I. Introduction

The Maryland State Highway Administration (SHA) and Montgomery County are conducting a study of potential improvements along Georgia Avenue (MD 97) in Montgomery Hills. The project area encompasses 0.7 mile of MD 97 from Forest Glen Road (MD 192) to 16th Street (MD 390), including an interchange with the Capital Beltway (I-495) (Attachment 1). MD 97 is a major north-south artery that serves commuters, heavy trucks, and local traffic. The study section of MD 97 generally consists of seven lanes: three northbound lanes, three southbound lanes, and a center reversible lane. During off-peak periods this center lane acts as a two-way left-turn lane. The I-495 interchange introduces short acceleration and deceleration lanes. The posted speed limit for this section is 35 miles per hour. The majority of drivers on the corridor are traveling to and from downtown Silver Spring and Washington, D.C., both of which are located south of the project limits. Within the study limits, MD 97 is lined with commercial and office settings and includes medium-density residential neighborhoods, such as Montgomery Hills, and several institutions (Attachment 2). Numerous access points to the businesses and secondary streets cause conflicting turning movements from the MD 97 center lane during off-peak periods.

The study is currently in the Project Planning phase. This document describes the existing conditions along the MD 97 corridor in Montgomery Hills and defines the purpose and need for the proposed project.

II. Project History

The MD 97 Montgomery Hills Project Planning Study is the result of recommendations documented in Maryland-National Capital Park and Planning Commission's (M-NCPPC) *North and West Silver Spring Master Plan,* which was adopted in 2000. The Montgomery Hills Proposed Concept, included in the Master Plan, envisions the future appearance of the corridor as "a landscaped urban boulevard with a center median and wide, unobstructed, tree-lined sidewalks." It also recommends the transformation of the MD 97 corridor into a "pedestrian-friendly urban boulevard with improved local circulation that supports both residents and merchants."

The MD 97 (Montgomery Hills) Project Planning Study, a joint project between SHA and Montgomery County, began in July 2011. Project activities to date include efforts to determine the scope of the proposed project, initial data collection and analysis, and the initiation of the purpose and need process.

III. Purpose

The purpose of the MD 97 Montgomery Hills Project is to establish a balanced approach to transportation within the MD 97 corridor that addresses existing vehicular, pedestrian, and bicycle mobility and safety concerns, while accommodating proposed transit enhancements and establishing a sense of place within the corridor. The mix of local and regional (commuter) traffic, along with current roadway and sidewalk conditions in the study area, create an automobile-dominated environment that is not always conducive to other modes of transportation. As a result, access to local businesses, pedestrian accessibility, bicycle connectivity, and transit utilization have all become major challenges within the project area.

IV. Need for the Project

A. Vehicular Mobility and Traffic

The current typical section along MD 97 between I-495 and MD 390 consists of three 11-foot travel lanes in each direction, an 11-foot center reversible lane, and adjacent sidewalks of varying widths. The reversible lane provides a fourth travel lane southbound in the morning and northbound in the evening during peak periods to accommodate commuters. Although the reversible lane provides additional traffic capacity in the peak direction, it also hinders local mobility and business access by restricting left turns during peak periods. During off-peak hours, the center lane operates as a two-way left-turn lane to accommodate vehicles accessing businesses and neighborhoods. Five intersections along MD 97 within the project area are signalized (from north to south): MD 192, I-495 interchange, Seminary Place, Columbia Boulevard, and northbound MD 390. Along portions of MD 97 north and south of the project area, a center median separates the directional travel lanes.

MD 97 carries more vehicular traffic than any other non-interstate road in Montgomery County due to the project area's close proximity to the I-495/MD 97 interchange, which is one of the busiest interchanges in the state. Heavy traffic generated by the I-495 interchange, coupled with limited merge areas, reduces mobility in the corridor and impedes both local and regional traffic. Vehicular volumes along the corridor and the operating capacity at major intersections are summarized below in tables 1 and 2.

Table 1 shows 2011 existing and 2040 projected No-build Annual Average Daily Traffic (AADT) volumes for MD 97 within the study limits.

Table 1: Annual Average Daily Traffic

MD 97 Segment	2011 Existing	2040 No-Build
North of MD 192	65,000	75,000
MD 192 to I-495	73,000	84,000
I-495 to Seminary Place	81,000	93,000
Seminary Place to Columbia Boulevard	71,000	82,000
Columbia Boulevard to SB MD 390	66,000	76,000
SB MD 390 to NB MD 390	51,000	59,000
South of MD 390	35,000	41,000

Planners often use a simple grading system, referred to as Level of Service (LOS), to characterize the operations at intersections. LOS A means there is no delay or congestion, while LOS F means the intersection is failing and motorists experience long delays and high levels of congestion.

Table 2 shows the existing (2011) and projected (2040) No-build Level of Service at the major intersections within the study area. Several intersections are currently experiencing failing conditions or will fail in 2040 under the no-build condition.

Table 2: *LOS & Avg. Delay*	2011 Existing				2040 No Build			
	AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour	
	LOS	Avg. Delay (sec)	LOS	Avg. Delay (sec)	LOS	Avg. Delay (sec)	LOS	Avg. Delay (sec)
MD 192	F	87	E	64	F	113	F	107
I-495 WB Ramps	B	13	C	28	B	18	D	36
I-495 EB Ramps	E	66	C	24	F	112	C	28
Seminary Place	E	61	B	15	E	77	C	29
Seminary Road / Columbia Blvd.	D	38	C	34	E	58	D	49
MD 390 NB	C	24	C	28	C	26	C	32

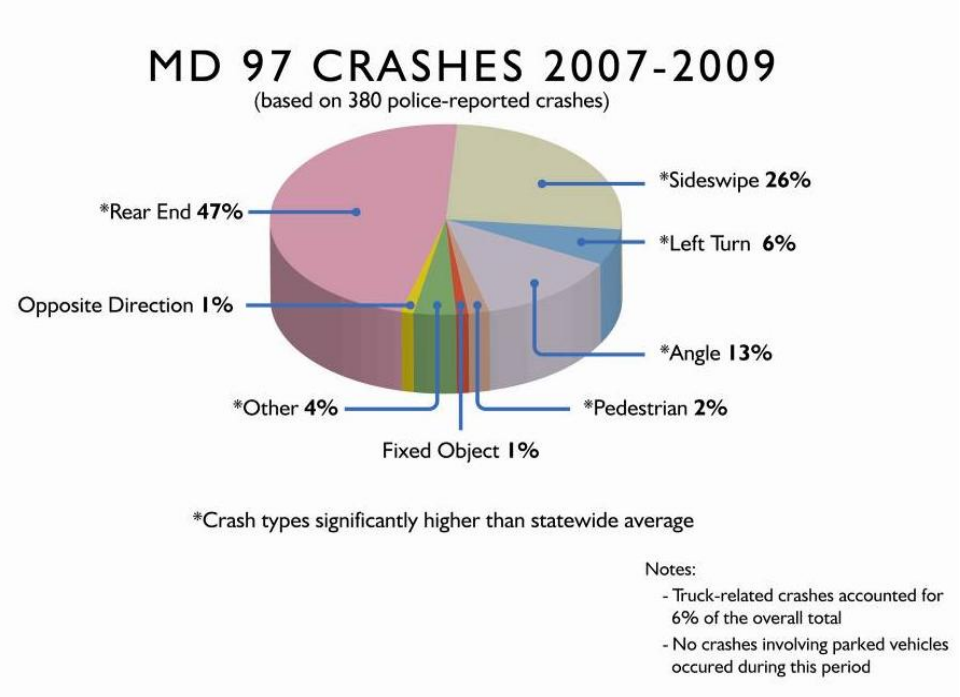
The LOS for each intersection is averaged over all approaches. Therefore, signalized intersections are generally timed to keep traffic moving along MD 97, the side street approaches typically operate at a lower LOS than the overall intersection.

Vehicular mobility in the area is hindered by a series of factors, including traffic volumes, the reversible center lane, numerous commercial access points, and turning restrictions. The most significant contributing factor along the corridor is the heavy volume of traffic, with over 80,000 vehicles traversing the roadway on a daily basis and over 90,000 forecasted through the year 2040. These high volumes impede access to commercial businesses and residential neighborhoods along the corridor and have economic and quality-of-life implications. As traffic volumes increase and intersection LOS deteriorates, these traffic-volume issues will worsen.

B. Safety

Data indicates that 380 police-reported crashes occurred during the three-year period from 2007 through 2009. Approximately 150 of those crashes (40 percent) resulted in injuries, but there were no documented fatalities. Rear-end, sideswipe, left-turn, angle, pedestrian, and truck-related crashes each occurred at a rate significantly higher than the statewide average for those types of crashes on similar roadways. **Figure 1** illustrates the distribution of crashes.

Heavy traffic volumes have the greatest impact on safety along the study corridor, as reflected in the high occurrence of sideswipe and rear-end collisions. Heavy traffic volumes decrease the following distance between vehicles, lessening driver reaction time and resulting in rear-end collisions, which account for almost half of all collisions along the corridor.



The safety of pedestrians, bicyclists, and motorists along the Montgomery Hills corridor is also adversely impacted by a large number of commercial access points and limited access consolidation in both directions. Almost half of all reported crashes resulted from angle and rear end collisions, which are commonly related to turning-movement conflicts and highly congested roadways. More than 25 percent of the crashes involved vehicle sideswipes, which are typically associated with a high volume of merging vehicles and lane changes.

During off-peak periods, the two-way center left-turn lane encourages unmanaged circulation patterns and increases safety concerns, as evidenced by the high proportion of sideswipe, left-turn, and angle crashes which account for just under half of all crashes along the corridor. These types of crashes typically reflect unsafe lane-change and turning-movement conditions. Because the center turn lane allows uncontrolled turning movements, motorists are unable to accurately anticipate when they may have to contend with turning vehicles. Motorists using the two-way center travel lane must make assumptions about the intentions of drivers of oncoming vehicles and determine whether those drivers are turning or continuing on their current paths.

C. Pedestrian and Bicycle Access

Due to the high volume of traffic along MD 97 and the roadway's proximity to a heavily traveled section of I-495, the roadway elements within Montgomery Hills have often supported motorized vehicular movements and capacity, sometimes to the detriment of pedestrian and bicycle mobility throughout the corridor. For approximately the last decade, a growing need for improved pedestrian and bicycle connectivity within the study area has resulted in part from (1) the extensive residential network of communities east and west of MD 97, (2) the presence of the Forest Glen Metro station, and (3) the number of key commercial destinations within the corridor. **Table 3** represents a pedestrian intersection study conducted in 2011 between the hours of 6:00 AM and 5:00 PM.

Table 3: Pedestrian Counts

Montgomery Hills Intersection Pedestrian Counts (2011)		
Pedestrian Counts along MD 97 @	MD 192	1263
	I-495 WB Ramps	89
	I-495 EB Ramps	6
	Seminary Place	418
	Seminary Road / Columbia Blvd.	548
	MD 390 NB	23

Sidewalks along this corridor are generally non-compliant with Americans with Disabilities Act (ADA) standards. Signs and utility poles on sidewalks in both directions along MD 97 present numerous obstacles and pinch points for wheelchair accessibility. Most of the ADA ramps do not meet current state or federal standards, and the pedestrian crossing phases at some signalized intersections are short. These limited crossing times, combined with an existing roadway configuration and few refuge areas, has made crossing MD 97 very difficult for pedestrians.

Sidewalks are typically located directly behind the curb, with little or no buffer separating the sidewalk from travel lanes. This situation requires pedestrians and bicyclists to travel directly adjacent to vehicular traffic, which presents safety concerns and may unnerve users.

The Forest Glen Metro Station at the northern project limit generates pedestrian traffic throughout the corridor. To accommodate this traffic, Montgomery County constructed a pedestrian overpass (over I-495) parallel to MD 97 along the west side of the roadway. No similar accommodations for pedestrians exist on the east side of the roadway, which has a greater number of interchange ramps for pedestrians to contend with and which ultimately leads to a higher number of potential conflicts and safety concerns.

Approximately half of the study area (0.35 mile of the 0.7 mile study area) lacks delineated crossing areas for pedestrians along MD 97, even though several side streets and businesses exist within the study area. Pedestrians traveling northbound on the east side of MD 97 are left with two unenviable choices: backtrack to a safe crossing in the opposite direction, or cross the numerous I-495 interchange ramps that provide inadequate sight distance for vehicles and pedestrians.

Another concern exists on the west side of MD 97, when pedestrians travel southbound to cross MD 390. The crosswalk extends over two lanes of traffic: the right lane (a dedicated right-turn lane), and the middle lane (a right/through lane). When crossing MD 390 at this location, pedestrians have their backs to oncoming traffic and must rely on motorists in the middle lane to signal if they are turning right onto MD 390.

The lack of dedicated bicycle lanes and road-sharing signage or markings has made it difficult for bicyclists to travel through the area. Safety concerns resulting from heavy traffic volumes and the lack of shoulders generally cause bicyclists to avoid the area.

The overall effect on persons walking or biking through the project study area is disorienting and unsettling. Individuals are forced to check constantly for approaching traffic, drivers exiting the access points, and drivers turning from the uncontrolled center turn lane during off-peak periods. This situation, coupled with other deterring factors (such as the lack of a buffer between the travel lanes and the sidewalk), negatively impacts the perception of Montgomery Hills as a walkable, bicycle-friendly community.

D. Transit Accessibility

Transit services on or directly adjacent to MD 97 include the Metro Ride On bus lines, and Washington Metropolitan Area Transit Authority (WMATA) Metrobus lines. The Forest Glen Metro Station at the northern project limit provides local and regional access to Maryland, Virginia, and Washington, D.C. The WMATA bus system primarily provides local access but also provides connections to outlying regions. The Ride On bus system provides local access including routes directly serving neighborhoods.

Transit accessibility within the study corridor is impeded by the high levels of traffic congestion along MD 97 and the lack of adequate pedestrian/bicyclist connectivity throughout the study area. The absence of dedicated bus lanes, queue-jump opportunities, and transit signal prioritization forces buses to operate in mixed traffic, subjects them to the same hindrances encountered by other modes of travel, and results in uncertain transit reliability and headways within the corridor. These conditions negatively affect the timeliness of bus service and may deter some persons from using transit.

Problems with transit accessibility along the corridor have been further exacerbated by certain pedestrian and bicycle access concerns highlighted in Section D. Individuals unable to access a transit connection safely and easily are likely to avoid the connection, use a more accessible location, or drive. For example, there is a pedestrian overpass along the west side of MD 97, which provides good access to the Forest Glen Metro Station. However, the lack of direct ADA access to the transit station, peak-period restrictions on left turns from MD 97 onto Forest Glen Road, and abbreviated signal times for pedestrians crossing MD 97, makes commuter access to the station difficult, especially during peak periods.

E. Establishing a Sense of Place

The project seeks to maintain the character of the community and establish of sense of place along the project corridor. Existing conditions create a disorienting environment for motorists, especially for those exiting and entering I-495. In particular, the reversible center turn lane is a source of apprehension for motorists unfamiliar with the corridor due to cluttered signage and unclear lane markings. Furthermore, deteriorating and insufficient pedestrian and bicycle facilities need to be improved to support the overall enhancement of the corridor envisioned in the *North and West Silver Spring Master Plan*. The use of aesthetic enhancements and upgraded facilities to establish a transportation system that is homogeneous in its appearance throughout the corridor will help to define the character of the community and distinguish it from the

neighboring communities. As a secondary goal, clearly delineated and consolidated access points to businesses, along with the promotion of aesthetics, would also be a key component in increasing the attractiveness of businesses and the corridor as a whole. All of these elements evaluated in consort will not only help to beautify the corridor, but will provide the infrastructure needed to help foster business revitalization, neighborhood cohesion and multimodal connectivity throughout Montgomery Hills.

F. Roadway Deficiencies

The MD 97 Montgomery Hills Corridor plays a major role in Montgomery County's overall transportation network and has for decades been viewed as a vital north-south link and a key connection to the Capital Beltway. As a result, the Montgomery Hills portion of MD 97 carries extremely high volumes of passenger vehicles and trucks, which has resulted in a significant amount of wear and tear on the existing infrastructure. Pavement fatigue is common along the study area corridor with hair line surface cracks, pot holes and larger roadway pavement cracks which are often indicative of a compromised sub grade material. Intersection crosswalk markings are faded in many areas and multiple resurfacing projects have resulted in a reduction in curb reveals at various locations.

MD 97 maintains a fairly consistent 11 foot lane roadway width, but some of MD 97's adjoining side streets have lanes as small as 9 feet in some locations. Deteriorating pavement, faded roadway markings and small lane widths coupled with the high volume of vehicles traveling throughout the study area could potentially result in higher safety concerns and property damage if not properly addressed.

V. Public Outreach

An Informational Public Workshop was held on March 13, 2012 at Woodlin Elementary School where comments were received from citizens on the Purpose and Need for the project. Display boards were used to highlight project purpose, history and timeline, safety and crash data, maps, project needs, and related studies. There were interactive stations for people to write on maps and identify project needs/areas of concern. Comment cards were also provided. More than 90 people attended the meeting.

A majority of the attendees supported some type of improvement along the corridor and seemed encouraged that things were moving forward. The two top concerns identified during the interactive exercises were safety and pedestrian access, but establishing a sense of place received a significant number of votes as well.

VI. Environmental Summary

Land use within the project's defined study area is characterized by dense commercial and institutional settings along MD 97, with medium-density residential use (single-family homes and townhouses) located directly behind the commercial areas. The project area is predominantly urban, comprising community and business-related resources that account for a majority of the environment. Future land use within the study area is expected to remain very similar to the existing land use; with commercial land uses immediately adjacent to MD 97 and predominantly residential land uses in behind the commercial areas.

The local master plan for the study area is the *North and West Silver Spring Master Plan*, which was adopted by the Maryland-National Capital Park and Planning Commission (M-NCPPC) in 2000. The Montgomery Hills Proposed Concept, which is included in the plan, envisions the future appearance of the corridor as "a landscaped urban boulevard with a center median and wide, unobstructed, tree-lined sidewalks." It also recommends the transformation of the MD 97 corridor into a "pedestrian-friendly urban boulevard with improved local circulation that supports both residents and merchants."

The MD 97 Montgomery Hills study area is located entirely within a designated Priority Funding Area (PFA). Therefore, the project is consistent with Maryland's Smart Growth Legislation.

Numerous businesses are located immediately along MD 97 between Locust Grove Road and MD 390 (16th Street). These businesses include free-standing retail stores and several strip shopping centers. Major businesses in the area include Staples, CVS, Sniders Superfoods Market, several gas stations, and the Montgomery Hills Car Wash. A number of businesses, including the gas stations and carwash, are situated immediately adjacent to MD 97. Most of the businesses within the strip shopping centers, with the exception of those within the Montgomery Hills Shopping Center, are set back from the roadway.

Residential neighborhoods within the study area vary in size and housing types, with most composed of moderate-sized single-family homes. Although most of these neighborhoods are located behind the commercial and institutional development immediately along MD 97, one notable exception is a small community of single-family homes and townhomes located west of MD 97, just south of I-495. The townhomes located in the eastern portion of this neighborhood are situated adjacent to MD 97, with no commercial/institutional buffer between them and MD 97. One apartment complex is located in the northwest quadrant of the MD 97/MD 192 intersection at the northern end of the study area.

A preliminary review of census data reveals that there is the potential for minority and low-income populations to exist within the study area for the project. Further outreach and additional research of the demographic and economic characteristics of the study area will be completed as the study progresses and will determine if minority and/or low-income populations are present and how they may be affected by the project.

A number of community facilities are also located within the study area, including three large churches: Montgomery Hills Baptist Church, Calvary Evangelical Lutheran Church (which also hosts the Christ Lutheran Church of the Deaf), and Grace Episcopal Church. Montgomery Hills Baptist Church, Calvary Evangelical Lutheran Church, and Christ Lutheran Church of the Deaf are located in the northeastern portion of the study area. Grace Episcopal Church is located in the southeastern portion. Montgomery Hills Park is a small neighborhood park located along Seminary Road and Seminary Place several hundred feet west of MD 97. A water tower is located just east of Montgomery Hills Park along Seminary Place and a county-owned public parking lot is located on the east side of MD 97 just north of Columbia Boulevard. Silver Spring Volunteer Fire Department Station 19 is located just west of MD 97 at 1945 Seminary Road.

The Forest Glen Metro Station, a community/transit facility, is located in the southwestern quadrant of the MD 97/MD 192 intersection. The Park-and-Ride lot for the Metro station is located just west of the station on the north side of MD 192. An existing pedestrian tunnel connects the park-and-ride to the station.

A preliminary review of the project area was conducted to assess its potential to contain archeological resources. The project area is located in a highly developed urban region and has been impacted by road construction and development. This area was included in two previous archeological investigations; however, no archeological sites were recorded. The soils in the survey area, which are identified as urban land and urban land complexes, are unlikely to contain archeological remains. This preliminary review concluded that the survey area has very low potential for the occurrence of archeological sites.

A preliminary investigation was also conducted to determine if the project area contains standing structures or districts that are listed, eligible, or potentially eligible for inclusion in the National Register of Historic Places (NRHP). There are no properties in the study area that are currently listed in the NRHP. Seven previously identified standing structures or districts were noted within the study area. These include the following: Woodside Historic District (M:36-04); Woodside Park (M:36-18); Montgomery Hills Shopping Center (M:36-23); Louis C. and Charlotte E. Dismer Property (M:36-36); Calvary Evangelical Lutheran Church (M:36-37); Forest Grove Neighborhood (M:36-38); and Woodside Knolls/Carroll Springs (M:36-40). Of these, only the Woodside Historic District has previously been determined eligible for listing in the NRHP. Woodside Knolls/Carroll Springs has previously been determined not eligible for the NRHP and the remaining five properties require a Determination of Eligibility. In addition to the previously identified standing structures and districts, other previously unidentified commercial buildings were noted within the study area and will require additional evaluation.

Coordination with U.S. Fish and Wildlife Service (USFWS) and the Maryland Department of Natural Resources Wildlife and Heritage Service (DNR WHS) has been undertaken to identify any rare, threatened, or endangered species within the study area. The USFWS and DNR WHS indicated that no federal or state rare, threatened or endangered species are known to exist within the project area.

A preliminary investigation revealed that there are no streams, wetlands, or forests within the study area for this project. In addition, the study area is located entirely outside of any 100-year floodplains. There are no green infrastructure hubs or corridors located within the project area. The nearest green infrastructure corridor, Sligo Creek Park, is located approximately 0.5 mile to the east.

Due to anticipated increases in traffic volumes within the project area, increased traffic noise and increased discharge of carbon monoxide (CO) into the air are anticipated. Detailed traffic noise and air quality analyses will be completed once the project alternatives are developed.

There are four gas stations and three dry cleaners located within the study area. These facilities will be studied for potentially generating, handling, and/or storing hazardous materials.

VII. Related Studies

Montgomery County Bus Rapid Transit (BRT) Study

In July 2011, Montgomery County DOT released its Countywide Bus Rapid Transit Feasibility Study, which outlines a 150-mile BRT network of 16 routes throughout the county. Recommended improvements for various segments include dedicated bus lanes, traffic signal prioritization, bus queue jumps, and premium upgraded bus stations.

Although the initial feasibility study does not propose a dedicated bus lane along MD 97 through the Montgomery Hills Study limits, it recommends such amenities north and south of the corridor. For this project, the feasibility study recommends upgraded BRT stations at MD 192, Columbia Boulevard, and MD 390 and proposes transit signal prioritization at applicable intersections.

For a copy of the report go to:
http://www.montgomerycountymd.gov/content/dot/ mcbrtstudyfinalreport110728.pdf

Forest Glen Passageway Feasibility Study

To improve pedestrian access to the Forest Glen Metro Station, Montgomery County DOT is currently evaluating a number of options to address safety concerns, especially concerns related to crossing MD 97 at grade and overall ADA accessibility. Alternatives under consideration include pedestrian/bicyclist bridge alternatives across MD 97 at MD 192, and pedestrian/bicyclist tunnel alternatives under the MD 97 at MD 192 intersection. The county anticipates holding a workshop to present the alternatives to the public in Winter/Spring 2012.

Montgomery County's Seminary Road Project

Montgomery County DOT is conducting a separate project on Seminary Road at Seminary Place/Second Avenue, just west of MD 97. The project involves reducing the number of intersections from six to four and making a number of roadway improvements, including lane reductions, signage modifications, and additional bicycle and parking accommodations. The project is currently on hold pending funding decisions.

Georgia Avenue Study

The Montgomery County Planning Department completed the Georgia Avenue Study in 2008. This study is an urban design analysis of the Georgia Avenue Corridor throughout Montgomery County and contains a design vision for the corridor that is intended to guide future master and sector plans as well as infrastructure improvements. The recommendations within the Georgia Avenue Study will be considered when developing alternatives to address the needs identified for the MD 97 Montgomery Hills Project Planning Study.