Prince George's Plaza Metro Area Study

Transportation/Land-Use Connections Program

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The Maryland-National Capital Park and Planning Commission

TooleDesignGroup

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Chapter 1: Introduction

The Metropolitan Washington Council of Governments should be (MWCOG), Maryland-National Capital Park and Planning Commission (M-NCPPC), Prince George's County, City of Hyattsville and other stakeholders worked in partnership on this exciting and timely pedestrian and bicycle study for the area around the Prince George's Plaza Metrorail Station. The study was conducted as part of the National Capital Region Transportation Planning Board's (TPB) Transportation/Land-Use Connections Program. This study encourages "complete streets" that serve all users. It identifies short-term safety improvements and a long-term vision for pedestrian and bicycle mobility. Implementation of the recommendations will improve the pedestrian environment, while providing a model for similar efforts throughout the Washington, DC region.

A raised crosswalk outside of the Metrorail station increasing the visibility of pedestrians while slowing down motor vehicles

The recommendations in this Plan focus on providing better pedestrian access to transit, shopping, jobs, housing, parks and open space. As part of the study, the project team focused on the relationship between the Prince George's Plaza Metrorail Station, the Mall at Prince George's Plaza and the emerging University Town Center, as well as connections to surrounding neighborhoods. The lynchpin of this effort is the intersection of East-West Highway and Belcrest Road and so the design solutions presented in Chapter 3 focus on this intersection. Cost estimates are provided in Chapter 3 to facilitate further planning and implementation efforts. Complete Streets lessons, which were developed through the course of this project, are presented in Chapter 4 to inform other similar intersection improvement projects.

The goals for this Plan are identified below.

A. Project Goals

- Identify short-term improvements and a long-term vision for pedestrian and bicycle mobility
- Encourage "complete streets" that serve all users
- Provide better pedestrian access to transit, shopping, jobs, housing, parks and open space
- Envision connections to surrounding neighborhoods
- Foster the relationship between the Prince George's Plaza Metrorail Station, The Mall at Prince George's and University Town Center
- Develop specific design strategies for improving the intersection of East/West Highway and Belcrest Road
- Develop cost estimates for planning and implementation purposes
- Use good examples within the area as a model for needed improvements

B. Planning Process

The planning process for this study is briefly outlined below.

Background Data Collection and Field Analysis

Background information was gathered for this Plan from previous plans and studies, existing GIS data and through field work. Existing GIS data were provided by Prince George's County, including the locations of roadways, property outlines, aerial photography and municipal boundaries. Detailed site plans of approved private-sector development projects were also reviewed.

Field work was conducted throughout the study area to document existing conditions for walking and bicycling and to identify opportunities to improve pedestrian and bicycle conditions. Pedestrian crossing conditions, on-road bicycling conditions and potential locations for future greenways are examples of elements that the project team analyzed in the field.

Stakeholder Input

Key stakeholders providing input for this study includes the Maryland State Highway Administration (SHA), Washington Metropolitan Area Transit Authority (WMATA), Maryland National Capital Park and Planning Commission (MNC-PPC), Prince George's County, City of Hyattsville and the Metropolitan Washington Council of Governments. As part of this effort, meetings were held with stakeholders in April, May and June of 2008. At these meetings, stakeholders provided input on issues and opportunities, proposed recommendations and project prioritization.

The Prince George's Plaza Transit District is designated as a Regional Center in the Adopted and Approved Prince George's County General Plan

Draft and Final Plan

The draft and final study were developed in collaboration with the project team. Draft recommendations were presented to the stakeholders at the May and June meetings and feedback was incorporated in the final designs.

C. Planning Context

The Prince George's Plaza Metrorail Station is located on the Green Line, south of East-West Highway (MD 410) in northern Prince George's County, Maryland. The transit district includes portions of the City of

Hyattsville and the Town of University Park, as well as unincorporated areas of Prince George's County. The area around the metro station includes established communities, a mix of office and commercial uses and several ongoing development projects. The Prince George's Plaza Transit District is designated as a Regional Center in the Adopted and Approved Prince George's County General Plan. The transit district is also included as part of the US 1-Green Line Regional Activity Center approved by the Council of Governments.

The Prince George's County Plaza Metro Area is located within Planning Area 68, with bordering neighborhoods from Planning Area 66. The Metro Area is located completely within the boundaries of the City of Hyattsville and the study area consists of 300 acres of land surrounding the Prince George's Plaza Metro Station. The boundary of the area to the north is Toledo Road; to the east is Adelphi Road and Queens Chapel Road; to the south is Ager Road; and to the west is Riggs Road. Important transportation corridors in the vicinity include East-West Highway, Queens Chapel Road, Adelphi Road and Belcrest Road. The Metro Area is located near key destinations and residential developments including the Town of University Park, the City of Hyattsville, Brookside Manor and University College.

D. Recent History of Development

Prince George's Plaza Metrorail Station: Within the past twenty years, the Prince George's Plaza Metro Area has experienced rapid growth and development. The Prince George's Plaza Metrorail Station was constructed as a part of a 7.96 mile expansion of the Green line. The segment included West Hyattsville, College Park, Greenbelt and Prince George's Plaza stations. It was completed and opened to riders in December 1993. This segment connects with the Red Line at Fort Totten.

University Town Center is a 56-acre mixed-use town center development with residential, retail and office space

Mall at Prince George's: The Mall at Prince George's (formerly Prince George's Plaza) was built in the 1950s as an open-air shopping center. It continues to be a popular destination, providing a variety of goods and services to local and regional populations.

University Town Center: University Town Center is a 56-acre mixed-use town center development with residential, retail and office space. The site is built around Edward Durrell's international style of office towers constructed from 1963 to 1968. In 1992 the site was re-envisioned as a vibrant downtown center. The Hyattsville Library, immediately adjacent to the site, opened in 1993. The office towers underwent renovations in anticipation of the upcoming revitalization projects. In 2007, the mixed-use site began to take shape with the opening of the Royale 14 Cinemas and two condominium buildings, the Plaza Lofts Twenty-Two and One Independence Plaza. Additional retail shops and restaurants are scheduled to open in 2008-2009. The Towers at UTC is a student housing building that opened in August 2006. This development supports a unique population that tends to have more pedestrians.

E. Plans and Policies

The *Transit District Development Plan* for the Transit District Overly Zone, approved in 1998, sets up the framework for a complete streets design. The plan proposes a conceptual trail/bikeway system, some of which has been implemented. Importantly, it recognizes walking and biking as "seriously viable modes of transportation." In its purpose section, it includes a goal that at least 5 percent of the transit district workers and/or persons accessing the Metro will use bicycles and walking as alternative transportation. It states that pedestrian facilities should be treated as high priorities, mandates pedestrian links to destinations and argues that trail planning should begin with the first Detailed Site Plan.

In the summer of 2007 the *Hyattsville Bike and Pedestrian Safety Committee* released recommendations for improving the bicycling and pedestrian network. Several crossing areas located within the Prince George's Plaza Metro Area were included. The recommendations called for lengthening the signal timing for pedestrians to cross, adding signage to promote awareness of pedestrians, increasing sidewalk width (especially on corners to allow pedestrian gathering) and ensuring connectivity through intersections. The recommendations in this study support and in many cases provide more detail on, the recommendations in the Hyattsville Bike and Pedestrian Safety Committee's report.

Existing sidewalks in the Metro Plaza Shopping Center follow direct lines through parking lots and connect to the front door of retail establishments

F. Site Plans

Pedestrians are accommodated as part of ongoing new development. For example, University Town Center has already incorporated streetscapes that encourage all modes of travel. Within the site there are several well-designed focal points for people to gather. Plans for development in the near future include gateways that are designed with both vehicles and pedestrians in mind. Parking lots are strategically located to the side and away from the main pedestrian corridors, creating a traditional "main street" environment. Sidewalks range from five to eight feet wide with larger gathering spaces on the corners.

A second example of a recent site design that has accommodated pedestrians is the Metro Plaza Shopping Center located on the South East corner of the Belcrest Road and East-West Highway intersection. The buildings are built at a pedestrian scale and there are sidewalks that follow direct lines through the parking lot keeping the pedestrians away from cars, but not completely isolated. These sidewalks also have well-designed curb ramps and hand railings and connect to the front door of retail establishments.

Chapter 2: Existing Conditions

This Chapter outlines existing conditions for pedestrians and bicyclists in the Prince George's Plaza area. It describes existing positive attributes, as well as problem areas. This information was gathered through discussion with local stakeholders and through field analysis.

A. Positive Attributes

The Prince George's Plaza area has many assets that can serve as a foundation for efforts to develop a more comfortable multi-modal environment. The transit-oriented area has important assets such as a Metrorail stop, high density mixed-use development and pedestrian generators such as the Mall at Prince George's Plaza. There are many examples of pedestrian friendly design in the area, such as buffers, median islands, crossing treatments and pedestrian pathways through parking lots. There are also important local community resources such as libraries, schools and trails. These and other positive attributes are highlighted in Figure 1 on the following page. Additional information on positive attributes in the area is included in Chapter 3 of this study.

Well-designed buffers are one example of existing resources that can serve as a foundation in efforts to develop a more comfortable multi-modal environment.

B. Problem Areas

Through stakeholder meetings and field analysis, critical issues and problem areas have also been identified. Portions of the physical environment are uncomfortable for pedestrians, due in part to the overwhelmingly automobile-oriented urban design, scale and land use patterns in the area. There is a large amount of unused pavement. Unused pavement refers to the asphalt that is marked in such a way that it serves as a buffer between the pedestrian and vehicular environment, but neither user ever occupies the space. An example of this is the pavement through continuous turn lanes and overly wide vehicle travel lanes. Large turning radii, narrow median islands, large crossing distances and limited crossing opportunities make it relatively difficult for pedestrians to travel along and across roads. There are also difficult driveways and discontinuous sidewalk networks and many of the roads in the area lack physical buffers between the sidewalk and road.

The physical environment creates a somewhat uncomfortable pedestrian experience. Relatively high motor vehicle traffic volumes and speeds can be intimidating for pedestrians. Driver behavior, such as cut through traffic and relatively fast turning movements further contribute to a poor pedestrian experience. Pedestrians contend with relatively long wait times and short crossing intervals. There are also accessibility issues along and across roads. These and other problem areas are highlighted in Figure 2.

C. Roadway Characteristics

The primary roadways through the study area include East-West Highway and Belcrest Road. Both roads are urban arterials. West of the intersection, East-West Highway is a six lane highway (three in each direction) with additional turning lanes in each direction. East of the intersection, East-West Highway is a four lane highway (two in each direction) with additional turning lanes in each direction. North of the Intersection Belcrest Road is a four lane road (2 in each direction). South of the intersection Belcrest Road is a 4 lane road (2 in each direction) with two additional left turn lanes in the northbound direction. East-West Highway has an Average Daily Traffic (ADT) volume of approximately 25,000 vehicles per day and a posted speed of 40 mph. Belcrest Road has an ADT of approximately 12,000 vehicles per day and a posted speed of 35 mph.

Chapter 3: Recommendations

The recommendations included in this chapter are meant to connect the largest pedestrian generators in the area, the Prince George's Plaza Metrorail station, the Mall at Prince George's and the emerging transit-oriented development in the vicinity. The lynchpin of this effort is the intersection of East-West Highway and Belcrest Road and so design recommendations focus on this intersection. Retrofit opportunities were envisioned to make the intersection function better for all users. The goal of these improvements is to make it more comfortable for bicyclists and those on foot, while still recognizing that the intersection must continue to move motor vehicles and accommodate the turning movements of large commercial vehicles such as buses and trucks. Towards this end, the following improvements are recommended at or near the intersection:

Recommendations are meant to connect the largest pedestrian generators in the area

- 4 new raised crosswalks
- 7 new curb extensions
- 5 expanded median islands
- 2 sidewalk links
- 2 driveway closures
- 6 corners are redesigned to reduce the turning radii
- 1 pedestrian route through a surface parking lot is identified
- 1 neighborhood connection is enhanced
- 1 barrier wall is removed
- 1 pedestrian bridge is replaced

Design and functional changes to the intersection that will benefit bicyclists and pedestrians include reducing crossing distances, increasing the size of the center median islands and slowing turning vehicles. These and other design improvements are shown in Figure 3. Additional detail on these changes is included below.

A. Pedestrian Improvements

Median islands are widened so that they can serve as a pedestrian refuge

Median islands allow pedestrians to cross one direction of motor vehicle traffic at a time and studies show that they reduce pedestrian crashes. In locations with longer crossing distances such as across East-West Highway and/or higher vehicle speeds, median islands are particularly beneficial to pedestrians. In the design concept for the intersection, the center median islands on East-West Highway have been increased to a width of eight feet. This increased width will make the median island a more comfortable place for pedestrians to stand. This additional space was created by narrowing existing travel lanes on East-West Highway and recapturing existing underutilized space near the intersection.

Turning radii are reduced to slow turning vehicles
The existing corners at the intersection of East-West Highway and Belcrest Road allow motor vehicles to turn at relatively high speeds, in many cases causing potential conflicts with pedestrians. The existing large radii design allows cars to make right turns across the pedestrian travel way at higher speeds. This can put pedestrians at risk, in part because it is hard to determine if the motorists is going to turn or continue straight. The resulting angle can limit available sight distance between the pedestrian and motorists. The design concept reduces the curb radii at the corners of the intersection in order to slow turning vehicles, improve sight distance between pedestrians and motorists, and shorten the crossing distance for pedestrians. Raised speed table crosswalks are also proposed in two locations to further slow down turning vehicles.

Underutilized and wasted space is reallocated
In the design concept, efforts were made to find underutilized paved space and recapture it in a way that benefits non-motorized users. This can be accomplished by narrowing travel lanes, building curb extensions and widening the center median island. These intersection retrofits serve to tighten up the intersection. This slows vehicle speed while reducing pedestrian crossing distances and encouraging a more pedestrian scale development pattern.

Signal timing is adjusted to function for all modes
Signal timing improvements are envisioned along with physical changes at the intersection to improve the pedestrian and bicycle experience. Traffic signal improvements that should be explored include providing a quicker response once a pedestrian signal has been pressed and increasing the amount of time that a pedestrian has to cross the road. Installing a leading pedestrian interval is also an option to consider. At signalized intersections with high pedestrian crossing volumes, the signals can be programmed to allow pedestrians to begin crossing 2 to 4 seconds before the vehicle traffic on the parallel street is given a green light. This low-cost treatment gives pedestrians enough time to enter the street so that turning vehicles can see them, be aware of them and yield to them before they receive a green light.

Restricting right turns on the red light could also be considered. Motorists are required by law to stop at red lights before making a permissive right-turn-on-red. Motorists often roll through the stop (especially at intersections with large turning radii) and focus only on the traffic approaching from their left. This may prevent them from seeing pedestrians crossing from their right. In addition, drivers often pull into the crosswalk to wait for a gap in traffic, blocking the path of pedestrians and putting them at risk of being struck by the vehicle. To address this problem, “no right turn on red” restrictions could be implemented at the intersection.

Pedestrian crossing distances are reduced
An important element of the proposed design concept is to reduce crossing distances for pedestrians. Nationally, nearly 75% of all police-reported pedestrian crashes involve pedestrians crossing roadway travel lanes. Roadway crossing improvements may help prevent future pedestrian crashes in these and other roadway corridors. Wider median islands allow pedestrians to cross one direction of motor vehicle traffic at a time. Curb extensions are proposed to shorten pedestrian crossing distance and increase the visibility of pedestrians at roadway crossings. Reductions of the curb radii at the corners of the intersection are also recommended to help slow turning vehicles.

Crossing opportunities are increased

The design concept also recommends increasing crossing opportunities for pedestrians, specifically east of the intersection where a new grocery store is planned. A new traffic signal at this location could provide a more comfortable and conveninent pedestrian crossing. A new traffic signal is the preferred alternative given pedestrian volumes expected with the new development. If a new signal is not feasbile, additional crossing opportunities should be explored. A concept for this is included in Figure 3. To improve this crossing, high-visibility crosswalks, signage and pedestrian-activated traffic signals such as Rapid Flashing Beacons should also be explored.

Pedestrian-scaled land use and urban design is encouraged

The study area demonstrates the relationship between land-use and urban design and the pedestrian environment. In some areas, the physical character of the community meshes well with all modes of transportation, supporting more than just automobile travel. The University Town Center Development is an example of this. Other areas have physical characteristics that are more automobile-oriented, which results in relatively difficult conditions for pedestrians such as poor access to transit, lack of destinations and services within walking distance to residences and other issues that make biking and walking less viable modes of transportation. Many driveways cutting across the sidewalk are the result of a land use patterns built for motor vehicles. In the proposed design, two of the Chevron gas station's driveways are closed to reduce potential conflicts.

Some parts of the study area have physical characteristics that are more automobile-oriented, which results in difficult conditions for pedestrians

It is acknowledged that pedestrians will take the most direct route

This study recommends a design approach that acknowledges that pedestrians will generally take the most direct route to their destinations. In order to encourage the development of comfortable and convenient places, this acknowledgement should be a part of the design of properties throughout the study area. One example of this is the planning of pedestrian circulation routes near the Metrorail station and through surface parking lots. An example of a parking lot circulation design from the pedestrian bridge through the Target parking lot to Belcrest Road is included in Figure 3. This route provides pedestrians with a direct route where they need to go without inhibiting vehicular travel ways or taking many parking spots.

Universal accessibility is a priority

Features are included in the design concept to ensure universal access throughout the study area. Gaps in the sidewalk network are proposed to be closed in order to provide a connected sidewalk network, for example sidewalks are recommended outside of the Family Dental building and in the Starbucks parking lot. ADA guidelines specify a minimum passing area width of 5 feet at least every 200 feet. In areas with high pedestrian volumes (often areas near transit stops and stations) and/or where street furniture (e.g. pay phones, trash cans,

etc.), utilities, and street trees may function as obstacles, additional sidewalk width will be necessary to provide this minimum clear width. The full clear width of a sidewalk should be paved with a smooth, stable and slip-resistant material to accommodate wheelchairs, bicycles, and strollers. Additionally, grade changes and conflicts with vehicles should be kept to a minimum, including curb cuts for driveways.

Targeted education and enforcement efforts are proposed to reduce bicycle and pedestrian and motor vehicle crashes

Physical improvements to the intersection should be reinforced by targeted education and enforcement efforts. Local stakeholders should work with the Police Department to develop an enforcement program to reduce pedestrian, bicycle and motor vehicle crashes. This should take a balanced approach to improving behaviors of pedestrians, bicyclists and motorists. Specific activities that should be targeted include motor vehicles cutting through the parking lot of the gas station at the southwest corner of the intersection and motor vehicles not stopping for pedestrians waiting at the crosswalk outside of the Metrorail station on Belcrest Road.

B. Bicycle Improvements

Shared lane markings are proposed on East-West Highway and on Belcrest Road in the vicinity of the intersection of the two roads. Motor vehicle/bicycle sharing of the travel space can be emphasized by using these special shared roadway pavement markings (sometimes referred to as "sharrows"). Shared lane markings are placed along selected roads to alert automobile drivers to the presence of bicyclists and encourage bicyclists to ride outside of the "door zone" of parked cars. They reduce wrong-way bicycling and tend to increase the distance between bicyclists and passing cars. Shared lane markings are generally used where there is not enough space for bicycle lanes. If shared lane markings are feasible it would be necessary to reduce the speed limit of East-West Highway to 35 miles per hour as this is the highest recommended speed for this facility. Reducing the speed limit would also contribute to a more comfortable pedestrian environment.

Shared lane markings are proposed on East-West Highway and on Belcrest Road

Shared lane markings have the following benefits:

- Provide a visible cue to bicyclists and motorists that bicycles are expected and welcomed on the roadway
- Indicate the most appropriate location to ride on the roadway with respect to moving traffic and parked cars
- Can be used on roadways where there is not enough space for standard width bicycle lanes

- Connect gaps between other bicycle facilities, such as a narrow section of roadway between road segments with bicycle lanes

These pavement markings would be added to the outside lane on East-West Highway. While bicycle accommodations are being provided as part of new development along East-West Highway, there is a concern about certain elements of the shared-use path. Through an initial review of the site plan the following issues were noted:

> **The proposed bicycle facility does not meet minimum design standards. Appropriate sight lines are not provided. Potential conflicts between bicycles and vehicles entering and exiting America Boulevard should be anticipated with the proposed design. The proposed facility is 8' wide. This is not wide enough for safe two-way operation of bicycles. Bicyclists also require a shy distance of two feet. The proposed seat wall reduces the clear space for bicyclist, reducing the effective width of the facility to 6'. As designed, curb ramps are not wide enough or aligned to support bicycle travel. The ramp alignments require the bicyclists to make relatively sharp turns. These movements can be unsafe for all users, especially adjacent to and in an intersection. Bicyclist crossing Democracy Drive are at risk of crashing into the planter. Ramp alignment also directs bicyclists into the roadway. Curb ramps are narrow for two way operation and serious conflicts should be expected between pedestrians, vehicles and bicyclists. This design also encourages conflicts between bicycles and pedestrians at proposed stairwells.**

Because of these concerns, shared lane markings are recommended on East-West Highway to provide an on-road bicycle connection. Curb extensions will be constructed to prevent through vehicle access while maintaining space for bicyclists. On Belcrest Road, the existing striped shoulder would be removed and replaced with a wide outside lane with a shared lane marking. The existing shoulder is not wide enough for comfortable bicycle travel and so a wide outside lane with a shared lane marking is considered to be an improvement over the existing condition.

C. Other Improvements

In addition to the proposed recommendations for the intersection of East-West Highway and Belcrest Road, several spot improvements are recommended in the study area. These improvements will enhance pedestrian and bicycle connectivity, primarily by eliminating barriers to movement. These spot improvements are listed below and included in the cost estimates presented on the following page.

- The existing wall on the north side of East-West Highway at the intersection of East-West Highway and Editors Park Drive should be modified to allow pedestrian and bicycle access. This wall is a barrier within the direct line of travel between the residential neighborhoods to the north and the school, retail and transit destinations to the south.
- An existing fence at the corner of 41st Avenue and Queens Chapel Road should be removed to provide better pedestrian and bicycle connections between the residential neighborhoods to the south and southeast of the intersection of East-West Highway, Adelphi Road and Queens Chapel Road and the Prince George's Plaza area.

- A trail bridge along the Northwest Branch Trail between Toledo Terrace and West Park Drive has recently been washed out and is proposed to be replaced to restore an important trail connection in the study area.

D. Short to Medium Term Cost Estimates

General (order of magnitude) cost estimates were developed for the main components of this plan. The estimated cost to implement this plan is approximately $1,320,000 (based on 2008 dollars). Of this total, the cost of implementing the recommendations at the intersection of East-West Highway and Belcrest Road is approximately $750,000. The total cost estimates for each element of the recommendations are highlighted below. Additional detail on these cost estimates is included in the appendix.

- Recommendations at the intersection of East-West Highway and Belcrest Road: $750,000
- New traffic signal at the location of the new grocery store: $390,000 (Note: A new traffic signal at this location is the preferred alternative and so the estimated cost of providing this is included in the total estimate. An estimate for the cost of the alternative crossing treatment discussed above and included in Figure 3 is provided in the appendix but this has not been added to the total cost.)
- Removing a fence to enhance a neighborhood connection in the study area: $1,000
- Replacing a bridge near the Northwest Branch Trail: $170,000
- Modifying an existing wall to enhance pedestrian access: $9,000

Construction cost estimates were developed for the recommendations by identifying pay items and establishing rough quantities. Unit costs are based on 2008 dollars and were assigned based on historical cost data from the Maryland State Highway Administration, other state departments of transportation and other sources. The costs are intended to be general and used for planning purposes. A 25% contingency is applied to the cost for each general recommendation. The construction estimates **do not** include costs for planning, surveying, engineering design, right-of-way acquisition, or future maintenance. Construction costs will vary based on the ultimate project scope (i.e. potential combination of projects) and economic conditions at the time of construction.

E. Long-Term Vision

The long-term vision for the Prince George's Plaza area is for a vibrant hub of activity with land use and urban design patterns that tie together the Prince George's Plaza Metrorail station, the Mall at Prince George's Plaza and the University Town Center development into one cohesive mixed-use environment. The physical character of the area honors and respects all modes of transportation including walking, bicycling and taking public transit. It is considered a priority to develop comfortable, convenient and direct circulation patterns for those on foot as well as those on bikes. In order to realize this vision for the study area, existing well-designed development and design features should be used as a precedent. This will enable the community to build on its positive attributes and use them as a foundation moving forward. Examples of how this can occur are included on the following pages.

Buffers provide a physical separation between pedestrians and traffic


Precedent

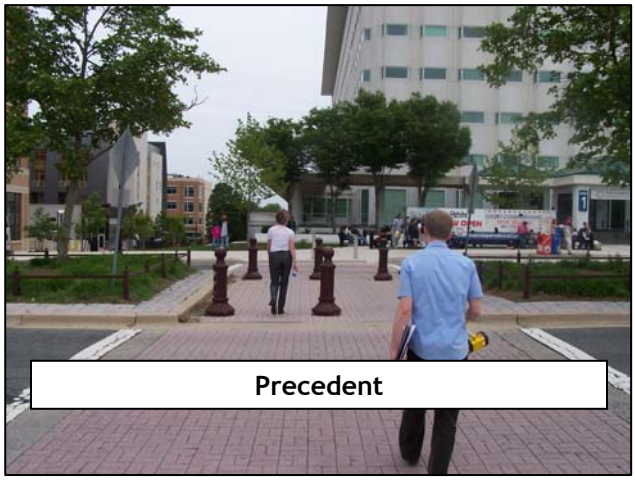

Need

Direct and convenient pedestrian paths are provided through parking lots


Precedent


Need

Crossing opportunities are provided at convenient and logical locations


Precedent


Need

Cars are slowed down where pedestrians are crossing


Precedent


Need

Medians provide a protected refuge for pedestrians crossing the road


Precedent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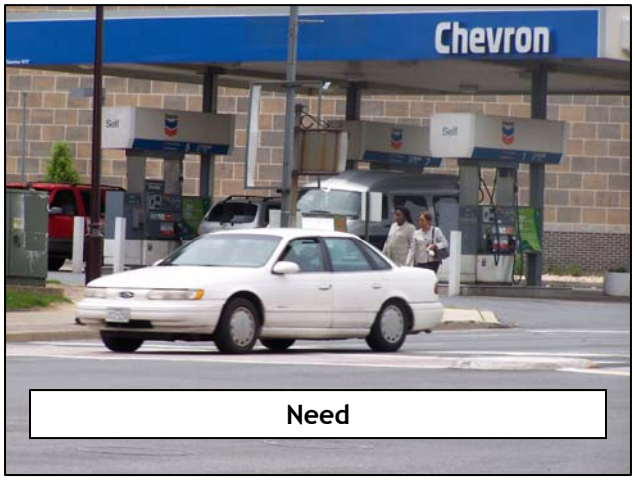
Buildings and streetscapes are developed at a human scale


Precedent



Need

Chapter 4: Complete Streets Lessons Learned

The previous chapter outlined a series of design and retrofit recommendations to improve bike and pedestrian conditions at the intersection of East-West Highway and Belcrest Road. These recommendations are meant to make the intersection easier to negotiate on foot and by bike. Many of the retrofit opportunities that were identified in the analysis of this intersection likely also exist in other intersections in Prince George's County and throughout the Washington, DC region.

"Complete Streets" lessons, which were developed through the course of this project, are detailed below so that they might inform other similar intersection retrofit projects. These principles draw heavily from the Maryland State Highway Administration's Bicycle and Pedestrian Design Guidelines. All ten may not be applicable everywhere because of geometry, traffic and other constraints. They are meant to function as a partial check list to encourage a design process that makes the most of existing opportunities and accommodates all users of the roadway, including drivers, walkers and bicyclists.

1. Acknowledge that pedestrians will take the most direct route

A site design approach should acknowledge that pedestrians will generally take the most direct route to their destinations. In order to encourage the development of comfortable and convenient places, this acknowledgement should be a part of the design of properties and transportation facilities throughout the County.

2. Ensure universal accessibility

All County residents are pedestrians at one time or another. This includes employees walking to work, students walking to school, neighbors walking to parks, and wheelchair users traveling to bus stops and rail stations. It also includes owners walking dogs, shoppers walking through parking lots to store entrances, and people who drive and park in commercial areas and walk to local establishments. Pedestrians include people of all ages, incomes and abilities.

Pedestrian facility design is critical for pedestrian safety and comfort. The County should follow the guidelines and requirements of the Americans with Disabilities Act Accessibility Guidelines for buildings and facilities (ADAAG)[1] (the ADAAG rules are available at http://www.access-board.gov/adaag/html/adaag.htm) and the AASHTO Pedestrian Guide[2] when implementing the recommendations of this plan. Accessibility issues are outlined briefly below.

- ADA guidelines specify a minimum passing area width of 5 feet at least every 200 feet. In areas with high pedestrian volumes (often areas near transit stops and stations) and/or where street furniture (e.g. pay phones, trash cans, etc.), utilities, and street

[1] ADA Accessibility Guidelines for Buildings and Facilities. United States Access Board, 2002. http://www.access-board.gov/adaag/html/adaag.htm

[2] AASHTO *Guide for the Planning, Design, and Operation of Pedestrian Facilities*. American Association of State Highway and Transportation Officials, 2004.

trees may function as obstacles, additional sidewalk width will be necessary to provide this minimum clear width.

- The full clear width of a sidewalk should be paved with a smooth, stable and slip-resistant material to accommodate wheelchairs, bicycles, and strollers. Additionally, grade changes and conflicts with vehicles should be kept to a minimum, including curb cuts for driveways. More details can be found in the ADAAG.

- Accessible curb ramps should be provided at every marked crosswalk. All curb ramps must meet the requirements of the ADAAG. Though it is not requirement, it is recommended that curb ramps be provided for each crosswalk extending from a corner rather than a single curb ramp pointing into the center of the intersection.

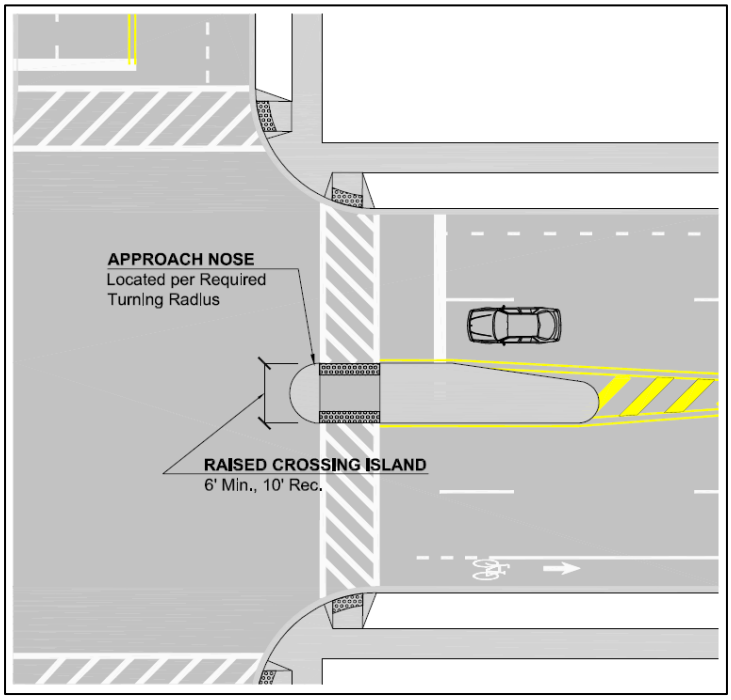
3. Encourage pedestrian-scaled land use and urban design

In some areas, the physical character of the community meshes well with all modes of transportation, supporting more than just automobile travel. Other areas have physical characteristics that are more automobile-oriented which may result in difficult conditions for pedestrians, poor access to transit, lack of destinations and services within walking distance to residences and other issues that make walking a less viable mode of transportation.

4. Encourage median islands as pedestrian refuge islands

In locations with longer crossing distances (i.e more than two lanes) and/or higher vehicle speeds, median islands benefit pedestrians. In particular, median islands have been shown to increase safety for pedestrians crossing multi-lane roadways (Zegeer et al, February 2002). Median islands allow pedestrians to cross one direction of motor vehicle traffic at a time.

Space for median islands can be created by narrowing or removing existing travel lanes. Removing travel lanes may involve removing through-travel lanes, auxiliary lanes or replacing a center-turn lane with raised median islands. In some corridors, removing travel lanes can also create extra roadway space for bicycle lanes. Additional considerations for raised median islands are included below.



Source: Maryland State Highway Administration's Bicycle and Pedestrian Design Guidelines

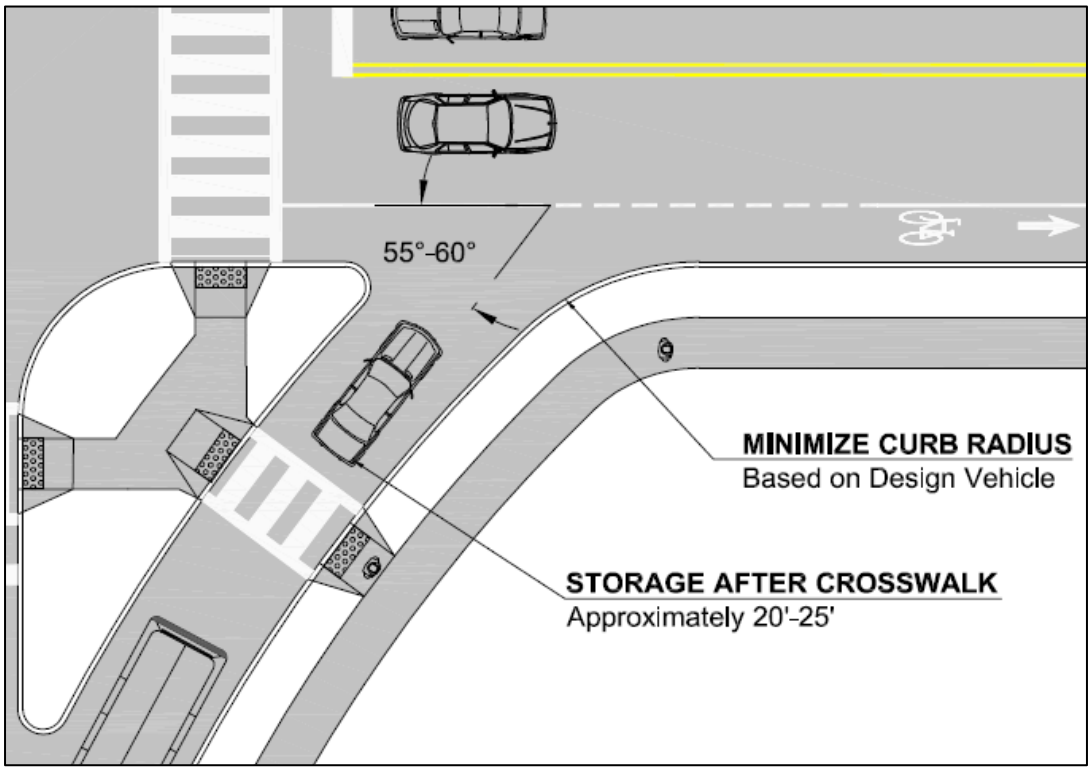
- At-grade cut throughs or curb ramps should be provided
- Cut throughs should be aligned directly with and be the full width of crosswalks

- Raised approach noses should be included at intersection islands
- If the median island is landscaped, vegetation should not obstruct necessary clear sight line
- Median islands should meet SHA's Accessibility Policy and Guidelines for Pedestrian Facilities Along State Highways

5. Design turning radii to slow turning vehicles

Intersection geometry is a critical element affecting pedestrian comfort and accessibility crossing streets. Large corner radii (larger than 100 degrees) allow cars to make right turns across the pedestrian travel way at higher speeds (e.g. the Southeast corner of the East-West Highway and Belcrest Road Intersection). At many locations these intersections are uncontrolled which can put a pedestrian at risk because it is hard to determine if the motorist is going to turn or remain straight. The resulting angle on the can limit available sight distance between the pedestrian and motorists.

Reducing the curb radii at the corners of an intersection helps slow turning vehicles, improves sight distance between pedestrians and motorists, and shortens the crossing distance for pedestrians. Surrounding land uses and the traffic composition on the roadway are important to evaluate when considering this treatment. If a curb radius is too small, trucks and buses may drive over the curb and endanger pedestrians. The County should look for opportunities to reduce curb radii as a part of roadway projects that involve geometric improvements at intersections.



Improved Right-Turn Slip Lane Design. Source: Maryland State Highway Administration's Bicycle and Pedestrian Design Guidelines

6. Find wasted space and better utilize

Excessively wide intersections and underutilized pavement contribute to an uncomfortable environment for those on foot and can lengthen signal cycle lengths. Median islands and curb extensions are ways that this space can be reconfigured in a way that benefits pedestrians. Median islands allow pedestrians to cross one direction of motor vehicle traffic at a time. Curb extensions shorten pedestrian crossing distances and increases the visibility of pedestrians at roadway crossings. Additionally, reducing the curb radii at the corners of an intersection as mentioned in the previous recommendation helps slow turning vehicles, improves sight distance between pedestrians and motorists and shortens the crossing distance for pedestrians.

7. Time signals to function for all modes

Signalized intersections stop opposing traffic, allowing pedestrians to cross busy roadways. At most signalized intersections, motor vehicles are still allowed to turn across crosswalks. Though drivers are required by law to yield to pedestrians at these locations, pedestrian collisions occur. Traffic signal improvements include installing pedestrian countdown signals, providing leading pedestrian intervals, restricting right-turns-on-red and having pre-timed pedestrian signals at intersections with relatively high pedestrian volumes. These are described below.

- *Pedestrian countdown signal heads* are beneficial at intersections with high pedestrian crossing volumes and/or long crossing distances because they indicate the number of seconds remaining for pedestrians to complete crossing the street.

- At signalized intersections with high pedestrian crossing volumes, the signals can be programmed to allow pedestrians to begin crossing 2 to 4 seconds before the vehicle traffic on the parallel street is given a green light. This is referred to as a *Leading Pedestrian Interval*. This low-cost treatment gives pedestrians enough time to cross to enter the street so that turning vehicles can see them, be aware of them, and yield to them before they receive a green light.

- Motorists are required by law to stop at red lights before making a permissive right-turn-on-red. Motorists often roll through the stop (especially at intersections with wide turning radii) and focus only on the traffic approaching from their left. This may prevent them from seeing pedestrians crossing from their right. In addition, drivers often pull into the crosswalk to wait for a gap in traffic, blocking the path of pedestrians and putting them at risk of being struck by the vehicle[3]. To address this problem, the County could requires drivers to wait for the green light to turn right at intersections with high pedestrian volumes. "NO RIGHT TURN ON RED" signs provide a clearer message to drivers in locations with high pedestrian volumes.

[3] Zegeer, C.V., Seiderman, C., Lagerwey, P., Cynecki, M., Ronkin, M. and Schneider, R. Pedestrian Facilities Users Guide: Providing Safety and Mobility, Federal Highway Administration, FHWA-RD-01-102, March 2002.

8. Increase crossing opportunities

Increasing the number of crossing opportunities makes it easier for pedestrians to get where they need to go in a direct and comfortable manner. Roadway markings, curb ramps, traffic signals, signs, and lighting are a few ways to improve crossing opportunities for pedestrians. Legally, crosswalks exist where two streets intersect whether or not they are denoted with markings. High-visibility crosswalks are recommended at pedestrian crossing locations to alert motorists to locations where they should expect pedestrians and to show pedestrians preferred crossing locations. This may involve striping new crosswalks where they do not currently exist, restriping crosswalks that have worn away, or restriping crosswalks that need to be moved to a more appropriate location. At busy mid-block pedestrian crossings, pedestrian-activated traffic signals should be considered for regulating vehicular traffic. Extensive guidance and standards for pedestrian signal warrants are provided in the MUTCD (Section 4C). These signals are appropriate in locations with heavy pedestrian crossing activity and police-reported crashes. Rapid Flashing Beacons should also be considered.

9. Pursue targeted education and enforcement efforts behavior to reduce bicycle, pedestrian and motor vehicle crashes.

The County should work with departments to develop enforcement programs to reduce pedestrian and bicycle and motor vehicle crashes. This should take a balanced approach to improving behaviors of pedestrians, bicyclists and motorists. Motorist behaviors that should be targeted include:

- Not stopping for pedestrians at crosswalks
- Passing too close to bicyclists
- Speeding and rolling through stop signs or disobeying traffic signals
- Harassment or assault of bicyclists
- Cut through traffic

Bicyclist safety is a shared responsibility between all roadway users. Enforcement priorities should be established through a collaborative process. Additional enforcement programs are described below.

- Police departments should offer educational training to officers about bicyclist rights and responsibilities as well as aggressive motor vehicle behavior toward bicyclists. For example, the Maryland Office of Highway Safety organizes safety training events for officers to raise awareness about rights, rules, and appropriate responses to incidents involving conflicts between motor vehicles, bicycles and pedestrians. The Federal Highway Administration offers a DVD titled “Enhancing Bicycle Safety: Law Enforcements Role” that is an excellent training tool. It is available for free from FHWA.

Chapter 5: Conclusion

This study encourages "complete streets" that serve all users. It identifies short-term safety improvements and a long-term vision for pedestrian and bicycle mobility. The recommendations in this study focus on providing better pedestrian access to transit, shopping, jobs, housing, parks and open space.

Implementation of the recommendations will foster the relationship between the Prince George's Plaza Metrorail Station, the Mall at Prince George's Plaza and the emerging University Town Center development. In doing so, they will encourage the development of a cohesive mixed-use environment with pedestrian linkages between destinations, where pedestrians are treated with a high priority as envisioned in the *Transit District Development Plan* for the Transit District Overly Zone.

Implementation of the recommendations at the intersection of East-West Highway and Belcrest Road will foster the relationship between the Prince George's Plaza Metrorail Station, the Mall at Prince George's Plaza and the emerging University Town Center

Appendix

PG Plaza Intersection Recommendations

Item	Unit	Quantity	2008 Unit Cost	Total Cost
Mobilization	LS	1	$54,000.00	$54,000
Earthwork, Excavation, Grading	CY	915	$20.00	$18,300
Concrete Curb and Gutter	LF	1540	$30.00	$46,200
Concrete Sidewalk – 4” Thickness	SF	5420	$5.00	$27,100
Eradication	LF	3220	$2.00	$6,440
Thermoplastic Pavement Marking Line	LF	2160	$1.50	$3,240
Thermoplastic Pavement Marking Symbol	EA	42	$300.00	$12,600
Stripe High Visibility Crosswalks	EA	2	$500.00	$1,000
Milling	SY	50	$6.00	$300
Aggregate Base Course	CY	275	$50.00	$13,750
Asphalt Paving	TON	56	$70.00	$3,920
Concrete Median	SY	230	$100.00	$23,000
Concrete Pavement	SY	51	$50.00	$2,550
Stamped/Colored Pavement	SF	450	$8.00	$3,600
Curb Ramp	EA	10	$400.00	$4,000
Remove Security Fence and Replace	LF	10	$150.00	$1,500
Drainage Inlet Adjustments	EA	2	$4,000.00	$8,000
New Signalized Intersection	EA	1	$165,000.00	$165,000
Lump Sum Items				
Landscaping	LS	1	$16,000.00	$16,000
E&S and Seeding Disturbed Soil (5%)	LS	1	$17,000.00	$17,000
Maintenance of Traffic (25%)	LS	1	$85,000.00	$85,000
Utility Adjustments (25%)	LS	1	$85,000.00	$85,000
			Subtotal	$597,500
			25% Contingency	$149,375
			Total Estimated Cost	**$750,000**

Cost does not include engineering design, easement or property acquisition.

PG Plaza Midblock Crossing Recommendations 2 (New Signal)

Item	Unit	Quantity	2008 Unit Cost	Total Cost
Mobilization	LS	1	$28,000.00	$28,000
Remove Curb and Gutter	LF	400	$10.00	$4,000
Earthwork, Excavation, Grading	CY	450	$20.00	$9,000
Concrete Curb and Gutter	LF	350	$30.00	$10,500
Eradication	LF	300	$2.00	$600
4" Thermoplastic Pavement Marking Line	LF	300	$1.50	$450
Thermoplastic Pavement Marking Symbol	EA	6	$300.00	$1,800
Aggregate Base Course	CY	200	$50.00	$10,000
Asphalt Paving	TON	400	$70.00	$28,000
Concrete Sidewalk and/or Concrete Pavers	SY	30	$120.00	$3,600
Curb Ramp	EA	8	$400.00	$3,200
Drainage Inlet	EA	1	$3,500.00	$3,500
Stripe High Visibility Crosswalks	EA	3	$500.00	$1,500
Remove and Reset Sign	EA	10	$200.00	$2,000
New Signalized Intersection	EA	1	$165,000.00	$165,000
Lump Sum Items				
Landscaping	LS	1	$3,000.00	$3,000
E&S and Seeding Disturbed Soil (5%)	LS	1	$4,000.00	$4,000
Maintenance of Traffic (25%)	LS	1	$18,000.00	$18,000
Utility Adjustments (25%)	LS	1	$18,000.00	$18,000
			Subtotal	$314,150
			25% Contingency	$78,538
			Total Estimated Cost	**$390,000**

Cost does not include engineering design, easement or property acquisition.

PG Plaza Midblock Crossing Recommendations 1 (Median Walkway)

Item	Unit	Quantity	2008 Unit Cost	Total Cost
Mobilization	LS	1	$41,000.00	$41,000
Earthwork, Excavation, Grading	CY	410	$20.00	$8,200
Concrete Curb and Gutter	LF	820	$30.00	$24,600
Eradication	LF	60	$2.00	$120
4" Thermoplastic Pavement Marking Line	LF	1395	$1.50	$2,093
Thermoplastic Pavement Marking Symbol	EA	3	$300.00	$900
Milling	SY	100	$6.00	$600
Aggregate Base Course	CY	120	$50.00	$6,000
Asphalt Paving	TON	20	$70.00	$1,400
Concrete Sidewalk and/or Concrete Pavers	SY	360	$120.00	$43,200
Curb Ramp	EA	6	$400.00	$2,400
Planter Wall with Soil and Liner	EA	2	$75,000.00	$150,000
Rapid Flash Beacon	EA	2	$15,000.00	$30,000
Lump Sum Items				
Landscaping	LS	1	$6,000.00	$6,000
E&S and Seeding Disturbed Soil (5%)	LS	1	$12,000.00	$12,000
Maintenance of Traffic (25%)	LS	1	$60,000.00	$60,000
Utility Adjustments (25%)	LS	1	$60,000.00	$60,000
			Subtotal	$448,513
			25% Contingency	$112,128
			Total Estimated Cost	**$560,000**

Cost does not include engineering design, easement or property acquisition.

PG Plaza Neighborhood Connection

Item	Unit	Quantity	2008 Unit Cost	Total Cost
Mobilization	LS	1	$100.00	$100
Earthwork, Excavation, Grading	CY	1	$25.00	$25
Remove Guardrail	LF	10	$25.00	$250
Concrete Sidewalk – 4” Thickness	SF	50	$5.00	$250
Lump Sum Items				
E&S and Seeding Disturbed Soil (25%)	LS	1	$100.00	$100
Maintenance of Traffic (25%)	LS	1	$100.00	$100
			Subtotal	$825
			25% Contingency	$206
			Total Estimated Cost	**$1,000**

Cost does not include engineering design, easement or property acquisition.

PG Plaza Northwest Branch Trail Bridge

Item	Unit	Quantity	2008 Unit Cost	Total Cost
Mobilization	LS	1	$12,000.00	$12,000
Prefabricated Trail Bridge	SF	800	$120.00	$96,000
4" Thermoplastic Pavement Marking Line	LF	150	$1.50	$225
Lump Sum Items				
E&S and Seeding Disturbed Soil (2%)	LS	1	$2,000.00	$2,000
Maintenance of Traffic (2%)	LS	1	$2,000.00	$2,000
Utility Adjustments (25%)	LS	1	$24,000.00	$24,000
			Subtotal	$136,225
			25% Contingency	$34,056
			Total Estimated Cost	**$170,000**

Cost does not include engineering design, easement or property acquisition.