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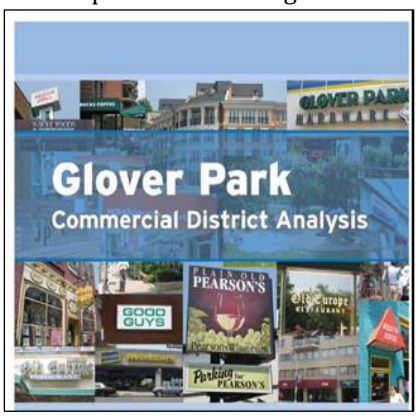
Introduction

This report provides a series of recommendations for enhancing the transportation system within Glover Park and the public space elements that support the transportation system that impact the quality of life of Glover Park residents, visitors, and businesses. This report is a culmination of over two years of involvement with the community, stakeholders, and District Agencies by the DC Department of Transportation that began in the spring of 2007.



The study area for this project is bounded to the north by 3700-3900 Cathedral Avenue, to the south by Whitehaven Parkway, to the west by 42nd Street, and to the east by 36th Street.

In 2006, the DC Office of Planning issued the Glover Park Commercial District Analysis report[1]. The report was commissioned to investigate retail business improvement, public realm, pedestrian mobility, and parking improvement strategies along Wisconsin Avenue between Calvert Street and Whitehaven Parkway. The Glover Park Transportation Study team was tasked with assessing the feasibility of implementing the recommendations in the Office of Planning report. Detailed recommendations for implementing the Office of Planning vision are included within this report.

To determine if improvements were necessary in Glover Park, the project team assessed the existing transportation and public space conditions within Glover Park during the summer of 2007. An existing conditions report was issued describing the physical conditions of the transportation and public space network in August of 2007. This was supplemented with a detailed analysis of traffic operations in November 2007. To accurately assess traffic operations the project boundaries were extended towards the northeast to Massachusetts Avenue and Observatory Circle. Copies of both reports can be found in Appendix A and B of this report.

Summary of Existing Conditions

Glover Park is a diverse community in Northwest DC, consisting of residential, commercial, and public land uses. The Naval Observatory and several parks create physical boundaries to the west, south and east sides of the study area. As a result, the community is somewhat isolated, with limited connectivity to adjacent neighborhoods and unique challenges for transportation access. Residential use dominates, and most of the study area is zoned R-3 and R-5, with smaller sections zoned R-1 and R-2. Residents include a mix of long-established households, college students, young professionals, families with young children, and senior citizens.

The majority of the commercial land uses in the study area are located along Wisconsin Avenue, which runs north-south through Glover Park. The commercial area includes office space, but primarily serves the local neighborhood through large retail (grocery stores such as Whole Foods, and drugstores such as CVS), food and beverage establishments (such as Starbucks and Pearson's Liquors), and general merchandise, apparel and furnishings stores.

Other challenges identified in the existing conditions analysis include isolation of land uses (such as residential from commercial), excess congestion and parking demand generated by Guy Mason Recreation Center and Stoddert Elementary School, excess of regulatory signs on certain roads, speeding motorists, intersections that do not meet at 90 degrees (creating large motorist turning radii that allow higher turn speeds and long pedestrian crossings), narrow sidewalks and pedestrian crowding, and a shortage of residential parking reported by those living close to Wisconsin Avenue.

[1] http://www.planning.dc.gov/planning/frames.asp?doc=/planning/lib/planning/glover_park_final_report_for_web.pdf

Wisconsin Avenue was found to generally provide high level of service for vehicular movement (letter LOS grades of A-C) during peak periods of travel. Vehicle operating speeds were noted to be in excess of the 25-30 mph speed limit with 85% of traffic traveling at or below 37 mph.

A detailed existing conditions report describing the physical environment is located in Appendix A.

A detailed existing conditions traffic analysis report is located in Appendix B.

Summary of Community Involvement

A variety of strategies were used during the planning process to gather input from the public regarding their concerns for safe and convenient transportation in Glover Park. These included a stakeholder's committee, a project website, several public meetings, a walking tour, and an online survey. The goal of the online survey was to gather information from residents regarding travel behavior, key concerns, and desired improvements. It is important to note that this survey was self-selected; therefore the results are not statistically significant. The primary purpose of the online survey was to broaden the reach of public input that is typically heard in public meetings.

The online survey was available online for over a month, from May 15th through June 25th, 2007. The survey was publicized on the home page of the project website (linked on the DDOT website), through neighborhood listservs, on flyers distributed throughout Glover Park, and at a open house and walking tour.

Approximately 180 responses to the online survey were received. Key findings of the survey include:

- Twenty percent of respondents commute by motor vehicle; thirty-three percent of respondents commute by bus
- When visiting destinations on Wisconsin Ave, 75% of respondents walk and 25% drive.
- Respondents reported that increasing parking and improving transit would have the greatest impact on improving transportation and quality of life in Glover Park.
- Almost 60% of respondents admitted they exceed the posted speed limit by more than 5mph sometimes or a lot of the time when driving through Glover Park.
- Faster and/or more direct bus service would do the most to encourage respondents to walk, bike or take transit more frequently.
- Respondents perceive that Tunlaw, Calvert, and 37th have the most cut-through traffic.
- Respondents perceive that motorists most frequently exceed posted speed limits on Tunlaw, and New Mexico.

Summary of Short Term Recommendations

The evaluation of the existing conditions and community input resulted in the development of a short term recommendations report issued in February 2008. The intent of the report was to provide immediate safety and mobility improvements in the study area that were not anticipated to require substantial financial investment or to require more than approximately one year to implement. As of March 2009 the signals were retimed to provide a leading pedestrian interval (pedestrian head start free from traffic movement) of 3-4 seconds at the following intersections:

- Hall Place
- W Place
- Whole Foods
- Calvert Street

Figure 1 – Pedestrians now get "head start" to cross Wisconsin Avenue before traffic can turn from Hall Place

Since the completion of the existing conditions report, the DDOT has improved the sidewalk conditions on:

- Wisconsin Avenue
- Massachusetts Avenue
- Klingle Place
- Calvert Street
- 39th Street
- 40th Street
- Tunlaw Road
- Benton Street
- W Place
- Cathedral Street
- Garfield Street

Figure 2 – Reconstructed sidewalk on Calvert at 40th Street, restriped crosswalks, and repaved roadway

Since the completion of the existing conditions report, the DDOT has repaved the following roadways:

- 40th Street from W Street to Calvert Street
- Calvert Street from 40th Street to 40th Place
- 36th Street from Fulton Street to Edmunds Street
- New Mexico Avenue from 43rd Street to Garfield Street

The remaining short term recommendations are under review by DDOT have not been implemented. A copy of the Short Term Recommendation Report is included in Appendix C.

Goals of Long Term Recommendations

The recommendations presented in the Glover Park Transportation Study were developed to achieve the following three broad goals:

1. Improve quality of life and provide transportation mode choice for residents and visitors.
2. Improve operations and safety at specific intersections for all travel modes.
3. Provide a plan of action with detailed recommendations to support the transportation and streetscape recommendations developed in the 2006 *Commercial District Analysis* report.

Improving the quality of life of residents, business owners, and visitors underlies all recommendations within this report. The condition of the public space as well as the operations of the public space can have a positive or negative effect on its users. Generally speaking, a well maintained infrastructure adjoined by pleasant and welcoming public and private spaces is enjoyable to visit and interact within. The overarching philosophy of the recommendations developed in this report is to develop an enhanced transportation environment which provides travel mode choice in a pleasant setting. This report establishes the vision for achieving goals outlined within this report which DDOT will work to implement over the next twenty years.

GOAL 1 - IMPROVE THE QUALITY OF LIFE AND PROVIDE TRANSPORTATION MODE CHOICE FOR RESIDENTS AND VISITORS

1.1 – Pedestrian Recommendations

Given that all travelers begin and end each trip as a pedestrian, the improvements within the pedestrian realm will have the greatest and most immediate impact on transportation mode choice in Glover Park. A safe and comfortable pedestrian environment generally provides a higher quality of life for residents.

The pedestrian has a unique position in the transportation environment as they are the slowest and typically the most vulnerable user. Their slower pace and exposure to the environment allows them to appreciate the smallest details of their surroundings. A walking experience is more enjoyable if the sidewalks are well maintained and level, the buffer provides trees for shade, there is visual interest in the houses and plantings, the sidewalk is lit in the evening, and traffic isn't too close or loud. A pedestrian's safety is typically only compromised by poorly maintained sidewalks and when they must interact with vehicular traffic at roadway and driveway crossings.

Data collected of existing pedestrian infrastructure shows that, with a few exceptions, the pedestrian facilities are in relatively good condition, with most roads throughout the study area having sidewalks and curb ramps. Some of the facility improvements discussed below can be made in conjunction with one another (such as sidewalks and driveways). All pedestrian facility recommendations discussed below are shown on the ***Pedestrian Facilities Proposed Improvements Map***.

Detailed recommendations for improving pedestrian conditions along Wisconsin Avenue are explained and shown on the C***onceptual Wisconsin Avenue Roadway Improvements Memo*** shown in Appendix F. Detailed recommendations for alleyway improvements within the commercial district are shown on the ***Wisconsin Avenue Alleyways Memo*** in Appendix G. Alternative concept number 2 was approved by DDOT to proceed to a trial installation with permanent sidewalk widening improvements near the BP Amoco at Calvert Street and along Rood Cemetery. The alternative roadway operation will be evaluated with the installation of pavement markings (discussed further in section 3) in 2011.

1.1.1 – Improve sidewalk conditions.

Data collected of existing pedestrian infrastructure shows that with a few exceptions the pedestrian facilities are in good condition throughout the study area. Several streets have newly installed sidewalks and access ramps. However, in some areas sidewalks are in poor condition, are too narrow or obstructed, or are completely missing.

The sidewalks that were generally found to be in average condition were recommended for spot repair. The average rating resulted from sporadic lifting of the sidewalk or cracks that exceeded ¼ inch that effected one or two panels, typically near trees.

Figure 3 – Example sidewalk widening to provide 36-inch minimum clear width at an obstruction. (US Access Board Photograph)

Sidewalks that were found to have persistent maintenance needs were recommended for replacement. Sidewalks which had insufficient clear width (36 inches or less) do not provide adequate access for people

with mobility disabilities requiring wheel chair use. These locations require the obstructions to be removed (typically signs posted in the middle of the sidewalk) or require the sidewalk to be widened. It appears from field analysis that the majority of sidewalks which require spot widening have space towards or on the private property to widen the sidewalk the required 12-24 inches at minimal expense. A memo with a photograph of each location is included in Appendix D along with a recommended strategy for providing the necessary sidewalk width. It is recommended that the spot reconstruction projects and spot repairs be completed before new sidewalks are constructed to provide the highest quality walking environment with the existing infrastructure.

Sidewalks that were missing on one or both sides of the street were recommended to be constructed to complete the Glover Park sidewalk network on both sides of each street. New sidewalk construction should be prioritized to complete the following sidewalk connections first as these locations place the pedestrian at the greatest risk if they are walking within the roadway:

- Cathedral Avenue (890 feet of new sidewalk)
- Watson Place (480 feet of new sidewalk)
- Fulton Street (855 feet of new sidewalk)

The sidewalk recommendations resulted in an approximate need to:

- Provide spot repairs to 490 feet of sidewalk;
- Reconstruct 3,070 feet of sidewalk;
- Construct 8,318 feet of new sidewalk;

Figure 4 – ADAAG compliant driveway design at 4000 Tunlaw; 2% cross slope, full width sidewalk, and no cracks or offset joints.

1.1.2 – Upgrade driveways to current PROWAG[2] standards.

Non-Compliant Driveways are places in the sidewalk network where pedestrians encounter a sidewalk cross slope that is greater than 2.0% due to a crossing driveway grade or where the sidewalk ramps down to the sidewalk at a slope that exceeds 8.3%. A number of driveways have excessive raised lips between the driveway and the sidewalk which are tripping hazards.

It is recommended that a program for driveway retrofits be developed to methodically upgrade existing driveways to current PROWAG standards. Preference should be given to retrofit designs that maintain a relatively level sidewalk across the driveway. Locations where the sidewalk is adjacent to the roadway will likely require the sidewalk to bump behind the driveway ramp or for the sidewalk to drop to the roadway level.

A total of 219 driveways were identified to potentially not meet PROWAG standards in the study area.

Figure 5 – Preferred sidewalk and ramp alignment at crosswalks – it is preferable to not provide a side flare adjacent to vegetated buffers.

1.1.3 – Upgrade or provide curb ramps to current PROWAG standards.

Within the Glover Park neighborhood, there are generally curb ramps located at each intersection. The

[2] It is recommended DDOT follow the proposed public rights of way accessibility guidelines(PROWAG) which were developed by the United States Access Board. http://www.access-board.gov/prowac/commrept/index.htm

field work performed during this work did not analyze each individual curb ramp against PROWAG recommended design features. The following recommendations are oriented to ensuring there is a curb ramp at each sidewalk interface with the roadway.

There are a number of locations where there are no curb ramps connecting the street to the sidewalk (usually via a crosswalk). Without a ramp, pedestrians with vision or mobility limitations may find it particularly difficult to cross the street from one sidewalk to another. At these locations curb ramps should be installed (preferably perpendicular ramps) as soon as possible to improve accessibility to the sidewalk system.

There are a number of locations with diagonal curb ramps where one curb ramp serves two sidewalk approaches. These can be problematic because they do align with the pedestrian to the appropriate crosswalk. It is preferable to provide two distinct curb ramps, aligned perpendicular to the street, to meet PROWAG best practices. It is recommended that all diagonal curb ramps be replaced with perpendicular ramps. There should be a ramp for each sidewalk approach to the street, typically resulting in eight ramps per intersection. Diagonal ramps should be replaced after missing curb ramps are installed.

A total of 143 curb ramps were identified to potentially not meet PROWAG standards in the study area.

1.1.4 - Improve uncontrolled pedestrian street crossings of Massachusetts Avenue

There are existing uncontrolled marked crosswalks on Massachusetts Avenue at 36th Street, Fulton Street, 34th Place, and Observatory Circle which do not meet current best practice for pedestrian accommodation and safety. The most recent research on pedestrian safety[3] indicates that on multi-lane arterials with higher traffic volumes (over 12,000 ADT) such as Massachusetts Avenue, uncontrolled crossings with marked crosswalks *alone* were associated with higher rates of pedestrian crashes. It is recommended additional engineering treatments be applied to the existing uncontrolled marked crosswalks on Massachusetts Avenue to bring them into compliance with DC Pedestrian Master plan recommendations for arterial roadway crossings.

Figure 6 – Rapid Flashing Beacon with Side of Street Pedestrian Crosswalk Sign on Brentwood Road in Northeast DC

At each location it is recommended that the following improvements be uniformly applied to improve the existing crossing conditions for pedestrians:

- Replace existing pedestrian warning signs (W11-2) with a SIDE OF STREET PEDESTRIAN CROSSWALK SIGN
- Installation of In-Street STOP HERE FOR PEDESTRIANS (R1-6a) bollard on the centerline
- Install an advanced stop line 30 feet from each crosswalk approach complemented with a STOP HERE FOR PEDESTRIANS sign

Due to the traffic volume and speeds on Massachusetts Avenue, it is likely going to be necessary for an activated device to be utilized to gain motorist attention and increase the likelihood of motorists stopping and yielding to pedestrians wishing to cross the roadway. Assessments should be conducted after installation of the baseline improvements to determine their effectiveness at improving motorists yielding behavior. The following additional recommendations are suggested for installation if additional engineering measures are required:

- *Massachusetts Avenue at 36th Street.* It is recommended that a HAWK signal be investigated for installation for the Massachusetts Avenue crosswalks as the existing roadway is too narrow for installation of a median refuge island. Without a refuge island, it is more likely pedestrians will need a traffic signal to require motorists to stop in all lanes.

[3]Safety Effects of Marked vs. Unmarked Crosswalks at Uncontrolled Locations. Federal Highway Administration, 2001

- *Massachusetts Avenue at Fulton Street.* It is also recommended that a HAWK signal be investigated for installation at this location for the Massachusetts Avenue crosswalks as the existing roadway is too narrow for installation of a median refuge island. Installation of HAWK signal at this location must accommodate bicyclists in the roadway if recommendation 1.2.4 is to be implemented.
- *Massachusetts Avenue at 34th Place/Edmund.* There are opportunities at this location to incorporate a pedestrian crossing island for refuge. With the installation of a refuge island and a speed camera, it may not be necessary to have an activated device for pedestrians. In the event a speed camera is not installed and pedestrians continue to have difficulty crossing at this location, a Rapid Flashing Beacon is recommended for installation. See drawing 2.1 for a conceptual design of this location.

1.1.5 - Improve controlled pedestrian street crossings of Massachusetts Avenue

Pedestrians experience difficulties crossing at the controlled intersections along Massachusetts Avenue primarily due to high vehicular turning traffic. It is recommended that the following recommendations be implemented at the following controlled crossings:

Figure 7 – Replace textual signs with graphical yield to pedestrian signs (MUTCD R10-15)

- *Massachusetts Avenue at Garfield Street.* Retime signals to provide a leading pedestrian interval of 3-4 seconds and a minimum walk interval of 7 seconds. Install NO TURN ON RED 7AM TO 7PM signs for all approaches. See drawing 2.2 for physical changes and new and/or replacement signs for this location.
- *Massachusetts Avenue at Wisconsin Avenue.* Retime signals to provide a leading pedestrian interval of 3-4 seconds and a minimum walk interval of 7 seconds. Replace existing RIGHT TURN YIELD TO PEDS signs with graphical TURNING TRAFFIC YIELD TO PEDESTRIANS for the west and eastbound Mass Avenue approaches. Install NO TURN ON RED 7AM TO 7PM signs for all approaches. See drawing 2.3 for physical changes and new and/or replacement signs for this location.
- *Massachusetts Avenue at Cathedral Avenue.* Retime signals to provide a leading pedestrian interval of 3-4 seconds and a minimum walk interval of 7 seconds. Install TURNING TRAFFIC YIELD TO PEDESTRIANS for the eastbound Cathedral approach. Install NO TURN ON RED 7AM TO 7PM signs for all approaches. See drawing 2.3 for physical changes and new and/or replacement signs for this location.

1.1.6 - Improve uncontrolled pedestrian street crossings of 2 lane roadways within Neighborhood

The most recent research on pedestrian safety[4] indicates that on single lane arterials with lower traffic volumes and low volume residential streets (below 12,000 ADT) such as Benton Street, Cathedral Avenue, and Tunlaw Road, uncontrolled crossings with marked crosswalks *alone were not associated* with higher or lower pedestrian crash rates. As such marked crosswalks within lower volume, neighborhood streets are not critical to pedestrian safety.

Marked crosswalks are however common within DC and there is a general expectation by residents that marked crosswalks should be provided at all pedestrian crossings. It was noted during field work in the study area that there is a need to prevent motorists from blocking crosswalks at locations near the Stoddert Elementary School and along transit routes.

[4]Safety Effects of Marked vs. Unmarked Crosswalks at Uncontrolled Locations. Federal Highway Administration, 2001

There was also a need to develop a strategy to improve visibility of stop signs and pedestrian crosswalk signs at uncontrolled pedestrian crossings on roadways such as Cathedral Avenue, 42nd Street, and Tunlaw Road. Trees should be trimmed on approaches to improve visibility of signs. Consideration should be given to installing sign islands (See 1.5.2) where parking is allowed full time to further improve visibility of the signs.

It is recommended that crosswalks and potentially sign islands be added to the following locations:

- Across Tunlaw Road at Benton Street (existing stop control)
- Across Tunlaw Road to W Place Alleyway and staircase (uncontrolled)
- Across 37th Street at W Place (uncontrolled)

The uncontrolled crossings should be supplemented with SIDE OF STREET PEDESTRIAN CROSSWALK signs at the W Place alley and W Place crossing locations.

It is recommended that SIDE OF STREET PEDESTRIAN CROSSWALK replace the existing W11-1 (pedestrian crossing) at the following uncontrolled crosswalks:

- 42nd Street at Edmunds
- 5 crossings of Cathedral Avenue between New Mexico Avenue and 39th Street
- Tunlaw Road at Benton Street
- Tunlaw Road at W Place

1.1.7 - Improve pedestrian access to W Place Staircase connecting to 37th Street

The existing staircase located at the end of the alley connecting 37th Street to W Place is an important pedestrian connection between the residential neighborhood and the commercial district. It is recommended that the crossing be made more prominent by:

- Constructing a curb extension adjacent to the stair case entrance on Tunlaw Road at the end of W Place
- Striping crosswalk to connect the staircase and curb extension to W Place
- Adding pedestrian SIDE OF STREET PEDESTRIAN CROSSWALK SIGN
- Adding "W Place Staircase" street name sign to identify the staircase connection for pedestrians

Figure 8 – Top of staircase where curb extension is proposed on Tunlaw Road at W Place

- Removing all vegetation which obscures the staircase
- Performing a lighting analysis to determine if the lighting meets IESNA standards at the crossing of Tunlaw, the staircase, and along the alley connecting W Place to 37th Street
- Stripe a crosswalk, install curb ramps, and install the SIDE OF STREET PEDESTRIAN CROSSWALK SIGN across Tunlaw Road at the intersection with the alley
- Adding " to W Place Staircase" street name sign to identify the staircase connection for pedestrians walking along Tunlaw Road

Figure 10 – Staircase view from W Place Alley

Figure 9 –W Place Alley looking towards 37th Street

1.2 – Bicycling Recommendations

The Existing Conditions Report finds that Glover Park has limited on- road bicycle facilities. Additions to the on-road bicycle network will improve safety and comfort for bicyclists and may encourage more bicycling, which may reduce motor vehicle trips within and to/from the Glover Park neighborhood.

All bicycle facility recommendations are shown on the ***Bicycle Facilities Proposed Improvements Map***.

1.2.1 – Install bike lanes

- *Stripe an uphill climbing bike lane on New Mexico Avenue between 42nd Street and Cathedral Avenue, and on Tunlaw Road from Calvert Street to just north of Davis.* This is a designated bicycle route for bicyclists through Glover Park with terrain on portions of this route in excess of 5%. Steep grades allow cyclists to travel up to 20-25 mph downhill minimizing their potential speed differential with vehicles, while uphill the grades cause cyclist to slow to 5-10 mph while motorists still are able to drive 25 mph or faster. High-speed differentials between cyclists and motorists create an uncomfortable and unwelcoming environment for cyclists. It is recommended that a bike lane be striped on the uphill approach as a climbing lane to allow slower moving cyclists to have their own space and to improve their comfort level on the roadway. The downhill lane should be marked with shared lane markings.

  Respondents to the online survey selected New Mexico Avenue and Tunlaw Road as the roads where they perceive motorists to most often exceed posted speed limits within Glover Park. The bike lane will also narrow the effective travel lane widths that will help slow traffic on the roadway.

- *Stripe bike lanes in both directions on Tunlaw Road between New Mexico Avenue to south of 39th Street.* The striped bike lanes will also visually narrow the roadway, which may also reduce motor vehicle speeds.

1.2.2 – Install shared lane markings

Shared lane markings or sharrows can be utilized to encourage lane sharing between motorists and bicyclists on roadways that are too narrow to accommodate bicycle lanes. Sharrows also provide route connectivity between marked bicycle lanes and help to reduce wrong way riding.

To improve connectivity between existing and planned bicycle routes and destinations throughout the study area, sharrows should be installed on the following road segments:

- Tunlaw Road from Calvert Street to 37th Street
- Calvert Street from 41st Street to Observatory Circle continuing to Massachusetts Avenue
- 37th Street from Calvert Street to Reservoir Road
- Garfield Street from Wisconsin Avenue to Watson Place continuing to Fulton Street
- Downhill portions of New Mexico Avenue and Tunlaw Road to complement the bicycle climbing lanes

Figure 11 – DC bicycle master plan proposed signed routes and bike lanes

1.2.3 – Adjust and Move Signed Bicycle Route from Garfield Street to Fulton Street

It is recommended that the Garfield Street route between Massachusetts Avenue and Watson Place be moved to Fulton Street as it provides a more logical connection that is more direct, changes grade less, and has less traffic volume.

The proposed route would transition at the intersection of Garfield Street and 34th Place. It would continue on 34th Place to Fulton Street whereupon it would continue to Watson Place. The existing bicycle

route on Garfield between Watson Place and Massachusetts Avenue could be removed from the system.

The existing bicycle route system along Garfield Street and Watson Place provides a connection between Woodley Park and American University. This route is advantageous as there is an existing traffic signal for crossing Massachusetts Avenue and Wisconsin Avenue at Garfield Street. Garfield Street provides an excellent connection for cyclists destined for the Cathedral, St. Albans Boys School, and other points north of Garfield Street via Massachusetts Avenue.

However, for cyclists destined for Glover Park, American University, and other points west of Massachusetts Avenue, Garfield Street is less advantageous as a route as Garfield Street is constrained in width, steep, and carries high volumes of traffic between Massachusetts and Wisconsin Avenue.

A more comfortable route for cyclists along Fulton Street will require additional engineering measures for cyclists to cross Massachusetts Avenue and Wisconsin Avenue as each crossing is presently an uncontrolled crossing. It is proposed that this route be signed upon installation of a Hawk Signal (or other facilitated crossing method as proposed in recommendation 1.1.4) that will ensure cyclists can cross these roadways. The chosen pedestrian crossing accommodation should accommodate cyclists within the roadway and not require them to dismount or ride on the sidewalk to activate the device.

1.2.4 - Investigate Feasibility of Developing a Bicycle Route on 39th Street to Idaho Avenue to Porter Street

To improve bicycle route connectivity to the north, it is proposed that 39th Street and Idaho Avenue be added to the signed bicycle route network. This route would connect Glover Park directly to the lower volume residential street route system that ultimately leads towards Chevy Chase and Silver Spring. Initial investigations into this route indicate it will be feasible with improvements to intersections with Massachusetts Avenue and Wisconsin Avenue. It is recommended that further investigations into the required changes to the roadway system to accommodate this route be performed. The potential operational changes to the intersection of Wisconsin Avenue at Idaho may create an opportunity for cyclist and pedestrian crossings that would enable signing of this bicycle route.

1.2.5 – Sign bike routes identified in DC Bicycle Master Plan

All bike routes in Glover Park should be signed to help bicyclists navigate through the study area. Currently only the bike route along Garfield Street, Watson Place, and New Mexico is signed. The following bicycle routes should be added to the signed bicycle route system:

- Calvert Street between Guy Mason and Massachusetts Avenue plus an extension to the Stoddert Elementary School on Calvert Street
- 37th Street and Tunlaw Road up to Watson Place
- 34th Place and Fulton Street from Garfield Street to Watson Place (See Recommendation 1.2.4)

1.2.6 – Provide public bicycle parking at key destinations

Well-placed and well-designed bicycle racks provide cyclists with safe and convenient bicycle parking, further encouraging bicycle travel. Racks should be located in well-lit areas convenient to the entrance of each destination and should not impede pedestrian travel. They should be designed to support a bicycle in two places to prevent damage and theft, and when possible should be covered to protect against weather. The inverted U-shaped rack is commonly installed at destinations such as those listed. Within the study area, racks should be provided in close proximity to the main entrances of key destinations including the following:

- Stoddert Elementary School and fields
- Guy Mason Recreation Center
- Whole Foods
- Along the Wisconsin Avenue Commercial Corridor

Opportunities for installing covered parking on the school and recreation center properties should be investigated. Parking along Wisconsin Avenue should follow DDOT design standards and remain clear of pedestrian walkways.

1.2.7 – Develop and distribute a bicycle parking educational and encouragement brochure for private properties

During the existing conditions analysis, it was noted that there was a large demand for bicycle parking near private residential buildings. Bicycle parking on private property was observed to be of deficient design (i.e. wave rack), poor location (exposed far from buildings) or completely lacking.

It is recommended that the District modify the existing Downtown Bicycle Parking Brochure to develop an information flyer to promote and encourage bicycle parking on private property. The brochure should encourage and provide details for covered parking detailing how to convert a vehicular parking space to covered bike parking. High density towers and medium density garden style apartments and condominium buildings should be targeted.

1.3 – Transit Recommendations

Twenty percent of respondents to the online survey reported that better transit would have the greatest impact on transportation in Glover Park. In addition, "Faster or more direct bus service" was respondents' top choice for encouraging them to walk, bike or take transit more frequently. The quality of transit within Glover Park is divided into three elements – route, stop access and service efficiency.

All transit recommendations are shown on the ***Transit Facilities Proposed Improvements Map***.

1.3.1 – Improve pedestrian crossings of arterials to access bus stops

The following bus stops are located on major arterial roadways at intersections that do not provide traffic control devices to assists pedestrians crossing the roadway to access the bus stop. These uncontrolled marked crossings do not meet the proposed DC Pedestrian Master Plan standards for marking crosswalks. It is recommended that the bus stop be moved to the far side of intersections to reduce the likelihood of a passenger crossing the roadway in front of a bus. It is also recommended that additional engineering enhancements be applied to the crosswalk per recommendation 1.1.4 at the following locations:

- Wisconsin Avenue at Fulton Street
- Wisconsin Avenue at 35th Street
- Massachusetts Avenue at Fulton Street
- Massachusetts Avenue at Edmunds Street
- Massachusetts Avenue at 34th Place

Figure 12 – Existing uncontrolled crossing at Wisconsin and 35th to bus stop on east side of road

It is anticipated improvements to Wisconsin Avenue crossings would be implemented as part of the planned roadway operation changes (task 3.1) with further refinements and improvements included in a streetscape project (task 3.6)

1.3.2 – Improve pedestrian routes to bus stops on sidewalk network

To ensure an accessible route to each of the transit stops, it is recommended that all curb ramps, inaccessible driveways, and sidewalks recommended for repair (from task 1.1) or installation along a transit route be given highest priority.

1.3.3 – Modify D1/D2 bus route to extend the service catchment area

A selected bus route should serve the needs of residents and be located within a reasonable walking distance considering terrain and population density and proximity to likely transit users. The present bus route for the D1/D2 requires residents living on 42nd Street to climb approximately fifty to one-hundred feet

in elevation and walk twice as far as most other residents of Glover Park adjacent to the D1/D2 route to access transit. A graphic of the proposed route change and existing terrain is shown on the next page.

Maintaining the route on Benton Street to 41st Street will improve access for residents living on 42nd Street who live at the lowest elevation in the area. To ensure safe bus access and to provide maximum parking on the street, it will be necessary to convert this portion of the route between 40th Place and Calvert Street to one way west and north bound. Consideration should be given to locating a bus stop at the apex of the curve along with a midblock crosswalk to take advantage of the sidewalk network serving the apartment complexes along 42nd Street. Parking restrictions will be necessary to accommodate the bus stop.

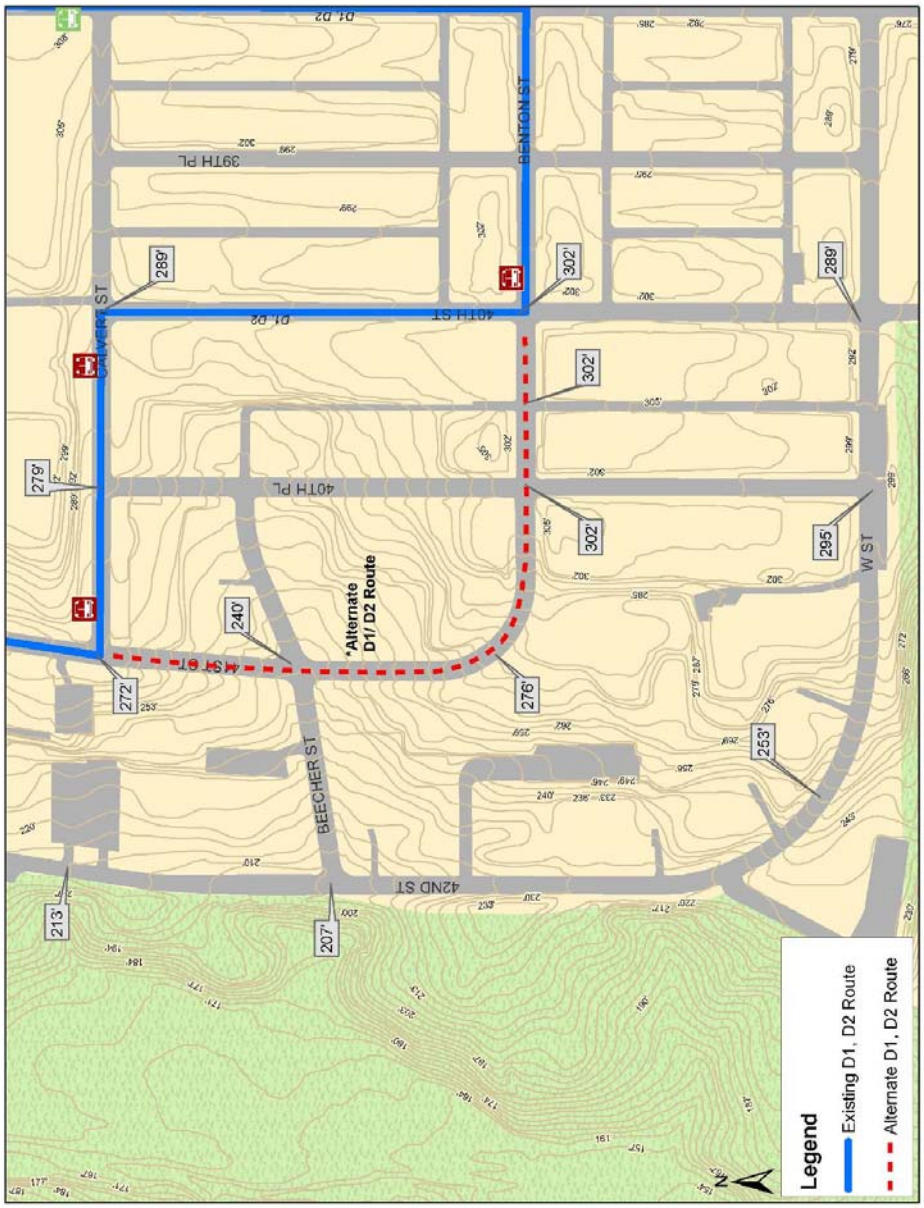


Figure 13 – Proposed D1/D2 route modification overlaid on terrain map

1.3.4 - Provide adequate stop amenities based upon use and route

The provision of shelters, benches, informational maps and signs, lighting, and a hard surface waiting area located that is maintained and clean presents a welcoming gateway to the transit system. Ultimately, shelters should be provided at all transit stop locations as waiting for a bus during inclement weather is uncomfortable for the patron and can discourage transit use. To allocate resources effectively throughout the neighborhood and the transit system, a three-tiered transit stop amenity list is proposed for Glover Park:

Tier I – Lowest volume use (less than 50 boardings per day)

- Level, concrete waiting area
- Bus route post with timetable
- Trash Can

Tier II – Medium volume use (50 -100 boardings per day)

- Level, concrete waiting area
- Bus route post with timetable
- Trash Can
- Bench

Figure 14 – Tier III transit stop accommodations located at Wisconsin Ave and Massachusetts Ave

Tier III – High volume use (Over 100 boardings per day) or principal arterial route

- Level, concrete waiting area
- Bus route post with timetable
- Bench
- Trash Can
- Shelter with transit system map and lighting

Additionally, careful consideration should be given to ensuring landscaping around bus stops is attractive and does not create hidden areas. Stops should be well lit and feel secure at all times of day.

1.3.5 – Consolidate duplicative transit stops to improve transit efficiency

Bus service can be made more efficient by consolidating bus stops on Wisconsin Avenue in the study area. There are six sets of bus stops (one on each side of the road) on Wisconsin Avenue from Fulton Street to Whitehaven Parkway, approximately 550 feet apart. It is recommended that several stops be consolidated to improve the efficiency of the bus while maintaining a reasonable walking distance (less than ¼ mile) between the stops. This is consistent with the recommendation in the 2006 *Commercial District Analysis* for Glover Park. Consolidated bus stops will also free up curb space for additional parking.

- Relocate the bus stop on the southbound side at the Chevron gas station to the near side of the intersection with Calvert Street. Northbound and southbound bus stops on Wisconsin Avenue between Edmunds Street and Davis Street (adjacent to the Russian Embassy) should then be eliminated.
- Relocate the southbound bus stop on Wisconsin Avenue on the near side of the intersection with Hall Place to the far side of the intersection. The southbound and northbound stops at W Place should then be eliminated. The existing bus catchment map (excerpted from the 2006 Glover Park Commercial District Analysis) demonstrates that the bus stop at Hall Place can be shifted without diminishing bus service to surrounding residents. Moreover, far side bus stops are more efficient for operations, safer for pedestrians, and are shorter in overall length which will maximize on-

street parking. It is recommended that the five to six additional spaces that are added in front of Starbucks be utilized for short term parking (15 to 30 minutes, using multi-meters). Shorter term parking or higher cost parking at this location on Wisconsin Avenue will encourage more frequent parking turnover which will reduce the demand for parking on Hall Place. This recommendation will result in the net gain of approximately two parking spaces.

In addition to improving efficiency, the new stop locations are less congested with pedestrians which will potentially enable installation of bus shelters at these locations. It is expected that these bus stop consolidations will be considered further during the streetscape project for Wisconsin Avenue therefore construction costs will be incidental to the streetscape project.

It is anticipated improvements to Wisconsin Avenue bus stop locations would be implemented as part of the planned roadway operation changes (task 3.1) with further refinements and improvements included in a streetscape project (task 3.6)

1.3.6 – Install off board fare collecting equipment at high volume locations

Collecting fares on the bus significantly increases the bus dwell time. It is recommended that DDOT work with WMATA to investigate the feasibility of implementing off-board fare collection devices at the following locations to decrease dwell times at stops:

- *All stops at Massachusetts Avenue intersection with Wisconsin Avenue.* This location is an ideal location to utilize off board fare collection devices due to its proximity to the National Cathedral, schools, and high density residential units.
- *All stops on Wisconsin Avenue within the Glover Park Commercial District*.

1.4 – Implement Traffic Calming Measures

Many participants of the public outreach activities expressed concern about motorists exceeding posted speed limits while driving through the neighborhood. Residents acknowledged that they themselves were at times responsible for driving over the posted speed limits. To address these concerns and to improve the walking and bicycling environment within the neighborhood a number of traffic calming recommendations were developed. All traffic calming recommendations are shown on the ***Roadway Proposed Improvements Map***.

1.4.1 – Remove rush hour parking restrictions on Tunlaw Road

The Existing Conditions Traffic Analysis determined that traffic volumes can be accommodated with two travel lanes on Tunlaw Road north of Calvert Street. Rush hour parking restrictions on the east side of the road should be removed from Calvert Street to Watson Place. Allowing full time parking will slow motorists as the effective vehicle lane width will be reduced from 18-20 feet to 10-11 feet during rush hour. This will also create additional parking spaces throughout the day. Removing the parking restrictions will also allow for the construction of curb extensions across Tunlaw Road at Davis Place to improve pedestrian safety at this uncontrolled crossing. Detailed recommendations which show a chicane roadway design, pedestrian refuge island, and a climbing bicycle lane are shown on Conceptual Drawing 2.6.

1.4.2 – Allow parking on portions of the north side of Calvert Street between Tunlaw Road and Edmunds Street.

Parking is currently permitted only on the south side of Calvert Street between Tunlaw Road and Edmunds Street. The block is approximately 600 feet in length and the width results in provision of approximate twelve-foot travel lanes (interstate standard width) that allows motorists to accelerate comfortably. As this is the primary route for accessing the Stoddert School, there is concern the traffic volume may be too high to allow parking full time on both sides of the street. It is recommended that parking be allowed and restricted in 120-foot increments along the north side to create a chicane (meandering travelway) that will require motorists to reduce their speed to navigate around parked automobiles. This will add approximately fourteen to sixteen additional parking spaces to the street. Should parking violations along the no parking zones arise, it may be necessary to install curb extension of three to four feet to prevent the illegal parking.

1.4.3 – Convert One-Way Streets to Two-Way Queuing Streets

The majority of Glover Park Streets were constructed to a width of thirty feet. Most blocks allow parking on both sides and operate as two-way streets. A smaller number of Glover Park Streets are designated as one way. One-way streets increase traffic on local streets as motorists are not able to take direct routes to their destination. Motor vehicles are typically six to seven feet in width and require eight to twelve feet of operating space (lane width) depending upon their expected speed and volume. One-way streets in Glover Park result in travel lane widths that are sixteen to eighteen feet in width. This additional width allows motorists to feel more comfortable driving at faster speeds resulting in residents expressing concern about operating speeds.

Converting streets to two-way decreases vehicular trips by shortening them and spreading them more equally to adjacent streets. Converting streets to two-way operation also decreases the operating space for motorists resulting in slower operating speeds as motorists will slow significantly when passing other motorists or may at times pull off to the side to allow others to pass them resulting in a queuing street[5]. The regular spacing of fire hydrants, driveways, side streets, bus stops, and alleys create locations for vehicles to temporarily pull over to wait for another vehicle to pass.

The following streets within Glover Park currently function this way:

Street	From	To	Width
Benton Street	41st Street	Tunlaw Road	30 Feet
Calvert Street	Edmunds/39th Street	41st Street	30 Feet
39th Street	Calvert Street	W Street	30 Feet
Tunlaw Road	Beecher Street	W Place	30.5 Feet
Fulton Street	39th Street	Wisconsin Avenue	30 Feet
Davis Place	42nd Street	Tunlaw Road	31 Feet

The following streets are recommended for conversion to two-way operation:

Street	From	To	Width
40th Place	Calvert Street	Benton Street	30 Feet
40th Street	Calvert Street	W Street	30 Feet

1.4.4 – Join the DC Neighborhood Pace Car Program.

Almost 60% of respondents to the online survey admitted they exceed the posted speed limit by more than 5mph sometimes or a lot of the time when driving through Glover Park. Therefore raising local residents' awareness and gaining commitment to a pace car program may reduce motor vehicle speeds in the study area. Residents can encourage local participation in the program by contacting neighbors, parents and staff at Stoddert Elementary School, local business owners, and patrons of the Guy Mason Recreation Center.

Glover Park residents can actively participate in helping reduce motorists' speeds in their neighborhood by joining and promoting a pace car program. A pace car program "encourages local residents to take responsibility for the impact of their own driving while setting the 'pace'" for other drivers[6]. Washington DC has an established program (www.waba.org/pacecar) to encourage motorists to adhere to posted speed limits and to raise awareness about sharing the road with bicyclists and pedestrians. Interested residents "sign a pledge to drive safely, courteously, and within the posted speed limit" in the District and receive a

[5] Queuing streets are typically two-way, 22-28 feet in width with parking allowed on both sides

[6] www.waba.org/pacecar.

Pace Car sticker to display on their vehicles. The sticker indicates to other drivers that they are participating in the community program to improve safety in their neighborhood.

1.4.5 – Install speed humps and raised crosswalks on Observatory Circle between Massachusetts Avenue and Calvert Street and remove stop signs on Calvert at Davis Street

It is unlikely parking will be allowed adjacent to the Naval Observatory. It is therefore recommended that the stop signs be removed on Calvert Street at Davis Street and that they be replaced with raised crosswalks. It is also recommended that speed humps be installed at 150-foot intervals along Observatory Circle between the intersections to moderate traffic speeds to operate at 15-20 mph. The intersection of Observatory/Calvert/Guy Mason Driveway requires slow operating speeds to allow motorists, pedestrians, and cyclists to comfortably navigate the area.

1.5 – Roadway Network Recommendations

The following recommendations address roadway operations and maintenance - vehicular circulation, parking, pavement markings, and signs as well as pavement condition.

All roadway network recommendations are shown on the ***Roadway Proposed Improvements Map***.

1.5.1 – Allow all vehicles to turn left from Massachusetts Avenue onto Wisconsin Avenue at all times

Currently, left turns are restricted for all vehicles wishing to turn from Massachusetts onto Wisconsin, in both directions. To reduce traffic volumes on neighborhood streets, and to improve access into the Glover Park, Neighborhood, regulations should be modified to allow left turns from Massachusetts Ave. onto Wisconsin Ave., for all vehicles. This recommendation should also reduce commuter traffic on local streets and improve access into the Glover Park neighborhood from areas east of Glover Park. It will also reduce truck traffic on some residential streets.

Traffic analysis indicates that these turns can be permitted at all times of the day without degrading the operation of the intersection to unacceptable levels of service (LOS E or worse).

1.5.2 – Install sign islands to prevent illegal parking near crosswalks and to improve visibility of critical warning and regulatory signs.

The narrower streets of Glover Park make it imperative that illegal parking close to crosswalks not occur to ensure adequate turning radius is available for vehicles operating in the neighborhood. Curb extensions will require significant investments as they will require modifications to existing drainage infrastructure. It is recommended that small islands be constructed adjacent to the crosswalks which will prevent illegal parking, allow installation of signs eight to ten feet closer to drivers line of sight, and allow pedestrians to feel comfortable stepping out from the curbline. The islands will have drainage slots along the curb to allow stormwater to flow within the gutter. Islands may be vegetated or hardscaped depending upon local neighborhood preference and willingness to assists with vegetation maintenance. The graphic on the next page shows an example of this treatment. It is recommended that this treatment be installed at all locations within the neighborhood where parking is allowed full time (except Tunlaw at Beecher). At locations where this treatment is installed, STOP AHEAD signs should be removed (if present) to reduce sign clutter.

It is recommended that this treatment be applied to the following intersections as a pilot study:

- Tunlaw Road at Benton Street
- Huidekopper Place and W Street
- Calvert Street at 39th Street, 40th Street, 41st Street, and 36th Street
- Manor Place and Observatory Lane (Do Not Enter)
- Edmunds Street and 39th Street

Figure 15 – Signs are frequently obstructed by vegetation – Huidekopper Place

- 42nd Street at Davis Place, Beecher Street, and Edmunds Street (Ped Crossing)
- Garfield Street at 39th Street, Bellevue Terrace, and Watson Place
- Fulton Street and 36th Street

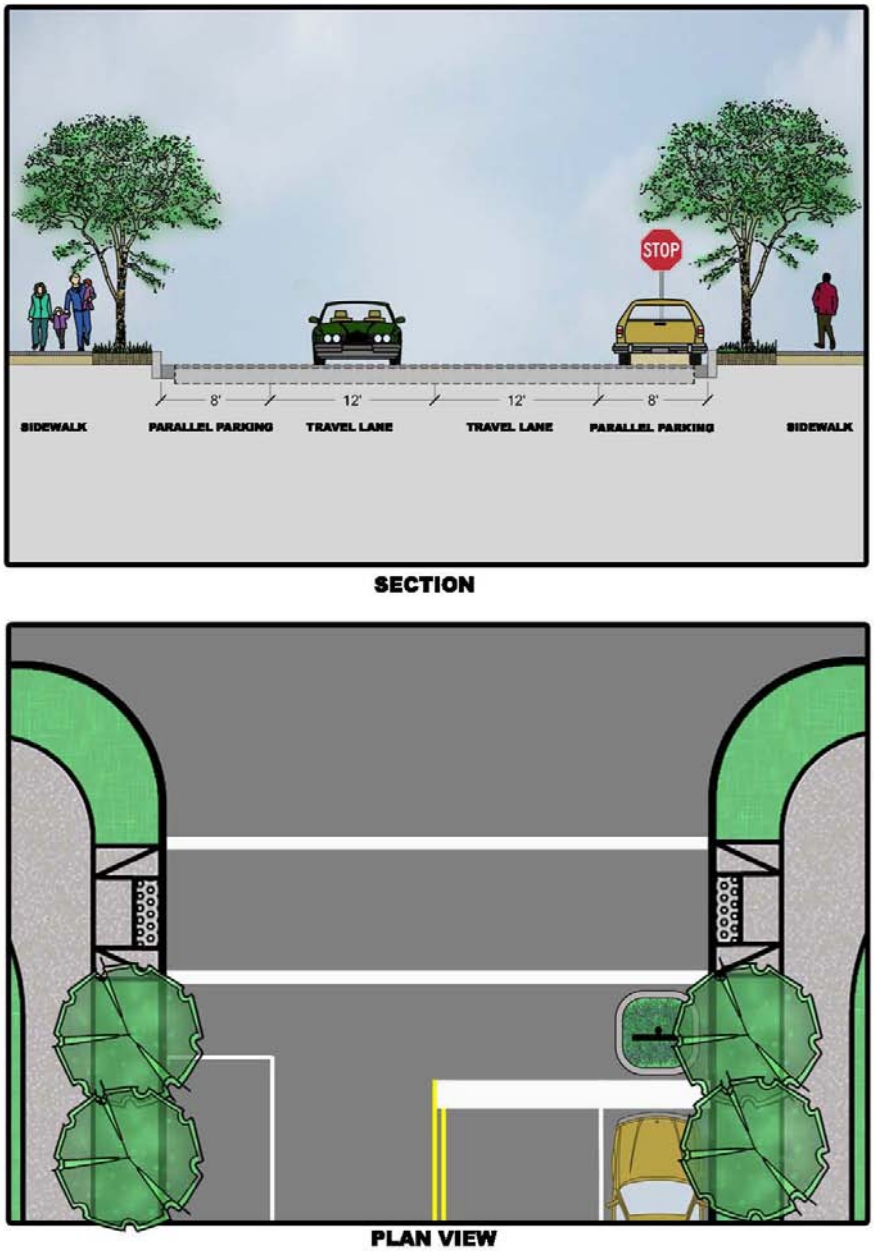


Figure 16 – Graphical depiction of sign island placement and potential design

1.5.3 – Increase parking supply

To increase resident and visitor parking it is recommended the recommendations developed in recommendations 1.4.1, and1.4.2, and 3.2 should be implemented.

1.6 – Truck Route Recommendations

Two categories of trucks will be discussed in this section: tractor trailer type trucks and buses (large) which are categorized as WB 40 or BUS 40 and larger and box trucks (small) which are categorized as SU trucks. Generally speaking, large trucks should be restricted from traveling on most streets other than Wisconsin Avenue and Massachusetts Avenue which are designated through truck routes. Small box trucks should be restricted from traveling on neighborhood streets except as necessary to access Wisconsin Avenue businesses which are serviced by alleys and residential streets adjacent to Wisconsin Avenue (such as 37th Street). Pickup trucks and SUV's, which typically have a 1.25-ton capacity or smaller, should be allowed on all roads in the study area. Pickup trucks and SUV's are classified as equivalent to passenger cards.

All trucks are allowed on all roadways if they are required to pick up or deliver to properties on otherwise restricted roadways. This includes large vehicle classifications which are operated by companies such as Fed Ex and moving trucks such as Ryder as well as trash pickup vehicles. It is expected these larger vehicles may be required to operate outside of their normal travel lane area to execute turns and navigate narrower residential streets.

The following recommendations follow a the truck routing strategy recently implemented in New York City whereupon they have designated through truck routes, local truck routes, and truck restricted streets. These designations were developed to encourage through truck traffic to operate on a few major arterials designed for larger vehicles. The designation of local truck routes indicates roadways where regular deliveries occur and are necessary for business operation.

1.6.1 – Allow trucks to turn from Wisconsin Avenue onto Garfield Street (eastbound) during rush hour

Currently, trucks are restricted on Garfield Street (trucks prohibited) between Massachusetts Avenue and Wisconsin Avenue (both designated truck routes). Because eastbound truck traffic is restricted on this block of Garfield Street, large trucks utilize adjacent local streets such as Fulton or Edmunds to access Massachusetts Avenue. It is recommended trucks be allowed to make left turns from Wisconsin Avenue (south-bound) onto Garfield Street (east-bound) full time. The alternative is to provide positive guidance for all eastbound trucks to proceed to M Street in Georgetown.

The following two additional truck routes were considered but deemed infeasible.

While it may be desirable to route trucks onto Calvert Street to Observatory Circle, the curve at the intersection of the two streets adjacent to the driveway with Guy Mason Recreation Center would require trucks to turn across oncoming vehicular lanes; therefore this route is undesirable as a designated truck route.

Allowing trucks to turn left onto Massachusetts Avenue from Wisconsin Avenue (either outside of rush hour or all the time) may also be desirable but is impractical due to the inability to provide overhead signs on the roadway to advise all motorists of this potential regulation. Allowing some large trucks and buses to turn left onto Massachusetts Avenue from Wisconsin Avenue will likely result in severe traffic congestion during rush hour as it will be implied that all other users can make the turn leading to severe intersection congestion. Likewise, allowing all users to make this movement outside of rush hour will likely result in many motorists making this movement during rush hour.

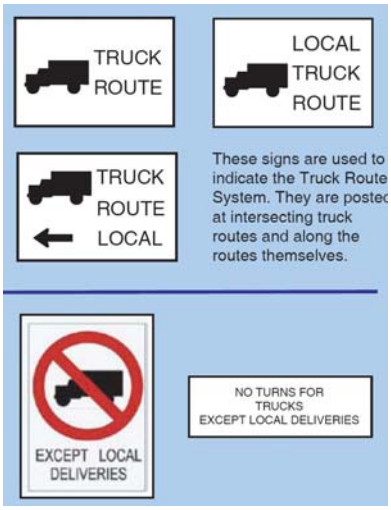


Figure 17 – NYC truck route signs

1.6.2 – Allow local delivery trucks to travel on 37th Street, between Tunlaw and Whitehaven Parkway

According to the most recent DC truck regulations data, trucks (above 1.25 tons capacity) are prohibited on 37th Street, between Tunlaw Road and Reservoir Road. For box trucks or other small trucks, it is recommended that the District allow travel southbound on 37th Street, creating a key connection to Whitehaven Parkway and lower parts of Wisconsin Avenue. Providing this L-shaped route (37th to Whitehaven to Wisconsin) would allow small trucks (SU type) to service Wisconsin Avenue businesses from the rear (along 37th Street), and then feed back to Wisconsin Avenue south of the Glover Park commercial corridor.

1.6.3 – Update existing truck route sign system in Glover Park to provide clear direction to truckers

The existing truck routes and truck restrictions may not be adequately signed. It is recommended that a system be developed for Glover Park (and the District) that positively directs trucks and provides clear restrictions. Such a system has been developed recently in New York City[7]. Within Glover Park, it is proposed that Wisconsin Avenue and Massachusetts Avenue[8] be designated as through truck routes along with eastbound Garfield Street between Wisconsin Avenue and Massachusetts Avenue. To service the commercial corridor businesses, it is recommended that 37th Street from Wisconsin Avenue to Whitehaven Parkway, Whitehaven Parkway, and Calvert Street from Wisconsin Avenue to Observatory Circle be designated as local truck routes. All other roadways by default would restrict truck traffic except for local deliveries and services which are allowed on all roadways at all times as necessary. See the proposed truck route map shown on the next page.

[7] http://www.nyc.gov/html/dot/html/motorist/trucks.shtml#routing

[8] As recommended in the District of Columbia Motor Carrier Management and Threat Assessment Study February 2004

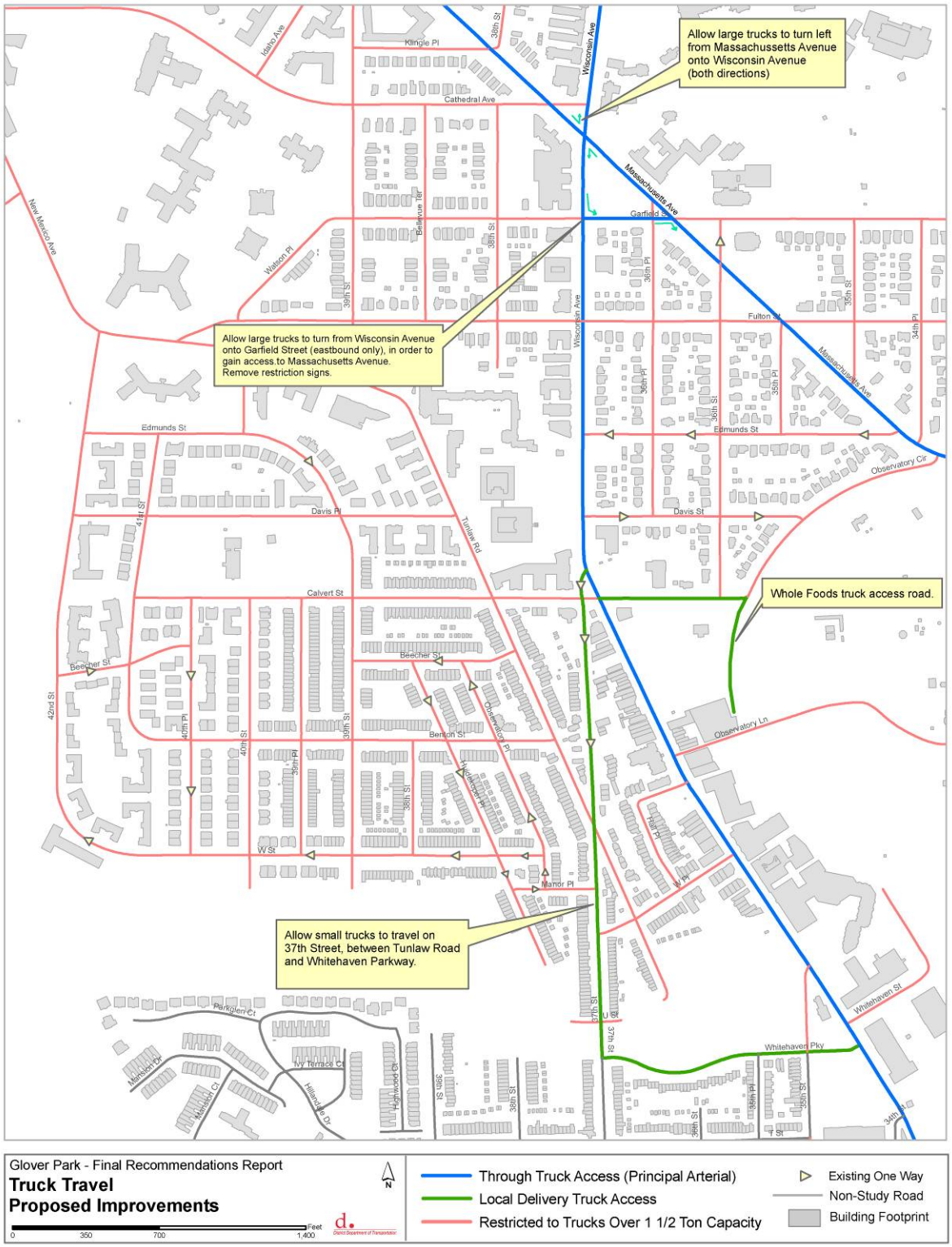


Figure 18 – Proposed truck routes

GOAL 2 - IMPROVE OPERATIONS AND SAFETY AT SPECIFIC INTERSECTIONS FOR ALL TRAVEL MODES

The existing conditions traffic analysis report provides detailed background discussion of operational and geometric challenges for each of the following intersections of the report. Existing conditions drawings were also developed for each intersection and included at the back of that report.

The improvements detailed below provide a comprehensive strategy for improving the safety of all travelers, regardless of mode choice at each intersection. Many of the recommendations discussed to address Goal 1 are reflected on these conceptual drawings.

These improvements are shown on **conceptual detail drawings which are included in Appendix E**.

2.1 – Intersection of Massachusetts Avenue with Observatory Circle/34th Place/Edmunds Road

This intersection provides a key connection into the Glover Park neighborhood. Turns onto Observatory are presently restricted during the morning (7-9 am) and evening (4-6:30 pm). Bus stops are located on each side of Massachusetts Avenue that is presently undivided.

The undivided roadway and the documented motorists speeding problem at this location present a hazard to turning motorists and crossing pedestrians and cyclists. The terrain and wide open feel of the roadway is not going to be able to be manipulated to slow motorists. It is recommended that the following major items be installed at this location to slow motorists and to improve multi-modal access at this intersection:

- Install speed cameras in both approaches at Observatory on Massachusetts Avenue
- Construct a raised pedestrian crossing island with a pedestrian crosswalk
- Relocate the eastbound bus stop from Edmunds to the near side of Observatory
- Realign Edmunds Street intersection with Massachusetts Avenue to reduce the skewed entrance
- Allow full access at this intersection with the turn restrictions removed for motorists
- Install speed humps at 150 foot intervals on Observatory Circle complemented with shared lane markings

Taken together, these improvements will calm the intersection making it much safer for full vehicular access to be allowed at Observatory Circle. Pedestrians will have a much easier ability to cross Massachusetts Avenue and access to each transit stop will be greatly improved. Cyclists navigating the signed route from 34th/ Massachusetts to Observatory will be able to do so with much more comfort and ease as vehicle speeds will be lowered at the location where they must change lanes to enter the left turn lane onto Observatory Circle. The speed camera can be installed at a later date from the physical and operational changes if it is determined that the geometric changes are not sufficient to slow vehicles to the speed limit.

It is recommended that the intersection of Edmunds be realigned as a pilot project for other streets along Massachusetts Avenue that intersect at similar skewed angles. Reducing the skew will improve sight distances for motorists, shorten pedestrian crossing distances, and reduce motorist entrance speeds to the neighborhood. This recommendation need not be implemented with the other improvements proposed.

These improvements are shown on **conceptual detail drawing 2.1**.

2.2 – Intersection of Massachusetts Avenue with Garfield Street

Modest improvements are proposed for this intersection to improve pedestrian safety. It is proposed that the curb radius for right turning Garfield Street traffic be tightened as turning traffic may turn into two vehicle lanes on Massachusetts Avenue. The tightened curb radii will slow turning vehicles to a more appropriate 5-15 mph turning speed as they receive a green light with a concurrent walk signal. This lower speed should increase turning motorists yielding behavior to crossing pedestrians. A leading pedestrian

interval of 4-7 seconds is also proposed due to the proximity of the St. Albans School and the National Cathedral Campus that attracts students and tourists to the intersection with regularity.

It is proposed that the access road between Massachusetts Avenue and Garfield Street, which leads to 36th Place, be closed. The access road creates operational challenges at the intersection without providing offsetting benefits. Access to 36th Place is still provided via 36th Street and Fulton Street.

These improvements are shown on **conceptual detail drawing 2.2**.

2.3 – Intersection of Massachusetts Avenue with Wisconsin Avenue

The intersection of Wisconsin Avenue and Massachusetts Avenue is a signalized intersection with pedestrian countdown signals. The intersection runs a two-phase 100-second cycle length in the AM and PM peak periods. The vehicular level of service in both peak periods is rated at B. Left turns are prohibited on all approaches except for eastbound Massachusetts Avenue to northbound Wisconsin Avenue during non-rush hour times.

To improve pedestrian safety at this location a leading pedestrian interval of 4-7 seconds is proposed due to the proximity of the National Cathedral Campus and the high volume of the six adjacent bus stops. To reduce vehicle conflicts and to smooth northbound traffic flow through the intersection it is recommended that parking be permanently restricted between Massachusetts Avenue and Cathedral Avenue as this will allow two full time through lanes with the inner lane periodically utilized for left turning traffic onto Cathedral.

These improvements are shown on **conceptual detail drawing 2.3**.

2.4 – Intersection of New Mexico Avenue with Garfield Street

It is recommended that the short-term solution be implemented on a trial basis to evaluate the configuration of the chicane and crossing islands. Once it determined that a successful geometry has been developed which reduces vehicle speeds to 25 mph and provides adequate operational movements for pedestrians, cyclists, and motorists, it is recommended that the interim bollard treatments be replaced with permanent curbing and raised pedestrian crossing islands. It may be necessary to re-evaluate the length of left turn lane storage onto Garfield Street during final design.

These short term evaluation improvements are shown on **conceptual detail drawing 2.4**.

2.5 – Tunlaw Road between 42nd Street and Watson Place

The existing Tunlaw Road and Fulton Street geometric configurations create a number of awkward intersections, encourage unpredictable motorist behavior and aggressive driving, and place pedestrians and bicyclists at risk at intersections. The intersections are further compromised by the location of Colonnade Condominium driveways and traffic flow.

Preliminary designs of new Colonnade traffic operations and geometric design of Tunlaw Road and Fulton Street were presented to the Colonnade Board and residents on Tuesday, October 21st, 2008. There seemed to be general agreement with regard to the operational challenges the existing roadway and Colonnade driveways presented to all modes of travel. Concerns were raised with the plan to reverse the existing service lane travel flow from westbound (existing) to eastbound (proposed) resulting in a lack of consensus on the issue. There was general agreement to widen the median to create left-turn pockets and to narrow the roadway. There was generally no support for allowing parking on the roadway.

The conceptual design developed reflects the concerns raised during this meeting resulting in a preferred design that modifies the roadway geometry to:

- Provide a wider median with left turn lane onto Fulton Street
- Curb extend Fulton Street to slow turning motorists and shorten pedestrian crossings
- Provide bicycle lanes to further narrow the roadway
- Develop a chicane utilizing curb extensions to further slow traffic approaching Fulton Street
- Complete the sidewalk network

It is recommended that discussions continue with the Colonnade to reverse the flow of the existing service lane. A eastbound flow lane will greatly simplify traffic operations at both 42nd Street and Fulton Street. Provisions can be made for allowing service trucks to continue to enter the Colonnade property at Fulton Street if it is determined to be a necessity as it is unlikely to present a conflict given the low speeds and traffic volumes on the service lane.

These improvements are shown on **conceptual detail drawing 2.5**.

2.6 – Intersection of Tunlaw Road with Davis Place

After input during the open house and from the stakeholder committee, it was determined that option 2B from the short term recommendations report (chicane design with median) was preferred over option 2A (curb extension) as it had the greatest likelihood to slow motorist to drive the speed limit and it provided pedestrian refuge.

It is recommended that the short-term solution 2B be implemented on a trial basis to evaluate the configuration of the chicane and crossing islands. Once it determined that a successful geometry has been developed which reduces vehicle speeds to 25 mph and provides adequate operational movements for pedestrians, cyclists, and motorists, it is recommended that the interim bollard treatments be replaced with permanent curbing and raised pedestrian crossing islands.

These short term evaluation improvements are shown on **conceptual detail drawing 2.6**.

2.7 – Intersection of Tunlaw Road with Calvert Street

As this is the primary entrance into the neighborhood from the Glover Park Commercial District, it is recommended that all vehicular traffic be stopped for the duration of the full walk interval (7 second minimum). This will significantly reduce turning conflicts between pedestrians and turning motorists. Seven seconds of protected walking time will allow the majority of pedestrians utilizing the intersection to clear half of the roadway or the entire roadway before vehicles are given a green light concurrent with the clearance interval of the pedestrian crossing phase.

To complement the signal timing changes, curb extensions are proposed which will shorten the crossing distances. More importantly the curb extensions will provide additional walking space around existing obstructions which will ensure each corner is fully accessible to people with disabilities. Existing drainage structures will require relocation at each corner.

It is recommended the new R10-15 graphical TURNING TRAFFIC YIELD TO PEDESTRIANS sign be installed adjacent to all existing NO TURN ON RED signs.

These improvements are shown on **conceptual detail drawing 2.7**.

2.8 – Intersection of Tunlaw Road with 37th Street

To address the sight distance, pedestrian safety, and operational challenges identified during the existing conditions, it is recommended that curb extensions be constructed to create two separate tee-type intersections. Separating the area into two distinct intersections will improve vehicular operations, pedestrian safety, and bicyclist safety by eliminating the large, undefined operating space. It is recommended that the southbound bus stop be relocated to be closer to the northbound bus stop.

These improvements are shown on **conceptual detail drawing 2.8**.

2.9 – Intersection of Calvert Street with Observatory Circle

The existing geometry of the intersection of Observatory Circle, Calvert Street, and Guy Mason Recreation Center's driveway are challenged by the existing steep grade of Calvert Street and the restricted sight lines. To encourage motorists to stay within their lane and to reduce their travel speeds approaching the curve it is recommended that a center line stripe be installed with rumble strips. Additionally a series of speed humps are recommended for installation at 150-foot intervals along Observatory Circle and the existing crosswalk located across Calvert Street at 36th Street should be replaced with a raised crosswalk and modest curb extensions.

These improvements are shown on **conceptual detail drawing 2.9**.

2.10 – Intersection of Bellevue Terrace and 38th Street with Fulton Street

A crosswalk is recommended for installation with curb ramps on the western crossing of Fulton Street as presently there is no pedestrian accommodation at this location.

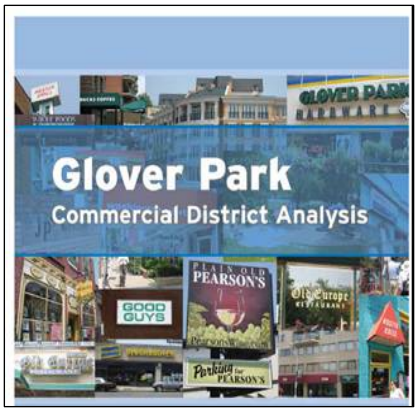
It is recommended that these two intersections be utilized to pilot test the sign island concept (recommendation 1.5.2). Initially it is recommended that only sign islands be installed on the approaches to the intersections to allow placement of the stop sign within the island. The stop ahead signs should be removed in conjunction with this treatment as the stop signs will be much more visible to approaching motorists. Follow up analysis should be conducted to determine the effectiveness of the treatment considering the following potential performance measures:

- Survey pedestrians – does this increase their comfort level crossing the roadway?
- Is there a reduction in motorists rolling through the stop sign?
- Does the treatment have any effect on motorist speeds?
- Does the treatment have any negative effect on motorists passing each other?

These improvements are shown on **conceptual detail drawing 2.10**.

GOAL 3 - PROVIDE A PLAN OF ACTION WITH DETAILED RECOMMENDATIONS TO SUPPORT THE TRANSPORTATION AND STREETSCAPE RECOMMENDATIONS DEVELOPED IN THE 2006 COMMERCIAL DISTRICT ANALYSIS REPORT

In 2006, the DC Office of Planning issued the Glover Park Commercial District Analysis report[9]. The report was commissioned to investigate *retail business improvement, public realm, pedestrian mobility, and parking improvement strategies* along Wisconsin Avenue between Calvert Street and Whitehaven Parkway. The Glover Park Transportation Study team was tasked with assessing the feasibility of implementing the public realm and transportation recommendations in the Office of Planning report. In August, 2007, the team completed an Existing Conditions Report, which compiled a comprehensive assessment of ***land use, development, traffic operations, parking, and transit, pedestrian and bicycle provisions*** along the Wisconsin Avenue corridor.



The existing conditions found the following:

- High motorists operating speeds (85th % speed of 37 mph)
- Good vehicular level of service ranging from A to D
- Variable roadway geometry with curb to curb widths varying from 50 feet to 65 feet
- Uncontrolled, marked pedestrian crossings at 35th and Fulton adjacent to bus stops which do not meet current best practices for pedestrian safety
- High frequency bus service with inefficient stop placements
- Poor pedestrian connectivity between the commercial district and the residential neighborhoods due to the street layout and development patterns
- Poorly managed furniture zone along Wisconsin Avenue
- Highly variable and confusing parking regulations along and adjacent to the corridor
- Minimalist and largely unplanned streetscape
- Identification of Calvert Street as a high crash location within the corridor (86 within four years period 2003 through 2007)

DDOT is currently developing construction plans which will replace the existing parking meters and street lights along Wisconsin Avenue between Massachusetts Avenue and Whitehaven Parkway as recommended in the 2006 OP Study. The existing single space parking meters will be replaced with multi-space parking meters. A more attractive and energy efficient street light design will replace the existing highway style cobra lamps.

The existing high level of vehicular mobility identified during the existing conditions analysis coupled with the fact Glover Park is the transition area for Wisconsin Avenue as it transforms from two vehicular travel lanes (3 during rush hour) to four vehicular travel lanes (five during rush hour) presents an opportunity to complete the2006 Office of Planning vision to improve the public realm and pedestrian environment. The remainder of this report provides a framework for improving the multi-modal operations of Wisconsin Avenue and for implementing the Office of Planning parking and public space recommendations.

[9] http://www.planning.dc.gov/planning/frames.asp?doc=/planning/lib/planning/glover_park_final_report_for_web.pdf

3.1 –Optimize Operations of Wisconsin Avenue from Garfield Street to 34th Street

The existing roadway operations are oriented to providing maximum vehicle throughput during and outside of traditional rush hours. This has resulted in high vehicle operating speeds which are difficult to enforce and at selected locations a constrained pedestrian environment. High numbers of vehicle crashes throughout the corridor are indicative of an environment with higher operating speeds with no provisions for left turning traffic which led to sudden lane changes by motorists.

The project team met with the steering committee, the public, and DDOT staff at multiple points in 2008 and 2009 to discuss potential changes to the operations and design of the roadway. Multiple roadway operation changes were considered and evaluated for their potential impact to pedestrians, bicyclists, transit, and vehicular operations. These alternatives were presented at the ANC3B meeting on September 11th, 2008. The public and ANC commissioners present indicated general support for the option that provided a median with left turn lanes along Wisconsin Avenue.

A preferred roadway operation plan was chosen in early 2009 and initial plans were developed to detail the required operational and geometric changes. The final memorandum detailing the selected design and the proposed streetscape design for Wisconsin Avenue from Garfield Street to 34th Street are attached in Appendix G. DDOT is proceeding with a design of alternative 2 as an evaluation project with the following features:

- the intersection of Calvert Street will be reconfigured
- medians will be marked with paint flush to the roadway
- Widen constrained sidewalk adjacent to the Chevron Gas Station and bus stop to ten feet from existing four feet
- Widen constrained sidewalk adjacent to Rood Cemetery Retaining Wall from four feet to seven feet which will provide the required disability access
- Utilize the median to introduce access management to side properties to reduce vehicle delays (cars stopped in through lane waiting for vehicles to turn left)
- Provision of left turn lanes at critical intersections to maintain access to neighborhood and commercial alleyway and parking destinations
- Provision of full time parking from Garfield Street to Calvert Street on the west side of Wisconsin Avenue adjacent to the high density housing
- Reduction of two through travel lanes during non-rush hour periods to reduce through vehicle operating speeds which are presently well over the posted speed limit (37 mph – 85th % speed)
- Provision of leading pedestrian intervals of 4-7 seconds which will allow pedestrians to have a "head start" before turning vehicle movements at each signalized intersection

The resulting roadway cross section (shown on next page) will provide a variable width median from Garfield Street to 35th Street which will:

- Remove left turning vehicles from through traffic improving vehicle flow
- Provide pedestrian refuge
- Creates a unique identifying feature to Glover Park which would be the only portion of Wisconsin Avenue in the District to have a median

After an evaluation of this roadway configuration it is determined to be successful, a future streetscape project will replace the flush medians with constructed raised islands.

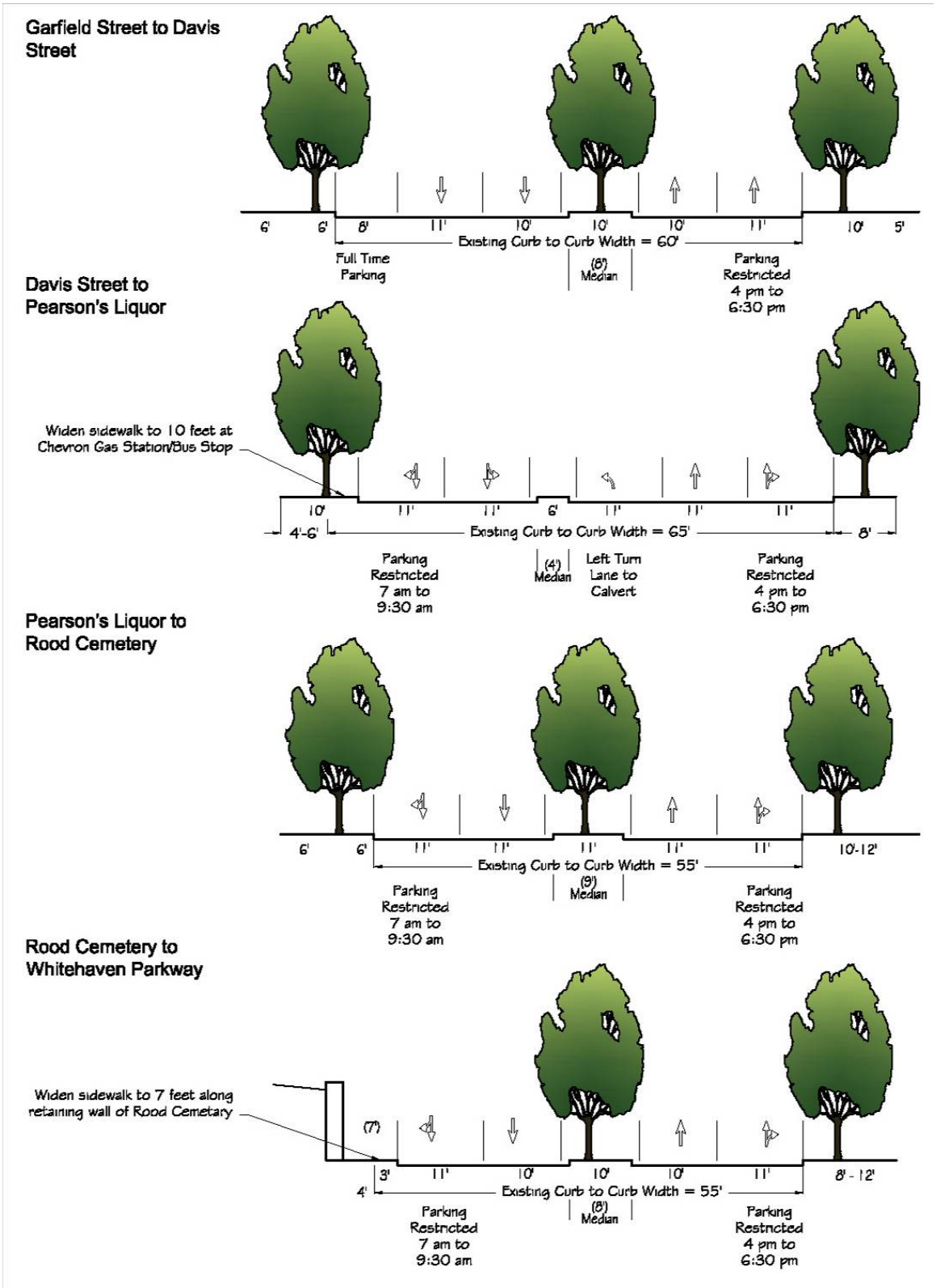


Figure 19 – Wisconsin Avenue cross sections depicting selected design alternative for streetscape and operational changes between Garfield Street and Whitehaven Parkway

3.2 – Create a parking district which contains spillover of commercial parking onto nearby residential streets while increasing parking for local residents

Nearly 30% of respondents to the online survey reported that increasing the supply of parking would have the greatest impact on improving transportation and quality of life in Glover Park. A major concern is visitors to commercial destinations on Wisconsin Avenue parking their cars on nearby residential streets. Visitors are allowed to park on most residential streets in the study area for 2 hours without a residential permit.

The 2006 *Commercial District Analysis* for Glover Park examined parking demand on Wisconsin Avenue and developed recommendations to make better use of existing parking. This study supports the strategies described to maximize on and off-street parking, and several of the recommendations (below) should be pursued in the short term.

3.2.1 – Improve signage to better indicate the location of off-street parking

- Develop unified parking sign design for Glover Park
- Locate signs on medians to direct motorists to alleys and garage entrances
- Encourage local businesses to provide off-street parking information to patrons

3.2.2 – Encourage shared parking arrangements for private lots adjacent to Wisconsin Avenue

- Open private lots (such as Whole Foods, CVS, Pearson Liqueurs) in the evening for public parking
- Consider opening up the Guy Mason Recreation Center lot during the evenings to further increase the available parking supply

3.2.3 – Increase on-street parking supply

- Relocate the southbound bus stop on Wisconsin Avenue from the near side (Starbucks) of the intersection to the far side (CVS) to shorten bus stop length from 100 feet to 60 feet.
- Reorient parking on 35th Street to angle parking which will increase the parking supply by 14-17 parking spaces
- Update regulations to provide the maximum metered locations within the proposed parking district – no residential parking or restricted parking should be permitted between Whitehaven Parkway and Davis Street on Wisconsin Avenue
- Locate metered commercial loading zones along the corridor striving to minimize the number of loading locations; allow motorists parking during the evening in loading zones

3.3 – Institute a performance parking program for Glover Park commercial district

It is recommended that a performance parking program be instituted within Glover Park to maximize off-street parking use, maximize on-street parking turnover, reduce demands for use of residential streets for parking, and to raise revenues for streetscape and alleyway improvements to complement the commercial district. A detailed performance parking plan should be developed in coordination with the business owners of Glover Park. Performance parking should not be implemented until there is broad agreement for the use of the off-street parking lots. It will be necessary for DC City Council to authorize the performance parking district.

Primarily commercial supporting streets such as Wisconsin Avenue and 37th Street should be metered on both sides. Primarily residential streets such as Tunlaw Road, Hall Place, and Calvert Street that also provide parking support to the corridor should be metered on one side to encourage turnover and designated resident only on the opposite side to preserve residential parking. The boundaries for the commercial parking area and the recommended metering/resident only locations are shown on the graphic on the following page to initiate the discussion with the community.

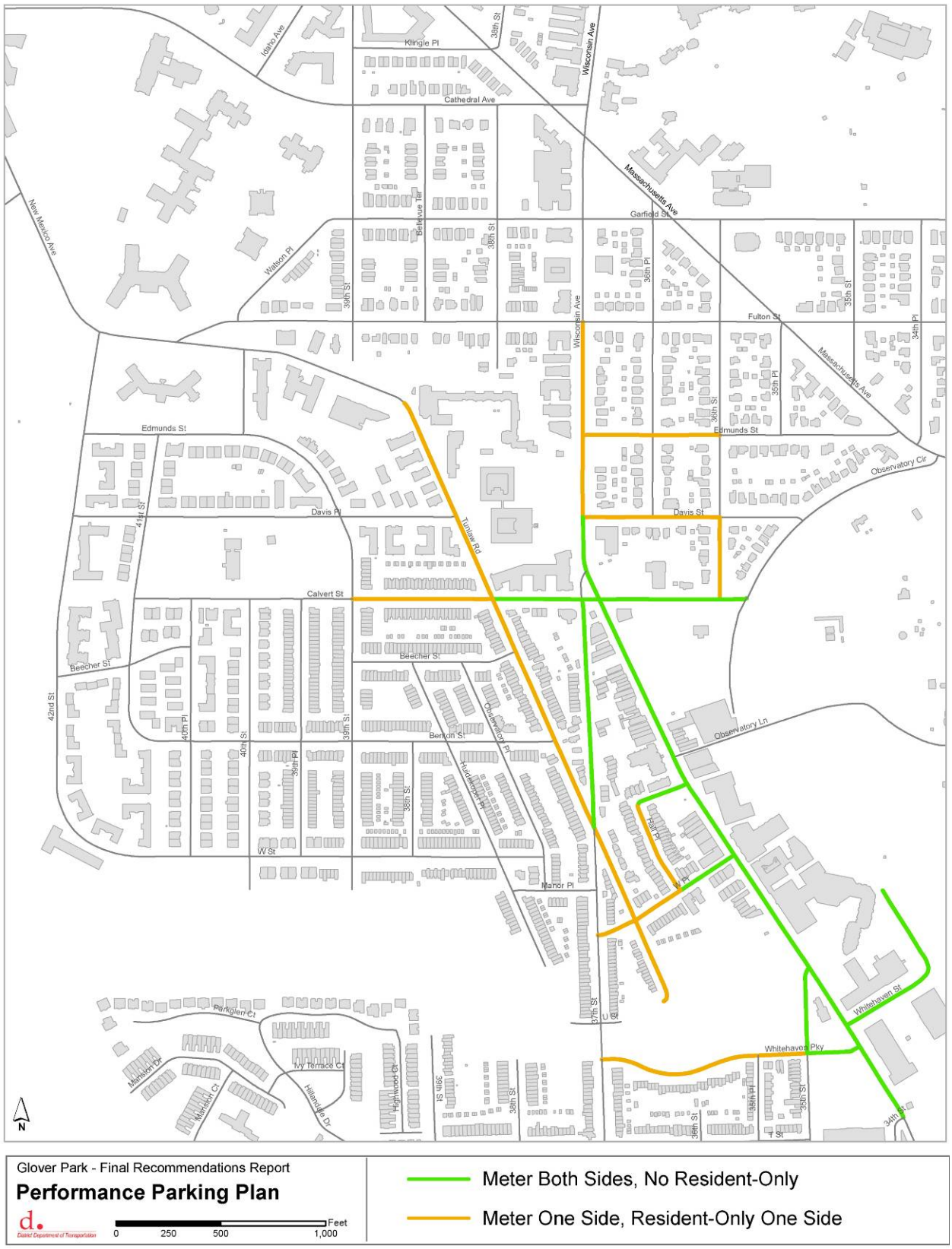


Figure 20 – Propose d performance parking plan

3.4 – Improve pedestrian environment within commercial zone

A major recommendation of the 2006 Office of Planning study was to upgrade the commercial core streetscape to unify and beautify the commercial district between Calvert Street and 35th Street. Changes to the operation of Wisconsin Avenue create opportunities to improve the pedestrian environment and to provide additional streetscape improvements. It is recommended that stakeholder groups be convened during the streetscape design to select the design palette for the commercial corridor.

Through the evaluation of existing conditions and subsequent recommendations to improve all forms of transportation safety and experience within the Glover Park neighborhood, it is also apparent that a clear opportunity exists to simultaneously enhance the aesthetic character of Glover Park as the transportation improvement recommendations are implemented. A critical component of encouraging community buy-in and resident ownership of the Glover Park neighborhood, as well as a unified cohesive feel of the physical environment as experienced by both residents and visitors, is what is known as creating a neighborhood identity, or "sense of place". This can be done by implementing a consistent set of landscape elements in such a way as to unify the overall structure and character of the neighborhood in a context-sensitive manner. These elements should serve both an aesthetic and functional role that is recognizable throughout the neighborhood. Broadly speaking, the following recommendations to accomplish this will be broken down into three spatial categories: the vehicular zone, the pedestrian zone, and transitional space. Each category will have elements specific to that space, though all the elements should relate to each other on a whole.

3.4.1 – Improve the pedestrian zone

Implement landscape elements and material selections within the pedestrian zone that contribute to Glover Park's "sense of place". The pedestrian zone is that space from the curb to the face of building or other adjacent private property where the primary mode of travel is by foot, but may include strollers, wheel chairs, or similar devices. This space presents numerous opportunities for developing neighborhood identity, as it both visually frames one's experience of the neighborhood from the vehicular zone, and goes one step further to become an immediately tactile experience for pedestrians in the corridor.

Elements commonly found throughout pedestrian zones that can be designed or selected to affect the character of the neighborhood include lighting poles and luminaries, benches, trash and recycling containers, bicycle securing structures, banners or flags, hanging and ground-level planters, street trees, tree-grates, informational kiosks, bus stop shelters, public art or neighborhood gateway features, and neighborhood specific way-finding signage.

3.4.2 – Protect the pedestrian zone

Newspaper boxes and other street furniture (business signs, tables, chairs, etc) add to congestion on sidewalks and present barriers to pedestrians. In particular, newspaper boxes located on the sidewalk within the area of the intersection crosswalk are barriers to pedestrians crossing the roadway. This street furniture should be relocated to a location that meets the following criteria.

- *Location is NOT within the curb ramp area leading to a crosswalk.*
- *Location is NOT in the transit user waiting space.*
- *Location is NOT in the through-walking area of the sidewalk.*

3.5 – Improve pedestrian access to commercial destinations on Wisconsin Avenue

Implement landscape elements and materials within alley ways and parking areas that contribute to Glover Park's "sense of place". The Transitional Zone is made up of spaces where various modes of transportation and user experience merge or overlap. Primarily this includes alleys and off-street parking areas. As parking areas are typically privately owned and operated, it is the recommendation of this report that cooperative efforts between DDOT and the property owners be undertaken to implement materials and design themes that are compatible with the overall streetscape whenever parking improvements are undertaken. Alleys, however, are often part of the public right of way, though building facades and appurtenances that are

privately owned will have a direct impact on the users' experience of alleys. Alleyway improvements should be funded by new performance parking measures.

General guidelines include the following:

- Implementing pedestrian scaled decorative lighting in all alleys throughout the commercial district. Replacing asphalt paving with brick pavers in all pedestrian-only alleys and all alleys where the vehicle and pedestrian zones are not separated.
- Replacing worn paving with asphalt and worn sidewalks with new concrete sidewalks to match those on Wisconsin Ave. where the pedestrian and vehicular zones of the alley are separated.
- Provide greening with planters at entrances where space allows.
- Implementing decorative archway at entrance to pedestrian alleys (may or may-not incorporate a light fixture component).

While specific material colors and textures, fixture types, decorative archways, and planters have not been selected at this point, these items should be coordinated with those selected for the general streetscape of the vehicular and pedestrian zones, so that throughout each of these three areas of the commercial district, a unified sense of place is created.

As noted in the Existing Conditions Report, pedestrian access to commercial destinations on Wisconsin Avenue is constrained by several segments of narrow sidewalk and by the long city block between Calvert Street and Hall Place. To improve access in the short term, several actions are recommended:

3.5.1 – Improve pedestrian safety in the alley at Calvert Street and 37th Street.

The alley leading from Calvert Street to 37th Street is a popular short cut to Wisconsin Avenue from residential streets in Glover Park. To improve the safety of pedestrians using this route, a shoulder should be striped on the alley to provide pedestrians with dedicated space for walking. Prefabricated speed humps, which allow storm water drainage, should also be installed to reduce motor vehicle speeds.

3.5.2 – Address safety and accessibility of alleys and parking areas.

To encourage and promote use of the off-street parking areas accessible via alleys, it is important that the alleys and parking be seen as safe and secure. Following is a list of alleys in the Glover Park Neighborhood's commercial corridor where specific recommendations, if cooperatively implemented, will make these transitional spaces safer, more inviting, and more useful.

- *Pedestrian alley between 2428 and 2420 Wisconsin Ave.* – Replace the poor-condition broken asphalt paving surface with brick pavers to highlight pedestrian character. Though existing utilitarian lighting is adequate for safety concerns, install more decorative and inviting lighting (potentially spanning overhead as alley is only 5' wide). Install a directional sign at entrance indicating pedestrian access to 37th St. Green-up the entrance with a narrow planter. Span a decorative arch (style and material to be determined) at the entrance, which may include lighting.
- *Parking access alley at 2251 Wisconsin Ave.* – Install decorative lighting on either side to make more inviting and improve dark corners near rear. Since vehicle area and pedestrian area are separated by materials, maintain concrete sidewalk to match sidewalk on Wisconsin. Re-pave worn and cracked asphalt driveway portion.
- *Parking access alley between 2241 and 2233 Wisconsin Ave.* – Re-pave worn asphalt surface with brick pavers. Replace assorted light fixtures with selected decorative lighting scheme. Reduce sign clutter regarding parking in the rear to 2 well placed and appropriately sized signs.
- *Parking access alley between 2233 and 2201 Wisconsin Ave.* – Maintain existing asphalt/concrete material separation for vehicle/pedestrian areas. Poor lighting requires additional fixtures to improve safety as well as to make the space more inviting.
- *Parking access alley between 2201 and 2141 Wisconsin Ave.* – Replace asphalt paving with brick pavers and install additional decorative lighting scheme to improve safety and make more inviting.

- *Pedestrian alley between 2170-76 and 2150-58 Wisconsin Ave.* – No material improvements needed, though surveillance (cameras) may improve perception of safety given the high quantity of potential hiding places along the alley. Further discussion with the immediate community is recommended.
- *Pedestrian alley between 2412 and 2408 Wisconsin Ave.* – Since this alley is not very useful for the general public (as it only leads to a trash area), the primary concern is to improve the sense of safety for users walking past the alley entrance. As it is dark and narrow and currently has no lighting, the decorative lighting scheme should be applied at least to a level that allows passers-by to clearly see to the end of the alley from the street. Also, removing existing graffiti may help improve the perception of safety.
- *Pedestrian path between commercial buildings on Wisconsin Ave. and Guy Mason Baseball Field* – Existing dirt path should be re-designed to include a brick paver pedestrian path. Non-existent lighting should be improved with adequate pedestrian scaled lighting to match other alley ways. Take advantage of opportunity to implement greening strategies.

It is anticipated improvements to alleys will require a substantial investment depending upon the selected design. It is recommended that consideration be given to utilizing parking revenue generated from the performance parking district (task 3.3) to fund these improvements as they may be partially on private property.

3.6 – Streetscape and Neighborhood Identity Implementation

Engage in a public process for specific design theme, amenity, and public art selection. Before specification of the specific elements that will create the neighborhood's visual identity, a thorough public-input process should be undertaken. The first step should include preparation of two or more sample palettes, each including a carefully selected set of all the elements, as well as material types and finishes, proposed to be used throughout the neighborhood. The palettes should also be responsive to the architectural and cultural context of Glover Park. These palettes should then be presented to the public in a forum where comments, questions, and recommendations can be made. The third step will be to refine and limit the palettes to be most in line with the public's desires for the neighborhood. Through a series of public input discussions, a final selection of materials and finishes can be determined, and specific products can be specified. Should public art such as gateway features be desired, artist selection and design should undertake a similar process of proposals, feedback, and selection in a collaborative effort with the public.

4 – Implementation Strategy

The implementation of the mid and long term recommendations detailed in this report is contingent upon available funding. Routine maintenance activities which include sidewalk repair, signal timing changes, and roadway repairs are included in the DDOT operating budget with Glover Park projects prioritized within the context of District wide maintenance needs.

Spot improvements to specific intersections will require allocation of dedicated funding to provide the additional engineering analysis and design necessary to produce construction documents in addition to the funds for the actual construction. The concepts developed within this report were vetted with the community and set a vision for future improvements should a roadway improvement project coincide with the intersection or separate improvement project be developed. These projects are not currently programmed.

Improvements to Wisconsin Avenue are currently underway to implement design alternative number two. The improvements are limited to pavement markings, limited sidewalk widening, traffic signal improvements, parking meter upgrades, and lighting improvements which are scheduled for construction in 2011. It is recommended the roadway operations be evaluated for a period up to two years to determine if additional modifications are necessary to optimize travel for all modes of transportation. A future streetscape project to construct medians, reconstruct sidewalks, improve amenities, and to improve the alleyways is recommended.

A cost summary for the long term recommendations is included in Appendix H. The cost are based upon currently available estimates for materials as well as expected engineering and survey expenses to produce construction documents.

5 – Appendices

Appendices A - Existing Conditions Report

Appendices B - Existing Conditions Traffic Analysis Report

Appendices C - Short Term Recommendations Report

Appendices D - Sidewalk Obstructions Memo

Appendices E - Conceptual Design Drawings of Spot Intersection Improvements

Appendices F - Wisconsin Avenue Roadway Improvements Memorandum

Appendices G - Wisconsin Avenue Alleyways Memo

Appendices H - Supporting Cost Estimates

Long Term Recommendation Foldout Maps

Pedestrian Facilities Proposed Improvements Map

Bicycle Facilities Proposed Improvements Map

Transit Facilities Proposed Improvements Map

Roadway Proposed Improvements Map