



U.S. Route 40 Streetscape Master Plan

Howard County, Maryland
September 2010

Howard County
Department of Planning & Zoning
3430 Court House Drive
Ellicott City, MD 21043



ACKNOWLEDGMENTS

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EXECUTIVE SUMMARY

Introduction

The Route 40 Corridor, as defined for the Streetscape Master Plan study, is the approximately seven miles of U.S. Route 40 from the Howard County line at the Patapsco River, west to the interchange with Interstate 70. The focus of the Route 40 Streetscape Master Plan is on the streetscape improvements that can be accomplished within the U.S. Route 40 right-of-way (ROW).

Route 40 and its surrounding landscape have changed considerably over the past 100 years. From its mostly rural and agricultural character of the early 1900's, the corridor has experienced decades of automobile-oriented development in the middle and latter part of the century. Today it is characterized by commercial/retail hubs and suburban residential communities.

The evolution of land uses and pattern of development have resulted in a corridor that lacks definition or sense of place. Building setbacks, landscape treatments and architectural styles have varied over time, resulting in a corridor-wide lack of continuity. Pedestrian and vehicular linkages between uses along the corridor and to the communities beyond are minimal and often non-existent.

The *2000 General Plan* called for aesthetic, transportation and land use recommendations that would create a framework for future development, building upon the existing uses in the corridor while improving its appearance and function. The Howard County Department of Planning and Zoning recognized the present day challenges facing the corridor and began a series of studies for the corridor to highlight the opportunities and present recommendations for future growth and development.

The *Route 40 Enhancement Study* was issued in 2004 and articulated the vision that *Route 40 be "an economically vibrant corridor that is accessible by many modes of transportation and that has identifiable centers reflective of the corridor's historic context and landscape."* This Streetscape Master Plan has been developed to assist in guiding the implementation of landscape and pedestrian-oriented amenities within the US 40 ROW. It is focused on improving the aesthetic of the corridor and creating a more continuous and identifiable sense of scale and place.

Route 40 Corridor Background

1. The 2000 General Plan:

The *2000 General Plan (The Plan)* described a community planning process that recommended an enhancement study for the Route 40 corridor. *The Plan* established a series of goals for the corridor that were summarized into the following key areas:

- A. *The Road and its Environment* - improving the transportation functions of Route 40; correcting unsafe conditions; and addressing transit needs, traffic level of service, pedestrians, bicycles, trucks, etc.
- B. *Redevelopment* - encouraging the renovation and redevelopment of older commercial sites and establishing guidelines for mixed use centers where appropriate.
- C. *Environmental Conservation and Restoration* - protecting the natural environment and restoring environmentally degraded areas.

The Plan called for further study of the corridor to address short and long term priorities and strategies that would focus on these issues.

2. Characterization Report:

Building on the recommendations of *The Plan*, a *Characterization Report (The Report)* for the corridor was published in 2003. *The Report* provided a snap-shot of the area, its history, people, land and communities. From its early days as a connector route between the ports of the east and points west, to its current suburban pattern of development, the Route 40 Corridor has served diverse functions as a transportation link as well as providing for communities where residents live, work, shop, and play.

The Report further defines population and demographic characteristics of the corridor, the land uses, patterns of development, and the transportation network that serves the area. Some of the current land use and transportation pattern challenges include:

- A. *Auto-oriented commercial and retail uses that do not relate or connect to one another or to the residential or employment uses located nearby.*
- B. *Inconsistencies in architecture, landscaping, and setbacks of structures that result in a fractured aesthetic.*
- C. *Bicycle and pedestrian access that is limited and in many cases, not available at all.*

The Report concluded that a more pedestrian-friendly network of streets and sidewalks developed around a consistent aesthetic would encourage the use of travel modes other than single-occupant vehicles.

3. Route 40 Corridor Market Analysis

In early 2004, the *Route 40 Corridor Market Analysis (The Market Analysis)* was released. The purpose of the analysis was to examine the current and future market for retail and office space in the corridor. The analysis identified that there are few undeveloped sites available for development in the corridor. It further concluded that there were limited opportunities for redevelopment based on the health and success of existing businesses. While the market analysis identified that there is additional opportunity for retail and office space, it was noted that there are other, more desirable locations for office expansion around the region and that an increase in retail development would likely be more successful elsewhere.

The Market Analysis reinforced the idea of creating mixed-use centers and improving site design standards. In addition, providing an enhanced level of connectivity was recognized as a key issue, especially related to pedestrian access. The analysis suggests that should space be made available or redevelopment become more viable, a new pattern of compact, mixed-use centers could be built around a pedestrian-friendly network of streets and sidewalks. Improving the aesthetic along Route 40 would likewise be beneficial to the corridor's ability to compete with other retail/commercial establishments in the vicinity.

4. Route 40 Enhancement Study

In late 2004, the *Route 40 Enhancement Study (The Enhancement Study)* was issued. *The Enhancement Study* established a vision for the corridor, made recommendations about planning alternatives and provided advice on implementation strategies. The enhancement recommendations were organized around land use, transportation, site design and historic resource issues. Each issue area identified existing conditions, outlined a list of goals, and was followed by proposed actions or strategies to accomplish those goals.

The Enhancement Study identified that Route 40 had two roadway types: "parkway" sections and "suburban boulevard" sections. These two roadway types alternate along the corridor creating a series of three distinct, identifiable commercial centers. These commercial centers are the Enchanted Forest, Chatham and Normandy areas (*Refer to Figure 1.*)

The vision established in *The Enhancement Study*, along with the initial analysis of existing conditions, was the basis for the recommendations to follow in the Streetscape Master Plan.

5. Pedestrian/Bicycle Study

During the course of the Route 40 Streetscape Master Plan effort, a targeted pedestrian and bicycle study was initiated by the county. The goal of the study is to analyze four major corridors/redevelopment areas (Downtown Columbia, US Route 1, US Route 40, Snowden River Parkway) to determine priority locations to improve pedestrian and bicycle access. Once identified, concept plans for the priority locations are to be developed.

Preliminary findings of the study recognized five candidate locations along the Route 40 Corridor. These were at the intersections of Route 40 and Centennial Lane, N. Chatham Road, St. Johns Lane, N. Ridge Road, and Normandy Center Drive. The latter intersection is the only one considered of high priority due to factors such as missing sidewalk links, crash rates, vehicular traffic, and nearby activity generators.

The final recommendations of the pedestrian and bicycle study are not available for inclusion in this report. It will be important for the County to coordinate the recommendations of that study with those of the Route 40 Streetscape Master Plan as there is a number of overlapping mobility issues and recommendations in both efforts.

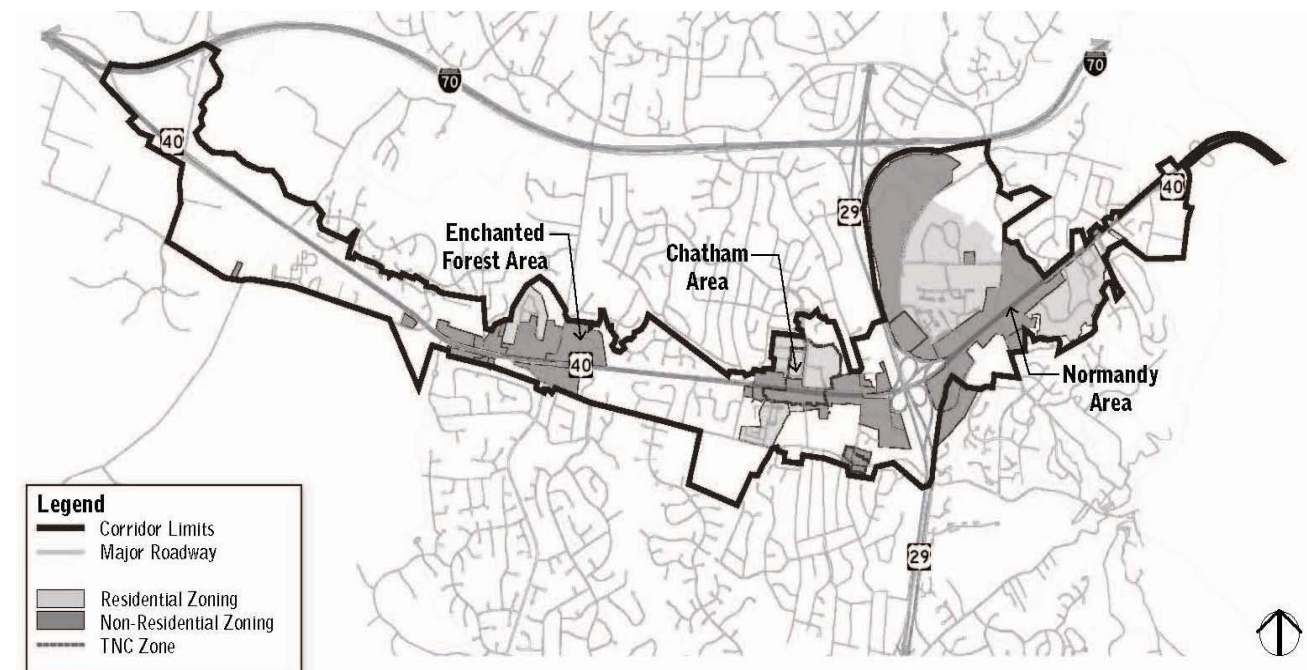


Figure 1: Existing Commercial Centers

Streetscape Master Plan

The *Route 40 Streetscape Master Plan* was undertaken in mid-2009 to carry forward the recommendations of *The Enhancement Study* related to possible physical streetscape improvements within the U.S. Route 40 right-of-way.

Analysis

The planning effort began by assembling 300' scale base maps for the 7-mile long corridor using Howard County's GIS database. The purpose of these Analysis Exhibits (*Refer to Appendix A*) was to gain an understanding of the context of the corridor and to better comprehend the relationship of the Route 40 Corridor to its environment. Information compiled in the maps included building locations, street edges, streams, and wooded areas. The bases were supplemented with information including:

- Land uses
- Properties with the Traditional Neighborhood Center overlay zone
- Neighborhoods
- Historic resources
- Photographs reflective of the character along the corridor
- Relevant information from *The Enhancement Study* including:
 - Historic, land use, transportation and streetscape goals
 - Bus stop locations
 - Proposed sidewalk and crosswalk improvements
 - Parkway, Suburban Boulevard and Neighborhood Center Street classifications
 - Gateways between roadway types

It was important to revisit the work of *The Enhancement Study*, verify the elements that were relevant to the master plan, and to build upon that good work. One of the key elements to verify was the street classifications identified in *The Enhancement Study*. Review of the analysis information and extensive tours of the corridor made it clear that the Parkway and Suburban Boulevard street sections were correctly identified. These would serve as the basis for moving forward with the master plan alternatives.

The entire corridor is made up of alternating Parkway and Suburban Boulevard sections. The Parkway sections are those represented by limited access, an existing wooded buffer at the edge of the ROW, and predominantly single family residential uses backing to the US 40 right-of-way (ROW). For the most part, the edges of the roadway are maintained as a meadow with occasional mowing immediately adjacent to the shoulder. The median is an open section with regularly maintained lawn. At the east end of the corridor, a jersey barrier in the median separates lanes as the roadway narrows through Patapsco State Park.

The Suburban Boulevard sections of the corridor are located within the three commercial districts: the Enchanted Forest, Chatham and Normandy Woods. These areas are characterized by frequent and often over-sized curb cuts for vehicular access to individual parcels, a fragmented and discontinuous landscape and pedestrian environment, and a lack of architectural consistency.

All of these factors result in an auto-oriented pattern of development that lacks scale and a sense of identity.

The median is an open section with maintained lawn, similar to the Parkway section. The width varies between five and forty feet depending on the number of total lanes and left hand turning movements.

Expanded Analysis

An expanded analysis of the corridor was developed that included; more detailed land use information; physical features such as streams and buffers, steep slopes and wooded areas; and existing activity centers or nodes including commercial properties, libraries, schools, parks, etc. In addition, 5 and 10 minute walking distances were identified around the activity nodes. Finally, the existing system of sidewalks and trails, which represent the primary pedestrian network, was highlighted on the plans.

The intent of this analysis is to highlight the proximity of the places people live and work to the commercial, social and cultural resources within the corridor to which they may wish to travel. The system of sidewalks, trails and streets is highlighted to indicate the network of pedestrian and bicycle facilities available to travelers choosing non-vehicular modes of transportation.

Equally important are the missing sidewalk and trail connections that would allow greater mobility within the corridor. These missing links should be considered for small, but impactful, projects to enhance movement through and between communities and local destinations.

Digital copies of the expanded analysis maps have been included on the CD that is included in the back cover of this report.

Concept Development

Conceptual streetscape plans were developed for the entire length of the corridor. The plans were organized by roadway classification: Parkway and Suburban Boulevard. The design process began by identifying a collection of elements and features that might be appropriate for each street type. These were illustrated on image boards (*Refer to Appendix B*).

Recommendations for the *Parkway* sections focus on maintaining and reinforcing the pastoral quality of the existing conditions including:

- Infilling the wooded buffer with upland hardwoods where gaps exist
- Managing/eradicating invasive plant species where they show signs of aggressive expansion

- Maintaining the edge of roadway as a meadow treatment except for an area immediately adjacent to the edge of pavement that should be mowed regularly
- Providing landscaping at nosings of medians at key intersections
- Replacing the concrete barrier in the median at the east end of the corridor with one that includes a decorative finish
- Locating a gateway feature in the flat area just west of the Patapsco River Bridge that will be created by the bridge work currently underway
- Considering a landscape or sculptural gateway element at the west end of the corridor as one exits I-70 east bound onto Route 40; Considering additional landscaping in this location as well

Note that sculptural gateway features offer an opportunity to reflect, reinforce, and/or enhance the historic character of the corridor.

Recommendations for the *Suburban Boulevard* sections reflect the commercial character of those areas. They include landscape and pedestrian amenities intended to foster a safe and walkable environment as well as an enhanced aesthetic. These include:

- Possible site furnishings such as street lights, banners, mast-arm traffic signals and trash receptacles
- Bus shelters
- Crosswalk and driveway apron treatments
- Concrete sidewalks and accent paving
- Landscape treatments such as street trees to provide shade to pedestrians and shrubs to screen adjacent parking
- Median treatments such as barrier curbs with accent paving along the edge, street trees and bio-retention/infiltration facilities and plantings

In an effort to evaluate opportunities to implement some or all of these improvements along the Suburban Boulevard sections, a more detailed analysis of the existing conditions was assembled. A typical cross section showing the existing condition between the curb and the US 40 ROW was developed (Refer to Figure 2.)

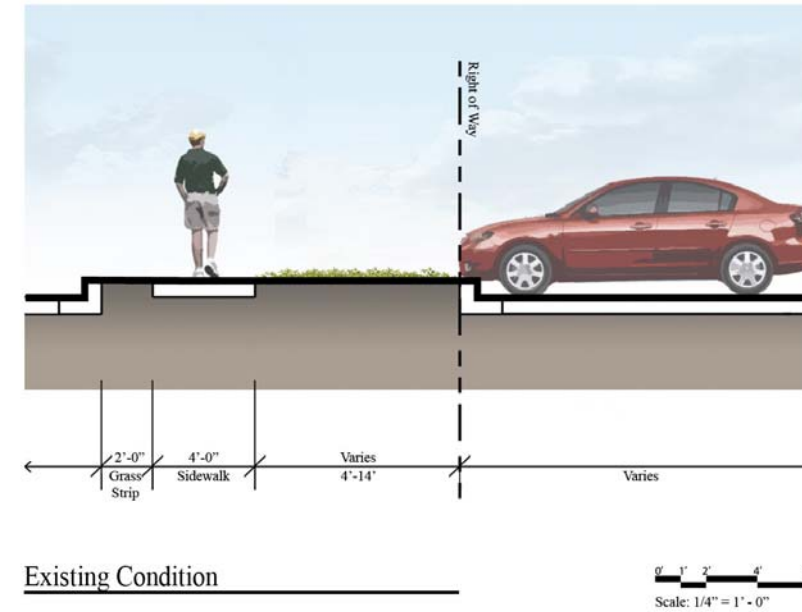


Figure 2: Existing Conditions Section

Due to space constraints and in consideration of visibility and maintenance issues, a relatively simple streetscape treatment is proposed for the majority of the Suburban Boulevard sections. The treatments along the edge of the road consist of sidewalk enhancements, and the addition of street trees and low hedges to screen surface parking areas. Trees should be planted at a 40' on center maximum spacing. Shrubs should be planted 3' on center.

Cross-sections of the streetscape improvements show how these elements would be located based on the available dimension between the curb and ROW line (Refer to Figures 3 and 4.) To assist with the visualization of these improvements, several before and after renderings were developed (Refer to Figures 5 and 6.)

In developing the recommendations of the Route 40 Manual, it was determined that the minimum sidewalk width along the Route 40 frontage should be 6 feet in the Suburban Boulevard sections of the corridor. It also became known that the State Highway Administration (SHA) is in the process of upgrading sidewalks in state rights-of-way to 5 feet wide to meet ADA standards and that the Route 40 corridor may be a candidate for these upgrades. It is suggested that the County DPZ coordinate any sidewalk improvements in the Route 40 corridor with private developers, the SHA, and any other internal agencies to achieve the desired 6 foot wide sidewalks.

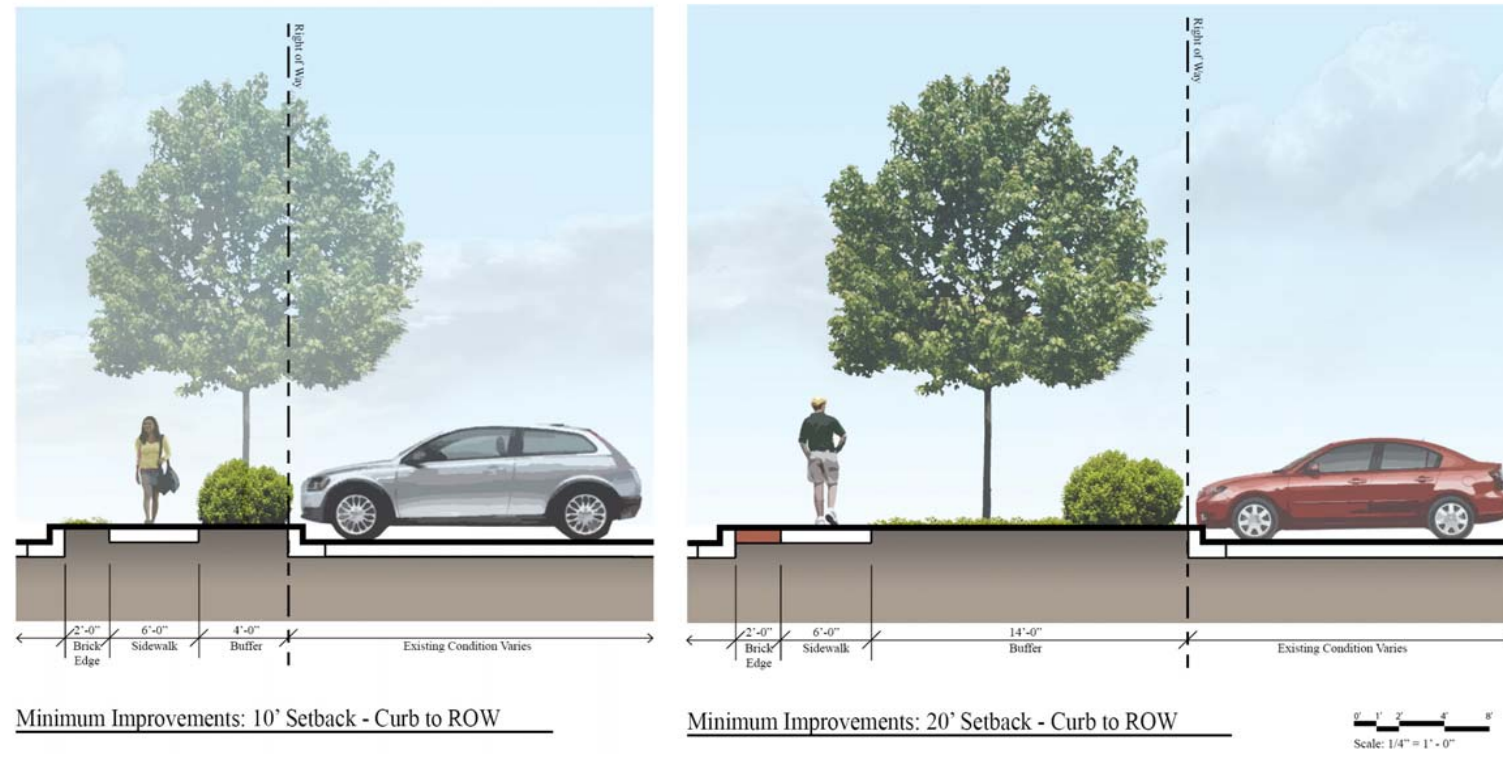


Figure 3: Streetscape Improvement Sections

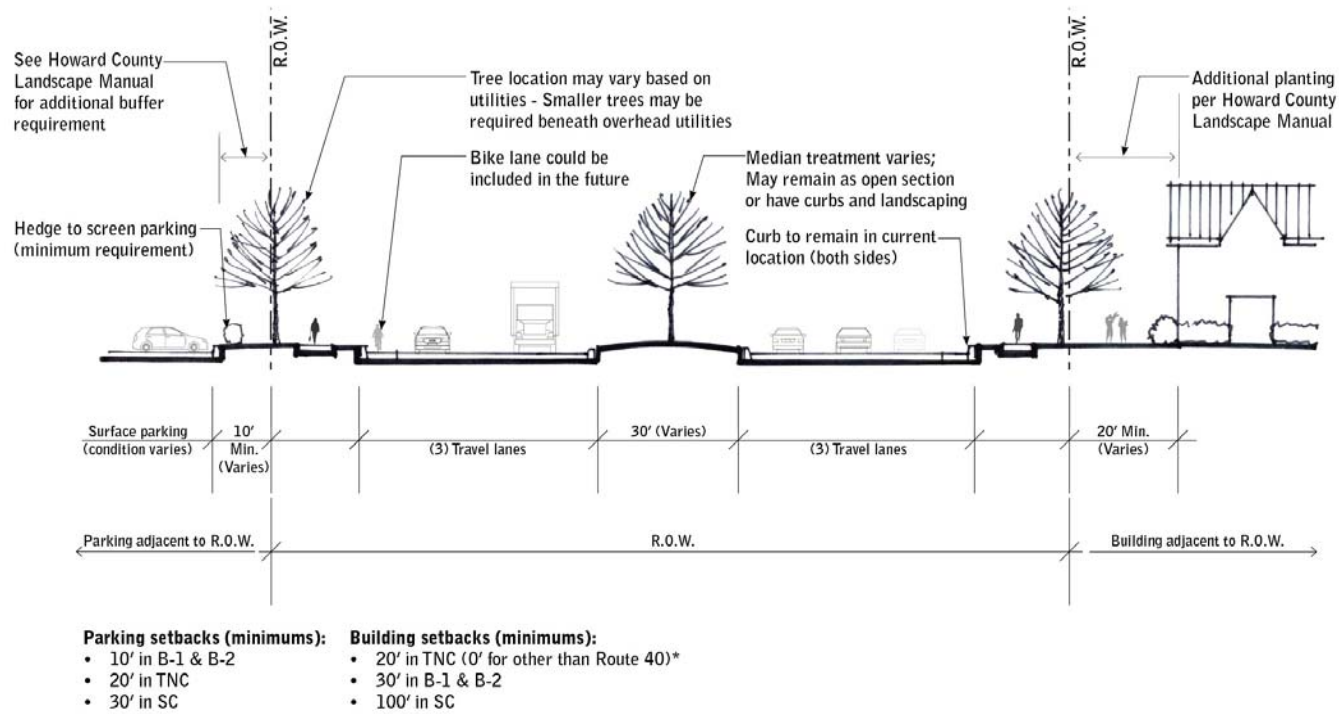


Figure 5: Before and After Illustration of Streetscape Improvements



Figure 6: Before and After Illustration of Streetscape and Driveway Improvements

Existing Conditions Plans

To further evaluate the opportunities to apply the proposed streetscape improvements, 50' scale *Existing Conditions* plans were developed for the Suburban Boulevard sections. These plans included buildings, pavement edges and curb lines, sidewalks, existing trees and green spaces, and underground utility information. Utilities included water, storm sewer, and sanitary sewer lines based on the county's GIS data. These base maps were supplemented with field-verified utility pole locations, overhead line alignments, and sidewalk locations (*Refer to Appendix C.*)

Draft Master Plans

With an agreed upon range of potential streetscape improvements, a typical edge condition for the Suburban Boulevard sections, and detailed *Existing Conditions* plans, a draft master plan was developed for the entire alignment (*Refer to Figures 7 - 14*). The plans have been organized into Parkway and Suburban Boulevard sections with the latter focused on the three commercial areas: the Enchanted Forest, Chatham and Normandy.

The Parkway plans incorporate elements outlined on the image boards. Key elements include:

- Gateway features at the west and east ends of the corridor
- Landscaping at the nosings of medians at key intersections
- Infill tree plantings of hardwood upland species along buffered edges
- Eradication of invasive plant species such as multiflora rose, honeysuckle, English ivy, etc.
- Meadow plantings in the medians at highway interchanges

The combination of these improvements is intended to provide an improved experience for the motorist while creating a cohesive aesthetic for the length of the corridor, as well as creating a buffer from development and residences adjacent to the roadway.

The Suburban Boulevard sections focus on landscape elements and pedestrian amenities. Design of these areas calls for a continuous pedestrian system along both sides of Route 40. Key elements include:

- Continuous sidewalks along both sides of US Route 40
- Pedestrian markings at driveway entrances
- Bold, highly visible crosswalk treatments at major (lighted) intersections
- Street trees along both sides of US Route 40 spaced at 40' on center max
- Shrubs to screen adjacent surface parking spaced at 3' on center

An important opportunity exists to establish a uniform landscape treatment along the Suburban Boulevard sections of the corridor utilizing the median. Currently the median collects storm water run-off from the road, channeling it to inlets located regularly within the grass median. The plans illustrate the potential to introduce a curbed median and plant a combination of street trees and bio-retention facilities to continue collecting and further treating storm water. The medians also offer an opportunity to provide gateway plantings at key nosings as travelers enter the corridor.

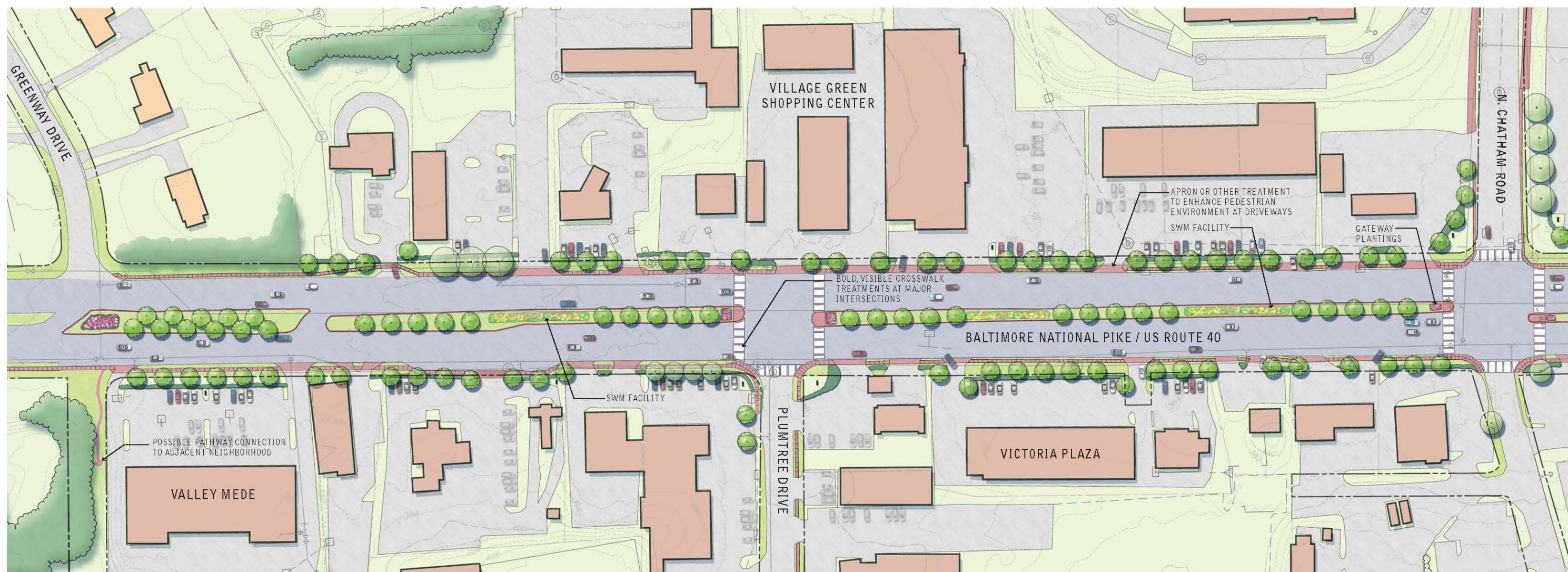
Figure 7: Illustrative Master Plan – Suburban Boulevard Section
 Enchanted Forest, Sheet 1



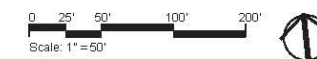
Figure 8: Illustrative Master Plan – Suburban Boulevard Section
 Enchanted Forest, Sheet 2



Figure 9: Illustrative Master Plan – Suburban Boulevard Section
Chatham, Sheet 1

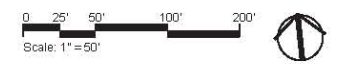
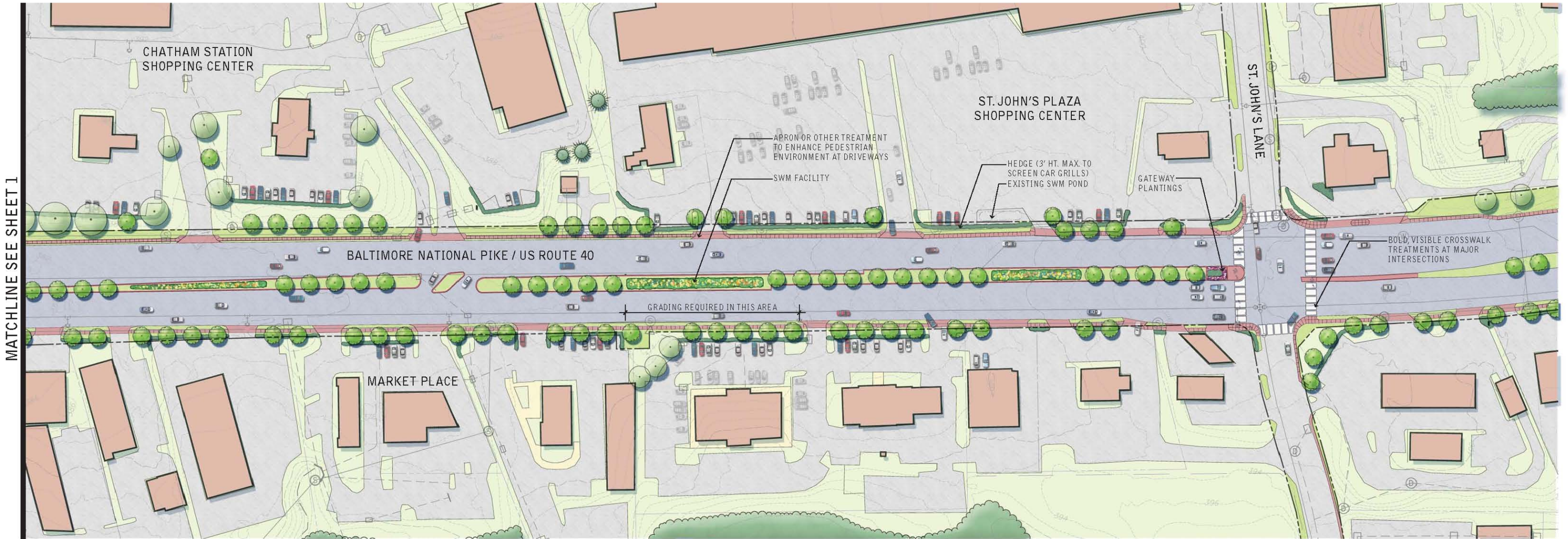


MATCHLINE SEE SHEET 2



US ROUTE 40 Streetscape Master Plan	CHATHAM AREA, SHEET 1 CONCEPT PLAN	HOWARD COUNTY, MD OCTOBER 2009	GPI Greenman - Pedersen, Inc. <small>Engineering, Landscape Architecture & Construction Services</small>	MAHAN RYKIEL ASSOCIATES INC. <small>Landscape Architecture & Urban Design, Planning</small>	
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**Figure 10: Illustrative Master Plan – Suburban Boulevard Section
Chatham, Sheet 2**

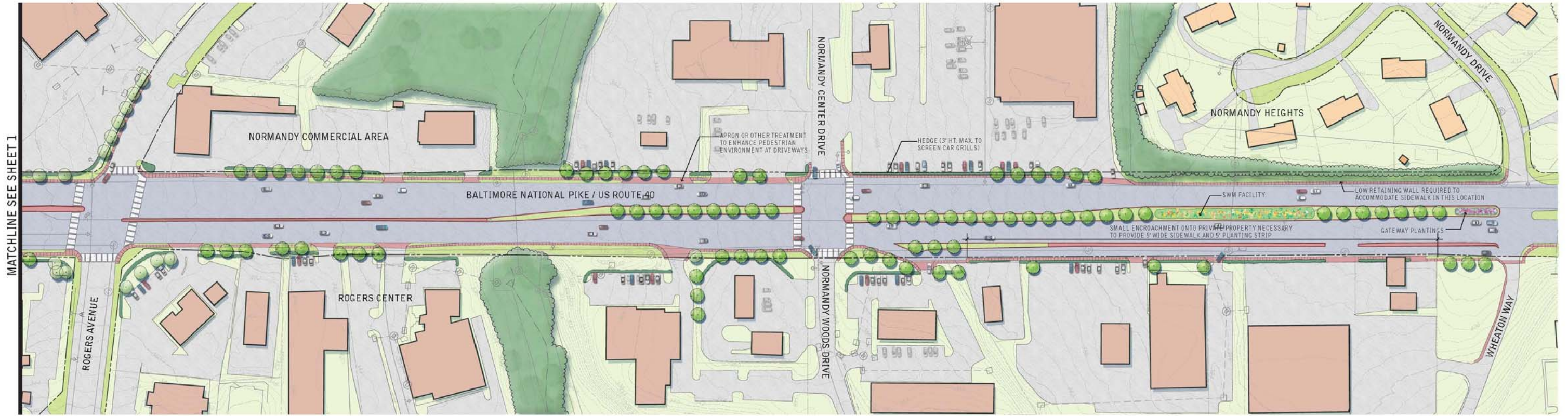


	US ROUTE 40 Streetscape Master Plan	CHATHAM AREA, SHEET 2 CONCEPT PLAN	HOWARD COUNTY, MD OCTOBER 2009	 Greenman - Pedersen, Inc. Engineering, Landscape Architecture & Construction Services	 MAHAN RYKIEL ASSOCIATES INC. Landscape Architecture Urban Design, Planning	
	September 2010					

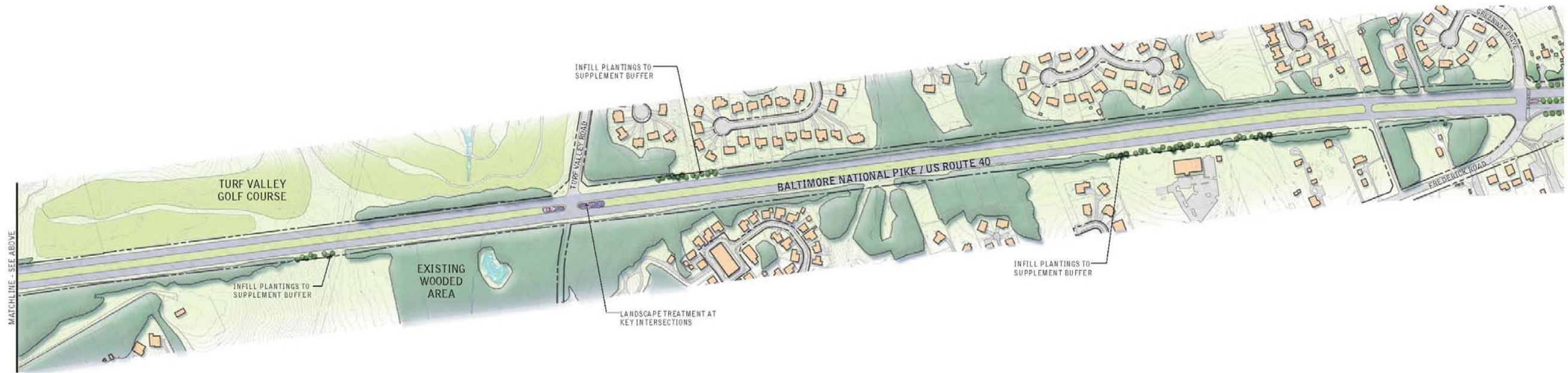
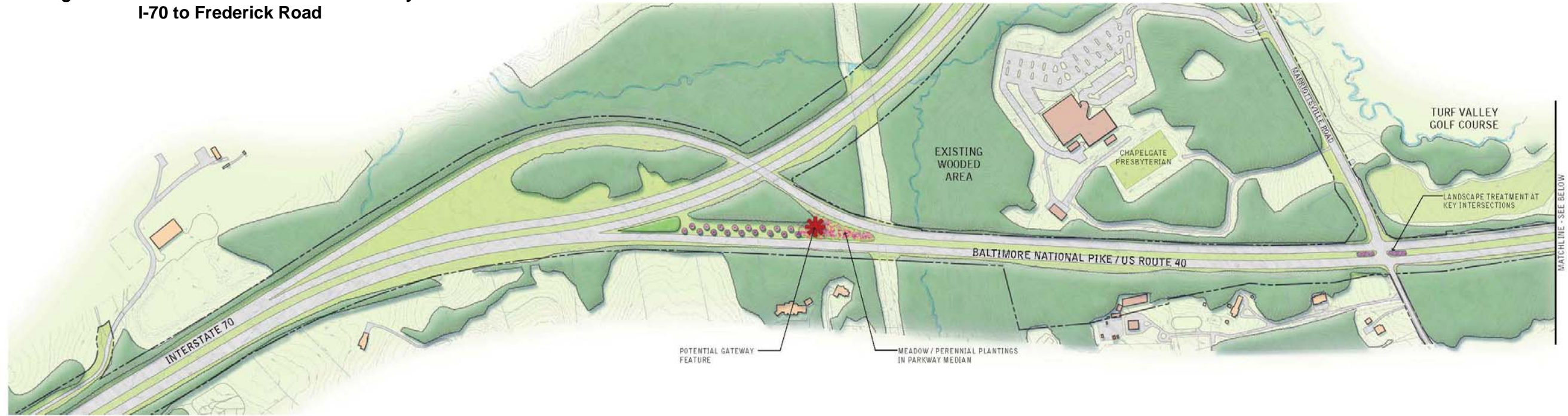
Figure 11: Illustrative Master Plan – Suburban Boulevard Section
 Normandy, Sheet 1



Figure 12: Illustrative Master Plan – Suburban Boulevard Section
 Normandy, Sheet 2



**Figure 13: Illustrative Master Plan – Parkway Section
I-70 to Frederick Road**

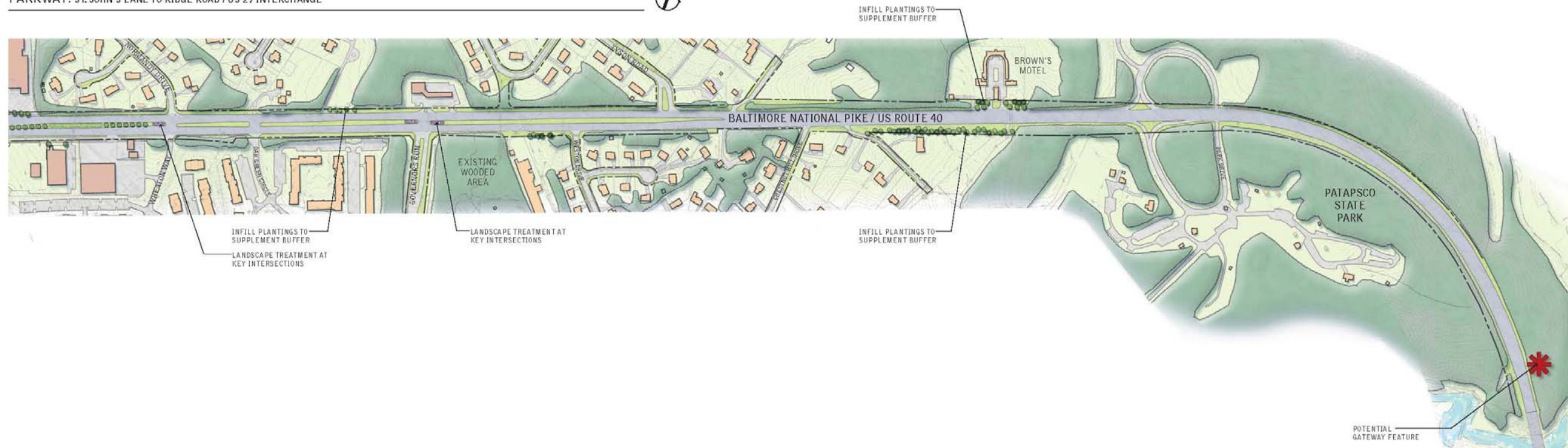




PARKWAY: ENCHANTED FOREST TO GREENWAY DRIVE



PARKWAY: ST. JOHN'S LANE TO RIDGE ROAD / US 29 INTERCHANGE



PARKWAY: NORMANDY DRIVE TO PATAPSCO STATE PARK



Figure 14: Illustrative Master Plan – Parkway Section
Enchanted Forest to Greenway Drive and
Normandy Drive to the Patapsco River Bridge

Public Meeting

On the evening of November 17th, a public meeting was held at St. Johns Church on Frederick Road. The analysis, typical streetscape elements, existing conditions, and draft illustrative Master Plans were presented. Hard copies of plans were available for review and comment. Post-it notes were used by the meeting participants to record comments directly on the plans. The comments were later recorded digitally on a PDF of the illustrations.

A PowerPoint presentation was also given twice during the evening. A period for questions and answers with discussion followed each presentation and the comments from this discussion period were recorded in note form.

The comments received were almost unanimously positive. The few edits that could be accommodated on the plans were made and the master plans were finalized shortly thereafter.

Department of Public Works and State Highway Administration Input

A meeting was held with the Howard County Department of Public Works (DPW) to review the Streetscape Master Plan. DPW had several questions and concerns but no major issue with the overall proposal or direction of the plan. Concerns and their subsequent clarifications included:

- The distance tree plantings should be offset from utility lines. It was indicated that a 5' minimum setback is shown on the plans and should be maintained upon implementation.
- The types of tree to be utilized. It was clarified that tree sizes shall be selected to respect overhead utility issues.
- The use of trees with shallow root systems that do not seek out water sources such as underground utility lines. This was noted for further investigation.

Several water line replacement projects have been identified by DPW along the Route 40 Corridor due to the condition of the aging steel pipes. Plans indicating the sections of pipe to be replaced were provided by DPW. It was noted that the streetscape improvements identified in the Streetscape Master Plan should be coordinated with these water line projects to the extent practical. As DPW disturbs portions of the Route 40 frontage, the proposed master plan streetscape improvements should be implemented.

Similarly, a meeting was held to present the Streetscape Master Plan to the State Highway Administration (SHA) district office, including a representative from the Landscape Division and Highway Design Division. The plan was met with a positive response. Issues that SHA will continue to review include:

- The curbing and planting of street trees in the median
- Site access
- Maintenance
- Visibility

SHA representatives noted that active construction projects along the corridor include the re-decking of the Patapsco River Bridge and the reconstruction of the Rogers Avenue intersection. These are also projects with which the county should coordinate to ensure the Streetscape Master Plan recommendations are implemented.

Also brought to light in the meeting was SHA's initiative to upgrade sidewalks state-wide to meet current minimum ADA standards. Since many of the existing sidewalk sections in the Route 40 corridor are only 4' wide, they should be widened over time by SHA to meet the current 5' minimum clear width.

As the Streetscape Master Plan was being developed, a companion document, *The Route 40 Design Manual (The Manual)* was also being prepared. The purpose of *The Manual* was to provide design guidance related to the development and redevelopment of sites located along the Route 40 corridor. One of the recommendations of *The Manual* is to provide 6' wide sidewalks along the Route 40 frontage in the Enchanted Forest, Chatham and Normandy areas. This is in recognition of the need for adequate streetscape facilities in those areas where greater pedestrian activity is anticipated. This is a project for which the County will need to coordinate with SHA and potential developers of adjacent properties.

As mentioned previously, the median offers an opportunity to introduce a landscape treatment that could provide a level of continuity within each of the Suburban Boulevard sections while enhancing the aesthetic of the corridor, reducing the perceived scale of the roadway and continuing to treat storm water to improve water quality. Two alternatives were developed to explore opportunities for providing landscaping in the median, treating runoff and adhering to SHA design criteria (*Refer to Appendix D*). One alternative proposes to install barrier curbs along the full length of the median to allow for a formal street tree planting. Curb cuts would be provided periodically that would allow runoff into the median and into bio-retention facilities for storm water treatment.

A second alternative would be to only provide barrier curbs at the median nosings where gateway plantings and special paving would be provided. The remainder of the median would maintain its current open section condition. Bio-retention plantings with a more informal planting scheme could be considered. Smaller flowering and evergreen trees could be incorporated throughout with care being taken to maintain visibility at intersections and crossings.

These alternatives were forwarded to SHA for review and comment. SHA responded that they did not take exception to the two concepts and that they would want to review any proposed plans in more detail at the time they would be implemented.

Implementation and Costs

The implementation of the Route 40 Streetscape Master Plan will be a significant undertaking and will need to be accomplished over an extended period of time. Currently, funding for the entire plan has not been allocated and it is not clear how much or at what rate funding will be made available. Ultimately, the plan will be implemented through the collective efforts of Howard County, private property owners, and the State Highway Administration.

To begin to structure a means for implementing the master plan, potential Implementation Opportunity Projects were identified (*Refer to Appendix E*). These graphics highlight potential early phase projects that could be accomplished as stand alone efforts or in combination based on available funding and future priorities. The areas identified in the Suburban Boulevard sections of the corridor were those that offer the most initial impact such as gateways, key intersections, median treatments and sidewalks improvements.

They also identify portions of the corridor that have other potential catalysts for driving the proposed streetscape improvements such as water line replacements proposed by the Howard County Department of Public Works, road improvements proposed by SHA or active redevelopment projects proposed on adjacent private property. Any of these types of projects should be coordinated with the master plan and streetscape improvements implemented along the Route 40 frontage accordingly.

The areas highlighted on the Parkway sections include gateway treatments at the I-70 interchange and at the Patapsco River Bridge, infill tree plantings to reinforce the wooded buffer along the right-of-way edge and several possible intersection treatments.

The County should be opportunistic in building out the master plan. As public and private projects within and adjacent to the corridor are built, portions of the streetscape master plan should be implemented. This will require the county to coordinate streetscape improvements with these projects to ensure a unified corridor aesthetic.

In addition, the county should endeavor to implement the master plan over time by identifying phases of improvements and allocating funding on a regular basis to advance the plan. To that end, several early phase opportunities have been identified in the Suburban Boulevard sections (*Refer to Appendix F*). These projects have been identified based on being highly visible locations such as gateways and intersections, and being relatively cost effective. The construction of each is estimated at about \$100k or less. Estimates of probable cost have been developed for each area (*Refer to Appendix G*).

Of those early phase project opportunities, five have been identified as top priorities for early implementation. Those are (in order of priority):

- The intersection of Route 40 with North Chatham Road
- Route 40 at Bethany/Centennial Lanes
- Route 40 at Frederick Road (west)

- The median at Route 40 and Greenway Drive
- The median at Route 40 and Normandy Drive/Wheaton Way.

The priority locations were selected based on several criteria:

1. High Visibility: Early phase projects should take advantage of locations that are visible to car and pedestrian travelers. Gateways into or transitions between Suburban Boulevard and Parkway sections should be given priority.
2. High volume intersections: Intersections that serve a large number of vehicles and/or pedestrians can benefit from the proposed streetscape improvements, especially those that connect adjacent higher density residential communities to the Route 40 corridor.
3. Ease of construction: Areas identified as relatively flat and with a limited number of constraints associated with implementing the proposed improvements.
4. No other proposed construction or development: Several locations along the corridor have the potential to be redeveloped through either another public improvement project, or through a private development project. Examples include a proposed SHA intersection enhancement project at Rogers Avenue or the redevelopment of the Normandy Shopping Center by the private owner.

Appendix A: Analysis Exhibits

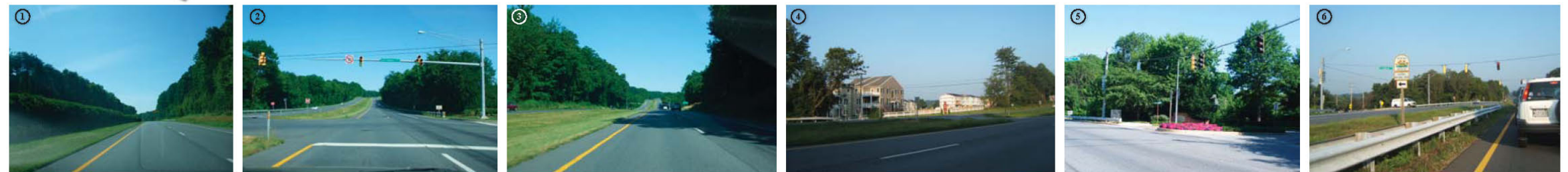
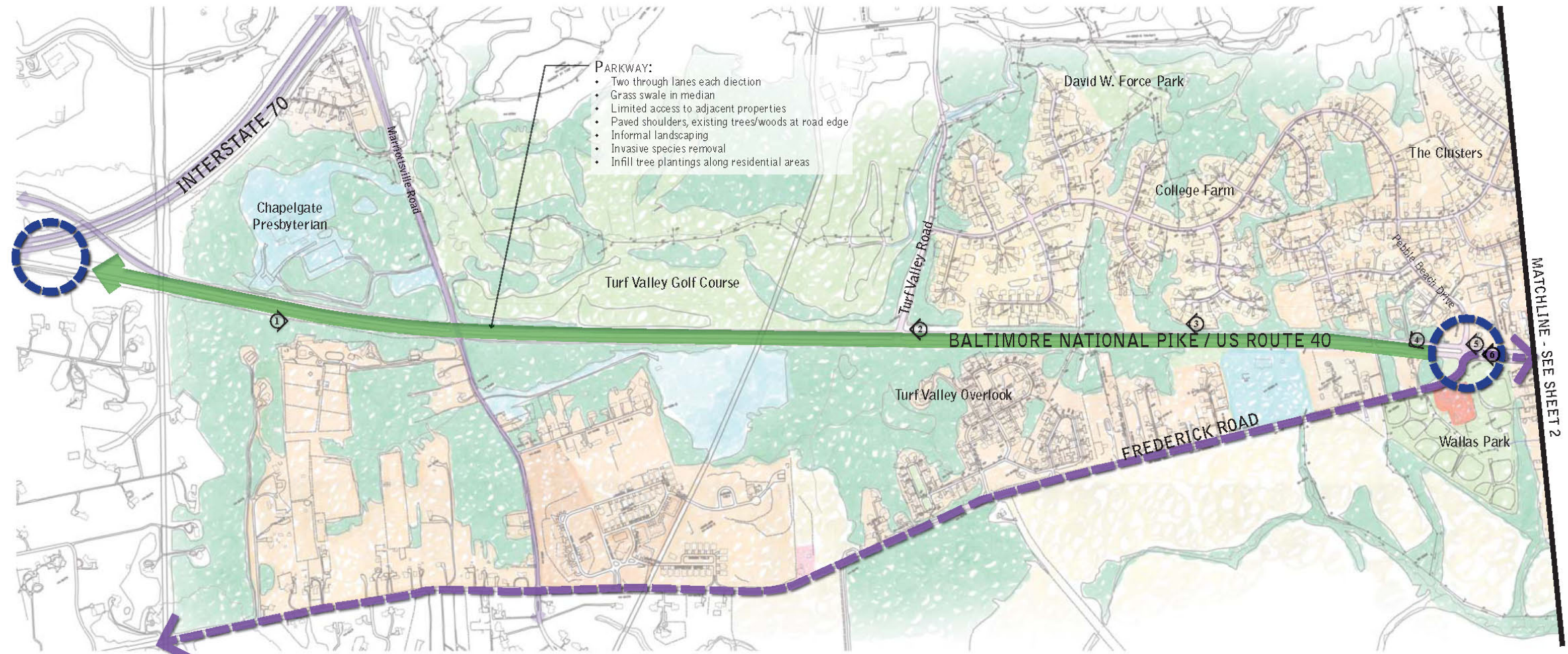
- *HISTORIC RESOURCE GOALS:**
 - Coordinate with community enhancement programs
 - Develop an identity for the corridor
 - Preserve Enchanted Forest
 - National Road design standards
- *LAND USE GOALS:**
 - Vibrant, mixed-use, pedestrian-oriented centers
 - Honor past planning of the corridor
 - Incorporate accepted planning practices
 - Recognize economic vitality of the corridor
 - Develop a sense of identity
 - Land use recommendations reflect the predicted market
- *TRANSPORTATION GOALS:**
 - Promote transit/increase mobility
 - Extend bus service to Enchanted Forest/Turf Valley
 - Bus shelters
 - Bus pull-outs
 - Focus improvements on intersections, interchanges and driveways
 - Implement what is already on the books
 - Use highway infrastructure wisely (140' ROW)
 - Balance development with transportation capacity
 - Prioritize/spend strategically
 - Make pedestrian movement possible
- *STREETScape GOALS:**
 - Improve design of commercial areas
 - Develop a sense of identity for the corridor
 - Make pedestrian movement possible
 - Marked, raised or illuminated crosswalks
 - Raised medians for refuge
 - Improved street lighting
 - Signing
 - Street trees
 - Sidewalks
 - Connect housing to retail development
 - Bike routes
 - Link to trails in Patapsco State Park

* Route 40 Enhancement Study

LEGEND:

- Existing Main Road
- National Road
- Historic Site
- Existing Bus Stop
- Parkway
- Suburban Boulevard
- Neighborhood Center Street
- Gateway/Transition Zone
- TNC Overlay Zone
- Recommended Sidewalk / Crosswalk Improvements

Scale: 1" = 300'

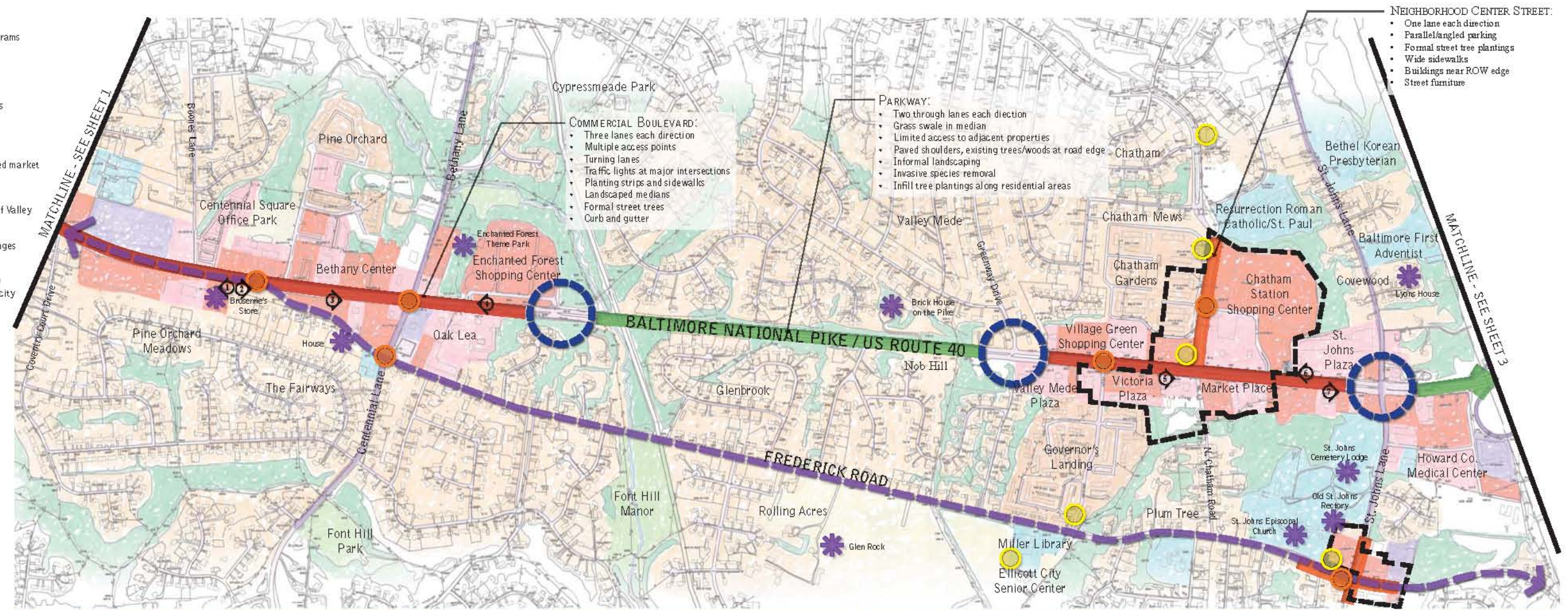


- *HISTORIC RESOURCE GOALS:**
 - Coordinate with community enhancement programs
 - Develop an identity for the corridor
 - Preserve Enchanted Forest
 - National Road design standards
- *LAND USE GOALS:**
 - Vibrant, mixed-use, pedestrian-oriented centers
 - Honor past planning of the corridor
 - Incorporate accepted planning practices
 - Recognize economic vitality of the corridor
 - Develop a sense of identity
 - Land use recommendations reflect the predicted market
- *TRANSPORTATION GOALS:**
 - Promote transit/increase mobility
 - Extend bus service to Enchanted Forest/Turf Valley
 - Bus shelters
 - Bus pull-outs
 - Focus improvements on intersections, interchanges and driveways
 - Implement what is already on the books
 - Use highway infrastructure wisely (140' ROW)
 - Balance development with transportation capacity
 - Prioritize spend strategically
 - Make pedestrian movement possible
- *STREETScape GOALS:**
 - Improve design of commercial areas
 - Develop a sense of identity for the corridor
 - Make pedestrian movement possible
 - Marked, raised or illuminated crosswalks
 - Raised medians for refuge
 - Improved street lighting
 - Signing
 - Street trees
 - Sidewalks
 - Connect housing to retail development
 - Bike routes
 - Link to trails in Patapsco State Park

*Route 40 Enhancement Study

LEGEND:

- Existing Main Road
- National Road
- Historic Site
- Existing Bus Stop
- Parkway
- Suburban Boulevard
- Neighborhood Center Street
- Gateway/Transition Zone
- TNC Overlay Zone
- Recommended Sidewalk / Crosswalk Improvements



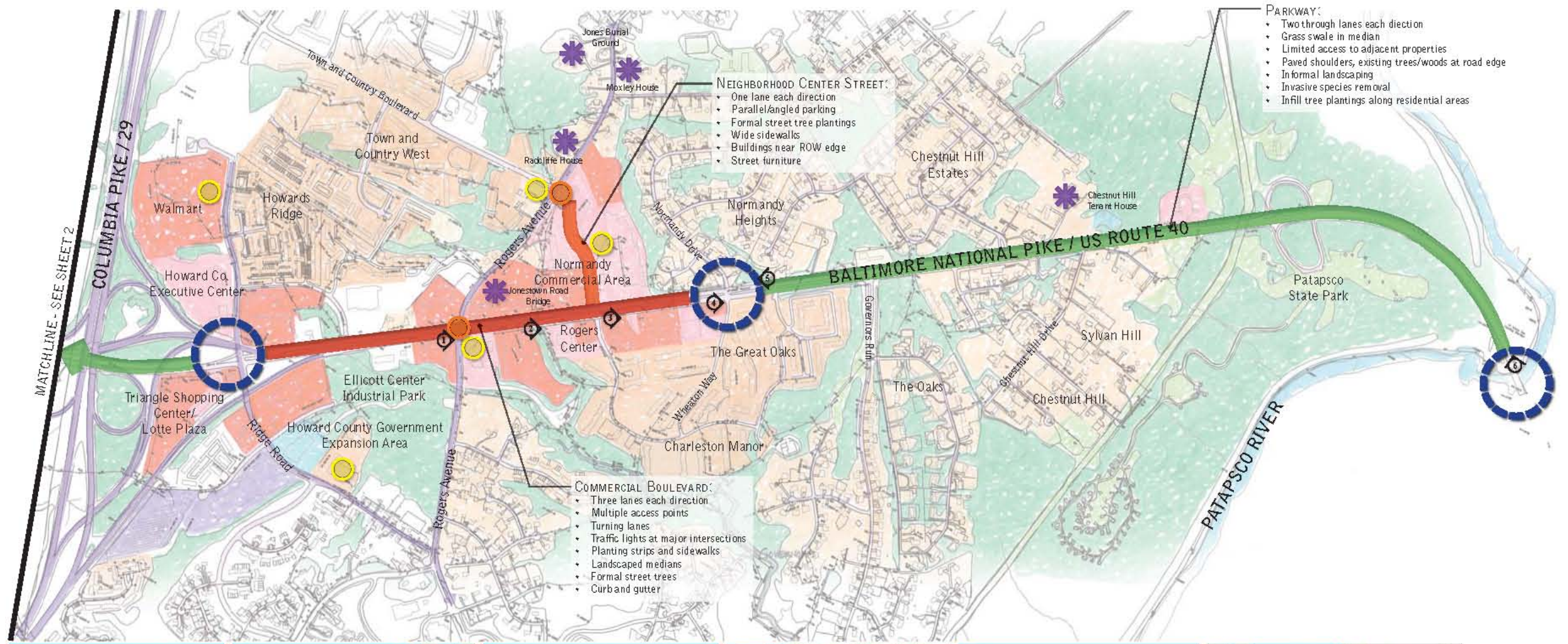
Analysis Exhibit – Frederick Road to US 29

- *HISTORIC RESOURCE GOALS:**
- Coordinate with community enhancement programs
 - Develop an identity for the corridor
 - Preserve Enchanted Forest
 - National Road design standards
- *LAND USE GOALS:**
- Vibrant, mixed-use, pedestrian-oriented centers
 - Honor past planning of the corridor
 - Incorporate accepted planning practices
 - Recognize economic vitality of the corridor
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 - Land use recommendations reflect the predicted market
- *TRANSPORTATION GOALS:**
- Promote transit/increase mobility
 - Extend bus service to Enchanted Forest/Turf Valley
 - Bus shelters
 - Bus pull-outs
 - Focus improvements on intersections, interchanges and driveways
 - Implement what is already on the books
 - Use highway infrastructure wisely (140' ROW)
 - Balance development with transportation capacity
 - Prioritize spend strategically
 - Make pedestrian movement possible
- *STREETScape GOALS:**
- Improve design of commercial areas
 - Develop a sense of identity for the corridor
 - Make pedestrian movement possible
 - Marked, raised or illuminated crosswalks
 - Raised medians for refuge
 - Improved street lighting
 - Signing
 - Street trees
 - Sidewalks
 - Connect housing to retail development
 - Bike routes
 - Link to trails in Patapsco State Park

* Route 40 Enhancement Study

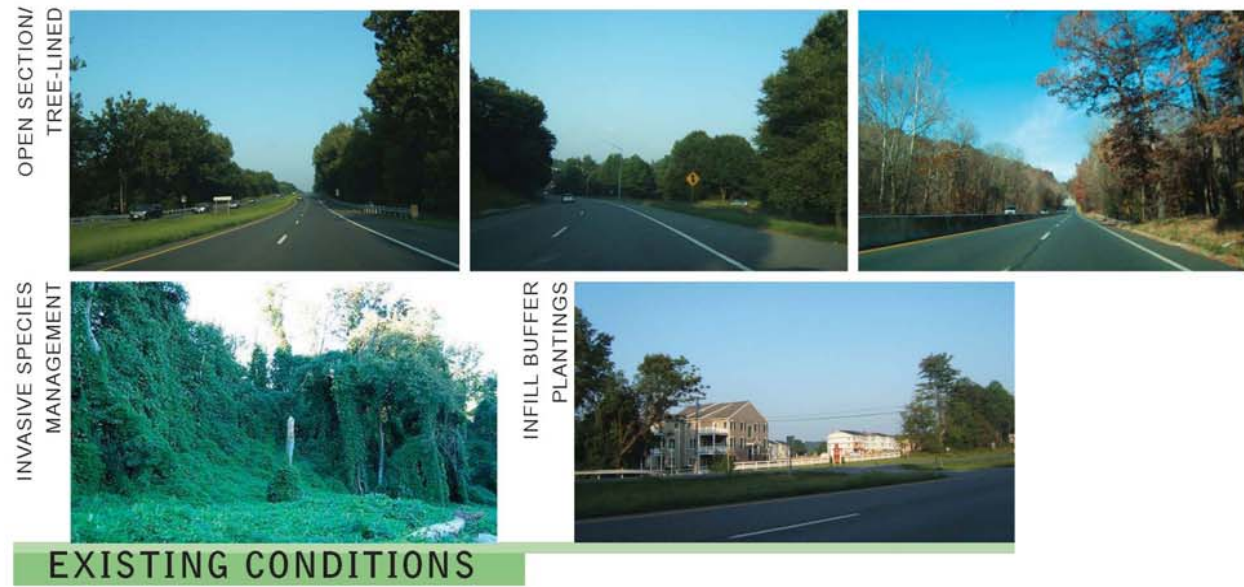
LEGEND:

- Existing Main Road
- National Road
- Historic Site
- Existing Bus Stop
- Parkway
- Suburban Boulevard
- Neighborhood Center Street
- Gateway/Transition Zone
- TNC Overlay Zone
- Recommended Sidewalk / Crosswalk Improvements

Analysis Exhibit – US 29 to Patapsco River Bridge

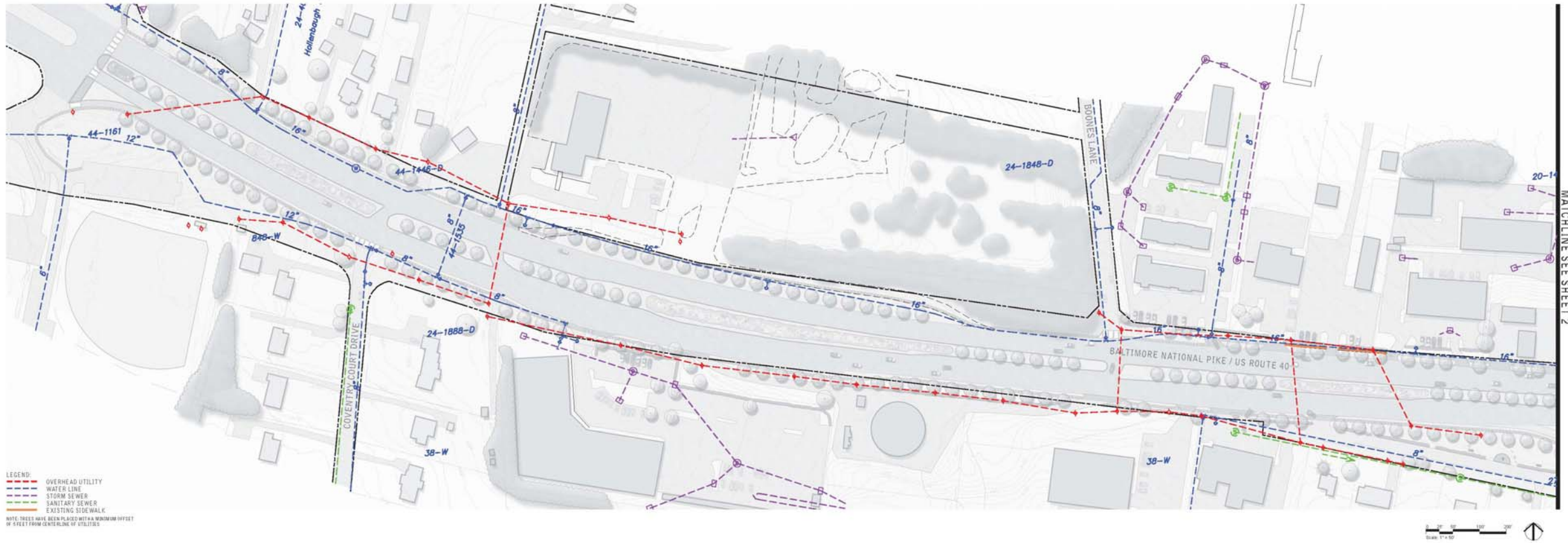
Appendix B: Parkway and Suburban Boulevard Image Boards



Suburban Boulevard Images

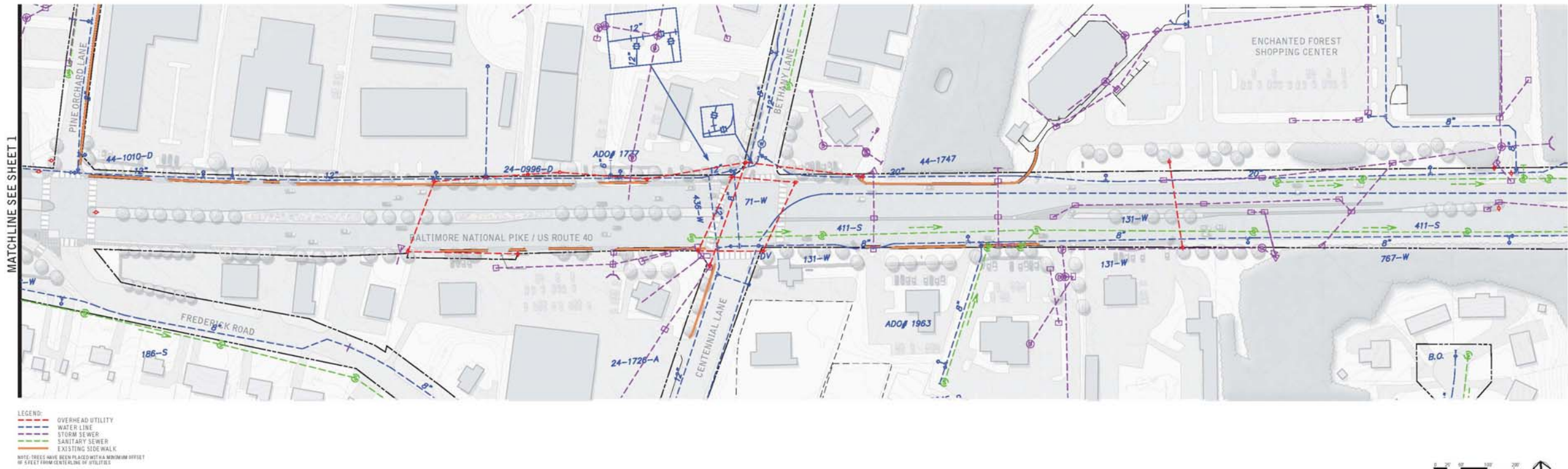
Parkway Images

Appendix C: Existing Conditions Plans



40 US ROUTE 40 Streetscape Master Plan | ENCHANTED FOREST AREA, SHEET 1
EXISTING CONDITIONS DIAGRAM

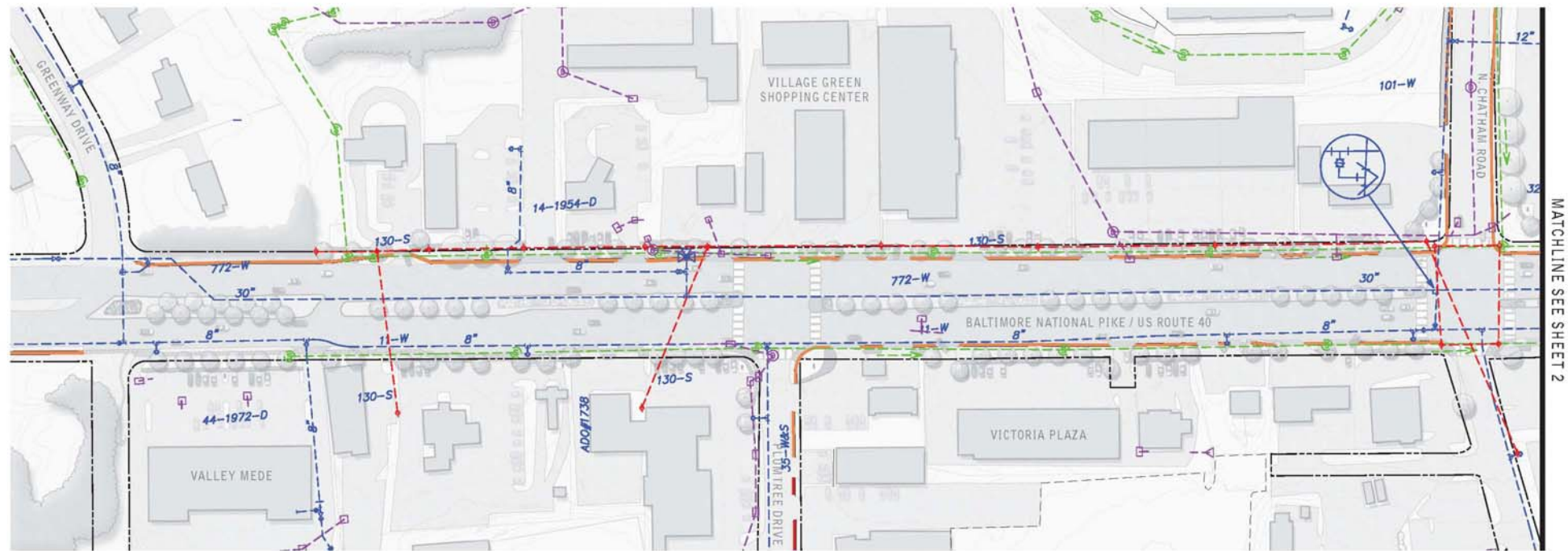
HOWARD COUNTY, MD
OCTOBER 2009
GPI
Greenman - Pedersen, Inc.
MAHAN RYKIEL
ASSOCIATES, INC.
Landscape Architecture
& Construction Services



40 US ROUTE 40 Streetscape Master Plan | ENCHANTED FOREST AREA, SHEET 2
EXISTING CONDITIONS DIAGRAM

HOWARD COUNTY, MD
OCTOBER 2009
GPI
Greenman - Pedersen, Inc.
MAHAN RYKIEL
ASSOCIATES, INC.
Landscape Architecture
& Construction Services

Existing Conditions Plans – Enchanted Forest



LEGEND:
 OVERHEAD UTILITY
 WATER LINE
 STORM SEWER
 SANITARY SEWER
 EXISTING SIDEWALK

NOTE: TREES HAVE BEEN PLACED WITH A MINIMUM OFFSET OF 6 FEET FROM CENTERLINE OF UTILITIES

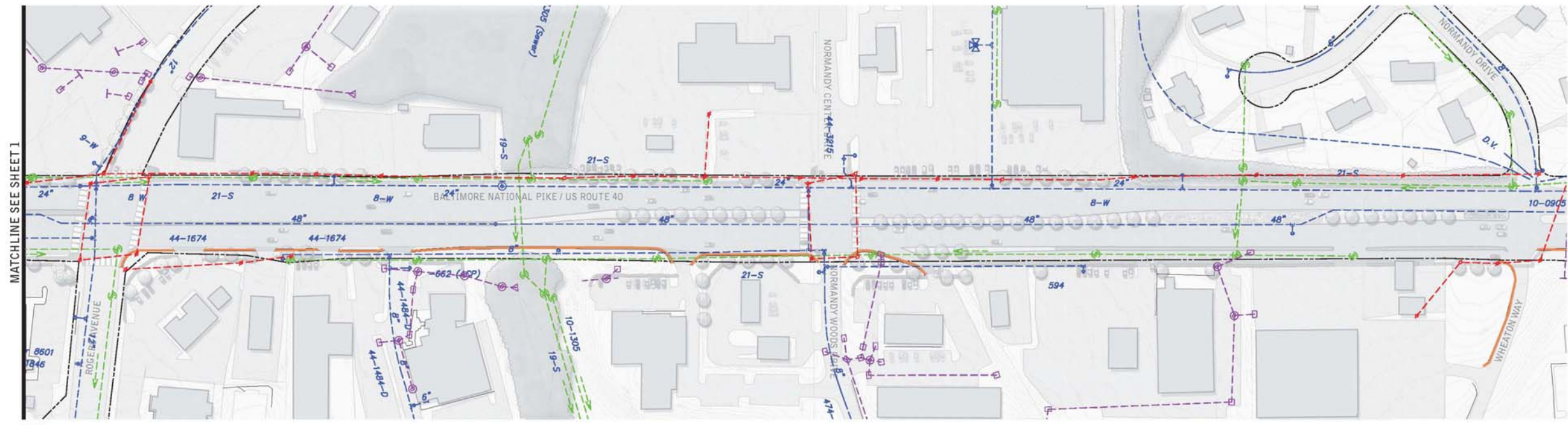
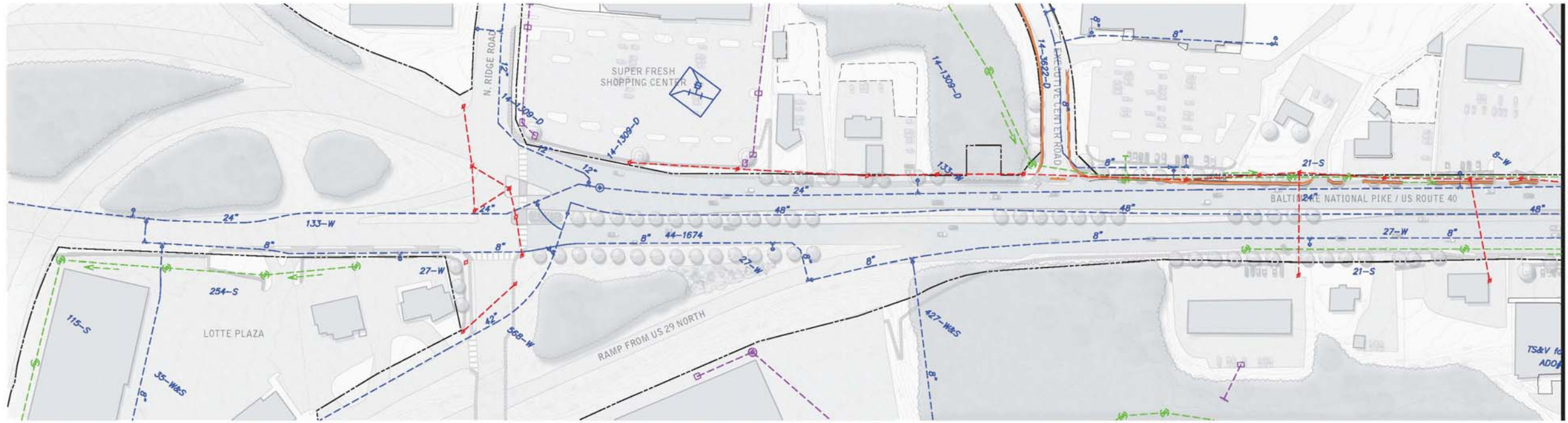


LEGEND:
 OVERHEAD UTILITY
 WATER LINE
 STORM SEWER
 SANITARY SEWER
 EXISTING SIDEWALK

NOTE: TREES HAVE BEEN PLACED WITH A MINIMUM OFFSET OF 6 FEET FROM CENTERLINE OF UTILITIES

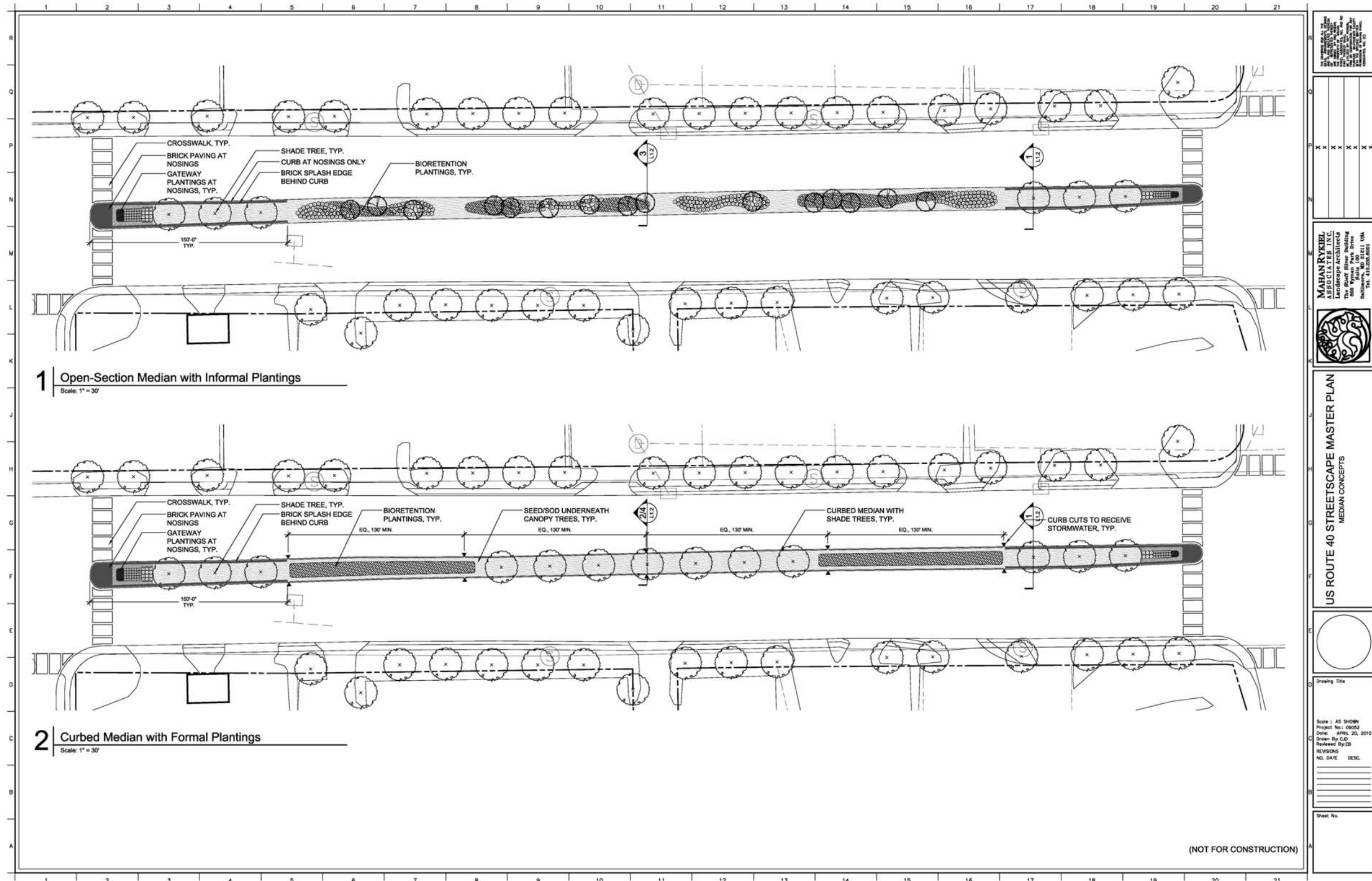


Existing Conditions Plans - Chatham



Existing Conditions Plans - Normandy

Appendix D: Median Planting Alternatives



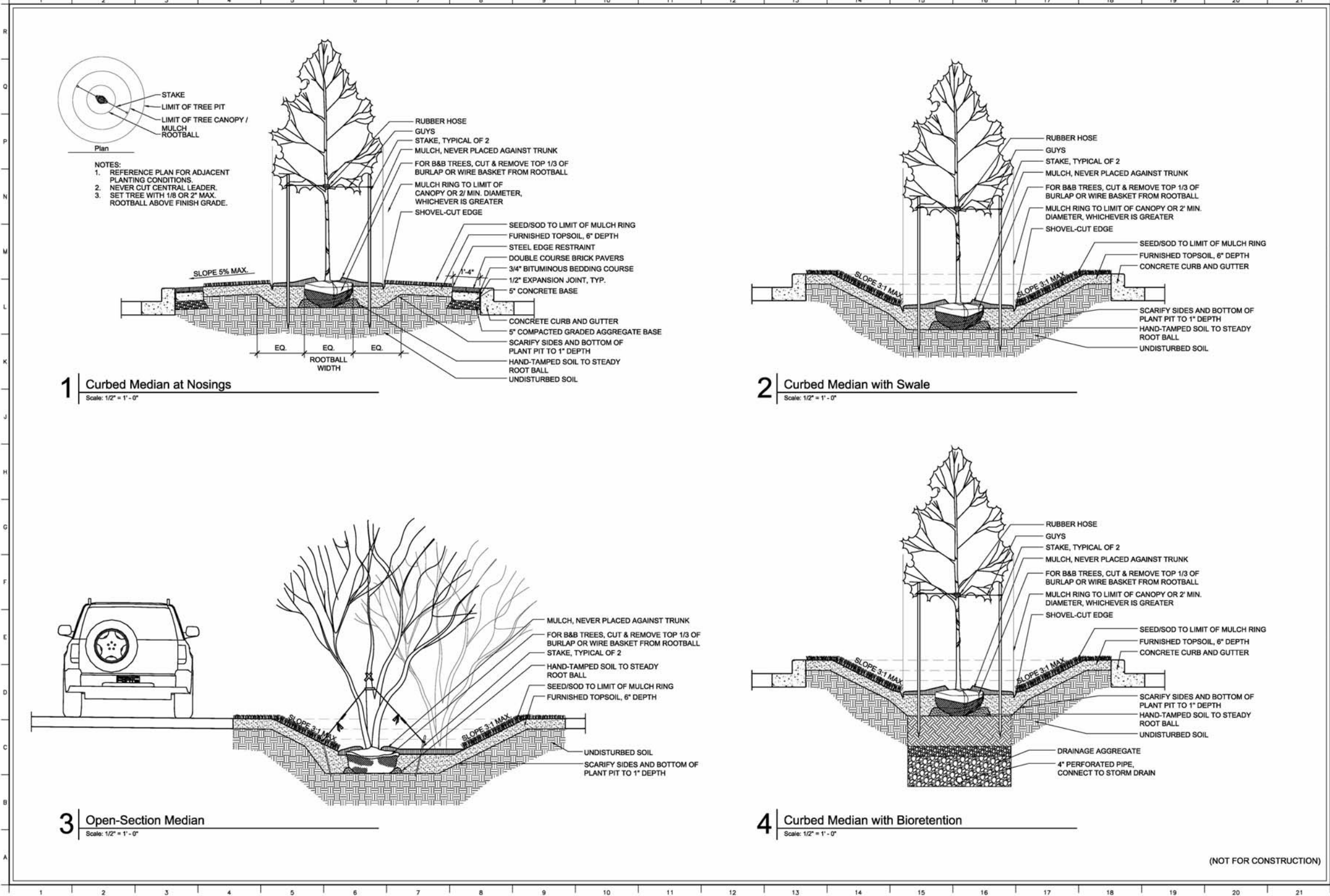
1 Open-Section Median with Informal Plantings
Scale: 1" = 30'

2 Curbed Median with Formal Plantings
Scale: 1" = 30'

<p>MAHAN RYKIEL ASSOCIATES INC. Landscape Architecture 100 Ryman Park Drive Baltimore, MD 21211 USA TEL: 410.586.0001</p>													
<p>US ROUTE 40 STREETSCAPE MASTER PLAN MEDIAN CONCEPTS</p>													
<p>Drawing Title</p>													
<p>Scale: AS SHOWN Project No: 09002 Date: APRIL 23, 2010 Drawn By: C.D. Reviewed By: DB</p>													
<p>REVISIONS</p> <table border="1"> <thead> <tr> <th>NO.</th> <th>DATE</th> <th>DESC.</th> </tr> </thead> <tbody> <tr> <td> </td> <td> </td> <td> </td> </tr> <tr> <td> </td> <td> </td> <td> </td> </tr> <tr> <td> </td> <td> </td> <td> </td> </tr> </tbody> </table>		NO.	DATE	DESC.									
NO.	DATE	DESC.											
<p>Sheet No.</p>													

(NOT FOR CONSTRUCTION)

Typical Planting Plans



MAHAN RYKIEL ASSOCIATES INC.
Landscape Architecture
100 West 10th Street, Suite 200
New York, NY 10011 USA
Tel: +1 (212) 200-0001

US ROUTE 40 STREETSCAPE MASTER PLAN
MEDIAN CONCEPTS

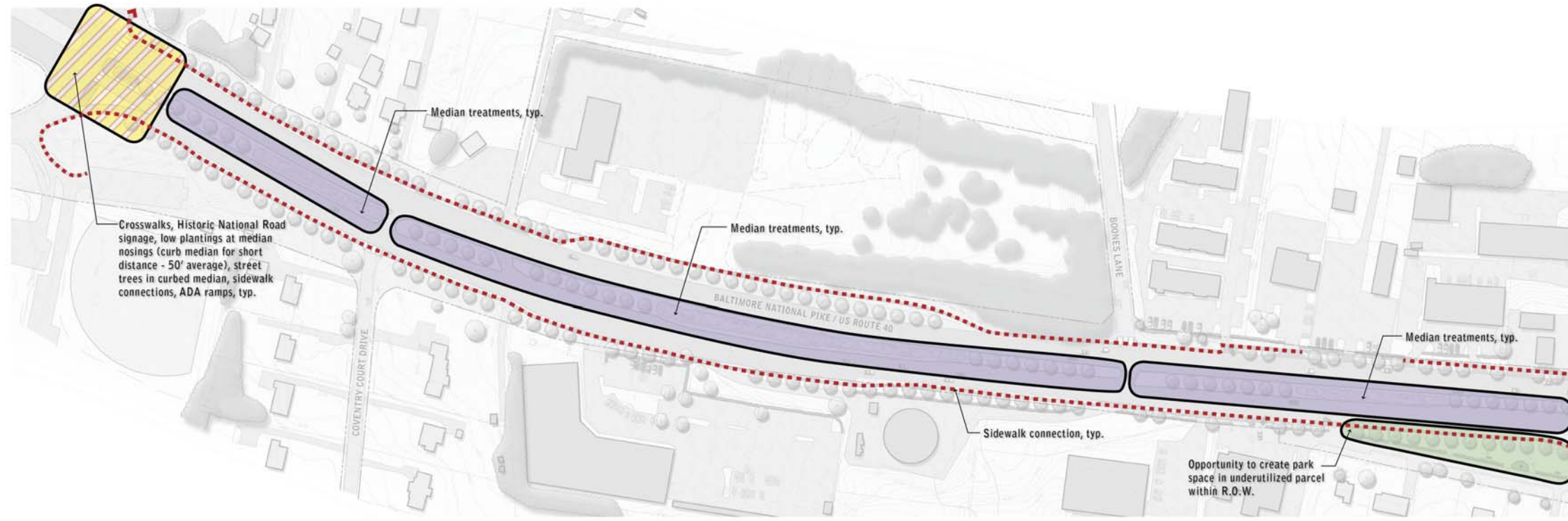
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Scale: AS SHOWN
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Date: APRIL 20, 2010
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Reviewed By: CB
REVISIONS
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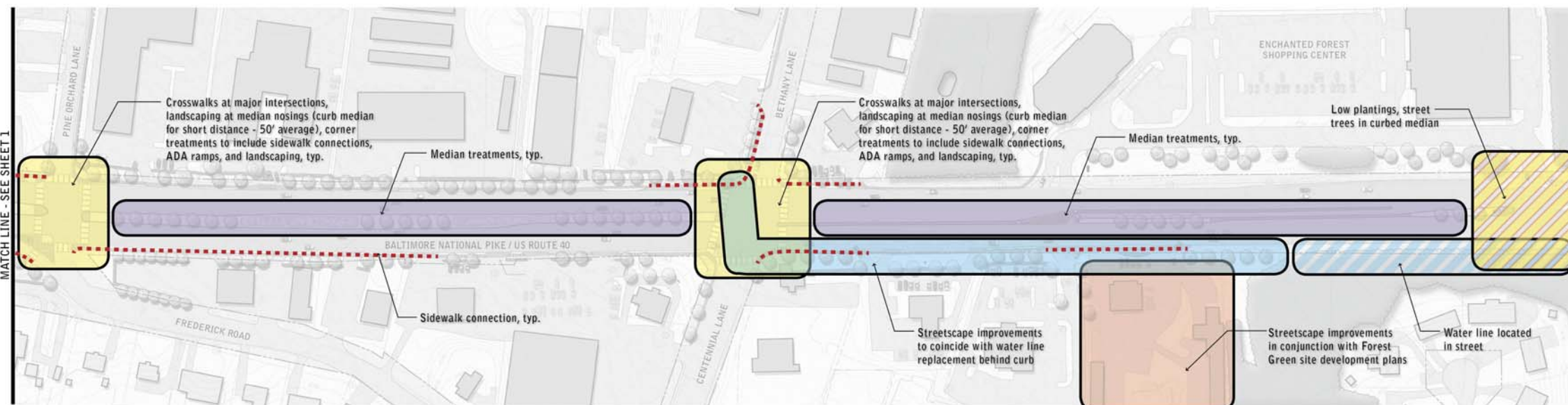
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Typical Sections

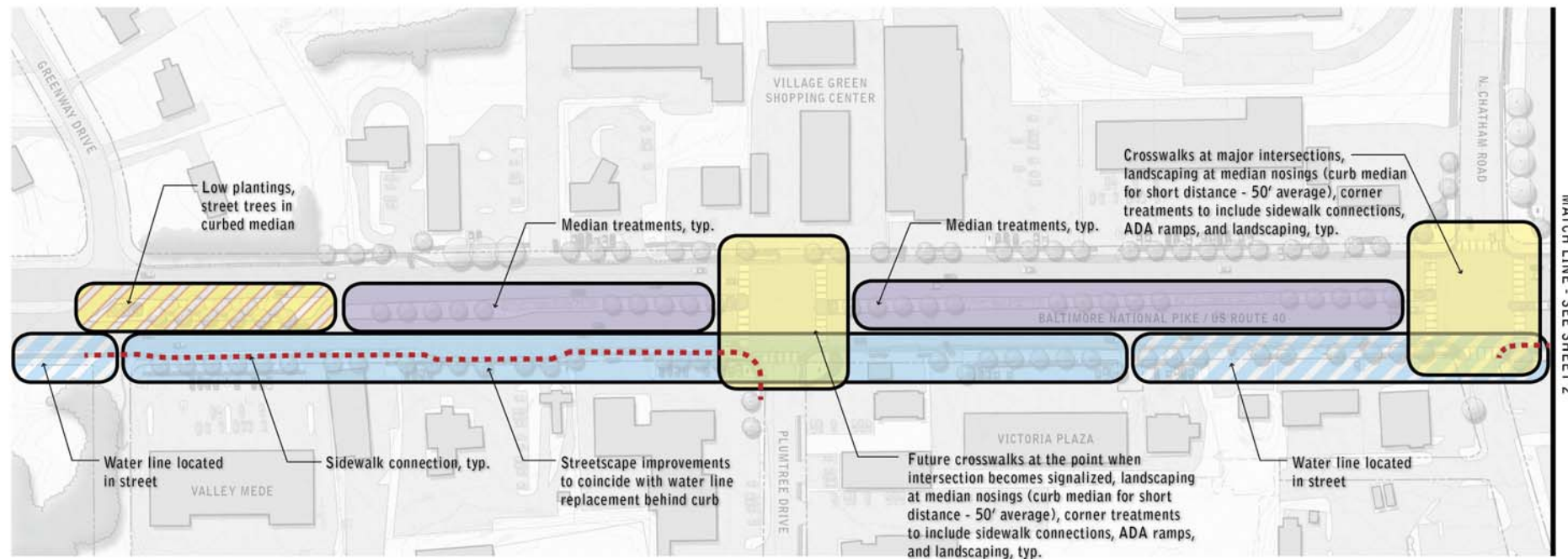
Appendix E: Implementation Opportunity Projects











- LEGEND:**
-  Median Treatment
 -  Intersection Treatment
 -  Gateway Treatment
 -  Streetscape improvement to coincide with water line replacement behind curb
 -  Streetscape improvement to coincide with water line replacement in street
 -  Streetscape improvement in conjunction with proposed development plans
 -  Park Project Opportunity
 -  Proposed Sidewalk Connection



Implementation Opportunity Projects – Enchanted Forest

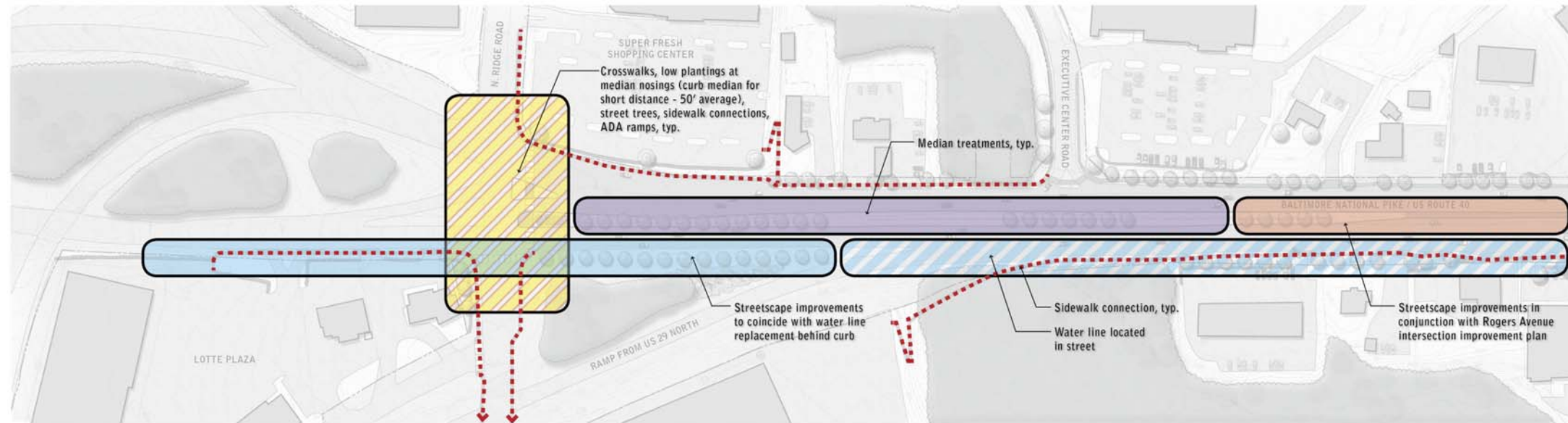


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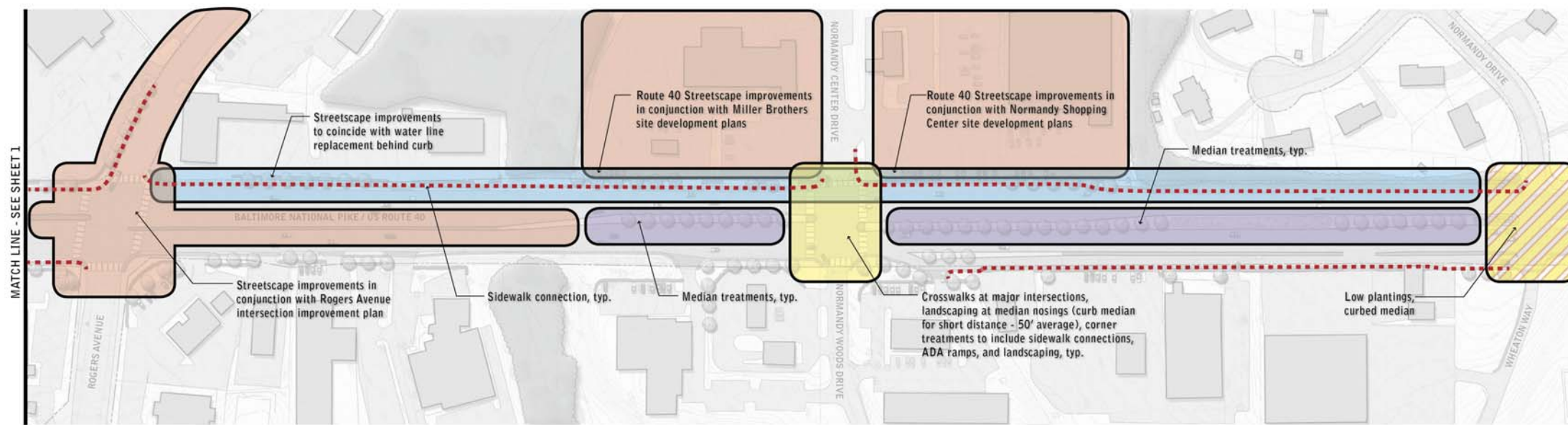
-  Median Treatment
-  Intersection Treatment
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-  Streetscape improvement to coincide with water line replacement behind curb
-  Streetscape improvement to coincide with water line replacement in street
-  Streetscape improvement in conjunction with proposed development plans
-  Park Project Opportunity
-  Proposed Sidewalk Connection



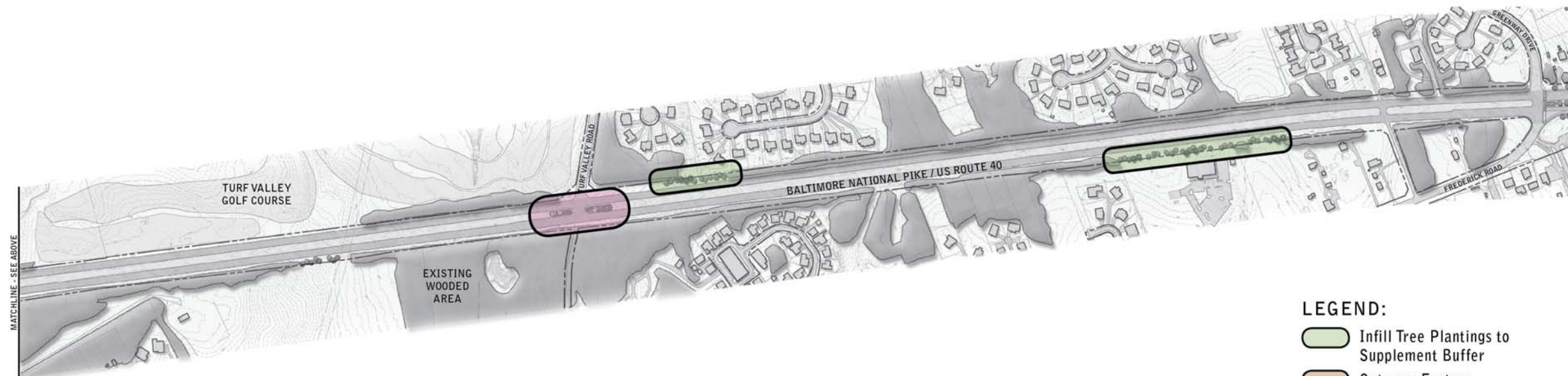
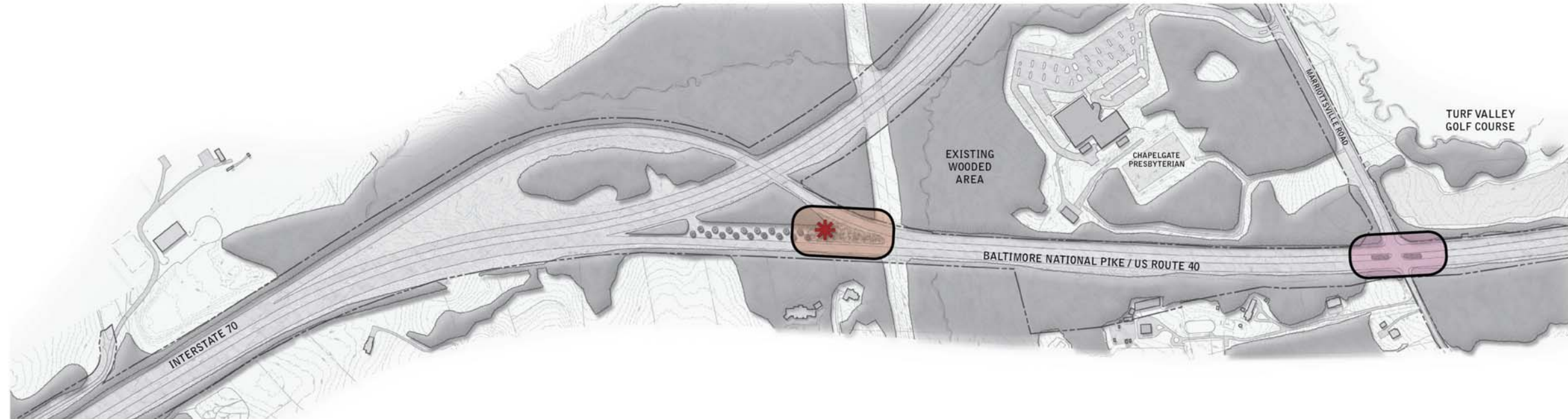
Implementation Opportunity Projects – Chatham



- LEGEND:**
- Median Treatment
 - Intersection Treatment
 - Gateway Treatment
 - Streetscape improvement to coincide with water line replacement behind curb
 - Streetscape improvement to coincide with water line replacement in street
 - Streetscape improvement in conjunction with proposed development plans
 - Park Project Opportunity
 - Proposed Sidewalk Connection

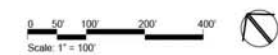


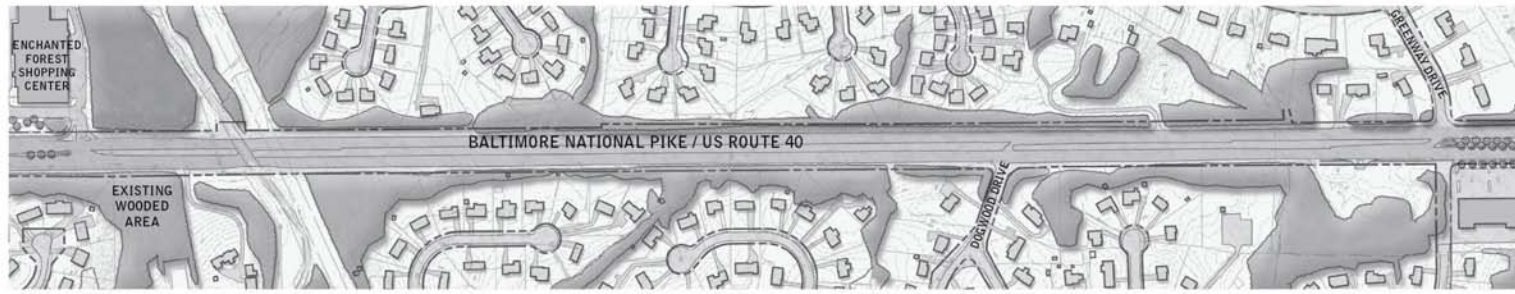
Implementation Opportunity Projects – Normandy



LEGEND:

-  Infill Tree Plantings to Supplement Buffer
-  Gateway Feature
-  Landscape Treatment at Key Intersections



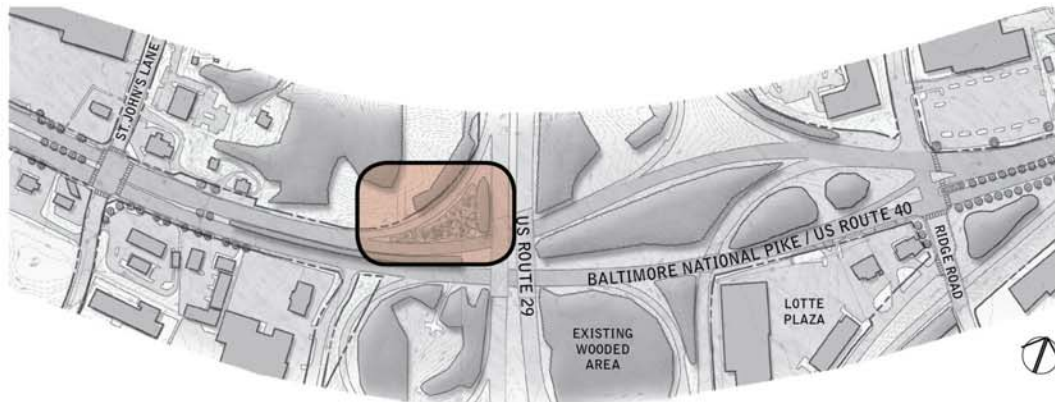


PARKWAY: Enchanted Forest to Greenway Drive

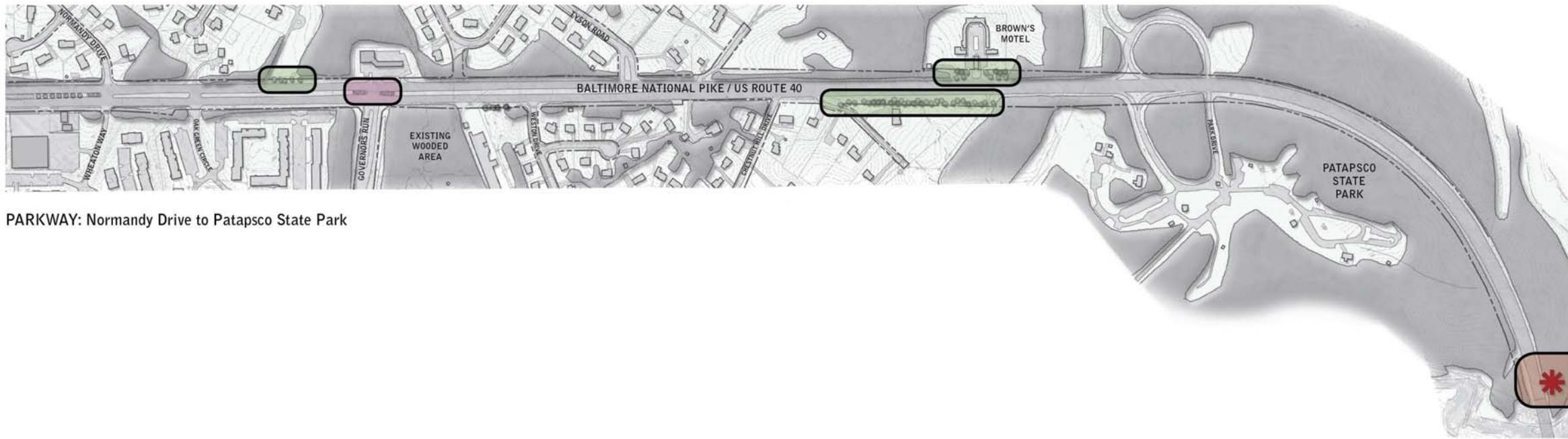


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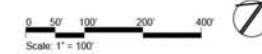
-  Infill Tree Plantings to Supplement Buffer
-  Gateway Feature
-  Landscape Treatment at Key Intersections



PARKWAY: St. John's Lane to Ridge Road/US 29 Interchange

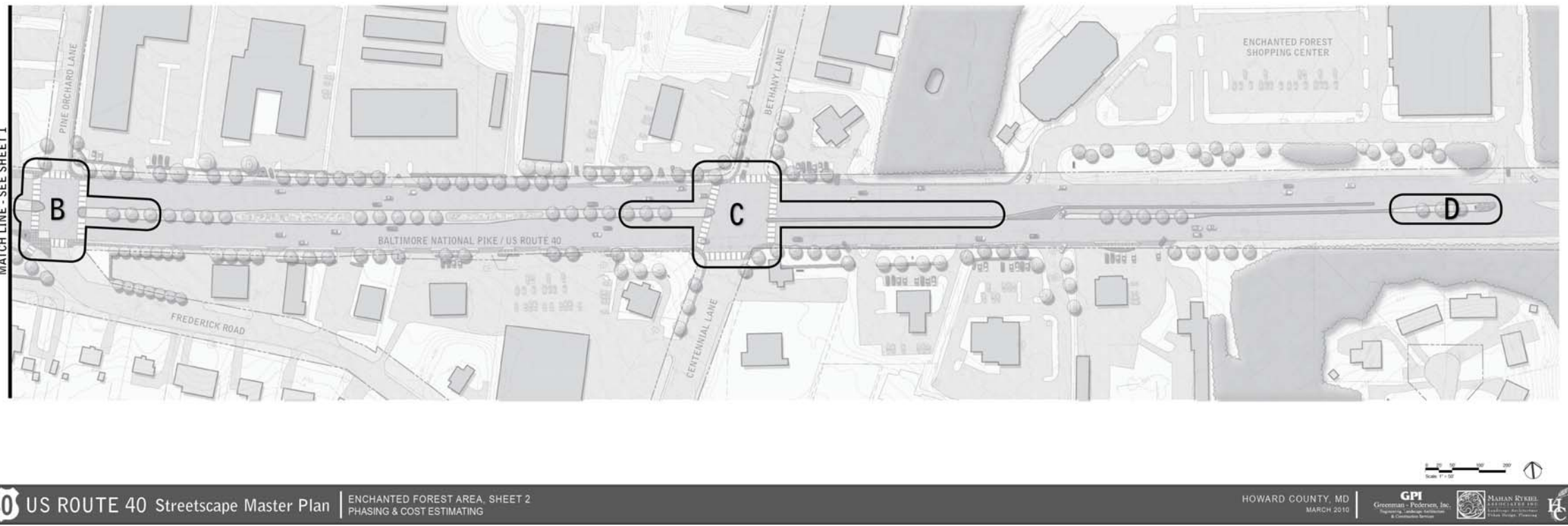


PARKWAY: Normandy Drive to Patapsco State Park



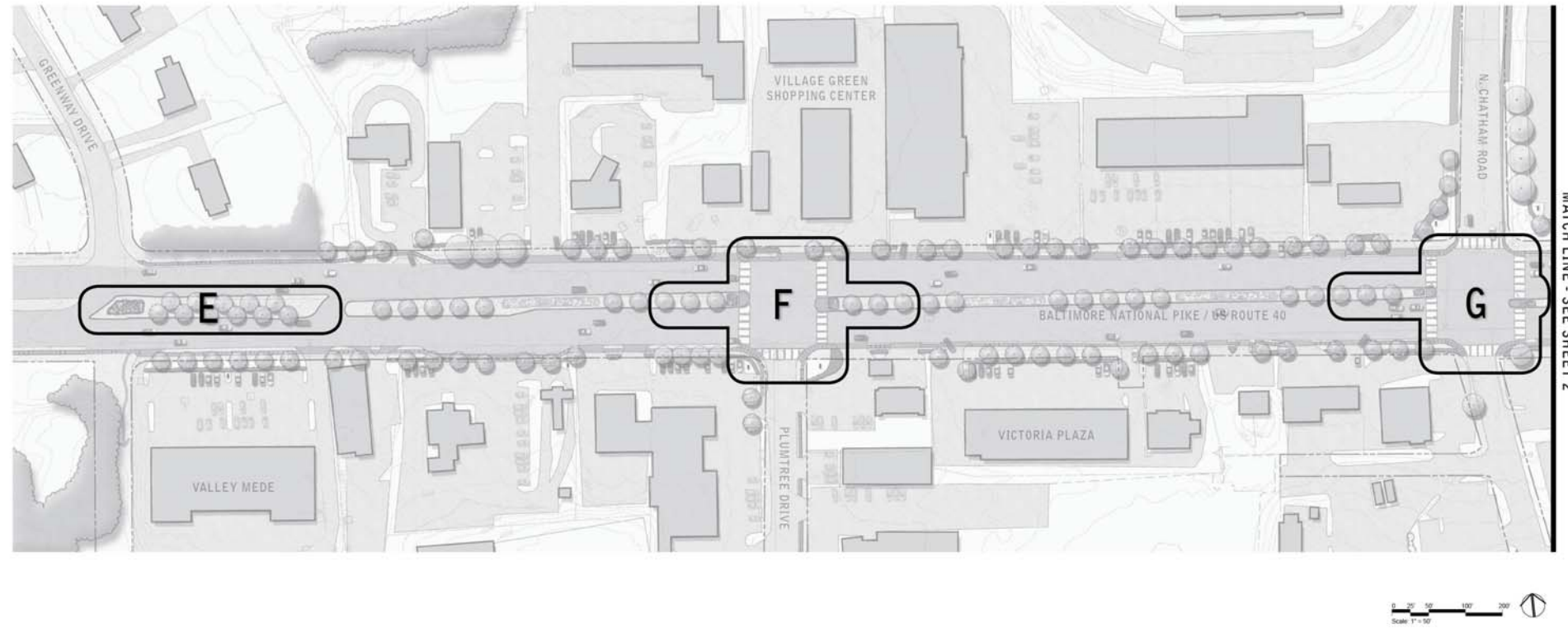
Appendix F: Early Phase Project Opportunities

Note: See Appendix G for cost estimates

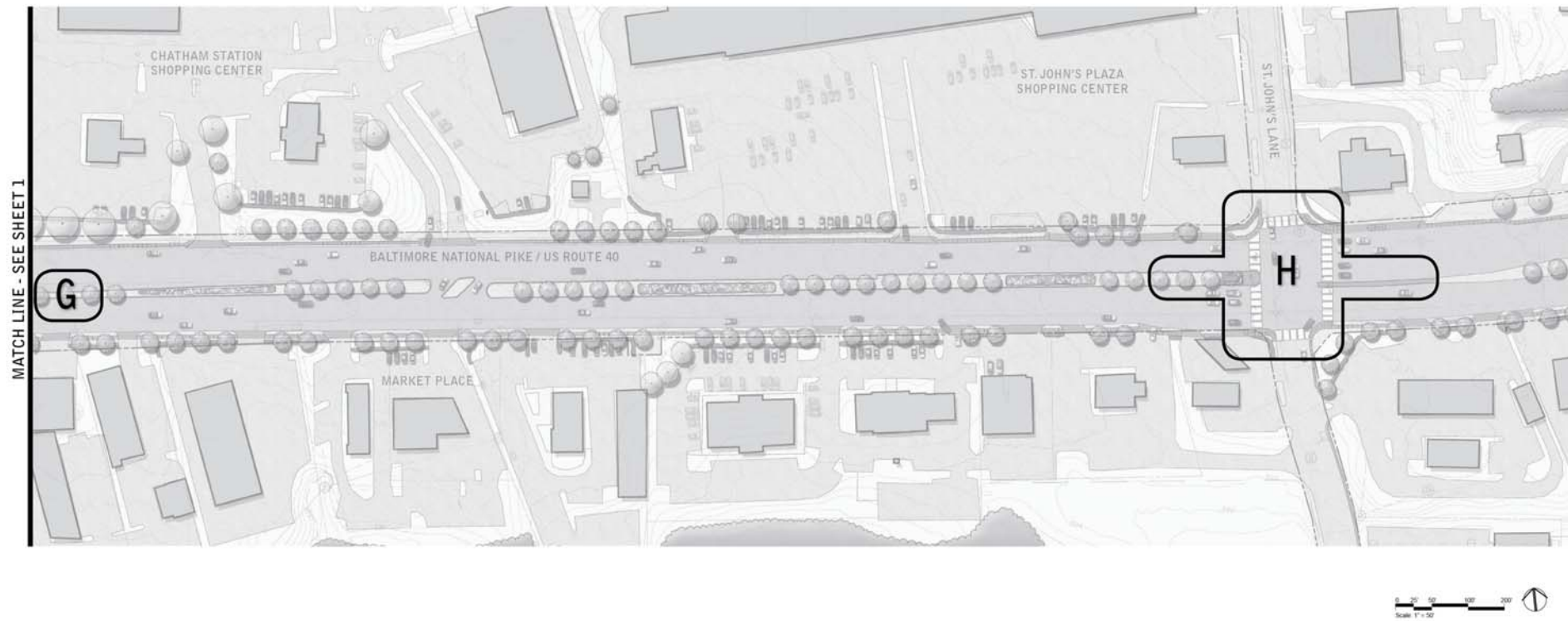


Early Phase Project Opportunities – Enchanted Forest

Note: See Appendix G for cost estimates



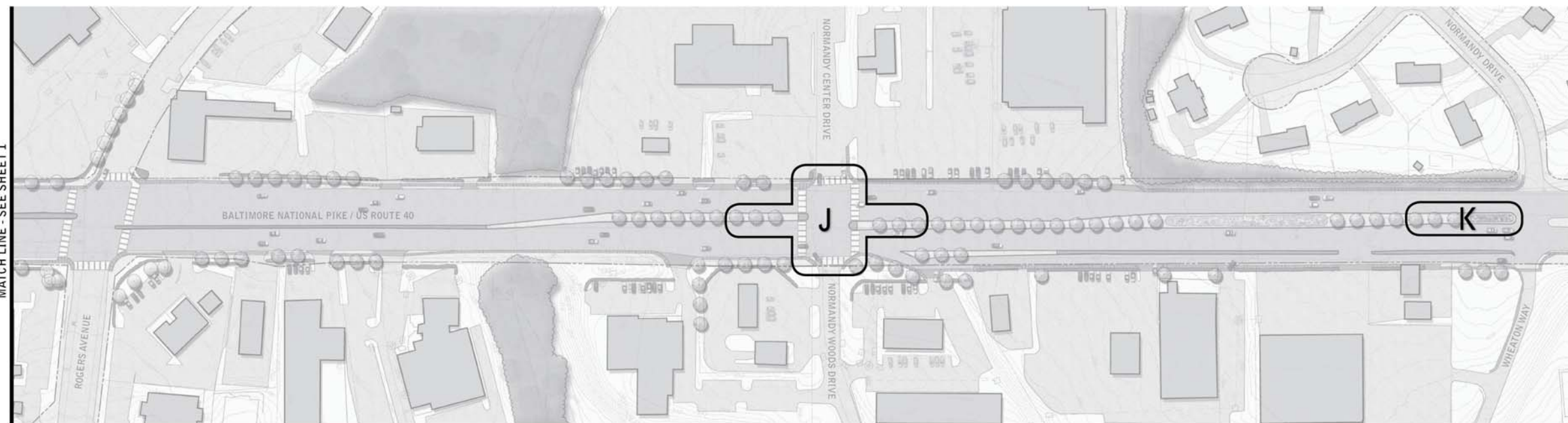
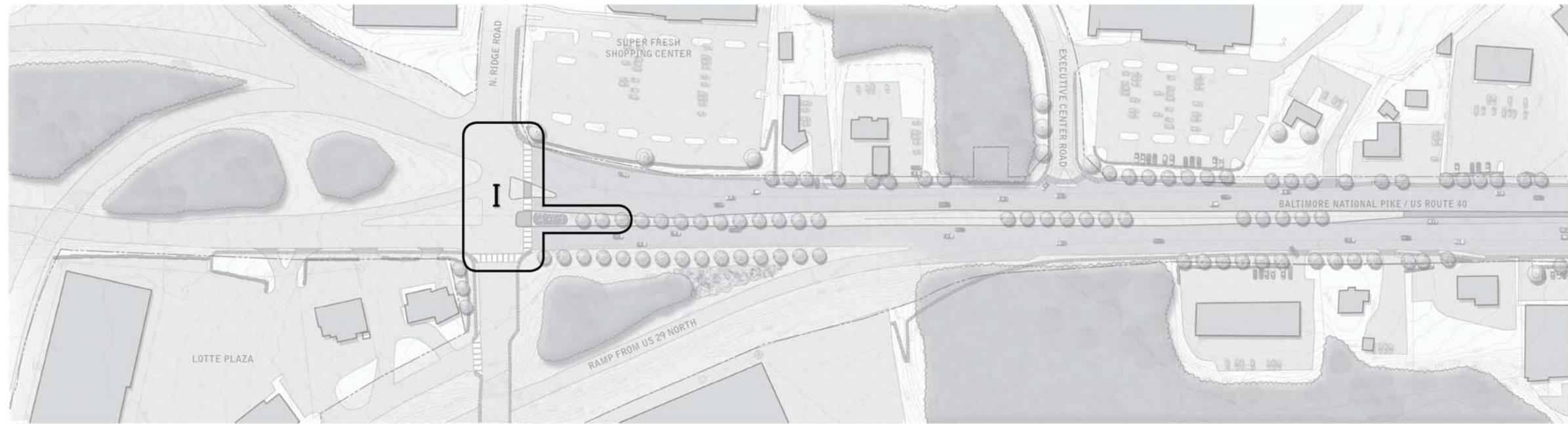
40 US ROUTE 40 Streetscape Master Plan | CHATHAM AREA, SHEET 1 PHASING & COST ESTIMATING | HOWARD COUNTY, MD | MARCH 2010 | GPI Greenman - Pedersen, Inc. | MAHAN RYKIEL ASSOCIATES, INC.



40 US ROUTE 40 Streetscape Master Plan | CHATHAM AREA, SHEET 2 PHASING & COST ESTIMATING | HOWARD COUNTY, MD | MARCH 2010 | GPI Greenman - Pedersen, Inc. | MAHAN RYKIEL ASSOCIATES, INC.

Early Phase Project Opportunities – Chatham

Note: See Appendix G for cost estimates



Early Phase Project Opportunities - Normandy

Appendix G: Cost Estimates

**Cost Estimate – Enchanted Forest
AREA A**

COST ESTIMATE WORKSHEET					
Project: US Route 40 Streetscape Master Plan			Date August, 2010		
Intersection of Frederick Road (West) and US 40					
ASSUMPTIONS					
Geotechnical conditions are suitable for ESD measures					
Existing as-built data on storm drain system will be provided					
Proposed ESD can connect into existing storm drain system					
DESCRIPTION	QTY.	UNIT	\$/UNIT	COST	
Class 1 Excavation	100	CY	4.00	\$400	
Conc. Gurb & Gutter	360	LF	11.00	\$3,960	
Ex. Asphalt Milling/Removal (2' width, 2" depth)	80	SY	7.50	\$600	
Patch Asphalt	40	SY	4.65	\$186	
CR-6 Base Course (4" depth)	160	IN/SY	1.05	\$168	
Topsoil	525	SY	10.00	\$5,250	
Seeding & Mulching	80	SY	0.63	\$50	
Crosswalk Markings	2	EA	400.00	\$800	
Handicap Ramps at Corners	2	EA	450.00	\$900	
Sediment Controls (Straw Bales)	350	LF	3.00	\$1,050	
Shade Trees (2.5" cal.)	3	EA	300.00	\$900	
Evergreen Shrubs on Corner (30" ht./spd., 30 each corner)	260	EA	40.00	\$10,400	
Evergreen Shrubs (24-30" ht./spd.)	260	EA	40.00	\$10,400	
Ornamental Grasses (#1)	45	EA	20.00	\$900	
Perennials (#1)	175	EA	10.00	\$1,750	
Groundcover (2 qt.)	650	EA	8.00	\$5,200	
Brick Paving at Nosings	440	SF	20.00	\$8,800	
Brick Splash Edge	360	LF	28.00	\$10,080	
Maintenance of Traffic		LS		\$3,500	
Sediment Control Plan		LS		\$2,000	
Maintenance of Traffic Plan		LS		\$1,500	
Stormwater Management Plan		LS		\$9,000	
Landscape Plan		LS		\$2,500	
Permitting		LS		\$5,000	
Survey (scanning)		LS		\$8,000	
			TOTAL	\$93,294	

COST ESTIMATE WORKSHEET					
Project: US Route 40 Streetscape Master Plan			Date August, 2010		
Intersection of Pine Orchard Lane/Frederick Road (East) and US 40					
ASSUMPTIONS					
Geotechnical conditions are suitable for ESD measures					
Existing as-built data on storm drain system will be provided					
Proposed ESD can connect into existing storm drain system					
DESCRIPTION	QTY.	UNIT	\$/UNIT	COST	
Class 1 Excavation	225	CY	4.00	\$900	
Conc. Gurb & Gutter	620	LF	11.00	\$6,820	
Ex. Asphalt Milling/Removal (2' width, 2" depth)	200	SY	7.50	\$1,500	
Patch Asphalt	100	SY	4.65	\$465	
CR-6 Base Course (4" depth)	400	IN/SY	1.05	\$420	
Topsoil	515	SY	10.00	\$5,150	
Seeding & Mulching	130	SY	0.63	\$82	
Crosswalk Markings	6	EA	400.00	\$2,400	
Handicap Ramps at Corners	8	EA	450.00	\$3,600	
Sediment Controls (Straw Bales)	800	LF	3.00	\$2,400	
Shade Trees (2.5" cal.)	6	EA	300.00	\$1,800	
Evergreen Shrubs on Corner (30" ht./spd., 30 each corner)	120	EA	40.00	\$4,800	
Brick Paving at Nosings	680	SF	20.00	\$13,600	
Brick Splash Edge	620	LF	28.00	\$17,360	
Maintenance of Traffic		LS		\$4,394	
Sediment Control Plan		LS		\$2,000	
Maintenance of Traffic Plan		LS		\$1,500	
Stormwater Management Plan		LS		\$9,000	
Landscape Plan		LS		\$2,500	
Permitting		LS		\$5,000	
Survey (scanning)		LS		\$8,000	
			TOTAL	\$93,691	

**Cost Estimate – Enchanted Forest
AREA C**

COST ESTIMATE WORKSHEET					
Project: US Route 40 Streetscape Master Plan			Date August, 2010		
Intersection of Bethany/Centennial Lanes and US 40					
ASSUMPTIONS					
Geotechnical conditions are suitable for ESD measures					
Existing as-built data on storm drain system will be provided					
Proposed ESD can connect into existing storm drain system					
DESCRIPTION	QTY.	UNIT	\$/UNIT	COST	
Class 1 Excavation	200	CY	4.00	\$800	
Conc. Gurb & Gutter	310	LF	11.00	\$3,410	
Ex. Asphalt Milling/Removal (2' width, 2" depth)	160	SY	7.50	\$1,200	
Patch Asphalt	80	SY	4.65	\$372	
CR-6 Base Course (4" depth)	320	IN/SY	1.05	\$336	
Topsoil	220	SY	10.00	\$2,200	
Seeding & Mulching	55	SY	0.63	\$35	
Crosswalk Markings	6	EA	400.00	\$2,400	
Handicap Ramps at Corners	8	EA	450.00	\$3,600	
Sediment Controls (Straw Bales)	700	LF	3.00	\$2,100	
Shade Trees (2.5" cal.)	2	EA	300.00	\$600	
Evergreen Shrubs on Corner (30" ht./spd., 30 each corner)	120	EA	40.00	\$4,800	
Brick Paving at Nosings	2800	SF	20.00	\$56,000	
Brick Splash Edge	310	LF	28.00	\$8,680	
Maintenance of Traffic		LS		\$3,500	
Sediment Control Plan		LS		\$2,000	
Maintenance of Traffic Plan		LS		\$1,500	
Stormwater Management Plan		LS		\$9,000	
Landscape Plan		LS		\$2,500	
Permitting		LS		\$5,000	
Survey (scanning)		LS		\$8,000	
			TOTAL	\$118,033	

**Cost Estimate – Enchanted Forest
AREA D**

COST ESTIMATE WORKSHEET					
Project: US Route 40 Streetscape Master Plan			Date August, 2010		
Intersection of East Entrance to Enchanted Forest and US 40					
ASSUMPTIONS					
Geotechnical conditions are suitable for ESD measures					
Existing as-built data on storm drain system will be provided					
Proposed ESD can connect into existing storm drain system					
DESCRIPTION	QTY.	UNIT	\$/UNIT	COST	
Class 1 Excavation	100	CY	4.00	\$400	
Conc. Gurb & Gutter	425	LF	11.00	\$4,675	
Ex. Asphalt Milling/Removal (2' width, 2" depth)	80	SY	7.50	\$600	
Patch Asphalt	40	SY	4.65	\$186	
CR-6 Base Course (4" depth)	160	IN/SY	1.05	\$168	
Topsoil	300	SY	10.00	\$3,000	
Seeding & Mulching	70	SY	0.63	\$44	
Sediment Controls (Straw Bales)	350	LF	3.00	\$1,050	
Shade Trees (2.5" cal.)	3	EA	300.00	\$900	
Evergreen Shrubs on Corner (30" ht./spd., 30 each corner)	60	EA	40.00	\$2,400	
Evergreen Shrubs (24-30" ht./spd.)	50	EA	40.00	\$2,000	
Ornamental Grasses (#1)	25	EA	20.00	\$500	
Perennials (#1)	60	EA	10.00	\$600	
Groundcover (2 qt.)	350	EA	8.00	\$2,800	
Brick Splash Edge	425	LF	28.00	\$11,900	
Maintenance of Traffic		LS		\$3,500	
Sediment Control Plan		LS		\$2,000	
Maintenance of Traffic Plan		LS		\$1,500	
Stormwater Management Plan		LS		\$9,000	
Landscape Plan		LS		\$2,500	
Permitting		LS		\$5,000	
Survey (scanning)		LS		\$8,000	
			TOTAL	\$62,723	

**Cost Estimate – Chatham
AREA E**

COST ESTIMATE WORKSHEET					
Project: US Route 40 Streetscape Master Plan			Date August, 2010		
Intersection of Greenway Drive and US 40					
ASSUMPTIONS					
Geotechnical conditions are suitable for ESD measures					
Existing as-built data on storm drain system will be provided					
Proposed ESD can connect into existing storm drain system					
DESCRIPTION					
Class 1 Excavation	100	CY	4.00		\$400
Conc. Gurb & Gutter	680	LF	11.00		\$7,480
Ex. Asphalt Milling/Removal (2' width, 2" depth)	80	SY	7.50		\$600
Patch Asphalt	40	SY	4.65		\$186
CR-6 Base Course (4" depth)	160	IN/SY	1.05		\$168
Topsoil	950	SY	10.00		\$9,500
Seeding & Mulching	230	SY	0.63		\$145
Sediment Controls (Straw Bales)	350	LF	3.00		\$1,050
Shade Trees (2.5" cal.)	11	EA	300.00		\$3,300
Evergreen Shrubs on Corner (30" ht./spd., 30 each corner)	60	EA	40.00		\$2,400
Evergreen Shrubs (24-30" ht./spd.)	60	EA	40.00		\$2,400
Ornamental grasses (#2-#3)	50	EA	20.00		\$1,000
Perennials (#1)	120	EA	10.00		\$1,200
Groundcover (2 qt.)	700	EA	8.00		\$5,600
Brick Splash Edge	680	LF	28.00		\$19,040
Maintenance of Traffic		LS			\$3,500
Sediment Control Plan		LS			\$2,000
Maintenance of Traffic Plan		LS			\$1,500
Stormwater Management Plan		LS			\$9,000
Landscape Plan		LS			\$2,500
Permitting		LS			\$5,000
Survey (scanning)		LS			\$8,000
				TOTAL	\$85,969

**Cost Estimate – Chatham
AREA F**

COST ESTIMATE WORKSHEET					
Project: US Route 40 Streetscape Master Plan			Date August, 2010		
Intersection of Plumtree Drive and US 40					
ASSUMPTIONS					
Geotechnical conditions are suitable for ESD measures					
Existing as-built data on storm drain system will be provided					
Proposed ESD can connect into existing storm drain system					
DESCRIPTION					
Class 1 Excavation	200	CY	4.00		\$800
Conc. Gurb & Gutter	620	LF	11.00		\$6,820
Ex. Asphalt Milling/Removal (2' width, 2" depth)	160	SY	7.50		\$1,200
Patch Asphalt	80	SY	4.65		\$372
CR-6 Base Course (4" depth)	320	IN/SY	1.05		\$336
Topsoil	400	SY	10.00		\$4,000
Seeding & Mulching	100	SY	0.63		\$63
Crosswalk Markings	5	EA	400.00		\$2,000
Handicap Ramps at Corners	6	EA	450.00		\$2,700
Sediment Controls (Straw Bales)	700	LF	3.00		\$2,100
Shade Trees (2.5" cal.)	6	EA	300.00		\$1,800
Evergreen Shrubs on Corner (30" ht./spd., 30 each corner)	90	EA	40.00		\$3,600
Evergreen Shrubs (24-30" ht./spd.)	80	EA	40.00		\$3,200
Ornamental grasses (#2-#3)	25	EA	20.00		\$500
Perennials (#1)	60	EA	10.00		\$600
Groundcover (2 qt.)	500	EA	8.00		\$4,000
Brick Paving at Nosings (2)	575	SF	20.00		\$11,500
Brick Splash Edge	620	LF	28.00		\$17,360
Maintenance of Traffic		LS			\$3,500
Sediment Control Plan		LS			\$2,000
Maintenance of Traffic Plan		LS			\$1,500
Stormwater Management Plan		LS			\$9,000
Landscape Plan		LS			\$2,500
Permitting		LS			\$5,000
Survey (scanning)		LS			\$8,000
				TOTAL	\$94,451

**Cost Estimate – Chatham
AREA G**

**Cost Estimate – Chatham
AREA H**

COST ESTIMATE WORKSHEET					
Project: US Route 40 Streetscape Master Plan			Date August, 2010		
Intersection of N. Chatham Road and US 40					
ASSUMPTIONS					
Geotechnical conditions are suitable for ESD measures					
Existing as-built data on storm drain system will be provided					
Proposed ESD can connect into existing storm drain system					
DESCRIPTION	QTY.	UNIT	\$/UNIT	COST	
Class 1 Excavation	200	CY	4.00	\$800	
Conc. Gurb & Gutter	620	LF	11.00	\$6,820	
Ex. Asphalt Milling/Removal (2' width, 2" depth)	160	SY	7.50	\$1,200	
Patch Asphalt	80	SY	4.65	\$372	
CR-6 Base Course (4" depth)	320	IN/SY	1.05	\$336	
Topsoil	270	SY	10.00	\$2,700	
Seeding & Mulching	70	SY	0.63	\$44	
Crosswalk Markings	6	EA	400.00	\$2,400	
Handicap Ramps at Corners	8	EA	450.00	\$3,600	
Sediment Controls (Straw Bales)	700	LF	3.00	\$2,100	
Shade Trees (2.5" cal.)	6	EA	300.00	\$1,800	
Evergreen Shrubs on Corner (30" ht./spd., 30 each corner)	120	EA	40.00	\$4,800	
Evergreen Shrubs (24-30" ht./spd.)	60	EA	40.00	\$2,400	
Ornamental grasses (#2-#3)	25	EA	20.00	\$500	
Perennials (#1)	60	EA	10.00	\$600	
Groundcover (2 qt.)	350	EA	8.00	\$2,800	
Brick Paving at Nosings (2)	450	SF	20.00	\$9,000	
Brick Splash Edge	620	LF	28.00	\$17,360	
Maintenance of Traffic		LS		\$3,500	
Sediment Control Plan		LS		\$2,000	
Maintenance of Traffic Plan		LS		\$1,500	
Stormwater Management Plan		LS		\$9,000	
Landscape Plan		LS		\$2,500	
Permitting		LS		\$5,000	
Survey (scanning)		LS		\$8,000	
			TOTAL	\$91,132	

COST ESTIMATE WORKSHEET					
Project: US Route 40 Streetscape Master Plan			Date August, 2010		
Intersection of St. John's Lane and US 40					
ASSUMPTIONS					
Geotechnical conditions are suitable for ESD measures					
Existing as-built data on storm drain system will be provided					
Proposed ESD can connect into existing storm drain system					
DESCRIPTION	QTY.	UNIT	\$/UNIT	COST	
Class 1 Excavation	200	CY	4.00	\$800	
Conc. Gurb & Gutter	310	LF	11.00	\$3,410	
Ex. Asphalt Milling/Removal (2' width, 2" depth)	160	SY	7.50	\$1,200	
Patch Asphalt	80	SY	4.65	\$372	
CR-6 Base Course (4" depth)	320	IN/SY	1.05	\$336	
Topsoil	175	SY	10.00	\$1,750	
Seeding & Mulching	45	SY	0.63	\$28	
Crosswalk Markings	6	EA	400.00	\$2,400	
Handicap Ramps at Corners	8	EA	450.00	\$3,600	
Sediment Controls (Straw Bales)	700	LF	3.00	\$2,100	
Shade Trees (2.5" cal.)	3	EA	300.00	\$900	
Evergreen Shrubs on Corner (30" ht./spd., 30 each corner)	120	EA	40.00	\$4,800	
Evergreen Shrubs (24-30" ht./spd.)	70	EA	40.00	\$2,800	
Ornamental grasses (#2-#3)	25	EA	20.00	\$500	
Perennials (#1)	60	EA	10.00	\$600	
Groundcover (2 qt.)	350	EA	8.00	\$2,800	
Brick Paving at Nosings	1345	SF	20.00	\$26,900	
Brick Splash Edge	310	LF	28.00	\$8,680	
Maintenance of Traffic		LS		\$3,500	
Sediment Control Plan		LS		\$2,000	
Maintenance of Traffic Plan		LS		\$1,500	
Stormwater Management Plan		LS		\$9,000	
Landscape Plan		LS		\$2,500	
Permitting		LS		\$5,000	
Survey (scanning)		LS		\$8,000	
			TOTAL	\$95,476	

**Cost Estimate – Normandy
AREA I**

COST ESTIMATE WORKSHEET					
Project: US Route 40 Streetscape Master Plan			Date August, 2010		
Intersection of N. Ridge Road and US 40					
ASSUMPTIONS					
Geotechnical conditions are suitable for ESD measures					
Existing as-built data on storm drain system will be provided					
Proposed ESD can connect into existing storm drain system					
DESCRIPTION	QTY.	UNIT	\$/UNIT	COST	
Class 1 Excavation	100	CY	4.00	\$400	
Conc. Gurb & Gutter	345	LF	11.00	\$3,795	
Ex. Asphalt Milling/Removal (2' width, 2" depth)	80	SY	7.50	\$600	
Patch Asphalt	40	SY	4.65	\$186	
CR-6 Base Course (4" depth)	160	IN/SY	1.05	\$168	
Topsoil	210	SY	10.00	\$2,100	
Seeding & Mulching	50	SY	0.63	\$32	
Crosswalk Markings	4	EA	400.00	\$1,600	
Handicap Ramps at Corners	4	EA	450.00	\$1,800	
Sediment Controls (Straw Bales)	350	LF	3.00	\$1,050	
Shade Trees (2.5" cal.)	3	EA	300.00	\$900	
Evergreen Shrubs on Corner (30" ht./spd., 30 each corner)	90	EA	40.00	\$3,600	
Evergreen Shrubs (24-30" ht./spd.)	70	EA	40.00	\$2,800	
Ornamental Grasses (#1)	25	EA	20.00	\$500	
Perennials (#1)	60	EA	10.00	\$600	
Groundcover (2 qt.)	350	EA	8.00	\$2,800	
Brick Paving at Nosings	800	SF	20.00	\$16,000	
Brick Splash Edge	345	LF	28.00	\$9,660	
Maintenance of Traffic		LS		\$3,500	
Sediment Control Plan		LS		\$2,000	
Maintenance of Traffic Plan		LS		\$1,500	
Stormwater Management Plan		LS		\$9,000	
Landscape Plan		LS		\$2,500	
Permitting		LS		\$5,000	
Survey (scanning)		LS		\$8,000	
			TOTAL	\$80,091	

**Cost Estimate – Normandy
AREA J**

COST ESTIMATE WORKSHEET					
Project: US Route 40 Streetscape Master Plan			Date August, 2010		
Intersection of Normandy Center Drive/Normandy Woods Drive and US 40					
ASSUMPTIONS					
Geotechnical conditions are suitable for ESD measures					
Existing as-built data on storm drain system will be provided					
Proposed ESD can connect into existing storm drain system					
DESCRIPTION	QTY.	UNIT	\$/UNIT	COST	
Class 1 Excavation	200	CY	4.00	\$800	
Conc. Gurb & Gutter	620	LF	11.00	\$6,820	
Ex. Asphalt Milling/Removal (2' width, 2" depth)	160	SY	7.50	\$1,200	
Patch Asphalt	80	SY	4.65	\$372	
CR-6 Base Course (4" depth)	320	IN/SY	1.05	\$336	
Topsoil	365	SY	10.00	\$3,650	
Seeding & Mulching	90	SY	0.63	\$57	
Crosswalk Markings	6	EA	400.00	\$2,400	
Handicap Ramps at Corners	8	EA	450.00	\$3,600	
Sediment Controls (Straw Bales)	700	LF	3.00	\$2,100	
Shade Trees (2.5" cal.)	6	EA	300.00	\$1,800	
Evergreen Shrubs on Corner (30" ht./spd., 30 each corner)	120	EA	40.00	\$4,800	
Brick Paving at Nosings	550	SF	20.00	\$11,000	
Brick Splash Edge	620	LF	28.00	\$17,360	
Maintenance of Traffic		LS		\$3,500	
Sediment Control Plan		LS		\$2,000	
Maintenance of Traffic Plan		LS		\$1,500	
Stormwater Management Plan		LS		\$9,000	
Landscape Plan		LS		\$2,500	
Permitting		LS		\$5,000	
Survey (scanning)		LS		\$8,000	
			TOTAL	\$87,795	

**Cost Estimate – Normandy
AREA K**

COST ESTIMATE WORKSHEET					
Project: US Route 40 Streetscape Master Plan			Date August, 2010		
<i>Intersection of Normandy Drive/Wheaton Way and US 40</i>					
ASSUMPTIONS					
Geotechnical conditions are suitable for ESD measures					
Existing as-built data on storm drain system will be provided					
Proposed ESD can connect into existing storm drain system					
DESCRIPTION					
	DESCRIPTION	QTY.	UNIT	\$/UNIT	COST
	Class 1 Excavation	100	CY	4.00	\$400
	Conc. Gurb & Gutter	415	LF	11.00	\$4,565
	Ex. Asphalt Milling/Removal (2' width, 2" depth)	80	SY	7.50	\$600
	Patch Asphalt	40	SY	4.65	\$186
	CR-6 Base Course (4" depth)	160	IN/SY	1.05	\$168
	Topsoil	200	SY	10.00	\$2,000
	Seeding & Mulching	50	SY	0.63	\$32
	Sediment Controls (Straw Bales)	350	LF	3.00	\$1,050
	Shade Trees (2.5" cal.)	3	EA	300.00	\$900
	Evergreen Shrubs on Corner (30" ht./spd., 30 each corner)	60	EA	40.00	\$2,400
	Evergreen Shrubs (24-30" ht./spd.)	40	EA	40.00	\$1,600
	Ornamental Grasses (#1)	25	EA	20.00	\$500
	Perennials (#1)	60	EA	10.00	\$600
	Groundcover (2 qt.)	350	EA	8.00	\$2,800
	Brick Splash Edge	415	LF	28.00	\$11,620
	Maintenance of Traffic		LS		\$3,500
	Sediment Control Plan		LS		\$2,000
	Maintenance of Traffic Plan		LS		\$1,500
	Stormwater Management Plan		LS		\$9,000
	Landscape Plan		LS		\$2,500
	Permitting		LS		\$5,000
	Survey (scanning)		LS		\$8,000
			TOTAL		\$60,921