



MONTGOMERY COUNTY PLANNING DEPARTMENT
THE MARYLAND-NATIONAL CAPITAL PARK AND PLANNING COMMISSION

MCPB
Item No. 2
04-28-2011

MEMORANDUM

DATE: April 20, 2011

TO: Montgomery County Planning Board

VIA: Eric Graye, Acting Chief *EG*
Functional Planning and Policy Division

Larry Cole, Highway Coordinator *LC*
Functional Planning and Policy Division

FROM: Ed Axler, Planner/Coordinator (301) 495-4536 *EA*
Area 2 Division

SUBJECT: East Gude Drive Phase I Transportation Facility Planning Study
Crabbs Branch Way to Southlawn Lane
Project Prospectus Recommendations

APPLICANT: Montgomery County Department of Transportation (MCDOT)

Executive Summary

The Project Prospectus recommends the widening of East Gude Drive as necessary to achieve a consistent width of six lanes within the project limits. A six-lane roadway section is consistent with both the Shady Grove Sector Plan and the City of Rockville's Comprehensive Master Plan, but would exceed the recommendation for four lanes in the Upper Rock Creek Master Plan (URCMP). However, a change to six lanes for the URCMP segment of East Gude Drive is already part of the current Master Plan of Highways Scope of Work. Staff is in agreement with the recommended six-lane divided cross-section along the entire segment of East Gude Drive between Crabbs Branch Way and Southlawn Lane.

The purpose of this briefing is to present to the Planning Board the Phase I Facility Planning Study draft Project Prospectus for the East Gude Drive project and to solicit your comments. Your comments will be considered in the MCDOT's preparation of the final document, which will then be submitted to the County Council.

RECOMMENDATION: Transmit the following comments to the Montgomery County Department of Transportation (MCDOT):

1. The East Gude Drive Transportation Facility Planning Study should proceed to Phase II of the Facility Planning process to develop a detailed design of the Project Prospectus-recommended Alternative 3 Enhanced Master Plan Alternative.
2. The design for the East Gude Drive project between Crabbs Branch Way and Southlawn Lane should include the following changes:
 - a. Provide a marked crosswalk and median refuge on the east leg of East Gude Drive at the Crabbs Branch Way/Cecil Street intersection to improve safety and access to the bus stops on either side of East Gude Drive. If a marked crosswalk cannot be provided, signs should be placed to prohibit the crossing and the bus stops should be moved to a location where patrons can safely and easily access them from the opposite side of the street.
 - b. Provide dual directional handicap ramps at all intersections within the project limits.
 - c. Provide pedestrian refuge medians at intersection crosswalks by extending the median beyond the crosswalk with a depressed median crossing.
 - d. Provide a marked crosswalk with a median refuge between the bus stops at approximately Station 47+75 on East Gude Drive.
 - e. Provide lighting at all intersections and marked mid-block crosswalks within the project limits to American Association of State Highway and Transportation Officials (AASHTO) standards.
 - f. Integrate street trees into the proposed alternative, including the median, to improve the character of East Gude Drive.
3. Continue to coordinate with planning staff on the Master Plan of Highways update in regard to the inclusion of a six-lane divided cross-section along the entire segment of East Gude Drive between Norbeck Road and Rockville Pike.
4. During the Phase II Facility Planning Study
 - a. Submit a Natural Resources Inventory/Forest Stand Delineation (NRI/FSD) for approval.
 - b. Minimize forest loss in the preliminary design for the East Gude Drive project.

PREVIOUS BOARD ACTION: None

STUDY SUMMARY

The purpose of this study is to consider widening the existing four-lane segments of East Gude Drive to achieve a consistent six-lane Major Highway between Crabbs Branch Way and Southlawn Lane to increase the corridor's capacity, enhance safety, and to improve pedestrian/bicycle access and continuity. (see Location Map, Attachment 1).

The project limits cover a 1.14-mile segment between Crabbs Branch Way and Southlawn Lane. The confronting land uses in this area consist almost exclusively of industrial and commercial business. The only residential use is a homeless shelter adjacent to the Gude Landfill site. (See Attachment 2 - Environmental Features for an aerial view of the study area.)

The study also considered roadway improvements at the five intersecting roadways within the project limits, eliminating 3,190 feet of gaps in the existing sidewalk along the north side of East Gude Drive, and improving the master-planned shared use path on the south side that is part of the Rockville's Millennium Trail. (See Attachment 3 for a schematic drawing of the roadway with sidewalk and shared use path coverage.)

As part of the East Gude Drive Facility Planning Phase I Study, the following three alternatives were considered and presented to the public for their review and input:

Alternative 1, No-build: A summary of the existing roadway cross-sections is shown on Attachment 4.

Alternative 2, Master Plan: Six-lane divided roadway and transportation systems management improvements with the existing Master Plan 120-foot right-of-way. A summary of the proposed roadway sections is shown on Attachment 5.

Alternative 3, Enhanced Master Plan Alternative (EMPA): Enhanced six-lane divided roadway with a proposed 125-foot to 136-foot right-of-way. A summary of the proposed roadway sections is shown on Attachments 6A and 6B.

For both of the build alternatives, most of the impact on adjacent properties would be via public improvement easements for pedestrian and bicycle accommodations.

The Project Prospectus recommends that Alternative 3 - Enhanced Master Plan Alternative proceed to Facility Planning Phase II. (Note: The consistency of this alternative with current Master Plans is discussed below.) This alternative would:

1. Meet the project's purpose and need;
2. Provide a continuous six-lane divided roadway within the project limits;
3. Improve the safety at intersections; and
4. Provide safe, direct pedestrian and bicycle access.

Master Plan Consistency

Roadway

The project limits are within the boundary of three different master plans – Shady Grove Sector Plan, Upper Rock Creek Area Master Plan (URCMP), and City of Rockville Comprehensive Master Plan.

Shady Grove Sector Plan: Recommends a six-lane divided highway with a 150-foot right-of-way between MD 355 and approximately 1,000 feet east of Calhoun Drive. Page 73 of the *Shady Grove Sector Plan* also includes the following recommendation: “Extend the sidewalk on East Gude Drive east of its current terminus east of Crabbs Branch Way”. Alternative 2 Master Plan and Alternative 3 EMPA are consistent with the Shady Grove Sector Plan.

Upper Rock Creek Area Master Plan: Recommends a four-lane divided highway with a 120-foot right-of-way between approximately 1,000 feet east of Calhoun Drive and Southlawn Drive. Neither Alternative 2 nor Alternative 3 EMPA is consistent with the URCMP in the number of recommended travel lanes.

We anticipate that a widening to six lanes in this area will be included in the update to the Master Plan of Highways, as it is included in the Scope of Work (see Attachment 7.) In two areas within the project limits, an additional 5 to 16 feet of area would be required beyond the 120 foot ROW recommended in the URCMP to accommodate the preferred Alternative 3 EMPA . While the area of impact would exceed the Master Plan-recommended ROW, no additional ROW is anticipated to be acquired. The use of this additional area is proposed to be obtained through public improvement easements with the cooperation of the impacted land owners. This arrangement is generally consistent with the County’s roadway standards.

City of Rockville Comprehensive Master Plan: Recommends widening East Gude Drive from four to six lanes for the small segment on the north side of East Gude Drive 450 feet west of Southlawn Lane. (The south side of this segment is in the URCMP.) The proposed Alternative 3 EMPA is consistent with the Rockville’s Comprehensive Master Plan.

Bikeway

In addition to the roadway, the proposed improvements will implement bikeway recommendations as well as pedestrian safety, in the both the Shady Grove Sector Plan and the Upper Rock Creek Master Plan. The Countywide Bikeways Functional Master Plan recommends the shared use path on the south side of East Gude Drive and is part of the Rockville’s Millennium Trail. Alternative 3 EMPA is consistent with these Master Plans.

EXISTING CONDITIONS

The existing conditions of East Gude Drive include the following:

1. The roadway narrowing from three eastbound lanes to two just east of Calhoun Drive results in operational problems that are compounded by the bus stop at this location.
2. The existing roadway cross-section includes a buffer width between the curb and off-site bicycle/pedestrian facilities that is less than the standard 6-foot buffer.
3. Some structural pavement failure approximately 1,250 feet west of Dover Road has been noted by MCDOT Highway Maintenance staff.
4. Six uncontrolled access points to the roadway and poor sight distance at one location reduces the roadway's capacity and safety, especially between Incinerator Lane and Dover Road.

Cross Streets

The project limits includes five signalized intersections as follows:

1. Crabbs Branch Way is classified as a master-planned arterial, A-262;
2. Calhoun Lane is local street serving the adjacent business park;
3. Display Court and Incinerator Lane are local access roadways where a high-intensity actuated crosswalk (HAWK) pedestrian signal was recently installed at their intersection with East Gude Drive;
4. Dover Road is classified as a master-planned industrial roadway, I-2; and
5. Southlawn Lane classified as a master-planned industrial roadway, I-1.

Existing Sidewalks

Sidewalk segments are missing along 3,190 feet of the north side of East Gude Drive. The substandard/non-ADA compliant segments are:

1. Approximately 1,550 feet from Crabbs Branch Way to 675 feet east of Calhoun Drive;
2. Approximately 1,240 feet from Dover Road to a point 1,240 feet west of that intersection; and
3. Approximately 400 feet from Southlawn Lane to a point 400 feet west of that intersection.

Existing Bikepath

A master-planned shared use path exists on the south side of East Gude Drive that is only 8-to-9-foot wide - narrower than the current standard width of 10 feet - and has an inadequate buffer between the shared use path and the roadway.

Transit Accommodations

Ride-On routes No. 48 and 59 operate along this segment of East Gude Drive with a bus headway approximately 20 minutes on weekdays and 30 minutes on weekends. Along this segment, twelve bus stops exist, including five with shelters. Besides serving as a non-auto transportation mode to access the adjacent businesses, transit is also used by employees and other patrons to travel to and from the homeless shelter located at the landfill/incinerator site.

Traffic and Safety

Through Traffic Volume

The existing annual average traffic (ADT) on East Gude Drive is 51,400 vehicles per day between Rockville Pike and Southlawn Lane. Between Southlawn Lane and Norbeck Road, the annual average traffic on East Gude Drive is 55,200 vehicles per day. Approximately 48% of the two-way ADT is traveling eastbound and 52% is traveling westbound.

Observed Vehicle Speed

A speed study was conducted along the project limits of East Gude Drive with the results summarized in the table below:

Type of Speed	Eastbound	Westbound
Target Speed	40 mph	40 mph
Posted Speed	40 mph	40 mph
Mean Speed	44 mph	46 mph
85 th percentile Speed	50 mph	50 mph
% Vehicles traveling 10 mph over the Speed Limit	16%	18%

Queuing at Signalized intersections

The observed queuing at the approaches to the signalized intersections was in the peak direction during the weekday morning and evening peak periods. No excessive queuing problems were observed within the project limits such as having vehicle spillover exclusive turn bays or blocking an intersection during a traffic signal cycle/phase.

Access Controls

Eighteen access points exist along East Gude Drive in the eastbound direction, and eleven access points exist in the westbound direction. Median openings exist for these access points except along two segments:

1. Between Crabbs Branch Way and Incinerator Lane with four access points and
2. Dover Road and Southlawn Lane with nine access points.

Sight Distance

The East Gude Drive corridor and its intersections were found to meet AASHTO minimum criteria for the posted speed except at the intersection with Incinerator Lane/Display Court. In addition, a line of trees and the existing bus shelter obstruct the optimal line-of-sight of drivers traveling northbound on East Gude Drive at Display Court.

Crash Study

Crash data was collected between 2003 and 2007 along the project limits of East Gude Drive. The number of crashes range from 30 to 35 per year for a total of 160 in the 5-year period. Approximately 85% occurred during the weekdays between the 6:00 a.m. and 6:00 p.m. in day light conditions without adverse weather conditions. 51% of the crashes resulted in injuries, including one fatal pedestrian crash. The types of crashes are summarized in the table below:

Type of Crashes	Number
Rear End	62
Left Turning & Right Angle	53
Right Turning	17
Sideswipe & Opposite Direction	19
Pedestrian Related	7
Other	25
Total	160

Rear end crashes typically occurred at traffic signals. Crashes involving turning movements, totaling 70 crashes, indicate the adequacy of the access control to curb-cuts and cross streets. In addition, because the surrounding industrial land uses generate truck traffic, 22% of the crashes involved trucks. (For comparison purposes, 69% of the crashes involve passenger cars with the remainder involving buses and recreational vehicles.) Truck traffic is especially significant at the intersection with Southlawn Lane, where a higher-than-normal number of vehicles making U-turns have been observed. There were two bicycle crashes and seven pedestrian crashes, including the fatal pedestrian crash that occurred at the intersection with Incinerator Lane where the homeless shelter is located. The location of these crashes and crash rate at that location are summarized in the table below:

Crash Location	Number	Crash Rate
Mid Block Locations	13	---
At/Near Crabbs Branch Way	42	0.44
At/Near Calhoun Drive	32	0.39
At/Near Incinerator Lane	3	n/a
At/Near Dover Road	32	0.42
At/Near Southlawn Lane	38	0.45
TOTAL	160	---

Based on the crash data above, improving safety was made one of the objectives of the purpose and needs study.

Environment

The environmental features along the project limits of East Gude Drive include the following:

1. The now-closed Gude Drive Landfill is located in the northeast quadrant of the East Gude Drive/Incinerator Lane intersection;
2. The planned Gude Recreational Park, recommended in the URCMP, is also located in the northeast quadrant of the East Gude Drive/Incinerator Lane intersection;
3. Two tributaries to Rock Creek cross under East Gude Drive between the Gude Drive Landfill and Dover Road.
4. Six gas lines cross East Gude Drive near the Incinerator Lane intersection;
5. The project’s study area is located in the Upper Rock Creek (mainstem) watershed;
6. No forestation is required; and
7. The project meets the new stormwater management regulations;

STAFF ANALYSIS OF THE PREFERRED ALTERNATIVE

Alternative 3 EMPA would provide roadway continuity by widening East Gude Drive to a six-lane divided roadway from Crabbs Branch Way to Southlawn Lane. Operational and capacity improvements include:

Roadway:

1. Extending the third eastbound lane from east of Calhoun Drive to Dover Road;

2. Extending the third westbound lane from east of Calhoun Drive to 350 feet west of Southlawn Lane;
3. Adding a westbound through lane at Crabbs Branch Way;
4. Replacing the existing open-section median with a minimum 6-foot wide closed-section median.
5. Removing or mitigating the sight distance obstructions and fixed object hazards.
6. Providing additional roadway capacity to accommodate the projected ADT in 2025 on East Gude Drive: 59,900 vehicles per day (or 8,500 more than current conditions) between Rockville Pike and Southlawn Lane; and 67,400 vehicles per day (or 12,200 more than current conditions) between Southlawn Lane and Norbeck Road.
7. Reducing the intersection congestion levels as measured by the critical lane volumes (CLVs) in the design year 2030 as compared to existing conditions in 2009:

Signalized Intersection with East Gude Drive	Critical Lane Volume during the Weekday Peak-Hour					
	Existing 2009		Long-Term 2030 No-Build		Long-Term 2030 Alternative 3 EMPA	
	AM	PM	AM	PM	AM	PM
Crabbs Branch Way	1,776	1,346	2,064	1,835	1,677	1,693
Calhoun Drive	1,201	1,054	1,413	1,271	1,271	1,241
Dover Road	1,282	1,416	1,639	1,559	1,220	1,422
Southlawn Lane	1,408	1,336	1,684	1,578	1,578	1,481

Pedestrian & Bicycle:

8. Eliminating the existing sidewalk gaps by constructing a 6-foot wide sidewalk along westbound East Gude Drive, separated from the roadway by a 3-to-6-foot grass buffer;
9. Widening the existing eight-foot-wide shared use path along the eastbound side to ten feet, separated from the roadway by a 3-to-6-foot grass buffer;

Note that pedestrian safety has also been improved by the HAWK pedestrian traffic signal that was recently installed at Display Court/Incinerator Lane. This signal will provide benefits for users of the planned Gude Recreational Park as the trail connector in the park would run from the Rockville Millennium Trail at this intersection to Rock Creek Trail.

Environmental:

10. Using a steeper than normal 2:1 grading slopes to avoid potential building displacements and minimizing environmental impacts at the outermost side of the north sidewalk; and

11. Incorporating Environmental Site Design (ESD) practices along East Gude Drive to address requirements of the new MDE regulations that being developed, including open swales with 3:1 side slopes and an 8-foot wide bottom wherever possible.

Discussion of Recommended Improvements

Two areas where we believe this project could be improved are in the proximity of bus stops to ADA-accessible marked crosswalks and lighting of areas where pedestrians are expected to cross.

The Crabbs Branch Way/Cecil Street intersection is the largest intersection on East Gude Drive within the project limits. There are bus stops on either side of East Gude Drive on the east leg of the intersection but no marked crosswalk on this leg. The safest and most accessible route for transit patrons would include a marked crosswalk on this leg with a refuge in the proposed median. Accommodating this crossing would likely have some adverse impact on the traffic signal timing, but it is an important safety issue and one that speaks to the priority the County places on having a good transit system. If this crosswalk cannot be accommodated, signs should be placed prohibiting the crossing and the bus stops relocated to a location where a safe and easily accessible crossing can be provided.

Adequate lighting should be the goal on all of our major roadways, but it is most important where pedestrians are expected to cross the road. We recommend that this project include lighting that meets AASHTO standards at all intersections and marked mid-block crosswalks within the project limits.

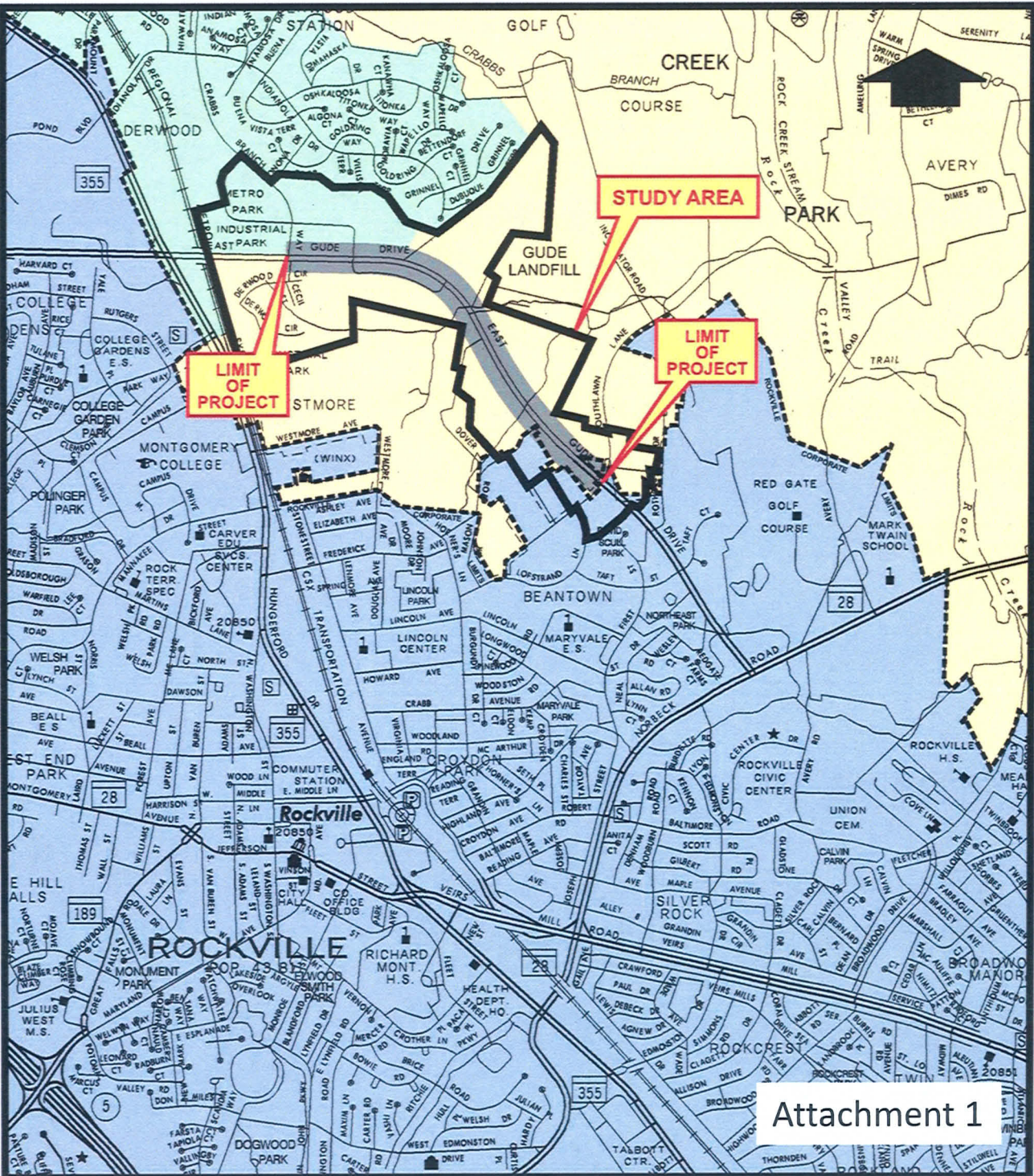
RELATED TRANSPORTATION PROJECT

As a separate project, the County is improving the eastbound left-turn lane on East Gude Drive at Southlawn Lane and improving the turning radii to accommodate the significant number trucks traveling to and from the industrial land uses along Southlawn Lane.

PUBLIC OUTREACH

The MCDOT study team held three public meeting during the Phase I Facility Planning process. At the first public meeting on December 7, 2009, MCDOT staff provided an overview of the project, presented the three alternatives, and listened to the attendees' comments and concerns. Two more public meetings were held on April 13, and April 15, 2010, to provide outreach to and receive feedback from the property owners directly fronting East Gude Drive. Citizens expressed concerns on illegal U-turns at Southlawn Lane, site distance, stormwater management, red light running, high vehicle speeds, and pedestrian/bicycle safety.

Attachments



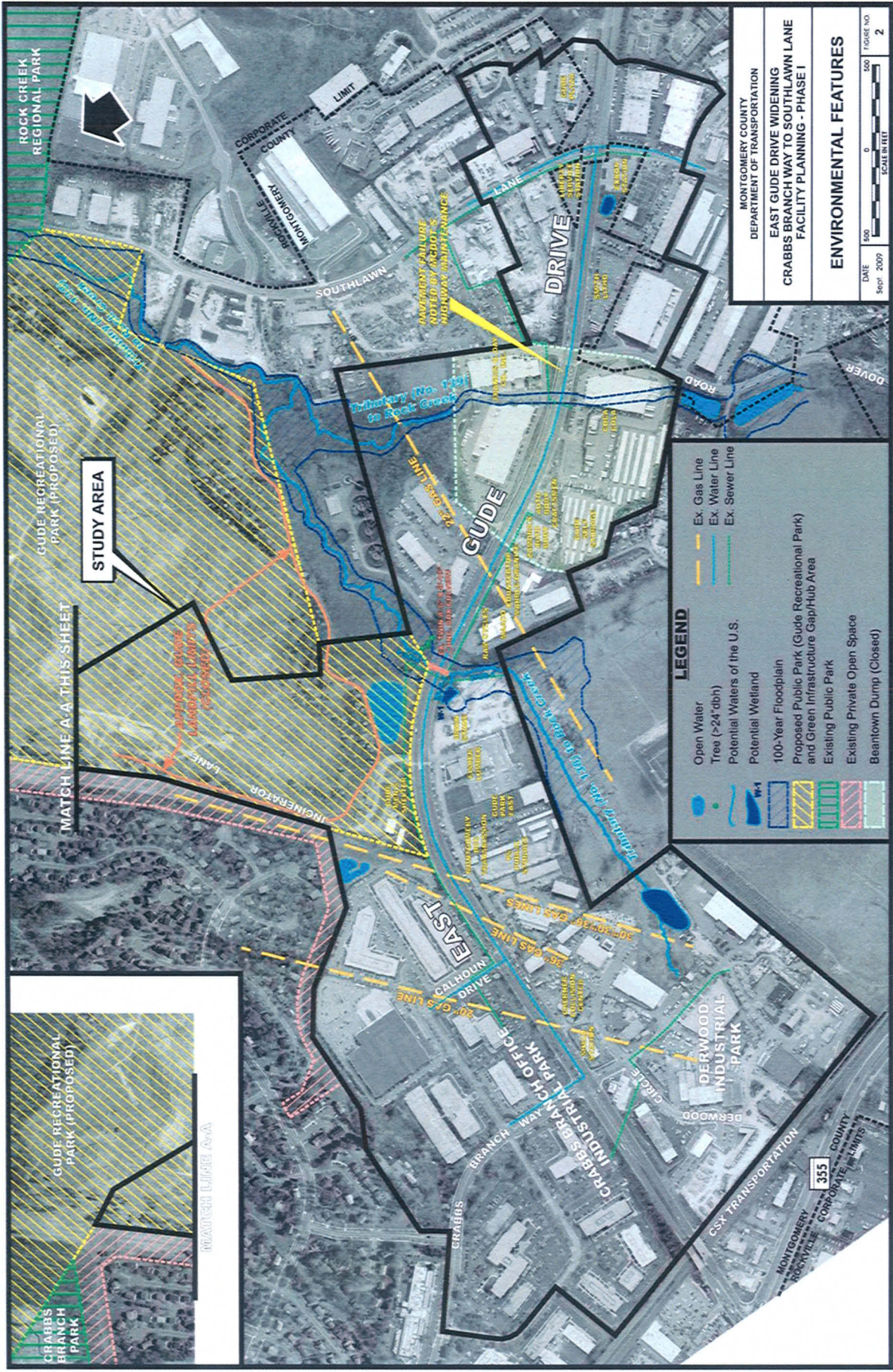
Attachment 1

AREA MASTER PLANS	
K	Shady Grove Sector Plan
E	Upper Rock Creek Area Master Plan
Y	Rockville Comprehensive Master Plan

MONTGOMERY COUNTY
DEPARTMENT OF TRANSPORTATION
EAST GUDE DRIVE ROADWAY IMPROVEMENTS
CRABBS BRANCH WAY TO SOUTHLAWN LANE
FACILITY PLANNING - PHASE I

LOCATION MAP

DATE	2000	0	2000	FIGURE NO.
March 2011	SCALE IN FEET			ES-1



MONTGOMERY COUNTY
 DEPARTMENT OF TRANSPORTATION
EAST GUIDE DRIVE WIDENING
CRABBS BRANCH WAY TO SOUTHLAWN LANE
FACILITY PLANNING - PHASE I

ENVIRONMENTAL FEATURES

DATE: 6/07, 2007
 SCALE IN FEET: 1" = 600'
 FIGURE NO: 2

- LEGEND**
- Open Water
 - Tree (>24" dbh)
 - Potential Waters of the U.S.
 - Potential Wetland
 - 100-Year Floodplain
 - Proposed Public Park (Gude Recreational Park) and Green Infrastructure Gap/Hub Area
 - Existing Public Park
 - Existing Private Open Space
 - Beantown Dump (Closed)
- Ex. Gas Line
 - Ex. Water Line
 - Ex. Sewer Line

Attachment 2

EnviroGraphics, Inc.

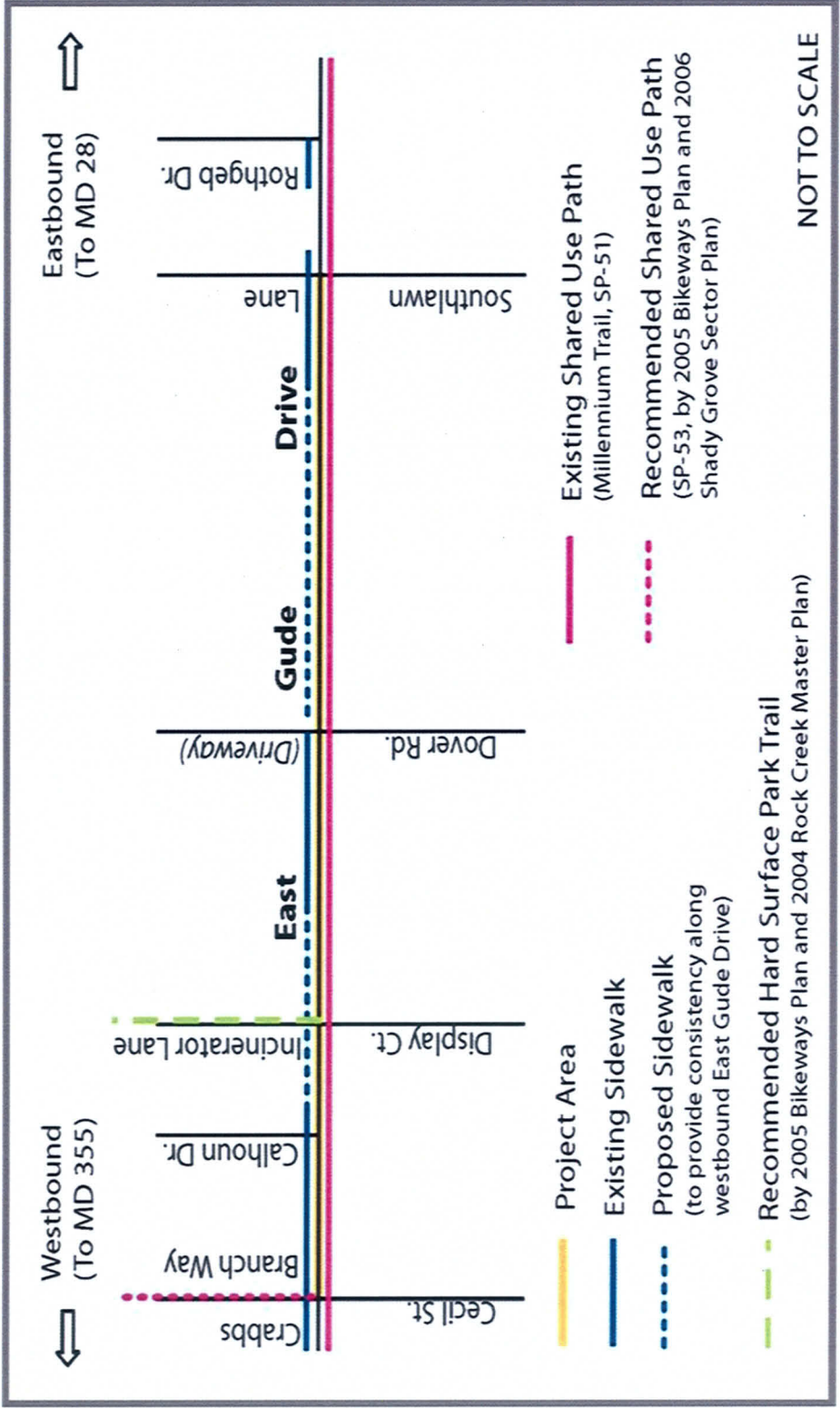


Figure 3. Existing and Master Plan Recommended Pedestrian and Bicycle Facilities along East Gude Drive

East Gude Drive Roadway Improvements, Facility Planning Study – Phase I
PROJECT PROSPECTUS / MARCH 2011

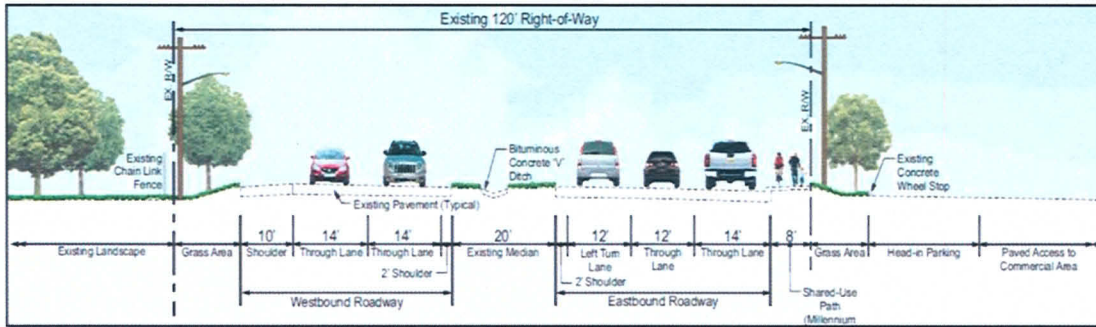


Figure 9a. Alternative 1: No-Build. Existing Conditions along East Gude Drive at Section A-A, approximately 1,000' east of Calhoun Drive.

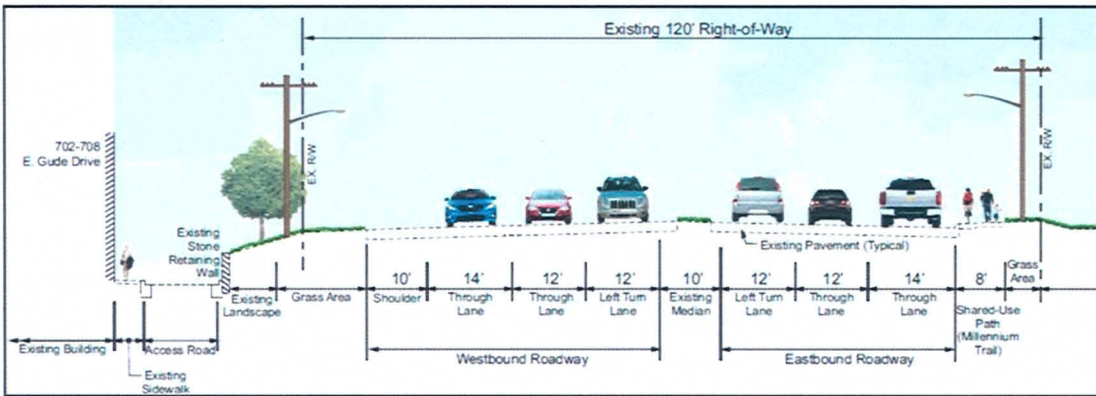


Figure 9b. Alternative 1: No-Build. Existing Conditions along East Gude Drive at Section B-B, approximately 2,000' east of Calhoun Drive.

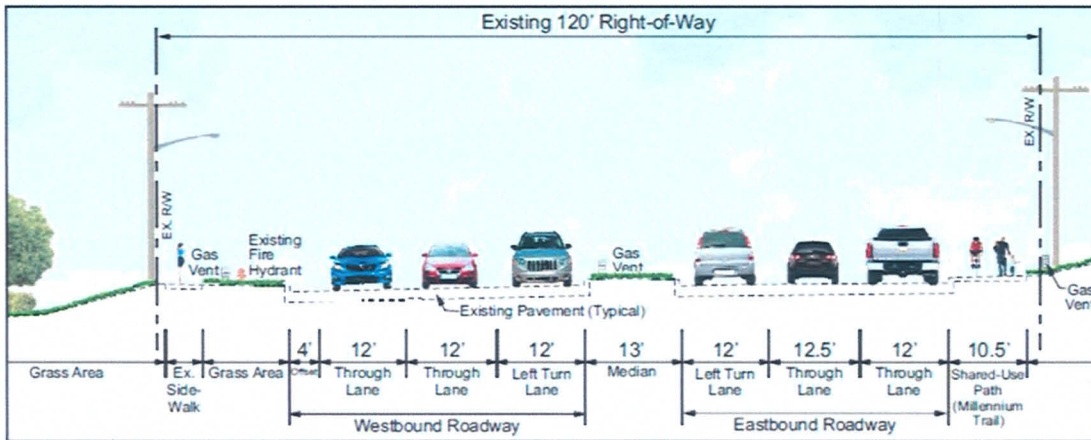


Figure 9c. Alternative 1: No-Build. Existing Conditions along East Gude Drive at Section C-C, approximately 250' west of Dover Road.

East Gude Drive Roadway Improvements, Facility Planning Study – Phase I
PROJECT PROSPECTUS / MARCH 2011

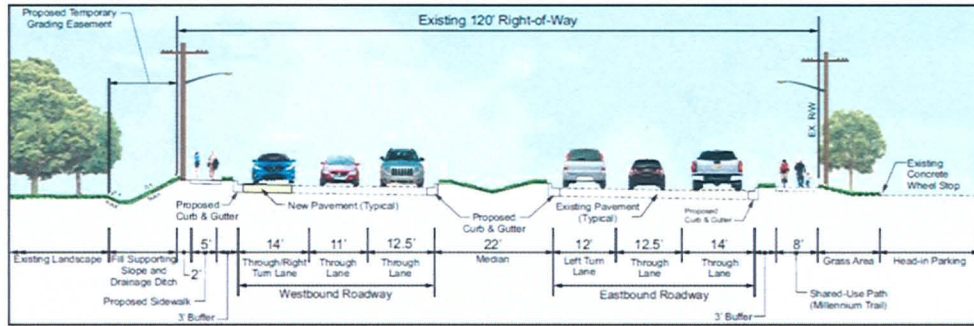


Figure 10a. Alternative 2: Master Plan. Proposed typical roadway along East Gude Drive at Section A-A, approximately 1000' east of Calhoun Drive.

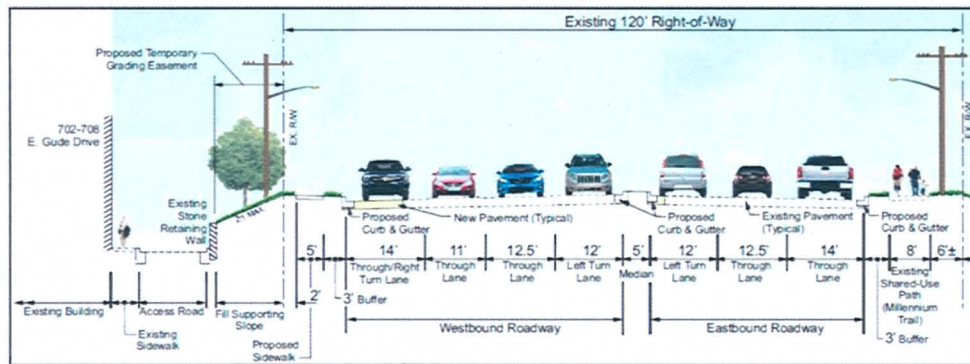


Figure 10b. Alternative 2: Master Plan. Proposed typical roadway along East Gude Drive at Section B-B, approximately 2000' east of Calhoun Drive.

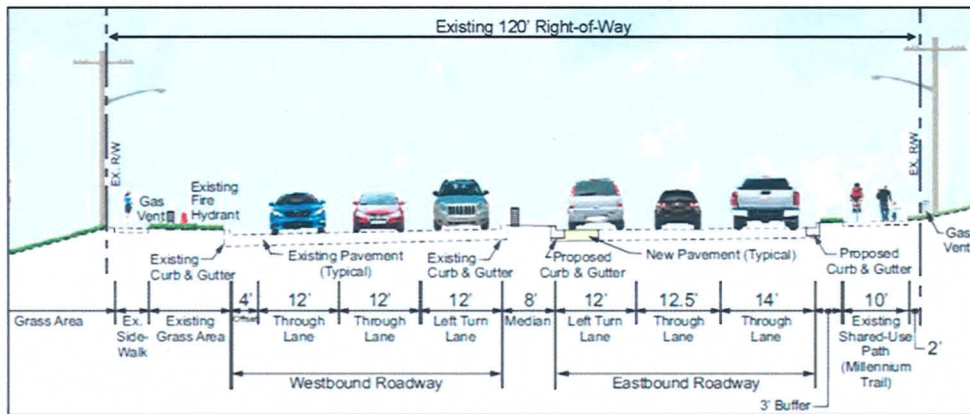


Figure 10c. Alternative 2: Master Plan. Proposed typical roadway along East Gude Drive at Section C-C, approximately 250' west of Dover Road.

East Guide Drive Roadway Improvements, Facility Planning Study – Phase I
PROJECT PROSPECTUS / MARCH 2011

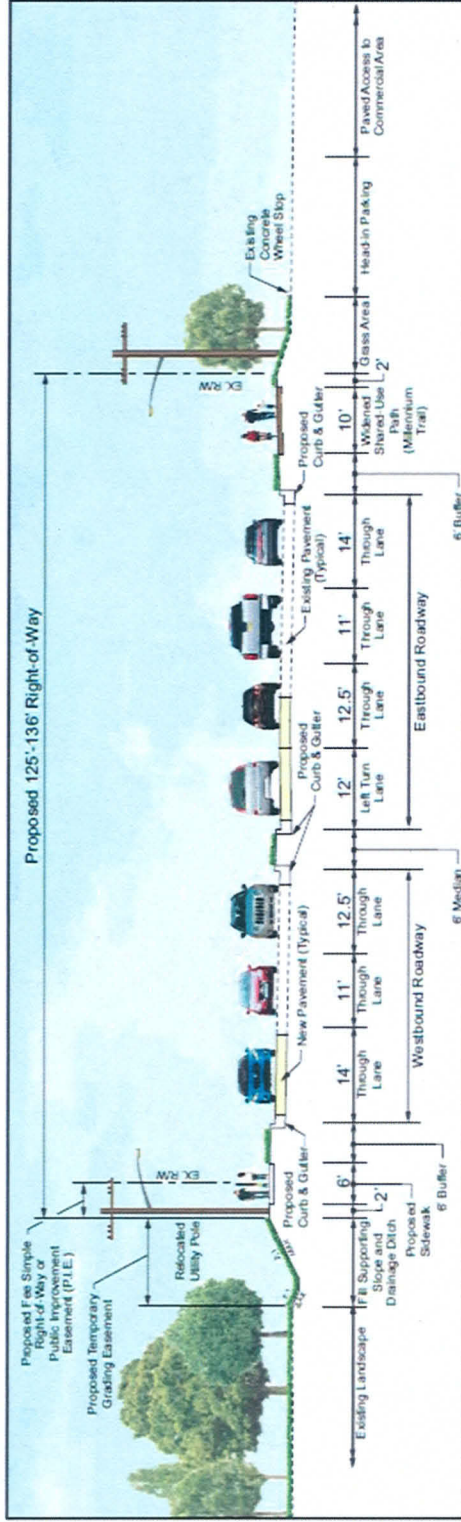


Figure ES-2a. Alternative 3: Enhanced Master Plan, Recommended Alternative. Proposed typical roadway along East Guide Drive at Section A-A, approximately 1,000' east of Calhoun Drive.

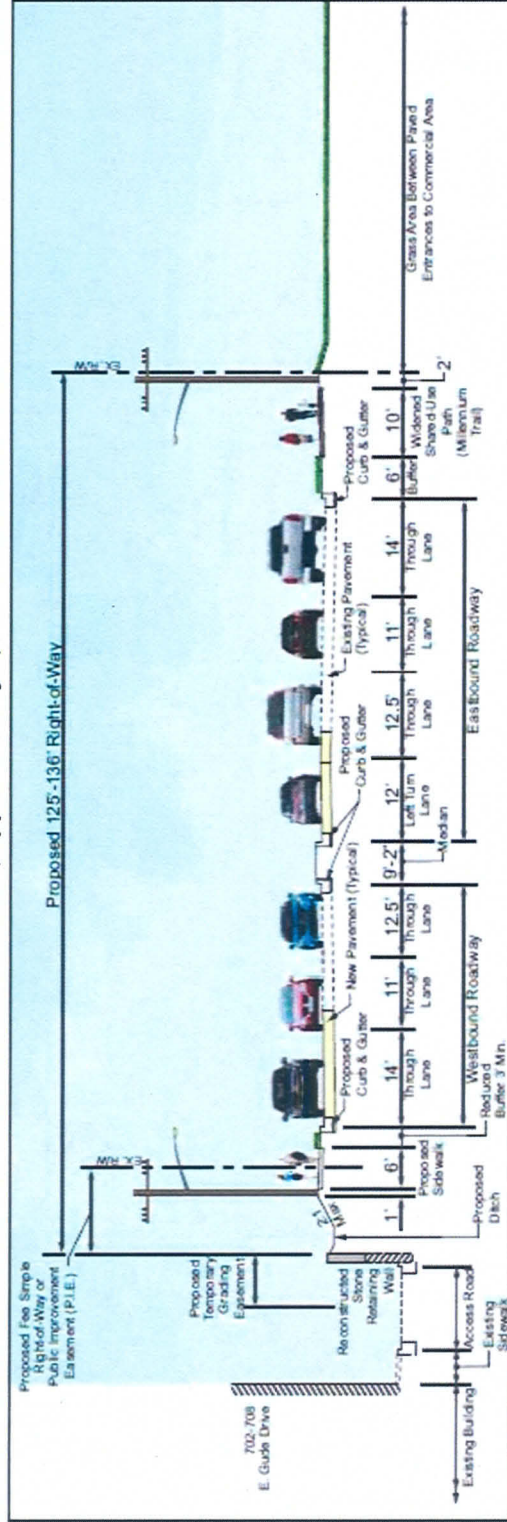


Figure ES-2b. Alternative 3: Enhanced Master Plan, Recommended Alternative. Proposed typical roadway along East Guide Drive at Section B-B, approximately 2000' east of Calhoun Drive.

East Gude Drive Roadway Improvements, Facility Planning Study – Phase I
PROJECT PROSPECTUS / MARCH 2011

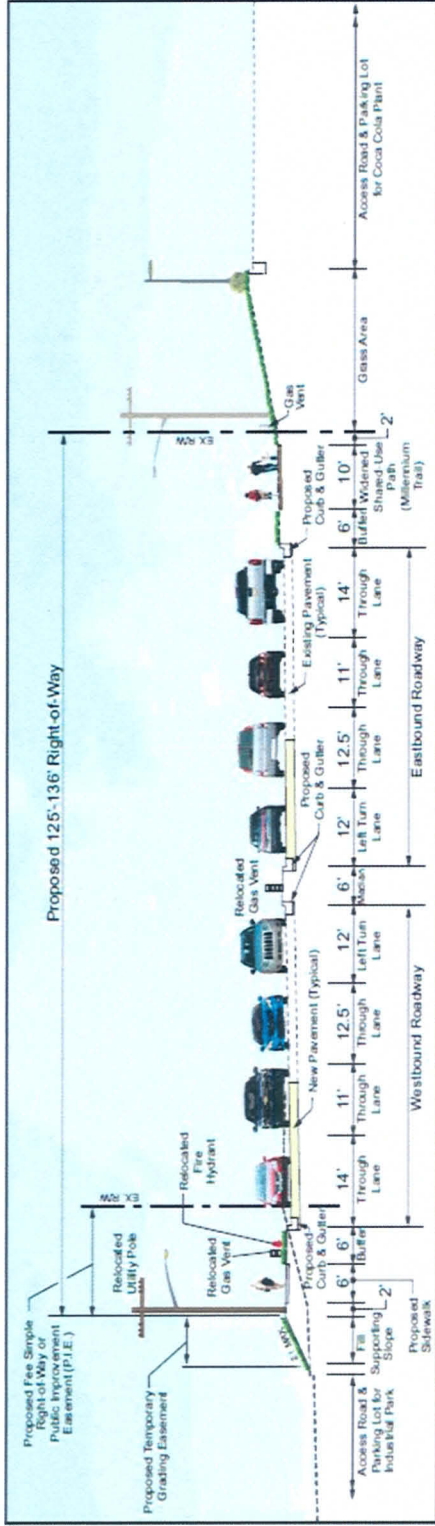


Figure ES-2c. Alternative 3: Enhanced Master Plan, Recommended Alternative. Proposed typical roadway along East Gude Drive at Section C-C, approximately 250' west of Dover Road.

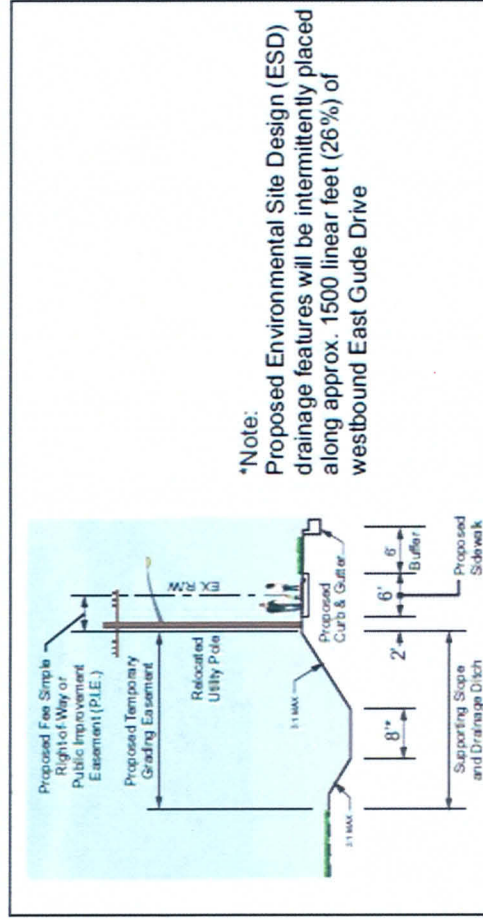


Figure ES-2d. Environmental Site Design (ESD) Typical Ditch Section.

address inconsistent recommendations affecting adjacent plans

Adjacent plans often have adoption dates that differ by several years, during which time facility or project planning activities have evolved. What is adopted in the later plan may therefore not be reflected in the earlier adjacent plan.

Examples include:

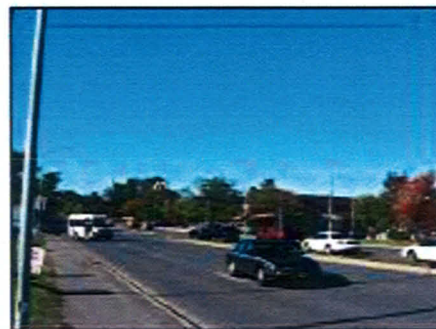
- The planned number of lanes on East Gude Drive in the 2004 Upper Rock Creek Master Plan appears to be inconsistent with the 2006 Shady Grove Sector Plan and with the existing condition in the City of Rockville.
- Alderton Road is classified as a Primary Residential Road in the 1994 Aspen Hill Master Plan but was not classified in the 1989 Kensington-Wheaton Plan.
- The Georgia Avenue Busway concept was developed in the late 1990s and is not reflected in the 1989 Kensington-Wheaton Plan.
- Randolph Road is classified as an Arterial west of Rock Creek Park, but as a Major Highway east of the Park.



East Gude Drive - City of Rockville



East Gude Drive -
Upper Rock Creek Master Plan Area



East Gude Drive - Shady Grove Sector Plan

incorporate relevant findings from the county wide BRT study

MCDOT is conducting a year-long study of Bus Rapid Transit (BRT) network options, expected to result in recommendations for additional master planned transitways. Results from that study will be incorporated into this Plan; the schedule of this Plan may need to be revisited depending on the BRT study outcome and schedule.