates, and rules
- Include provisions for bicycle access north and south through study area and upgraded and increased bicycle parking
- Provide space for an enhanced pedestrian plaza; provide high visibility crosswalks with better disability access
- Conform to WMATA and DDOT design standards and dimensions

### 3.3 DDOT/WMATA Coordination

Design alternatives that meet the station's current and future needs in terms of pedestrian, bicycle, transit (both bus and shuttle), and parking/vehicular access modes were jointly developed by DDOT and WMATA. Their design standards, along with those set by the Federal Highway Administration (FHWA) are accommodated in the study. Each organization's standards are applied to the following facilities:

- **DDOT:** Modification of DDOT owned roads and sidewalks
- **WMATA:** Modification of WMATA owned roads and bus terminals
- **FHWA:** Supplement standards set forth by both DDOT and WMATA

Other site improvements include:

- **Lane Widths:** 12 foot lanes are used to accommodate WMATA buses and large delivery trucks using the Whole Foods Market loading dock. While DDOT prefers 10.5 foot lanes, WMATA requires an absolute minimum 12 foot travel lane.
- **Minimize Parking Spaces Lost:** The total number of parking spaces is reduced due to the west side of Fort Drive being converted to bus layover spaces (an area currently used for parallel parking), converting the existing center median into a pedestrian plaza, and re-aligning the intersection of Fort Drive, 40th Street, and Albemarle Street. The number of parking spaces lost is minimized (a request from the public) by using DDOT standard back-in-parking spaces where space allowed. Where space is too tight for back-in-parking, typically because of large delivery trucks, parallel parking spaces are used.

- **Median Cycle Track:** Where space allowed, a designated bicycle track is installed to allow for safe bicycle passage through the study area, a request from DDOT. Where space is limited, a bicycle & vehicle sharrow is striped.

Balancing the needs of the public along with the standards of multiple government agencies creates design alternatives that meet the station's current and future needs for transit, pedestrians, cyclists, and motor vehicles.

#### Design Standards and Dimensions

Design alternatives were developed that adhered to design standards set forth by both the DDOT Design and Engineering Manual (DEM) (2009) and the WMATA Station Site and Access Planning Manual (2008). **Table 3-1** outlines some of the design guidelines that were used in developing the initial alternatives:



**Table 3-1** Design Features and Suggested Guidelines

Design Feature (Source)	Design Guidelines
<b>Parallel Parking</b> (DEM)	<ul style="list-style-type: none"> <li>• 7'-0" width minimum with 5' bike lane in road</li> <li>• 8'-0" width minimum with 11' travel lane</li> <li>• Minimum 5' spacing between driveway edge and parking space</li> <li>• Minimum 25' spacing between stop bar and parking space</li> </ul>
<b>Angled Parking (Back-in Parking)</b> (DEM)	<ul style="list-style-type: none"> <li>• Minimum 22' between crosswalk and the nearest "entrance" point of the angled parking space</li> <li>• 9'-0" minimum stall width</li> <li>• 17'-0" minimum stall depth</li> <li>• 11'-0" minimum adjacent aisle width</li> <li>• 12-9" minimum skew width</li> </ul>
<b>ADA Requirements</b> (DEM)	<p>General Guidelines</p> <ul style="list-style-type: none"> <li>• All ADA parking needs to be verified by DDOT Traffic Operations Administration (TOA)</li> </ul> <p>Sidewalks</p> <ul style="list-style-type: none"> <li>• 6' sidewalk width minimum (4' absolute minimum)</li> <li>• 8' sidewalk width minimum at bus stops</li> </ul> <p>ADA Parking</p> <ul style="list-style-type: none"> <li>• 11' width parking spot</li> <li>• 5' aisle</li> <li>• 60 degree parking allowed w/ preferred 17' travel lane</li> </ul>
<b>Intersection Spacing</b> (FHWA, DEM)	<ul style="list-style-type: none"> <li>• "Driveway should not be located within the functional area of an intersection."</li> <li>• 60' min. intersection spacing</li> </ul>
<b>Bus Stop Design</b> (WMATA)	<ul style="list-style-type: none"> <li>• Parallel Stop Spacing                             <ul style="list-style-type: none"> <li>▪ Bus, 44'</li> <li>▪ Rear Taper, 48'</li> <li>▪ Front Taper, 70'</li> </ul> </li> <li>• Saw tooth spacing with 6' cut in</li> </ul>
<b>Bicycle Lanes</b> (DEM)	10' minimum shared use path
<b>Crosswalk Markings</b> (DEM)	24" width with 24" skip
<b>Bus Pads</b> (DEM)	Minimum 10' x 40'
<b>Curb Radii</b> (DEM)	<ul style="list-style-type: none"> <li>• 15' minimum curb radius for street intersections</li> <li>• 10' minimum curb radius for alleys</li> <li>• 6' minimum curb radius for driveways</li> </ul>

### 3.4 Refined Alternatives

Three refined alternatives were developed as a response to the conclusions reached in Phase I of the study, as well as the existing site conditions and the design criteria set forth by both WMATA and DDOT. All three alternatives seek to improve the site's existing conditions by better facilitating intermodal transfers, creating a better sense of place, and improving pedestrian safety within the station area.

While the three refined alternatives differ slightly in the design and layout of station area elements, all three alternatives share the following elements:

- Better crosswalk design at 40th Street, Fort Drive, and Albemarle Street, NW
- Better disability access with curb cuts at crosswalks
- Angled bus parking spots for easier vehicle entry and exit from the station
- Bus shelters with better information and coverage
- Better sidewalk designs for easier pedestrian access
- More green space and tree box landscaping
- More bicycle racks as well as secure bike storage
- High visibility bicycle crossing at intersections
- Expanded sidewalk space in front of 40th Street NW retail provides pedestrian plaza opportunity

The following sections go into further detail regarding each of the three refined alternatives developed, including illustrated site plans and sections that show the location and scale of the proposed design concepts within each of the alternatives.

#### Alternative 1

Alternative 1 was initially developed to prioritize pedestrian and bicycle improvements within the site area. Of all three alternatives, it provides the least amount of parking and includes the greatest amount of bicycle upgrades within the site. Specific design features unique to Alternative 1 include:

- Two-way cycle track down the median of 40th Street & Fort Drive NW
- Pedestrian pathway in the center of median
- Landscaped center island
- Nearly aligned 4-way stop at the Albemarle Street NW intersection
- 30 parking spaces, including 4 ADA
- Completion of sidewalk along loading alley to 40th Street NW

**Figure 3-1** shows the site plan for Alternative 1. **Figure 3-2** shows some of the sections through Alternative 1.

## Alternative 2

Alternative 2 was initially developed to prioritize vehicular and transit improvements within the site area. Of all three alternatives, it provides the greatest amount of parking, while also providing significant pedestrian and bicycle upgrades and safety improvements. Specific design features unique to Alternative 2 include:

- One-way bike lane along both 40th Street and Fort Drive NW north of the U-turn
- U-turn near the Whole Foods Market exit on 40th Street for drivers to return north along
- Fort Drive NW
- Green space south of U-turn with fencing to deter pedestrian cut-throughs
- Nearly aligned 4-way stop at the Albemarle Street NW intersection
- 35 parking spaces, including 4 ADA
- Completion of sidewalk along loading alley to 40th Street NW

**Figure 3-3** shows the site plan of Alternative 2. **Figure 3-4** shows some of the sections through Alternative 2.

## Alternative 3

Alternative 3 was initially developed to provide equal treatment across all modes of access within the site. Alternative 3 provides almost as much parking as Alternative 2, while also providing significant pedestrian and bicycle upgrades and safety improvements. Specific design features unique to Alternative 3 include:

- Shared bicycle and pedestrian multi-use path
- U-turn near the Whole Foods Market exit on 40th Street for drivers to return north along
- Fort Drive NW
- Landscaped center island
- Aligned 4-way stop at the Albemarle Street NW intersection
- 34 parking spaces, including 4 ADA
- Maintains two-way loading alley off of 40th Street NW

**Figure 3-5** shows the site plan of Alternative 3. **Figure 3-6** shows some of the sections through Alternative 3.

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Figure 3-1 Alternative 1 Conceptual Site Plan

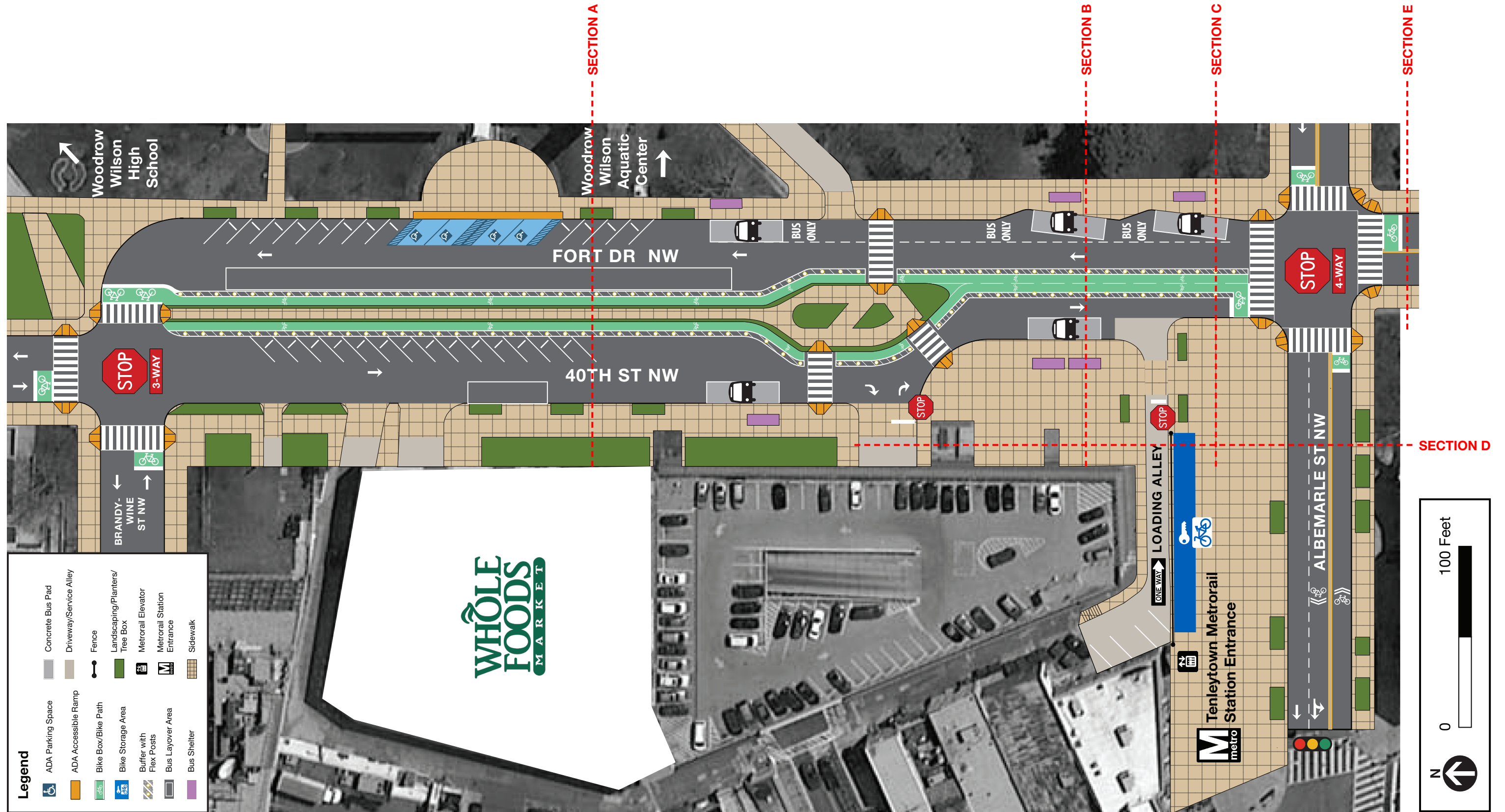


Figure 3-2 Alternative 1 Illustrated Sections

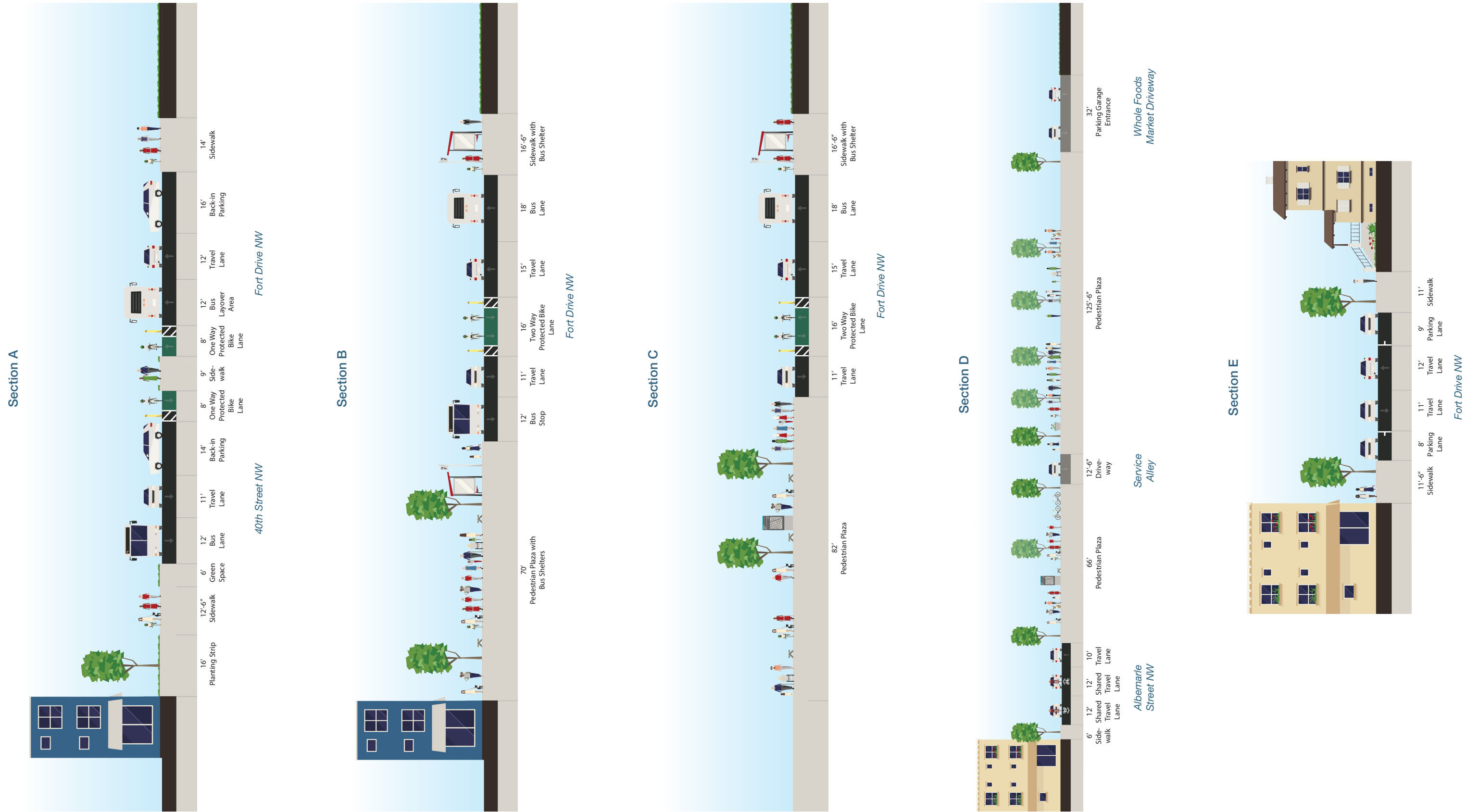




Figure 3-3 Alternative 2 Conceptual Site Plan

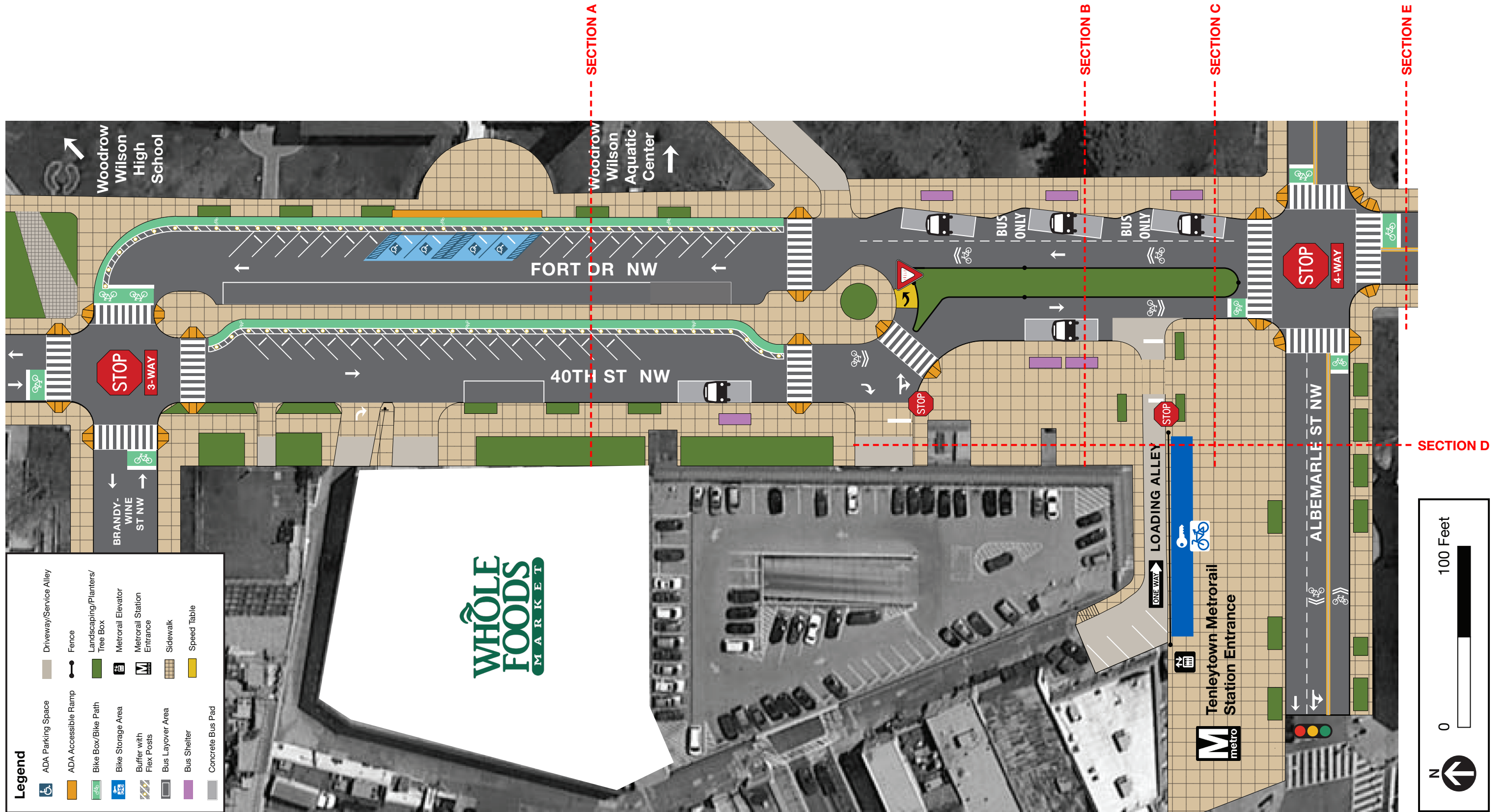


Figure 3-4 Alternative 2 Illustrated Sections

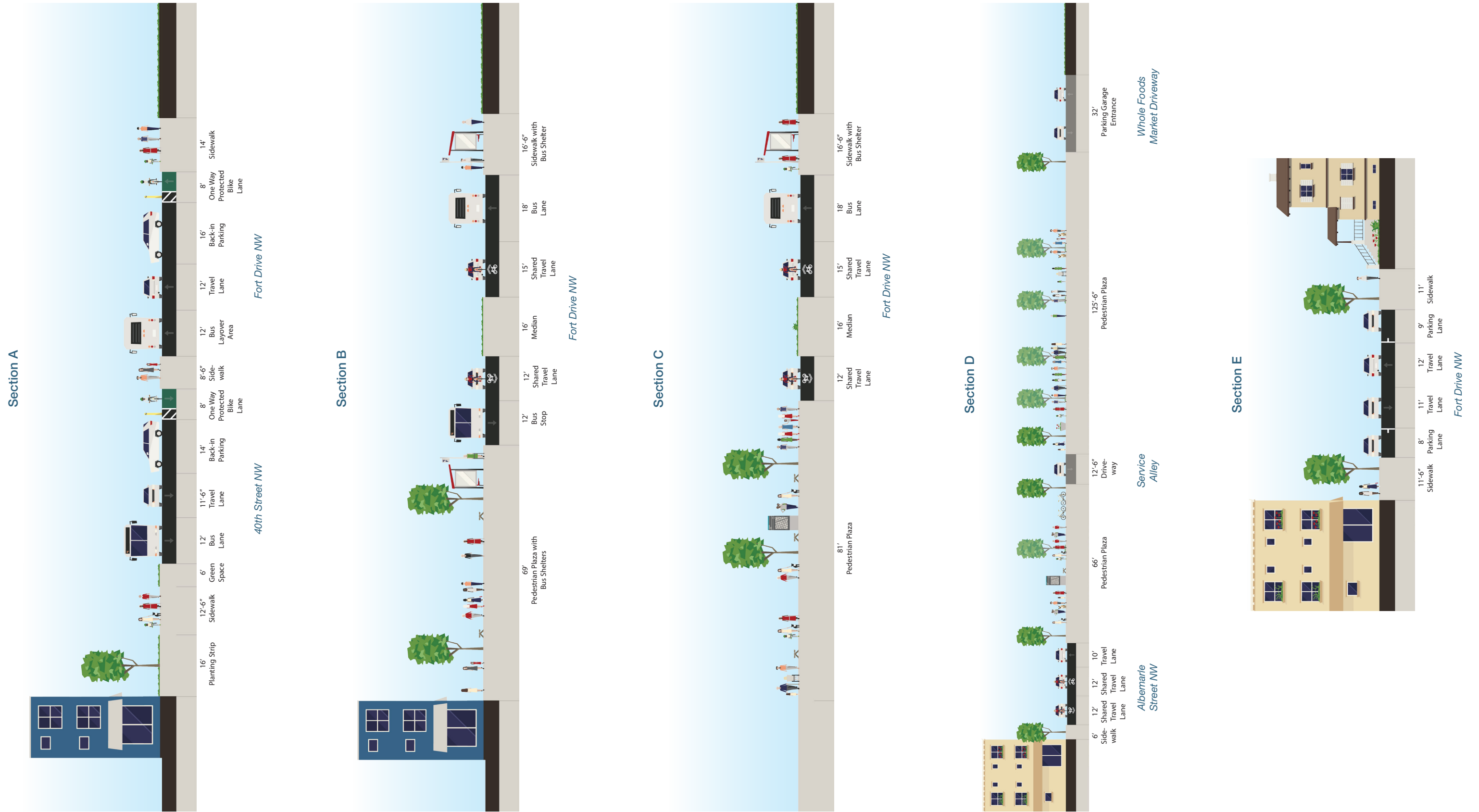




Figure 3-5 Alternative 3 Conceptual Site Plan

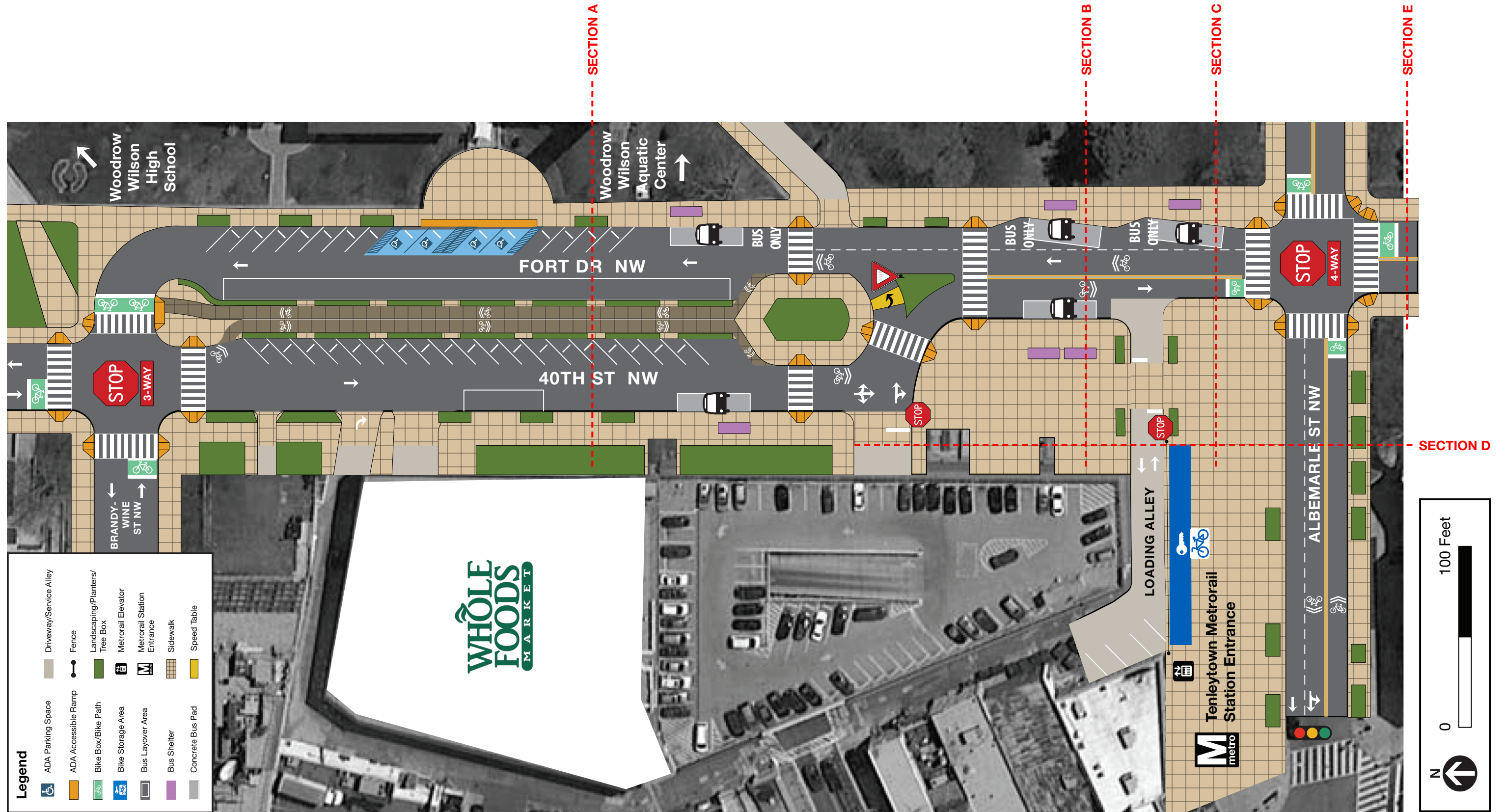
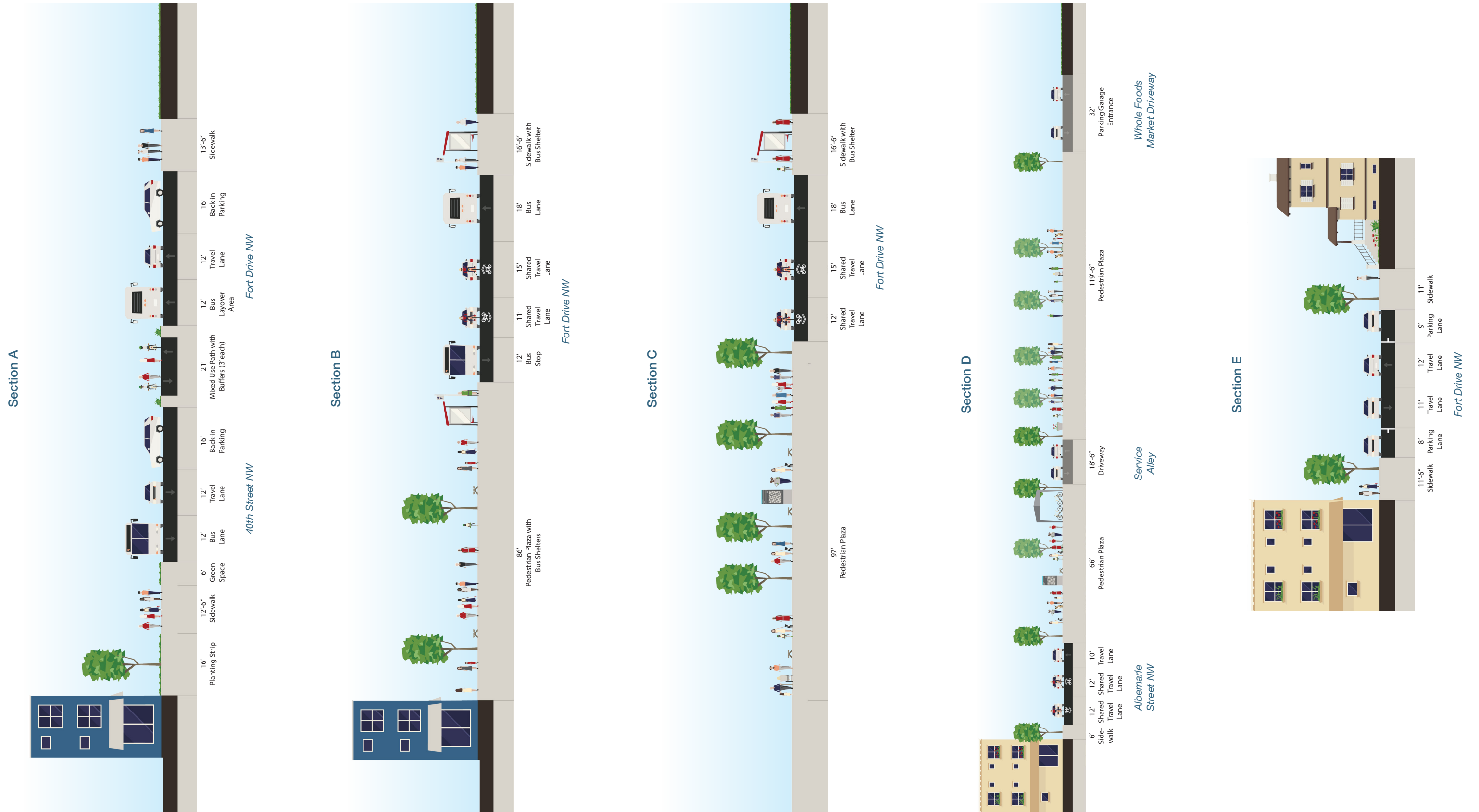


Figure 3-6 Alternative 3 Illustrated Sections



## 3.5 AutoTurn Analysis

### Methodology

An AutoTurn analysis was performed to verify that the design allows for vehicles to move through the study area without running into any hazards. Using AutoTurn, the designer drives a design vehicle through the study area avoiding all proposed parking stalls or curb lines. Curb lines and parking stall locations are adjusted when the design vehicle cannot traverse the roadway segment without conflict.

AutoTurn was used in the Tenleytown study area to ensure feasible and safe movement of the following vehicles:

- A large passenger vehicle to ensure cars can pull out of the parking stalls; and
- A city bus to ensure a bus can pull into and out of the bus bays.

The AutoTurn standard car used for the analysis was the ‘AASHTO 2011 (US) Standard Large Car’.

- Vehicle Length= 19’
- Distance between front and rear axle= 11’
- Distance from bus front to 1st axle= 3’
- Turning Radius= 21’

The AutoTurn standard bus used for the analysis was the ‘AASHTO 2011 (US) Standard City-Bus’.

- Bus Length= 40’
- Distance between front and rear axle= 25’
- Distance from bus front to 1st axle= 7’
- Turning Radius= 42’

No articulated buses were analyzed for this study.

Buses typically make their first move from a stop, where the vehicle has the tightest turning radius. After the first maneuver from a stop, buses are assumed to drive continuously through the study area at 5 miles per hour (mph). As the vehicle’s speed increases, the vehicle’s turning radius increases.

AutoTurn movements for both cars and buses were analyzed for each of the three refined alternatives. The critical points, below, summarize potential conflict points between the vehicles and potential hazards. A full version the AutoTurn Analysis and results appears in **Appendix D**.

### Critical points

#### Cars

Passenger cars can drive through the entire study area without hitting any curbs or parking stalls. Passenger cars can also pull into and out of the parallel and diagonal spots without conflict.

#### Buses

Buses can drive through the entire study area without conflict. The buses can pull into and out of all of the bus bays and layover stalls without hitting any buses parked in front or behind.

However, the following potential conflict areas do exist between buses and potential hazards within the study area:

#### Alternative 1

- At the top of the intersection, where the bus makes a u-turn, the bus comes within 7’ of the curb at the nearest point.
- In the southbound direction, the bus is 3” away from the bollards which separate the travel lane from the bicycle lane.
- In the southbound direction, south of the pedestrian island, the bus is 3” away from the bollards which separate the travel lane from the bicycle lane.

### *Alternative 2*

- At the top of the intersection, where the bus makes a u-turn, the bus comes within 9” of the curb at the nearest point.
- In the southbound direction, the bus is 1.5’ away from the median at the nearest point.
- In the southbound direction, the bus is 3” away from the center median dividing the northbound and southbound lanes.
- At the u-turn for the southbound cars, the cars come within 6” of the curb at the nearest point.

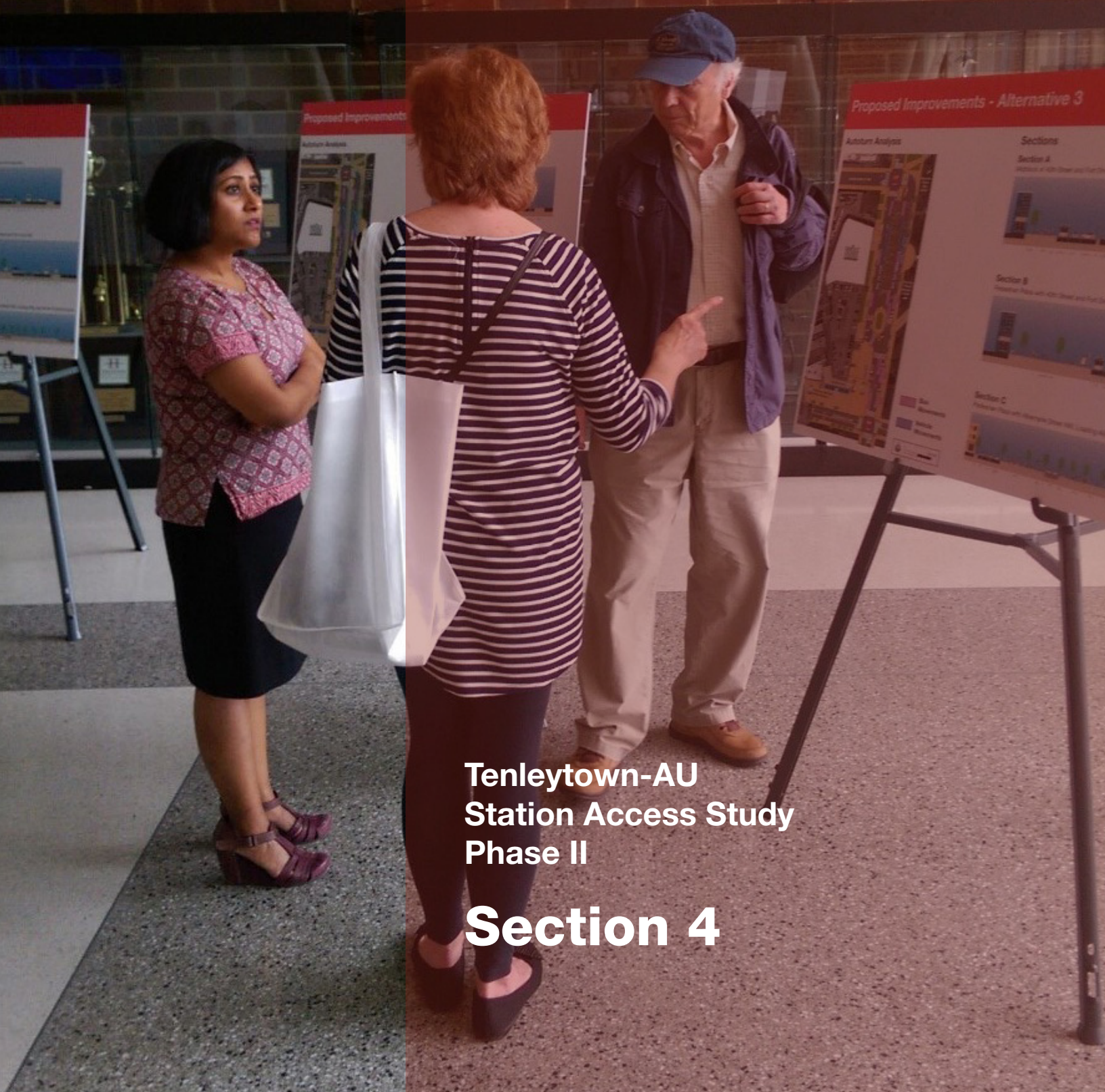
### *Alternative 3*

- At the top of the intersection, where the bus makes a u-turn, the bus comes within 3’ of the curb at the nearest point.
- In the southbound direction, the bus is 3” away from the median pedestrian island at the nearest point.
- In the southbound direction, the bus is 3” away from the center line dividing the northbound and southbound lanes.

These critical points informed the development of the final alternative, as they denoted areas where vehicles could potentially be a hazard to pedestrians and to each other within the study area. Minimizing these potential conflict zones ensures the separation and safety of all users and modes within the study area.



# Public/ Stakeholder Engagement



Tenleytown-AU  
Station Access Study  
Phase II

**Section 4**

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## 4.0 PUBLIC/STAKEHOLDER ENGAGEMENT

### 4.1 Stakeholder Coordination

#### Ward 3 Councilmember and Ward 3E ANC Commissioners Briefing - February 16, 2016

A project overview with the public outreach plan was shared with Ward 3 Councilmember Mary Cheh in December 2015. Project staff also met with commissioners from Advisory Neighborhood Commission (ANC) 3E on February 16, 2016 to provide a project overview, present the three alternatives and to discuss the public outreach plan. The ANC Commissioners gave comment on the draft alternatives. Meeting minutes from this meeting can be seen in **Appendix E**.

#### Circle Management Company - May 2, 2016

Project staff met with Circle Management Company, the property managers adjacent to the study area, on May 2, 2016 to discuss the alternatives and address concerns. Generally, Circle Management had concerns regarding maintaining access to the Whole Foods Market loading dock as well as access to the loading alley. Meeting minutes from this meeting can be seen in **Appendix E**.

#### ANC3E Public Meeting - May 12, 2016

Project staff attended the ANC 3E Monthly Meeting on May 12, 2016 and briefed the commissioners and the public on the status of the project. Prior to the meeting, questions were submitted for more clarification on the study process and the level of coordination between WMATA and DDOT. Project staff answers to these questions as well as the meeting presentation are attached in **Appendix E**.

#### ANC3E Public Meeting - October 13, 2016

Project staff attended the ANC 3E Monthly Meeting on October 13, 2016 and briefed the commissioners and the public on the project’s Final Alternative and

recommendations. Project staff also fielded questions and comments from the commissioners and general public as well. Meeting minutes from this meeting, as well as the meeting presentation, are attached in **Appendix E**.

### Other Stakeholders

**Table 4-1** identifies stakeholder locations where project staff also dropped off brochures for review and consideration:

**Table 4-1** Stakeholder Locations within Tenleytown-AU Station Area

<ul style="list-style-type: none"> <li>• 4001 Brandywine office complex</li> <li>• 4500 Wisconsin Ave Shopping Center</li> <li>• American University School of Law - Immigrant Justice Clinic</li> <li>• American University Shuttle</li> <li>• Angelico Pizza</li> <li>• Best Buy</li> <li>• Burger Tap &amp; Shake</li> <li>• Capitol Concierge</li> <li>• Chase Point Condos</li> <li>• Circle Management</li> <li>• Communisis-Preschool &amp; Children’s Language Center</li> <li>• Crispy &amp; Juicy</li> <li>• CVS</li> <li>• Dentist Clinic, 40th St</li> <li>• Domino’s Pizza</li> <li>• Elements of Motion</li> <li>• Envy Nails</li> <li>• Friendship Terrace Senior Living</li> <li>• Guapo’s Restaurant</li> <li>• Hot Yoga</li> <li>• Iona Senior Apartment</li> </ul>	<ul style="list-style-type: none"> <li>• Janney Elementary School</li> <li>• Masala Art Restaurant</li> <li>• Mattress Warehouse</li> <li>• Mayflower Chinese</li> <li>• New Org</li> <li>• Nonviolence International</li> <li>• Northwest Sport &amp; Health</li> <li>• Old Sears, 40th St</li> <li>• Panera Bread</li> <li>• Robeks Fresh Juices &amp; Smoothies</li> <li>• St Ann Catholic School</li> <li>• Starbucks</li> <li>• Subway</li> <li>• Supercuts</li> <li>• Tenley-Friendship Library</li> <li>• Tenleytown Liquor</li> <li>• The Container Store</li> <li>• Whole Foods Market</li> <li>• Wilson Aquatic Center</li> <li>• Wisconsin Avenue Baptist Church</li> <li>• Woodrow Wilson High School</li> <li>• Yoga Fusion DC</li> </ul>
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## 4.2 Outreach Activities

Following the guidelines established by WMATA's Board-approved Public Participation Plan and input from DDOT, the following is a summary of the public outreach and resulting comments on the proposal.

In order to encourage customers to provide feedback on the three design alternatives, as well as to fulfill WMATA's Public Participation Plan, Metro tailored a communications and outreach plan that reached the various constituents in the area. This includes Metrorail customers, Metrobus, AU Shuttle and other bus customers, cyclists, pedestrians, local businesses and their employees, local residents around the area, and community leaders and stakeholders.

Communications and outreach efforts with the general public were conducted beginning the week of April 4, 2016 through the week of May 9, 2016. The final plan included the following efforts:

- Pop-up events at the Tenleytown-AU Metrorail Station
- Open House
- Direct email
- Targeted marketing & media
- Stakeholder meetings

The efforts also included an array of printed media to promote the refined alternatives, including banners, presentation boards, mailers, and brochures. Copies of these materials may be found in **Appendix F**.

Customers were asked to choose their preferred alternative for different items like pedestrian flow, bicycle access, etc. Renderings were provided for each design alternative for customers to compare and contrast different elements. Feedback was collected through the following sources:

- Paper/tablet survey in English and Spanish at pop-up events and open house
- Online survey in English and Spanish
- Verbal and written comments during the open house and other outreach meetings



*Project staff explain one of the refined alternatives to a pedestrian during a pop-up event at the Tenleytown-AU Metrorail Station. Three pop-up events were held in April 2016.*

### Pop-up Events

Outreach street teams, comprised of project staff, traveled to the Tenleytown-AU Metrorail Station to collect feedback from riders. Spanish-speaking staff were present at all events, and dates and times were chosen to correspond with high ridership periods. Team members wore Metro aprons and those who were bilingual wore large pins that identified them as speaking another language. Two large pop-up sign stands displayed the three design alternatives. English and Spanish brochures were distributed, and paper and tablet surveys in English and Spanish were collected. **Table 4-2** shows the number of brochures distributed and surveys completed during the pop-up events.



**Table 4-2** Pop-up Event Times, Material Distribution, and Completed Surveys

Date	Time	# of Brochures Distributed	# of English Surveys Completed	# of Spanish Surveys Completed
Tuesday, April 12	4:00 pm-7:00 pm	485	33	1
Thursday, April 14	8:00 am-11:00 am	860	15	6
Saturday, April 16	Noon-3:00 pm	647	7	0

## Open House

Metro hosted an open house on Saturday, April 23, 2016 at the Woodrow Wilson High School, 3950 Chesapeake Street NW, Washington, DC 20016 from 1:00 pm-3:00 pm. The location is adjacent to the study area, ADA-compliant and within walking distance to the Tenleytown-AU Metrorail Station and numerous bus routes.

Project staff from WMATA and DDOT answered questions and talked to the attendees about the project and the three design alternatives. Three members of the local Advisory Neighborhood Committee attended, and 12 total attendees participated overall. Attendees were asked to fill out a survey that included feedback about the event and demographic information.

## Direct Postcard Mailing

Direct emails were sent to a sample of registered SmarTrip® card customers who had used their SmarTrip® card within the last month at least five times at the Tenleytown-AU Metrorail Station or on a Metrobus route that serves the Tenleytown station. The emails invited customers to complete an online survey as well as alerted them to days and times when staff would be present to take in-person feedback or answer questions. A total of 9,607 emails were sent.

Metro staff also sent email notifications to their stakeholder lists. The Office of External Relations notified over 50 stakeholders which included places of worship, event venues, residences and apartments, schools, shopping areas and more near the Tenleytown-AU station. The list included representatives from the following organizations listed in **Table 4-3**.



Members of the public interact with a presentation board during the Tenleytown Station Access Study Open House. The Open House was held at Wilson High School in April 2016.

The WMATA Office of Government Relations also notified local jurisdictional staff in Washington DC. Three Community Based Organizations near the Tenleytown station were contacted via email and phone by the Office of Equal Employment Opportunity – Arabic Baptist Church, Community Council for the Homeless at Friendship Place and St. Luke’s Shelter.



**Table 4-3** Stakeholders Receiving Email Information Regarding Tenleytown Station Access Study

<ul style="list-style-type: none"> <li>American University</li> <li>American University School of Law - Immigrant Justice Clinic</li> <li>Arabic Baptist Church</li> <li>Bloomington Chevy Chase</li> <li>Burger Tap &amp; Shake</li> <li>Capital Bike &amp; Ride</li> <li>Center for Applied Linguistics</li> <li>Chase Point Condos</li> <li>Chevy Chase Pavilion</li> <li>Circle Management</li> <li>Clear Channel Radio</li> <li>Community Council for the Homeless at Friendship Place</li> <li>CVS</li> <li>DC Fire and EMS Station</li> <li>Dinner then dessert</li> <li>ESL Language Center</li> <li>Friendship Hospital For Animals</li> <li>Friendship Terrace Senior Living</li> </ul>	<ul style="list-style-type: none"> <li>Georgetown Day High School</li> <li>Greenberg Theatre American University</li> <li>Guapo's Restaurant</li> <li>Hot Yoga</li> <li>Iona Senior Apartment</li> <li>Janney Elementary School</li> <li>Lord &amp; Taylor</li> <li>Mattress Warehouse</li> <li>Mazza Gallerie</li> <li>National Presbyterian Church</li> <li>Nonviolence International</li> <li>Northwest Sport &amp; Health</li> <li>Potomac College</li> <li>Psychiatric Institute of Washington</li> <li>Restoration Church</li> <li>Sahara Dance</li> <li>Sheridan School</li> <li>Sidwell Friends School</li> <li>Sisters of St Paul of Chartres</li> <li>St. Ann's Catholic Church</li> </ul>	<ul style="list-style-type: none"> <li>St. Columba's Episcopal Church St. Luke's Shelter</li> <li>St. Mary Armenian Apostolic Church</li> <li>Starbucks</li> <li>Tenley Study Center</li> <li>Tenley-Friendship Library</li> <li>Tenleytown Main Street</li> <li>The City Church</li> <li>The Container Store</li> <li>Whole Foods Market</li> <li>William R. Singleton Hope-Lebanon Lodge No. 7</li> <li>Wisconsin Avenue Baptist Church</li> <li>Woodrow Wilson High School</li> <li>Yong Studios</li> <li>Yuma Center</li> </ul>
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### 4.3 Targeted Marketing & Media

Metro used targeted marketing and media strategies to increase awareness and encourage feedback on the proposed transit facilities.

- A direct mail postcard in English and Spanish was sent to 4,762 residents within a ¼ mile radius of the Tenleytown-AU Metrorail station notifying them of the study and how to provide feedback.
- A news release was published on Wednesday, April 13, 2016.

- The webpage [wmata.com/planning](http://wmata.com/planning) was updated and a project page was created. The project page contained information in English and Spanish and other relevant project materials like the Phase I report and renderings of the three design alternatives. The page also linked to the survey and listed the pop-up events and open house information.
- English and Spanish signs were posted in the Tenleytown-AU Metrorail station and at all bus stops in the study area.
- Metro's social media accounts (Facebook, Twitter) were used to post information about the study and an advisory was pushed out to riders.

## 4.4 Survey Questions and Results

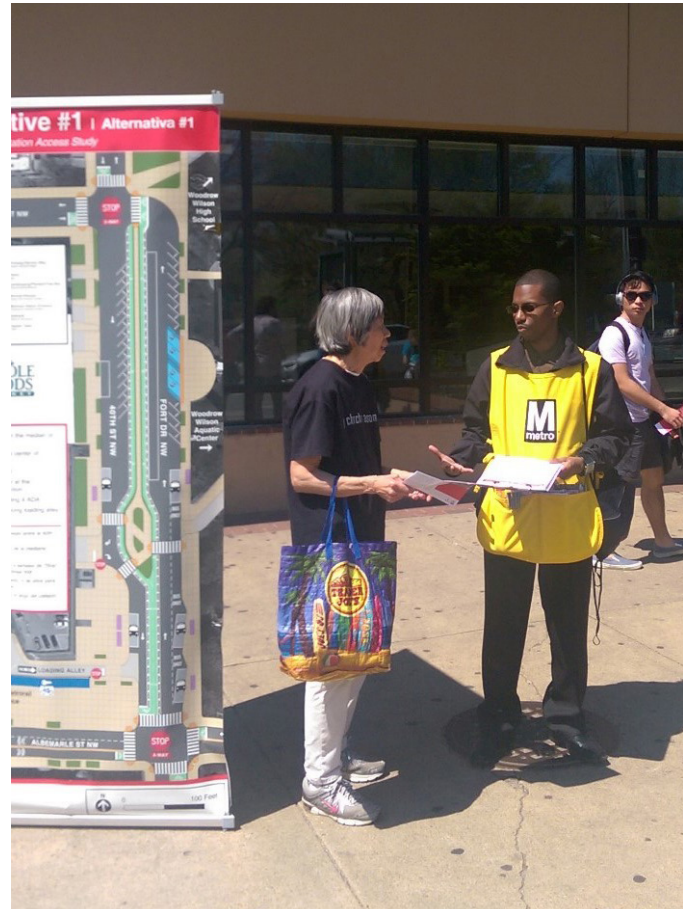
A survey instrument was designed to gather public feedback on Tenleytown-AU station access alternatives. The “scorecard” asked customers to indicate which alternative they preferred on 11 attributes of the alternatives:

- Having crosswalks where you’ll use them
- Your feelings of safety and security
- Reducing traffic congestion
- Your ability to use bike paths
- Having shelter and seating while waiting for a bus or shuttle
- Your desire for green space around the station
- Your ability to find your way around
- Having safe and accessible sidewalks
- Navigating the Albemarle Street NW/Fort Drive intersection
- Your ability to easily transfer between bus/ Metrorail
- Your ability to park near your destination

In addition to stating the alternative that best meet their needs in each of these areas, participants provided mode of access to Tenleytown, as well as a few key demographics. The following details findings from this input.

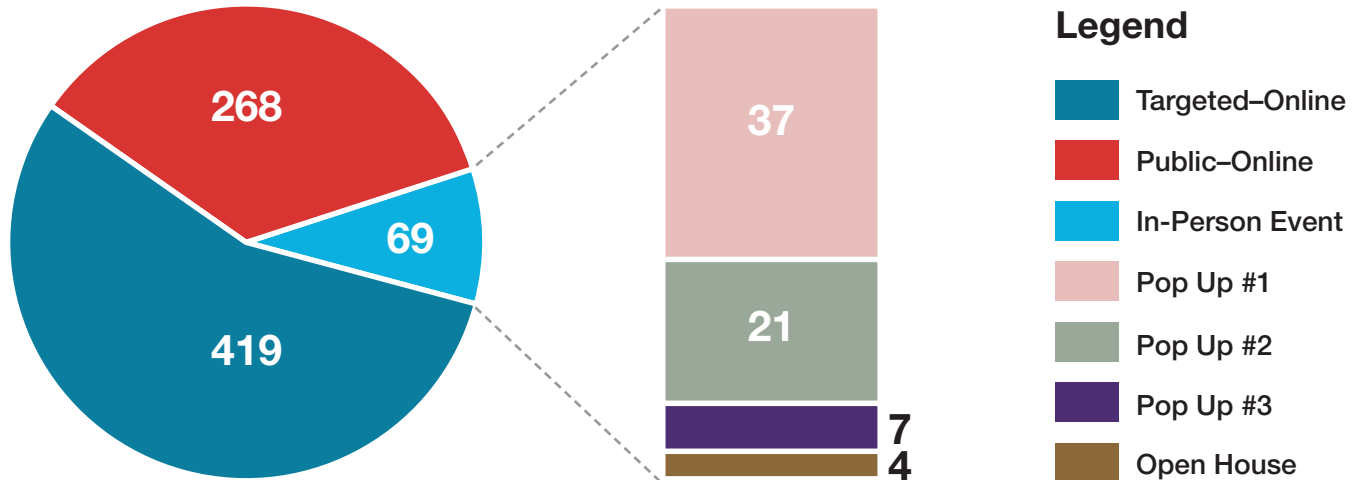
A total of 756 surveys were completed. A little more than half (55 percent) came from a directly emailed survey to customers who were believed to currently use the Tenleytown station. Thirty-five percent came from a link publicly available on the project website and nine percent came from customers completing paper versions of the survey at four separate events.

**Figure 4-1** details the number of surveys completed.



*Project staff survey riders during a pop-up event. The same survey was available online as well as mailed out to residents living nearby the station.*

**Figure 4-1** Summary of Completed Surveys by Event



**Results from Surveys (Online and Paper)**

**Table 4-4** on the following page shows the percentage of customers who preferred each refined alternative for each of the 11 attributes.

For many of the attributes customers were unsure how to respond. This indecision makes it difficult to identify those attributes alternatives were clearly preferred. Further analysis was done to only focus on customers who clearly identified an alternative. From these analyses, we can say the following about each alternatives:

Alternative 1 seems to make customers . . .

- Feel more safe and secure;
- Able to use bike paths;
- Have shelter and setting for buses; and
- Have safe and accessible sidewalks.

Alternative 3 seems to make customers . . .

- Able to navigate the Albemarle Street NW/ Fort Drive intersection; and
- Able to park near your destination.

Alternative 2 was the least preferred on all attributes. Alternative 2 did well but was not the clear preference on the following attributes:

- Ability to park near your destination.

No alternative preference was apparent for:

- Reducing traffic congestion; or
- Desired green space around the station.

For those remaining attributes, Alternative 1 and 3 were closely identified as the preferred alternative.



**Table 4-4** Customer Preference for Refined Alternatives Based on Attributes

Attributes	Alternative 1	Alternative 2	Alternative 3	Not Sure
Having crosswalks where you'll use them	35.6%	24.3%	34.7%	5.4%
Your feelings of safety and security	39.4%	23.4%	31.3%	5.8%
Reducing traffic congestion	32.0%	29.8%	30.3%	7.9%
Your ability to use bike paths	36.6%	22.6%	30.4%	10.3%
Having shelter and seating while waiting for a bus or shuttle	33.2%	29.9%	25.7%	11.2%
Your desire for green space around the station	29.2%	29.8%	31.7%	9.3%
Your ability to find your way around	31.7%	25.0%	31.6%	11.6%
Having safe and accessible sidewalks	38.0%	24.5%	30.6%	7.0%
Navigating the Albemarle St. NW/Fort Drive intersection	28.7%	26.3%	35.8%	9.1%
Your ability to easily transfer between bus/ Metrorail	31.7%	27.5%	31.3%	9.4%
Your ability to park near your destination	24.1%	29.9%	33.5%	12.6%



## Open Ended Comments

The survey gave respondents an opportunity to provide additional comments or suggest other features that are not shown that would improve access to the station. A total of 373 comments were received with many providing comments addressing multiple themes. **Table 4-5** identifies the major themes of these comments.

**Table 4-5** Summary of Open Ended Comments Received

Subject Area	Specific Responses
<b>Bike Storage/ Bike Lanes</b> (23 Responses)	<ul style="list-style-type: none"> <li>• More covered bicycle storage and expanded bicycle network outside of the study area</li> <li>• Relocate Capital Bikeshare station closer to the station entrance</li> </ul>
<b>Bus Operations/ Bus Passenger Amenities</b> (39 Responses)	<ul style="list-style-type: none"> <li>• Remove AU Buses from site</li> <li>• Separate bus traffic from auto traffic</li> <li>• Separate private shuttle location</li> <li>• Near level boarding/alighting for buses</li> <li>• More frequent and reliable bus routes</li> <li>• Circulator route: Van Ness, Tenleytown, Friendship Heights</li> <li>• Amenities: Larger shelters, more benches, fare loading machines, security/emergency alert call box, Metrorail/NextBus Notification displays</li> </ul>
<b>Entrance Improvements - Canopy and Elevator/Escalator Access</b> (92 Responses)	<ul style="list-style-type: none"> <li>• Canopy over the escalator entrance</li> <li>• Additional Elevator; Elevator at the west entrance</li> <li>• Better pedestrian flow around elevators and escalators</li> <li>• Elevator/Escalator reliability</li> <li>• Metrorail notification display at entrance</li> </ul>
<b>Cleanliness</b> (14 Responses)	<ul style="list-style-type: none"> <li>• Clean elevator, station, and station area</li> <li>• De-clutter newspaper boxes, etc.</li> </ul>
<b>Plaza/Public Realm/ Landscaping/Lighting</b> (56 Responses)	<ul style="list-style-type: none"> <li>• More landscaping, street trees</li> <li>• Improved lighting by entrance/elevator</li> <li>• No fences</li> <li>• Public art, water features, mosaic paving, benches, street furniture, or other elements</li> <li>• Beautification of plaza; inviting; place to wait/meet people</li> <li>• Room for food trucks or food vendor kiosk</li> </ul>

**Table 4-5 (cont.)** Summary of Open Ended Comments Received

Subject Area	Specific Responses
<b>Security</b> (30 Responses)	<ul style="list-style-type: none"> <li>• Security features such as emergency call box, security cameras, lighting</li> <li>• Visible police presence</li> <li>• Homeless deterrent</li> <li>• Student behavior</li> </ul>
<b>Signage</b> (19 Responses)	<ul style="list-style-type: none"> <li>• Wayfinding signage for bus bays</li> <li>• Metrorail passenger notification signs</li> </ul>
<b>Pick-up/Drop-off</b> (20 Responses)	<ul style="list-style-type: none"> <li>• Dedicated pick-up/drop-off location for Metrorail passengers</li> </ul>
<b>Pedestrian Desire Lines</b> (64 Responses)	<ul style="list-style-type: none"> <li>• Pedestrian crossing/walkway in the loading alley</li> <li>• Direct pedestrian line from Metro to Wilson HS</li> <li>• Pedestrian connection from Metro/Bus stops to Whole Foods Entrance</li> <li>• Sidewalk for the loading alley</li> <li>• Diagonal crossing or southern crossing at Fort Drive/Brandywine</li> <li>• Pedestrian bridge or tunnel connecting bus stops to Metro</li> </ul>
<b>Traffic</b> (41 Responses)	<ul style="list-style-type: none"> <li>• 4 Way Stop                         <ul style="list-style-type: none"> <li>▪ Concerns over traffic backing up from Wisconsin Ave</li> <li>▪ Consider traffic light instead of 4-way stop</li> <li>▪ Consider walk signal instead of 4-way stop</li> </ul> </li> <li>• Concerns over one travel lane SB on 40th Street; cars turning right onto Albemarle Street</li> <li>• Widen Albemarle Street</li> <li>• Other                         <ul style="list-style-type: none"> <li>▪ Add three-way stop at 40th Street/Chesapeake</li> </ul> </li> <li>• Alley                         <ul style="list-style-type: none"> <li>▪ Run alley straight to Albemarle</li> </ul> </li> <li>• U-Turn                         <ul style="list-style-type: none"> <li>▪ U-turn very important</li> </ul> </li> </ul>
<b>Parking</b> (41 Responses)	<ul style="list-style-type: none"> <li>• Concerns over back-in parking</li> <li>• Reserved car share spaces</li> <li>• Parking impacting loading activities at Whole Foods Market</li> <li>• Keep all parking; more parking spaces</li> <li>• Get rid of all parking; less parking spaces</li> </ul>

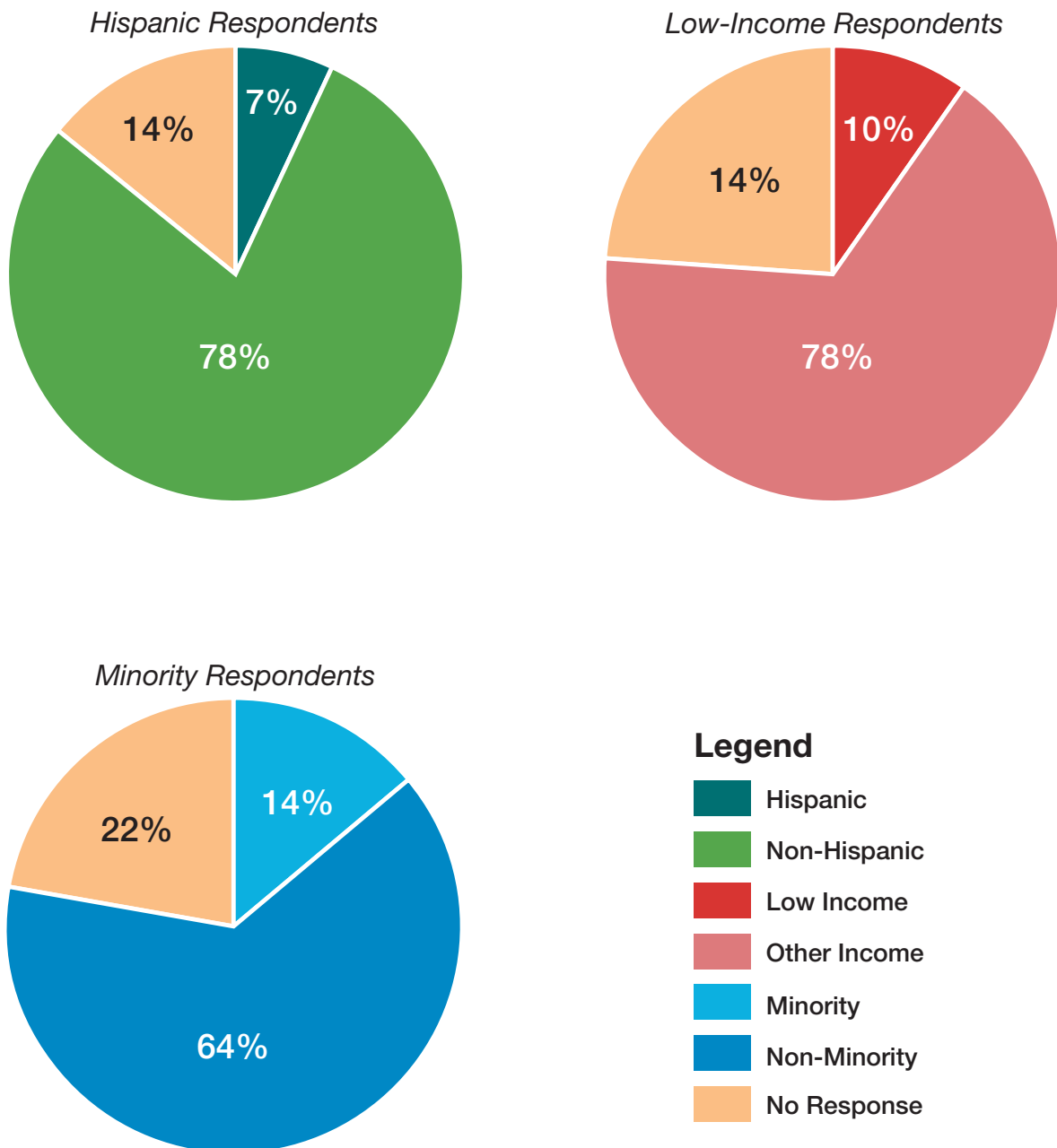


### Survey Demographics

All groups were well represented. The multi-pronged outreach approach opened the door to many low income and minority customers otherwise less receptive to online forms of data collection. While less than the overall rail system average, nearly 7 percent of feedback was received from Hispanic customers.

Rail system Low Income average is 11 percent. The response was nearly identical to the rail system average at 11 percent of feedback coming from customers from households earning less than \$30,000 annually. Fourteen percent of the feedback received came from minority customers. **Figure 4-2** illustrates the summary of the survey demographics.

**Figure 4-2** Summary of Survey Demographics



# Final Alternative



Tenleytown-AU  
Station Access Study  
Phase II

## Section 5

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## 5.0 FINAL ALTERNATIVE

The Final Alternative builds off of Alternative 3, which was the alternative most preferred by the public and project team. While the Final Alternative retains many of the design features of Alternative 3, the Final Alternative improves upon these features based on public and stakeholder input, as well as further coordination with WMATA and DDOT.

**Figure 5-1** shows the Final Alternative’s conceptual site plan. **Figure 5-2** shows the illustrated sections. **Table 5-1** below outlines the Final Alternative’s transit, vehicular, pedestrian, and bicycle features.

**Table 5-1** Final Alternative Design Features

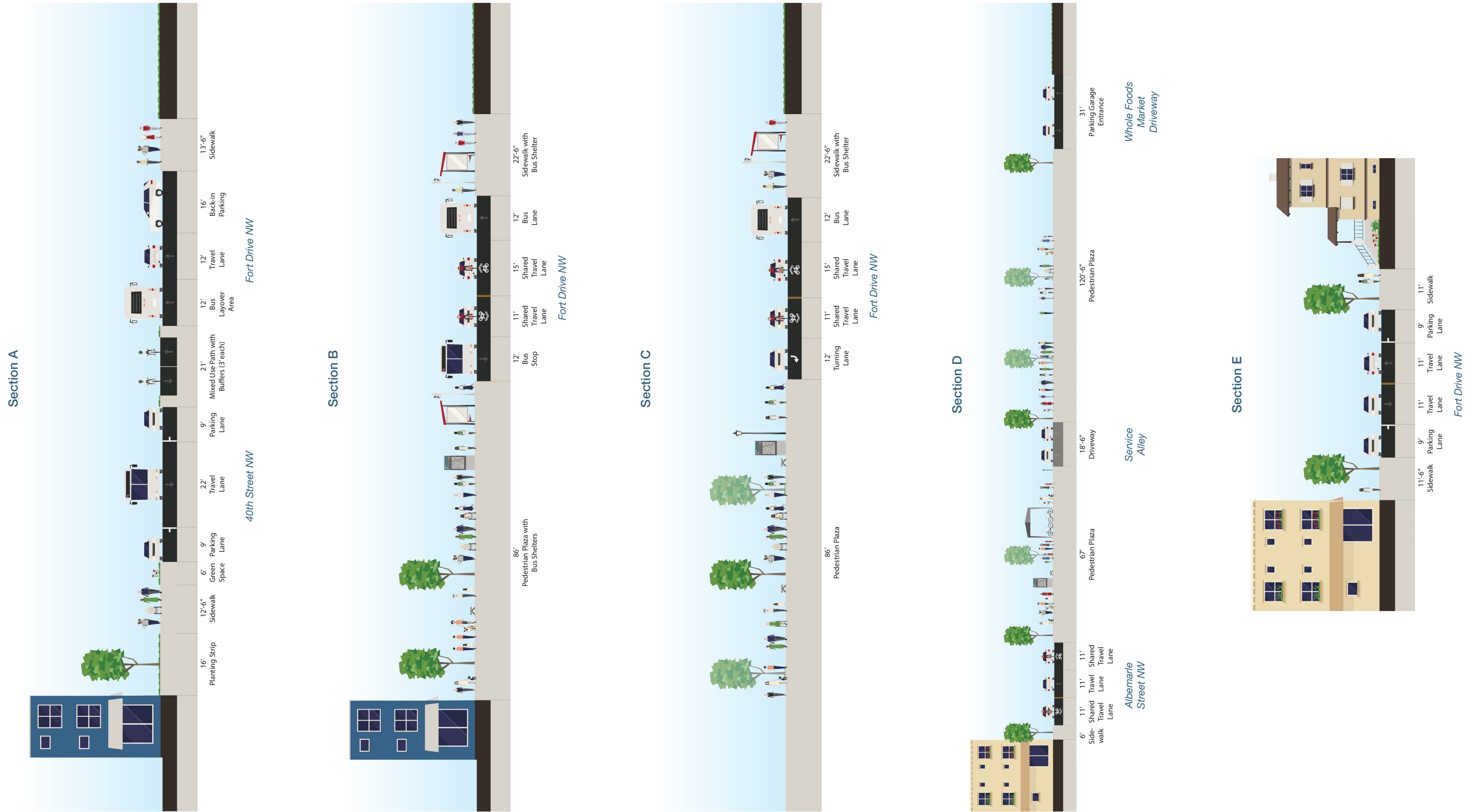
Transit Features
<ul style="list-style-type: none"> <li>• Five bus bays, including three sawtooth bus bays (two on Fort Drive NW northbound, one on 40th Street NW southbound)</li> <li>• Bus shelters with improved passenger information and coverage</li> <li>• Dedicated bus lane along Fort Drive NW</li> </ul>
Vehicular Features
<ul style="list-style-type: none"> <li>• Improved intersection alignments at 40th Street/Fort Drive NW at Albemarle Street NW and Brandywine Street NW</li> <li>• Provision for delivery trucks to safely and legally make required deliveries at Whole Foods Market</li> <li>• U-turn opposite Whole Foods Market entrance allows drivers to return northbound along Fort Drive</li> <li>• 30 total street parking spaces, including 4 ADA spaces</li> <li>• Improved roadway signage throughout the site</li> </ul>
Pedestrian Features
<ul style="list-style-type: none"> <li>• Enhanced pedestrian spaces, including future pedestrian plaza near station entrance and landscaped center island</li> <li>• Shared multi-use path connects center island to Brandywine Street NW</li> <li>• Better disability access with curb cuts at crosswalks</li> <li>• Better sidewalk designs for easier pedestrian access</li> <li>• More green space and tree box landscaping</li> <li>• High visibility pedestrian crosswalks at intersections and mid-blocks</li> </ul>
Bicycle Features
<ul style="list-style-type: none"> <li>• Expanded and more secure bicycle storage near the station entrance</li> <li>• Large capacity Capital Bikeshare station near station entrance</li> <li>• Shared multi-use path connects center island to Brandywine Street, removing cyclists from road</li> <li>• Clearly marked sharrows along 40th Street, Fort Drive, and Albemarle Street NW</li> <li>• High visibility bicycle boxes at intersections</li> </ul>



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Figure 5-2 Final Alternative Illustrated Sections



## 5.1 Safety and Freight Delivery Improvements

In addition to the features described above, specific improvements to the site were made concerning safety and ease of access for delivery vehicles. These improvements are described in further detail below:

- Improved Safety at Albemarle Street NW Intersection:** The intersection at 40th Street and Fort Drive NW with Albemarle Street NW is realigned by removing the wide median to improve safety for the pedestrians and the vehicles. Currently, vehicles stop in the middle of the intersection, adjacent to the wide median, obstructing vehicle to pedestrian sight distance.
- Improved Pedestrian Flow Safety:** Safety for pedestrians moving through the site is further improved in two ways: reducing the crossing distance across both 40th Street NW and Fort Drive NW by way of the center island; and by installing a fence to separate the pedestrian plaza from the loading alley, preventing pedestrians from crossing into oncoming traffic.
- Ease of Access for Delivery Trucks:** The intersection at 40th Street and Brandywine Avenue is modified to accommodate the turning movement of a large truck (WB-62). With this improvement, Whole Foods Market delivery trucks can now drive northbound along Fort Drive NW, and safely and legally make the turn onto 40th Street southbound. Trucks can also continue south along 40th Street to Albemarle Street, even with the re-aligned roadways south of the u-turn.

## 5.2 AutoTurn Analysis

### Methodology

As with the refined alternatives, AutoTurn was used again to analyze vehicle movements within the project study area. In addition to car and bus movements, AutoTurn also analyzed movements for large tractor-trailers (WB-62) to ensure trucks can drive through the

study area without driving over any curbs (and safely make freight deliveries within the study area).

The AutoTurn standards used for analyzing truck movements are described below:

- Truck length: 69'
- Front cab length: 15'
- Trailer length: 48'
- Space between front cab and trailer: 6'
- Distance from front axle to first trailer axle: 19.5'
- Distance from first trailer axle to second trailer axle: 41'
- Turning radius: 45'

Refer to **Section 3.5** for AutoTurn car and bus standards.

As with buses, trucks also typically make their first move from a stop, where the truck has the tightest possible turning radius. After the first maneuver from a stop, the trucks are also assumed to drive continuously through the study area at 5 miles per hour (mph), with the vehicle's turning radius increasing as speed increases.

### AutoTurn Analysis Results

In the Final Alternative, cars and buses continue to operate in the study area without conflict (no change from the refined alternative). Additionally, the large WB-62 design truck is also capable of driving through the entire study area without hitting sidewalk curbs or parking stalls. The WB-62 truck can also make the "u-turn" from Fort Drive northbound to 40th Street southbound in one continuous motion.

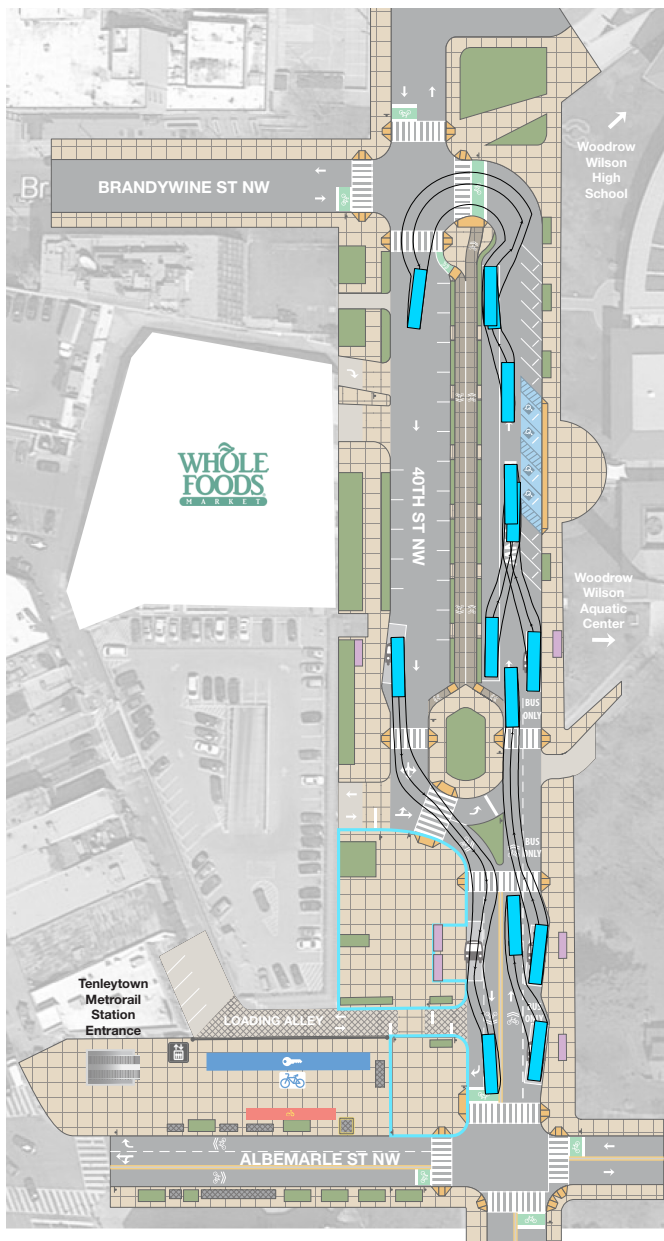
Regarding freight deliveries within the study area, the WB-62 truck can back into and pull out of the Whole Foods Market loading dock without hitting any curbs. However, 4 parallel parking stalls need to be vacant for the truck to perform this maneuver. Both the WB-62 and the city bus can maneuver southbound down Fort Drive without hitting any of the curbs or the parallel bus stop near the pedestrian plaza.



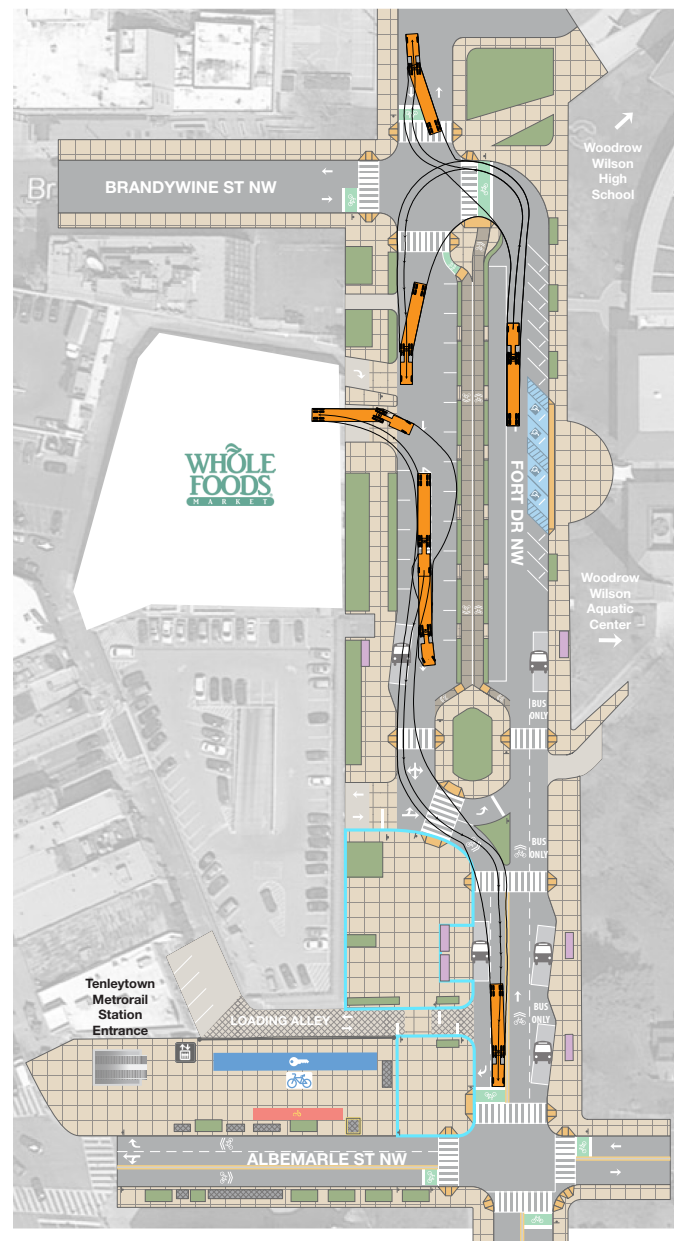
**Figure 5-3** and **Figure 5-4** identify the bus and truck movements, respectively, within the study area for the Final Alternative. As mentioned previously, the truck’s movement as it backs into the Whole Foods Market does cross over four of the parallel parking spaces along the east side of 40th Street NW. Adjusting parking rules for those spaces during freight delivery hours could reduce potential conflicts between trucks and parked cars, such as restrictions on overnight parking.

Buses and trucks may also safely pass by parked cars along Fort Drive NW, specifically larger vans parked in ADA spaces. An analysis of the bus and truck movements’ impacts on vehicles parked in ADA spaces may be found in **Appendix D**.

**Figure 5-3** Final Alternative Bus AutoTurn Analysis



**Figure 5-4** Final Alternative Truck AutoTurn Analysis



## 5.3 Traffic Impacts

The analysis shows that the modifications in the study area have a nominal impact on the traffic condition.

The improvements made to the study corridor that impact traffic include:

- Making 40th Street and Albemarle Street an all-way stop;
- Removing the median between 40th Street and Fort Drive; and
- Moving the u-turn location north, to be in-line with the Whole Foods Market parking deck exit

The traffic analysis was performed using SimTraffic, which analyzes the intersection as part of a network and not just as an individual entity. As in **Section 2.2**, the analysis looked at the same six intersections within the project study area to examine and measure LOS, as well as the same traffic queues along 40th Street, Fort Drive, and Albemarle Street near these intersections.

A summary of the results is provided below in this section, with the full analysis and results available in **Appendix G**.

### Intersection Level of Service

**Figure 5-5** on the following page below compares the existing conditions and Final Alternative AM and PM Peak period LOS for the intersections within the study area. All of the intersections either remain at the same LOS or improve during both the AM and PM Peak hours, with the exception of Wisconsin Avenue NW and Whole Foods Market Driveway, which degrades from LOS A to LOS B during the PM Peak hour.

The small variations in LOS are expected because a microscopic traffic analysis tool accounts for intersection-to-intersection interactions, i.e., any modification to one intersection will affect the traffic conditions at another intersection. The substantial LOS improvement at the intersection of Albemarle Street and 40th Street during the AM Peak hour

shows that realigning the intersection improves pedestrian safety in the study corridor as well as the traffic flow.

### Maximum Queues

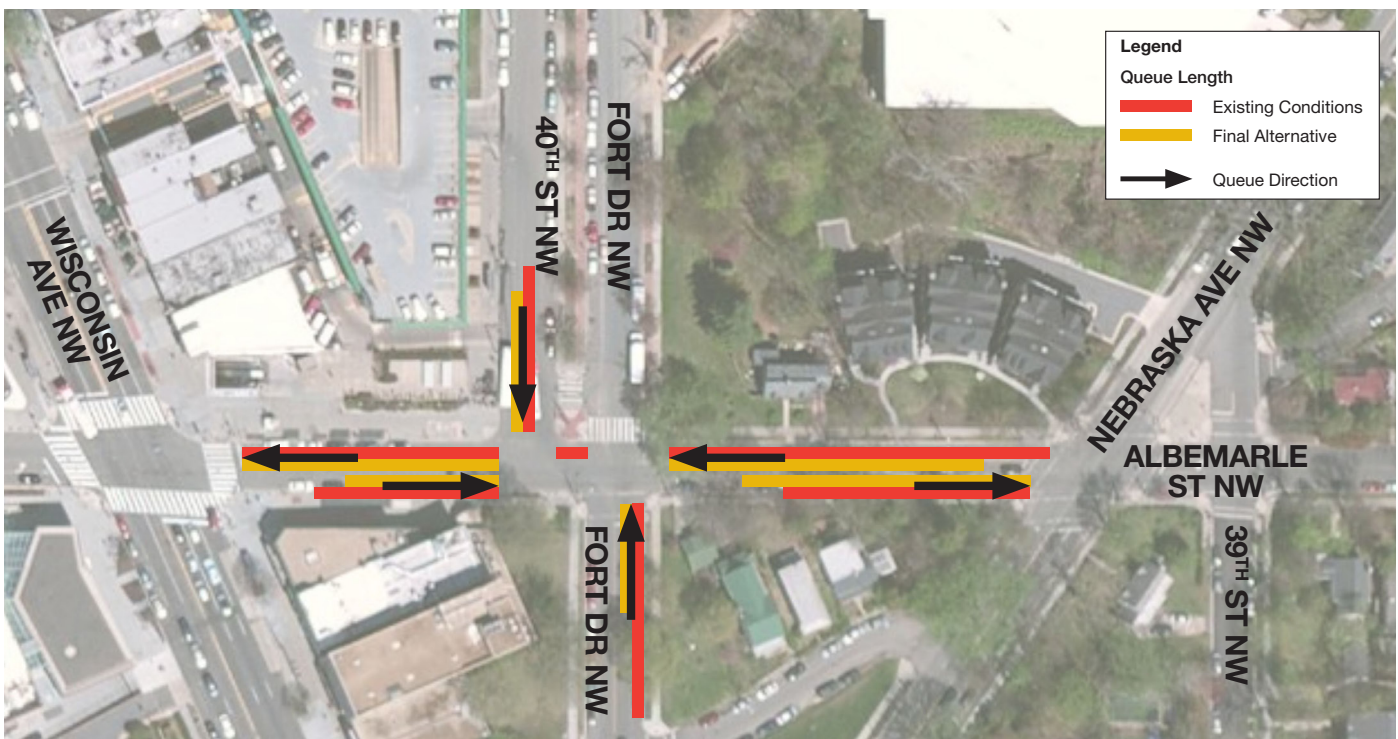
The analysis also examined the impact on maximum traffic queues, comparing changes from the existing conditions with the Final Alternative (see **Figure 5-6**). The results show that queue length was decreased at all approaches except at the eastbound approach of Albemarle Street with Nebraska Avenue NW. This is expected because additional traffic is added from the northbound and southbound approach at 40th Street. The addition of a four-way stop at Albemarle Street and 40th Street allows east-west traffic to stop, allowing north-south traffic from 40th Street to enter along Albemarle Street, and reducing queues associated with the northbound and southbound approaches. The queue in the median of 40th Street and Fort Drive disappears in the Build scenario because the median has been eliminated.



**Figure 5-5** Intersection Levels of Service within Station Area - Existing Conditions and Final Alternative



**Figure 5-6** Intersection Queues within Station Area - Existing Conditions and Final Alternative



## 5.4 Conceptual Capital Cost Summary

The cost values included in the conceptual level estimate for improvements are based on the Final Alternative Conceptual Site Plan for the Tenleytown – AU Station Access Study as of September 2016. The improvements include modifications to Fort Drive and 40th Street in order to create a pedestrian plaza and improve the pedestrian and bike circulation, the bus circulation, bus stop areas, and bus layover areas between Albemarle Street and Brandywine Street (see **Section 5**).

The cost estimate is presented as three scenarios:

- **Scenario #1:** Includes base improvements and impacts for up to 8 overhead utility poles without relocating the remaining overhead lines underground.
- **Scenario #2:** Includes base improvements (without impacts to any overhead utility poles) and assumes all the overhead lines are separately relocated underground along Fort Drive and 40th Street.

- **Scenario #3:** Includes base improvements (without impacts to any overhead utility poles) and assumes all the overhead lines are separately relocated underground along Fort Drive and 40th Street plus the overhead lines at the intersection of Albemarle Street/Fort Drive.

**Table 5-2** summarizes the estimated capital costs for each of the scenarios listed above, including construction costs and additional project costs. All costs are order of magnitude costs and do not include vehicle or right-of-way costs.

**Appendix H** contains the detailed cost estimates.

**Table 5-2** Conceptual Capital Cost Estimates Summary

Construction	Soft Costs**	Contingency (25%)	Engineering Overhead (15%)	Undergrounding Utilities***	Total
<b>Scenario 1 - Improvements + Relocated Impacted Utility Poles</b>					
\$4.9 M*	\$2.1 M	\$1.8 M	\$1.3 M	--	<b>\$10.1 M</b>
<b>Scenario 2 - Improvements + Undergrounding Utility (Low End)</b>					
\$3.4 M	\$1.5 M	\$1.2 M	\$1.0 M	\$8.1 M	<b>\$15.2 M</b>
<b>Scenario 3 - Improvements + Undergrounding Utility (High End)</b>					
\$3.4 M	\$1.5 M	\$1.2 M	\$1.0 M	\$9.6 M	<b>\$16.7 M</b>

Notes:

Costs are conceptual/order of magnitude.

Right-of-way costs are not included.

\* Includes \$1.5 M for relocation of up to 8 impacted overhead utility poles.

\*\* Soft Costs include Preliminary Engineering (10%), Mobilization (8%), Maintenance of Traffic (8%), Drainage (12%), and Landscaping (5%).

\*\*\* Number and type of overhead line is assumed at this point. Actual type, owner, and unit price to be confirmed at later stages of design.



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# Conclusions/ Recommendations and Next Steps

Tenleytown-AU  
Station Access Study  
Phase II

## Section 6



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## 6.0 CONCLUSIONS/RECOMMENDATIONS AND NEXT STEPS

### 6.1 Conclusions

The purpose of the Tenleytown Station Access Improvements Study was to develop a series of design concepts to enhance multimodal access to the station. Through multiple phases, extensive public and stakeholder engagement, and continued coordination between WMATA and DDOT, the project team has developed a recommended final conceptual design which achieves the goals of the study:

- Improve multimodal access;
- Enhance the public realm;
- Reduce vehicular conflicts; and
- Improve the transit customer’s waiting experience.

The Final Alternative balances the trade-offs between reduced surface parking near the station entrance with enhanced pedestrian, bicycle, and transit accessibility. By reprogramming the right-of-way (ROW) previously used for on-street parking, the final conceptual design is able to better distinguish and organize the other modes, which makes pedestrian, bicycle, and transit movements more predictable (i.e. safer) and more efficient through the project study area. The prioritization of the alternative modes (aside from private automobiles) is in line with WMATA’s Station Site and Access Planning Manual (SSAPM) access hierarchy<sup>1</sup> and consistent with an moderate-density, mixed-use, urban environment. Accommodations for pedestrians, transit users, and bicyclists encourage the continued utilization and growth of non-motorized travel and non-auto-oriented access to the Metrorail system, consistent with both WMATA’s and the District’s sustainability goals. In realigning the awkward geometry and providing intersection control at Fort Drive, 40th Street, and Albemarle Street NW, bus and auto travel, safety, and traffic operations in the immediate station area are improved. The Final Alternative also creates a unified parking program for the site; allowing for clearly marked parking spaces,

time limits, rates, and hours of restriction.

The upgraded public realm, including an expanded station plaza, street trees, and green space enhance the public realm and overall appeal of the station area. Specifically, the expanded station plaza presents an opportunity to create programmed elements that further define the space as the Tenleytown neighborhood focal point. Space programming will need to be coordinated with WMATA as existing underground infrastructure limits the feasibility of certain programmed elements. Additionally, the potential undergrounding of overhead utilities presents an opportunity to further connect and expand upon the public realm and parks infrastructure within the project study area.

### 6.2 Next Steps

The next phase of work would be to secure funding and continue the development of the Final Alternative with formal design and review.

- **Secure Funding** – Project sponsors to submit the project for inclusion in the District’s Capital Improvement Plan (CIP). Funding from federal and/or local programs and sources to be explored for the design and construction of the project.
- **Development Review** – DDOT’s Development Review Branch is charged with reviewing transportation projects and developer and zoning plans to ensure they are consistent with, and do not adversely impact, DDOT’s multimodal strategic objectives and the Transportation Element of the Comprehensive Plan.
- **Environmental Review** – The National Environmental Policy Act of 1969 (NEPA) requires that federally funded transportation projects assess the potential impacts of their actions on the human and natural environment. Similarly, DDOT projects are also subject to the District of Columbia Environmental Policy Act (DCEPA). In order to advance the proposed transit and street

<sup>1</sup>Station Site and Access Planning Manual, Washington Metropolitan Area Transit Authority, 2008.  
<https://www.wmata.com/pdfs/planning/Station%20Access/SSAPM.pdf>



improvements using federal and/or local funds, the appropriate level of environmental review must be undertaken. Determining the appropriate level of environmental review includes a preliminary step of gathering environmental information about the human and natural resources in the project study area. Continuing coordination with relevant federal, District, and local agencies will be necessary to verify further need for studies, surveys, permit types, and clearances.

- **Finalize ROW Easement Agreement Between WMATA and DDOT** – In order for the improvements to be completed, a formal agreement is required allowing for DDOT to take over control of WMATA owned ROW for the construction of the project.
- **Preliminary Engineering and Final Design**
  - Preliminary Engineering includes analysis and design work for the preferred alternative to produce 30 percent construction plans, specifications, and refined cost estimates. Final Design includes the preparation of final construction plans and detailed specifications for the performance of the construction work.
- **Coordination with Local Community Groups and Stakeholders** – As the project moves forward, ongoing coordination between DDOT, WMATA and local community groups and stakeholders is necessary to ensure that project implementation is successful. Local community groups, such as Tenleytown Main Street, will have a central role in determining the key programming elements of the expanded public plaza area outside of the station entrance.



# Appendices



Tenleytown-AU  
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Phase II





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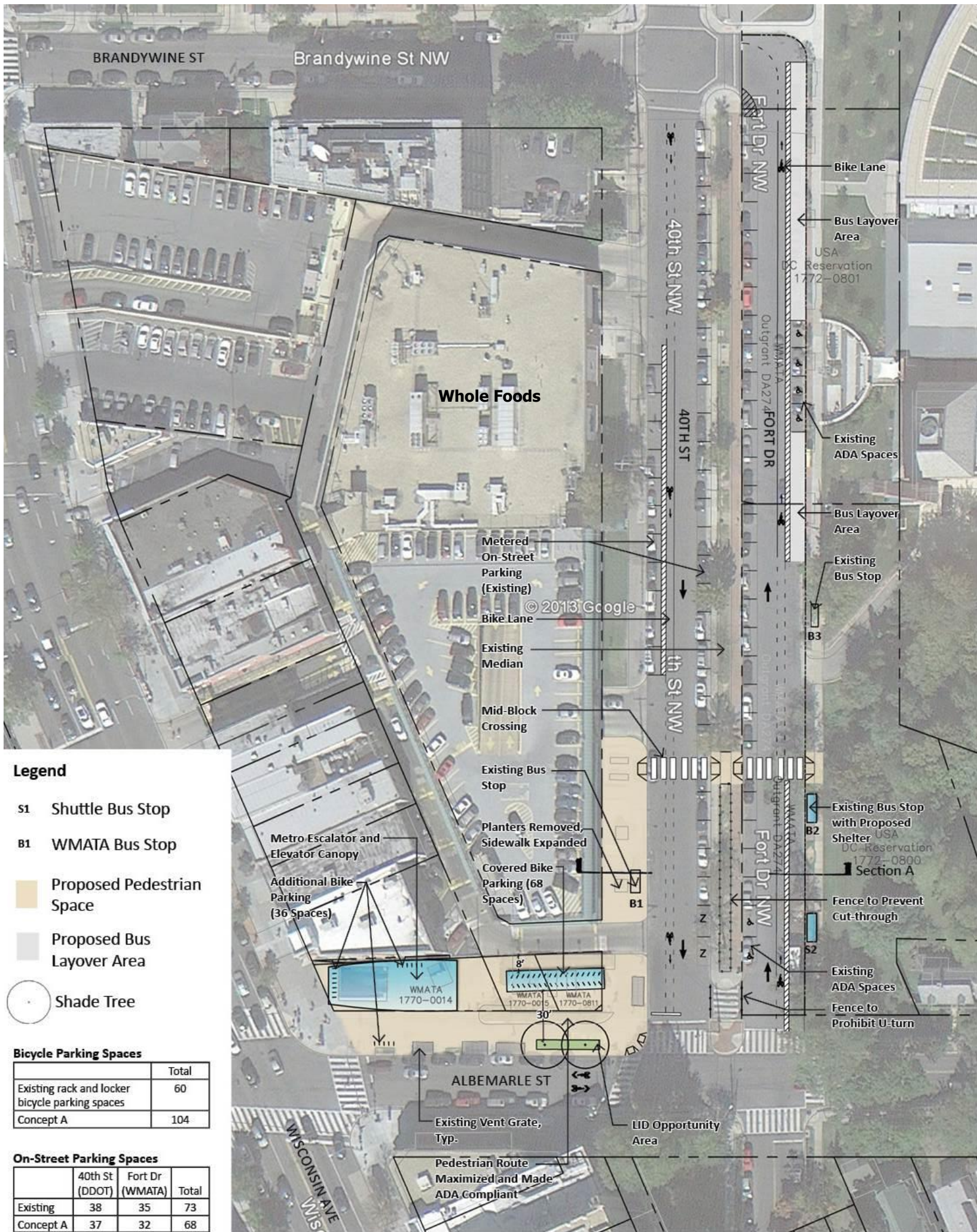


## Appendix A: PHASE I DESIGN CONCEPTS

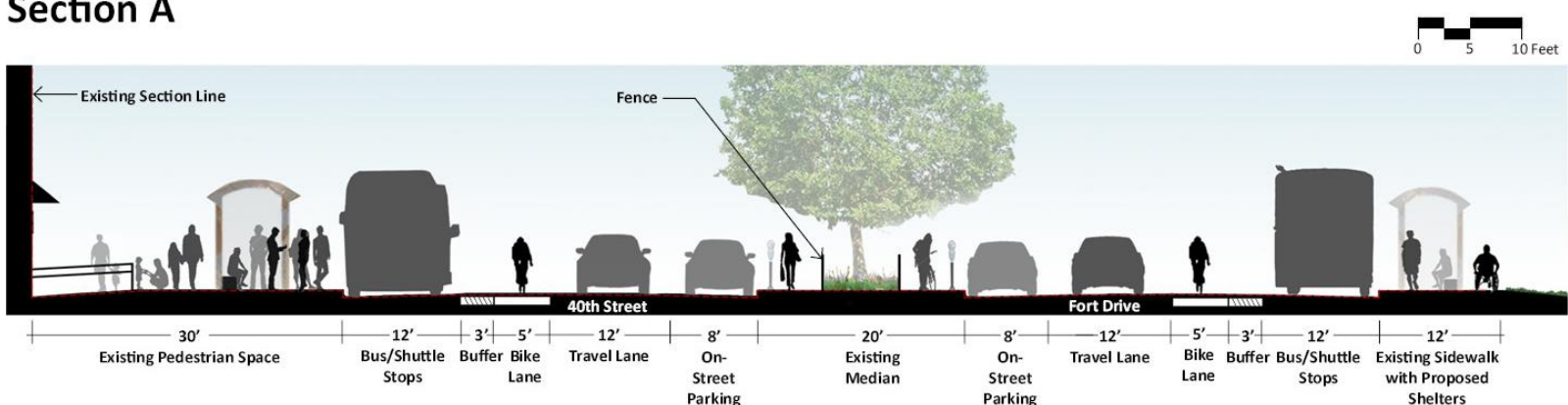


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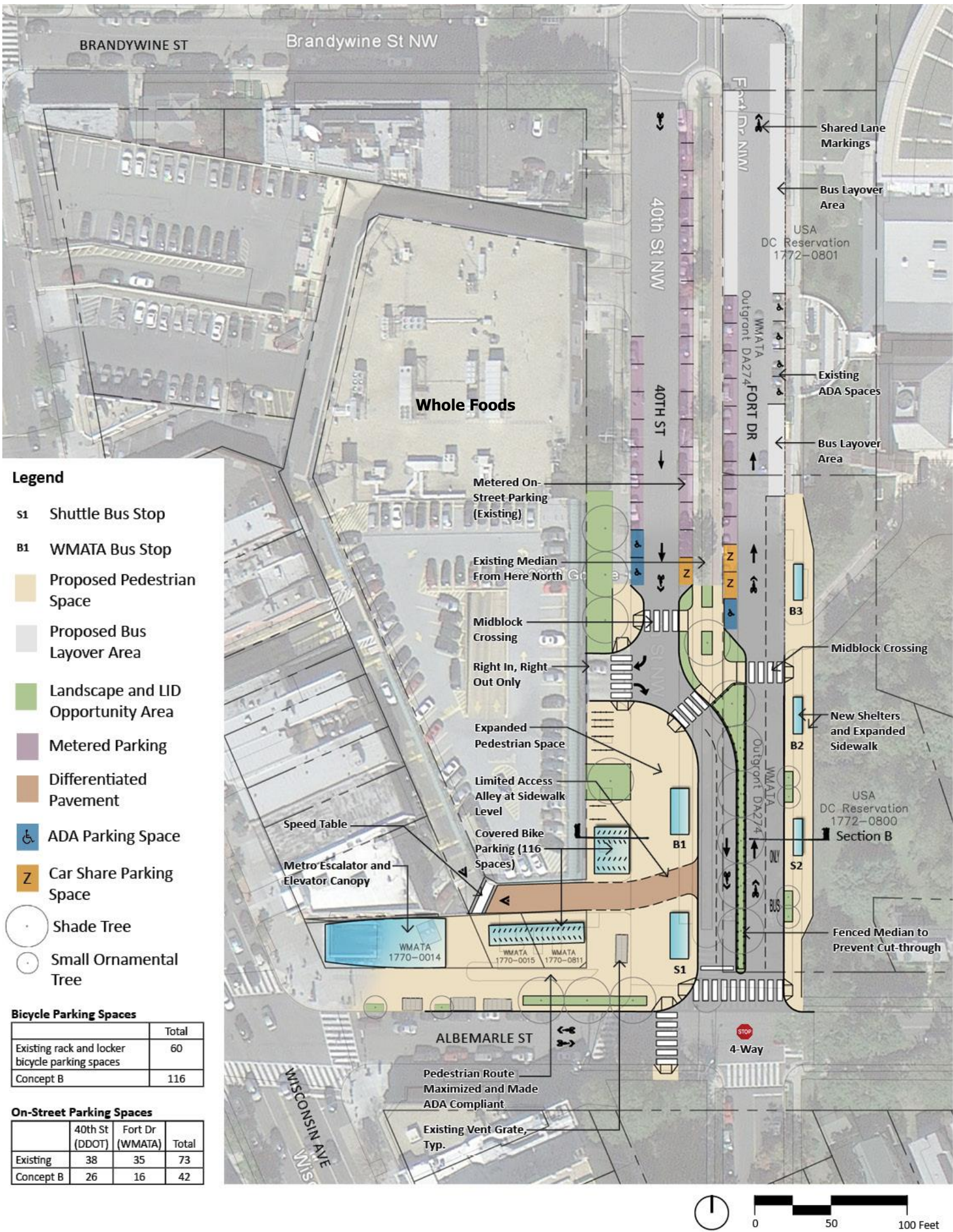




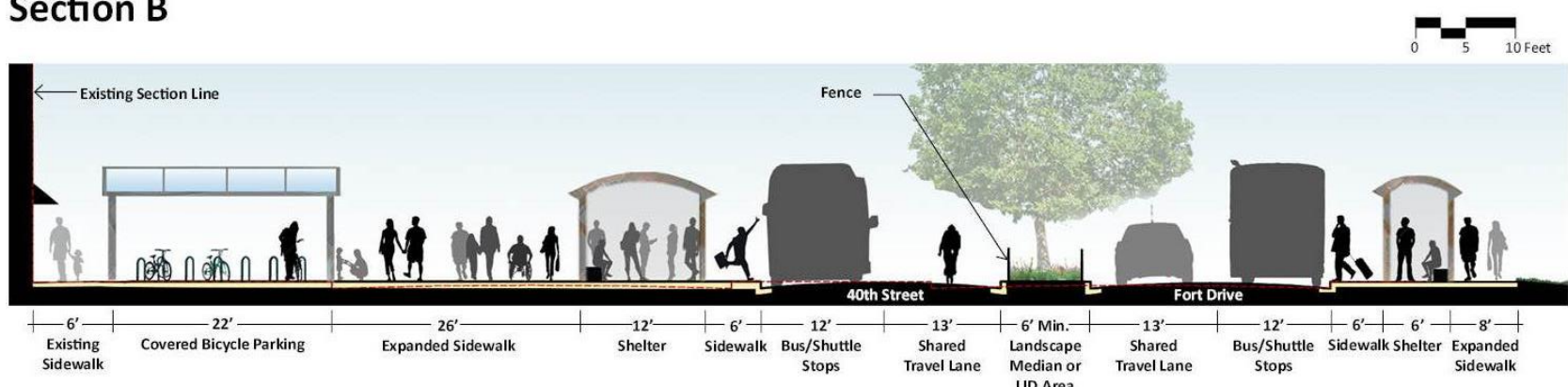
Section A



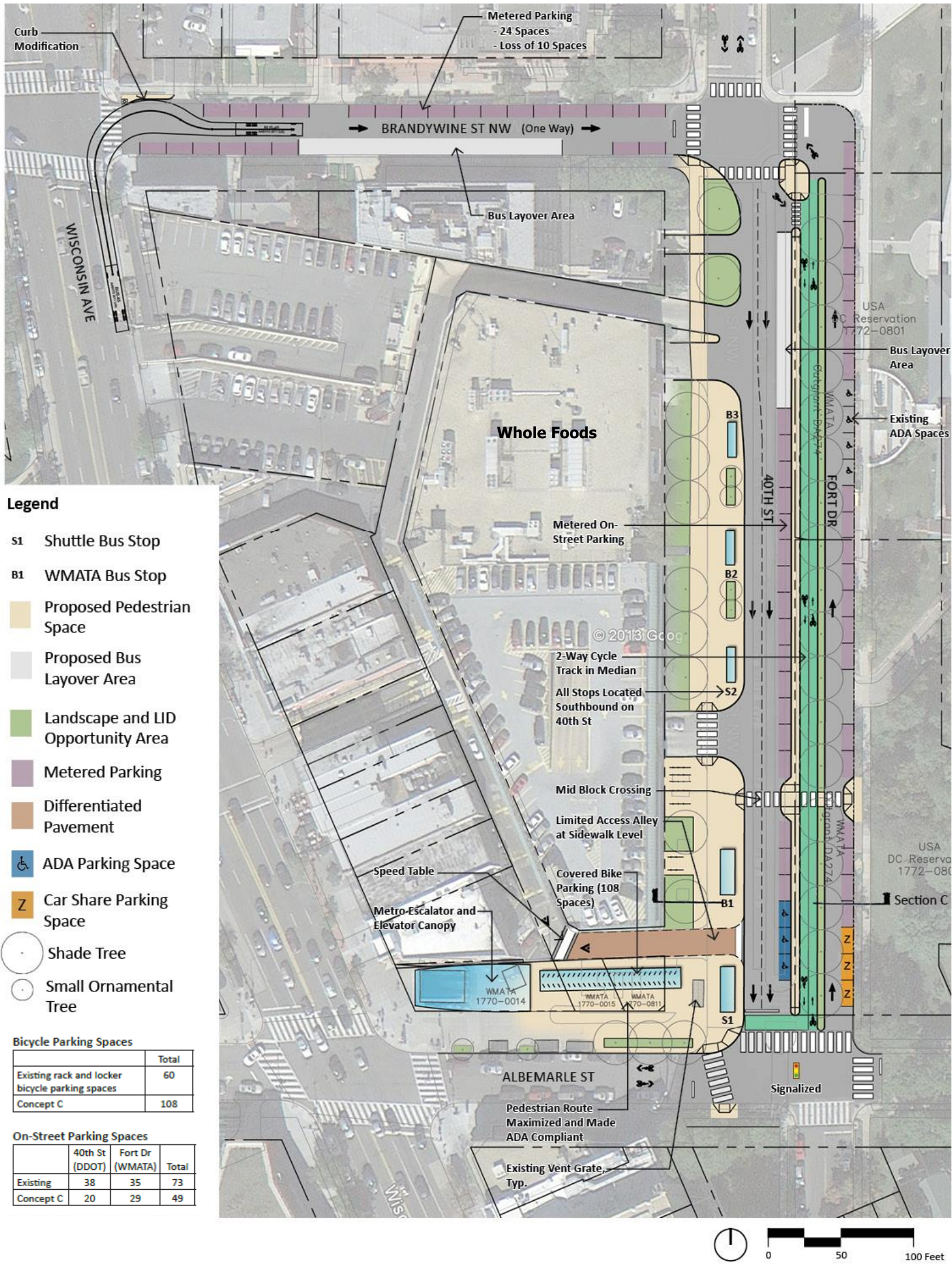




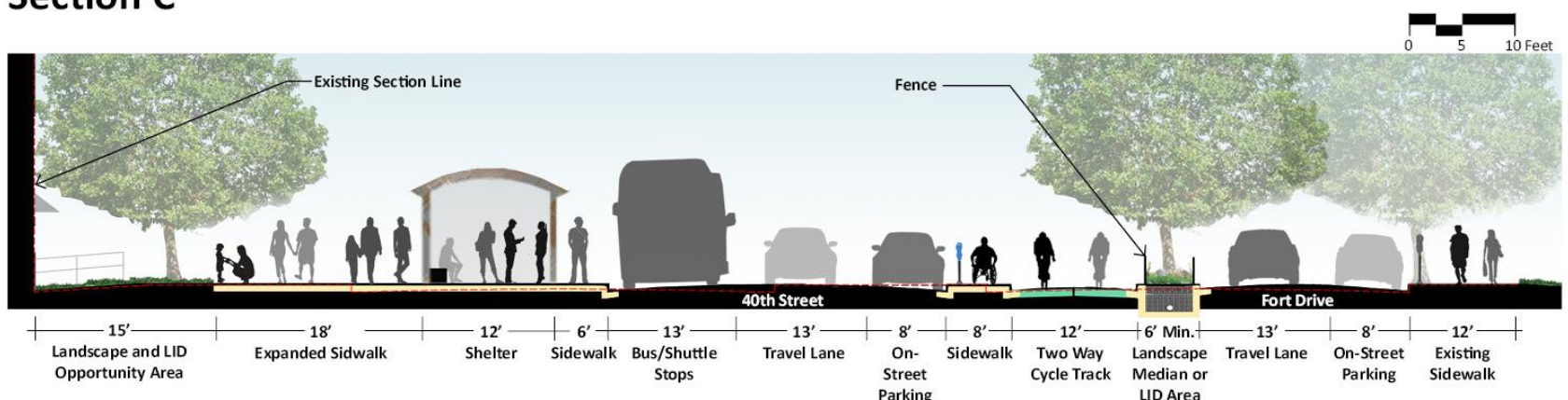
**Section B**







### Section C





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## Appendix B: PARKING DEMAND ANALYSIS



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**Tenleytown-AU Station Access Improvements Study  
Technical Memorandum #1: Parking Demand Analysis**

**Purpose:**

The purpose of this technical memorandum is to document the current parking needs and utilization of the on-street Kiss & Ride and DDOT Metered parking spaces adjacent to the Tenleytown Station entrance along Albemarle Drive, Fort Drive, and 40<sup>th</sup> Street in order to recommend a unified parking policy for the station area.

Specific tasks involved in the demand analysis include:

- Perform and Parking Space Inventory;
- Document the existing on-street parking utilization rates for weekday peak periods and Saturday mid-day;
- Observe parking behaviors during the weekday peak periods and Saturday mid-day;
- Document the supply of other parking spaces within 1/4 mile of the study area; and
- Determine the required number of WMATA Kiss & Ride spaces using the guidelines documented in the “Station Site and Access Planning Manual”.

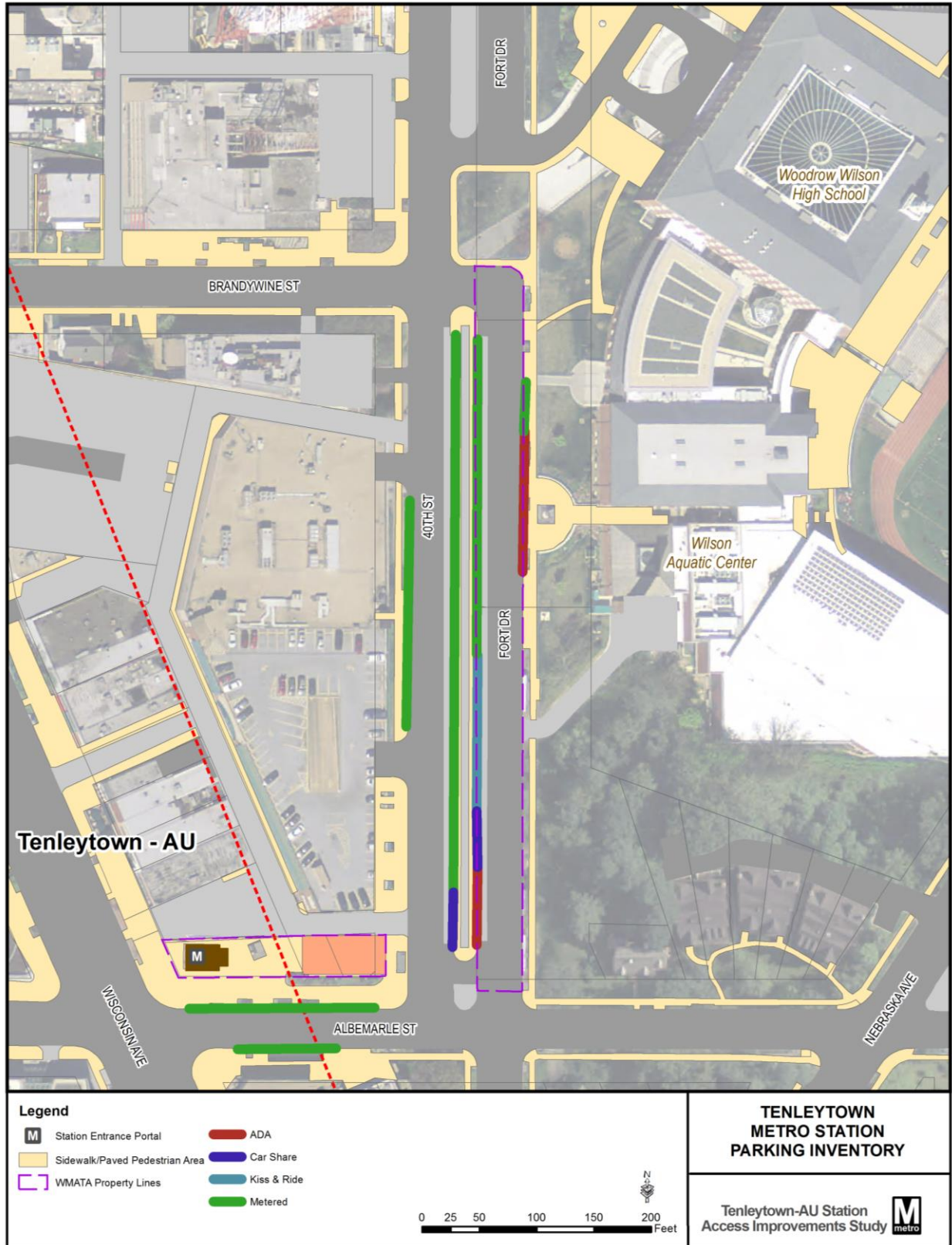
**Tenleytown-AU Station Access Improvements Study  
Technical Memorandum #1: Parking Demand Analysis**

**Parking Space Inventory:**

Street	Left or Right Side	Type of Parking	# Spaces	Rules or Restrictions	Rate (\$/hour)
<b>Fort Drive – 29 Total</b>	East Curb	ADA	4 – no sign indicating ADA		
		Car Share	0		
		Kiss & Ride	0		
		Metered Long-Term	2	7 Hr Max 8:30 AM – 3:30 PM 7:00 PM – 2:00 AM; 15 Min Standing all other times	\$1.00/hr Free on Weekends
	West Curb	ADA	2		
		Car Share	2		
		Kiss & Ride	8		
		Metered Long-Term	11	7 Hr Max 8:30 AM – 3:30 PM 7:00 PM – 2:00 AM; 15 Min Standing all other times	\$1.00/hr Free on Weekends
<b>40<sup>th</sup> Street – 36 Total</b>	East Curb	ADA	0		
		Car Share	1		
		Kiss & Ride	0		
		Metered Long-Term	26	4 Hr Max 7:00 AM – 6:30 PM	\$2.00/hr Free on Sundays
	West Curb	ADA	0		
		Car Share	0		
		Kiss & Ride	0		
		Metered Long-Term	10	2 Hr Max 7:00 AM – 6:30 PM	\$2.00/hr Free on Sundays
<b>Albemarle Street – 11 Total</b>	North Curb	ADA	0		
		Car Share	0		
		Kiss & Ride	0		
		Metered Long-Term	7	2 Hr Max 9:30 AM – 3:00 PM	\$2.00/hr Free on Sundays
	South Curb	ADA	0		
		Car Share	0		
		Kiss & Ride	0		
		Metered Long-Term	4	2 Hr Max 9:30 AM – 3:00 PM	\$2.00/hr Free on Sundays
		Loading	1	Off-peak Only	



Tenleytown-AU Station Access Improvements Study  
 Technical Memorandum #1: Parking Demand Analysis



**Tenleytown-AU Station Access Improvements Study  
Technical Memorandum #1: Parking Demand Analysis**

**Utilization Rates:**

Parking data and utilization was collected on Saturday, March 21, 2015 – Midday (11 AM – 2PM) and Tuesday, March 24, 2015 – AM Peak (6:30 – 9:30 AM), Midday (11 AM – 2 PM), and PM Peak (3:30 – 6:30 PM).

**Weekday AM Peak Period**

Weekday AM	Fort Drive			40th Street		
Time	Total Spaces	Total Spaces Occupied	Utilization %	Total	Total Occupied	Utilization %
6:30 AM	29	14	48%	36	18	50%
6:45 AM	29	13	45%	36	21	58%
7:00 AM	29	16	55%	36	16	44%
7:15 AM	29	18	62%	36	13	36%
7:30 AM	29	20	69%	36	12	33%
7:45 AM	29	20	69%	36	14	39%
8:00 AM	29	19	66%	36	16	44%
8:15 AM	29	16	55%	36	19	53%
8:30 AM	29	21	72%	36	25	69%
8:45 AM	29	22	76%	36	29	81%
9:00 AM	29	22	76%	36	28	78%
9:15 AM	29	25	86%	36	28	78%

Weekday AM Peak Period parking utilization rates peak at around 86%, with the rates rising through the peak period. Observations confirmed that the on-street parking spaces begun to fill in towards the end of the peak period. Overall, the parking on Fort Drive is more utilized than on 40<sup>th</sup> Street through the morning period. Many parkers were observed coming from/going to the aquatic center during the morning.

**Weekday Mid-Day**

Weekday Mid-Day	Fort Drive			40th Street		
Time	Total Spaces	Total Spaces Occupied	Utilization %	Total	Total Occupied	Utilization %
11:00 AM	29	23	79%	36	32	89%
11:15 AM	29	22	76%	36	28	78%
11:30 AM	29	23	79%	36	22	61%
11:45 AM	29	22	76%	36	21	58%
12:00 PM	29	23	79%	36	22	61%
12:15 PM	29	24	83%	36	25	69%
12:30 PM	29	24	83%	36	29	81%
12:45 PM	29	25	86%	36	31	86%
1:00 PM	29	24	83%	36	29	81%
1:15 PM	29	24	83%	36	29	81%
1:30 PM	29	22	76%	36	26	72%
1:45 PM	29	23	79%	36	23	64%

**Tenleytown-AU Station Access Improvements Study  
Technical Memorandum #1: Parking Demand Analysis**

Weekday Mid-Day parking utilization rates peak at around 89%. Parking rates along Fort Drive are generally higher than on 40<sup>th</sup> Street. Most drivers utilize the parking spots along the couplet to access the retail destinations along Wisconsin Avenue.

**Weekday PM Peak Period**

Weekday PM Time	Fort Drive			40th Street		
	Total Spaces	Total Spaces Occupied	Utilization %	Total	Total Occupied	Utilization %
3:30 PM	29	21	72%	36	25	69%
3:45 PM	29	22	76%	36	22	61%
4:00 PM	29	24	83%	36	21	58%
4:15 PM	29	25	86%	36	29	81%
4:30 PM	29	31	107%	36	35	97%
4:45 PM	29	28	97%	36	34	94%
5:00 PM	29	25	86%	36	35	97%
5:15 PM	29	26	90%	36	34	94%
5:30 PM	29	26	90%	36	33	92%
5:45 PM	29	24	83%	36	35	97%
6:00 PM	29	27	93%	36	34	94%
6:15 PM	29	25	86%	36	34	94%

Weekday PM Peak Period parking utilization rates peak at around 107%. Parking utilization is about evenly split between 40<sup>th</sup> Street and Fort Drive. Observations confirmed the heavy utilization rates of the on-street parking during the PM peak period. Many spaces were observed being used for drop-off/pick-up activities for the Metro as well as Wilson High School and the Wilson Aquatic Center. In addition, many cars were observed illegally parked or waiting along the curb on Fort Drive closest to the high school for pick-up activities.

**Weekend Mid-Day**

Saturday Mid-Day Time	Fort Drive			40th Street		
	Total Spaces	Total Spaces Occupied	Utilization %	Total	Total Occupied	Utilization %
11:00 AM	29	19	66%	36	32	89%
11:15 AM	29	18	62%	36	33	92%
11:30 AM	29	16	55%	36	33	92%
11:45 AM	29	18	62%	36	29	81%
12:00 PM	29	18	62%	36	26	72%
12:15 PM	29	16	55%	36	32	89%
12:30 PM	29	14	48%	36	34	94%
12:45 PM	29	14	48%	36	32	89%
1:00 PM	29	18	62%	36	31	86%
1:15 PM	29	19	66%	36	27	75%
1:30 PM	29	19	66%	36	25	69%
1:45 PM	29	19	66%	36	29	81%



**Tenleytown-AU Station Access Improvements Study  
Technical Memorandum #1: Parking Demand Analysis**

Weekend Mid-Day parking utilization rates peak at around 94% for the spaces along 40<sup>th</sup> Street, however have a lower rate at around 66% along Fort Drive. This may be due to unclear parking regulations for the WMATA parking spaces on Fort Drive or due to the close proximity of the retail destinations to the spaces on 40<sup>th</sup> Street.

**Observations for 40<sup>th</sup> Street, Fort Drive, and Albemarle Street:**

Parking and curb activities were observed for the AM and PM peak periods on April 16, 2015 (8:00 – 9:00 AM, 4:30 – 5:30 PM), April 21, 2015 (4:00 – 5:00 PM), and April 23, 2015 (8:00 – 9:00 AM). The following summarize the main observations witnessed during the peak periods.

**AM Peak Period:**

- School Drop-offs along Fort Drive
- Kiss & Ride spaces full – no occupants waiting
- Parking began to fill up more after 9:00 AM.
- Parking restrictions generally not enforced, particularly for Kiss & Ride spaces
- Parking and Standing in No-Parking Areas along Fort Drive and Albemarle Street
- Metrobus laying over in metered parking spaces along 40<sup>th</sup> Street
- A few drop-off and pick-ups near Metro entrance
- Kiss & Ride activities along Albemarle Street
  - Cars standing/waiting
  - DoD Shuttle Drop-off

**Table 1: AM Fort Drive (WMATA) Metered Parking Occupied Metered Times**

Durations	Observation (April 23)
<b>Expired</b>	7
<b>1-30 Minutes</b>	1
<b>30-60 Minutes</b>	0
<b>60+ Minutes</b>	0

**PM Peak Period:**

- Kiss & Ride spaces full – no occupants waiting
- Vehicles waiting for school pick-ups along Fort Drive
- Illegally parked cars along curb on Fort Drive near the school and off-peak only spots on Albemarle Street
  - Shuttle parked on north curb
  - Kiss & Ride activity on north curb

**Table 2: PM Fort Drive (WMATA) Metered Parking Occupied Metered Times**

Durations	Observation #1 (April 16)	Observation #2 (April 21)
<b>Expired</b>	6	7
<b>1-30 Minutes</b>	2	1
<b>30-60 Minutes</b>	1	2
<b>60+ Minutes</b>	2	1

# Tenleytown-AU Station Access Improvements Study Technical Memorandum #1: Parking Demand Analysis

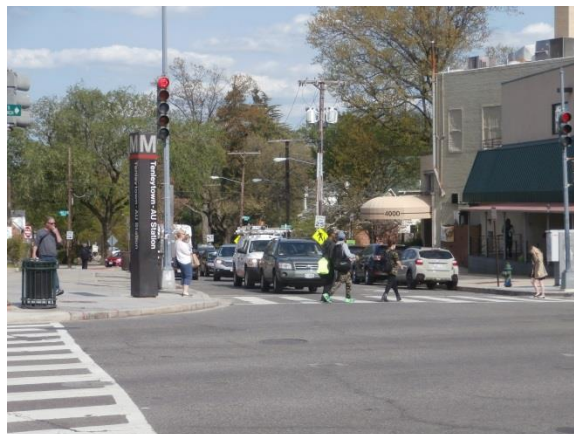
Figure 1: Vehicles illegally parked on Fort Drive



Figure 2: Drop-off/Pick-up activity along Albemarle Street



Figure 3: Illegally parked cars in off-peak peak period parking on Albemarle Street during Peak Hours



# Tenleytown-AU Station Access Improvements Study Technical Memorandum #1: Parking Demand Analysis

Figure 4: Faded signed WMATA parking regulations



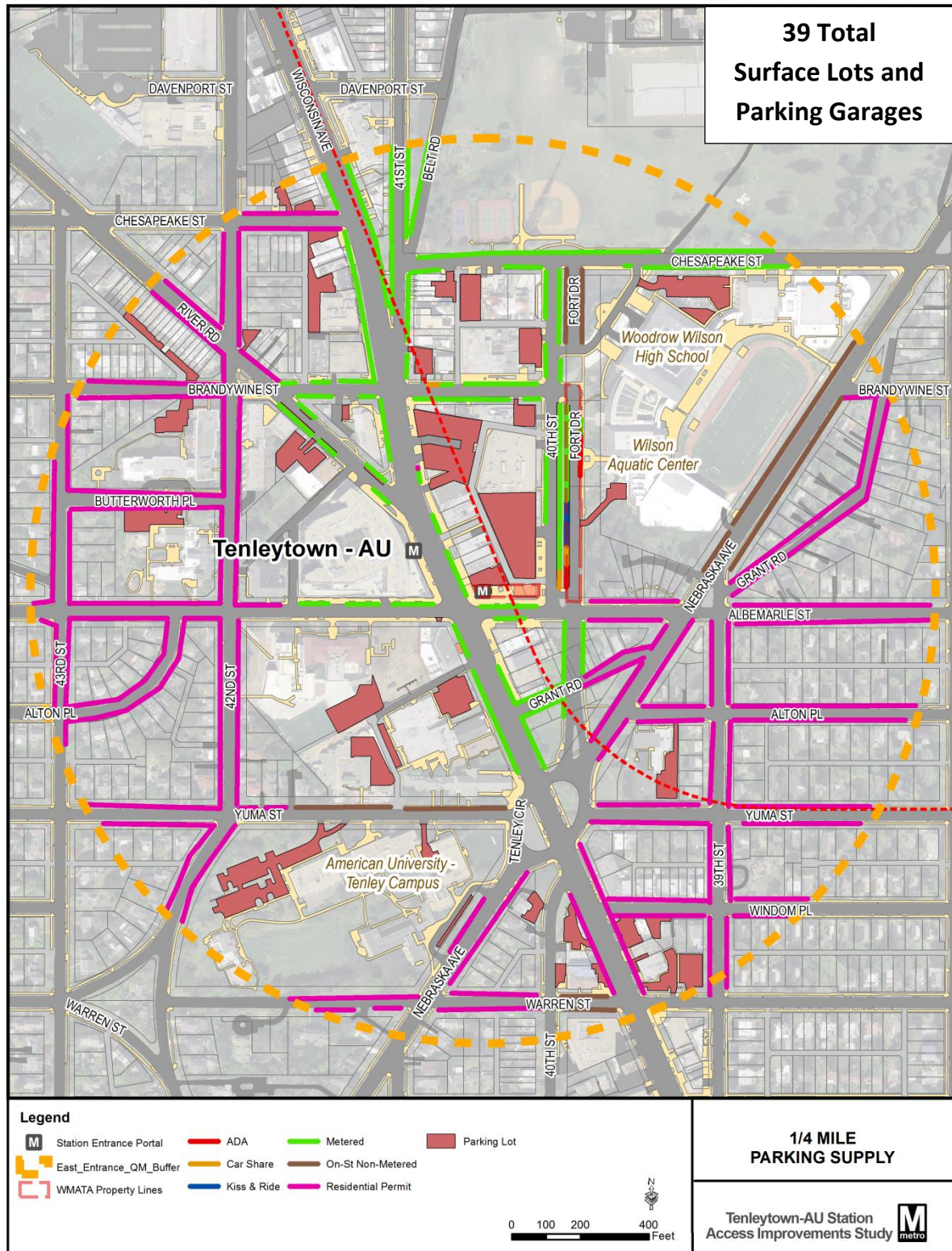
Figure 5: Separate parking regulations between WMATA-Fort Drive (left) and DDOT-40<sup>th</sup> Street (right) parking





Tenleytown-AU Station Access Improvements Study  
 Technical Memorandum #1: Parking Demand Analysis

Supply of Parking within ¼ Mile of Station:



**Tenleytown-AU Station Access Improvements Study  
Technical Memorandum #1: Parking Demand Analysis**

Type	Approximate # Spaces*
<b>Metered**</b>	340
<b>Residential</b>	1,050
<b>On-Street Non-Metered</b>	120
<b>Private Parking Lots and Garages</b>	39 Lots or Garages

\*Assumed 20 feet of curb length per space

\*\*Excludes parking on Fort Drive, 40<sup>th</sup> Street, and Albemarle Street

The supply of parking within ¼ mile of the station entrance was documented in order to gain an understanding of the total parking supply within close proximity of the Tenleytown Metro Station. Most parking within the ¼ mile is reserved for residential permits. However, there is significant metered parking located closest to the station and the retail hub of Tenleytown. In addition, there are approximately 39 parking lots or garages within ¼ mile of the station available for the various retail, institutional, and residential uses in the study area, including a large garage adjacent to the Whole Foods and retail strip on Wisconsin Avenue.

### Comparison to Other Station Areas:

A comparison of the parking supply in the immediately adjacent station area was completed with other Metro station areas with similar ridership and station areas for context. Station areas for comparison include:

- Friendship Heights
- Van Ness-UDC
- Cleveland Park
- Court House

Station Area	Ridership	On-Street Parking	Kiss & Ride	Car Share	Other
<b>Tenleytown</b>	15,725	Metered Spaces (60) Off-peak parking on Wisconsin Ave	8	3	Pay Parking Garage
<b>Friendship Heights</b>	18,572	Off-peak parking on Wisconsin Ave	0	N/A	Bus Facility
<b>Van Ness-UDC</b>	12,911	Off-peak parking on Connecticut Ave	0	N/A	N/A
<b>Cleveland Park</b>	8,601	Metered Spaces (8)	0	5	Pay Parking Lot
<b>Court House</b>	15,359	Metered Spaces (33)	0	3	Taxi Stand (5) Pay Parking Lot

**Tenleytown-AU Station Access Improvements Study  
Technical Memorandum #1: Parking Demand Analysis**

**Findings:**

The Parking Demand Study findings will inform the Alternatives Refinement and Development phase in determining the appropriate level of parking needed at the site, as well as the overall policy for the available spaces, including: time limits, parking rates, and hours of restriction.

Overall, the parking utilization on 40th Street and Fort Drive is high, particularly during the mid-day and evening peak hours. However, the spaces are not strictly enforced, which has led to illegal parking and curb activities and over-extended parking durations. Many drivers use the specific WMATA parking spaces on Fort Drive as regular on-street parking to access the retail or community facilities adjacent to the study area, as opposed to using the spaces for Metro related activities. Additionally, the different parking regulations between the WMATA and DDOT owned spaces may be confusing to drivers and are not well signed.



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## Appendix C: UTILITY SCAN

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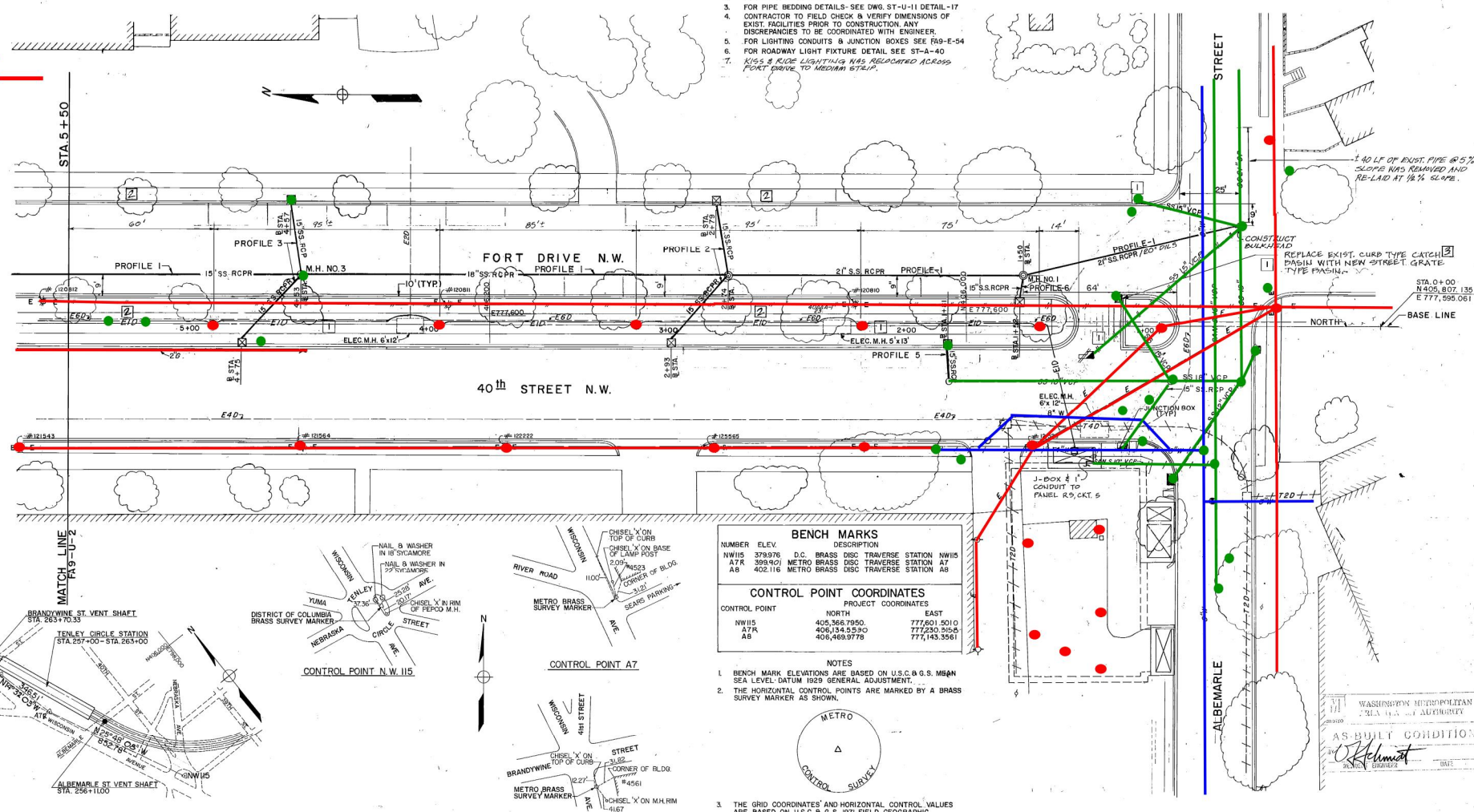


**Legend**

- Water —
- Sewer —
- Gas/Electric —

**NOTES**

1. FOR MANHOLE DETAILS-SEE DWG. ST-U-12 DETAIL-1
2. FOR CATCH BASIN DETAILS-SEE DWG. ST-U-11 DETAIL-15
3. FOR PIPE BEDDING DETAILS-SEE DWG. ST-U-11 DETAIL-17
4. CONTRACTOR TO FIELD CHECK & VERIFY DIMENSIONS OF EXIST FACILITIES PRIOR TO CONSTRUCTION. ANY DISCREPANCIES TO BE COORDINATED WITH ENGINEER.
5. FOR LIGHTING CONDUITS & JUNCTION BOXES SEE FA9-E-54
6. FOR ROADWAY LIGHT FIXTURE DETAIL SEE ST-A-40
7. KISS & RIDE LIGHTING WAS RELOCATED ACROSS PORT DRIVE TO MEDIAN STRIP.



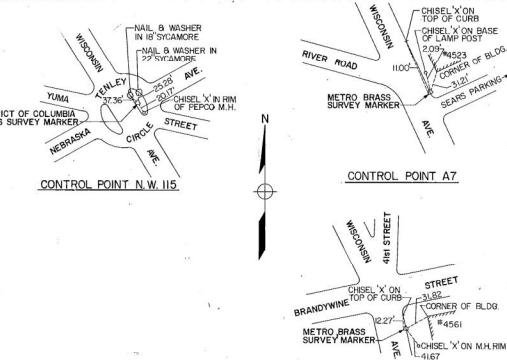
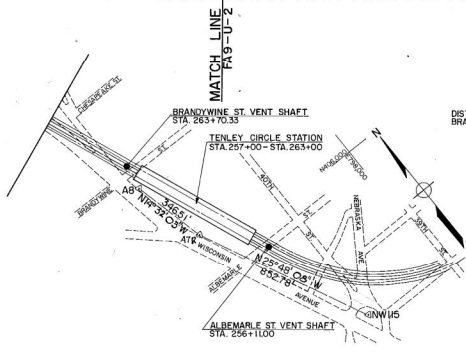
BENCH MARKS	
NUMBER	ELEV. DESCRIPTION
NW15	379.976 D.C. BRASS DISC TRAVERSE STATION NW15
A7	389.907 METRO BRASS DISC TRAVERSE STATION A7
AB	402.116 METRO BRASS DISC TRAVERSE STATION AB

CONTROL POINT COORDINATES		
CONTROL POINT	PROJECT COORDINATES	
	NORTH	EAST
NW15	405,366.7950	777,601.5010
A7	406,134.5590	777,230.5058
AB	405,469.9779	777,143.3561

- NOTES**
1. BENCH MARK ELEVATIONS ARE BASED ON U.S.C. & G.S. MGSN SEA LEVEL DATUM 1929 GENERAL ADJUSTMENT.
  2. THE HORIZONTAL CONTROL POINTS ARE MARKED BY A BRASS SURVEY MARKER AS SHOWN.

3. THE GRID COORDINATES AND HORIZONTAL CONTROL VALUES ARE BASED ON U.S.C. & G.S. 1971 FIELD GEOGRAPHIC POSITIONS AND COORDINATE VALUES



WASHINGTON METROPOLITAN AREA TRANSIT AUTHORITY  
 AS BUILT CONDITION  
 DATE: \_\_\_\_\_

DESIGNED		DATE		REFERENCE DRAWINGS		DATE		REVISIONS	
J. PARKER	9-4-73	FA9-U-3	1-23-81	PROFILES 1, 2, 3, 4 & 5	1	REMOVED LIGHT POLES & EID, RELOCATED EID & LIGHT POLE & ADDED NOTE FOR CATCH BASIN AS PER P.C.O. #1			
L. COTA	9-4-73	ST-U-14	9-14-70	ABBREVIATIONS & SYMBOLS	2	DELETE & RELOCATED EID PER P.C.O. #2			
J. PARKER	10-8-73	FA9-SP-1	9-14-70	SURVEY PLOTS		ADD CATCH BASIN NOTE PER P.C.O. #3			
J. PARKER	10-8-73	FA9-P-1		PAVING AND RESTORATION					
J. PARKER	10/1/74	FA9-E-54		AREA LIGHTING PLAN					

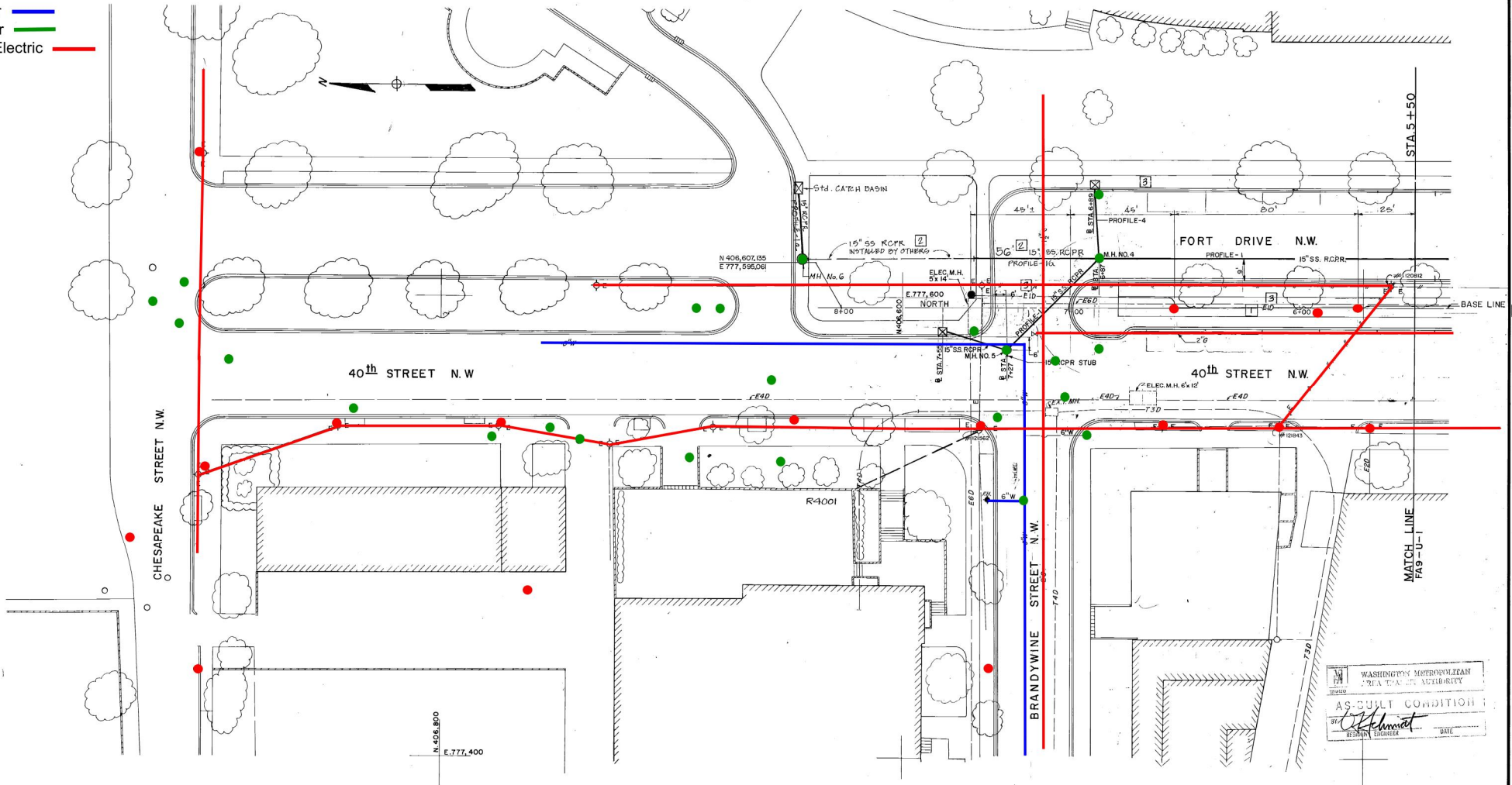
**WASHINGTON METROPOLITAN AREA TRANSIT AUTHORITY**  
 PARSONS ASSOCIATES  
 THE RALPH M. PARSONS COMPANY  
 SECTION DESIGNER  
 SUBMITTED BY: *Margaret S. Munn*

**WASHINGTON METROPOLITAN AREA TRANSIT AUTHORITY**  
 DE LEUW, CATHY & COMPANY  
 GENERAL ENGINEERING CONSULTANT  
 HARRY WEISE & ASSOCIATES  
 GENERAL ARCHITECTURAL CONSULTANT  
 APPROVED: *K. H. H. H.*

**ROCKVILLE ROUTE**  
 UTILITIES - COMPOSITE  
 TENLEY, CIRCLE, KISS & RIDE PARKING AREA  
 SCALE: 1" = 20'  
 DRAWING NO: FA9-U-1  
 M230-I5

**Legend**

- Water —
- Sewer —
- Gas/Electric —



WASHINGTON METROPOLITAN AREA TRANSIT AUTHORITY  
 AS-BUILT CONDITION  
 BY: *[Signature]*  
 RESIDENT ENGINEER DATE

DESIGNED	J. PARKER	9-4-73
DRAWN	L. COTA	9-4-73
CHECKED	J. PARKER	10-8-73
APPROVED	<i>[Signature]</i>	10/1/73

REFERENCE DRAWINGS	
NUMBER	DESCRIPTION
FA9-U-3	PROFILES 1, 2, 3, 4 & 5
ST-1-14	ABBREVIATIONS & SYMBOLS
FA9-SP-2	SURVEY PLOTS
FA9-P-2	PAVING AND RESTORATION
FA9-E-54	AREA LIGHTING PLAN

REVISIONS	
DATE	DESCRIPTION
1-23-81	REMOVED EID AS PER P.C.O.#1
9/17/80	EXTENSION OF 15" SS. R.C.P.R. TO 49'
11/17/80	RELOCATED EID, PER AS-BUILT



**WASHINGTON METROPOLITAN AREA TRANSIT AUTHORITY**

**PARSONS ASSOCIATES**  
 THE RALPH M. PARSONS COMPANY  
 SECTION DESIGNER  
 SUBMITTED BY: *[Signature]*

**DE LEUW, CATHER & COMPANY**  
 GENERAL ENGINEERING CONSULTANT

**HARRY WEISE & ASSOCIATES**  
 GENERAL ARCHITECTURAL CONSULTANT

APPROVED: *[Signature]*

**ROCKVILLE ROUTE**  
 UTILITIES-COMPOSITE  
 TENLEY CIRCLE, KISS & RIDE PARKING AREA

SCALE: 1" = 20'

DRAWING NO. FA9-U-2 M230-16



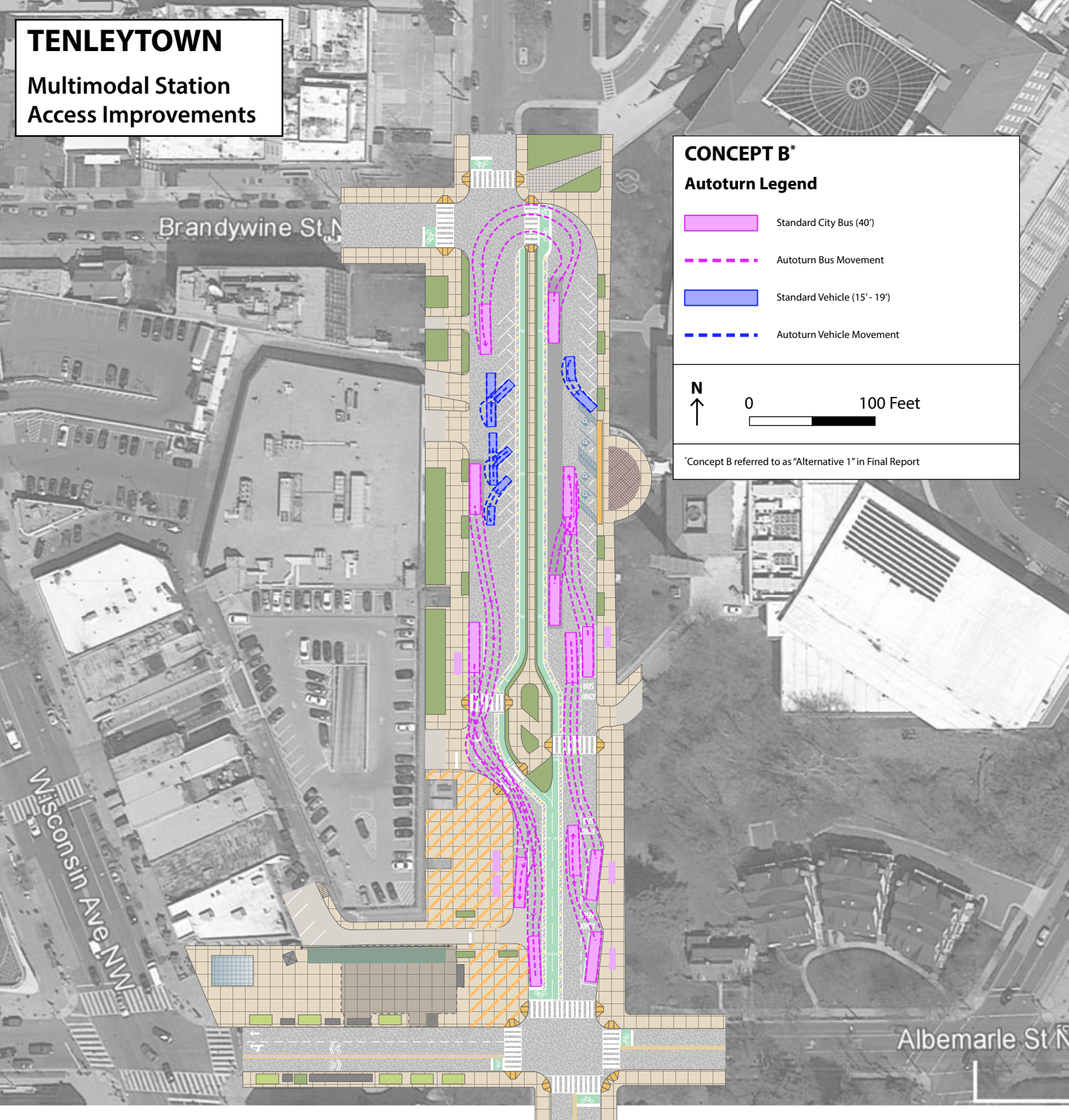
## Appendix D: AUTOTURN ANALYSIS



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# TENLEYTOWN

## Multimodal Station Access Improvements



### CONCEPT B\*

#### Autoturn Legend

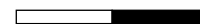
- Standard City Bus (40')
- Autoturn Bus Movement
- Standard Vehicle (15' - 19')
- Autoturn Vehicle Movement

N



0

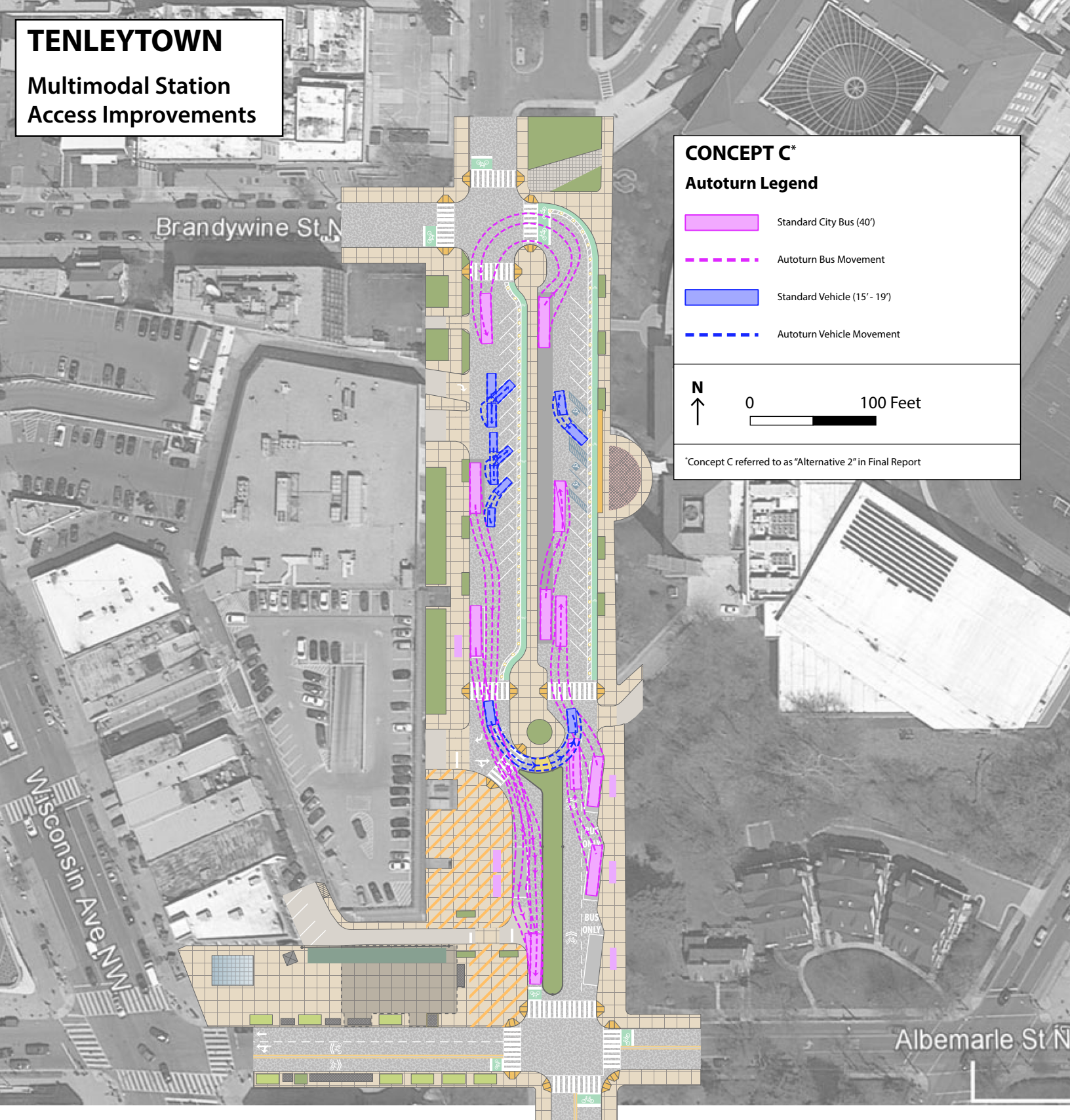
100 Feet



\*Concept B referred to as "Alternative 1" in Final Report





# TENLEYTOWN

## Multimodal Station Access Improvements



### CONCEPT C\*

#### Autoturn Legend

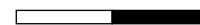
-  Standard City Bus (40')
-  Autoturn Bus Movement
-  Standard Vehicle (15' - 19')
-  Autoturn Vehicle Movement

N



0

100 Feet

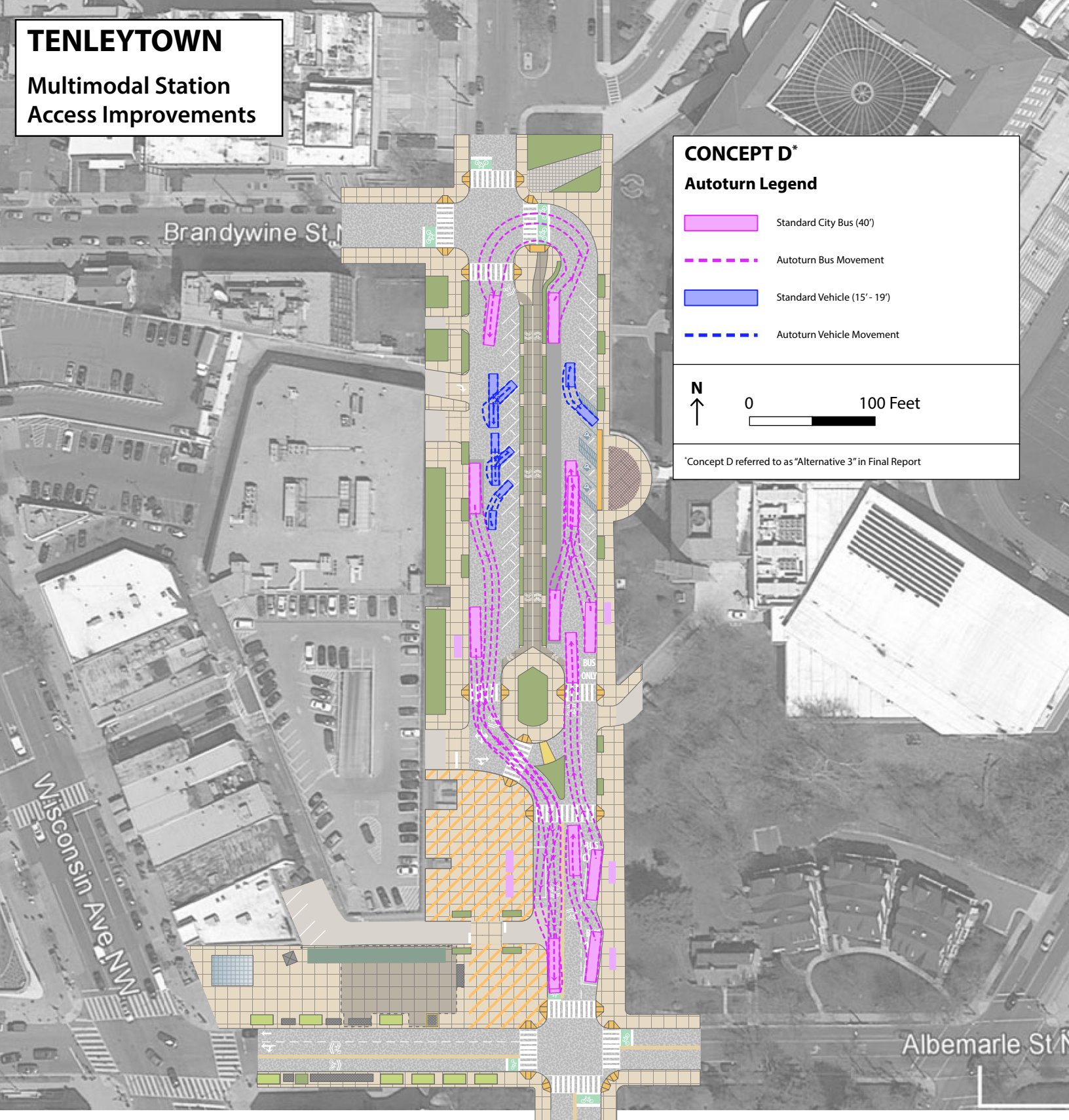


\*Concept C referred to as "Alternative 2" in Final Report







# TENLEYTOWN

## Multimodal Station Access Improvements



### CONCEPT D\*

#### Autoturn Legend

-  Standard City Bus (40')
-  Autoturn Bus Movement
-  Standard Vehicle (15' - 19')
-  Autoturn Vehicle Movement



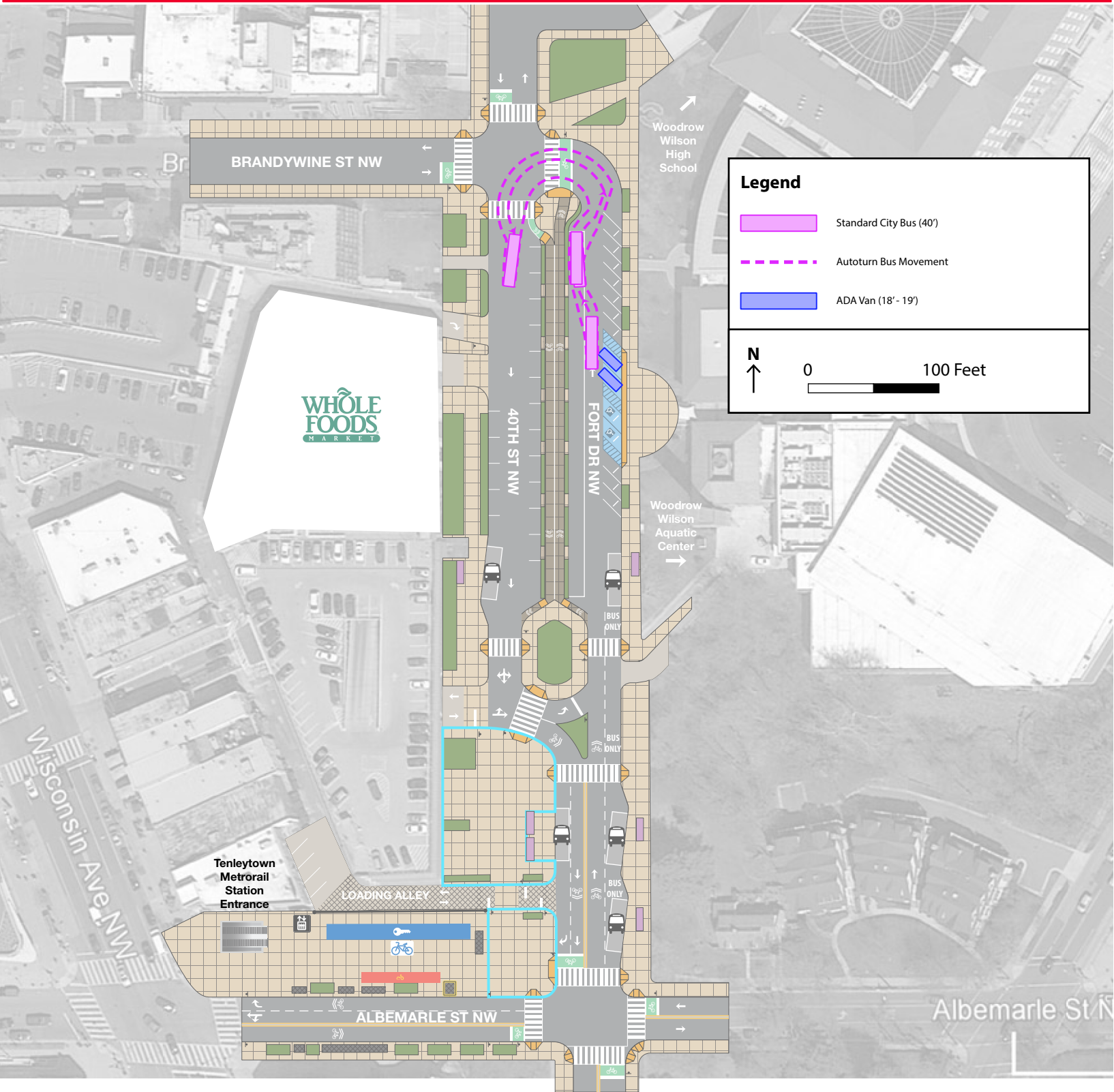
0 100 Feet

\*Concept D referred to as "Alternative 3" in Final Report

# Final Alternative

## Bus and ADA Van AutoTurn Analysis

Tenleytown-AU Station Access Study

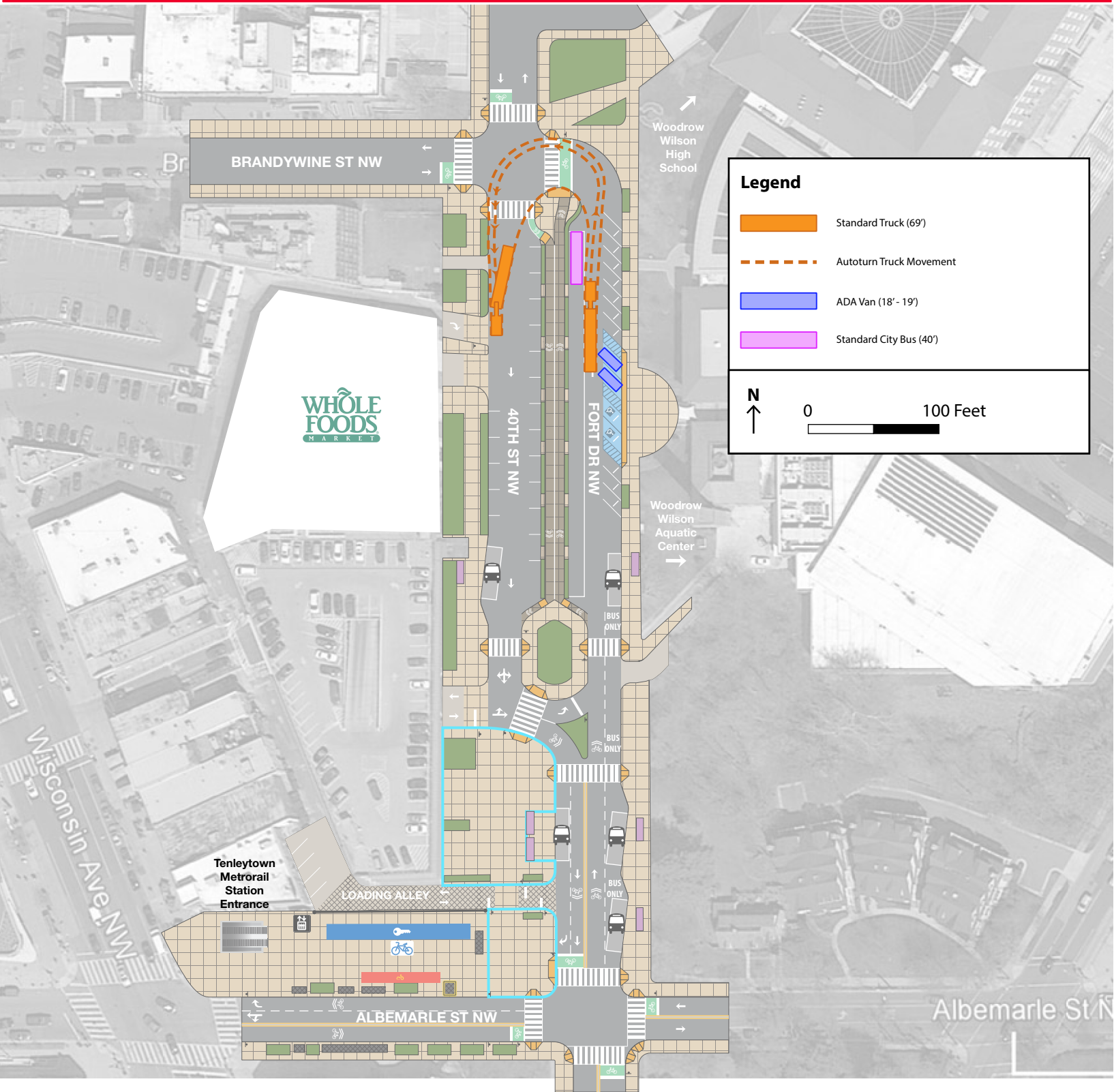




# Final Alternative

## Truck, ADA Van, and Bus Layover AutoTurn Analysis

Tenleytown-AU Station Access Study





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## **Appendix E: PUBLIC INVOLVEMENT AND STAKEHOLDER MEETING NOTES**

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**Tenleytown Station Access Improvements Study**  
**Ward 3 ANC Coordination Meeting**  
**February, 16 2016**  
**Comments on Concept Alternatives**

**Note: Concepts B, C, and D are referred in the report as Concepts 1, 2, and 3 respectively.**

**Concept B**

- Concerns with existing loading activities on Albemarle Street
  - i.e. Food Trucks and Deliveries
  - Currently no space off the street to perform those activities
- Is there a way to close the alley to loading only?
  - Add a turn-around in the alley or a gate?
    - We can't fully explore this option without considering the needs of the alternatives as they develop

**Concept C**

- Add a crosswalk at the northern part of the bus bays like in Concept B.
  - Crosswalk would satisfy the desire line between the recreation center and the Metrorail station; current alignment would have passengers walking through unmarked crossing
- Add trees to the landscaped area between Fort Drive and 40<sup>th</sup> Street
- Can we route buses through Albemarle Street?
- Make the fenced off median narrower to be able to route more buses along Fort Dr and 40<sup>th</sup> Street

**Concept D**

- The U-Turn is a good feature.
  - Consider a left-in into the Whole Foods parking garage
  - Like a mini traffic circle.
- The true alignment of the intersection is great.

**Overall Comments:**

- Caution about making the pedestrian plaza area too big
  - Too much open paved space would make the area a "wasteland" and uninviting for pedestrians to utilize
  - Fear of becoming a "worthless" space
  - However, could tie in the plaza as part of the Tenleytown Main Street initiative which would provide strategies to beautify space (relevant to all three concepts).

## Tenleytown Station Access Improvements Study Phase II

### Whole Foods Property Owner Coordination Meeting

May 2, 2016

#### Current Conditions:

- Whole Foods parking garage capacity is somewhere between 280-300 spaces.
- There are 55,000 monthly parkers that use the Whole Foods garage, approximately 90-95% are Whole Foods customers. Validation for first hour is offered to store customers.
- Currently, WB-62 trucks are used for early morning and late deliveries into Whole Foods loading dock.
- WB-62 Trucks cannot safely maneuver back-in turning movements with an approach from southbound 40<sup>th</sup> St. NW. Given the low volume of traffic during arrival, trucks approach the loading dock while driving in the counter-flow direction on 40<sup>th</sup> St. NW (northbound), and back-in to complete delivery.
- Property owners own the loading alley around the full perimeter of Whole Foods; DDOT has been granted limited rights.

#### General Comments/Concerns:

1. Property owners expressed concerns about single southbound lane on 40<sup>th</sup> St. NW in all alternatives. Concerned that this will cause significant queuing and bottle-neck traffic for customers exiting parking garage onto 40<sup>th</sup> St. NW. Also concerned about possible bus-bunching at the southern-most bus stop on 40<sup>th</sup> St. NW, south of the parking garage exit. Concerned this may prevent customers from exiting garage onto 40<sup>th</sup> St. NW.
2. Property owners feel that a one-way alley operation would limit circulation patterns too much for their customers by reducing access/egress options. They also spoke on behalf of the alley-adjacent businesses regarding constraining trash pick-up and smaller freight deliveries that use the alley. Strongly advised against limiting the alley to a one-way operation.
3. Property owners and Whole Foods management team are in favor of a U-turn that allows northbound traffic operation upon exiting the Whole Foods garage.
4. Whole Foods team expressed concern that trash trucks (likely 30 or 35') would not be able to make a right turn out of the loading alley onto 40<sup>th</sup> St. NW due to the extended pedestrian plaza. They stated that they didn't think truck turning movements would clear the plaza as shown in the alternatives. Suggested that either the plaza be smaller or the curbs be mountable in the plaza area.
5. Owners asked if we'd consider a 4 –way stop at the Albemarle/Fort Dr. intersection without creation of a pedestrian plaza. This would maintain the current configuration where two unofficial southbound lanes tend to form due to wide roadway geometry. It is technically a one lane approach, but southbound vehicles have been observed to form two queues – one for right turning vehicles and the other for left turning vehicles.

6. Owners indicated that angled parking on 40<sup>th</sup> St. NW would be problematic for freight delivery. They stated that it's already a huge issue to receive delivery from WB-62 trucks with the current roadway geometry, and have suggested that a large cut through in the median be made to accommodate freight truck turning movements into the loading dock. A mountable curb was also suggested as an alternative.



## **ANC 3E**

**May 12, 2016**

**In response to the May 4, 2016 request by Commissioner Wallace on behalf of ANC 3E, WMATA offers the following comments:**

**Q: Planning process to date. What agencies have been involved to date and their roles. For example, we understand that DDOT has been an active participant but, for example, is OP involved?**

### Phase I summary

The first phase of the Tenleytown Station Access Improvements Study began in 2013. The purpose of Phase I was to analyze current conditions and develop improvement alternatives in the Tenleytown station area to accommodate all modes of access with an emphasis on bus and parking access on WMATA owned property. In collaboration with DDOT, three conceptual design alternatives were developed that reconfigured the bus service loop and Kiss and Ride facilities while improving the pedestrian realm. Ranging from low to high degrees of impact and capital investment, each alternative accommodated the existing and future demand while providing for improved access for all modes of transportation in the station area. Phase I design concepts were presented to the following stakeholders for feedback: ANC3E, Ward 3Vision, Circle Management Company, and Tenleytown Neighbors Association.

### Transition process to Phase II

After completing the first phase in March 2014, DDOT requested that WMATA conduct additional analysis to understand the impacts of realigning Albemarle/40<sup>th</sup> St/Fort Drive intersection, and how to best accommodate pedestrian and bicycle circulation. Realigning the Albemarle/40<sup>th</sup> St/Fort Drive intersection was seen as a benefit by the project team and many community members – based on feedback received during the initial study. Both Concepts B and C included this realignment. However, changing Brandywine Street into a one-way street, as proposed in Concept C, was seen by the project team as disruptive to the traffic circulation in the area and had the potential of impacting utilities. Both Concepts A and B did not change the circulation on Brandywine Street. Concept B was seen by the project team as the alternative that most effectively balanced the benefits and impacts in the study area, so Phase II of the project was initiated to further refine Concept B.

### Phase II summary to-date

The second phase of the Tenleytown Station Access Improvements Study began in March, 2015 with collaboration between WMATA, DDOT, and DCOP. With input from each agency, the project team initiated study of the parking demand in the project area as well as current traffic conditions. With this information, three new design concepts were developed on the basis of the elements originally conceptualized in Phase I Concept B. After the design consultant completed the next phase of design alternatives, an expansive public outreach effort was launched in early 2016.

The communications and outreach plan was developed to adhere to WMATA's FTA approved Public Participation Plan and was approved by DDOT for the Tenleytown project.

- Project overview briefing was sent to Councilmember Cheh in December 2015.
- DDOT & WMATA met with ANC 3E Commissioners to discuss the project in February 2016, review the alternatives and present the public outreach plan.
- Direct email was sent to over 9,600 registered SmarTrip customers who had used the Tenleytown Metrorail station or a Metrobus route serving Tenleytown at least 5 times within the last month.
- Direct mail postcard (English/Spanish) was mailed to over 4,700 residents within a ¼ mile radius of the Tenleytown Metrorail station.
- Signs (English/Spanish) were posted at the Tenleytown Metrorail Station and at bus stops about pop-up events, open house & survey.
- Three pop-up events were held at the Tenleytown Metrorail station held the week of April 11<sup>th</sup> during high ridership dates/times. Close to 2,000 brochures were distributed, and outreach team included Spanish bilingual team members.
- An open house was held at Wilson High School on Saturday, April 23. 12 people attended.
- A notification stakeholder email was sent out to over 50 local businesses, senior centers, schools, community-based organizations, churches, etc. encouraging feedback through the survey, at the pop-up events or open house. List was reviewed (and added to) by Commissioner Anne Wallace & Tenleytown Main Street.
- Press release/advisory was sent on April 13.
- WMATA staff visited 45 local businesses, senior centers, schools, community-based organizations, churches, etc. to drop off brochures and talk about the project in person.
- WMATA and DDOT met with Circle Management Company (Whole Foods/etc.) to discuss project.
- WMATA internal communication included notification to Rail, Bus, Plant and MTPD who serve Tenleytown Station as well as an email announcement to all WMATA staff through Employee Communications.
- WMATA has requested to present public feedback results and a revised design at a summer ANC meeting.

At the request of the ANC, the project team has extended the 30 day comment period an additional 14 days, scheduled to close May 16, 2016.

**Q: We are asking DDOT to describe their role in the project to date and going forward and it would be helpful to understand what elements WMATA is responsible.**

WMATA is responsible for technical analysis, conceptual design development, stakeholder outreach, agency coordination, and production of a final report that highlight project findings. After WMATA completes the final project report in fall 2016, DDOT will lead implementation once funding becomes available.

**Q: Objectives. Briefly describe WMATA's objectives, i.e., pedestrian safety, bus scheduling, ADA improvements. Has WMATA considered how the Metro plaza will be used by the community as a gathering place. What are the plans if any for retail uses of the plaza?**

WMATA is committed to increasing and improving access to its Metrorail stations. This includes facilitating easy bicycle, pedestrian, bus and vehicular access in the station areas, and working with local jurisdictions to encourage and enable quality [development] opportunities around our stations. At the request of DDOT, WMATA has provided space for an enhanced pedestrian plaza

around the Tenleytown Metrorail station with an opportunity to enhance the public realm and pedestrian environment. Considerations such as landscaping, planters, and tree boxes have been incorporated into the three design concepts. However, the plaza design has not been advanced nor have particular plans for retail uses been incorporated into this Station Access study. Both DDOT and WMATA would work with the new Tenleytown Main Street program on the final design elements for plaza areas and programming for this space.

**Q: Funding. As the project moves forward, what costs is WMATA responsible for, i.e., planning, design and construction? Does WMATA have funds to cover the project costs for which it is and will be responsible?**

WMATA is not responsible for any costs associated with project implementation. This project would be advanced by DDOT. Because most of the construction activity would take place on DDOT property, the majority of the construction costs are likely to fall to DDOT. WMATA may have some associated costs for elements such as bicycle parking. The plan has, from the beginning, assumed that responsibility for all metered parking at Tenleytown would transfer to DDOT thereby provided a modest new revenue stream to the agency.

**Q: Next Steps and Timeline. What are the next steps and what is the timeline for completing those steps?**

Next steps of Tenleytown Station Access Improvements Study Phase II include:

- Close of public comment period (May 16, 2016)
- Compilation of survey results and written comments (May/June 2016)
- Draft public outreach report (June 2016)
- Publish final public outreach report to project website (July 2016)
- If a reasonable plurality can be reached in public/stakeholder response, develop final alternative based on a combination of most desired features of each. (July/August 2016)
- Complete and present final project results to stakeholders/publish to project website (August/September 2016)

**Q: Public Input. In light of the project's impact on truck access, loading zones and customer access, has WMATA met with commercial stakeholders and what concerns have they expressed? Going forward, what opportunities will the ANC and other stakeholders including Tenleytown Main Street have to provide input?**

As indicated in the above description of outreach activities, WMATA has met with commercial stakeholders. In general, they want to ensure that freight and customer access are not impeded with any station area improvements. WMATA and the commercial stakeholders are both producing turning radii analysis drawings, a common practice in modern transportation design work, to evaluate the design proposals and confirm that they will “work” for the commercial stakeholders.

The public comment period is open through May 16<sup>th</sup> for stakeholders to provide input. This completes a 45 day public comment period. See above for a description of outreach activities during this time.

If the project is advanced, details such as landscaping and lighting specifics will come forth in the construction design effort and those details would be brought to the ANC for review.

**Q: Project Scope. The ANC has some concerns about the scope of the project and the fact that, at the moment, the alternatives don't address the traffic and pedestrian safety issues at Chesapeake Street that ANC3E has discussed with DDOT. Will DDOT expand the project scope to address Chesapeake Street or, for that matter, curb cuts on Wisconsin Avenue, all of which are implicated by changes to traffic flow along 41st St and Fort Drive. Please comment on these concerns and provide your perspective.**

It is WMATA's understanding that the ANC is in communication with DDOT on this matter. WMATA has no additional comments on whether DDOT will expand their scope.





## **ADVISORY NEIGHBORHOOD COMMISSION 3E**

TENLEYTOWN AMERICAN UNIVERSITY PARK FRIENDSHIP HEIGHTS  
CHEVY CHASE WAKEFIELD FORT GAINES  
c/o Lisner-Louise-Dickson-Hurt Home 5425 Western Avenue, NW Washington, DC 20015  
[www.anc3e.org](http://www.anc3e.org)

### **Resolution requesting scope of WMATA Tenleytown-AU Station Access Study**

**Whereas**, the District Department of Transportation (DDOT) has issued a grant to the Washington Metropolitan Area Transit Agency (WMATA) to study improvements to the area surrounding the Tenleytown-AU Metrorail station, and

**Whereas**, WMATA has presented three possible options for reconfiguring the parallel roadways of 40<sup>th</sup> Street and Fort Drive between Albemarle and Brandywine Streets NW (the 4500 Blocks),

**Whereas**, the odd configuration and challenges of these parallel roadways continues onto the adjacent block between Brandywine and Chesapeake Streets, and

**Whereas**, ANC 3E previously passed a resolution urging DDOT to look into pedestrian safety issues on Chesapeake Street NW between 41<sup>st</sup> Street and Nebraska Avenue NW which includes the intersections of Fort Drive and 40<sup>th</sup> Street and Chesapeake Street which are adjacent to Fort Reno Park and Wilson High School, and

**Whereas**, one of the main variables between the three proposals WMATA has presented is the location of on street bike infrastructure and it would make sense to connect any bike infrastructure between Albemarle and Chesapeake Street to connect cyclists to Fort Reno park as well as existing bike infrastructure on 41<sup>st</sup> Street, and

**Whereas**, the main entrance to Wilson High School is actually located on the block of Fort Drive between Brandywine and Chesapeake Street and Deal Middle School Students arriving on foot also transit the immediate area via Fort Drive and Fort Reno Park and any study which does not fully assess how to safely move students between the Tenleytown Metro and Chesapeake Street is inadequate.

**Now therefore be it resolved**, ANC 3E urges WMATA and DDOT to extend the area of this station access study to incorporate the block of Fort Drive and 40<sup>th</sup> Streets between Brandywine and Chesapeake Streets and to report back to ANC 3E at a future public meeting about its findings.

ANC 3E approved this resolution at its meeting on May 12, 2016, which was properly noticed and at which a quorum was present. The resolution was approved by a vote of 4-1-0. Commissioners Jonathan Bender, Amy Hall, Jonathan McHugh, Tom Quinn and Anne Wallace were present.

**Jonathan  
Bender**

Digitally signed by Jonathan Bender  
DN: cn=Jonathan Bender, o=Law  
Office of Jonathan Bender, PC, ou,  
email=jbender@businesslawyer.com,  
c=US  
Date: 2016.06.09 14:06:56 -04'00'

ANC 3E  
By Jonathan Bender, Chairperson

## Tenleytown Station Access Study

### ANC 3E Meeting Notes/Comments – October 13, 2016

The joint WMATA/DDOT Project Team presented the Study Findings and Final Alternative to the ANC 3E Meeting on October 13, 2016. The following is a record of the comments received at the meeting:

- We should indicate why the Traffic LOS at the Wisconsin Avenue/Whole Foods Driveway Intersection goes from A to B from the No Build to the Build
- We also need to explain what each of the LOS service categories means (i.e. how many cars/minute are in A vs B vs C etc...)
- Do we have the capacity to document the ANC 3E opinion in the Final Report?
- Capital Cost Scenarios – Do we clearly indicate what these are in the final? Would this be confusing given that we are only putting forward one Final Alternative?
- Is there a drop off space along 40<sup>th</sup> Street by the station area?
- There is no Kiss & Ride. This is a concern for area residents
- What is the price difference between meter vs. garage parking? Are these costs documented?
- There's a lot of hardscape in the Final Alternative. There should be more greenery
- There should also be a corresponding U-turn for cars/buses going north on Fort Drive to turn south onto 40<sup>th</sup> before the Brandywine St intersection
- Why not make Fort Drive a through street across the courtyard to the northeast of the Brandywine Intersection? Could reduce accidents/hazards at that intersection
- Bike infrastructure is not adequate. The bike box on Fort Drive at the Brandywine intersection is unsafe; potential to be hit by cars "whipping around the curve" to make it through the intersection or are treating the stop sign as a yield. It's not safe to dump cyclists into this arrangement in the intersection
- Could we make the bike lane pass through the sidewalk up to Fort Drive north of the intersection (eventual connection to Chesapeake)?
- UIP is planning to make bulb outs on Brandywine Street. Apparently this plan was approved. Should coordinate to include them in the plan.
- WMATA vehicles frequently park on the pedestrian plaza near the Metrorail entrance. This is a problem for pedestrians and passengers.
- Who is maintaining the service alley? Does this alley need to be here at all in the new plaza?
- Eliminating the Kiss & Ride will encourage illegal behavior for cars (i.e. pulling into bus bays to drop off passengers, etc...)
- Funding seems to be fishy (e.g. this is a WMATA project being paid for entirely by DDOT, raises concerns about who's truly benefitting and who should be granting whom the easement). The funding of this project needs to be sorted out so that it's beneficial to all without solely serving one agency or agenda.

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## Appendix F: PUBLIC OUTREACH MATERIALS




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Post Card:



**Give us your feedback on three concepts designed to improve access around the Tenleytown-AU station.**

*Díganos su opinión sobre los tres conceptos diseñados para mejorar acceso alrededor de la estación de Tenleytown-AU.*



We want to improve the passenger experience at Tenleytown-AU Metrorail Station by making available transportation options more visible, improving connections between multiple modes, and creating a pedestrian friendly atmosphere that ties the neighborhood together. Let us know what you think. View the three proposed options and take our online survey at [wmata.com/planning](http://wmata.com/planning).

*Queremos mejorar su experiencia como pasajero en la estación de Tenleytown-AU Metrorail creando opciones de transporte más visibles, mejorando las las conexiones entre múltiples modalidades, y creando un ambiente acogedor para los peatones el cual cree fuertes vínculos de unidad en el vecindario. Dejenos saber que piensa. Vea las tres propuestas y visite nuestra página web para que conteste nuestra encuesta en [wmata.com/planning](http://wmata.com/planning).*



**ALTERNATIVA #1**



**ALTERNATIVA #1**



**ALTERNATIVA #1**

**El Estudio de Acceso de la Estación de Metro de Tenleytown-AU Sobre el Proyecto**

Para servir mejor todas las formas de acceso a la estación de Metro de Tenleytown-AU, las agencias Metro y el Departamento de Transporte del Distrito de Columbia (DDOT), por sus siglas en inglés, han comenzado un estudio para elaborar nuevos diseños en el área alrededor de la estación. Las mejoras sugeridas serán concentradas en el área al este de la entrada de la estación, en la esquina noreste de la Wisconsin Avenue, NW con la Albermarle Street NW.

**Alternativas Propuestas**

Los comentarios y recomendaciones del público de la Fase I del proyecto ayudaron a elaborar los tres conceptos preliminares para mejorar las condiciones actuales del área de la estación. Estas mejoras tratan sobre la seguridad y la comodidad en general, de las distintas y claramente marcadas para cada forma de transporte, y la creación de un mejor ambiente alrededor de la estación para el cliente. Las mejoras incluyen:

- Mejor diseño de cruces peatonales en la 40th Street (Calle 40), en la Fort Drive, y en la Albermarle Street NW
- Mejor acceso para personas con discapacidades, incluyendo rampas de acceso en los cruces peatonales
- Estacionamiento diagonal de autobuses para facilitar la entrada y la salida de la estación
- Casetas de autobuses con mejor información para los clientes y protección para el mal tiempo
- Mejor diseño de aceras para facilitar el acceso de peatones, personas con discapacidades, y bicicletas
- Más áreas verdes incluyendo árboles
- Más estacionamiento para bicicletas y casilleros seguros
- Cruces peatonales de alta visibilidad en las intersecciones
- Aceras más amplias en frente de las tiendas en la 40th Street NW para crear una plaza peatonal

**Utilice una de las siguientes tres maneras para decirnos como esta propuesta le afectaría:**

1. Tome una encuesta en [wmata.com/planning](http://wmata.com/planning) antes del lunes, 2 de mayo.
2. Provea sus opiniones al equipo del proyecto en la entrada de la estación de Metro de Tenleytown-AU.
  - martes, 12 de abril, desde las 4:00 a las 7:00 pm
  - jueves, 14 de abril, desde las 8:00 a las 11:00 am
  - sábado, 16 de abril, desde las 12:00 a las 3:00 pm
3. Asista a una casa abierta el sábado, 23 de abril, desde las 1 a las 3:00 pm en la Woodrow Wilson High School, ubicada en 3950 Chesapeake St NW, Washington, DC 20016.

Los comentarios del público serán incorporados al informe final y utilizados para elaborar el diseño final, lo cual será implementado cuando los fondos estén disponibles. Visite [wmata.com/planning](http://wmata.com/planning) este verano para el informe final.

**The Tenleytown-AU Metrorail Station Access Study**

**About the project**

To better accommodate all forms of access to Tenleytown-AU Metrorail station, Metro and the District Department of Transportation (DDOT) have initiated a study to develop redesigns for the area around the station. The suggested improvements will focus on the area just east of the station entrance at the northeast corner of Wisconsin Avenue and Albermarle Street, NW.

**Proposed Alternatives**

Recommendations and public comment from Phase I of the project helped to develop three draft station area concepts that each hope to improve several current conditions. These include overall safety and comfort, distinct and clearly marked areas for different forms of transportation, and creating a better station environment for customers. Some of the improvements include:

- Better crosswalk design at 40th St, Fort Drive, and Albermarle St, NW
- Better disability access with curb cuts at crosswalks
- Angled bus parking spots for easier vehicle entry and exit from the station
- Bus shelters with improved customer information and weather protection
- Better sidewalk designs for easier pedestrian, ADA, and cyclist access
- More green space and tree box landscaping
- More bicycle racks as well as secure bike storage
- High visibility pedestrian and bicycle crossing at intersections
- Expanded sidewalk space in front of 40th St NW retail to provide pedestrian plaza opportunity


**Use one of these three methods to tell us how this proposal would affect you:**

1. Take a survey at [wmata.com/planning](http://wmata.com/planning) by Monday, May 2.
2. Provide your feedback to project staff at the east entrance of the Tenleytown-AU Metrorail station:
  - Tuesday, April 12, 4:00-7:00 p.m.
  - Thursday, April 14, 8:00-11:00 a.m.
  - Saturday, April 16, noon-3:00 p.m.
3. Attend an open house on Saturday, April 23 from 1:00 to 3:00 p.m. at the Woodrow Wilson High School, located at 3950 Chesapeake St NW, Washington, DC 20016.


Public input will be incorporated into a final report and used to help inform a final design that will be implemented when funding becomes available. Check [wmata.com/planning](http://wmata.com/planning) for the final report this summer.

**Give us your feedback on three concepts designed to improve access around the Tenleytown-AU station.**

*Diganos su opinión sobre los tres conceptos diseñados para mejorar acceso alrededor de la estación de Tenleytown-AU.*



**Tenleytown-AU**





**ALTERNATIVE #2 ALTERNATIVA #2**



- One-way bike lane along both 40th St and Fort Drive NW north of the U-turn
- U-turn near the Whole Foods Market exit on 40th St for drivers to return north along Fort Drive NW
- Green space south of U-turn with fencing to deter pedestrian cut-throughs
- Nearly aligned 4-way stop at the Albemarle St NW intersection
- 35 parking spaces, including 4 ADA
- Completion of sidewalk along loading alley to 40th St NW

- All three alternatives include:**
- Better crosswalk design at 40th St, Fort Drive, and Albemarle St, NW
  - Better disability access with curb cuts at crosswalks
  - Angled bus parking spots for easier vehicle entry and exit from the station
  - Bus shelters with better information and coverage
  - Better sidewalk designs for easier pedestrian access
  - More green space and tree box landscaping
  - More bicycle racks as well as secure bike storage
  - High visibility bicycle crossing at intersections
  - Expanded sidewalk space in front of 40th St NW retail provides pedestrian plaza opportunity

- Carriles de bicicletas de una sola vía a lo largo de 40th Street y la Fort Drive NW al norte del U-turn
- U-turn cerca de la salida del Whole Foods Market en la 40th Street para que los conductores puedan regresar rumbo al norte por la Fort Drive NW
- Áreas verdes al sur del U-turn con una verja para impedir cruces peatonales
- Intersección alineada de 4 señales de "Stop" en el cruce de la Albemarle Street NW
- 35 espacios de estacionamiento, 4 de ellos para personas con discapacidades
- Construcción de una acera a lo largo del callejón hasta la 40th Street, NW

- Cada una de las tres alternativas incluye:**
- Mejor diseño de cruces peatonales en la 40th Street, Fort Drive, y la Albemarle Street NW
  - Mejor acceso para personas con discapacidades, incluyendo rampas de acceso en los cruces peatonales
  - Estacionamiento diagonal de autobuses para facilitar la entrada y la salida de la estación
  - Casetas de autobuses con mejor información y protección para el mal tiempo
  - Mejor diseño de aceras para facilitar el acceso peatonal
  - Más áreas verdes y árboles
  - Más estacionamiento para bicicletas y casilleros para almacenamiento seguro
  - Cruces peatonales de alta visibilidad en las intersecciones
  - Aceras más amplias enfrente de las tiendas en la 40th St, NW para crear una plaza peatonal

**ALTERNATIVE 2 Legend**

ADA Parking Space	Driveway/Service Alley
ADA Accessible Ramp	Fence
Bike Box/Bike Path	Landscaping/Planting/Tree Box
Bike Storage Area	Manual Elevator
Bus Shelter with Flat Poles	Manual Station Entrance
Bus Layover Area	Sidewalk
Bus Shelter	Speed Table
Concrete Bus Pad	

0 100 Feet

**ALTERNATIVA 2 Leyenda**

Espacio de estacionamiento para personas con discapacidades	Carretera/Carretera de Servicio
Rampa accesible para personas con discapacidades	Señal
Caja/Bicicleta/Bicicleta	Plantación/Plantación/Caja de árboles
Área de almacenamiento de bicicletas	Elevador manual
Refugio para autobuses con postes planos	Entrada manual de la estación
Área de espera de autobuses	Paseo
Refugio para autobuses	Tabla de velocidad
Plataforma para autobuses de concreto	

0 100 Pies

**ALTERNATIVE #3 ALTERNATIVA #3**



- Shared bicycle and pedestrian multi-use path
- U-turn near the Whole Foods Market exit on 40th St for drivers to return north along Fort Drive NW
- Landscaped center island
- Aligned 4-way stop at the Albemarle St NW intersection
- 34 parking spaces, including 4 ADA
- Maintains two-way loading alley off of 40th St NW

- All three alternatives include:**
- Better crosswalk design at 40th St, Fort Drive, and Albemarle St, NW
  - Better disability access with curb cuts at crosswalks
  - Angled bus parking spots for easier vehicle entry and exit from the station
  - Bus shelters with better information and coverage
  - Better sidewalk designs for easier pedestrian access
  - More green space and tree box landscaping
  - More bicycle racks as well as secure bike storage
  - High visibility bicycle crossing at intersections
  - Expanded sidewalk space in front of 40th St NW retail provides pedestrian plaza opportunity

- Vía de uso compartido entre peatones y bicicletas
- U-turn cerca de la salida del Whole Foods Market en la 40th Street para que los conductores puedan regresar rumbo al norte por Fort Drive NW
- Isla central para jardines
- Intersección alineada de 4 señales de "Stop" en el cruce de la Albemarle Street, NW
- 34 espacios de estacionamiento, 4 de ellos para personas con discapacidades
- Mantener el área de abordaje del callejón en 2 vías desde 40th Street NW

- Cada una de las tres alternativas incluye:**
- Mejor diseño de cruces peatonales en la 40th Street, Fort Drive, y la Albemarle Street NW
  - Mejor acceso para personas con discapacidades, incluyendo rampas de acceso en los cruces peatonales
  - Estacionamiento diagonal de autobuses para facilitar la entrada y la salida de la estación
  - Casetas de autobuses con mejor información y protección para el mal tiempo
  - Mejor diseño de aceras para facilitar el acceso peatonal
  - Más áreas verdes y árboles
  - Más estacionamiento para bicicletas y casilleros para almacenamiento seguro
  - Cruces peatonales de alta visibilidad en las intersecciones
  - Aceras más amplias enfrente de las tiendas en la 40th St, NW para crear una plaza peatonal

**ALTERNATIVE 3 Legend**

ADA Parking Space	Driveway/Service Alley
ADA Accessible Ramp	Fence
Bike Box/Bike Path	Landscaping/Planting/Tree Box
Bike Storage Area	Manual Elevator
Bus Shelter with Flat Poles	Manual Station Entrance
Bus Layover Area	Sidewalk
Bus Shelter	Speed Table
Concrete Bus Pad	

0 100 Feet

**ALTERNATIVA 3 Leyenda**

Espacio de estacionamiento para personas con discapacidades	Carretera/Carretera de Servicio
Rampa accesible para personas con discapacidades	Señal
Caja/Bicicleta/Bicicleta	Plantación/Plantación/Caja de árboles
Área de almacenamiento de bicicletas	Elevador manual
Refugio para autobuses con postes planos	Entrada manual de la estación
Área de espera de autobuses	Paseo
Refugio para autobuses	Tabla de velocidad
Plataforma para autobuses de concreto	

0 100 Pies



**Paper Survey:**

**Give us your feedback on three concepts designed to improve access around the Tenleytown-AU station.**

**Please tell us which of the proposed alternatives best meets your needs in each of the following areas. Check only one option for each.**

<b>Which alternative best meets your needs of...</b>	<b>Alternative 1</b>	<b>Alternative 2</b>	<b>Alternative 3</b>
Having crosswalks where you'll use them	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Your feelings of safety and security	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Reducing traffic congestion	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Your ability to use bike paths	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Having shelter and seating while waiting for a bus or shuttle	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Your desire for green space around the station	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Your ability to find your way around	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Having safe and accessible sidewalks	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Navigating the Albemarle St. NW/Fort Drive intersection	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Your ability to easily transfer between bus/Metrorail	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Your ability to park near your destination	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Are there any other features to the Tenleytown site that are not shown, but would improve access to the Metrorail station?

---

---

How do you typically get to the Tenleytown station? (Check only one)

- Metrorail
- MetroBus
- Shuttle
- Taxi/Other car service
- Bike/Capital Bikeshare
- Walk/Wheelchair
- Drive/Drop-off
- Other: \_\_\_\_\_

Do you consider yourself to be Hispanic/Latino?

- Yes
- No
- Prefer not to answer

What is your annual household income?

- Less than \$30,000
- \$30,000 or more
- Prefer not to answer

Which one best describes your race? (Check all that apply)

- Asian/Pacific Islander
- Black/African American
- American Indian/Alaska Native
- White/Caucasian
- Multiple Races or Ethnicities
- Other
- Prefer not to answer

If you're interested in staying informed about this project, get on the mailing list!

Name: \_\_\_\_\_ Email: \_\_\_\_\_



## Díganos su opinión sobre los tres conceptos diseñados para mejorar acceso alrededor de la estación de Tenleytown-AU.

Por favor díganos cual de las siguientes alternativas es la mejor para usted de acuerdo a sus necesidades/ preferencias en cada una de las siguientes áreas. Marque sólo una opción en cada área.

¿Cuál de las alternativas es la mejor para usted de acuerdo a sus necesidades...?	Alternativa 1	Alternativa 2	Alternativa 3
Tener acceso a cruces peatonales donde usted los usaría	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Sentirse seguro/Tener seguridad	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Reducir la congestión vehicular	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Usar los carriles para bicicleta	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Tener caseta y sillas mientras esperar al autobús u otro servicio de enlace	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Disfrutar las áreas verdes alrededor de la estación	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
La manera de poder moverse/lubricarse tan pronto salga de la estación	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Usar aceras seguras y accesibles	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Ver por la intersección de la Aibemado Street NW con la Fort Drive	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Hacer transbordo entre el autobús y el tren	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Estacionarse cerca de su destino	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

¿Existen otras características de Tenleytown no mencionadas anteriormente, las cuales mejorarían el acceso a la estación de Metro?

---

Generalmente, ¿cómo llega a la estación de Metro de Tenleytown? (Marque solo uno.)

- MetroRail/tren
- MetroBus
- Servicio regular de enlace (shuttle)
- Taxi/Otro servicio vehicular
- Bicicleta/Capitol Bikeshare
- Caminar/Silla de ruedas
- Auto
- Otro: \_\_\_\_\_

¿Usted se considera hispano/latino?

- Sí
- No
- Prefiero no responder

¿Cuál de las siguientes contiene el ingreso anual de su hogar?

- Menos de \$30,000 USD
- Más de \$30,000 USD
- Prefiero no responder

¿Cuál de las siguientes opciones describe mejor su raza? (Marque todas que apliquen)

- Asiático/Isles del Pacifico
- Negro/Afroamericano
- Indígena Estadounidense o nativo de Alaska
- Blanco/Caucásico
- Múltiples razas o étnicos
- Otro
- Prefiero no responder

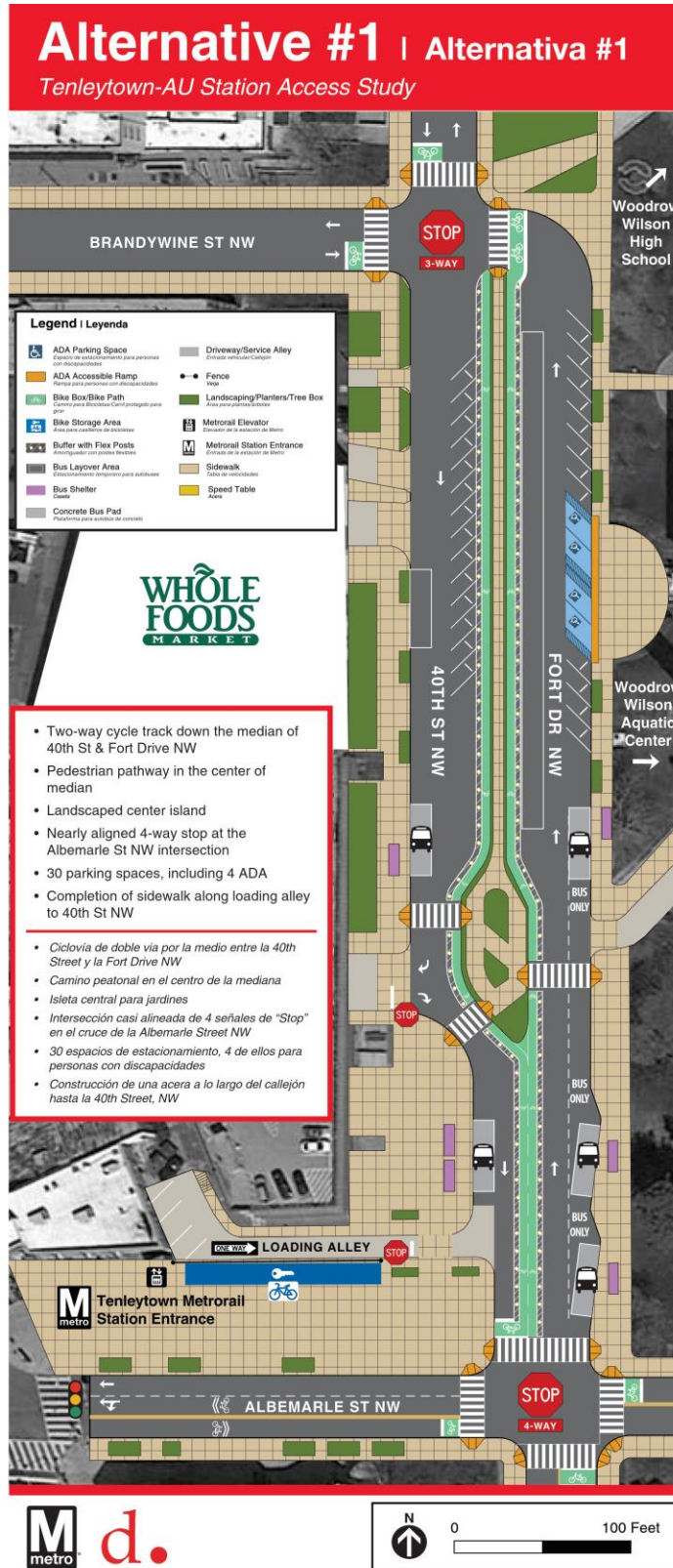
¿Si está interesado en mantenerse informado sobre este proyecto, inscribese en nuestra lista de correo electrónico!

Nombre:

Correo electrónico:

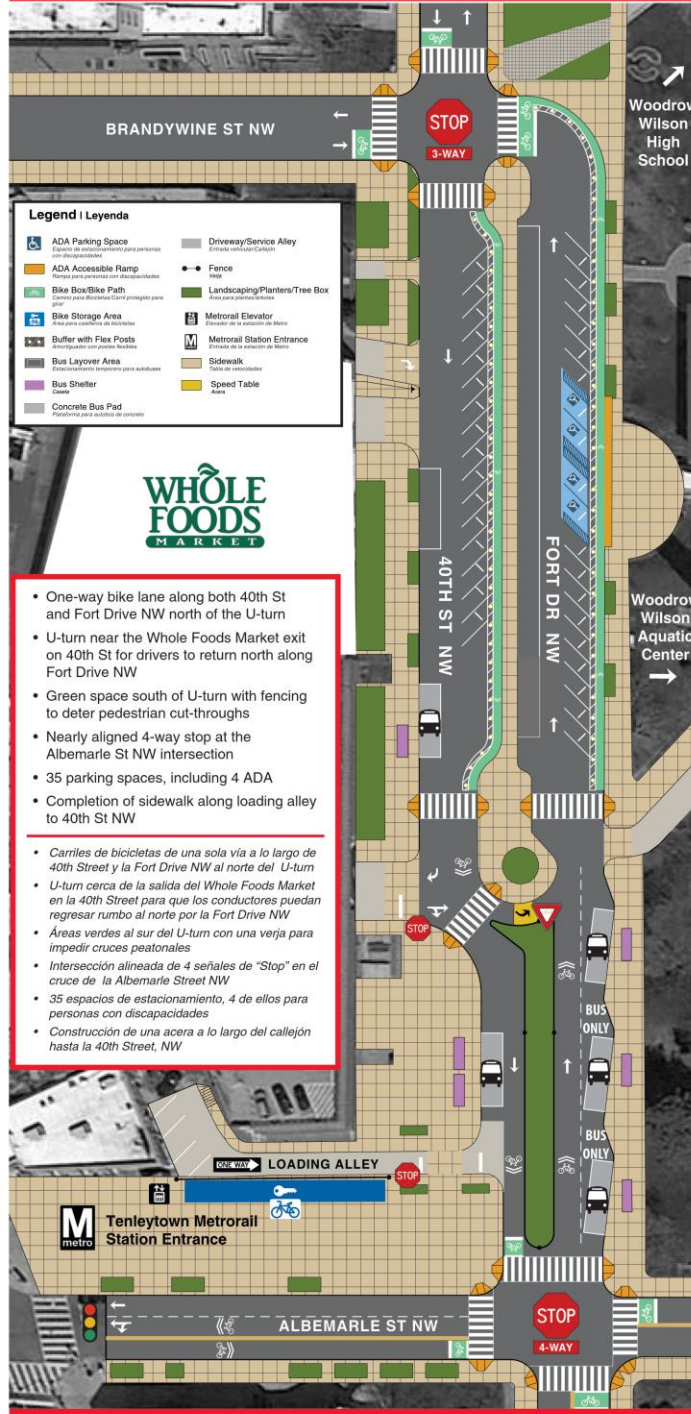


Public Display Banners:



# Alternative #2 | Alternativa #2

## Tenleytown-AU Station Access Study



**Legend | Leyenda**

ADA Parking Space Espacio de estacionamiento para personas con discapacidades	Driveway/Service Alley Entrada vehicular/Callesón
ADA Accessible Ramp Rampa para personas con discapacidades	Fence Valla
Bike Box/Bike Path Caja para bicicletas/Carretera protegida para bicicletas	Landscaping/Planters/Tree Box Área para plantas/árboles
Bike Storage Area Área para estacionamiento de bicicletas	Metrorail Elevator Elevador de la estación de Metro
Buffer with Flex Posts Amortiguador con postes flexibles	Metrorail Station Entrance Entrada de Estación de Metro
Bus Layover Area Espacio de estacionamiento para autobuses	Sidewalk Calle de aceras
Bus Shelter Cubierta	Speed Table Almohadilla
Concrete Bus Pad Plataforma para autobuses de concreto	



- One-way bike lane along both 40th St and Fort Drive NW north of the U-turn
  - U-turn near the Whole Foods Market exit on 40th St for drivers to return north along Fort Drive NW
  - Green space south of U-turn with fencing to deter pedestrian cut-throughs
  - Nearly aligned 4-way stop at the Albemarle St NW intersection
  - 35 parking spaces, including 4 ADA
  - Completion of sidewalk along loading alley to 40th St NW
- 
- Carriles de bicicletas de una sola vía a lo largo de 40th Street y la Fort Drive NW al norte del U-turn
  - U-turn cerca de la salida del Whole Foods Market en la 40th Street para que los conductores puedan regresar rumbo al norte por la Fort Drive NW
  - Áreas verdes al sur del U-turn con una verja para impedir cruces peatonales
  - Intersección alineada de 4 señales de "Stop" en el cruce de la Albemarle Street NW
  - 35 espacios de estacionamiento, 4 de ellos para personas con discapacidades
  - Construcción de una acera a lo largo del callejón hasta la 40th Street, NW





# Alternative #3 | Alternativa #3

## Tenleytown-AU Station Access Study



### Tenleytown-AU Station Access Study

#### En Español

The Tenleytown-AU Station Access Study seeks to improve the area around the Tenleytown-AU Metrorail station in Northwest DC.

The Metrorail station serves as an important gateway to the Tenleytown neighborhood. Existing station area conditions forces customers and vehicles to compete for space resulting in congestion.

#### Current Conditions for Improvement:

- ▶ Current conditions at 40th Street and Fort Drive NW are inadequate for the large volume of bus and shuttle passengers.
- ▶ Surrounding streets have high vehicular traffic and different parking hours, rates and rules.
- ▶ Existing road configuration creates congestion between pedestrians, bicycles and vehicles making it harder to access the Tenleytown Metrorail station, Metrobuses and shuttles.
- ▶ Crosswalks need updating and are missing disability access ramps.

#### Tenleytown Station Access Study Timeline

- ▶ **March 2014:** Completion of Phase I design concepts. [Read final report and view Phase I concepts.](#)
- ▶ **April 2016:** Phase II design concepts presented for public feedback.
- ▶ **May 2016:** Public comment period closes and results of public feedback are collected and reviewed by project team.
- ▶ **Summer 2016:** Final results from public feedback and revised design concept will be completed and posted here for public review. DDOT will implement once funding is available.

#### About the project

Building upon recommendations set forth by previous studies, both WMATA and the District Department of Transportation (DDOT) have initiated a Phase II study to develop redesigns for WMATA and DDOT property adjacent to the Tenleytown-AU station to better accommodate all forms of access to the Metrorail station. The suggested improvements will focus on the area just east of the station entrance at the northeast corner of Wisconsin Avenue and Albemarle Street, NW.

#### Proposed Alternatives

Recommendations and public comment from Phase I of the project helped to develop three draft station area concepts that hope to improve several current conditions. These include overall safety and comfort, distinct and clearly marked areas for different forms of transportation, and creating a better station environment for customers. Here are some of the improvements featured in the draft redesigns to look for:

- ▶ Better crosswalk design at 40th St, Fort Drive, and Albemarle St, NW
- ▶ Better disability access with curb cuts at crosswalks
- ▶ Angled bus parking spots for easier vehicle entry and exit from the station
- ▶ Bus shelters with improved customer information and weather protection
- ▶ Better sidewalk designs for easier pedestrian, ADA, and cyclist access
- ▶ More green space and tree box landscaping
- ▶ More bicycle racks as well as secure bike storage
- ▶ High visibility pedestrian and bicycle crossing at intersections
- ▶ Expanded sideways space in front of 40th St NW retail to provide pedestrian plaza opportunity

Public input has been collected on the alternatives and will be incorporated into a final report to be used to help inform a final design that will be implemented when funding becomes available. Check back here for the final report this summer.

#### Design Alternative

#### Site Plan ([click to expand](#))

- Alternative #1
- ▶ Two-way cycle track down the median of 40th St & Fort Drive NW
  - ▶ Pedestrian pathway in the center of median Landscaped center island
  - ▶ Nearly aligned 4-way stop at the Albemarle St NW intersection
  - ▶ 30 parking spaces, including 4 ADA
  - ▶ Completion of sidewalk along

loading alley to 40th St NW



- Alternative #2
- ▶ One-way bike lane along both 40th St and Fort Drive NW north of the U-turn
  - ▶ U-turn near the Whole Foods Market exit on 40th St for drivers to return north along Fort Drive NW
  - ▶ Green space south of U-turn with fencing to deter pedestrian cut-throughs
  - ▶ Nearly aligned 4-way stop at the Albemarle St NW intersection
  - ▶ 35 parking spaces, including 4 ADA
  - ▶ Completion of sidewalk along loading alley to 40th St NW



- Alternative #3
- ▶ Shared bicycle and pedestrian multi-use path
  - ▶ U-turn near the Whole Foods Market exit on 40th St for drivers to return north along Fort Drive NW
  - ▶ Landscaped center island
  - ▶ Aligned 4-way stop at the Albemarle St NW intersection
  - ▶ 34 parking spaces, including 4 ADA
  - ▶ Maintains two-way loading alley off of 40th St NW






**Public Meeting Presentation Boards:**

Welcome

# Tenleytown-AU Station Access Study

Wilson High School  
April 23, 2016  
1:00 - 3:00 PM




1

## Project Purpose


The Tenleytown Station Access Study seeks to analyze current conditions and develop improvement concepts on WMATA and DDOT owned property to accommodate all modes of access to the Tenleytown-AU Metrorail Station. The study hopes to make enhancements to the public realm, improve pedestrian safety, accommodate bicycles and supportive infrastructure, upgrade transit user waiting areas and amenities, provide space for bus layovers, and improve intersection geometries and alignments.

The current phase is step two in a multi-phased process to redesign the current facility.

### Tenleytown Neighborhood Area



### Project Study Area



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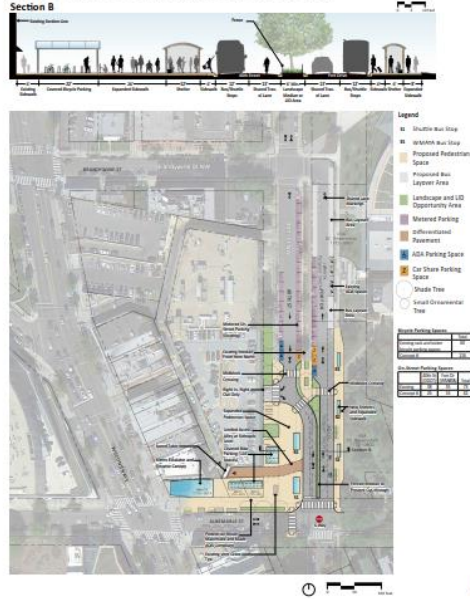
# Phase I Findings

## History

- Phase I final report completed March 2014
- Medium Impact Improvements (Concept B) recommended by Phase I
- Features include:
  - o Improved pedestrian lines
  - o Decreased pedestrian auto-conflicts
  - o Expanded pedestrian and community spaces
  - o Improved bicycle facilities
  - o Additional bus shelter and layover areas
  - o Improved intersection geometry
- Phase II design alternatives build upon and refine successful design elements from Phase I



## Phase I Recommended Site Plan



# Study Process

## Phase II Process

- Current phase builds off Phase I recommendation.
- Activities include:
  - o Parking Demand Study
  - o Traffic Study
  - o DDOT/DCOP Stakeholder Coordination
  - o Alternatives Development
  - o **Public Engagement** ← WE ARE HERE
  - o Design Refinements
  - o Final Report and Phase II Conclusions

## Goals and Objectives

Accommodate All Modes of Access

Enhance the Public Realm and Pedestrian Environment

Reduce Vehicular Conflicts

Improve the transit customer's waiting experience

## Design Criteria

Accommodate fully-functioning bus transit facilities, including Bus Bays and Layover spaces for up to 5 buses and passenger amenities (shelters, benches, real time travel information)

Retain as much parking as possible; unify parking hours, rates, and rules

Provide space for an enhanced pedestrian plaza; provide high visibility crosswalks with better disability access

Align 40th Street/Fort Drive/Albemarle Street Intersection

Include provisions for bicycle access north and south through study area and upgraded and increased bicycle parking

Conform to WMATA and DDOT design standards and dimensions

## Current Conditions for Improvement



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## Existing Traffic Conditions & Parking Demand Analysis

### Existing Traffic Conditions

#### Intersection Level of Service (LOS)



#### Max Queues

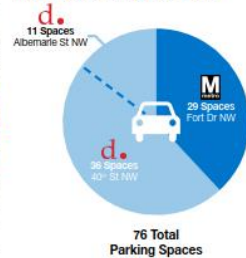


### Parking Demand Analysis

#### Parking within 1/4 Mile



#### Existing Parking Inventory



#### Observations

- Utilization on 40th Street/Fort Drive is high, particularly during mid-day and evening peak hours
- Spaces are not strictly enforced
- Different parking regulations are not well signed and causes confusion
- Significant amount of metered parking located closest to the station and the retail hub of Tenleytown
- There are approximately 39 parking lots or garages within 1/4 mile of the station available for the various retail, institutional, and residential uses in the study area, including a large garage adjacent to the Whole Foods and retail strip on Wisconsin Avenue

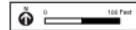
6

# Proposed Improvements - Alternative 1

## Autoturn Analysis



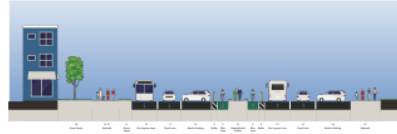
■ Bus Movements  
■ Vehicle Movements



## Sections

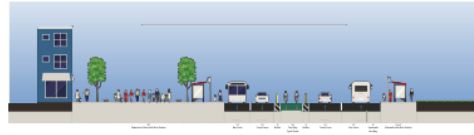
### Section A

Midblock of 40th Street and Fort Drive NW



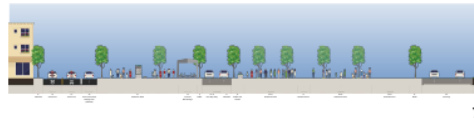
### Section B

Pedestrian Plaza with 40th Street and Fort Drive NW



### Section C

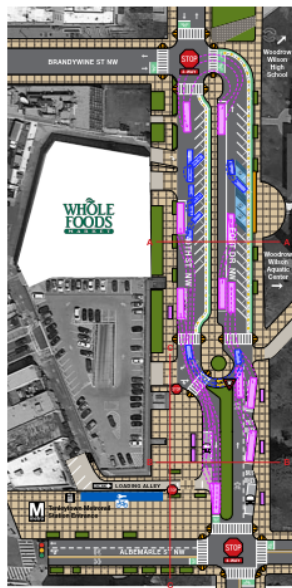
Pedestrian Plaza with Albemarle Street NW, Loading Alley, and Whole Foods Entrance



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# Proposed Improvements - Alternative 2

## Autoturn Analysis



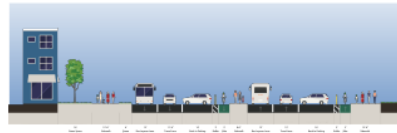
■ Bus Movements  
■ Vehicle Movements



## Sections

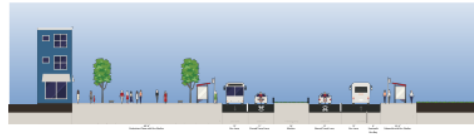
### Section A

Midblock of 40th Street and Fort Drive NW



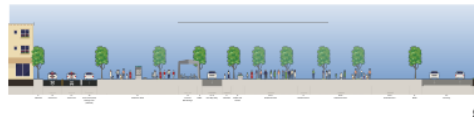
### Section B

Pedestrian Plaza with 40th Street and Fort Drive NW



### Section C

Pedestrian Plaza with Albemarle Street NW, Loading Alley, and Whole Foods Entrance

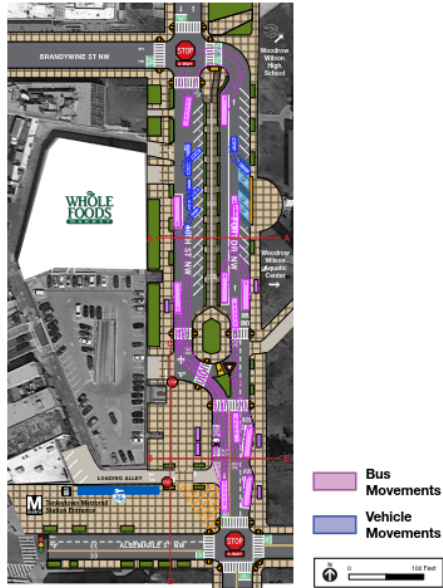


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# Proposed Improvements - Alternative 3

## Autoturn Analysis



## Sections

**Section A**  
Midblock of 40th Street and Fort Drive NW



**Section B**  
Pedestrian Plaza with 40th Street and Fort Drive NW



**Section C**  
Pedestrian Plaza with Albemarle Street NW, Loading Alley, and Whole Foods Entrance



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## Feedback & Next Steps

### Give Us Your Feedback!

#### User Survey

Which alternative best meets your needs of... (Place a dot in one alternative for each prompt below)	Alternative 1	Alternative 2	Alternative 3
Having crosswalks where you'll use them			
Your feelings of safety and security			
Reducing traffic congestion			
Your ability to use bike paths			
Having shelter and seating while waiting for a bus			
Your desire for green space around the station			
Having safe and accessible sidewalks			
Navigating the Albemarle St/Fort Dr NW intersection			
Your ability to easily transfer between bus/Metrorail			
Your ability to park near your destination			

#### Next Steps

- Public comment period ends May 2
- Stakeholder and public feedback will help inform a final design
- Final Report to be completed Summer 2016
- Final design alternative could be one of the three presented or a combination of the best features of each
- Project implementation will occur when funding becomes available

Visit our Website: [wmata.com/planning](http://wmata.com/planning)

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## Metro News Release

For immediate release: April 13, 2016



### Metro seeks public input on study to improve area near Tenleytown-AU Station

Metro is launching Phase II of the Tenleytown-AU Station Access Study to identify improvements to the area surrounding the Tenleytown-AU Station in Northwest DC. This next phase of the study seeks input from the community, Metrobus and Metrorail customers, businesses and other stakeholders on the proposed redesign. The study is funded by the District Department of Transportation.

Building upon previous recommendations, the study team developed three alternatives that seek to improve DDOT and Metro-owned property to better accommodate all transportation modes (e.g. walking, bicycle, transit).

Ways to provide feedback by Monday, May 2:

- Take a [survey online](#) and tell us how this proposal would affect you.
- Provide your feedback to project staff at the east entrance of the Tenleytown-AU Metrorail Station
  - Thursday, April 14 from 8:00-11:00 a.m.
  - Saturday, April 16 from noon-3:00 p.m.
- Attend an Open House on Saturday, April 23 from 1 – 3 pm at Woodrow Wilson High School, located at 3950 Chesapeake St NW, Washington, DC 20016

Tenleytown-AU Metrorail Station serves as the gateway to the Tenleytown neighborhood, the Wisconsin Avenue business district and American University. The station is located along a crowded street grid where shuttles, parking, taxis, pedestrians and buses come together.

The suggested improvements will focus on the area east of the station entrance at the northeast corner of Wisconsin Avenue and Albemarle Street, NW.

Each of the three alternatives includes the following improvements:

- Better crosswalk design at 40th St, Fort Drive, and Albemarle St, NW
- Better disability access with curb cuts at crosswalks
- Angled bus parking spots for easier vehicle entry and exit from the station
- Bus shelters with improved customer information and weather protection
- Better sidewalk designs for easier pedestrian, ADA, and cyclist access
- More green space and tree box landscaping
- More bicycle racks as well as secure bike storage
- High visibility pedestrian and bicycle crossing at intersections
- Expanded sidewalk space in front of 40th St NW retail to provide pedestrian plaza opportunity

For more information about the project and to view the proposed alternatives go to [wmata.com/planning](http://wmata.com/planning).

News release issued at 10:35 am, April 13, 2016.

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## Appendix G: TRAFFIC ANALYSIS RESULTS

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**Tenleytown Station Access Improvements**

**SimTraffic Performance Report**

**2015 AM Existing**



**3: Wisconsin Ave & Albemarle St/Albemarle Performance by approach**

Approach	EB	WB	NB	SB	All
Denied Del/Veh (s)	1.2	0.3	0.3	0.2	0.3
Total Del/Veh (s)	24.2	43.7	16.3	9.2	15.6

**4: Driveway & Wisconsin Ave Performance by approach**

Approach	WB	NB	SB	All
Denied Del/Veh (s)	0.1	0.0	0.3	0.2
Total Del/Veh (s)	27.9	3.5	15.8	11.1

**6: Fort Dr NB & Albemarle Performance by approach**

Approach	EB	WB	NB	All
Denied Del/Veh (s)	0.0	0.1	0.2	0.1
Total Del/Veh (s)	1.3	14.5	14.7	8.3

**9: Nebraska Ave & Albemarle Performance by approach**

Approach	EB	WB	NB	SB	All
Denied Del/Veh (s)	0.1	0.0	0.1	0.0	0.1
Total Del/Veh (s)	30.9	15.8	7.6	6.1	11.6

**12: 39th St & Albemarle St Performance by approach**

Approach	EB	WB	NB	SB	All
Denied Del/Veh (s)	0.0	0.3	0.1	0.0	0.1
Total Del/Veh (s)	1.7	26.7	17.4	8.9	14.6

**13: Nebraska Ave Performance by approach**

Approach	NB	SB	NE	All
Denied Del/Veh (s)	0.0	0.2	0.0	0.1
Total Del/Veh (s)	6.7	5.7	1.0	4.1

**18: Albemarle & 40th St SB Performance by approach**

Approach	EB	WB	SB	All
Denied Del/Veh (s)	0.0	0.0	0.7	0.3
Total Del/Veh (s)	5.1	5.0	8.6	6.6

**19: Fort Dr NB & U Turn Performance by approach**

Approach	EB	NB	All
Denied Del/Veh (s)	0.0	0.1	0.1
Total Del/Veh (s)	3.2	1.0	1.3

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20: 40th St SB & U Turn Performance by approach

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Approach	SB	All
Denied Del/Veh (s)	0.4	0.4
Total Del/Veh (s)	22.3	22.3

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Total Network Performance

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Denied Del/Veh (s)	0.4
Total Del/Veh (s)	26.9

**Intersection: 3: Wisconsin Ave & Albemarle St/Albemarle**

Movement	EB	EB	WB	NB	NB	NB	SB	SB	SB
Directions Served	L	TR	LTR	T	T	R	T	T	R
Maximum Queue (ft)	81	206	168	289	258	83	160	177	48
Average Queue (ft)	29	85	118	177	133	18	102	94	12
95th Queue (ft)	63	167	190	267	232	59	174	172	38
Link Distance (ft)		588	151	649	649		128	128	128
Upstream Blk Time (%)			10				3	1	
Queuing Penalty (veh)			21				14	7	
Storage Bay Dist (ft)	200					100			
Storage Blk Time (%)		0			8	0			
Queuing Penalty (veh)		0			3	0			

**Intersection: 4: Driveway & Wisconsin Ave**

Movement	WB	NB	NB	SB	SB	SB
Directions Served	R	T	TR	LT	T	T
Maximum Queue (ft)	89	86	86	404	335	76
Average Queue (ft)	28	39	29	271	206	11
95th Queue (ft)	72	75	70	390	309	56
Link Distance (ft)	178	128	128	384	384	384
Upstream Blk Time (%)				1	0	
Queuing Penalty (veh)				0	0	
Storage Bay Dist (ft)						
Storage Blk Time (%)						
Queuing Penalty (veh)						

**Intersection: 6: Fort Dr NB & Albemarle**

Movement	EB	WB	NB
Directions Served	LTR	LTR	LTR
Maximum Queue (ft)	102	233	159
Average Queue (ft)	47	87	71
95th Queue (ft)	108	183	130
Link Distance (ft)	6	215	320
Upstream Blk Time (%)	4	3	
Queuing Penalty (veh)	14	8	
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

**Intersection: 9: Nebraska Ave & Albemarle**

Movement	EB	EB	WB	WB	NB	NB	SB	SB
Directions Served	L	TR	L	T	LT	TR	LT	TR
Maximum Queue (ft)	213	175	51	58	121	92	80	104
Average Queue (ft)	51	108	20	31	50	9	58	45
95th Queue (ft)	152	179	46	46	106	43	72	88
Link Distance (ft)	215		29	29	412	412	56	56
Upstream Blk Time (%)	0		9	55			19	7
Queuing Penalty (veh)	1		11	67			73	26
Storage Bay Dist (ft)		150						
Storage Blk Time (%)	0	4						
Queuing Penalty (veh)	1	2						

**Intersection: 12: 39th St & Albemarle St**

Movement	EB	WB	NB	SB
Directions Served	LT	TR	LTR	L
Maximum Queue (ft)	9	246	107	38
Average Queue (ft)	0	114	34	10
95th Queue (ft)	4	217	70	33
Link Distance (ft)	29	414	356	48
Upstream Blk Time (%)	0			0
Queuing Penalty (veh)	0			0
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

**Intersection: 13: Nebraska Ave**

Movement	NB	SB	SB	NE	NE
Directions Served	T	TR	R	L	L
Maximum Queue (ft)	52	205	185	66	22
Average Queue (ft)	16	102	35	7	1
95th Queue (ft)	42	176	115	36	10
Link Distance (ft)	48	428	428	56	56
Upstream Blk Time (%)	0			0	
Queuing Penalty (veh)	0			0	
Storage Bay Dist (ft)					
Storage Blk Time (%)					
Queuing Penalty (veh)					



**Intersection: 18: Albemarle & 40th St SB**

Movement	EB	WB	SB	SB
Directions Served	T	T	L	R
Maximum Queue (ft)	127	55	97	78
Average Queue (ft)	25	26	58	31
95th Queue (ft)	83	49	88	63
Link Distance (ft)	151	6	15	15
Upstream Blk Time (%)	0	14	40	11
Queuing Penalty (veh)	0	24	45	12
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

**Intersection: 19: Fort Dr NB & U Turn**

Movement	EB	NB
Directions Served	L	T
Maximum Queue (ft)	55	56
Average Queue (ft)	20	5
95th Queue (ft)	51	27
Link Distance (ft)	10	12
Upstream Blk Time (%)	2	0
Queuing Penalty (veh)	1	0
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

**Intersection: 20: 40th St SB & U Turn**

Movement	SB
Directions Served	LT
Maximum Queue (ft)	389
Average Queue (ft)	110
95th Queue (ft)	273
Link Distance (ft)	468
Upstream Blk Time (%)	0
Queuing Penalty (veh)	0
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

**Network Summary**

Network wide Queuing Penalty: 329

**Tenleytown Station Access Improvements**

**SimTraffic Performance Report**

**2015 AM Build**

3: Wisconsin Ave & Albemarle St/Albemarle Performance by approach

Approach	EB	WB	NB	SB	All
Denied Del/Veh (s)	1.1	0.1	0.3	0.1	0.3
Total Del/Veh (s)	23.9	48.0	15.8	9.2	15.9

4: Driveway & Wisconsin Ave Performance by approach

Approach	WB	NB	SB	All
Denied Del/Veh (s)	0.1	0.0	0.3	0.2
Total Del/Veh (s)	22.4	3.3	16.0	11.1

6: 40th St & Albemarle Performance by approach

Approach	EB	WB	NB	SB	All
Denied Del/Veh (s)	0.0	0.1	0.1	0.0	0.0
Total Del/Veh (s)	9.7	10.9	7.3	6.5	9.0

9: Nebraska Ave & Albemarle Performance by approach

Approach	EB	WB	NB	SB	All
Denied Del/Veh (s)	0.0	0.0	0.1	0.1	0.1
Total Del/Veh (s)	29.6	15.8	7.5	6.0	11.3

12: 39th St & Albemarle St Performance by approach

Approach	EB	WB	NB	SB	All
Denied Del/Veh (s)	0.0	0.3	0.1	0.0	0.1
Total Del/Veh (s)	1.7	24.1	17.7	8.7	13.6

13: Nebraska Ave Performance by approach

Approach	NB	SB	NE	All
Denied Del/Veh (s)	0.0	0.2	0.0	0.1
Total Del/Veh (s)	6.2	5.2	0.9	3.8

16: 40th St Performance by approach

Approach	NB	SB	All
Denied Del/Veh (s)	0.0	0.7	0.3
Total Del/Veh (s)	1.3	3.2	2.3

Total Network Performance

Denied Del/Veh (s)	0.4
Total Del/Veh (s)	25.6

Intersection: 3: Wisconsin Ave & Albemarle St/Albemarle

Movement	EB	EB	WB	NB	NB	NB	SB	SB	SB
Directions Served	L	TR	LTR	T	T	R	T	T	R
Maximum Queue (ft)	77	178	231	273	230	110	151	157	53
Average Queue (ft)	29	94	137	167	122	20	104	93	13
95th Queue (ft)	62	169	230	249	208	71	168	168	40
Link Distance (ft)		588	212	652	652		128	128	128
Upstream Blk Time (%)			5				3	2	
Queuing Penalty (veh)			10				12	10	
Storage Bay Dist (ft)	200					100			
Storage Blk Time (%)		0			8	0			
Queuing Penalty (veh)		0			3	0			

Intersection: 4: Driveway & Wisconsin Ave

Movement	WB	NB	NB	SB	SB	SB
Directions Served	R	T	TR	LT	T	T
Maximum Queue (ft)	65	78	81	392	336	141
Average Queue (ft)	22	37	28	263	200	15
95th Queue (ft)	54	70	72	386	328	80
Link Distance (ft)	178	128	128	384	384	384
Upstream Blk Time (%)				1	0	0
Queuing Penalty (veh)				0	0	0
Storage Bay Dist (ft)						
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 6: 40th St & Albemarle

Movement	EB	WB	NB	SB	SB
Directions Served	LTR	LTR	LTR	LT	R
Maximum Queue (ft)	121	199	81	89	60
Average Queue (ft)	53	84	39	44	26
95th Queue (ft)	96	151	66	72	51
Link Distance (ft)	212	206	229	196	196
Upstream Blk Time (%)		1			
Queuing Penalty (veh)		2			
Storage Bay Dist (ft)					
Storage Blk Time (%)					
Queuing Penalty (veh)					



Intersection: 9: Nebraska Ave & Albemarle

Movement	EB	EB	WB	WB	NB	NB	SB	SB
Directions Served	L	TR	L	T	LT	TR	LT	TR
Maximum Queue (ft)	207	171	42	54	142	89	84	84
Average Queue (ft)	41	100	19	32	51	9	59	47
95th Queue (ft)	125	169	44	44	109	43	72	84
Link Distance (ft)	206		29	29	413	413	56	56
Upstream Blk Time (%)	0		7	54			18	7
Queuing Penalty (veh)	1		9	66			68	26
Storage Bay Dist (ft)		150						
Storage Blk Time (%)	0	2						
Queuing Penalty (veh)	0	1						

Intersection: 12: 39th St & Albemarle St

Movement	EB	WB	NB	SB
Directions Served	LT	TR	LTR	L
Maximum Queue (ft)	14	234	103	40
Average Queue (ft)	0	106	35	11
95th Queue (ft)	8	205	76	35
Link Distance (ft)	29	414	356	48
Upstream Blk Time (%)	0			0
Queuing Penalty (veh)	0			0
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 13: Nebraska Ave

Movement	NB	SB	SB	NE	NE
Directions Served	T	TR	R	L	L
Maximum Queue (ft)	54	188	154	71	35
Average Queue (ft)	14	94	34	7	2
95th Queue (ft)	41	166	107	37	14
Link Distance (ft)	48	428	428	56	56
Upstream Blk Time (%)	1			0	0
Queuing Penalty (veh)	0			0	0
Storage Bay Dist (ft)					
Storage Blk Time (%)					
Queuing Penalty (veh)					

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Intersection: 16: 40th St

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Movement	SB
Directions Served	UL
Maximum Queue (ft)	34
Average Queue (ft)	8
95th Queue (ft)	29
Link Distance (ft)	
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	20
Storage Blk Time (%)	1
Queuing Penalty (veh)	2

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Network Summary

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Network wide Queuing Penalty: 212

**Tenleytown Station Access Improvements**

**SimTraffic Performance Report**

**2015 PM Existing**

**3: Wisconsin Ave & Albemarle St Performance by approach**

Approach	EB	WB	NB	SB	All
Denied Del/Veh (s)	1.4	0.8	0.4	0.0	0.4
Total Del/Veh (s)	22.2	61.1	19.1	7.9	19.3

**4: Driveway & Wisconsin Ave Performance by approach**

Approach	WB	NB	SB	All
Denied Del/Veh (s)	0.2	0.0	0.2	0.1
Total Del/Veh (s)	28.7	4.0	32.0	15.8

**6: Fort Dr NB & Albemarle St Performance by approach**

Approach	EB	WB	NB	All
Denied Del/Veh (s)	0.1	0.1	0.2	0.1
Total Del/Veh (s)	1.6	28.5	17.1	12.5

**9: Albemarle St Performance by approach**

Approach	EB	WB	NB	SB	All
Denied Del/Veh (s)	0.0	0.0	0.1	0.0	0.1
Total Del/Veh (s)	45.2	16.9	7.7	5.4	14.3

**12: Albemarle St Performance by approach**

Approach	EB	WB	NB	SB	All
Denied Del/Veh (s)	0.0	0.3	113.3	0.0	34.2
Total Del/Veh (s)	1.6	49.3	151.1	6.6	62.4

**13: Performance by approach**

Approach	NB	SB	NE	All
Denied Del/Veh (s)	0.0	0.1	0.0	0.0
Total Del/Veh (s)	10.9	2.9	1.0	2.8

**18: Albemarle St & 40th St SB Performance by approach**

Approach	EB	WB	SB	All
Denied Del/Veh (s)	0.0	0.1	1.9	0.8
Total Del/Veh (s)	6.6	8.1	13.0	9.8

**19: Fort Dr NB & U Turn Performance by approach**

Approach	EB	NB	All
Denied Del/Veh (s)	0.2	0.0	0.1
Total Del/Veh (s)	6.0	1.1	2.1



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20: 40th St SB & U Turn Performance by approach

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Approach	SB	All
Denied Del/Veh (s)	104.2	104.2
Total Del/Veh (s)	118.0	118.0

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Total Network Performance

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Denied Del/Veh (s)	12.2
Total Del/Veh (s)	44.8

**Intersection: 3: Wisconsin Ave & Albemarle St**

Movement	EB	EB	WB	NB	NB	NB	SB	SB	SB
Directions Served	L	TR	LTR	T	T	R	T	T	R
Maximum Queue (ft)	83	145	170	422	374	125	131	147	48
Average Queue (ft)	32	50	140	260	223	47	58	66	12
95th Queue (ft)	71	115	197	382	346	125	128	136	40
Link Distance (ft)		588	156	652	652		116	116	116
Upstream Blk Time (%)			21				1	1	
Queuing Penalty (veh)			52				2	2	
Storage Bay Dist (ft)	200					100			
Storage Blk Time (%)					19	0			
Queuing Penalty (veh)					15	1			

**Intersection: 4: Driveway & Wisconsin Ave**

Movement	WB	NB	NB	SB	SB	SB
Directions Served	R	T	TR	LT	T	T
Maximum Queue (ft)	119	91	104	415	368	81
Average Queue (ft)	56	43	39	292	224	9
95th Queue (ft)	106	83	89	414	341	42
Link Distance (ft)	298	116	116	397	397	397
Upstream Blk Time (%)		0	0	1	0	
Queuing Penalty (veh)		0	0	0	0	
Storage Bay Dist (ft)						
Storage Blk Time (%)						
Queuing Penalty (veh)						

**Intersection: 6: Fort Dr NB & Albemarle St**

Movement	EB	WB	NB
Directions Served	LTR	LTR	LTR
Maximum Queue (ft)	101	248	162
Average Queue (ft)	43	126	71
95th Queue (ft)	95	238	130
Link Distance (ft)	11	209	320
Upstream Blk Time (%)	7	5	
Queuing Penalty (veh)	27	13	
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 9: Albemarle St

Movement	EB	EB	WB	WB	NB	NB	SB	SB
Directions Served	L	TR	L	T	LT	TR	LT	TR
Maximum Queue (ft)	194	172	42	54	177	141	67	68
Average Queue (ft)	65	101	12	33	85	25	51	21
95th Queue (ft)	156	166	37	46	157	91	73	56
Link Distance (ft)	209		29	29	413	413	56	56
Upstream Blk Time (%)	1		5	66			10	2
Queuing Penalty (veh)	2		6	75			27	5
Storage Bay Dist (ft)		150						
Storage Blk Time (%)	1	3						
Queuing Penalty (veh)	3	2						

Intersection: 12: Albemarle St

Movement	EB	WB	NB	SB
Directions Served	LT	TR	LTR	L
Maximum Queue (ft)	24	294	371	24
Average Queue (ft)	1	147	219	3
95th Queue (ft)	10	290	452	19
Link Distance (ft)	29	414	356	48
Upstream Blk Time (%)	0	0	39	0
Queuing Penalty (veh)	0	0	0	0
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 13:

Movement	NB	SB	SB	NE	NE
Directions Served	T	TR	R	L	L
Maximum Queue (ft)	66	152	84	33	11
Average Queue (ft)	38	52	6	3	1
95th Queue (ft)	74	123	42	22	10
Link Distance (ft)	48	428	428	56	56
Upstream Blk Time (%)	9			0	0
Queuing Penalty (veh)	15			0	0
Storage Bay Dist (ft)					
Storage Blk Time (%)					
Queuing Penalty (veh)					

**Intersection: 18: Albemarle St & 40th St SB**

Movement	EB	WB	SB	SB
Directions Served	T	T	L	R
Maximum Queue (ft)	136	52	102	89
Average Queue (ft)	41	29	60	43
95th Queue (ft)	109	46	96	83
Link Distance (ft)	156	11	7	7
Upstream Blk Time (%)	0	28	58	26
Queuing Penalty (veh)	0	49	78	34
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

**Intersection: 19: Fort Dr NB & U Turn**

Movement	EB	NB
Directions Served	L	T
Maximum Queue (ft)	56	53
Average Queue (ft)	34	4
95th Queue (ft)	66	26
Link Distance (ft)	18	14
Upstream Blk Time (%)	5	0
Queuing Penalty (veh)	3	0
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

**Intersection: 20: 40th St SB & U Turn**

Movement	SB
Directions Served	LT
Maximum Queue (ft)	550
Average Queue (ft)	402
95th Queue (ft)	701
Link Distance (ft)	489
Upstream Blk Time (%)	55
Queuing Penalty (veh)	0
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

**Network Summary**

Network wide Queuing Penalty: 413



**Tenleytown Station Access Improvements**

**SimTraffic Performance Report**

**2015 PM Build**

**3: Wisconsin Ave & Albemarle St Performance by approach**

Approach	EB	WB	NB	SB	All
Denied Del/Veh (s)	1.3	1.6	0.4	0.0	0.5
Total Del/Veh (s)	22.9	66.1	19.0	8.1	20.0

**4: Driveway & Wisconsin Ave Performance by approach**

Approach	WB	NB	SB	All
Denied Del/Veh (s)	0.2	0.0	0.2	0.1
Total Del/Veh (s)	26.7	4.0	29.0	14.6

**6: 40th St & Albemarle St Performance by approach**

Approach	EB	WB	NB	SB	All
Denied Del/Veh (s)	0.0	0.0	0.1	0.0	0.0
Total Del/Veh (s)	8.8	19.1	6.9	8.4	11.7

**9: Albemarle St Performance by approach**

Approach	EB	WB	NB	SB	All
Denied Del/Veh (s)	0.0	0.2	0.1	0.0	0.1
Total Del/Veh (s)	52.2	16.9	7.8	5.3	15.4

**12: Albemarle St Performance by approach**

Approach	EB	WB	NB	SB	All
Denied Del/Veh (s)	0.0	1.0	120.6	0.0	37.4
Total Del/Veh (s)	1.6	52.2	133.5	10.0	59.0

**13: Performance by approach**

Approach	NB	SB	NE	All
Denied Del/Veh (s)	0.0	0.1	0.0	0.1
Total Del/Veh (s)	11.3	3.0	1.0	2.9

**16: 40th St Performance by approach**

Approach	NB	SB	All
Denied Del/Veh (s)	0.0	0.9	0.6
Total Del/Veh (s)	1.3	3.4	2.6

**Total Network Performance**

Denied Del/Veh (s)	5.6
Total Del/Veh (s)	36.8

**Intersection: 3: Wisconsin Ave & Albemarle St**

Movement	EB	EB	WB	NB	NB	NB	SB	SB	SB
Directions Served	L	TR	LTR	T	T	R	T	T	R
Maximum Queue (ft)	82	136	217	375	341	125	126	151	69
Average Queue (ft)	30	53	154	240	210	46	60	66	19
95th Queue (ft)	65	115	243	340	320	122	132	142	52
Link Distance (ft)		588	211	652	652		116	116	116
Upstream Blk Time (%)			13				1	1	
Queuing Penalty (veh)			31				3	4	
Storage Bay Dist (ft)	200					100			
Storage Blk Time (%)					20	0			
Queuing Penalty (veh)					15	1			

**Intersection: 4: Driveway & Wisconsin Ave**

Movement	WB	NB	NB	SB	SB	SB
Directions Served	R	T	TR	LT	T	T
Maximum Queue (ft)	116	96	115	415	389	60
Average Queue (ft)	56	45	38	275	207	12
95th Queue (ft)	105	87	86	401	342	43
Link Distance (ft)	298	116	116	397	397	397
Upstream Blk Time (%)		0	0	1	0	
Queuing Penalty (veh)		0	0	0	0	
Storage Bay Dist (ft)						
Storage Blk Time (%)						
Queuing Penalty (veh)						

**Intersection: 6: 40th St & Albemarle St**

Movement	EB	WB	NB	SB	SB
Directions Served	LTR	LTR	LTR	LT	R
Maximum Queue (ft)	128	214	72	101	86
Average Queue (ft)	49	109	37	47	37
95th Queue (ft)	89	200	62	80	70
Link Distance (ft)	211	208	187	197	197
Upstream Blk Time (%)		2			
Queuing Penalty (veh)		6			
Storage Bay Dist (ft)					
Storage Blk Time (%)					
Queuing Penalty (veh)					

Intersection: 9: Albemarle St

Movement	EB	EB	WB	WB	NB	NB	SB	SB
Directions Served	L	TR	L	T	LT	TR	LT	TR
Maximum Queue (ft)	215	174	42	66	169	146	75	65
Average Queue (ft)	74	112	13	34	81	29	52	21
95th Queue (ft)	164	180	37	51	144	93	74	55
Link Distance (ft)	208		29	29	413	413	56	56
Upstream Blk Time (%)	1		4	66			11	2
Queuing Penalty (veh)	3		5	76			29	4
Storage Bay Dist (ft)		150						
Storage Blk Time (%)	2	4						
Queuing Penalty (veh)	3	3						

Intersection: 12: Albemarle St

Movement	EB	WB	NB	SB
Directions Served	LT	TR	LTR	L
Maximum Queue (ft)	20	278	366	30
Average Queue (ft)	1	141	217	4
95th Queue (ft)	10	304	447	19
Link Distance (ft)	29	414	356	48
Upstream Blk Time (%)	0	3	34	0
Queuing Penalty (veh)	0	0	0	0
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 13:

Movement	NB	SB	SB	NE	NE
Directions Served	T	TR	R	L	L
Maximum Queue (ft)	66	134	45	43	21
Average Queue (ft)	39	52	4	3	1
95th Queue (ft)	76	120	26	20	11
Link Distance (ft)	48	428	428	56	56
Upstream Blk Time (%)	10			0	0
Queuing Penalty (veh)	16			0	0
Storage Bay Dist (ft)					
Storage Blk Time (%)					
Queuing Penalty (veh)					



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Intersection: 16: 40th St

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Movement	SB	SB
Directions Served	UL	T
Maximum Queue (ft)	43	31
Average Queue (ft)	15	2
95th Queue (ft)	41	17
Link Distance (ft)		238
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)	20	
Storage Blk Time (%)	2	
Queuing Penalty (veh)	6	

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Network Summary

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Network wide Queuing Penalty: 204

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## **Appendix H: FULL CONCEPTUAL CAPITAL COST ESTIMATES**

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## Cost Estimate - Tenleytown Station Improvements Summary

Scenario #1	Total Cost
<b>Tenleytown Improvements</b> with relocation of up to 8 Overhead poles that are impacted. <i>(assuming Tenleytown Improvements come first and Overhead Utilities have not been relocated separately)*</i>	<b>\$ 10,103,000</b>

<u>Assumptions/Notes:</u>	<u>Cost Estimate Date:</u> October 7, 2016
- Costs are conceptual/order of magnitude	
- Vehicles are not included	
- Right-of-Way cost are not included	
* FULL Utility costs are not included, only impacted poles relocated*	
- Concept Date: Based on the Final Alternative Conceptual Site Plan as of September 2016	

Scenario #2	Cost
Base Tenleytown Improvements (assuming Overhead Utilities are relocated prior/separately)**	\$ 7,061,000
Low End Range for Relocating OH Utilities Underground	\$ 8,115,000
<b>Total =</b>	<b>\$ 15,176,000</b>

Scenario #3	Cost
Base Tenleytown Improvements (assuming Overhead Utilities are relocated prior/separately)**	\$ 7,061,000
High End Range for Relocating OH Utilities Underground	\$ 9,600,000
<b>Total =</b>	<b>\$ 16,661,000</b>

<u>Assumptions/Notes:</u>	<u>Cost Estimate Date:</u> October 7, 2016
- Costs are conceptual/order of magnitude	
- Vehicles are not included	
- Right-of-Way cost are not included	
** Utility pole costs are not included in Base Tenleytown Improvement subtotal under scenario #2 or Scenario #3 and assumes that the overhead utilities will be relocated underground prior to base improvements (either the low end utility added for scenario 2, or high end utility range added for scenario 3)**	
- Concept Date: Based on the Final Alternative Conceptual Site Plan as of September 2016	



## Cost Estimate - Tenleytown Station Access Study

### Final Alternative Conceptual Improvements

TOTAL	Unit	Unit Price	Quantity	Description
40,000	EA	\$ 20,000	2	Remove Existing Bus Shelter
189,551	SY	\$ 23	8,241	Mill Existing Asphalt Surface - Improvement Area
13,123	SY	\$ 23	571	Mill Existing Asphalt Surface - Other/Remaining
48,817	CY	\$ 158	309	Remove Existing Sidewalks (Concrete)
921	CY	\$ 17	54	Remove Existing Curb & Gutter
21,672	CY	\$ 68	319	Remove Existing Asphalt Pavement
10,363	CY	\$ 158	66	Remove Existing Concrete Pavement
38,015	CY	\$ 68	559	Earthwork/Excavation
1,820	LF	\$ 28	65	Remove Existing Guardrail
3,360	LF	\$ 28	120	Remove Existing Fence
10,134	EA	\$ 563	18	Remove Existing Bike Racks
16,880	EA	\$ 1,688	10	Remove Existing Bike Locker
11,260	EA	\$ 563	20	Remove or Relocate Existing Signs
10,140	EA	\$ 338	30	Remove or Relocate Existing Parking Meters
22,520	EA	\$ 1,126	20	Remove Existing Trees and stump grinding
187,942	SY	\$ 28	6,712	New Sidewalks (6" Agg Base)
1,026,970	SF	\$ 17	60,410	New Sidewalks (Concrete)
101,976	LF	\$ 56	1,821	New Curb & Gutter
14,996	SY	\$ 28	536	New Asphalt Road Pavement - 12" Agg Base
39,033	TON	\$ 236	165	New Asphalt Road Pavement - Base Course
11,735	TON	\$ 298	39	New Asphalt Road Pavement - Surface Course
288,931	TON	\$ 298	970	Resurface Asphalt Road Pvmt - Improvement
20,003	TON	\$ 298	67	Resurface Asphalt Road Pvmt - Other Remaining
79,360	SY	\$ 96	827	New Concrete Pavement (Standard Finish)
35,608	SY	\$ 113	315	New Concrete Pavement (Differentiated Finish)
50,893	LF	\$ 5	10,179	New Pavement markings
16,210	SF	\$ 10	1,621	Pvmt Markings (Painted bike boxes/stop bars)
9,000	EA	\$ 150	60	New Pavement Symbols/Arrows
264,750	SF	\$ 150	1,765	Covered Bike Parking Areas
61,451	EA	\$ 4,727	13	New Light Poles
58,528	EA	\$ 7,316	8	Relocate or Remove Existing Light Poles
432,600	EA	\$ 72,100	6	New Bus Shelter
75,978	EA	\$ 2,814	27	New ADA Ramps
165,130	SF	\$ 14	11,795	New Landscaped/Grass Areas
6,553	CY	\$ 45	146	New Soil/Fill for Grass Areas
8,840	LF	\$ 68	130	New Fencing
11,260	EA	\$ 563	20	New Trees
16,200	EA	\$ 900	18	New Bike Racks (Approx 6 bikes/rack)
12,386	EA	\$ 563	22	New Signs
1,480,000	EA	\$ 185,000	8	Relocate Impacted Utility Poles
<b>\$ 4,914,906</b>	<b>Line Items Subtotal</b>			
491,491	%	10	Preliminary Eng. / Plan Review ( <i>Percentage of Line Items Subtotal</i> )	
393,193	%	8	Mobilization ( <i>Percentage of Line Item Subtotal</i> )	
393,193	%	8	Maintenance of Traffic ( <i>Percentage of Line Item Subtotal</i> )	
589,789	%	12	Drainage ( <i>Percentage of Line Item Subtotal</i> )	
245,745	%	5	Landscaping ( <i>Percentage of Line Item Subtotal</i> )	
<b>\$ 7,028,316</b>	<b>Construction Subtotal</b>			
1,757,079	%	25	Contingency ( <i>Percentage of Construction Subtotal</i> )	
<b>\$ 8,785,395</b>	<b>Neat Cost</b>			
1,317,809	%	15	Engineering Overhead ( <i>Percentage of Neat Cost</i> )	
<b>\$ 10,103,000</b>	<b>Total Construction Cost</b>			

Assumptions/Notes:

October 7, 2016

- Costs are conceptual/order of magnitude
- Vehicles are not included
- Right-of-Way cost are not included
- Utility Costs for up 8 impacted overhead (OH) poles included in this estimate assuming that the OH utilities are NOT relocated underground prior/separately. Full Utility costs are not included.

## Cost Estimate - Tenleytown Station Access Study

### Final Alternative Concept Improvements - Base Estimate without Utilities

TOTAL	Unit	Unit Price	Quantity	Description
40,000	EA	\$ 20,000	2	Remove Existing Bus Shelter
189,551	SY	\$ 23	8,241	Mill Existing Asphalt Surface - Improvement Area
13,123	SY	\$ 23	571	Mill Existing Asphalt Surface - Other/Remaining
48,817	CY	\$ 158	309	Remove Existing Sidewalks (Concrete)
921	CY	\$ 17	54	Remove Existing Curb & Gutter
21,672	CY	\$ 68	319	Remove Existing Asphalt Pavement
10,363	CY	\$ 158	66	Remove Existing Concrete Pavement
38,015	CY	\$ 68	559	Earthwork/Excavation
1,820	LF	\$ 28	65	Remove Existing Guardrail
3,360	LF	\$ 28	120	Remove Existing Fence
10,134	EA	\$ 563	18	Remove Existing Bike Racks
16,880	EA	\$ 1,688	10	Remove Existing Bike Locker
11,260	EA	\$ 563	20	Remove or Relocate Existing Signs
10,140	EA	\$ 338	30	Remove or Relocate Existing Parking Meters
22,520	EA	\$ 1,126	20	Remove Existing Trees and stump grinding
187,942	SY	\$ 28	6,712	New Sidewalks (6" Agg Base)
1,026,970	SF	\$ 17	60,410	New Sidewalks (Concrete)
101,976	LF	\$ 56	1,821	New Curb & Gutter
14,996	SY	\$ 28	536	New Asphalt Road Pavement - 12" Agg Base
39,033	TON	\$ 236	165	New Asphalt Road Pavement - Base Course
11,735	TON	\$ 298	39	New Asphalt Road Pavement - Surface Course
288,931	TON	\$ 298	970	Resurface Asphalt Road Pvmt - Improvement
20,003	TON	\$ 298	67	Resurface Asphalt Road Pvmt - Other Remaining
79,360	SY	\$ 96	827	New Concrete Pavement (Standard Finish)
35,608	SY	\$ 113	315	New Concrete Pavement (Differentiated Finish)
50,893	LF	\$ 5	10,179	New Pavement markings
16,210	SF	\$ 10	1,621	Pvmt Markings (Painted bike boxes/stop bars)
9,000	EA	\$ 150	60	New Pavement Symbols/Arrows
264,750	SF	\$ 150	1,765	Covered Bike Parking Areas
61,451	EA	\$ 4,727	13	New Light Poles
58,528	EA	\$ 7,316	8	Relocate or Remove Existing Light Poles
432,600	EA	\$ 72,100	6	New Bus Shelter
75,978	EA	\$ 2,814	27	New ADA Ramps
165,130	SF	\$ 14	11,795	New Landscaped/Grass Areas
6,553	CY	\$ 45	146	New Soil/Fill for Grass Areas
8,840	LF	\$ 68	130	New Fencing
11,260	EA	\$ 563	20	New Trees
16,200	EA	\$ 900	18	New Bike Racks (Approx 6 bikes/rack)
12,386	EA	\$ 563	22	New Signs
-	EA	\$ 185,000	-	Relocate Impacted Utility Poles
<b>\$ 3,434,906</b>	<b>Line Items Subtotal</b>			
343,491	%	10	Preliminary Eng. / Plan Review ( <i>Percentage of Line Items Subtotal</i> )	
274,793	%	8	Mobilization ( <i>Percentage of Line Item Subtotal</i> )	
274,793	%	8	Maintenance of Traffic ( <i>Percentage of Line Item Subtotal</i> )	
412,189	%	12	Drainage ( <i>Percentage of Line Item Subtotal</i> )	
171,745	%	5	Landscaping ( <i>Percentage of Line Item Subtotal</i> )	
<b>\$ 4,911,916</b>	<b>Construction Subtotal</b>			
1,227,979	%	25	Contingency ( <i>Percentage of Construction Subtotal</i> )	
<b>\$ 6,139,895</b>	<b>Neat Cost</b>			
920,984	%	15	Engineering Overhead ( <i>Percentage of Neat Cost</i> )	
<b>\$ 7,061,000</b>	<b>Total Construction Cost (Base Improvements, No Utility work included)</b>			

Assumptions/Notes:

October 7, 2016

- Costs are conceptual/order of magnitude
- Vehicles are not included
- Right-of-Way cost are not included

**- Utility costs are NOT included in this number assuming the overhead (OH) utilities ARE relocated underground prior to base improvements or OH relocation to underground done by others (provided as a separate cost).**

## Cost Estimate - Tenleytown Station Access Study

### Ballpark Low End Range for Relocating Utilities Underground on 40th and Fort Drive

TOTAL	Unit	Unit Price	Quantity	Description	
36,000	LF	\$ 60	600	Remove 3 OH Electric lines on 40th	**
84,000	LF	\$ 140	600	Remove 3 OH Telecom lines on 40th	**
42,000	LF	\$ 140	300	Remove 2 OH Telecom lines crossing 40th	**
3,600	LF	\$ 60	60	Remove 3 OH Electric lines crossing 40th	**
6,000	LF	\$ 60	100	Remove 1 OH Electric lines along Alley	**
7,800	LF	\$ 60	130	Remove 2 OH Electric lines from Alley crossing 40th/Albemarle	**
-	LF		-	Remove 2 OH Electric lines Along Fort Drive NW to next pole	**
-	LF		-	Remove 1 OH Telecom lines Along Fort Drive NW to next pole	**
-	LF		-	Remove 3 OH Electric lines on Albemarle	**
-	LF		-	Remove 2 OH Telecom lines on Albemarle	**
600,000	LF	\$ 1,000	600	Replace/Relocate UG 3 Electric lines on 40th	**
900,000	LF	\$ 1,500	600	Replace UG 3 Telecom lines on 40th	**
450,000	LF	\$ 1,500	300	Replace UG 2 Telecom lines crossing 40th	**
60,000	LF	\$ 1,000	60	Replace UG 3 Electric lines crossing 40th	**
100,000	LF	\$ 1,000	100	Replace UG 1 Electric lines along Alley	**
130,000	LF	\$ 1,000	130	Replace UG 2 Electric lines from Alley crossing 40th/Albemarle	**
-	LF		-	Replace UG 2 Electric lines Along Fort Drive NW to next pole	**
-	LF		-	Replace UG 1 Telecom lines Along Fort Drive NW to next pole	**
-	LF		-	Replace UG 3 Electric lines on Albemarle	**
-	LF		-	Replace UG 2 Telecom lines on Albemarle	**
80,000	LF	\$ 400	200	Relocate Existing UG Gas to accommodate new UG E/T	
40,000	LF	\$ 100	400	Relocate Existing UG Water to accommodate new UG E/T	
20,000	LF	\$ 100	200	Relocate Existing UG San. Sewer to accommodate new UG E/T	
600,000	LF	\$ 1,000	600	Relocate Existing UG Electric to accommodate new UG E/T	
300,000	LF	\$ 1,500	200	Relocate Existing UG Telecom to accommodate new UG E/T	
50,400	EA	\$ 4,200	12	New Street Lights/Poles	
240,000	EA	\$ 30,000	8	New Manholes (Electric)	
240,000	EA	\$ 30,000	8	New Manholes (Telecom)	
-	EA	\$ 2,500	-	Remove Existing Utility Poles (Albemarle St)	
10,000	EA	\$ 2,500	4	Remove Existing Utility Poles (Median/East Side 40th)	
27,500	EA	\$ 2,500	11	Remove Existing Utility Poles (West Side 40th)	
5,000	EA	\$ 2,500	2	Remove Existing Utility Poles (Alley)	
<b>\$ 4,032,300</b>	<b>Line Items Subtotal</b>				
403,230	%	10	Preliminary Eng. / Plan Review (Percentage of Line Item Subtotal)		
322,584	%	8	Mobilization (Percentage of Line Item Subtotal)		
322,584	%	8	Maintenance of Traffic (Percentage of Line Item Subtotal)		
362,907	%	9	Drainage (Percentage of Line Item Subtotal)		
201,615	%	5	Landscaping (Percentage of Line Item Subtotal)		
<b>\$ 5,645,220</b>	<b>Construction Subtotal</b>				
1,411,305	%	25	Contingency (Percentage of Construction Subtotal)		
<b>\$ 7,056,525</b>	<b>Neat Cost</b>				
1,058,479	%	15	Engineering Overhead (Percentage of Neat Cost)		
<b>\$ 8,115,000</b>	<b>Total Construction Cost</b>				

Assumptions/Notes:

September 12, 2016

- Costs are conceptual/order of magnitude

- Right-of-Way cost are not included

- FULL Utility costs are not included, only ballpark estimate to relocate existing overhead lines underground.

\*\* Number and type of Overhead line is assumed at this point. Actual type, owner, and unit price to be confirmed at later stages of design.

## Cost Estimate - Tenleytown Station Access Study

### Ballpark High End Range for Relocating Utilities Underground on 40th and Fort Drive

TOTAL	Unit	Unit Price	Quantity	Description	
36,000	LF	\$ 60	600	Remove 3 OH Electric lines on 40th	**
84,000	LF	\$ 140	600	Remove 3 OH Telecom lines on 40th	**
42,000	LF	\$ 140	300	Remove 2 OH Telecom lines crossing 40th	**
3,600	LF	\$ 60	60	Remove 3 OH Electric lines crossing 40th	**
6,000	LF	\$ 60	100	Remove 1 OH Electric lines along Alley	**
7,800	LF	\$ 60	130	Remove 2 OH Electric lines from Alley crossing 40th/Albemarle	**
3,600	LF	\$ 60	60	Remove 2 OH Electric lines Along Fort Drive NW to next pole	**
8,400	LF	\$ 140	60	Remove 1 OH Telecom lines Along Fort Drive NW to next pole	**
7,200	LF	\$ 60	120	Remove 3 OH Electric lines on Albemarle	**
16,800	LF	\$ 140	120	Remove 2 OH Telecom lines on Albemarle	**
600,000	LF	\$ 1,000	600	Replace/Relocate UG 3 Electric lines on 40th	**
900,000	LF	\$ 1,500	600	Replace UG 3 Telecom lines on 40th	**
450,000	LF	\$ 1,500	300	Replace UG 2 Telecom lines crossing 40th	**
60,000	LF	\$ 1,000	60	Replace UG 3 Electric lines crossing 40th	**
100,000	LF	\$ 1,000	100	Replace UG 1 Electric lines along Alley	**
130,000	LF	\$ 1,000	130	Replace UG 2 Electric lines from Alley crossing 40th/Albemarle	**
60,000	LF	\$ 1,000	60	Replace UG 2 Electric lines Along Fort Drive NW to next pole	**
90,000	LF	\$ 1,500	60	Replace UG 1 Telecom lines Along Fort Drive NW to next pole	**
120,000	LF	\$ 1,000	120	Replace UG 3 Electric lines on Albemarle	**
180,000	LF	\$ 1,500	120	Replace UG 2 Telecom lines on Albemarle	**
80,000	LF	\$ 400	200	Relocate Existing UG Gas to accommodate new UG E/T	
40,000	LF	\$ 100	400	Relocate Existing UG Water to accommodate new UG E/T	
20,000	LF	\$ 100	200	Relocate Existing UG San. Sewer to accommodate new UG E/T	
600,000	LF	\$ 1,000	600	Relocate Existing UG Electric to accommodate new UG E/T	
300,000	LF	\$ 1,500	200	Relocate Existing UG Telecom to accommodate new UG E/T	
54,600	EA	\$ 4,200	13	New Street Lights/Poles	
360,000	EA	\$ 30,000	12	New Manholes (Electric)	
360,000	EA	\$ 30,000	12	New Manholes (Telecom)	
7,500	EA	\$ 2,500	3	Remove Existing Utility Poles (Albemarle St)	
10,000	EA	\$ 2,500	4	Remove Existing Utility Poles (Median/East Side 40th)	
27,500	EA	\$ 2,500	11	Remove Existing Utility Poles (West Side 40th)	
5,000	EA	\$ 2,500	2	Remove Existing Utility Poles (Alley)	
<b>\$ 4,770,000</b>	<b>Line Items Subtotal</b>				
477,000	%	10	Preliminary Eng. / Plan Review (Percentage of Line Items Subtotal)		
381,600	%	8	Mobilization (Percentage of Line Item Subtotal)		
381,600	%	8	Maintenance of Traffic (Percentage of Line Item Subtotal)		
429,300	%	9	Drainage (Percentage of Line Item Subtotal)		
238,500	%	5	Landscaping (Percentage of Line Item Subtotal)		
<b>\$ 6,678,000</b>	<b>Construction Subtotal</b>				
1,669,500	%	25	Contingency (Percentage of Construction Subtotal)		
<b>\$ 8,347,500</b>	<b>Neat Cost</b>				
1,252,125	%	15	Engineering Overhead (Percentage of Neat Cost)		
<b>\$ 9,600,000</b>	<b>Total Construction Cost</b>				

Assumptions/Notes:

September 12, 2016

- Costs are conceptual/order of magnitude

- Right-of-Way cost are not included

- FULL Utility costs are not included, only ballpark estimate to relocate existing overhead lines underground.

\*\* Number and type of Overhead line is assumed at this point. Actual type, owner, and unit price to be confirmed at later stages of des