

Defense Access Roads Needs Report

Fort George G. Meade (FGGM)

Anne Arundel County, MD

July 8, 2009

Prepared by the Maryland State Highway Administration

Purpose of the Report

This Access Needs Report is intended to support a request for funding under the Defense Access Road (DAR) program. The funding would be used for improvements at three intersections directly outside FGGM gate access points along MD 175 (Annapolis Road). (*See Figure 1*)

Specifically, those intersections are (in order of priority):

- MD 175 at Rockenbach Road / Ridge Road (MD 713)
- MD 175 at Mapes Road / Charter Oaks Boulevard
- MD 175 at Reece Road

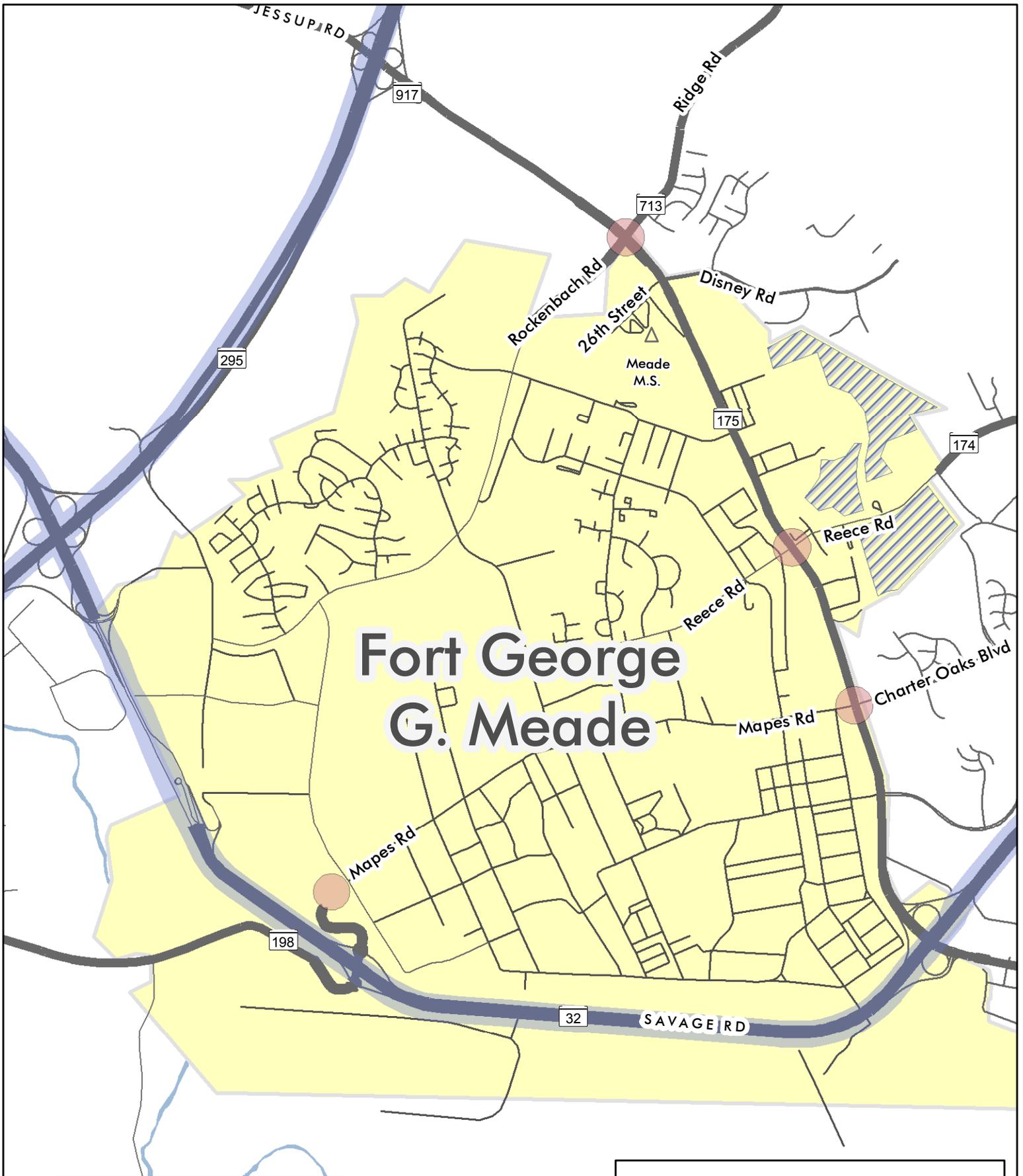
Overview

As a result of the 2005 Base Realignment and Closure action, the area in and around FGGM is expected to experience considerable growth in employment. An additional 7,500 on-base BRAC-related jobs and 10,000 Enhanced Use Lease (EUL)-related jobs are expected by 2011. In addition, the National Security Agency (NSA), whose campus is contiguous to the FGGM post, is expected to add approximately 4,000 jobs in that time-frame.

The BRAC and EUL related growth is expected to have a significant impact on the roadway system providing access to the Fort in terms of congestion and safety. The Maryland State Highway Administration (SHA) has been aggressively pursuing efforts to identify both short-term and long-term roadway improvements needed to handle the influx in traffic. However, in large part due to the economic downturn, much of the funding needed to implement these improvements is not available. Without improvements, the intersections located directly outside the primary, active gates to FGGM will experience severe congestion.

Access to FGGM

FGGM is located in Anne Arundel County MD, approximately mid-way between Washington D.C. and Baltimore (*see Figure 2*). The post is roughly bound by a triangle formed by MD 295 (an access controlled freeway) to the west, MD 32 to the south and east (an access controlled freeway), and MD 175 to the north and east. Primary access to FGGM is gained via three gates off of MD 175, at Rockenbach Road, Mapes Road and Reece Road. A fourth gate is accessed via MD 198 near its interchange with MD 32. (*See Figure 1*)



Fort George G. Meade

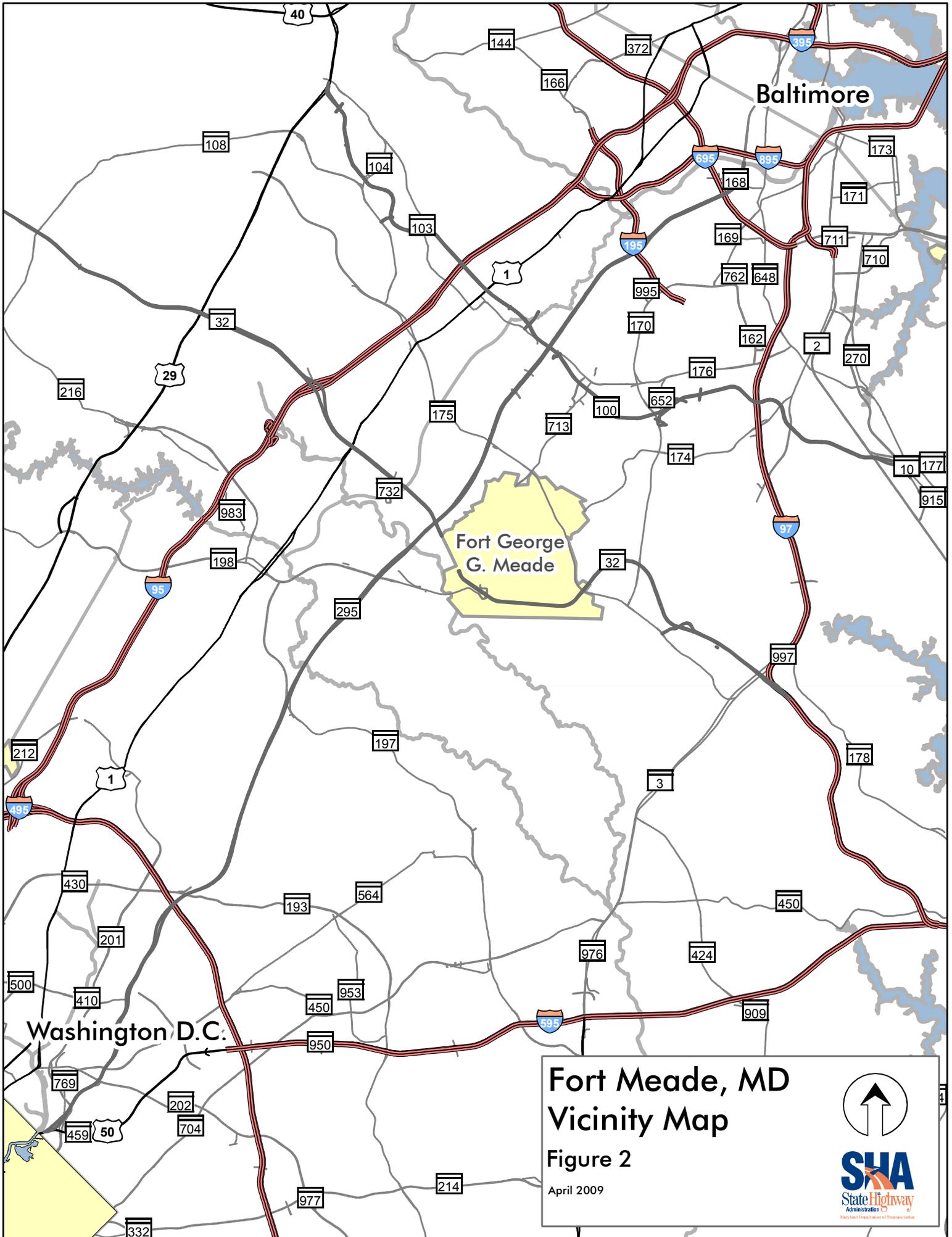
-  Access Controlled Freeway
-  Enhanced Use Lease Property
-  Existing Gates
-  FGGM Property

Fort Meade, MD
Existing Gate Locations

Figure 1

April 2009



**Fort Meade, MD
Vicinity Map**

Figure 2

April 2009



Maryland Department of Transportation

Defense Access Roads Needs Report

Fort George G. Meade (FGGM)

Page 2 of 9

MD 175 – Existing conditions

MD 175 is functionally classified as an Urban Minor Arterial on the Federal Functional Classification System. Through the FGGM area, the existing typical section varies between a two-lane undivided roadway and a five-lane undivided roadway. Table 1 summarizes the existing roadway characteristics throughout the corridor by segment including typical section, speed, number of lanes and median type. From Rockenbach Road to just east of Reece Road, MD 175 is on property owned by FGGM (i.e. the MD State Highway Administration does not own any right-of-way along this portion of MD 175).

Table 1
MD 175 - Existing Roadway Conditions

Intersection of MD 175 and (from west to east)	Typical Section	Speed	Lanes	Median Type
MD 295 to Rockenbach Road	Undivided	45	2	None
Rockenbach Road to 26 th St.	Divided	45	5	Center Turn Lane
26 th Street to Reece Road	Undivided	45	2	None
Reece Road to MD 32	Undivided	45	5	Center Turn Lane
MD 32 to MD 170	Undivided	45	4	None

Current BRAC Related Projects Underway in the Ft. Meade Area

▪ ***Long-Term***

- The Maryland State Highway Administration (SHA) is conducting a project planning study for improvements to MD 175 from MD 295 to MD 170. This project will identify improvements needed to adequately address forecasted traffic volumes for the year 2030. The impacts and costs associated with these improvements are quite extensive, thus it may be some time before they can be implemented. The project is funded for project planning only. Project planning is expected to be completed in the Spring 2010. Until the ultimate improvements can be built, the selected alternative will provide a blueprint for future SHA and local capital projects, as well as developer projects. The total estimated cost for the recommended improvements is over \$500 million dollars.

Defense Access Roads Needs Report

Fort George G. Meade (FGGM)

Page 3 of 9

▪ **Short-Term (Projects needed by 2011)**

➤ Concurrent with the Project Planning study, SHA is developing intersection improvements at key locations along MD 175 in the Ft. Meade area. The intersection improvements, which could be implemented within 2-3 years provided all the necessary funding is available, are needed to address the more immediate impact resulting from BRAC related growth at Ft. Meade. Design is currently underway for the six highest priority intersections:

- **MD 175 at Rockenbach Road***
- **MD 175 at Mapes Road**
- **MD 175 at Reece Road**
- MD 175 at 26th Street*
- MD 175 at Max Blobs Park Road / Clark Road**
- MD 174 at Severn Road

* Note that DAR funding is not being sought specifically for improvements at 26th Street. However, due to the close proximity of Rockenbach Road and 26th Street, improvements at these intersections need to be designed and constructed as one project.

**Improvement to be provided by developer.

- The total estimated cost of the priority intersection projects outlined above (excluding the developer project) is approximately \$74 million, including design, right-of-way acquisition and construction. Of the total estimated cost, approximately \$39 million remains unfunded.
- Design for each of the intersection projects is nearly 35% complete. Provided funding were to be available, all of these intersections could be implemented by Fall 2011.
- It is important to note that the intersection projects listed above are independent of the Project Planning Study described on Page 2. The intersection improvements are intended to address short-term safety and capacity needs resulting from BRAC related traffic growth. The longer term improvements associated with the Project Planning study (design year is 2030) have extensive cost and impacts associated with them and likely will not be implemented for some time without a significant amounts of new funding made available.

Proposed DAR Improvements

While all of the intersection projects listed above are needed, given their location in front of the installation gates and degree of traffic impact resulting from the BRAC action at Ft. Meade, there is a consensus among Ft. Meade, County and SHA staff that the top three intersection projects, as highlighted above and described on the following page, are the highest priority of all the needed improvements to the State roadway network surrounding the installation.

The three priority intersection projects along MD 175 will improve traffic operations and safety by adding intersection capacity as well as improving bicycle and pedestrian accommodations. Through the extent of each of the respective projects, new and upgraded ADA compatible sidewalks will be installed along with a 4-foot bicycle compatible shoulder along MD 175. The operation of the intersections will also benefit from new and optimized traffic signals. The following is a brief description of each of the three priority intersection projects:

Defense Access Roads Needs Report

Fort George G. Meade (FGGM)

Page 4 of 9

MD 175 at Rockenbach Road/Ridge Road (MD 713); MD 175 at 26th Street / Disney Road:

Due to the close proximity of these intersections (*1000' feet*), it is critical that their operations be compatible with each other. Improvements at one intersection necessitate certain improvements at the other. For this reason they are being designed as one project.

- At Rockenbach/Ridge Road (MD 713), MD 175 will be widened to accommodate double left turns and exclusive right turn lanes in the eastbound and westbound directions. Ridge Road will be widened by one lane to accommodate a second through lane onto Rockenbach Road. The widening of MD 175 at Rockenbach continues to Disney Road so that vehicles will not encounter a bottleneck over this short distance. (*See figure 3*)

The improvement described above provides an additional three lanes of traffic approaching the Ft. Meade gate from MD 175. This includes the additional left and right turns from MD 175, as well as an additional through lane on Rockenbach Road / Ridge Road (MD 713) approaching the gate.

- At 26th Street/Disney Road, MD 175 will be widened to accommodate a double left turn lane in the eastbound direction and double through lanes in both directions. Also, MD 175 will have an additional right turn lane westbound. Disney Road will gain an additional receiving lane northbound. (*See Figure 4*)

MD 175 at Mapes Road / Charter Oaks Boulevard:

The roadway improvements proposed for MD 175 at Mapes Road include widening along each leg of the intersection, exclusive left and right turn lanes on MD 175, and a 4-foot bike compatible shoulder.

On the Fort side of the intersection, the proposed improvements include a second left-turn from westbound MD 175 to the base entrance, an exclusive right from eastbound MD 175 to the base entrance, and a free right exiting the base from Mapes Road onto eastbound MD 175. (*See Figure 5*)

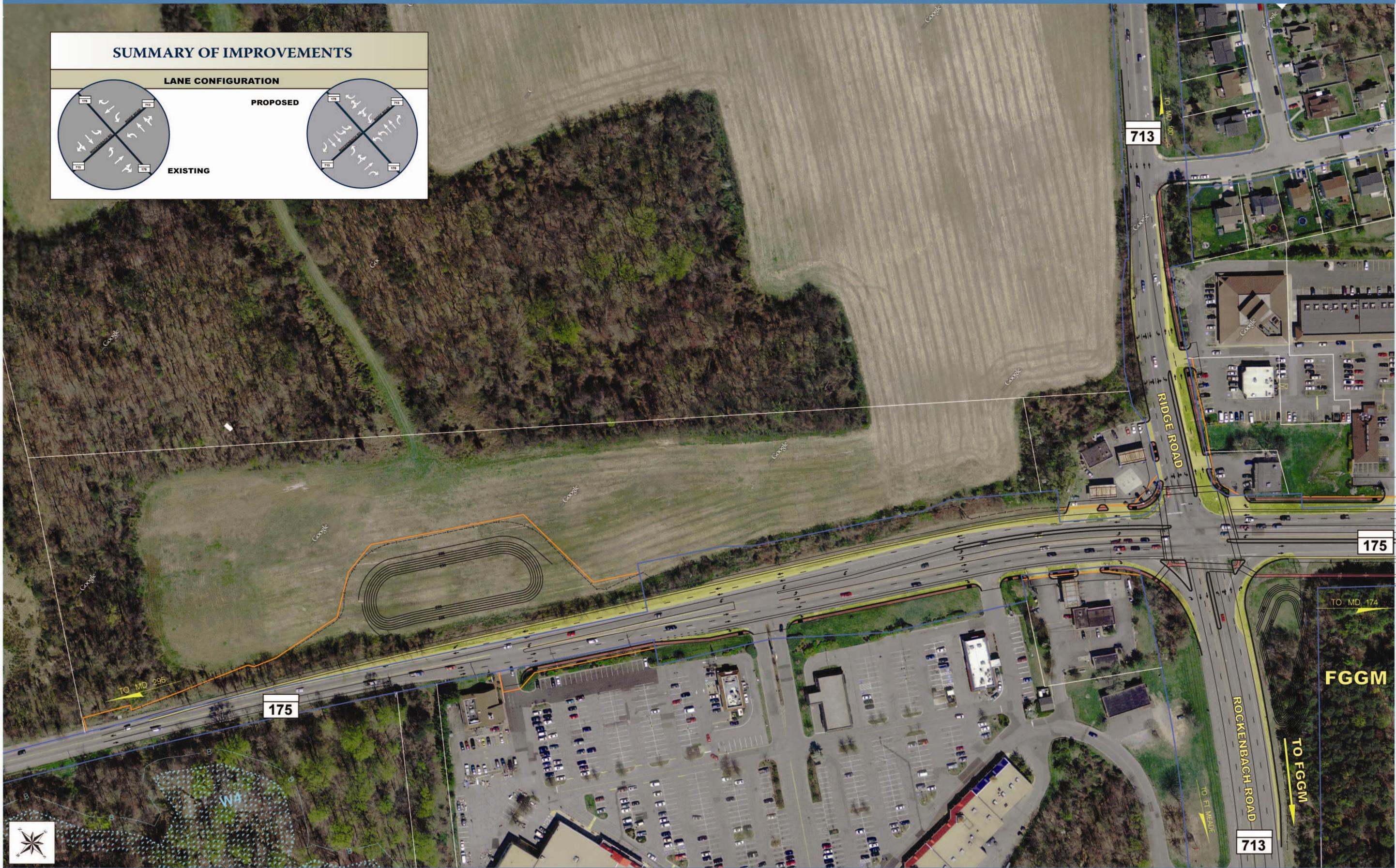
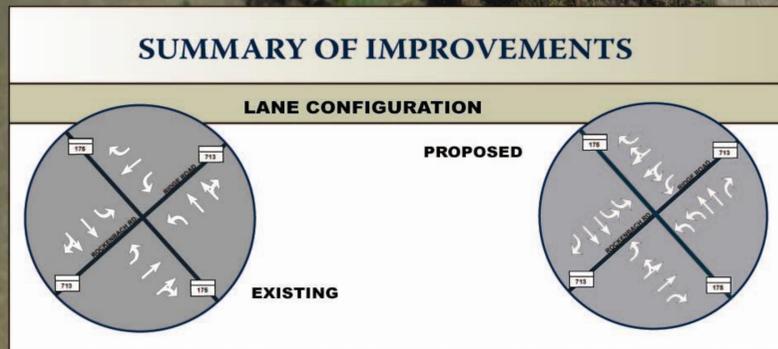
MD 175 at Reece Road:

The roadway improvements proposed for MD 175 at Reece Road are very similar to those described for MD 175 at Mapes Road. They include widening along each of the intersection approaches, exclusive left and right turn lanes on MD 175, and a 4-foot bike compatible shoulder. Approaching the Fort, an exclusive right from eastbound MD 175 to the base entrance is proposed. (*See Figure 6*)

Figures 3 thru 6 on the following pages depict the proposed improvements described above.

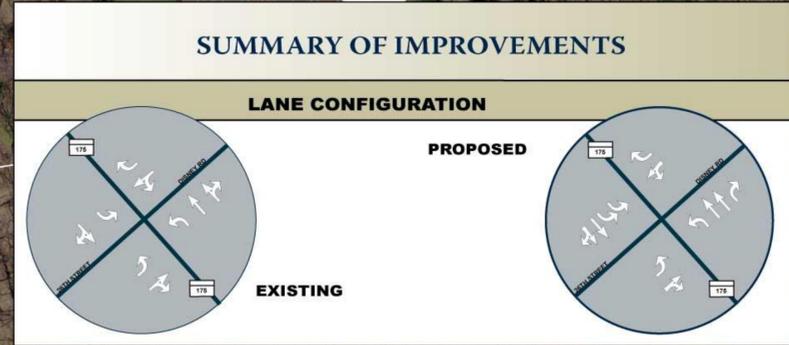
BRAC INTERSECTION IMPROVEMENTS

MD 175 (Annapolis Rd.) at MD 713 (Rockenbach Rd.), Anne Arundel County, MD



BRAC INTERSECTION IMPROVEMENTS

MD 175 (Annapolis Rd.) at Disney Rd. / 26th St., Anne Arundel County, MD



Full Depth Pavement

Sidewalk

Proposed Roadway

Proposed ROW

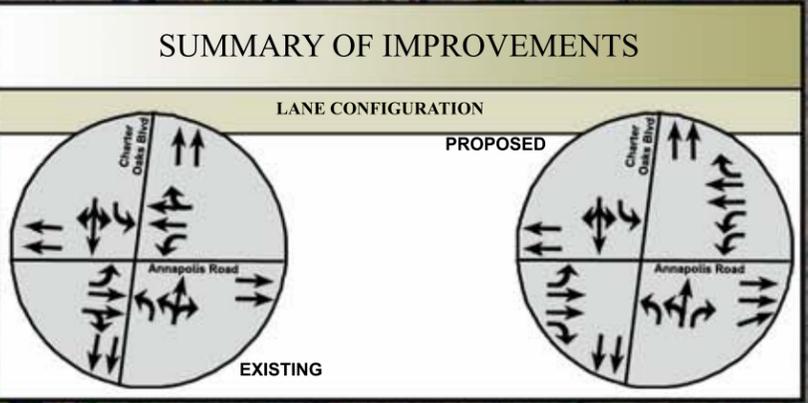
Existing ROW

Existing Property Lines



BRAC INTERSECTION IMPROVEMENTS

MD175 (Annapolis Rd.) at Mapes Rd. / Charter Oaks Blvd., Anne Arundel County, MD



Charter Oaks Blvd

St. Michaels Circle

Annapolis Road

Mapes Road

FGGM

Potential SWM Pond

Potential SWM Pond

Potential SWM Pond

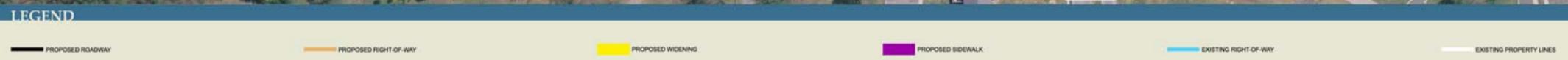
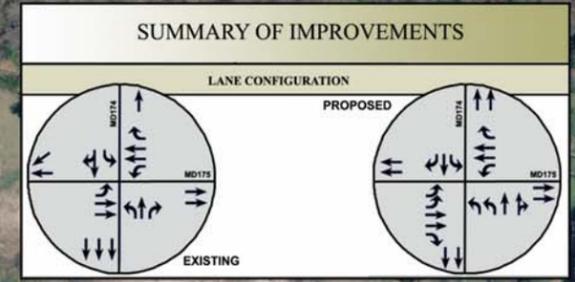
LEGEND

- PROPOSED ROADWAY
- PROPOSED RIGHT-OF-WAY
- PROPOSED WIDENING
- PROPOSED SIDEWALK
- EXISTING RIGHT-OF-WAY
- EXISTING PROPERTY LINES
- R POTENTIAL RELOCATIONS FOR BRAC SHORT-TERM IMPROVEMENTS



BRAC INTERSECTION IMPROVEMENTS

MD175 (Annapolis Rd.) at MD174 (Reece Rd.), Anne Arundel County, MD



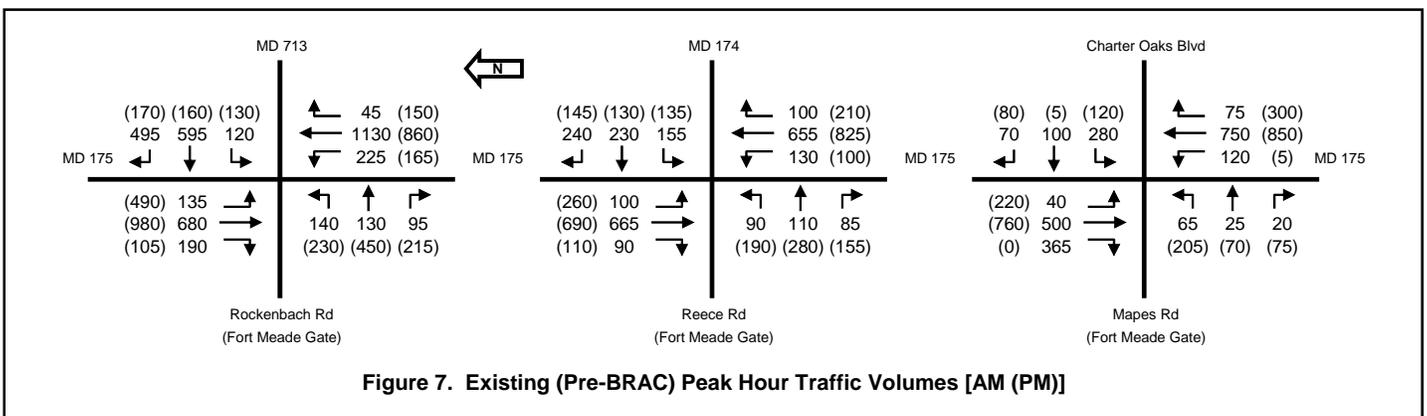
Defense Access Roads Needs Report

Fort George G. Meade (FGGM)

Page 5 of 9

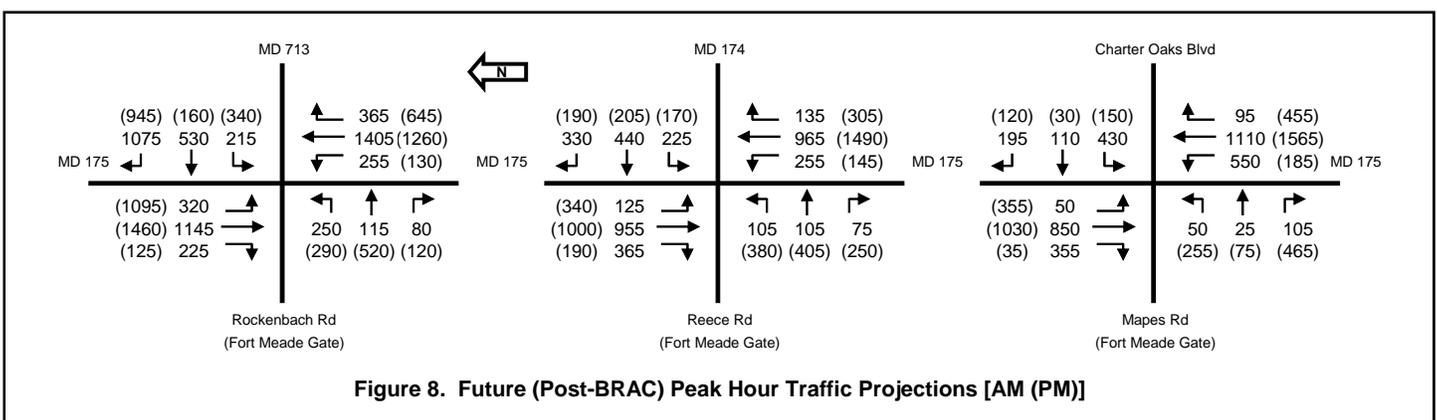
Existing (Pre-BRAC) Peak Hour Traffic Volumes and LOS

SHA has developed a balanced set of traffic volumes for existing (pre-BRAC) conditions for the study area surrounding FGGM using traffic count data collected in 2005. Figure 7 shows the resulting year 2005 AM and PM peak hour traffic volumes for each of the three priority intersections. These volumes were used to determine the existing “Level of Service” at each location. Level of Service (LOS) is a qualitative measure of the traffic operations at an intersection that assigns a grade ranging from “A” (best) to “F” (worst). Table 2 on the following page shows the existing LOS for each intersection during the typical AM and PM peak hours. The results of the analysis indicate that all locations operate under capacity (LOS E or better) under pre-BRAC conditions.



Projected (Post-BRAC) Peak Hour Traffic Volumes and LOS (includes EUL)

SHA has also developed future traffic forecasts for the three study intersections based on data from the regional travel demand forecasting model. The forecasts reflect regional growth through the year 2015 for the purposes of design, including proposed Enhanced Use Lease (EUL) development outside the Fort’s gates, but the traffic projections for movements into and out of Fort Meade represent year 2011 (post-BRAC) levels. Figure 8 shows the resulting post-BRAC AM and PM peak hour traffic forecasts for the three priority intersections.



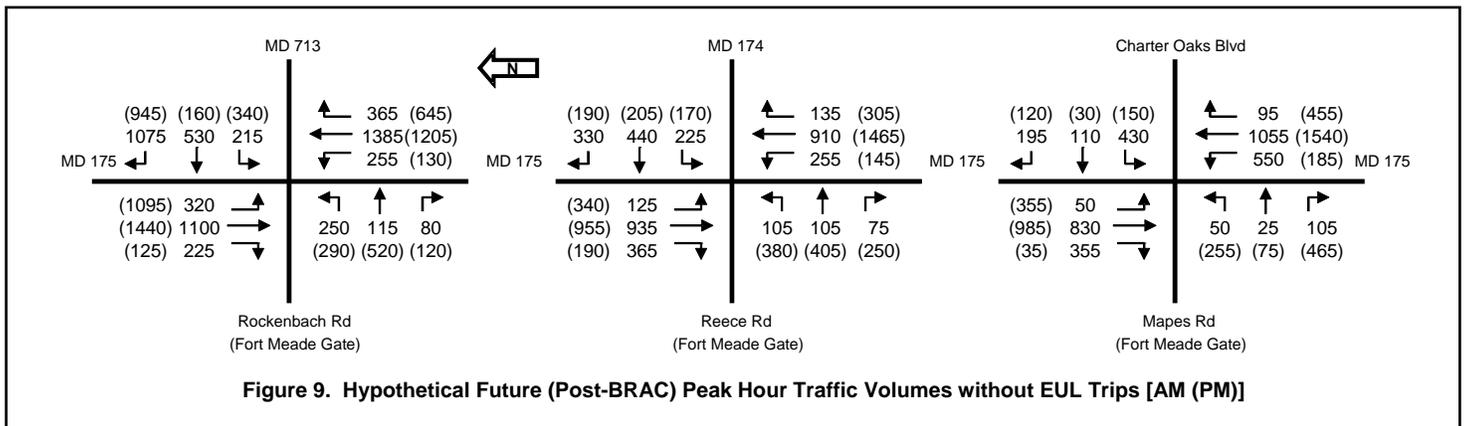
Defense Access Roads Needs Report

Fort George G. Meade (FGGM)

Page 6 of 9

Projected (Post-BRAC) Peak Hour Traffic Volumes and LOS (without EUL)

To isolate the impact of BRAC traffic without EUL development, Figure 9 below illustrates a hypothetical post-BRAC scenario with the trips generated by the EUL development removed. The hypothetical volumes presented in Figure 9 are shown for informational purposes only. The results indicate that the EUL has a very minor near-term impact on the study intersections compared to BRAC, since BRAC will be completed by 2011 and the EUL is not expected to start phased construction until 2015. It should be noted that all designs and analyses of post-BRAC conditions were based on the forecast volumes presented in Figure 8, which include the combined impacts of BRAC and EUL.



A comparison of the existing (pre-BRAC) traffic volumes to the future (post-BRAC) volume projections developed by SHA indicates that the following movements are projected to double in traffic during the AM and/or PM peak hours:

- Right turn from southbound MD 175 to westbound Reece Road (AM peak)
- Left turn from eastbound Reece Road to northbound MD 175 (PM peak)
- Right turn from eastbound Mapes Road to southbound MD 175 (AM and PM peak)
- Left turn from northbound MD 175 to westbound Mapes Road (AM and PM peak)

Additionally, the right turn from southbound MD 175 to westbound Rockenbach Road is also expected to double in traffic based on data collected for an independent traffic study prepared by Fort Meade. It's important to note that all of the movements noted above which are expected to experience a doubling of peak hour volumes in the post-BRAC condition represent traffic that is either entering or leaving the post gates.

The projected LOS of each intersection was calculated based on the post-BRAC traffic forecasts prepared by SHA. The results indicate that, as a result of the forecasted traffic growth, all three intersections are projected to operate at failing (LOS F) conditions during both the AM and PM peak hours under a No-Build scenario. The proposed improvements recommended by SHA are expected to improve the post-BRAC operations at the three study intersections to LOS E or better during all peak periods, with the exception of MD 175 at Rockenbach Road during the PM peak hour.

Defense Access Roads Needs Report

Fort George G. Meade (FGGM)

Page 7 of 9

The proposed improvements at MD 175 and Rockenbach Road were scaled back compared to the long-term alternatives proposed as part of the MD 175 Project Planning Study, which will require the acquisition of three businesses at this intersection. Given the schedule and budget of the short term BRAC intersection program, it was not feasible to implement the full, ultimate desired widening at this intersection. Although it is projected to operate at LOS F during the post-BRAC PM peak hour, the Build condition this intersection still represents a significant improvement over the No-Build condition (a 30% reduction in volume-to-capacity ratio and a significant decrease in projected average vehicle delay through the intersection). As noted, more extensive, longer term improvements for this intersection are being planned as part of an on-going Project Planning Study for MD 175 between MD 295 (Baltimore –Washington Parkway) and MD 170 (discussed on page 2). Table 2 shows the existing (Pre-BRAC) and projected (post-BRAC) LOS for each intersection during the typical AM and PM peak hours.

Table 2. Existing and Future Level of Service (LOS) and Volume-to-Capacity Ratio (V/C) at Study Intersections

Intersection	Existing (Pre-BRAC)		Future (Post-BRAC) No-Build		Future (Post-BRAC) Build	
	AM	PM	AM	PM	AM	PM
MD 175 at Rockenbach Rd	E (0.95)	E (0.96)	F (1.36)	F (1.66)	E (0.98)	F (1.17)
MD 175 at Reece Rd	B (0.69)	C (0.81)	F (1.20)	F (1.47)	C (0.80)	E (0.97)
MD 175 at Mapes Rd	A (0.57)	C (0.74)	F (1.04)	F (1.32)	C (0.78)	E (0.99)

Defense Access Roads Needs Report

Fort George G. Meade (FGGM)

Page 8 of 9

Estimated Cost / Funding

The total estimated for the proposed DAR intersection projects is \$68.1 million. Table 3 presents the estimated cost at each intersection:

Table 3 – Estimated Costs (\$millions)

Proposed DAR Intersection Project		Design	Right of Way	Construction	Total
#1	MD 175 @ Rockenbach Road MD 175 @ 26 th Street	1.1	8.7	18.9	*28.7
#2	MD 175 @ Mapes Road	1.2	1.0	14.5	16.7
#3	MD 175 @ Reece Road	3.3	0.3	19.2	22.8
Total Estimated Cost for Proposed DAR Projects					\$68.2

**Of the \$28.7 million estimated cost for this project, approximately \$7.5 million can be attributed to improvements needed at the MD 175 / 26th Street intersection. Note however that, due to their close proximity, improvements at these two intersections must be developed as one project.*

Funding

- The Maryland Department of Transportation's (MDOT) current six-year capital program, the Fiscal Year 2009 – 2014 Consolidated Transportation Program (CTP) includes a total of \$31.6 million in funding for all the needed intersection improvements in the Ft. Meade area, including the proposed DAR intersection projects. If all of the currently programmed funds, as well as a \$3.1 million appropriation in the FY 2009 omnibus bill, were applied to the proposed DAR intersection projects, **\$33.5 million of the total estimated cost would remain unfunded.**

Table 4 – Unfunded Costs (\$millions)

Total Estimated Cost of Proposed DAR Improvements		68.2
Current Funding Level		34.7
FY 2009 – 2014 CTP	31.6	
FY 2009 Federal Appropriation (Ominbus)	3.1	
Total Unfunded Costs for Proposed DAR Projects		\$33.5

- The nationwide economic downturn has had a considerable impact on revenue projections for both the State of Maryland and MDOT. Traditional revenue sources, including vehicle titling and motor fuel taxes are markedly down, and consumers are shifting away from purchases of SUVs toward smaller, less expensive and more fuel-efficient vehicles. While these trends are positive in a number of respects, including transportation's impact on the environment, they have also resulted in a significant reducing in revenue available for transportation programs.

Defense Access Roads Needs Report

Fort George G. Meade (FGGM)

Page 9 of 9

- In Maryland, all of these factors have combined to create a loss of approximately \$350 million a year in projected revenue for the Transportation Trust Fund. The annual loss is comprised of approximately \$220 million in titling tax revenue, \$45 million in gas tax revenue, and \$85 million in losses from other revenue sources.
- These economic forces have served to undermine MDOT's ability to support its planned capital program and resulted in significant project deferments throughout the state. As safety and system preservation are the state's top priorities, scarce resources are duly committed to serve such preservation efforts.
- The limited funding presently available for critical BRAC-related intersection improvements detailed herein is clearly inadequate. While it is an accomplishment to have arrived at the current level of project design given such a challenging fiscal environment, it is clear that **additional funding sources, such as the DAR program, will be necessary to implement these key improvements aimed at supporting Fort Meade and the important work it performs.**

Recommendation

It is recommended that DAR funding be provided to support advancement of the three highest priority intersection projects along MD 175 at Ft. Meade:

- MD 175 at Rockenbach Road
- MD 175 at Mapes Road
- MD 175 at Reece Road

DAR funding will allow the Army to contribute financially to the development of these needed improvements, which will benefit FGGM directly in terms of providing adequate roadway access for the influx of traffic resulting from the 2005 BRAC action.